Atlantic States Marine Fisheries Commission

Atlantic Coastal Cooperative Statistics Program Coordinating Council

October 17, 2023
8:30 – 10:30 a.m.
Hybrid Meeting

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order *(J. McNamee)*   8:30 a.m.

2. Council Consent   8:35 a.m.
   • Approval of Agenda
   • Approval of Proceedings from August 2023

3. Public Comment   8:40 a.m.

4. Consider Approval of FY2024 ACCSP Project and Administrative Proposals   8:45 a.m.
   for Funding *(J. Simpson)* **Action**

5. Consider SciFish Policies for ACCSP's Citizen Science Mobile Application   9:30 a.m.
   (J. Simpson) **Action**

6. Program and Committee Updates   10:00 a.m.

7. Other Business/Adjourn   10:20 a.m.

The meeting will be held at Beaufort Hotel (2440 Lennoxville Road, Beaufort, North Carolina; 252.728.3000) and via webinar; click here for details

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

DRAFT PROCEEDINGS OF THE

ATLANTIC COASTAL COOPERATIVE STATISTICS PROGRAM

COORDINATING COUNCIL

Virtual Meeting

August 31, 2023

Draft Proceedings of the Atlantic Coastal Cooperative Statistics Program Coordinating Council – August 2023

TABLE OF CONTENTS

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

INDEX OF MOTIONS

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

ATTENDANCE

Council Members

Bob Beal, ASMFC
Patrick Keliher, ME
Renee Zobel, NH, proxy for C. Patterson
Dan McKiernan, MA
Jason McNamee, RI, Chair
Greg Wojcik, CT, proxy for J. Davis
Jim Gilmore, NY
Heather Corbett, NJ, proxy for J. Brust
Kris Kuhn, PA
Loren Lustig, PA
John Clark, DE
Carrie Kennedy, MD

Lewis Gillingham, VA
Brandi Salmon, NC
Mel Bell, SC
Kathy Knowlton, GA
Erika Burgess, FL
Martin Gary, PRFC
Brandon Muffley, MAFMC
John Carmichael, SAFMC
Max Appelman, NOAA
Richard Cody, NOAA
Dave Gloeckner, NOAA
Meredith Bartron, USFWS , proxy for R. Jacobson

Staff

Tina Berger
Alex DiJohnson
Ed Martino

Marisa Powell
Trevor Scheffel
Madeline Musante

Julie Defilippi Simpson
Geoff White

Guests

Story Reed, MA DMF
Michael Bucko, RI DEM
Francine Karp, Harborlights
Garry Glanden, DE DFW
Alan Bianchi, NC DENR
Jeff Moore, NC DEQ

Luiz Barbieri, FL FWC
CJ Sweetman, FL FWC
Rick Bellavance, NEFMC
Julia Byrd, SAFMC
Meg Withers, SAFMC
Rob Andrews, NOAA

Lauren Dolinger Few, NOAA
John Foster, NOAA
Sarah Lazo, NOAA

The Atlantic Coastal Cooperative Statistics Program Coordinating Council of the Atlantic States Marine Fisheries Commission convened via webinar; Thursday, August 31, 2023 and was called to order at 9:05 a.m. by Chair Jason McNamee.

CALL TO ORDER

CHAIR JASON McNAMEE: Hey Geoff, this is Jay. It looks like we're a couple minutes after nine. It looks like we've got a fair number of the Coordinating Council on here, but I'll wait for the thumbs-up from you to get the meeting going.

MR. GEOFF WHITE: We are thinking the same thing. I think we are good to go. As folks join in, I think we'll keep an eye on unmuting folks, so you can all self-mute. With that I want to say, thank you everybody for making the time to be here. Our meeting today is focused on presentation and discussion of several items, in preparation for this fall's October meeting, where things will likely come back to you for action. With that I will turn it over to Jay.

APPROVAL OF AGENDA

CHAIR McNAMEE: All right, thank you very much, Geoff, and welcome, everybody for this kind of check-in meeting of the ACCSP Coordinating Council. As Geoff just mentioned, we've got a couple things on the agenda today. But you can kind of think about today as a good prep meeting for the annual meeting in October.

The sort of the marquis item here is the SciFish discussion.   Just be aware that it's just a discussion today, so you are going to get a presentation.   You were issued the policy documents, but this is just a chance for you to hear directly from the SciFish Team, and start to think about the policies, think about this application.

Today is about asking questions, and if you are ready to give some feedback that's great, but also understand that we're going to come back in October as well. Just a really good opportunity to be nice and prepped up for getting the SciFish application over the goal line here. Why don't we get started with, we have an agenda.

Are there any additions, modifications to the agenda as it was published? If you do have any modifications, please raise your hand. Okay, I'm not seeing any hands

APPROVAL OF PROCEEDINGS

CHAIR McNAMEE: so why don't we move on then to the approval of the minutes from the May meeting. Are there any edits, additions, deletions from the May meeting minutes from anyone? If so, please raise your hand.

I'm not seeing any hands, so we will consider the minutes approved. Actually, I think I need to do a motion. I think I need to do a motion on both of these. Not seeing any hands on the agenda, are there any objections to approving the agenda as submitted? Please, raise your hand if you object to that. Not seeing any hands for the agenda, and same with the minutes. I did not see any hands for changing the minutes. Are there any objections from the Coordinating Council to approving the minutes as submitted? Please, raise your hand if so. Not seeing any hands, so we will consider the minutes approved by consensus as well. I think I got that.

PUBLIC COMMENT

CHAIR McNAMEE: That is not what this is for, but if you have anything new that you would like to bring before the Coordinating Council, please, raise your hand. Giving folks time to find the hand here, their virtual hand. I'm not seeing any, so we will consider that there are no public comments that need to be made, prior to us launching into the main agenda here.

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

**REVIEW AND DISCUSS SCIFISH POLICIES FOR
ACCSP'S CITIZEN SCIENCE MOBILE APP**

CHAIR McNAMEE: With that, the next agenda item is to Review and Discuss the SciFish Policies for ACCSPs Citizen Science Mobile Application. I am going to turn it over to Julia Byrd to kick us off here, but I think they will be swapping presenters in as they go along. Julia, whenever you are ready, please feel free to take it away.

MR. WHITE: Thank you, Jay. One moment while I switch presenters. Julia, you now have the ball.

MS. JULIE DEFILIPPI SIMPSON: Geoff, while Julia pulls up our presentation, I'm doing the introduction, so I'm just going to jump right in.

MR. WHITE: Julie, go right ahead, thank you, and I see the SciFish screen now, so you guys are all set.

MS. SIMPSON: Okay, great. Thank you, everyone. I just wanted to do a brief background before Julia jumps into her presentation, and talk a little bit about the SciFish, how the SciFish project became part of the ACCSP RFP. As Julia goes through her project, you'll see that the South Atlantic Council built an application called Release, and then North Carolina also built a project, and theirs is called Calculator.

I think with great wisdom, those two partners realized that they were very, very, very, very similar applications, and that this was an opportunity to prevent stovepipes, and to help out all partners. They were able to bring this to the ACCSP RFP and this is a project that has been funded for three years ongoing, where a number of workshops were held and other things that Julia will go over.

But over the three years of this project, the ACCSP has funded this, so that we can get to where we are today and have something that is available for all the partners. Before we get started, I just wanted to put out a kudos to those two partners for having the foresight to avoid the stovepipes early on in the process. I'll turn it all over to Julia now to get into the presentation.

MS. JULIA BYRD: All right, thanks, Julie. Good morning, everyone. For those folks who I haven't had an opportunity to meet, I'm Julia Byrd, and I am the Citizen Science Program Manager for the South Atlantic Council, and really excited and appreciate the opportunity to share information from kind of the SciFish Platform, and the policies and procedures that we've been developing. Looking forward to getting feedback from you guys.

Before getting into the presentation itself, I first wanted to give a quick shoutout and a thank you to all of the folks who serve on our SciFish Organizing Committee. They are kind of listed on the screen here, and as Julie mentioned, this was a kind of a partner project with North Carolina DMF and the South Atlantic Council.

But we've been really lucky to have representatives from many of the other ACCSP partners contributing to the development of the SciFish platform into the policies that we'll be going over today. Many of these folks have been working on this for over three years, and so they've played a really valuable role in the development of this platform.

I think it's been a real benefit to have so many partners contributing to this project. I think what we're going to end up with is a really useful, valuable tool that all of the ACCSP partners will be able to use. Before getting into the policies themselves, I just wanted to give kind of a little background.

Julie did a great job of introducing the initiation of SciFish. But I wanted to provide a little bit of background on the project, and what we're actually trying to do, and the reason for its development, before getting into the policies themselves. As many of you guys know, Citizen Science can be a really powerful tool, and can help us better understand marine fish populations.

In the past few years, it seems like there is this growing interest in seeing if Citizen Science can be used to supplement marine fisheries data collection, particularly in the recreational sector. With that in mind, that led the South Atlantic Council, North Carolina and ACCSP to partner to develop SciFish, which is this new Citizen Science mobile application and project builder that is going to support the capture and sharing of information of fish along the Atlantic Coast.

As an effort to develop SciFish really got underway in kind of mid-2020, and the long-term goal of Sci-Fish is we really want to develop a Citizen Science mobile application, and a menu driven project builder that partners along the Atlantic can use to easily create a customizable application, kind of on the fly, by selecting from specific preidentified data fields, without the need to develop stand-alone applications for each new project or data needs. Trying to not stovepipe things, as Julie alluded to earlier.

The idea is that SciFish would act as a kind of umbrella act that can have multiple projects. A lot of times when we describe SciFish to folks, is you can think of, we use a game console analogy. You can think of SciFish as the Atari or the Play Station, and then the individual projects are like the individual games, your Donkey Kongs, your Froggers, your Pitfalls, that sort of thing. Some of the main reasons we were really interested in developing SciFish is,

we really thought having this kind of umbrella app would help reduce the cost needed to develop individual applications, and it could also reduce the time needed to build an application from the ground up. Also, one of the most important things we wanted to do is try to increase the consistency in the data fields and structures. If there were multiple projects that were collecting the same type of data, it would be done in a standardized way.

That in particular seems to be increasingly important, as a number of fisheries apps are growing, and there is this growing interest in using Citizen Science for marine fisheries. As Julie mentioned, this started as a partner project, and we've been really lucky to have three years of funding. We've kind of broken the development of this project into three phases.

The first phase, as Julie mentioned earlier, the South Atlantic Council had this app called Release. North Carolina had this app called Calculator. Phase 1 was really trying to kind of combine those apps under the SciFish umbrella. In addition to doing that in Phase 1, we also held a series of SciFish scoping meetings back in the spring of 2021, with folks from our Atlantic kind of fisheries community.

We had over 23 organizations across 15 states that provided feedback to us during these scoping meetings. At these meeting, really what we tried to do is better understand how SciFish could fit the needs of our fisheries communities, and so are more able to get a ton of input across most partners through that kind of scoping meeting process.

Phase 1 was complete in around mid-2021, we started on Phase 2. Phase 2 was where we actually kind of launched SciFish with the Release and Calculator projects. We expanded the species we were collecting information in Release, and then we started to develop this kind of project builder prototype, and again, laying the groundwork for policy development.

One of the things that we heard as we went through our scoping meetings back in 2021 is the need to develop policies and procedures for developing projects within SciFish, so folks couldn't come in and kind of build a project kind of willy-nilly, but there was kind of a process in place to try to give projects their best chance of success.

Phase 2 ended, we wrapped that out in kind of mid-2022, and now we're working on Phase 3. Phase 3 was really about kind of developing the SciFish policies and procedures, and then finishing that project builder prototype, for bringing kind of two new projects in to help test the project builder.

Another one with North Carolina in their tagging program, and then also a group from the University of New England, who is collecting information on striped bass. Today what we're really concentrating on is sharing information with you guys on the policies and procedures we've developed for SciFish, and getting kind of some initial feedback from you guys on what we've done.

Moving into the policies. First, big picture. The vision for SciFish, again is to create this Citizen Science mobile application that encourages and supports the capture and sharing of data on the Atlantic Coast fisheries. The overall mission of SciFish is we really want to try to standardize the collection of citizen science data along the Atlantic Coast fisheries. We want to provide a single platform for multiple data collection projects. We want to provide this flexible project builder, so you are able to create new data collection projects within the platform for minimal resources.

Then we want to make sure we're providing access to data that support fisheries management and assessment. The overall administration of SciFish will be through ACCSP.

Once this kind of partner project wraps up, SciFish will be handed off to them, and they will be responsible for managing and maintaining the application and project builder, and also all of the data from SciFish goes into ACCSPs Data Warehouse.

As far as kind of oversight for this new SciFish Platform, we're recommending that kind of a new group be formed, a new committee within the ACCSP, and we are calling them the SciFish Advisory Panel or SAP. This new group would be responsible for drafting and recommending any SciFish policy updates.

They would oversee and implement the SciFish Application process, which we'll talk about in a few minutes, and then they will also coordinate and review, SciFish project updates. As far as membership of the SAP group, we're recommending that it be comprised of individuals that have citizen science experience, and are recommending that it includes one representative from each of the following categories.

From each region, a federal, state, agency and council representative. Representatives from the Coordinating Council, the Operations and Advisors Committee, and then also has an ACCSP staff member. When we were talking through this, we think that one individual may represent more than one category.

You can have someone from the Southeast who is also a state agency rep, so one person could cover more than one of these categories. Then I think another thing that is important to point out is, as far as the ACCSP staff members involvement. We feel like it would be best for this person to be a full participant, a full-fledged panel member, not just a liaison, as they are with some of the other technical committees.

The reason for this is although there is no money being provided through SciFish, so it is very

different than the RFP/ACCSP process. But SciFish is a tool that will use ACCSP resources, so we feel like a staff member should be a full participant, and contribute to recommending projects for approval to be built within the SciFish platform.

Overall, our approach to project development within SciFish is we really want to support projects that collect data for marine or diadromous fish along the Atlantic Coast. We want to make sure that projects are filling data gaps or data deficiencies, and addressing identified research needs.

We want to make sure there is intentional design so it is clearly articulated how data collected through our project could be used to inform management or assessment. We really want to encourage collaboration between fishermen and scientists in the development and implementation of projects. As far as who can develop projects in SciFish, we're recommending that projects must have an ACCSP partner as a principal investigator or PI, or they must be sponsored by an ACCSP partner. Partner/sponsor, would provide a letter of support and outline a plan to monitor the progress of a particular project.

The reason we kind of felt it was important to have an opportunity for sponsorship, because it provides a way for partners to support or endorse a SciFish project that is going to further fisheries management, but that they may not have the capacity to undertake right now. To develop a project within SciFish, we've developed a two-step application process.

Before getting into that, I do want to note that PIs will be responsible for acquiring funding for projects. If you go through this application project and your project is approved to be built in SciFish, it doesn't include any monetary support. That is something that the PI must

acquire on their own. It's going through this application process to start using the SciFish platform and tool.

The application process, the first step is that PIs would submit a preapplication, and the preapplication would be reviewed by that new group called the SAP or the SciFish Advisory Panel. Then if review criteria were met for the preapplication, PIs would be invited to submit a full proposal.

Then the full proposals are reviewed by the SAP, and if the review criteria are met, then the PIs would be given access to SciFish, and they would initially build their project within the evaluation version of SciFish, and then it would move into production. We have preapplications laid out to be accepted four times a year, in April, June, October and December, and then full applications would be accepted twice per year in February and August.

We tried to lay out the timing of this, so full applications would be complete before RFPs become available in the spring and the fall. Both the preapplication and full applications themselves are built in survey monkey, so submissions for this would all be online. Next, we wanted to talk a little bit about the preapplication and full application.

We'll start here with the preapplication. The preapplication asks PIs to provide information on the topics laid out on the screen here. Who are your project collaborators, what are the goals of the project, what specific data gaps or research questions are you trying to address? We want kind of a brief overview of the methodology that will be used, including why the PI feels this project is appropriate for a citizen science approach.

We want to know what data fields they are planning to collect, what they think the anticipated outcome of the project is, and then a little bit of information on timeline and budgets. As I mentioned earlier, we're not giving away any kind of funding through

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

5

this application process, but we just want some general information on budgets.

How much do you think the project is going to cost? Do you have funding for it? If you don't have funding for it, where are you looking to get funding for it? To help PIs develop preapplications and their full applications, I wanted to note that we have put together in the policies an appendix that has citizen science project development resources. An example of one of these resources is on the screen here, and as many of you guys know, citizen science is just kind of one tool in the fisheries management tool box that can help with data collection and building and strengthening relationships, and trust and things like that. But citizen science isn't necessarily a good fit for all projects. What we've tried to do is provide some resources that will help determine if citizen science is a good fit for your project.

For example, as we've been talking through this on our organizing committee, some of the things we've been thinking about are things like the importance of engagement for citizen science projects, the need to have a simple protocol, and kind of strong motivation for your participants to want to collect information, are some examples of what may make a good citizen science project.

These appendixes, the appendix has kind of this table, lots of other resources to help you figure out if citizen science is the right approach, and if so, how we can build a project to give it it's best chance of success. Once the PI submits their preapplication, then the SAP, the SciFish Advisory Panel will review that preapplication.

The review criteria for the preapplication are really, first did they include all the sections within the preapplication? Was it complete? Then the two things that we're really looking for, other than completeness are, does the

project address how the data could be applied to assessment and management, and they need to explain why this project is a good fit for citizen science.

Preapplications that meet that criteria are invited to submit a full application. If a preapplication doesn't meet the criteria, they will receive feedback from the SAP, and then be encouraged to apply at the next preapplication deadline. Moving on to the full application. There are a number of topics that were asked for information on the preapplication that we're asking for more information in the full application.

The reason for these repeated topics is because in the full application we're asking for a fair amount of more detail. In the full application we have those repeated topics, and then we're also asking the PIs to address some new topics as well. Those include things like data use, have you spoken with either the managers or scientists that you're hoping to use the data collected through your project? Are you consulting with them? Do you have a data management plan?

Although the data from SciFish projects will go into the data warehouse, individual project managers are responsible for the QA/QC of their own projects. We want to know about a volunteer training plan that they are planning to have in place, the communications plan specifically for kind of recruitment and retention, their volunteers.

We want to know what metrics or criteria they are planning to use to evaluate their project, and then also we want to know if there are any risks associated with the projects, and how those risks can be mitigated. Again, once this full application is submitted online, the SciFish Advisory Panel will review those full applications.

Then some of the key criteria that they will be reviewing the applications for are listed out on the screen. You know, does the project address the

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

6

data gaps. Is the anticipated use or outcome of the project of value to the partners and to the industry? What is the technical merit of the project? Is it a good fit for citizen science? Did you have a clear data management plan? Do you have a clear volunteer training plan? What is your plan for participant engagement and evaluation metrics?

For each of these review criteria, an SAP member will be ranking your project between 1 and 5, with 1 being I don't recommend this project for development in SciFish at this time, the 5 being excellent, we want this project to be built in SciFish. Scores for each of the criteria will be averaged across SAP members, and then projects that receive an average for less than 3 in any of the criteria will not be approved for development within SciFish at this point.

The SAP members will provide feedback on the application in that case, and encourage the PI to resubmit their full application at the next deadline. Once someone goes through the application process, the next step is they'll be able to use the project builder to build their project under the SciFish umbrella.

I'm going to switch gears a little bit, and talk a little bit about the SciFish project builder. Fran Karp with Harbor Light put together a really awesome video that kind of walked through how to build a project within the project builder. If you haven't had a chance to review that yet, I would encourage you to do so. It's really cool, and really incredible to see this idea that started in our heads three years ago come to fruition.

It's amazing to see how you can use the project builder to build a project within the SciFish App, you know within 10 or 15 minutes. I think Geoff and crew will be sharing this presentation afterwards. There is a link on this slide that will

take you to that video, if you haven't had a chance to see it yet.

What I wanted to do is just walk through a few features of the project builder, that I wanted to make sure to point out to you guys. When I'm hearing this on the screen, on the left-hand side of the screen is the actual project builders and on the right-hand side of the screen is what it looks like in the SciFish App.

Right now, you see pulled up on the app kind of our Release project. When you get into the project builder, the example that Fran does in the video, she's building a new project called It's a Fluke. When you go into the project builder there are five sections that you will customize for your project.

First is the home page, where you will choose the command buttons and what you want to appear on the home page when someone opens your project. The records help you define the data fields that you'll be collecting. The about section allows you to customize information about your project that you might want to share with your participants.

The navigation menu helps you configure if you want to include any social media links or links to your website within the project. Then the branding piece lets you customize the colors of your project, so it will look different than the other projects within the SciFish App. The first thing I wanted to point out is just I am going to zoom into a screenshot from Fran building in the records field. One of the things that we really wanted to make sure that we're doing, as we build SciFish and incorporate new data fields into SciFish is to make sure when ACCSP standards exist that we're using them. This is an example of Fran was adding species to the It's a Fluke Project in the video she put together.

As you pull this up, you can see that ACCSP had a species list pulled up, and so you are automatically using ACCSP standards for species. You can pick

which species you want to include in your project, but you're pulling from that standardized list. Again, this is one of the most important things we wanted to make sure that if ACCSP standards exist for a data field, that that is what we're using in those project builders.

The next thing I just wanted to chat a little bit about, because I know there have been a number of partners who have reached out to us about SciFish, and one of the things that they are really interested in, in making sure that their project may have a different look or feel from other projects. Harbor Light built in this kind of branding piece, where you can change the coloration, so your project can have a different skin, and look different than other projects.

In the example that Fran built, for the It's a Fluke project, she gave it kind of a Barbie's colored theme, just to make it kind of stand out from the blue and greens you see on Release. That is a really cool feature that I think folks will be able to take advantage of, to brand their project specifically for their audience.

After you build your project, it's really easy to publish it from the online project builder into your mobile phone. What you do, you press this publish button. A new box will pop up, and there are different channels that you can publish to, which allows you different options to kind of beta test the project before it goes live.

What you do is you record this numeric value here, and then in the app itself, you go to the hamburger menu and choose the preview project. You enter that numeric code you got from the project builder, click okay, and then your project shows up in the App itself. You can see the Barbie themed It's a Fluke project automatically show up.

It's a really incredible process, it's new and we're still data testing, and you can build a new project within 10 to 15 minutes if you know what data fields you want to collect. Kudos to Fran for putting together that video, and for the Harbor Light folks for kind of working on this. If you haven't checked out their video, I would encourage you to do so.

Then there are a couple other things that I wanted to share about building a project in SciFish. When SciFish first will become available to partners, after this project wraps up, it's going to be restricted to the current data fields in the project builder, which are kind of summarized on this screen here. Again, we're trying to use ACCSP standards whenever they're available.

The fields we chose to include in this kind of initial round of the project builder, were informed by the scoping meetings we held back in 2021. There were 23 organizations across 15 states that helped us figure out which data fields were most important to include to help fill data gaps that folks thought would work well with the citizen science approach. Right now, folks will be limited to these data fields. However, in the future, eventually folks will be able to request that new data fields get added to SciFish, and the process that we are recommending to do this would look similar to ACCSP standard post process. The last thing I wanted to point out about building a project within SciFish is the account creation.

This is a little bit of a work in progress. Right now, what is available is Option 1, this is what's currently in place, and PIs have to create SciFish project accounts for users. They are actually building accounts within SAFIS, so once that PI sets up a SAFIS account for that user, they'll get access to SciFish.

If you have folks who already have SAFIS accounts, then they will be able to use that same login to get into SciFish. Option 2 that has been discussed is where users create their own SciFish project

account. It's kind of like auto approval, a volunteer could just go in and create their account. This would mean that SciFish access would come through a non-SAFIS account.

As our Organizing Committee has been talking, it seems like partners may need a mix of Option 1 and Option 2, and so we've talked some about this Option 3, which combines Option 1 and Option 2, where a PI would choose at the beginning of their projects, whether they wanted to create accounts within SAFIS, or use non-SAFIS accounts.

To get to Option 3, it would require more ACCSP resources. This is something again that is still a work in progress and under discussion. One thing I do want to point out is that North Carolina, which has been a partner on this project from the beginning, wants to expand their Calculator project, and then their tagging program.

It is kind of helping us data test the project builder right now, and once they launch, they'll want to expand their project. They really need something like Option 2 in order to do that. I think different partners may have different needs. We will probably need to continue this discussion, to figure out where we're moving with account creation.

Then the other only thing I wanted to note on policy topics. If you guys have had an opportunity to check out the document we put together, there are a number of additional policy topics included in there that we didn't touch on in the presentation today, things like hardware requirements, privacy and confidentiality, transparency, data access.

We weren't planning to get into detail in the presentation today on these topics, but we're happy to answer any questions you all might have on those as well. I think Jay and Geoff

already kind of mentioned this, but we wanted to talk a little bit about next steps for SciFish policy. Here we are in August, and we're sharing this information with you guys for the first time.

We're looking for some initial review and feedback. We'll incorporate feedback we get from you guys, and then in September we'll be sharing this information with ACCSP Operations and Advisory Committee. Then the SciFish policy will be coming back to you guys in October, for you to consider for action. That is the next step, as far as the SciFish policy goes. Then the last thing we wanted to do, before getting into the discussion, was just highlight some of the key takeaways that we thought were important to keep in mind, as we get into this discussion on SciFish. From the policy that we've developed, just sort of a reminder that in order to build a project within SciFish, you must be a partner or be sponsored by a partner. We initially want to focus on supporting citizen science projects in SciFish. Through conversations of our Organizing Committee, there have been some discussions about how SciFish could support other types of projects, that there may be room for growth of SciFish in the future.

But right now, initially, we want to focus on supporting citizen science projects. Again, want to make sure to note that projects are initially going to be limited to the current data fields within the project builder. Want to make sure to note that although project development doesn't require funding, it will use ACCSP resources.

In order to provide oversight of this new tool, we're suggesting and recommending the creation of this new SciFish Advisory Panel. I also think it's important to note that right now account creation is currently done through SAFIS, but through some conversations we've had with our Organizing Committee, it seems like that is going to maybe need to evolve moving forward.

That is the SciFish Policy information we were hoping to chat with you guys about today. I know we have some specific questions we were hoping to get feedback from you guys on, and we're happy to answer any questions or hear any other kind of feedback you have. Jay or Geoff, I don't know if you want to stop here and get general questions, or if you want me to go through some of the specific feedback we're requesting, before opening it up. However, you want to handle it is good with me.

CHAIR McNAMEE: Thanks for that Julia. That was awesome. Can I just take a moment? I definitely appreciated the video game analogy, and the deep track with Pitfall, that was a nice job.

MS. BYRD: I was showing my age a little bit.

CHAIR McNAMEE: Why don't we take just a minute to see if there are any clarifying questions that people have, just to make sure before we keep marching along here. If anybody has a question on what you've seen so far, please go ahead and raise your hand, and I'll give you a shout out. Richard. Richard Cody, go ahead.

DR. RICHARD CODY: Julia, thank you for the presentation, it was very good. I had a couple of questions, and the first one relates to the question of how data can be incorporated. I just wondered, when I guess you would be referring how it would address through the plan a specific data gap. I would imagine that after a time there would be a build-up of different projects under the portfolio.

That there would be a need to manage what's already on the list, we'll say, versus a new project that comes onboard, that maybe just refines or comes up with a slightly better method than one that maybe might be in existence. Have you guys put any thought into

how you would manage an expanding list of projects that cover an array of different data needs over time?

CHAIR McNAMEE: Maybe just some ground rules here. Julia, or whoever the question gets addressed to, please just go ahead and jump in. Then Kathy or Julie, if you also want to respond, please do so. Julia, it sounded like you are ready to go, so go ahead.

MS. BYRD: Yes, and I was going to say the same thing. Kathy and Julie, please speak up. I guess we haven't talked in detail with the Organizing Committee, after we have all of these, kind of a number of projects. There may be new projects coming in that are similar to other projects, and how you would handle that.

I think we want to make sure if projects from different partners are trying to do the same things, they are collecting some of the same data fields, so there is kind of consistency within a project. I think one of the benefits of having this applications process is if we see a project come in that is very similar to another project that is already in place, we can perhaps get those two PIs together to figure out, do they need to develop a new project, or can it be folded in with the other project?

I think we've developed this process to make sure we know what projects are coming in, and so we can help connect PIs from projects that are already underway with new projects that are coming in, to make sure we're not being duplicative. I think we haven't talked about that in large detail. Kathy or Julie, do you all have stuff to add to that?

MS. SIMPSON: Yes, this is Julie, I would just add that I think you sort of mentioned the idea of, if we did have two projects that were addressing the same gap, that wouldn't necessarily be horrible if they had different audiences, but that's where we would leverage the whole point of SciFish, which is

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

that it is something that behind the scenes has the ACCSPs data management in the warehouse.

Like Julia said, it would meet those standards. Even if there are two projects filling the data gap from different angles, because they have different audiences. The SAP can evaluate that as the second project comes on, but the data would still be available to be collectively used in science and management, because it's standardized, and it could essentially be used as a single dataset.

MS. KATHY KNOWLTON: This is Kathy, really quick. We're planning to have a contact list on the ACCSP website that is an inventory of the projects that could easily be reviewed by anybody, for transparency of course, through ACCSP. But would directly go to a summary page with the partners, so that other people submitting projects can see what is currently being done, what is archived, and they can have that level of awareness as they develop their project as well.

CHAIR McNAMEE: Good, sounds like Richard is good there, great. Okay, I've got a couple other hands. David Gloeckner. Sorry if I didn't get your last name right, but feel free to unmute and ask your question.

MR. DAVID GLOECKNER: That was actually perfect, it's usually butchered, I appreciate it. My question is, do we plan on having the ability for PIs to develop their own zone half that could pass data into SciFish? I'm assuming we would kind of treat it the same way as trip tickets going in through multiple vendor applications into SAFIS, so something along those lines?

MS. SIMPSON: Hey, Dave, this is Julie, I'm just going to jump in here. Yes, we addressed our presentation on the idea that you would be using the project builder in our application. But

behind the application is an API that the application uses. The SciFish API, it would be available to a third-party development.

If you did want to pay for your own App development and use the SciFish API, you can. However, you do still have to go through the process of the application, solely because we want to ensure that the project still meets all of the rigorous criteria of being a good citizen science project, and a fit for SciFish.

We don't want the, we'll call it, I don't know if quality is the right word. But we don't want the quality of the data that are diluted in that set of tables to be diluted by another project. You can go through the process and not build your app and project builder, but just take advantage of the API.

MR. GLOECKNER: Okay, thanks, appreciate it.

CHAIR McNAMEE: Next up I have Carrie Kennedy, go ahead, Carrie.

MS. CARRIE KENNEDY: I have a couple questions that actually follow on pretty nicely to that one, and that is one, what kind of changes in server size or cloud, technical, like storage. What kind of changes in data storage does ACCSP anticipate might be needed for this, and how would we pay for that?

MS. SIMPSON: At this point we don't anticipate any new technical needs. We can accommodate this with the systems that we have existing.

MS. KENNEDY: Excellent, and then Part two of my question was, what about, and it's similar to the last question. What about projects that have previously been done in states, like say a state has a volunteer angler survey, and wanted to make those data, you know all the data fields were the same as ACCSP standards.

They wanted to make those data available, you know publicly available, so that they could be

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

11

queried for stock assessments or graduate students or whatever. Is there any anticipation of doing any sort of data feed of historical citizen science projects that meet the same criteria, into the data warehouse?

MS. SIMPSON: I would say that if you want to in the future feed those data. Like it it's still going on and you want in the future to feed those data in, there would be no objection to the historical data being loaded. I did want to note, however, that you mentioned something about publicly available.

We did note, I think it's a signed note confidentiality. Just as a point of clarification for the whole group. Each project is considered confidential. That project PI can see it, and that is one of the reasons, as Kathy mentioned, to have project PI contact information available, because if you want to see the data you do have to ask that PI, because we are by default assuming that these data are confidential and not publicly available. These data are not going to be publicly available on the data warehouse. They'll be available in the login warehouse.

MS. KENNEDY: Okay, thank you for that clarification, I appreciate it.

CHAIR McNAMEE: I don't see any other hands at this point, and I think I'm going back to you, Julia, to kind of hit on the specific feedback that you're looking for here, so go ahead.

MS. BYRD: One of the things we wanted to request feedback from you on is the creation and the membership of this new group, the SciFish Advisory Panel, or SAP. What we're recommending and wanting to kind of get feedback from you guys on kind of this recommendation is, we're hoping to keep the committee size to the SAP between 8 and 12 members. That is what our SciFish Organizing Committee is right now.

This is a group that is going to need to be meeting multiple times a year, be reviewing applications, and we think that size will be a manageable size, where the group can get a lot of feedback from a variety of partners, but also is manageable and small enough to get work done. The plan would be to announce the SAP membership application through ACCSPs Committee Newsletter.

Then if folks were interested in serving on the SAP, they would fill out their applications, and the applications would be forwarded to ACCSPs Deputy Director, through that partner's Operations Committee member. Kind of similar to what is done now. That Operations Committee members kind of help populate the technical committees through their organizations.

The additional step here is just that there would be a specific kind of application for the SAP. Then we're recommending that the ACCSP Coordinating Council Leadership Team is actually the group that makes appointments to the SAP, and the membership term would be similar to other ACCSP committees.

Members would be able to stay within the group until they resign or until they are replaced by the ACCSP Coordinating Council Leadership Team. We are looking to get feedback from you guys on this recommendation, if you're comfortable with it, or if you have some other suggestions.

CHAIR McNAMEE: Let's take a moment here to get some feedback. If anybody has, just a reminder, this isn't your only shot at this. I think it would be helpful if you have some initial thoughts, so that the team can kind of think about it between now and October. But again, we will be reviewing again in October. Right as we transitioned, I saw Erika Burgess' hand go up, so Erika, whenever you are ready feel free to unmute.

MS. ERIKA BURGESS: My hand was raised, actually in response to the last question and the response

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

that was given to that regarding confidentiality of data and access. I don't know if it's okay that we go back and revisit that for a second.

CHAIR McNAMEE: I think it's totally fine, Erika. Feel free to ask your question.

MS. BURGESS: I was wondering if the group that has been working on this had considered a state's ability or inability to participate in SciFish, based on that decision about confidentiality. I think I would need, in Florida, my legal counsel to review it, because it might be a limiting factor, given that we don't have the same confidentiality rules for recreational data that we do for commercial trip ticket data. I would love to know whether this has been discussed, and if it's something that needs to be discussed further that hasn't yet.

MS. SIMPSON: Hey, Erika, this is Julie. The approach to confidentiality is, if someone wants access to the data then they would need the approval of the PI. I would say that if you don't deem your data to be confidential, you could just say that anybody who requests access can have it. I don't know if that would meet your lawyer's rules, but we can definitely revisit that if needed.

MS. BURGESS: Thank you, Julie, that is helpful to know. It seems like that would work, but I guess before we started a project we would have to go through that review.

MS. SIMPSON: Yes.

CHAIR McNAMEE: I've got a couple hands, Richard Cody, I saw yours first, so go ahead.

DR. CODY: This has to do really with the membership of the Advisory Panel. I wonder, I mean there are some new and emerging methods that are becoming available now for better use of, what we call nonprofit ability

methods. Citizen science types of data collection would fall under that category.

Is there any consideration of perhaps, you know maybe some statistical expertise on the panel that would maybe inform, say a decision to use or not use data, in a way that we don't, say forget about maybe some criteria that are needed. I worry that we would have a very well-designed data collection application, and it does a wonderful job, but whether or not it can be feasibly integrated to address data gaps for largely probability-based survey data.

How you do that is important, and it could impact if we don't consider it early on, you know the use of the data ultimately. I think that one of the big challenges for any kind of citizen science application is basically making sure that the data gets used, or else you just lose the recruitment and interest that is well intended at the beginning.

I just wonder, I would make a recommendation anyway that there is some statistical expertise that kind of addresses the interface between the citizen science component and the actual data gap that it's trying to address, either through the application process, pre-app or whatever. But at some point, early on, rather than have it hit us at the end, and then we're faced with coming up with a way to use the data. That is a long-winded way, and it's not really a question, but just a recommendation, basically, for maybe some more statistical expertise on the panel.

MS. BYRD: Yes, and Richard, thanks for that recommendation and we'll point out maybe a couple of things that didn't get into any detail. But in the application process in the full application, we asked specific questions about data use, and whether or not you have reached out to someone who you may want to use the data assessment scientist, fishery manager who you are hoping will use your data, and whether they have kind of reviewed the methodology and the data field you

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

are collecting, to make sure that data meet that intended use. I think we're trying to get at some of what your kind of recommendation was through the application process.

We're trying to really encourage anyone who is developing a citizen science project to loop those folks who you want to use the data into the project at the beginning, to help you design it in a way where the data can be meet their intended use. I guess we haven't talked in detail about having the specific statistical expertise on this SAP.

I think that is certainly something that could happen, but I just wanted to note that we're trying to get a little bit at your recommendation through the application process, making sure to encourage people strongly to be talking to the people who they want to use their data, once they have a classic idea.

DR. CODY: Thanks Julia, perfect.

CHAIR McNAMEE: Just if I can be so bold here. I think it's a super important question, and can lead to, I don't know what the right term is, but expectations that aren't met. Julia, that response is a really good one, and maybe one of the things you can do is to add, you know in the review process.

Add that as a criterion, you know do they have somebody from the Assessment Working Group on here or something to that effect. Handling in the application process makes a lot of sense, and maybe it's in the review part of it that you can add a criterion that specifically looks at that. Good discussion. Brandon Muffley, go ahead, Brandon.

MR. BRANDON MUFFLEY: Thanks for this presentation, this was really awesome to see, and this was a great document to go through. I guess my question or comment, I guess, I'm not

quite 100 percent sure. But on the second bullet, in regards to announce set membership to an application.

My sense is that we're going to have people go through some formal application process and fill out some sort of questionnaire, I guess. A, I guess that was the question, is that the thinking? Then B, since it's primarily, it seems like membership would be comprised of partners, of ACCSP partners. I was thinking maybe it could just be handled through partners nominating folks to serve on the committee itself, versus requiring people go through an application.

But maybe, depending on how you handle Richard's previous question, maybe having people apply and identify some of their expertise, and how they fill, you know and can evaluate citizen science kind of applications. Maybe that is where you could get some of that information. I guess I'm debating both sides of this process here, if people actually need to apply or if we could simplify things and just have ACCSP partners just nominate people to be on the committee.

MS. BYRD: Yes, and I think that is a great question, and it's something we talked a little bit about. We don't want to make the application process onerous in any way, but we thought since we may be looking for specific citizen science types of expertise for this group, and wanting to maybe balance out expertise, so we have kind of a well-rounded group. That's why we were, I think leaning towards doing an application online. We haven't developed anything yet, but it was basically to get a sense of what the expertise of the different individuals that are interested in membership. But certainly, don't want to make the process more complicated than it has to be.

But I think having some sense of the expertise or the experience that folks can bring to the table could be useful. That doesn't really answer your question. I guess the short answer to your question

is, we haven't talked about this in detail, but we're thinking it could be helpful, even if it's not an official kind of application form. But have people, you know if they are nominated, have three or four sentences describing their experience, in order for the Coordinating Council Leadership Team to make appointments.

MR. MUFFLEY: I think that is really helpful, and just thinking things through. Yes, I think getting that information would be helpful, again, even thinking about Richard's previous comment, so thanks for that.

CHAIR McNAMEE: Great, thanks.

MS. KNOWLTON: Jay, Kathy, if you don't mind.

CHAIR McNAMEE: Go ahead.

MS. KNOWLTON: Again, going back to Richard's comment and follow up to Julia's. One of the specific criteria for the full application is the partner specifying how the data will be used in assessment and/or for the management process. Going back to that slide, in terms of where they are invited to get through all the steps, the full application, and go ahead and get permission to build the project in the project builder.

We had indicated that all of the SAP scores for each criterion would be averaged, such that if a project did not have at minimum a 3 out of 5, that they would not be recommended to proceed at that point. I guess I'm getting at, does the Coordinating Council, and specifically with Richard's comments, do you feel that that addresses specifically that concern?

If you would like to add components of how we address those criteria with giving our rank, as the individual SAP members for the 1-5 numerical ranking of that criteria. That may

prove to be very helpful. Again, as our Chair indicated, we do not need to specify this today, but moving forward that could be something that is extremely valuable, as part of the tools that the AP members have for this project.

CHAIR McNAMEE: Thanks, Kathy. I'll just kind of pause for a minute, to see if anybody wants to respond to what Kathy just offered, which I thought was excellent, and also appreciate Kathy mentioning, you know we can think on that a little bit, and that might be a good one for October. John, I've got your hand next, so I'm not seeing anything in response to Kathy's comment. John, go ahead, John Carmichael. Not hearing you, John. We'll see if we can get John figured out there. I did have another hand go up and now it's gone. Looks like we're having some technical issues with John Carmichael. John, we promise to come back to you if we get that sorted out. But until then, I don't have any other hands, and Julie, I think you've got a slide or two left, so do you want to flip to the next slide? For the folks listening, we can come back to anything if you've had a thought. We can keep going here until about 10:30 or so, and we can come back to anything you want. Julia, go ahead.

MR. JOHN CARMICHAEL: Hey, Jay, this is John, can you hear me now.

CHAIR McNAMEE: John, we've got you, excellent.

MR. CARMICHAEL: The reset worked. Julia, appreciate the presentation. Great job on covering all of this stuff. I appreciated Kathy's clarification on the purpose of the project, and how the data are going to be used coming up as part of the initial proposal and the justification for it. To me that has always been a really important part of many of the citizen science projects done under fisheries agencies, certainly those within the Council.

What I envisioned would be happening here with SciFish, that they come from a place of, there's an identified data gap. A cooperator and agency,

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

15

somebody is interested in going after that, sees getting fishermen involved as a way to do it. It is very different than just collecting data for the sake of collecting data, and hoping it will be used at some point down the road.

I think that is a really important distinction for why SciFish exists, and why it's part of ACCSP. I think, as Kathy said, getting good information in a proposal about how the data will be used, and making sure that those supporting the project understand that and do have an intention to use it, would be really helpful.

Then just in general, support what you're proposing here for this SAP. It's good to have kind of a gatekeeper group, I guess to call it, to make sure that projects adhere to ACCSP principals and standards, even when there is not money, necessarily being provided. Sorry for the little blip there, but thanks for getting in, Jay.

CHAIR McNAMEE: Excellent, thanks, John, good comments. Julia, or anybody have any response to those comments?

MS. BYRD: No, other than I think the Organizing Committee kind of agrees with your comment and framing on things. One of the things we've talked a lot about with SciFish, is we really want to support projects that can help inform management and assessment, and to do that you need to be going after specific data gaps or data needs that have been identified by whatever group. Whether it's an assessment team, a state management agency, a federal management agency to fill those.

I know with at least the Councils program, we put together what we call design teams, and I think we're kind of encouraging this for SciFish. You're getting people working together, fishermen, the project managers, the people who you want to use the data, are talking at the

beginning of a project, to give it its best chance of success, and making sure the data you are collecting are being collected in a way that they can meet that intended use. I think that is something that all of the SciFish team kind of feels strongly about. Yes, I appreciate the comments, and agree with all that's been said on that point.

CHAIR McNAMEE: You know, I just had another thought, same topic that I'll just throw out there. This is for the SciFish team. You've got this application review process, and the applying group might have somebody with expertise, whether they be on an assessment working group or had been in the past.

Another source, and this is the part I wanted to offer, could be research recommendations from assessment reports. That's another good area to kind of, I guess make your claim of the data gap defensible, so just another idea to throw out there on this topic. With that, why don't you go ahead and flip to the next slide there, Julia.

MS. BYRD: The next specific thing we're interested in feedback on again, happy for any feedback you all provide. What you've provided so far has been really helpful. But one thing we definitely wanted to get feedback from you guys on is, we mentioned this application process. We tried to develop an objective review process for folks who apply for the use of building a project in SciFish.

But this could put the SAP or the ACCSP in the position of potentially saying no, or not yet, to a partner for the use of the SciFish tool. That is a little bit different than some of the other tools that ACCSP provides. We wanted to make sure that the Coordinating Council was comfortable with this, that you guys were comfortable with the overall SciFish application process, and the pre and full applications with their review criteria.

Have already heard some great feedback on making sure that connection to the data end users, the

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

16

assessment scientists or the managers is clear and used within the review process. But just wanted to see if you guys had any other feedback on that. In particular, if you are comfortable with using this application process, knowing that may mean saying no, or not yet to a partner.

CHAIR McNAMEE: First I am going to go over to Kathy. I saw your hand kind of pop up as we were heading this way, Kathy. I don't know if this is on the last topic, but you're up first. Please, go ahead.

MS. KNOWLTON: Yes, it is exactly about this topic. Wanted to make sure with Julia's introduction to this slide. This is exactly why we have this slide in here, was where you all landed in the conversation, and asking about the planning for the use of data in the management and stock assessment process.

We want to make sure that the Coordinating Council is comfortable with the fact that we're putting a group of people through the SAP, in a position of potentially telling some of our partners, not yet, and sending an idea back to them. Julia mentioned that we feel very strongly about this, and we've discussed this a lot.

But that is one of the primary reasons why we've presented this slide to you all, for your feedback now, and for October of course, is to see how you all feel with that comfort level. Have we done our job with this draft policy, in presenting an objective review that allows us to comfortably and confidently say, yes or no, please work on this and come back. A lot of that is because of planning for the use of these data.

CHAIR McNAMEE: David Gloeckner, go ahead, David.

MR. GLOECKNER: I think we've got plenty of experience telling people no, you can't supply that data yet. Most of it is probably in the trip ticket or fishery effort information that we collect that ends up coming through a third-party vendor. If the third-party vendor doesn't meet the requirements of the API, then no, we don't take the data. I see this very similar to that, in that if you don't meet the standards that the SAP is trying to enforce, then no, go back and work on it. I think that's fine. Just it's kind of how I'm feeling about it.

CHAIR McNAMEE: Anything you want to offer, Julia or Kathy or Julie on that? Just sort of a comment, so just wanted to check. John Carmichael, please go ahead.

MR. CARMICHAEL: I'll say, yes, I support this. I think it's very important to have the ability to say no or not yet, for a lot of the things we just discussed about the importance of ensuring data quality, ensuring you're getting data that are going to be used in the way that are intended. Then just avoiding the frustration of people who get involved in a project, submit data and it doesn't get used, which we all know is a big issue with so many of the third-party things out there. I think this is a really important and critical part of this.

CHAIR McNAMEE: Carrie Kennedy, go ahead, please.

MS. KENNEDY: I just had a quick question about what we envision the process to be like if we find that we say, not yet to somebody or to a group of people that want to do particular kinds of projects, I don't have examples. But then we realize, okay, we need to update our standard, so that it's clear that we're not taking this.

We need to update our policy so that it's clear we're not taking this. Is that something that SAP would just as a matter of business address, or is that something that would have to be considered

and discussed through Operations and the Coordinating Council?

MS. SIMPSON: This is something that the group discussed, and I don't remember where we have it in the document, to be honest with you. We do sort of have the idea that depending on what we might call the magnitude of the change. If we feel like there is just a small change in the review process, where we feel like, hey we want to edit the document a little bit, and just stress that, and again, I don't have a good example either.

But you know you can't do this whacky thing that clearly two people have tried to do. We need to make it clear that your whacky thing is not a thing. If it was a small change, we would probably, the SAP would go ahead and take that on themselves. But any change that was larger, we would handle it just like any other technical committee. Minor changes are fine in the way that they prosecute their daily business, because their job is to do that business. But any larger change would have to go through that Op Coordinating Council process. It will essentially operate just like any other committee, is basically the way that we've talked about it.

MS. KENNEDY: Okay, thank you.

CHAIR McNAMEE: Thanks for that. Not seeing any other hands right now, I think you've got at least one more slide, Julia, so feel free to flip ahead and get some more feedback.

MS. BYRD: That really covered the questions and feedback we were looking for specifically at this point, but we're happy to have any other questions, or if you all have any other feedback or things you want us to consider as we work to finalize this document, and share it with Ops and bring it back to you in October. We're happy to take any additional feedback or questions you have, but the feedback so far has

been super helpful. If there is anything else they all want to bring up, we are all ears.

CHAIR McNAMEE: I thought there was one more in there, but this is perfect. This is now opened up. You don't have to just have a comment. If you have a remaining question, please feel free. Any comments you want to make now, please feel free. Not seeing any hands. We've got five minutes to spare here, folks, there we go, Richard Cody, go ahead.

DR. CODY: In providing feedback, SciFish, do we want to provide anything prior to the October meeting, or do we want to save it for the October meeting? In other words, if we have comments we wanted to provide to Julia and others prior to that time.

CHAIR McNAMEE: That's a great question, Richard. It looks like Kathy's got her hand up, and I think specifying both whether this is okay and who it should be referred to, would probably be super helpful. Kathy, go ahead.

MS. KNOWLTON: I'm going to just put it out there. Julie and Julia, please chime in, and see if you agree with me. We've been working together a long time, so I hope I can read their minds. I would say, please, absolutely, send all comments and feedback immediately. Just as we will be operating with potential applications for the SAP to go through Julie, I would recommend that be the entity to which to submit comments, so Julie and Julia, are you okay with that?

MS. BYRD: Yes, definitely, Kathy. I would say any comments or questions or feedback you want to pass on, send it as soon as you can. That way we can incorporate it with our SciFish Organizing Committee, and address things, so that when it goes through the Ops and Advisors and it comes back to you in October, we've been able to address any kind of concerns or comments or feedback you have. Any feedback we get, we'll be sharing with

the full Organizing Committee. But it could be sent to Julie or me or Kathy to pass it on to the rest of the group.

MS. SIMPSON: This is Julie. I agree. I think the timing is the sooner the better. The more we can have this something that you look at in October and say yes, great job, it addressed all our questions. Then you don't have to talk about it anymore, and that is better. I'll defer to Geoff on how we wants to. I'm more than willing to take comments and share them out, but I'll defer to Geoff on how he wants you all to do that.

DR. CODY: If I could just follow up on that. Lauren Dolinger Few, just reminded me that she's on the Working Group, sorry I didn't pick up on that earlier. I'll probably work with Lauren as well to get my comments in. As far as I understand, you guys are moving weekly anyway, so there is some time.

MS. SIMPSON: Yes, Richard, you are correct about meeting weekly, and Lauren is a very valuable member of the group. Her input has been really useful.

MR. WHITE: This is Geoff, I absolutely support you guys sending comments directly to Julie and Julia, focused on the actual document that was included in the PDF materials, in terms of comment areas to put in there. But any comments will be taken up by the group.

CHAIR McNAMEE: That makes a lot of sense, I think, and will lead to a really productive meeting in October. That's great, thanks for asking the question, Richard. I do not have anymore hands, so with that, I think we can go ahead and keep moving forward on our agenda. We pretty much nailed the time allotment, so nice job everyone. With that, let's go ahead and turn it back to Geoff, for the discussion on recreational data priorities and activities, so Geoff, take it away whenever you're ready.

MR. WHITE: I do want to just take a moment to agree with you guys on the impressive presentation by the SciFish group. Thank you all for doing that and also keeping exactly on time, so good for everyone in doing that. Julia mentioned the SciFish Builder video link that is also linked in the materials of the SciFish summary on PDF Page 19. That link is already available to you. Again, just thanks for the SciFish presenters and all involved.

The vision of this, I'm excited to see these developments really come to fruition, the standardizing data fields for data collection, and directly tied to the use in assessments and management. Just before I move one more slide into the recreational data collections, I think it's important to restate that these SciFish data are intended as supplemental to other data collections that will be then used in the assessment in fisheries management process, to kind of support other data and/or decision processes.

DISCUSS RECREATIONAL DATA PRIORITIES AND ACTIVITIES

MR. WHITE: With that, I will move forward to the Recreational Fisheries Summary. Here, this just kind of captures what was in the materials early on. I know there has been a lot of PR work on the fishing effort survey, a lot of work by MRIP, and a lot of presentations at Council and Commission meetings.

We did discuss whether this was a good forum for that today or not, and came up with a recognition that that discussion would likely take longer than we thought we were going to have today. Therefore, in consultation with Bob and MRIP, and the ability for more public presentation and involvement, we did schedule in the preliminary agenda for the annual meeting, a special session on Tuesday, October 17, specific to the fishing effort survey ability for a longer presentation, as well as a broader question and answer session.

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

If we have time there may be a question or two that comes up there, but I'm not sure there is a lot I could add here that hasn't already been presented by MRIP, but we've got MRIP folks on the call, if we get to that point. I just want to recognize the item, and the planning for the October meeting, and focus there, and then hopefully move on to our other items. These are just what we had listed. Under the for-hire data collection methodology, this slide is essentially what we showed you back in May.

It does, and in the documents that were provided it had the longer version of the proposed design that was presented to MRIP. Since the May meeting, we did have an initial MRIP consultant review with the Chairs and Vice-Chairs of the Rec Tech, Operations and Coordinating Council, and the members that were involved in the pilot study with South Carolina in 2016.

The focus of those bullets there, the proposed design, are identified. We certainly recognize that this proposed design does not currently exist anywhere on the Atlantic Coast in a program. But we needed to go through this initial consultant review process, and that was intended to get some feedback on the design.

Were there areas that ACCSP, Rec Tech, whatever needed to more fully identify the clarity points in the design, how were vessels going to be selected between frames. What kind of math would occur at different places, and how would the APAIS as a dockside catch validation connect with the logbooks?

Those were some of the details that were discussed. I will say that we're getting close to having that meeting summary completed, and then waiting for the consultant's review from MRIP to be added to that, and then we'll be able to share that out once it's ready to be distributed. That is a very brief note on

something that we were hoping we would be a little bit further along on, but hopefully that will be coming up and you'll have additional information.

But there was great discussion at the meeting. The process is absolutely intended and expected to be iterative, and so where it says implementation timeline is to be determined, it's really, we understand within ACCSP staff and Rec Tech that there will be additional work that needs to be done. This is not going to be fast. On the other hand, being thorough and considerate of the implications and what could move forward, is really the process.

This is likely another one of those things where it's a not yet answer. We need to work on a few more things before we bring it back to MRIP. With that, that is really all I had in this particular moment on the for-hire data collection methodology. Given that these slides are a little bit quick, why don't I pause and ask if there are any questions or hands raised at this point.

CHAIR McNAMEE: Thanks, Geoff, any questions on this stuff for Geoff? Looking for hands. All right, Geoff, I'm not seeing any hands, probably keep marching along here.

MR. WHITE: Okay, perfect, thank you very much. The next slide and section are really about the presentation of MRIP estimates. I'm going to call on a friend, Richard Cody, to help present some of this. But the MRIP survey and data standards were established in 2020. There are, I think four slides here that are part of a presentation that Richard gave to the state directors on July 31st, and are re-summarized here, and then the last portion of this is kind of where ACCSP is going next, and so he'll hand that back to me. I'll continue to present, Richard, but why don't you go ahead and take it from here, and I'll move the slides as you call out.

DR. CODY: Geoff referred to the MRIP Survey and Data Standards, and a couple of points I wanted to make up front is that this has been a collaborative

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

20

process. We received input from the regional implementation teams, and also the FINs in the Gulf and the West Coast as well as ACCSP. [transcript faded] So it is worth mentioning for changes coming up with surveys. One of those, OMB guidelines had come up with publication standards for their data in preparation of what they could reliably present through web queries and present within best practices for all our survey data.

The basic set of standards, there are seven in total, the first five we won't go into them in detail, really reflect certification and transition procedures that we have in place. We're updating our procedural and policy directives to reflect this integration with the data and survey standards. Those should be available fairly soon.

The last two really refer to process improvement, and then what we publish online as estimates for, what we publish in any format, really, has estimates for the survey. Number 6, I'll just briefly mention. It was good timing based on the SciFish presentation. Obviously, there are different avenues, such as recommendations from stock assessment folks, and others, in terms of data needs and data gaps.

But also, there is a formal process that involves regional implementation planning in teams, and ACCSP or the Atlantic Coast has a regional implementation team, they just updated their most recent set of priorities. I think it's worth remembering that that resource is there also for state partners wishing to develop SciFish types of applications to address data gaps, that some of those are probably referred to in those regional implementation plans.

The component I wanted to talk about today though is related to access and information like management. It's the one standard I think we

hear probably the most amount of concern regarding. If you go to our web query tool right now, you'll notice that there have been some changes made to the way we present data.

Added in April, 2023, we add some fields that refer to whether or not the estimate meets our precision standard for publication. In that it will either be a yes or no. Those estimates are flagged in red on the website. The difference here is that there is more emphasis, a greater emphasis put on the reliability of the estimate. For instance, when you have PSEs that exceed 50 percent, which is the standard we're using for MRIP data. Those are flagged, and there are a couple of questions that are asked on the query tool. One is, does it meet the standard?

Then the second is whether the estimate in question is significantly different from zero or not? We also provide just an additional sort of reinforcement of that point, the upper- and lower-95 percent confidence intervals for the estimate. Obviously, if that contains a zero, it won't be significantly different from zero when you look at them at that level. Those are flags that we were putting in the data, and the idea is that we present data, identifying the limitations ahead of their use. I think this has been sort of interpreted as good and bad in some cases. The good being that it points out the limitations of the data more clearly, the bad being that users don't have the same level of access that they've had in previous years, so it can be perceived as less transparent. Just to emphasize the goal of the precision standard here, in terms of how we present data. We are presenting data in a cumulative fashion. The reason for that is quite simply, to make better use of the sample that we have. When you add sample or aggregate sample temporally, you increase sample size so the estimates increase in precision.

That really, in terms of the amount of data we have to flag in the website reduces the number of flagged estimates that we would have to present. It also makes the best use of the data emphasizing

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

21

sample size as an important component here. In some cases where you have rare event species, and what I would call intrigue would be encountered species.

Imprecise estimates are really very difficult to combat, even with increases in sample size. But that said, I mean this doesn't take away from the fact that additional sample is the best way to address this. We're making the best use we can of the sample that we have currently available to us. Next slide, I think this is the last slide for me.

The key takeaways here are that the new way of presenting data online, basically is cumulatively by weight. Imprecise estimates above 30 percent are flagged, and then the ones that don't meet the precision standard that is greater than 50 percent are identified. They are not masked as we had originally planned.

Microdata tools remain available to analysts, so we have provided tools that allow data users the ability to produce their own custom estimates, and to meet their own unique needs. The last bullet here I'll mention is important, because regardless of our adoption of this new standard, the use of and the interpretation of user produced custom estimates will continue to rely on bare analytical justifications and assumptions.

Those are outside of the survey design constraints that we have in place for estimation. There may be additional data that analysts have at their disposal that we would not have, in terms of producing the estimates for publication purposes. Then the next step I'll mention is a collaborative effort that is ongoing currently with the Southeast Science Center, basically to come up with a decision framework that allows us to look at alternative estimation approaches, to address imprecise data, so to better use imprecise data.

Those might include things like multiyear averaging. There are different flavors of that that we're looking at right now. There are also modeling approaches, imputation approaches, as well as that we have some smaller estimation approaches. Those rely on auxiliary data sources to sort of inform weighting of samples.

There are different components that we're looking at, and we had one workshop so far, so that workshop really resulted in us identifying some homework to do, so to speak, and then also for us to set up the second workshop. The goal is once we get to a point where we have a presentable, we'll say set of methods that we can look at, and some options for decision framework, we would bring in our partners. At this point we don't want to go too far down the road, to make sure that we're not getting out of line with MSA requirements, and other legislative constraints on the use of the data. That is where we are. I hope to have the opportunity to present on the progress of this working group as we move forward, and also to probably try to get some recruits from ACCSP and state partners in the process as we move along. Geoff, that's where I'll leave it, and you can take over the rest of the presentation.

MR. WHITE: That's excellent, thank you, Richard, and thanks for collaborating in and getting that extra support of the regional team's process, and kind of the data standards presentation back out there. The next part of this is really where is ACCSP headed in the coming months, about the public presentation of the MRIP estimates.

It's listed in the materials as kind of three phases. I have to say, it's a little tough to follow the SciFish presentation, because my slides are a little text heavy and theirs were more exciting. We do appreciate your attention here. The Phase 1 public data warehouse, to be a good data collection

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

22

partner with MRIP and the state conduct of APAIS and FHTS.

It's really on us, in our own volition, to kind of be consistent with MRIP on presenting the public data warehouse, and the nonconfidential kind of approaches. On the confidence intervals, the cumulative estimates, adding in some of those additional fields we haven't traditionally shown, like whether it was a final or a preliminary estimate, and extending out what the fishing year options are.

The ability on the MRIP website now did something that ACCSP is just looking at developing, where you could start the year at the beginning of any wave. Instead of calling a calendar year, it's running Waves 1-6. There will be an option to select a fishing year, which is presented on the MRIP public page at the moment.

You could start Wave 3 and then go through the following year Wave 2. It still provides cumulative estimates, but you can adjust when those start depending on the species that you would be looking at within the bounds of the survey program. Phase 1 is really to adjust the public data warehouse.

That is something that will be completed in 2023, Alex DiJohnson and staff have been working on the database changes, in terms of the processing of the underlying information, as well as the parameters to guide the project. We actually have a contractor onboard to help us with a little bit of the end user interface, making those dynamic pages work in the way that they are intended.

Alex has already asked for and received some state leads to help in doing the QA/QC, and kind of feature rich approaches as to what will go into all that. We're excited to move forward in that direction. Moving on to Phase 2. We've

also, as a partner to all the signatories of ACCSP, recognized that there is concern about individual assessment folks running a domain estimate in customized ways.

We're looking to create a special named user access for the detailed wave data, and for the short term as we figure out ways to get about this, and that is specifically focused on Agency staff working on species with active manager. I say that with focus, because there are certainly concerns in the South Atlantic, or really anywhere, where there are some species that even when lumped by the whole year or multiple states, may or may not meet the data presentation standards or PSEs, then the ability to still see that information is important. I think the presentation that Richard just gave, and highlighting that the PSEs above 50 will remain to be seen but flagged in a color that makes it obvious.

It's a standpoint that ACCSP has done for a long time, as well as MRIP, and we'll both continue to do that. I think that is a helpful approach, but there are some areas that we've heard of through the Assessment Science Committee, through the Rec Tech, where having access to the more detailed wave data may help ancillary things like setting seasons.

I say ancillary to the inputs to a stock assessment at an annual level. That Phase 2 is something that we were working on, but that might need additional time to get completed for the user authorization process. As I said, we've got a little bit more work to do to identify the process, to give those named users access, and again focus on Agency staff and active management species.

Then Phase 3 is an item that we're catching up on from the past. Probably over a decade ago Rec Tech had asked for ACCSP to present catch frequency analysis, number of fish caught by a number of anglers per trip, as well as directed trip queries with 7 different definitions of what a directed trip was.

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

23

We had taken that off of our website when the MRIP estimates and calibrations were occurring, and just have not gotten back to rerunning those with the right math for all years on the current datasets. We will be redeveloping the catch frequency and directed trip queries as part of the ACCSP data warehouse, and that will likely extend into 2024.

Those are the ACCSP plans and approaches. The Phase 2 is the one that is really looking for a consistent data presentation available to Agency staff that will be doing stock assessments, and that will kind of provide a bridge to be able to use this information until adopting the more cumulative items, or different approaches come to fruition. With that, again, I'm going to pause and ask for questions. Thanks for your attention.

CHAIR McNAMEE: Please feel free to raise your hand if you have any questions for Geoff or Richard on their presentation. All right, Geoff, not seeing any hands, so why don't you keep flipping along here.

MR. WHITE: All right, perfect, thank you. This is again a nod to the Atlantic Recreational Implementation Plan and the MRIP Regional Planning Process. Richard mentioned it, and of course the Query and Council approved these six priorities last year. Given todays earlier presentation on citizen science, in this document we did specifically flag citizen science in a whole paragraph as a tool that could be used to address any one of these priorities.

But as a tool it wasn't its own priorities for the data collection. These were the data needs that were listed here. How did these priorities get generated? Again, this is just kind of a revisiting the MRIP hybrid approach to implementing collection of data needs, regional plan development, and of course then the National Plan. You know NOAA Fisheries maintains the

central role in data collection estimation and administration for the surveys, and implementing survey and data standards, and producing, of course the estimates. The regional and state partners, as we are, identify these data collection priorities, coordinate survey operations and participate in the QA/QC with the ongoing data. Obviously the ACCSP Recreational Team as well as all of your state folks that are out in the field doing the MRIP APAIS, and making phone calls for the for-hire telephone survey, are participating in that as well as ongoing meetings to say, are there adjustments that are being requested of the survey to do that?

Of course, there are eight regional implementation teams that publish those implementation plans, and also serve as kind of a coalition body to buy in and vet activities that are really important to the region, instead of over a single partner. The focus here is certainly on partnership.

Moving forward as partners and members of the Atlantic Regional Team, I do kind of remind folks that if we work within this structure to address the daily needs, the items that generate regional interest and benefits, we then will be able to bring up to MRIP for greater consideration. There is a process.

There is a way to vet this either through Rec Tech or Coordinating Council or Operations with the use of ACCSP to identify areas that either are within the priorities, or if the priorities shift, we can redo that plan in under the five-year timeline. We have a process that is here, and a partnership to be able to raise these issues, and as things come up it's certainly a good opportunity to use that process to identify those items and bring them up to MRIP.

There have been a couple of opportunities where this Regional Plan have ways to refocus how the process occurs. I encourage you guys to use it. Overall, it works really well, and I do have a couple of items from the Regional Implementation Council I will need to summarize and send out to you guys

in a separate e-mail, just for your feedback on what the progress is, and that will be coming out hopefully tomorrow.

They are looking for some feedback from you, as they have for other Congressional Reports on state partnerships and other things. With that, that kind of ends our presentation for the recreational items, and I guess I'll just pause and ask if there is discussion on any of the recreational data and priority items that have been presented today.

CHAIR McNAMEE: Great job getting through all of that to both you and Richard. Yes, we've taken a couple of pauses as we've been going through. But before we move on to the next agenda item, I'll just see if there are any questions, comments, for any of the topics that were covered under this agenda item.

Please raise your hand if you do. All right, Geoff, I am not seeing any hands. I think we can go ahead and park that agenda item and move on to the next, which is a Discussion of the 2024 Activities Planning, and that is back to you, Geoff, so whenever you're ready.

DISCUSS 2024 ACTIVITIES PLANNING

MR. WHITE: The two portions of this agenda that I did want to go over with you all today, may not take the full time here, so we do have opportunity to talk if necessary. But really, wanted to touch on the action planning process and draft to the full Coordinating Council, and also just a quick, brief status on the FY2024 proposals that are going to be discussed at the Ops and Advisors coming up in September. But first, the 2024 Action Planning, we just have the one slide here. I was not planning on pulling up the document that was sent out with all the kind of tracked changes. But every year we do kind of a staff Chair and Vice-Chair update of the Annual Action Plan. This year as we go

through that process, we have this meeting as an opportunity to share that a little bit more broadly.

We do have a track change version that was sent out in the materials. Goal 3 is specific to the fisheries dependent data that is focused in collection as what ACCSP does. I wanted to offer, we've certainly had discussion today, but an opportunity to comment. You can e-mail me directly by mid-September here, and then we'll get that folded into the full Action Plan that gets evaluated by the Administrator of Oversight Committee, and then considered for action during the ASMFC Business Meeting.

For that, this was a good opportunity to solicit any comments or thoughts that you may have going into this process, because once we get to October it's a little bit late to make changes. Does anyone want to make a comment at this time, or just an opportunity to submit? I see a hand, Dave Gloeckner.

MR. GLOECKNER: Hey, Geoff, as I read through, I think Goal 3 here, it still only specifies timely, accurate catch effort and biological data. At what point are we going to incorporate economic data in that list?

MR. WHITE: It's a good question. The Annual Action Plan is really focused on where we expect to accomplish items in the coming year. While some data collection includes economic questions, as a broad ACCSP focus for a lot of our staff, and including in SAFIS and the Warehouse, we had not identified that as a major goal for 2024. If that is something that you see that should be raised in its priority for '24, let me know.

MR. GLOECKNER: Yes, I think we're working on transferring some of our logbook data to you all, and that information also contains surveys on economic data. At some point I think if not '24, maybe '25, we need to start specifying that.

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

MR. WHITE: That's good, thank you.

CHAIR McNAMEE: Thanks for that, David, any other comments on the action planning for Geoff, please raise your hand. I'm not seeing anything. Geoff, I think you've got one slide left there, you can go forward.

MR. WHITE: I do, just jump right ahead to that. This point here is a summary of the FY24 proposals. Based on our meeting in May and the RFP that went out, I want to say, we successfully solicited a lot of new proposals. We were worried about not enough proposals, and we ended up with too many, which is a fabulous response for asking folks to consider proposals for ACCSP funding. There was a total of 18 proposals that were submitted, one was withdrawn, this was a summary that is a little bit updated from what I sent out in the materials.

The one that was withdrawn was PRFC, and one proposal moved from new to maintenance, which is why the numbers, the grand totals here are flying up a little bit differently. The one that changed was a Rhode Island welk proposal that moved up to maintenance, and the withdrawn was PRFC blue catfish.

These things will be ranked by Operations and Advisors in September, they're meeting, I believe it's the 19th to 20th. I do encourage communication with your Ops members, and I really wanted to make sure that this scale of what the range of proposals were, what the funding looks like at the moment, were presented to you, considering that both maintenance and new groups of proposals are higher than the 75 percent 25 percent split identified in the funding decision document.

The proposal selection may need some additional discussion time in October, and the groups are doing kind of the full ranking proposals for both maintenance and new. That is really to preserve the Coordinating Council Leadership Team's direction on the use of prior year unallocated funds. I'll have an update closer to October on those unallocated funds.

There may be a little bit more that we'll be able to make available to the proposal process, but again, I'm still working on those numbers at this time. The other thing I till highlight there is under the ACCSP Admin Proposal, it does say that the base is essentially the same as the FY23 last year proposal, and the guidance during last November's annual meeting with the Coordinating Council was to provide options that may or may not fit in with the Administrative Proposal that could be selected by the Coordinating Council at the time of funding.

There is kind of the base in there and two options for additional projects that are clarified in the document, and will be reviewed and considered by the Ops and Advisors.   With that, are there questions on the funding? The proposal I really just wanted to highlight, we did a great job of soliciting proposals, thank you to all of you and your staff who were able to submit a proposal. That good job led us to some good decisions ahead in finding the proposals that will best fit ACCSPs direction and need in funding requirements of the partners.

CHAIR McNAMEE: Great, as Geoff mentioned, you know I think this is kind of a heads up to give you a first look at this stuff. Happy to take any quick questions anyone might have, recognizing that we're going to talk in much more detail later on, on this subject.

OTHER BUSINESS

CHAIR McNAMEE: Okay, Geoff, it looks like we don't have any hands, so I think that gets us through the agenda, with the exception of Other Business. Quick question out to the group. Is there any other business to come before the Coordinating Council? If so, please raise your hand. Okay, not seeing any

hands, on the screen there you see we have our next meeting, that is the Tuesday of meeting week.

We'll be coming back to some of this stuff. This is a nice opportunity to get out ahead of some of the stuff, give you that kind of quick look at these things, give you a little bit of focus as you are preparing for the Annual Meeting. I think we've set ourselves up really well here to have a good productive meeting in October. With that, Geoff, maybe for the very last thing there I'll pass that back to you.

MR. WHITE: Fantastic, thank you. I added an extra R in there, I apologize, Marty. But thank you! Today is Marty's last day with PRFC. I wanted to take a moment to recognize and appreciate your years of service with ACCSP and PRFC, and over that time your work with us and adoption of ACCSP and SAFIS tools to move PRFC forward as part of the proposal process.

Yes, it was just part of that history of partners getting projects to forward their data collection and data management, and in the last few years PRFC has been ready to do that and making great strides. Appreciate that project, but also what you have done to jump in, participate in Coordinating Council and really provide a lot of help to ACCSP. Thank you, and we will probably see you under another agency soon, is what I'm hoping. Thank you, Marty.

ADJOURNMENT

CHAIR McNAMEE: Just to extend my appreciation as well to you, Marty, and wish you the best of luck in your new gig. With that, I think that brings us to the end of our agenda. I want to thank everybody who presented today, really nice job to all the presenters. You've covered a lot of material; I think you covered it really well. Thanks to everybody for that. Good discussion as well, so thanks to the Coordinating

Council. I will wish you all a nice start to your fall, and we will see you all in October. Thanks everybody.

(Whereupon the meeting convened at 11:15 a.m. on Thursday August 31, 2023.)

These minutes are draft and subject to approval by the Atlantic Coastal Cooperative Statistics Program Coordinating Council. The Coordinating Council will review the minutes during its next meeting.

FY24 Proposal Recommendations to Coordinating Council
From the Operations and Advisory Committees

- Request that the Coordinating Council direct the funding subcommittee to be convened to review and potentially update the available point ranges of program priorities in the ranking process with consideration of the increased importance of socio-economic data in recent years.
- The Operations and Advisory Committees would like to present the rankings from both groups individually. The recommendation is to follow the combined rankings with the caveats as noted below.
  - Administrative grant: Fully fund the base budget inclusive of Option 2 ($50K). The committees felt Option 1 was important and be offered again next year if alternative funds are not found.
  - Maintenance projects recommendation: Use a portion of the $250K carry-over to fully fund the top six (6) maintenance proposals and to not fund the seventh project (RI whelk) as that species is not in the top quartile of the biological matrix.
  - New projects recommendation: Use the new project bank and the remaining portion of the $250K carry-over to fund the top three (3) new proposals:
    - *Development and Integration of National Marine Fisheries Service (NMFS) Highly Migratory Species (HMS) Data Elements into VESL*
    - *Development of Statistical Frames for Dockside Biosampling of the Recreational Headboat and Commercial Fishing Fleets in the South Atlantic*
    - *Massachusetts Oracle Forms Redesign and Modernization: Phase 2*
  - The two (2) projects below are seen as valued and the committees recommend that they both be considered for funding. The tilefish project had the next highest ranking and economic project was ranked as highly as possible given the range of the program priorities.
    - *Improving Catch and Effort Data Collection from Recreational Tilefish Anglers*
    - *The Economic Impact of Rhode Island's Fishing Industry*
- The committees recommend that early funding (November) be used for Option 2 of the Administrative Grant ($50,000) and for the new SC DNR project to add HMS fields to VESL ($112,900) as both projects can start work on that timeline and would not require transferring funds.

* all above are consensus decisions

*Our vision is to be the principal source of fisheries-dependent information
on the Atlantic coast through the cooperation of all program partners.*

FY2024 Operations Proposal Rankings

	Admin Grant	2,310,327	$44,423	2,354,750
3.35M	Maint @ 75%	746,438	New @ 25%	248,813
3.50M	Maint @ 75%	858,938	New @ 25%	286,313

Project Name	Partner	Score	Cost	Cumulative Cost	3.5M Amt Remaining	3.35M Amt Remaining
FY24: North Carolina biological database enhancements for the transmission of data to the ACCSP	NCDMF	50.14	$ 146,981	$ 146,981	$ 711,957	$ 599,457
FY24: Managing 100% Lobster Harvester Reporting in Maine	ME DMR	49.86	$ 335,591	$ 482,572	$ 376,366	$ 263,866
Advancing Fishery Dependent Data Collection for Black Sea Bass (Cetropristis striata) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Vessel Research Fleet Approach	RI DEM	48.10	$ 43,635	$ 526,207	$ 332,731	$ 220,231
FY24: Expansion of the FISHstory Citizen Science Project	SAFMC	46.71	$ 86,815	$ 613,022	$ 245,916	$ 133,416
Electronic Trip-Level Reporting for the Potomac River Fisheries Commission Commercial Fisheries Sector	PRFC	45.67	$ 207,512	$ 820,534	$ 38,404	$ (74,097)
Pilot Observer Program for Rhode Island State Waters Gillnet Fishery	RI DEM	43.00	$ 126,722	$ 947,256	$ (88,319)	$ (200,819)
Maintaining the Whelk Research Fleet to Improve Fishery-Dependent Data Collection for Channeled Whelk (Busycotypus canaliculatus) and Knobbed Whelk (Busycon carica)	RI DEM	39.57	$ 92,996	$ 1,040,252	$ (181,315)	$ (293,815)

includes carryover from maintenance projects

Project Name	Partner	Score	Cost	Cumulative Cost	3.5M Amt Remaining	3.35M Amt Remaining
Development and Integration of National Marine Fisheries Service (NMFS) Highly Migratory Species (HMS) Data Elements into VESL	SC DNR	54.76	$ 112,900	$ 112,900	$ 173,413	$ 135,913
Development of Statistical Frames for Dockside Biosampling of the Recreational Headboat and Commercial Fishing Fleets in the South Atlantic	SEFSC	50.38	$ 134,827	$ 247,727	$ 38,586	$ 1,086
Massachusetts Oracle Forms Redesign and Modernization: Phase 2	MA DMF	47.90	$ 100,000	$ 347,727	$ (61,415)	$ (98,915)
Port Sampling for the Maine Atlantic Halibut Fishery	ME DMR	45.52	$ 71,226	$ 418,953	$ (132,641)	$ (170,141)
Improving Catch and Effort Data Collection from Recreational Tilefish Anglers	MAFMC	44.90	$ 109,589	$ 528,542	$ (242,230)	$ (279,730)
A comprehensive verification program for accountable electronic harvest reporting in Maryland's commercial fisheries	MD DNR	43.50	$ 524,940	$ 1,053,482	$ (767,170)	$ (804,670)
Characterizing Atlantic Cod Discards in the Maine Lobster Fishery for use in Stock Assessment	ME DMR	41.71	$ 72,136	$ 1,125,618	$ (839,306)	$ (876,806)
The Economic Impact of Rhode Island's Fishing Industry	RI DEM	39.33	$ 114,283	$ 1,239,901	$ (953,589)	$ (991,089)
Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries	PRFC	38.57	$ 76,541	$ 1,316,442	$ (1,030,130)	$ (1,067,630)

FY2024 Advisors Proposal Rankings

	Admin Grant	2,310,327	$44,423	2,354,750
3.35M	**Maint @ 75%**	746,438	**New @ 25%**	248,813
3.50M	**Maint @ 75%**	858,938	**New @ 25%**	286,313

Project Name	Partner	Score	Cost	Cumulative Cost	3.5M Amt Remaining	3.35M Amt Remaining
FY24: North Carolina biological database enhancements for the transmission of data to the ACCSP	NCDMF	50.50	$ 146,981	$ 146,981	$ 711,957	$ 599,457
FY24: Managing 100% Lobster Harvester Reporting in Maine	ME DMR	50.25	$ 335,591	$ 482,572	$ 376,366	$ 263,866
Advancing Fishery Dependent Data Collection for Black Sea Bass (Cetropristis striata) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Vessel Research Fleet Approach	RI DEM	50.25	$ 43,635	$ 526,207	$ 332,731	$ 220,231
Pilot Observer Program for Rhode Island State Waters Gillnet Fishery	RI DEM	40.00	$ 126,722	$ 652,929	$ 206,009	$ 93,509
Electronic Trip-Level Reporting for the Potomac River Fisheries Commission Commercial Fisheries Sector	PRFC	39.50	$ 207,512	$ 860,441	$ (1,504)	$ (114,004)
FY24: Expansion of the FISHstory Citizen Science Project	SAFMC	36.75	$ 86,815	$ 947,256	$ (88,319)	$ (200,819)
Maintaining the Whelk Research Fleet to Improve Fishery-Dependent Data Collection for Channeled Whelk (Busycotypus canaliculatus) and Knobbed Whelk (Busycon carica)	RI DEM	34.75	$ 92,996	$ 1,040,252	$ (181,315)	$ (293,815)

includes carryover from maintenance projects

Project Name	Partner	Score	Cost	Cumulative Cost	3.5M Amt Remaining	3.35M Amt Remaining
Improving Catch and Effort Data Collection from Recreational Tilefish Anglers	MAFMC	54.33	$ 109,589	$ 109,589	$ 176,724	$ 139,224
Development and Integration of National Marine Fisheries Service (NMFS) Highly Migratory Species (HMS) Data Elements into VESL	SC DNR	53.25	$ 112,900	$ 222,489	$ 63,824	$ 26,324
Massachusetts Oracle Forms Redesign and Modernization: Phase 2	MA DMF	48.75	$ 100,000	$ 322,489	$ (36,177)	$ (73,677)
Development of Statistical Frames for Dockside Biosampling of the Recreational Headboat and Commercial Fishing Fleets in the South Atlantic	SEFSC	47.00	$ 134,827	$ 457,316	$ (171,004)	$ (208,504)
A comprehensive verification program for accountable electronic harvest reporting in Maryland's commercial fisheries	MD DNR	45.50	$ 524,940	$ 982,256	$ (695,944)	$ (733,444)
Port Sampling for the Maine Atlantic Halibut Fishery	ME DMR	41.75	$ 71,226	$ 1,053,482	$ (767,170)	$ (804,670)
The Economic Impact of Rhode Island's Fishing Industry	RI DEM	41.75	$ 114,283	$ 1,167,765	$ (881,453)	$ (918,953)
Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries	PRFC	39.50	$ 76,541	$ 1,244,306	$ (957,994)	$ (995,494)
Characterizing Atlantic Cod Discards in the Maine Lobster Fishery for use in Stock Assessment	ME DMR	29.50	$ 72,136	$ 1,316,442	$ (1,030,130)	$ (1,067,630)

FY2024 Proposal Rankings (Combined)

	Admin Grant	2,310,327	$44,423	2,354,750
3.35M	Maint @ 75%	746,438	New @ 25%	248,813
3.50M	Maint @ 75%	858,938	New @ 25%	286,313

Project Name	Partner	Score	Cost	Cumulative Cost	3.5M Amt Remaining	3.35M Amt Remaining
FY24: North Carolina biological database enhancements for the transmission of data to the ACCSP	NCDMF	50.20	$ 146,981	$ 146,981	$ 711,957	$ 599,457
FY24: Managing 100% Lobster Harvester Reporting in Maine	ME DMR	49.92	$ 335,591	$ 482,572	$ 376,366	$ 263,866
Advancing Fishery Dependent Data Collection for Black Sea Bass (Cetropristis striata) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Vessel Research Fleet Approach	RI DEM	48.44	$ 43,635	$ 526,207	$ 332,731	$ 220,231
FY24: Expansion of the FISHstory Citizen Science Project	SAFMC	45.12	$ 86,815	$ 613,022	$ 245,916	$ 133,416
Electronic Trip-Level Reporting for the Potomac River Fisheries Commission Commercial Fisheries Sector	PRFC	44.68	$ 207,512	$ 820,534	$ 38,404	$ (74,097)
Pilot Observer Program for Rhode Island State Waters Gillnet Fishery	RI DEM	42.52	$ 126,722	$ 947,256	$ (88,319)	$ (200,819)
Maintaining the Whelk Research Fleet to Improve Fishery-Dependent Data Collection for Channeled Whelk (Busycotypus canaliculatus) and Knobbed Whelk (Busycon carica)	RI DEM	38.80	$ 92,996	$ 1,040,252	$ (181,315)	$ (293,815)

includes carryover from maintenance projects

Project Name	Partner	Score	Cost	Cumulative Cost	3.5M Amt Remaining	3.35M Amt Remaining
Development and Integration of National Marine Fisheries Service (NMFS) Highly Migratory Species (HMS) Data Elements into VESL	SC DNR	54.52	$ 112,900	$ 112,900	$ 335,095	$ 135,913
Development of Statistical Frames for Dockside Biosampling of the Recreational Headboat and Commercial Fishing Fleets in the South Atlantic	SEFSC	49.84	$ 134,827	$ 247,727	$ 200,268	$ 1,086
Massachusetts Oracle Forms Redesign and Modernization: Phase 2	MA DMF	48.04	$ 100,000	$ 347,727	$ 100,268	$ (98,915)
Improving Catch and Effort Data Collection from Recreational Tilefish Anglers	MAFMC	46.13	$ 109,589	$ 457,316	$ (9,322)	$ (208,504)
Port Sampling for the Maine Atlantic Halibut Fishery	ME DMR	44.92	$ 71,226	$ 528,542	$ (80,548)	$ (279,730)
A comprehensive verification program for accountable electronic harvest reporting in Maryland's commercial fisheries	MD DNR	43.83	$ 524,940	$ 1,053,482	$ (605,488)	$ (804,670)
Characterizing Atlantic Cod Discards in the Maine Lobster Fishery for use in Stock Assessment	ME DMR	39.76	$ 72,136	$ 1,125,618	$ (677,624)	$ (876,806)
The Economic Impact of Rhode Island's Fishing Industry	RI DEM	39.72	$ 114,283	$ 1,239,901	$ (791,907)	$ (991,089)
Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries	PRFC	38.72	$ 76,541	$ 1,316,442	$ (868,448)	$ (1,067,630)

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF MARINE FISHERIES

3 Fort Wetherill Road, Jamestown, RI 02835
401-423-1923

October 3, 2023

Atlantic Coastal Cooperative Statistics Program (ACCSP)
1050 N. Highland St. Ste. 200 A-N
Arlington, VA 22201

Dear ACCSP Coordinating Council Members,

At the Joint ACCSP Operations and Advisors Committee Meeting held September 19 – 20, 2023, the committees formed recommendations for the Coordinating Council (CC) regarding funding of partner projects submitted in response to the ACCSP FY24 Request for Proposals. For the new proposals submitted, the committees specifically noted in their recommendations that two proposals submitted by the Mid-Atlantic Fishery Management Council (MAFMC) and RI Division of Marine Fisheries (RIDMF), "Improving Catch and Effort Data Collection from Recreational Tilefish Anglers" and "The Economic Impact of Rhode Island's Fishing Industry", were deemed value and should be considered for funding.

The RIDMF appreciates the thoughtful discussion among the committees and their recommendations made to the CC. To best satisfy this recommendation, the Principal Investigators from the MAFMC and RIDMF proposals have discussed the possibility of each partner receiving partial funding and what project objectives may still be accomplished under that scenario. If partial funding were made available to the RIDMF, the project could be scaled back accordingly to meet one or more objectives of the proposal. The specific objectives that could be accomplished would be dependent upon the final amount awarded; however, project PIs would prioritize the following from the DMF proposal to be completed under limited funding scenarios:

- Develop economic multipliers for the Port of Galilee in Narragansett, RI, the state's largest commercial fishing port comprising ~70% of the state's fisheries landings.
- Create an economic multiplier protocol for ACCSP partners.

As discussed by the Operations and Advisors committees, there is interest and need for estimating the economic impacts of fisheries along the Atlantic Coast, and developing a protocol that all ACCSP partners can follow and implement through this DMF proposal would address that need. We thank you for considering additional funding scenarios for these projects, and request that this letter be included in supplementary meeting materials for the Coordinating Council meeting scheduled on October 17, 2023.

Sincerely,

M. Conor McManus, Ph.D.
Chief
RI DEM Division of Marine Fisheries
3 Ft. Wetherill Rd., Jamestown, RI, 02835
401-423-1941
conor.mcmanus@dem.ri.gov

	Partner	Title	Primary Module	Others	Cost	Max Funding Year 5/6
1	ME DMR	FY24: Managing 100% Lobster Harvester Reporting in Maine	Catch/Effort (100%)		$ 335,591	
2	RI DEM	Advancing Fishery Dependent Data Collection for Black Sea Bass (Cetropristis striata) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Vessel Research Fleet Approach	Biological (50%)	Catch/Effort (25%), Bycatch (25%)	$ 43,635	$ 43,635
3	PRFC	Electronic Trip-Level Reporting for the Potomac River Fisheries Commission Commercial Fisheries Sector	Catch/Effort (100%)		$ 207,512	
4	NCDMF	FY24: North Carolina biological database enhancements for the transmission of data to the ACCSP	Biological (100%)		$ 146,981	
5	RI DEM	Pilot Observer Program for Rhode Island State Waters Gillnet Fishery	Bycatch (80%)	Catch/Effort (20%)	$ 126,722	
6	SAFMC	FY24: Expansion of the FISHstory Citizen Science Project	Catch/Effort (50%)	Biological (50%)	$ 86,815	
7	RI DEM	Maintaining the Whelk Research Fleet to Improve Fishery-Dependent Data Collection for Channeled Whelk (Busycotypus canaliculatus) and Knobbed Whelk (Busycon carica)			$ 92,996	
				Total Maintenance	**$ 1,040,252**	

(left margin label: MAINTENANCE)

	Partner	Title	Primary Module	Others	Cost	
1	ME DMR	Port Sampling for the Maine Atlantic Halibut Fishery			$ 71,226	
2	SC DNR	Development and Integration of National Marine Fisheries Service (NMFS) Highly Migratory Species (HMS) Data Elements into VESL	Catch/Effort (80%)	Bycatch (20%)	$ 112,900	
3	MA DMF	Massachusetts Oracle Forms Redesign and Modernization: Phase 2	Catch/Effort (100%)		$ 100,000	
4	RI DEM	The Economic Impact of Rhode Island's Fishing Industry	Socioeconomic (100%)		$ 114,283	
5	SEFSC	Development of Statistical Frames for Dockside Biosampling of the Recreational Headboat and Commercial Fishing Fleets in the South Atlantic	Biological (100%)		$ 134,827	
6	ME DMR	Characterizing Atlantic Cod Discards in the Maine Lobster Fishery for use in Stock Assessment			$ 72,136	
7	PRFC	Invasive Blue Catfish Tracker for Potomac River Fisheries Commission Commercial Fisheries	Catch/Effort (100%)		Withdrawn	
8	PRFC	Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries	Catch/Effort (100%)		$ 76,541	
9	MAFMC	Improving Catch and Effort Data Collection from Recreational Tilefish Anglers	Catch/Effort (100%)		$ 109,589	
10	MD DNR	A comprehensive verification program for accountable electronic harvest reporting in Maryland's commercial fisheries	Catch/Effort (80%)	Biological (15%), Socioecon (5%)	$ 524,940	
				Total New	**$ 1,3316,442**	

(left margin label: New)

	Partner	Title	Primary Module	Others	Cost	
	ACCSP	ACCSP Administrative Budget (with both options)	Admin		$ 2,360,327	
				Grand Total Proposed	**$ 4,717,021**	

(left margin label: Admin)

STATE OF MAINE
DEPARTMENT OF
MARINE RESOURCES
MARINE RESOURCES LABORATORY
P.O. BOX 8, 194 MCKOWN POINT RD
W. BOOTHBAY HARBOR, MAINE 04575-0008

JANET T. MILLS
GOVERNOR

PATRICK C. KELIHER
COMMISSIONER

August 7, 2023

Atlantic Coastal Cooperative Statistics Program
1050 N. Highland St. Ste. 200 A-N
Arlington, VA 22201

Dear ACCSP:

We are pleased to submit the proposal titled "FY24: Managing 100% Lobster Harvester Reporting in Maine" for your consideration. This is a maintenance proposal which has not changed in the scope of work. The continuation of this project will allow the Maine Department of Marine Resources (MEDMR) to continue its compliance with ASMFC's Addendum 26 requirement that the MEDMR move from 10% lobster reporting to 100% electronic lobster reporting. The MEDMR implemented 100% lobster reporting starting January 1, 2023; which is a full year ahead of the addendum's requirement to be fully implemented by January 1, 2024. The MEDMR felt it was important to implement as early as possible to comply with and track the pending vertical line reductions resulting from the new regulations to reduce the risk of entanglement to right whales through the Atlantic Large Whale Take Reduction Plan. Collecting as much information on these gear configurations during the recent six year pause of these regulations is imperative to accurately document the effort and vertical line use in the lobster fishery. The MEDMR's initial goal was to implement 100% reporting in 2021; however, funding shortfalls prevented this from occurring. Continued funding of this proposal would allow MEDMR to continue the implementation.

The MEDMR does not currently have the funds needed to continually support and staff the program at the 100% reporting level. Overall, MEDMR created nine new positions that have been filled and vital to the successful roll out of 100% electronic lobster harvester reporting. Not all of the nine positions are included in our funding request as other one-time funding sources have been secured to alleviate the burden of our request to ACCSP. Please view all graphs in color. This proposal addresses the following 2024 ranking criteria: catch and effort, data delivery plan, regional impact, funding transition plan, in kind contribution, improvement in data quality and timeliness, impact on stock assessment and properly prepared.

For a summary of the proposal for ranking purposes, please see page 32. Please contact Robert Watts at the MEDMR with any questions. Thank you for your consideration of this proposal. There were not questions from the panel however, we added a new table (table 2) to this proposal from the preproposal and highlighted those changes in yellow.

Sincerely,

Robert B. Watts II
Marine Resources Scientist III
rob.watts@maine.gov
(207) 633-9412

FY24: Managing 100% Lobster Harvester Reporting in Maine

Total Cost: $335,591.06

Submitted by:

Robert B. Watts II
Maine Department of Marine Resources
PO Box 8
West Boothbay Harbor, ME 04575
rob.watts@maine.gov

Jesica Waller
Maine Department of Marine Resources
PO Box 8
West Boothbay Harbor, ME 04575
jesica.d.waller@maine.gov

Applicant Name: Maine Department of Marine Resources (MEDMR)

Principal Investigator: Robert Watts, Marine Resource Scientist

Project Title: FY24: Managing 100% Lobster Harvester Reporting in Maine

Project Type: Maintenance Project

Requested Award Amount (without the NOAA administration fee): $335,591.06

Requested Award Period: One year after receipt of funds

Objectives:
The objective of this proposal is to comply with Addendum XXVI (http://www.asmfc.org/uploads/file/5a9438ccAmLobsterAddXXVI_JonahCrabAddIII_Feb2018.pdf) of ASMFC's (Atlantic States Marine Fisheries Commission) American lobster Fisheries Management Plan (FMP) which required MEDMR increase the percentage of trip level landings information MEDMR collects from commercial lobster harvesters from the current "optimized draw method" (approximately 380 harvesters) to 100% (approximately 6,000 harvesters). Starting in 2019, ASMFC Addendum XXVI required MEDMR move to an "optimized draw" selection method to choose the lobster harvesters required to report for the following year. The "optimized draw" selects different percentages of license types and active/non-active harvesters based a statistical analysis of the variability of each license class using a of combination of dealer data and harvester reported data. In the past MEDMR would select approximately 700 to 800 harvesters per year, now around 350 to 400 harvesters are selected with the idea that the selected harvesters would provide the same number of trip records (See Figure 3). Addendum XXVI requires 100% reporting (electronic reporting is recommended but not mandatory) by January 2024 in addition to other new required fields that became mandatory in January 2021. MEDMR started collecting total endlines and 10 min square data at the trip level in 2020 even though ASMFC moved these requirements back to 2021. Starting January 1, 2023, MEDMR required 100% electronic lobster harvester reporting. This requirement has caused MEDMR to increase landings and licensing staff by a total of 9 newly created and filled positions to effectively manage, monitor and audit what will be a 500% increase in the number of trip level reports the MEDMR receives on an annual basis.

National Marine Fisheries Service (NMFS) was in the process of finalizing new rules to protect North Atlantic right whales as part of the Atlantic Large Whale Take Reduction Plan (ALWTRP) for the Northeast lobster fishery. The implementation of these plans have been pushed back as part of a six year moratorium. This will allow states the ability to collect vital information such as end line counts and gear configuration with a spatial component to better map out where actual fishing activity are occurring. The MEDMR will also require trackers be placed on all federally permitted vessels starting in December, 2023. ASMFC is requiring 100% reporting in the lobster fishery by 2024. The AWTRT has recommended on more than one occasion that fisheries move to 100% reporting as soon as possible. MEDMR strongly agrees with this recommendation because our ability to achieve and monitor the consensus goals of the AWTRT is tied to the availability of these data in the short term. MEDMR believes that the January 2023 date was necessary to meet the data guidelines outlined in Addendum 26, the needs of the AWTRT, and work out any data collection and data management issues well before the 2024 deadline.   Additionally, MEDMR was interested in moving the timeframe for 100% electronic lobster harvester reporting up to as early as 2023 to track effort and vertical line use in support of pending new regulations. The FY20 proposal intended MEDMR to require 100% reporting starting in January 2021; however, lack of funding has required this timeframe be pushed back to 2023. Similarly, in the 2023 timeframe the MEDMR does not have the funding to continuously fund all the positions necessary to effectively

administer, collect, audit and distribute the data required in Addendum XXVI. If the MEDMR is not able to secure adequate funding, the continued implementation of the 100% reporting would need to be revisited. **The MEDMR has self-funded the creation of a new offline mobile application for both iOS® and Android® platforms through dedicated technology funds. This program was built to accept reports from all fisheries and meet NMFS electronic reporting requirements. This new program has dynamic entry pages and be completely table driven allowing the entry pages to display more concise field descriptions based on species and gears fished. There are built in data validations, reoccurring selections appear at the top of drop down lists and basic end user analytics.** The MEDMR released this program industry wide in the fall of 2021. With the release of this program, the MEDMR has required electronic reporting in multiple fisheries if there's a data management need. **The primary tasks will be electronic reporting software training, regulation compliance, data audits, data entry and general outreach. Staff will also focus on harvester outreach to help industry understand the importance of the accurate and timely reporting. Electronic reporting are required for commercial lobster harvesters and heavily pushed for those that still report other fisheries on paper. The focus on expansion of electronic reporting will require the MEDMR to spend a significant amount of time on outreach, explaining the reporting system to harvesters and troubleshooting any issues that might arise.** Currently, MEDMR only requires electronic reporting in our Atlantic herring, scallop (inshore state fishery), halibut (inshore state fishery), lobster and Atlantic menhaden fisheries. There are currently no plans to mandate electronic reporting for other fisheries, as this is not an ACCSP requirement.

Need:

Maine currently requires harvesters from 14 fisheries to report trip level landings on a variety of timelines (daily, weekly or monthly). A total of five fisheries require mandatory electronic harvester reporting (lobster, scallop, menhaden, herring and halibut). Two quota monitored fisheries (Atlantic herring and Atlantic menhaden) have daily reporting requirements during their "open quota monitored seasons (i.e. directed and episodic fishing season for menhaden) and two other fisheries (halibut and scallop) and trip level reporting due weekly during their inshore state seasons. **When the MEDMR implemented 100% lobster reporting, the number of new harvesters (see Table 1) required significant resources in outreach, tracking compliance, entering and auditing a ~500% increase in the number of reports received from approximately 60K to ~300K. In 2022, approximately 5,643 lobster harvesters were licensed to fish in Maine. Of those 5,643, MEDMR selected 474 to report trip level information. Now with 100% reporting all 5,643 will be required to report. Of the 5,643 harvesters, MEDMR dealer reports indicate 3,960 harvesters sold at least once to a licensed dealer. All 5,643 license holders regardless of activity will be required to report for each month they hold a current license. Moving to 100% reporting follows the MEDMR's change in how harvesters were selected. During the 2019 season the MEDMR move to an "optimized draw" selection method to choose the lobster harvesters required to report for the following year. The "optimized draw" selects different percentages of license types and active/non-active harvesters based a statistical analysis of the variability of each license class using a of combination of dealer data and harvester reported data. In the past MEDMR would select approximately 700 to 800 harvesters per year, in 2022 which was the last year of the optimized draw 474 were selected with the idea that the selected harvesters would provide the same number of trip records (See Figure 3).** The number of individual lobster harvesters required to report electronically will increase to just under 5,700 when 100% lobster harvester reporting becomes mandatory .

Of those 5,643 licensed harvesters, ~1,300 (23%) of them will eventually be required to report to National Marine Fisheries Service (NMFS) since they possess a federal lobster permit. **Regardless of their federal permit status, MEDMR will work with all harvesters to ensure all landings are reported either to MEDMR or NMFS**

since the collected data will benefit all partners. MEDMR staff will also audit all records with a state landed of Maine but defer any federal data changes to NMFS.

Table 1: Increase in Individual Harvester Reporting Expected in Maine

Year	Total Trips Entered	Lobster Only Entered	10% Active Lobster Harvesters	100% Active Lobster Harvesters	100% Lobster Harvesters	Lobster Trips From Dealer Reoprts	Lobster Harvester Reports Expected if 100% Required
			Moving from 10% to 100% Lobster Reporting				
2015	54,368	29,551	532	4,406	6,014	270,324	291,828
2016	57,867	30,927	566	4,504	6,009	293,919	300,535
2017	58,703	29,877	535	4,485	5,997	276,754	290,868
2018	59,076	26,999	543	4,391	5,925	264,046	277,512
2019	45,851	17,505	276	4,336	5,834	256,338	290,868
2020	44,047	18,179	297	4,063	5,773	218,962	277,512
2021	55,594	24,354	367	4,160	5,763	256,338	230,129
2022*	36,686	16,172	308	3,960	5,643	218,962	230,132

*2022 data are preliminary and subject to change without notice.
100% active license based on dealer reported data from 2015 - 2022
Harvester counts are individual harvesters. Many harvesters have multiple licenses that are tracked seperately.
Expected reports are calculated from reports received by harvesters and extraoplated based on reports received by dealers.

*Increase in the number of harvesters and reports expected when MEDMR implements 100% lobster harvester reporting.

In 2016 MEDMR converted to a new online licensing and landings system, called Maine LEEDS (**L**icensing **E**nforcement and **E**nvironmental **D**ata **S**ystem). Using this system, harvesters and dealers are able to:

- Renew a license you previously held
- Apply for a new license you've never held before
- Order tags (for certain licenses)
- Reprint your license
- Upgrade a license (if applicable)
- Pay administrative fees
- Report landings
- Check reporting compliance status
- Upload documents to the department
- Change your password to the system

This web application has been an extremely useful tool that has allowed for more "self-service" for harvesters and dealers, has improve customer satisfaction and increase MEDMR staff efficiency. The Landings Program now utilizes this LEEDS system to send compliance emails to industry informing them of what reports are delinquent. Harvesters and dealers also have the ability to login to the system and view what reports are missing as well. Overall this program has saved the MEDMR thousands of dollars in mailing cost as many of our correspondence have been sent via email as opposed to mail when appropriate. The process of informing harvesters that they have a license with reporting requirements has been automated and each harvester that purchases a license for the first time with reporting requirements are provided a notice included in their license packet to streamline our notification process. **In late spring 2018, MEDMR started allowing harvesters to enter their data through the LEEDS system and in 2021 released the VESL application to a group of test harvesters. Since the MEDMR provided harvesters an electronic reporting option, the number of harvesters utilizing an electronic reporting option has increased from 85 in 2018 to almost 1,300 harvesters in 2022. At the time of writing this proposal, over 2,900 harvesters have reported electronically in 2023. Since 2018, the percentage of electronic reports has increased from just over 1% to 46% in 2022 (and 93%**

in 2023) (Figure 1 – view in color and Table 2 for electronic reporting breakdown). Having industry enter their own information also saves staff time because paper reports do not need to be opened or processed through the mail, scanned into our LEEDS system or entered by hand. Staff have spent significant time training and creating outreach material (videos, electronic user guides, etc.) and communicating directly with industry. The shift to electronic reporting has caused staff to focus more of their time on data audits and outreach with industry.
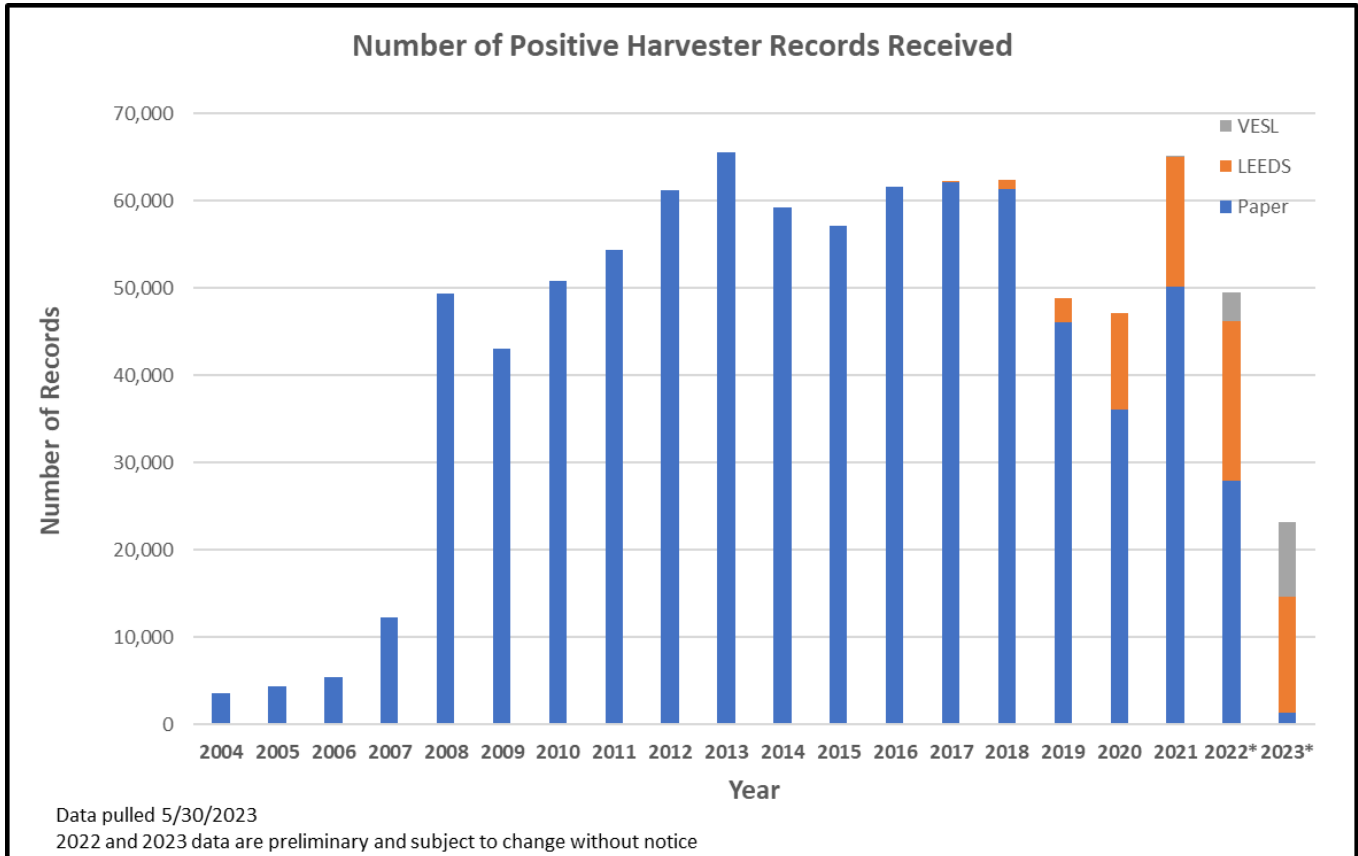
Figure 1: Number of Positive Trip Records Entered by MEDMR Staff and Industry into MARVIN and SAFIS

Table 2: MEDMR Harvester Reported Data Trends (Data received through 8-3-2023)								
		Electronic Reports						
		LEEDS		VESL				
Year	Paper Reports	# Trips Reported	# Users	# Trips Reported	# Users	Total Electronic	Total Reports	% Electronic
2020	35,545	11,003	599	0	0	11,003	46,548	24%
2021*	43,806	14,840	757	352	15	15,192	58,998	26%
2022	24,447	18,249	1,144	2,903	150	21,152	45,599	46%
2023**	4,715	40,150	1,950	23,486	1,024	63,636	68,351	93%
Paper reports are entered directly into MEDMR's MARVIN database by MEDMR staff								
LEEDS is MEDMR's web based online reporting application that feeds directly to our MARVIN database.								
VESL data numbers include state only and GARFO trips								
*2021 was pilot year for roll out of VESL in Maine								
**2023 is the first year of 100% lobster reporting for MEDMR (approx 5,800 harvesters)								
MEDMR currently requires lobster, menhaden, Atlantic herring, Atlantic halibut and scallop to report electroncially.								
Number LEEDS and VESL users could overlap and be counted more than once.								

Table 2: Breakdown of trip reports entered by Maine harvesters between 2020 and 2023 (to date)

Text in bold indicate where proposal hit on ranking criteria.   4

MEDMR currently requires (with some potential exemptions based on to be determined criteria) 100% electronic harvester reporting for lobster, herring, halibut, scallop and menhaden. Reliable high-speed internet access is not available in certain parts of the state which prohibits full 100% electronic reporting. The goal is to get as close to that as possible. The addendum allows until January 1, 2024 to meet this requirement. The MEDMR has taken a strict approach to allowing harvesters under certain circumstances to report on paper. Many other states are also not yet 100% electronic in the lobster fishery at this point. **Scallop, halibut, herring and menhaden are quota monitored species that MEDMR has identified as benefiting from requiring state only harvesters to report electronically. Starting in 2020 all herring and menhaden harvesters were required to report electronically through either Maine LEEDS or some federally accepted reporting application during the active harvest season. This requirement replaced the email system MEDMR relied upon the past few seasons to monitor quota. Requiring daily electronic reporting will save the harvesters from emailing and then filling out complete harvester reports at the end of the week/month. Starting in 2022, the MEDMR required trip level electronic reporting due weekly for scallop and halibut.** The offline mobile application MEDMR had Bluefin Data LLC build through its own funds has allowed harvesters with multiple reporting fisheries the ability to use one program to fulfill all their requirements whether they are state only or federal. **Of the 1.05 million trips for 2022 in the data warehouse, 31% of them were landed in Maine which exceeds any other state (Figure 2 – view in color). This figure includes both dealer and harvester records. If MEDMR had required 100% harvester reporting in 2022, the number of warehouse records for 2022 would have been 1.2 million (when extrapolating current lobster reporting levels to 100% lobster) and MEDMR would have accounted for 40% of all records (dealer and harvester) landed in ACCSP's Warehouse.** These records were submitted by both "state-only" harvesters (those that only report to MEDMR) as well as federal harvesters (those that report to fulfill both NMFS and MEDMR reporting requirements). **Because all state licensed harvesters are required to report to the MEDMR regardless if they have federal reporting requirements or not, MEDMR works with NMFS to collect data from federally permitted harvesters so they do not need to double report. MEDMR staff devotes time and resources to help all harvesters that submit data to NMFS and MEDMR.**
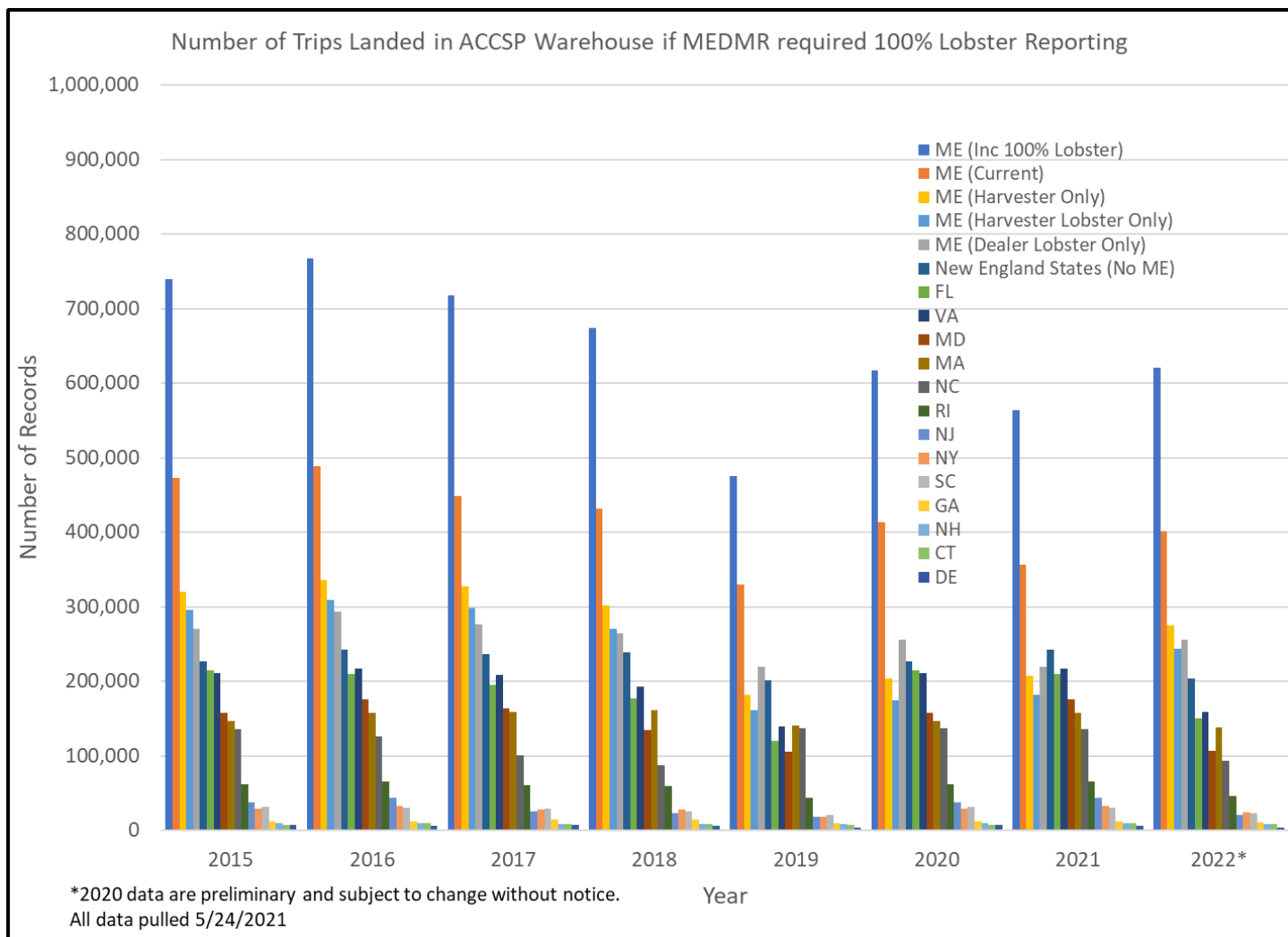
Figure 2: Number of Reported Trip Records by <u>State Landed</u> in ACCSP Data Warehouse

Since the MEDMR has required 100% lobster harvester reporting the volume of phone calls and data requests have increased. Throughout the year, approximately 40% to 60% of all harvesters are out of compliance for at least one month of reporting. In 2022 there were 3,576 harvesters with 5,394 individual licenses from all 13 fisheries that required harvester reporting and MEDMR sent out approximately 4,200 compliance letters (and emails) and fielded thousands of calls a month relating to reporting questions and compliance/license renewal status. Doubling the total number of harvesters required to report (many lobster harvesters are required to report other fisheries) will increase these figures and require more staff and staff time to provide industry with an acceptable level of customer service.

More staff will be needed to assist with audits and the increase in data that will require auditing. The increase in data will increase the time it takes to complete audits. The implementation of 100% lobster harvester reporting will allow the MEDMR to audit and compare 100% of our lobster dealer and harvester data. These two datasets alone account for over 500,000 records annually and will take significant staff resources to complete. MEDMR currently matches up what the 10% harvester reports indicate against what dealers reported for the same individuals. Any discrepancies over 2,000 pounds for the year are flagged and further research is conducted. Even with certain data validations in place, the data submitted through an electronic means will require a large amount of staff time to run the audits and research and correct any flagged records. These audits will take up significant staff time the first few years of 100% reporting.

Text in bold indicate where proposal hit on ranking criteria.

The first few years will require significant outreach with industry. **Communicating with industry and fielding electronic reporting questions will be the biggest time burden the landings program will face. Almost 53% of all harvester records submitted to MEDMR are key entered by MEDMR staff. Electronic reporting has been a cultural shift for the lobster fishery, which will require diligent customer service and an intuitive reporting application. MEDMR staff have spent significant resources (mostly time) holding in person and virtual meetings with industry to assist with the implementation and education of electronic reporting options with industry.** MEDMR has funded the development of a new harvester reporting application that is user friendly and meets the reporting needs of all MEDMR reporting fisheries, as well as meet NMFS eVTR reporting requirements. MEDMR spent significant time testing ACCSP's eTRIPs V2, which was greatly improved over the previous versions. However, there are still significant concerns about the number of reporting pages it took to complete, the agility of a program that is not fully table driven, and the ease of use for different fisheries. The program MEDMR contracted with Bluefin Data LLC to build worka on both Android® and iOS® and meets all GARFO eVTR requirements so those harvesters with state and GARFO permits will be able to utilize this system. The MEDMR has a contract with Bluefin Data LLC that will allow any harvester with a MEDMR license or permit to use the VESL application free of charge. Since VESL was approved by GARFO, those harvesters with a MEDMR license or permit that also has reporting obligations to GARFO, they will be able to use VESL to fulfill their GARFO reporting requirements regardless of where they are landing. **All data collected through the new MEDMR funded harvester applications will be submitted directly to ACCSP through the newly developed API (requirements are listed here https://accsp-software.github.io/spec-unified-api-prod/).** The funding source for the new mobile applications are through dedicated technology funding within MEDMR's budget. These funds must be used for advancing technologies and cannot be used for personnel.

The number of trip records that MEDMR staff entered into MARVIN (MEDMR's database that contains all sampling, biological and landings data that MEDMR collects) has increased ~225% since 2007 (Figure 1 – view in color), which was the last year the MEDMR did not require 10% lobster harvester reporting. Since the start of electronic reporting in ME, the number of electronic trip reports has increased 2,134% between 2022 and 2018 (21,506 reports in 2022 compared to 1,008 in 2018). When harvesters submit paper reports, they are entered into the MARVIN database. MARVIN is used for reports submitted on paper because it is a faster method of data entry and MEDMR uses this tool to audit the data before sending a copy of it to ACCSP. Routines are configured to convert the MARVIN data to ACCSP codes before they are uploaded to the ACCSP warehouse.

Landings data entered in MARVIN are uploaded to the ACCSP data warehouse. The significant increase in the amount of data entry, outreach/education and auditing are the single greatest challenge facing the landings harvester (including lobster) program staff. MEDMR currently funds seven positions that work at least part-time on harvester reporting. Currently four positions working on the harvester program are funded by ACCSP grants. **In addition to the FY22 ACCSP grant, MEDMR was able to secure additional one-time funding of $600K from NOAA through congressional appropriations as part of a large $1.6 million dollar bill to offset costs that might result from new regulations in the lobster fishery to protect right whales (split with MA, NH, ME and RI) and two million for a one-time ARPA funding (this is why the MEDMR did not request funding in FY2023). While this funding is vital, it does not provide MEDMR with enough funds to fully fund multiple years of lobster reporting. MEDMR continues to look for other sources of funding (both internal and external) to fund 100% lobster reporting. MEDMR has modified the current budget from previous years funded proposals to account for the ARPA and other NOAA funds. The positions**

listed in this grant currently have no other funding source available. MEDMR is now requesting continued funding for four positions.

This proposal is designed to continue to assist with funding the transition from 10% harvester reporting to 100% harvester reporting where most harvesters will be required to report electronically as required by Addendum XXVI. MEDMR understands that not everyone will be able to report electronically so a paper option must still be available. The positions being funded will be doing very little data entry and will mostly be assisting harvesters with reporting questions, educating harvesters with electronic reporting options and other outreach duties along with other data entry/auditing duties.

Summary of staffing:
MEDMR Landings Program staff involved in harvester reporting who are fully funded by MEDMR:
- Scientist IV: makes decisions on the general Landings Program direction.
- Scientist III: oversees the Landings Program, participates in ACCSP committees, transfers data to ACCSP; reporting technology development and responds to data requests.
- Scientist II: manages the day-to-day operations of the Landings Program, is responsible for database development, responds to data requests and updates the Landings Program web page. This position also audits data, and monitors licenses and compliance.
- Scientist I: provides one-on-one outreach with the harvesters; trains harvesters how to report electronically or on paper; follows up on compliance issues. This position audits data from "state-only" and "NMFS" harvesters. See the *Approach* section below for further details on auditing. This position is also assigned tasks in the dealer-reporting project.
- Office Associate II: corresponds with industry regarding new suspension authority for failure to report on time; identifies and notifies delinquent reporters; follows protocols for suspending licenses; works with the licensing division to ensure licenses are re-issued when reports have been submitted.
- Office Associate I (2 positions): opens and processes mail and enters data into MARVIN.

New MEDMR Landings Program staff to be funded by additional NOAA grant:
- Marine Resource Scientist II (1 position): Oversee the daily operations of harvester reporting program, including but not limited to scheduling of duties, directly supervising four employees, managing harvester data audits, database maintenance and assisting with reporting writing.
- Marine Resource Scientist I (2 positions): Oversee the rollout of the new offline harvester reporting application, outreach with industry and overseeing data audits. These two positions will be one of the primary contacts for industry members that have reporting program questions.
- Office Specialist I Supervisor (1 position): Supervise two Office Associate I positions and two Office Associate II positions located in the West Boothbay Harbor, ME Laboratory. This position will assist with incomplete reports, handle in-person report drop-off, report rejections, compliance mailings and calls and data audits.
- Office Associate II (1 position): Will have similar duties to the Office Associate II listed below. Will be based out of our Augusta office and will be cross-trained to assist our Licensing Department when help is needed.
- Office Associate II: Primary contact for incomplete reports, rejects reports, primary contact for compliance and reporting questions, notifies new harvesters of reporting requirements, assists with audit research.

New MEDMR Landings Program staff to be funded by ACCSP grant:
- Marine Resource Specialist II (2 positions): Help run data audits and correct erroneous data, primary data audit researcher for dealer vs harvester audits and will assist the Marine Resource Scientist I's with any industry technical outreach questions.

Text in bold indicate where proposal hit on ranking criteria.   8

- Office Associate II (2 positions): Will have similar duties to the Office Associate II listed above that is currently staffed by Alice Mayberry). This position will be based out of our West Boothbay Harbor office.

The MEDMR decided against the idea to ramp up from the current number of harvesters selected to report to 100% reporting. It was determined the best way forward is to go directly to 100% harvester reporting. For MEDMR to provide excellent customer service from the beginning, the number of positions proposed were what we felt necessary to provide the best level of customer service while being as fiscally responsible as possible. Each position created was a limited period position and each year MEDMR will evaluate these positions to determine if they are still needed. We anticipate that by year 3 to 5 we might be able to reduce the number of positions as harvesters become more versed with the reporting programs.

Finding funding to help defray the costs for this federally mandated requirement is something that the MEDMR has been looking for and will continue to look for. MEDMR will also look for ways to bring the overall costs down through either staff reductions as the program evolves or any and all in-house or outside sources. MEDMR will continue to look at ways to streamline the Landings Program's operation and will continue to try and automate as many processes (compliance and audits for instance) that will cut down on staffing needs. The extra staff included in this proposal will assist with the initial roll out and anticipated help that industry will need and the ability to assist industry within a reasonable amount of time to answer their questions.

It is essential that this harvester reporting program continue to meet funding needs, which are born as a result of ASMFC's requirement that MEDMR collect trip level harvester reports from 100% of all licensed commercial lobster harvesters. The implementation of new lobster fishery regulations in the Atlantic Large Whale Take Reduction Plan to reduce the threat of entanglement to endangered right whales is expediting the timeframe to increase reporting to 100% faster than Addendum XXVI required. **Requiring 100% lobster reporting will add another tool for monitoring Maine's commercial fisheries, which are large and economically important to the U.S. seafood industry.** According to the NMFS commercial fisheries database (as of 5/31/2023), Maine was ranked as the second highest state on the Atlantic Coast in commercial value ($576.2 million of which $388.6 million were lobster) and fourth highest in whole pounds landed (187.5 million of which 97.96 million were lobster) in 2022. **This comprehensive harvester reporting program also addresses ASMFC compliance issues for several fisheries, including American lobster, Atlantic herring, American eel and Atlantic menhaden.**

This grant does not include any funding for the offline mobile harvester reporting application. The MEDMR has fully funded the original programming, programmatic updates and maintenance costs associated with this project. The MEDMR will continue to fund the monthly maintenance fees. MEDMR will continue to try to identify alternative sources of funding for the harvester reporting project, but the State of Maine is continuing to face budget challenges and there are few options for state funding to cover the total cost.

<u>Results and Benefits:</u>
The data collected so far through MEDMR's harvester reporting program have shown how valuable this information is for Maine's fisheries. **Currently MEDMR requires 13 fisheries to submit trip level harvester reports and prior to 2023, lobster was the only fishery not collecting 100% of harvester trips (Figure 3 shows all non-confidential fisheries trips reported over past 5 years). Maine's commercial lobster fishery is by far the largest lobster fishery on the East Coast in both volume and number of individuals.** There are just under 5,800 licensed harvesters of which MEDMR previously selected between 380 and 800 harvesters each year to report. Even with selecting only a percentage of harvesters in the lobster industry, MEDMR scientists have learned more about the fleet characteristics, gear configurations and fishing patters for full time and part time fishermen involved in this fishery than they have been able to with the current sampling programs. Other

Text in bold indicate where proposal hit on ranking criteria. 9

fishery managers are now analyzing landings data to learn more about the fishing fleet and the makeup of other fisheries. **Requiring 100% reporting will only increase the MEDMR's knowledge base and increase the amount of data collected. Since most data will be submitted to SAFIS and all data stored in the ACCSP Warehouse, this large dataset will be available to all partners.**
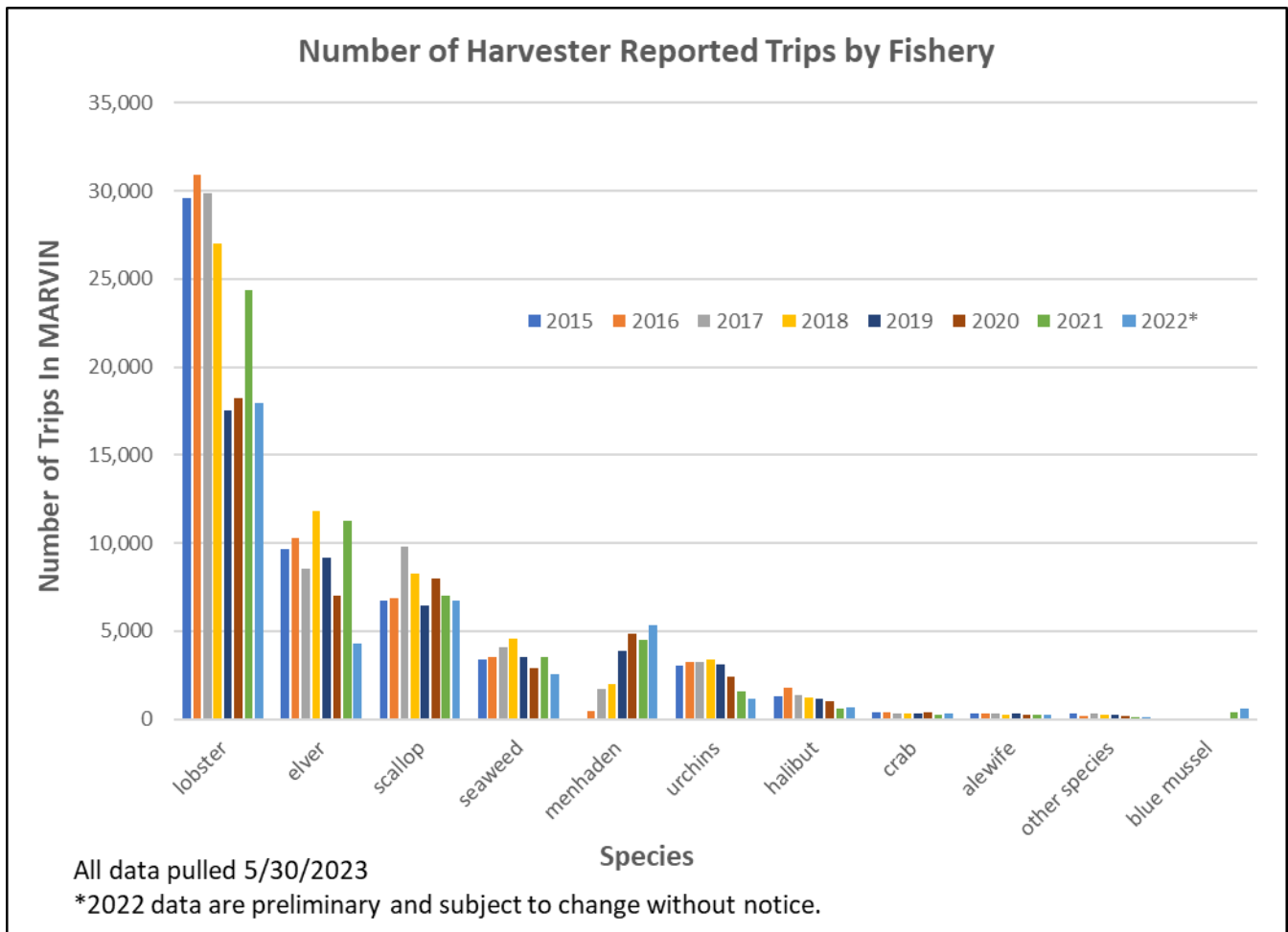
Figure 3: Number of Harvester Reported Trips by Fishery from Harvester Data

This grant will continue to allow MEDMR to meet ASMFC's Addendum XXVI target of 100% harvester reporting in the lobster fishery by January 2024. MEDMR wanted to speed up this deadline for protected species issues and required 100% trip level reporting in the lobster fishery in January 2023. This grant will allow MEDMR the ability to continue to fund positions needed to ensure the data collected are as accurate as possible through more data auditing, especially linking dealer and harvester reports together though our "dealer vs harvester reporting" audits where we match up each harvester report to the dealer report and their total landings are scrutinized. Addendum XXVI does not necessarily require 100% electronic reporting; however, MEDMR has required nearly 100% lobster harvester electronic reporting and know that harvesters in other fisheries were looking to move from paper reporting to electronic reporting. MEDMR anticipates that harvesters that report on paper will be offset by those that have reported on paper but will be required to switch to an electronic reporting option and the data entry staff currently employed will be sufficient. Staff are fielding more calls each day asking about electronic reporting and are promoting our Maine LEEDS online reporting, but most want a mobile friendly reporting option. **MEDMR is already uploading data reported to MARVIN to ACCSP every six months and intends to start uploading every other month; which benefits all partners.**

Metadata for the harvester program will be updated as needed according to the Federal Geographic Data Committee (FGDC) and the Content Standard for Digital Geospatial Metadata (CSDGM) standards where appropriate. The resulting metadata will be reported to ACCSP as text and XML.

This project will help MEDMR meet the data collection standards of ACCSP. All partners will benefit, as all data will be uploaded to ACCSP and many of the species landed in Maine have a broad geographic range which includes many other agencies in their management. Partners will benefit from the technologies built and lessons learned from the offline harvester reporting application MEDMR intends to have in production by early summer as this will be available to any partner.

<u>Approach:</u>
  1. Enforce compliance
MEDMR staff will enforce compliance of the trip level reporting regulation through these methods:
- **Provide initial outreach and technical support needed for harvesters to report trip level landings to MEDMR. Meet with harvesters in a group setting and one on one as needed to explain reporting procedures, install application, troubleshoot issues with reporting, and explain consequences for failing to report.**
- **Review paper reports submitted for completeness and verify the submissions in Maine LEEDS. If reports are incomplete, MEDMR will contact industry to correct reporting mistakes. If a harvester cannot be contacted by phone, the report will be returned for correction. Reports submitted electronically are deemed complete upon submission. If during the data audit process reports are unable to be reconciled, MEDMR staff will reject the electronic report back to the harvester for correction and re-submission.**
- **Send delinquent harvesters not included in the suspension process emails indicating what they are missing and send automated notifications within the Maine LEEDS program when a report is received or not.**
- **Complete suspension notices monthly to those harvesters involved in the halibut, herring, menhaden and elver fisheries that are delinquent enough to meet the minimum notification criteria as outlined in the suspension law (Attachment 4).**
- **Complete follow-up suspension notices monthly to those harvesters that are delinquent enough to meet the minimum notification criteria as outlined in the suspension law (Attachment 4).**
- **MEDMR will suspend harvester licenses for those who fail to report in a timely manner. See Attachment 4 for the law, which dictates suspension procedures MEDMR will follow.**

  2. Data entry
Paper reports and electronic reports entered through the Maine LEEDS system will go directly into MARVIN and then uploaded to the ACCSP Warehouse at least every 6 months once it has been thoroughly audited.

The harvester reporting application MEDMR contracted to have built by Bluefin Data LLC includes point of entry validations for harvester, vessel, gear, gear to various other variables (i.e. fisheries, gear quantities), gear quantities, locations, pounds, dispositions for example. The data entered through these new applications will utilize ACCSP's API and all data will be submitted directly into SAFIS.

  3. Encourage electronic reporting
MEDMR staff will require lobster, menhaden, scallop, halibut and herring harvesters to report electronically and encourage harvesters who report on paper for other fisherites to report using one of

the two electronic reporting methods MEDMR will offer (Maine LEEDS or our own Offline Electronic Reporting Application). MEDMR staff will train all harvesters who are required to report electronically regardless if they have reporting obligations to NOAA or not.

MEDMR believes that electronic reporting will benefit industry as much as it benefits MEDMR. If harvesters enter their own data through the MEDMR proposed application, they will have the ability to run basic analytics within the application to view their own trends and harvest information. MEDMR will benefit by reducing the amount of staff time spent entering data. If MEDMR was not able to offer an electronic reporting option, the number of data entry staff required to handle approximately 300,000 records per year would be at least 7 or 8 individuals in addition to what is currently proposed. Electronic reporting will not only save MEDMR staff data entry time, we will be able to automate many of our daily reporting processes, include data validation at the point of harvester entry and automate compliance and spend more time on data audits and outreach with industry.

4. Continue outreach with industry to promote buy-in.

MEDMR staff will continue to work with harvesters to explain the purpose and benefits of harvester reporting. MEDMR staff spent two days at the annual Fishermen's Forum in March 2023 and were available to assist harvesters with setting up and demonstrating the two reporting options MEDMR are currently offering (VESL and Maine LEEDS). These two days were very successful with staff directly assisting over 100 individuals and providing information to others that were not quite ready to start fishing and just wanted to see what was available. MEDMR has set up six meetings along the coast of Maine to assist harvesters with setting up their reporting software or answer questions. As of the writing of this proposal the first two sessions (Ellsworth and Rockland, ME) were very successful and heavily attended. MEDMR staff are available by phone or video calls Monday – Friday from 8 to 4:30 but many harvesters need the extra help of someone in person to guide them through the initial set up and first few reports. Many of these individuals have little to no experience with smartphones, tablets or computers so the learning curve can be steep. MEDMR staff have also added resources on our Landings Program homepage (https://www.maine.gov/dmr/fisheries/commercial/landings-program) to assist harvesters with reporting questions. Currently we have "how-to" guides for each fishery available and will be uploading videos to help assist harvesters. Before the 100% reporting became a requirement staff (along with staff from GARFO and Bluefin Data LLC) attended the annual Maine Fishermen's Forum in March 2020 to facilitate an electronic reporting discussion. This discussion allowed MEDMR, GARFO and Bluefin Data LLC an opportunity to show harvesters the current and future electronic reporting options that are/will be available. The session was lightly attended but helped formulate ideas of how to improve this important part of outreach. In addition to the in-person trainings we have offered we will also utilize videos and remote outreach; however, there are times when it is most productive to hold a few large in-person meetings to assist those that are not as tech savvy as others and are more comfortable having an in-person meeting. Having to on-board almost 6000 new harvesters will require every tool we have in our toolbox. There are also areas in Maine where internet speeds and or connectivity are lacking so remote meetings are difficult (this is why we developed a reporting application that will work "offline"). We intend to rely heavily on remote meetings and self-help video and reporting how-to's to assist those individuals that are comfortable with that format, but will continue to hold in-person meetings for those that need the extra assistance.

Staff will work with established industry organizations, such as the MEDMR advisory councils, lobster zone councils, and dealer and harvester associations to reiterate the program goals and show results of mandatory reporting. Staff will also focus on explaining the statutory authority for suspending licenses for those who fail to report on time, and how this will help gather more accurate data.

5. Audit of harvester data submitted.

Staff will audit data submitted bi-weekly. Paper data will be audited twice per month; electronic audits sent via email from SAFIS will be corrected weekly. SAFIS audits for "state-only" harvesters will be corrected through the VESL app by either industry or MEDMR staff. **Audits concerning federal harvesters will be vetted through the NMFS Northeast Region. MEDMR staff will audit electronic data submitted by federal harvesters because these harvesters submit data in order to also fulfill MEDMR reporting requirements. MEDMR performs basic audits of records to catch potential oversights from NMFS audits.** MEDMR also compares dealer-reported landings with harvester-reported landings and identifies both parties if there are any discrepancies. In these audits, MEDMR contacts dealers and harvesters when discrepancies are discovered and works to correct records or recover missing data.

MEDMR does intend to audit 100% of all individual records that are submitted. **Many of these audits will be simple gross audits (over the trip, gear quantity, spatial audits, etc.); however, the data submitted through the new mobile application have some validations built-in for pre-submission checks. Harvesters will not be able to enter certain gear/species combinations, certain dispositions for certain species and gear quantity checks for instance. The app also utilizes validations built into ACCSP's API (species/market/grade combos for instance) Many of these audits will be canned within the audit database and will be added to a routine check. Staff have been working on incorporating spatial audits to our routine. They have added gear configuration by area reported to these audits to catch any harvesters that might be reporting their gear configuration incorrectly based on the area they reported their activity. The dealer/harvester audits are performed annually and start by looking at yearly totals with a 2,000 pound discrepancy.** Dealer/harvester audits are not performed on a trip by trip basis.

6. Transmission of harvester data to ACCSP.
MEDMR will continue to upload harvester data from MARVIN to the ACCSP data warehouse once every two months. In each data feed, the following fields are uploaded to the warehouse according to ACCSP protocols: cf_license_nbr, iss_agency, trip_type, supplier_trip_id, port, state, coast_guard_nbr, state_reg_nbr, trip_start_date, trip_start_time, trip_end_date, trip_end_time, num_crew, num_anglers, vtr_number, vessel_permit, sub_trip_type, reporting_source, fuel_used, fuel_price, charter_fee, distance, in_state, area_code, sub_area_code, local_area_code, latitude, longitude, gear, lma, gear_quantity, gear_sets, fishing_hours, hours_days, total_gear, gear_size, mesh_ring_length, mesh_ring_width, stretch_size, target_species, avg_depth, species_itis, disposition, market_code, grade_code, unit_of_measure, sale_disposition_flag, dealer_license_nbr, date_sold, reported_quantity, price, dea_iss_agency, catch_source, catch_latitude, catch_longitude, supplier_catch_id. MEDMR enters data daily and audits data weekly, so the data uploaded to the warehouse are a mix of pre- and post-audited records. MEDMR does not keep track of what percentage of the uploaded records are "reloads" due to errors, but simply reloads <u>all</u> the data in MARVIN to the warehouse once every three months. **In addition, the data supplied by the MEDMR offline mobile application will be sent directly to SAFIS daily.**

The MEDMR does not upload data from MARVIN to SAFIS because MEDMR staff continually audit data each week, so the data that are uploaded to the warehouse are a mix of pre- and post-audited records. The reloading of data from MARVIN to the Warehouse is an automated process that the MEDMR loads into a temporary table provided by the Warehouse. If we were to perform the same upload method to SAFIS we would need the ability to mass delete records from SAFIS (which we do not have the ability to do at this time) before records are reloaded to avoid creating duplicate records.

7. Report metadata to ACCSP.
Metadata will be created with ESRI ArcCatalog 10 in order to conform to the FGDC (Federal Geographic Data Committee) standards and specifications. As specified by the federal standard, MEDMR metadata will include the following main sections with detailed information on: identification information, data quality

information, spatial data organization information, spatial reference information, entity and attribute information, distribution information, metadata reference information, citation information, time period information and contact information. Created metadata will be available in text and XML formats.

Geographic Location: Operations will be based out of Boothbay Harbor, Maine and the project will take place throughout Maine.

Milestone Schedule:

	Months											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Enforce harvester compliance	X	X	X	X	X	X	X	X	X	X	X	X
2. Data enter harvester reports	X	X	X	X	X	X	X	X	X	X	X	X
3. Encourage electronic harvester reporting	X	X	X	X	X	X	X	X	X	X	X	X
4. Industry outreach to promote industry buy-in	X	X	X	X	X	X	X	X	X	X	X	X
5. Audit harvester data	X	X	X	X	X	X	X	X	X	X	X	X
6. Upload harvester data to ACCSP		X		X		X		X		X		X
7. Report metadata to ACCSP												X
8. Semi-annual reports						X						X
9. Annual reports												X

Table 3. Project Accomplishments Measurement:

Goal	Measurement	2019	2020*	2021	2022*	2023*
Enforce Harvester Compliance	Number of compliance letters to harvesters	3,226	2,555	1,903	3,283	3,107
Enforce Harvester Compliance	Number of harvesters suspended for failing to report timely	447	421	560	628	-
Harvester Data Entry	Number of trip records by year landed in data warehouse	46,386	44,478	56,026	35,785	5,399
Harvester Data Entry	Number of positive trip records by year landed in MARVIN	48,843	47,022	64,925	46,180	44,865
Harvester Data Entry	Number of paper trip records entered in MARVIN	46,069	36,019	50,085	27,931	4,715
Harvester Data Entry	Number of electronic trip reports entered into Maine LEEDS	2,774	11,003	14,840	18,249	40,150
Harvester Data Entry	Number harvesters entering directly into Maine LEEDS	235	595	749	1,127	1,950
Harvester Data Entry	Number of positive trip records by year landed in SAFIS	-	-	352	2,903	23,486
Encourage Electronic Reporting	Number of harvesters submitting positive reports in SAFIS	-	-	12	150	1,024
Transmit Harvester Data to Data Warehouse	Frequency of data submitted by year landed	1 time every 6 months	1 time every 6 months	1 time every 6 months	1 time every 6 months	1 time every 6 months
Outreach	Number of custom data requests	479	946	733	1044	675
Outreach	Number of custom data requests from portal	-	362	667	648	342

Text in bold indicate where proposal hit on ranking criteria. 15

*2022 and 2023 data are incomplete at time of report creation.

Cost Summary: FY24 Managing 100% Lobster Harvester Reporting in Maine				
5/1/2024 - 4/30/2025				
Personnel[A]			**Description**	**Cost**
072002692	E. Patrick	Marine Resource Specialist II	full time position for 12 months	$37,260.66
072002693	Z. May	Marine Resource Specialist II		$37,260.66
072002705	M. Angelico	Office Associate II		$37,495.13
072002706	L. Schinhofen	Office Associate II		$37,495.13
			Subtotal	**$149,511.59**
Fringe Benefits[A]				
072002692	E. Patrick	Marine Resource Specialist II	Includes health, dental, workers comp, FICA, life insurance and retirement	$24,553.58
072002693	Z. May	Marine Resource Specialist II		$24,533.17
072002705	M. Angelico	Office Associate II		$24,635.70
072002706	L. Schinhofen	Office Associate II		$24,640.32
			Subtotal	**$98,362.76**
			Total Personnel	**$247,874.35**
Travel				
1 vehicle[B]			1 car * $377.34/mo * 12 mo	$4,528.08
Mileage fee			1 car * 1,150 mi per mo * $.1533/mi * 12 mo	$2,115.54
2 Overnight stays[C]			2* $150/night	$300.00
Per diem (includes extended days)			(2 overnights @ $65/day & 5 extended days @ $24/day	$250.00
			Total Travel	**$7,193.62**
Supplies				
Year labels			1,000 labels (500/box * 2 boxes * $15.00/box)	$30.00
Folder labels			1,000 labels (500/box * 12 boxes * $24.50/box)	$49.00
Other				
Telecommunication charges[D]			5 phones * $50/mo * 12 mo	$3,000.00
			Total Supplies	**$3,079.00**
			Subtotal	**$10,272.62**
Total Direct Costs				**$258,146.97**
Indirect Costs (30%)				**$77,444.09**
Total Award to DMR				**$335,591.06**

A: Cost includes salary and benefits, which are dictated by contract with State of Maine and are non-negotiable.
B: All state agencies must rent vehicles through state's Central Fleet Agency which is non-negotiable. Vehicle costs include the following services and costs: maintenance, repairs, insurance, and gasoline.
C: DMR staff meet with and train harvesters how to electronically report to DMR and/or NMFS.
D: One cell phone for each of the Scientist II, Scientist I (2) and Specialist II (2) working on the project.

Partner Contribution For ACCSP Purposes			
J. Waller	072001271	Scientist IV (7% time)	$9,484
R. Watts	072002431	Scientist III (25% time)	$33,317
L. White, Jr	072002453	Scientist II (25% time)	$31,627
E. Layland	072002398	Scientist I (25% time)	$17,762
Vacant	072002540	Office Associate I (85% time)	$39,796
C. Young	072002657	Office Associate I (50% time)	$29,513
D. Young	072002647	Office Associate II (25% time)	$20,719
			$182,218

Text in bold indicate where proposal hit on ranking criteria.

Budget Narrative for FY2024 proposal:

Personnel and Fringe Benefits: The positions in this proposal (2 Marine Resource Specialist II and 2 Office Associate II). These positions are funded part-time (90%) by this award and are a Department of Marine Resources' employees. Salary and benefits for this employee are dictated by contract with the State of Maine and are non-negotiable. Benefits include retirement benefits, FICA, health insurance, dental insurance, workers compensation and life insurance. The benefits are determined by a formula the state uses which is variable dependent upon the position classification, the pay grade of the employee (e.g. the number of years the person has been employed by the State of Maine) and type of coverage the employee selects.

Travel: The Scientists and Specialists are the employees who will be travelling. The travel is for holding electronic harvester reporting workshops, visiting harvesters to install reporting software, training harvester staff how to electronically report or troubleshooting reporting problems. Staff provide harvesters with one-on-one training first via phone but then in person if individuals need further assistance with the reporting system and help troubleshoot electronic reporting problems. Travel occurs throughout the coast of Maine, although trips to the interior are unusual unless the harvester can only meet inland. These harvesters must be trained in the use of electronic reporting and in some cases a group informational setting will not be enough for some to learn how to report their landings information.

The monthly fee for the vehicle is dictated by contract with the State of Maine Central Fleet Agency; the fee is based on the type of vehicle leased, and the mileage fee is based on how many miles the car was used the previous year. Because of this, the vehicle fees between projects may differ. This project has one Nissan Rogue SUV which is a state-owned vehicle that MEDMR leases from the State of Maine Central Fleet Agency.

Occasional extended day travel or overnight stays are necessary. If multiple harvester appointments to these remote areas are made for the same day, or appointments are made for consecutive days, overnight travel may be necessary. The rates were calculated through the GSA website for posted rates.

Supplies: Filing supplies are needed each year but as more harvesters eventually shift to electronic reporting the need for filing supplies will decrease. The filing supplies include labels (year and name) and protective coatings for these labels. These are the same folders used for all of MEDMR's harvester reports and are purchased from Allied Systems Products AAK Filing system.

Other: Cell phones for the Specialists and the Scientists are necessary for communication and safety when on travel to harvester meeting locations. Staff often needs to call NMFS or the programmer when installing software or troubleshooting reporting issues in the field.

Indirect costs: The Department of Marine Resources has an indirect cost rate of 32.83%; however, our Commissioner has authorized this proposal use the lower rate of 30%. See Attachment 3 for the Negotiated Indirect Cost Agreement. These indirect funds are a necessity to help defray and offset the administrative costs associated with the ASMFC's directive to increase MEDMR's lobster reporting from its current rate to 100%. These indirect monies are utilized to help cover the administrative costs not covered directly by this grant proposal and help offset any burden MEDMR assumes with fulfilling their ASMFC reporting requirements.

Cost Summary: FY22 Managing 100% Lobster Harvester Reporting in Maine				
5/1/2022 - 4/30/2023				
Personnel[A]		**Description**		**Cost**
2 Marine Resource Specialist II (to be created)		full time position for 12 months	2 @ $40,816	$81,632.00
2 Office Associate II (to be created)		full time position for 12 months	2 @ $34,361.60	$68,723.20
			Subtotal	**$150,355.20**
Fringe Benefits[A]				
2 Marine Resource Specialist II (to be created)		Includes health, dental, workers comp, FICA, life	2 @ $24,490	$48,980.00
2 Office Associate II (to be created)		insurance and retirement	2 @ $20,617	$41,234.00
			Subtotal	**$90,214.00**
			Total Personnel	**$240,569.20**
Travel				
1 vehicle[B]		1 car * $377.34/mo * 12 mo		$4,528.08
Mileage fee		1 car * 1,150 mi per mo * $.1533/mi * 12 mo		$2,115.54
Toll allowance		Estimated		$200.00
5 Overnight stays[C]		4* $150/night		$600.00
Per diem (includes extended days)		(2 overnights @ $65/day & 5 extended days @ $24/day)		$250.00
			Total Travel	**$7,693.62**
Supplies				
Year labels		1,000 labels (500/box * 2 boxes * $15.00/box)		$30.00
Folder labels		1,000 labels (500/box * 12 boxes * $24.50/box)		$49.00
AAK Color Coded Folders[D]		1,000 folders (50/box * 120 boxes * $23/box)		$460.00
Other				
Printing and binding of harvester report forms		500 logbooks * $2.50 per logbook		$1,250.00
Postage for logbooks		Mail 500 logbooks * $5.00 per logbook		$2,500.00
Postage for info packets and letters		($0.55*1000 compliance letters)		$550.00
Maine LEEDS enhancement programming				$2,100.00
Telecommunication charges[E]		5 phones * $50/mo * 12 mo		$3,000.00
			Total Supplies	**$9,939.00**
			Subtotal	**$17,632.62**
Total Direct Costs				**$258,201.82**
Indirect Costs (30%)				**$77,460.55**
Total Award to DMR				**$335,662.37**

A: Cost includes salary and benefits, which are dictated by contract with State of Maine and are non-negotiable.

B: All state agencies must rent vehicles through state's Central Fleet Agency which is non-negotiable. Vehicle costs include the following services and costs: maintenance, repairs, insurance, and gasoline.

C: DMR staff meet with and train harvesters how to electronically report to DMR and/or NMFS.

D: AAK Color Coded Folders are folders MEDMR uses for all harvester reporting, they are reusable but will need 2 years supply eventually.

E: One cell phone for each of the Scientist II, Scientist I (2) and Specialist II (2) working on the project.

Partner Contribution For ACCSP Purposes

Scientist IV (7% time)	$9,116
Scientist III (25% time)	$25,919
Scientist II (25% time)	$28,742
Specialist II (25% time)	$19,788
Office Associate I (85% time)	$66,322
Office Associate I (50% time)	$39,013
Office Associate II (25%)	$19,604
	$208,504

Budget Narrative for FY2022 proposal:

Personnel and Fringe Benefits: The new positions proposed in this proposal (2 Marine Resource Specialist II and 2 Office Associate II). These positions are funded full time (100%) by this award and are a Department of Marine Resources' employees. Salary and benefits for this employee are dictated by contract with the State of Maine and are non-negotiable. Benefits include retirement benefits, FICA, health insurance, dental insurance, workers compensation and life insurance. The benefits are determined by a formula the state uses which is variable dependent upon the position classification, the pay grade of the employee (e.g. the number of years the person has been employed by the State of Maine) and type of coverage the employee selects.

Travel: The Scientists and Specialists are the employees who will be travelling. The travel is for holding electronic harvester reporting workshops, visiting harvesters to install reporting software, training harvester staff how to electronically report or troubleshooting reporting problems. Staff provide harvesters with one-on-one training first via phone but then in person if individuals need further assistance with the reporting system and help troubleshoot electronic reporting problems. Travel occurs throughout the coast of Maine, although trips to the interior are unusual unless the harvester can only meet inland. These harvesters must be trained in the use of electronic reporting and in some cases a group informational setting will not be enough for some to learn how to report their landings information.

The monthly fee for the vehicle is dictated by contract with the State of Maine Central Fleet Agency; the fee is based on the type of vehicle leased, and the mileage fee is based on how many miles the car was used the previous year. Because of this, the vehicle fees between projects may differ. This project has one Nissan Rogue SUV which is a state-owned vehicle that MEDMR leases from the State of Maine Central Fleet Agency.

Occasional extended day travel or overnight stays are necessary. If multiple harvester appointments to these remote areas are made for the same day, or appointments are made for consecutive days, overnight travel may be necessary. The rates were calculated through the GSA website for posted rates.

Supplies: Filing supplies are needed each year but as more harvesters eventually shift to electronic reporting the need for filing supplies will decrease. The filing supplies include AAK folders used to store individuals log sheets, labels (year and name) and protective coatings for these labels. These are the same folders used for all of MEDMR's harvester reports and are purchased from Allied Systems Products AAK Filing system.

Other: The MEDMR will try and push electronic reporting as much as possible and will require waivers to report on paper for lobster reporting. To help cut down on costs, MEDMR will try and have harvesters print their own paper forms when necessary from the MEDMR website. We do accept forms via email, fax or U.S. mail. The bound logbook includes a carbon copy that harvesters use for their records, or to resend should the original gets lost in the mail. Many harvesters like this carbon copy feature, which is one of the main reasons why we choose to continue to purchase these bound logbooks. Cell phones for the Specialists and the Scientists are necessary for communication and safety when on travel to harvester meeting locations. Staff often needs to call NMFS or the programmer when installing software or troubleshooting reporting issues in the field. The line for Maine LEEDS enhancement programming is to cover any programmatic cost associated with enhancements identified by MEDMR's once the new 100% reporting requirement is put in place. MEDMR anticipates that after the compliance enhancement is in place, other features that will be a large time saver for MEDMR will be identified.

Indirect costs: The Department of Marine Resources has an indirect cost rate of 34.3%; however, our Commissioner has authorized this proposal use the lower rate of 30%. See Attachment 3 for the Negotiated Indirect Cost Agreement. These indirect funds are a necessity to help defray and offset the administrative costs associated with the ASMFC's directive to increase MEDMR's lobster reporting from its current rate to 100%. These indirect monies are utilized to help cover the administrative costs not covered directly by this grant proposal and help offset any burden MEDMR assumes with fulfilling their ASMFC reporting requirements.

Cost Summary: FY21 Managing 100% Lobster Harvester Reporting in Maine (Proposal Withdrawn at Operations Fall Meeting)
5/1/2021 - 4/30/2022

Personnel[A]			Description			Cost
	2 Marine Resource Specialist II (to be created)		full time position for 12 months		2 @ $37,766	$75,532.00
	1 Office Associate II (Alice Mayberry)		full time position for 12 months		1 @ $45,553.89	$45,553.89
	1 Office Associate II (to be created)		full time position for 12 months		1 @ $33,289	$33,289.00
					Subtotal	$154,374.89
Fringe Benefits[A]						
	2 Marine Resource Specialist II (to be created)		Includes health, dental, workers comp, FICA, life insurance and retirement		2 @ $21,652	$43,304.00
	1 Office Associate II (Alice Mayberry)				1 @ $26,116.81	$26,116.81
	1 Office Associate II (to be created)				1 @ $19,085	$19,085.00
					Subtotal	$88,505.81
					Total Personnel	$242,880.70
Travel						
	1 vehicle[B]		1 car * $377.34/mo * 12 mo			$4,528.08
	Mileage fee		1 car * 1,150 mi per mo * $.1533/mi * 12 mo			$2,115.54
	Toll allowance		Estimated			$200.00
	5 Overnight stays[C]		6* $150/night			$900.00
	Per diem (includes extended days)		(6 overnights @ $65/day & 36 extended days @ $24/day)			$1,254.00
					Total Travel	$8,997.62
Supplies						
	Year labels		1,000 labels (500/box * 2 boxes * $13.95/box)			$27.90
	Folder labels		1,000 labels (500/box * 12 boxes * $24.50/box)			$49.00
	AAK Color Coded Folders[D]		1,000 folders (50/box * 120 boxes * $23/box)			$460.00
Other						
	Printing and binding of harvester report forms		1000 logbooks * $2.50 per logbook			$2,500.00
	Postage for logbooks		Mail 1000 logbooks * $5.00 per logbook			$5,000.00
	Postage for info packets and letters		($0.55*3250 compliance letters)			$1,787.50
	Maine LEEDS enhancement programming					$28,000.00
	Telecommunication charges[E]		5 phones * $40/mo * 12 mo			$2,400.00
					Total Supplies	$40,224.40
					Subtotal	$49,222.02
	Total Direct Costs					$292,102.72
	Indirect Costs (15%)					$43,815.41
	Total Award to DMR					$335,918.13

A: Cost includes salary and benefits, which are dictated by contract with State of Maine and are non-negotiable.
B: All state agencies must rent vehicles through state's Central Fleet Agency which is non-negotiable. Vehicle costs
include the following services and costs: maintenance, repairs, insurance, and gasoline.
C: DMR staff meet with and train harvesters how to electronically report to DMR and/or NMFS.
D: AAK Color Coded Folders are folders MEDMR uses for all harvester reporting, they are reusable but will need 2 years supply eventually.
E: One cell phone for each of the Scientist II, Scientist I (2) and Specialist II (2) working on the project.

Partner Contribution For ACCSP Purposes

Scientist IV (7% time)	$9,116
Scientist III (25% time)	$25,919
Scientist II (25% time)	$28,742
Specialist II (25% time)	$19,788
Office Associate I (85% time)	$66,322
Office Associate I (50% time)	$39,013
Office Associate II (25%)	$19,604
Mobile Harvester Reporting App Development	$32,050
	$240,554

Budget Narrative for FY2021 proposal (Proposal withdrawn at Operations Committee Meeting 9/2020:
Personnel and Fringe Benefits: The new positions proposed in this proposal (2 Marine Resource Specialist II and 1 Office Associate II) and current Office Associate II (currently filled by Alice Mayberry). These positions are funded full time (100%) by this award and are a Department of Marine Resources' employees. Salary and benefits for this employee are dictated by contract with the State of Maine and are non-negotiable. Benefits include retirement benefits, FICA, health insurance, dental insurance, workers compensation and life insurance. The benefits are determined by a formula the state uses which is variable dependent upon the position classification, the pay grade of the employee (e.g. the number of years the person has been employed by the State of Maine) and type of coverage the employee selects.

Travel: The Scientists and Specialists are the employees who will be travelling. The travel is for holding electronic harvester reporting workshops, visiting harvesters to install reporting software, training harvester staff how to electronically report or troubleshooting reporting problems. Staff provide harvesters with one-on-one training first via phone but then in person if individuals need further assistance with the reporting system and help troubleshoot electronic reporting problems. Travel occurs throughout the coast of Maine, although trips to the interior are unusual unless the harvester can only meet inland. These harvesters must be trained in the use of electronic reporting and in some cases a group informational setting will not be enough for some to learn how to report their landings information.

The monthly fee for the vehicle is dictated by contract with the State of Maine Central Fleet Agency; the fee is based on the type of vehicle leased, and the mileage fee is based on how many miles the car was used the previous year. Because of this, the vehicle fees between projects may differ. This project has one Nissan Rogue SUV which is a state-owned vehicle that MEDMR leases from the State of Maine Central Fleet Agency.

Occasional extended day travel or overnight stays are necessary. If multiple harvester appointments to these remote areas are made for the same day, or appointments are made for consecutive days, overnight travel may be necessary. The rates were calculated through the GSA website for posted rates.

Supplies: Filing supplies are needed each year but as more harvesters eventually shift to electronic reporting the need for filing supplies will decrease. The filing supplies include AAK folders used to store individuals log sheets, labels (year and name) and protective coatings for these labels. These are the same folders used for all of MEDMR's harvester reports and are purchased from Allied Systems Products AAK Filing system.

Other: The MEDMR will try and push electronic reporting as much as possible and will require waivers to report on paper for lobster reporting. To help cut down on costs, MEDMR will try and have harvesters print their own paper forms when necessary from the MEDMR website. We do accept forms via email, fax or U.S. mail. The bound logbook includes a carbon copy that harvesters use for their records, or to resend should the original gets lost in the mail. Many harvesters like this carbon copy feature, which is one of the main reasons why we choose to continue to purchase these bound logbooks. Cell phones for the Specialists and the Scientists are necessary for communication and safety when on travel to harvester meeting locations. Staff often needs to call NMFS or the programmer when installing software or troubleshooting reporting issues in the field. The line for Maine LEEDS enhancement programming is to cover any programmatic cost associated with enhancements identified by MEDMR's once the new 100% reporting requirement is put in place. MEDMR anticipates that after the compliance enhancement is in place, other features that will be a large time saver for MEDMR will be identified.

Indirect costs: The Department of Marine Resources has an indirect cost rate of 34.3%; however, our Commissioner has authorized this proposal use the lower rate of 15%. See Attachment 3 for the Negotiated Indirect Cost Agreement. These indirect funds are a necessity to help defray and offset the administrative costs associated with the ASMFC's directive to increase MEDMR's lobster reporting from its current rate to 100%. These indirect monies are utilized to help cover the administrative costs not covered directly by this grant proposal and help offset any burden MEDMR assumes with fulfilling their ASMFC reporting requirements.

Cost Summary: FY20 Managing 100% Lobster Harvester Reporting in Maine				
3/1/2020 - 2/28/2021				
Personnel[A]		**Description**		**Cost**
1 Marine Resource Scientist II (to be created)		full time position for 12 months	1 @ $50,079	$50,079
2 Marine Resource Scientist I (to be created		full time position for 12 months	2 @ $45,340	$90,680
2 Marine Resource Specialist II (to be created)		full time position for 12 months	2 @ $37,849	$75,698
2 Office Specialist I Supervisory (to be created)		full time position for 12 months	2 @ $36,234	$72,468
1 Office Specialist I (to be created)		full time position for 12 months	1 @ $34,424	$34,424
1 Office Associate II (to be created)		full time position for 12 months	1 @ $31,741	$31,741
			Subtotal	**$355,090**
Fringe Benefits[A]				
1 Marine Resource Scientist II (to be created)				$32,551
2 Marine Resource Scientist I (to be created				$58,942
2 Marine Resource Specialist II (to be created)		Includes health, dental, workers comp, FICA,		$49,204
2 Office Specialist I Supervisory (to be created)		life insurance and retirement		$47,104
1 Office Specialist I (to be created)				$22,376
1 Office Associate II (to be created)				$20,632
			Subtotal	**$230,809**
			Total Personnel	**$585,899**
Travel				
1 vehicle[B]		1 car * $188.67/mo * 12 mo		$2,264
Mileage fee		1 car * 1,000 mi per mo * $.1533/mi * 12 mo		$1,840
Toll allowance		Estimated		$100
5 Overnight stays[C]		5* $150/night		$750
Per diem (includes extended days)		(5 overnights + 5 extended days) * $65/day		$650
			Total Travel	**$5,604**
Supplies				
Filing Supplies		folders, folder labels, year labels		$500
Other				
Printing and binding of harvester report forms		1000 logbooks * $2.50 per logbook		$2,500
Postage for logbooks		Mail 1000 logbooks * $4.75 per logbook		$2,375
Postage for info packets and letters		($0.50*3250 compliance letters)		$1,625
Software (Adobe DC Professional)		8 copies at $329.65/copy		$2,637
Technology (equipment, licenses)				$500
Enhancements to Maine LEEDS system		Automate compliance for electronic reporting		$40,000
Telecommunication charges[D]		5 phones * $40/mo * 12 mo		$2,400
			Total Supplies	**$52,537**
			Subtotal	**$58,141**
Total Direct Costs				**$644,039**
Indirect Costs (30%)				**$193,212**
Total Award to DMR				**$837,251**

A: Cost includes salary and benefits, which are dictated by contract with State of Maine and are non-negotiable.
B: All state agencies must rent vehicles through state's Central Fleet Agency which is non-negotiable. Vehicle costs include the following services and costs: maintenance, repairs, insurance, and gasoline.
C: DMR staff meet with and train harvesters how to electronically report to DMR and/or NMFS.
D: One cell phone for each of the two specialists, one each for the two scientists and one scientist II working on the project.

Partner Contribution For ACCSP Purposes

Scientist IV (7% time)	$9,115
Scientist III (25% time)	$24,542
Scientist II (25% time)	$26,854
Specialist II (25% time)	$18,710
Office Associate I (85% time)	$47,568
Office Associate I (50% time)	$37,191
Office Associate II (50%)	$32,813
Office Associate II (15%)	$10,531
Office Associate II (15%)	$9,750
Office Associate II (15%)	$8,513
Office Associate II (100%)	$65,626
Mobile Harvester Reporting App Development	$150,000
	$441,211

Budget Narrative for FY2020 proposal:

Personnel and Fringe Benefits: The new positions proposed in this proposal (1 Marine Resource Scientist II, 2 Marine Resource Scientist I, 2 Marine Resource Specialist II, 2 Office Specialist I Supervisory, 1 Office Specialist I and 1 Office Associate II). These positions are funded full time (100%) by this award and are a Department of Marine Resources' employees. Salary and benefits for this employee are dictated by contract with the State of Maine and are non-negotiable. Benefits include retirement benefits, FICA, health insurance, dental insurance, workers compensation and life insurance. The benefits are determined by a formula the state uses which is variable dependent upon the position classification, the pay grade of the employee (e.g. the number of years the person has been employed by the State of Maine) and type of coverage the employee selects.

Travel: The Scientists and Specialists are the employees who will be travelling. The travel is for holding electronic harvester reporting workshops, visiting harvesters to install reporting software, training harvester staff how to electronically report or troubleshooting reporting problems. Staff provide harvesters with one-on-one training first via phone but then in person if individuals need further assistance with the reporting system and help troubleshoot electronic reporting problems. Travel occurs throughout the coast of Maine, although trips to the interior are unusual unless the harvester can only meet inland. These harvesters must be trained in the use of electronic reporting and in some cases a group informational setting will not be enough for some to learn how to report their landings information.

The monthly fee for the vehicle is dictated by contract with the State of Maine Central Fleet Agency; the fee is based on the type of vehicle leased, and the mileage fee is based on how many miles the car was used the previous year. Because of this, the vehicle fees between projects may differ. This project has one Nissan Rogue SUV which is a state-owned vehicle that MEDMR leases from the State of Maine Central Fleet Agency.

Occasional extended day travel or overnight stays are necessary. If multiple harvester appointments to these remote areas are made for the same day, or appointments are made for consecutive days, overnight travel may be necessary. The rates were calculated through the GSA website for posted rates.

Supplies: Filing supplies are needed each year but as more harvesters eventually shift to electronic reporting the need for filing supplies will decrease. The filing supplies include folders used to store individuals log sheets, labels (year and name) and protective coatings for these labels.

Other: The MEDMR will try and push electronic reporting as much as possible and will require waivers to report on

paper for lobster reporting. To help cut down on costs, MEDMR will try and have harvesters print their own paper forms when necessary from the MEDMR website. We do accept forms via email, fax or U.S. mail. The bound logbook includes a carbon copy that harvesters use for their records, or to resend should the original gets lost in the mail. Many harvesters like this carbon copy feature, which is one of the main reasons why we choose to continue to purchase these bound logbooks. Cell phones for the Specialists and the Scientists are necessary for communication and safety when on travel to harvester meeting locations. Staff often needs to call NMFS or the programmer when installing software or troubleshooting reporting issues in the field. All Landings Program staff use Adobe DC Pro to enter or audit paper reports or .PDF's that have been received electronically.   The cost for this program has been set by our OIT Department. The line for Maine LEEDS enhancement is the programmatic cost to streamline MEDMR's compliance with harvester data submitted to SAFIS. MEDMR will need to create a SQL Server table to pull any data submitted by a harvester from the ACCSP Warehouse with Maine permits and flip their Maine LEEDS compliance record to submitted. This feature will be a large time saver for MEDMR and will save at least one full-time staff position.

Indirect costs: The Department of Marine Resources has an indirect cost rate of 30%. See Attachment 3 for the Negotiated Indirect Cost Agreement. These indirect funds are a necessity to help defray and offset the administrative costs associated with the ASMFC's directive to increase MEDMR's lobster reporting from its current rate to 100%. The anticipated increase to ~300,000 new harvester records and overall ~700,000 records (dealer and harvester) supplied to ACCSP's Data Warehouse will account for roughly 42% of all reports stored in the Data Warehouse. The increase in harvester reports received by MEDMR will be roughly 538%. These indirect monies are utilized to help cover the administrative costs not covered directly by this grant proposal and help offset any burden MEDMR assumes with fulfilling their ASMFC reporting requirements.

Attachment 1. Project History

Fund Year	Title	Cost	Extension through	Actual dates funding covered	Results
2020	FY20- Managing 100% Lobster Harvester Reporting in Maine	$336,120	Apr-22	May 2020 – Apr 2021	Start preparting for MEDMR to move from mandatory 10% lobster harvester reporting to 100% lobster. Work on enhancement to Maine LEEDS program and continue work on app development.
2021	FY21- Managing 100% Lobster Harvester Reporting in Maine	$335,918.13 (withdrawn)		May 2021 – Apr 2022	Continue preperations for MEDMR to move from mandatory 10% lobster harvester reporting to 100% lobster. Finalize enhancement to Maine LEEDS program, outreach with industry and rolling out MEDMR's offline harvester application built by Bluefin Data LLC.
2022	FY22- Managing 100% Lobster Harvester Reporting in Maine	$335,662		May 2022 – Apr 2023	Final preperations before 100% reporting requirement is implemented in January 2023. Continue with outreach, audits and implementing reporting requirements.
2023	FY23- Managing 100% Lobster Harvester Reporting in Maine	No Proposal Submitted		May 2023 – Apr 2024	Final preperations before 100% reporting requirement is implemented in January 2023. Continue with outreach, audits and implementing reporting requirements. Utilized funds from FY20 and FY22 before asking for more funds.
2024	FY24- Managing 100% Lobster Harvester Reporting in Maine	$335,591		May 2024 – Apr 2025	Final preperations before 100% reporting requirement is implemented in January 2023. Continue with outreach, audits and implementing reporting requirements.
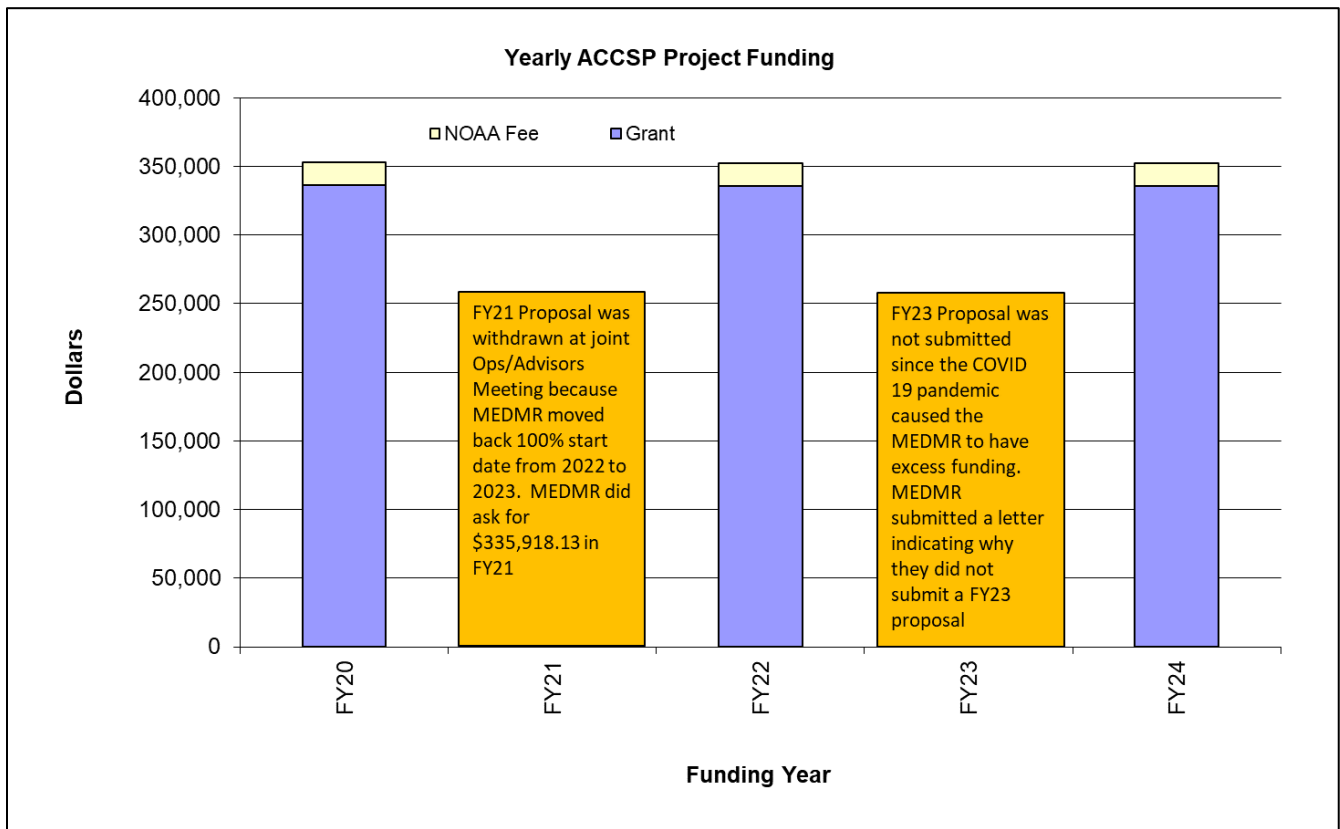
Figure 4. Project Funding History

Text in bold indicate where proposal hit on ranking criteria.

Attachment 2: Negotiated Indirect Cost Agreement and Letter of Acknowledgement

U.S. Department of Commerce
Office of Acquisition Management -- Grants Management Division
1401 Constitution Ave., NW, HCHB Rm 6412
Washington, DC 20230, Attn: Indirect Cost Program

CERTIFICATE OF INDIRECT COSTS

This is to certify that I have reviewed the indirect cost rate proposal prepared and maintained herewith and to the best of my knowledge and belief:
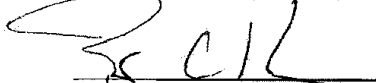
(1) All costs included in this proposal dated ____March 29th, 2022____ to establish indirect cost billing rates for July 1, 2022 through June 30, 2023 are allowable in accordance with the requirements of the federal awards to which they apply and 2 CFR Part 200 , "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards". This proposal does not include any costs which are unallowable as identified in the applicable federal cost principles. For example, advertising contributions and donations, bad debts, entertainment costs or fines and penalties.

(2) All costs included in this proposal are properly allocable to federal awards on the basis of a beneficial or causal relationship between the expenses incurred and the agreements to which they are allocated in accordance with applicable requirements. Further, the same costs that have been treated as indirect costs have not been claimed as direct costs. Similar types of costs have been accounted for consistently and the Federal Government will be notified of any accounting changes that could affect the rate.

(3) The indirect cost rate calculated within the proposal is **32.83%**, which was calculated using an indirect cost rate base type of Modified Total Direct Costs. The calculations were based on actual costs from fiscal year July 1, 2020 thru June 30, 2021 to obtain a federal indirect cost billing rate for fiscal year beginning July 1, 2022.

Subject to the provisions of the Program Fraud Civil Remedies Act of 1986, (31 USC 3801 et seq.), the False Claims Act (18 USC 287 and 31 USC 3729); and the False Statement Act (18 USC 1001), I declare to the best of my knowledge that the foregoing is true and correct.

Organization Name: State of Maine, Department of Marine Resources

CFO Signature: Date: 3/24/22

Name/Title Authorized Official: Gilbert M. Bilodeau, Director, Natural Res Ser Ctr

Dept Head Signature: Date: 3/22/22

Name/Title Authorized Official: Patrick Keliher, Commissioner

August 10, 2020

Mr. Brandon Flint
Managing Staff Accountant
Natural Resources Service Center
155 State House Station
Augusta, ME 04333

Dear Mr. Flint:

This letter supersedes the previous letter dated May 1, 2020 concerning this subject, and confirms that no further action is required under Department of Commerce Financial Assistance Standard Term & Condition A.05, Indirect Costs. Pursuant to OMB regulation 2 CFR Part 200, your organization is not required to submit an indirect cost allocation proposal or plan narrative to its cognizant agency. These plans are to be prepared and retained at the local government level. OMB regulation 2 CFR Part 200, Appendix V Il, par. D states, in part:

All department or agencies of the governmental unit desiring to claim indirect costs under Federal awards must prepare an indirect cost rate proposal and related documentation to support the costs. The proposal and related documentation must be retained for audit in accordance with the records retention requirements contained in the Common Rule.

When actual costs are known at the end of your fiscal year, you are required to account for differences between estimated and actual indirect costs by means of either: a) making an adjustment to the next year's indirect cost rate calculation to account for carry-forward (the difference between the estimated costs used to establish the rate and the actual costs of the fiscal year covered by the rate); or b) making adjustments to the costs charged to the various programs based on the actual charges calculated. Since OMB regulation 2 CFR Part 200 requires the independent auditor to determine the allowability of both direct and indirect costs, the organization's indirect cost charges will be subject to audit.

It is important to note that **your organization is still required to submit to the Grants Management Division of the National Oceanic and Atmospheric Administration (NOAA) an annual Certificate of Indirect Costs**. NOAA acknowledges receipt of your most recent certificate, **submitted March 18, 2020** pertaining to your rate of **34.30% for Fiscal Year 2020**. Additionally, **your request to move to a two-year fixed rate with carry-forward schedule, is approved**. Given this, the aforementioned **indirect cost rate of 34.30% is also applicable for Fiscal Year 2021**.

Text in bold indicate where proposal hit on ranking criteria.   27

The submission of the Certificate of Indirect Costs is due to our office within six (6) months after the close of your fiscal year.

A copy of this letter will be retained in your official award file. If you have any questions, please contact Lamar Revis at 301.628.1308 or at lamar.revis@noaa.gov. Thank you.

Sincerely,

Lamar Dwayne Revis

Arlene Simpson Porter
Director, Grants Management Division

Department of Marine Resources

INTEROFFICE MEMORANDUM
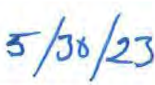
TO: FILE

FROM: PATRICK KELIHER, COMMISSIONER

SUBJECT: RATE USED FOR COST ALLOCATION

DATE: 5/23/23

In accordance with OMB Circular A-87, the Department of Marine Resources has submitted to the U.S. Department of Commerce a departmental cost allocation plan for use during state fiscal year 2023 ending June 30, 2023. The indirect cost rate proposal is 32.83%. I am authorizing the use of the lesser rate of **30%** to be used during this period.

ACCSP
"FY22: Managing 100% Lobster Harvester Reporting in Maine"
(May 1, 2023 – April 30, 2025)

5/30/23

_____   _____
Patrick C. Keliher   Date
Commissioner

Attachment 4: Authority to Suspension Licenses for Delinquent Reporters
An Act to Improve the Quality of the Data Used in the Management of Maine's Fisheries
Be it enacted by the People of the State of Maine as follows:

Sec. 1. 12 MRSA §6301, sub-§6 is enacted to read:

6. Ownership identified.   If a license issued under chapter 625 is issued to a firm, corporation or partnership, the individual who owns the highest percentage of that firm, corporation or partnership must be identified on the license application. When 2 or more individuals own in equal proportion the highest percentages of a firm, corporation or partnership, each of those owners must be identified.

Sec. 2. 12 MRSA §6412 is enacted to read:

§ 6412. Suspension of license or certificate for failure to comply with reporting requirements

1. Authority to suspend.   The commissioner, in accordance with this section, may suspend a license or certificate issued under this Part if the holder of the license or certificate fails to comply with reporting requirements established by rule pursuant to section 6173. A license or certificate suspended under this section remains suspended until the suspension is rescinded by the commissioner. The commissioner shall rescind a suspension when:

A. The commissioner determines and provides notice to the holder of the suspended license or certificate that the holder has come into compliance with the reporting requirements established by rule pursuant to section 6173; and

B. The holder pays to the department a $25 administrative fee.

When a suspension is rescinded, the license or certificate is reinstated. Until the suspension is rescinded, the holder of the suspended license or certificate is not eligible to hold, apply for or obtain that license or certificate.

2. Process for suspension for failing to comply with weekly reporting.   If the commissioner determines that a person who holds a license or certificate under this Part has failed to comply with a weekly reporting requirement established by rule pursuant to section 6173, the commissioner shall notify the person at the telephone number provided on the application for the license or certificate and by e-mail if an e-mail address is provided on the application. If the license or certificate holder has not complied with the reporting requirements within 2 days after the commissioner has provided the notice, the commissioner shall mail a notice of suspension to the license or certificate holder by certified mail or the notice must be served in hand. The notice must:

A. Describe the information that the license or certificate holder is required to provide pursuant to this Part that the department has not received; and

B. State that, unless all the information described in paragraph A is provided to the department or the license or certificate holder requests a hearing, the license or certificate will be suspended in 3 business days after the license or certificate holder's receipt of the notice.

If the license or certificate holder has not complied with the reporting requirements or requested a hearing within 3 business days after receipt of the notice, the commissioner shall suspend the license or certificate.

3. Process for suspension for failing to comply with monthly reporting.   If the commissioner determines that a person who holds a license or certificate under this Part has failed to comply with a monthly reporting requirement established by rule pursuant to section 6173, the commissioner shall notify the person at the telephone number provided on the application for the license or certificate and by e-mail if an e-mail address is provided on the application. If the license or certificate holder has not complied with the reporting requirements within 45 days after the commissioner has provided the notice, the commissioner shall mail a notice of suspension to the license or certificate holder by certified mail or the notice must be served in hand. The notice must:

A. Describe the information that the license or certificate holder is required to provide pursuant to this Part that the department has not received; and

B.   State that, unless all the information described in paragraph A is provided to the department or the license or certificate holder requests a hearing, the license or certificate will be suspended in 3 business days after the license or certificate holder's receipt of the notice.

If the license or certificate holder has not complied with the reporting requirements or requested a hearing within 3 business days after receipt of the notice, the commissioner shall suspend the license or certificate.

4. Hearing.   A license or certificate holder receiving a written notice of suspension pursuant to this section may request a hearing on the suspension by contacting the department within 3 business days of receipt of the notice. If a hearing is requested, the suspension is stayed until a decision is issued following the hearing. The hearing must be held within 3 business days of the request, unless another time is agreed to by both the department and the license or certificate holder. The hearing must be conducted in the Augusta area. The hearing must be held in accordance with:
      A.   Title 5, section 9057, regarding evidence, except the issues are limited to whether the license or certificate holder has complied with reporting requirements established by rule pursuant to section 6173;
      B.   Title 5, section 9058, regarding notice;
      C.   Title 5, section 9059, regarding records;
      D.   Title 5, section 9061, regarding decisions, except the deadline for making a decision is one business day after completion of the hearing; and
      E.   Title 5, section 9062, subsections 3 and 4, regarding a presiding officer's duties and reporting requirements, except that notwithstanding Title 5, section 9062, subsection 1, the presiding officer must be the commissioner or the commissioner's designee.

<u>Summary of Proposal for ACCSP Ranking</u>

Proposal Type: Maintenance Proposal

Primary Program Priority and Percentage of Effort to ACCSP modules:

Catch and Effort (10 points): 100% of licensed lobster (and 12 other fisheries) must report trip level information. Most of these reports will be electronic.

Data Delivery Plan (2 Points): All electronic data through the MEDMR offline application will be submitted into SAFIS daily. All data entered into MEDMR's MARVIN database and will be sent to the ACCSP Data Warehouse on at least a bi-annual basis after all data have been thoroughly audited.

Project Quality Factors:

Regional Impact (5 Points): all partners will benefit, as all the data collected will be uploaded to ACCSP. Regional management organizations, such as ASMFC, will benefit from the trip level information from Maine. Partners may also benefit from the technologies/procedures tested in the new offline MEDMR mobile application. MEDMR is currently contracted with Bluefin Data LLC to build a mobile app for harvesters to use to meet the 100% lobster reporting requirement mandated in ASMFC Addendum XXVI. MEDMR is currently paying for all start-up costs associated with this project and shared findings with ACCSP. Partners will be able to utilize (the developer might charge a support fee) this application once built if they so choose.

Funding transition plan (4 Points): MEDMR will continue to look for other funding sources; however, with the timeline of 100% lobster reporting being pushed forward from the date set in Addendum XXVI, MEDMR will need help to achieve the requirements coming in the next few years. MEDMR is funding the development of an offline mobile harvester reporting application that will meets MEDMR and GARFO reporting requirements. MEDMR will pay for the ongoing monthly maintenance fee associated with this program. MEDMR has already secured an additional one-time $600K in additional federal funding and a one time 2 million ARPA fund for this project. Currently, the MEDMR does not have any plans to require electronic reporting for all fisheries but intends on pushing electronic reporting. Geographical restrictions prevent all harvesters from having reliable high-speed internet access at this time.

In-kind Contribution (3 Points): the partner contribution is listed on page 16. MEDMR's in-kind contribution is approximately 35%.

Improvement in Data Quality/Timeliness (4 Points): MEDMR can audit data at a more detailed level, including checking harvester reported data against dealer reported data. MEDMR encourages reporting timeliness through outreach with harvesters and is working with Marine Patrol to ensure industry understands the importance of submitting accurate and timely information. The Maine State Legislature also passed law that authorizes license suspensions for those who fail to report on time which has improved the timeliness and quality of the data submitted for the fisheries that utilize this law.

Potential secondary module as a by-product (in program priority order) (3 points): The offline application that MEDMR envisions will be able to eventually link up with certain dealer reports and accept tracker data which will revolutionize the way spatial data could be used to determine many effort fields and dealer and harvester reports are matched up.

Impact on Stock Assessment (3 Points): Regional management organizations which carry out stock assessments will benefit from the detailed landings data reported from Maine. This information is used in stock assessments for many species that are managed by regional agencies.

Properly Prepared (1 Points): MEDMR followed ACCSP guidelines and pertinent documents when preparing this proposal.

Merit (3 points): This proposal allows MEDMR to comply with mandatory ASMFC requirements. The MEDMR currently provides more data to the data warehouse than any other state and accounts for over 30% of all records landed in the Data Warehouse. MEDMR are always looking for ways to collect data in a timely and efficient manner.

Summary of Proposal for ACCSP Ranking (Abridged Ranking Process)

Achieved Goals: MEDMR did not receive FY20 funding for this grant from NOAA until June 8, 2020. MEDMR also pulled back our FY21 and FY23 proposals with the understanding that the FY22 would be treated as a maintenance proposal since our new data to require 100% lobster reporting shifted from January 1, 2022 to January 1, 2023. MEDMR has already completed the Maine LEEDS enhancement to automate electronic reporting compliance. The offline harvester application (VESL) was rolled out to industry members in 2021. The VESL software was GARFO approved in 2021 and has been submitting data directly to SAFIS since.

Data Delivery Plan (2 Points): All electronic data through the MEDMR offline application will be submitted into SAFIS daily. All data entered into MEDMR's MARVIN database and will be sent to the ACCSP Data Warehouse on at least a bi-annual basis after all data have been thoroughly audited.

Level of Funding (1 Point): In FY20 MEDMR asked for $837,251 and was awarded $336,162. In FY22 MEDMR asked for and received $335,620.77. In FY24 MEDMR is asking for $335,591.06.

Properly Prepared (1 Points): MEDMR followed ACCSP guidelines and pertinent documents when preparing this proposal.

Merit (3 points): This proposal allows MEDMR to comply with mandatory ASMFC requirements. The MEDMR currently provides more data to the data warehouse than any other state and accounts for over 30% of all records landed in the Data Warehouse. MEDMR are always looking for ways to collect data in a timely and efficient manner.

Robert B. Watts II
Maine Department of Marine Resources
(207) 633-9412
rob.watts@maine.gov

June 2023

PROFILE:

- Knowledge of Maine and federal regulations pertaining to commercial fishing and associated reporting requirements through working with the Department of Marine Resources and the National Marine Fisheries Service.
- Knowledgeable of Maine's fishing industries and how they operate.

EDUCATION:
B.S. Marine Science, Maine Maritime Academy, Castine, ME 2002

EMPLOYMENT EXPERIENCE:
May 2016 – Present   **Marine Resource Scientist III**
                                   Maine Department of Marine Resources
                                   West Boothbay Harbor, ME

- Manages daily operations of Maine's Commercial Landings Program, which collects, compiles and distributes commercial fishery statistics for Maine's commercial fisheries.
- Supervises Landings Program personnel.
- Maintain Microsoft Access databases for licensing information, compliance and data entry.
- Communicates with industry regarding reporting requirements, monitors reporting compliance and works with the licensing division in order to ensure all mandatory reporting requirements are met and licenses are issued accordingly.
- Oversees DMR's landings suspension authority and process.
- Oversees DMR's swipe card reporting program.
- Oversees MEDMR's MARVIN database.
- Maintains dealer and harvester auditing databases.
- Oversaw Maine's Interactive Voice Response (IVR) reporting program (IVR reporting ended in 2019)
- Serves as key contact for Maine commercial landings information.
- Promotes Maine's partnership with Atlantic Coastal Cooperative Statistical Program (ACCSP), serving on the Operations Committee, Commercial Technical Committee, Information Systems Technical Committee, Standard Codes Committee and Outreach Committee; working to bring the Landings Program into compliance with ACCSP standards.

Jan 2014 – Jan 2016   **Marine Resource Scientist III (Acting Capacity)**
June 2015 – Apr 2016   **Marine Resource Scientist II**
                                   Maine Department of Marine Resources
                                   West Boothbay Harbor, ME

- Manages daily operations of Maine's Commercial Landings Program, which collects, compiles and distributes commercial fishery statistics for Maine's commercial fisheries.
- Supervises Landings Program personnel.
- Maintain Microsoft Access databases for licensing information, compliance and data entry.
- Communicates with industry regarding reporting requirements, monitors reporting compliance and works with the licensing division in order to ensure all mandatory reporting requirements are met and licenses are issued accordingly.

Text in bold indicate where proposal hit on ranking criteria.   34

- Oversees DMR's landings suspension authority and process.
- Oversees DMR's swipe card reporting program.
- Maintains dealer and harvester auditing databases.
- Oversees Maine's Interactive Voice Response (IVR) reporting program.
- Serves as key contact for Maine commercial landings information.
- Promotes Maine's partnership with Atlantic Coastal Cooperative Statistical Program (ACCSP) through serving on the Commercial Technical Committee, Information Systems Technical Committee and Outreach Committee; working to bring the Landings Program into compliance with ACCSP standards.

Feb 2012 – Apr 2015   **Marine Resource Scientist I**
                                Maine Department of Marine Resources
- Manages daily operations of Maine's Commercial Landings Program, which collects, compiles and distributes commercial fishery statistics for Maine's commercial fisheries.
- Supervises five Landings Program personnel.
- Maintain Microsoft Access databases for licensing information, compliance and data entry.
- Communicates with industry regarding reporting requirements, monitors reporting compliance and works with the licensing division in order to ensure all mandatory reporting requirements are met and licenses are issued accordingly.
- Oversees outreach to industry.
- Maintains dealer and harvester auditing databases.
- Oversees Maine's Interactive Voice Response (IVR) reporting program.
- Serves as key contact for Maine commercial landings.

Oct 2007 – Jan 2012   **Marine Resource Specialist II**
                                Maine Department of Marine Resources
- Oversee daily operations of the harvester landings program.
- Notify new harvesters about reporting requirements.
- Maintain databases used for data audits and data entry.
- Monitor reporting compliance database and notifies harvesters if they are delinquent.
- Supervise two Landings Program personnel.
- Oversees IVR reporting.
- Prepare data requests from various sources

Jul 2005 – Oct 2007   **Marine Resource Specialist I**
                                Maine Department of Marine Resources
- Interviewed marine recreational anglers all over the Maine coast to help determine fish stocks. Identified, weighed, measured and recorded fish caught by anglers.
- Created publications, updated regulation handouts and updated the recreational fishing website as needed.

May 2001 – Jun 2005   **Conservation Aid**
                                Maine Department of Marine Resources
- Interviewed marine recreational anglers all over the Maine coast to help determine fish stocks. Identified, weighed, measured and recorded fish caught by anglers.
- Acted as a liaison between the State of Maine and the recreational anglers, answered anglers questions about fishing regulations.

Jesica Waller
Maine Department of Marine Resources
(207) 350-6440
Jesica.d.waller@maine.gov

June 2023

PROFILE:

- Knowledge and oversight of the State of Maine's programs to research, monitor, and compile data from commercial and recreational coastal marine fisheries. This includes coordination of research plans across programs and with external research partners.
- Knowledgeable of Maine's fishing industries and how they operate.
- Knowledgeable about state and federal funding structures to support this work.

EDUCATION:

B.S. Marine and Freshwater Biology, University of New Hampshire, Durham, NH 2009
M.S. Marine Biology, University of Maine, Orono, ME 2016

EMPLOYMENT EXPERIENCE:

July 2022 – Present   **Marine Resource Scientist IV**
                                 Maine Department of Marine Resources
                                 West Boothbay Harbor, ME

- Division Director for the Division of Biological Monitoring and Assessment
- Oversee fishery monitoring and research for commercially important marine species
- Lead research around emerging fisheries and climate related topics
- Supervise a staff of 25 MEDMR researchers and maintain external collaborations
- Hire, train, and supervise research staff and students supported by MEDMR programs
- Write research proposals to federal agencies to obtain funding for MEDMR programs
- Coordinate the drafting and submission of all federal grant reporting requirements
- Conduct research and analyses, and write and review reports on timely research questions
- Work with diverse stakeholders to coordinate research in support of MEDMR priorities
- Represent MEDMR on state, regional, and federal research panels
- Advise senior staff on issues ranging from new research findings to funding opportunities
- Co-lead the MEDMR Environmental Monitoring Program and expand program capacity

March 2018 – July 2022   **Marine Resource Scientist III**
                                 Maine Department of Marine Resources
                                 West Boothbay Harbor, ME

- Lead question-based lobster research to support the management of the Maine lobster fishery
- Build research collaborations, submit proposals for funding and author research publications
- Co-develop the MEDMR wet lab and serve as the point person for biosecurity
- Represent MEDMR at regional meetings, research conferences, and the Maine Climate Council
- Coordinated the MEDMR Lobster Research Collaborative and organized quarterly meetings

Jan. 2017 – March 2018   **Research Technician**
                                 Bigelow Laboratory for Ocean Sciences
                                 East Boothbay Harbor, ME

Text in bold indicate where proposal hit on ranking criteria.   36

- Designed and performed laboratory and field experiments for grant funded projects
- Contributed to authorship of peer-reviewed publications and federal/state grant proposals
- Led field and lab-based data collection for multiple projects with no supervision
- Supervised and developed research projects for summer undergraduate interns

Sept. 2014 – Dec. 2016   Graduate Student and Canadian American Center Fellow
University of Maine (UMaine), Darling Marine Center
Walpole, ME

- Thesis title: Linking Rising pCO$_2$ and Temperature to the Larval Development, Physiology and Gene Expression of the American Lobster (*Homarus americanus*)
- Completed all thesis research and coursework and secured fellowship funding annually
- Led the authorship and submission of grants to support travel and advanced sample analysis
- Presented research at international meetings
- Supervised undergraduate interns at UMaine and Bigelow Laboratory for Ocean Sciences
- Contributed to the data collection and analysis efforts on two lobster biology projects
- Assisted Dr. Rhian Waller in teaching SMS 480 "Invertebrates of the Maine Coast"
- Supervised and instructed 25 undergraduate students during weekly lab sessions

Selected Publications

1. Ellertson, A. A., **Waller, J. D.,** Pugh, T. L., & Bethoney, N. D. (2022). Differences in the size at maturity of female American lobsters (*Homarus americanus*) from offshore Southern New England and eastern Georges Bank, USA. *Fisheries Research*, *250*, 106276.
2. McClenachan, L., Record, N. R., & **Waller, J. D**. (2022). How do human actions affect fisheries? Differences in perceptions between fishers and scientists in the Maine lobster fishery. *FACETS, 7*(1), 174-193.
3. **Waller, J. D**., Reardon, K. M., Caron, S. E., Jenner, B. P., Summers, E. L., & Wilson, C. J. (2021). A comparison of the size at maturity of female American lobsters (*Homarus americanus*) over three decades and across coastal areas of the Gulf of Maine using ovarian staging. *ICES Journal of Marine Science*, *78*(4), 1267-1277.
4. **Waller, J.D**., Reardon, K.M., Caron, S.E., Masters, H.M., Summers, E.L. & Wilson, C.J. (2019). Decrease in size at maturity of female American lobsters *Homarus americanus* (H. Milne Edwards, 1837) (Decapoda: Nephropidae) over a 50-year period in Maine, USA. *Journal of Crustacean Biology*, *39*(4), 509-519.
5. **Waller, J. D.,** Wahle, R. A., McVeigh, H., & Fields, D. M. (2017). Linking rising pCO$_2$ and temperature to the larval development and physiology of the American lobster (*Homarus americanus*). *ICES Journal of Marine Science*, *74*(4), 1210-1219.

Synergistic Activities

2021-present *Steering Committee Member,* Maine Ocean and Coastal Acidification Partnership
2021-present *Advisory Committee Member*, Dalhousie University (PhD student, M. Rampual)
2021-present *Reviewer*, *Journal of Crustacean Biology*
2019-present *Agency support,* Maine Climate Council, Coastal and Marine Working Group
2019-present *Reviewer*, *Canadian Journal of Fisheries and Aquatic Sciences*
2018-2022 *Coordinator*, Maine Department of Marine Resources Lobster Research Collaborative
2017-present *Reviewer*, *ICES Journal of Marine Science*

Text in bold indicate where proposal hit on ranking criteria.

Proposal for Funding made to:
Atlantic Coastal Cooperative Statistics Program
Operations and Advisory Committees
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201

Advancing Fishery Dependent Data Collection for Black Sea Bass (*Centropristis striata*) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach

Submitted by:

Jason McNamee, PhD
Rhode Island Department of Environmental Management
3 Fort Wetherill Rd.
Jamestown, RI 02835
jason.mcnamee@dem.ri.gov

N. David Bethoney, PhD
Commercial Fisheries Research Foundation
P.O. Box 278
Saunderstown, RI 02874
dbethoney@cfrfoundation.org

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 1

Applicant Name: Rhode Island Department of Environmental Management (RI DEM) and the Commercial Fisheries Research Foundation (CFRF)

Project Title: Advancing Fishery Dependent Data Collection for Black Sea Bass (*Centropristis striata*) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach

Project Type: Maintenance (Year 6 of Maintenance)

Requested Award Amount: $43,635

Requested Award Period: August 1, 2024 – July 31, 2025

Principal Investigators: Jason McNamee, PhD, Deputy Director of Natural Resources, Rhode Island Department of Environmental Management, and David Bethoney, PhD, Executive Director, Commercial Fisheries Research Foundation

Date Submitted: June 15, 2023

This is the sixth and final maintenance proposal to support the continued data collection by the Black Sea Bass Research Fleet. There are no major changes to the scope of work proposed in the current proposal compared to prior years. However, due to the budget reductions associated with a final maintenance proposal the size of the Research Fleet has been reduced to its original size of eight vessels. Other changes to this proposal include updated timelines throughout, updated data in the *Internal Data Analysis* subsection, and the proposed budget. In addition, Thomas Heimann left his position as a Research Biologist at the CFRF and is thus no longer working on this project; as a result, he is no longer listed as a Principal Investigator. We are thankful for the 7 years of work that he contributed to this project.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 2

Objective:

This proposal is a request for financial support for an additional 12 months of biological catch, effort, and bycatch sampling by the Black Sea Bass Research Fleet, which was successfully piloted in 2016 with support from ACCSP and has been in continuous operation since. From 2016 through April 30, 2023, the Research Fleet has sampled 53,109 black sea bass from 2,866 locations throughout southern New England and the Mid-Atlantic. The Research Fleet will continue data collection through July 31, 2024 (Year 7 of funding from ACCSP). All biosamples data collected by this project during previous years of funding have been communicated to and accepted by ACCSP bi-annually. This data is being utilized in the current Black sea bass stock assessment with direction for expanded use expected to be provided by stock assessment scientists. The project team will continue to deliver data to ACCSP in this manner throughout Year 7 of funding, and the proposed project will allow for the continued collection and communication of black sea bass data through July 31, 2025.

The goal of the proposed project is to continue the Research Fleet's sampling efforts to develop a year-round, long-term time series of black sea bass (*Centropristis striata*) catch, bycatch, and biological data for five different gear types (trawl, lobster/crab pot, fish pot, gillnet, rod and reel) throughout the Southern New England (SNE) region and reaching into the Mid-Atlantic (MAB) region. The continuation of this project is critical to the evolution of black sea bass assessment and management efforts by the Atlantic States Marine Fisheries Commission, Mid-Atlantic Fisheries Management Council, Northeast Fisheries Science Center, and Atlantic Coastal Cooperative Statistics Program as the Black Sea Bass Research Fleet produces spatially and seasonally distinct catch data for numerous commercial and recreational gear types, which is currently lacking for this species.

Project components include: 1) Continue the existing fishery dependent data collection program that utilizes fishing vessels and a custom designed sampling application to collect and relay biological catch and bycatch data (number, length, sex, disposition) and fishery characteristics (location, gear type, effort, habitat) for black sea bass from across the SNE/MAB region throughout the year; 2) Internal data analysis to address research questions about spatiotemporal patterns in black sea bass biological and fishery characteristics and gear-specific selectivity; and 3) Communication of project data and results to the Atlantic Coastal Cooperative Statistics Program (ACCSP), black sea bass stock assessment scientists, managers, and members of fishing industry.

In summary, the general goals of the proposed project are:

1) Collect and communicate critically needed fishery dependent black sea bass data (catch and effort, bycatch, and biological) in a cost-effective way using modern electronic technology and fishermen's time on the water;
2) Contribute to the evolution of the northern Atlantic black sea bass stock assessment and associated management measures;

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 3

3) <u>Demonstrate a model for fishery dependent data collection, management, analysis, and utilization that can be duplicated in a cost-effective way in other regions of the black sea bass range and in other fisheries.</u>

Specific objectives include the following:

- <u>Continue the Black Sea Bass Research Fleet for an additional 12 months to further refine seasonal characterizations of northern Atlantic black sea bass biology and distribution;</u>
- <u>Collect fishery dependent black sea bass data from five gear types (trawl, lobster/crab pot, fish pot, gillnet, rod and reel) across the SNE/MAB region to characterize the size and sex distributions of black sea bass catch and bycatch and investigate the spatial and temporal trends of the fishery;</u>
- Maintain and evolve the On Deck Data application to meet the data needs of scientists and the logistical needs of participant fishermen;
- <u>Communicate black sea bass biosamples data to ACCSP every six months;</u>
- <u>Ensure all project data is available to Northeast Fisheries Science Center (NEFSC) scientists for inclusion in Black Sea Bass Stock Assessments</u>
- Conduct internal analyses of the project database to: 1) Assess the selectivity and CPUE of five gear types in the SNE/MAB region and explore temporal variability, and 2) Further monitor and assess spatial and temporal trends in species' catch and bycatch composition and fishery characteristics;
- Further refine gear-specific fishery dependent indices that utilize different data error structures, standardization techniques, and Bayesian applications;
- Communicate to a broad audience the benefits and inherent value in this type of collaborative data collection program.

<u>Need:</u>

As asserted in the ACCSP Biological Review Panel's biological sampling priority matrix, <u>black sea bass is identified as a top priority species for data collection, receiving the highest total priority ranking for inadequate biological sampling (ACCSP 2023),</u> and the species remains a high priority for managing stakeholders (ASMFC, NMFS, and state agencies). In recent decades, the distribution and center of biomass of black sea bass has been experiencing a northward shift, likely due to climate change (Bell et al. 2014). As a result, the lack of adequate data for northern Atlantic black sea bass in particular is an issue of regional importance, as this highly valuable stock ranges from Cape Hatteras to the Gulf of Maine (Musick & Mercer 1977, Moser & Shepherd 2009). In part due to the dearth of data throughout the black sea bass range, assessment and management efforts have been slow to react to the shifting distribution of the species and growing abundance of the northern stock (Bell et al. 2014, NEFSC 2017). As stated by ASMFC (2019), high priority data needs for black sea bass include increased sampling of commercial landings and sample size of observed charter trips. The Black Sea Bass Research Fleet has, and will continue to with additional funding, provide precisely this information.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 4

Ultimately, cost-effective sampling programs, such as the Black Sea Bass Research Fleet, are needed to collect these data on regional scales and inform and evolve the stock assessment to consider the complex life history and ever evolving spatial structure of black sea bass.

Fishery dependent data has become an important source of information that is used as a term of reference for many stock assessments, but in the case of the northern Atlantic black sea bass stock, the data generated by the Black Sea Bass Research Fleet serves as the only systematically collected fishery dependent data source with a focus on the data being used in the assessment process. Thus, this project seeks to strengthen the fishery dependent data for this population to provide better information from across the temporal and spatial distribution of the northern stock.

The limited coverage of optimal black sea bass habitat and semi-seasonal (spring/winter) sampling schedule of the NEFSC trawl survey may limit the suitability of the survey data for the stock assessment (ASMFC 2013) and require the addition of new data streams to improve the information available to assessment. Recent stock assessments for the southern Atlantic black sea bass stock have adapted sampling and analytical techniques to better fit the life history and habitat associations of black sea bass. These stock assessments rely heavily on fishery-dependent data collected from multiple commercial and recreational fleets representing multiple gear types to inform the stock assessment model using data such as annual length compositions of landings and discards, gear selectivity curves, and indices of abundance (SEFSC 2013; SEDAR 2018). Such fishery-dependent parameters, however, have not yet been developed for the northern Atlantic black sea bass stock due to insufficient data, but will become possible if the Black Sea Bass Research Fleet is able to amass a robust time series of data. This project aims to address this need by maintaining the existing Black Sea Bass Research Fleet to conduct year-round biological sampling of black sea bass fishing effort, catch composition, and discard composition within the trawl, lobster/crab, fish pot, gillnet, and rod and reel fisheries in the SNE/MAB region. The northern Black Sea Bass Research Track Stock Assessment is currently underway, and the Working Group has voted to include the Black Sea Bass Research Fleet length and diposition data in the upcoming assessment. Continued data collection that extends the timeseries and increases sampling coverage for gear types and times of year under-sampled by other data sources will ensure that the data continues to become more useful to each successive stock assessment.

Ultimately, the proposed project will help meet ACCSP's mission of improving data quality for fisheries science. In addition, this project, and its integration with the ACCSP data housing program, will lend to the other mission of the ACCSP, namely by contributing to a single data management system that will meet the needs of fishery managers, scientists, and fishermen. Collecting timely scientific data across a species range is imperative for successful fisheries management, as more robust data enables fisheries science to be as comprehensive as possible, which in turn supports informed and efficient decision making by managers. Furthermore, stock assessment scientists rely on robust biological, catch and effort, and bycatch data to help improve the quality of stock assessments. In these ways, the proposed project meets all the main elements of the mission of ACCSP.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 5

Results and Benefits:

The results of the proposed project include:
- Improved quality, quantity, and timeliness of biological, catch and effort, and bycatch data for the northern Atlantic black sea bass, made available via the ACCSP;
- A vetted source of year-round black sea bass data that can be used to inform the stock assessment and management of this data poor species;
- Coordinated data transmission procedures with the ACCSP that follow the CFRF's existing data communication practices with ACCSP;
- A demonstrated, cost effective, method to collect data for a commercially and recreationally important species from areas and times of year not accessed by existing survey programs;
- Improved collaboration and trust between fishermen, scientists, and managers;
- Improved accuracy and credibility of the stock assessment and management plan for the northern Atlantic black sea bass stock;

The benefits of the proposed project are:
- Address priorities of ACCSP by providing critically needed black sea bass data from the SNE/MAB region to support assessment and management efforts that reflect the current state of the resource;
- Provide an efficient and constructive way for fishermen to be involved in the scientific process by using modern technology to collect quantitative black sea bass data during routine fishing practices;
- Fill black sea bass data gaps in areas, habitats, and times of year not covered by standard survey techniques;
- Evolve and improve the black sea bass stock assessment by providing expanded biological data from retained and discarded black sea bass from a variety of gear types;
- Support regional science and management agencies, including ACCSP, ASMFC, MAFMC, and state agencies in their efforts to sustainably manage the black sea bass resource;
- Support diversification and resilience of fishing communities in the many states across the Atlantic coast with a black sea bass fishery;
- Provide a model for cost-effective fishery dependent data collection efforts in other regions and fisheries.
- Build strong working partnerships between fishermen, scientists, and managers that will contribute to the sustainable management of the nation's living marine resources;
- Build confidence in the efficacy of the northern Atlantic black sea bass stock assessment and management process.

Data Delivery Plan:

An important component of the proposed project is the compilation and communication of fishery and biological data to the ACCSP, participant fishermen, stock assessment scientists, and

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 6

management teams, which will allow this project to have the greatest impact on black sea bass management as possible. The CFRF will maintain the black sea bass database for internal project analyses (described below) but will also regularly share the project data with other users, regardless of any internal publication endeavors.

Copies of the black sea bass database will continue to be sent bi-annually (every six months) to the ACCSP. These data will be compiled in a format that is compatible with the ACCSP database to encourage data be readily used in the black sea bass stock assessment and other analyses. Data submissions to the ACCSP will build upon the established procedures from the first five years of the project. All data provided to the ACCSP will match ACCSP data collection standards and any requested and available metadata will be provided. Throughout the project, data will also be made available to fishery scientists at the NMFS Northeast Fisheries Science Center. A vessel ID system will be used to maintain the confidentiality of participant fishing vessels. The CFRF will maintain open communication with the ACCSP data coordinator and will remain available to provide any necessary information along with data submissions.

To provide regular feedback to fleet participants, the project team will compile and distribute individual data reports to vessel captains every three months (quarterly). Vessel-specific data reports will include the raw data collected by that vessel during the reporting period as well as the following summary statistics: number of catch sampling sessions, amount of effort sampled (number of trawls, hooks, traps, etc.), average depth of sampling, percentage of black sea bass catch retained for sale, percentage of black sea bass catch discarded, number of black sea bass biologically sampled, sex distribution of black sea bass sampled, minimum/maximum length of black sea bass sampled, and average length of black sea bass sampled. Additional summary statistics will be available upon request. Data reports were compiled and distributed to Research Fleet participants following the above-mentioned quarterly time frame and content guidelines throughout the entirety of past project sampling.

Completed Data Delivery to ACCSP:

During the first funding year of the project, the CFRF and RI DEM worked with the current ACCSP Data Coordinator to coordinate data formats, metadata, and delivery procedures for the Research Fleet's black sea bass biosamples data. In addition, in year 4 of the project, the project team worked with the ACCSP Data Coordinator to update the Black Sea Bass Research Fleet data submission to follow the updated ACCSP biosamples data format. As a result of these efforts, all black sea bass biosamples data collected to date through the funded project have been incorporated into the ACCSP black sea bass biosamples database. The CFRF has maintained the bi-annual data submission to the ACCSP and submits data in January and July of each sampling year. The project team will maintain a bi-annual data delivery schedule to ACCSP throughout the proposed project following the same data formats and standards previously established, as well as any requested updates from ACCSP.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 7

Currently, the Research Fleet collects a suite of additional effort data beyond that which is included in the biosamples data (Table 1). To date, this effort data has not been included with past data submissions as the biosamples database at ACCSP is not set up for its inclusion. Continued efforts will be made by the CFRF and RI DEM to incorporate and share all effort data, including retroactively, with the ACCSP.

Approach:

The proposed project seeks to collect, communicate, and analyze critically needed catch, bycatch, and biological data for incorporation into the ACCSP biosamples database and ultimate application in the northern Atlantic black sea bass stock assessment. Project components include: 1) Maintenance of the current Black Sea Bass Research Fleet; 2) Collection of fishery-dependent biological (catch and bycatch) black sea bass data and fishery characteristics for 12 months in the SNE/MAB region; 3) Internal data analysis to address research questions about spatiotemporal patterns in the black sea bass population and fishery; 4) Compilation and communication of project data and results to ACCSP, stock assessment scientists, and fisheries managers; and 5) Outreach and education activities to share findings. Methodological details are outlined below.

Maintenance of Black Sea Bass Research Fleet and Data Collection App:

During the first funding year of this project, the CFRF and RI DEM were successful in developing the Black Sea Bass Research Fleet for fishery dependent data collection, including the development of a Project Steering Committee, solicitation and selection of participant fishing vessels, development of the On Deck Data application and SQL database, refinement of sampling protocols, construction of sampling equipment, training of Research Fleet participants, on-time initiation of data collection, data delivery to ACCSP and professional and industry outreach. The project was implemented by the PIs, CFRF staff, and a Project Steering Committee, which consists of members of the fishing industry as well as state and federal fisheries scientists and managers. Currently the project is run by the PIs and CFRF staff, and the project steering committee serves in an advisory role and provides feedback on project progress and major milestones as needed. More information about project accomplishments is available on the project website: www.cfrfoundation.org/black-sea-bass-research-fleet.

If funded, during the eighth year of the project, the CFRF and RI DEM will make all efforts to maintain all active fishing vessels supported through year-7 funding from ACCSP. It is important to maintain the current members of the Research Fleet for as long as possible. Ultimately, when data will be applied to the stock assessment or validated in regards to other sources of black sea bass data, having participation from the same vessels throughout the time series will allow project staff to investigate potential vessel effects evident in the data. The sampling rate of the Research Fleet is dictated by the highly seasonal variation of black sea bass catch and bycatch in various fisheries across southern New England and the Mid-Atlantic. As a result, the sampling rate by the Research Fleet fluctuates from year to year.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 8

The black sea bass data collection application, On Deck Data, was developed during the first year of the project to enable Research Fleet participants to collect standardized black sea bass data as well as day-to-day observations. On Deck Data prompts participant fishermen to record a suite of session data (location, depth, etc.) and biological data (length, sex, disposition) while at sea. To account for the multi-gear nature of the black sea bass fishery, On Deck Data prompts gear-specific data entry for Research Fleet participants (Table 1). On Deck Data was originally launched during the first year of the project and has received various improvements and quality of life updates in each funded year to streamline data collection.

Table 1. Summary of fishing effort data collected by the Black Sea Bass Research Fleet.

Trawl	Gillnet	Commercial Rod & Reel	Charter	Lobster/Crab Traps	Fish Pot
Mesh Size (inches)	Number of Net Panels Per String	Time Spent Fishing (hours)	Time Spent Fishing (hours)	Soak Time (days)	Soak Time (days)
Tow Time (hours.decimal)	Length of Net Panels (feet)	Number of Rods Fished	Number of Rods Fished	Number of Traps	Number of Traps
Sweep Length (feet)	Mesh Size (inches)	Humber of Hooks Used	Number of Hooks Used	Escape Vent Size (inches)	Escape Vent Size (inches)
	Soak Time (days)			Escape Vent Shape	Entrance Size (inches)
	Net Height (feet)				
	Tie Downs (inches)				

On Deck Data will be maintained throughout the proposed project to allow for efficient data collection and wireless data submission by Research Fleet participants. The CFRF and RI DEM will continue to work with an application developer to address any issues that arise and to update On Deck Data to maintain functionality. Application maintenance is a constant task, as tablets regularly receive operating system updates that may impact On Deck Data functionality. On Deck Data has to receive regular updates to specifically allow for compatibility with accessing and uploading data via wireless internet on new versions of the Android operating system. Further, as tablet models receive minor hardware changes between annual models, reformatting screens of On Deck Data to display properly across tablet models is anticipated.

The Black Sea Bass Research Fleet will continue to follow the fishery-dependent sampling protocols implemented during the first year of the project to collect catch and effort, biological, and bycatch data from the SNE/MAB region. <u>The percentage of project effort devoted to each of these modules is as follows: Catch and Effort 25%, Biological 50%, Bycatch 25%.</u> The estimated project effort devoted to biological sampling reflects the collection of black sea bass length and sex data by participant vessels during three trips per month for 12 months. The intention of data collection is to provide a biological characterization of the catch and discards of black sea bass from a variety of gear types in the SNE/MAB regions. The estimated effort devoted to the catch and effort module is based upon sampling during the open black sea bass

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 9

fishing season, sub periods open to commercial fishery exist nearly year-round. Further due to the multi-gear nature of the Research Fleet, every vessel interacts with black sea bass as targeted catch or bycatch differently even during open periods. Finally, the project effort allocated to the bycatch module reflects sampling efforts conducted while the commercial black sea bass fishing season is closed and while participant vessels are targeting other species. Due to the low daily allocation through the summer and fall seasons in Rhode Island, there is still a large portion of bycaught black sea bass sampled after vessels have hit their daily limits.

Fishery-Dependent Data Collection:

The Black Sea Bass Research Fleet started collecting data on November 30, 2016 and, if this proposal is funded, will continue to do so utilizing the established sampling protocols and procedures through at least July 31, 2025 (through Year 8 of ACCSP funding). The Black Sea Bass Research Fleet currently consists of fourteen active fishermen based in Rhode Island and New Jersey, chosen strategically to provide data coverage from across the SNE/MAB region, throughout the year, from a variety of gear types.

Participant fishermen will use Samsung Tab A tablets pre-programmed with On Deck Data, described above, to efficiently and accurately record and transmit fishery dependent data. As such, the proposed project will advance the use of electronic technology in at-sea biological data collection, management, and analysis efforts. The goal for each participant is to conduct at-sea catch sampling sessions during three fishing trips each month (Nelson 2014). Thus, across the 14 active vessels, the Black Sea Bass Research Fleet will aim to sample up to 42 trips per month, resulting in as many as 504 trips over twelve months. Given the population inferences implied in the project objectives and the aggregating nature of black sea bass, a biological sampling (length/sex) minimum of 50 black sea bass per location will be the required (Zhang & Cadrin 2012). With a goal of sampling three locations per month, the Research Fleet may sample up to 25,200 black sea bass over the course of the year.

The realized sampling frequency, however, will be dependent on a variety of factors, including weather, seasonal black sea bass distribution, and fishery closures. Further, due to the high seasonality of a large portion of the Black Sea Bass Research Fleet, fishery sampling frequency exhibits high seasonal fluctuations. Due to the multi-gear nature of the Research Fleet, the proposed sampling targets do not adequately represent the fishing schedules for each gear type. For example, due to the low daily catch limit (50 pounds per day per vessel for most of the year) in Rhode Island for black sea bass if a fishing vessel is only targeting black sea bass on a day trip and the limit is caught, all fishing ceases. This leads to instances where sampling 50 black sea bass per location becomes unfeasible as fishing may have already stopped prior to landing 50 black sea bass. Further, many of the larger trip vessels are mainly retaining their daily or trip limits of black sea bass from bycatch while targeting other species, which again leads to instances of fishing ceasing prior to 50 black sea bass caught. However, the goal of sampling 150 black sea bass per month remains to ensure statistical power. Vessels may sample fewer fish from more than three locations to reach the 150 fish per month target. Further, the

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 10

same scenario occurs in highly mobile fishing gears, such as charter and commercial rod and reel, which will often change locations prior to catching 50 black sea bass. Both instances may lead to the potential for more numerous sampling locations with fewer fish from each location. Finally, the maximum target of 25,200 black sea bass would only be achievable if all Research Fleet participants operated year-round. Since many of the gear types represented within the Research Fleet stop fishing for the winter months, the realized sampling numbers are lower.

At each sampling location, participant fishermen will use On Deck Data to record the date, time, location, statistical area, depth, habitat type, target species, gear type, effort deployed (see Table 1), total number or pounds of black sea bass retained and discarded, and length, sex, and disposition of at least 50 black sea bass. Sampling date, time, and location will be automatically recorded by the internal tablet GPS. Standardized fish measuring boards will be used across the Research Fleet to ensure a consistent measure of fish length to the nearest centimeter. Data will be wirelessly uploaded to a MySQL database once a vessel returns to port and continually monitored by the project team. This data communication, review, management, and storage process was established and vetted during the first year of the project and has been implemented in each year since.

Scientific collector's permits, issued by RI DEM, will be obtained for vessels fishing within Rhode Island state waters to allow for black sea bass collection for laboratory sampling. These permits were successfully acquired multiple times during the first funding years of the project and will be extended through subsequent years of data collection and expanded to cover new Research Fleet participants. During the 2020 sampling year, it was decided to no longer obtain an Exempted Fishing Permit for Research Fleet sampling. The exemptions allowed for recreational retention regardless of closure periods and exempted commercial rod and reel and charter vessels from minimum size limits for sampling purposes. Neither of these exemptions were necessary for Research Fleet operation as no black sea bass are retained for laboratory sampling from federal waters. They also allowed for participants to keep undersized fish onboard longer than the time needed for sampling.

The project team recently published a manuscript in *Frontiers in Marine Science* detailing the data collection methods of the Research Fleet. This manuscript, titled "Mobilizing the fishing industry to address data gaps created by shifting species distribution" also evaluates the sampling frequencies of the Research Fleet and demonstrates the value of the Research Fleet approach to quickly and cost efficiently collect large amounts of data on marine finfish species. The full paper can be found at
https://www.frontiersin.org/articles/10.3389/fmars.2023.1043676/full

Internal Data Analysis:

As described above, the Black Sea Bass Research Fleet was able to operate effectively and deliver data in an efficient manner during the first six+ years of data collection, sampling over 53,109 black sea bass from 2,866 sampling sessions conducted from coastal Rhode Island into

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 11

the MAB and east to George's Bank from November 30, 2016 to May 1, 2023 (Figure 1). In total, the Black Sea Bass Research Fleet has sampled black sea bass from 13 distinct statistical areas: 525, 537, 538, 539, 611, 613, 614, 615, 616, 621, 622, 626, and 627. The majority of samples have originated from statistical areas 537 and 539, which are closest to Rhode Island, however, samples have been collected from statistical areas down into the Mid-Atlantic (621, 622, 626, 627) as well.
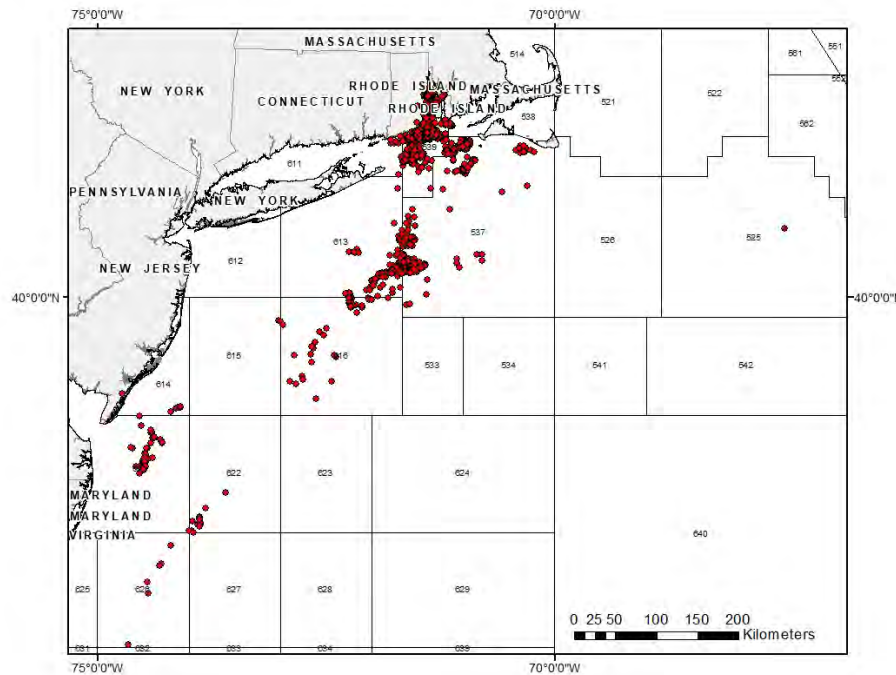
Figure 1. Black Sea Bass Research Fleet sampling locations (red circles) and associated statistical areas in the Southern New England and Mid-Atlantic region of the United States East Coast.

Biological data are summarized in Table 2. The ultimate application of these data is the black sea bass stock assessment. To achieve this goal, the project team has worked directly with steering committee members and black sea bass stock assessment scientists since the beginning of the project to ensure that Research Fleet data is of the necessary quality and structure for utilization in the stock assessment. In 2022, the project team regularly participated in meetings with the Black Sea Bass Research Track Stock Assessment Working Group to discuss the Research Fleet data, provide data summaries, and answer questions about the dataset. Throughout this process, the Working Group evaluated how this data could be incorporated in black sea bass assessment models and voted to include the Research Fleet's gear-specific length and disposition data in the 2022 assessment (scheduled to be published in late 2023). Communication with the Working Group will continue and will focus on incorporating additional data, such as catch and effort data collected by the Research Fleet, into future stock assessments.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 12

Table 2. Summary of data collected by the Black Sea Bass Research Fleet as of May 1, 2023.

Total Black Sea Bass Sampled	53,109
Percent Male	25%
Percent Female	37%
Percent Unknown	38%
Minimum Size (cm)	1
Maximum Size (cm)	68
Average Size (cm)	28.8
Percent Discarded	70%
Percent Retained	30%

In addition to the application of biological black sea bass data to the stock assessment, the data derived from the Black Sea Bass Research Fleet could also be used to characterize the catch, bycatch, and other characteristics of black sea bass in the SNE/MAB region, including gear selectivity and spatiotemporal patterns in catch composition. An additional 12 months of sampling by the Research Fleet will provide a better understanding of these seasonal and spatial dynamics as the data will now become the first multi-gear, multi-year, time series for the species.

The data collected during the previous funding years of the project exhibit interesting biological and fishery trends that will continue to be monitored in subsequent years of sampling for the proposed project. As expected, the average length of retained fish (38.9 cm) is larger than that of discarded fish (24.5 cm). However, the high frequency of legal-sized (>27.94 cm) discarded black sea bass caught by commercial gear suggests black sea bass are primarily being discarded due to seasonal closures and/or low daily limits, rather than the minimum size limit. For example, 37% of all commercially discarded fish have been legal size. The range of lengths of discarded fish further supports this, showing that even the largest of sampled black sea bass (receiving the highest market value) are often discarded (Figure 2).

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 13

Figure 2. Size spectra of black sea bass sampled by the Research Fleet from November 30, 2016 to May 1, 2023.

When comparing gear selectivity between the different gear types represented within the Research Fleet, trends between discarded and retained black sea bass are apparent (Figures 3 and 4). Trawl gear regularly interacts with the largest size range of black sea bass of all the gear types represented. Rod and reel (commercial and charter), fish pot, and lobster pot all exhibited nearly as wide a range of size interaction with black sea bass as trawl gear types, however, did not interact with the smallest of size classes of black sea bass as frequently and therefore had higher mean total length. Gillnet appears to be in a distinct grouping of its own and exhibits the highest selectivity amongst all represented target gear types, as this gear exclusively interacts with the largest size classes of black sea bass. The "other" gear category primarily represents conch pots and oyster aquaculture gear; these gear types are similarly selective compared to gillnet gear however interact primarily with the smallest size classes of black sea bass. Interestingly, black sea bass of legal size (>27.94 cm) are still sometimes captured in conch pots and have been retained for sale during sampling events.

These trends, which have become apparent from just the first several funding years of sampling, suggest there is gear-specific size selectivity occurring in the black sea bass fisheries in the SNE/MAB regions. The proposed project will continue to track these trends as the time series builds with subsequent years of sampling. This type of information could have important ramifications to the stock assessment as it could help inform the selection of fleets modeled within the assessment.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 14

Figure 3. Size range of discarded black sea bass sampled by each gear type represented within the research fleet as of May 1, 2023.
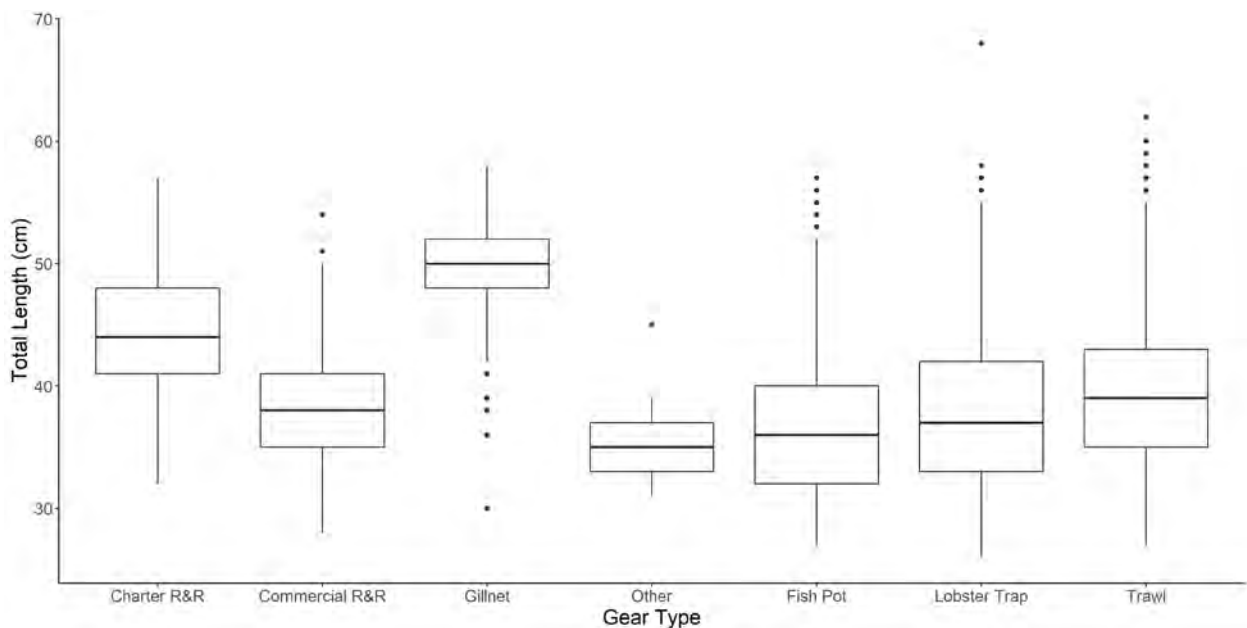
Figure 4. Size range of retained black sea bass sampled by each gear type represented within the research fleet as of May 1, 2023.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 15

During the proposed year of the project, the project team will focus on the refinement and expansion of analyses previously established for application to the stock assessment including: length distributions, sex ratios, catch per unit effort (CPUE), black sea bass retention and discard structure, seasonal activity of Research Fleet, and gear selectivity. Specifically, internal data analysis questions proposed during the past funded year of the project were: 1) Are there spatial (latitudinal) patterns in the length frequency or sex ratio of black sea bass?, 2) Are there seasonal differences in black sea bass catch composition (length frequency and sex ratio)?, 3) Are different life stages of black sea bass apparent in commercial fisheries catch in specific areas or at different times of year?, and 4) What is the selectivity (min, max, mean length) of different gear types (trawl, fish pots, gillnet, lobster/crab pot, rod and reel) that harvest black sea bass? Year-8 analyses will build upon the initial results from exploration of these questions and will begin to explore temporal trends in the dataset. The project team will aim to publish a manuscript containing results from internal analyses in a peer-reviewed journal as time allows. The establishment of gear type selectivity curve models comparing different gear types as well as multiple years of Research Fleet data may serve as a potential input to the next black sea bass stock assessment as well.

The open-source statistical software package R will be used for data analysis. Length frequencies, black sea bass length gear selectivity, spatial and seasonal sex ratio regression models, and catch rate patterns will all be updated based on the protocols established in prior years of the project to further analyze seasonal trends as well as compare data from year to year. Data and code will be made available to others upon reasonable request.

In addition to further addressing the aforementioned research questions, the project team will also explore novel fishery dependent indices for the black sea bass stock assessment, as time permits.

Outreach and Education

Education, outreach, and ongoing communication are an integral part of the overall work plan for the proposed project. These components of the proposed project support the goal of fostering collaborative working partnerships among scientists, managers, and members of the fishing industry through all phases of research, from the fine-tuning of sampling strategies through the analysis and sharing of data and results.

The primary outreach/education goal of the proposed project is to share and disseminate information on two topics: 1) the lessons learned from the collaborative Research Fleet approach for fishery dependent data collection; and 2) the findings from analysis of the black sea bass catch, bycatch, and biological databases derived from this project.

A secondary goal is to share and disseminate project information to a variety of interest groups including: 1) commercial fishing industry members; 2) fisheries scientists and managers based in various state, regional, and federal agencies; 3) outside researchers who will utilize this information to inform their own research efforts in the region; and 4) other interested parties

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 16

seeking information on new data collection/ocean monitoring techniques and approaches, and/or trends in black sea bass abundance and distribution in the SNE/MAB region.

There are several work elements embedded in the project work plan that are aimed at specifically addressing outreach and education goals, including:

1. Ongoing communication with project team members, including the members of the Black Sea Bass Research Fleet through personal meetings, group meetings, e-mail briefings, and phone conversations.
2. <u>Periodic project briefings to key individuals outside the project team, including ASMFC, MAFMC, NMFS NEFSC, and NMFS GARFO staff, members of the black sea bass fishing fleet, and interested others through direct e-mail/mail correspondence, including periodic newsletters describing the project progress.</u> The CFRF newsletters are sent to over 1700 addresses.
3. Regular postings of project information on the CFRF website, including descriptions of the fishermen involved, the equipment being used, the type of data being collected, and findings, as this information becomes available over the course of the project (www.cfrfoundation.org/black-sea-bass-research-fleet). The CFRF also posts periodic updates on this project on the CFRF Facebook page, which has over 1800 followers.
4. Participation in scientific, public, and industry-based conferences. So far, these include:

   a. 2017
      i. Massachusetts Lobsterman's Association (MLA) Annual Trade Show (Booth)
      ii. New Bedford Working Waterfront Festival (Booth)
      iii. Coastal and Estuarine Research Federation Conference (Booth)
   b. 2018
      i. Southern New England Chapter (SNEC) of the American Fisheries Society (AFS) (Poster presentation. "*Advancing Fishery Dependent Data Collection for Black Sea Bass (Centropristis striata) in the Southern New England and Mid-Atlantic Region using Modern Technology and a Fishing Vessel Fleet Approach".* Thomas Heimann, Anna Malek Mercer, and Jason McNamee)
      ii. MLA (Seminar)
      iii. AFS (Presentation. "*Advancing Fishery Dependent Data Collection for Black Sea Bass (Centropristis striata) in the Southern New England and Mid-Atlantic Region using Modern Technology and a Fishing Vessel Fleet Approach*". Anna Malek Mercer, Thomas Heimann, and Jason McNamee)
   c. 2019
      i. SNEC AFS (Presentation. "Using Fishermen-Collected Data to Explore the Black Sea Bass (*Centropristis striata*) Population and Construct Gear-Specific Discard Characterizations". Anna Malek Mercer, Thomas Heimann, and Jason McNamee)
      ii. MLA (Booth and Seminar)

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 17

iii. Maine Fishermen's Forum (Booth and Presentation. "*Warming Waters, Emerging Species, and Market Changes: Lessons Learned from Southern New England*". Anna Malek Mercer, Aubrey Ellertson, and Thomas Heimann)

iv. Wakefield Fisheries Symposium (Presentation. "Using Industry Collaboration to Improve Black Sea Bass Management". Anna Malek Mercer, Thomas Heimann, and Jason McNamee)

v. Senator Sheldon Whitehouse's 10th Annual Oceans, Energy, and Environmental Leaders Day (Poster Presentation. "*Advancing Fishery Dependent Data Collection for Black Sea Bass (Centropristis striata) in the Southern New England and Mid-Atlantic Region using Modern Technology and a Fishing Vessel Fleet Approach*". Thomas Heimann, Anna Malek Mercer, and Jason McNamee)

vi. Gulf of Maine 2050 symposium (Lightning Talk. "Warming Waters Create Opportunity for Diversification and Collaboration: Addressing the Rise of Black Sea Bass in Southern New England". Thomas Heimann, Christopher Glass, and Jason McNamee)

d. 2020

i. New England Cooperative Research Summit. "Filling the Gap with Self-Reported Data: Research Fleets". N. David Bethoney and Fred Mattera

e. 2021

i. American Fisheries Society (Two Presentations. 1. "*Using a fishery-dependent research fleet approach to characterize the composition of black sea bass (Centropristis striata) discards in the Southern New England and Mid-Atlantic fishery*". Hannah Verkamp, Thomas Heimann, Jason McNamee, and N. David Bethoney. 2. "*The Commercial Fisheries Research Foundation Research Fleets: Progress and New Directions*". N. David Bethoney, Aubrey Ellertson, and Thomas Heimann)

f. 2022

i. International Council for the Exploration of the Sea Annual Science Conference. "*Multiple pathways with common roots for integration of fisher experiential knowledge into marine science and management*". N. David Bethoney.

5. Publication of project methods and results in peer-reviewed scientific journals. So far, this has included:

a. "Mobilizing the fishing industry to address data gaps created by shifting species distribution" by Heimann, T., H. Verkamp, J. McNamee, and N.D. Bethoney. 2023. Frontiers in Marine Science 10. https://doi.org/10.3389/fmars.2023.1043676

6. Sharing of relevant data and samples to aid other regional research initiatives centered on black sea bass. So far, this has included:

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 18

a. Facilitated the collection of 30 live black sea bass for laboratory observation of black sea bass predation on lobster by a Master's student in Dr. Candace Oviatt's lab at University of Rhode Island

b. Contributed over 150 black sea bass samples to Dr. Jonathan Grabowski at Northeastern University since 2019 to investigate differences among black sea bass across three distinct geographic zones in the northern range of black sea bass.

c. Contributed 30 black sea bass samples to Dr. Kelton McMahon at the University of Rhode Island in 2019 to investigate stable isotope concentrations and trophic overlap with cod.

d. Contributed length, sex, disposition, date, time, and location data from recreational fishing trips by a Research Fleet member to Mr. Chris McGuire of the Nature Conservancy in 2019 to validate the organizations camera-based data collection system.

e. Contributed 100 black sea bass samples to Dr. Katie Lotterhos at Northeastern University in 2021 to sequence the black sea bass genome and evaluate population structure.

f. Contributed aging structures from over 2,400 black sea bass for inclusion in the Virginia Institute of Marine Science's black sea bass aging database.

g. Contributed 69 otoliths to scientists at Massachusetts Division of Marine Fisheries for inclusion in a study that validated ageing methods for black sea bass and compared results across different regions. This work was recently published: Koob ER, SP Elzey, JW Mandelman, MP Armstrong. 2021. "Age validation of the northern stock of black sea bass (*Centropristis striata*) in the Atlantic Ocean. Fish Bull. 119: 261-271 DOI: 10.7755/FB.119.4.6

h. Contributed relevant data to a Masters student at the University of Massachusetts Dartmouth School of Marine Science and Technology studying the effects of windfarm development on black sea bass.

7. Organization of a research session at the end of the project involving managers, scientists, and members of the commercial and recreational fishing industries to share project findings and discuss experiences and results.

8. Issuance and distribution of a written summary report.

Geographic Location:

At-sea sampling will be conducted within the northern Atlantic black sea bass stock area (SNE/MAB region), potentially including statistical areas 521 to 631. The final distribution of at-sea data collection will depend on the fishing locations selected by participant fishermen. Project administration, and data management and analyses will be conducted at the Commercial Fisheries Research Foundation office in Kingston, Rhode Island and the RI DEM marine laboratory in Jamestown, Rhode Island.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 19

Milestone Schedule:

Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13-15
Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	Research Fleet data collection and Fleet support	
				Apply for RI DEM Permits	Distribute RI DEM Permits to Fleet							
Maintain sampling gear and buy new sets	Maintain sampling gear	Maintain sampling gear	Maintain sampling gear	Maintain sampling gear	Maintain sampling gear	Maintain sampling gear	Maintain sampling gear	Maintain sampling gear	Maintain sampling gear	Maintain sampling gear	Maintain sampling gear & collect after sampling	
Maintain ODD, server, and database	Maintain ODD, server, and database	Maintain ODD, server, and database	Maintain ODD, server, and database	Maintain ODD, server, and database	Maintain ODD, server, and database	Maintain ODD, server, and database	Maintain ODD, server, and database	Maintain ODD, server, and database	Maintain ODD, server, and database	Maintain ODD, server, and database	Maintain ODD, server, and database	Final report writing and submission of report and all project data to ACCSP
Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	
		Quarterly reports to Fleet Members			Quarterly reports to Fleet Members			Quarterly reports to Fleet Members			Quarterly reports to Fleet Members	
				Submit data to ACCSP		Write progress report and submit to ACCSP				Submit data to ACCSP		
Maintain project website and project outreach	Maintain project website and project outreach	Maintain project website and project outreach	Maintain project website and project outreach	Maintain project website and project outreach	Maintain project website and project outreach	Maintain project website and project outreach	Maintain project website and project outreach	Maintain project website and project outreach	Maintain project website and project outreach	Maintain project website and project outreach	Maintain project website and project outreach	

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 20

Project History Table:

Funding Year	Title	Original Project Dates	Funded Amount	Total Project Cost	Description
2016 New	Advancing Fishery Dependent Data Collection for Black Sea Bass (*Centropristis striata*) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach	September 1, 2016 – August 31, 2018	$137,827.00	$203,072.00	Piloted the research fleet technique for collection of fishery dependent catch, effort, bycatch, and biological data in the multi-gear black sea bass fishery
2018 New	Advancing Fishery Dependent Data Collection for Black Sea Bass (*Centropristis striata*) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach	May 1, 2018 – May 31, 2019	$135,648.00	$187,949.00	Maintained the research fleet fishery dependent data collection of catch, effort, bycatch, and biological data in black sea bass fishery and expanded Research Fleet by two fishing vessels
2019 Maintenance	Advancing Fishery Dependent Data Collection for Black Sea Bass (*Centropristis striata*) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach	June 1, 2019 – May 31, 2020	$132,749.00	$169,033.00	Maintained the Research Fleet data collection of catch, effort, bycatch, and biological data in the black sea bass fishery in the SNE/MAB region and expanded the Research Fleet by two fishing vessels
2020 Maintenance	Advancing Fishery Dependent Data Collection for Black Sea Bass (*Centropristis striata*) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach	August 1, 2020 – July 31, 2021	$132,097.00	$157,735.00	Maintained the Research Fleet data collection of catch, effort, bycatch, and biological data in the black sea bass fishery in the SNE/MAB region and expanded the Research Fleet by one fishing vessel
2021 Maintenance	Advancing Fishery Dependent Data Collection for Black Sea Bass (*Centropristis striata*) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach	August 1, 2021 – July 31, 2022	$132,064.00	$154,537.00	Maintained the Research Fleet data collection of catch, effort, bycatch, and biological data in the black sea bass fishery in the SNE/MAB region and expanded the Research Fleet by two fishing vessels
2022 Maintenance	Advancing Fishery Dependent Data Collection for Black Sea Bass (*Centropristis striata*) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach	August 1, 2022 – July 31, 2023	$132,005.00	$154,478.00	Maintained the Research Fleet data collection of catch, effort, bycatch, and biological data in the black sea bass fishery in the SNE/MAB region
2023 Maintenance	Advancing Fishery Dependent Data Collection for Black Sea Bass (*Centropristis striata*) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach	August 1, 2023 – July 31, 2024	$88,152	$109,640	Will maintain the Research Fleet data collection of catch, effort, bycatch, and biological data in the black sea bass fishery in the SNE/MAB region

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 21

Project Accomplishments Measurement (Metrics and *Achieved Goals*):

Project Goal	Metric 1	Metric 2	Metric 3	Metric 4	Metric 5	Metric 6	Metric 7
Collection & communication of biological and fishery data for BSB	Upkeep of ODD, CFRF server, and MySQL database *Achieved in Years 1-6 + In progress Year 7*	Support of 14 Research Fleet Members *Achieved in Years 1-6 + In progress Year 7*	Twelve months of biological BSB and fishery data collection by Fleet *Achieved in Years 1-6 + In progress Year 7*	Collection of up to 27,000 BSB records, 540 record of catch/discards, and 540 session/effort data by Research Fleet *Achieved in Years 1-6 + In progress Year 7*	Transfer of collected data into MySQL database *Achieved in Years 1-6 + In progress Year 7*	Distribution of quarterly reports to Fleet Members *Achieved in Years 1-6 + In progress Year 7*	Submission of biological and fishery data to ACCSP and other managers *Achieved in Years 1-6 + In progress Year 7*
Reduce uncertainties in BSB stock assessment	Increase number of gear replicates in non-trawl fishery *Achieved in Years 2-4*	Provide BSB data from areas and times of year currently under sampled *Achieved in Years 1-6 + In progress Year 7*	Distribution of project data to managing stakeholders at federal, region, and local level *Achieved in Years 1-6 + In progress Year 7*	Utilization of data by BSB stock assessment working group *In progress*	Explore fishery dependent index of abundance for BSB using Fleet data *In progress*		
Asses spatial & temporal patterns in BSB fishery and catch	Analyze catch trends between years, gear types, and locations of Fleet sampling *Achieved in Years 1-6 + In progress Year 7*	Monitor discard structure between years within Fleet sampling *Achieved in Years 1-6 + In progress Year 7*	Monitor size and sex structure of retained BSB between sampling years *Achieved in Years 1-6 + In progress Year 7*	Monitor trends in length frequencies within gear types, locations and times of year *Achieved in Years 1-6 + In progress Year 7*	Add additional years of data to explore inter annual differences in length frequency *Achieved in Years 1-6 + In progress Year 7*	Update of BSB sex ratio logistic regression models from prior years *Achieved in Years 1-6 + In progress Year 7*	Develop manuscript for publication utilizing biological or fishery data from Fleet *In progress*
Demonstrate model approach for cost efficient fishery dependent data collection	Usage of collaborative approach established in previous years *Achieved in Years 1-6 + In progress Year 7*	Presentations of Fleet design at scientific conferences *Achieved in Years 1-6 + In progress Year 7*	Develop manuscript to validate Fleet design through peer review *Achieved in Year 6*				

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 22

Cost Summary and Funding Transition Plan:

This proposal represents two thirds cost reduction from the original proposal of a similar scope to comply with the ACCSP funding schedule. The drop is met primarily by a reduction in vessel stipends and CFRF personnel costs. The vessel stipend reduction is based on returning the Research Fleet to its original proposed size of eight vessels. A few years ago, based on input from stock assessment scientists, the Research Fleet was expanded to obtain more samples from the pot fishery, which had been traditionally under sampled by other sources. Following this precedent, project staff will consult with the black sea bass stock assessment Working Group before reducing the number of Research Fleet vessels and will prioritize keeping vessels of gear types for which samples are most useful. This reduction, as well as staff experience in running the Research Fleet, merits further reduction of executive director, research staff, and business manager time. Reductions to the supply budgets were also made to reflect vessel reduction and the reuse of older supplies. These changes are reflected in the CFRF sub-contract (section F of the Budget Table).

The CFRF and RI DEM have pursued funding from a variety of sources for the Black Sea Bass Research Fleet and will continue to do so to ensure the longevity and utility of the data collected to the management of this data poor species. In previous funding years, the CFRF has been successful in securing partial funding from the Sarah K. de Coizart Tenth Perpetual Charitable Trust to support the Research Fleet. This year, the CFRF submitted a fiscal year 2024 Congressionally Directed Spending request to Senator Sheldon Whitehouse to support the Black Sea Bass Research Fleet for up to five years. That request was put forward to the Senate Appropriations Committee for consideration. The CFRF and RI DEM will continue to look for outside sources of funding to support the Research Fleet and the valuable work it produces into the future.

*Budget Table***:**

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 23

Object Class Category	Proposal	In-Kind	Total
TOTAL	$ 43,635	$ 19,707	$ 63,342
% Contribution by Funding Source	69%	31%	100%
A Personnel			
- RI DEM - Jason McNamee		$ 5,347	$ 5,347
- RI DEM - Contractor		$ 4,547	$ 4,547
- RI Dem - Intern		$ 2,500	$ 2,500
Total RI DEM Personnel Costs	$ -	$ 12,394	$ 12,394
B Fringe Benefits	$ -	$ 4,214	$ 4,214
C Travel	$ -	$ -	$ -
D Equipment	$ -	$ -	$ -
E Supplies	$ -	$ -	$ -
F Contractual - CFRF			
a. Personnel			
- Executive Director - David Bethoney	$ 1,400		$ 1,400
- Research Biologists	$ 9,000		$ 9,000
- Business Manager	$ 503		$ 503
Total CFRF Personnel Costs	$ 10,903	$ -	$ 10,903
b. Fringe Benefits	$ 1,090	$ -	$ 1,090
c. Travel	$ 500	$ -	$ 500
d. Equipment	$ -	$ -	$ -
e. Supplies			
- Research Supplies	$ 340		$ 340
- Office Supplies	$ 50		$ 50
Total Supplies	$ 390	$ -	$ 390
f. Contractual			
- Programmer for On-Deck Data database	$ 250	$ -	$ 250
Total Contractual	$ 250	$ -	$ 250
g. Construction	$ -	$ -	$ -
h. Other Costs			
- Fishing Vessel Stipends	$ 23,040	$ -	$ 23,040
- Executive Assistance	$ -	$ -	$ -
Total Other Costs	$ 23,040	$ -	$ 23,040
i. Total Direct Charges	$ 36,173	$ -	$ 36,173
j. Indirect Charges			
- Proposed at 20.63% of CFRF Direct Charges	$ 7,462	$ -	$ 7,462
Total Indirect Charges	$ 7,462	$ -	$ 7,462
k. Total CFRF Costs	$ 43,635	$ -	$ 43,635
G Construction	$ -	$ -	$ -
H Other Costs	$ -	$ -	$ -
I Total Direct Costs	$ 43,635	$ 16,608	$ 60,243
J Indirect Charges	$ -	$ 3,099	$ 3,099
K Total Proposal Costs	$ 43,635	$ 19,707	$ 63,342

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 24

Budget Justification – Year 8 (Maintenance Year 6 Project, Proposed):

The total proposed federal budget requested by the Rhode Island Department of Environmental Management (RI DEM) and the Commercial Fisheries Research Foundation (CFRF) for all components of the work is $43,635 for 12 months. The voluntary non-federal match funds provided by the RI DEM and CFRF is $19,707. The total proposal value is $63,342. The proposed timeframe is August 1, 2024 to July 31, 2025. The proposed budget justification for object class category items includes the following:

Personnel: $12,394 In-Kind (RI DEM). RI DEM staff will play an advisory/support role in the proposed project, providing guidance on research protocols, assisting with statistical analyses as needed, exploring gear-specific indices of abundance and alternative modeling approaches as time permits, support in the procurement and storage of samples, and communicating project results to fishery governance system via existing participation in technical committees and working groups.

Fringe Benefits: $4,214 In-Kind (RI DEM). Fringe costs are charged on RI DEM FTEs only.
      RIDEM Annual Fringe benefit rates are:

Retirement 24%	Deferred Compensation 0.4%
FICA 6.2%	Medicare 1.45%
Health care $21,937/year	Dental $1,132/year
Vision Mercer $165/year	Assessed Fringe 4.25%
Retiree Health 6.75%	

Travel: There are no direct travel charges.

Equipment: There are no direct equipment charges.

Supplies: There are no direct supplies charges.

Contractual: The CFRF will conduct most of the work involved in this project, with administrative and technical assistance provided by RI DEM as In-Kind. These services will be charged to the grant as contractual costs and are outlined below to provide more detail as to how the funding will be used:
    Personnel: $10,904 federal. This includes the wages for the following CFRF personnel for time spent working directly on the project:
    1. Executive Director – Proposed at 1% of time for 12 months = $1,400. D. Bethoney, CFRF Executive Director, will oversee the administration, team communication/coordination, and outreach aspects of the project. He will also assist with data analysis, report and outreach material development, and communication of project progress to the client, fishing industry and management communities.
    2. Research Scientist – Proposed at 15% of time for 12 months = $9,000. H. Verkamp , CFRF Research Biologist, will be the primary individual responsible for fleet organization,

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 25

maintenance, and support, as well as data management, communication, and analysis. She will also support the Executive Director in project oversight tasks.

3. Business Manager – Proposed at 1% of time for 12 months = $503. T. Winneg, CFRF Business Manager, will carry out all the finance related aspects of the project including research budget tracking, invoice processing, and administrative support tasks, including purchasing supplies.

Fringe Benefits: $1,091 federal. This includes a percentage for payroll taxes and worker's compensation insurance prorated in accordance with % of salary paid from program. Benefits proposed at 10% of personnel costs based on 2022 benefits and historical analysis.

Travel: $500 federal. Travel costs include travel support (mileage) for project staff to provide support at docks to Research Fleet participants, to participate in meetings with the Research Fleet, stock assessment scientists, and managers. The advent of remote participation may allow for dissemination of project methods, findings, and conclusions at an industry/professional conference.

Equipment: $0. There will be no equipment costs on this project.

Supplies: $390 federal. This category includes research supplies and project office supplies.

1. Research Supplies: $340 - Costs of tablets, waterproof cases, stylus & fish measuring board. The proposed cost is for replacements of research fleet vessel supplies that are damaged or lost.

2. Office Supplies: $50 – Costs to cover database storage and website fees project office and meeting supplies, etc.

Contractual: $250 federal. This includes costs associated with a Programmer ($250 - federal) - CFRF hires an outside computer programmer to maintain the OnDeckData application and database coding for data relay and storage, to address any issues that arise, and to update the app to maintain functionality.

Construction: There are no construction costs.

Other Costs: $23,040 federal. This includes:
Fishing vessel stipends ($23,040 - federal) for 8 vessels for 12 months at $600 per month. A fleet of 8 vessels will be utilized each month to obtain the proposed biological samples. The total stipend is computed at 40% due to fluctuations in vessel sampling associated with weather, vessel maintenance, and seasonal black sea bass distribution.

Total Direct Charges: $36,173 federal. This is the total direct charges for cost items a-h.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 26

Indirect Charges: $7,462 federal. Indirect general and administrative costs are calculated as 20.63% of Total Direct Charges. Indirect general and administrative costs are used to cover costs associated with the general operations of the CFRF including accounting services, legal services, maintenance of office space, liability insurance, payroll fees, phone/fax lines, internet service, etc. The CFRF's FY2023 Indirect Cost Rate Authorization Letter dated 4/6/2023 is for 20.63% based on FY2022 actual costs.

Total Proposal Costs: $43,635 Federal Total.

Construction. There are no construction costs on this grant

Other Costs. There are no other costs associated with this grant.

Total Direct Charges: $88,152 Federal + $21,254 In-Kind = $109,406 total. This is the total direct charges for cost items A-H.

Indirect Charges: $3,099 In-Kind (RIDEM). Indirect charges are charged on RIDEM Salaries only. The Negotiated Indirect Cost Rate for FY2017 is 25%. (Total personnel is $12,394 x 25% = $3,099.)

Total Proposal Costs: $88,152 Federal + $21,488 In-Kind = $109,640 Total.

Previous Year's Budget Narrative – Year 7 (Maintenance Year 5 Project, Funded FY23):

The total proposed federal budget requested by the Rhode Island Department of Environmental Management (RI DEM) and the Commercial Fisheries Research Foundation (CFRF) for all components of the work is $88,152 for 12 months. The voluntary non-federal match funds provided by the RI DEM and CFRF is $21,488. The total proposal value is $109,640. The proposed timeframe is August 1, 2023 to July 31, 2024. The proposed budget justification for object class category items includes the following:

Personnel: $12,394 In-Kind (RI DEM). RI DEM staff will play an advisory/support role in the proposed project, providing guidance on research protocols, assisting with statistical analyses as needed, exploring gear-specific indices of abundance and alternative modeling approaches as time permits, support in the procurement and storage of samples, and communicating project results to fishery governance system via existing participation in technical committees and working groups.

Fringe Benefits: $4,214 In-Kind (RI DEM). Fringe costs are charged on RI DEM FTEs only.
RIDEM Annual Fringe benefit rates are:
Retirement 24%   Deferred Compensation 0.4%
FICA 6.2%   Medicare 1.45%

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 27

Health care $21,937/year   Dental $1,132/year
Vision Mercer $165/year   Assessed Fringe 4.25%
Retiree Health 6.75%

Travel: There are no direct travel charges.

Equipment: There are no direct equipment charges.

Supplies: There are no direct supplies charges.

Contractual: The CFRF will conduct most of the work involved in this project, with administrative and technical assistance provided by RI DEM as In-Kind. These services will be charged to the grant as contractual costs and are outlined below to provide more detail as to how the funding will be used:

Personnel: $24,543 federal. This includes the wages for the following CFRF personnel for time spent working directly on the project:
1. Executive Director – Proposed at 2.5% of time for 12 months = $3,176. D. Bethoney, CFRF Executive Director, will oversee the administration, team communication/coordination, and outreach aspects of the project. He will also assist with data analysis, report and outreach material development, and communication of project progress to the client, fishing industry and management communities.
2. Research Scientist – Proposed at 35% of time for 12 months = $20,108. T. Heimann and another CFRF Research Biologists will be the primary individuals responsible for fleet organization, maintenance, and support, as well as data management, communication, and analysis. They will also support the Executive Director in project oversight tasks.
3. Business Manager – Proposed at 2.5% of time for 12 months = $1,259. T. Winneg, CFRF Business Manager, will carry out all the finance related aspects of the project including research budget tracking, invoice processing, and administrative support tasks, including purchasing supplies.

Fringe Benefits: $2,455 federal. This includes a percentage for payroll taxes and worker's compensation insurance prorated in accordance with % of salary paid from program. Benefits proposed at 10% of personnel costs based on 2021 benefits and historical analysis.

Travel: $500 federal. Travel costs include travel support (mileage) for project staff to provide support at docks to Research Fleet participants, to participate in meetings with the Research Fleet, stock assessment scientists, and managers. The advent of remote participation may allow for dissemination of project methods, findings, and conclusions at an industry/professional conference.

Equipment: $0. There will be no equipment costs on this project.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 28

Supplies: $1,150 federal. This category includes research supplies and project office supplies.
1. Research Supplies: $500 - Costs of tablets, waterproof cases, stylus & fish measuring board. Proposed at $500 per set x 1 vessels for the duration of the project. The set of sampling equipment for existing Research Fleet vessels are replacements for equipment that is damaged or lost.
2. Office Supplies: $650 – Costs to cover database storage and website fees ($50/month), project office and meeting supplies, etc.

Contractual: $250 federal. This includes costs associated with:
Programmer ($250 - federal) - CFRF hires an outside computer programmer to maintain the OnDeckData application and database coding for data relay and storage, to address any issues that arise, and to update the app to maintain functionality.
Construction: There are no construction costs.

Other Costs: $45,360 federal + $1,500 match = $46,860. This includes:
Fishing vessel stipends ($45,360 - federal) for 14 vessels for 12 months at $600 per month. A fleet of 14 vessels will be utilized each month to obtain the proposed biological samples. The total stipend is computed at 45% due to fluctuations in vessel sampling associated with weather, vessel maintenance, and seasonal black sea bass distribution.
Executive Assistance ($1,500 - in-kind match) covers the administration assistance for the project (including, review of fleet applications and invoices) by the CFRF President and Vice President, who provide these services at no cost. Costs proposed at $250 per day for 3 days for 2 people over the duration of the project.

Total Direct Charges: $74,258 federal + $1,500 in-kind = $75,758 total. This is the total direct charges for cost items a-h.

Indirect Charges: $13,894 federal + $281 in-kind = $14,175 total. Indirect general and administrative costs are calculated as 18.71% of Total Direct Charges. Indirect general and administrative costs are used to cover costs associated with the general operations of the CFRF including accounting services, legal services, maintenance of office space, liability insurance, payroll fees, phone/fax lines, internet service, etc. The CFRF's FY2022 Indirect Cost Rate Authorization Letter dated 2/11/22 is for 18.71% based on FY2021 actual costs.

Total Proposal Costs: $88,152 Federal + $1,781 In-Kind = $89,933 Total.

Construction. There are no construction costs on this grant

Other Costs. There are no other costs associated with this grant.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 29

Total Direct Charges: $88,152 Federal + $21,254 In-Kind = $109,406 total. This is the total direct charges for cost items A-H.

Indirect Charges: $3,099 In-Kind (RIDEM). Indirect charges are charged on RIDEM Salaries only. The Negotiated Indirect Cost Rate for FY2017 is 25%. (Total personnel is $12,394 x 25% = $3,099.)

Total Proposal Costs: $88,152 Federal + $21,488 In-Kind = $109,640 Total.

Summary of Proposal for Ranking Purposes

Type: Maintenance

Primary Program Priorities:
This project follows fishery-dependent sampling protocols to collect black sea bass catch and effort, biological, and bycatch data from the SNE/MAB region. The percentage of project effort devoted to each of these modules is as follows: 50% Biological, 25% Catch and Effort, 25% Bycatch. Thus, Biological sampling is the primary program priority. The estimated project effort devoted to biological sampling reflects the collection of black sea bass length and sex data by participant vessels during three trips per month for twelve months (up to 504 trips and 25,200 black sea bass total).

Data Delivery Plan:
All biological data collected from this project to date has been bi-annually submitted to and accepted by the ACCSP biosamples database. With additional funding for the proposed project, the project team will continue to work closely with ACCSP to ensure data is in the correct format to be incorporated into the ACCSP biosamples database. Data will continue to be submitted bi-annually in June and December of the proposed project period.

Project Quality Factors

Multi-Partner/Regional impact including broad applications:
The results of the proposed project have regional impacts and broad applications, as black sea bass are expanding to inhabit, and potentially be harvested from, the majority of the US east coast. Furthermore, the social and economic implications of this work could be extensive, as project data contributes to the improvement of the northern Atlantic black sea bass stock assessment and potentially the creation of new economic opportunities. From a collaboration perspective, this project provides a unique opportunity for the RI DEM and CFRF to maintain a fisherman-based research fleet to address ACCSP priorities, drawing upon networks of partners in industry, fisheries research, and management. This project will help RI DEM and CFRF demonstrate that, with support from ACCSP, they have the ability to bring stakeholders together, outside of a contentious management environment, to collect, communicate, and

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 30

analyze critically needed data to address the data needs of the data poor northern Atlantic black sea bass.

Greater than year 2 contains funding transition plan and justification for continuance:
This proposal is for a one-year study to continue an industry-based research fleet approach to biological, catch, and bycatch sampling for northern Atlantic black sea bass. The project has been successful through the first five years of funded work and has sampled over 53,000 black sea bass. An additional year of funding would bolster the first year-round, multi-year database for this biologically data poor species. Ultimately, long term maintenance of this project will provide invaluable data to the ACCSP, ASMFC, and MAFMC, and improve the assessment and management of the northern Atlantic black sea bass resource. The CFRF and RI DEM have continued to apply for funding for this project through external sources and have secured supplemental funding to partially support the Research Fleet as described above. Obtaining long-term funding for the Research Fleet is a top and ongoing priority for project PIs and staff.

In-kind contribution: The total project cost is $63,342. In-kind contributions provided by RI DEM and CFRF total $19,707. Thus, RI DEM and CFRF will provide 31% of total project costs.

Improvement in data quality/quantity/timeliness:
The proposed project addresses the critical need to improve the quality, quantity, and timeliness of biological, catch and effort, and bycatch data for the northern Atlantic black sea bass, which the ACCSP Biological Review Panel identified as having inadequate biological sampling and high stakeholder priority, resulting in the highest-ranking priority score. Ultimately, the proposed project will help to meet ACCSP's mission of improving data quality for fisheries science by contributing to a single data management system that will meet the needs of fishery managers, scientists, and fishermen.

Potential secondary modules as by-products:
The potential secondary modules are catch and effort (25%) and bycatch sampling (25%). The project effort allocated to the catch and effort module refer to the sampling that occurs while the fishery is open. Although the fishery is open for a large portion of the year, black sea bass is often caught and retained as a non-target species. The project effort allocated to the bycatch module reflects sampling efforts conducted while the commercial black sea bass fishing season is closed and while participant vessels are targeting other species but still interacting with black sea bass as bycatch.

Impact on stock assessment:
As described above, the Research Fleet's gear-specific biological data is being directly incorporated into the ongoing 2022 Research Track Stock Assessment for northern black sea bass. This data will improve assessment estimates such as catch-at-length and discards-at-length.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 31

In the future, the Research Fleet collected data has the potential to directly improve the federal stock assessment in a number of additional ways including reducing the uncertainty in gear type specific selectivity, and gear (and location) specific discard and catch characterizations. Currently, the indices of abundance relied upon in the black sea bass stock assessment come primarily from the NEFSC winter and spring trawl survey, Northeast Area Monitoring and Assessment Program (NEAMAP) survey trawls, recreational catch per effort, and is supplemented with various state trawl survey indices of abundance (NEFSC 2017). The utility of the Research Fleet data in this respect is to inform the management about catch and discard structure from a variety of gear types. Whereas the stock assessment currently only delineates between trawl and non-trawl gear types, after building a multiple-year time-series the Research Fleet data could potentially be utilized to create a variety of CPUE indices of abundance (trawl, gillnet, lobster pot, rod & reel, fish pot, and multigear). Further, the Research Fleet data has the potential to be directly used to create a discard characterization for the northern stock sub-unit and reduce uncertainties in the annual total fishery removals.

Innovative:

The innovative and cost-effective nature of the proposed project, which relies upon collaboration between a Program partner and the fishing industry, can provide an opportunity for fishermen to constructively engage in the data collection process for black sea bass and provide a model for future data collection efforts in other regions and fisheries. In addition to demonstrating a novel sampling approach, the proposed project also leverages modern technology to improve the efficiency of data collection and communication.

Properly Prepared:

This proposal follows the guidelines provided in the ACCSP Funding Decision Document.

Principal Investigators:

The co-Principal Investigators of the proposed project are: Jason McNamee (Chief, RI DEM Marine Fisheries), and David Bethoney (Executive Director, CFRF). Curriculum vitae are provided in the following pages.

Jason McNamee will play an advisory/support role in this project, given his existing commitments at the RI DEM Division of Marine Fisheries. More specifically, Jason will provide advice for sampling protocols, act as a liaison to the existing black sea bass assessment/management infrastructure and assist with data analysis as his time permits (data review/analysis will primarily be the role of the CFRF Research Biologist). In his role as both a technical committee member, and as a member of the black sea bass Research Track Stock Assessment Working Group, Jason McNamee will be able to help the project with capturing the correct information and making sure this information is formatted appropriately for inclusion in future northern Atlantic black sea bass stock assessments.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 32

Dr. N. David Bethoney, Executive Director of the CFRF, will serve as the lead Co-PI for the proposed project. Dr. Bethoney will be responsible for overall projection direction and progress towards completing proposed objectives. Dr. Bethoney will be primarily responsible for overseeing proposed data analysis as well as dissemination of project results to the MAFMC and ASMFC. He will also assist in at-sea related research on an as-needed basis.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 33

Jason Earl McNamee, PhD
519 Congdon Hill Rd
Saunderstown, RI 02874
Day Phone: 401-423-1943
Email: jason.mcnamee@dem.ri.gov

WORK EXPERIENCE

RI Department of Environmental Management 12/2002 - Present
Jamestown, RI US
Chief, Marine Resource Management
Duties:

- Management of the Marine Fisheries program for the RI Dept. of Environmental Management
- Management of a staff of 20 professionals in the field of marine fisheries
- Manage operating budgets for multiple federal grants and state accounts
- Creation of grant proposals for marine fisheries projects
- Management of the Ft Wetherill Marine Laboratory building and research vessels
- Membership on several technical panels: the New England Council Science and Statistics Committee (Chair), Atlantic States Marine Fisheries Commission Menhaden (chair), Tautog (chair), and Summer Flounder/Scup/Black Sea Bass technical and stock assessment committees, Biological and Ecological Reference Point committee
- Support to the RI Marine Fisheries Council
- Creation and administration of the RI Marine Fisheries Institute
- Principal investigator (PI) on the Narragansett Bay juvenile seine survey
- PI for the Narragansett Bay Menhaden monitoring program
- Small vessel operation
- Production and review of multiple annual technical and grant completion reports
- Perform stock assessment analyses

Skills developed: Personnel and budget management experience; Supervisory experience; Good statistical and computer skills (ADMB, R, Microsoft software, ADAPT, JMP, ASAP, Oracle Discoverer, web design); Species identification experience; Experience using water quality instrumentation (DO meter, pH meter, Gas Chromatograph, Conductivity meter, flow meter); GIS Experience (Arcview and R); Field work experience; Experience in the construction and maintenance of technical research equipment; Seine, fyke net, trawl net, gillnet, fish pot, and electroshock surveying; Small boat handling (State of Rhode Island and Coast Guard certified)
Supervisor's Name: Janet Coit
Supervisor's Phone: 401-222-4700 ext. 2409

RI Department of Environmental Management 4/2000 - 12/2002
Providence US
Senior Natural Resource Specialist

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 34

Duties: My duties were to perform all tasks necessary to conduct and complete a Total Maximum Daily Load reports including field work, data collection and processing, and writing of the report. I also participated with other staff to help in the completion of their reports.

Skills developed: Good statistical and computer background (Microsoft software), Experience designing and implementing a personal research project, Experience preparing a federally approved Quality Assurance Protection Plan, Experience using water quality instrumentation (DO meter, pH meter, Conductivity meter), Experience in the collection of water samples for testing (biological and metals), GIS Experience (Arcview) Field work experience, Small boat handling (State of Rhode Island and Coast Guard certified), Experience in the preparation of a federally approved Total Maximum Daily Load report, Experience disseminating information to the public
Supervisor's Name: Christian Turner
Supervisor's Phone: unsure, no longer employed at RIDEM

EDUCATION

University of Rhode Island – Graduate School of Oceanography
Narragansett, RI US
PhD – 8/2018
Major: Biological Oceanography
Doctoral Dissertation Topic: Multispecies Statistical Catch-At-Age Model for a Mid Atlantic Species Complex

University of Connecticut
Groton, CT US
Masters of Science Degree - 6/2006
38 Semester Hours
Major: Biological Oceanography

University of Rhode Island
Kingston, RI US
Bachelor's Degree - 5/1996
136 Semester Hours
Major: Zoology

PROFESSIONAL PUBLICATIONS

- ASMFC Lobster stock assessment (2015), ASMFC Menhaden stock assessment (2004, 2012, 2015), ASMFC Tautog stock assessment (2006, 2011, 2015), NEFSC Summer flounder stock assessment (2011, 2013), NEFSC Scup stock assessment (2011, 2015), NEFSC Black sea bass stock assessment (2004, 2016), Interactions between the introduced Asian shore crab, *Hemigrapsus sanguineus*, and three common rocky intertidal littorine gastropods in Southern New England (MS Thesis).
- Taylor, DL, J McNamee, J Lake, CL Gervasi , and DG Palance. 2016. Juvenile winter flounder (*Pseudopleuronectes americanus*) and summer flounder (*Paralichthys dentatus*) utilization of Southern New England nurseries: Comparisons among estuarine, tidal river, and coastal lagoon shallow-water habitats. Estuaries and Coasts. 39:1505-1525.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 35

Dr. NAIFF DAVID BETHONEY
Executive Director
Commercial Fisheries Research Foundation
P.O. Box 278
Saunderstown, RI
401-515-4662, dbethoney@cfrfoundation.org

EDUCATION:

University of Massachusetts at Dartmouth School for Marine Science and Technology
PhD Dissertation: Understanding and avoiding River herring and American shad bycatch in the Atlantic herring and mackerel mid-water trawl fisheries.
Cum. GPA: 3.92   PhD Received 2013

MA Thesis: Association between diet and epizootic shell disease in the American lobster (*Homarus americanus*) around Martha's Vineyard
Cum. GPA: 3.93   M.S. Received 2010

Colby College - Waterville, ME
Major: Biology with Concentration in Environmental Science
Cum. GPA: 3.41, Cum Laude   B.A. Received 2008

SEA Education Association of Woods Hole, MA   Study Abroad: Fall 2006
Documenting Change in the Caribbean: Designed and implemented an original biological research project with practical application while at sea. Studied at Woods Hole, and sailed from St. Croix, USVI to Key West, Florida with research stops at Montserrat, Dominican Republic, and Jamaica.

WORK EXPERIENCE:

- Commercial Fisheries Research Foundation   Spring 2020-Presesent

  Executive Director: Responsible for overseeing foundation business manager, scientific staff, interns, and consultants to carry out all tasks associated with ongoing projects and general administration. In addition, responsible for pursuing new partnerships and projects, including proposal development and submission, under the advisement of the foundation Board of Directors.

- UMASS-Dartmouth School for Marine Science and Technology   Fall 2008-Spring 2020

  Research Assistant Professor, Fall 2014-Spring 2020: All responsibilities of research associate position related to drop camera and herring work with the ability to be lead principle investigator on research proposals and serve on student committees.

  Research Associate, Summer 2013-Summer 2014: All responsibilities of research assistant position described below with management and development responsibilities for scallop drop camera and groundfish video surveys. Management responsibilities include equipment purchasing and maintenance and oversight of all technical operations and student involvement.

  Research Assistant, Summer 2010- Spring 2013: Major responsibilities included coordinating River Herring bycatch avoidance program, assisting the Massachusetts Division of Marine Fisheries port side sampling program, and scallop drop camera survey at-sea data collection and analysis.

  Graduate Research Assistant, Fall 2008-2010: Assisted with American lobster research including lobster husbandry, measuring and photographing lobsters, collecting larvae, and setting up housing apparatuses.

SCIENTIFIC JOURNAL PUBLICATIONS (LAST 3 YEARS):

1. Heimann T, Verkamp HJ, McNamee J, Bethoney ND. 2023 Mobilizing the fishing industry to address data gaps created by shifting species distribution. Frontiers in Marine Science. 10:1043676.

2. Verkamp HJ, Nooj J, Helt W, Ruddick K, Gerber-Williams A, McManus MC, Bethoney ND. 2022. Scoping bay scallop restoration in Rhode Island: a synthesis of knowledge and recommendations for future efforts. Journal of Shellfish Research 41(2):153–171

3. Ellertson AE, Waller JD, Pugh TL, Bethoney ND. Differences in the size at maturity of female American lobsters (Homarus americanus) from offshore Southern New England and eastern

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 36

Georges Bank, USA. 2022. Fisheries Research. DOI: 106276

4. Chen C, Zhao L, Gallager S, Ji R, He P, Davis C, Beardsley RC, Hart D, Gentleman WC, Wang L, Li S, Lin H, Stokesbury KDE, Bethoney ND. 2021 Impact of larval behaviors on dispersal and connectivity of sea scallop larvae over the northeast U.S. shelf. Progress in Oceanography. DOI: 102604

GRANTS RECEIVED AS A PRINCIPAL INVESTIGATOR (LAST 2 YEARS):

1. "Training and Education Services" (Whelk research)   March 2023
   Awarded from: Vineyard Wind I LLC
   Value: $150,000

2. "FY 2023: Advancing Fishery Dependent Data Collection for Black Sea Bass   February 2023
   (Centropristis striata) in the Southern New England and Mid-Atlantic Region
   Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach"
   Awarded from: Rhode Island Department of Environmental Management
   Value: $88,152

3. "Cooperative Marine Research Project"   January 2023
   Awarded from: The Campbell Foundation
   Value: $60,000

4. "Engaging the Fishing Community to Understand Disease   December 2022
   and Reproductive Dynamics of Atlantic Sea Scallop"
   Awarded from: Atlantic States Marine Fisheries Commission
   Value: $109,571

5. "Cooperative Marine Research Project"   November 2022
   Awarded from: The Campbell Foundation
   Value: $70,000

6. "SFW01 Construction and Post-Construction Fisheries Monitoring"   October 2022
   Awarded from: South Fork Wind LLC
   Value: $6,605,913

7. "Initiating the removal of ghost gear from Rhode Island waters"   September 2022
   Awarded from: 11th Hour Racing/The Schmidt Family Foundation
   Value: $110,410

8. "The WHOI/CFRF Shelf Research Fleet - Community Science in a   May 2022
   Rapidly Changing Ocean"
   Awarded from: Woods Hole Oceanographic Institution
   Value: $42,486

9. "Establishing standard methods to assess the biological condition of sea   April 2022
   scallops before and after offshore wind farm development"
   Awarded from: National Oceanic and Atmospheric Administration
   Value: $38,706

10. "FY 2022: Advancing Fishery Dependent Data Collection for Black Sea Bass   March 2022
    (Centropristis striata) in the Southern New England and Mid-Atlantic Region
    Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach"
    Awarded from: Rhode Island Department of Environmental Management
    Value: $132,064

11. "Leveraging wind farm development to test the accuracy and utility of a   January 2022
    gear location marking application"
    Awarded from: National Fish and Wildlife Foundation
    Value: $95,207

References:

Atlantic Coastal Cooperative Statistics Program (ACCSP). 2023. Biological Sampling Priority Matrix. 4 p.

Atlantic States Marine Fisheries Commission (ASMFC). 2013. Research Priorities and Recommendations to Support Interjurisdictional Fisheries Management. Special Report # 89. ASMFC, Arlington, VA. 58pp.

Bell, R. J., Richardson, D.E., Hare, J.A., Lynch, P.D., and Fratantoni, P.S. 2014. Disentangling the effects of climate, abundance, and size on the distribution of marine fish: an example based on four stocks from the Northeast US shelf. ICES Journal of Marine Science: fsu217.

Drohan, A. F., J. P. Manderson, and D. B. Packer. 2007. Essential fish habitat source document: Black sea bass, *Centropristis striata*, life history and habitat characteristics. 2nd Edition. NOAA Technical Memo. NMFS-NE-200, 78 p.

Moser, J., and G. R. Shepherd. 2009. Seasonal distribution and movement of black sea bass (*Centropristis striata*) in the Northwest Atlantic as determined from a mark-recapture experiment. Journal of Northwest Atlantic Fishery Science 40: 17-28.

Nelson, G.A. 2014. Cluster Sampling: A Pervasive, Yet Little Recognized Survey Design in Fisheries Research. Transactions of the American Fisheries Society 143 (4): 926-938.

Northeast Fisheries Science Center (NEFSC). 2011. 53rd Northeast Regional Stock Assessment Workshop (53rd SAW) Assessment Report. US Department of Commerce, Northeast Fish Science Center Reference Document 12-05; 559 p.

Northeast Fisheries Science Center (NEFSC). 2017. 62nd Northeast Regional Stock Assessment Workshop (62nd SAW). Assessment Summary Report. US Department of Commerce, Northeast Fish Science Center Reference Document 17-01; 37 p.

Musick, J. A., and L. P. Mercer. 1977. Seasonal distribution of black sea bass, *Centropristis striata*, in the Mid-Atlantic Bight with comments on the ecology of fisheries of the species. Transactions of the American Fisheries Society. 106: 12-25.

Southeast Fisheries Science Center (SEFSC). 2013. Stock Assessment of Black Sea Bass off the Southeastern United States: SEDAR Update Assessment. 102 p.

SEDAR. 2018. SEDAR 56 – South Atlantic Black Seabass Assessment Report. SEDAR, North Charleston SC. 164 pp.

Steimle, F. W., C. A. Zetlin, P. L. Berrien, and S. Chang. 1999. Essential fish habitat source document: Black sea bass, *Centropristis striata*, life history and habitat characters. NOAA Technical Memorandum NMFS-NE-143: 1-42.

Waltz, W., Roumillat, W.A., and P. K. Ashe. 1979. Distribution, age structure, and sex composition of the black sea bass, *Centropristis striata*, sampled along the southeastern coast of the United States. Marine Resources Research Institute, South Carolina Wildlife and Marine Resources Department. Technical Report Number 43, December 1979.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are underlined and a summary is provided on pages 30-33.   Page 38

Zhang, Y. and S.X. Cadrin .2013. Estimating Effective Sample Size for Monitoring Length Distributions: A Comparative Study of Georges Bank Groundfish, Transactions of the American Fisheries Society 142 (1): 59-67.

Rhode Island Department of Environmental Management & Commercial Fisheries Research Foundation
ACCSP Funding Proposal (Maintenance Project – Project Year 8, Maintenance Year 6): Fishery Dependent Sampling for Black Sea Bass (*Centropristis striata*)
Proposal components that address the ranking criteria are <u>underlined</u> and a summary is provided on pages 30-33.   Page 39

June 14, 2023

Atlantic Coastal Cooperative Statistics Program
1050 N. Highland St. Ste. 200 A-N
Arlington, VA 22201

Dear ACCSP:

The Potomac River Fisheries Commission (PRFC) is pleased to submit its proposal for the Fiscal Year 24 ACCSP Request for Proposal, titled "FY24: Electronic Trip-Level Reporting for the Potomac River Fisheries Commission Commercial Fisheries Sector" for your consideration. The continued maintenance of this project enabled PRFC to continue to expand its electronic catch reporting leveraging the ACCSP eTrips application while simultaneously improving accuracy, timeliness, and level of detail for catch reporting throughout the Potomac River.

PRFC has made significant progress in the first three years of this project to include the initial groups of testers gaining access to eTrips, PRFC developed training, initial ACCSP-PRFC interface development, Oracle Cloud Infrastructure (OCI) Infrastructure as a Service (IaaS)/Platform as a Service (PaaS) procurement, and the development of the new Sport & commercial Application Integrated Licensing (SAIL) tool.

The Year 4 proposal is an exciting opportunity for ACCSP and PRFC to maintain momentum as a larger portion of the PRFC license holders switch to eTrips for their catch reporting and improved data interfaces are constructed for bi-directional data management between SAFIS and SAIL. Thank you for your consideration and please reach out to Marty Gary with any questions.

Sincerely,

Martin L. Gary
Executive Secretary
(804)456-6935
martingary.prfc@gmail.com

Proposal for Funding made to:
Atlantic Coast Cooperative Statistics Program
Operations and Advisory Committees
150N. Highland Street, Suite 200 A-N
Arlington, VA 22204

Potomac River Fisheries Commission

FY24: Electronic Trip-Level Reporting for the
Potomac River Fisheries Commission
Commercial Fisheries Sector

Submitted by:
Martin L. Gary
Executive Secretary
Potomac River Fisheries Commission
222 Taylor Street
Colonial Beach, VA 22443
martingary.prfc@gmail.com

Applicant Name:	Potomac River Fisheries Commission
Project Title:	**Electronic Trip-Level Reporting for the Potomac River Fisheries Commission (PRFC) Commercial Fisheries Sector**
Project Type:	Maintenance Project

(No change in scope of work, continued emphasis on Electronic Data Reporting using eTrips, increasing participation, and integration with PRFC databases)

Principal Investigator:	Martin L. Gary, PRFC Executive Secretary
Project Manager:	Martin L. Gary, PRFC Executive Secretary
Requested Award Amount:	**$207,512.00** for the year three maintenance project. This is intended to scale both participation and supporting IT infrastructure.
Requested Award Period:	One year after receipt of funds
Objective:	This is the fourth year of the project to report trip-level catch and effort data, using the ACCSP eTrips tools, from Commercial license holders who fish within the jurisdiction of the Potomac River Fisheries Commission (PRFC) continuing in the 2024 seasons, which begins in July 2024 for the FY24 licenses and January 2024 for the CY24 licenses.

Need:
ACCSP and its partner agencies have established the collection of trip-level data as the standard which all agencies should strive to reach and maintain. Over 60 years ago, PRFC began collecting catch and effort data from commercial shellfish (oyster and crab) and finfish permit holders, which are submitted weekly. Storage of the data in electronic databases has taken place since the late 1980s. Since that time, more details regarding the catch have been collected in terms of targeting specific locations, species, and gear. The data are reported at the trip-level on a daily basis and are submitted weekly to PRFC and provided to ACCSP twice annually for the previous calendar year.

The fourth year of the project will work to increase the use of census-style reporting by expanding the use of ACCSP eTrips technology among a group of PRFC Commercial license holders and evaluating the efficacy of this method compared to traditional methods.

Potomac River Fisheries Commission (PRFC)   1
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Participating license holders will use ACCSP eTrips tools to report their catch and effort in PRFC managed waters. In Year 4, the plan is to transition all eTRIPS users to electronic catch reporting only. Only allowing paper reports provided to PRFC to be submitted by PRFC staff for the waterman who do not use eTRIPS. Electronic harvest reporting has been discussed in the proceedings of meetings of advisory committees to the PRFC and the Commission itself for several years, and numerous harvesters have expressed an interest and willingness to participate. Many commercial constituents are already participating in electronic harvest reporting in Maryland or Virginia and are eager for similar opportunities to report electronically for PRFC.

Results and Benefits:
During the third year of the project, trip-level reporting to collect catch and effort data from commercial permit holders - harvesters is a goal for all ACCSP partners. On average, on an annual basis (Table 1):

Table 1: Average Count of License Holders and Daily Catch Reports for FY22 & CY22

Gear	License Holders	Daily Catch Reports
Oyster	204	1462
Crab	426	10082
Fish	339	12970

Presently, the PRFC staff collect, organize, validate, obtain corrections, and enter the catch data for each License Holder - Harvesters, which is a rather labor-intensive effort that potentially induces errors and is time consuming; therefore, the data stored and available for decision making reports can be lagging. **The anticipated benefits use of ACCSP eTrips are faster data entry with less errors and less staff hours required.**

Data Delivery Plan: During the fourth year of the project, ACCSP eTrips will continue to collect all catch data reports either directly entered by commercial harvesters or entered on their behalf by PRFC staff. PRFC will look at new ways to incentivize watermen to adopt eTrips vice submitting paper reports, and will look to streamline monitoring, control, and reporting to ACCSP using the PRFC SAIL application. PRFC will leverage the ACCSP eTrips database API to synchronize eTrips catch data with the new PRFC cloud-based Sport & commercial Application Integrated Licensing tool (SAIL) that was deployed for use in 2023 and currently holds ALL the catch data records that are NOT being entered directly into ACCSP eTrips by the commercial harvesters. The PRFC staff will be entering catch data for some of the paper reports that are submitted to PRFC by the commercial harvesters (see Task 2 in the Approach).

Biological Sampling Priority
PRFC's managed fisheries include five of the species identified in the FY24 Biological Sampling Priority Matrix, these include: #1 ranked Black Sea Bass, #6 ranked Atlantic

Potomac River Fisheries Commission (PRFC)   2
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Metadata: Below is a list of metadata that PRFC will be capturing via SAIL/eTrips and providing to ACCSP as part of this project.

Meta Data Field	Definition
Trip Type	Type of fishing trip
Coast Guard #	Coast Guard vessel registration #
State Reg #	State vessel registration #
Vessel Name	
Permit ID	Permit ID #
License Nbr	License # (PRFC Specific)
Fisherman	Legal Name
Corporate Name	Corporate Name, if applicable
Trip Start Date	Start date of trip
Trip Start Time	Start time of trip
Trip End Date	End date of trip
Trip End Time	End time of trip
State	State of trip
End Port	End port of trip
Submit Method	Method of submission for trip data
Submitted By Participant	If submitted by someone else
Nbr Of Crew	# of crew on trip
Area Code	Code for the area of the trip
Sub Area Code	Code for the sub area of the trip
Local Area Code	Code for the local area of the trip
In State	State of trip origin
Fishing Hours	Hours fished during trip
Gear Code	Code for gear used during trip
Gear Name	Name for gear used during trip
Gear Quantity	Quantity of gear used during trip

Potomac River Fisheries Commission (PRFC)   3
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Gear Sets	Sets of gear used during trip
Depth	Depth of gear used during trip
Latitude	Latitude of gear used during trip
Longitude	Longitude of gear used during trip
Common Name	Common name of species fished during trip
Unit Measure	Measure of species caught during trip
Reported Quantity	Quantity of measure of species caught during trip
Market Code	Market code sold to during trip
Grade Code	Grade of species caught during trip
Disposition Code	Disposition of species caught during trip
Sale Disposition Flag	If species caught were sold
Catch Source	Source of catch of species sold
Nbr Fish	Number of caught sold during trip
Comments	Used to capture TAG#s and other relevant data for catch and trip
Cf Iss Agency	PRFC
Validating Agency	PRFC
Confirmed Validating Agency	PRFC
Vendor App Name	Name of application used to capture information

PRFC will continue transmitting data twice per year for all catch reports submitted for the prior year but excluding the records that have been entered into ACCSP eTrips. This will be discontinued once two consecutive reports show 100% consistency with data from ACCSP eTrips.

Approach:
During the fourth year of the project, PRFC will be fully transitioned from the legacy Microsoft (MS) Access databases and Operator interface code that require all license issuing and catch data reporting performed by PRFC staff. The new PRFC cloud-based SAIL application will be live and the focus will be on enhancing its capabilities and integrations with ACCSP eTrips database. This enhanced integration will result in increased timeliness and accuracy of trip report data processed by PRFC being available in the SAFIS DB. PRFC will continue to expand its participation rate and update/improve training processes and materials. Additionally, PRFC will maintain a contract with a Software Development provider company or consultant to continue to maintain relevant interfaces and continue to develop the upgraded cloud application.

During Year 4, PRFC will be in maintenance for the following items:

1. Task 1 Identification of License Holder Participants: Continued Identification of commercial harvesters to participate:

Potomac River Fisheries Commission (PRFC)   4
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

In Year 4 of the project, continue to expand participation in using eTrips by commercial harvesters. It is expected that all harvesters with interest will be using eTrips in this phase, but that continued outreach and marketing will be necessary to those who are holdouts. Additionally, new innovative methods to get harvesters access to and using eTrips will be explored, i.e. kiosks. The commercial harvester community is comprised of a mix of limited entry and open access fishery participants. Though the number varies year to year, approximately 1,400 commercial harvesters are candidates, and based upon the most recent license metrics, the target would be an additional 30% = 840 participants in year three for ACCSP eTrips. The participants will be volunteers. This would provide a large portion of the existing license holders (50%) and each Gear category. These numbers are manageable for the purpose of refining the SAIL application and the integration interfaces between eTrips and SAFIS tools, developing enhanced training guides & gaining feedback for future participant expansion.

2. Task 2 eTrips installation & training; data entry: ACCSP eTrips installation and training for commercial harvesters. It is anticipated that on average, four (4) hours will be provided to each harvester to support on data entry, submission and use of mobile devices and software. Included within the four hours are staff hours for making presentations at meetings, developing/updating "cheat sheet" guides, and identifying enhancements and overall process improvement. In addition to the harvesters, the PRFC staff will enter a sampling of a variety of paper catch reports into ACCSP eTrips:

   In Year 4, this item is expected to be complete but with ongoing adjustments and training as required based on harvester feedback and issue tracking. The PRFC staff will augment the commercial harvesters ACCSP eTrips submissions to ensure a more comprehensive data set is being processed for the purpose of identifying enhancement requests for the ACCSP eTrips tools and the data can be successfully processed (downloaded, modified / corrected, and uploaded).

3. Task 3 MS Access Operator Interface Maintenance: Maintenance of MS Access required interfaces until ACCSP eTrips collected is data is verified as 100% matching with PRFC records:
   a. Download ACCSP eTrips data from ACCSP
   b. Maintain an Operator Interface to validate downloaded data
   c. Upload verified data to ACCSP

   In Year 4, this function will be completely developed and no longer necessary to support. **All support will instead be to the new Sport & commercial Application Integrated Licensing tool (SAIL) to enhance its capabilities and align with eTrips and SAFIS reporting.**

Potomac River Fisheries Commission (PRFC)   5
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
==Highlighted text indicates changes from the first submission==

4. Task 4 Software Development: During year four of the project, PRFC intends to expand its modern database platform: SAIL. SAIL is a cloud-based application with a more consistent Operator Interface and is able to be upgraded more efficiently. The requirements will be documented, and the selected vendor will continue to develop and implement. **This effort will look to grow SAIL's capabilities from the original MS Access Database to a modern, scalable, web first tool that can more effectively capture and report on PRFC catch information in real time using advanced analytics.**

5. Task 5 Maintain Oracle Cloud Database: During Year 4 of the project, PRFC will continue to procure cloud-based resources with a focus on providing cost savings up-front and long term during the sustainment and maintenance phases.

6. Task 6 Develop & Maintain Oracle web-based applications: Continue development and maintenance of web based PRFC SAIL applications to perform PRFC office automation functions:
   a. Process License issue and renewal requests
   b. Print Licenses and associated tags, flags, and catch report forms, etc.
   c. Processing paper catch reports
   d. Reporting interface – currently there are approximately 25 unique reports with many that have sub-options
   e. Database Utility interface – currently there are approximately 13 unique operations required to modify lookup tables, set/re-set sequencing, and perform database integrity checks and repair
   a. Perform modifications as necessary to resolve technical problems
   b. Perform updates as necessary to support new requirements

   The current (historical) PRFC data was exported, reformatted, and imported into the new SAIL database system. **In Year 4, innovations and advanced processing will be a focus on quality of data improvements. Examples of innovations to be reviewed for implementation include Optical Character Recognition (OCR) for hand submitted reports by non-eTrips harvesters, photo OCR submission by non-eTrips harvesters, data analytics and reporting for better data quality monitoring, and Machine Learning/Artificial Intelligence (ML/AI) implementation trained on historical catch patterns to identify and flag potential catch data errors.**

7. Task 7 Commercial Harvesters increased participation: Continue to increase the number of commercial harvesters using the ACCSP eTrips-tools:

Potomac River Fisheries Commission (PRFC)   6
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
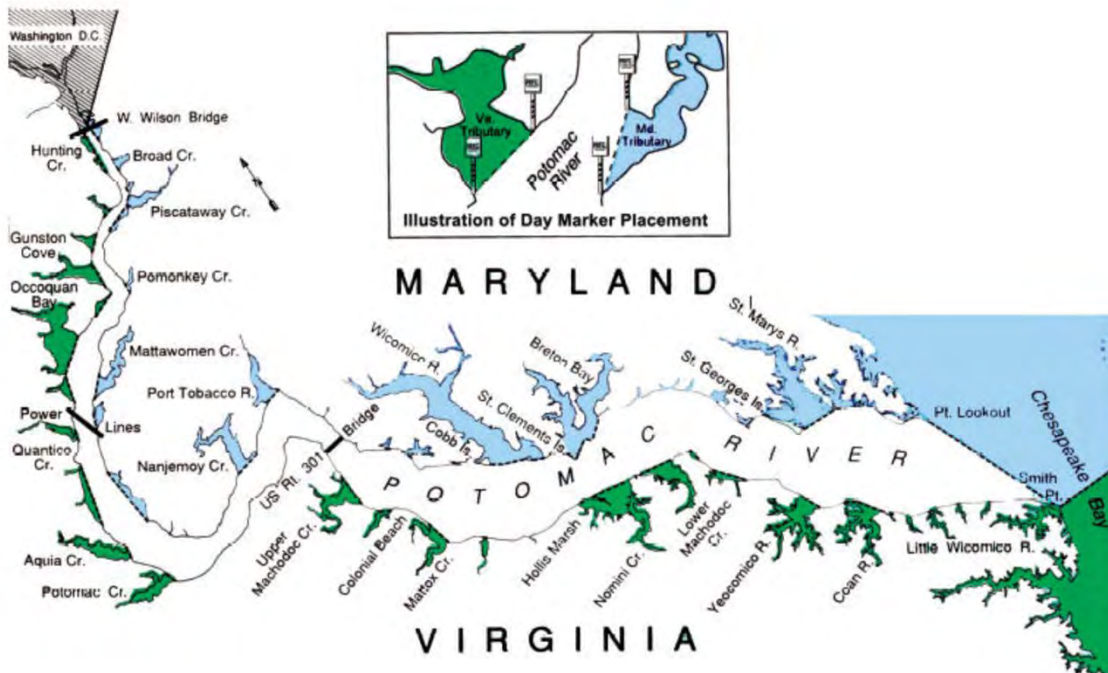Highlighted text indicates changes from the first submission

The goal would be to have 100% of the commercial harvesters using the ACCSP eTrips tools in Year 4, where able, and supported by PRFC staff, where not.

To facilitate the effort to meet these goals:

    i. Provide direct support as needed using PRFC staff via phone or in-person
    ii. Presentations at various Committee meetings with demonstrations and open for questions
    iii. Creating short "tri-fold" instructions specific to various topics
    iv. Creating short YouTube video tutorials specific to various topics
    v. Utilize existing ACCSP support products (e.g., videos, tech support and other)
    vi. Incentivizing future participation by using various strategies, such as:
        1. Successful strategies used by other jurisdictions (e.g., Rhode Island license endorsement)
        2. Establishing a fee for having the PRFC staff perform the ACCSP eTrips data entry such as a flat fee - $100 per License Holder per year
        3. Fee per Gear Type - $25 for each gear type license
        4. Fee per Week per Gear Type - $5 for each weekly report for each gear type license

Potomac River Fisheries Commission (PRFC)   7
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Geographic Location: Jurisdictional waters of the Potomac River Fisheries Commission. From the Woodrow Wilson Bridge (District of Columbia Demarcation) downriver to the confluence of the Chesapeake Bay. Approximately 100 nautical miles.

ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Milestone Schedule:

Task # / Month	Project Period Month											
	1	2	3	4	5	6	7	8	9	10	11	12
T1: Identification of License Holder Participants	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
T2: eTrips installation & training; data entry	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
T3: MS Access Operator Interface Maintenance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
T4: Software modifications	X	X	X	X	X	X	X	X	X	X	X	X
T5: Maintain Oracle Cloud Database	X	X	X	X	X	X	X	X	X	X	X	X
T6: Develop & Maintain Oracle web-based applications	X	X	X	X	X	X	X	X	X	X	X	X
T7: Commercial Harvesters increased participation	X	X	X	X	X	X	X	X	X	X	X	X

Project Accomplishments Measurement:
The results of this project will provide the basis to improve the accuracy and timeliness of catch and effort estimations, and could subsequently inform science, stock assessments, and management policies.

The results will help determine the scope of the effort to migrate to a more robust database system that is more accessible to the Commercial License Holders.

PRFC in Year 1 completed one task fully and made progress on many others.
   1. Year 1 Task 5 Completed: Established contract for the software development work required to complete Tasks 3 through 6.

Potomac River Fisheries Commission (PRFC)   9
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

PRFC in Year 2 completed five tasks for the year, with several repeating each cycle.
1. Year 2 Task 1 Completed: Identified and trained 20% of license holders with most moving to full time electronic catch reporting.
2. Year 2 Task 2 Completed: Developed eTrips installation and training guides/data for use by the license holders.
3. Year 2 Task 3: Completed all maintenance on the Access Database and have shut it down with full time operations shifting to SAIL.
4. Year 2 Task 4: Completed initial round of software modifications to support the reporting and synchronization between the Access DB and SAIL.
5. Year 2 Task 5 Completed: Maintained contract for the software development work required to complete Tasks 3 through 6. Established Oracle Cloud Infrastructure (OCI) account and procured the Infrastructure-as-a-Service (IaaS) for use in SAIL.
6. Year 2 Task 6 Completed: Completed initial development on the OCI hosted, SAIL application. Iterated through team and volunteer issues to.

PRFC in Year 3 completed five tasks for the year, with several repeating each cycle.
1. Year 3 Task 1 Completed: Identified and trained remaining 80% of license holders, of those interested and able to adopt eTrips.
2. Year 3 Task 2 Completed: Finalized eTrips installation and training guides/data for use by the license holders.
3. Year 3 Task 3: Completed closeout of Access Database and successfully operated full time in SAIL.
4. Year 3 Task 4: Completed initial round of software modifications to support the reporting and synchronization between the ACCSP SAFIS DB and SAIL.
5. Year 3 Task 5 Completed: Maintained contract for the software development work required to complete Tasks 3 through 6. Maintained, secured, and advanced Oracle Cloud Infrastructure (OCI) architecture to optimize costs and operations of SAIL.
6. Year 3 Task 6 Completed: Completed development of API and Direct DB integrations between SAIL DB and ACCSP SAFIS DB to streamline trip data timeliness and accuracy.
7. Year 3 Task 7 Completed: Initial rollout of incentives for harvesters to adopt eTrips implemented and adjusted based on feedback.

PRFC will continue to monitor progress and accomplishment using the following goals and measurements.

Task	Goal	Measurement

Potomac River Fisheries Commission (PRFC)   10
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
<mark>**Highlighted text indicates changes from the first submission**</mark>

T1: Identification of License Holder Participants	Identification of remaining commercial harvester holdouts and continued marketing/engagement for enrollment in eTrips electronic catch reporting.	Records updated to reflect they have been contacted and notified about the opportunity and its benefits.
T2: eTrips installation & training; data entry	100% of identified eTrips participants who request training/support receive in person or electronic training/support. Updated training materials and classes based of eTrips users feedback.	Participant records updated to note whether training has been provided and support provided.
T3: MS Access Operator Interface Maintenance	Full archival of Access DB with not reach back required for operations and integrations in support of ACCSP.	Access DB is unmodified/accessed.
T4: Software modifications	Requirements updated on evolving ACCSP SAFIS integration and implementation.	Verification that RTM is completed and updated.
T5: Maintain Oracle Cloud Database	100% of cloud-based services procured and available.	Verification by PRFC staff that cloud services are invoiced and available.
T6: Develop & Maintain Oracle web-based applications	100% of year 4 requirements identified, developed, and delivered. Analysis completed and requirements generated for advanced technologies to be integrated into SAIL capabilities.	Completed RTM showing Year 4 requirements marked as complete and verification by PRFC staff.
T7: Commercial Harvesters increased participation	Marketing materials developed and presented at regular meetings and in routine communications. Incentives identified and presented to the PRFC Commissioners for approval. At least one	Verification by PRFC staff that materials were sent and communicated during meetings. Documented minutes showing discussions at Commissioner meeting.

ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
<mark>**Highlighted text indicates changes from the first submission**</mark>

	incentive applied to PRFC catch report submission for harvesters not using eTrips.	

Project Funding Justification for Continuance / Transition Plan:

PRFC is requesting the same level of funding as the previous two years due to the amount of work and license holders still not using electronic catch reporting. While great achievements have been made over the previous two years, there is still a good amount of effort to synchronize the PRFC SAIL catch report information with SAFIS in a way that does not cause harm to overall data quality. Additionally, there are a large number of license holders that will take significant outreach and training to get them onboard with using eTrips as a replacement for the paper forms. PRFC has detailed plans to address both of these factors in Year 3.

Funding transition is expected for this project beginning in Year 6 when funding is reduced based on maintenance project rules. PRFC is working to complete all development and activities by Year 7 to minimize funding necessary to keep SAIL and eTrips usage. PRFC will leverage new state resources and existing IT budgets to cover SAIL OCI expenses and additional routine maintenance costs.

Potomac River Fisheries Commission (PRFC)   12
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

BUDGET FOR PROPOSAL PLANNING – FY2024

Description	Calculation	ACCSP Cost	PRFC Cost	Total Cost
Personnel (a)				
Principle Investigator	60 ACCSP / 100 PRFC hours @ $60.42/hr	$3,625.00	$6,042.00	$9,667.00
Data Administrator	200 ACCSP / 1880 PRFC hours @ $23.97/hr	$4,794.00	$45,064.00	$49,858.00
Data Management Specialist	600 ACCSP / 1480 PRFC hours @ $13.46/hr	$8,076.00	$19,921.00	$27,997.00
Personnel Subtotal		**$16,495.00**	**$71,027.00**	**$87,522.00**
Fringe (b)				
Principle Investigator	16% of salary	$576.00	$19,398.00	$19,974.00
Data Administrator	47% of salary	$2,264.00	$21,284.00	$23,548.00
Data Management Specialist	47% of salary	$3,790.00	$9,348.00	$13,138.00
Fringe Subtotal		**$6,630.00**	**$50,030.00**	**$56,660.00**
Travel (c)				
n/a				
Travel Subtotal		**$0.00**	**$0.00**	**$0.00**
Equipment (d)				
Oracle Cloud Database:				
a. Autonomous DB 1 instance, 744 hrs/month, 24 hours/day 1 OCPU 1 TB Storage Includes APEX	$1,118.41/month x 12 months	$13,421.00	$0.00	$13,421.00
b. Compute VM AMD Standard Flex 1 instance, 744 hrs/month, 24 hours/day 2 OCPU	$59.31/month x 12 months	$712.00	$0.00	$712.00

ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

16 GB Memory 100 GB Storage				
c. Block Storage 1 TB Balanced Performance 10 VPU 25000 Max IOPS 480 MBps Max Throughput	$42.50/month x 12 months	$510.00	$0.00	$510.00
Equipment Subtotal		**$14,643.00**	**$0.00**	**$14,643.00**
Supplies (e)				
n/a				
Supplies Subtotal		**$0.00**	**$0.00**	**$0.00**
Contractual (f)				
In-house Consultant/Developer	100 ACCSP / 20 PRFC Hours @ $106.09/hr	$10,609.00	$2,121.80	$12,730.80
Vendor/Developer	1250 ACCSP / 150 PRFC Hours @ $127.31/hr	$159,135.00	$19,096.20	$178,231.20
Contractual Subtotal		**$169,744.00**	**$21,218.00**	**$190,962.00**
Other (h)				
n/a				
Other Subtotal		**$0.00**	**$0.00**	**$0.00**
Totals				
Total Direct Charges (i)		$207,512.00	$142,275.00	$349,787.00
Indirect Charges (j)	n/a	$0.00	$0.00	$0.00
Total (sum of Direct and Indirect)		**$207,512.00**	**$142,275.00**	**$349,787.00**
Percentage		**59%**	**41%**	**100%**

Potomac River Fisheries Commission (PRFC)   14
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

BUDGET NARATIVE
(Funding Period, FY24)

Project: Electronic Trip-Level Reporting for the Potomac River Fisheries Commission (PRFC) Commercial Fisheries Sector

Project Period: 1 March 2024 – 28 February 2025

1 Year Funding: $207,512.00

Prepared By: Martin L. Gary, PRFC Executive Secretary

Personnel (Salaries) $16,495.00: Three PRFC employees' salary time will be covered using these funds. The three employees are: Principle Investigator, for 60 hours ($3,625.00); Data Administrator, for 200 hours ($4,794.00), and a Data Management Specialist, for 600 hours ($8,076.00).

In-Kind $121,057.00: The three PRFC employees proposed in this effort spend most if not all of their remaining hours working on catch report data and the tool. For each employee, their salary + Fringe costs not covered by the ACCSP grant is considered In-Kind by the PRFC. For this proposal Principle Investigator (100 hours, $6,042.00 + $19,398.00 Fringe), Data Administrator (1880 hours, $45,064.00 + $21,284.00 Fringe), and Data Management Specialist (1480 hours, $19,921.00 + $9,348.00 Fringe) sum up to $121,057.00 or 34% of total expense for Year 4.

Fringe Benefits $6,630.00: The current PRFC fringe benefit cost is set per employee at: Principle Investigator at 16% of Salary ($576.00), Data Administrator at 47% of salary ($2,264.00), and Data Management Specialist at 47% of salary ($3,790.00). The Principle Investigator falls within the fringe guidelines set forth by NOAA, however, a full breakdown of how the Fringe Benefits are calculated below (PRFC does not have a NICRA established).

Fringe Benefits Details			Principle Investigator	Data Administrator	Data Management Specialist
Gross		Annually	$125,664.00	$49,859.00	$28,000.00
		Hourly	$60.42	$23.97	$13.46
Fringe		Health	$17,090.00	$16,099.00	$8,717.00
		Retirement	$1,684.00	$6,781.00	$3,808.00
		Life		$668.00	$375.00
		Disability	$600.00		$238.00
		Def Comp	$600.00		
		Total	**$19,974.00**	**$23,548.00**	**$13,138.00**
		Per Hour	$9.60	$11.32	$6.32
		Rate	16%	47%	47%
ACCSP Project Hours					

FY 2024 Hours / Year:	2080		
ACCSP Hours	60	200	600
Fringe Cost	$576.17	$2,264.23	$3,789.81
ACCSP Cost	$3,624.92	$4,794.13	$8,076.92
PRFC Hours	100	1880	1480
PRFC Fringe	$19,397.83	$21,283.77	$9,348.19
PRFC Cost	$6,041.54	$45,064.87	$19,923.08

Travel $0.00: N/A

Equipment $14,643.00: Oracle Cloud Infrastructure (OCI) resources are procured to host the PRFC interface between ACCSP and PRFC's SAIL application on a monthly basis. PRFC plans to procure Oracle Autonomous Database, with APEX, to host the SAIL application and provide the primary data interface between PRFC and ACCSP catch and report information. Additionally, a cloud Compute Virtual Machine, and additional block storage will all be required to host the application business logic, interface connection management, and user interface. All cloud services will be procured in full for the year in order to lock in cloud discounts for reserved usage.

Supplies $0.00: N/A

Contractual $169,744.00:

In-house Consultant – Ray Draper: $10,609.00
Updating the existing PRFC Access based application will require the knowledge and expertise of the consultant/developer Ray Draper. Ray has designed and developed the entire PRFC application from the ground up over the last 15 years and will be the primary developer of the ACCSP interface. This work will be in a maintenance phase and requires part-time development work, estimated at 100 hours total, and PRFC has contracted with Ray at a rate of $106.09 an hour to perform these services.

Talent & Technical Solutions Corporation (TTSC): $159,135.00
Developing the new PRFC SAIL application, procuring cloud services and infrastructure, and assisting with the PRFC-ACCSP integration will be handled by TTSC. PRFC has contracted with TTSC at a rate of $127.31 an hour and expects the work to support T3, T4, T6, and T7 to take 12 months of part-time work and an estimated 1,250 hours.

Other $0.00: N/A

Potomac River Fisheries Commission (PRFC)   16
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Summary of Proposal for Ranking

Project Details
Proposal Type: Maintenance

Primary Program Priority:
      Catch and Effort (10 points / 100%): 100% of interested license holders will be providing electronic catch reporting and PRFC staff will enter the rest by hand to ensure accuracy.

Metadata (2 points): All metadata collected and supplied has been defined in this proposal.

Project Quality Factors
Multi-Partner/Regional impact including broad applications (5 points): PRFC's migration to eTrips and electronic catch reporting will benefit ACCSP and all regional partners in ensuring they have access to accurate, timely data on PRFC monitored species.

Contains funding transition plan (4 points): A detailed justification and funding transition plan is laid out in the proposal. PRFC sees a large need to continue funding at current levels in Year 4 with reduced funding in the out years and a transition to routing IT budgets and other state grants.

In-kind contributions (2 points): PRFC has provided a breakdown of the in-kind contributions made in support of this program and show that PRFC is providing 41% In-kind contributions. The contributions are significant and cover all the time for three personnel that manage and oversee the current catch reporting system.

Improvement in data quality/quantity/timeliness (4 points): Transition to eTrips and PRFC's new SAIL application will greatly increase the timeliness of reporting from bi-annually to almost real time. This will reduce manual entry and ensure much high-quality data is available for review by PRFC and other members.

Potential secondary module as a by-product (4 points): This project has led to the development of SAIL which will greatly streamline PRFC operations and interactions with ACCSP's SAFIS.

Impact on stock assessment (3 points): Regional management organizations that perform stock assessments will have better data to operate from as a direct result of this proposal and continued funding for PRFC's efforts.

Other Factors
Achieved Goals (3 point): PRFC has achieved a great number of its goals over the last three years and has plans to achieve more in Year 4 with this proposal.

Data Delivery Plan (2 points): A detailed data delivery plan has been included for review. PRFC will continue to work with ACCSP to increase speed of delivery as more electronic catch reports are captured and interfaces stood up.

Potomac River Fisheries Commission (PRFC)   17
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Level of Funding (1 points): PRFC has requested a smaller level of funding compared to FY22 as an acknowledgement for the large decrease in funding given up in Year 1 to help support other projects. It is projected that funding will decrease starting in Year 4 through 7.

Properly Prepared (1 point): PRFC followed all applicable ACCSP and RFP guidelines in preparing this document along with feedback gleaned from previous years proposal.

Merit (3 points): The Electronic Catch Reporting proposal is vital to the continued evolution of PRFC and ACCSP regional partners in implementing innovated processes for increasing data capture, quality, and timeliness.

Biological Sampling Priority: PRFC's managed fisheries include five of the species identified in the FY24 Biological Sampling Priority Matrix, these include: #1 ranked Black Sea Bass, #6 ranked Atlantic Menhaden, #7 ranked Cobia, #9 ranked Spanish Mackerel, and #22 ranked American eel.

Potomac River Fisheries Commission (PRFC)   18
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

APPENDIX A: BUDGET – FY2021 – APPROVED BY ACCSP

Description	Calculation	Cost
Personnel (a)		
Principle Investigator	60 hours @ $55.50/hr	$3,330.00
Data Administrator	200 hours @ $20.50/hr	$4,100.00
Data Management Specialist	600 hours @ $11.50/hr	$6,900.00
Fringe (b)		
Principle Investigator	14% of salary	$455.55
Data Administrator	51% of salary	$2,092.93
Data Management Specialist	49% of salary	$3,401.46
Travel (c)		
n/a		
Equipment (d)		
Oracle Cloud Database:		
a. MySQL DB Services 1 instance, 31 days/month, 24 hours/day 50 GB storage 50 GB backup	$21/month x 8 months	$168.00
b. Java Cloud Service Enterprise Edition 1 instance, 31 days/month, 24 hours/day	$550/month x 8 months	$4,400.00
c. Cloud Infrastructure 1 instance, 31 days/month, 24 hours/day 50 GB storage	$33/month x 8 months	$264.00
Supplies (e)		
n/a		
Contractual (f)		
In-house Consultant/Developer	501 hours @ $100/hr	$50,100.00
Vendor/Developer	1,080 hours @ $130/hr	$140,400.00
Other (h)		
n/a		
Totals		
Total Direct Charges (i)		$215,612.00
Indirect Charges (j)	n/a	$0.00
Total (sum of Direct and Indirect) (k)		$215,612.00

Potomac River Fisheries Commission (PRFC)   19
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

BUDGET NARATIVE
(Requested Funding Period, FY21)

Project: Electronic Trip-Level Reporting for the Potomac River Fisheries Commission (PRFC) Commercial Fisheries Sector

Project Period: 1 March 2021 – 28 February 2022

1 Year Funding: $215,425.44

Prepared By: Martin L. Gary, PRFC Executive Secretary

Personnel (Salaries) $14,759.90: Three PRFC employees' salary time will be covered using these funds. The three employees are: Principle Investigator, for 60 hours ($3,429.90); Data Administrator, for 200 hours ($4,223.00), and a Data Management Specialist, for 600 hours ($7,107.00).

Fringe Benefits $5,950.00: The current PRFC fringe benefit cost is set per employee at: Principle Investigator at 14% of Salary ($455.55), Data Administrator at 51% of salary ($2,092.93), and Data Management Specialist at 49% of salary ($3,401.46). The Principle Investigator falls within the fringe guidelines set forth by NOAA, however, a full breakdown of how the Fringe Benefits are calculated below (PRFC does not have a NICRA established).

		Principle Investigator	Data Administrator	Data Management Specialist
Gross	Annually	$ 111,000.00	$ 41,000.00	$ 23,000.00
	Hourly	$ 55.50	$ 20.50	$ 11.50
Fringe	Health	$ -	$ 15,418	$ 8,333
	Retirement	$ 13,086	$ 4,945	$ 2,696
	Life	$ 1,499	$ 566	$ 309
	Disability	$ -	$ -	
	Def Comp	$ 600	$ -	$ -
	Total:	$ 15,185	$ 20,929	$ 11,338
	Per Hour:	$ 7.59	$ 10.46	$ 5.67
Hours / Year:	2000			
	Rate:	14%	51%	49%
		$ 7.59	$ 10.46	$ 5.67
	Hours:	60	200	600
		$ 455.55	$ 2,092.90	$ 3,401.40
	Total Cost:	$ 3,330.00	$ 4,100.00	$ 6,900.00

Potomac River Fisheries Commission (PRFC)   20
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Travel $0.00: N/A

Equipment $15,372.00: Oracle Cloud Infrastructure (OCI) resources are procured to host the PRFC interface between ACCSP and PRFC's MS Access application on a monthly basis. Additionally, PRFC's modernized application runs on the OCI infrastructure as well.

Supplies $0.00: N/A

Contractual $179,343.60:

In-house Consultant – Ray Draper: $40,788.00
Updating the existing PRFC Access based application will require the knowledge and expertise of the consultant/developer Ray Draper. Ray has designed and developed the entire PRFC application from the ground up over the last 15 years and will be the primary developer of the ACCSP interface. This work will require five (5) months of part-time development work, estimated at 396 hours total, and PRFC has contracted with Ray at a rate of $103 an hour to perform these services.

Talent & Technical Solutions Corporation (TTSC): $138,555.60
Developing a new PRFC database, procuring cloud services and infrastructure, and assisting with the PRFC existing application integration will be handled by TTSC. PRFC has contracted with TTSC at a rate of $123.60 an hour and expects the work to support T3, T4, T6, and T7 to take 12 months of part-time work and an estimated 1,121 hours.

Other $0.00: N/A

Potomac River Fisheries Commission (PRFC)   21
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

BUDGET – FY2022 – APPROVED BY ACCSP

Description	Calculation	Cost
Personnel (a)		
Principle Investigator	60 hours @ $57.57/hr	$3,429.90
Data Administrator	200 hours @ $21.12/hr	$4,223.00
Data Management Specialist	600 hours @ $11.85/hr	$7,107.00
Personnel Subtotal		**$14,759.90**
Fringe (b)		
Principle Investigator	14% of salary	$455.55
Data Administrator	51% of salary	$2,092.93
Data Management Specialist	49% of salary	$3,401.46
Fringe Subtotal		**$5,949.94**
Travel (c)		
n/a		
Travel Subtotal		**$0.00**
Equipment (d)		
Oracle Cloud Database:		
d. MySQL DB Services 1 instance, 31 days/month, 24 hours/day 1 OCPU 16 GB RAM 50 GB storage 50 GB backup	$58/month x 12 months	$696.00
e. Java Cloud Service Enterprise Edition 1 instance, 31 days/month, 24 hours/day 2 OCPU	$461month x 12 months	$5,532.00
f. Cloud Infrastructure 1 instance, 31 days/month, 24 hours/day 2 X9 OCPU 32 GB X9 RAM 50 GB storage	$164/month x 12 months	$1,968.00
g. Oracle APEX 1 instance, 31 days/month, 24 hours/day 2 OCPU 1 TB Storage	$598/month x 12 months	$7,176.00
Equipment Subtotal		**$15,372.00**
Supplies (e)		
n/a		
Supplies Subtotal		**$0.00**

Potomac River Fisheries Commission (PRFC)   22
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Contractual (f)		
In-house Consultant/Developer	396 hours @ $103/hr	$40,788.00
Vendor/Developer	1,121 hours @ 123.60/hr	$138,555.60
Contractual Subtotal		**$179,343.60**
Other (h)		
n/a		
Totals		
Total Direct Charges (i)		$215,425.44
Indirect Charges (j)	n/a	$0.00
Total (sum of Direct and Indirect) (k)		$215,425.44

ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

BUDGET NARATIVE
(Approved Funding Period, FY22)

Project: Electronic Trip-Level Reporting for the Potomac River Fisheries Commission (PRFC) Commercial Fisheries Sector

Project Period: 1 March 2022 – 28 February 2023

1 Year Funding: $215,612.00

Prepared By: Martin L. Gary, PRFC Executive Secretary

Personnel (Salaries) $14,330.00: Three PRFC employees' salary time will be covered using these funds. The three employees are: Principle Investigator, for 60 hours ($3,330.00); Data Administrator, for 200 hours ($4,100.00), and a Data Management Specialist, for 600 hours ($6,900.00).

Fringe Benefits $5,950.00: The current PRFC fringe benefit cost is set per employee at: Principle Investigator at 14% of Salary ($455.55), Data Administrator at 51% of salary ($2,092.93), and Data Management Specialist at 49% of salary ($3,401.46). The Principle Investigator falls within the fringe guidelines set forth by NOAA, however, a full breakdown of how the Fringe Benefits are calculated below (PRFC does not have a NICRA established).

		Principle Investigator	Data Administrator	Data Management Specialist
Gross	Annually	$ 111,000.00	$ 41,000.00	$ 23,000.00
	Hourly	$ 55.50	$ 20.50	$ 11.50
Fringe	Health	$ -	$ 15,418	$ 8,333
	Retirement	$ 13,086	$ 4,945	$ 2,696
	Life	$ 1,499	$ 566	$ 309
	Disability	$ -	$ -	
	Def Comp	$ 600	$ -	$ -
	Total:	$ 15,185	$ 20,929	$ 11,338
	Per Hour:	$ 7.59	$ 10.46	$ 5.67
Hours / Year:	2000			
	Rate:	14%	51%	49%
		$ 7.59	$ 10.46	$ 5.67
	Hours:	60	200	600
		$ 455.55	$ 2,092.90	$ 3,401.40
	Total Cost:	$ 3,330.00	$ 4,100.00	$ 6,900.00

Potomac River Fisheries Commission (PRFC)   24
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Travel $0.00: N/A

Equipment $4,832.00: Oracle Cloud Infrastructure (OCI) resources are procured to host the PRFC interface between ACCSP and PRFC's MS Access application on a monthly basis. Additionally, PRFC's modernized application runs on the OCI infrastructure as well.

Supplies $0.00: N/A

Contractual $190,500.00:

In-house Consultant – Ray Draper: $50,100.00
Updating the existing PRFC Access based application will require the knowledge and expertise of the consultant/developer Ray Draper. Ray has designed and developed the entire PRFC application from the ground up over the last 15 years and will be the primary developer of the ACCSP interface. This work will require five (5) months of part-time development work, estimated at 501 hours total, and PRFC has contracted with Ray at a rate of $100 an hour to perform these services.

Talent & Technical Solutions Corporation (TTSC): $140,400.00
Developing a new PRFC database, procuring cloud services and infrastructure, and assisting with the PRFC existing application integration will be handled by TTSC. PRFC has contracted with TTSC at a rate of $130 an hour and expects the work to support T3, T4, T6, and T7 to take 12 months of part-time work and an estimated 1,180 hours.

Other $0.00: N/A

Potomac River Fisheries Commission (PRFC)   25
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

APPENDIX C: BUDGET – FY2023 – APPROVED BY ACCSP

Description	Calculation	ACCSP Cost	PRFC Cost	Total Cost
Personnel (a)				
Principle Investigator	60 ACCSP / 100 PRFC hours @ 56.46/hr	$3,387.60	$5,646.00	$9,033.60
Data Administrator	200 ACCSP / 1880 PRFC hours @ 22.4/hr	$4,480.00	$42,112.00	$46,592.00
Data Management Specialist	600 ACCSP / 1480 PRFC hours @ 12.21/hr	$7,326.00	$18,070.80	$25,396.80
Personnel Subtotal		**$15,193.60**	**$65,828.80**	**$81,022.40**
Fringe (b)				
Principle Investigator	15% of salary	$523.44	$17,622.00	$18,145.44
Data Administrator	49% of salary	$2,192.47	$20,635.00	$22,827.47
Data Management Specialist	50% of salary	$3,630.00	$8,954.00	$12,584.00
Fringe Subtotal		$6,346.00	$47,211.00	$53,556.91
Travel (c)				
n/a				
Travel Subtotal		**$0.00**	**$0.00**	**$0.00**
Equipment (d)				
Oracle Cloud Database:				
a. MySQL DB Services 1 instance, 31 days/month, 24 hours/day 1 OCPU 16 GB RAM 50 GB storage 50 GB backup	$58/month x 12 months	$696.00	$0.00	$696.00
b. Java Cloud Service Enterprise Edition 1 instance, 31 days/month, 24 hours/day	$461month x 12 months	$5,532.00	$0.00	$5,532.00

ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

2 OCPU				

c.   Cloud Infrastructure
    1 instance, 31 days/month,
    24 hours/day
    2 X9 OCPU
    32 GB X9 RAM
    50 GB storage
	$164/month x 12 months	$1,968.00	$0.00	$1,968.00

d.   Oracle APEX
    1 instance, 31 days/month,
    24 hours/day
    2 OCPU
    1 TB Storage
	$598/month x 12 months	$7,176.00	$0.00	$7,176.00

Equipment Subtotal		**$15,372.00**	**$0.00**	**$15,372.00**
Supplies (e)				
n/a				
Supplies Subtotal		**$0.00**	**$0.00**	**$0.00**
Contractual (f)				
In-house Consultant/Developer	387 Hours @ $103/hr	$39,861.00	$0.00	$39,861.00
Vendor/Developer	1121 Hours @ $123.6/hr	$138,555.60	$0.00	$138,555.60
Contractual Subtotal		**$178,416.60**	**$0.00**	**$178,416.60**
Other (h)				
n/a				
Other Subtotal		**$0.00**	**$0.00**	**$0.00**
Totals				
Total Direct Charges (i)		$215,328.20	$113,039.80	$328,367.91
Indirect Charges (j)	n/a	$0.00	$0.00	$0.00
Total (sum of Direct and Indirect) (k)		$215,328.00	$113,040.00	$328,368.00
Percentage		**66%**	**34%**	**100%**

Potomac River Fisheries Commission (PRFC)   27
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

BUDGET NARATIVE
(Funding Period, FY23)

Project:	Electronic Trip-Level Reporting for the Potomac River Fisheries Commission (PRFC) Commercial Fisheries Sector
Project Period:	1 March 2023 – 28 February 2024
1 Year Funding:	$215,328
Prepared By:	Martin L. Gary, PRFC Executive Secretary

Personnel (Salaries) $15,193.60: Three PRFC employees' salary time will be covered using these funds. The three employees are: Principle Investigator, for 60 hours ($3,387.60); Data Administrator, for 200 hours ($4,480.00), and a Data Management Specialist, for 600 hours ($7,326.00).

In-Kind $113,039.80: The three PRFC employees proposed in this effort spend most if not all of their remaining hours working on catch report data and the tool. For each employee, their salary + Fringe costs not covered by the ACCSP grant is considered In-Kind by the PRFC. For this proposal Principle Investigator (100 hours, $5,646.00 + $17,622.00 Fringe), Data Administrator (1880 hours, $42,112.00 + $20,635.00 Fringe), and Data Management Specialist (1480 hours, $18,070.80 + $8,954.00 Fringe) sum up to $113,014.41 or 34% of total expense for Year 3.

Fringe Benefits $5,950.00: The current PRFC fringe benefit cost is set per employee at: Principle Investigator at 15% of Salary ($523.44), Data Administrator at 49% of salary ($2,192.47), and Data Management Specialist at 50% of salary ($3,630.00). The Principle Investigator falls within the fringe guidelines set forth by NOAA, however, a full breakdown of how the Fringe Benefits are calculated below (PRFC does not have a NICRA established).

		Principle Investigator	Data Administrator	Data Management Specialist
Gross	Annually	$117,436.80	$46,592.00	$25,396.80
	Hourly	$56.46	$22.40	$12.21
Fringe	Health	N/A	$15,840.00	$8,572.80
	Retirement	$15,972.24	$6,337.20	$3,454.80 (Inc. Mission Square)
	Life	$1,573.68	$624.48	$340.32
	Disability			$216.00 (VLDP)
	Def Comp	$600.00		
	Total	**$18,145.92**	**$22,801.68**	**$12,583.92**

Fringe Benefits Details

Potomac River Fisheries Commission (PRFC)   28
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

	Per Hour	$8.72	$10.96	$6.05
	Rate	15%	49%	50%
ACCSP Project Hours				
FY 22-23 Hours / Year:		2080		
	ACCSP Hours	60	200	600
	Fringe Cost	$523.44	$2,192.47	$3,630.00
	ACCSP Cost	$3,387.60	$4,480.00	$7,326.00
	PRFC Hours	100	1880	1480
	PRFC Fringe	$17,622.00	$20,635.00	$8,954.00
	PRFC Cost	$5,646.00	$42,112.00	$18,070.80

Travel $0.00: N/A

Equipment $15,372.00: Oracle Cloud Infrastructure (OCI) resources are procured to host the PRFC interface between ACCSP and PRFC's MS Access application on a monthly basis. Additionally, PRFC's modernized application runs on the OCI infrastructure as well. PRFC plans to procure a MySQL database to host the upgraded application and provide the primary data interface between PRFC and ACCSP catch and report information. Additionally, Java Cloud, a cloud Virtual Machine, and Oracle APEX will all be required to host the application business logic, interface connection management, and user interface. All cloud services will be procured in full for the year in order to lock in cloud discounts for reserved usage.

Supplies $0.00: N/A

Contractual $178,416.60:

In-house Consultant – Ray Draper: $39,861.00
Updating the existing PRFC Access based application will require the knowledge and expertise of the consultant/developer Ray Draper. Ray has designed and developed the entire PRFC application from the ground up over the last 15 years and will be the primary developer of the ACCSP interface. This work will require five (5) months of part-time development work, estimated at 501 hours total, and PRFC has contracted with Ray at a rate of $100 an hour to perform these services.

Talent & Technical Solutions Corporation (TTSC): $138,555.60
Developing a new PRFC database, procuring cloud services and infrastructure, and assisting with the PRFC existing application integration will be handled by TTSC. PRFC has contracted with TTSC at a rate of $130 an hour and expects the work to support T3, T4, T6, and T7 to take 12 months of part-time work and an estimated 1,180 hours.

Other $0.00: N/A

Potomac River Fisheries Commission (PRFC)   29
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

APPENDIX D: Maintenance Projects History for Primary Program Priorities:

Funding Fiscal Year	Amount	Time Period	Results/Comments
2021	$215,612.00	1 Mar 2021 – 28 Feb 2022	Pilot implementation of ACCSP eTrips and initial development of PRFC Interface & modernized cloud application
2022	$215,612.00	1 Mar 2022 – 28 Feb 2023	Completed development of PRFC Cloud application SAIL v1.0, piloted eTrips with expanded waterman beta group, delivered initial SAFIS interface to synchronize data between PRFC SAIL v1.0 and SAFIS.
2023	$215,328.00	1 Mar 2023 – 28 Feb 2024	Completed development of PRFC SAIL v2.0, finalized eTrips PRFC training, revised SAFIS-SAIL two-way interface communication via API and Direct DB connections, expanded pilot to 20% of watermen, implemented initial incentives to transition to eTrips.
2024	TBD	1 Mar 2024 – 28 Feb 2025	Increase eTrips participation to 100% of interested watermen, finalize SAFIS-SAIL interfaces, research and implement advanced analytics/AI-ML capabilities, additional incentives to use eTrips implemented.

Potomac River Fisheries Commission (PRFC)   30
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Martin L. Gary

martingary.prfc@gmail.com

804-456-6935

Texas A&M University: B.S. Wildlife & Fisheries Sciences Specialization:
Fisheries Ecology

Experience
- o Currently:
  - o Potomac River Fisheries Commission Executive
     Director July 2013 to Present
  - o Co-Chair, NOAA Chesapeake Bay Program Sustainable Fisheries
     Goal Implementation Team
  - o Chairman, Atlantic States Marine Fisheries Commission's Atlantic Striped
     Bass Board
  - o President, Tidewater Chapter of the American Fisheries Society
  - o Member, Maryland Sea Grant External Advisory Board 2016-Present
  - o Member, Chesapeake Bay Program Plastics Pollution Action Team (PPAT)
  - o Member, Chesapeake Bay Program Invasive Catfish Work Group
- o Previously:
  - o Co-Chair, Atlantic States Marine Fisheries Commission's Striped Bass Work
     Group (2020)
  - o Chairman, Atlantic States Marine Fisheries Commission's American Eel
     Board (2017-2019)
     Member, Interstate Commission for the Potomac River Basin (ICPRB) Blue Ribbon
     Panel for Comprehensive Watershed Planning (2017-2019)

Maryland Department of Natural Resources, Fisheries Service: (July 1986 through June 2013)
- Fisheries Service - Assistant Director (2006-2013)
- Fisheries Service – Program Manager for Recreational & Commercial Fisheries
  and Outreach (1996-2006)
- Fisheries Service – Program Manager for Recreational Fisheries and Commercial
  Striped Bass Fisheries (1995-1996)
- Fisheries Service – Legislative Officer (1994-1995)
- Fisheries Service – Striped Bass Stock Assessment Biologist (1990-1994)

Potomac River Fisheries Commission (PRFC)   31
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

- Fisheries Service – Program Manager for Artificial Reefs & Habitat Enhancement (1988- 1990
- Fisheries Service: Estuarine Finfish Biologist (1986-1988)

Affiliations
American Fisheries Society Member American
Fisheries Society Southern Division
American Fisheries Society Tidewater Chapter (President Elect)
American Fisheries Society Estuaries Section
American Fisheries Society Invasive & Introduced Species Section
American Fisheries Society Fish Habitat Section
American Fisheries Society Fish Health Section American
Fisheries Society Fish History Section American Fisheries
Society Fish Management Section
American Fisheries Society Fisheries Information & Technology Section American
Fisheries Society Virginia Chapter Member
American Fisheries Society Mid Atlantic Chapter Member American
Fisheries Society Potomac Chapter
American Fisheries Society Marine Fisheries Section American
Fisheries Society Science Communication Section American
Fisheries Society Socioeconomics Section American Fisheries
Society Water Quality Section American Society of
Ichthyologists & Herpetologists
The Interstate Shellfish Sanitation Conference (ISSC)
National Shellfisheries Association (NSA)
National Association of Underwater Instructors (NAUI Scuba certifications for: Advanced Open Water, Ice, Night, Cave, Nitrox)

References: Available Upon Request

Potomac River Fisheries Commission (PRFC)   1
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
<mark>**Highlighted text indicates changes from the first submission**</mark>

Cathy Friend

WORK EXPERIENCE

Potomac River Fisheries Commission   **Colonial Beach, VA**

Administrative Specialist   Jan 2012 – Present

- Operate office equipment such as fax machines, copiers, electronic postage machines, and multi-line phone systems, and use computers for spreadsheet, word processing, database management, and other applications;
- Greet customers or callers and handle their inquires or direct them to the appropriate person according to their needs;
- Prepare the daily cash report making sure all monies balance for the day, verifying receipts vs. monies received that day match;
- Prepare and mail law enforcement manual updates monthly;
- Review and process incoming commercial and recreational license applications; ensuring the correct fees are collected;
- Attend and record all advisory committee meetings and quarterly Commission meetings. Transcribe and prepare minutes from each meeting in a timely manner for review by the Executive Secretary;
- Update and prepare any regulation changes or supplement updates and mail to the appropriate recipients including Commission members, law enforcement, judges, and clerks;
- Adhere to mandatory time lines for preparing and distributing certain documents;
- Enter daily deposits into Quickbooks.

Database Specialist   Jun 2006 – Present

- Trouble shoot and fix any errors associated with the operating database, including contact the IT person for help if needed;
- Maintain the integrity of the data entered by ensuring proper procedures are followed;
- Accurately entering hand written harvest catch data received weekly through the mail and in person; and reach out to any harvester with discrepancies found;
- Adhere to regulations regarding commercial activities to include making sure regulations are followed and provided to harvesters;
- Respond to customer or management request for data by creating queries in the database.

NSWC Federal Credit Union   **Dahlgren, VA**

Positions held: 1992 - 2004

Human Resource Assistant

Mortgage and Home Equity Loan Officer

Mortgage Loan Clerk

Customer Service Teller

EDUCATION

Rappahannock Community College (1994 – 2000)   **King George, VA**

Completed coursework towards a A.S. Accounting Specialist (degree not obtained)

Potomac River Fisheries Commission (PRFC)   2
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

West Virginia University (1986 – 1991)   **Morgantown, WV**
Completed coursework towards B.S. Speech Pathologist (125 credit hours – degree not obtained)

ADDITIONAL SKILLS
- Proficient and accurate in using Microsoft Office suite, including Word, Excel, Access and Power Point;
- Entry level use of Quickbooks;
- Able to use a copier to make multiple collated copies as well as making booklets;

Potomac River Fisheries Commission (PRFC)   3
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Morgan Shaffer

Objective

- To offer my services to a company that promotes conservation and education

Education

BACHELOR OF SCEINCE| MAY 2020 | UNIVERSITY OF MARY WASHINGTON

- Major: Environmental Science: Natural

- Minor: Environmental
      Sustainability
      Biology

- Related coursework: Introduction to GIS, Environmental Geochemistry, Field Methods in EESC & GEOL, Pollution Prevention Planning, Hydrology, Toxicology, Ornithology, Animal Behavior

ASSOCIATES | MAY 2017 | RAPPAHANNOCK COMMUNITY COLLEGE

- Major: General Arts & Sciences

Skills & Abilities

COMPUTER SKILLS

- Excellent experience using Word, PowerPoint, Excel, Publisher, and the online Google equivalences

- Good understanding of Skype, Zoom, Webinar, Google Hangouts, and online application Trello

- Experienced in GIS map building, general data analysis, and graphical analysis

- Competent in research using the internet and online databases/libraries

- Quick to learn new programs and technologies

CONSERVATION

- Led and participated in State Park conservation programs such as beekeeping, monarch butterfly raising and tracking, implementing pollinator gardens, and collecting wildflower seeds

- Cared and handled animal ambassadors such as a corn snake, eastern king snake, red-eared sliders, and saltwater fish

- Informed the general public, school groups, and day-care groups about local flora and fauna

- Inspired creativity and critical thinking in children and adults of all ages regarding environmental problems by using hands-on outdoor activities

Potomac River Fisheries Commission (PRFC)   4
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

VISITOR EXPERIENCE & CUSTOMER SERVICE

- First point of contact greeting clients and answering phone calls

- Enriched the experience of 200 – 300 park guests daily through programs, point-duty, and roving

- Performed 2-4 20min-1h long programs daily on a wide variety of subjects, tailoring topics to fit the needs and interests of park guests

- Assisted in providing information, answering questions, taking pictures, and finding resources for guests

- Established a safe environment where the public felt comfortable asking a wide range of questions Assisted in activities directly targeting 4H groups, YMCA, YCC, homeschool groups, and summer school groups

- Adapted all programming and guest interactions to follow Covid guidelines

TEAMWORK

- Basic management such as scheduling other individuals and delegating tasks while taking into account strengths, weaknesses, and time available

- Shared responsibilities with coworkers, willing to take on additional work when coworkers needed extra support

- Capable of taking initiative and handling independent duties

Experience

DATA ENTRY SPECIALIST | POTOMAC RIVER FISHERIES COMISSION | JULY 2022 - PRESENT

- First point of contact between PRFC and the public via in person, phone, or electronical communication

- Data entry and management of fishery related data to fulfill the agency's mission to conserve and improve the valuable fishery resources of the tidal Potomac River

- Handled daily front office financial transactions and bank deposits

DATA ENTRY INTERN | POTOMAC RIVER FISHERIES COMISSION | FEBUARY 2022 – JULY 2022

- Data entry and management of fishery related data

- Responsible for the daily upkeep and organization of harvest records

- Answering phone calls and taking messages for coworkers

- Analysis of data tables and catching anomalies/mistakes

INTERPRETIVE PARK RANGER | WESTMORELAND STATE PARK | MARCH 2021 – JANUARY 2022

- Supervisor of 1 other park staff and 2 AmeriCorps volunteers; in charge of fairly delegating tasks between coworkers and ensuring they submitted necessary data promptly

- Organized all park programming and the creation of fliers promoting weekly program guides

- Promoted Westmoreland State Park and offered educational programs at local events such as First Friday in Montross and the Fall Festival in Montross

Potomac River Fisheries Commission (PRFC)   5
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

- Created, revised, and transcribed educational park programs including 6 new programs

- Adapted all programming and guest interactions to follow Covid guidelines

- Enriched the experience of 3,000 – 5,000 guests during the summer months

INTERPRETIVE PARK RANGER | WESTMORELAND STATE PARK | MAY 2019 – JULY 2020

- Trained AmeriCorps volunteers

- Led guided tours and activities for park guests daily, teaching topics involving environmental and biological information

- Cared for permanent and temporary ambassador animals such as snakes, lizards, and frogs

- Planned, participated, and volunteered for yearly park events including races and family events

Potomac River Fisheries Commission (PRFC)   6
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

RESUME

Raymond (Ray) Draper

SUMMARY

More than 45 years of providing technical guidance and leadership for numerous people over a variety of computer systems and projects.

EXPERIENCE

Potomac River Fisheries Commission / Consultant, Independent Contractor (April 1993 – Present) Produced multiple database programs in support of daily operations provided by the PRFC staff. Duties included understanding the requirements, designing the database, operator interfaces, and reports.

Provided hardware support for the first ten years. Supported the transition from the old to the new facility. Provide ad-hoc consulting regarding new technology and capabilities. Provide as-needed support to the staff regarding special requests and system modifications.

Enterprise Resource Planning Supervisor & Time Management Instructor (January 2012 – November 2020) *Contractor/Consultant/Employee – depending on the company who won the follow-on contracts:*

- Primarily responsible for conducting the Instructor Led Training (ILT) that is required for personnel to perform their duties as a Supervisor, Time Keeper, and/or Time Approver.

- Developed specific Step-by-Step guides for trained personnel to use as a refresher after the ILT.

- Modified Navy produced classroom material to be specific to personnel at NSWC Dahlgren.

- Presented ERP seminars to the Government population (general users) on how to use the new ERP system who did not require ILT.

- Developed Step-by-Step guides in PDF format and a parallel video (MP4) version for the general users.

- Designed and taught Knowledge Transfer (KT) sessions on specific, user requested topics related to the Time functionality, such as how to obtain names and quantity of employees working overtime or on a telework status.

- Provide follow-up support via phone, on-site, or on-line as needed.

Naval Surface Warfare Center, Dahlgren Division (September 1984 – December 2011) *Civil Service employee assigned to various technical and managerial positions on multiple Navy projects:*

- Special Systems Intelligence & Surveillance Branch Head (2008 – 2011): Provided technical and personnel leadership to several intelligence, surveillance and reconnaissance (ISR) projects. These projects included approximately 45 personnel and twenty million dollars.

- Classified Project Software / Project Lead (2002 – 2008): Established and lead a team of software and hardware engineers, technicians, and support personnel with the development of

ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
<mark>Highlighted text indicates changes from the first submission</mark>

an intelligence

collection and data fusion system. Responsible for the requirements, design, development, documentation, installation, and training.

- Cooperative Engagement Capability Software Lead (1996 – 2002): Provided technical software oversight to the lead contractors (Raytheon and Lockheed-Martin) for the Government Program Office. Lead local team with software builds, metrics, and installation aboard ships and land sites.

- Cryptologic Systems Embedded Trainer Software Lead (1993 – 1996): Provided technical software oversight to the lead contractor (Electronic Warfare Associates) for the Government Program Office. Facilitated system and design requirements and conducted acceptance testing at the contractor's facility.

- Combat Direction Finder Software Independent Verification Lead (1989 – 1993): Provided technical software oversight to the lead contractor (Raytheon-Sanders) for the Government Program Office and conducted Independent Verification & Validation for initial systems.

- Computer Aided Design & Drafting System Software Developer / Site Lead (1984 – 1989): Developed local applications to improve efficiency with system management (printing, plotting, and data storage). Provided project leadership to cross-functional team and training across the Center.

United States Air Force (June 1974 – June 1980) *Telecommunications Specialist:*
Provided technical analysis and repair to long-haul communication systems, which included HF, VHF, landline, and tropospheric systems. Maintained cryptologic equipment and conducted training on systems to co-workers and members of the US Marine Corp during combat exercises.

EDUCATION

Embry-Riddle Aeronautical University (September 1980 – September 1984)
- BS Computer Science
- AS Aviation Management
- Commercial Pilot's License
- Flight Instructor

Potomac River Fisheries Commission (PRFC)   8
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

PROFESSIONAL HIGHLIGHTS

TTSC – Chief Information Officer (CIO)
Oct 2019 – Current

- Design and execute the corporate IT solutions business strategy to include identification of solutions and services being offered, targeting of customer markets and outreach to potential clients, development of technology roadmaps and trends assessments, and establishment of partner programs for rapid execution and value maximization.
- Lead all IT related efforts, including the implementation and deployment of MS365, design and development of the TTSC Assessment Model (OAM), design and development of the tts-c.com corporate home page, and design and development of the PowerBI OAM Dashboard.

Falconwood, Inc – Senior Cloud Engineer (DevSecOps)
Sep 2019 – April 2020

CACI – Senior IT Program Manager (PM) / ACIO
Oct 2017 – Sep 2019

CACI – Developer, Group Lead, Project Manager
July 2004 – Sep 2017

EDUCATION

MASTER OF BUSINESS ADMINISTRATION (2010)
University of Mary Washington ▪ Fredericksburg, VA

MASTER OF MANAGEMENT OF INFORMATION SYSTEMS (2010)
University of Mary Washington ▪ Fredericksburg, VA

BACHELOR OF SCIENCE IN COMPUTER SCIENCE (2004)
University of Mary Washington ▪ Fredericksburg, VA

CERTIFICATIONS

PROJECT MANAGEMENT PROFESSIONAL (PMP) (2016)
Project Management Institute (PMI) ▪ ACTIVE

CERTIFIED INFORMATION SYSTEMS SECURITY PROFESSIONAL (CISSP) (2016)
International Information System Security Certification Consortium (ISC)² ▪ ACTIVE

ITIL 4 FOUNDATION (2020)
ITIL ▪ ACTIVE

J. BLAIR PARSONS III, PMP, CISSP, ITIL4

Chief Information Officer (CIO)

PROFILE

Blair Parsons is a partner and CIO of Talent & Technical Solutions Corporation (TTSC). He has been an IT industry leader for the last 16 years where he has served in various senior leadership roles, including: Activity Command Information Officer (ACIO), Senior IT Program Manager (PM), Senior Software Engineer PM, and Senior Information Systems Engineer. Blair is laser focused on continuous process improvement through advanced use of IT systems both on-prem and in the cloud to provide accountability, performance monitoring, process metrics, and advanced reporting. His accomplishments include the design and implementation of a dynamic, workflow based, custom action tracking system at NAVSEA; a custom, Talent Management application across the US Navy; and numerous successful cloud native system migrations and refactoring projects.

CONTACT

PHONE: 540.903.3537

EMAIL: blair@tts-c.com

WEBSITE: www.tts-c.com

ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector

Bold Comments indicate sections that help with the ranking process

<mark>**Highlighted text indicates changes from the first submission**</mark>

Ranking Guide - Maintenance Projects:

Primary Program Priority	Point Range	Description of ranking consideration
Catch and Effort	0-10	Rank based on range within module and level of sampling defined under Program design. When considering biological or bycatch funding rank according to priority matrices.
Biological Sampling	0-8	
Bycatch/Species Interactions	0-6	
Social and Economic	0-4	
Metadata	+2	Additional points if metadata collected and supplied to Program defined within the proposal.

Project Quality Factors	Point Range	Description of ranking consideration
Multi-Partner/Regional impact including broad applications.	0-5	Rank based on the number of Partners involved in project OR regional scope of proposal (e.g. geographic range of the stock).
> yr 2 contains funding transition plan and/or justification for continuance	0-4	Rank based on defined funding transition plan away from Program funding or viable justification for continued Program funding.
In-kind contribution	0-4	1=1%-25% 2=26%-50% 3=51%-75% 4=76%-99%
Improvement in data quality/quantity/timeliness	0-4	1=Maintain minimum level of needed data collections. ↓ 4=Improvements in data collection reflecting 100% of related module as defined within the Program design.
Potential secondary module as a by-product (In program priority order)	0-4, 0-3, 0-2, 0-1	Rank based on single additional module data collection and level of collection as defined within the Program design of individual module.
Impact on stock assessment	0-3	Rank based on the level of data collection that leads to new or greatly improved stock assessments.

Other Factors	Point Range	Description of ranking consideration
Properly Prepared	0-5	Meets requirements as specified in funding decision document Step2b and Guidelines

Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Ranking Guide – Maintenance Projects: (*to be used only if funding available exceeds total Maintenance funding requested***)**

Ranking Factors	Point Range	Description of Ranking Consideration
Achieved Goals	0 – 3	Proposal indicates project has consistently met previous set goals. Current proposal provides project goals and if applicable, intermediate metrics to achieve overall achieved goals.
Data Delivery Plan	0 – 2	Ranked based if a data delivery plan to Program is supplied and defined within the proposal.
Level of Funding	-1 – 1	-1 = Increased funding from previous year 0 = Maintained funding from previous year 1 = Decreased funding from previous year
Properly Prepared	-1 – 1	-1 = Not properly prepared 1 = Properly prepared
Merit	0 – 3	Ranked based on subjective worthiness

Potomac River Fisheries Commission (PRFC)   1
ACCSP Funding Proposal: Electronic Trip-Level Reporting for the PRFC Commercial Fisheries Sector
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

ROY COOPER
Governor

ELIZABETH S. BISER
Secretary

KATHY B. RAWLS
Director

June 16, 2023

Atlantic Coastal Cooperative Statistics Program
Operation and Advisory Committee
1050 N. Highland Street, Suite 200A-N
Arlington, VA 22201

To Whom it May Concern,

We are pleased to submit the proposal entitled "**FY24: North Carolina biological database enhancements for the transmission of data to the ACCSP**" for consideration for funding in FY2024.

This maintenance proposal is being submitted to fund an additional year of monies for a developer to continue work on NCDMF's Biological Database (BDB) upgrade. The BDB upgrade and its associated interfaces is a large modernization project that needs to handle a wide variety of sampling programs and their specific requirements as well as a variety of users which have very different use cases for the same interface. This FY2024 proposal is requesting one final year of funding after the FY2023 grant ends to ensure that all functionality that existed in the legacy system will be able to be completed in the new interface.

Information about the FY2021 grant and its challenges is provided in the attached proposal. A no-cost extension was submitted for that project which is set to end at the end of this month. A maintenance grant was approved for FY2023 which starts in July 2023 to continue development work on the BDB.

The scope of this project hasn't changed but has been narrowed to reflect design decisions that were made during the FY2021 grant work such as moving forward with a SQL Server database instead of maintaining the existing ASCII 128-byte database and switching from ASP .NET to Microsoft Blazor to facilitate faster development and utilize a newer framework. The ASCII version of the BDB has been migrated to SQL Server. The SQL Server version of the database should become the database of record by the end of 2023. Delays on the web-based interface for data entry and editing did not delay the sta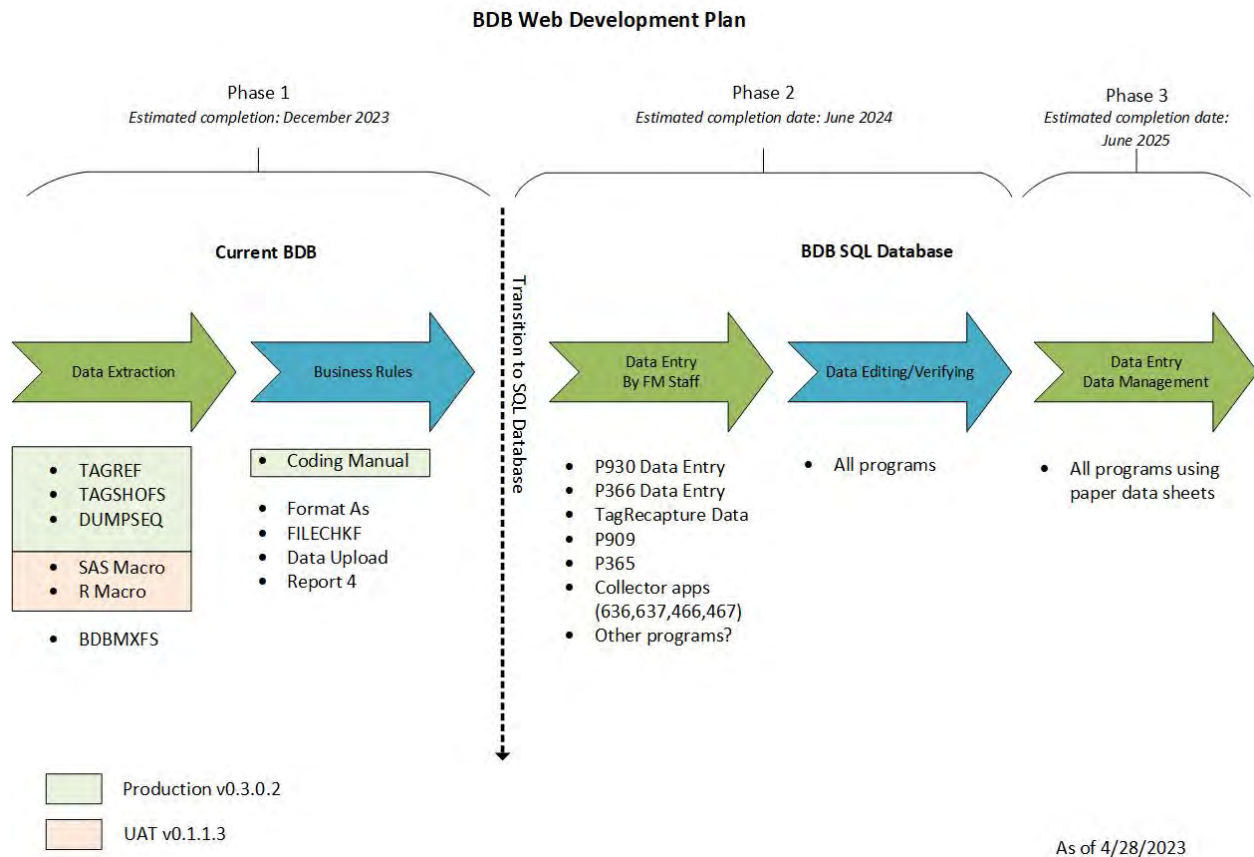rt of the funded FY2022 grant titled *"North Carolina fishery-dependent biological data transmissions to the Atlantic Coastal Cooperative Statistics Program Data Warehouse"*. Work on that project is on-going and set to be completed by the end of 2023.

Thank you for your consideration.

Sincerely,

Stephanie McInerny

Proposal for Funding made to:

Atlantic Coastal Cooperative Statistics Program
Operations and Advisory Committees
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22204

FY24: North Carolina biological database enhancements for the transmission of data to the ACCSP

Submitted by:

Stephanie McInerny
North Carolina Division of Marine Fisheries
3441 Arendell Street; P.O. Box 769
Morehead City, NC 28557
stephanie.mcinerny@ncdenr.gov

Applicant Name:	North Carolina Division of Marine Fisheries
Project Title:	FY24: North Carolina biological database enhancements for the transmission of data to the ACCSP
Project Type:	Maintenance
Principal Investigator:	Stephanie McInerny NCDMF Information Technology Section Chief
Requested Award Amount:	$146,981
Requested Award Period:	For one year, beginning after the receipt of funds.
Original Date Submitted:	June 16, 2023

Objective

To enhance the biological database used by the North Carolina Division of Marine Fisheries (NCDMF) to ensure continued use and maintenance of the database on State authorized equipment and to facilitate transmissions of fishery-dependent biological data to the Atlantic Coastal Cooperative Statistics Program (ACCSP) Data Warehouse.

Background/Need

The development of a comprehensive database to house field sampling collections for the NCDMF was initiated in May 1980 and incorporates data from the 1960s to present. Data are collected from both fishery-dependent and fishery-independent surveys and used in stock assessments and fishery management plans (FMPs) to manage species important to the state as well as those managed by regional and federal management commissions and councils.

Biological data collected are stored in the NCDMF Biological Database (BDB) which consists of a hierarchical set of 128-byte ASCII records that detail various data collected by the sampling programs conducted by the division. The BDB currently consists of nine record types:

- Record Type 1 - Environmental Data
- Record Type 8 - Fishing Gear Data
- Record Type H - Free Format Header Data
- Record Type 2 - Replicate Data
- Record Type R - Free Format Replicate Data
- Record Type 3 - Species Data
- Record Type 4 - Individual Fish Data
- Record Type 5 - Individual Fish Age Data
- Record Type 9 - Individual Fish Tag Recapture Data

For each biological program, data are typically entered onto biological program data sheets according to set protocols contained in each program's written standard operating procedures (i.e., program documentation). While the data field names on the BDB record are rigorously controlled, the type of data collected in a biological program for a given field may vary dependent upon what information the respective biologist is capturing. Data elements that are required and standard across all programs include the following: collection id (sequence number), program id, date, location, gear, replicate id, species id, species status, and the number of individuals. Specific programs may also record in addition several other data elements such as station number, duration of sample, sediment type, depth, air temperature, dissolved oxygen, pH, weather, current speed, additional data on individuals collected (weight, age, tag number, annulus measurements), etc. The BDB structure allows each program to capture the data elements needed in a flexible and organized manner with like codes and other standards, but no single program captures all the data defined in the BDB record types. Consequently, biological program data elements vary from program to program. This leads to many variations in the biological data or "coding" sheet. At this moment, there are over 125 different coding sheets defined; but, this number could change at any time dependent on new or changing program documentation requirements.

Currently, there are data from over 120 programs within the BDB and 18 million records. This includes both fishery-dependent and fishery-independent data types. These data are important to the management of species in North Carolina as well as regional and federal species. The primary method for data entry into the BDB can only run on a Windows XP machine; therefore, it has been cumbersome to maintain the BDB as built since computer operating systems used by the state upgraded from Windows XP. The

need to enhance the BDB and its data entry interfaces has been increasing over time but there is an immediate need to address database structure, data entry tools, and create a plan for improved user extraction tools as North Carolina State security guidelines currently prohibit PCs not using Windows 10 or newer to be on the state network. This adds an additional level of difficulty in maintaining the BDB and a strong reason for upgrading the database and input/output (I/O) interfaces. In addition, data entry and regular maintenance on the BDB cannot be done via remote access. Upgrading to a more modern web interface will allow access to the data while teleworking at home or in the field.

The NCDMF has been an active participant in transferring selected BDB program data to other regional databases. Two fishery-independent surveys are provided to the Southeast Assessment Monitoring Program (SEAMAP) which is a cooperative program to facilitate the management, and dissemination of fishery-independent data from the waters of the southeastern United States. North Carolina fishery-dependent biological data from the snapper-grouper fishery is provided to the NOAA Fisheries Southeast Fisheries Science Center's Trip Information Program (TIP) which is a major component of the ACCSP. With the upgrades outlined in this proposal, NCDMF will be prepared for future transmissions of data to the ACCSP Data Warehouse to meet the goals and standards of data sharing initiatives between North Carolina and ACCSP. Other than snapper-grouper data, biological data collected by North Carolina are not currently available in the Data Warehouse.

When the FY2021 proposal titled *"North Carolina biological database enhancements to prepare for transmission of data to the ACCSP"* was submitted, NCDMF was fully staffed and the BDB had 100% support of existing processes so that the contractor hired on the FY21 grant as well as the North Carolina Department of Information Technology (NCDIT) developer located at NCDMF could focus 100% on the new database and its enhancements. Just before the start of the FY21 project, the BDB Administrator that supported the existing system retired. This left a huge vacancy and caused the NCDMF IT developer to shift to supporting the existing system instead of new development. Hiring of the contractor on the FY21 grant was delayed due to the funding not being available to the NCDIT to start the hiring process; however, a contractor was finally hired in November 2021. Due to several other hiring issues, a qualified replacement BDB Administrator couldn't be hired until January 2022. These personnel changes were not expected at the time of the initial grant submission and set work on the project back considerably. A no-cost extension was filed for the FY21 grant to continue development. The grant extension is set to end on June 30, 2023, but the money was exhausted by the end of December 2022. The contractor hired from the FY21 grant was moved to internal monies to continue development.

Midway through the start of the FY21 project, NCDMF IT decided to move this project from ASP .NET to Microsoft Blazor with DevExpress add-ons to incorporate a newer framework and utilize some built in features that should speed up development in the future. This framework change, although better for future development, did require some refactoring of all the functionality that had been built prior to the start of this change. This slowed completion of the developed functionality worked on during the FY21 project; however, great progress has been made since then resulting in functionality to query, view, and export data from the BDB that went will go live to NCDMF biologists and technicians in July 2023. A standard operating procedure for the new interface is close to completion and the last step before the production environment is released to NCDMF.

ACCSP funded a maintenance proposal that starts in July 2023 to continue this work but there is still a lot of functionality left to complete. This maintenance proposal is being submitted to continue funding a developer for NCDMF's Biological Database (BDB) upgrade for one final year after the end of the FY23 grant. This is a large modernization project that needs to handle a wide variety of sampling programs and their specific requirements as well as a variety of users which have very different use cases for the same interface. Having an additional year of help with development will ensure that all functionality that existed in the legacy system will be able to be completed in the new interface. The

scope of this project hasn't changed but has been narrowed to reflect design decisions that were made during the FY21 grant work such as moving forward with a SQL Server database instead of maintaining the existing ASCII 128-byte database and moving forward with Microsoft Blazor and DevExpress. The scope of this project remains modernizing NCDMF's BDB by building web-based interfaces to replace the deprecated utilities that rely on the old ASCII database. Figure 1 shows a roadmap that outlines the phases in this project. Phase 1 should be completed by the end of this year. Phase 2 will be the focus of the FY23 project that starts in July 2023. This proposal will provide funds for Phase 3 which should complete development of the upgraded interfaces to fully replace the legacy BDB system.

BDB Web Development Plan

Phase 1	Phase 2	Phase 3
Estimated completion: December 2023	*Estimated completion date: June 2024*	*Estimated completion date: June 2025*

Current BDB

Transition to SQL Database

BDB SQL Database

Data Extraction
- TAGREF
- TAGSHOFS
- DUMPSEQ
- SAS Macro
- R Macro
- BDBMXFS

Business Rules
- Coding Manual
- Format As
- FILECHKF
- Data Upload
- Report 4

Data Entry By FM Staff
- P930 Data Entry
- P366 Data Entry
- TagRecapture Data
- P909
- P365
- Collector apps (636,637,466,467)
- Other programs?

Data Editing/Verifying
- All programs

Data Entry Data Management
- All programs using paper data sheets

Production v0.3.0.2

UAT v0.1.1.3

As of 4/28/2023

Figure 1. BDB Web development roadmap.

The funded FY2022 grant titled *"North Carolina fishery-dependent biological data transmissions to the Atlantic Coastal Cooperative Statistics Program Data Warehouse"* is in progress and set to be completed by the end of 2023.

Review of Previous Results:

Scripts have been created to migrate the ASCII flat file database into a SQL Server database. The format of the SQL Server database has been finalized and is synced to the ASCII database daily to help facilitate verification of data between the two databases. Reference tables have been created and added to the SQL database to allow for additional formatting of the data. These tables can be viewed and exported via the web interface. Development on the new web-based interface has been on-going. Midway through the start of the FY21 project, DMF IT decided to move this project from ASP .NET to Microsoft Blazor with DevExpress add-ons to incorporate a newer framework and utilize some built in features that should

speed up development in the future. Role-based security using Azure Active Directory has also been worked on and is near completion.

Several pieces of functionality to allow DMF staff to retrieve data from the SQL database have been completed and moved to production. These include a utility to search records by tag number and view customized results needed for processing tag returns (i.e., Tag Search) and a utility to search using sequence number to see data collected by trip and the samples collected from those trips (i.e., Record Dump). Additionally, the development of a query builder is in progress to allow the data to be searched and returned using logic built by the user. These queries can return data using any field in the database as a search parameter and exported to Excel for analysis. Biologists continue to verify the accuracy of the data format and results from the new interface utilities.

There are several old utilities being used for data entry into the ASCII database and work has been started on checking these files against NCDMF defined business rules that govern the entire database as well as additional rules specific to each sampling program. Most overarching business rules have been developed and should be completed by the end of 2023 (i.e., end of Phase 1). Once all business rules have been defined and incorporated into the new web interface, data can start to be imported into the SQL database allowing a cutover from the ASCII database to SQL Server as the database of record (i.e., start of Phase 2). In between the end of the FY21 grant and the start of the FY23 grant, the contractor hired on the FY21 grant has been moved over to internal monies and NCDMF funded staff have continued work on the BDB web. There are now 3 full-time developers dedicated to this project.

The FY21 grant has ended and the FY23 maintenance proposal begins July 2023. A new contractor will be hired to work on the FY23 grant and hopefully extended for an additional year if this proposal is accepted.

Approach

NCDMF staff continually work with NCDIT staff on a requirements document to detail specific needs and expectations of the corresponding I/O interfaces. This document will be fluid and will be updated as decisions are made. Minor changes occur as data inconsistent with known documentation are discovered. In the final database, data will still be flagged as dependent or independent based on the biological sampling program they were collected to differentiate between these data types so that only fishery-dependent data are transferred to ACCSP. The web-based interface development will continue under this proposed grant to facilitate data entry as well as data corrections that can be used on Windows 10 PCs. With this new modernized interface, continued maintenance of the BDB will be easier as standard upgrades to operating systems occur over time. The SQL database also offers greater flexibility to meet new data requirements that were more difficult to implement under the ASCII database format. New data verification methods will be implemented in the web-based interface with corresponding database elements to track progress through the verification process. NCDMF staff will work with NCDIT staff to complete this project. Several NCDIT staff are housed at the NCDMF Headquarters office in Morehead City, NC and will be overseeing, assisting, and facilitating this project as well as actively developing new functionality for the interface. A contractor will be hired to help complete the interface development.

The new SQL Server database and the BDB's new web-based interface will allow for frequent transfers of fishery-dependent program data from the NCDMF to the ACCSP. These transfers could also replace the need for yearly transfers of biological data from North Carolina to the TIP program by providing necessary TIP variables within the ACCSP data transmission. Those data could be retrieved by the SEFSC from the ACCSP Data Warehouse, as needed. Once the ACCSP transfer process is built and refined, the data could

be transmitted monthly which will significantly improve timeliness of NC data to TIP compared to the annual transfer that happens currently. The scope of the funded FY22 grant is specifically the portal for this data transmission and the SQL scripts to compile the data for transfer. The FY22 project is in-progress and so far has been focused on finalizing the data mappings between NCDMF and ACCSP as well as making test transmission to the temp tables at ACCSP. Work on the interface to schedule and facilitate these transfers has started. Some work to get the data into the TIP database from ACCSP may be required and is not funded under the FY22 project.

NCDIT at NCDMF has been using the Agile SCRUM methodology for software development over the last 8-10 years. Development of the BDB web-based application will also be conducted using Agile development and 3-week development Sprints. User stories to define "bite-sized" pieces of functionality from the requirements document will be created to guide the development process.

Results and Benefits

Successful fulfillment of this project will provide:
- Enhanced data entry and verification functionality for North Carolina biological program data
- Increased timeliness and cleanliness of North Carolina's biological data
- Remote access to the BDB by staff that maintain the database, as well as biologists
- The ability for the BDB to meet State security requirements
- Data that can be easily formatted to facilitate transmissions of fishery-dependent biological data from North Carolina to the ACCSP Data Warehouse which will be accessible by regional partners including SEFSC TIP staff, as needed

Geographic Location

The NCDMF Headquarters are located in Morehead City, North Carolina. This project may be performed remotely and does not require the position to be located in Morehead City. Other NCDIT contractors working for the division are located in Raleigh, North Carolina.

Data Delivery Plan

Documentation of the enhanced data entry and editing process as well as any metadata and database schema changes will be provided to ACCSP as part of the annual report. The NCDMF BDB has extensive documentation for each of the sampling programs that are stored in the database. New documentation on the enhanced database will include data mapping tables that provide a definition of each variable with respect to the old database to ensure data migration is successful and accurate. Any new stored procedures created during this project will include documentation on primary function, data tables being accessed, and corresponding variables within the procedure's SQL code.

Biological data will be submitted to ACCSP through the data transmission portal outlined in the FY2022 grant titled "North Carolina biological data transmissions to the Atlantic Coastal Cooperative Statistics Program Data Warehouse" that which began in July 2022 and should be completed by the end of 2023.

Completed Data Delivery to ACCSP

The FY2021 project will be officially wrapping up on June 30, 2023 and performance reports have been submitted as required. The annual report for FY21 will be completed by the due date. The FY23 project is set to start July 2023 and performance reports will be submitted as required.

Milestone Schedule (start date depending on time of grant award):

	Month											
Task	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Hire Contractor	X	X										
Develop requirements document	X	X	X	X	X	X	X	X	X	X	X	X
Create user stories	X	X	X	X	X	X	X	X	X	X	X	X
Interfaces for data entry and verification will be built and tested.	X	X	X	X	X	X	X	X	X	X	X	X
Finalize documentation											X	X

The contractor hired under this grant is expected to work 40 hours a week on this project. Report writing will follow the requirements of two semi-annual status reports and a final report due at the end of the grant award.

Project Accomplishments Measurement (Metrics and Achieved Goals)

Projects	Accomplishments
Update requirements document, as needed throughout project	• Document is completed and describes functionality that needs to be completed in new application
User stories are created for Agile Development	• User stories are written and document small tasks for developers to complete requirements within Sprints
Create interface for data entry	• Process completed and fully documented • Data are able to be entered into biological database
Create interface for data verification/editing	• Process completed and fully documented • QA/QC tests can be run on data • Data are able to be viewed and edited
Finalize documentation	• Documentation reflects new enhanced process and data structure

Project Personnel

Stephanie McInerny—Section Chief, NCDMF IT Section (NCDIT)
Casey Knight—Biological User Group (BUG) Chair, NCDMF
Stephen Johnson—BUG Co-Chair, NCDMF
Chris Capoccia—Applications Systems Analyst II, NCDMF IT Section (NCDIT)
Scott Smith—Biological Database Administrator, NCDMF IT Section (NCDIT)
Ashutosh Soni—.NET Developer (Contractor)
Phyllis Howard—Biological Database Clerk, NCDMF IT Section (NCDIT)
Leslie Hester— Biological Database Clerk, NCDMF IT Section (NCDIT)

Funding Transition Plan

This project should be completed within the proposed 1-year grant period. NCDIT and NCDMF staff can maintain the systems developed from this grant; therefore, subsequent years of funding are not needed. This will be the last year of maintenance requested.

FY24 Budget Narrative

The cost summary table below shows an explanation for each budget item for a one-year period. NCDIT will not charge an indirect fee for the Contractor. The cost for the developer in the summary below is based on an expert level .NET developer from NCDIT's convenience contracts.

In-kind amounts in this proposal have increased from the previous proposal. The hours represent time dedicated to this project from the NCDIT developer and BDB Administrator, who are are still responsible for maintaining the existing system until the upgrade is completed; therefore, only 8 months of their time is dedicated to new development. In addition, the contractor that was hired on the FY21 grant has been moved over to internal monies and is still 100% dedicated to this project. A new contractor will be hired to supplement this staff from the proposed grant.

FY24 Cost Summary

Category	Expense	Units	Cost	ACCSP Request	State In-Kind	Explanation
Personnel	Contractor	1	$141,981	$141,981		One Analyst @ $68.26/hr for 2,080 hrs (1 year)
	IT Section Chief	1			$37,876	$9,469/month for 4 months
	NCDIT Application Systems Analyst	1			$56,440	$7,055/month for 8 months
	NCDMF BUG Chairs	2			$19,744	Average salary of $4,936/month for 4 months (2 months each)

	NCDMF BDB Administrator	1			$48,064	$6,008/month for 8 months
	NCDMF BDB clerk	2			$12,296	$3,074/month for 4 months (2 months each)
	NCDIT Contractor	1			$141,981	$68.26/hr for 2,080 hrs (1 year)
Subtotal				$141,981	$316,401	
Fringe	Retirement, Social Security, Health Insurance				$59,440	Fringe=24.19% of salary ($42,192) plus $7,397/year for health insurance (1 month insurance = $616*28 months combined work=$17,248)
Indirect						No indirect needed for NCDIT contractors
Subtotal				$0	$59,440	
Travel				$3,500		Travel for PI to present upgraded interface and functionality at conference
Subtotal				$3,500	$0	
Supplies	Computer	1	$1,500	$1,500		Replacement laptop for contractor, if needed
Subtotal				$1,500	$0	
	Column Totals			$146,981	$375,841	Total project cost = $522,822
	Total Request					
	Percent			28%	72%	Percentage calculated from total cost

Attachment 1: Budget Narrative and Cost Summary for previously funded projects (FY2021 and FY2023)

FY21 Budget Narrative

The cost summary table below shows an explanation for each budget item for a one-year period. NCDIT will not charge an indirect fee for the Contractor.

NCDIT has convenience contracts in place that can be used to fill the budgeted position in this proposal; therefore, if money is awarded, a job posting will be sent to the temporary agencies used by NCDIT to solicit for applicants. Qualified individuals will be interviewed to select the best candidate for the position. A formal RFP will not be needed to hire a contractor for this project.

The cost for the developer in the summary below is based on the standard rate for a developer that specializes in Microsoft Dynamics CRM which is a customer relationship management software package that NCDIT has been using to replace other legacy systems within the state. If CRM is not the chosen solution for this project, the cost for the developer may be less.

FY21 Cost Summary

Category	Expense	Units	Cost	ACCSP Request	State In-Kind	Explanation
Personnel	Contractor	1	$150,000	$150,000		One Analyst @ $100.00/hr for 1,500 hrs (9 months)
	IT Section Chief	1			$26,250	$8,750/month for 3 months
	NCDIT Application Systems Analyst	1			$22,800	$5,700/month for 4 months
	NCDMF District Manager	2			$24,000	Average salary of $6,000/month for 4 months (2 months each)
	NCDMF BDB Administrator	1			$20,772	$5,193/month for 4 months
	NCDMF BDB clerk	2			$11,364	$2,841/month for 4 months (2 months each)
Subtotal				$150,000	$105,186	
Fringe	Retirement, Social Security, Health Insurance				$41,125	Fringe=29.09% of salary ($30,599) plus $6,647/year for health insurance (1 month insurance = $554*19 months combined work=$10,526)
Indirect						No indirect needed
Subtotal				$0	$41,125	
Travel				$1,000		Travel for contractor between work location and Morehead City HQ office for in-person meetings, as needed
Subtotal				$1,000	$0	
Supplies	Computer	1	$2,500	$2,500		
	External Hard Drive	1	$100	$100		
Subtotal				$2,600	$0	
	Column Totals			$153,600	$146,311	Total project cost = $299,911
	Total Request					
	Percent			51%	49%	Percentage calculated from total cost

FY23 Budget Narrative

The cost summary table below shows an explanation for each budget item for a one-year period. NCDIT will not charge an indirect fee for the Contractor. The cost for the developer in the summary below is

based on an expert level .NET developer from NCDIT's convenience contracts. This rate is what the current contractor is making and is largely different from the rate estimated in last year's proposal which was the standard rate for a developer that specializes in Microsoft Dynamics CRM (a customer relationship management software package that NCDIT has been using to replace other legacy systems within the state). CRM was not chosen as the solution for the Biological Database upgrade; therefore, the developer costs have been reduced from $100 per hour to $68.26 per hour.

In-kind amounts have increased compared to the previous year's proposal as the NCDIT developer and BDB Administrator have been committed to completing this upgrade and new interface; however, they are still responsible for maintaining the existing system until the upgrade is completed so only 8 months of their time is dedicated to new development.

FY23 Cost Summary

Category	Expense	Units	Cost	ACCSP Request	State In-Kind	Explanation
Personnel	Contractor	1	$141,981	$141,981		One Analyst @ $68.26/hr for 2,080 hrs (1 year)
	IT Section Chief	1			$37,876	$9,469/month for 4 months
	NCDIT Application Systems Analyst	1			$56,440	$7,055/month for 8 months
	NCDMF BUG Chairs	2			$19,744	Average salary of $4,936/month for 4 months (2 months each)
	NCDMF BDB Administrator	1			$48,064	$6,008/month for 8 months
	NCDMF BDB clerk	2			$12,296	$3,074/month for 4 months (2 months each)
Subtotal				$141,981	$174,420	
Fringe	Retirement, Social Security, Health Insurance				$59,440	Fringe=24.19% of salary ($42,192) plus $7,397/year for health insurance (1 month insurance = $616*28 months combined work=$17,248)
Indirect						No indirect needed for NCDIT contractors
Subtotal				$0	$59,440	
Travel				$3,500		Travel for PI to present upgraded interface and functionality at conference
Subtotal				$3,500	$0	
Supplies	Computer	1	$1,500	$1,500		Replacement laptop for contractor, if needed
Subtotal				$1,500	$0	
	Column Totals			$146,981	$233,860	Total project cost = $380,841

	Total Request			
	Percent	39%	61%	Percentage calculated from total cost

Attachment 2: Project History and Total Project Cost by Year

YEAR	TITLE	COST	RESULTS
2021	*North Carolina biological database enhancements to prepare for transmission of data to the ACCSP*	$153,600	Project currently underway; SQL database created, design decisions made for web-based interface, development started on web-based interface for viewing and editing data
2023	*North Carolina biological database enhancements to prepare for transmission of data to the ACCSP*	$146,981	Project starts in July 2023

Summary of Proposal for Ranking Purposes

Proposal Type: *Maintenance*

Program Priority

Catch and Effort: 0%

Biological Sampling: 100%

The North Carolina Biological Database (BDB) was developed in 1980 to house field sampling data from fishery-dependent and fishery-independent sampling programs. The database contains data from the 1960s to present. There are data from over 120 programs within the BDB and 18 million records. These data are used in stock assessments and fishery management plans to manage species important to the North Carolina as well as those managed by regional and federal management commissions and councils. (see pages 3, 4)

Bycatch/Species Interactions: 0%

Social and Economic: 0%

Metadata:

The NCDMF BDB has extensive documentation for each of the sampling programs that are stored in the database. New documentation on the enhanced database will include data mapping tables that provide a definition of each variable with respect to the old database to ensure data migration is successful and accurate. Any new stored procedures created during this project will include documentation on primary function, data tables being accessed, and corresponding variables within the procedure's SQL code. Documentation will be provided as part of the grant completion report. (see pages 3-6)

Project Quality Factors

Multi-Partner/Regional impact including broad applications:

Although this project only covers data for North Carolina, future transmissions of biological data to the ACCSP will benefit other partners as the data will be more readily available for data requests and stock assessments. Many species within North Carolina are managed regionally. Regional management agencies such as the Atlantic States Marine Fisheries Commission (ASMFC) and Mid-Atlantic Fishery Management Council (MAFMC) would benefit from having more access to these fishery-dependent data. (see pages 3, 4)

Contains funding transition plan and/or justification for continuance:

The goals defined in this project should be completed within the grant cycle. (see page 9)

In-kind contribution:

72% (see cost table on page 10)

Improvement in data quality/quantity/timeliness:

The project identified in this proposal will greatly improve data quality and timeliness by providing a more modernized format for the data with enhanced data entry/verification screens and workflows that will prepare North Carolina for transmitting data to the Data Warehouse. (see page 5)

Potential secondary module as a by-product:

None

Impact on stock assessment:

Although this project only covers data for North Carolina, future transmissions of biological data to the ACCSP will benefit other partners as the data will be more readily available for data requests and stock assessments. Many species within North Carolina are managed regionally. Regional management agencies such as the Atlantic States Marine Fisheries Commission (ASMFC) and Mid-Atlantic Fishery Management Council (MAFMC) would benefit from having more access to these fishery-dependent data. (see pages 3, 4)

Properly Prepared:

This proposal follows the guidelines provided in the ACCSP Funding Decision Document.

Merit:

Modernizing NCDMF's Biological Database and the front-end interfaces that allow data entry clerks, technicians, biologists, and analysts to interact with the database is crucial to the success of biological data sampling programs in North Carolina. Failures to the interfaces that interact with the ASCII database are regularly occurring which result in excessive IT time to fix and excessive wait times for biologists and technicians that need to use the data for stock assessments and fishery management plans.

Stephanie McInerny

North Carolina Division of Marine Fisheries/North Carolina Department of Information Technology
3441 Arendell Street / P.O. Box 769
Morehead City, NC 28557
(252) 808-8117
stephanie.mcinerny@ncdenr.gov

EXPERIENCE

Information Technology Section Chief (Applications Systems Manager I)   March 2020–Current
North Carolina Department of Information Technology (NCDIT), Morehead City, NC

Supervisory and Management

- Manage 15 technical staff members of IT Section at NCDMF through the North Carolina Department of Information Technology.
  - Directly supervise seven employees to include assigning and reviewing tasks, coaching, mentoring, performance reviews, encouraging enhancement of skills, time management, and hiring.
- Manage six different budgets including budgets that fund NCDMF biological staff
- Currently, overseeing several IT projects occurring simultaneously requiring daily multi-tasking, prioritization of staff and resources, planning, meetings, and organization.
- Oversee and manage applications development, biological database, and GIS staff and activities

License and Statistics Section Chief (Environmental Program Manager I)   2016–2020
North Carolina Division of Marine Fisheries (NCDMF), Morehead City, NC

Supervisory and Management

- Manage around 60 staff members of the License and Statistics Section including office and field staff located in five different offices throughout NC. Had roles in time management, coaching, mentoring, hiring, firing, disciplinary action, performance reviews, encouragement of skills, and training.
- Directly supervise seven employees to include assigning and reviewing tasks, coaching, mentoring, performance reviews, encouraging enhancement of skills, time management, and hiring.
- Manage 20 different budgets including budgets that fund Information Technology (IT) staff and projects. Monies consist of appropriations, receipts, and federal grants totaling over $3 million.
- Responsible for presenting at quarterly Marine Fisheries Commission meetings on license, commercial, and recreational data issues requiring effective communication of complex statistics and data collection programs.
- Currently, overseeing several IT projects occurring simultaneously requiring daily multi-tasking, prioritization of staff and resources, planning, meetings, and organization. Current projects using either Waterfall or Agile application development are listed below:
  Agile development projects:
  - **NCDMF Fisheries Information Network (FIN) replacement project using Agile SCRUM**
  - **NCDMF FIN-GIS for shellfish leases and pound nets** (2 similar projects)
  Waterfall development projects:
  - **NCDMF-ACCSP upload portal interface upgrade and improvement project**
  - **NCDMF Coastal Angling Program Catch U Later project** (i.e., mobile discard reporting for recreational fishermen focused on flounder)
  - **NCDMF Trip Ticket Program VESL project** (web software for seafood dealer reporting)

Data, Statistics, and Committees

- SQL Server Database Schema Design – actively review and comment on schema changes to the FIN Database proposed by developers to improve and simplify data capture and in particular, data analysis by analysts at DMF
- Perform daily data queries of FIN using SAS and SQL (through SQL Management Studio)
- Frequently querying FIN for data related to section programs, license sales, and commercial trip ticket data using SAS, SQL, R, and Crystal Reports
- Serve on the DMF Management Review Team (MRT)
- Serve on Atlantic Coastal Cooperative Statistics Program (ACCSP) Operations Committee
- Serve on ACCSP Commercial Technical committee and ACCSP Information Systems committee
- Serve as Chair of the FIN Software Change Control Board and member of IT Steering Committee.
- Serve on Coastal Recreational Fishing License (CRFL) Joint Review Team

- Serve on Rules Advisory Team (RAT) as well as several RAT subcommittees (Permit NOV subcommittee, Periodic Review Subcommittee, Shellfish Workgroup)

Trip Ticket Data Analyst (Marine Fisheries Biologist II)   **2008–2016**
North Carolina Division of Marine Fisheries (NCDMF), Morehead City, NC

IT Project Management and Documentation

- Created, led, and managed multiple IT software development projects using Waterfall. Was responsible for drafting scopes of work, database schema review, drafting data specification documents, requirements gathering, review of architectural solutions suggested by DMF IT, communication between IT and business users, prioritizing projects and budget, coordinating resources, and testing. Projects are listed below:
  - **Trip Ticket Data Upload Interface**
  - **ACCSP Automated Update**
  - **Simplification of E-Dealer data importing**
  - **Electronic Import of Quota Monitoring Data**
  - **ACCSP Upload Interface** - Principal Investigator
- Acted as Business Architect and Product Owner for NCDMF during Pega FIN replacement project
- Served as Chair of the FIN Software Change Control Board and member of IT Steering Committee.
- Wrote and/or compiled standard operating procedures and policies for the NCDMF eel monitoring program, NCDMF Biological Database extraction and analysis, and ACCSP data transmission process as well as FIN data entry procedures for Marine Patrol violation data and several Habitat and Enhancement section permits.

Data Analysis, Statistics, and Committees

- Was the primary data analyst for the NCDMF Trip Ticket Program. Performed daily commercial fishery data queries and statistical analyses using programming languages such as SAS, SQL, Microsoft Office Products (e.g., Excel and Access), and R (statistical analysis software) including weight-length regressions, nonlinear growth models, length and age compositions, CV, natural mortality, and landings trends.
- Analyzed data from the DMF Biological Database, when needed and trained staff on extraction and analysis.
- Participated as a member of plan development teams that facilitate fishery management plans for species important to North Carolina.
- Provided commercial data, analyzed life history data, wrote technical reports, and give presentations at data workshops for Southeast Data Assessment and Review (SEDAR) stock assessments for NOAA Fisheries and the Atlantic States Marine Fisheries Commission (ASMFC) as part of the life history and commercial workgroups.
- Accessed, verified, and performed quality control on ACCSP, NOAA, and NCDMF fisheries data for NC using SAS, SQL, Oracle SQL Developer, Microsoft SQL Management Studio, Crystal Reports, and R.
- Involved in training, coaching, and mentoring new and existing employees on procedures and policies of the Trip Ticket Program and SAS programming as well as counseling and mediating conflicts between staff to maintain a team environment.
- Served on the NCDMF Biological Review Team (BRT), BRT Technical Committee, BRT Biological User Group, BRT Life History Subcommittee, and BRT Editorial Subcommittee.
- Served on CRFL Joint Review Team
- Served on ACCSP Committees including Commercial Technical, Information Systems, Outreach, and Conversion Factor Subcommittee.
- Involved in interviewing over 30 applicants for a variety of NCDMF positions as well as evaluating, recruiting, selecting candidates, and hiring for positions within License and Statistics Section, Fisheries Management Section, and Protected Resources Section.

EDUCATION

July 2007   University of North Carolina Wilmington   Wilmington, NC
M.S., Marine Biology with Applied Statistics Certificate

Fall 2006   North Carolina State University   Raleigh, NC
Post Baccalaureate Studies – Quantitative Fisheries Management

December 2002   East Carolina University   Greenville, NC
B.S., Biology/Marine Biology

Proposal for funding made to the
Atlantic Coastal Cooperative Statistics Program
1050 N. Highland Street, Suite 200A-N
Arlington, VA 22201

FY24: Pilot Observer Program for Rhode Island State Waters Gillnet Fishery

Total Cost: $126,721.60

Submitted By:
Nicole Lengyel Costa
Rhode Island Department of Environmental Management
Division of Marine Fisheries
3 Fort Wetherill Road
Jamestown, RI 02835
nicole.lengyel@dem.ri.gov

JA Macfarlan
Rhode Island Department of Environmental Management
Division of Marine Fisheries
3 Fort Wetherill Road
Jamestown, RI 02835
Reuben.Macfarlan@dem.ri.gov

Applicant Name: Rhode Island Department of Environmental Management
Division of Marine Fisheries

Project Title: Pilot Observer Program for Rhode Island State Waters Gillnet Fishery

Project Type: Maintenance Project

Requested Award Amount: <mark>$126,721.60</mark>

Requested Award Period: One year after receipt of funds (July 2024 to July 2025)

Program Priority: Primary: bycatch (80%)
Secondary: catch and effort (20%)

Date Submitted: <mark>August 16, 2023</mark>

Project Supervisor: Julia Livermore, Deputy Chief, Julia.livermore@dem.ri.gov
Principal Investigator: Nicole Lengyel Costa, Principal Biologist, nicole.lengyel@dem.ri.gov
Project Staff: JA Macfarlan, Principal Biologist, Reuben.Macfarlan@dem.ri.gov
Fisheries Specialist
Seasonal Interns

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

Atlantic Coastal Cooperative Statistics Program (ACCSP) Proposal for the State of Rhode Island

Objectives:
- Continue year two of a pilot **observer program** within RI state waters for the **gillnet** fishery.
- Collect **discard data on important target species including Atlantic menhaden (*Brevoortia tyrannus*), striped bass (*Morone saxatilis*), bluefish (*Pomatomus saltatrix*), black sea bass (*Centropristis striata*), summer flounder (*Paralichthys dentatus*), winter skate (*Leucoraja ocellata*), little skate (*Leucoraja erinacea*), and spiny dogfish (*Squalus acanthias*)**. Discard data will be collected on additional species as time allows.
- **Collect effort data to characterize the fishing behavior of the Rhode Island gillnet fishery**. Data reported by gillnet fishers on commercial catch and effort logbooks will be validated by collecting effort data while at-sea including gear code, gear quantity, number of hauls, and days fished. Additional effort data currently not reported by commercial fishers will be collected including mesh size, number of panels per string, haul time, depth, and area fished (latitude/longitude).
- Analyze data collected and conduct modeling to investigate the utility of weekly aggregate limits in reducing discards, the potential for increased effort for active gillnet fishers, the size distribution of discarded target species, and the seasonality of pulse fisheries.
- Continue evaluation regarding the feasibility and value of a Rhode Island state waters observer program for all commercial gear types by continuing into year two of a pilot observer program for the Rhode Island state waters gillnet fishery.

Need:

In recent years, the RI Department of Environmental Management (RIDEM) Division of Marine Fisheries (DMF) has seen a dramatic increase in the number of requested regulatory changes submitted by commercial fishers to improve the efficiency and profitability of their fishing operations and decrease bycatch and regulatory discards. Some of these requests include implementing weekly aggregate possession limits for quota-managed species currently managed with daily limits, lifting the gillnet prohibition for the harvest and possession of striped bass in state waters, and increasing our weekly possession limits seasonally for pulse fisheries such as bluefish. While the DMF has worked with the commercial fishing industry to vet proposals such as these through our public rulemaking process, these proposals have not been adopted due to the lack of data available. Before the DMF could consider adopting such proposals, data collection on fishing behavior, effort, bycatch, and regulatory discards in state waters fisheries is necessary. These data would aid the DMF in better characterizing the potential impacts of these proposed regulatory changes, should they be adopted.

Developing a state waters observer program for all commercial fisheries in the state of Rhode Island would be a costly, time-intensive endeavor that would also require hiring several additional staff members. As a result, the DMF submitted a proposal to the FY23 ACCSP RFP proposing to conduct a pilot observer program for the state waters gillnet fleet to test the feasibility of an observer program while also developing sampling protocols and training materials. This proposal was fully funded, and the funds are anticipated on July 1, 2023. As the DMF has yet to receive funds from the FY23 award, this proposal is being submitted as a maintenance project in anticipation that at least two years of data collection will be needed to address the objectives of the proposal. **The DMF is also continuing to explore alternative funding sources should an observer program be fully implemented in Rhode Island state waters for all commercial gear types.**

<div align="center">

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

</div>

Results and Benefits:

The **data collected on effort, bycatch and regulatory discards in the Rhode Island state waters gillnet fleet** will be used by DMF staff to model the potential impacts of proposed regulatory changes submitted by the commercial fishing industry. By modeling the potential impacts of these proposals, RI stakeholders, the Rhode Island Marine Fisheries Council (RIMFC), and the RIDEM will have a better understanding of any associated risks and will be able to make more informed decisions on which proposals to recommend for adoption. Additionally, conducting this pilot scale observer program on the RI state waters gillnet fleet will provide the DMF with an opportunity to test the feasibility of conducting such a program and allow for the development of sampling protocols and training materials to be used.

Although the geographical scope of this proposal is confined to Rhode Island state waters, the collection of this data will be of great value to many ACCSP partners and species-specific stock assessments. **The Rhode Island gillnet fleet is part of the New England Extra-Large-Mesh Gillnet Fleet and New England Gillnet Fleet, both in the top quartile of the FY24 Bycatch Matrix contained in the ACCSP Request for Proposals (RFP). Several of our target species are also contained in the top quartile of the FY24 Biological Matrix contained in the ACCSP RFP including black sea bass, Atlantic menhaden, and spiny dogfish. Although striped bass and bluefish are not in the top quartile of the Biological Matrix, the following are research needs or recommendations from species-specific management documents that this proposal addresses:**

- **Amendment 7 to the Interstate Management Plan for Atlantic Striped Bass states in section 3.7 – Bycatch Data Collection Program (ASMFC, 2022):**
  - **States should collect data from commercial fisheries on the number of fish being discarded from commercial gears that either target or encounter striped bass by implementing at-sea observer coverage.**
  - **States with commercial fisheries should implement observer coverage in state waters on 2-5% of trips.**
- **Amendment 2 to the Bluefish Fishery Management Plan states in section 6.2 – Research and Data Needs (ASMFC, 2021):**
  - **The stock assessment assumption of zero discards in the commercial fishery should be investigated.**

Data Delivery Plan: Data will be submitted to ACCSP as soon as a platform for submitting bycatch and discard data is made available to state partners. Data will be made available to any state partner upon request and will be submitted for inclusion in individual species stock assessments during the benchmark stock assessment process.

Completed data Delivery to ACCSP: Funds from the FY23 proposal <mark>were received</mark> on July 1, 2023. As such, no data <mark>collection has just started</mark> for the FY23 proposal. Data will be made available <mark>in the progress report and upon request</mark>.

Approach:

The following outlines the approach that DMF staff will take to complete the proposed work regarding personnel, outreach, data collection, and analysis.

<center>

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

</center>

Personnel:

The DMF contracted a full-time Fisheries Specialist I to work out of the DMF offices in Jamestown, RI as part of the FY23 new proposal. This contract position will be maintained throughout this maintenance project to conduct at-sea data collection. The employee has gone through the following:

- Standard DMF onboarding process
- At-sea vessel safety training
- Species identification training
- Fisheries data collection and data entry training
- Training on the RI gillnet fleet participants, frequently landed species, and fishing practices

The employee was provided with foul weather gear, a laptop computer, and supplies necessary to conduct at-sea data collection.

Outreach:

DMF staff will continue to communicate all aspects of this project to gillnet fishers who fish in state waters to inform them of our plans and get their feedback. DMF does not anticipate any challenges in gaining participation and achieving our sampling targets.

The DMF will dedicate a page on our website to the project, discuss the proposed project at our finfish regulatory workshops in 2023 and early 2024, and present an overview of the project to our RIMFC. DMF staff will send a letter to all fishers who reported fishing gillnets in 2023 to inform them that the pilot project will continue in 2024. DMF staff will reach out to each fisher individually to inquire if they plan on fishing in state waters, federal waters, or both. **Any fishers who plan to fish exclusively in federal waters will be removed from the pool of fishers. This will ensure there is no overlap between our pilot observer program and the federal waters observer program.** For reference, 18 commercial fishers reported using gillnets in 2022.

Data Collection:

Data will be collected for this project from July 2024 through October 2024. May – June 2024 sampling will be covered under the previously funded FY23 proposal. A target of **5% sampling coverage per week will be used to determine the number of trips sampled each week, using data from 2023 as a proxy. The value of 5% was chosen as Amendment 7 to the Atlantic Striped Bass Interstate Fishery Management Plan recommended sampling 2 – 5% of trips, the DMF chose the higher threshold. Additionally, the ACCSP Atlantic Coast Fisheries Data Collection Standards (2012) document defines adequate sampling as 2 – 5 % observer coverage (ACCSP, 2012).** Analysis of 2022 data indicates that the number of required trips per week will range from 1 – 3. Each licensed fisher will be assigned a random number and on Friday of each week, DMF staff will use a random draw to select 1 – 3 fishers for the following week. These fishers will be contacted on Friday and notified that they have been selected to have a trip observed for the following week. DMF will remain in close communication with these fishers the following week to coordinate trips and ensure that the required number of trips are completed. Should it be determined that a fisher will not be fishing at all in a selected week, an alternate fisher will be selected.

Sampling protocols will be similar to those utilized by the Northeast Fisheries Observer Program (NEFOP) where detailed information will be collected for each haul and **individual weights and lengths will be collected for all target species to the extent practical and for non-target species as time allows**. Sub-sampling procedures will be used for high-volume catches and notes will be made

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

regarding the condition of discarded fish (i.e., dead, alive, unknown). Any interaction with endangered or threatened species will be documented as well any marine mammal interactions.

Analysis:

All data collected at-sea will be entered into an MS Access database by DMF staff. The statistical software R, ArcGIS, and MS Excel will be used for all data analysis. The following details the analyses that will be performed to address specific regulatory proposals.

Striped bass gillnet prohibition

Trip and haul data including time of year, depth, mesh size, gear quantity, and area will be explored as factors affecting the catchability of striped bass in gillnets. Length frequency data of striped bass will be used to determine how many legal and sub-legal sized striped bass are encountered on each trip. These data will be used to determine if lifting of the striped bass gillnet prohibition will increase dead discards, increase quota utilization rates, or increase effort. Area, seasonal, and gear restrictions will be explored as potential tools to limit potential impacts.

Possession limits for target species

Regulatory discards of target species on each trip will be analyzed and extrapolated to estimate total landed catch and discards of each target species for each week. Modeling simulations will be performed to test the effect of weekly aggregate limits on effort and discards for species currently managed with daily possession limits (i.e., to determine if weekly aggregate limits would significantly reduce effort and regulatory discards). Simulations will also be performed to determine if increasing weekly possession limits for pulse fisheries such as bluefish would decrease effort and discards.

Geographic Location: This project will be conducted by RIDEM DMF staff out of Jamestown, RI. At-sea sampling will occur on vessels fishing with commercial gillnets in Rhode Island state waters.

Table 1. Milestone Schedule:

Activity	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Annual vessel safety training	X	X										
Conduct at-sea sampling	X	X	X	X							X	X
Analyze data					X	X	X	X	X	X		
Report writing								X	X	X		

Table 2. Project Accomplishments Measurement:

Goal	Metric
Safety training	Vessel safety course completed
At-sea sampling	5 % weekly trip coverage
Data analysis	Analysis and modeling in R
Report writing	Report submitted to ACCSP

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

Table 3. Project History Table:

Funding Year	Title	Funded Amount	Total Project Cost
FY2023 - New	FY23: Pilot Observer Program for Rhode Island State Waters Gillnet Fishery	$118,519.58	$136,652.04

Table 4. Project Accomplishment Metrics and *Achieved Goals*:

Goal	Metric	Status
Safety training	Vessel safety course completed	Completed
Training materials	PDF document of protocols	In Process
At-sea sampling	5 % weekly trip coverage	In Process
Data analysis	Analysis and modeling in R	Not Yet Started
Report writing	Report submitted to ACCSP	Not Yet Started

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

Table 5. Cost Summary (Budget):

Budget Category	Federal ACCSP	In-Kind	Total
a. Salary			$ -
Deputy Chief (5%)	$ -	$ 5,122.55	$ 5,122.55
Principal Biologist (5%)	$ -	$ 4,071.27	$ 4,071.27
Principal Biologist (15%)	$ 14,012.10	$ -	$ 14,012.10
Fisheries Specialist (100%)	$ 59,960.25	$ -	$ 59,960.25
RIDEM Seasonal Intern (10%)	$ -	$ 1,200.00	$ 1,200.00
b. Fringe			
Deputy Chief (5%)	$ -	$ 3,376.05	$ 3,376.05
Principal Biologist (5%)	$ -	$ 2,643.69	$ 2,643.69
Principal Biologist (15%)	$ 6,337.65	$ -	$ 6,337.65
Fisheries Specialist (100%)	$ 21,737.10	$ -	$ 21,737.10
c. Travel	$ 1,055.34	$ -	$ 1,055.34
d. Supplies	$ 6,135.73		$ 6,135.73
e. Training	$ 1,515.00	$ -	$ 1,515.00
f. Total Direct	$ 110,753.17	$ 16,413.56	$ 127,166.73
g. Indirect			
ASMFC (15%)	$ 12,254.60	$ -	$ 12,254.60
RIDEM (18.25%)	$ 3,713.83	$ 2,995.47	$ 6,709.30
h. Total	$ 126,721.60	$ 19,409.03	$ 146,130.64
i. Percentage	87%	13%	100%

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

FY24 COST DETAILS:
Description of budget categories and expenses for this project
Overall match: RIDEM is providing 13% of services as in-kind contribution.

a. **Salary:** The DMF project team has several staff members working in a collaborative effort to accomplish project objectives. Each staff member will spend a percentage of their time on the project as follows:

   From ACCSP:
   i. **Principal Biologist**: 15% funded position to act as the principal investigator and may conduct initial observer trips; 15% of salary ($93,414) for one year = $14,012.10.
   ii. **Fisheries Specialist**: 100% funded position (contracted through ASMFC) to serve as the primary fisheries observer; 100% of salary for one year = $59,960.25.

   From RIDEM as In-kind:
   i. **Deputy Chief**: 5% funded to provide project oversight and staff management; 5% salary ($102,451) for one year = $5,122.55.
   ii. **Principal Biologist**: 5% funded position to act as support to the principal investigator and provide assistance on field work as needed; 5% salary ($81,425.40) for one year = $4,071.27.
   iii. **Intern**: 10% funded seasonal intern to assist with data entry. Approximately 10% of six-month salary = $1,200.

b. **Fringe:**
Annual fringe benefit rates for employees vary depending upon the employee's pay rate and what the employee chooses for health care. This may include the following:

Retirement 24%
Deferred Compensation 0.4%
FICA 6.2%
Medicare 1.45%
Health care $21,937/year
Dental $1,132/year
Vision $165/year
Assessed Fringe 4.25%
Retiree Health 6.75%

   From ACCSP:
   i. **Principal Biologist**: Total annual fringe benefits for the Principal Biologist are $42,251. Fringe benefits for 15% of their time are $6,337.65.
   ii. **Fisheries Specialist**: 100% of annual fringe benefits for the Fisheries Specialist for one year = $21,737.10.

   From RIDEM as In-kind:
   i. **Deputy Chief**: Total annual fringe benefits for the Deputy Chief are $67,521. Fringe benefits for 5% of their time are $3,376.05.

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

     ii.   **Principal Biologist**: Total annual fringe benefits for the Principal Biologist are $52,873.80. Fringe benefits for 5% of their time are $2,643.69.

c. Travel: Includes for this grant includes mileage to travel roundtrip from the DMF Office located in Jamestown, RI to the Port of Galilee in Narragansett, RI. The ASMFC mileage rate of $0.585/mile was used to travel 44 miles roundtrip with a total of 41 trips. A total of 41 trips was calculated based on 5% weekly coverage using 2022 data as a proxy.

d. Supplies: Includes for this grant will be for the Fisheries Specialist to conduct at-sea sampling on-board commercial fishing vessels. Supplies include two (2) Rite in the Rain notebooks ($7.51), twelve (12) pairs of sampling gloves ($14.98), Rite in the Rain paper ($113.24), and a Marel scale that compensates for motion ($6,000).

e. Training: Includes annual at-sea vessel safety training ($1,515).

g. Indirect: The RIDEM indirect rate for FY24 is 18.25%. The ASMFC indirect rate for the contracted employee is 15%.

    From ACCSP:
      i.   **Principal Biologist**: 18.25% of the 15% funded position salary ($14,012.10) and fringe ($6,337.65) is $3,713.83 per year.
     ii.   **Fisheries Specialist**: 15% of the 100% funded position salary ($59,960.25) and fringe ($21,737.10) contracted through ASMFC is $12,254.60 per year.
    From RIDEM as In-kind:
      i.   **Deputy Chief**: 18.25% of the 5% funded position salary ($5,122.55) and fringe ($3,376.05) is $8,498.60 per year.
     ii.   **Principal Biologist**: 18.25% of the 5% funded position salary ($4,071.27) and fringe ($2,643.69) is $6,714.96 per year.
    iii.   **Intern**: 18.25% of the 10% funded seasonal intern ($1,200) is $219.00 per year.

FY 23 COST DETAILS:
Description of budget categories and expenses for this project
Overall match: RIDEM is providing 13% of services as in-kind contribution.

1. Personnel: The DMF project team has several staff members working in a collaborative effort to accomplish project objectives. Each staff member will spend a percentage of their time on the project as follows:

From ACCSP:
1. Principal Biologist: 15% funded position to act as the principal investigator and may conduct initial observer trips; 15% of salary ($89,128) and fringe benefits ($41,265) for one year = $19,558.95.
2. Fisheries Specialist: 100% funded position (contracted through ASMFC) to serve as the primary fisheries observer; 100% of salary ($57,105) and fringe benefits ($20,702) for one year = $77,807.

<div align="center">

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

</div>

From RIDEM as In-kind:
1. Deputy Chief: 5% funded to provide project oversight and staff management; 5% salary ($100,436) and fringe benefits ($53,693) for one year = $7,706.45.
2. Principal Biologist: 5% funded position to act as support to the principal investigator and provide assistance on field work as needed; 5% salary ($77,548) and fringe benefits ($50,356) for one year = $6,395.20.
3. Intern: 10% funded seasonal intern to assist with data entry. Approximately 10% of six-month salary = $1,200.

Fringe benefits
Annual fringe benefits rates for all employees include the following:

Retirement 24%
Deferred Compensation 0.4%
FICA 6.2%
Medicare 1.45%
Health care $21,937/year
Dental $1,132/year
Vision $165/year
Assessed Fringe 4.25%
Retiree Health 6.75%

- Total annual fringe benefits for the Deputy Chief are $53,693. Fringe benefits for 5% of their time are $2,684.65
- Total annual fringe benefits for the Principal Biologist (project PI) are $41,265. Fringe benefits for 15% of their time are $6,189.75.
- Total annual fringe benefits for the additional Principal Biologist are $50,356. Fringe benefits for 5% of their time are $2,517.80.

Indirect
The RIDEM indirect rate for FY23 is 18.5%. The ASMFC indirect rate for the contracted employee is 15%

From ACCSP:
1. Principal Biologist: 18.5% of the 15% ($19,558.95) is $3,618.41 per year.
2. Fisheries Specialist: 15% of the 100% funded position ($77,807) contracted through ASMFC is $11,671.05 per year.
From RIDEM as In-kind:
1. Deputy Chief: 18.5% of the 5% funded position ($7,706.45) is $1,425.69 per year.
2. Principal Biologist: 18.5% of the 5% funded position ($6,395.20) is $1,183.11 per year.
3. Intern: 18.5% of the 10% funded seasonal intern ($1,200) is $222.00 per year.

2. Equipment & Supply: Equipment and supplies for this grant will be for the Fisheries Specialist to conduct at-sea sampling on-board commercial fishing vessels. Supplies include at-sea vessel

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

safety training, a set of foul gear (bibs, pullover, boots, gloves), fish baskets, measuring board, bench scale, Rite in the Rain paper, and a laptop computer.

3. Travel: Travel for this grant includes mileage to travel roundtrip from the DMF Office located in Jamestown, RI to the Port of Galilee in Narragansett, RI. The ASMFC mileage rate of $0.585/mile was used to travel 44 miles roundtrip with a total of 41 trips. A total of 41 trips was calculated based on 5% weekly coverage using 2021 data as a proxy.

<center>**SUMMARY OF PROPOSAL FOR RANKING**</center>

Proposal Type: Maintenance

Primary Program Priority: Bycatch/Species Interactions (80%)
- Bycatch and regulatory discard data (number, length, weight) will be collected from the Rhode Island gillnet fleet on important target species including Atlantic menhaden, striped bass, bluefish, black sea bass, summer flounder, winter skate, little skate, and spiny dogfish. Data will be collected on additional species as time allows.
- The Rhode Island gillnet fleet is part of the New England Extra-Large-Mesh Gillnet Fleet and New England Gillnet Fleet, both in the top quartile of the FY24 Bycatch Matrix contained in the ACCSP Request for Proposals (RFP).
- Several of our target species including black sea bass, Atlantic menhaden, winter skate, and spiny dogfish are in the top quartile of the FY24 Biological Matrix contained in the ACCSP RFP.

Data Delivery Plan: Data will be submitted to ACCSP as soon as a platform for submitting bycatch and discard data is made available to state partners. Data will be made available to any state partner upon request and will be submitted for inclusion in individual species stock assessments during the benchmark stock assessment process.

Multi-Partner/Regional Impact: Although the geographical scope of this proposal is confined to Rhode Island state waters, the collection of this data will be of great value to many ACCSP partners and species-specific stock assessments.
- Amendment 7 to the Interstate Management Plan for Atlantic Striped Bass states in section 3.7 – Bycatch Data Collection Program (ASMFC, 2022):
  - States should collect data from commercial fisheries on the number of fish being discarded from commercial gears that either target or encounter striped bass by implementing at-sea observer coverage.
  - States with commercial fisheries should implement observer coverage in state waters on 2-5% of trips.
- Amendment 2 to the Bluefish Fishery Management Plan states in section 6.2 – Research and Data Needs (ASMFC, 2021):
  - The stock assessment assumption of zero discards in the commercial fishery should be investigated.

Contains Funding Transition Plan: This is a pilot project that will be used to test the feasibility of a Rhode Island state waters observer program for all commercial gear types. This pilot project may warrant several years of data collection and therefore Rhode Island anticipates submitting this proposal for funding as a new project for one year, and up to but not exceeding, two additional years as a maintenance project. At the completion of this pilot project, Rhode Island will evaluate the feasibility of a full-scale state waters observer program and plans to apply for funding from an alternate source to fund the project moving forward.

In-Kind Contribution: In-kind contribution for this project is <mark>13%</mark> as stated in the budget table.

<center>**Bold comments intended to help with ranking**
Highlighted text reflects changes from the original submission</center>

Improvement in Data Quality/Quantity/Timeliness: This project will collect data that addresses priorities in the FY24 Bycatch and Biological Matrices. Additionally, data collected will address several research recommendations identified in species-specific management documents.

Potential Secondary Module: Catch and Effort (20%)
- Effort data will be collected to characterize the fishing behavior of the Rhode Island gillnet fishery.
- Data reported by gillnet fishers on commercial catch and effort logbooks will be validated by collecting effort data including gear code, gear quantity, number of hauls, and days fished.
- Additional effort data currently not reported by commercial fishers will be collected including mesh size, number of panels per string, haul time, depth, and area fished (latitude/longitude).

Impact on Stock Assessment: Data collected as part of this project will address questions regarding the quantity and size distribution of commercial discards occurring the New England gillnet fleet. Information on commercial discards remains limited for many stock assessments and in some cases is assumed to be zero but has not been validated in state waters.

Properly Prepared: This proposal meets the requirements as specified in the Funding Decision Document.

Merit: This project will sample from a fleet in the FY24 Bycatch Matrix, will collect data from several species in the FY24 Biological matrix, and will satisfy several species-specific research recommendations. This project in innovative in that it is attempting to test the feasibility of a state waters observer program. In federal waters, NEFOP collects essential data on bycatch and regulatory discards but fishing operations occurring in state waters are not part of this effort. This project will not only test the feasibility of having such a program in state waters, but it will fill large data gaps identified in several stock assessments and lay the groundwork for other ACCSP partners who may wish to implement a similar program.

LITERATURE CITED:

Atlantic Coastal Cooperative Statistics Program. (2012). *Atlantic Coast Fisheries Data Collection Standards*.

Atlantic States Marine Fisheries Commission. (2021). *Amendment 2 to the Interstate Fishery Management Plan for Bluefish*. https://www.asmfc.org/uploads/file/61b39d5aBluefishAmendment2_Aug2021.pdf

Atlantic States Marine Fisheries Commission. (2022). *Amendment 7 to the Interstate Fishery Management Plan for Atlantic Striped Bass*.

Appendix A: Curriculum Vitae for Principal Investigator

Nicole Lengyel Costa   nicole.lengyel@dem.ri.gov   401-423-1940

PROFESSIONAL EXPERIENCE

RI Department of Environmental Management, Jamestown, RI, 05/10/09 – Present
Principal Biologist (Marine)
Duties:

- Principal Investigator (PI) for the finfish age and growth study responsible for overseeing the program and staff including a principal biologist, a fisheries technician, and seasonal interns
- PI for the Narragansett Bay Atlantic Menhaden monitoring survey responsible for management of the commercial menhaden fishery within RI state waters
- Write grant narratives and create grant budgets for marine fisheries projects and programs
- Review grant proposals and rank proposals to receive federal funding through Atlantic Coastal Cooperative Statistics Program (ACCSP) and NOAA Fisheries
- Former lead on offshore renewable energy projects. Played a vital role in all aspects of the RI Ocean SAMP and the permitting and construction of the Block Island Wind Farm
- Support Deputy Chief on matters pertaining to the New England Fishery Management Council (NEFMC) small mesh multispecies (whiting) plan
- Current Membership on various technical committees/panels: Atlantic States Marine Fisheries Commission (ASMFC) Striped Bass Technical Committee (TC) (former chair), ASMFC Striped Bass Plan Development Team (PDT), ASMFC Striped Bass Plan Review Team (PRT), ASMFC Menhaden PRT, ASMFC Menhaden PDT, ASMFC Ageing committee, ASMFC Northeast Area Monitoring and Assessment Program (NEAMAP) Operations committee (chair), ASMFC Bluefish TC, ASMFC Bluefish PRT, Mid-Atlantic Fishery Management Council (MAFMC) Bluefish monitoring committee (MC), ACCSP Operations committee (chair), ACCSP Biological Review Panel (former chair), ACCSP Bycatch Prioritization committee (former chair), NEFMC Whiting PDT
- Previous Membership on various technical committees/panels: ASMFC Weakfish TC, ASMFC Bluefish Benchmark Stock Assessment Working Group, ASMFC Artificial Reefs committee, NOAA Fisheries Red hake Stock Structure Working Group
- Participate in benchmark stock assessments and stock assessment updates including complex analysis and/or modeling, and writing of technical/scientific reports for peer-review
- Previously in charge of RI quota monitoring tracking via SAFIS dealer reports and RI seafood dealer compliance tracking including creation of an automated process through the statistical software R
- Prepare and submit annual fishery compliance reports
- Present annual reports including fisheries data and analytical results to Rhode Island stakeholders (RIDEM public workshops) and Board members at ASMFC Board Meetings
- Marine Fisheries information management team leader in charge of promulgation of RI marine fisheries regulations and all storage/IT related issues including running public meetings in-person and virtually
- Serve as professional reviewer for peer-reviewed journal articles as requested

Bold comments intended to help with ranking
Highlighted text reflects changes from the original submission

Skills developed: 15 years of Marine Fisheries experience working for the state of Rhode Island, Strong teamwork and leadership skills as chair of many committees; Experience in giving public presentations and fielding questions; Supervisory experience though overseeing age and growth project staff and seasonal interns as well as training new staff; Fisheries Management experience by attending and participating in ASMFC Board meetings, ASMFC and ACCSP technical committees and panels, RI promulgation of regulations process, and Rhode Island Marine Fisheries Council (RIMFC) meetings; Computer and statistical skills (R, SPSS, Microsoft software, ASAP, NOAA Fisheries Toolbox); Field work experience on a variety of fisheries surveys.

University of Rhode Island Graduate School of Oceanography, Narragansett, RI, Feb. 2004 – 05/09/09
Laboratory Technician/Marine Research Assistant I
Duties:
- Managed all aspects of the benthic ecology laboratory including analyszing Naturalist dredge samples and bottom photos taken on annual benthic habitat surveys
- Managed study database using MS Excel and Access; Performed statistical analysis of Naturalist dredge data
- Supervised, trained, and delegated tasks to undergraduate student help
- Performed genetic analyses on colonial ascidian tissue samples including DNA extraction, primer design, polymerase chain reaction (PCR), PCR clean-up, gel electrophoresis, and DNA sequence analysis

Scientist: Georges Bank Benthic Habitat Survey
Duties:
- Participated in and helped organize four benthic habitat research cruises spanning 10-14 days on board NOAA fisheries research vessels (R/V Delaware II and FSV Henry B. Bigelow).

RI Department of Environmental Management, Providence, RI, June 2005 -August 2005
Seasonal Policy Intern
Duties:
- Participated in many aspects of the Greenwich Bay restoration project; Daily tasks included: gathered tax parcel data for restoration sites; managed data in MS excel; created project maps in Arcmap; performed field site investigations

EDUCATION
University of Rhode Island, Kingston, RI
　　　PhD candidate, Marine Affairs

University of Rhode Island, Graduate School of Oceanography, Narragansett, RI
　　　Master of Science Degree, Biological Oceanography - May 2013

University of Rhode Island, Kingston, RI
　　　Bachelor of Science Degree, Biological Sciences - December 2005

The School for Field Studies (Boston University), Queensland, Australia
　　　Rainforest Studies – September 2004 – December 2004

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL
4055 Faber Place Drive, Suite 201, North Charleston SC 29405
Call: (843) 571-4366 | Toll-Free: (866) SAFMC-10 | Fax: (843) 769-4520 | Connect: www.safmc.net

Melvin Bell, Chair | Carolyn N. Belcher, Ph.D., Vice Chair
John Carmichael, Executive Director

August 18, 2023

Atlantic Coastal Cooperative Statistics Program
1050 N. Highland St. Ste. 200 A-N
Arlington, VA 22201

We are pleased to submit the proposal titled, "FY24: Expansion of the FISHstory Citizen Science Project." It is being submitted as a Year 1 Maintenance proposal. The FISHstory pilot project was developed through the SAFMC's Citizen Science Program. It uses historic photos from the 1940s-1970s to document for-hire catch and size composition for a time before recreational catch monitoring programs were established in the South Atlantic region. This proposal will build on the work done through the FY23 ACCSP grant. It will continue many of the same tasks - expanding the geographic and temporal scope of the project by compiling, archiving, and analyzing additional historic photos from multiple fleets, geographic regions, and from an expanded time range. Two new objectives are being incorporated into the FY24 proposal – to begin development of abundance indices from the historic images for King Mackerel and Red Snapper and to explore incorporation of the length determination protocol into the Zooniverse platform. The data collected through these efforts will provide additional catch, effort, and length data on the recreational for-hire sector during its nascent period which will offer researchers and managers an understanding of long-term changes in the fisheries and fish populations.

This proposal has been revised based on the reviewers' feedback. In the original proposal, reviewers asked that we remove any past highlighted text from the FY23 proposal before final submission. In this submission, the bold text indicates sections that help with the ranking process and green highlighted text indicates changes from our initial submission.

The FY24 FISHstory proposal would not benefit from receiving funding earlier than the usual disbursement in Spring 2024. We received the FY23 funding in July 2023. The FY24 proposal builds on the work done in the FY23 project, so we need to complete the FY23 project tasks before we can start on the FY24 proposal.

Please let us know if you have any questions or would like any additional information.

Best,

Julia Byrd
South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
North Charleston, SC 20405
Julia.byrd@safmc.net

Applicant Name: South Atlantic Fishery Management Council (SAFMC)

Project Title: FY24: Expansion of the FISHstory Citizen Science Project

Project Type: Maintenance – Year 1

Requested Award Amount: $123,068 (ACCSP Share: $86,815; Partner Share: $36,253)

Requested Award Period: One year upon receipt of funds

Submission Date: August 18, 2023

Principal Investigators: Julia Byrd, SAFMC and Jie Cao, North Carolina State University

Collaborators: Chip Collier and Allie Iberle, SAFMC
Ken Brennan and Kyle Shertzer, NOAA Southeast Fisheries Science Center

Photo from the Marianne in September 1965 archived through the FISHstory project. Credit: Rusty Hudson, Hudson, Stone & Timmons families.

OBJECTIVES:

- Expand geographical and temporal range of the FISHstory citizen science project in support of developing abundance indices for stock assessments of South Atlantic species
- Improve efficiency of data collection and photo processing
- Begin development of abundance indices for Red Snapper and King Mackerel
- Estimate length compositions for multiple species using the protocols developed during the pilot project with focus on Red Snapper and King Mackerel
- Explore incorporation of the length determination protocol into the Zooniverse platform
- Implement an outreach and engagement strategy to retain FISHstory's current volunteer base and recruit new users

NEED:

Stock assessments, which provide critical information to guide fishery management, rely on historical time-series information to make inferences about how fish stocks have responded to fishing activities and technological advancements. Relative abundance indices, e.g., catch per unit effort, and size and age compositions are two main types of data that are commonly used in fisheries stock assessments. However, these data are rarely available to describe the beginning of exploitation. Consequently, stock assessments often start from the year when these data are available and/or make assumptions about the status prior to that year. Such assumptions on historic stock abundance and size and age composition can have a significant influence on the inferences about fish population, e.g., productivity. Lack of historical information about abundance and size composition of exploited species can result in shifting baselines, against which modern populations are benchmarked. McClenachan et al. (2012) and Rosenberg et al. (2005) demonstrated that omission of relevant historical information typically led to overestimated abundance, underestimated recovery targets, and overestimated fisheries quotas. For instance, excluding the earliest 27 years of time series data in the Atlantic cod assessment resulted in reductions in estimates of maximum level of spawning stock biomass and long-term average biomass (McClenachan et al. 2012).

In the South Atlantic, few fishery-dependent surveys were in existence prior to the 1970s; those that existed were limited in scope and lacked comprehensiveness and continuity. Monitoring of the recreational headboat fishery began in the 1970s, and monitoring of private and charter boat fishing began in the early 1980s. However, there is indication that recreational fisheries were already operating in the region (Clark 1962; U.S. Department of the Interior et al. 1991). **Therefore, for most South Atlantic species (e.g., Red Snapper), traditional abundance indices and size and age composition data are not available for the years prior to 1970, when fisheries had already begun. In fact, for a species such as Red Snapper, the highest commercial landings on record occurred in the 1950s and 1960s. Lack of historical data**

may impair our ability to measure and understand long-term changes, to set meaningful targets for management and formulate stock rebuilding plans, and to better understand nonstationarity or regime shifts in stock productivity (Rosenberg et al. 2005, McClenachan et al. 2012).

Many stock assessments in the South Atlantic region start prior to the 1970s (e.g., SEDAR 73 South Atlantic Red Snapper, SEDAR 38 Update South Atlantic King Mackerel). To account for the lack of information prior to this time period, stock assessment scientists rely on species ratios and catch estimates from other sectors as proxies to estimate landings; alternatively modern landings trends are regressed back in time to recreate historical landings (SEDAR 2015). Historic photos have the potential to provide quantifiable species and length composition data at a point in time when fishery dependent surveys of the for-hire fleet did not exist (McClenachan 2009).

Using historic photos to improve recreational catch and size composition information is a 2021-2023 research priority for the SAFMC's Citizen Science Program. It addresses ACCSP recreational priorities #2 – 'Comprehensive for-hire data collection and monitoring' and #5 – 'Biological sampling for recreational fisheries separate from MRIP APAIS' by improving historic catch and effort and biological data from the for-hire sector prior to when fishery dependent catch programs were established in the South Atlantic region. This also matches research recommendations from recent stock assessments for important recreational species including Black Sea Bass, Cobia, Gray Triggerfish, and Red Snapper (SEDAR 2011, 2013, 2016, 2017, and 2023).

FISHstory, a pilot citizen science project, aiming to address this historic data gap, was completed in 2022. FISHstory was developed under the SAFMC's Citizen Science Program. This novel project successfully developed a standardized protocol for archiving and analyzing historic photos from the 1940s to 1970s from a for-hire fleet based in Florida to describe the beginnings of the South Atlantic for-hire fishery. The project had three primary components: digitizing and archiving historic fishing photos, analyzing historic photos to estimate for-hire catch composition and effort using crowdsourcing, and developing a method to estimate length distributions from historic photos. Through the pilot project, over 1,370 historical images from Daytona Beach, Florida were digitized and archived. The project established the FISHstory interface on Zooniverse, an online crowdsourcing platform, and developed an electronic data collection protocol using crowdsourcing to analyze historical catch images to determine historical species composition. This method is more cost-effective than traditional analysis techniques and allows for larger volumes of data to be collected in a more efficient manner. The protocol trained volunteers to identify and count the fish and people in the photos using online tutorials and training materials. Each photo was classified by multiple volunteers and when there was substantial disagreement among volunteers,

a Validation Team, composed of fishermen and scientists, verified species identifications and counts. Through the pilot, over 2,100 volunteers analyzed 1,000 photos which provided information from daily catches of a Florida fleet including species composition, total number by species or species group, and number of anglers per trip. The pilot also verified the feasibility of using an open-source image analysis software to determine historical length estimates. The method developed estimated fish length in the photos using the lumber in the leaderboards as a scalar. During the pilot project, all 1,374 photos were reviewed, King Mackerel were measured when present, and length compositions were produced.

The pilot FISHstory project demonstrated an opportunity to provide information on historical catch, fishing effort, and length composition for years before dedicated fishery-dependent monitoring. The data collected through this proposal can be integrated into the fishery dependent database and used to develop abundance indices for years during which they are not available. The extended historic time-series of abundance indices can potentially improve the assessments of South Atlantic species. However, in order to develop reliable abundance indices and include them in the assessments, more photos need to be collected and analyzed and a protocol for standardizing catch and effort data needs to be developed. The existing data collected from the FISHstory project are not likely to produce representative abundance indices of South Atlantic fish stocks because the data were collected from one fleet in one area, i.e., Daytona Beach, Florida. Additionally, the photos collected in the pilot FISHstory project were from the 1940s to 1970s, which covered a time period when both King Mackerel and Red Snapper had decreasing spawning stock biomass and increasing fishing mortality rate (SEDAR 38 Update 2019, SEDAR 73 2021). To make the historical abundance indices more useful and informative in the assessment, the historical indices need to be calibrated to existing modern indices used in the assessments. This will result in a complete time-series abundance index, allow better estimation of the productivity of the stock, and provide better information on the range of exploitation and population levels. Monitoring of the recreational headboat fishery began in the 1970s, and the headboat index would be a good candidate modern index. To calibrate historical indices to the headboat index, photos from the 1980s that overlap in time with the headboat survey are needed.

Through FY23 funding, we will build on the FISHstory pilot project's success by expanding FISHstory's geographic and temporal range, improving the efficiency of data collection and photo processing using lessons learned through the pilot, and estimating length composition for multiple species. The FY23 project is anticipated to begin in July 2023 when funding is received. To expand the spatial and temporal coverage of the project, we will focus on collecting and archiving photos from across the South Atlantic region between the 1940s and 1980s. Through the pilot project, several fishermen across the South Atlantic have indicated they have historical photos they would be willing to share with the FISHstory project. To gather photos, we will hold five FISHstory scanning events

in conjunction with SAFMC related meetings. We will hold scanning events at the fall 2023 Snapper Grouper, Mackerel Cobia, and Dolphin Wahoo Advisory Panel meetings, as well as the September and December SAFMC 2023 meetings. We have already begun promoting these events with advisory panel members at their spring 2023 meetings. Additionally, we are working to identify other sources for historic photos, such as local history museums and libraries (e.g. NC History Center in Manteo, NC), NOAA Central Library, and Smithsonian archives.

This proposal will continue and expand on the work done through the FY23 funding. We will continue working to expand FISHstory's geographic and temporal range, improve the efficiency of data collection and photo processing, estimate length composition for multiple species, explore incorporation of the length determination protocol into Zooniverse, and begin development of abundance indices for Red Snapper and King Mackerel.

RESULTS and BENEFITS:
This proposal will build on the success of the FISHstory pilot project which was developed under the SAFMC's Citizen Science Program. The project used an innovative citizen science approach to gather data from historic photos that serve as an untapped source of biological data for years prior to dedicated catch monitoring programs. This proposal aims to build on the pilot and work completed through the FY23 funding. It will expand the geographical and temporal scope of the pilot project by continuing to collect, compile, archive, and analyze additional historic photos from multiple fleets, geographic regions, and from an expanded time range (1940s – 1980s). This proposal will also continue estimating length compositions for multiple species using the protocols developed during the pilot project with focus on Red Snapper and King Mackerel, two important recreational species. The pilot project developed a protocol to measure fish length in the historic photos and estimate length compositions using King Mackerel as a test species. Additional species may be added to the length component of the project, depending on the photos archived during the FY23 efforts. Additionally, this proposal will also begin to develop abundance indices for Red Snapper and King Mackerel.

This proposal will result in an extended database with more fishery and biological information on the recreational for-hire sector during its nascent period. These comprehensive historic data will offer researchers and managers an understanding of long-term changes in the fisheries and fish populations. Additionally, these historic data will allow us to develop long-term time series of abundance indices for South Atlantic species which can be directly used in the stock assessments. The inclusion of these long-term indices in the assessments will likely improve the estimates of historical population dynamics and potential stock productivity. The length compositions can also be used as corroborative information alongside the assessments, for example to compare with

predicted trends in mean size, or they could potentially be included in the assessments as data to be fitted. In either case, historical compositions could help inform changes in population structure, growth, natural mortality, and recruitment. Ultimately, the results from this project will lead to more informed management decisions, which will increase the likelihood of more sustainable fisheries in the South Atlantic.

This proposal is a unique opportunity to use a citizen science approach to expand time series of length data and potentially abundance trends back into history. Citizen science, as defined by the Crowdsourcing and Citizen Science Act of 2016, is a form of open collaboration in which individuals participate voluntarily in the scientific process. This project will use citizen scientists in a variety of ways (see APPROACH): data submission through photographs, data analysis with crowdsourcing, and data verification through a validation team made up of government and academic scientists along with fishermen as citizen scientists.

Citizen science is growing in the United States and other countries (McKinley et al. 2017) and has been used for research, management, policy, and public engagement (Poisson et al. 2020). A growing number of publications has shown that diverse citizen science projects can produce data on par with traditional scientific data when properly designed, implemented, and evaluated (McKinley et al. 2017, Kosmala et al. 2016, Freitag et al. 2016). The FISHstory pilot project developed protocols that helped ensure the data collection methods would minimize bias, be appropriate for use in management, and could be expanded if the pilot project was successful (Byrd et al. 2022). Additionally, citizen science projects can foster learning opportunities, increase scientific engagement and acceptance, and can help build positive relationships within the community (Fairclough et al. 2014). The FISHstory pilot project provided an opportunity for volunteers to learn about the beginnings of the South Atlantic for-hire fishery and hone their fish identification skills. It also provided an opportunity for scientists to gain more insight into the historic headboat fishery and the daily catches from vessels operating during this time period. Overall, there has been a very positive response to the project from stakeholders across the South Atlantic region and there has been overwhelming support to continue and expand the project.

This proposal addresses ACCSP FY24 Request for Proposal priorities 1a. *Catch, effort, and landing data* **and 1b.** *Biological data*, **as well as ACCSP recreational priorities #2 – 'Comprehensive for-hire data collection and monitoring' and #5 – 'Biological sampling for recreational fisheries separate from MRIP APAIS' by improving historic catch and effort and biological data from the for-hire sector prior to when fishery dependent catch programs were established in the South Atlantic region.**

The specific benefits to each data type and the rank of the target species within priority matrices included are addressed below.

<u>Primary Program Priority: Catch and Effort: 50%</u>

Historic photos provide the opportunity to collect trip level effort and landings data for the for-hire sector for a historic time period prior to when catch monitoring programs were in place. The for-hire catch composition component of the FISHstory project will provide species composition and catch rate information from this historic time period. The effort and landings data collected through this proposal will be used to develop abundance indices which can be included in the assessments.

<u>Secondary Priority: Biological Sampling: 50%</u>

The length component of the FISHstory project will estimate length compositions for multiple species using the protocols developed during the pilot project and improved through the FY23 work. Although estimating fish lengths in historic photos may not be the traditional view of biological sampling, it can provide the same information – lengths of fish if that sampling had been done. If pictures are obtained that overlap some of the traditional sampling programs, the two sources of biological samples – fish lengths – can be compared. Through the pilot project, King Mackerel length compositions were developed for the photos currently archived representing length measurements for over 1,100 fish (Figure 1). For this proposal, length analysts will continue to focus on producing and updating length compositions for Red Snapper King Mackerel with measurements from newly archived historic photos. ==Additionally, we will explore incorporation of the length determination protocol into the Zooniverse platform.== **Red Snapper is in the top 25% of the ACCSP biological sampling priority matrix and will be undergoing a SEDAR Research Track stock assessment starting in 2024. The PI's and project collaborators will be involved in this assessment, so there is a direct avenue to ensure these data are considered in this assessment. Additionally, a SEDAR South Atlantic King Mackerel operational stock assessment is scheduled to begin in 2025 and the FISHstory length data are included in the statement of work for consideration of use in the assessment. If time allows, additional species will be measured that are frequently found in the historic photo set. Species found in the current photo archive that are also in the top 25% of the ACCSP biological sampling matrix, include Red Grouper, Gag Grouper, Gray Triggerfish, and Black Sea Bass.**

Figure 1. King Mackerel length compositions estimated through the FISHstory pilot project by 10-year time periods.

Stock Assessment and Management Benefits and Impact:
The positive impacts of this project to stock assessment and management could be substantial and are described in the following aspects:

Most stock assessments of South Atlantic species assume fish stocks were virtually unexploited through the 1950's when consistent monitoring of the commercial fishery began, and only lightly exploited through the 1970's when recreational monitoring began. There is very little information on overall catch or size composition to evaluate these assumptions. This proposal will provide fishery-dependent information from a time prior to catch monitoring. These data can help verify these assumptions made in assessments and potentially lead to more accurate assumptions. For example, the size compositions estimated from the photos for the early years can improve the assumptions on the size and therefore age composition of stocks in the initial years included in stock assessments.

Understanding how fishing activities and technological advancements affect fish stocks requires an estimate of what they are capable of producing when there is no fishing or little fishing. However, data rarely extend back to pre-exploitation or the beginning of exploitation. Therefore, stock assessments often start from the year when abundance index and/or size/age compositions are available and/or make assumptions about the status prior to that year. Lack of historic information on abundance and size/age composition can result

in biased estimates of productivity and therefore shifting baselines against which modern stocks are benchmarked. This proposal is designed to expand the FISHstory project in support of developing long-term abundance indices for stock assessments, as well as to estimate length compositions for the early years. The inclusion of these data in the assessments is likely to improve the estimates, e.g., productivity, size/age structure, and recruitment, and therefore increase the likelihood for managers to set meaningful targets for management and formulate stock rebuilding plans.

In addition to the benefits of an extended historic time series for existing assessment**s, length frequency and catch per unit effort information can be used in data limited modeling techniques to provide assessments for stocks which are now unassessed. Providing information from periods prior to heavy exploitation is particularly important in data limited frameworks.**

DATA DELIVERY PLAN:
Data collected through the for-hire catch and length composition components of the project will be made available to stock assessment scientists, fishery managers, and ACCSP partners as requested. Biological data collected through the length component of the project will be formatted for submission to the ACCSP biological database. Project PI's will coordinate with ACCSP staff on timing and submission of these data to ACCSP.

APPROACH:
Task 1: Compile, digitize and archive historic photos from different fleets, geographic regions, and from an expanded time range (1940s-1980s).

SAFMC
- Plan and implement historic photo scanning events at Council related meetings and other outreach events and/or coordinate visits to libraries or historic museums.
- Help identify and contact additional photo providers from the South Atlantic region and assist with photo compilation.

North Carolina State University (NCSU)
- Help identify and contact additional photo providers from the South Atlantic region and assist with photo compilation.
- Update photo archive spreadsheet.

SEFSC
- Help identify and contact additional photo providers from the South Atlantic region and assist with photo compilation.

Task 2: Collect for-hire species composition data via Zooniverse platform.

SAFMC
- Train NCSU graduate student on the Zooniverse processes developed during the FISHstory pilot project.
- Help identify and assist in implementing improvements to the existing workflows in the FISHstory Zooniverse project to improve data quality and data collection efficiency.
- Assist with Validation team recruitment and training.

NCSU
- Identify and implement improvements to the existing workflows in the FISHstory project in Zooniverse to improve data quality and data collection efficiency.
- Batch & add photos into the Zooniverse project.
- Assist with Validation Team recruitment and training
- Identify photos and coordinate Validation Team review.
- QA/QC & data analysis.

Task 3: Estimate length compositions for multiple species from photo archive focusing initially on Red Snapper and King Mackerel ==and explore incorporation of the length determination protocol into Zooniverse platform.==

SAFMC
- Train graduate student on the length protocol developed during the FISHstory pilot project.
- Help identify and assist with implementing improvements to the length data collection process.
- Assist with length analyst recruitment and training.
- Assist with length measurements, as needed.
- ==Assist in developing length protocol workflow and corresponding training materials in Zooniverse for one species.==
- ==Assist in beta testing length protocol workflow with Zooniverse 'Gold Star' volunteers for a sub-set of photos. Work would include QA/QC and analysis of beta test data.==

NCSU
- Identify and implement improvements to the length data collection process.
- Assist with length analyst recruitment and training.
- Coordinate fish measurements among length analysts.
- QA/QC & data analysis.

- Format data for submission to ACCSP.
- <mark>Develop length protocol workflow and corresponding training materials in Zooniverse for one species.</mark>
- <mark>Assist in beta testing length protocol workflow with Zooniverse 'Gold Star' volunteers for a sub-set of photos. Work would include QA/QC and analysis of beta test data.</mark>

SEFSC
- Assist with fish length measurements.

Task 4: Design and implement an outreach and engagement strategy.

SAFMC
- Update and refine FISHstory communication and volunteer engagement plan from the pilot project.
- Develop and distribute promotional materials to spread awareness, provide progress updates, and recruit new volunteers for the project using SAFMC communication platforms, collaborations with existing partners, and through the formation of new partnerships.
- Provide monthly newsletters and outreach materials summarizing project findings to active volunteers.
- Monitor talk boards in the FISHstory Zooniverse project.

NCSU
- Help monitor talk boards in the FISHstory Zooniverse project.
- Assist SAFMC with other outreach and volunteer engagement initiatives, as needed.

Task 5: Begin development of abundance indices for Red Snapper and King Mackerel

NCSU

- Develop a protocol for a photo-based index development process
- Develop a model-based index standardization method
- Explore ways to calibrate historical photo-based index to existing modern indices used in the assessments

GEOGRAPHIC LOCATION:
The FISHstory project will digitize, archive, and analyze historic fishing photos throughout the South Atlantic region (North Carolina through the East Coast of Florida to the Florida Keys). The catch and biological data collected through the program will be available to all other partners for use in assessment and management. Although the geographic scope of

the project focuses on the South Atlantic region, the FISHstory image analysis methods have a high likelihood of scalability and transferability to other ACCSP partners throughout the Atlantic coast who have similar historic photos.

FUNDING TRANSITION PLAN:
The FY24 funding for the FISHstory project will focus on continuing to compile and archive additional photos, collecting additional catch and effort data through the FISHstory project in Zooniverse, estimating length composition for multiple species, and beginning to develop abundance indices. Additional funding will be needed to continue the above work and to complete the development of abundance indices. Project PIs are developing proposals to submit through other funding opportunities to help support an additional year of this project.

MILESTONE SCHEDULE:

Task	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Digitize & archive additional photos	x	x	x	x	x	x	x					
Identify and implement improvements to existing workflows and training materials in Zooniverse	x	x	x									
Re-launch project & collect data in Zooniverse				x	x	x	x	x	x			
Validation Team photo review						x	x	x	x			
For-hire catch composition analysis								x	x	x		
Identify and implement improvements to existing length protocol and training materials	x	x										

Task	1	2	3	4	5	6	7	8	9	10	11	12
Length measurements & analysis			x	x	x	x						
Develop length protocol workflow and training materials in Zooniverse and beta test with 'Gold Star' volunteers	x	x	x		x	x						
Index development							x	x	x	x	x	x
Volunteer outreach & communication	x	x	x	x	x	x	x	x	x	x	x	x
Data sharing preparation & report writing										x	x	x

PROJECT ACCOMPLISHMENTS MEASUREMENTS:

Component	Deliverables
Photo archiving	Four photo scanning events and/or trips to libraries or historic museums are planned and implemented. Target of 400 additional photos digitized and archived.
For-Hire Catch Composition	Workflows and training materials refined; FISHstory project relaunched in Zooniverse; target of 500 photos analyzed and validated for species composition, as needed.
Length Composition	Length processes and training materials refined; target for any photos added to the archive through this project to be analyzed for Red Snapper and King Mackerel lengths and length composition analysis to be updated; length protocol workflow and training materials developed in Zooniverse and beta test complete.
Index Development	A protocol for the index development process will be developed. A model-based index standardization method will be developed. Evaluate methods to calibrate the historical indices to the modern headboat indices.

Bold text indicates sections that help with the ranking process.
Green highlighted text indicates changes from initial submissions.

13

Volunteer Outreach & Engagement	Staff will work to retain current and recruit new FISHstory volunteers for the Zooniverse project, Validation team, and length analysts. Validation team members and length analysts will receive virtual training sessions. Active volunteers will receive monthly project updates via electronic/print/social media outlets and an end of the year progress report for the project. Data visualizations will be provided on trends in species/length composition and how the data may be used.
Data Sharing Preparation & Report Writing	Data will be compiled and formatted for transfer to ACCSP, SEDAR and others for use in assessments and management. Final project report is completed outlining the project findings, successes, and lessons learned.

REFERENCES:

Byrd, J., W. R. Collier, and A. Iberle. (2022). Designing the FISHstory project to support fisheries management. Fisheries. 47 (11): 492-498.

Clark, J. R. 1962. The 1960 Salt-Water Angling Survey. U.S. Department of the Interior, Bureau of Sport Fisheries and Wildlife, Circular 153. 36 pp.

Fairclough, D. V., J. I. Brown, B. J. Carlish, B. M. Crisafulli, and I. S. Keay. 2014. Breathing life into fisheries stock assessments with citizen science. Scientific Reports, 4. https://doi.org/10.1038/srep07249

Freitag, A., R. Meyer, and L. Whiteman. 2016. Strategies employed by citizen science programs to increase credibility of their data. Citizen Science: Theory and Proactive. 1(1):2 pp.1-11. DOI: http://dx.doi.org/10.5334/cstp.6.

Kosmala, M., A. Wiggins, A. Swanson, and B. Simmons. 2016. Assessing data quality in citizen science. Frontiers in Ecology and the Environment. 14(10): 551-560.

McClenachan, L. 2009. Documenting Loss of Large Trophy Fish from the Florida Keys with Historical Photographs. *Conservation Biology,* 23 (3): 636-643.

McClenachan, L., Ferretti, F., & Baum, J. K. (2012). From archives to conservation: why historical data are needed to set baselines for marine animals and ecosystems. Conservation Letters, 5(5), 349-359.

McKinley, D.C., A.J. Miller-Rushing, H.L. Ballard, R. Bonney, H. Brown, S.C. Cook-Patton, D.M. Evans, R.A. French, J.K. Parrish, T.B. Phillips, S.F. Ryan, L.A. Shanley, J.L. Shirk, K.F. Stepenuck, J.F. Weltzin, A. Wiggins, O.D. Boyle, R.D. Briggs, S.F. Chapin, D.A. Hewitt, P.W.

Preuss, and M.A. Soukup. 2017. Citizen science can improve conservation science, and natural resource management, and environmental protection. Biological Conservation 208: 15-28.

Poisson, A. C., McCullough, I. M., Cheruvelil, K. S., Elliott, K. C., Latimore, J. A., Soranno, P. A. 2020. Quantifying the contributions of citizen science to broad-scale ecological databases. Frontiers in Ecology and the Environments, 18(1): 19-26.

Rosenberg, A. A., W. J. Bolster, K. E. Alexander, W. B. Leavenworth, A. B. Cooper, and M.G. McKenzie. The history of ocean resources: modeling cod biomass using historical records. Frontiers in Ecology and the Environment, 3(2): 78-84.

SEDAR. 2011. SEDAR 25 Stock Assessment Report: South Atlantic Black Sea Bass. SEDAR, North Charleston SC. 480 pp. Available online at: http://sedarweb.org/docs/sar/SEDAR25_BlackSeaBass_SAR.pdf

SEDAR. 2013. SEDAR 28 Stock Assessment Report: South Atlantic Cobia (Revised). SEDAR, North Charleston SC. 420 pp. Available online at: http://sedarweb.org/docs/sar/S28_SAR_SACobia_WithAddendumFinal_5.16.2013.pdf

SEDAR. 2015. SEDAR Procedural Workshop 7: Data Best Practices. SEDAR, North Charleston SC. 151 pp. Available online at: http://sedarweb.org/pw-07.

SEDAR. 2016. SEDAR 41 Stock Assessment Report: South Atlantic Gray Triggerfish. SEDAR, North Charleston, SC 428 pp. Available online at: http://sedarweb.org/sedar-41-stock-assessment-report-south-atlantic-gray-triggerfish

SEDAR. 2017. SEDAR 41 Stock Assessment Report - Revision 1: South Atlantic Red Snapper. SEDAR, North Charleston, SC 805 pp. Available online at: http://sedarweb.org/docs/sar/S41_SA_RS_SAR_REVISION1_Final_4.24.2017.pdf

SEDAR. 2019. SEDAR 38 Update South Atlantic King Mackerel Stock Assessment Report. SEDAR, North Charleston, SC 66 pp. Available online at: https://sedarweb.org/documents/sedar-73-stock-assessment-report-south-atlantic-red-snapper/

SEDAR. 2021. SEDAR 73 Stock Assessment Report - Revision 1: South Atlantic Red Snapper. SEDAR, North Charleston, SC 194 pp. Available online at: https://sedarweb.org/documents/sedar-73-stock-assessment-report-south-atlantic-red-snapper/

SEDAR. 2023. SEDAR 82 Data Workshop Report: South Atlantic Gray Triggerfish. SEDAR, North Charleston, SC 258 pp. Available online at: https://sedarweb.org/documents/sedar-82-south-atlantic-gray-triggerfish-data-workshop-report/

U.S. Department of the Interior, U.S. Fish and Wildlife Service, U.S. Department of Commerce, and U.S. Census Bureau. 1991. 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. 177 pp. Available online at: https://www2.census.gov/programs-surveys/fhwar/publications/1991/fhw91-us.pdf.

FY24 BUDGET:

Item	ACCSP Share	Partner Share	Total
PERSONNEL COSTS			
SAFMC Personnel Julia Byrd, Citizen Science Program Manager (2 months; salary and fringe) Allie Iberle, Fishery Scientist (0.5 months; salary and fringe)		$26,436 $4,817	
SEFSC Personnel Ken Brennan, Kyle Shertzer, and headboat port agents		$5,000	
CONTRACT			
A. Zooniverse Project Builder platform support	$5,000		
B. North Carolina State University (NCSU)			
1) Personnel Graduate student stipend PI summer salary (0.5 months)	$28,000 $5,072		
2) Fringe Graduate student fringe PI fringe	$5,211 $1,635		
3) Tuition NCSU (Year 1)	$10,405		
4) Travel	$1,359		

Bold text indicates sections that help with the ranking process.
Green highlighted text indicates changes from initial submissions.

5) Indirect at 27.6%	$11,393		
TOTAL NCSU Contract	$63,075		
TRAVEL			
Support for SAFMC staff to compile and digitize photos via scanning nights at Council related meetings and other outreach events or visits to libraries or historic museums	$7,639		
SUPPLIES			
Photo negative scanner	$300		
Software design packages	$870		
Outreach, promotional, and training materials	$5,500		
Indirect costs - 10% of $44,309 (total costs only including $25,000 of the NC State contract)	$4,431		
TOTAL	**$86,815**	**$36,253**	**$123,068**
Percentage	**71**%	**29**%	

BUDGET NARRATIVE:

Contractual (<mark>$68,075</mark>):
   A) Zooniverse (<mark>$5,000</mark>): Funding will help support the Zooniverse platform and provide Zooniverse staff time to consult and help incorporate new tools for the FISHstory project.

   B) North Carolina State University ($63,075)
   Personnel ($33,072 total)
   ● Jie Cao, Ph.D., Principal Investigator (0.5 calendar month) will be responsible for supervising the graduate student, $5,072
   ● Graduate student (12 calendar months), $28,000

   Fringe Benefits ($6,846 total)
   ● Jie Cao, Ph.D., Principal Investigator, $1,635
   ● Graduate student, $5,211
   Fringe benefits are requested for personnel on this project at the following rates:

	Fringe Benefits (% of salary)	Health Insurance per FTE
Faculty/Staff	32.24%	$7,397
Faculty (summer months)	32.24%	N/A
Postdoctoral Associates	8.05%	$4,962
Graduate Students	8.05%	$2,957
Hourly Workers	8.05%	N/A

   Travel ($1,359 total)

   Funds are requested for travel as follows:

Purpose of Travel	Location	Item	Rate	Cost
Council visits	South Carolina	Mileage	$0.585/mile * 600 miles * 2 trips	$702

		Hotel	$120/person * 1 person * 2 nights * 2 trips	$480
		Per Diem (meals)	$44.3/day * 1 person * 4 days	$177.2

Note: NCSU travel rate estimates are based on NC state reimbursement and per diem rates.

Other Direct Costs ($10,405 total)

Tuition

- The estimated graduate student's tuition rate at NCSU in 2024-2025 is $10,405 based on a 10% increase over 2023-2024 rates.

Indirect Costs ($11,393 total)

- Indirect costs are applied at the off-site research rate of 27.60% of Modified Total Direct Costs. Indirect costs are calculated on the total NCSU contract minus tuition costs. North Carolina State University's indirect cost rate agreements and other information can be found here: https://research.ncsu.edu/sparcs/budgeting-guidelines/budgeting-f-and-a/

Total Contractor Costs ($63,075 total)

Travel ($7,639): Support will be used for staff to travel throughout the South Atlantic region to compile and digitize historic photos via scanning nights at Council related meetings and other outreach events or visits to libraries or historic museums and to distribute promotional materials. Funds are requested to support travel for two staff members on four trips approximately 3-4 days each. Costs are estimated for a total of 18 hotel nights (9 per staff member at $195/night), 28 days per diem (14 per staff member at $79/day), ~1400 miles for four trips (at $0.655/mile) and two airplane fares at ~$500/ticket. Note: Council travel rate estimates are based on federal reimbursement and per diem rates.

Supplies ($6,670): Funding will be used to purchase a portable photo negative scanner (estimated at $300) to use at photo scanning events. Design software annual subscriptions will be purchased (Adobe Creative Cloud and Canva Pro estimated at $870 for annual subscriptions) to assist with photo manipulation and help design outreach, promotional, and training materials. Promotional, outreach, and training materials (estimated at $5500) will be purchased and distributed to raise awareness about the project, help with volunteer recruitment and retention, and share project updates and results. Cost for print materials range from wallet cards (~$0.05 each) to flyers (~$1.50 each). Using an average cost of $0.78 per item $2,000 will allow us to print 2,564 items for distribution. Funds will also be used to purchase small promotional items

(e.g. notebooks, stickers, etc.) to help increase recruitment and retention of participants. Cost for promotional items range between stickers (~$1.50 each) to notebooks (~$4.00 each). Using an average cost of $2.75 per item, $3,500 will allow us to distribute ~1,272 items to participants. Materials would potentially be distributed through industry business and organizations (e.g. tackle shops, trade shows), educators (e.g. marine educator organizations, fisheries graduate and undergraduate programs, and K-12 classrooms), citizen science organizations (e.g. SciStarter) and fisheries organizations.

Indirect charges of 10% are applied to $44,309 (total costs including only $25,000 of the NC State contract) for a total of $4,431. $44,309 is used to calculate indirect costs because only the first $25,000 of the NC State contract can be included in indirect calculations, based on communications from NOAA Fisheries.

FY23 BUDGET:

Item	ACCSP Share	Partner Share	Total
PERSONNEL COSTS			
SAFMC Personnel Julia Byrd, Citizen Science Program Manager (2 months; salary and fringe) Allie Iberle, Fishery Scientist (0.5 months; salary and fringe)		$24,066 $4,441	
SEFSC Personnel Ken Brennan, Kyle Shertzer, and headboat port agents		$5,000	
CONTRACT			
C. Consultant and photo curator Processes, scans and catalogs ~ 400 photos (Smitherman and Freeman photos)	$3,500		
D. North Carolina State University (NCSU)			
6) Personnel Graduate student stipend PI summer salary (0.5 months)	$28,000 $4,675		
7) Fringe Graduate student fringe PI fringe	$5,235 $1,437		
8) Tuition NCSU (Year 1)	$10,005		
9) Travel	$2,039		

10) Indirect at 27.6%	$11,422		
TOTAL NCSU Contract	$62,813		
TRAVEL			
Support for SAFMC staff to compile and digitize photos via scanning nights at Council related meetings and other outreach events	$6,325		
SUPPLIES			
Portable photo scanner	$600		
Software design packages	$870		
Outreach, promotional, and training materials	$5,500		
Indirect costs - 10% of total costs	$7,961		
TOTAL	**$87,569**	**$33,507**	**$121,076**
Percentage	**72%**	**28%**	**100%**

BUDGET NARRATIVE:

Contractual ($66,313):

C) Rusty Hudson ($3,500): Hudson will be a project consultant and photo curator. He will process, scan, and catalog ~400 photos compiled by retired Captains Billy Smitherman (FL) and Robert Freeman (NC).

D) North Carolina State University ($62,813)
   Personnel ($32,675 total)
   - Jie Cao, Ph.D., Principal Investigator (0.5 calendar month) will be responsible for supervising the graduate student, $4,675
   - Graduate student (12 calendar months), $28,000

   Fringe Benefits ($6,672 total)
   - Jie Cao, Ph.D., Principal Investigator, $1,437
   - Graduate student, $5,235
     Fringe benefits are requested for personnel on this project at the following rates:

	Fringe Benefits (% of salary)	Health Insurance per FTE
Faculty/Staff	30.73%	$6,512
Faculty (summer months)	30.73%	N/A
Postdoctoral Associates	9.05%	$4,336
Graduate Students	9.05%	$2,701
Hourly Workers	9.05%	N/A

   Travel ($2,038.8 total)

   Funds are requested for travel as follows:

Purpose of Travel	Location	Item	Rate	Cost
Council visits	South Carolina	Mileage	$0.585/mile * 600 miles * 3 trips	$1053

		Hotel	$120/person * 1 person * 2 nights * 3 trips	$720
		Per Diem (meals)	$44.3/day * 1 person * 6 days	$265.8

Note: NCSU travel rate estimates are based on NC state reimbursement and per diem rates.

Other Direct Costs ($10,005 total)
Tuition
- The estimated graduate student's tuition rate at NCSU in 2023-2024 is $10,005 based on a 10% increase over 2022-2023 rates.

Indirect Costs ($11,422 total)
- Indirect costs are applied at the off-site research rate of 27.60% of Modified Total Direct Costs. Indirect costs are calculated on the total NCSU contract minus tuition costs. North Carolina State University's indirect cost rate agreements and other information can be found here: https://research.ncsu.edu/sparcs/budgeting-guidelines/budgeting-f-and-a/

Total Contractor Costs ($62,812.8 total)

Travel ($6,325): Support will be used for staff to travel throughout the South Atlantic region to compile and digitize historic photos via scanning nights at Council related meetings and other outreach events and to distribute promotional materials. Funds are requested to support travel for two staff members on five trips approximately 2-3 days each. Costs are estimated for a total of 20 hotel nights (10 per staff member at $120/night), 30 days per diem (15 per staff member at $75/day), ~1400 miles for four trips (at $0.625/mile) and two airplane fares at ~$400/ticket. Note: Council travel rate estimates are based on federal reimbursement and per diem rates.

Supplies ($6,970): Funding will be used to purchase a portable photo scanner (estimated at $600) to use at photo scanning events. Design software annual subscriptions will be purchased (Adobe Creative Cloud and Canva Pro estimated at $870 for annual subscriptions) to assist with photo manipulation and help design outreach, promotional, and training materials. Promotional, outreach, and training materials (estimated at $5500) will be purchased and distributed to raise awareness about the project, help with volunteer recruitment and retention, and share project updates and results. Cost for print materials range from wallet cards (~$0.05 each) to flyers (~$1.50 each). Using an average cost of $0.78 per item $2,000 will allow us to print 2,564 items for distribution. Funds will also be used to purchase small promotional items (e.g. notebooks, stickers, etc.) to help increase recruitment and retention of participants. Cost for promotional

items range between stickers (~$1.50 each) to notebooks (~$4.00 each). Using an average cost of $2.75 per item, $3,500 will allow us to distribute ~1,272 items to participants. Materials would potentially be distributed through industry business and organizations (e.g. tackle shops, trade shows), educators (e.g. marine educator organizations, fisheries graduate and undergraduate programs, and K-12 classrooms), citizen science organizations (e.g. SciStarter) and fisheries organizations.

Indirect charges of 10% are applied to the total cost of the grant for a total of $7,961.

FISHstory Project History

Fiscal Year	Title	Cost	Results
FY23	Expansion of the FISHstory Citizen Science Project	Total = $121,076 ACCSP share = $87,569 Partner share = $33,507	This project will expand the geographical and temporal range of the FISHstory project in support of developing abundance indices for stock assessments of South Atlantic species; improve efficiency of data collection and photo processing; estimate length compositions for multiple species with focus on King Mackerel and Red Snapper; and implement an outreach and engagement strategy to retain FISHstory's volunteer base and recruit new users. Funding for this project was received in mid-July 2023. Work to date has included: ● NCSU graduate student for FY23 has been identified and SAFMC staff conducted initial project onboarding June 7-9, 2023. ● SAFMC staff have begun planning for FISHstory scanning events for fall 2023 in conjunction with SAFMC related meetings. Scanning events will be held at the fall 2023 Snapper Grouper, Mackerel Cobia, and Dolphin Wahoo Advisory Panel meetings, as well as the September and December SAFMC 2023 meetings. Information on the scanning events was shared with advisory panel members at their spring 2023 meetings. Key messages and flyers have been developed to promote the scanning events and promotion of the scanning event at the September 2023 Council meeting is underway.

			● The contract with photo curator/consultant, Rusty Hudson, is finalized and Hudson has started scanning Captain Smitherman's (FL) and Captain Freeman's (NC) photos. Target is to have these photos scanned and archived by mid- September 2023. ● SAFMC staff have begun working to identify other sources for historic photos, such as local history museums and libraries (e.g. NC History Center), NOAA Central Library, and Smithsonian archives. ● Staff held a call with Zooniverse personnel in July 2023 to discuss the process for making changes to existing workflows and incorporation of new features into the project before re-launching. ● FISHstory Design Team members have been identified and will hold their initial meeting in early September 2023. The Design Team is a group of stakeholders with diverse expertise that will provide guidance on the expansion of the FISHstory project.

Bold text indicates sections that help with the ranking process.
Green highlighted text indicates changes from initial submissions.

28

Proposal Type: Maintenance Year 1

Primary Program Priority: Catch and Effort - 50%
This proposal addresses ACCSP recreational priority #2 – 'Comprehensive for-hire data collection and monitoring' by improving historic catch and effort data prior to when fishery dependent catch programs were established in the South Atlantic. Historic photos provide the opportunity to collect trip level effort and landings data for the for-hire sector for a historic time period prior to when catch monitoring programs were in place in the South Atlantic. The for-hire catch composition component of the FISHstory project will provide species composition and catch rate information from this historic time period. The effort and landings data collected through this proposal will be used to develop abundance indices which can be included in stock assessments.

Data Delivery Plan:
Data collected through the for-hire catch and length composition components of the project will be made available to stock assessment scientists, fishery managers, and ACCSP partners as requested. Biological data collected through the length component of the project will be formatted for submission to the ACCSP biological database. Project PI's will coordinate with ACCSP staff on timing and submission of these data to ACCSP.

Project Quality Factors:
- **Multi-partner/Regional impact including broad applications:**
  Partners in this proposal include the SAFMC, NOAA Fisheries SEFSC, and NC State University. The FISHstory project will digitize, archive, and analyze historic fishing photos throughout the South Atlantic region (North Carolina through the East Coast of Florida to the Florida Keys). The catch and biological data collected through the program will be available to all other partners for use in assessment and management. Although the geographic scope of the project focuses on the South Atlantic region, the FISHstory image analysis methods have a high likelihood of scalability and transferability to other ACCSP partners throughout the Atlantic coast who have similar historic photos.

- **Contains funding transition plan:**
  The initial year of funding for the FISHstory project will focus on compiling and archiving additional photos, collecting additional catch and effort data through the FISHstory project in Zooniverse, and estimating length composition for multiple species. An additional year of funding will be needed to develop indices of abundance using the data collected through the project. Project PI's are already

developing proposals to submit through other funding opportunities to help support an additional year of this project.

- **In-kind contribution:** <mark>**29%**</mark>

- **Improvement in data quality/quantity/timeliness**
    - ○ **This proposal will build on the success of the FISHstory pilot project which uses an innovative citizen science approach to gather data from historic photos to provide for-hire catch and effort and biological information before fishery dependent monitoring programs were in place in the South Atlantic region.**
    - ○ **By expanding the geographic and temporal scope of FISHstory, this proposal will collect more representative historic data for the South Atlantic region which will broaden the use of the data for both stock assessment and management.**
    - ○ **These historic data will provide researchers and managers a better understanding of the long-term changes in the fisheries and fish populations.**

- **Potential secondary module as a by-product: Biological - 50%.**
This proposal addresses ACCSP recreational priority #5 – 'Biological sampling for recreational fisheries separate from MRIP APAIS' by improving historic biological data prior to when fishery dependent catch programs were established in the South Atlantic. Although estimating fish lengths in historic photos may not be the traditional view of biological sampling, it can provide the same information. The length component of this proposal will continue to focus on producing and updating length compositions for Red Snapper and King Mackerel with measurements from newly archived historic photos. Red Snapper is in the top 25% of the ACCSP biological sampling priority matrix and will be undergoing a SEDAR Research Track stock assessment starting in 2024. The PI's and project collaborators will be involved in this assessment, so there is a direct avenue to ensure these data are considered in this assessment. Additionally, a SEDAR South Atlantic King Mackerel operational stock assessment is scheduled to begin in 2025 and the FISHstory length data are included in the statement of work for consideration of use in the assessment. If time allows, additional species will be measured that are frequently found in the historic photo set. Species found in the current photo archive that are also in the top 25% of the ACCSP biological sampling matrix, include Red Grouper, Gag Grouper, Gray Triggerfish, and Black Sea Bass.

- **Impact on stock assessment**
  Stock assessment impacts from this proposal are significant.

- ○ **Most stock assessments of South Atlantic species assume fish stocks were virtually unexploited through the 1950's when consistent monitoring of the commercial fishery began, and only lightly exploited through the 1970's when recreational monitoring began. There is very little information on overall catch or size composition to evaluate these assumptions. This proposal will provide fishery-dependent information from a time prior to catch monitoring. These data can help verify these assumptions made in assessments and potentially lead to more accurate assumptions.**
- ○ **Lack of historic information on abundance and size/age composition can result in biased estimates of productivity and therefore shifting baselines against which modern stocks are benchmarked. This proposal is designed to expand the FISHstory project in support of developing long-term abundance indices for stock assessments, as well as to estimate length compositions for the early years. The inclusion of these data in the assessments is likely to improve the estimates, e.g., productivity, size/age structure, and recruitment, and therefore increase the likelihood for managers to set meaningful targets for management and formulate stock rebuilding plans.**
- ○ **Length frequency and catch per unit information can be used in data limited modeling techniques to provide assessments for stock which are now unassessed. Providing information from periods prior to heavy exploitation is particularly important in data limited frameworks.**

Other Factors:
- ● **Innovative**
  Historic photos serve as an untapped source of catch, effort, and biological information for years prior to dedicated catch monitoring programs. This proposal uses an innovative citizen science approach to gather data from historic photos. The methodology developed is more cost-effective than traditional analysis techniques and allows for larger volumes of data to be collected in a more efficient manner using the power of the crowd.
- ● **Properly prepared**
  This proposal follows the guidelines under the ACCSP Funding Decision Process Document.
- ● **Merit**
  This proposal builds on a successful pilot project that demonstrated historic photos have the potential to provide quantifiable species and length composition data at a point in time when fishery dependent surveys of the for-hire fleets didn't exist in the South Atlantic. This proposal will provide catch and effort and biological data for a time period where data are very limited for the recreational sector. These data will

satisfy several species specific research recommendations. Additionally the biological data collected include species from the top 25% of the <mark>FY24</mark> ACCSP Biological matrix.

Bold text indicates sections that help with the ranking process.
Green highlighted text indicates changes from initial submissions.

32

Summary of Proposal for Ranking - Abridged

- **Achieved Goals**
- **The 'Expansion of the FISHstory Citizen Science Project' was a new project in FY23. Funding for this project <mark>was received mid-July</mark> 2023, so limited work has been completed at the submission of this proposal. Work to date has included:**
  - **NCSU graduate student for FY23 has been identified and SAFMC staff conducted initial project onboarding June 7-9, 2023;**
  - **SAFMC staff have begun planning for FISHstory scanning events for fall 2023 in conjunction with SAFMC related meetings. Scanning events will be held at the fall 2023 Snapper Grouper, Mackerel Cobia, and Dolphin Wahoo Advisory Panel meetings, as well as the September and December SAFMC 2023 meetings; and SAFMC staff have begun working to identify other sources for historic photos, such as local history museums and libraries (e.g. NC History Center), NOAA Central Library, and Smithsonian archives. <mark>Key messages and flyers have been developed to promote the scanning events and promotion of the scanning event at the September 2023 Council meeting is underway.</mark>**
  - **<mark>The contract with photo curator/consultant, Rusty Hudson, is finalized and Hudson has started scanning Captain Smitherman's (FL) and Captain Freeman's (NC) photos.</mark>**
  - **<mark>Staff held a call with Zooniverse personnel in July 2023 to discuss the process for making changes to existing workflows and incorporation of new features into the project before re-launching.</mark>**
  - **<mark>FISHstory Design Team members have been identified and will hold their initial meeting in early September 2023. The Design Team is a group of stakeholders with diverse expertise that will provide guidance on the expansion of the FISHstory project.</mark>**

- **Data Delivery Plan**
  Data collected through the for-hire catch and length composition components of the project will be made available to stock assessment scientists, fishery managers, and ACCSP partners as requested. Biological data collected through the length component of the project will be formatted for submission to the ACCSP biological database. Project PI's will coordinate with ACCSP staff on timing and submission of these data to ACCSP.

- **Level of Funding**
  Funding for this project will initially be received in FY23 and the total cost of the project will be $121,076 (ACCSP share = $87,569; Partner share = $33,507).

The FY24 proposal cost is <mark>$123,068 (ACCSP Share: $86,815; Partner Share: $36,253)</mark>.

- **Properly Prepared**
  This proposal follows the guidelines under the ACCSP Funding Decision Process Document.

- **Merit**
  This proposal builds on a successful pilot project that demonstrated historic photos have the potential to provide quantifiable species and length composition data at a point in time when fishery dependent surveys of the for-hire fleets didn't exist in the South Atlantic. This proposal will provide catch and effort and biological data for a time period where data are very limited for the recreational sector. These data will satisfy several species specific research recommendations. Additionally the biological data collected include species from the top 25% of the <mark>FY24</mark> ACCSP Biological matrix.

JIE CAO

Assistant Professor
Department of Applied Ecology
Center for Marine Sciences and Technology
North Carolina State University

303 College Circle
Morehead City, NC 28557
Phone: 252-222-6331
Email: jcao22@ncsu.edu

Education

Ph.D. Marine Biology	2015	University of Maine
M.S. Marine Fisheries Resources	2010	Shanghai Ocean University
B.S. Marine Fisheries Sciences	2007	Shanghai Ocean University

Professional Experience

2018 – present	Assistant Professor, NCSU, Morehead City, NC
2017 – 2018	Post-doctoral Associate, UW&NOAA, Seattle, WA
2015 – 2017	Post-doctoral Associate, UM, Orono, ME

Advisory Board

2020 – present	SSC, South Atlantic Fishery Management Council
2019 – present	Vice-chair of SC, North Pacific Fisheries Commission
2019 – present	Vice-chair of WP billfish, Indian Ocean Tuna Commission

Selected publications

Cao J, Thorson J, Punt A, and Szubanski C, A novel spatiotemporal stock assessment framework to better address fine-scale species distributions: development and simulation testing. Fish and Fisheries, 2019. DOI:10.1111/faf.12433

Cao J, Thorson J, Richards A, Chen Y. Spatio-temporal index standardization improves the stock assessment of northern shrimp in the Gulf of Maine. *Canadian Journal of Fisheries and Aquatic Sciences*, 2017.

Cao J, Chen Y, Richards A. Improving assessment of *Pandalus* stocks using a seasonal, size-structured assessment model with environmental variables: Part I: Model description and application. *Canadian Journal of Fisheries and Aquatic Sciences*, 2017, 74(3): 349-362.

Cao J, Chen Y, Richards A. Improving assessment of *Pandalus* stocks using a seasonal, size-structured assessment model with environmental variables: Part II: Model evaluation and simulation. *Canadian Journal of Fisheries and Aquatic Sciences*, 2017, 74(3) 363-376.

Cao J, Guan WJ, Treusdell S, et al. An individual-based probabilistic model for simulating fisheries population dynamics. *Aquaculture and Fisheries*, 2016, 1:34-40.

Cao J, Chen XJ, Tian SQ. Bayesian hierarchical DeLury model for stock assessment of west winter-spring cohort of neon flying squid (*Ommastrephes bartramii*) in northwest Pacific Ocean. *Bulletin of Marine Science*, 2014, 91(1): 1-13.

Cao J, Truesdell S, Chen Y. Impacts of seasonal stock mixing on the assessment of Atlantic cod in the Gulf of Maine. *ICES Journal of Marine Science*, 2014, 71(6): 1443-1457.

Bold text indicates sections that help with the ranking process.
Green highlighted text indicates changes from initial submissions.

35

Guan WJ, **Cao J**, Chen Y, et al. Impacts of population and fishery spatial structures on fishery stock assessment. *Canadian Journal of Fisheries and Aquatic Sciences*, 2013, 70 (8): 1178-1189.

Cao J, Chen XJ, Chen Y. Influence of surface oceanographic variability on abundance of the western winter-spring stock of neon flying squid (*Ommastrephes bartramii*) in the northwest Pacific Ocean. *Marine Ecology Progress Series*, 2009, 381: 119-127.

Funded Research Projects

Estimating seasonal growth and size-dependent mortality of North Carolina blue crab in support of improving its stock assessment and management. North Carolina Sea Grant. **J. Cao**, L. Yan, D. Eggleston, J. Buckel, L. Lee, A. Rocco. $59,692 US Dollars, 2022-2023.

Spatiotemporal distribution and habitat use of major Snapper-Grouper species in the Atlantic Ocean off the southeastern U.S. NOAA/CISESS. **J. Cao**. $39,384 US Dollars, 2021-2022

Development and Application of an International Stock Assessment and Management Strategy Evaluation Tool for Common Dolphinfish (*Coryphaena Hippurus*) in the Atlantic Ocean and the Caribbean Sea (Matthew Damiano, 2020 NMFS-Sea Grant Population Fellowship). North Carolina State University Sea Grant Program. **J. Cao,** K. Shertzer, M. Damiano. $118,817 US Dollas, 2020-2023.

Evaluating the Impacts of Environmental Stress and Bioactive Chemicals on North Carolina Blue Crab Population: An Individual-Based Model. North Carolina Sea Grant. **J. Cao**, L. Yan, L. Lee. $56,786 US Dollars, 2020-2021.

Development and application of a management strategy evaluation tool: tradeoffs between the management objective of recreational and commercial fisheries. Marine Fisheries Initiative (MARFIN) Program, NOAA. **J. Cao**, K. Shertzer. $121,756 US Dollars, 2019-2021.

Promoting China-US collaborative research on assessment and management of Chinese fisheries. Packard Foundation. R. Hilborn, C. Szuwalski, A. Punt, **J. Cao**. $222,628 US Dollars, **Cao's subaward**: 31,850 US Dollars, 2019-2020.

Incorporating environmental variables to improve assessment and predictive capacity for American lobster in a changing Gulf of Maine and southern New England. The Fisheries and the Environment (FATE) Program, NOAA. B. Shank, Y. Chen, **J. Cao**, K. Tanaka. $182,633 US Dollars. 2017-2019.

Incorporating environmental and ecological variables to improve the assessment of northern shrimp in the Gulf of Maine. The Fisheries and the Environment (FATE) Program, NOAA. A. Richards, Y. Chen, **J. Cao**, K. Drew. $106,104 US Dollars. 2015-2017.

Evaluate performance of length-structured models for the assessment of northern shrimp and Atlantic herring in the Gulf of Maine. Maine Sea grant Program. Y. Chen, **J. Cao**. $143,778 US Dollars. 2014-2016.

JULIA ISOBEL BYRD

1489 Littlerock Blvd.   Work: (843)302-8439
Charleston, SC 29412   Cell: (828)215-1414
Hometown: Asheville, NC   Email: juliabyrd@hotmail.com

EDUCATION: UNIVERSITY OF CHARLESTON, SC, Charleston, SC
                            -**Masters of Environmental Studies**, December 2004

                            WAKE FOREST UNIVERSITY, Winston-Salem, NC
                            -**Bachelor of Science** in **Biology**, Minor in **Environmental Studies**, May 2000

WORK EXPERIENCE:
            Citizen Science Program Manager, South Atlantic Fishery Management Council **(SAFMC)**
            Charleston, SC, March 2019 – present

            Adjunct faculty at the College of Charleston
            Charleston, SC, 2020 to present

            Southeast Data Assessment and Review (SEDAR) Coordinator, SAFMC
            Charleston, SC, August 2012 – February 2019

            Wildlife Biologist III, Office of Fisheries Management, South Carolina Department of Natural Resources
            Charleston, SC, August 2005 – August 2012

            MARMAP hourly, South Carolina Department of Natural Resources
            Charleston, SC, April 2005 – August 2005

            Intern, In-Water Sea Turtle Abundance Study, South Carolina Department of Natural Resources
            Charleston, SC, May 2003 – August 2003 and May 2004 – September 2004

            Education Coordinator, Conservation International
            Washington, DC, January 2002 – July 2002

SELECT GRANT PROPOSALS FUNDED as PI or co-PI:
            FY2023. Expansion of the FISHstory Citizen Science Project. Julia Byrd (SAFMC) and Dr. Jie Caio (NC State University). Atlantic Coastal Cooperative Statistics Program. $121,076.

            FY2022. SAFIS Expansion of the SciFish Customizable Fisheries Citizen Science Data Collection Application. Julia Byrd (SAFMC) and Dr. Andrew Cathey (NC Division of Marine Fisheries). Atlantic Coastal Cooperative Statistics Program. $116,182.

            FY2021. SAFIS Expansion of Customizable Fisheries Citizen Science Data Collection Application. Julia Byrd (SAFMC). Atlantic Coastal Cooperative Statistics Program. $114,792.

            FY2020. SAFIS Expansion of "*SAFMC Release*" and "*NC DMF Catch U Later*" Discard Reporting Applications. Atlantic Coastal Cooperative Statistics Program. $118,500.

            FY2019. The FISHstory Project - Documenting historical catch and length estimates from historic photos in the for-hire sector using electronic data collection and imagery analysis platforms and crowdsourcing approaches. Julia Byrd (SAFMC) and Amber VonHarten (SAFMC). NOAA-Fisheries Information Systems. $75,000.

SELECTED PUBLICATIONS:

- Byrd, J. W.R. Collier, and A. Iberle. 2022. Designing the FISHstory project to support fisheries management. Fisheries: 44 (11): 492-498.
- Oremland, L., A. Furnish, J. Byrd, and R. Cody. 2022. How fishery managers can harness the power of the crowd: Using citizen science and non-traditional data sources in fisheries management. Fisheries: 44 (11): 459-462.
- Bonney, R., J. Byrd, J. T. Carmichael, L. Cunningham, L. Oremland, J. Shirk, and A. Von Harten. 2021. Sea Change: Using Citizen Science to Inform Fisheries Management. BioScience: 71(5): 519-530.
- Brown, S.K., M. Shivani, R. Koeneke, D. Agnew, J. Byrd, M. Cryer, C. Dichmont, D. Die, W. Michaels, J. Rive, H. Sparholt, and J. Weiberg. 2020. Patterns and practices in fisheries assessment peer review systems. Marine Policy: 117,103880.
- SEDAR. 2015. SEDAR Procedural Workshop 7: Data Best Practices. SEDAR, North Charleston, SC. 151pp. (editor).

SELECTED PROFESSIONAL PRESENTATIONS:

- Byrd, J. C. Collier, and A. Iberle. 2022. FISHstory, using citizen science to describe historic catches. SAFMC Seminar Series. (Oral presentation).
- Byrd, J. A. Iberle, C. Collier, D. Cathey, J. Simpson, F. Karp, B. Spain, K. Knowlton, and M. Bucko. 2021. Development of the SciFish Application, a customizable citizen science project builder. American Fisheries Society Annual Meeting. (Oral presentation).
- Byrd, J. C. Collier, and A. Iberle. 2020. The SAFMC's Citizen Science Program: Designing a program to support fisheries science and management decision making. American Fisheries Society Annual Meeting (held virtually). (Oral presentation).
- Byrd, J., J. Carmichael, and J. Neer. 2017. The Importance of Peer Review in SEDAR Stock Assessments. American Fisheries Society Annual Meeting, Tampa, FL. (Oral presentation).
- Carmichael, J., A. VonHarten, and J. Byrd. 2016. Efforts to Develop a South Atlantic Fishery Management Council Citizen Science Program. NOAA Fisheries Quantitative Ecology and Socioeconomics Training Program Webinar Series. (Webinar presentation).
- VonHarten, A. and J. Byrd. 2016. Building a Fishery Citizen Science Program in the U.S. South Atlantic to Improve Management and Policy. 4th International Marine Conservation Congress. (Oral presentation and helped facilitate focus group).

SELECTED HONORS:

- National Conservation Leadership Institute, Cohort 7 (2012-2013)
- FY07 Nominee for SC Department of Natural Resources – Marine Resources Division Employee of the Year
- Emerging Wildlife Conservation Leaders, Pilot Class (2005-2007)

SELECTED TRAINING:

- Management Assistance Team (MAT) Leader as Communicator Training
- Smithsonian's Communication & Facilitation Skills for Conservation Managers Course
- Technology of Participation (TOP) Facilitation Methods
- NOAA Coastal Service Center Planning and Facilitating Collaborative Meetings
- Well's National Estuarine Research Reserve Coastal Training Program Collaborative Learning Workshop
- NOAA Coastal Service Center Project Design and Evaluation Workshop
- NOAA Coastal Service Center Public Issues and Conflict Management Workshop
- University of Maryland's Communicating Science Effectively Workshop
- Atlantic States Marine Fisheries Commission Basic Stock Assessment Workshop
- Atlantic States Marine Fisheries Commission Maximum Likelihood Modeling Workshop

PROFESSIONAL MEMBERSHIPS:

- Citizen Science Association
- American Fisheries Society
- SC Chapter of the American Fisheries Society
- ACCSP Operations Committee (2015-present)

August 17, 2023

Julie Defilippi Simpson
Atlantic Coastal Cooperative Statistics Program
1050 N. Highland, Suite 200A-N
Arlington, VA 22201

Dear Mrs. Simpson,

The Commercial Fisheries Research Foundation (CFRF), the Rhode Island Department of Environmental Management (RI DEM), and the Martha's Vineyard Fishermen's Preservation Trust have reviewed all questions and recommendations provided by the ACCSP Operations and Advisory Committees for our proposal titled "Maintaining the Whelk Research Fleet to Improve Fishery-Dependent Data Collection for Channeled Whelk (*Busycotypus canaliculatus*) and Knobbed Whelk (*Busycon carica*)." As recommended, we have changed our proposal category from new to maintenance. We originally picked the category of new because we did not resubmit the proposal for funding last year as the project was still developing and strong justification for continuation was not apparent at that time. Moving the project to the maintenance category helps address the committee comment regarding further justification to sample whelk, as these species were a top priority species when the original grant was submitted but since then have fallen from this category. This project now represents a continuation of work that addressed a top priority species at the time of funding rather than a new project trying to address non-top priority species. The rationale to downgrade whelk as a priority species is still unclear to us and we have expanded upon the continued need for this sampling in the revised proposal. We have also clarified the budget by creating a separate table for the CFRF contract and added a proposal summary and funding transition plan.

We appreciate your consideration of this proposal. Please do not hesitate to contact us if the Operations and Advisory Committee have any further questions.

Sincerely,

M. Conor McManus, PhD   N. David Bethoney, PhD   Shelley Edmundson, PhD
Chief, RIDEM DMF   Executive Director, CFRF   Executive Director, MVFPT

Proposal for Funding made to:
Atlantic Coastal Cooperative Statistics Program
Operations and Advisory Committees
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201

Maintaining the Whelk Research Fleet to Improve Fishery-Dependent Data Collection for Channeled Whelk (*Busycotypus canaliculatus*) and Knobbed Whelk (*Busycon carica*)

Submitted by:

M. Conor McManus, PhD
Rhode Island Department of Environmental Management
3 Fort Wetherill Rd.
Jamestown, RI 02835
conor.mcmanus@dem.ri.gov

N. David Bethoney, PhD
Commercial Fisheries Research Foundation
P.O. Box 278
Saunderstown, RI 02874
dbethoney@cfrfoundation.org

Shelley Edmundson, PhD
Martha's Vineyard Fishermen's Preservation Trust
P.O. Box 96
Menemsha, MA 02552
shelley.edmundson@gmail.com

Applicant Name: Rhode Island Department of Environmental Management Division of Marine Fisheries, the Commercial Fisheries Research Foundation, and the Martha's Vineyard Fishermen's Preservation Trust

Project Title: Maintaining the Whelk Research Fleet to Improve Fishery-Dependent Data Collection for Channeled Whelk (*Busycotypus canaliculatus*) and Knobbed Whelk (*Busycon carica*)

Project Type: Maintenance

Requested Award Amount: $92,996

Requested Award Period: August 1, 2024 – July 31, 2025

Principal Investigators: M. Conor McManus, PhD, Chief, Division of Marine Fisheries, Rhode Island Department of Environmental Management

N. David Bethoney, PhD, Executive Director, Commercial Fisheries Research Foundation

Shelley Edmundson, PhD, Executive Director, Martha's Vineyard Fishermen's Preservation Trust

Date Originally Submitted: June 16, 2023

Summary:

The southern New England whelk fishery includes landings of two species, channeled whelk (*Busycotypus canaliculatus*) and knobbed whelk (*Busycon carica*), from nearshore state waters. The increase in fishery value and decline in landings has heightened the need for state management to ensure the sustainability of the fishery. However, substantial uncertainties in the assessment and management of whelk fisheries coastwide, particularly in the southern New England fisheries, have arisen due to gaps in fishery-dependent data. This proposal seeks to help fill that gap through the continuation of the Whelk Research Fleet originally funded through ACCSP in 2021. The Whelk Research Fleet is a collaborative effort in which fishermen collect information during regular fishing activity with equipment, protocols, and data management provided by scientists. In the first of its kind for this species, this research fleet model for whelk has engaged harvesters from fishing sectors that had not previously been involved in cooperative research in helping collect critical data for state scientists and managers. The original project focused on establishing a pilot Whelk Research Fleet to see if fishermen could scientifically collect management relevant information about channeled and knobbed whelk. Scientific sampling protocols in consultation with management and scientific experts were developed and a group of fishermen were recruited and trained to implement these protocols. These efforts were a success. Over 4,000 whelks were sampled by 7 commercial fishermen through 66 valid independent sampling sessions in Rhode Island and Massachusetts waters and all data has been transferred to ACCSP. Funding through this proposal will continue data collection by the Whelk Research Fleet and, with in-kind match from Vineyard Wind 1 LCC, expand the number of participants and areas sampled.

Objective:

The southern New England whelk fishery includes landings of two species, channeled whelk (*Busycotypus canaliculatus*) and knobbed whelk (*Busycon carica*), from nearshore state waters (Angell 2019, Nelson 2018). The increase in fishery value and decline in landings has increased the need for state management to ensure the sustainability of the fishery; however, fishery-dependent data to characterize the whelk fishery is limited. The Rhode Island Department of Environmental Management (RI DEM), Commercial Fisheries Research Foundation (CFRF), and Martha's Vineyard Fishermen's Preservation Trust (MVFPT) with support from the Massachusetts Division of Marine Fisheries (MA DMF) and Connecticut Department of Energy and Environmental Protection are proposing to continue collecting fishery-dependent data on both channeled and knobbed whelk in at least Rhode Island and Massachusetts through the Whelk Research Fleet. The Whelk Research Fleet is a collaborative effort in which fishermen collect information during regular fishing activity with equipment, protocols, and data management provided by scientists. The Whelk Research Fleet was established through ACCSP funding in 2021 and will be sustained by Vineyard Wind 1 LLC through July 2024. Continuation of the Whelk Research Fleet will sustain a cost-effective method to collect critically needed fishery-dependent (biological, catch, and effort) data from the whelk fishery in southern New England.

The proposed project will focus on providing fishery-dependent data directly for inclusion in each respective state's assessment and management process for the whelk fishery. Fishery-dependent data will be collected from the nearshore state fisheries for whelk in Narragansett Bay, Rhode Island and the south coast of Massachusetts (Figure 1). Support from Vineyard Wind 1 LLC will start in August of 2023 with the goal to continue expand participation specifically in and around Martha's Vineyard and Nantucket Sound and potentially include an additional vessel from Connecticut state waters or Long Island Sound. The expansion of up to three vessels will be continued through the proposed project period with support from Vineyard Wind 1 LLC.
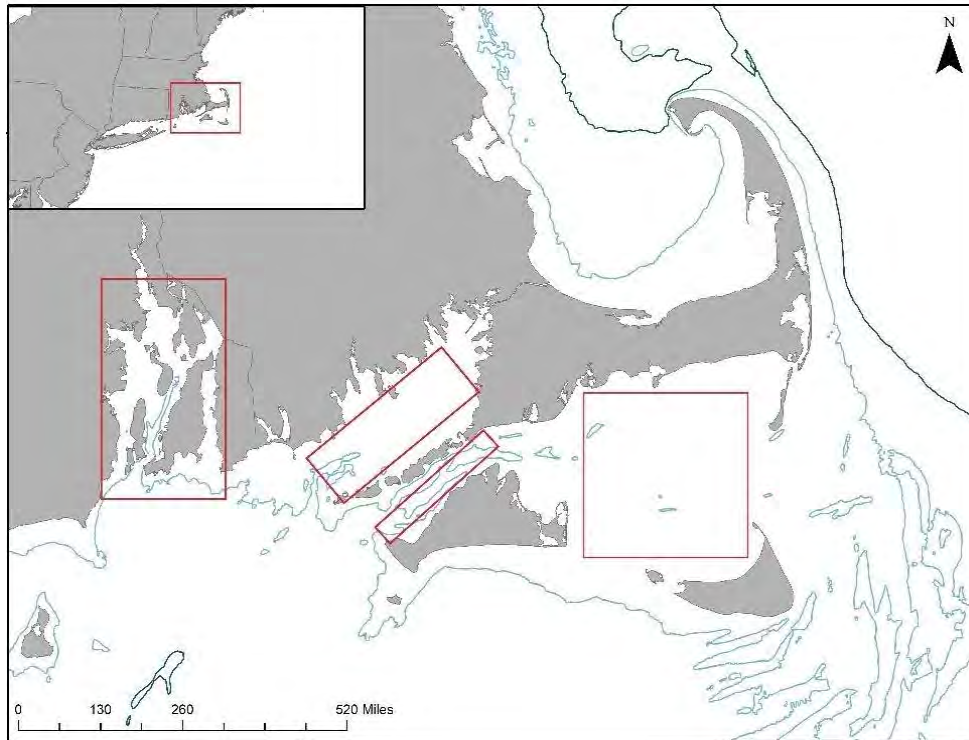
Figure 1. Map of the areas accounting for the majority of landings in the whelk fishery across Rhode Island (RI) and Massachusetts (MA). From East to West, the areas highlighted in red are Nantucket Sound (MA), Vineyard Sound (MA), Buzzards Bay (MA), and Narragansett Bay (RI). 20- and 50-meter bathymetry lines are displayed for reference.

The of goals for the project are:

1. Collect and communicate critically needed whelk data (catch, effort, and biological) in a cost-effective way using modern electronic technology and fishermen's time on the water;
2. Contribute to the improvement of whelk science and fisheries management in southern New England;
3. Continue an approach for fishery-dependent data collection that involves the commercial whelk industry through collaborative research.

Specific objectives of the project include:

- Support commercial fishermen participating in the Whelk Research Fleet and train additional fishermen as needed;
- Maintain and evolve the On Deck Data application to meet the data needs of scientists and the logistical needs of participant fishermen;
- Collect fishery-dependent data from commercial whelk vessels throughout the southern New England region to characterize the catch, effort, and spatial and temporal trends of the fishery;
- Communicate whelk biosample data to ACCSP every six months;
- Demonstrate a model for fishery-dependent data collection, management, analysis, and utilization that can be duplicated in a cost-effective way in other regions and in other fisheries;
- Conduct internal analyses of the project database to assess spatial and temporal trends in species' catch and bycatch composition and fishery characteristics;

- Communicate to a broad audience the benefits and value inherent in this type of collaborative data collection program.

<u>Need:</u>

Substantial uncertainties in the assessment and management of whelk fisheries coastwide, particularly in the southern New England fisheries, have arisen due to gaps in fishery-dependent data. Lack of fishery-dependent data has hindered efforts to establish reference points and assess the status of stocks through stock assessments (Angell 2019, Nelson et al 2018, ACCSP 2019). As a result, there is growing concern from managers and industry members alike about the sustainability of the whelk fishery.

The whelk fishery represents an opportunity to diversify landings for fishing businesses. Despite the fishery being open throughout the entirety of the year in Rhode Island and most of the year in Massachusetts, there are very few vessels which only target whelk (TNC 2018). Most vessels targeting whelk only do so for a portion of the year when the species is seasonally available, and otherwise harvest a variety of other fisheries. However, due to the growth in the international market and substantial increase in ex-vessel price over the last decade, harvesters' income derived from whelk landings is significant (TNC 2018). It is suspected the increased reliance on, and importance of, the whelk fishery is directly correlated to declines in other fisheries, such as the southern New England inshore lobster fishery, and represents shifted fishing effort onto whelk. Following peaks in landings between 2009 and 2012, declines in landings in Rhode Island and Massachusetts have occurred since 2013. Despite this, the value of the fishery peaked at over $2 million in Rhode Island in 2018 and been maintained annually around $5 million in Massachusetts due to increasing ex-vessel prices (Angell 2019, Nelson et al 2018). In recent years, up to 106 fishing vessels reported landings of whelk annually in the State of Rhode Island in 2018 (Angell 2019). While the number of permitted vessels Massachusetts has remained relatively stable over this period, with between 130 and 140 permitted vessels, active vessels reporting landings annually has declined from about 80 in 2018 to 64 in 2020. Preliminary data show that this decline continued in 2021 and 2022 (Nelson et al 2008, MA DMF unpublished data). Even though the whelk fishery is dispersed on a broad scale between Rhode Island and Massachusetts, and whelk populations are likely segregated on a fine scale (Wilcox et al 2021), the interstate markets for whelk are highly interconnected. Massachusetts dealers often purchase whelk from the Rhode Island fishery. Despite the decline in landings, the whelk fishery still represents a large and viable opportunity for fishermen seeking to diversify their catch due to the high price. However, the combination of landings declines and anecdotal reports of localized depletion with increased or stable fishery value raises questions over the fishery's long-term sustainability.

Globally, whelk or conch fisheries are notoriously difficult to manage and are prone to overfishing and localized depletion due to their slow maturation, slow growth rate, and localized larval distribution. Coupled with the largely sedentary lifestyles, these life history parameters can often result in quick depletion of localized populations after years of high fishing pressure (Nelson et al 2018). Anecdotally, there have already been areas identified by fishermen in Massachusetts, specifically Buzzards Bay and Nantucket Sound, depleted of whelk (Nelson et al 2018). Although it has become evident from trends that the whelk fishery is overfished and overfishing is occurring in Massachusetts, and more recently in Rhode Island, there is still a question as to how widespread this may be occurring (Angell 2019, Nelson et al 2018). This is because of the difficulty of obtaining fishery-dependent data from the whelk fishery.

In both Rhode Island and Massachusetts, the primary index of abundance used in the stock assessment are the state trawl surveys. Both states also receive fishery-dependent data through mandatory trip reports submitted from harvesters. Similar data is collected in each state through the trip reports which include total whelk landed per trip, traps hauled per trip, total traps in the water, and soak time of traps in the water. Although useful for tracking trends in the fishery, this broad level of fishery-dependent data has been inadequate to construct comprehensive stock assessments, particularly in Rhode Island. In addition, the mandatory trip reports do not provide any biological data from the whelk catch nor does it provide any data on the species composition of the catch or the sublegal discards within the fishery. Rhode Island conducted cooperative fishery-dependent sampling with observed trips opportunistically in the early 2010s, but currently does not have a dedicated fishery-dependent data collection program. In a similar fashion, Massachusetts opportunistically collects cooperative fishery-dependent data from commercial whelk vessels through observed trips. Observed MA DMF trips are the only source of fine scale, pot-level, data on the whelk fishery between the two states and provide specific data on species composition of the catch as well as the sizes of all landed and discarded sublegal whelk. However, this sampling occurs on a small fraction of commercial whelk trips; between 2018 and 2022, a total of 17 whelk trips were observed by the MA DMF survey with only 1 trip in 2020 (due to COVID challenges) and 2 trips in 2022 (MA DMF unpublished data). Further, appropriate spatial representation of the fishery-dependent data collection program by MA DMF can prove to be challenging due to the distribution of the whelk fishery across the south coast of Massachusetts, Cape Cod, Martha's Vineyard, and Nantucket. As a result, there are areas of the whelk fishery in Massachusetts that are logistically too difficult to observe trips consistently from the outer Cape Cod, Martha's Vineyard, and Nantucket. In contrast, landings from Nantucket Sound make up most statewide landings and are key fishing grounds to whelk vessels from Martha's Vineyard and Nantucket, leaving a large portion of the fishing fleet and landings uncharacterized by the state survey. This problem is further exacerbated by the highly localized, and likely segregated, populations of whelk on scales potentially as fine as within Narragansett Bay.

Despite whelk being outside of the top 25% of priority species coastwide, the collection of relevant biological data on channeled and knobbed whelk is lacking and remains a major need for southern New England including Rhode Island and Massachusetts. The same needs that led to the channeled and knobbed whelk being once listed as a top priority for expanded biological sampling by ACCSP in 2019 remain. This is supported by the many of the needs and issues around channeled whelk biology and fisheries management identified by representatives from Massachusetts to Georgia in 2014 persisting into 2020 (Askin and Fisher 2021). As highlighted by Askin and Fisher (2021), state scientists and managers from Massachusetts through Georgia, and the Atlantic States Marine Fisheries Commission joined to share knowledge and management practices regarding channeled whelk. Biological sampling of catch remains a data gap for most of these states. Askin and Fisher (2021) highlight that other states' monitoring programs, such as this fleet design for Massachusetts and Rhode Island, should serve as a model for other states to adopt. The listing and the coastal expert group concerns were a result of the large uncertainty around cohesive management and identifying if fisheries are overfished and if overfishing is occurring. Further, there have recently been significant changes in landings and management schemes in the whelk fishery coastwide, in particular in Rhode Island and Massachusetts, which when coupled with the low resilience of the fishery due to the life history parameters of the species, is a cause for concern (ACCSP 2019). Regional management could provide the push needed for regulatory consistency based on life history measures, population dynamics, and fishery patterns; however, a greater effort in data collection is first needed within states to provide consistency (Askin and Fisher 2021). To the sentiments presented in Askin and Fisher (2021), since the project's inception,

additional states (such as Connecticut and New York) have inquired with the principal investigators about the program and have strong interest in either developing a similar one, or collaborating in the future to expand this program into their waters.

Compared to other commercially important species supporting fisheries of similar magnitude, little research has been conducted on even the basic biology and ecology for the two species (Edmundson 2016). Within the current literature available for both whelk species, there is discrepancy between basic biological parameters such as age at maturity, growth rates, and maximum age (Peemoeller 2013). It is currently unclear if these discrepancies are a result of fine scale population differences between various subpopulations or other factors.

Beyond biological sampling for the fishery, the data from this research fleet has the potential to inform other important surveys coastwide for the species. For example, before-after gradient and before-after control-impact surveys focused on evaluating offshore wind development impacts on channeled and knobbed whelk using industry-based whelk pots are being developed in Rhode Island. These surveys are critical in being able to assess prospective ecosystem and fishery impacts from offshore wind development. Haul and pot-level data from this project can provide valuable information for devising power analyses that can guide the surveys' sampling frequencies and understand how catch can biologically vary with gear or fishing behavior. Continued support of this program will allow for addressing both longstanding resource and catch data gaps, and prospectively others.

Results and Benefits:

The implementation of a robust multi-state, fishery-dependent data collection program could reduce data gaps resulting in improved management of the channeled and knobbed whelk fishery. With support from ACCSP this program was created 2021 in the form of the Whelk Research Fleet. The Whelk Research Fleet will persist through July 2024 with support from Vineyard Wind 1 LLC. This proposal would continue the program for another year helping to meet ACCSP's mission of improving data quality for fisheries science. In addition, this project, and its integration with the ACCSP data housing program, will lend to the other mission of the ACCSP, namely by contributing to a single data management system that will meet the needs of fishery managers, scientists, and fishermen across multiple state lines.

Past funding by ACCSP focused on establishing a pilot Whelk Research Fleet to see if fishermen could scientifically collect management relevant information about channeled and knobbed whelk. Project partners successfully developed scientific sampling protocols in consultation with management and scientific experts and recruited and trained a group of fishermen to implement these protocols. Please see the "Approach" section for further details. During this pilot phase 4,090 whelks were sampled by 7 commercial fishermen. Participants conducted 66 valid independent sampling sessions in Rhode Island and Massachusetts waters (Figure 2). In addition to receiving catch composition information from the fleet, temperature sensors were dispersed this spring to provide insight on the seasonality of kept and discarded trends throughout the fishing season. Communication with participating fishermen has provided positive feedback on sampling effort and practicality. Due to this feedback and continued interest, Vineyard Wind 1 LLC has provided bridge funding to continue the Whelk Research Fleet during this proposal review period and increase the size of the Research Fleet if this proposal is successful. These results prove the Research Fleet concept can be utilized in the whelk fishery.
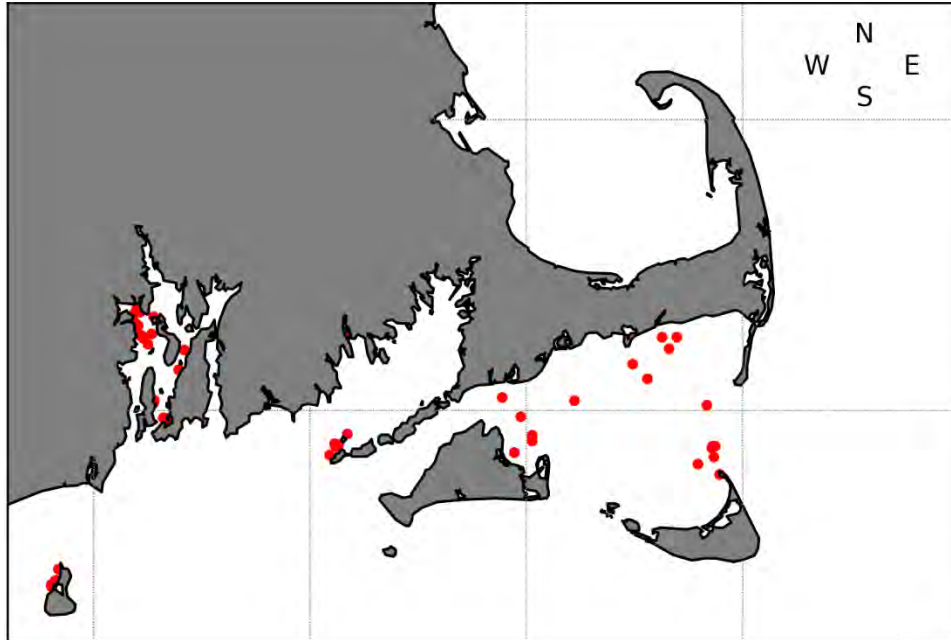
Figure 2. Sampling locations for the Whelk Research Fleet in 2021 and 2022. At each station location, depth, soak time, and bait type are recorded as well as measurements and disposition of individual whelks.

The accomplishments of the project include:

- A database of whelk biological, catch, and effort data, that can be made accessible, within confidentiality guidelines, to many end users, including industry members, stock assessment scientists, and fishery managers;
- Coordinated data transmission to the ACCSP building off existing data communication practices employed by the CFRF Black Sea Bass and Lobster and Jonah Crab Research Fleets;
- A cost-effective way to collect fishery-dependent data for a commercially important species which is currently listed as data poor;
- A constructive way for members of commercial fisheries to contribute to the assessment and management of whelk.

Though analysis of the pilot data has not been fully conducted, preliminary exploration has already yielded informative results. Of the individuals caught by fleet participants, 98% were channeled whelk while knobbed whelk accounted for only 2% of the catch. Approximately 75% of whelks caught were discarded due to being undersized. Continued collection of data by the Whelk Research Fleet will be of benefit to the whelk fisheries of southern New England. The ACCSP Biological Review Panel identified channeled and knobbed whelk as a top priority due to inadequate biological sampling (ACCSP 2019). Further, both managing agencies in Massachusetts and Rhode Island acknowledge the need for expanded fishery-dependent data collection in support of management and assessment efforts. The proposed project addresses the identified needs of both the ACCSP as well as multiple state management agencies (TNC 2018, Askin and Fisher 2021). The results of the proposed project are expected to have broader regional impacts across the Atlantic coast, particularly other southern New England states with developing whelk fisheries such as Connecticut and New York. This project builds

upon previous efforts between Rhode Island and Massachusetts of increased coordination and collaboration towards improving fisheries science and management (TNC 2018). The project will specifically have impacts in other states with whelk fisheries as the Research Fleet will serve as a model to further expand and adapt fishery-dependent surveys for whelk to improve data sources used in assessment and management efforts. <u>This is already happening with interest and intent to expand the Whelk Research Fleet into Connecticut state waters</u>. Due to the unique life history traits of whelk, which result in challenging fishery management scenarios, cost-effective collaborative research efforts may prove to be the best suited for providing timely data used in assessments and management for the species.

<u>The underlying benefit of the proposed project will be more robust fishery-dependent biological, catch and effort data available via the ACCSP and provided to MA DMF and RI DEM, on which to base the whelk stock assessment and management</u>. The fishery-dependent data collected by the proposed project would be collected through the existing state channels of Rhode Island and Massachusetts to feed back into the ACCSP biosamples database for use in state and federal management. The collaborative design of the project, which utilized inter-state relationships to design at-sea sampling protocols, provides high resolution, pot-level catch, effort, and biosamples data. The data will be collected at-sea by fishermen in a format directly applicable to Rhode Island, Massachusetts and ACCSP data formatting standards and will pass directly to all three parties. Whether this will result in different harvest levels than are currently being realized is difficult to predict, but better informing future stock assessments will surely be a positive outcome, providing a more scientifically-sound basis on which to manage fishing effort. Furthermore, the data collected by the proposed project will also be essential in improving predictive capabilities and finding the right balance between fishing pressure and resource availability. Finally, the long-term impact of the project is to improve the sustainability of the whelk fishery by filling data gaps resulting in the current data poor listing of the fishery.

Data Delivery Plan
To provide regular feedback biannual data reports will be sent to Research Fleet participants. Vessel-specific data reports will include all raw data collected by the participant and summary statistics. All data reports will be confidential within the Fleet, unless participants consent to share amongst other Fleet members, and will only include the data collected by each report recipient. The additional summary Fleet wide statistics and more frequent individual reports can be sent upon request by each individual Fleet participant.

Data delivery to managing end users is a primary objective of the proposed project. The CFRF has worked with project partners to agree on specific data formats to be collected. The CFRF has been in communication with data coordinators at the ACCSP to agree upon desired formatting of all data submissions to the ACCSP of collected whelk biosamples and fishery data. The first delivery of Whelk Research Fleet data to ACCSP occurred August 3, 2023. This follows the data delivery timing currently followed by the CFRF Black Sea Bass and Lobster and Crab Research Fleets to deliver data.

Approach:

The project seeks to continue to collect critically needed biological, catch, and effort fishery-dependent data for incorporation into the ACCSP database. Further analysis and communication will be conducted to help with that application of data to state whelk stock assessments. Project components include: 1)

Continued support and function of the Whelk Research Fleet; 2) Collection of biological, effort, and environmental data and fishery characteristics; 3) Internal data analysis to investigate trends in whelk catch and discards; 4) Compilation and communication of project data and results to ACCSP, RI DEM, and MA DMF for application by stock assessment scientists and fisheries managers; and 5) Outreach and education activities to share findings. Methodological details are outlined below.

Continuation of Whelk Research Fleet

A key component of the Whelk Research Fleet is the steering committee, which will be maintained for this proposal. The steering committee designed sampling protocols, is provided with project updates, and helps guide results towards management use. All project team members are part of the committee. The other members of the steering committee were recruited based on their expertise in regional whelk management. Dr. Richard Bell from The Nature Conservancy (TNC) previously worked with the whelk industry and managers in Rhode Island and Massachusetts to investigate assessment and management of the channeled whelk. Steven Wilcox is the project lead for the MA DMF Resource Assessment bottom trawl survey, has served as the primary whelk biologist for MADMF and completed his master's work on whelk population dynamics in southern Massachusetts. Dr. Justin Davis is the Assistant Director of the Connecticut Department of Energy and Environmental Protection and provides a key link to expanding this approach more regionally.

The Whelk Research Fleet consists of seven fishing vessels, chosen strategically to cover existing spatial data gaps in whelk fishery-dependent data across the Massachusetts and Rhode Island fishery (Table 1). Applicants were chosen after consulting the steering committee and CFRF board of directors to identify overlap of area fished by each applicant and fishery-dependent data gaps. Priority was given to vessels which cover areas identified as lacking current sources of data. One of the original eight Research Fleet members chose not to continue. A replacement participant and three additional participants will be added over the coming year. It is expected the Whelk Research Fleet will consist of 11 vessels when this project period begins.

Table 1. Current Whelk Research Fleet members.

Fleet Member	Vessel	Home Port
Mohawk Bolin	F/V Rock & Roll	Edgartown, MA
Ronald Brown	F/V Peggy B II	Harwich Port, MA
Henry Borges	F/V Bad Habit	New Bedford, MA
Gerry Schey	F/V Yes I Am	Warwick, RI
Derek Pascale	F/V Ragged Edge	Point Judith, RI
Russell Sylvestre	F/V Little Tater	Newport, RI
Ken Murgo	F/V Johnny B	Newport, RI

Fishery-dependent Data Collection

The Research Fleet participants will continue collecting fishery-dependent data as established during the pilot phase. The monthly target is three sampling sessions from their commercial whelk trips. Ideally, each sampling session occurs on three separate trips per month. During each sampling session, Research Fleet members will randomly sample three pots for the entirety of the whelk catch. The tablet

application On Deck Data instructs Research Fleet members to sample whelk from three pots randomly selected based on the total number of pots expected to be hauled during the sampling session. Prior to sampling the whelk catch, effort and location data is collected. From the three randomly selected pots, Research Fleet members sample every single whelk for shell height and shell width down to the nearest millimeter, disposition of the whelk (retained/discarded), and the species of whelk.

An important component of On Deck Data is the wireless transfer of data to the project database as all data collected by Research Fleet members during their routine fishing practices and uploaded to the CFRF database upon return to port. The project team will continue to work with ACCSP, RI DEM, and MA DMF staff to ensure the data formats used in the project database are compatible with the ACCSP biosamples database and relevant state databases. This will ensure efficient data transfer, both among state partner agencies and the ACCSP, throughout the course of the project. Participant fishermen have tested the whelk data collection app and successfully completed a wireless transfer routine for functionality at-sea and on land.

In addition to the fishery-dependent data, Research Fleet members were given tidbit temperature loggers to record bottom water temperature. Temperature loggers will remain fixed on a specific string of whelk pots during the fishing season. At the conclusion of each fishing season, project staff will pick up and offload all temperature data and return them to Research Fleet Members prior to the start of the next season.

Internal Data Analysis

The main goal of data collection is to bolster fishery-dependent data sources available for use by state agencies for fisheries management and assessment needs. As a result, the effort will primarily be expended to ensure applicability of collected data across state lines. However, data collected by the Research Fleet will also be investigated internally by project staff. Specifically, internal data analyses will seek to answer questions about trends within the fishery. Specific research questions will be further developed during the project and after the initial phase of sampling but may include: Are there spatial patterns in the size frequency or species composition in the whelk fishery? Is catch (mean size, ratio of target species to each other) influenced by type of bait, soak time, or pot fished? How does bottom temperature impact whelk catch characteristics throughout the year? Research questions will evolve throughout the sampling period of the project and data will constantly be explored through the open-source statistical software R. Generalized Linear Models will be used to explore patterns of variation in catch rates and derive standardized CPUE following (Maunder and Punt 2004).

Outreach and Education

Education, outreach, and ongoing communication are an integral part of the overall work plan for the proposed project. These components of the proposed project support the goal of fostering collaborative working partnerships among scientists, managers, and members of the fishing industry through all phases of research, from sampling strategies through the analysis and sharing of data and results. There are several work elements embedded in the project work plan that are aimed at specifically addressing outreach and education goals, including:

1. Ongoing communication with project team members including the members of the Whelk Research Fleet through personal meetings, group meetings, e-mail briefings, and phone conversations.
2. Periodic project briefings to the steering committee and key individuals outside the project.
3. Continual postings of project information on the CFRF website, newsletter, and social media which include descriptions of the Research Fleet, the equipment being used, the type of data being collected, and findings, as this information evolves over the course of the project.
4. Organization of at least one Fleet meeting involving managers, scientists, and members of the commercial fishing industries to share project findings and discuss experiences and results.
5. Issuance and distribution of a written summary report.
6. Participation in professional conference(s) to share project methods, findings, and conclusions.

Geographic Location

At-sea sampling by the Research Fleet has been conducted within Massachusetts and Rhode Island state water (Figure 2). The exact location of sampling is decided by selected Research Fleet members as all sampling occurs during normal commercial fishing operations. As mentioned previously, Research Fleet members have been selected to cover spatial gaps in existing fishery-dependent data sources. Pictured below is an updated map of the geographic areas that have been sampled by the current Whelk Research Fleet.

Milestone Schedule:

Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Research Fleet data collection and support	Research Fleet data collection and support	Research Fleet data collection and support	Research Fleet data collection and support	Research Fleet data collection and support	Research Fleet data collection and support				Research Fleet data collection and support	Research Fleet data collection and support	Research Fleet data collection and support
Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website	Maintain ODD, server, database, and project website
Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis	Data QA/QC, review, and analysis
					Submit data to ACCSP, Semi-annual reports to Fleet Members						Submit data to ACCSP, Semi-annual reports to Fleet Members
General outreach	General outreach	General outreach	General outreach	General outreach	General outreach	Outreach; Fleet Meeting/ Conference	Outreach; Fleet Meeting/ Conference	Outreach; Fleet Meeting/ Conference	General outreach	General outreach	General outreach

Project History Table:

Funding Source & Year	Title	Original Project Dates	Funded Amount	Total Project Cost	Description
New ACCSP 2021	Implementing the Research Fleet approach to Improve Fishery-Dependent Data Collection for Channeled Whelk (*Busycotypus canaliculatus*) and Knobbed Whelk (*Busycon carica*) in Southern New England	August 1, 2021 – July 31, 2023	$115,149	$118,805	Piloted the research fleet technique for collection of fishery dependent effort, biological, and discard data in the MA and RI whelk fishery.
Vineyard Wind 1 LLC 2023	Whelk Research funding in cooperation with Martha's Vineyard Fishermen's Preservation Trust	August 1, 2023 – July 31, 2024	$150,000	$150,000	Maintain the Whelk Research Fleet and expand it to include additional vessels from Martha's Vineyard. Support for other whelk research as possible.
New ACCSP 2024	Maintaining the Whelk Research Fleet to Improve Fishery-Dependent Data Collection for Channeled Whelk (*Busycotypus canaliculatus*) and Knobbed Whelk *(Busycon carica)*	August 1, 2024 – July 31, 2025	$132,749.00	$169,033.00	Will maintain the Whelk Research Fleet for collection of fishery dependent effort, biological, and discard data in the MA and RI whelk fishery.

Project Accomplishments Measurement:

Project Goal	Metric 1	Metric 2	Metric 3	Metric 4	Metric 5	Metric 6
Collect and distribute whelk data in a cost-effective way	Upkeep of Whelk ODD, CFRF server, and database	Support of 11-vessel Whelk Research Fleet	8 months of data collection by Fleet	Transfer of collected data into database	Submission of all data reports to Fleet Members	Submission of biological and fishery data to ACCSP and other managers
Contribute to the improvement of whelk fishery management	Expanded sources of fishery-dependent data in RI and MA	Provide whelk data from areas and times of year currently under sampled	Distribution of project data to managing stakeholders	Utilization of Research Fleet data in state whelk stock assessments		
Demonstrate model approach for cost efficient fishery-dependent data collection	Usage of collaborative approach established in previous years	Presentations of Fleet design and data at scientific conferences				

Cost Summary:

Budget Table:

Overall

	Maintenance Proposal		
	Proposal	**In-Kind**	**Total**
TOTAL	$ 92,996	$ 13,065	$ 106,061
% Contribution by Funding Source	88%	12%	100%
Object Class Category	Proposal	In-Kind	Total
A Personnel			
- RI DEM - Conor McManus	$ 3,652	$ 1,826	$ 5,478
Total RI DEM Personnel Costs	$ 3,652	$ 1,826	$ 5,478
B Fringe Benefits	$ 2,480	$ 1,240	$ 3,720
C Travel	$ 500	$ -	$ 500
D Equipment	$ -	$ -	$ -
E Supplies	$ 100	$ -	$ 100
F Contractual - CFRF	$ 85,084	$ 9,409	$ 94,493
G Construction	$ -	$ -	$ -
H Other Costs	$ -	$ -	$ -
I Total Direct Costs	$ 91,816	$ 12,475	$ 104,291
J Indirect Charges	$ 1,180	$ 590	$ 1,770
K Total Proposal Costs	$ 92,996	$ 13,065	$ 106,061

CFRF Contractual Detail

F	Contractual - CFRF	Proposal	In-Kind	Total
	a. Personnel			
	- Executive Director	$ 7,000		$ 7,000
	- Research Biologist	$ 22,500		$ 22,500
	- Data Manager	$ 6,615		$ 6,615
	- Business Manager	$ 2,517		$ 2,517
	Total CFRF Personnel Costs	$ 38,632	$ -	$ 38,632
	b. Fringe Benefits	$ 3,863	$ -	$ 3,863
	c. Travel	$ 1,500	$ -	$ 1,500
	d. Equipment	$ -	$ -	$ -
	e. Supplies			
	- Research Supplies	$ 1,238		$ 1,238
	- Office Supplies	$ 500		$ 500
	Total Supplies	$ 1,738	$ -	$ 1,738
	f. Contractual			
	- Programmer for On-Deck Data database	$ 1,000		$ 10,000
	- Martha's Vineyard Fishermen's Preservation Trust	$ 3,000	$ -	$ 3,000
	Total Contractual	$ 4,000	$ -	$ 13,000
	g. Construction	$ -	$ -	$ -
	h.Other Costs			
	- Fishing Vessel Stipends	$ 20,800	$ 7,800	$ 28,600
	Total Other Costs	$ 20,800	$ 7,800	$ 28,600
	i. Total Direct Charges	$ 70,533	$ 7,800	$ 87,333
	j. Indirect Charges			
	- Proposed at 20.63% of CFRF Direct Charges	$ 14,551	$ 1,609	$ 16,160
	Total Indirect Charges	$ 14,551	$ 1,609	$ 16,160
	k. Total CFRF Costs	$ 85,084	$ 9,409	$ 103,493

FY2024 Budget Justification:

The total proposed federal budget requested by the Rhode Island Department of Environmental Management (RI DEM) and the Commercial Fisheries Research Foundation (CFRF) for all components of the work is $92,996 for 12 months. <u>The voluntary non-federal match funds provided by the RI DEM and CFRF are $13,065.</u> The total proposal value is $106,061. The proposed timeframe is August 1, 2024 to July 31, 2025.

The proposed budget justification for object class category items includes the following:

A. Personnel: Deputy Chief – approximately 4% of annual salary = $5,478
   C. McManus, Deputy Chief, RIDEM Division of Marine fisheries will serve as a co-advisor and manager to the proposed project, providing guidance on research protocols, assisting with statistical analyses, participating in Research Fleet meetings, developing a data management plan for the Fleet data, assisting in all technical writing and presentations, coordinating with neighboring states with whelk fisheries to inform them of this approach, and conveying project results to fishery governance to inform future stock assessments and fishery management decisions.

B. Fringe Benefits: RIDEM Annual Fringe benefit rates are:

Retirement 24%	Deferred Compensation 0.4%
FICA 6.2%	Medicare 1.45%
Health care $21,937/year	Dental $1,132/year
Vision Mercer $165/year	Assessed Fringe 4.25%
Retiree Health 6.75%	

C. Travel: $500 is requested for travel to project meetings with the team, scientific and management outreach events, and visiting Research Fleet participants in the project.

D. Equipment: There are no direct equipment charges.

E. Supplies: $100 is requested in supplies to build standardized gauges that the Research Fleet participants will be using. These gauges will be instrumental and ensuring the same tools are being used by industry and scientists in whelk data collection. They will also be used to inform enforcement on alternative measuring tools when inspecting whelk sizes.

F. Contractual: The CFRF will conduct most of the work involved in this project, with administrative and technical assistance provided by RI DEM. These services will be charged to the grant as contractual costs and are outlined below to provide more detail as to how the federal funding will be used:

   1. Personnel: $38,632 federal. This includes the wages for the following CFRF personnel for time spent working directly on the project:
      1. Executive Director – Proposed at 5% of time for 12 months = $7,000
         D. Bethoney, CFRF Executive Director, will oversee the administration, team communication/coordination, field research, and outreach aspects of the project. He will also assist with data analysis, report and outreach material development, and communication of project progress to the client, fishing industry and management communities.
      2. Research Biologist – Proposed at 40% of time for 12 months = $22,500

A CFRF Research Biologist will be the primary individual responsible for fleet organization, maintenance, and support, as well as project outreach

3. Data Manager – Proposed at 10% of time for 12 months = $6,615
   L. Stoltz, CFRF Data Manager, will maintain the data collected from the vessels at sea sampling in the CFRF data base and lead any data analysis
4. Business Manager – Proposed at 5% of time for 12 months = $2,517
   T. Winneg, CFRF Business Manager, will carry out all the finance related aspects of the project including research budget tracking, invoice processing, and administrative support tasks, including purchasing supplies.

2. Fringe Benefits: $3,863 federal. This includes a percentage for payroll taxes and worker's compensation insurance prorated in accordance with % of salary paid from program. Benefits proposed at 10% of personnel costs based on 2022 benefits and historical analysis.

3. Travel: $1,500 federal. Travel costs include travel support (mileage) for project staff to provide support at docks to Research Fleet participants, to participate in meetings with the Research Fleet, stock assessment scientists, and managers, and to participate in one industry/professional conference for one personnel to share and disseminate project methods, findings, and conclusions.

4. Equipment: $0. There will be no equipment costs on this project.

5. Supplies: $1,738 federal. This category includes research supplies and project office supplies.

   1. Research Supplies: $1,238 - Costs of tablets, waterproof cases, Tidbit temperature logger with base & fish measuring board. Proposed at $619 per set x 2 vessels for the duration of the project. The two sets of sampling equipment for existing Research Fleet vessels are replacements for equipment that is damaged or lost.

   2. Office Supplies: $500 – Costs to cover database storage and website fees ($25/month), project office and meeting supplies, outreach materials, etc.

6. Contractual: $4,000 federal. This includes costs associated with:

   1. Programmer ($1,000) - CFRF hires an outside computer programmer to maintain the On Deck Data application and database coding for data relay and storage, to address any issues that arise, and to update the app to maintain functionality.

   2. Martha's Vineyard Fishermen's Preservation Trust ($3,000) to assist with fleet support and data gathering. This includes S. Edmundson's time for organizing and informing the Martha's Vineyard whelk fleet and aid related to data collection and training.

7. Construction: There are no construction costs.

8. Other Costs: $20,800 federal + $7,800 match = $28,600. This includes:
   1. Fishing vessel stipends ($20,800 federal + $7,800 match = $28,600) for 11 vessels for 8 months at $500 per month. A fleet of 11 (8 federal + 3 match) vessels will be utilized each month to obtain the proposed biological samples. The total stipend is computed at 65% due to fluctuations in vessel sampling associated with weather, vessel maintenance, and seasonal whelk distribution. CFRF will pay for stipends from the three match vessels with funding provided by Vineyard Wind 1.

9. Total Direct Charges: $70,533 federal + $7,800 match = $87,333. This is the total direct charges for cost items a-h.

10. Indirect Charges: $14,551 federal + $1,609 match = $16,160. Indirect general and administrative costs are calculated as 20.63% of federally requested Total Direct Charges. Indirect general and administrative costs are used to cover costs associated with the general operations of the CFRF including accounting services, legal services, maintenance of office space, liability insurance, payroll fees, phone/fax lines, internet service, board member participation, etc. The CFRF's FY2023 Indirect Cost Rate Proposal dated 4/6/23 is for 20.63% based on FY2022 actual costs.

11. Total Proposal Costs: $85,084 federal + $9,409 match = $103,493.

G. Construction. There are no construction costs on this grant

H. Other Costs. There are no other costs associated with this grant.

I. Total Direct Charges: $113,969 Federal + $3,066 In-Kind = $117,035 total. This is the total direct charges for cost items A-H.

J. Indirect Charges: $1,180 Federal + $590 In-Kind = $1,770. Proposed at 19.25% of RIDEM Direct Charges

K. Total Proposal Costs: $115,149 Federal + $3,656 In-Kind = $118,805 Total.

Previous ACCSP Budget Narrative – Year 1 (New, Funded FY21):

*Budget Table***:**

	New Proposal		
	Proposal	In-Kind	Total
TOTAL	$ 115,149	$ 3,656	$ 118,805
% Contribution by Funding Source	97%	3%	100%
Object Class Category	Proposal	In-Kind	Total
A Personnel			
- RI DEM - Conor McManus	$ 3,652	$ 1,826	$ 5,478
Total RI DEM Personnel Costs	$ 3,652	$ 1,826	$ 5,478
B Fringe Benefits	$ 2,480	$ 1,240	$ 3,720
C Travel	$ 500	$ -	$ 500
D Equipment	$ -	$ -	$ -
E Supplies	$ 100	$ -	$ 100
F Contractual - CFRF			
a. Personnel			
- Executive Director - David Bethoney	$ 11,440		$ 11,440
- Research Biologist - Thomas Heimann	$ 28,125		$ 28,125
- Business Manager	$ 4,576		$ 4,576
Total CFRF Personnel Costs	$ 44,141	$ -	$ 44,141
b. Fringe Benefits	$ 3,973	$ -	$ 3,973
c. Travel	$ 1,500	$ -	$ 1,500
d. Equipment	$ -	$ -	$ -
e. Supplies			
- Research Supplies	$ 4,950		$ 4,950
- Office Supplies	$ 1,000		$ 1,000
Total Supplies	$ 5,950	$ -	$ 5,950
f. Contractual			
- Programmer for On-Deck Data database	$ 10,000		$ 10,000
- Martha's Vineyard Fishermen's Preservation Trust	$ 3,000	$ -	$ 3,000
Total Contractual	$ 13,000	$ -	$ 13,000
g. Construction	$ -	$ -	$ -
h. Other Costs			
- Fishing Vessel Stipends	$ 20,800	$ -	$ 20,800
Total Other Costs	$ 20,800	$ -	$ 20,800
i. Total Direct Charges	$ 89,364	$ -	$ 89,364
j. Indirect Charges			
- Proposed at 20% of CFRF Direct Charges	$ 17,873	$ -	$ 17,873
Total Indirect Charges	$ 17,873	$ -	$ 17,873
k. Total CFRF Costs	$ 107,237	$ -	$ 107,237
G Construction	$ -	$ -	$ -
H Other Costs	$ -	$ -	$ -
I Total Direct Costs	$ 113,969	$ 3,066	$ 117,035
J Indirect Charges	$ 1,180	$ 590	$ 1,770
K Total Proposal Costs	$ 115,149	$ 3,656	$ 118,805

FY2021 Budget Justification Budget Justification:

The total proposed federal budget requested by the Rhode Island Department of Environmental Management (RI DEM) and the Commercial Fisheries Research Foundation (CFRF) for all components of

the work is $115,149 for 12 months. <u>The voluntary non-federal match funds provided by the RI DEM is $3,656.</u> The total proposal value is $118,805. The proposed timeframe is August 1, 2021 to July 31, 2022.

The proposed budget justification for object class category items include the following:

A. Personnel: Deputy Chief – approximately 4% of annual salary = $5,478
    C. McManus, Chief, RIDEM Division of Marine fisheries will serve as a co-advisor and manager to the proposed project, providing guidance on research protocols, assisting with statistical analyses, participating in Research Fleet meetings, developing a data management plan for the Fleet data, assisting in all technical writing and presentations, coordinating with neighboring states with whelk fisheries to inform them of this approach, and conveying project results to fishery governance to inform future stock assessments and fishery management decisions.

B. Fringe Benefits: RIDEM Annual Fringe benefit rates are:

Retirement 24%	Deferred Compensation 0.4%
FICA 6.2%	Medicare 1.45%
Health care $21,937/year	Dental $1,132/year
Vision Mercer $165/year	Assessed Fringe 4.25%
Retiree Health 6.75%	

C. Travel: $500 is requested for travel to project meetings with the team, scientific and management outreach events, and visiting Research Fleet participants in the project.

D. Equipment: There are no direct equipment charges.

E. Supplies: $100 is requested in supplies to build standardized gauges that the Research Fleet participants will be using. These gauges will be instrumental and ensuring the same tools are being used by industry and scientists in whelk data collection. They will also be used to inform enforcement on alternative measuring tools when inspecting whelk sizes.

F. Contractual: The CFRF will conduct most of the work involved in this project, with administrative and technical assistance provided by RI DEM as In-Kind. These services will be charged to the grant as contractual costs and are outlined below to provide more detail as to how the federal funding will be used:

    a) Personnel: $44,141. This includes the wages for the following CFRF personnel for time spent working directly on the project:
        1. Executive Director – Proposed at 10% of time for 12 months = $11,440
            D. Bethoney, CFRF Executive Director, will oversee the administration, team communication/coordination, field research, and outreach aspects of the project. He will also assist with data analysis, report and outreach material development, and communication of project progress to the client, fishing industry and management communities.
        2. Research Biologist – Proposed at 50% of time for 12 months = $28,125
            A CFRF Research Biologist will be the primary individual responsible for fleet organization, maintenance, and support, as well as data management, communication, and analysis.
        3. Business Manager – Proposed at 10% of time for 12 months = $4,576

T. Winneg, CFRF Business Manager, will carry out all the finance-related aspects of the project including research budget tracking, invoice processing, and administrative support tasks, including purchasing supplies.

b) Fringe Benefits: $3,973. This includes a percentage for payroll taxes and worker's compensation insurance prorated in accordance with % of salary paid from program. Benefits proposed at 9% of personnel costs based on 2019 benefits and historical analysis.

c) Travel: $1,500. Travel costs include travel support (mileage) for project staff to provide support at docks to Research Fleet participants, to participate in meetings with the Research Fleet, stock assessment scientists, and managers, and to participate in one industry/professional conference for one personnel to share and disseminate project methods, findings, and conclusions.

d) Equipment: $0. There will be no equipment costs on this project.

e) Supplies: $5,950. This category includes research supplies and project office supplies.

   1. Research Supplies: $4,950 - Costs of tablets, waterproof cases, Tidbit temperature logger with base & fish measuring board. Proposed at $618.75 per set x 8 vessels for the duration of the project.

   2. Office Supplies: $1,000 – Costs to cover database storage and website fees ($25/month), project office and meeting supplies, outreach materials, etc.

f) Contractual: $13,000. This includes costs associated with:

1. Programmer ($10,000) - CFRF hiring an outside computer programmer to develop the On Deck Data application for whelk data collection, setup wireless data transfer to and storage in a SQL database, and assist with beta testing to address any issues that arise, and to update the app to maintain functionality. This cost estimate is based on the CFRF's past experience programming a tablet application for black sea bass data collection (On Deck Data) and developing reliable wireless data transfer and storage. The whelk data collection app developed for this project will be an autonomous sampling platform, separate from the other On Deck Data sampling apps.

2. Martha's Vineyard Fishermen's Preservation Trust ($3,000) to assist with fleet support and data gathering. This includes S. Edmundson's time for organizing and informing the Martha's Vineyard whelk fleet and aid related to data collection and training. -

g) Construction: There are no construction costs.

h) Other Costs: $20,800. This includes:
1. Fishing vessel stipends ($20,800) for 8 vessels for 8 months at $500 per month. A fleet of 8 vessels will be utilized each month to obtain the proposed biological samples. The total stipend is computed at 65% due to fluctuations in vessel sampling associated with weather, vessel maintenance, and seasonal whelk distribution.

i) Total Direct Charges: $89,364. This is the total direct charges for cost items a-h.

j) Indirect Charges: $17,873. Indirect general and administrative costs are calculated as 20.0% of federally requested Total Direct Charges. Indirect general and administrative costs are used to

cover costs associated with the general operations of the CFRF including accounting services, legal services, maintenance of office space, liability insurance, payroll fees, phone/fax lines, internet service, board member participation, etc. The CFRF's FY2019 Indirect Cost Rate Proposal dated 12/30/19 is for 20.01% based on FY2019 actual costs.

k) Total Proposal Costs: $107,237.

G. Construction. There are no construction costs on this grant

H. Other Costs. There are no other costs associated with this grant.

I. Total Direct Charges: $113,969 Federal + $3,066 In-Kind = $117,035 total. This is the total direct charges for cost items A-H.

J. Indirect Charges: $1,180 Federal + $590 In-Kind = $1,770. Proposed at 19.25% of RIDEM Direct Charges

K. Total Proposal Costs: $115,149 Federal + $3,656 In-Kind = $118,805 Total.

Principle Investigators:

The co-Principal Investigators of this proposed project are: M. Conor McManus (Chief, RI DEM Division of Marine Fisheries), N. David Bethoney (Executive Director, CFRF), and Shelley Edmundson (Executive Director, MVFPT).

M. Conor McManus will serve in an advisory and support role for the proposed project. McManus will provide advice throughout the project on development of sampling protocols and specific data fields and formats to collect through the Research Fleet. Further, McManus will advise on the necessary minimum sampling targets to achieve appropriate statistical power to describe catch and begin constructing stock assessment reference points with Fleet data. McManus will meet with fishers to both aid in tablet utilization as well as learn how the data collection process worked for them. He will assist with analyzing data from the Research Fleet for progress and scientific reports and presentations. Finally, McManus will be crucial in the application of Research Fleet collected data to whelk assessment and management efforts, will coordinate with MA DMF to establish best practices for inclusion, and help recruiting vessels.

N. David Bethoney, Executive Director of the CFRF, will serve as the lead Co-PI for the proposed project. Bethoney will be responsible for overall projection direction and progress towards completing proposed objectives. Bethoney will be primarily responsible for overseeing proposed data analysis as well as dissemination of project results to the ACCSP and state agencies.

Shelley Edmundson, Executive Director of the MVFPT, will serve in an advisory role for the proposed project. Edmundson has worked with the whelk fishery for years and is an expert on whelk ecology in the project area (Edmundson 2016). Edmundson will provide advice during the planning stages of the project from sampling design to vessel selection. Further, Edmundson will be available throughout the data collection period of the project to troubleshoot and serve as a liaison for vessels on Martha's Vineyard with the CFRF.

M. CONOR MCMANUS

Rhode Island Department of Environmental Management   Tel: (401) 423-1941
Division of Marine Fisheries, Fort Wetherill Marine Laboratory   Fax: (401) 423-1925
3 Ft. Wetherill Road   email: conor.mcmanus@dem.ri.gov
Jamestown, Rhode Island, 02835

PROFESSIONAL PREPARATION
University of Rhode Island, Narragansett, RI   Ph.D., Oceanography, 2014-2017
University of Rhode Island, Narragansett, RI   M.S., Oceanography, 2010-2012
Boston University, Boston, MA   B.A., Marine Science, *cum laude*, 2006-2010

APPOINTMENTS
2021 – present   Chief, RI DEM Division of Marine Fisheries
2021 – present   Adjunct Professor, SMAST, University of Massachusetts Dartmouth
2018 – present   Adjunct Professor, GSO, University of Rhode Island
2018 – 2021   Deputy Chief, RI DEM Division of Marine Fisheries
2016 – 2018   Principal Marine Fisheries Biologist, RI DEM Division of Marine Fisheries
2012 – 2016   Fisheries Scientist, Applied Science Associates (dba RPS)
2013 – 2014   Marine Biologist, Integrated Statistics under contract with NOAA-NMFS-NEFSC
2010 – 2012   Graduate Research Assistant, University of Rhode Island

RESEARCH INTERESTS
Fisheries oceanography • Fisheries ecology • Survey design • Population dynamics • Stock assessment science • Fish early-life history • Ecosystem modeling • Estuarine ecology • Fisheries management

SELECTED PEER-REVIEWED PUBLICATIONS (TOTAL = 33)
Humphries, A., Gorospe, K.D., Innes-Gold, A., McNamee, J.E., **McManus, M.C.**, Oviatt, C.A., and Collie, J.S. 2022. In pursuit of ecosystem-based management for Narragansett Bay: an overview of previous ecosystem models and roadmap for future research. *Coastal Management* 50(3): 262–28.

Heinichen, M., **McManus, M.C.**, Lucey, S., Aydin, K., Humphries, A., Innes-Gold, A., and Collie, J. 2022. Incorporating temperature-dependent fish bioenergetics into a Narragansett Bay food web model. Ecological Modelling 466: 109911

McManus, M.C., Kipp, J., Shank, B., Carloni, J., Pugh, T., Reardon, K., and McKown, K. 2021. A model-based approach to standardizing American lobster (*Homarus americanus*) ventless trap survey abundance indices. *Fisheries Research* 238: 1-10.

McManus, M.C., Langan, J.A., Bell, R.J., Collie, J.S., Klein-MacPhee, G., Scherer, M., and Balouskus, R. 2021. Spatiotemporal patterns in early life stage winter flounder (*Pseudopleuronectes americanus*) highlight phenology changes and habitat dependencies. *Marine Ecology Progress Series* 677: 161-175.

McManus, M.C., Ullman, D.S., Rutherford, S.D., and Kincaid, C. 2020. Northern quahog (Mercenaria mercenaria) larval transport and settlement modeled for a southern New England estuary. Limnology and Oceanography 65(2): 289-303.

Langan, J., **McManus M.C.**, Schonfeld, A., Truesdale, C., and J. Collie. 2019. Nearshore sex-specific dynamics of the summer flounder (Paralichthys dentatus) in Rhode Island waters. *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science* 11(1): 76-85.

Friedland, K.D., **McManus, M.C.**, Morse, R.E., and Link, J.S. 2019. Event scale and persistent drivers of fish and invertebrate distributions on the US Northeast Shelf. ICES Journal of Marine Science 76(5): 1316-1334.

McManus, M.C., Hare, J.A., Richardson, D.E., and Collie, J.S. 2018. Tracking shifts in Atlantic mackerel (*Scomber scombrus*) larval habitat suitability on the Northeast U.S. Continental Shelf. *Fisheries Oceanography* 27(1): 49-62.

Hare, J., Morrison, W., Nelson, M., Stachura, M., Teeters, E., Griffis, R., Alexander, M., Scott, J.,… **McManus, M.C.**, Marancik, K., and Griswold, C. 2016. A vulnerability assessment of fish and invertebrates to climate change on the Northeast U.S. Continental Shelf. *PLoS ONE* 11(2): e0146756.

SCIENTIFIC PRESENTATIONS
Given 16 scientific presentations (15 oral, 1 poster) as lead author, and 36 (27 oral, 9 poster) as coauthor.

SELECTED SYNERGISTIC ACTIVITIES
Stellwagen Bank National Marine Sanctuary Advisory Council; Research Primary Member (2023-present). Narragansett Bay Estuary Program Steering Committee; Member (2021-present).
New England Fisheries Management Council Scientific and Statistical Committee; Member (2021-present). Northeast Fisheries Science Center Spiny Dogfish Research Track Stock Assessment; Co-chair (2021-present). Northeast White Shark Research Consortium; Member Organization Representative (2021-present).
University of Rhode Island Coastal Institute; Senior Fellow (2021-present).
Responsible Offshore Science Alliance Advisory Council; Alternate Member (2020-present).
Northeast Regional Sea Grant Lobster Extension Program Steering Committee; Member (2020-present). ASMFC Spiny Dogfish Technical Committee; Member (2019-present).
ASMFC Coastal Sharks Technical Committee; Member
(2019-present). ASMFC Management and Science
Committee; Member (2019-present). Rhode Island Marine
Fisheries Institute; Commissioner (2019-present).
Mid-Atlantic Fisheries Management Council Spiny Dogfish Monitoring Committee; Member (2019-present).
(2017-2020). ASMFC American Lobster Technical Committee; Member
(2016-present).
Scientific journal reviewer: *Bulletin of Marine Science*; *Canadian Journal of Fisheries and Aquatic Sciences;*
*Fisheries Research; Fisheries Oceanography; Frontiers in Marine Science; Hydrobiologia; ICES
Journal of Marine Science; Journal of Marine Systems; Journal of Sea Research; PeerJ.*
Proposal reviewer: *NOAA Saltonstall-Kennedy Program; NH Sea Grant Program; OR Sea Grant
Program; MA Clean Energy Center; ME Agricultural and Forest Experiment Station;*

SELECTED HONORS AND AWARDS
2021 Annual Award of Excellence for Scientific and Technical Contributions,
ASMFC 2017 Certificate of Appreciation, RIDEM
2017 Bronze Medal Award[*], NOAA
  [*]*Formally awarded to 14 federal employees, 9 contract employees received contribution acknowledgement*
2016 William E. Simmons Memorial Scholarship in Oceanography,
URI-GSO 2016 Best Student Paper Award*, American Academy of
Underwater Sciences 2015 Davis Family Scholarship for Fisheries in
Oceanography, URI-GSO
2015 Global Marine Initiative Student Research Award, The Nature
Conservancy 2012 Henry S. Farmer Award in Biological Oceanography,
URI-GSO
2011 Fillmore Memorial Scholarship Award, URI-GSO
2010 College Prize for Excellence in Marine Science, College of Arts and Sciences, Boston

SELECTED AWARDED COMPETITIVE GRANTS (TOTAL = 17)
2021 Atlantic Coastal Cooperative Statistics Program, PI,
$115,149 2020 National Sea Grant, Co-PI, $529,258
2020 National Sea Grant, Co-PI,
$265,304 2020 Rhode Island Sea
Grant, Co-PI, $217,928 2020 Rhode
Island Sea Grant, Co-PI, $249,155
2017 Rhode Island Sea Grant, Co-
PI, $137,765

Dr. NAIFF DAVID BETHONEY
Executive Director Commercial Fisheries Research Foundation
P.O. Box 278 Saunderstown, RI
401-515-4662, dbethoney@cfrfoundation.org

EDUCATION:

University of Massachusetts at Dartmouth School for Marine Science and Technology
PhD Dissertation: Understanding and avoiding River herring and American shad bycatch in the Atlantic herring and mackerel mid-water trawl fisheries.
Cum. GPA: 3.92   PhD Received 2013

MA Thesis: Association between diet and epizootic shell disease in the American lobster (*Homarus americanus*) around Martha's Vineyard
Cum. GPA: 3.93   M.S. Received 2010

Colby College - Waterville, ME
Major: Biology with Concentration in Environmental Science
Cum. GPA: 3.41, Cum Laude   B.A. Received 2008

SEA Education Association of Woods Hole, MA   Study Abroad: Fall 2006
Documenting Change in the Caribbean: Designed and implemented an original biological research project with practical application while at-sea. Studied at Woods Hole, and sailed from St. Croix, USVI to Key West, Florida with research stops at Montserrat, Dominican Republic, and Jamaica.

WORK EXPERIENCE:
- Commercial Fisheries Research Foundation   Spring 2020-Presesent

Executive Director: Responsible for overseeing foundation business manager, scientific staff, interns, and consultants to carry out all tasks associated with ongoing projects and general administration. In addition, responsible for pursuing new partnerships and projects, including proposal development and submission, under the advisement of the foundation Board of Directors.

- UMASS-Dartmouth School for Marine Science and Technology   Fall 2008-Spring 2020

Research Assistant Professor, Fall 2014-Present: All responsibilities of research associate position related to drop camera and herring work with the ability to be lead principle investigator on research proposals and serve on student committees**.**

Research Associate, Summer 2013-Summer 2014: All responsibilities of research assistant position described below with management and development responsibilities for scallop drop camera and groundfish video surveys. Management responsibilities include equipment purchasing and maintenance and oversight of all technical operations and student involvement.

Research Assistant, Summer 2010- Spring 2013: Major responsibilities included coordinating River Herring bycatch avoidance program, assisting the Massachusetts Division of Marine Fisheries port side sampling program, and scallop drop camera survey at-sea data collection and analysis.

Graduate Research Assistant, Fall 2008-2010**:** Assisted with American lobster research including lobster husbandry, measuring and photographing lobsters, collecting larvae, and setting up housing apparatuses.

SCIENTIFIC JOURNAL PUBLICATIONS (LAST 3 YEARS):

1. Heimann T, Verkamp HJ, McNamee J, Bethoney ND. 2023 Mobilizing the fishing industry to address data gaps created by shifting species distribution. Frontiers in Marine Science. 10:1043676.

2. Verkamp HJ, Nooj J, Helt W, Ruddick K, Gerber-Williams A, McManus MC, Bethoney ND.

2022. Scoping bay scallop restoration in Rhode Island: a synthesis of knowledge and recommendations for future efforts. Journal of Shellfish Research 41(2):153–171

3. Ellertson AE, Waller JD, Pugh TL, <u>Bethoney ND</u>. Differences in the size at maturity of female American lobsters (Homarus americanus) from offshore Southern New England and eastern Georges Bank, USA. 2022. Fisheries Research. DOI: 106276

4. Chen C, Zhao L, Gallager S, Ji R, He P, Davis C, Beardsley RC, Hart D, Gentleman WC, Wang L, Li S, Lin H, Stokesbury KDE, <u>Bethoney ND</u>. 2021 Impact of larval behaviors on dispersal and connectivity of sea scallop larvae over the northeast U.S. shelf. Progress in Oceanography. DOI: 102604

GRANTS RECEIVED AS A PRINCIPAL INVESTIGATOR (LAST 2 YEARS):

1. "Training and Education Services" (Whelk research)   March 2023
   Awarded from: Vineyard Wind I LLC
   Value: $150,000

2. "FY 2023: Advancing Fishery Dependent Data Collection for Black Sea Bass   February 2023
   (Centropristis striata) in the Southern New England and Mid-Atlantic Region
   Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach"
   Awarded from: Rhode Island Department of Environmental Management
   Value: $88,152

3. "Cooperative Marine Research Project"   January 2023
   Awarded from: The Campbell Foundation
   Value: $60,000

4. "Engaging the Fishing Community to Understand Disease   December 2022
   and Reproductive Dynamics of Atlantic Sea Scallop"
   Awarded from: Atlantic States Marine Fisheries Commission
   Value: $109,571

5. "Cooperative Marine Research Project"   November 2022
   Awarded from: The Campbell Foundation
   Value: $70,000

6. "SFW01 Construction and Post-Construction Fisheries Monitoring"   October 2022
   Awarded from: South Fork Wind LLC
   Value: $6,605,913

7. "Initiating the removal of ghost gear from Rhode Island waters"   September 2022
   Awarded from: 11th Hour Racing/The Schmidt Family Foundation
   Value: $110,410

8. "The WHOI/CFRF Shelf Research Fleet - Community Science in a   May 2022
      Rapidly Changing Ocean"
         Awarded from: Woods Hole Oceanographic Institution
         Value: $42,486

9. "Establishing standard methods to assess the biological condition of sea   April 2022
   scallops before and after offshore wind farm development"
   Awarded from: National Oceanic and Atmospheric Administration
   Value: $38,706

Shelley A. Edmundson
Executive Director, Martha's Vineyard Fishermen's Preservation Trust
P.O. Box 1274 Vineyard haven, MA 02568
Ph: (407) 414-5387 Shelley.Edmundson@gmail.com

Academic Background:

Ph.D., Zoology, 2016, *Summa cum laude*   University of NH, Durham,
NH M.S., Environmental Science, 2008, *Summa cum laude*   University of MA, Boston,
MA B.A., Biology, 2003, *Magna cum laude*   Wheaton College, Norton, MA

Employment:

➢ **Martha's Vineyard Fishermen's Preservation Trust**, Menemsha, MA
  Executive Director, 2016 - Present
  Administrator/Treasurer, 2011- 2016
  Co-founder of non-profit group created to preserve, promote, and sustain the
  Vineyard's commercial fishing heritage through the acquisition and distribution of
  fishing permits.

➢ **Vineyard Wild Caught**, Menemsha, MA
  Co-Founder, 2009 - Present
  Founded an initiative supporting local fisheries by identifying locally caught seafood
  through a labeling system that links Vineyard-harvested fish, lobster, and shellfish to the
  individual Vineyard fishing vessels and captains. Developed, organized, and continuously
  promote and sustain the initiative.

Scientific and Professional Organizations:

➢ Vineyard Vision Advisory Council (2018 - Present)
➢ Vineyard Conservation Society Board Member (2018 - Present)
➢ American Institute of Fishery Research Biologists (2014 - Present)
➢ American Fisheries Society, Estuaries and Marine Fisheries Sections (2013 - 2016)
➢ World Aquaculture Society, US Aquaculture Society Chapter (2013 - 2016)

Research Experience:

➢ **University of New Hampshire**, Durham, NH, 2011- 2016, *Ph.D. Candidate*
  Researched channeled whelk biology including early life history, fecundity, growth
  rates, movements, and feeding activity. Organized and led collaborative research with
  local whelk fishermen on Martha's Vineyard, MA.

➢ **University of New Hampshire,** Durham, NH, 2011- 2012, *Ph.D. Student*
  Assisted with research project involving winter flounder stock enhancement in coastal
  ponds in Massachusetts and New York.

➢ **University of Massachusetts**, Boston, MA, 2005 - 2008, *Master's Student*
  Researched site suitability analysis for offshore sea scallop aquaculture in waters near
  Martha's Vineyard, MA.

➢ **Wallace Laboratory**, Boston, MA, 2005 - 2006, *Research Assistant*
  Analyzed, reduced data, and assisted with research in a trace-metal laboratory study
  investigating the transport and distribution of metals in coastal ecosystems.

Fellowships/Awards:

➢ UNH Dissertation Year Fellowship, 2015 - 2016, *Fellow*
➢ UNH School of Marine Science and Ocean Engineering Research Development and
  Travel Support Program, December 2014, *Awardee*

- American Fisheries Society, Estuaries Section Travel Award, September 2013, _Awardee_
- UNH School of Marine Science and Ocean Engineering Research Development and Travel, Support Program, February 2013, _Awardee_
- Martha's Vineyard Vision Fellowship, 2011 - 2015, _Fellow_
- National Science Foundation, Watershed Integrated Science Partnership, 2006 - 2007, _Fellow_
- Balfour Scholar, Wheaton College, 1999 - 2003, _Scholar_

Publications:
Edmundson, S. 2016. Channeled whelk (_Busycotypus canaliculatus_) ecology in relation to the fishery in Vineyard and Nantucket Sounds, MA. Fall 2016. Doctorate dissertation. University of New Hampshire.

Edmundson, S. 2014. Effects of temperature on incubation period, survival, and growth of juvenile channeled whelk (_Busycotypus canaliculatus_). _Newsletter of the American Fisheries Society_, Estuaries Section. Spring 2014.

Selected Presentations:
National:
Edmundson, S. and E.A Fairchild. 2015. Channeled whelk research. Mote Marine Laboratory and Aquarium. Sarasota, FL, June 11, 2015. (Guest lecturer)

Edmundson, S. and E. A. Fairchild. 2015. Channeled whelk research. Key West Community College, Key West, FL, April 6, 2015. (Guest lecturer)

Edmundson, S. and E. A. Fairchild. 2014. Channeled whelk growth rates in Nantucket Sound, MA. 16th International Conference for Shellfish Restoration. Charleston, SC, December 12, 2014. (Poster)

Edmundson, S. and E. A. Fairchild. 2013. Using hatcheries to answer early life history questions: A case study of channeled whelk. 143rd American Fisheries Conference. Little Rock, AR, September 11, 2013.

Edmundson, S. and E.A. Fairchild. 2013. Effects of temperature on incubation period, survival, and growth of juvenile channeled whelk (_Busycotypus canaliculatus_). The annual meeting of the World Aquaculture Society. February 21-25, 2013, Nashville, TN. (Poster)

Regional:
Edmundson, S. and E. A. Fairchild. 2016. Channeled whelk movements and behavior in Vineyard Sound. Cape Cod Natural History Conference. West Barnstable, MA, March 5, 2016.

Edmundson, S. and E. A Fairchild. 2015. Conch growth rates project update. Cape Cod Commercial Fishermen's Alliance. Chatham, MA, May 4, 2015.

Edmundson, S. and E. A. Fairchild. 2013. Researching channeled whelk growth rates in Nantucket and Vineyard Sounds. Permanent Endowment for Martha's Vineyard Board Meeting. West Tisbury, MA, July 23, 2013.

Edmundson, S. and E. A. Fairchild. 2013. Channeled whelk research at UNH. MA Division of Marine Fisheries. Boston, MA, May 13, 2013.

References:

ACCSP Biological Review Panel. 2019. Biological Sampling Priority Matrix.

Angell, T.E. 2019. 2006-2018 Catch, Effort, and Fishery Trends in the Rhode Island Whelk
    Fishery and Recent Stock Status. RI Division of Marine Fisheries Research Reference
    Document.

Askin, S.E., and R.A. Fisher. 2021 A Summary of Collaborative Discussions on Existing
    Management within the Channeled Whelk. Virginia Institute of Marine Science.

Edmundson, S. E. 2016. Channeled Whelk (*Busycotypus Canaliculatus*) Ecology in Relation to the
    Fishery in Vineyard and Nantucket Sounds, Massachusetts. Doctoral Dissertation.
    University of New Hampshire. 178p.

Fisher, R. A. 2015a. Channeled whelk (*Busycotypus canaliculatus*) in the mid-Atlantic region.
    Coherent approach to Busycon/Busycotypus fishery management along the US Atlantic
    seaboard.16th International Conference on Shellfish Restoration. Charleston, South
    Carolina

Gawarkiewicz, G. and A. Mercer. 2019 Partnering with Fishing Fleets to Monitor Ocean
    Conditions. Annual Review of Marine Science 11: 391-411.

Maunder, M.N. and A.E. Punt. 2004. Standardizing catch and effort data: a review of recent
    approaches. Fisheries Research 70: 141-159.

Nelson, G.A., S.H. Wilcox, R.P. Glenn, and T.L. Pugh. 2018. A Stock Assessment of Channeled
    Whelk (*Busycotypus canaliculatus*) in Nantucket Sound, Massachusetts. Massachusetts
    Division of Marine Fisheries Technical Report.

Peemoeller, B.J., and B.G. Stevens. 2013. Age, size, and sexual maturity of channeled whelk
    (*Busycotypus canaliculatus*) in Buzzards Bay, Massachusetts. Fishery Bulletin 111(3):
    265-278

The Nature Conservancy. 2018. FishPath Workshop Report: Rhode Island Channeled Whelk. The
    Nature Conservancy, Arlington, Virginia, USA.

Wilcox, S.H., T.L. Pugh, R.P. Glenn, K. Olivera. 2021. Spatial variation in size and age at
    maturation and growth of the channeled whelk (Busycotypus canaliculatus) in Southern
    Massachusetts. Fisheries Research 239: 105926

August 14, 2023

Atlantic Coastal Cooperative Statistics Program

1050 N. Highland St. Ste. 200 A-N Arlington, VA 22201

Dear ACCSP:

We are pleased to submit the proposal titled "Port Sampling for the Maine Atlantic Halibut Fishery" for your consideration. This is a New Project proposal that will collect new data streams to better inform halibut stock assessment.

During the initial pre-proposal review process, we were asked several questions. We will address them here and within the proposal where appropriate.

Question to all proposals: *There is no need for early funding for this proposal.*

1. How has the work from McBride been useful and what is the justification of building on that? Please provide more detail on how this would be used in management and stock assessments. How was the previous work used? – *Given that the McBride work was published just last year, there has not yet been an opportunity to incorporate this work into the halibut stock assessment. Additionally, given that the current assessment does not allow estimation of reference points such as Spawning Stock Biomass, it is currently index based. However, in the future if reference points were available, knowledge of the frequency and duration of skip spawning as calculated from gonad histology would be useful for informing actual estimates of SSB. More details are provided on page 6.*

2. PDF page 260: "is listed" is written twice in last paragraph - *corrected*

3. Budget
   a. Please provide a budget narrative – *added on page 10.*
   b. Explain why new equipment is needed as it appears this builds on previous work. Please provide justification – *New equipment is necessary to allow the DMR otolith lab to process additional otoliths from halibut, as the lab currently only has one otolith setup which is used to maximum capacity by existing projects.*
   c. Requested award amount on page 2 does not match the request in the budget (potential discrepancy) – *the amount listed on page 3 ($89,642.08) is equivalent to the sum of the amounts listed in the budget for ACCSP ($71,225.90) and DMR ($18,416.18) contributions.*
   d. Please calculate the percentage of in-kind. Please justify the relevance/need for conference travel/presentation to the successful completion of the project as it used in the in-kind contribution. – *in kind percentage is 26%, with further details on page 12. Travel will be covered by the department and is necessary to present results of port sampling and other halibut research projects; however, the exact venue/conference and*

4. CV should not exceed two pages – *CV switched to two page resume*
5. Please include a summary of proposal for ranking – *added, see page 14.*

For a summary of the proposal for ranking purposes, please see page 14. Please contact William DeVoe at the MEDMR with any questions. Thank you for your consideration of this proposal.

Sincerely,
William DeVoe
Marine Resources Scientist III
William.DeVoe@maine.gov
(207) 592-7084

Proposal for Funding made to:
Atlantic Coastal Cooperative Statistics Program
Operations and Advisory Committees
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22204

Port Sampling for the Maine Atlantic Halibut Fishery

Submitted By:
William DeVoe
Maine Department of Marine Resources
PO Box 8
W. Boothbay Harbor, ME 04575

Applicant Name: Maine Department of Marine Resources

Project Title: Port Sampling for the Maine Atlantic Halibut Fishery

Project Type: New project

Principal Investigator: William DeVoe (Maine DMR)

Requested Award Amount: $ 89,642.08

Requested Award Period: For one year, beginning after the receipt of funds

Date Submitted: June 13, 2023

Objective:

To improve the data on the stock structure and life history of Atlantic halibut by collecting otolith, maturity, genetic and morphometric data from halibut at dealer locations in Maine.

Need:

Atlantic halibut is an economically important species to many New England fishing communities but relatively little is known about its life history and stock structure. Atlantic halibut is managed by the United States and Canada as distinct stocks defined largely by the jurisdictional boundaries of each country (Shackell et al 2016). However, tagging data from multiple studies has shown that halibut migrate great distances and occupy waters of both countries. Additionally, recent genetic work has shown that Gulf of Maine, Scotian Shelf, and Grand Banks halibut are genetically homogeneous (Kess et al 2021). Halibut are listed as species of "Species of Concern" under the US Endangered Species Act; however, in Canada the fishery is certified as sustainable by the Marine Stewardship Council. A further cross-border disparity occurs in the legal size of halibut in the US vs Canada; in US waters, only halibut over 41 inches in length can be landed, while in Canada the minimum size limit is 32 inches. This dichotomy between management strategies necessitates further research be conducted to understand the nature of the Northwest Atlantic halibut stock.

Recent electronic tagging work conducted by Maine DMR has shown that halibut utilize multiple spawning areas ranging from the Northeast Channel in the Gulf of Maine to The Gully just south of the Laurentian Channel (where the Saint Lawrence River reaches continental margin). Spawning activity has been indicated by abrupt vertical rises of several hundred meters in archival depth time series during the December-February months. The location of the spawning activity has been determined using geolocation modeling and acoustic detections (Liu et al 2019, internal DMR research). Archival data has indicated that some halibut perform spawning rises for multiple subsequent years, yet others engage in skip spawning. This aligns with recent evidence of skip spawning from gonad histology (McBride et al 2022). Results from acoustic tags have indicated that some halibut migrate as far as The Gully and return to the Maine coast in the spring (internal DMR research). The results of this work have drawn further attention to the transboundary nature of Gulf of Maine halibut and the need for further studies on halibut stock structure.

The current assessment model used for Atlantic halibut is a data-poor approach called the First-Second Derivative model which is unable to produce biological reference points or support an analytical determination of stock status. To improve the assessment capabilities for halibut, research efforts are needed to increase the biological understanding of this data-poor species. Tagging produces estimates of movement patterns and spawning activity but provides no estimates of growth rates or stock structure. There is a need for updated age-length keys for halibut as well as maturity indices to inform a better stock assessment. In Maine, recent otolith work occurred as part of Julia Beaty's 2014 Master's thesis (Beaty 2014) and the work done by Richard McBride's team (McBride et al 2022), which also established methods to detect

indicators of spawning activity and maturity from gonad histology. The proportion of the stock that is sexually mature over time is an essential component of a stock assessment.

Atlantic halibut occupy a preferred temperature range that may make them vulnerable to climate change as the Gulf of Maine continues to warm; additionally, their spawning areas occur in regions that may experience shifting current conditions due to climate change, such as the Northeast Channel. This could result in changes in the distribution patterns of larvae. The dynamic nature of the Gulf of Maine in the face of climate changes means that there is a constant need for updated data on all marine species, including halibut, to assess if changes in the distribution, range and population structure of the species are occurring.

Results and Benefits:

There are many benefits to collecting more biological samples from halibut. Collecting otolith samples will allow further age estimates of halibut landed in Maine. This age data is crucial for estimating population structure, growth rates, and recruitment patterns, which are essential components of a stock assessment. Increasing the number of otolith samples would enhance the accuracy and precision of age determination, leading to more reliable stock assessments. Otoliths also provide information about the growth rates of individual halibut by measuring the distance between annuli. By sampling a larger number of otoliths, a more representative sample of the population and clearer picture of the species' life history traits will be obtained, which are vital for accurate stock assessment.

Gonad samples provide essential information about the reproductive potential of Atlantic halibut. Examining the size, maturity stage, and spawning indicators present in the gonads will provide insights into the reproductive health and potential of the population. This information is vital for estimating the reproductive output and the capacity of the Atlantic halibut population to sustain itself. Collecting more gonad samples would provide a larger dataset for assessing the reproductive potential, helping to identify any changes in reproductive patterns and potential impacts on population abundance. Specifically, gonad histology can reveal the proportion of landed halibut that are sexually mature. Previous work (McBride et al 2022) has shown that the proportion of sexually mature halibut is increasing as the stock is expanding and aging; further gonad histology samples would allow this proportion to be recalculated over time, to inform stock assessment biologists if the stock is truly expanding. Halibut is currently managed on a Plan B assessment that does not allow for the estimation of reference points; therefore, currently the assessment is index-based only (NOAA 2022). One of the reference points necessary for a full assessment is Spawning Stock Biomass (SSB). However, even if SSB is known, this number is better informed by knowledge of the frequency of skip spawning within the population.

Analyzing the genetic information contained within halibut samples can reveal valuable insights into the population structure of Atlantic halibut. Genetic markers can help identify distinct subpopulations, migration patterns, and levels of gene flow. Understanding the population structure is crucial for effective stock assessment, as it enables the identification of separate management units and helps estimate population size accurately. Increasing the number of

genetic samples would improve the resolution of genetic analysis, leading to a more comprehensive understanding of the population structure of Atlantic halibut on both sides of the US-Canada border. The analysis of these genetic samples is being funded and led by Fisheries and Oceans Canada, and only requires the collection of genetic samples during port sampling. Previous genetic work by Fisheries and Oceans Canada has revealed large scale trends in the genetics of Northwest Atlantic halibut; specifically, only the Gulf of Saint Lawrence halibut were shown to be a genetically distinct stock as compared with the Gulf of Maine, Scotian Shelf, and Grand Banks regions (Kess et al 2021). Further genetic samples will be used to examine close-kin relationships between sampled halibut, which will be valuable for examining geographic connectivity within the population. This information will eventually be useful in the assessment process for determining stock delineation.

Morphology is an understudied aspect of halibut biology. Seasoned halibut fishermen will often note physical differences between halibut captured ("skinny long black ones", "thick grey ones") and some claim to be able to determine the sex externally by the morphology. However only one study of halibut morphometrics occurs in the literature (Haug and Fevolden 1986). Image capture is a quick and effective method to capture multiple measurements from a single fish for morphometric analysis. Dealer locations are ideal for capturing these images, as the fish are deceased and on a stationary platform (vs an open boat). Analysis of halibut morphology may reveal patterns relating to sex, maturity, and origin that could be used to classify halibut from images instead of tissue samples. Recent work by the International Pacific Halibut Commission (IPHC) has discovered that halibut tail patterns can be used to identify individual fish (IPHC 2018); it is likely that other morphological markers relating to less-individualistic features (like sex and maturity) exist.

Halibut has a strong cultural and economic value in Maine, with participation by both commercial and recreational fishers. The fishery occurs at a time of year when lobstering has yet to pick up, and often provides needed income at a lean time of the year for fishing communities. The fishery in past years has produced $6 million of ex-vessel revenue in Maine. The State's halibut fishery is also one of the few remaining open-access fisheries in the Northeast. Continued sampling to monitor the halibut fishery and inform stock assessments is essential to maintaining this culturally and economically important fishery.

In addition to the better inputs for stock assessments created by the above data streams, there is also the intrinsic value beyond commercial exploitation gained by increasing our understanding of the halibut species. Studying halibut helps us better understand their ecological role and contribution to marine ecosystems. Halibut are a significant predator in their habitats and interact with numerous prey species, and gaining insights into their biology enhances understanding of the broader marine ecosystem.

Data from this program will directly address ACCSP's priorities in the Ranking Guide for *"Biological Sampling"*; additionally, Atlantic halibut is listed on the Biological Review Panel Recommendations Based on Matrix, ranking in the top 5 species among those that are present in Maine.

Data Delivery Plan:

Data collected will be entered into DMR's MARVIN Oracle database, which is the standard data store for many of DMR projects. Port sampling projects for several other fisheries in Maine already utilize this database.

All data collected as part of this project will be submitted to ACCSP for appropriate use by partner agencies.

Approach:

DMR staff will sample halibut from dealer locations during Maine's state halibut season. Maine's state halibut fishery represents a unique opportunity to efficiently collect biological information as Maine's season is short in duration (May-June) but has higher participation per day than the federal fishery leading to more fish being present at dealer locations. The primary dealers for halibut landings will be identified using past dealer data; these dealers will be solicited before the state season begins to discuss ideal times for scheduling sampling trips and will also be consulted throughout the season to optimize the sampling schedule. DMR will hire a halibut port sampling contractor whose primary job duty during the state halibut season will be obtaining halibut samples from dealers. The halibut biologist will also assist in this effort, as well as any other DMR sampling staff who may be available and willing. The port sampling contractor will also be trained on halibut otolith processing, otolith aging, histology, and image analysis.

Port sampling will collect several data elements to support better understanding of halibut biology. Total center line length will be taken for all halibut sampled. Additionally, an image of the fish over a scale grid will be taken for geometric morphometric analysis. Halibut will be examined for intact gonads, which are sometimes removed by harvesters. When available, the gonads will be removed for identification of halibut sex and maturity state; a sample will be taken from the gonads for further histological examination. Gonad samples will be grossed, stored in cassettes preserved in formalin, and sent to a commercial lab for histological sectioning and mounting on slides. Otoliths will be removed for aging post-season. Lastly, genetic samples will be taken for a Fisheries and Oceans Canada project examining Atlantic halibut genetics and close kin relationships. DMR currently collects genetic samples for this project opportunistically during electronic tagging trips and the Maine-NH Inshore Trawl Survey, and this project is expecting to continue soliciting samples until March 2025. Sex will be determined genetically for samples submitted for genetic analysis; this will be of benefit for samples where gonads were removed prior to the fish reaching the dealer, as no other method of sex determination will be available.

After the state season closes, the port sampling contractor and halibut biologist will work to process samples collected. Otolith samples will be sectioned, imaged, and aged in DMR's imagery lab. This proposal includes the purchase of additional equipment to support this effort,

including an otolith saw and imaging system. Additionally, all otolith images will be run through the DeepOtolith tool (Politikos et al 2022) and potentially other otolith processing models to examine the accuracy of automated aging models vs human age readers; this could potentially provide more innovative and economically methods for aging halibut otoliths in future projects.

Gonad samples will be imaged and examined to determine spawning condition following methods described in McBride et al 2022. This proposal includes costs for an external lab performing gonad histology, as well as the cost of a digital microscope for imaging gonad samples. Lastly, images of halibut will be analyzed to obtain morphometric measurements for subsequent analysis.

Results from the initial year of halibut port sampling will be disseminated in a final report to ACCSP. Additionally, the PI and DMR groundfish scientist will present results at the 2024 American Fisheries Society annual meeting. Results will also be shared with the New England Fishery Management Council's Groundfish Plan Development Team, as well as the halibut stock assessment scientist at the Northeast Fishery Science Center.

Geographic Location:

The geographic scope of this project will cover dealers from throughout coastal Maine. These locations represent the majority of Atlantic halibut landings in the United States. Between 2018-2022 the top five Maine ports for halibut landings were Portland, Machiasport, Port Clyde, Stonington, and Cutler.

Milestone Schedule:

Below is a schedule which outlines the work plan for halibut port sampling. Month 3 corresponds to March, which is the start of the ACCSP fiscal year.

	3	4	5	6	7	8	9	10	11	12	1	2
Prepare sampling data sheets/protocols	X											
Identify/interview primary halibut dealers	X											
Hire port sampling contractor		X										
Collect halibut samples from Maine ports			X	X								
Process samples including aging otoliths					X	X	X					
Semi-annual progress report							X					
Present results at AFS annual meeting							X					
Other exploratory analysis; automated otolith aging and morphometrics						X	X	X				
Final analysis of data from port sampling and draft final report								X	X	X		
Final report for first year of port sampling											X	

Project Accomplishments Measurement:

The following table outlines the project goals for the halibut port sampling program.

Project Goal	Measurement of Accomplishment
Collect samples from halibut dealers	Number of halibut sampled
Analyze otoliths to add to halibut age-length keys	Number of halibut otoliths analyzed
Analyze gonads to establish halibut sex and maturity level	Number of halibut gonads analyzed
Analyze images to examine halibut morphology	Number of halibut images analyzed
Communicate results of port sampling to scientific community	Presentation/poster at American Fisheries Society meeting
Communicate results of port sampling to inform management	Submission of final report to ACCSP, NEFSC, and Groundfish PDT

Budget Narrative:

Personnel and Fringe: The PIs time for 1 month of the year is included as an in-kind contribution. This includes both a 1/12 fraction of annual salary as well as fringe benefits. Benefits include retirement benefits, FICA, health insurance, dental insurance, workers compensation and life insurance.

Contracts: Two contracts are included. The first contract is for a 6-month contractor position that will assist in port sampling collection and subsequent processing of otoliths at the DMR lab. The second contract is for histological preparation of up to 300 gonad samples, with the expectation the amount collected may be less.

Travel: All travel costs associated with the proposal will be covered by the MEDMR as in-kind contributions. Travel costs include the cost of lodging and per diems during actual port sampling work, in addition to conference travel costs. Conference costs are estimated for the PI and MEDMR's groundfish biologist to attend the American Fisheries Society 2024 meeting to present results of this project and other relevant department research.

Capital Equipment: Included are the purchase of an additional otolith processing setup (saw and camera) as DMR's current otolith processing saw and camera are in full time use. A microscope for imaging gonad histological samples is also included.

Supplies: Includes a saw blade and fixture for the otolith saw, a camera setup for morphometric imaging, and various gonad/otolith sampling supplies like cassettes, formalin, and envelopes.

Cost Summary:

		ACCSP	DMR
Personnel:			
	Marine Resource Scientist III Salary 1 month	$0.00	$6,149.60
	Subtotal	*$0.00*	*$6,149.60*
Fringe:			
	Marine Resource Scientist III Benefits 1 month	$0.00	$2,106.58
	Subtotal	*$0.00*	*$2,106.58*
Contracts:			
	Temp Agency: Outdoor/Remote (4000 obj)	$22,140.00	$0.00
	Gonad Histology ($30/sample @ 300 samples max)	$9,000.00	$0.00
	Subtotal	*$31,140.00*	*$0.00*
Travel:			
	Conference - Registrations	$0.00	$500.00
	Conference - Airfare	$0.00	$4,000.00
	Conference - Lodging	$0.00	$2,000.00
	Conference - Meals	$0.00	$800.00
	Port Sampling - Ferry	$0.00	$100.00
	Port Sampling - Lodging (10 overnight trips)	$0.00	$1,200.00
	Port Sampling - Per Diem Meals (30 day trips + 10 overnights)	$0.00	$1,560.00
	Subtotal	*$0.00*	*$10,160.00*
Capital Equipment (>$5k):			
Indirect Waived	TechCut 4 Precision Low Speed Otolith Saw	$5,900.00	$0.00
	Otolith Camera Setup	$12,000.00	$0.00
	Leica S9i HD Digital WiFi Microscope on LED Stand	$5,300.00	$0.00
	Subtotal	*$23,200.00*	*$0.00*
Supplies (<$5k):			
	Saw Bone Fixture	$203.00	$0.00
	Saw Blades	$1,600.00	$0.00
	Camera/tripod for morphology images	$2,000.00	$0.00
	gonad/otolith collection and processing supplies	$2,000.00	$0.00
		$0.00	$0.00
		$0.00	$0.00
	Subtotal	*$5,803.00*	*$0.00*

Other:			
	Subtotal	$0.00	$0.00
	Total Subtotal	$60,143.00	$18,416.18
	Total Subtotal (Indirect Applied To)	$36,943.00	
	30% Indirect	$11,082.90	
	Total Costs (including indirect)	$71,225.90	$18,416.18
		ACCSP	DMR

In-kind contributions include:

Below is a list of in-kind contributions to this proposal from Maine DMR.

Item	In-Kind Contribution
William DeVoe (1 month of staff time)	$8,256.18
Port Sampling Travel Costs	$2,860.00
Conference Costs	$7,300.00

The total DMR contribution of $18,416.18 divided by the total ACCSP contribution of $71,225.90 equates to an in kind percentage of 26%.

Principal Investigator:

William DeVoe (Maine DMR)

References:

Armsworthy, Shelley L., and Steven E. Campana. 2010. "Age Determination, Bomb-Radiocarbon Validation and Growth of Atlantic Halibut (Hippoglossus Hippoglossus) from the Northwest Atlantic." *Environmental Biology of Fishes* 89: 279–95. https://doi.org/10.1007/s10641-010-9696-8.

Beaty, Julia M. 2014. "Assessing Growth and Habitat Preferences of Atlantic Halibut Off the Coast of Maine Using Biological Samples and Fishermen's Knowledge." Master's thesis, University of Maine Electronic Theses; Dissertations. 2110. https://digitalcommons.library.umaine.edu/etd/2110.

Haug, T., and S. E. Fevolden. 1986. "Morphology and Biochemical Genetics of Atlantic Halibut, Hippoglossus Hippoglossus (l.), From Various Spawning Grounds." *Journal of Fish Biology* 28 (3): 367–78. https://doi.org/10.1111/j.1095-8649.1986.tb05173.x.

Kess, Tony, Anthony L Einfeldt, Brendan Wringe, Sarah J Lehnert, Kara K S Layton, Meghan C McBride, Dominique Robert, et al. 2021. "A Putative Structural Variant and Environmental

Variation Associated with Genomic Divergence Across the Northwest Atlantic in Atlantic Halibut." Edited by Lorenz Hauser 78 (7): 2371–84. https://doi.org/10.1093/icesjms/fsab061.

Liu, Chang, Crista Bank, Michael Kersula, Geoffrey W Cowles, Douglas R Zemeckis, Steven X Cadrin, and Christopher McGuire. 2019. "Movements of Atlantic Halibut in the Gulf of Maine Based on Geolocation." *ICES Journal of Marine Science* 76 (7): 2020–32.

McBride, Richard, and George Maynard, Scott Elzey, Daniel Hennen, Emilee Tholke, Jocelyn Runnebaum, and Christopher McGuire. 2022. "Evaluating Growth Dimorphism, Maturation, and Skip Spawning of Atlantic Halibut in the Gulf of Maine Using a Collaborative Research Approach." *Journal of Northwest Atlantic Fishery Science* 53 (October): 57–77. https://doi.org/10.2960/j.v53.m736.

Atlantic halibut 2022 Management Track Assessment Report. *National Oceanographic and Atmospheric Association, National Marine Fisheries Service.* https://d23h0vhsm26o6d.cloudfront.net/3D_Atlantic_halibut_Update_2022_12_13_125850_2 023-01-17-141555_qflt.pdf

Politikos, Dimitris V., Nikolaos Sykiniotis, Georgios Petasis, Pavlos Dedousis, Alba Ordoñez, Rune Vabø, Aikaterini Anastasopoulou, et al. 2022. "DeepOtolith V1.0: An Open-Source AI Platform for Automating Fish Age Reading from Otolith or Scale Images." *Fishes* 7 (3): 121. https://doi.org/10.3390/fishes7030121.

Shackell, Nancy L., Kenneth T. Frank, Janet A. Nye, and Cornelia E. den Heyer. 2016. "A Transboundary Dilemma: Dichotomous Designations of Atlantic Halibut Status in the Northwest Atlantic." *ICES Journal of Marine Science* 73 (7): 1798–1805. https://doi.org/10.1093/icesjms/fsw042.

Summary of Proposal for ACCSP Ranking

Proposal Type: New

Proposal Primary Program Priority and Percentage of Effort to ACCSP modules:

Biological Sampling (8 points): Halibut port sampling will collect otolith, maturity, genetic and morphometric data from a traditionally data-poor species. These data steams may eventually be used to inform and improve the stock assessment process. Atlantic halibut is a priority species as defined by the Biological Priority Matrix, ranking within the top 10 species in the upper 25% of the matrix.

Data Delivery Plan (2 Points): All port sampling data will be submitted to ACCSP.

Project Quality Factors:

Regional Impact (5 points): Halibut port sampling will cover the entirety of Maine, which is a significant portion of the stock within the Gulf of Maine. Additionally, all data collected will be made available to ACCSP for partner use.

Contains funding transition plan / Defined end-point (4 points): This project aims to collect halibut port sampling data for 2024. This project has multiple off roads depending on outcome, including ending the project or funding from other sources.

In-kind contribution (4 points): the partner contribution of 26% is listed on page 11, equating to 2 points.

Improvement in data quality/quantity/timeliness (4 points): This project will improve the quality and quantity of biological data available on Atlantic halibut by collecting otolith, maturity, genetic and morphometric data.

Innovative (5 points): Halibut port sampling will combine tried and true methods of biological sampling such as otolith collection with newer and more innovative methodologies such as morphometrics and genetic samples.

Impact on stock assessment (3 points): Halibut port sampling will collect information on age-length, length at first maturity, sex ratio, and skip spawning frequency. All of these are informative to a better stock assessment. Additionally, this project will collect genetic samples which may inform insights into the broader stock structure of halibut across the Northwest Atlantic.

Other Factors:

Properly Prepared (5 Points): MEDMR followed ACCSP guidelines and pertinent documents when preparing this proposal.

William L DeVoe
Maine Department of Marine Resources
194 McKown Point Rd
Boothbay, Harbor, Maine
(207) 592-7084
William.DeVoe@maine.gov

Education

Hartwick College, Oneonta, NY.
B.A. Biology

Work Experience

Maine Department of Marine Resources, **West Boothbay Harbor, ME.**

Marine Resource Scientist III: Spatial Scientist, Technology Coordinator, Atlantic Halibut Biologist, July 2022 – present.

Marine Resource Scientist II: GIS & Oil Spill Response Coordinator, Atlantic Halibut Biologist, June 2017 – June 2022.

Marine Resource Scientist I: Water Quality Scientist, March 2017 – May 2017.

Marine Resource Specialist II (AC): Shoreline Survey Project Leader, October 2017 – March 2017.

Marine Resource Specialist I: Water Quality Specialist, May 2016 – September 2016.

East West Technical Services LLC (EWTS), **ports out of New England states.** May 2010 – Jan 2013
At-sea monitor

University of Iceland, **Hólar, Iceland.** August – September 2009.
Lake Ecology Field Technician

Garcia and Associates (GANDA), **San Clemente Island, California.** June – July 2009
Island Fox Field Technician

National Park Service, **Grand Canyon, Arizona.** March – June 2009.
Mexican Spotted Owl Observer

US Fish & Wildlife Service, Ray Brook, NY. May – August 2006.
Biological Technician, Sea Lamprey Control

Technical Skills

Data Science and Programming:
- Proficient in the use of ArcGIS and R to produce maps and process geospatial data.
- Focused experience in R using the tidyverse, sf, and raster packages for geospatial analysis, and the Shiny and Leaflet packages for web application development.
- Experience developing R packages for internal agency use.
- Experience interacting with Oracle and MS SQL Server databases using SQL, as well as higher-level languages like Python and R.
- Basic experience with HTML/CSS/JS.
- Experience programming Arduino-compatible microcontrollers using C++, including base Arduino boards, Adafruit variants, and Particle boards.
- Experience designing and building Arduino-based data loggers and sensors for use in the marine environment.
- Experience using version control for project management and collaboration, including Git and GitHub.

Field skills:
- Experience in small boat handling and trailering and marine navigation.
- Experience performing surgery on marine fish (Atlantic halibut) to embed archival and acoustic tags.
- Experience deploying acoustic receiver arrays.
- Skilled in conducting field work in backcountry and offshore environments.
- Proficient with carpentry hand and power tools, maintenance of shop power tools, and restoration/sharpening of hand tools.
- Electrofishing (backpack and deepwater), gill-netting, otter trawls, plankton tows, radio tracking/telemetry, PIT tagging, blood drawing, game calling, spotting scopes, remote cameras, and various other wildlife/fisheries associated technologies.

FY 2024 Atlantic Coastal Cooperative Statistics Program (ACCSP)
Funding Request Proposal – June 16, 2023
==Revised – August 18, 2023==

Applicant:	South Carolina Department of Natural Resources (SCDNR) Marine Resources Division Charleston, South Carolina (SC)
Principal Investigators:	Elizabeth Gooding, SCDNR, Recreational Data Coordinator Amy Dukes, SCDNR, Fisheries Statistics Section Manger
Contracting Entity:	Bluefin Data, LLC, Andrew Petersen, Chief Executive Officer
Project Title:	Development and Integration of National Marine Fisheries Service (NMFS) Highly Migratory Species (HMS) Data Elements into VESL
Project Type:	New Project: One-year

Requested Award Amount:

$112,900 (Excludes 5% NOAA Administrative Fee)
==This project would like to be considered for early funding disbursement (October 2023) as all contracts, personnel, and other necessary resources are in place. SCDNR has had discussions with Bluefin Data LLC to formalize deliverables and all parties are prepared to begin working on the project as soon as funds are available. The advantage to expediting funding for this project is that the required HMS vessel reporting requirements will be integrated into VESL in a timelier manner, allowing for more immediate comprehensive data collections.==
SCDNR would request that ACCSP amend the Administration grant to include these funds and contract directly with Bluefin Data, LLC

Requested Award Period:

One year starting the day funds are received and disseminated.

Objective:

==The objective of this project is to integrate required HMS vessel reporting requirements into the existing Bluefin Data VESL system for the SC Charter Ticket, and to the Maine (ME) Harvester and Greater Atlantic Regional Fisheries Office (GARFO) forms to expand their mobile harvester/vessel reporting applications. This integration would allow for all required HMS vessel data elements to be included in electronic logbook data transferred to ACCSP.== This change to VESL would meet the requirements for data management in support of the federal One Stop Reporting (OSR) initiative.

Additionally, this project would support the development of a mobile version of the SC Charter Ticket form, which would facilitate reporting from a mobile device immediately following a trip.

Two ACCSP Primary Program Priorities will be incorporated:
- Catch/Effort Data Collection (80%)
- Bycatch/Species Interaction (20%)

Background:

Since 1993, South Carolina has required vessels to possess a Charter Vessel License for the privilege of operating a charter fishing vessel in the saltwaters of SC (as authorized by the SC Code of Laws, Title 50, Section 50-9-560). Additionally, licensed vessel owners/operators are required to complete and submit trip-level reports for all for-hire fishing activities. SC for-hire vessels target many species that are managed by the South Atlantic Fishery Management Council, the Atlantic States Marine Fisheries Commission, and/or NMFS, including HMS. Data from mandatory charter vessel reports are available internally and to staff of these agencies for stock assessments and other management decisions. Data collected from charter vessels include fishing date/time, fishing methods, specific fishing location, trip start locations, target species, number of anglers fishing on the vessel, hours fished, fishing method, depth ranges, number of fish kept (including estimated pounds), and/or number of fish released (including disposition, alive/dead). In addition, data collected through this program can act as a quality control measure for the estimates derived from the Marine Recreational Information Program For-Hire Telephone Survey and Access Point Angler Intercept Survey. All charter for-hire trip reports are coded, undergo a standardized QAQC process, and are entered into a database. If reports are incomplete, staff contact charter vessel owners/operators to fill in any data gaps to ensure accurate and complete information. Annual summary reports are prepared and made available to resource management groups and the public.

The SCDNR Fisheries Statistic Section (FSS) signed a contract with Bluefin Data, LLC in 2015 to develop a website called VESL. SC for-hire license holders began using VESL in December 2015. All submitted data are integrated into the FSS Compliance Tracking System, catch and effort data are uploaded directly to the database, and all data go through a standardized QAQC process.

In September 2020, NMFS Southeast Regional Office implemented the final rule for the Southeast For-Hire Integrated Electronic Reporting (SEFHIER) program. The final rule established weekly trip-level electronic reporting requirements for vessels with a federal charter/headboat permit for Atlantic coastal migratory pelagics, including Atlantic dolphin/wahoo and South Atlantic snapper/grouper. Additional data elements, including number of crew, federal permit ID, charter fee, and fuel cost and consumption, were incorporated into the SCDNR VESL website prior to the SEFHIER implementation. The addition of these required federal data elements allowed SCDNR licensed for-hire vessels a single reporting platform on desktop that would fulfill both state and federal reporting requirements; however, at the time of the expansion, the required HMS data elements were not included.

The ME Department of Marine Resources (MEDMR) also uses VESL for electronic reporting. In December 2019, MEDMR expanded VESL for harvester reporting requirements required by the state. The NMFS GARFO also approved VESL to be used by GARFO-permitted vessel operators to fulfill their eVTR requirements. The required HMS data elements were not included. Therefore, VESL does not meet the requirements of the OSR for SCDNR, MEDMR or GARFO.

Need:

The requested funding would allow Bluefin Data to expand VESL to incorporate the HMS requirements, consistent with the objectives of OSR, to all VESL user applications. For SCDNR, this includes overlaying the HMS vessel reporting requirements into the SC Charter Ticket form allowing data entry through the website and mobile applications of

VESL. For MEDMR and GARFO, this includes integrating the HMS vessel reporting requirements into the ME Harvester and GARFO eVTR forms. Development of these requirements will also include modifications to the automatic transfer of HMS elements between VESL and ACCSP's Standard Atlantic Fisheries Information System (SAFIS). This project will focus on changes to SC for-hire, ME commercial harvester, and GARFO eVTR fisheries data collections in VESL but will be applicable to other partners transferring fisheries data from VESL to SAFIS. The product of this project will benefit not only SC and ME, but also other Bluefin Data users, as well as the federal SEFHIER program. It will allow for similar developments to partner platforms, ultimately supporting the OSR. Additionally, state and federal partner conversations have and will continue with regard to further meeting the OSR goals and time submissions. Specifically, modifications to time intervals of reporting and submission of certain associated data elements when HMS species are landed or have interactions are being discussed. Having the existing framework in use for the real-time submission of ME and GARFO data, provides users of Bluefin Data products the flexibility to export the data fields to the ACCSP API in the required format and at the appropriate submission interval. Although SC, SEFHIER, and HMS data are all collected through the same form, the time intervals and process for submitting the various data sets can vary as needed.

HMS species include tunas, sharks, swordfish, and billfish. Specific data elements are required depending on the species caught and disposition of each fish (Figure 1). If a for-hire vessel lands a bluefin tuna or discards a dead bluefin tuna, specific HMS data elements are required (Table 1). If a for-hire vessel lands a swordfish, sailfish, blue marlin, white marlin, or roundscale spearfish, additional HMS data elements are required (Table 1). No additional HMS elements are required if a for-hire vessel discards a live bluefin tuna or discards alive or dead swordfish, sailfish, blue marlin, white marlin, or roundscale spearfish.

Incorporating these additional HMS data elements into the existing VESL electronic for-hire platform will allow for comprehensive NMFS data collection. The completion of this project will enhance the OSR by standardizing for-hire reporting across all NMFS divisions. Additionally, other ACCSP partners that utilize VESL will be able to apply these updates to their own form with minimal effort and cost. Once enhancements are implemented in VESL, changes are available to other partners with funds only needed for any new functionality not developed during this project. This allows Bluefin Data to progress fisheries data collection forward without the need to fund reimplementation the HMS vessel reporting requirements for future partners that may want to utilize VESL.

Funding Transition:
The requested funds will cover the development and integration of HMS data elements into VESL. The integration would be built using configuration driven forms that VESL supports; therefore, the integration can be used to transfer all types of data (e.g., commercial, for-hire, biological) from other ACCSP partners that utilize VESL. Upon project completion, no additional funding will be needed.

Results and Benefits:
SCDNR staff facilitate a strong partnership between the for-hire fishing sector and state/federal management entities to maintain positive working relationships between all parties. SCDNR will continue to effectively communicate with SC for-hire owners/operators to ensure their understanding of the importance of timely, accurate, and complete data submissions, as well as the use of those data for future stock assessments and marine fisheries management. Since SCDNR has an established for-hire reporting program, incorporating required HMS elements into the SC VESL across mobile and web platforms will allow for a true OSR.
Similarly, MEDMR staff support many VESL users, and integrating the HMS vessel reporting

requirements would further advance the OSR goals. The MEDMR now requires electronic trip-level reporting for lobster harvesters, in addition to mandatory electronic reporting for other fisheries (e.g., halibut, menhaden, herring, and scallop). These requirements are resulting in more harvesters using the ME Harvester form in VESL, and some of these commercial fishers also possess HMS fishing permits. The positive progress thus far with transition to electronic reporting in VESL is provided below.

SCDNR For-hire Reported Data Trends				
Year	# Trips Reported	# Paper Reports	**# Electronic VESL Reports**	**% Electronic**
2016	14,357	9,894	**4,463**	**31%**
2017	15,611	8,520	**7,091**	**45%**
2018	15,634	7,204	**8,430**	**54%**
2019	16,659	6,919	**9,740**	**58%**
2020	16,060	5,368	**10,692**	**67%**
2021	21,914	3,045	**18,869**	**86%**
2022	18,415	2,316	**16,099**	**87%**

Additional information:
- Paper reports are coded and entered directly into a FSS database by SCDNR staff.
- All reports undergo a standardized QAQC process
- VESL reports numbers include state and SERO trips.
- 2023 is not included as the data is incomplete.

MEDMR Harvester Reported Data Trends (Data received through 8-3-2023)							
		Electronic Reports					
		LEEDS		VESL			
Year	Paper Reports	# Trips Reported	# Users	# Trips Reported	# Users	**Total Electronic**	**Total Reports**	**% Electronic**
2020	35,545	11,003	599	0	0	**11,003**	**46,548**	**24%**
2021*	43,806	14,840	757	352	15	**15,192**	**58,998**	**26%**
2022	24,447	18,249	1,144	2,903	150	**21,152**	**45,599**	**46%**
2023**	4,715	40,150	1,950	23,486	1,024	**63,636**	**68,351**	**93%**

*2021 was pilot year for roll out of VESL in Maine.
**2023 is the first year of 100% lobster reporting for MEDMR (approx. 5,800 harvesters).

Additional information:
- Paper reports are entered directly into MEDMR's MARVIN database by MEDMR staff.
- LEEDS is MEDMR's web based online reporting application that feeds directly to our MARVIN database.
- VESL data numbers include state only and GARFO trips.
- MEDMR currently requires lobster, menhaden, Atlantic herring, Atlantic halibut and scallop to report electronically.
- Number LEEDS and VESL users could overlap and be counted more than once.

Data Delivery Plan:
All available SC trip-level for-hire catch and effort data (including bycatch and species interactions) from federally permitted vessels, as well as ME harvester data, will be made available securely to ACCSP through SAFIS after the developed integration is complete. SC will continue discussions internally to determine if and when state-only permitted for-hire trip records will be provided to ACCSP through the SAFIS API as the uses of the data

for improved catch estimates are identified. The existing framework currently in use for the real-time submission of ME and GARFO data could be applied to other partners. Additionally, the process for submitting the various data sets can vary as needed.

Approach:

It is the intent of Bluefin Data, LLC to integrate all the required HMS data elements into the existing SC Charter Ticket, ME Harvester, and GARFO forms in VESL. Integration of these requirements includes enhancing the automatic data transfer processes between VESL and SAFIS to include the additional data elements. This integration will meet all the requirements of OSR for data management. SCDNR, MEDMR, HMS, and ACCSP staff have begun initial conversations with Bluefin Data, LLC. The project, if funded, will be considered successful when the following requirements have been met:

- The HMS requirements are outlined and approved by HMS, SCDNR, and MEDMR
- The additional data elements are integrated into the SC Charter Ticket and ME Harvester forms
- Features of the SC Charter Ticket form are developed for mobile
- Modifications of the forms are approved by HMS, SCDNR, and MEDMR
- The SCDNR and MEDMR data transfer processes to SAFIS are expanding to include the HMS elements
- Test data sets are created in beta and transferred to SAFIS for approval by HMS and ACCSP

Geographic Location:

The project will be headquartered out of Bluefin Data, LLC in New Orleans, LA, in conjunction with the SCDNR Marine Resources Division facility in Charleston, SC. SCDNR personnel are responsible for all data collections for SC for-hire fisheries data from all licensed charter vessels along the SC coast. MEDMR are responsible for ME harvester data.

Milestone Schedule:

Catch and Effort & Bycatch/Species Interaction	J	A	S	O	N	D	J	F	M	A	M	J
Task 1: Integration of HMS Data Elements	X	X	X	X	X	X						
Task 2: Amend the VESL Reporting Process			X	X	X	X	X	X	X			
Task 3: Amend the VESL Application Programming Interface (API) Process						X	X	X	X	X	X	X
Task 4: Collect and disseminate all SC for-hire data to ACCSP and federal partners	X	X	X	X	X	X	X	X	X	X	X	X

<u>Project Accomplishments Measurement:</u>

Program Priorities/ Project Component	Goal	Measurement
Catch and Effort	Integration of all required HMS data elements. Collection and submission of 100% of all SC for-hire fishery trip and ME harvester data into SAFIS in accordance with ACCSP standards and HMS data standards. Meeting all the requirements for data management in support of the OSR.	Data entered, verified, and delivered to SAFIS/ACCSP through the API meeting all ACCSP standards without rejection. Provide fisheries managers with the best available for-hire fisheries data in SC and harvester data in ME.
Bycatch/Species Interaction	Integration of all required HMS data elements to collect discard and/or interaction data in compliance with HMS data standards.	Data entered, verified, and delivered to SAFIS/ACCSP through the API meeting all ACCSP standards without rejection. Provide fisheries managers with the best available for-hire fisheries data in SC and harvester data in ME.

Cost Summary: Budget for Proposal Planning, FY 2024

Description	Quantity	Unit Price (USD)	Tax	Amount (USD)
Integration of the HMS vessel reporting requirements involves the following features in VESL: - Infrastructure change to centralize requirements for re-use - Configuration of the HMS KDEs - Configuration of the HMS rules for validations & conditional logic - Integration of the HMS requirements within SC Charter Ticket - Integration of the HMS requirements within ME Harvester - Integration of the HMS requirements within GARFO eVTR - Develop a mobile version of the SC Charter Ticket form - Develop triggers for activating HMS requirements - Modification of SCDNR, MEDMR, and GARFO export processes to account for HMS requirements	1.00	112,900	Tax exempt	112,900

The budget can be divided into three phases:

Phase	Description	Amount (USD)
1.	The initial development required is to implement the ability to centralize the source providing the HMS vessel reporting requirements to a given form in VESL. Centralizing these requirements allows the ability to more easily layer the various SC, SEFHIER, and HMS requirements into a single form. The same would be true for ME, GARFO, and HMS. In addition to easily layering/enabling requirements based on when certain conditions are met, this type of infrastructure change would allow for easier adoption of future changes in requirements, such as the new proposed rule HMS has for electronic reporting.	55,866
2.	With the infrastructure changes in place, VESL would then be ready for the development and configuration of the HMS vessel requirements. Once implemented, the ME Harvester and SC Charter Ticket forms will be enhanced to account for the new requirements. With both forms complete, work on data import and export processes will begin. Development on the ME and SC data processes for gathering permit information and exporting is generally unique to the state requirements; however, some modifications needed may be the same or similar given the data transfer process to and from the SAFIS API.	37,244
3.	With the current SC Charter Ticket only available on the web, this project is intended to expand the VESL mobile apps (iOS & Android) to account for the same functionality that SC currently has on the web plus the additional HMS requirements.	19,790

Budget Narrative - Proposed Funding Period, FY 2024

Project: Development and Integration of National Marine Fisheries Service
                                  (NMFS) Highly Migratory Species (HMS) Data Elements into VESL
FFO#:   TBD
Project Period: 1 July 2023 – 30 June 2024, or upon the availability of funds
1 Year Funding: $112,900
In-Kind Contribution: 13% – $16,258 – one month salary for each co-PI to consult
                                    and test the project deliverables
Prepared by: Elizabeth Gooding (co-PI, SCDNR), Amy Dukes (co-PI, SCDNR), and
                                    Andrew Petersen (contracting entity, Bluefin Data, LLC)

Contractual Services:

Integration Development - $112,900

The contractual budgeted funds will be used to pay for the initial development of integrating
HMS data elements into the SCDNR and MEDMR VESL platforms, as well as facilitating the
transfer of SCDNR for-hire data to SAFIS. SCDNR requests that ACCSP amend the
Administration grant to include these funds and contract directly with Bluefin Data, LLC.

Figure 1: HMS Question Decision Tree
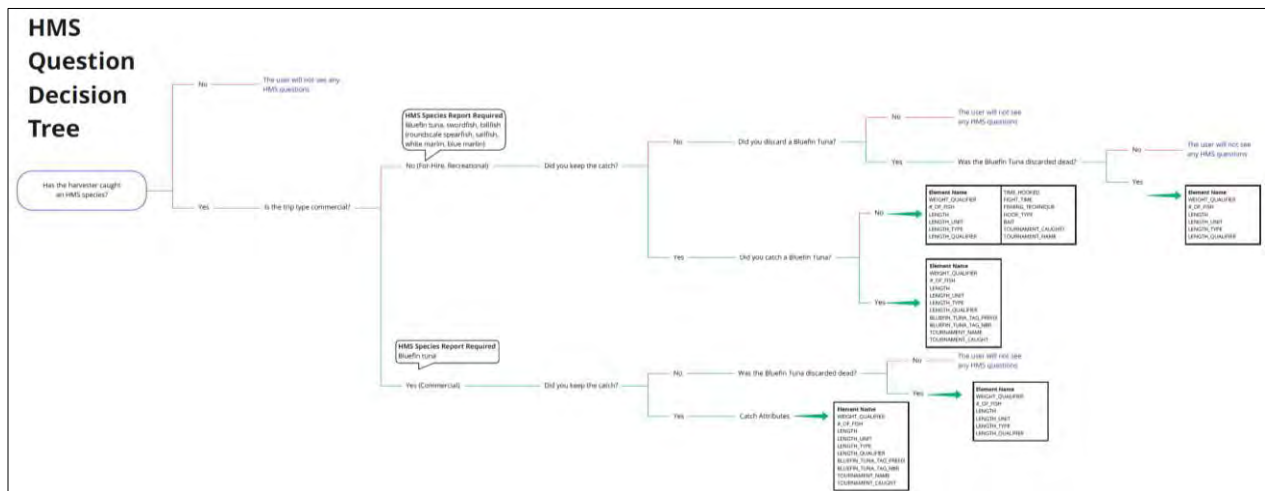
Table 2: HMS Data Elements for Charter/Headboat

	Landed	Dead Discard	Live Discard
Bluefin tuna	Weight_qualifier #_of_fish Length Length_unit Length_type Length_qualifier Bluefin_tuna_tag_prefix Bluefin_tuna_tag_nbr Tournament_name Tournament_caught	Weight_qualifier #_of_fish Length Length_unit Length_type Length_qualifier	No HMS data elements required
Swordfish Sailfish Blue Marlin White Marlin Roundscale Spearfish	Weight_qualifier #_of_fish Length Length_unit Length_type Length_qualifier Time_hooked Fight_time Fishing_technique Hook_type Bait Tournament_caught Tournament_name	No HMS data elements required	No HMS data elements required

Table 3: HMS Data Elements for Commercial Harvesters

	Landed	Dead Discard	Live Discard
Bluefin tuna	Weight_qualifier #_of_fish Length Length_unit Length_type Length_qualifier Bluefin_tuna_tag_prefix Bluefin_tuna_tag_nbr Tournament_name Tournament_caught	Weight_qualifier #_of_fish Length Length_unit Length_type Length_qualifier	No HMS data elements required

Letters of Support: MEDMR

See appendix.

Principal Investigator: Curriculum Vitae

See appendix.

Ranking Summary: Description – Allocated Points – Justification

Program Priority (Module):

   Catch and Effort – **10** – HMS species catch and effort data, especially with the new OSR initiative, needs to be captured as defined under ACCSP Program design. HMS vessel data elements would be included in the electronic data transferred to ACCSP.

Project Quality Factors:

   Multi-Partner/Regional – **5** – This project is a collaboration between five ACCSP partners, including two states (ME and SC), and three federal partners (HMS, SERO, and GARFO); however, the product of this project has the potential to positively impact several other partners.

   Contains funding transition plan / Defined end-point – **4** – The project has a clearly defined end point.

   In-kind contribution – **1** – The in-kind contribution will be 13%.

   Improvement in data quality/quantity/timeliness – **4** – This completed project will improve data collection by adding the appropriate data fields for required HMS catch and effort data, meet the OSR initiative, and be reflective of the ACCSP modules and program design.

   Potential secondary module as a by-product – **3** – Bycatch/Species Interactions is a secondary module as all species (including non-target or bycatch species) caught during the trip will be captured.

   Impact on stock assessment – **3** – This data collection will lead to improved stock assessments and allow required reporting to meet the OSR initiative.

Other Factors:

   Innovative – **2** – Although not new technology, this project has methodology improvements outlined in the OSR initiative and will have a financial savings to other ACCSP partners in the future.

   Properly Prepared – **1** – This proposal was properly prepared.

   Merit – **3** – The project has great merit. The objective of this project is to integrate required HMS vessel reporting requirements into the existing Bluefin Data VESL system for the SC Charter Ticket, and to the ME Harvester and GARFO forms to expand their mobile applications. This integration would allow for all required HMS vessel data elements to be included in electronic data transferred to ACCSP. This change to VESL would meet the requirements for data management in support of the federal OSR initiative.

<u>Appendix:</u>

STATE OF MAINE
DEPARTMENT OF
MARINE RESOURCES
MARINE RESOURCES LABORATORY P.O. BOX 8, 194 MCKOWN POINT RD
W. BOOTHBAY HARBOR, MAINE 04575-0008

JANET T. MILLS
GOVERNOR

PATRICK C, KELIHER
COMMISSIONER

January 18, 2023

Attn: Geoffrey White
Atlantic Coastal Cooperative Statistics Program
1050 N. Highland St., Ste 200A-N
Arlington, VA 22201

Dear Mr. White,

Please find this letter as confirmation of the Maine Department of Marine Resources (MEDMR) support for the South Carolina proposal to bring the VESL program into Highly Migratory Species (HMS) compliance. The MEDMR has used VESL for dealer and harvester reporting for several years. In 2022 the VESL Harvester Application was granted Greater Atlantic Regional Fisheries Office (GARFO) type approval for electronic vessel trip reports (eVTR).

The MEDMR has an interest in helping VESL become HMS compliant. The MEDMR has many users adopting this reporting platform (as of this letter we now have over 700 registered users). Having VESL meet HMS compliancy would allow this program to work towards meeting NOAA's goal of One Stop Reporting (OSR). The MEDMR has reviewed the proposal being submitted and supports the proposal in its entirety. Having another application working towards OSR would allow multiple partners currently using VESL to streamline their reporting requirements for their industry members and remove the need of industry to utilize multiple reporting platforms. With the MEDMR now requiring 100% trip level lobster harvester reporting along with other fisheries moving to required electronic reporting (halibut, menhaden, herring and scallop), more and more harvesters are utilizing our version of the VESL application.

If you have any questions concerning this project or the report, please feel free to contact me at (207)633-9412.

Sincerely,

Robert Watts
Marine Resources Scientist

Curriculum Vitae

Name: **Amy Whitaker Dukes**

Position: **Wildlife Fisheries Biologist III**   **Professional Address: SCDNR**
                 Fisheries Statistics Section Manger   **Office of Fisheries Management**
                                                                217 Fort Johnson Road
                                                                Charleston, SC 29412-9641

Phone: **(843) 953-9365 Voice**   **E-mail:**
                 (843) 209-9053 Cell   **DukesA@dnr.sc.gov**

EDUCATION:

Spartanburg Methodist College (SMC), Spartanburg SC
        Associate in Science, August 1994 to May 1996
        Major: Biology

Coastal Carolina University (CCU), Conway, SC
        Bachelor of Science, August 1996 to May 1999
        Major: Marine Science

CAREER EXPERIENCE:

Jan. 2008   South Carolina Department of Natural Resources, Charleston, SC
To present

Marine Resources Division - Office of Fisheries Management: Serves as the Fisheries Management Section Manger, participating in data collection, management, dissemination, and administration activities associated with the Fisheries Statistics Section.

Supervises, coordinates, and oversees daily operations in the collection of both commercial (Trip-ticket Program, Trip Interview Program) and recreational (For-hire logbook, MRIP, special projects/programs) fisheries dependent catch/effort data collections and biological sampling efforts; including but limited to establishing and standardizing operational procedures for field sampling and administrative activities; constituent education and outreach activities; data management (compliance, entry and QA/QC) and PII confidential data protection; transition to electronic data collections in for-hire (88% positive reporting rate) and commercial (15% positive reporting rate); transmission of dependent data to state/federal/partner agency fisheries managers/data users; Commercial and For-hire License and Permit coordination and support; Law Enforcement coordination and support (Magistrate Court Appearances); report writing, grant writing, submission and administration (applying for funding opportunities, budgeting and allocations) for approximately $1 million dollars in state and federal funds. Directly supervise 7 staff; collaborate and assist in funding/overseeing 17 employees. In addition, duties include serving as the agency's representative to several state and federal committees and working groups associated with the funding agencies including but not limited to the National Marine Fisheries Service (Fisheries Science Center and Southeast Regional Office), the Atlantic States Marine Fisheries Commission, the Atlantic Coastal Cooperative Statistics Program (Operations Committee, Funding Committee), and the Atlantic Coastal Fisheries Cooperative Management Act. Active participate with the South Atlantic Fishery Management Council meetings and serves as a panelist with SEDAR Stock Assessments.

Serves as the Program Director (Aug 2021 to present) and formerly the Tournament Coordinator (Jan 2008 to July 2021) for the SC Governor's Cup Billfishing Series. The three goals of the Series are conservation, education, and research. All related activities ensure that the goals are meet and often exceeded, including the deployment of structures to the South Carlina Memorial Reef within the Charleston Deep Reef MPA. Fundraising and management of the 501-c-3 funds.

Sept. 2000-   Department of Natural Resources, Charleston, SC
To Jan 2008
    ACE Basin National Estuarine Research Reserve (NERR): Participation in comprehensive
    research activities within the ACE Basin NERR. Manage data collection, sampling
    instrumentation, and compiling of databases in support of the Reserve's participation in the
    System-Wide Monitoring Program (SWMP). Responsible for entry, verification, editing, and
    statistical analysis of all data; assist with compellation of technical reports; preparing and
    delivering of presentations at conferences and workshops; and managing the ACE Basin NERR
    research budget.

Feb. 2000-   Department of Natural Resources, Charleston, SC
To Sept. 2000
    Marine Resources Division in the Office of Fishery Management: Assisting in the execution of an
    East Coast fin fish management plan. Anadromous species of American Shad and both Atlantic
    and Shortnose Sturgeon were collected, evaluated, tagged and released. Knowledgeable in the
    principles and practices of fish, statistical analysis, equipment maintenance and boat handling.
    Additionally, American Eel (elver) Young of the Year Survey; responsible for project set-up,
    daily sample collection, database management and analysis. (Currently the PI of this project)

Sept. 1999-   Department of Natural Resources, Charleston, SC
To Feb. 2000
    Marine Resources Research Institute: Sorted plankton samples to collect and identify three
    species of post-larval Peneaus shrimp. Responsible for continuation of project organization and
    data management.

**UNDERGRADUATE EXPERIENCE (established the principles and practices that propelled my
career):**
Jan. 1997   Peer-Mentoring Program, Coastal Carolina University, Conway, SC
To May 1999
    Co-instructor with the Dean of Sciences for a three hour, fall semester class. Served as a mentor
    and advisor for freshman Marine Science students throughout their first year of study.

May 1997 -   Sea World of Florida, Orlando, FL
To Aug. 1997
    Internship, Marine Education Instructor and Animal Care Assistant.

Dec. 1996   Coastal Carolina University, Coke and Topsail Islands, NC
To Dec. 1997
    Undergraduate research assistant for a NSF grant-funded project to examine the long-range
    effects of hurricane damage/erosion on coastal barrier islands and marsh ecosystems. Conducted
    pre and post hurricane on-site surveys of sediment core sample collection. Analysis and results
    for the project were presented through reports and oral presentations.

EQUIPMENT KNOWLEDGE:
Outboard Motorboat (navigation, operation, and safety)
Fishing Gear (Electrofishing, Fyke, Gill, Trammel, and Trawl Nets)
Biological Sampling procedures (DNA fin clips, gonad, length, otolith removal)
YSI and Nutrient data loggers/samplers

ADDITIONAL SPECIAL SKILLS:
Grant Principal Investigator
Certified Federal Grant Project Leader for USFWS
Electronic Data Collection Platform - Creation and Implantation
Excellent Communication Skills to Diverse Audiences

Curriculum Vitae

Name: Elizabeth Gooding

Position: Wildlife Fisheries Biologist II
                    Recreational Data Coordinator

Phone: off: 843-953-0119; cell: 843-494-0901

Address: 217 Fort Johnson Road Charleston, SC 29412-9641

Email: GoodingE@dnr.sc.gov

Professional Experience

Recreational Data Coordinator, Wildlife Biologist II, Office of Fisheries Management, South Carolina Department of Natural Resources (SCDNR)

Charleston, SC | May 2021 – present

- Act at the point of contact for charter boat owners and operators to report trip level for-hire fisheries data
- Collect data from anglers and captains during the South Carolina Governor's Cup Series offshore pelagic fishing tournaments
- Maintain and verify data collected, as well as assist with data analysis and report writing
- Oversee distribution of recreational release and state record certificates and maintain associated databases

Wildlife Biologist II, Crustacean Research and Monitoring Section (CMRS), Marine Resources Research Institute (MRRI), SCDNR

Charleston, SC | April 2020 – May 2021

- Scheduled and implemented multiple fisheries-independent sampling programs for commercially and recreationally important species, as well as invasive species, within CRMS
- Contributed to progress and final reports and presented the results of ongoing research projects
- Assisted with the development and planning of new research projects
- Maintained the Southeastern Regional Taxonomic Center (SERTC) Collection, which includes approximately 3400 specimens
- Acted as the point of contact for all SERTC-related and aquatic invasive species-related requests

Secretary, South Carolina Chapter of the American Fisheries Society (SCAFS)

Charleston, SC | March 2018 - March 2020

- Assisted in the planning and implementation of both the 2019 and 2020 SCAFS annual meetings

Wildlife Biologist I, CRMS, MRRI, SCDNR

Charleston, SC | November 2014 - April 2020

- Studied the impact of black gill on native shrimp species, conducted a predation experiment, and published the results of the study
- Assisted with various CRMS fieldwork, including 20' trawl surveys, creek trawl and commercial crab pot sampling, and horseshoe crab tagging and population assessments
- Designed and implemented a project studying the spatial extent and life history characteristics of the invasive island apple snail in South Carolina and published the results of the study
- Acted as the point of contact for all SERTC-related and aquatic invasive species-related requests

Laboratory Assistant, Shellfish Research Section (SRS) and Marine Resources Monitoring, Assessment, and Prediction (MARMAP), MRRI, SCDNR
Charleston, SC | March 2014 - November 2014
- Assisted with field and laboratory work SRS, including recording data for various research projects, assisting with trawl surveys on research cruises, tagging and quantifying horseshoe crabs, digitizing oyster reefs using ArcGIS, preparing crab pots and cement structures to be used as artificial reefs, and measuring oyster spat on shell from restored reef sites
- Worked with MARMAP both on research cruises and in the lab, removing reproductive tissue and otoliths from fish, sectioning the otoliths, and preparing reproductive tissue for analyzation

Research Intern, Whale and Dolphin Conservation
Plymouth, MA | 2013
- Photographed, identified, and helped maintain a catalog of humpback whales in the Gulf of Maine
- Educated the public aboard commercial whale watch boats about marine mammals in the North Atlantic
- Monitored ship strike and entanglement scars on whales in Stellwagen Bank

Laboratory Assistant, Dr. Jaye Cable Hydrology Lab, University of North Carolina at Chapel Hill
Chapel Hill, NC | 2013

Research Assistant, Passive Acoustic Monitoring Independent Research, Duke University Marine Laboratory
Beaufort, NC | 2012

Education
B.A. Environmental Studies, University of North Carolina at Chapel Hill, 2013
Concentration: Sustainability | Minors: Marine Science, Spanish for the Professions

Publications
Krol, JD, JM Hill, PR Kingsley-Smith, MR Kendrick, **EL Gooding**, C Fuchs, NV Whelan, SA Bullard (in prep.) First detection of white spot syndrome virus (WSSV) and infectious hypodermal and hematopoietic necrosis virus (IHHNV) from wild-caught giant tiger prawn, *Penaeus monodon* Fabricius, 1798 (Penaeoidea: Penaeidae) from the Gulf of Mexico and Northwestern Atlantic Ocean. *Biological Invasions*.

Kendrick, MR, JF Brunson, DA Sasson, KL Hamilton, **EL Gooding**, SL Pound, and PR Kingsley-Smith (2021) Assessing the Viability of American Horseshoe Crab (*Limulus polyphemus*) Embryos in Salt Marsh and Sandy Beach Habitats. *Biological Bulletin* 240(3):145-156.

Gooding, EL, MR Kendrick, JF Brunson, PR Kingsley-Smith, AE Fowler, ME Frischer, JE Byers (2020) Black gill increases the susceptibility of white shrimp, *Penaeus setiferus* (Linnaeus, 1767), to common estuarine predators. *Journal of Experimental Marine Biology and Ecology* 54:151284.

Gooding, EL, AE Fowler, D Knott, RT Dillon, Jr., T Brown, MR Kendrick, and PR Kingsley-Smith (2018) Life history and phenological characteristics of the invasive island apple snail *Pomacea maculata* (Perry, 1810) in stormwater retention ponds in coastal South Carolina, USA. *Journal of Shellfish Research* 37:229-238.

The Commonwealth of Massachusetts
Division of Marine Fisheries

(617) 626-1520 | www.mass.gov/marinefisheries

MAURA T. HEALEY	KIMBERLEY DRISCOLL	REBECCA L. TEPPER	THOMAS K. O'SHEA	DANIEL J. MCKIERNAN
Governor	Lt. Governor	Secretary	Commissioner	Director

Geoff White, Director
Atlantic Coastal Cooperative Statistics Program
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22204

August 18, 2023

Dear Mr. White,

The Massachusetts Division of Marine Fisheries (MADMF) is pleased to submit the updated proposal titled "*Massachusetts Oracle Forms Redesign and Modernization: Phase 2*" for your review. We believe this proposal is critical to keeping Massachusetts' data streams timely and accurate. The work we completed on Phase 1 has prepared us well for Phase 2, and we are prepared to hit the ground running. We look forward to working with ACCSP to update and optimize our data flows for both the biological and catch and effort modules.

Please note that if FIS proposal announcements are made prior to either the Operations Committee or Coordinating Council meetings to review proposals, additional information will be provided for clarity on objectives and priorities.

MADMF is prepared to begin this work earlier than anticipated if funding is available. The Commonwealth has already secured the contracts for two developers who are being paid through existing resources currently. They begin work on high priority enhancements to FISH2022 in August 2023. MADMF can alter the schedule of the project to prioritize objectives outlined in this proposal and incorporate the ACCSP funds prior to expending our existing resources. Work could begin on the remaining elements of objective 2 by October 2023. Additionally, a decision on the FIS award should be known around the time these funds could be distributed. If FIS is not awarded, the schedule of objective 1 could be re-evaluated, and ACCSP funds would be used for that project as early as January 2024. This would not change the scope of the proposed work and would help us achieve certain objectives sooner.

Please address questions to Anna Webb of the Massachusetts Division of Marine Fisheries.

Sincerely,

Anna R. Webb

Anna R. Webb
Fisheries Statistics Program Leader
Anna.webb@mass.gov
(978) 491-6212

Enclosures:
ACCSP Proposal: "*Massachusetts Oracle Forms Redesign and Modernization: Phase 2*"
Appendix A: Principal Investigator's Curricula Vitae
Appendix B: Supplemental Documents

Proposal for Funding made to:
Atlantic Coastal Cooperative Statistics Program
Operations and Advisory Committees
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22204

Massachusetts Oracle Forms Redesign and Modernization: Phase 2

Submitted by:

Anna Webb
Massachusetts Division of Marine Fisheries
30 Emerson Avenue
Gloucester, MA 01930

Applicant Name: Massachusetts Division of Marine Fisheries

Project Title: Massachusetts Oracle forms redesign and modernization: Phase 2

Project Type: New Project

Principal Investigators: Anna Webb (MADMF)

Requested Award Amount: $100,000

Requested Award Period: For one year, beginning after the receipt of funds

Date Submitted: June 16, 2023

Sections of the proposal identified to help with the ranking process are highlighted in <mark>green</mark> with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in <mark>yellow</mark>.

Overview and Terminology:
While this project is titled as Phase 2, Phase 1 was not funded through the Atlantic Coastal Cooperative Statistics Program (ACCSP) and was instead funded by the Massachusetts' Executive Office of Energy and Environmental Affairs Information Technology Department (EEAIT). Phase 1 successfully launched version 1.0 of a new commercial permitting application (hereafter FISH2022) that issues, amends, reviews, and transfers commercial, dealer, and special permits. However, the original scope of the project intended to also include redesigns of other Oracle Forms applications and modernization of an Oracle data warehouse. The scope exceeded the available funds, and remaining portions of the project were pushed to an independently funded Phase 2 project for which multiple grants are being pursued to cover the costs.

The Massachusetts Division of Marine Fisheries (MADMF) acquired approximately half of the required costs through existing resources, which will fund some of the high priority enhancements to FISH2022 and the redesign of the shellfish biotoxin sampling and rainfall data application. MADMF also submitted a full proposal to the FY24 Fisheries Information System (FIS) RFP to cover some of the remaining costs associated with this project. Both the FIS and ACCSP awards are necessary to cover the full remaining costs of this project, and as such it is difficult to predict exactly what elements will be covered by which grant. Assuming FIS is funded, the best prediction is that part of Module 2 and most of Module 3 (defined further in the Approach section) will be funded by this ACCSP award, and this proposal was written with this in mind. An overview of the full project is included for context. If there is a significant change in scope for this specific grant, written notice would be provided.

Objective:
1) Redesign the lobster sea-sampling Oracle Forms applications and associated database in a Form Engine system with a Microsoft SQL Server database that can accommodate all invertebrate fisheries sampling programs including at-sea and port-based sampling protocols. (Module 1; anticipated FIS priority)
2) Develop version 2.0+ of the commercial permitting application launched in 2023. This incorporates several new elements to improve workflows and efficiency. (Module 2; anticipated existing resources, FIS, and ACCSP priorities)
3) Improve data flows from the commercial permitting system, ACCSP, NOAA, and potentially other sources into an MADMF Oracle data warehouse. (Module 3; anticipated FIS and ACCSP priority)
4) Optimize performance within the MADMF Oracle data warehouse. (Module 3; ACCSP priority)
5) Develop an on-demand dynamic report system to aid data management workflows and for external consumption of Massachusetts commercial permitting and fisheries-dependent data. (Module 3; independent funding but support of this module is an ACCSP priority)

The top two objectives of this project are intended to be at least partially funded by FIS. If awarded, those funds will likely be expended partway through objective 2 and the funds from this ACCSP award will contribute towards attaining the remaining objectives. If FIS is not awarded, these funds would contribute to all modules. See Table 1 for prioritization of objectives based on FIS proposal standing.

Sections of the proposal identified to help with the ranking process are highlighted in green with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in yellow.

Table 1. Proposed work and the FIS funding dependency.

If FIS Proposal is funded		
Priority for this project	**Objective**	**Explanation**
1	Objective 2: Complete remaining work on version 2.0+ of FISH2022 (Module 2)	Requested funds are expected to fund all priorities. Proposal is written with this expectation. Objective 1 would be funded entirely by FIS.
2	Objectives 3 & 4: Finalize improving flow of data to and optimize Oracle data warehouse (Module 3)	
3	Objective 5: Modernize reporting (support only; includes training itemized in budget)	

If FIS Proposal is not funded		
Priority for this project	**Objective**	**Explanation**
1	Objective 1 (partial): Begin redesigning invertebrate sampling applications (Module 1). Expected to develop back end, data migration plan, and an initial front end for at least one project.	Additional funding from another source will be required to complete the project, particularly objectives 1 & 2. Written notice would be provided for any changes.
2	Objective 2 (partial): Complete remaining high and some medium priority enhancements for FISH2022 (Module 2) but do not fund remaining medium and lower priority enhancements	
3	Objectives 3 & 4: Improve flow of data to and optimize Oracle data warehouse (Module 3)	
4	Objective 5: Modernize reporting (support only); training itemized in the budget would still be included.	

Need:

MADMF has a large amount of technical debt primarily in the form of a legacy, high-security risk Oracle Forms front end system released in 2000 that issued and managed commercial fishing, seafood dealer, and other special permits, managed lobster sea sampling trip data, managed shellfish biotoxin sampling, and tracked rainfall data. The redesign of this legacy system began in collaboration with EEAIT in February 2021 and the first phase culminated in the January 2023 release of version 1.0 of the redesigned permit management module in a SQL Server based form engine application. The scope of this project was much broader than originally realized and several important items were pushed to a second phase of the project including certain permitting elements and the redesign of the sampling modules. As such, the sampling and rainfall Oracle Forms applications are still in use today by MADMF staff and continue to accrue technical debt.

The shellfish sampling application is not proposed to be funded by this award but is a component of the larger Phase 2 project. This application is a large part of the technical debt this overall project intends to eliminate, but it is not included in this scope because it is intended to be funded through already acquired grants and contains a geodatabase component not included elsewhere.

The lobster sampling application is being redesigned as a comprehensive invertebrate sea and port sampling application. If FIS is awarded, this ACCSP grant will not fund this module, but it is included here in case that does not happen. Currently, the invertebrate program uses various

Sections of the proposal identified to help with the ranking process are highlighted in green with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in yellow.

databases and/or excel files to capture all elements of their sampling program. This module will consolidate data collection from all projects conducted by the invertebrate fisheries program into a single repository that will be able to collect data on all types of port and sea sampling trips as well as all target and bycatch species sampled. In addition to reducing the technical debt incurred by the Oracle Forms application, this will streamline much of the data collection for this program.

Enhancements to the version 1.0 of the FISH2022 application are necessary to create a smoother workflow and reduce limitations in the current system. MADMF has been using version 1.0+ since January 2023, and quickly realized there were inefficiencies within many workflows. While this is no longer reducing technical debt, improving the user experience for all staff and external users is critical to successfully managing permits and the associated workflows and reducing the time spent isolating and troubleshooting problems. ==Some high priority enhancements will be covered by existing funds while the remaining medium and lower priority enhancements are intended to primarily be funded through this proposal.==

Additionally, the MADMF fisheries statistics program had built an extensive database integrating permitting data with fisheries-dependent reporting data within the Oracle framework. In lieu of migrating this product to a SQL Server environment, a new schema was added to the existing Oracle database to accept a data stream from the new permitting database and in effect, created a data warehouse from which fisheries statistics analyses could be conducted. Maintaining this product in Oracle resulted in some new problems and highlighted additional modernization and optimization needs to further streamline data flows and analyses. Fisheries statistics staff lack the experience and time necessary to work through some of these issues, and there is not currently any EEAIT staff with the necessary Oracle skills. Thus, the need for a PL/SQL expert and/or API developer and additional help identifying new reporting software options were identified.

Lastly, modernizing MADMF's reporting tools reduces further technical debt. The fisheries statistics program currently manually updates a series of hundreds of static html pages daily to provide some basic auditing and standard query results to both internal and external non-database users. Developing dynamic dashboards in a modern business intelligence solution provides an opportunity to reduce the current workload of refreshing those pages daily, but also provides expanded opportunity for non-database users to review data quality and provide reports on activity more easily. The most likely tool to be used is Power BI which is expected to be a powerful advancement in publicly and internally sharing data.

Results and Benefits:
==The results of this project allow MADMF to adapt data collection more easily to ever-changing regulatory requirements, improve fisheries-dependent data management and efficiency, and enhance quality control and assurance methods thus providing more timely and accurate data to support fisheries management both internally and regionally.== The intent is to reduce the technical debt incurred by using legacy Oracle Forms applications that have limited support and to modernize towards systems with improved security, seamless maintenance and a dedicated help desk, and increased flexibility to implement future enhancements.

Redesigning these applications addresses several security risks identified as a top priority by EEAIT. The new SQL Server based applications satisfy all the current security guidelines imposed on Commonwealth supported products. Once MADMF is no longer dependent on Oracle Forms

Sections of the proposal identified to help with the ranking process are highlighted in ==green== with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in ==yellow==.

applications, the underlying database can also be moved to a more secure cloud-based RDS environment for preservation and/or access to historical data that is not migrated.

From a data entry perspective, the new web applications are modern and user friendly. They provide an opportunity to expand permit applications from paper to an online platform and provide opportunities for streamlined data entry and retrieval for sampling programs. Additionally, maintaining and supporting the technical aspects of the new applications will be centralized and streamlined through a ticket-based support system and a documented process for larger change management.

Completing the current proposed enhancements to the commercial permitting system will further streamline the existing completed work. Additionally, successful completion of these enhancements will reduce the need for almost constant contact with the EEAIT development team to address problems and to identify temporary workarounds to problems. Lastly, this work will fully transition the application into its maintenance phase with the expectation that most future work will be conducted to accommodate any annual regulatory changes and addressed through a documented change management process. This process is intended to allow developers to respond to regulatory changes quickly and with minimal effort.

MADMF integrates the permitting data with the fisheries-dependent data collected through harvester and seafood dealer reports. MADMF is heavily invested in the commercial data entry tools offered by ACCSP, but this means the data from the SAFIS database must be pulled back to MADMF for various rounds of review with subsequent updates made to the application data before they are considered 'final' and available to data consumers. Each time data must flow to another location, bottlenecks occur and one or the other location is out of sync for some amount of time. Reducing these bottlenecks, automating quality control processes, and/or reducing the time in which the systems are out of sync will improve data quality and timeliness of data availability to fisheries managers.

This flow of data to and from ACCSP is critical to fisheries-dependent data management within MADMF and to support regional fisheries management and stock assessments. Modernizing data flows by incorporating APIs and Oracle scheduled jobs allows MADMF to better streamline data from one system to the other and increases the timeliness and availability of quality assured data to the broader region. Additionally, optimizing the Oracle data warehouse for queryability and reporting creates opportunities for MADMF to be able to fulfill data requests faster and more accurately, provide greater support to harvesters, dealers, and fisheries managers, and perform quality checks on submitted data more regularly and efficiently. Ultimately, achieving the objectives of this module will allow staff to perform QA/QC analyses on reported or entered data more efficiently and ultimately provide more timely data to ACCSP for use in coastwide analyses.

Lastly, if the invertebrate application is included in this funding, this module will provide a path to improve the timeliness of data submissions to ACCSP's biological and bycatch data warehouse tables.

Data Delivery Plan:
All 'final' data will be stored at ACCSP in SAFIS and/or the Data Warehouse.

Sections of the proposal identified to help with the ranking process are highlighted in green with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in yellow.

Approach:

Overview:

EEAIT will contract .NET developers for the back and front-end agile development. A BI expert will configure the reports and provide the ability for MADMF staff to make future modifications. Requirements gathering and wireframes will be completed by existing staff prior to this award. The current Oracle Forms applications will be redesigned as a Form Engine with the generation and tracking of data modeled and stored in a standard normalized structure. The Form Engine is a dynamic configuration based on form templates that allows future modifications of any form without modifying any code. This improves the flexibility of the application to accommodate future projects and/or modifications to existing attributes.

Regular check-ins between MADMF and EEAIT project managers and developers will occur at least once per week and up to once per day. MADMF program staff (e.g., invertebrate program, fisheries statistics program) will meet bi-weekly to discuss each sprint's progress as appropriate, new releases and testing requirements, and to gather feedback from previous testing. The MADMF project manager will coordinate bug reporting and track progress.

Module 1: Invertebrate Sampling Application

While unlikely this award will fund this module, MADMF is including a brief overview in case the FIS funding is not awarded and this ACCSP award will need to cover some of the expenses incurred.

The new invertebrate sampling application will incorporate data collected from seven invertebrate fisheries-dependent or -independent port or sea sampling projects spanning five different invertebrate fisheries and include bycatch data where applicable. Some historical data will be migrated, and others will remain in the original sources. At least one report per project type will be required to export data from the database.

A high-level project map is provided in the supplemental documents that describes the general application data flow. The project type and target species will trigger the various attribute types collected about the fishing trip, effort, and catch on a given trip. Maintenance form(s) will be developed to maintain validations and attribute requirements. A change request process will accommodate larger changes such as new project types.

Two user roles are necessary: an administrator role with full select, insert, delete, update privileges, and a data entry role with full select and insert but limited update privileges. The admin role will include maintenance form administration.

Module 2: FISH2022 Version 2.0

Version 2.0+ builds upon the existing FISH2022 application, within which staff identified and prioritized enhancements as high, medium, and low with the lower priorities addressed by this award. High priority items will be addressed in the fall of 2023 before locking the application for the 2024 renewal season (December 2023 – March 2024). Development will return to the enhancement module in the late spring and summer of 2024 to complete the work. All enhancements were documented within the EEAIT JIRA platform and developer time estimates are available for each story. Most of these lower priority enhancements do not require much additional coding. Some may require an API adjustment and possibly a small change to the front end.

Sections of the proposal identified to help with the ranking process are highlighted in <mark>green</mark> with a summary on page 12**.** Changes to the proposal based on feedback from the initial review are highlighted in <mark>yellow</mark>.

Medium priorities include enhancements to existing features or expansion of existing capabilities. Examples include resolving duplicate profiles and issues selecting vessels, etc. Low priority tasks include improving the end user experience or eliminating redundancies discovered in version 1.0. This includes improving keyboard functionality of the forms, simplifying access to information about a permit or permit holder, etc. These priorities typically are aimed to streamline the internal and external user experience and to discourage the entry of incorrect or duplicate data.

Module 3: Oracle Optimization and Reporting
Phase 2 priorities, and the top priority for this award, include modernizing data sharing with ACCSP and implementing the necessary structures to optimize the MADMF's Oracle data warehouse to improve queryability. API development and/or scheduled Oracle jobs are needed to automate data flows to or from other databases, specifically including improvements to the transfer of permit data from the EEAIT permitting database to MADMF and then to ACCSP, harvester and dealer data from ACCSP, and VTR data from NOAA and/or ACCSP. Furthermore, a review of indices, views, materialized views, triggers, functions, procedures, scheduled jobs, and other bottlenecks for query optimization will be conducted. To address these issues, an Oracle PL/SQL or data warehouse contractor will be hired to review the existing structures, workflows, and data storage and implement improvements where feasible and within budget to maximize efficiency.

This part of the module may include some interactive and iterative work with ACCSP staff to successfully accomplish. MADMF intends to minimize tasks assigned to ACCSP staff and will attempt to fit them into ACCSP's ongoing expected costs and existing resources. It is important to note that this effort begins after the planned registration tracking redesign and during the eDR redesign. The registration tracking work will have direct impacts on the permit data flows to ACCSP, some of which will be addressed prior to this project. The remainder of that work will be included here. The concurrent work on the SAFIS eDR redesign will have limited impact for the first half of the project, but upon release of the new eDR expected in January 2025, data flows will again be disrupted, and changes will be incorporated into MADMF's improved data flow processes. Troubleshooting problems surrounding this data access is an expected piece of the overall redesign project and not expected to be a further additional burden on ACCSP staff.

The final piece of this module is the development of a dynamic, internal, dashboard-driven reporting tool using BI software that will allow the fisheries statistics program to more seamlessly interact with the data required to monitor compliance and perform regular quality assurance and control. With the appropriate confidentiality rules applied, MADMF will also develop both internal dashboards shared with other MADMF programs and public facing dashboards to replace the outdated html display currently used. The Massachusetts Department of Fish and Game, the parent agency of MADMF, is currently hiring a position dedicated to assisting Department projects with business intelligence needs. This new hire will spend at least three months' worth of time with MADMF working to assist the transition from the current static html pages to a dynamic system that streamlines updates and provides comprehensive information for MADMF staff and the public to consume. This award will also fund Power BI training for MADMF staff so they can prepare to support and enhance the dashboards upon the transition of dashboard management to the fisheries statistics program after initial development.

Sections of the proposal identified to help with the ranking process are highlighted in green with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in yellow.

Geographic Location:
All work will be conducted by Commonwealth of Massachusetts staff or contractors and may occur outside of Massachusetts if the contractor is not local.

Milestone Schedule:

Task	Month 1	2	3	4	5	6	7	8	9	10	11	12	13
Complete ongoing invertebrate application and enhancement work	X	X	X										
Hire Oracle PL/SQL and/or data warehouse DBA			X	X									
Onboarding for Oracle hire				X									
Oracle optimization work					X	X							
BI dashboard work					X	X	X	X	X	X	X	X	
Report Writing						X	X					X	X

Project Accomplishments Measurement:

Project Goal	Measure of Accomplishment
Complete ongoing invertebrate application work	Launch production application, conduct training, and users begin using application.
Complete ongoing FISH2022 enhancement work	Launch production application, conduct training, and users begin using application.
Hire Oracle PL/SQL and/or data warehouse DBA	EEAIT hires a qualified candidate.
Onboarding for Oracle hire	EEAIT successfully onboards candidate and conducts initial training
Oracle optimization work	Data transfer processes are automated and require minimal maintenance.
Oracle optimization work	Queryability and efficiency improve (speeds decrease, database load decreases), database elements are implemented successfully.
BI dashboard work	All current static html pages are replaced with dashboards or other similar dynamic solutions.
BI dashboard work	Internal users have access to an improved QA/QC tracking system. Data are reviewed and available for use in a timelier manner.

Sections of the proposal identified to help with the ranking process are highlighted in green with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in yellow.

Cost Summary:

Description	Calculation	In-Kind	Requested
Personnel (a)		**$6,177.35**	**$0.00**
Anna Webb (Env Analyst, MADMF)	12.5% of time @ 5 hrs/wk for 6 months	$6,177.35	$0.00
Fringe (b)		**$2,829.85**	**$0.00**
43.36% MA Fringe rate	Applied to A. Webb's salary	$2,678.50	$0.00
2.45% MA Payroll rate	Applied to A. Webb's salary	$151.35	$0.00
Supplies (c)		**$0.00**	**$0.00**
none		$0.00	$0.00
Contractual (d)		**$0.00**	**$77,990.00**
EEAIT .NET and Oracle contractors	Development estimated at ~709 hours @ $110/hour	**$0.00**	$77,990.00
Other (e)		**$0.00**	**$2,052.36**
Power BI software fee	$7.95 per license per month for 5 licenses for 12 months	$0.00	$477.00
Power BI training	Online courses for 4-5 program staff, to be sourced	$0.00	$1,200.00
Postage	Mailed outreach materials regarding application changes	$0.00	$375.36
Total Direct Charges		**$9,007.20**	**$80,042.36**
Indirect Charges (f)		**$1,580.78**	**$19,957.64**
25.59% MA Indirect	Applied to A. Webb salary and contractor costs	$1,580.78	$19,957.64
Totals		**$10,587.98**	**$100,000.00**
Total Project Cost		**$110,587.98**	
In-kind versus Direct Percent Contribution		**9.57%**	**90.43%**
Requested Amount		**$100,000.00**	

Cost Details:

a. **Personnel ($0 Requested; $6,177.35 Match)** MADMF will use a portion of PI Anna Webb's salary as match for this application. Her CV is attached, and she is MADMF's project manager for this project. ==MADMF will be matching 12.5% of her time on this project and an estimated additional 12.5% on the FIS-funded portion of the project (25% match total between this project and FIS)==.

b. **Fringe ($0 Requested; $2,829.85 Match)** MADMF will provide matching funds to cover fringe and payroll expenses associated with A. Webb's match salary. MADMF's proposed fringe rate of 43.36% includes the costs for Group Insurance, Retirement, and Terminal Leave. MADMF's proposed payroll rate of 2.45% includes the costs of Unemployment Insurance, Universal Health Insurance, Medicare Tax, and the Paid Family Medical Leave Act.

c. **Equipment/Supplies ($0 Requested; $0 Match)**

d. **Contractual ($77,990.00 Requested; $0 Match)** Software development costs for .NET developers and an Oracle expert are $110/hour for approximately 709 hours on this project. The number of hours is rounded and calculated based on the expected remainder of the overall project budget after expending existing and proposed resources prior to using this award.

e. **Other ($2,052.36 Requested; $0 Match)** This request includes a recurring monthly fee for Power BI software ($7.95/license for 12 months x 5 licenses needed) and Power BI training costs for 4-5 program analysts ($1,200). Training costs are required for the analysts to receive the background knowledge necessary to manage the new dashboard reports after transitioning the long-term maintenance back to MADMF. Postage ($375.36) is also requested for various outreach mailings intended to cover ~550+ letters or postcards.

f. **Indirect Charges ($19,957.64 Requested; $1,580.78 Match)** MADMF is requesting $19,957.64 for indirect costs associated with the EEAIT contractors and will provide matching funds ($1,508.78) to cover the indirect costs associated with A. Webb's match salary. MA DMF has a federally negotiated indirect rate of 25.59%.

g. **Total Project Costs ($100,000 Requested; $10,587.98 Match)**

Summary of Proposal for Ranking Purposes

Proposal Type: *New Project*

Primary Program Priority:

Catch and Effort: This proposal focuses on the modernization of catch and effort and landings data flows already collected through SAFIS applications. ==If FIS is funded, 100% of the ACCSP funds will be expended under this priority. If FIS is not funded, approximately 60-65% will be for this priority.==

Data Delivery Plan: See outline on page 6.

Project Quality Factors:

Multi-Partner/Regional impact including broad applications: Although this plan only covers the activities of MA commercial permit holders, it covers all fisheries that have regional management bodies. Improving the data flows of these data benefit all management strategies coastwide that include these fisheries.

Contains funding transition plan/defined endpoint: This is a one-year project with a defined end goal. The goal is to build or improve existing data collection and review tools and launch these products into production within the one-year time frame.

In-kind contribution: Please see the costs table on page 10.

Improvement in data quality/quantity/timeliness: Improvements in efficiency described here will result in more timely data available for management decisions.

Potential secondary module:

Biological and Bycatch: Module 1 results in a consolidated application for all fisheries-dependent and -independent invertebrate sampling data ==but does not fund the sampling itself. This work== would allow more frequent and comprehensive data submissions to the biological and bycatch ACCSP data warehouse tables. ==If FIS is not funded, approximately 35-40% of the ACCSP award would be dedicated to this module. The projects proposed to be housed in this database include several projects surrounding American lobster trap-based fisheries, a species and gear in the upper quartiles of the biological and bycatch sampling priority matrices. The model could be expanded for additional sampling projects as well.==

Impact on stock assessment: Although this plan only covers the activities of MA commercial permit holders, it covers all fisheries that have regional management bodies. Improving the data flows of these data benefit all management strategies coastwide that include these fisheries. Additionally, the improvements to the invertebrate sampling data flows will make those data more readily available to stock assessments.

Sections of the proposal identified to help with the ranking process are highlighted in ==green== with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in ==yellow==.

Anna R. Webb

30 Emerson Ave · Gloucester, MA 01930
anna.webb@mass.gov · (978) 491-6212

EDUCATION:

Continuing Education:

Intro to Computer Programming, University of Massachusetts, Lowell; Fall 2016
Relational Database Concepts, University of Massachusetts, Lowell; Spring 2015
SQL Programming, Hands-On Technology Transfer, Inc.; Fall 2014

Graduate Education:

Master of Science Degree, Marine and Atmospheric Science, *Focus: Fisheries,* School of Marine and Atmospheric Sciences, Stony Brook University, August 2011
Thesis title: *Understudied Species in Coastal U.S. Waters: Issues, Solutions, and Implications for Ecosystem-Based Fishery Management*

Undergraduate Education:

Bachelor of Science Degree, Marine Vertebrate Biology, Stony Brook University, May, 2007

WORK EXPERIENCE:

Environmental Analyst, Massachusetts Division of Marine Fisheries, Gloucester, MA
November 2015 - Present
Ongoing Responsibilities:

- Program leader for Division's Fisheries Statistics Program. Program is a seven person team responsible for collecting, entering, and managing catch and effort data from commercial fishermen, VMS data from certain commercial fisheries, and landings data from seafood dealers in Massachusetts. Job duties also include managing ongoing federal grants as the principal investigator.
- Provide support and oversight for harvester data collection, entry, quality control, and compliance for Massachusetts and provide outreach and technical support to harvesters submitting reports electronically through SAFIS or via paper.
- Provide support and oversight for dealer data collection, entry, quality control, and compliance, data requests from internal personnel, other partner agencies, and the public, and quota monitoring of various species.
- Lead point of contact for all swipe card technology and Atlantic Coastal Cooperative Statistics Program (ACCSP) related matters.
- Chair of the Commercial Technical Committee, Past Chair of the Information Systems Committee, and Chair of the SAFIS Outreach Committee at the ACCSP.

Program Coordinator, Massachusetts Division of Marine Fisheries, Gloucester, MA
April 2014 – November 2015

- Oversee the harvester data collection, entry, quality control, and compliance for Massachusetts
- Provide outreach and technical support to harvesters and dealers submitting reports electronically through SAFIS or via paper.
- Instituted the online video tutorial series for harvesters using SAFIS and a newsletter focusing on electronic reporting for dealers and harvesters.

- Participate in the swipe card dealer application project with ACCSP and Maine Department of Marine Resources.
- Member of the Commercial Technical Committee, Vice Chair of the Information Systems Committee, and Chair of the SAFIS Outreach Committee at ACCSP.

ACCSP Fishery Specialist (Coordinator), Rhode Island Division of Fish and Wildlife-Marine Fisheries Section, Jamestown, RI
April 2012 – April 2014
- Oversee SAFIS data entry and compliance by dealers, harvesters, and staff.
- Provide daily technical support to dealers and fishermen.
- Participate on the quota monitoring team to make decisions regarding seasonal closures and possession limit changes for summer flounder, black sea bass, tautog, bluefish, striped bass, scup, menhaden, and monkfish.
- Manage the research-set-aside program in Rhode Island.
- Write and submit progress and final reports for ACCSP grants.
- Provide data to staff and external users while monitoring confidentiality issues.
- Member of the Commercial Technical Committee, Vice Chair of the Information Systems Committee at ACCSP, Chair of the Data Warehouse Outreach Committee.

Seasonal Field Technician, New York State Department of Environmental Conservation, East Setauket, NY
June 2011 – April 2012
- Conduct seining surveys of juvenile striped bass in Western Long Island bays.
- Assisted with the monitoring of 35 fish pots in a Long Island Sound fishery-independent survey of tautog and a trawl survey of Peconic Bay, NY targeting juvenile finfish species.
- Participated in onboard sampling and measurement of recreational charter boat catch including local species such as summer flounder, black sea bass, and scup.
- Monitor and collect commercial striped bass fishery samples from local fish markets
- Press and age striped bass scales.
- Data entry: Cooperative Angler Program; Vessel trip reports into SAFIS.

Research Technician, Stony Brook University, Stony Brook, NY
March 2007 – September 2008
- Participated in hard clam restoration project in conjunction with The Nature Conservancy by analyzing gonad and general body condition of both sanctuary and native clams
- Collected and filtered seawater for chlorophyll and POC/PON content analysis
- Analyzed sediment cores for both POC/PON analysis and enumeration of benthic organisms
- Prepared all materials for both field sampling and laboratory testing

SPECIAL SKILLS:
- Relational database management including MS Access and Oracle based databases
- Data mining large datasets for repeating errors
- Proficient in SQL and Microsoft Office Suite, expert in Microsoft Excel
- Experience with R, GIS, HTML, Visual Basic

Appendix B: Supplemental Documents

B.1 High-level data map for the invertebrate sampling application

ALL INVERT APPLICATION DATA BLOCKS – HIGH LEVEL

PROJECT_TYPE

PROJECT_SPECIES

TRIP_SAMPLER

SAMPLE_TRIP

ATTRIBUTES

SPECIES_TYPE

SAMPLE_LOCATION
(E.G., TRAWL)

SAMPLE_CONTAINER
(E.G., TRAP)

SAMPLE_ATTRIBUTE
(E.G., TRAWL_LENGTH, TRAP_TYPE, WEIGHT)

SAMPLE_CONTAINER
_SPECIES
(TARGET & BYCATCH)

SAMPLE_ATTRIBUTE
_VALUE

KEY:

VALIDATION TABLE

FORM BLOCK

Notes:
Not all validation tables are presented.
Model subject to change.

Sections of the proposal identified to help with the ranking process are highlighted in green with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in yellow.

B.2.A Full Project budget details. Note that this excludes the shellfish biotoxin sampling and rainfall application redesign expected to be completed by March 2024 and approximately half of Module 2 which is expected to be completed by November 2023. Both are funded through existing grants.

Massachusetts Oracle Forms Redesign & Modernization Project: Phase 2 Budget Details							
Module 1: Invertebrate Sampling Application							
Developer Type	**Description**	**Max # Weeks**	**Hours/week**	**Total Hours**	**Cost/hour**	**# Developers**	**Total Cost**
back end	back end/migration	8	37.5	300	110	1	$33,000.00
back end	support for front end	14	25	350	110	1	$38,500.00
front end	admin and data entry screen(s)	14	37.5	525	110	1	$57,750.00
reporting	Business Intelligence software expert	1	37.5	37.5	110	1	$4,125.00
total		22		1212.5		3	$133,375.00
Module 2: FISH2022 Version 2.0							
Developer Type	**Description**	**Max # Weeks**	**Hours/week**	**Total Hours**	**Cost/hour**	**# Developers**	**Total Cost**
back end	back end	4	37.5	150	110	1	$16,500.00
back end	support for front end	12	25	300	110	1	$33,000.00
front end	admin and data entry screen(s)	12	37.5	450	110	1	$49,500.00
total		16		900		3	$99,000.00
Module 3: Oracle Optimization and Reporting							
Developer Type	**Description**	**Max # Weeks**	**Hours/week**	**Total Hours**	**Cost/hour**	**# Developers**	**Total Cost**
Oracle	PL/SQL, DBA	6	37.5	225	110	1	$24,750.00
reporting	Business Intelligence software expert in house	12	37.5	450	0	1	$0.00
total		12		675		2	$24,750.00
Sub Total	.NET Developers, Oracle, BI Expert						$257,125.00
Indirect	Indirect @ 25.59%						$65,798.29
Total							**$322,923.29**

Sections of the proposal identified to help with the ranking process are highlighted in <mark>green</mark> with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in <mark>yellow</mark>.

B.2.B Summary of Full Project budget by funding sources. Note that this excludes the shellfish biotoxin sampling and rainfall application redesign expected to be completed by March 2024 and approximately half of Module 2 which is expected to be completed by November 2023. Both are funded through existing grants.

Total Project Budget by Funding Source		
Cost Type	**Description**	**Total Cost**
Contract Personnel	.NET Developers, Oracle, BI Expert	$257,125.00
Indirect	Indirect @ 25.59%	$65,798.29
Sub-Total	**Estimated Project Cost**	**$322,923.29**
MADMF funds	Amount already contracted for project	$50,000.00
FIS request	Submitted to FIS	$175,000.00
Total remaining	**Amount yet to be funded**	**$97,923.29**
Remainder split for salary	Rounded to nearest hour (709)	$77,990.00
Remainder split for indirect	applied to the 709 hours	$19,957.64
	ACCSP Contractual Request	**$97,947.64**
	Supplies/software	**$2,052.36**
	ACCSP Total requested amount	**$100,000.00**

Sections of the proposal identified to help with the ranking process are highlighted in green with a summary on page 12. Changes to the proposal based on feedback from the initial review are highlighted in yellow.

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION OF FISH & WILDLIFE / MARINE FISHERIES
Three Fort Wetherill Road
Jamestown, Rhode Island 02835

August 16, 2023

Atlantic Coastal Cooperative Statistics Program
1050 N. Highland St. Ste. 200 A-N
Arlington, VA 22201

Dear ACCSP,

The Rhode Island Department of Environmental Management is pleased to submit the following proposal for the FY24 ACCSP Request for Proposals titled "The Economic Impact of Rhode Island's Fishing Industry". Please note that substantial effort was made to reduce the overall amount requested for this proposal compared to its initial submission. Project PIs were successfully able to acquire data and files from Dr. Tom Sproul (formerly at URI) who worked on Sproul & Michaud (2018), the basis for this proposal. Additionally, PIs were able to negotiate the URI overhead rate from 57.5% to 25%. As a result, the total requested amount was reduced by $45,507.93.

Other additions to this proposal include a letter of support for the proposed project from the Rhode Island Emergency Management Agency (RI EMA), and a University of Rhode Island letter of intent.

Thank you for your consideration of this proposal.

Regards,

Nicole Lengyel Costa

Nicole Lengyel Costa

FY24: The Economic Impact of Rhode Island's Fishing Industry

Total Cost: <mark>$114,282.52</mark>

Submitted By:
Nicole Lengyel Costa
Rhode Island Department of Environmental Management (RIDEM)
Division of Marine Fisheries
3 Fort Wetherill Road
Jamestown, RI 02835
nicole.lengyel@dem.ri.gov

Dr. Hirotsugu Uchida
College of Environmental and Life Sciences (CELS)
Department of Environmental and Natural Resource Economics (ENRE)
University of Rhode Island (URI)
Kingston, RI 02881
huchida@uri.edu

Bold comments intended to help with ranking
Highlighted reflects changes from original submission

Applicant Name:	Rhode Island Department of Environmental Management (RIDEM) Division of Marine Fisheries
Project Title:	The Economic Impact of Rhode Island's Fishing Industry
Project Type:	New Project
Requested Award Amount:	$114,282.52
Requested Award Period:	One year after receipt of funds
Program Priority:	Primary: social and economic (100%)
Date Submitted:	August 16, 2023
Principal Investigator:	Nicole Lengyel Costa, Principal Biologist, nicole.lengyel@dem.ri.gov
Project Staff:	Dr. Hirotsugu Uchida, University of Rhode Island (URI) Julia Livermore, RIDEM Dr. David Bethoney, Commercial Fisheries Research Foundation, (CFRF)

Atlantic Coastal Cooperative Statistics Program (ACCSP) Proposal for the State of Rhode Island

Objectives:
- Generate a list of fishing-related businesses within the State of Rhode Island and specific to each fisheries sector and the top five ports in Rhode Island.
- Conduct a public workshop to engage stakeholders and solicit input for an online survey.
- Conduct an online survey to **collect socioeconomic data** from fishing-related businesses.
- Obtain validated fisheries data by sector and port for 2023.
- Perform estimation procedures where economic data are unavailable.
- Use IMPLAN software to calculate economic impact estimates.
- Update economic multipliers from Sproul & Michaud (2018) for the State of Rhode Island and develop port and sector-specific multipliers.
- Create an economic multiplier protocol for ACCSP partners.

Need:

The state of Rhode Island landed $100.6 million of seafood commercially in 2022 and had over 2.7 million recreational fishing trips (Rhode Island Department of Environmental Management Division of Marine Fisheries, 2023). The fishing industry is part of an intricate supply and demand network where many fishing-related businesses are generating jobs and income solely from the operation of fishing in RI. Sproul & Michaud (2018) estimated the overall economic impact of the fishing industry in RI to be 4,381 jobs, and $419 million. The RIDEM has used these estimates routinely to convey the importance of fishing in RI and specifically to advocate for continued ownership and operation of the state's largest commercial fishing port in Galilee, RI. In 2021, Galilee landed 70.15% by value of all of the seafood landed in RI (Rhode Island Department of Environmental Management Division of Marine Fisheries, 2022). Additionally, Galilee ranked 18 by value and 17 by quantity landed among all the ports in the United States (*2020 Fisheries of the United States*, n.d.). Maintaining Galilee as a commercial working waterfront is at the forefront of RIDEMs goals for the Port but is often met with opposition and criticism.

As a commercial working waterfront Galilee, and other fishing ports throughout the state, are subject to harsh environmental conditions from severe storms including flooding, storm surges, and high winds. These conditions can cause deterioration of coastal infrastructure over time and require regular maintenance as well as routine replacement of critical infrastructure. In 2022, the state of RI budgeted 46 million to Galilee for infrastructure improvement projects. This large investment by the state will be used to replace outdated and critical infrastructure such as docks, pilings, and bulkheads. What is not clear however is how the state will pay for damage to the port resulting from severe storms and what economic impact to the state these potential damages and a port closure may have. Having updated economic multipliers for RI and new multipliers that are port and sector-specific is crucial information for truly understanding these impacts. Just recently, RI submitted a proposal to the Federal Emergency Management Agency (FEMA) for hazard mitigation funding and was specifically asked for these economic impact estimates by the funding agency in order to conduct a cost-benefit analysis (CBA) further highlighting the need for these estimates (See attached Letter of Support from the RI Emergency Management Agency (RIEMA)).

The work of Sproul & Michaud (2018) is now 7 years old and their multipliers are not sector or Port specific. Not only is having updated economic multipliers important to RIDEM and the fishing industry

Bold comments intended to help with ranking
Highlighted reflects changes from original submission   4

but developing sector and port-specific economic multipliers may become important in the near term as the offshore wind industry continues to develop, ports around the world endure gentrification, and the costs of maintaining ports increase due to threats from global climate change.

Results and Benefits:

This work will expand upon and update the work of Sproul & Michaud (2018). **Socioeconomic data collected from fishing-related businesses will be combined with existing datasets and used in the IMPLAN software to estimate economic multipliers for Rhode Island's fishing industry on the state, sector, and port levels.** The different sectors within the fishing industry and the top five ports in Rhode Island will be investigated separately to determine if there is a significant difference in the economic multipliers between sectors and ports (Table 1). It is anticipated that economic multipliers may vary by Port due to different species dominating landings in each Port. For example, Galilee lands a high volume of squid and scallops, Warwick lands a high volume of shellfish, and Newport lands a high volume of lobster and Jonah crab. Once estimated, the **economic multipliers will then be used to estimate the total economic impact of the fishing industry in Rhode Island in terms of jobs and value**. These economic impact estimates will highlight the fishing industry's importance to RI and support RIDEM's continued ownership and operation of its commercial fishing ports. Sector-specific economic impact data will be important for understanding the impact of different regulatory decisions on each sector in Rhode Island and characterizing the impacts of offshore wind development. These multipliers will most crucially be used to estimate the potential impact to the state in the event of damage to critical coastal infrastructure and/or a port closure. These estimates can in turn be used for hazard mitigation projects, the funds of which are available through FEMA but require this data for CBA.

Researchers will document the stepwise process for developing economic multipliers and use the information to develop an Economic Multiplier Protocol that will allow other ACCSP partners to replicate this work and develop their own state or sector-specific economic multipliers. A protocol of this nature will save partners time and money by eliminating the need to hire an economist, detailing the methods for collecting socioeconomic data, and taking advantage of existing datasets.

Data Delivery Plan: Data will be submitted to ACCSP as soon as a platform for submitting social and economic data is made available to state partners. In the interim, non-confidential or aggregated data will be made available upon request and in progress reports.

Approach:

A comprehensive list of fisheries-related business within the State of Rhode Island will be developed. Researchers will utilize existing databases including the RI Secretary of State business portal, A to Z databases, Manta, and RIDEM databases. The Commercial Fisheries research Foundation (CFRF) will assist researchers in developing the list of businesses and also help to coordinate outreach efforts (See attached Letter of Support).

An online survey will be developed by researchers in cooperation with the CFRF and the fishing industry to collect socioeconomic data from fishing-related businesses. At least one public workshop will be held to solicit feedback on the survey from the fishing industry. Economic data collected via the survey may be supplemented with existing data from the aforementioned databases. **To the extent**

possible researchers will follow the priority data elements for socioeconomic data developed by the Committee on Economics and Social Sciences. Recognizing that those data elements are primarily for fishing operations and not businesses, researchers will augment data collection where necessary to collect similar elements from businesses that are not fishing vessels. The CFRF and public workshop will aid in being sensitive to this data collection process and the potential burden to industry it may impose. All survey data will remain confidential, and the survey will be vetted through the URI Institutional Review Board (IRB) for research involving human subjects.

The methods of Sproul & Michaud (2018) will be followed for developing economic multipliers for jobs and revenue using the IMPLAN software. Where necessary, log-linear regression may be used for imputations where data are unavailable. Validated ex-vessel landings values from the ACCSP data warehouse will be used for commercial fishing and MRIP data used for recreational fishing estimates. Economic multipliers will then be used to estimate the economic impact of the fishing industry in Rhode Island as a whole, for the top five Ports in RI, and by sector where possible (Table 1).

Table 1. Fishing Sectors and Ports:

Fishing Sectors	Top 5 Ports
Commercial	Galilee (Point Judith)
Recreational	Wickford (North Kingstown)
For-Hire	Newport
Aquaculture	Little Compton
	Warwick

Researchers will document the stepwise process for developing economic multipliers and develop an Economic Multiplier protocol that can be used by other ACCSP partners to perform this work. This is the second time that economic multipliers for the fishing industry in RI will be developed. Each time an economist from URI has been involved to conduct and oversee the analysis. This can be time intensive and costly. **By RIDEM and URI developing a protocol in collaboration with CFRF, other ACCSP partners will have a tool at their disposal that will allow them to complete the same analysis without employing an economist or academic institution, thus saving time and money.**

Geographic Location: This project will be conducted by RIDEM DMF staff out of Jamestown, RI and by URI staff out of Kingston, RI. Visits to fishing-related businesses may be conducted throughout the state of Rhode Island.

Milestone Schedule:

Table 2. Milestone Schedule:

Activity	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Recruit and Hire Research Assistant	X	X										
Obtain IMPLAN License	X	X										
Obtain URI IRB Approval	X	X	X									
Compile and Review Existing Data		X	X	X								
Review IMPLAN Data		X	X	X								
Public Workshops				X	X							
Develop Survey Questions				X	X							
Send out Survey					X	X						
Analyze Data							X	X	X			
Protocol Writing							X	X	X	X	X	X
Report Writing										X	X	X

Project Accomplishments Measurement:

Table 3. Project Accomplishment Metrics:

Goal	Metric
IRB Approval	Develop and submit application
IMPLAN Data Review	Characterize existing data
Public Workshops	Hold at least 1 Workshop
Survey Completed	Socioeconomic data collection
Data Analysis	Analysis and modeling in R
Protocol Writing	Protocol made available
Report Writing	Report submitted to ACCSP

Cost Summary (Budget):

Table 4. Project Summary Budget:

Budget Category	Federal ACCSP	In-Kind	Total
a. Salary			
RIDEM Deputy Chief (5%)	$ -	$ 5,122.55	$ 5,122.55
RIDEM Principal Biologist (20%)	$ 18,682.80	$ -	$ 18,682.80
URI Graduate Research Assistant (GRA) (100%)	$ 31,987.00	$ -	$ 31,987.00
URI Economics Professor (2%)	$ 3,937.00	$ -	$ 3,937.00
RIDEM Seasonal Intern (10%)	$ -	$ 1,200.00	$ 1,200.00
CFRF Staff	$ -	$ 4,600.00	$ 4,600.00
b. Fringe			
RIDEM Deputy Chief (5%)	$ -	$ 3,376.05	$ 3,376.05
RIDEM Principal Biologist (20%)	$ 8,450.20	$ -	$ 8,450.20
URI GRA (100%)	$ 4,791.00	$ -	$ 4,791.00
c. Travel	$ 786.00	$ -	$ 786.00
d. Supplies	$ -	$ 500.00	$ 500.00
e. Software	$ 6,000.00	$ -	$ 6,000.00
f. Tuition			
RIDEM Principal Biologist	$ 6,848.00	$ -	$ 6,848.00
URI GRA	$ 17,670.00	$ -	$ 17,670.00
g. Total Direct	$ 99,152.00	$ 14,798.60	$ 113,950.60
h. Indirect/Overhead charges			$ -
RIDEM (18.25%)	$ 4,951.77	$ 1,769.99	$ 6,721.77
URI (25%)	$ 10,178.75	$ -	$ 10,178.75
i. Total	$ 114,282.52	$ 16,568.59	$ 130,851.12
j. Percentage	87%	13%	

Cost Details:
Description of budget categories and expenses for this project
Overall in-kind: 13% of the overall budget is being provided as in-kind contribution.

   a. **Salary:**

   From ACCSP:
   - i. **RIDEM Principal Biologist:** 20% funded position to act as the principal investigator and develop fisheries economic multipliers for the top five landing ports in Rhode Island; 20% of salary ($93,414) for one year = $18,682.80.
   - ii. **Graduate Research Assistant:** 100% funded position (through URI) to update fisheries economic multiplier for Rhode Island; 20 hours/week for academic year ($23,030) and 20 hours/week during the summer ($8,957) = $ 31,987.
   - iii. **URI Economics Professor:** 2% of their time, or 1 week during the summer, to supervise graduate research assistant = $3,937.

In-Kind:

    i. **RIDEM Deputy Chief:** 5% funded to provide project oversight and staff management; 5% salary (==$102,451) for one year = $5,122.55==.

    ii. **Intern:** 10% funded seasonal intern to assist on the project. Approximately 10% of six-month salary = $1,200.

    iii. **CFRF staff:** outreach and collaborative support estimated at $4,600. See attached letter of support.

b. **Fringe:**
==Annual fringe benefit rates for employees vary depending upon the employee's pay rate and what the employee chooses for health care. This may include the following:==

Retirement 24%
Deferred Compensation 0.4%
FICA 6.2%
Medicare 1.45%
Health care $21,937/year
Dental $1,132/year
Vision $165/year
Assessed Fringe 4.25%
Retiree Health 6.75%

From ACCSP:

    i. **RIDEM Principal Biologist:** ==Total annual fringe benefits for the Principal Biologist (project PI) are $42,251. Fringe benefits for 20% of their time are $8,450.==

    ii. **Graduate Research Assistant:** ==Total fringe benefits for the GRA are $4,791 ($4,106 for academic year and $685 for summer).==

In-Kind:

    i. **RIDEM Deputy Chief:** ==Total annual fringe benefits for the Deputy Chief are $67,521. Fringe benefits for 5% of their time are $3,376.==

c. **Travel:** Travel for this grant includes mileage for travel roundtrip from the DMF Office located in Jamestown, RI, or the URI campus located in Kingston, RI, to various ports throughout RI. The RIDEM mileage rate of $0.655/mile was used to estimate travel expenses. Approximately five trips to each of the top five major ports was calculated at being 1,200 miles total (1,200 * $0.655 = $786).

d. **Supplies:** General office supplies include Rite in the Rain paper, printer paper, copier toner, pens, pencils, clipboards, notebooks, and a digital voice recorder.

e. **Software:** An IMPLAN software license at the state region level for project staff to perform the economic analysis. IMPLAN has offered RI a 20% discount off their annual state-level plan due to the small size of RI.

f. **Tuition:** Tuition includes costs for eight research credits at the University of Rhode Island for the RIDEM FTE (four credits per semester). The per-credit cost for in-state part-time graduate students is $856.00 ($856 * 8 = $6,848). Tuition also includes $17,670 per year for the URI graduate research assistant. Tuition is considered a benefit for all hired research assistants at URI.

h. **Indirect/Overhead Charges:**
The RIDEM indirect rate for FY24 is 18.25%.

The URI Overhead rate for FY24 is 25%. This overhead rate is a URI policy that cannot be negotiated.

From ACCSP:
   i. **RIDEM Principal Biologist:** 18.25% of the salary ($18,682.80) and fringe ($8,450.20) is $4,952 per year.
   ii. **URI Research Assistant:** 25% of the 100% ($31,987) and fringe ($4,791) is $10,179 per year. This equals 8.9% of ACCSP requested funds and meets the ACCSP RFP overhead requirements.

In-Kind:
   i. **RIDEM Deputy Chief:** 18.25% of the salary ($5,122.55) and fringe ($3,376) is $1,770 per year.
   ii. **Intern:** 18.25% of the salary ($1,200) is $219.00 per year.

SUMMARY OF PROPOSAL FOR RANKING

Proposal Type: New

Primary Program Priority: Economic and Sociological Data (100%)

Data Delivery Plan: Data will be submitted to ACCSP as soon as a platform for submitting economic and sociological data is made available to state partners. Data will be made available to any state partner upon request.

Multi-Partner/Regional Impact: Although the geographical scope of this proposal is confined to Rhode Island, one expected benefit of this project is to create a standard protocol for other state partners to easily follow that will allow them to develop their own state-specific economic multipliers for the fishing industry. These data can in turn be used to estimate economic impacts and apply for federal hazard mitigation funding.

Contains Funding Transition Plan: This is a one-year project with the expected benefit of creating an automated process for updating economic multipliers in future years at a lower expense eliminating the need for yearly funding.

In-Kind Contribution: In-kind contribution for this project is 13% as stated in the budget table.

Improvement in Data Quality/Quantity/Timeliness: This project will be improving data quantity and quality by collecting socioeconomic data from RI fishing related businesses that has not previously been collected or is outdated. This project data has also recently been requested by FEMA for conducting CBAs required as part of the federal funding process.

Innovative: This project is collecting new fisheries related socioeconomic data and utilizing existing data collection streams (ACCSP warehouse) to estimate the value of the fishing industry to RI. Researchers are developing a protocol to allow other ACCSP to complete the same works at a substantial cost saving in the future. Additionally, these estimates can be used for hazard mitigation projects in the future to protect important coastal assets and prevent economic loss.

Impact on Stock Assessment: Stock assessment results often dictate changes in management to recreational and commercial fisheries. Little to no information on the socioeconomic impact of these stock assessment induced regulatory changes is available. The data collected in this project will be extremely useful and allow managers to consider the socioeconomic impacts of regulatory changes following a stock assessment.

Properly Prepared: This proposal followed the guidelines of the FY24 Request for Proposals and Funding Decision document.

References:

2020 Fisheries of the United States. (n.d.).

Rhode Island Department of Environmental Management Division of Marine Fisheries. (2022). *Rhode*

    Island Annual Fisheries Report: 2021 (p. 41). RI Department of Environmental Management.

    https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-08/AnnualRpt_2021.pdf

Rhode Island Department of Environmental Management Division of Marine Fisheries. (2023). *2022*

    Rhode Island Annual Fisheries Report (p. 45). Rhode Island Department of Environmental

    Management Division of Marine Fisheries.

    https://dem.ecms.ri.gov/sites/g/files/xkgbur861/files/2023-07/AnnualRpt_2022.pdf

Sproul, T., & Michaud, C. (2018). *The Economic Impact of Rhode Island's Fisheries and Seafood*

    Sector: University of Rhode Island.

Nicole Lengyel Costa   nicole.lengyel@dem.ri.gov   401-423-1940

PROFESSIONAL EXPERIENCE
RI Department of Environmental Management, Jamestown, RI, 05/10/09 – Present
Principal Biologist (Marine)
Duties:

- Principal Investigator (PI) for the finfish age and growth study responsible for overseeing the program and staff including a principal biologist, a fisheries technician, and seasonal interns
- PI for the Narragansett Bay Atlantic Menhaden monitoring survey responsible for management of the commercial menhaden fishery within RI state waters
- Write grant narratives and create grant budgets for marine fisheries projects and programs
- Review grant proposals and rank proposals to receive federal funding through Atlantic Coastal Cooperative Statistics Program (ACCSP) and NOAA Fisheries
- Former lead on offshore renewable energy projects. Played a vital role in all aspects of the RI Ocean SAMP and the permitting and construction of the Block Island Wind Farm
- Support Deputy Chief on matters pertaining to the New England Fishery Management Council (NEFMC) small mesh multispecies (whiting) plan
- Current Membership on various technical committees/panels: Atlantic States Marine Fisheries Commission (ASMFC) Striped Bass Technical Committee (TC) (former chair), ASMFC Striped Bass Plan Development Team (PDT), ASMFC Striped Bass Plan Review Team (PRT), ASMFC Menhaden PRT, ASMFC Menhaden PDT, ASMFC Ageing committee, ASMFC Northeast Area Monitoring and Assessment Program (NEAMAP) Operations committee (chair), ASMFC Bluefish TC, ASMFC Bluefish PRT, Mid-Atlantic Fishery Management Council (MAFMC) Bluefish monitoring committee (MC), ACCSP Operations committee (chair), ACCSP Biological Review Panel (former chair), ACCSP Bycatch Prioritization committee (former chair), NEFMC Whiting PDT
- Previous Membership on various technical committees/panels: ASMFC Weakfish TC, ASMFC Bluefish Benchmark Stock Assessment Working Group, ASMFC Artificial Reefs committee, NOAA Fisheries Red hake Stock Structure Working Group
- Participate in benchmark stock assessments and stock assessment updates including complex analysis and/or modeling, and writing of technical/scientific reports for peer-review
- Previously in charge of RI quota monitoring tracking via SAFIS dealer reports and RI seafood dealer compliance tracking including creation of an automated process through the statistical software R
- Prepare and submit annual fishery compliance reports
- Present annual reports including fisheries data and analytical results to Rhode Island stakeholders (RIDEM public workshops) and Board members at ASMFC Board Meetings
- Marine Fisheries information management team leader in charge of promulgation of RI marine fisheries regulations and all storage/IT related issues including running public meetings in-person and virtually
- Serve as professional reviewer for peer-reviewed journal articles as requested

Skills developed: 15 years of Marine Fisheries experience working for the state of Rhode Island, Strong teamwork and leadership skills as chair of many committees; Experience in giving public presentations and fielding questions; Supervisory experience though overseeing age and growth project staff and

seasonal interns as well as training new staff; Fisheries Management experience by attending and participating in ASMFC Board meetings, ASMFC and ACCSP technical committees and panels, RI promulgation of regulations process, and Rhode Island Marine Fisheries Council (RIMFC) meetings; Computer and statistical skills (R, SPSS, Microsoft software, ASAP, NOAA Fisheries Toolbox); Field work experience on a variety of fisheries surveys.

University of Rhode Island Graduate School of Oceanography, Narragansett, RI, Feb. 2004 – 05/09/09
Laboratory Technician/Marine Research Assistant I
Duties:
- Managed all aspects of the benthic ecology laboratory including analyszing Naturalist dredge samples and bottom photos taken on annual benthic habitat surveys
- Managed study database using MS Excel and Access; Performed statistical analysis of Naturalist dredge data
- Supervised, trained, and delegated tasks to undergraduate student help
- Performed genetic analyses on colonial ascidian tissue samples including DNA extraction, primer design, polymerase chain reaction (PCR), PCR clean-up, gel electrophoresis, and DNA sequence analysis

Scientist: Georges Bank Benthic Habitat Survey
Duties:
- Participated in and helped organize four benthic habitat research cruises spanning 10-14 days on board NOAA fisheries research vessels (R/V Delaware II and FSV Henry B. Bigelow).

RI Department of Environmental Management, Providence, RI, June 2005 -August 2005
Seasonal Policy Intern
Duties:
- Participated in many aspects of the Greenwich Bay restoration project; Daily tasks included: gathered tax parcel data for restoration sites; managed data in MS excel; created project maps in Arcmap; performed field site investigations

EDUCATION
University of Rhode Island, Kingston, RI
    PhD, Marine Affairs – September 2022 - Present

University of Rhode Island, Graduate School of Oceanography, Narragansett, RI
    Master of Science Degree, Biological Oceanography - May 2013

University of Rhode Island, Kingston, RI
    Bachelor of Science Degree, Biological Sciences - December 2005

The School for Field Studies (Boston University), Queensland, Australia
    Rainforest Studies – September 2004 – December 2004

Curriculum Vitae

HIROTSUGU UCHIDA

212 Coastal Institute
Professor
Department of Environmental and Natural Resource Economics
University of Rhode Island
[Citizenship: Japan / U.S. Permanent Resident]

1 Greenhouse Road
Kingston, RI 02881
401-874-2238
huchida@uri.edu

EDUCATION

Ph.D.   2007   Agricultural and Resource Economics, University of California, Davis
M.S.   2003   Agricultural and Resource Economics, University of California, Davis
Diploma 2001   International Development, Institute of Developing Economies Advanced School (Japan)
B.A.   1996   Economics, Keio Gijuku University (Japan)

PROFESSIONAL EXPERIENCE

2023-present	Professor, Department of Environmental and Natural Resource Economics, University of Rhode Island
2020-2023	Professor and Chair, Department of Environmental and Natural Resource Economics, University of Rhode Island
2018-2020	Associate Professor and Chair, Department of Environmental and Natural Resource Economics, University of Rhode Island
2016-2017	Short-term consultant, Environmental Defense Fund
2016-2017	Abe Fellow/Visiting Scholar, Graduate School of Agricultural and Life Science, University of Tokyo (on sabbatical)
2014-2018	Associate Professor, Department of Environmental and Natural Resource Economics, University of Rhode Island
2008-2014	Assistant Professor, Department of Environmental and Natural Resource Economics, University of Rhode Island
2006-2008	Assistant Research Professor, Department of Environmental and Natural Resource Economics, University of Rhode Island
2007-2008	Short-term Consultant, The World Bank (World Development Report 2009)
2006	Short-term Consultant, The World Bank
2001-2006	Research Assistant / Teaching Assistant, Department of Agricultural and Resource Economics, University of California, Davis
1996-2000	Loan Officer, Industrial Bank of Japan (now Mizuho Corporate Bank)

SELECTED PUBLICATIONS

Peer-reviewed journal articles

Uchida, H., V. Mazzocco, M.J. Weir, and D. Bidwell (forthcoming). Risky Business: Can Oyster Farmers Defend Themselves Against Foodborne Illness-related Demand Shocks? *Marine Resource Economics*.

Collie, J., S. Schumann, K. Masury, **H. Uchida**, and C. Collie. 2022. Balancing ecosystems, harvests, and seafood markets. *Fisheries* 47(10), 446-450. DOI: 10.1002/fsh.10818.

Wakamatsu, M., **H. Uchida**, and C.M. Anderson. 2021. Revenue-sharing and social capital in community-based resource management: Empirical evidence from Japanese surf clam fisheries. *Land Economics* 97(2), 455-474.

Refulio, S., S. Basu, T. Dalton, A. Humphries, K. Lacasse, **H. Uchida**, and E. Uchida. 2021. Coastal and Marine Socio-Ecological Systems: A Systematic Review of the Literature. *Frontiers in Marine Science* 8. doi.org/10.3389/fmars.2021.648006.

Sudhakaran, P., G. Puggioni, **H. Uchida**, and J. Opaluch. 2021. Do oyster farms actually reduce the property value? Empirical evidence from Rhode Island. *Aquaculture Economics and Management* 25(2), 202-222. doi.org/10.1080/13657305.2020.1869857.

Ishihara, H., K. Tokunaga, and **H. Uchida**. 2021. Institutional fit and collective fishery management: The case of spiny lobster fishery in Mie, Japan. *Ecological Economics* 181, 106911.

Weir, M.J., **H. Uchida**, and Maya Vadiveloo. 2021. Quantifying the effect of market information and demand for genetically modified salmon. *Aquaculture Economics and Management* 25(1), 1-26.

Smith, Sarah L., Rachel Karasik, Aristoteles Stavrinaky, **Hirotsugu Uchida**, and Merrik Burden. 2019. Fishery Socioeconomic Outcomes Tool: A Rapid Assessment Tool for Evaluating Socioeconomic Performance of Fisheries Management. *Marine Policy* 105, 20-29. https://doi.org/10.1016/j.marpol.2019.03.009

Roheim, C.A., S.R. Bush, F. Asche, J.N. Sanchirico, and **H. Uchida**. 2018. Evolution and future of the sustainable seafood market. *Nature Sustainability* 1(8), 392-398.

Uchida, H., C.A. Roheim, and R.J. Johnston. 2017. Balancing the Health Risks and Benefits of Seafood: How Does Available Guidance Affect Consumer Choices? *American Journal of Agricultural Economics* 99(4), 1056-1077.

Uchida, H. 2017. TURFs and collective fishery management. *Bulletin of Marine Science* 93(1), 83-100.

Uchida, H., and D. Manning. 2016. Are Two Rents Better than None? When Monopolies Correct Ill-defined Property Rights. *Marine Resource Economics* 31(2), 141-164.

Books

Townsend, R., R. Shotton, and **H. Uchida** (eds.) 2008. *Case Studies in Fisheries Self-governance*. FAO Fisheries Technical Paper No. 604. Rome, Italy.

SELECTED GRANTS

PI, Saltonstall-Kennedy Grant Program (NOAA), $299,954 "Exploring the creation of a new seafood market segment that would enhance the resiliency of small-scale commercial fishing industry in Rhode Island." 2023-25.

PI, USDA-HEC Grant Food Systems Faculty Research Fellow Program, $15,000 "Introducing ikejime method to the culinary professionals," in collaboration with Johnson & Wales University. 2023-24.

Co-PI, Saltonstall-Kennedy Grant Program (NOAA), $300,000 "Realizing the Full Potential of Rhode Island Seafood in Rhode Island." 2021-23.

PI, NOAA Coastal and Ocean Climate Applications (COCA), $299,945 "Supporting Resilient Fishing Communities in the Northeast Region." 2019-21.

Co-PI, Saltonstall-Kennedy Grant Program (NOAA), $155,026. "The Other EBFM: Designing Ecosystem-Based Fisheries Marketing Strategies to Complement Ecosystem-Based Fisheries Management." 2016-19.

SELECTED PROFESSIONAL AFFILIATIONS

2022-24	President-Elect, International Institute of Fisheries Economics and Trade
2018-	Member, Scientific and Statistical Committee, New England Fisheries Management Council (appointed)
2011-	Advisory Council member, Rhode Island Seafood Marketing Collaborative (appointed)

Project Title: The Economic Impact of Rhode Island's Fishing Industry
Funding Opportunity Title: Atlantic Coastal Cooperative Statistics Program FY2023 Funding

Dear Ms. Lengyel Costa,

      The Commercial Fisheries Research Foundation (CFRF) supports the proposal "*The Economic Impact of Rhode Island's Fishing Industry*". CFRF is a non-profit institution established by commercial fishermen to conduct collaborative research and education projects that improve fishery sustainability. We have directly involved over 150 fishermen and fishing businesses in our research. Understanding and communicating the economic importance of fishing in Rhode Island helps us direct and justify many of our research initiatives. This is exemplified by our 2017 project in collaboration with the University of Rhode Island to create the Sproul & Michaud (2018) report that estimated the overall economic impact of the fishing industry. The data from this report is now 7 years old and the report does not provide port or sector specific economic multiples. Therefore, we highly support this project to update the work of Sproul & Michaud (2018) and fill these gaps. We especially support that this project directly works with the fishing community, highlighting and communicating to a broad audience the benefits and value inherent in this type of collaborative data collection.

      To support this project CFRF will work directly with project investigators to help recruit industry participants and aid with the dissemination of project results. CFRF will develop, host, and maintain a webpage that describes the purpose, approaches, and results of the project. In addition, the CFRF will publish newsletter articles highlighting the proposed project at least twice. The CFRF newsletter reaches over 1,500 individuals involved in the fisheries/seafood system. The CFRF will highlight project progress on its social media pages (Twitter and Facebook), which regularly reach hundreds of individuals involved in fisheries and ocean sciences. CFRF staff will also help organize and recruit participants for initial and final project workshops and will host one of these workshops if requested. The time and materials associated with this in-kind support can be valued at $4,600.

Sincerely,
N. David Bethoney

Executive Director, Commercial Fisheries Research Foundation

Daniel J. McKee, **Governor**
Marc R. Pappas, **Director**

July 31, 2023

Atlantic Coastal Cooperative Statistics Program
1050 N. Highland Street, Suite 200A-N
Arlington, VA 22201

RE: Proposal - The Economic Impact of Rhode Island's Fishing Industry

To Whom it May Concern:

Please accept this letter as my written support for the application of the Atlantic Coastal Cooperative Statistics Program for the proposal entitled The Economic Impact of Rhode Island's Fishing Industry.

This economic data that this proposal is looking to complete, would be extremely useful when conducting cost-benefit analyses for port infrastructure grants, and mitigation grants. It can also be used to estimate the economic impact that severe storm events would have on The Port of Galilee, which is a crucial port to commercial fisherman and business owners in the area.

Again, I urge you to approve The Economic Impact of Rhode Island's Fishing Industry Proposal as this will have great and numerous benefits for the State of Rhode Island. Please contact me at 462-7141 or Melinda.hopkins@ema.ri.gov if you have any questions. Thank you for your consideration.

This proposal has my strongest support for the strategic direction and shared future of our region.

Regards,

Melinda Hopkins

Melinda Hopkins
Planning Branch Chief
Rhode Island EMA

THE
UNIVERSITY
OF RHODE ISLAND
DIVISION OF RESEARCH
AND ECONOMIC
DEVELOPMENT

THINK BIG · WE DO℠

70 Lower College Road, Kingston, RI 02881 USA
p: 401.874.4328   f: 401.874.4814   https://web.uri.edu/research-admin/

LETTER OF INTENT TO ESTABLISH A SUBAWARD AGREEMENT TO URI

APPLICATION TITLE: FY24: The Economic Impact of Rhode Island's Fishing Industry

FUNDING AGENCY: Atlantic Coastal Cooperative Statistics Program/NOAA

Cooperating Institution: Rhode Island Department of Environmental Management (RIDEM)

URI Investigator: Hirotsugu Uchida
Direct Costs: $58,385
Indirect Costs: $10,179
Total Costs: $68,564
Indirect Cost rate: 25%
Budget Period Dates: 9/1/2024 – 8/31/2025

The appropriate program and administrative personnel of each institution involved in this grant application are prepared to establish and administer the necessary subaward agreement consistent with the prime sponsor policies.

UNIVERSITY OF RHODE ISLAND

Franca Cirelli
Associate Director of Sponsored Projects, Post Award

Proposal to the Atlantic Coastal Cooperative Statistics Program

Applicant Name: NOAA Southeast Fisheries Science Center, Fisheries Statistics Division, Catch Validation and Biosampling Branch

Project Title: Development of Statistical Frames for Dockside Biosampling of the Recreational Headboat and Commercial Fishing Fleets in the South Atlantic

Project Type: New

Requested Award Amount: $134,827

Requested Award Period: June 1, 2024 – May 31, 2025

Primary Program Priority: Biological Sampling

Principal Investigator: Lawrence Beerkircher, Chief, Catch Validation and Biosampling Branch, NOAA SEFSC, lawrence.r.beerkircher@noaa.gov

Associate Investigators:
Dr. Steven G. Smith, University of Miami CIMAS, steven.smith@noaa.gov
Dr. Brian Walker, Nova Southeastern University, walkerb@nova.edu

Project Staff:
Sarah Beggerly, NOAA SEFSC, sarah.beggerly@noaa.gov
Reagan Sharkey, Nova Southeastern University, rsharkey@nova.edu

Early Funding Option:

The project would not benefit from receiving funds early (Fall 2023). The funding for the proposed research will be transferred from NOAA SEFSC to the University of Miami CIMAS via a subgrant. This transfer occurs annually in late spring, and thus has already been completed for 2023. The project start date of June 1, 2024 coincides with the timing of the annual transfer of funds from SEFSC to CIMAS.

Underlined text indicates sections that help with the ranking process.
Highlighted text indicates changes from the first submission.

Objectives: The goal of the proposed study is to develop the respective statistical sampling frames for formal stratified random designs for biosampling of recreational headboat and commercial fleets in the US South Atlantic, spanning the coastal areas of Florida (east coast), Georgia, South Carolina, and North Carolina. The primary objectives of this project will be to utilize commercial and recreational fisheries databases for the US South Atlantic to develop data tables and associated data products (i) to facilitate randomized selection of sample units by fishery-gear-season-area strata, and (ii) to provide the basis for future evaluation of stratification-allocation schemes for optimizing sampling efficiency.

Need: This proposal responds to the ACCSP RFP for FY24. NOAA's Southeast Fisheries Science Center (SEFSC) is working to improve scientific information for the management of fisheries in the South Atlantic. The SEFSC conducts shore-based vessel intercept sampling programs in the South Atlantic region to collect detailed fishery information at the level of individual trips. There are separate programs that sample the commercial fleet and the recreational headboat fleet (i.e., large charter vessels). The SEFSC headboat program that targets charter vessels with >6 passengers operates independently from the Marine Recreational Information Program (MRIP). MRIP is conducted by NOAA Headquarters (Science and Technology) and focuses on private recreational vessels, small charter vessels with up to 6 passengers, and recreational shoreline fishing. Shore-based vessel intercept sampling collects biological data for stock assessments, including length, weight, age, reproductive, and genetic data from captured species. These biosampling programs also provide quality assurance on catch and effort data.

    At present, the goal of obtaining data that are representative of the species composition of catches, and of age- and length-compositions of catches for principal species, is dependent upon the knowledge and experience of SEFSC and partner state port agents located throughout the coastal regions of the US South Atlantic from Florida to North Carolina. There is a need to develop more formal statistical sampling designs for recreational headboat and commercial fleet biosampling with their inherent rules of randomizing intercept locations and times analogous to MRIP to ensure that fishing trips are sampled in a truly representative manner. These designs will also aid in achieving more efficient allocation of sampling effort with respect to fishery types (e.g., reef fishes), gears, species, seasons, etc., resulting in more precise and cost-effective data for stock assessments.

    The Catch Validation and Biosampling Branch of SEFSC's Fisheries Statistics Division has embarked on a phased approach for developing and implementing the commercial and recreational headboat fleet sampling designs. Phase 1 is to develop the respective statistical sample frames for stratified random designs for commercial and recreational biosampling. Phase 2 will conduct design analyses utilizing these sample frames to identify efficient stratification schemes and accompanying strategies for allocating sampling effort among strata. Phase 3 will field-test, implement, and refine the sampling designs. Development of statistical sample frames (Phase 1) is currently underway in the Gulf of Mexico region, funded by the Gulf States Marine Fisheries Commission and conducted by a team of SEFSC and university scientists (University of Miami, Nova Southeastern University). This work (18 mo. duration) is progressing on schedule for completion in spring 2024. This proposal to ACCSP is for support for the research team to extend the commercial fleet and recreational headboat statistical sample frames to the South Atlantic region, completing Phase 1 of the research program and providing the foundation

for subsequent work on Phases 2 and 3. SEFSC scientists will carry out Phases 2 and 3 via NOAA funding support.

Results and Benefits:

The project is expected to result in the development of statistical sampling frames for dockside biosampling of recreational headboat and commercial fishing fleets in the South Atlantic region. These results are a necessary step towards achieving the expected long-term benefits of improving the accuracy, precision, and cost-effectiveness of biosampling data provided for stock assessments and resource management of priority species. Both SEFSC dockside sampling programs (commercial, recreational headboat) collect biological data on the highest priority species (Black Sea Bass, Cobia, Spanish Mackerel) and many others in the ACCSP Biological Sampling Priority Matrix for FY24. With respect to regional impact, the project encompasses commercial and recreational fishing fleets spanning multiple states in the South Atlantic region (Florida, Georgia, South Carolina, North Carolina).

Data Delivery Plan:

The statistical sampling frames for formal stratified random designs developed in this project will be comprised of a suite of data products (see Project Accomplishments Measurement below) that provide the basis for randomized selection of sampling locations/times and for future evaluation of stratification-allocation schemes for optimizing sampling efficiency. The data products will be derived from existing fishery databases; thus, this project will not entail any field collection of new data. At the project's conclusion, these data products will be housed at SEFSC and made available to scientists working on subsequent phases of the research program. These products will also be made available to scientists of ACCSP Partner Programs, following NOAA Fisheries guidelines regarding confidential data.

Approach:
Research Strategy

The practical utility of probability sampling surveys (c.f., Cochran 1977, Lohr 2010) for collecting fisheries data is illustrated in **Fig. 1**. The graph shows the relationship between the survey error (CV, coefficient of variation) of mutton snapper density and the projected survey sample size (n*) for a diver visual survey in the Florida Keys. The survey sample frame for this example is the shallow-water (<33 m) reef habitat in the Florida Keys coral reef ecosystem (Smith et al. 2011). A general property is that survey error decreases, and thus survey precision increases, as sample size is increased; however, stratifying or partitioning the sample frame into subareas of low, moderate, and high variance of fish density can achieve a target precision level (e.g., CV=15%) at greatly reduced sample sizes, i.e., survey costs. For example, the projected sample size to achieve a 15% CV for mutton snapper density is n=661 for a simple random design, whereas the Stratification B design would require less than one-third the sample size (n=206) to achieve the same precision.
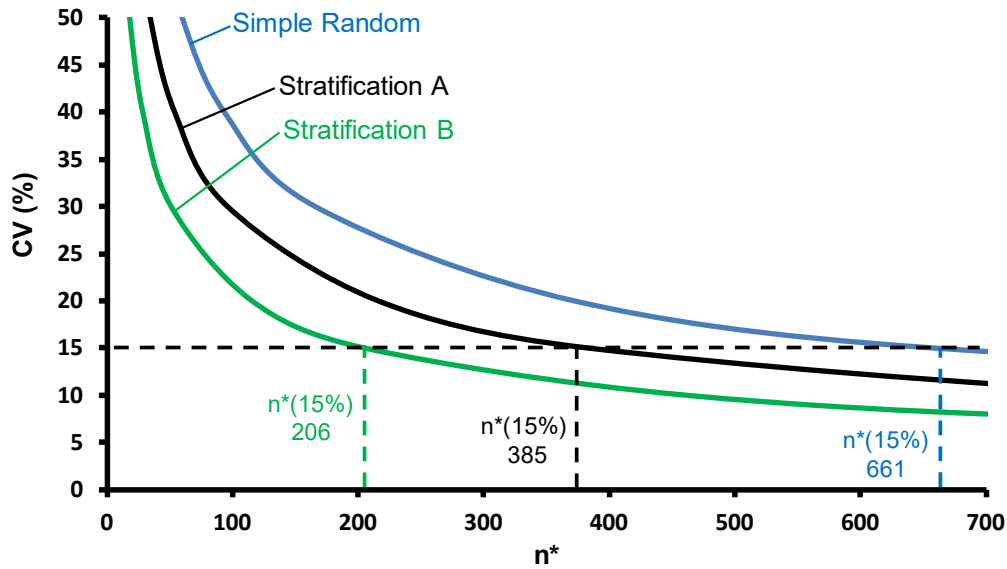
Figure 1: Predicted coefficient of variation (CV) of adult mutton snapper density dependent on survey sample size (n*) for the Florida Keys for three sampling designs: (i) simple random (blue line), (ii) depth-reef zone stratified random (black line), and (iii) depth-reef zone-reef complexity stratified random (green line).

Our research strategy will be to prepare the underlying information datasets required to estimate survey error (CV)-survey sample size (n*) relationships similar to Fig. 1 for dockside biosampling programs of South Atlantic commercial and recreational headboat fishing fleets. For a two-stage stratified random survey, the estimation equation is as follows (Smith et al. 2011):

$$n^* = \frac{\sum_h w_h s_{uh} \left(\sum_h w_h s_{uh} + \sum_h \frac{w_h^2 s_{2h}^2}{m_h^* w_h s_{uh}} \right)}{V[\bar{\bar{y}}_{st}] + \sum_h \frac{w_h^2 s_{1h}^2}{N_h}} \quad , \qquad (1)$$

where n^* is the projected sample size to achieve a desired variance $V[\bar{\bar{y}}_{st}]$ for the two-stage stratified mean of design metric y (e.g., effort by gear, catch of a given species by gear, etc.). The desired variance can be expressed in terms of a target CV,

$$V[\bar{\bar{y}}_{st}] = (CV(\bar{\bar{y}}_{st}) \cdot \bar{\bar{y}}_{st})^2 \quad ,$$

where $CV(\bar{\bar{y}}_{st})$ is the standard error expressed as a proportion of the mean, $SE(\bar{\bar{y}}_{st})/\bar{\bar{y}}_{st}$.

The proposed research will produce the requisite information for computing all the variables in equation (1), organized into three aspects:

(i) statistical sample unit and sample frame variables (n, m, and N);
(ii) design metric variables (y and s); and
(iii) stratification variables for designating h, the stratum subscript, and weighting factor w_h.

Sample Unit and Frame: Dockside biosampling is inherently a two-stage process, with intercept locations/access points as the primary sample units (PSUs) and fishing trips offloading at a given access point as second-stage units (SSUs). The complete list of possible intercept locations, or site registry, is the fundamental spatial component of the sample frame. There is also a time component, which may be defined in terms of season, day of week category (e.g., weekday, weekend), time of day (e.g., 8am-noon, noon-4pm, etc.), or any combination of these. The sum of all possible PSUs is the variable N. Randomized selection entails choosing n units to sample from the complete list of N PSUs in an unbiased manner. Second-stage selection involves choosing m fishing trips (SSUs) to sample in an unbiased manner from the estimated total number of trips for a given PSU. Developing a comprehensive list of intercept locations-times and corresponding numbers of fishing trips is thus paramount for obtaining an unbiased, representative sample of a given fishing fleet.

Design Metrics: Eq. (1) includes means (y) and variances (s) of a chosen design metric. Our research will compile information for computing a suite of design metrics relating to commercial and recreational dockside sampling programs in the South Atlantic: catch by species by gear, effort by gear, catch-per-unit-effort by species and gear, and average length by species by gear (an indicator variable for length composition).

Stratification: - Identifying variables that partition the variance of a given design metric within the sample frame into low, moderate, and high variance strata is a key step towards developing precise and cost-effective sampling designs (e.g., Fig. 1). In addition to fleet-gear, information will be compiled for subdividing the South Atlantic sample frame by aspects of time (e.g., season, day of week category, time of day, as described above) and space (geographical region). This will enable stratum-level computation of design metric means and variances, as well as computation of the stratum weighting factor w_h, the proportion of sample units in stratum h.

Project Workplan
The proposed study has been designed for a 12-month time period. The following is a description of research tasks.

Task 1: Commercial and Recreational Fisheries Databases
An initial task will be to acquire and synthesize commercial and recreational fisheries data relevant for this project for the US South Atlantic. These data will include: (1) SEFSC commercial fleet biosampling data (i.e., the Trip Interview Program database); (2) SEFSC commercial logbook data; (3) State commercial trip-ticket data; (4) SEFSC recreational headboat biosampling and logbook data; and (5) MRIP site registry data for recreational charter vessel intercept locations.

Task 2: Commercial Fleet Sampling Frame and Associated Data Products
A. *Comprehensive, Up-to-Date Site Registry for Commercial Fishing Trip Access Points/Intercept Locations (Primary Sample Units)*: Using commercial fisheries data (Task 1) for 2015 and later, the research team will develop a comprehensive site registry for commercial fishing trip access points/intercept locations for US South Atlantic coastal regions from Florida's east coast through North Carolina. This site registry will constitute the spatial sampling frame for primary sample units (PSUs) as described above. Location information for each site will

include: physical address (street address, city, state, and zip code), county, latitude-longitude coordinates, and a brief description. The research team will provide draft versions for review by SEFSC commercial biosampling personnel (supervisors, data managers, and port agents), and will revise accordingly to produce the final registry. <mark>Final review of the site registry may involve State Partner port agents who sample in coastal counties not covered by SEFSC port agents.</mark>

B. *Geodatabase for Relating Landing Sites (PSUs) and Fishing Areas*: The research team will develop a ArcGIS geodatabase that includes the following data layers: (i) site registry from Task 2A; (ii) fishing areas for commercial logbooks (1-degree latitude-longitude grids); (iii) fishing areas/waterbodies for State trip-tickets; and (iv) fishing areas/waterbodies for commercial biosampling.

C. *Relational Data Tables for Second-Stage Units (Individual Trips) and Potential Stratification Variables*:- Using commercial fisheries data (Task 1) for 2015 and later, the research team will develop relational data tables summarizing annual/quarterly second-stage units (fishing trips) by data source (commercial biosampling, commercial logbook, Trip-Ticket) and potential stratification variables (e.g., fishery type, gear, fishing area, etc.) to the finest spatial scale possible for landing sites (fine-scale=PSU from Task 2A; moderate-scale=zip code or city; coarse-scale=county).

D. *Relational Data Tables for Species-Specific Landings/Size Composition and Potential Stratification Variables*: Using commercial fisheries data (Task 1) for 2015 and later, the research team will develop relational data tables summarizing annual/quarterly landings for commercial logbook and trip-ticket data and size composition for biosampling data to the finest taxa level possible by potential stratification variables to the finest spatial scale possible for landing sites.

Task 3. Recreational Headboat Fleet Sampling Frame and Associated Data Products
A. *Comprehensive, Up-to-Date Site Registry for Recreational Headboat Fishing Trip Access Points/Intercept Locations (Primary Sample Units)*: Using recreational fisheries data (Task 1) for 2015 and later, the research team will develop a comprehensive site registry for <u>recreational headboat fishing trip access points/intercept locations for US South Atlantic coastal regions from Florida's east coast through North Carolina.</u> <mark>The MRIP site registry for small charter boats (up to six passengers) will be cross-checked with SEFSC headboat (large charter vessels) sampling locations to ensure completeness.</mark> Location information for each site will include: physical address (street address, city, state, and zip code), county, latitude-longitude coordinates, and a brief description. The research team will provide draft versions for review by SEFSC recreational headboat biosampling personnel (supervisors, data managers, and port agents), and will revise accordingly to produce the final registry. <mark>Final review of the site registry may involve State Partner port agents who sample in coastal counties not covered by SEFSC port agents.</mark>

B. *Geodatabase for Relating Landing Sites (PSUs) and Fishing Areas*: The research team will develop a ArcGIS geodatabase that includes the following data layers: (i) site registry from Task 3A; and (ii) fishing areas/waterbodies for recreational headboat biosampling and logbooks.

C. *Relational Data Tables for Second-Stage Units (Individual Trips) and Potential Stratification Variables*: Using recreational fisheries data (Task 1) for 2015 and later, the research team will develop relational data tables summarizing annual/quarterly second-stage units (fishing trips) by data source (headboat biosampling, headboat logbook) and potential stratification variables (e.g., fishery type, gear, fishing area, etc.) to the finest spatial scale possible for landing sites.

D. *Relational Data Tables for Species-Specific Landings/Size Composition and Potential Stratification Variables*: Using recreational fisheries data (Task 1) for 2015 and later, our research team will develop relational data tables summarizing annual/quarterly landings for headboat logbook data and size composition for biosampling data to the finest taxa level possible by potential stratification variables to the finest spatial scale possible for landing sites.

Task 4. Processing Code and Project Reporting
A. *Processing Code*: All data processing code (R, SAS, etc.) for producing the data tables and summaries for Tasks 2 and 3 will be housed by SEFSC and provided to ACCSP at the conclusion of the study.

B. *Semi-Annual Reports*: Semi-annual reports will be provided for each six-month period of the project.

C. *Final Report*: A final report summarizing methods and results will be provided no later than three months after the conclusion of the study.

Geographic Location:
 The project's spatial extent will be the US South Atlantic region, extending northward from Broward County, Florida, through North Carolina.

Milestone Schedule:

Activity (Task)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
								Month							
1: Databases	X	X	X	X											
2A: Com Site Registry			X	X	X	X	X	X							
2B: Com PSU-Area GeoDB					X	X	X	X	X	X					
2C: Com Trip Data Tables							X	X	X	X					
2D: Com Catch Data Tables							X	X	X	X					
3A: Rec Site Registry					X	X	X	X	X	X					
3B: Rec PSU-Area GeoDB							X	X	X	X	X	X			
3C: Rec Trip Data Tables									X	X	X	X			
3D: Rec Catch Data Tables									X	X	X	X			
4A: Processing Code												X			
4B: Semi-Annual Reports					X							X			
4C: Final Report													X	X	X

Project Accomplishments Measurement:

Project accomplishments will be measured in terms of the completed data products associated with Tasks 2, 3, and 4A:

Goal	Metric (Data Products)
Task 2A	Comprehensive site registry for commercial fishing trip intercept locations
Task 2B	ArcGIS geodatabase of commercial fleet landing sites and fishing areas
Tasks 2C & 2D	Relational data tables and associated summaries for commercial fishing trips, species landings/size composition, and stratification variables
Task 3A	Comprehensive site registry for recreational headboat trip intercept locations
Task 3B	ArcGIS geodatabase of recreational headboat fleet landing sites and fishing areas
Tasks 3C & 3D	Relational data tables and associated summaries for recreational headboat trips, species landings/size composition, and stratification variables
Task 4A	Data processing code

Cost Summary (Budget):

The project will be conducted over a 12-month time frame, and will be carried out by collaborating investigators from NOAA SEFSC, the University of Miami (UM), and Nova Southeastern University (NSU). Funds are requested totaling $134,827.

Budget for NOAA SEFSC

		ACCSP Funds			In-Kind Match		
		Months	%	Amount	Months	%	Amount
Personnel							
Lawrence Beerkircher - PI					0.5	4.17%	7,127
Sarah Beggerly - staff scientist					0.5	4.17%	3,225
Total Salaries							
Fringe Benefits							4,024
Total Salaries & Fringe Benefits							14,376
Contractual Services							
Subgrant -Univ. of Miami CIMAS				134,827			
Modified Total Direct Costs				134,827			
Indirect Costs				0			
Total Project Costs				134,827			14,376

The following provides details for the funds requested from ACCSP to NOAA SEFSC.

Contractual Services **–** Funds are requested totaling $134,827 for a subgrant from NOAA SEFSC to UM Cooperative Institute for Marine and Atmospheric Studies (CIMAS). The subgrant budget and budget description are provided below.

In-Kind Matching – NOAA SEFSC will provide in-kind matching funds totaling $14,376 for 0.5 months of salary support and associated fringe benefits for both the principal investigator (L. Beerkircher) and staff scientist (S. Beggerly).

Budget for subgrant from NOAA SEFSC to UM CIMAS

		ACCSP Funds			In-Kind Match
		Months	**%**	**Amount**	**Amount**
Personnel					
Steven Smith - Assoc Investigator		1	8.33%	11,962	
Total Salaries				11,962	
Fringe Benefits (35%)				4,187	
Total Salaries & Fringe Benefits				16,149	
Travel - Domestic				500	
Other Direct Costs					
Supplies				750	3,000
Subaward - Nova Southeastern Univ.				25,000	
Modified Total Direct Costs				42,399	
Facilities and Administrative Costs (25% of MTDC)				10,600	424
Non-MTDC					
Subaward to NSU					
Subaward over 25K				81,829	
Total Project Costs				134,827	3,424

The following provides details for the subgrant from NOAA SEFSC to UM CIMAS.

Personnel – Funds are requested for salary for the UM investigator (Dr. S. Smith, 1 month).

Fringe Benefits – The fringe benefit rate for UM is 35%.

Supplies – Funds totaling $750 are requested for technical supplies, including database media and storage devices.

Domestic Travel – Funds totaling $400 are requested for travel costs for the UM associate investigator to work with the NSU research team. The funds will cover mileage for a personal vehicle for periodic work visits.

UM Subaward to NSU – Funds are requested totaling $106,829 for a subaward from UM to NSU. The subaward budget and budget description are provided below.

Indirect Costs (F&A)— The UM indirect cost rate for this project is 25% of modified total direct costs (MTDC), which in this proposal includes Salary, Fringe Benefits, Supplies, Domestic Travel, and $25,000 of the Subaward to NSU.

In-Kind Matching – UM CIMAS will provide in-kind matching funds totaling $3,424. These funds are comprised of supplies totaling $3,000 that were purchased for the current related project being conducted for the Gulf of Mexico (high-performance laptop computer for processing large fisheries databases), and indirect costs in excess of the allowable rate of 25%. The standard UM CIMAS indirect cost rate is 26%; the additional 1% of MTDC in the amount of $424 will be contributed as in-kind match.

Budget for subaward from UM CIMAS to NSU

			ACCSP Funds		In-Kind Match
		Months	%	Amount	Amount
Personnel					
Brian Walker - Assoc Investigator		1	8.33%	11,667	
Reagan Sharkey - Research Assoc		12	100.00%	55,620	
Total Salaries				67,287	
Fringe Benefits (25.75%)				17,326	
Total Salaries & Fringe Benefits				84,613	
Travel - Domestic				400	
Other Direct Costs					
Supplies				450	2,400
Modified Total Direct Costs				85,463	
Facilities and Administrative Costs (25% of MTDC)				21,366	23,930
Total Project Costs				106,829	26,330

The following provides details for the subaward from UM CIMAS to NSU.

Personnel – Funds are requested for salary for the NSU associate investigator (Dr. B. Walker, 1 month) and research associate (R. Sharkey, 12 months).

Fringe Benefits – The fringe benefit rate for NSU is 25.75%.

Supplies – Funds totaling $450 are requested for supplies, including database media and software licenses.

Domestic Travel – Funds totaling $400 are requested for travel costs for the NSU research team to work with the UM investigator and SEFSC research team. The funds will cover mileage for a personal vehicle for periodic work visits.

Indirect Costs (F&A) – The NSU indirect cost rate for this project is 25% of modified total direct costs (MTDC), which in this proposal includes Salary, Fringe Benefits, Supplies, and Domestic Travel.

In-Kind Matching – NSU will provide in-kind matching funds totaling $26,330. These funds are comprised of supplies totaling $2,400 that were purchased for the current related project being conducted for the Gulf of Mexico (high-performance GIS computer, data storage devices), and indirect costs in excess of the allowable rate of 25%. The standard NSU indirect cost rate is 53%; the additional 28% of MTDC in the amount of $23,930 will be contributed as in-kind match.

In-Kind Matching Percentage
In-kind matching funds provided by NOAA SEFSC, UM CIMAS, and NSU total $44,130, which is 32.7% of the funds requested from ACCSP ($134,827).

Project Investigators:
The principal investigator is Lawrence Beerkircher from NOAA SEFSC, and the associate investigators are Dr. Steven Smith from the University of Miami CIMAS and Dr. Brian Walker from Nova Southeastern University. Abbreviated CVs are provided below.
Lawrence Beerkircher is the current Chief of the Catch Validation and Biosampling Branch of the SEFSC Fisheries Statistics Division, and has been working for NOAA Fisheries for over two decades. He oversees the Trip Interview Program, SEFSC's dockside sampling program for commercial fishing trips in the Gulf of Mexico and South Atlantic regions. He has extensive experience in field sampling (dockside intercept, onboard observer) and database management of fisheries dependent data.
Dr. Steven Smith is a fisheries researcher and graduate-level educator who has been collaborating with federal, state, and territory fishery scientists on sampling and stock assessment issues in the southeast US, US Caribbean and US Pacific for more than two decades. He has extensive experience in the development and implementation of large-scale fisheries probability surveys, and in the analysis of databases for commercial and recreational fishery-dependent sampling and monitoring programs.

Dr. Brian Walker is a research scientist and graduate-level educator with extensive experience in shallow and deep-water benthic habitat mapping, GIS spatial analyses, optical remote-sensing, and hydrographic survey research, particularly LIDAR and sonar-based seafloor discrimination. He directs the Spatial Ecology and GIS lab at NSU, which uses GIS as a tool to study the ecology, distribution, and spatial arrangement of coastal and ocean habitats and other marine organisms to provide maps and spatial information for conservation and resource management.

Literature Cited:

Cochran, W. G. 1977. *Sampling Techniques*, 3rd ed. John Wiley and Sons: NewYork.

Lohr, S. L. 2010. *Sampling: design and analysis*, 2nd ed. Boston: Brooks/Cole.

Smith, S.G., Ault, J.S., Bohnsack, J.A., Harper, D.E., Luo, J., and McClellan, D.B. 2011. Multispecies survey design for assessing reef-fish stocks, spatially explicit management performance, and ecosystem condition. Fisheries Research 109: 25-41.

Summary of Proposal for Ranking

The following indicates how the proposed work meets various elements of ACCSP Proposal Ranking Criteria for new projects.

Proposal Type: New

Primary Program Priority: Biological Sampling (75%)

- The primary objective of SEFSC's shore-based vessel intercept sampling programs is to collect representative biological data for federally managed species for stock assessments, including length, weight, age, reproductive, and genetic data.
- Priority Species: Both SEFSC dockside sampling programs (commercial, recreational headboat) collect biological data on the highest priority species (Black Sea Bass, Cobia, Spanish Mackerel) and many others in the ACCSP Biological Sampling Priority Matrix for FY24.

Data Delivery Plan: As described above, the study will produce a suite of data products derived from existing fisheries databases. At the project's conclusion, these data products will be housed at SEFSC and made available to scientists working on subsequent phases of the research program.

Project Quality Factors

- **Regional Impact:** The project encompasses commercial and recreational fishing fleets spanning multiple states in the South Atlantic region (Florida, Georgia, South Carolina, North Carolina).
- **Defined Endpoint:** The project has a clearly defined endpoint: the development of statistical sampling frames for dockside biosampling of recreational headboat and commercial fishing fleets.
- **In-Kind Contributions:** In-kind matching totals 32.7% of the funds requested from ACCSP.
- **Improvement in Data Quality:** The expected long-term benefits of the project are to improve the accuracy, precision, and cost-effectiveness of biosampling data provided for stock assessments and resource management.
- **Potential Secondary Module as a By-Product:** Catch and Effort (25%). A secondary objective of SEFSC's shore-based vessel intercept sampling programs is to provide quality assurance on catch and effort data from trip-ticket and logbook databases.
- **Impact on Stock Assessment:** A project goal is to provide data products towards improving the representativeness (i.e., accuracy) and reducing the uncertainty of length- and age-compositions for exploited species by gears, thereby improving critical input data for conducting stock assessments.

Lawrence Ronald Beerkircher
409 Big Pine Road
Key Largo Fl 33037
(786)-489-0334 (cell)

Curriculum Vitae
Education:
    May 2000: M.S. Marine Biology/Coastal Zone Management, Nova Southeastern University, Davie Florida
    December 1996: B.S. (with Highest Distinction) Fisheries and Aquaculture, University of Rhode Island, Kingston RI

Experience:
        National Marine Fisheries Service, Miami, Florida (2010-Present). Supervisory Fisheries Biologist (ZP-IV) Chief, Catch Validation and Biosampling Branch. Responsible for the coordination of the Federal Port Agents in the southeast as well as supervising the staff of the Pelagic Observer program. As Trip Interview Program (TIP) Coordinator, responsible for database table updates and extractions. Supervisor: Dr. David Gloeckner, 305-361-4482

    National Marine Fisheries Service, Miami, Florida (2006-2010). Research Fisheries Biologist (ZP-III) Coordinator of the Pelagic Observer Program. Duties include coordination of observer deployments with commercial fishermen and observers, training of observers in pelagic fish species and sex identification, and sea safety training. Responsible for debriefing of observers and maintenance and quality control of observer database. Produce technical memoranda (program data summaries) for publication as required. Produce both white and grey literature as time permits.
Supervisors: Dr. Clay Porch 305-361-4232, Guy Davenport (retired, current email available upon request)

    National Marine Fisheries Service, Miami, Florida (2001-2006). Research Fisheries Biologist (GS11) with the Pelagic Observer Program. Duties include coordination of observer deployments with commercial fishermen and observers, training of observers in pelagic fish species and sex identification, and sea safety training. Responsible for debriefing of observers and maintenance and quality control of observer database. Produce technical memoranda (program data summaries) for publication as required by supervisor. Produce both white and grey literature as time permits.
Supervisor: Dennis Lee (retired, current email available upon request)

    National Marine Fisheries Service, Miami, Florida (Aug 1998-2001). Biological Technician (GS6) with the Pelagic Observer Program. Duties include at-sea deployment on commercial fishing vessels, communication with fishermen during program operations, administrative support, processing of biological samples collected by the program, and maintenance of a database of the samples. In addition, responsibilities include data QC and database validation of domestic longline dealer reports.
Supervisor: Dennis Lee (retired, current email available upon request)

     South Florida Aquaculture, Florida City, Florida (Jan 1997- July 1998; July 1998 – Dec 2001 consultant) Commercial fish culture operation, duties include all aspects of fish systems

maintenance, product harvest, and delivery. Develop/oversee water quality monitoring program, diagnose and treat disease, research new species and technology for future use at the facility. Identify and remove/control exotic vegetation on the property. Job site outdoors adjacent to the Everglades National Park.

     U.S. Environmental Protection Agency, Environmental Research Lab, Narragansett R.I. (May- Dec 1996) (Employed as part of a research fellowship with the University of Rhode Island's Partnership for a Coastal Environment program). Maintenance of shellfish broodstock for use in toxicity tests, spawning and larviculture of these shellfish, and culture of various algae species. Set up and assist experiments dealing with generational transfer of phototoxic PAHs in shellfish, locate and review scientific literature.

Achievements, Memberships, and Training:
    2011 NMFS Employee of the Year Award (Supervisor Category), 2011 Department of Commerce Bronze Medal Award, 2004 Department of Commerce Bronze Medal Award, 2000 Nova Southeastern University Distinguished Student of the Year (Oceanography), 1996 URI L. Robert Crandall Scholarship, 1996 URI Durfee Scholarship. Member, Phi Kappa Phi Honor Society. CPR certification (American Red Cross), fishery observer certification (National Marine Fisheries Service), marine safety instructor certification (Alaska Marine Safety Education Association), associate fisheries scientist certification (American Fisheries Society). Attended sea turtle handling/gear removal trainings 7/26/01, 6/5/02, and 5/27/03.

Selected Publications:

Beerkircher, L., E. Cortes, and M. Shivji. 2003. A demographic analysis of the silky shark, (*Carcharhinus falciformis*): implications of gear selectivity. *Fishery Bulletin* 101:168-174.

Beerkircher, L., E. Cortes, and M. Shivji. 2004. Characteristics of shark bycatch observed on longlines off the southeastern United States, 1992-2000. *Mar. Fish. Rev.* 64(4):40-49

Beerkircher, L. R. 2004. Length to weight conversions for wahoo, *Acanthocybium solandri*, in the northwest Atlantic. *ICCAT SCRS/167.*

Beerkircher, L.R., D.W. Lee, and G.F. Hinteregger. 2008. Roundscale spearfish *Tetrapturus georgii* (Lowe 1840); morphology, distribution, and relative abundance in the western North Atlantic. *Bull. Mar. Sci.* 82(1):155-170.

Beerkircher, L, F. Arocha, A. Barse, E. Prince, V. Restrepo, J. Serafy, and M. Shivji. 2009. Effects of species misidentification on population assessment of overfished white marlin *Tetrapturus albidus* and roundscale spearfish *T. georgii. End. Sp. Res.* 9:81-90.

Beerkircher, L. R., and J.E. Serafy. 2011. Using head measurements to distinguish white marlin Kajikia albida from roundscale spearfish Tetrapturus georgii in the western North Atlantic. *Bull. Mar. Sci.* 87(1):147-153.

Beerkircher, L.R. and D. Gloeckner. 2013. Fractions of Blueline Tilefish and Gray Triggerfish to Total Tilefishes and Triggerfishes from Sampling Data (TIP) 1983-2012. SEDAR 32 working paper.

STEVEN G. SMITH
Abbreviated Curriculum Vitae

Current Position: Associate Research Scientist, University of Miami, Cooperative Institute for Marine and Atmospheric Studies, Rosenstiel School of Marine, Atmospheric, and Earth Science, 4600 Rickenbacker Causeway, Miami, Florida 33149, steven.smith@noaa.gov

Education:
1998   Postdoctoral, University of Miami, Fish Population Dynamics/Biostatistics
1997   Ph.D., University of Maryland, College Park, Marine Estuarine Environmental Science
1984   B.A., Occidental College, Los Angeles, California, Biology (Honors), Marine Emphasis

Professional Experience:

Dates	Organization	Position
2019-present	University of Miami CIMAS	Associate Research Scientist
2002-2019	University of Miami RSMAS	Associate Research Scientist
1998-2002	University of Miami RSMAS	Assistant Research Scientist
1997-1998	University of Miami RSMAS	Postdoctoral Fellow
1993-1997	Univ. of Maryland Chesapeake Biological Lab.	Graduate Research Assistant
1993	Univ. of Md., College Park, Biometrics Program	Graduate Teaching Assistant

Research Interests:
Marine fish and invertebrate population dynamics and stock assessment, fisheries information systems, probability survey design, generalized linear models, multivariate statistics, data mining, and operations research.

Selected Publications:
Schwarzmann, D., S.G. Smith, J.S. Ault and V. Leeworthy. 2023. Bioeconomics of Florida recreational fisheries to estimate willingness to pay for bag and size limits of spotted seatrout. Water 15, 1696. https://doi.org/10.3390/w15091696

Ault, J.S., S.G. Smith, M.W. Johnson, L.G.W. Grove, J.A. Bohnsack, G.T. DiNardo, C. McLaughlin, N.M. Ehrhardt, V. McDonough, M.P. Seki, S.L. Miller, J. Luo, J. Blondeau, M.P. Crosby, G. Simpson, M.E. Monaco, C.G. Pollock, M.W. Feeley and A. Acosta. 2022. Length-based risk analysis of management options for the southern Florida USA multispecies coral reef fish fishery. Fisheries Research 249, doi:10.1016/j.fishres.2021.106210

Luo, J., J.S. Ault, B.T. Ungar, S.G. Smith, M.F. Larkin, T.N. Davidson, D.R. Bryan, N.A. Farmer, S.A. Holt, A.S. Alford, A.J. Adams, R. Humston, A.S. Marton, D. Mangum, R. Kleppinger, A. Requejo and J. Robertson. 2019. Migrations and movements of Atlantic tarpon revealed by two decades of satellite tagging. Fish and Fisheries, doi:10.1111/faf.12430

Ault, J.S., S.G. Smith, J.A. Bohnsack, J. Luo, M.H. Stevens, M.W. Johnson, D.R. Bryan and G.T. DiNardo. 2019. Length-based risk analysis for assessing sustainability of data-limited tropical reef fisheries. ICES Journal of Marine Science, doi:10.1093/icesjms/fsy123

Stevens, M.H., S.G. Smith and J.S. Ault. 2019. Life history demographic parameter synthesis for exploited Florida and Caribbean coral reef fishes. Fish and Fisheries, doi:10.1111/faf.12405

Ault, J.S., S.G. Smith, B.L. Richards, A.J. Yau, B.J. Langseth, J.M. O'Malley, C.H. Boggs, M.P. Seki and G.T. DiNardo. 2018. Towards fishery-independent biomass estimation for Hawaiian Islands deepwater snappers. Fisheries Research 208:321-328.

Bryan, D.R., S.G. Smith, J.S. Ault, M.W. Feeley and C.W. Menza. 2016. Feasibility of a regionwide probability survey for coral reef fish in Puerto Rico and the U.S. Virgin Islands. Marine and Coastal Fisheries 8:135-146.

Nadon, M.O., J.S. Ault, I.D. Williams, S.G. Smith and G.T. DiNardo. 2015. Length-based assessment of coral reef fish populations in the Main and Northwestern Hawaiian Islands. PLoS ONE 10(8): e0133960. doi:10.1371/journal.pone.0133960.

Ault, J.S., S.G. Smith, J. Browder, W. Nuttle, E.C. Franklin, J. Luo, G.T. DiNardo and J.A. Bohnsack. 2014. Indicators for assessing the ecological dynamics and sustainability of southern Florida's coral reef and coastal fisheries. Ecological Indicators 44:164-172.

Farmer, N.A., J.S. Ault, S.G. Smith and E.C. Franklin. 2013. Methods for assessment of short-term coral reef fish movements within an acoustic array. Movement Ecology 1:7.

Ault, J.S., S.G. Smith, J.A. Bohnsack, J. Luo, N. Zurcher, D.B. McClellan, T.A. Ziegler, D.E. Hallac, M. Patterson, M.W. Feeley, B.I. Ruttenberg, J. Hunt, D. Kimball and B. Causey. 2013. Assessing coral reef fish population and community changes in response to marine reserves in the Dry Tortugas, Florida, USA. Fisheries Research 144:28-37.

Smith, S.G., D.W. Swanson, M. Chiappone, S.L. Miller and J.S. Ault. 2011. Probability sampling of stony coral populations in the Florida Keys. Environmental Monitoring and Assessment 183:121-138.

Smith, S.G., J.S. Ault, J.A. Bohnsack, D.E. Harper, J. Luo and D.B. McClellan. 2011. Multispecies survey design for assessing reef-fish stocks, spatially-explicit management performance, and ecosystem condition. Fisheries Research 109:25-41.

Ault, J.S., S.G. Smith, J. Luo, M.E. Monaco and R.S. Appeldoorn. 2008. Length-based assessment of sustainability benchmarks for coral reef fishes in Puerto Rico. Environmental Conservation 35:221-231.

Smith, S.G. and E.S. Chang. 2007. Molting and growth. Pages 197-254 in V.E. Kennedy and L.G. Cronin, editors. The blue crab: *Callinectes sapidus*. Maryland Sea Grant College, College Park, Maryland.

Ault, J.S., S.G. Smith, J.A. Bohnsack, J. Luo, D.E. Harper and D.B. McClellan. 2006. Building sustainable fisheries in Florida's coral reef ecosystem: positive signs in the Dry Tortugas. Bulletin of Marine Science 78:633-654.

Ault, J.S., S.G. Smith and J.A. Bohnsack. 2005. Evaluation of average length as an estimator of exploitation status for the Florida coral-reef fish community. ICES Journal of Marine Science 62:417-423.

Ault, J.S., S.G. Smith, J.A. Bohnsack and J. Luo. 2005. Towards sustainable multispecies fisheries in the Florida, USA, coral reef ecosystem. Bulletin of Marine Science 76:595-622.

Meester, G.A., J.S. Ault, S.G. Smith and A. Mehrotra. 2001. Integration of simulation and operations research into spatial fishery management decision making. Sarsia 38:125-142.

Ault, J.S., G.A. Diaz, S.G. Smith, J. Luo and J.E. Serafy. 1999. An efficient sampling survey design to estimate pink shrimp population abundance in Biscayne Bay, Florida. North American Journal of Fisheries Management 19:696-712.

Ault, J.S., J. Luo, S.G. Smith, J.E. Serafy, J.D. Wang, G. Diaz and R. Humston. 1999. A spatial dynamic multistock production model. Canadian Journal of Fisheries and Aquatic Sciences 56(Suppl. 1):4-25.

Brian K. Walker, Abbreviated Curriculum Vitae

Nova Southeastern University, Halmos College of Arts and Sciences, 8000 North Ocean Drive, Dania Beach, Florida 33004; Tel: 954-257-2347; Email: walkerb@nova.edu

Education

Ph.D.   Marine Biology, Halmos College of Natural Sciences and Oceanography, Nova Southeastern University, 2008.

M.S.   Marine Biology and Coastal Zone Management, Halmos College of Natural Sciences and Oceanography, Nova Southeastern University, 2002.

B.A.   Biology, College of Arts and Sciences, Florida State University, 1995.

Professional Appointments

2007 – Pres.   Research Scientist 2, GIS & Spatial Ecology Lab Director, Halmos College of Natural Sciences and Oceanography, Nova Southeastern University.

Main Research: Coral Disease Interventions and Research – Save corals using novel techniques to stop lesions and restore colony health, use intervention data to design and conduct experiments to identify disease dynamics and etiology.
Spatial Ecology - Seascape ecology, spatial dynamics of coral reef communities, reef community biogeography, marine faunal relationships to topography
Seafloor Characterization - Benthic habitat mapping (Shallow and Deep water), accuracy assessment, mapping techniques and technologies
Scientific research study design - Optimize research study design using GIS spatial data, developing and evaluating assessment and monitoring methodologies
Management applications of scientific research - Coral habitat impact assessment (Shallow and Deep), marine spatial planning, Acropora monitoring and mapping, anchorage placement/modification, special event impact minimization planning
Coral Reef Geology - Historical perspectives gained from present-day morphology

Highlighted Related Work Experience

2021 – Pres   Lead SCTLD Resistance Research Consortium.

2018 – Pres.   Conduct disease intervention on SE FL corals.

2013 – Pres.   Investigate the condition, status, and trajectories of large corals on the Florida Reef Tract to help understand previous impacts and inform future conservation.

2007 – Pres.   Mapping the dynamics of dense staghorn coral patches.

2004 – Pres.   Investigate biogeographic spatial patterns of Florida marine benthic communities.

2001 – Pres.   Delineation of detailed shallow and deep-water habitat maps using LIDAR, Mulitbeam, Sidescan, aerial and satellite photography, and underwater video and accuracy assessment of maps.

1999 – Pres.   Visual censusing of benthic flora and fauna and reef fishes on natural and artificial reefs in the Western Atlantic and Caribbean.

2012 – 2017   Development, coordination, and implementation of reef-use survey and decision support tools for the Our Florida Reefs community working groups to develop draft spatial plans for management recommendations. See http://ourfloridareefs.org/tool/ for developed products.

Recent Publications

Pawlik, J. R., Armstrong, R. A., Farrington, S., Reed, J., Rivero-Calle, S., Singh, H., **Walker, B.K**., White, J. (2022). Comparison of recent survey techniques for estimating benthic cover on Caribbean mesophotic reefs. *Marine Ecology Progress Series, 686*, 201-211.

Santavy, D. L., Jackson, S. K., Jessup, B., Gerritsen, J., Rogers, C., Fisher, W. S., **Walker, BK,** . . . Raimondo, S. (2022). A biological condition gradient for coral reefs in the US Caribbean Territories: Part I. Coral narrative rules. *Ecological Indicators, 138*, 108805. doi:https://doi.org/10.1016/j.ecolind.2022.108805

Santavy, D. L., Jackson, S. K., Jessup, B., Horstmann, C., Rogers, C., Weil, E., Szmant, A., Miranda, D., **Walker, BK**. . . . Raimondo, S. (2022). A biological condition gradient for Caribbean coral reefs: Part II. Numeric rules using sessile benthic organisms. *Ecological Indicators, 135*, 108576. doi:https://doi.org/10.1016/j.ecolind.2022.108576

Deutsch, J. M., Jaiyesimi, O. A., Pitts, K. A., Houk, J., Ushijima, B., **Walker, B. K.**, Paul, V. J., Garg, N. (2021). Metabolomics of Healthy and Stony Coral Tissue Loss Disease Affected Montastraea cavernosa Corals. Frontiers in Marine Science, 8(1421). doi:10.3389/fmars.2021.714778.

Walker, BK, Turner NR, Noren HKG, Buckley SF, & Pitts, K. A. (2021). Optimizing Stony Coral Tissue Loss Disease (SCTLD) Intervention Treatments on *Montastraea cavernosa* in an Endemic Zone. Frontiers in Marine Science, 8(746). doi:10.3389/fmars.2021.666224

Walker, B. K., Messing, C., Ash, J., Brooke, S., Reed, J. K., & Farrington, S. (2021). Regionalization of benthic hard-bottom communities across the Pourtalès Terrace, Florida. *Deep Sea Research Part I: Oceanographic Research Papers, 172*, 103514. doi:https://doi.org/10.1016/j.dsr.2021.103514

Walker BK, Eagan S, Ames C, Brooke S, Keenan S, Baumstark R (2020) Shallow-Water Coral Communities Support the Separation of Marine Ecoregions on the West-Central Florida Gulf Coast. Frontiers in Ecology and Evolution 8: 210

Bradley P, Jessup B, Pittman SJ, Jeffrey CFG, Ault JS, Carrubba L, Lilyestrom C, Appeldoorn RS, Schärer MT, **Walker BK**, McField M, Santavy DL, Smith TB, García-Moliner G, Smith SG, Huertas E, Gerritsen J, Oliver LM, Horstmann C, Jackson SK (2020) Development of a reef fish biological condition gradient model with quantitative decision rules for the protection and restoration of coral reef ecosystems. Mar Pollut Bull 159:111387

Frys C, Saint-Amand A, Le Hénaff M, Figueiredo J, Kuba A, **Walker B**, Lambrechts J, Vallaeys V, Vincent D and Hanert E. 2020. Fine-Scale Coral Connectivity Pathways in the Florida Reef Tract: Implications for Conservation and Restoration. Front. Mar. Sci. 7:312. doi: 10.3389/fmars.2020.00312

Griffin DW, Banks K, Gregg K, Shedler S, **Walker BK.** 2020. Antibiotic Resistance in Marine Microbial Communities Proximal to a Florida Sewage Outfall System. Antibiotics 9:118

Goergen EA, Moulding AL, **Walker BK**, & DS Gilliam. 2019. Identifying Causes of Temporal Changes in *Acropora cervicornis* Populations and the Potential for Recovery. Frontiers in Marine Science, *6*(36). doi:10.3389/fmars.2019.00036.

Costa B, **Walker BK**, Dijkstra J. 2018. "Spatial patterning in the sea: Mapping and quantifying seascape patterns." Seascape Ecology: Taking landscape ecology into the sea. Pittman SJ ed. Chapter 3.

Shideler GS, Araujo RJ, **Walker BK**, Blondeau J, and JE Serafy. 2017. Non-linear thresholds characterize the relationship between reef fishes and mangrove habitat. Ecosphere, 8, e01943-n/a.

D'Antonio N, Gilliam DS, and **BK Walker**. 2016. Investigating the spatial distribution and effects of nearshore topography on *Acropora cervicornis* abundance in Southeast Florida. Peer J, *4*, e2473.

Berry C, Hill RL, and **BK Walker**. 2016. Demographics of a nearshore mating queen conch (*Lobatus gigas*) aggregation on the southeast Florida Reef Tract. Bull Mar Sci 92(1):59-73.

STATE OF MAINE
DEPARTMENT OF MARINE RESOURCES
MARINE RESOURCES LABORATORY
P.O. BOX 8, 194 MCKOWN POINT RD
W. BOOTHBAY HARBOR, MAINE
04575-0008

JANET T. MILLS
GOVERNOR

PATRICK C. KELIHER
COMMISSIONER

August 18, 2023

Atlantic Coastal Cooperative Statistics Program
1050 N. Highland St. Ste. 200 A-N
Arlington, VA 22201

Dear ACCSP,

I am pleased to submit the proposal titled "Characterizing Atlantic Cod Discards in the Maine Lobster Fishery for use in Atlantic Cod Stock Assessment" for your consideration. This is a new proposed project to support a collaboration between the Maine Department of Marine Resources (ME DMR) and the University of Maine to utilize existing fisheries dependent datasets stored by ACCSP and characterize discards of Atlantic cod in the Maine lobster fishery for the Northeast Fisheries Science Center Groundfish Stock Assessment process.

Prior work has been published to estimate cod bycatch in the lobster fishery, but those models are based on historical effort and bycatch data ending in 2013. Both the cod resource and the lobster fishery have experienced changes since that time. This project would support a masters level University of Maine graduate student under the supervision of Dr. Lisa Kerr to revisit and update the models and to develop a workflow that would allow integration of new fisheries dependent data moving into the future.

Thank you for the review of our preproposal submitted in June. The budget has been increased slightly due to the subrecipient revision of costs. Any changes in the body of the proposal are highlighted. Please find a brief summary of the responses to the review panels questions (in italics) below.

1. *Atlantic cod is not in the upper quartile of the matrix. Please justify the priority (necessity) for the sampling of this species.*
   o Atlantic cod has important historical importance in Northeast fisheries. While Atlantic cod is not considered a top priority in the ACCSP Biological Matrix, lobster is a top priority on the Biological Matrix and lobster pots are priority number 2 in the Bycatch Matrix. The lobster fishery could potentially be impacted by future cod management if lobster effort is determined to have a large impact on cod mortality.
   o Atlantic cod recently went through a research track assessment which altered the stock boundaries and established a new Eastern Gulf of Maine cod stock off the coast of Maine. It is estimated that a significant portion of the catch comes from discards in the lobster fishery, but that has not been directly estimated using available lobster effort and bycatch data in the last decade. Acquiring this data was noted to be a high priority in the recent peer review of the cod research track stock assessments. Finfish bycatch is already being collected by Maine DMR Commercial Lobster At-sea Sampling Program. Better estimating

the magnitude of cod discards in the lobster fishery could be highly influential to the outcome of the cod assessment and potential future management of Northeast fisheries.

2. *Is this information already being collected in the lobster fishery? Please clarify and, if so, provide additional justification for additional data collection.*

   o ME DMR Commercial At-Sea Sampling program has collected information on finfish bycatch in the lobster fishery since 2006. Lobster landings data have been collected at 100% for dealer data and roughly 10% for harvester data until 2023 when harvester data shifted to 100% mandatory reporting. While these data sources continue to be collected and we are not proposing new data collection in addition to current requirements, additional data processing and model development are required to quantify the interaction of these two species in lobster effort and estimate a discard time series of cod from the lobster fishery for use in stock assessment.

3. *Please clarify why this work is not being done under the research track assessment. How is this work different?*

   o The previous work to estimate cod discards in the lobster fishery only included data through 2013 and the lobster fishery has changed since in the last decade to experience a peak in landings and effort and shifting distribution of effort so it was determined inappropriate and inadequate to use the historical data. The research track cod assessment did not have the time or capacity to develop an updated time series of discards from the lobster fishery.

   o Estimating a time series of cod discards for inclusion in the stock assessment is most relevant for the Eastern Gulf of Maine cod stock assessment and is not a trivial process. This work will require close collaboration between ME DMR, the state agency responsible for this data collection within the lobster fishery, quantitative fisheries scientist responsible for estimating the magnitude of cod discards in the fishery, and the federal scientists responsible for integrating this information in the context of the stock assessment. The Peer Review Panel for the recent cod assessment identified this as a high priority and recommended that estimates of dead discards in the lobster fishery be addressed for integration into the management track process.

The Atlantic cod Research Track Assessment Peer Review Panel is currently completing their report, but the indications from the discussion are that the cod discards from the lobster fishery in eastern Maine may be a required input for the upcoming Cod Management Track Assessment. **If chosen for funding, this project would benefit from initiation of work sooner than later.**

Please contact Kathleen Reardon at the MEDMR with any questions. Thank you for your consideration of this proposal.

Sincerely,

Kathleen M. Reardon
Maine Department of Marine Resources
Marine Resources Scientist III
Kathleen.Reardon@maine.gov
(207) 350-7440

Atlantic Coastal Cooperative Statistics Program
1050 N. Highland Street. Suite. 200A-N
Arlington, VA 22201

Characterizing Atlantic Cod Discards in the Maine Lobster Fishery for use in Atlantic Cod Stock Assessment

Total Cost: $72,136.15

Submitted by:

Kathleen M. Reardon
Maine Department of Marine Resources
PO Box 8, 194 McKown Point Rd.
West Boothbay Harbor, ME 04575
Kathleen.Reardon@maine.gov

Applicant Name: Maine Department of Marine Resources (Kathleen Reardon)

Project Title: FY24: Characterizing Atlantic Cod Discards in the Maine Lobster Fishery for use in Atlantic Cod Stock Assessment

Project Type: New project

Requested Award Amount: $72,136.15

Requested Award Period: One year after receipt of funds

Date Final Submitted: August 18, 2023

Objective:

 The goal of this research is to enhance the utilization of existing datasets and generate a new data stream of Atlantic cod discard estimates from the lobster fishery for use in the cod stock assessment. The proposed work will utilize finfish discard data from the Maine Department of Marine Resources (ME DMR) Commercial Lobster At-Sea Sampling Program in conjunction with lobster landings from ME DMR Landings Program to generate a discard data time series of Atlantic cod for use in the cod stock assessment.

Specific objectives include:
1. Estimation of Atlantic cod discards (total and dead discards) from the Maine lobster fishery over time and lobster management zones.
2. Development of a workflow for data processing and model estimation such that this time series can be easily updated and provided in a timely manner for use in future management track assessments for Atlantic cod by the Northeast Fisheries Science Center (NEFSC).
3. Incorporation of this additional data stream (i.e., Atlantic cod discards from the lobster fishery) into the eastern Gulf of Maine (EGOM) cod stock assessment.

Need:

 Atlantic cod and American lobster are iconic fishery species in New England. Today, American lobster is one the most valuable fisheries in the nation, with an ex-vessel average annual value of $505 million for the last five years. Historically, Atlantic cod was one of the principal stocks in the New England groundfish fishery and a mainstay of the regional economy. Given the overlap in benthic habitat, the lobster trap fishery has potential interactions with the cod resource, and this raises questions about the magnitude of mortality due to bycatch in the lobster fishery. In addition, **American lobster is in the top 25% of the ACCSP Biological Review Matrix of priorities and bycatch in American lobster traps ranks second in the ACCSP Priority Bycatch Matrix of priorities.** While Atlantic cod is not considered a top priority in the ACCSP Biological Matrix, the lobster fishery could potentially be impacted by future cod management if lobster effort is determined to have a large impact on cod mortality.

 Recent stock assessments of cod in the Gulf of Maine indicate that the stock is overfished despite low catch limits in recent years (NEFSC 2021a). The groundfish fishery targets multiple demersal species, thus depletion of the cod resource is not only a problem for the targeting of cod, but also for the complex of species targeted by this fishery. The cod stock in this region has also

experienced significant ocean warming which has well documented impacts on cod productivity and is projected to continue to impact this fishery resource (Pershing et al. 2015; Hare et al. 2016). Advances in stock identification of Atlantic cod and the recent synthesis of this work has revealed additional biological stock structure within the Gulf of Maine management unit (McBride and Smedbol 2022). The ongoing research track stock assessment for cod is changing the scale of assessment to align with the current state of knowledge on cod stock structure and assessing the resource as four units with two in the Gulf of Maine: 1) eastern Gulf of Maine (EGOM), 2) western Gulf of Maine (WGOM; Figure 1).

Understanding the magnitude of bycatch of Atlantic cod in the lobster fishery and the implications of this unaccounted catch on the resource has been a concern over several cod assessment cycles (NEFSC 2021b). However, this has become more of a focus in the most recent research track assessment due to the changes in the spatial scale of the Atlantic cod stock assessment, particularly with EGOM cod now being assessed as its own stock. Due to changes in the distribution of landings in the lobster fishery, with higher and more variable landings occurring in eastern Maine in the last decade, coupled with the decline of cod landings and the groundfish fishery in that area, cod bycatch in the lobster fishery may represent an important source of catch for EGOM cod. Updated estimates of cod bycatch in the lobster fishery in eastern Maine are needed to develop accurate assessment models for this region since current modeled estimates do not reflect the changes that have occurred in the lobster fishery in recent years.

Boenish and Chen (2018a) modeled the spatiotemporal dynamics of the effective lobster fishing effort in Maine. Building off that work, Boenish and Chen (2018b) used the lobster effort model and additional data to develop estimates of cod bycatch from the Maine lobster fishery. This model-based approach used the ME DMR Commercial Lobster At-Sea Sampling dataset (2006-2013) which includes lobster catch composition and records of finfish bycatch in traps along with fishery dependent Maine lobster landings to calculate discards in each month and year by Maine lobster management zone (Figure 2). In general, the cod bycatch rate was low in the lobster fishery (7.5-7.8 cod per 10,000 trap hauls) and Boenish and Chen (2018b) found total cod discards were driven more by temporal changes in lobster fishery effort than by likelihood of catching cod. Total discards peaked in summer/fall (July-October) when lobster effort was highest.

Boenish and Chen (2020) subsequently explored the impact of incorporating these estimates of cod discards from the lobster fishery on the Gulf of Maine cod assessment. This required hindcasting and forecasting discards across time and reconstruction year specific discards at age. The study incorporated this data-stream into the assessment models previously used for Gulf of Maine cod (ASAP models assuming M=0.2 and M-ramp) under two scenarios, one which assumed a discard mortality of 50% and another that assumed 100% mortality. Although discards did not comprise a large amount to the total catch, for particular age classes (ages 2 and 3) they were an important source of mortality. Additionally, the percent of catch that comes from lobster fishery discards was forecasted to increase and was more influential in recent years. Overall, including lobster fishery discards improved the retrospective patterns in the cod stock assessment and the results of the model including this time series indicated an improved status of the cod resource.

It is important to note that the implications of discards in the lobster fishery to the cod stock assessment and resource are highly dependent on the realized discard mortality. New estimates have been published since the Boenish and Chen 2020 paper. Sweezy et al. (2020) estimated cod discard mortality from commercial lobster traps in an acoustic array. They assessed cod for injury and quantified At Vessel Mortality (AVM) and used acoustic telemetry to track delayed mortality. Using

these two factors, they estimated a discard mortality rate of 25%. They then combined this discard mortality rate with discard estimates (Boenish and Chen, 2018) to estimate that 9,920-12,400 individuals, approximately 10.3-12.9 metric tons, of cod were removed by the lobster fishery per year.

There is a recognized need to update and re-estimate the cod discard time series from the lobster fishery for incorporation into Atlantic cod stock assessments. However, the current Maine lobster fishery has experienced significant changes since the end of the time series (2013) used to develop the prior models by Boenish and Chen. This includes the shifting geographic distribution of lobster landings, with eastern Maine landings peaking in 2016 then decreasing while western Maine landings have remained stable (Figure 3). There have also been significantly less overall lobster trips in recent years (Figure 4) making it challenging to project forward using information on bycatch- and catch-per-unit effort derived from historical activity of the fishery. It is expected that the lobster fishery will continue to evolve as it faces regulatory and ecosystem changes. There have also been changes in the distribution of the cod stock, notably the contraction of cod to areas of western Gulf of Maine and reduced prevalence in eastern Gulf of Maine.

With changes in both stocks and fisheries, the existing model is outdated and needs to incorporate the new and more recent data. The research track cod assessment did not have the time or capacity to develop an updated time series of discards from the lobster fishery. Estimating a time series of cod discards for inclusion in the stock assessment is most relevant for the Eastern Gulf of Maine cod stock assessment and is not a trivial process. The Peer Review Panel for the recent cod assessment identified this as a high priority and recommended that estimates of dead discards in the lobster fishery be addressed for integration into the management track process.

To support an updated analysis, the Commercial at-Sea Sampling Program data continues to be collected annually and the Maine landings data has experienced improved reporting through 100% harvester logbooks in 2023 with finer scale spatial data. It was recognized that, for this project to be a useful endeavor, an updated model would need to be developed in tandem with a formal workflow where new annual data could be integrated and easily updated with each Atlantic cod management track stock assessment.
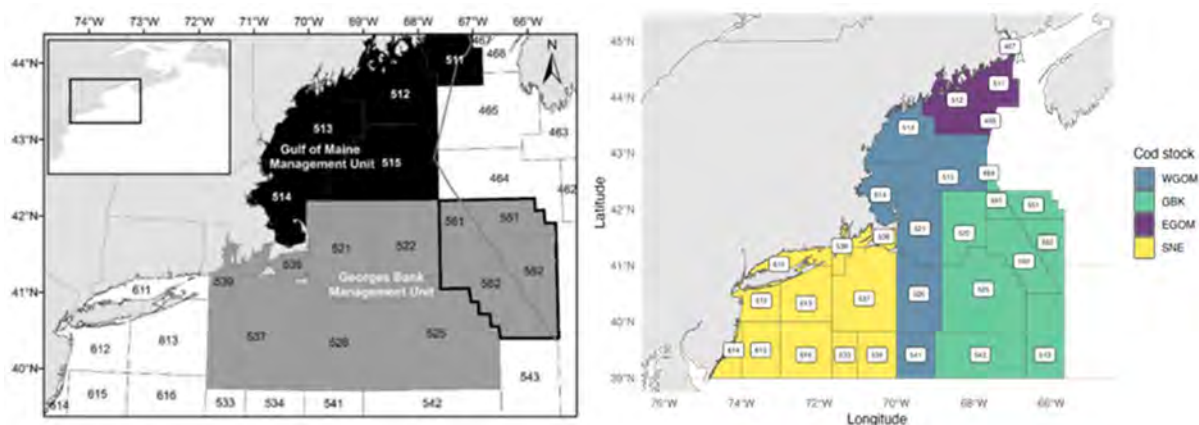
Figure 1. Current (left panel; Gulf of Maine and Georges Bank) and revised (right panel) spatial assessment units for Atlantic cod off New England (NOAA), including: 1) western Gulf of Maine (WGOM), 2) eastern Gulf of Maine (EGOM), 3) Georges Bank (GBK), and 4) southern New England (SNE: Map courtesy of Atlantic cod Research Track Working Group).
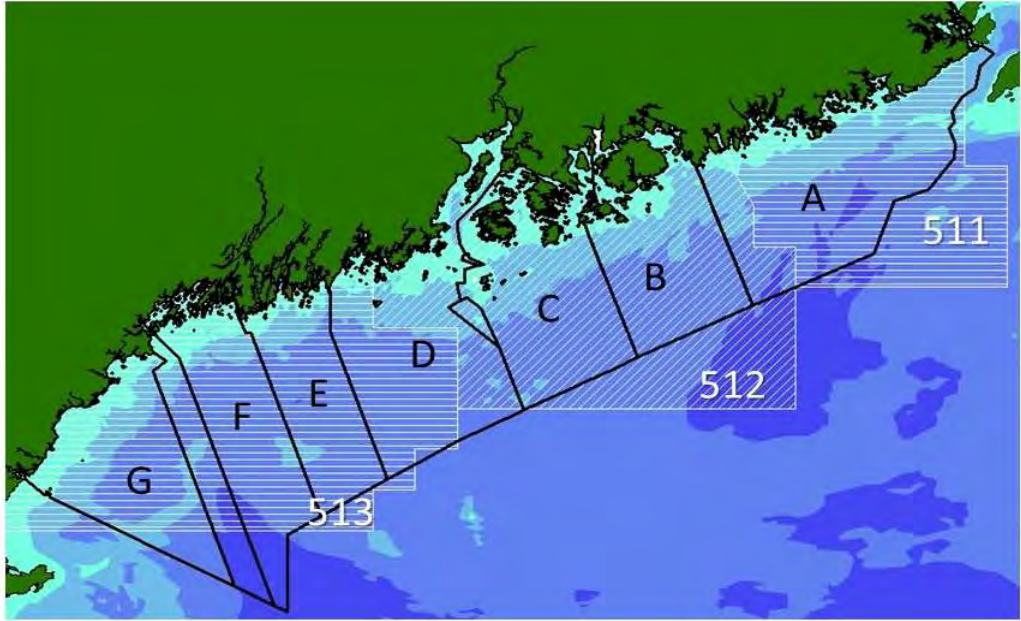
Figure 2. Map of Maine Lobster Management Zones (black outlines) and NMFS Statistical Areas (white outlines) along the Maine coast.
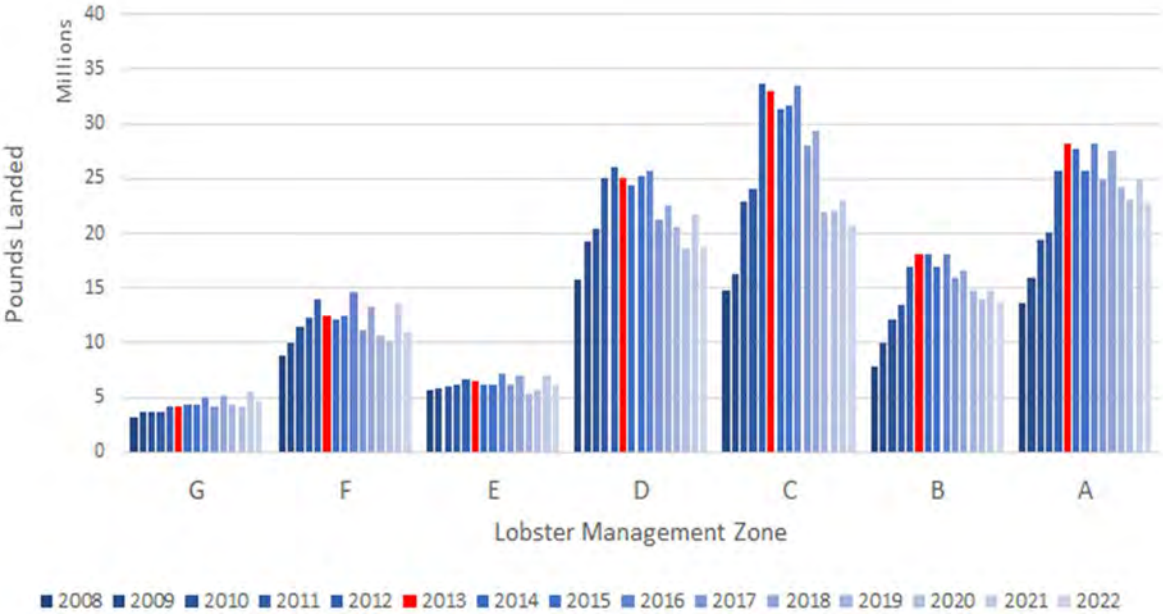
Figure 3. Maine lobster (*Homarus americanus*) landings by annual pounds (millions) landed per Lobster Management Zone (2008-2022). The year 2013 is marked as red to note this was the last year included in the Boenish and Chen 2018a and 2018b models.
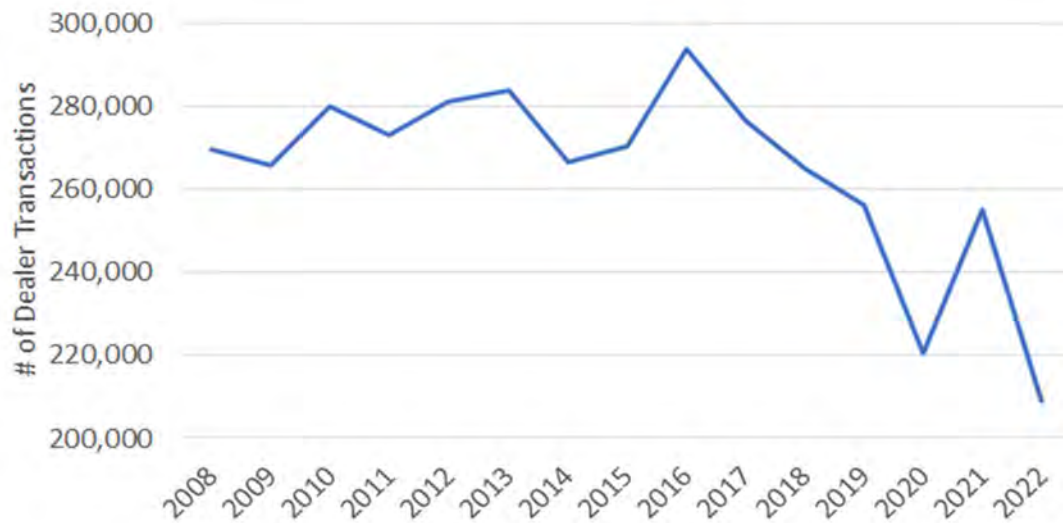
Figure 4. Number of dealer transactions reported to the ME DMR Landings Program as proxy of number of trips (2008-2022).

Results and Benefits:
We propose to update and expand on the work by Boenish and Chen 2018a, 2018b, 2020. Anticipated results and benefits of this work include:

- **Leverage current available data and enhance data utilization:** Utilization of lobster biological data and finfish discard data from the ME DMR Commercial At-Sea Sampling Program and lobster landings from the Maine Landings Program for NEFMC groundfish stock assessment. Maine lobster landings and lobster bio samples from At-Sea Sampling are uploaded and stored in ACCSP Data Warehouse.
- **Generation of new data stream**: Estimates of cod discards (total and dead discards) from the Maine lobster fishery over time and lobster management zones.
- **Improvement in model output timeliness:** Development of a workflow for data integration, processing, and discard estimation such that this time series can be easily updated and provided in a timely manner for use in future management track assessments for Atlantic cod.
- **Impact on stock assessment:** Incorporation of Atlantic cod discards from the lobster fishery into the new EGOM cod stock assessment and evaluation of relative importance of this source of mortality.
- **Collaboration between American lobster and Atlantic cod assessments: This proposal represents a new research initiative that will bring together the partners on this project who are in leadership roles in both assessment processes.** Both will disseminate the results with relevant research and management bodies at regional and national meetings to further engage these communities in this effort moving forward.

This proposed project will efficiently fill a data gap in the NEFSC Atlantic Cod Stock Assessment that has been a subject of uncertainty for multiple assessments using an established modeling approach, incorporating ACCSP landings data and commercial sea sampling data for a priority species and gear type as identified in the ACCSP RFP.

Data Delivery Plan:

This proposed project will leverage ==available== data in the ACCSP Data Warehouse to produce a new data product through updating and modifying previously developed models. The partners will meet on a monthly basis to continue progress on the project and provide semi-annual progress reports to ACCSP on the model developments. Ultimately, **the project will develop an operational model that can be run by ME DMR to integrate new lobster landings and cod bycatch data for the cod assessment process.** This model process and outcomes will be shared with the NEFMC Groundfish Plan Development Team and the ASMFC Lobster Technical Committee.

Approach:

This proposal will support a University of Maine masters level graduate student to expand this team's analytical capacity to use existing and continually collected Maine lobster fisheries dependent data to update models of estimated cod bycatch in the lobster fishery. To complete this work, an update is needed to estimate the effective catch per unit effort of lobster and the bycatch catch per unit of lobster effort of cod. **This proposal will leverage existing data from ACCSP to provide value added analyses and address RFP Priorities 1a. catch, effort and landings data (30%), 1b. biological data(30%), and 2. bycatch data (40%).**

Data

The ME DMR Commercial ==Lobster== At-Sea Sampling program began collecting at-sea catch/effort and biological information on legal and discarded lobsters from the near shore Maine lobster fishery in 1985. The sea sampling program was initiated at the request of industry, managers and scientists to gain insight into the discarded portion of the lobster population that supports the most economically important single-species fishery in Maine coastal waters. Since 1999, the program has been a standardized quota-based design where three sampling trips are scheduled to be completed for each management zone (A-G) in each month from May through November. Since 2006, winter sampling schedules one trip per statistical area per month December through April. Also, since 2006, the program has collected data on finfish bycatch observed in traps. The study area is defined by the Maine territorial sea and nearshore Federal Lobster Management Area 1 where the majority of annual landings are caught. All bio sample data collected by this program are submitted to the ACCSP Data Warehouse.

Historically, Maine's lobster landings were collected on a voluntary basis with dealers reporting monthly, while a subsample of effort data was collected through port and sea sampling programs. In 2004, Maine instituted mandatory monthly reporting at the dealer level. In 2008, Maine implemented a mandatory 100% Dealer Reporting Program at the trip level and 10% random selection of each Maine lobster license type in each of Maine's seven fishing zones for Maine's Harvester Logbook Program. In 2019, the selection for the Harvester Logbook Program became optimized for active harvesters and in 2023, 100% electronic harvester reporting was implemented. From 2008-2019, spatial information on harvester logbooks was reported by zone and distance from shore (0-3nm, 3-12nm and >12nm). Since 2020, spatial information has been reported by ten-minute degree square blocks. Lobster landings data are found in the ACCSP Data Warehouse.

Discard Estimation and Workflow Development

The Boenish and Chen (2018a and 2018b) studies used a delta generalized additive model (delta GAM) approach in each lobster management zone to standardize Atlantic Cod bycatch per unit effort (BCPUE, cod abundance/trap haul) and lobster CPUE (lobster kg/trap haul). The delta GAM approach models presence–absence separately from positive biomass. GAMs estimate relationships between independent and dependent variables by use of spline functions, allowing them flexibility to model relationships beyond the parametric forms common to generalized linear model (Wood 2017). Lobster landings were multiplied by the ratio of standardized catch rates (BCPUE/CPUE) to calculate discards in each month and year by lobster management zone. We will update the data used in this analysis and reexamine the model structure used in this study with the aim of updating and improving on this analysis.

We will develop a workflow that will be easy to deploy for future users and automate estimation of the cod discard time series as data updates are available and auto-generates desired data visualizations. The workflow will be formalized in a well-documented R script that works with standard data inputs.

Stock Assessment Modeling

We propose to evaluate the influence of cod discard estimates derived from spatio-temporal modeling of cod bycatch in the lobster fishery on the performance of the EGOM stock assessment and resulting information on EGOM Atlantic cod stock status. We will compare this assessment model to a fit of the stock assessment model without lobster fishery discard mortality. The EGOM cod assessment model is currently under development but is being fit with a state-space age-structured stock assessment model fit developed using the Woods Hole Assessment Model (WHAM; Miller and Stock 2020).

We will update the data that informs the EGOM stock assessment and conduct hypothesis testing using the assessment model to determine whether incorporation of discards from the lobster fishery improves model performance and changes that perception of the stock. Model comparisons will be based on a suite of assessment model diagnostics, including model convergence. In addition, biological realism of model outputs will be examined in conjunction with performance metrics.

Geographic Location:

The project will be administered through ME DMR and the work will be conducted collaboratively between ME DMR Kathleen Reardon, Lisa Kerr (UMaine), with a UMaine graduate student implementing the analyses.

Milestone Schedule:

Task	Months											
	1	2	3	4	5	6	7	8	9	10	11	12
Recruit graduate student	X	X										
Access and explore data		X	X	X								
Review prior model structure		X	X	X	X							
Develop and fit models				X	X	X	X	X	X			
Convert models to workflow									X	X	X	X
Document and synthesize results										X	X	X

Project Accomplishments Measurement:

Project Goals	Metrics
Estimation of Atlantic cod discards	• Data visualization and formatting for modeling • Review prior model structure and code • Develop and fit of models in R • Visualization and synthesis of results
Development of a workflow for data processing and model estimation	• R code and documentation stored and publicly available in Github repository

Cost Summary (Budget):

BUDGET		TOTAL PROJECT COST
Contractual:		
Subaward UMaine (*indirect waived)		
Lisa Kerr	2 weeks salary	$6,869.00
	Fringe	$563.00
Graduate student	Full year salary	$30,000.00
	Tuition	$6,888.00
	Health Insurance	$2,905.00
	Travel	$675.00
	Fringe and F&A costs	$19,563.00
*	**Total Subaward**	$67,463.00
Administration Fee		
	5% on subaward	$3,373.15
*	**Total Admin Fee**	$3,373.15
Travel:		
Meals, lodging, mileage		$1,000.00
	Total Travel:	$1,000.00
	SUBTOTAL (indirect assessed)	**$1,000.00**
	SUBTOTAL (indirect waived)	**$70,836.15**
	Indirect (30%)	**$300.00**
	Requested Award	**$72,136.15**

ME DMR In Kind Partner Contribution				
Project PI	K. Reardon	072002282	Scientist IV (25% time)	$33,243
Landings Staff	R. Watts	072002431	Scientist III (15% time)	$19,990
	L. White, Jr	072002453	Scientist II (15% time)	$18,976
				$72,210

Budget Narrative

Subaward with the University of Maine

The work proposed in this proposal primarily supports a graduate student at the University of Maine. The contract will support a M.S. graduate student and will provide for 12 months of a graduate student stipend (12 months of M.S. support: $30,000). Support for graduate school tuition is requested (12 credits/ year * $574 credit =$ 6,888/year). Costs for student health insurance are estimated at $2,905. Requested travel funds include costs for the graduate student to attend and

present results at a regional meeting. Estimated travel costs for the meeting include hotel at $300 ($150 per night x 2 nights); meals at $225 ($75 per diem (meals and incidentals) x 3 days); other travel expenses at $150 (mileage reimbursed at UMaine's rate of $.46/mile).

Dr. Kerr is the senior University of Maine personnel and partner for this project. Dr. Kerr will direct the project activities and serve as the primary mentor for the graduate student. She will lead the synthesis of research and the write-up of results in reports. The request is for two weeks of summer salary ($6,869) plus the University of Maine fringe benefit rate for regular employees is 49.8% and 8.2% for temporary employees and faculty summer salary ($563). Fringe benefits do not apply to graduate students.

The total direct costs estimated for the subaward are $47,900 and the University of Maine's federally negotiated Fringe and F&A (indirect rates) of 47.7% per agreement dated 9/9/2022 modified total direct costs to a total of $67,463 for the subaward.

Administration Fee

The ME DMR waives indirect on subawards, but recognizing that contracts and subawards incur administration costs, an administration fee of 5% on the subaward is requested for a total of $3,373.15.

Travel

Travel funds are requested for PI Reardon to support travel for meetings with Dr. Kerr and the graduate student in addition to any regional meetings for a total estimated cost of $1000.

The data used in this proposal is provided by other programs at the ME DMR including the Commercial At-Sea Sampling Program and the ME DMR Landings Program. ME DMR is committed to continuing to collect these data and support multiple positions with State funds to do so. PI Reardon will be a direct lead on this project working with University of Maine's Dr. Kerr to collaborate, access and share the datasets, interpret the data, and complete the objectives. **The combination of partial salaries supporting this collaboration and ongoing data collection from PI Reardon and two senior level Landings Program Staff salaries provide Partner in-kind contributions of $72,210 to support this effort**. The ME DMR has an indirect cost rate of 34.3%; however, the Commissioner has authorized this proposal to use the lower rate of 30%. The ME DMR will apply 30% indirect on all granted funds except for subawards and administration fee. The requested total award including the subtotal of ME DMR direct costs ($1000), subaward costs ($67,463), administration fee ($3,373.15) and indirect ($300) is $72,136.15.

Maintenance Projects:
This is a new project, but, if awarded, **we anticipate requesting an additional year of funding to support the identified graduate student as a maintenance project. The current proposal is focused on year one as lobster effort and bycatch time series development and year 2 would be assessment modeling.**

Principal Investigator:
Kathleen Reardon is ME DMR's lead lobster fishery scientist overseeing the lobster monitoring programs and interpretation of the State's landings data. She has more than 20 years of experience working directly with the Maine lobster fishery and is the chair of the ASMFC Lobster Technical

Committee and member of the Lobster Stock Assessment Subcommittee. In addition to providing and interpreting these fishery data, she will work directly with Dr. Lisa Kerr at the University of Maine to co-advise the graduate student working on this project. She will also disseminate the results of this work to these groups as well as industry members at the Maine Fishermen's Forum and other targeted industry events.

Collaborator:
Dr. Lisa Kerr is an Associate Professor at University of Maine and the lead collaborating partner on this project. She is an expert in population dynamics and assessment modeling. She is actively involved in the regional fishery assessment and management process (Chair of Atlantic Cod Research Track Stock Assessment Working Group and Chair of the NEFMC Scientific and Statistical Committee). She will lead the team, coordinate project activities, arrange project team meetings, and track progress of project deliverables. She will supervise a UMaine graduate student researcher focused on modeling cod bycatch and integration into the EGOM stock assessment.

Consulting Partner:
Dr. Yong Chen is a Professor at the School of Marine and Atmospheric Sciences at Stony Brook University. He is actively involved in regional management and assessment processes with ASMFC and NEFSC and other management bodies world-wide. As a co-author on the papers describing the models for lobster effort and cod discard estimation, he will be a consulting partner on this project to update the previous work.

References:

Boenish, R., and Y. Chen. 2018a. Spatiotemporal dynamics of effective fishing effort in the American lobster (*Homarus americanus*) fishery along the coast of Maine, USA. Fisheries Research. 199: 231-241.

Boenish, R and Y. Chen. 2018b. Quasi-Stationary Atlantic Cod Bycatch Estimation in the Maine American Lobster Homarus americanus Trap Fishery. North American Journal of Fisheries Management. 38(1): 3-17.

Boenish, R., and Y. Chen. 2020. Re-evaluating Atlantic cod mortality including lobster bycatch: where could we be today? Canadian Journal of Fisheries and Aquatic Sciences. 77(6): 1049–1058.

Hare, J. A., Morrison, W. E., Nelson, M. W., Stachura, M. M., Teeters, E. J., Griffis, R. B., Alexander, M. A., Scott, J. D., Alade, L. A., Bell, R. J., Chute, A. S., Curti, K. L., Curtis, T. H., Kircheis, D., Kocik, J. F., Lucey, S. M., McCandless, C. T., Milke, L. M., Richardson, D. E., Robillard, E., Walsh, H. J., Williams, S. A., & McManus, M. C. (2016). A vulnerability assessment of fish and invertebrates to climate change on the northeast U.S. continental shelf. PLoS One, 11(2), e0146756. https://doi.org/10.1371/journal.pone.0146756

NEFSC (Northeast Fisheries Science Center). 2021a. 2021 Update Assessment Report: Gulf of Maine Atlantic cod. Available at: https://apps-nefsc.fisheries.noaa.gov/saw/sasi.php

NEFSC (Northeast Fisheries Science Center). 2021b. Management Track Peer Review Panel Report. https://www.nefmc.org/library/december-2021-fall-2021-management-track-stock-assessments-peer-review

McBride, R.S. and Smedbol, R.K., 2022. An interdisciplinary review of Atlantic cod (Gadus morhua) stock structure in the western North Atlantic Ocean. NOAA Technical Memorandum NMFS-NE-273.

Miller, T.J. and Stock, B.C. 2020. The Woods Hole Assessment Model (WHAM). Version 1.0. https://timjmiller.github.io/wham/.

Pershing AJ, Alexander MA, Hernandez CM, Kerr LA, Le Bris A, Mills KE, Nye JA, Record NR, Scannell HA, Scott JD, Sherwood GD, Thomas AC. 2015. Slow adaptation in the face of rapid warming leads to collapse of the Gulf of Maine cod fishery. Science 350:809-812. http://science.sciencemag.org/content/350/6262/809.full

Sweezey, B.B., Capizzano, C.W., Langan, J.A., Benoît, H.P., Hutchins, E.W., Mandelman, J.W., Koh, W.Y., Dean, M.J., Anderson, B.N. and Sulikowski, J.A. 2020. Estimating the discard mortality of Atlantic cod in the southern Gulf of Maine commercial lobster fishery. North American Journal of Fisheries Management, 40(5):1252-1262.

Wood S.N. 2017. Generalized additive models: an introduction with R, 2nd edn. Chapman and Hall/CRC, London

Summary of Proposal for ACCSP Ranking

Applicant Name: Maine Department of Marine Resources (Kathleen Reardon)

Project Title: FY24: Characterizing Atlantic Cod Discards in the Maine Lobster Fishery for use in Cod Stock Assessment

Project Type: New project

Requested Award Amount: $72,136.15

ACCSP Goals and Modules:
1a. Catch, effort, and landings data (0-10 points)
1b. Biological Data (0-10 points)
2. Releases, discards, and protected species data (0-6 points)
This proposal will leverage existing data from ACCSP to provide value added analyses and address RFP Priorities 1a. catch, effort and landings data (30%), 1b. biological data (30%), and 2. bycatch data (40%). This project is not proposing to collect new datasets, but instead use existing data to develop models estimating bycatch that will enhance the utilization of the lobster data for cod assessment. American lobster is in the top 25% of the ACCSP Biological Review Matrix of priorities and bycatch in American lobster traps ranks second in the ACCSP Priority Bycatch Matrix of priorities.

Data Delivery Plan (+2 points):
This proposed project will leverage available data in the ACCSP Data Warehouse to produce a new data product through updating and modifying previously developed models.

Project Quality Factors:

Multipartner/Regional Impact (0-5 points): This project represents a collaboration between Maine DMR and University of Maine with PIs who serve as the Chair of the ASMFC Lobster Technical Committee and Chair of Atlantic Cod Research Track Stock Assessment Working Group and Chair of the NEFMC Scientific and Statistical Committee, respectively. The anticipated outputs of this project would provide the recommended updated time series of estimated cod discards from the Maine lobster fishery requested by the NEFMC Atlantic Cod Assessment process.

Contains funding transition plan / Defined end-point (0-4 points): This project aims to support a graduate masters student to be completed as a two year project.

In-kind contribution (0-4 points): The combination of partial salaries supporting this collaboration and ongoing data collection from PI Reardon and two senior level Landings Program Staff salaries provide Partner in-kind contributions of $72,210 to support this effort. The full proposal request is $72,136.15.

Improvement in data quality/quantity/timeliness (0-4 points): This project will develop an operational model of cod discards from the lobster fishery that can be run by ME DMR to integrate new lobster landings and cod bycatch data for future cod assessment processes.

Impact on stock assessment (0-3 points): The objective of this project is directly related to improved Atlantic cod Assessment to account for uncertain mortality, especially in eastern Maine. Due to the large scale of the lobster fishery and the multiple changes in the last decade within the fishery, estimating cod discards from the lobster fishery with outdated models could compound the numbers inappropriately and have impacts to future lobster management.

Other Factors:

Innovative (0-3 points): While this project is an update of previously developed models, the proposal to integrate and leverage recently improved landings data and make this process operational to incorporate into cod assessments directly will be new. This proposal represents a new research initiative and collaboration that will bring together the partners on this project who are in leadership roles in both species assessment processes.

Properly Prepared (-1 - +1): MEDMR followed ACCSP guidelines and pertinent documents when preparing this proposal.

Merit (0-3 points): The updated development of models to estimate cod discards from the Maine lobster fishery is a recognized and recommended need to address increasing concern about the interaction between cod and lobster trap effort. This project will update the models and operationalize them to incorporate future data for future assessments. ACCSP holds the fisheries dependent lobster landings and biological data needed for this project.

KATHLEEN M. REARDON

CONTACT
Maine Department of Marine Resources, P.O. Box 8, 194 McKown Point Rd., West Boothbay
    Harbor, Maine 04575. (207)-350-7440. Kathleen.Reardon@maine.gov

EDUCATION
M.S. Marine Biology, University of Maine, School of Marine Science. Orono, ME. 2006.
M.S. Marine Policy, University of Maine, School of Marine Science. Orono, ME. 2006.
B.A. Biology and Environmental Studies, Williams College. Williamstown, MA. 2000.

EMPLOYMENT
Maine Department of Marine Resources. Lead Lobster Fishery Biologist. March 2015 – current.
Maine Department of Marine Resources. Lobster Monitoring Coordinator. April 2005 – March
    2015.
University of Maine. Graduate Research Assistant. Laboratory of Yong Chen. 2003 – April 2005.
Island Institute. GIS Specialist/Marine Resources Associate. October 2002 – January 2004.
Island Institute Fellowship Program. Islesboro Island Fellow. October 2000 – September 2002.

BOARDS AND COMMITTEES
ASMFC Lobster Technical Committee member, TC Chair, September 2016 – current.
ASMFC Lobster Stock Assessment Subcommittee member, March 2015 – current.
ASMFC Plan Review Team member for Lobster and Jonah crab, September 2015 – current.
ASMFC Jonah Crab Technical Committee member, September 2020 – current.
ASMFC Jonah Crab Stock Assessment Subcommittee member, September 2020 – current.
Lobster Institute Board Member, March 2015 – current.

PUBLICATIONS
2022. Mazur, M.D., Tanaka, K.R., Shank, B., Chang, J., Hodgdon, C.T., Reardon, K.M., Friedland, K.D.,
    & Chen, Y. Incorporating spatial heterogeneity and environmental impacts into stock-
    recruitment relationships for Gulf of Maine lobster. ICES Journal of Marine Science, 79 (2): 362-
    372. https://doi.org/10.1093/icesjms/fsab266
2021. McManus, M.C., Kipp, J., Shank, B., Reardon, K., Pugh, T.L., Carloni, J., & McKown, K. A model-
    based approach to standardizing American lobster (*Homarus americanus*) ventless trap
    abundance indices. Fisheries Research. 238: 105899.
    https://doi.org/10.1016/j.fishres.2021.105899
2021. Waller, J.D., Reardon, K.M., Caron, S.E., Jenner, B.P., Summers, E.L. & Wilson, C.J. A
    comparison of the size at maturity of female American lobsters (*Homarus americanus*) over
    three decades and across coastal areas of the Gulf of Maine using ovarian staging. ICES Journal
    of Marine Science, 78(4): 1267-1277. https://doi.org/10.1093/icesjms/fsab034
2021. Stoll, J.S., Oldach, E.J., Witkin, T., Reardon, K.M., Love, D.C., & Pinto da Silva, P. Rapid
    adaptation to crisis events: Insights from the bait crisis in the Maine lobster fishery. Ambio, 51:
    926-942.
2020. Boenish, R., Willard, D. Kritzer, J.P., & Reardon, K. 2020. Fisheries monitoring: Perspectives
    from the United States. Aquaculture and Fisheries, 5(3):131-138.
    https://doi.org/10.1016/j.aaf.2019.10.002

2019. Li, B., Chen, Y., Reardon, K., & Wilson, C. 2019. A simulation-based evaluation of sea sampling design for American lobster in the Gulf of Maine. Fisheries Research, 216: 145-154.

2019. Waller, J.D., Reardon, K.M., Caron, S.E., Masters, H.M., Summers, E.L. & Wilson, C.J., Decrease in size at maturity of female American lobsters *Homarus americanus* (H. Milne Edwards, 1837) (Decapoda: Astacidea: Nephropidae) over a 50-year period in Maine, USA. Journal of Crustacean Biology, 39(4): 509-515.

2018. Reardon, K., Wilson, C., Gillevet, P., Sikaroodi, M., & Shields J. Increasing prevalence of epizootic shell disease in American lobster from the nearshore Gulf of Maine. Bull Mar Sci., 94(3):903–921. https://doi.org/10.5343/bms.2017.1144

2017. Le Bris, A., Pershing, A.J., Gaudette, J., Pugh, T.L., & Reardon, K. Multi-scale quantification of the effects of temperature on size at maturity in the American lobster (*Homarus americanus*). Fisheries Research, 186: 397-406.

MEETING PRESENTATIONS

Reardon, K., Russell, R., Peters, R., Glon, H., and Waller, J. DMR Lobster Monitoring Programs. Sea Grant American Lobster Initiative Research Summit. Portland, ME. February 2023.

Reardon, K., Russell, R., Peters, R., Davis, M., and Waller, J. Tracking lobster settlement signal through pre recruit monitoring surveys. Regional Association for Research on the Gulf of Maine Annual Meeting. November 2021.

Reardon, K., Wilson, C., and Shank B. Potential impacts on conservation discards in a growing lobster population in the Gulf of Maine. 11th International Workshop on Lobster Biology and Management. Portland, Maine. June 2017.

Reardon, K. and Wilson, C. Characteristics of recent increases of epizootic shell disease in the American Lobster for the inshore Gulf of Maine. 11th International Workshop on Lobster Biology and Management. Portland, Maine. June 2017.

Reardon, K., Wilson, C., Chang, J., and Chen, Y. Impacts of V-notching on the assessment and management of American lobster stock in the Gulf of Maine. The American Lobster in a Changing Ecosystem: A US-Canada Science Symposium. Portland, Maine. November 2012.

Reardon, K. Maine's Commercial Lobster Sea Sampling Program. 6th International Fisheries Observer & Monitoring Conference. Portland, Maine. July 2009.

Reardon, K., Wilson, C., and McCarron, P. Conservation Cornerstone: V-notching in the Maine Lobster Fishery 1985-2006. 8th International Conference & Workshop on Lobster Biology and Management. Charlottetown, PEI, Canada. September 2007.

Lisa A. Kerr

University of Maine, 350 Commercial Street, Portland, ME 04101, lisa.kerr1@umaine.edu

Professional preparation

Tufts University	Biology	B.S., 1997
Moss Landing Marine Laboratories	Marine Science	M.S., 2003
University of Maryland,	Marine Science	Ph.D., 2008
University of Massachusetts Dartmouth	Stock Assessment	Post-doc, 2012

Appointments

Associate Professor, University of Maine School of Marine Science, 2022-present.
Research Scientist, Gulf of Maine Research Institute, 2012-2022.
Adjunct Graduate Faculty, University of Maine, School of Marine Sciences, 2012-present.
Adjunct Graduate Faculty, University of Massachusetts Dartmouth, 2012-present.
Post-doctoral Researcher, University of Massachusetts Dartmouth, 2008-2012.

Publications in last three years

Mazur, M.,…, **Kerr, L.** 2023. Consequences of ignoring climate impacts on New England groundfish stock assessment and management. Fish. Res. DOI:10.1016/j.fishres.2023.106652

Tanaka, K., **Kerr, L.**, Pershing, A. 2023. Implications of Fisheries Allocation Policy on Anticipated Climate Change Impacts. Accepted in Marine Policy. DOI: 10.1016/j.marpol.2022.105402

Kerr, L.A., Barajas,. M., Weidenmann, J. 2022. Coherence and potential drivers of stock assessment uncertainty in Northeast US groundfish stocks. ICES J. Mar. Sci. DOI: 10.1093/icesjms/fsac140

Hansell, A., Becker S, Cadrin, S., Lauretta, M., Walter, J., **Kerr, L.** 2022. Spatio-temporal dynamics of bluefin tuna in US waters of the northwest Atlantic. Fish. Res. 255. DOI: 10.1016/j.fishres.2022.106460

Kerr, L.A, et al. 2020. Mixed stock origin of Atlantic bluefin tuna in the U.S. rod and reel fishery (Gulf of Maine) and implications for fisheries management. Fish. Res. 224. DOI: 10.1016/j.fishres.2019.105461

Morse, M.R., **Kerr, L.A**., et al. 2020. Performance of stock assessments for mixed-population fisheries: the illustrative case of Atlantic bluefin tuna. ICES J. Mar. Sci. DOI: 10.1093/icesjms/fsaa082

Cadrin, S.X., …, **Kerr, L. A.** 2019. "So, where do you come from?" the impact of assumed spatial population structure on estimates of recruitment. Fish. Res. DOI: 10.1016/j.fishres.2018.11.030

Clucas, G., **Kerr, L.A.,** et al. 2019. Adaptive Genetic Variation Underlies Biocomplexity of Atlantic Cod in the Gulf of Maine and on Georges Bank. PLOS ONE. DOI: 10.1371/journal.pone.0216992

Guan, L., …, **Kerr, L.,** Shan, X. 2019. The influence of spatially variable and connected recruitment on complex stock dynamics … Can. J. Fish. Aquat. Sci. DOI: 10.1139/cjfas-2018-0151

Kerr, L.A., et al. 2019. Strengths and limitations of Before-After-Control-Impact analysis for testing the effects of marine protected areas on managed populations. ICES J. Mar. Sci. DOI: 10.1093/icesjms/fsz014

Five Additional Papers

Kerr, L.A., et al. 2017. Modeling the implications of stock mixing and life history uncertainty of Atlantic bluefin tuna. Can. J. Fish. Aquat. Sci. DOI: 10.1139/cjfas-2016-0067

Pershing, A.J., …**Kerr, L.A**., et al. 2015. Slow adaptation in the face of rapid warming leads to the collapse of Atlantic cod in the Gulf of Maine. Science. DOI: 10.1126/science.aac9819

Kerr, L.A., et al. 2014. Consequences of a mismatch between biological and management units of Atlantic cod off New England. ICES J. Mar. Sci. DOI:10.1093/icesjms/fsu113

Kerr, L.A., et al. 2014. Simulation modeling as a tool for synthesis of stock identification information. In: Stock Identification Methods. 2nd Ed. Elsevier. 566 pp.

Kerr, L.A., et al. 2010. Simulation modeling as a tool for examining the consequences of spatial structure and connectivity to local and regional population dynamics. ICES J. Mar. Sci. 67(8): 1631–1639.

Synergistic Activities

1. I am actively involved in regional and international fisheries management issues. I serve as Chair of the Science and Statistical Committee for the New England Fisheries Management Council (2017-present), member of the ICES Stock Identification Working Group (2013-present), and as a U.S. Delegate to the International Commission for the Conservation of Atlantic Tunas (2015-present).

2. I have developed population models and applied simulation techniques to a range of species, including Atlantic bluefin tuna, Atlantic cod, Atlantic herring, white perch, and alewife, to understand how fishery resources respond to climate variability and change, fishing, complex population structure, and alternative management strategies. My work has been presented to national and international fisheries management and scientific advisement organizations (NEFMC, ICAAT and ICES).

3. I am committed to communicating science. I have published more than 50 peer-reviewed journal publications, 45 reports, and 5 book chapters.

4. I have contributed to education and outreach activities. I currently advise three postdoctoral researchers and serve as a committee member for several M.S. and Ph.D. candidates. I mentor undergraduates each year through the GMRI's NSF Research Experience for Undergraduates Program (2013-present). I am also actively involved in outreach to the fishing industry and the general public.

Biosketch/CV for Yong Chen

Contact Information
Address: Dana Hall, School of Marine and Atmospheric Sciences, Stony Brook University, NY
Tel: 631-632-3187; email: yong.chen.2@stonybrook.edu

A. Education

Degree	Year	Major	Institution
Bachelor of Agric.	1983	Fisheries Sciences	Ocean Univ. of China
Master of Science	1991	Zoology (Fish Ecology)	University of Toronto, Canada
Doctor of Philosophy	1995	Zoology (Fish. Pop. Dynam.) **Minor** in Statistics	University of Toronto, Canada

B. Appointments

Sept. 1 2021- Present	Professor	Stony Brook University
Sept. 2007 – Aug. 2021	Professor	University of Maine
Sept. 2003 – Aug. 2007	Associate Professor	University of Maine
July 2000 – Aug. 2003	Assistant Professor	University of Maine
May 2001 – present	Adjunct Professor in Biology	Memorial University
July 1997 – June 2000	Assistant Professor	Memorial University of
	NSERC Associate Chair in Fish. Conserv.	Newfoundland, Canada
May 1996 – July 1997	Senior Population dynamicist	NSW Fisheries, Australia
Jan. 1995 – May 1996	Fisheries Population Dynamicist	NSW Fisheries, Australia

NSW=New South Wales, NSERC =Natural Science and Engineering Research Council of Canada

C. Publications

C.1. Some relevant publications (names with * are my students or postdoc)

Chen, Y. 2017. Fish Resources of the Gulf of Mexico. In book: Habitats and Biota of the Gulf of Mexico: Before the Deepwater Horizon Oil Spill, pp.869-1038. C.H.Ward (ed)

*Cao, J., Y. Chen, *J. Chang, X. Chen. 2014. An evaluation of an inshore bottom trawl survey design for American lobster (*Homarus americanus*) using computer simulations. Journal of North Atlantic Fisheries Science 46: 27–39

*Li, B., *J. Cao, *J. Chang, C. Wilson, **Y. Chen.** 2015. Evaluation of effectiveness of fixed-station sampling for monitoring American Lobster settlement. North American Journal of Fisheries Management 35(5): 942-957

*Boenish, R. and **Y. Chen**. 2018. Spatio-temporal dynamics of effective fishing effort in American lobster (*Homarus americanus*) fishery along the coast of Gulf of Maine. Fisheries Research *199*: 231-241. https://doi.org/10.1016/j.fishres.2017.11.001

*Boenish, R. and **Y. Chen**. 2018. A standardized quasi-stationary approach to estimating Atlantic Cod (*Gadus morhua*) bycatch in the Maine American Lobster (*Homarus americanus*) trap fishery. North American Journal of Fisheries Management *38*(1): 3-17 (***Editor's Choice***)

*Boenish, R. and **Y. Chen**. 2020. Re-evaluating Atlantic cod mortality including lobster bycatch: where could we be today? *Canadian Journal of Fisheries and Aquatic Sciences DOI: 10.1139/cjfas-2019-0313*

*Li, Z., Z. Ye, R. Wan, *K. Tanaka, *R. Boenish, **Y. Chen**. 2018. Density-independent and density-dependent factors affecting spatio-temporal dynamics of Atlantic cod (*Gadus morhua*) distribution in Gulf of Maine. ICES Journal of Marine Sciences *75*(4): 1329-1340.

*Guan, L., Y. Chen, J. Wilson. 2017. Evaluating spatio-temporal variability in the habitat quality of Atlantic cod (*Gadus morhua*) in the Gulf of Maine. Fish. Oceanography 26: 83-96

*Tanaka, K. R., J-H. Chang, Y. Xue, *Z. Li, L. Jacobson, and **Y. Chen**. 2019. Mesoscale climatic impacts on abundance of *Homarus americanus* in the US inshore Gulf of Maine. Canadian Journal of Fisheries and Aquatic Sciences https://doi.org/10.1139/cjfas-2018-0075

Chen, Y., *M. Kanaiwa, and C. Wilson. 2005. Developing a Bayesian stock assessment framework for the American lobster fishery in the Gulf of Maine. New Zealand Journal of Freshwater and Marine Sciences (Special issue on Lobster Biology and Management) 39:645-660

Le Bris, A., K. E. Mills, R. A. Wahle, **Y. Chen**, M. A. Alexander, A. J. Allyn, J. G. Schuetz, J. D. Scott, A. J. Pershing. 2018. Climate vulnerability and resilience in the most valuable North American fishery. Proc. of the National Academy of Sciences 115(8):1831-1836

Mills, K.E., A.J. Pershing, C.J. Brown, **Y. Chen**, F.-S. Chiang, D.S. Holland, S. Lehuta, J.A. Nye, J.C. Sun,A.C. Thomas, and R.A. Wahle. 2013. Fisheries management in a changing climate: Lessons from the 2012 ocean heat wave in the Northwest Atlantic. Oceanography 26(2)

D. Synergistic Activity

(1) PI and Curator, Historical HRBMP Database and Biological Collections gifted to Stony Brook University.

(2) **Editor-in-Chief**, Canadian Journal of Fisheries and Aquatic Sciences (2013 – present);

(3) **Member**, New England Fisheries Management Council Scientific and Statistical Committee (SSC) (2011- present);

(4) **Member**, NOAA Atlantic Scientific Review Group (ASGR) (2020 – present)

(5) **Authored/co-authored over 300+ original research articles** on peer-reviewed journals since 1992, and completed or currently conducting over **95** funded research projects since 1997;

(6) Center for Independent Experts (CIE) reviewer to review NOAA fisheries stock assessment reports;

(7) Reviewed papers for 20+ peer-reviewed journals and grant proposals for NSF, NSERC, NSF of China, Sea Grant programs, and other funding agencies, and reviewed fisheries as an independent reviewer for ASMFC, Maine DMR, Omani Ministry of Fisheries, etc.;

(8) Taught graduate and undergraduate courses in fisheries sciences (SMS 321), fisheries population dynamics (SMS 562), spatial statistics (SMS 598, SMS 599), applied multivariate statistics (SMS 598, SMS599), general statistics (STAT 2500) and quantitative methods in fisheries (MMS 6002 at Memorial University), fisheries stock assessment (MAR 600), and Ecosystem science for fisheries (MAR 386)

(9) Advised 40+ graduate students. Currently advise 5 PhD and 5 MS students, 3 postdoc, 1 fulltime professional staff, and 2 visiting PhD students

E. The PI's Graduate Advisors

MS Advisor: Dr. H. H. Harvey (Univ. of Toronto, Canada),
Ph.D Advisor: Dr. J. E. Paloheimo (Univ. of Toronto, Canada)

F. Collaborators in the last 5 years

Carl Wilson, Kathleen Reardon, Kevin Staples, Mike Kersula and Erin Summers (Maine DMR); Ann Richards, Burton Shank, Dvora Hart, Kevin Friedland, Bai Li, Kisei Tanaka, and Jui-han Chang (NOAA Fisheries); Andy Pershing, Lisa Kerr, Kathy Mills, Mackenzie Mazur (GMRI), Sam Truesdell (MA DMF); Kristin Kleisner, Jake Kritzer and Robert Boenish (EDF); Sarah Chasis and Lisa Suatoni (NRDC); Jocelyn Runnebaum (TNC), Jeff Kipp and Katie Drew (ASMFC); Jie Cao (NCSU); Yuying Zhang (FL International Univ); Mike Torre (NOAA NWFSC); Tang Yi, Tian Siquan, Shu Su and Chen Xinjun (Shanghai Ocean University); Chonglian Zhang and Ren Yiping (Ocean University of China), Abdulaziz Al-Marzouqi (Omani Ministry of Agriculture & Fisheries); Keith Evans, Teresa Johnson, Rick Wahle, Andy Thomas, Christine Beitl, and Dave Townsend (UM), John Maniscalco, Gregg Kenney and Kim McKown (NYSDEC), Mackenzie Muzer and Adam Cook (Canadian DFO)

MARYLAND - VIRGINIA
"Potomac River Compact of 1958"

Potomac River Fisheries Commission
P.O. BOX 9
Colonial Beach, Virginia 22443
TELEPHONE: (804) 224-7148 · FAX: (804) 224-2712
www.prfc.us   contactprfc@gmail.com

June 14, 2023

Atlantic Coastal Cooperative Statistics Program
1050 N. Highland St. Ste. 200 A-N
Arlington, VA 22201

Dear ACCSP:

The Potomac River Fisheries Commission (PRFC) is pleased to submit its proposal for the Fiscal Year 24 ACCSP Request for Proposal, titled "FY24: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries" for your consideration. This new capability would be an advantageous upgrade of PRFC's current GIS capabilities and greatly enhance PRFC's ability to monitor fishing gear deployed in the Potomac River. It would also greatly enhance law enforcement's capabilities in monitoring Potomac River fishing activity for violations.

This proposal is the first step in building on PRFC's capabilities introduced through the Sport & commercial Application Integrated Licensing tool (SAIL); a cloud-based, catch and reporting tool. Thank you for your consideration and please reach out to Marty Gary with any questions.

Sincerely,

Martin L. Gary
Executive Secretary
(804)456-6935
martingary.prfc@gmail.com

Proposal for Funding made to:
Atlantic Coast Cooperative Statistics Program
Operations and Advisory Committees
150N. Highland Street, Suite 200 A-N
Arlington, VA 22204

FY24: Geographic Information System Tracking
Enhancement for Potomac River Fisheries
Commission Commercial Fisheries

Submitted by:
Martin L. Gary
Executive Secretary
Potomac River Fisheries Commission
222 Taylor Street
Colonial Beach, VA 22443
martingary.prfc@gmail.com

Applicant Name:	Potomac River Fisheries Commission
Project Title:	**Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries**
Project Type:	New Project
Principal Investigator:	Martin L. Gary, PRFC Executive Secretary
Project Manager:	Martin L. Gary, PRFC Executive Secretary
Requested Award Amount:	**$76,541.00** for year one.
Requested Award Period:	One year after receipt of funds
Objective:	This is the first-year proposal for adding GIS information for more timely tracking and monitoring of fishing equipment in the Potomac River. This capability would greatly increase the visibility and timeliness of tracking the locations of fishing equipment deployed in the Potomac River.

Need:

Understanding static fishing gear locations is an important part of fisheries management. Today, there are three types of gears (Fyke net, Gill net, and Pound nets) licensed in the Potomac River that require a fixed location and have been hand charted by PRFC staff for the last 50 years. This is currently a manual process by PRFC staff to map the over 900 fixed gear stands each season during the commercial renewal period which is the busiest time of year. In the past three years, PRFC staff has explored GIS mapping solutions to improve this workflow and have found a need to incorporate GIS capabilities into the Sport & commercial Application Integrated Licensing tool (SAIL) currently being developed. Further, incorporating GIS tools into SAIL will allow the commission to better track spatial shifts of various fish populations such as Atlantic Striped Bass, American Shad, Blue crab and others.

Another impact due to the current manual workflow is the delayed delivery of fixed gear charts to law enforcement. Typically, the charts are provided to law enforcement (LE) only at the end of the renewal period (the last business day of January) after all fixed location stands have been charted, and staff gets physical copies of the charts made. PRFC's Gill Net fishery is currently capped at 733 stands/licenses and the season runs from November 7th to March 25th of the following year; therefore, LE does not have access to an accurate chart of the river for the majority of the Gill Net season. GIS imbedded within the SAIL application could allow a web map to be populated in real time – providing LE a tool to ensure that watermen are properly licensed and deployed; as well as identifying which stands are not in compliance or illegally placed.

Potomac River Fisheries Commission (PRFC)   1
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Results and Benefits:
Implementation of an easily updateable fixed gear GIS module would greatly increase PRFC's ability to gather timely, accurate data of fishing gear deployment outside of trip reporting. It would provide watermen with a way of visualizing the location of their equipment, tied to their license and records. Additionally, watermen would be able to see where others are locating their gear so they could target different areas without the constraints of physically coming into the office to view the charts. It would also provide PRFC with a more automated and streamlined workflow and method of actively monitoring the Potomac River and law enforcement with a way to efficiently monitor compliance.

Data Delivery Plan: All data would be delivered to ACCSP via the electronic interface implemented in SAIL and would supplement the catch data already being reported.

Biological Sampling Priority
PRFC's managed fisheries include five of the species identified in the FY24 Biological Sampling Priority Matrix, these include: #1 ranked Black Sea Bass, #6 ranked Atlantic Menhaden, #7 ranked Cobia, #9 ranked Spanish Mackerel, and #22 ranked American eel.

For species such as Atlantic Menhaden, Cobia, and Spanish mackerel, they are managed under a coastwide quota with state-by-state allocations. When a percentage of the total quota is reported, possible coastwide closures would be initiated to avoid overages. Menhaden is one of PRFC's biggest fisheries, last year PRFC reported over 3.5 million pounds landed. PRFC fixed stand gears (Gill net, pound net, and fyke net) are focused on the striped bass fishery; however, American shad has a by-catch provision which allows two bushels per licensee-day for both Pound net and Gill net gears. PRFC's ability to improve spatial data quality on locations for where these species are being harvested may inform shifts in spawning range or timing. Spanish Mackerel is also typically caught in Pound nets when they enter into the Potomac River in mid-summer.

Metadata: Below is a list of metadata that PRFC will be capturing via SAIL and providing to ACCSP as part of this project.

Meta Data Field	Definition
Gear Code	Code for gear used during trip
Gear Name	Name for gear used during trip
Gear Quantity	Quantity of gear used during trip
Gear Sets	Sets of gear used during trip
Depth	Depth of gear used during trip
Latitude	Latitude of gear used during trip
Longitude	Longitude of gear used during trip

Approach:
PRFC's approach to implementing a GIS module capability and ACCSP interface is broken in to seven (7) tasks. It leverages an agile development approach to streamline the gathering and refinement of requirements, along with delivery of multiple Minimum Viable Products (MVP).

Potomac River Fisheries Commission (PRFC)   2
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Each MVP will be deployed when usable capability and functionality is thoroughly tested and deployed. During Year 1, PRFC will be actively developing for the following items:

1. **T1: Finalize requirements for GIS implementation and interfaces**

    PRFC will actively work internally, with watermen, and with law enforcement to review current requirements for GIS implementation. These requirements will be refined in to actionable user stories with a detailed definition of done. This will generate a backlog of changes and development items in a priority list to guide the lifecycle of development.

2. **T2: Develop public and private user interfaces**

    It is important to have both a publicly available map with limited information on the gear/waterman/location that each waterman can reference and view updates as needed. Additionally, a more comprehensive private interface that law enforcement and PRFC staff can view and update will be necessary to accurately track usage, manage the fisheries, and enforce compliance.

3. **T3: Implement GIS database improvements**

    Development of new database structures to support the reporting, historical tracking, and current deployment of fishing equipment associated to GIS location data.

4. **T4: SAIL Software modifications**

    Update SAIL to support the new data structures, provide administrative interfaces, and enhance security architecture to support publicly exposure of limited data without compromising security of non-public data.

5. **T5: Maintain Oracle Cloud Database**

    Procure required new OCI infrastructure and services, update existing infrastructure and architecture, and develop comprehensive security testing and enforcement.

6. **T6: Deploy to PRFC, LE, and watermen**

    Provide an active deployment plan and use change management principles to release the updated interfaces to both PRFC, Law Enforcement, and watermen.

7. **T7: Training & User Guides**

Potomac River Fisheries Commission (PRFC)   3
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Develop both in-person and virtual training classes that waterman can attend to understand the new capability. Develop and make available user guides.

Geographic Location: Jurisdictional waters of the Potomac River Fisheries Commission. From the Woodrow Wilson Bridge (District of Columbia Demarcation) downriver to the confluence of the Chesapeake Bay. Approximately 100 nautical miles.

ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission
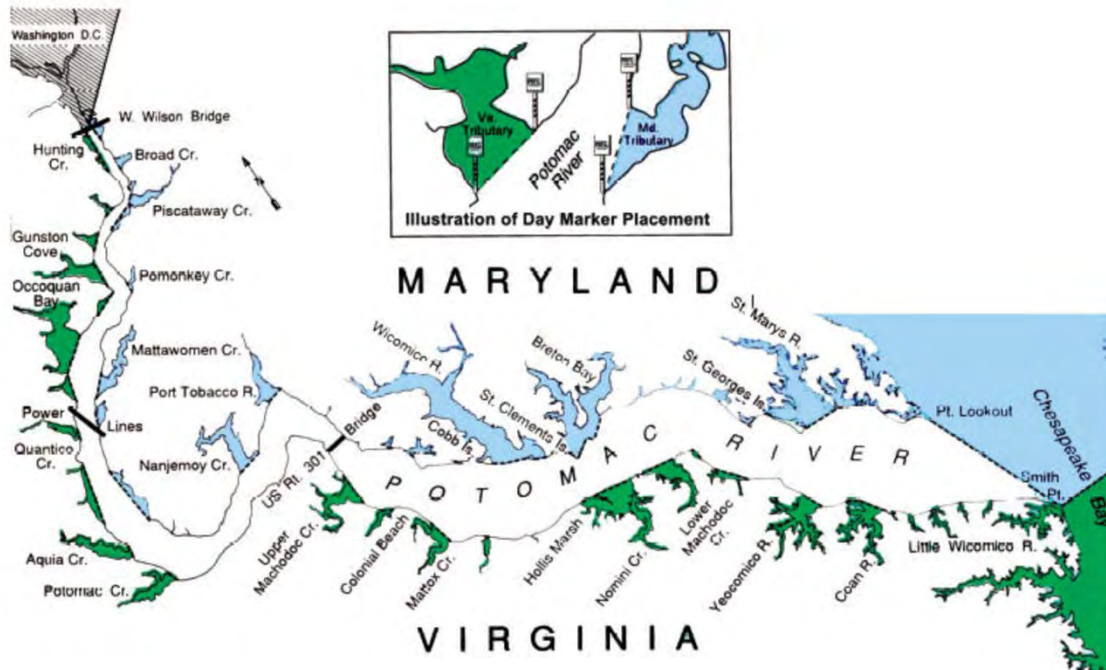
Milestone Schedule:

Task # / Month	Project Period Month											
	1	2	3	4	5	6	7	8	9	10	11	12
T1: Finalize requirements for GIS implementation and interfaces	X	X	X	X	X	X	X	X	X	X	X	X
T2: Develop public and private user interfaces	X	X	X	X	X	X	X	X	X	X	X	X
T3: Implement GIS database improvements	X	X	X	X	X	X	X	X	X	X	X	X
T4: SAIL Software modifications	X	X	X	X	X	X	X	X	X	X	X	X
T5: Maintain Oracle Cloud Database	X	X	X	X	X	X	X	X	X	X	X	X
T6: Deploy to PRFC, LE, and watermen	X	X	X	X	X	X	X	X	X	X	X	X
T7: Training & User Guides	X	X	X	X	X	X	X	X	X	X	X	X

Project Accomplishments Measurement:
The results of this project will provide the basis to improve the accuracy and timeliness of catch and effort estimations, and could subsequently inform science, stock assessments, and management policies.

PRFC will monitor progress and accomplishment using the following goals and measurements.

Task	Goal	Measurement
T1: Finalize requirements for GIS implementation and interfaces	Build a complete requirements traceability matrix, associated with user stories. Identify MVP milestones.	RTM generation, prioritized and refined backlog of development stories.
T2: Develop public and private user interfaces	Design and implementation of both public and private user interfaces.	User interfaces designs available and user

ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
<mark>**Highlighted text indicates changes from the first submission**</mark>

		interfaces delivered and available for use.
T3: Implement GIS database improvements	All data structures defined and created in the SAIL database.	Verification that data structures are implemented in SAIL for tracking GIS information.
T4: SAIL Software modifications	All administrative interfaces for reviewing, updating, correcting, and reporting on GIS information are available.	PRFC staff can access interfaces and report on GIS information.
T5: Maintain Oracle Cloud Database	100% of cloud-based services procured and available.	Verification by PRFC staff that cloud services are invoiced and available.
T6: Deploy to PRFC and watermen	Watermen and PRFC have access to all GIS module requirements and functionality.	Verified access to new capabilities in the SAIL tool.
T7: Training & User Guides	100% of training presentations and user guides available.	Training held for watermen and PRFC staff. User guides printed and made available.

Project Funding Justification for Continuance / Transition Plan:

PRFC has used a comprehensive analysis of personnel, level of effort, and requirements to generate a detailed budget proposal that is reasonable and actionable. This budget will be strictly followed and allow PRFC to achieve the goals laid forth in this proposal. Once development is complete and the capability is delivered, PRFC will leverage existing IT maintenance budgets to provide support and ongoing maintenance to the GIS module capability.

Potomac River Fisheries Commission (PRFC)   6
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

BUDGET FOR PROPOSAL PLANNING – FY2024

Description	Calculation	ACCSP Cost	PRFC Cost	Total Cost
Personnel (a)				
Principle Investigator	60 ACCSP / 100 PRFC hours @ $60.42/hr	$3,625.00	$6,042.00	$9,667.00
Chief Scientist & Admin. Officer	200 ACCSP / 640 PRFC hours @ $28.61/hr	$5,722.00	$18,310.00	$24,032.00
Personnel Subtotal		**$9,347.00**	**$24,352.00**	**$33,699.00**
Fringe (b)				
Principle Investigator	16% of salary	$576.00	$19,398.00	$19,974.00
Chief Scientist & Admin. Officer	30% of salary	$1,742.00	$16,373.00	$18,115.00
Fringe Subtotal		**$2,318.00**	**$35,771.00**	**$38,089.00**
Travel (c)				
n/a				
Travel Subtotal		**$0.00**	**$0.00**	**$0.00**
Equipment (d)				
a. Compute VM AMD Standard Flex 1 instance, 744 hrs/month, 24 hours/day 2 OCPU 16 GB Memory 100 GB Storage	$59.31/month x 12 months	$712.00	$0.00	$712.00
b. Block Storage 1 TB Balanced Performance 10 VPU 25000 Max IOPS 480 MBps Max Throughput	$42.50/month x 12 months	$510.00	$0.00	$510.00
Equipment Subtotal		**$1,222.00**	**$0.00**	**$1,222.00**
Supplies (e)				
n/a				
Supplies Subtotal		**$0.00**	**$0.00**	**$0.00**

ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Contractual (f)				
Vendor/Developer	500 ACCSP / 200 PRFC Hours @ $127.31/hr	$63,654.00	$25,461.60	$89,115.60
Contractual Subtotal		$63,654.00	$25,461.60	$89,115.60
Other (h)				
n/a				
Other Subtotal		$0.00	$0.00	$0.00
Totals				
Total Direct Charges (i)		$76,541.00	$85,584.60	$162,125.60
Indirect Charges (j)	n/a	$0.00	$0.00	$0.00
Total (sum of Direct and Indirect)		$76,541.00	$85,585.00	$162,126.00
Percentage		47%	53%	100%

Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

BUDGET NARATIVE
(Funding Period, FY24)

Project: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries

Project Period: 1 March 2024 – 28 February 2025

1 Year Funding: $76,541.00

Prepared By: Martin L. Gary, PRFC Executive Secretary

Personnel (Salaries) $9,347.00: Two PRFC employees' salary time will be partially covered using these funds in support of the GIS project. These employees are Principle Investigator, for 60 hours ($3,625.00); and Chief Scientist & Admin. Officer, for 200 hours ($5,722.00).

In-Kind $24,352.00: The PRFC employees proposed in this effort spend considerable time today manually processing the GIS information and will continue to provide that support as this project progresses. For each employee, their salary + Fringe costs not covered by the ACCSP grant is considered In-Kind by the PRFC. For this proposal Principle Investigator (100 hours, $6,042.00 + $19,398.00 Fringe), and Chief Scientist & Admin. Officer (640 hours, $18,310.00 + $16,373.00 Fringe) sum up to $24,352.00 or 53% of total expense for Year 1.

Fringe Benefits $2,318.00: The current PRFC fringe benefit cost is set per employee at: Principle Investigator at 16% of Salary ($576.00), and Chief Scientist & Admin. Officer at 30% of salary ($1,742.00). Both employees fall within the fringe guidelines set forth by NOAA, however, a full breakdown of how the Fringe Benefits are calculated below (PRFC does not have a NICRA established).

Fringe Benefits Details		Principle Investigator	Chief Scientist & Admin. Officer
Gross	Annually	$125,664.00	$59,516.00
	Hourly	$60.42	$28.61
Fringe	Health	$17,090.00	$8,717.00
	Retirement	$1,684.00	$8,094.00
	Life		$798.00
	Disability	$600.00	$506.00
	Def Comp	$600.00	
	Total	**$19,974.00**	**$18,115.00**
	Per Hour	$9.60	$8.71
	Rate	16%	30%
ACCSP Project Hours			
FY 2024 Hours / Year:		2080	

	ACCSP Hours	60	200
	Fringe Cost	$576.17	$1,741.83
	ACCSP Cost	$3,624.92	$5,722.69
	PRFC Hours	100	640
	PRFC Fringe	$19,397.83	$16,373.17
	PRFC Cost	$6,041.54	$18,312.62

Travel $0.00: N/A

Equipment $1,222.00: Oracle Cloud Infrastructure (OCI) resources are procured to host the PRFC interface between ACCSP and PRFC's SAIL application on a monthly basis and serves as the main data repository and analytics platform. PRFC plans to leverage its existing Oracle Autonomous Database, with APEX, to host the SAIL application GIS module and provide the primary data interface between PRFC and ACCSP catch and report information. Additionally, a cloud Compute Virtual Machine, and additional block storage will be required to host the GIS specific application business logic, interface connection management, and user interface. All cloud services will be procured in full for the year in order to lock in cloud discounts for reserved usage.

Supplies $0.00: N/A

Contractual $63,654.00:

Talent & Technical Solutions Corporation (TTSC): $63,654.00
Developing the new PRFC SAIL GIS module, procuring cloud services and infrastructure, and assisting with the PRFC-ACCSP integration will be handled by TTSC. PRFC has contracted with TTSC at a rate of $127.31 an hour and expects the work to support T1, T2, T3, T4, T6, and T7 to take 12 months of part-time work and an estimated 500 hours.

Other $0.00: N/A

Potomac River Fisheries Commission (PRFC)   10
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Summary of Proposal for Ranking

Project Details
Proposal Type: <mark>New</mark>

Primary Program Priority:

    Catch and Effort (10 points / 100%): Implementing the GIS module in SAIL will allow PRFC to better manage catch and fisheries stock while improving reporting accuracy and timeliness to ACCSP.

    Metadata (2 points): All metadata collected and supplied has been defined in this proposal.

Project Quality Factors
Multi-Partner/Regional impact including broad applications (5 points): PRFC's implementation of GIS will enable all regional partners to have more accurate, timely data of management of static fishing gear. This will also be a good template for other organizations to implement.

Contains funding transition plan (4 points): A detailed justification and funding transition plan is laid out in the proposal.

In-kind contributions (3 points): PRFC has provided a breakdown of the in-kind contributions made in support of this program and show that PRFC is providing **53% In-kind contributions**. The contributions are significant and cover all the time for two personnel that manage and oversee the current manual GIS process.

Improvement in data quality/quantity/timeliness (4 points): Transition to the new GIS module in the SAIL application will greatly increase the timeliness of reporting. This will reduce manual entry and ensure much high-quality data is available for review by PRFC and other members.

Potential secondary module as a by-product (4 points): This GIS project will improve law enforcement and fishery management activities in addition to improving quality, level of detail, and timeliness of location reporting.

Impact on stock assessment (3 points): Regional management organizations that perform stock assessments will have better data to operate from as a direct result of this proposal and continued funding for PRFC's efforts.

Other Factors
Properly Prepared (1 point): PRFC followed all applicable ACCSP and RFP guidelines in preparing this document along with feedback gleaned from previous years proposal.

<mark>**Innovative (3 Points):** GIS is a critical advanced methodology for improved accuracy of fisheries management and location tracking.</mark>

<mark>**Merit (3 Points):** PRFC's managed fisheries include five of the species identified in the FY24 Biological Sampling Priority Matrix, these include: #1 ranked Black Sea Bass, #6 ranked Atlantic Menhaden, #7 ranked Cobia, #9 ranked Spanish Mackerel, and #22 ranked American eel.</mark>

Potomac River Fisheries Commission (PRFC)   11
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
<mark>**Highlighted text indicates changes from the first submission**</mark>

APPENDIX A: Resumes for all personnel proposed on the project.

Martin L. Gary

Education

Texas A&M University: B.S. Wildlife & Fisheries Sciences May 1986
Specialization: Fisheries Ecology

Experience
Potomac River Fisheries Commission: July 2013 to Present
Executive Secretary
- Currently:
  - Co-Chair, NOAA Chesapeake Bay Program Sustainable Fisheries Goal Implementation Team
  - Chairman, Atlantic States Marine Fisheries Commission's Atlantic Striped Bass Board
  - President Elect, Tidewater Chapter of the American Fisheries Society
  - Member, Chesapeake Bay Program Invasive Catfish Work Group
  - Member, Maryland Sea Grant External Advisory Board 2016-Present
- Previously:
  - Co-Chair, Atlantic States Marine Fisheries Commission's Striped Bass Work Group (2020)
  - Chairman, Atlantic States Marine Fisheries Commission's American Eel Board (2017-2019)
    Member, Interstate Commission for the Potomac River Basin (ICPRB) Blue Ribbon Panel for Comprehensive Watershed Planning (2017-2019)

Maryland Department of Natural Resources, Fisheries Service: (July 1985 through June 2013)
- Fisheries Service - Assistant Director (2006-2013)
- Fisheries Service – Program Manager for Recreational & Commercial Fisheries and Outreach (1996-2006)
- Fisheries Service – Program Manager for Recreational Fisheries and Commercial Striped Bass Fisheries (1995-1996)
- Fisheries Service – Legislative Officer (1994-1995)
- Fisheries Service – Striped Bass Stock Assessment Biologist (1990-1994)

Potomac River Fisheries Commission (PRFC)   12
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
<mark>Highlighted text indicates changes from the first submission</mark>

- Fisheries Service – Program Manager for Artificial Reefs & Habitat Enhancement (1988- 1990
- Fisheries Service: Estuarine Finfish Biologist (1986-1988)

Affiliations
American Fisheries Society Member American
Fisheries Society Southern Division
American Fisheries Society Tidewater Chapter (President Elect) American
Fisheries Society Estuaries Section
American Fisheries Society Invasive & Introduced Species Section American
Fisheries Society Fish Habitat Section
American Fisheries Society Fish Health Section American
Fisheries Society Fish History Section American Fisheries
Society Fish Management Section
American Fisheries Society Fisheries Information & Technology Section
American Fisheries Society Virginia Chapter Member
American Fisheries Society Mid Atlantic Chapter Member
American Fisheries Society Potomac Chapter
American Fisheries Society Marine Fisheries Section American
Fisheries Society Science Communication Section American
Fisheries Society Socioeconomics Section American Fisheries
Society Water Quality Section American Society of Ichthyologists
& Herpetologists
The Interstate Shellfish Sanitation Conference (ISSC)
National Association of Underwater Instructors (NAUI Scuba certifications for: Advanced Open Water, Ice, Night, Cave, Nitrox)

Potomac River Fisheries Commission (PRFC)   1
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Ingrid Braun

5184 Colebrook Dr. La Plata, MD 20646 | 301-742-9997 | ingridbraun98@gmail.com

Core Competencies & Areas of Expertise

- Highly organized and skilled time manager
- Flexible and creative in meeting tight deadlines while juggling multiple projects
- Understanding the big picture (strategic) without losing sight of the details (operational)
- Working productively both independently and collaboratively as part of team

Work Experience

CHIEF FISHERIES SCIENCE & ADMINISTRATIVE OFFICER | PRFC |JULY 2022 – PRESENT

- Lead science and technology staffer, functioning as biological and technical liaison for Potomac River Fisheries Commission to the Atlantic State Marine Fisheries Commission, EPA-NOAA Chesapeake Bay Program, Chesapeake Bay Stock Assessment Committee, and other science-based groups
- Administrative oversight for PRFC's three advisory committees and PRFC's oyster programs, including logistical and financial oversight
- Oversees fixed gear fishery charting, electronic reporting, and material logistics coordination for PRFC's limited entry striped bass and crab fisheries
- Fiscal responsibilities include assistance with budget preparation and review, front desk financial transactions, posting daily financial transactions, and daily bank deposits

GIS TECHNICIAN | IIC TECHNOLOGIES INC. | MARCH 2021 – MAY 2022

- Compiled and maintained NOAA Nautical Charts for the entire US marine territory, mainly charting depths, soundings, and other various map features as needed
- Packaged, advised and reviewed large scale mapping projects compiled by off site team
- Bridged communication between off site team(India) and National Ocean Service Marine Charting Division to complete tasks within tight deadlines

GIS/OUTREACH TECHNICIAN | PRFC | FEBRUARY 2020 – MAY 2022

- Created and maintained online maps for Fixed Fin Fish gear, PRFC Jurisdiction, and Oyster Bars in the Potomac River to integrate public with online map applications such as ArcGIS
- Delineated potential oyster planting locations for 2021 and 2022 plantings
  - Created a plan for mobile app development that is integrated with current online maps to streamline efficiency

NATURAL RESOURCE TECHNICIAN I | MD DNR | APRIL 2020 – FEBRUARY 2021

- Assisted in the reproduction of native wild oysters(diploid and triploid) for commercial industry and restorative efforts
- Maintained water chemistry in larval tanks by use of YSI observing pH, temperature, and salinity
- Outside maintenance of property and assorted tasks as needed

Potomac River Fisheries Commission (PRFC)   2
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

GIS INTERN | CITY OF CUMBERLAND DEPT. OF ENGINEERING | MAY 2019 – AUGUST 2019
- Collected survey points using Survey123 and Trimble GPS for Parks and Recreation Department to assess the condition of existing park equipment and produce maps for further use
- Maintained and updated large data sets on varying city municipalities such as street signs, hydrants, and water line maintenance
- Partnered with city engineers to integrate GIS into infrastructure to assess efficiency and develop WorkForce to better record data in field

INTERN | PRFC | MAY 2018 – JANUARY 2019
- Reviewed and assessed current PRFC regulations for two invasive species: Northern snakehead & Blue catfish, recommended regulatory and policy changes. Represented PRFC at First Annual Northern Snakehead Symposium
- Assessed the status of PRFC jurisdictional boundary markers on the Potomac River on the MD & VA shorelines
- Inputted catch reports for Blue Crab Harvest and recreational pleasure boat licenses

CLERK | AQUALAND CAMPGROUND & MARINA | APRIL 2017 – AUGUST 2021
- Set up new software system and trained employees on new procedures while maintaining inventory of campground and marina RVs and boats
- Effectively performed day-to-day front-end operations of a busy store front; taking reservations, collecting payment for recurring charges, providing fuel(gasoline, diesel, propane) and renting Carolina skiffs to a variety of customers
- Sold PRFC Recreational Individual and Pleasure Boat licenses

Education
BACHELOR OF SCIENCE | FROSTBURG STATE UNIVERSITY | (Graduation Dec. 18th, 2019)
- Major: Fisheries; Minors: Sustainability, Geography, and Biology. Cumulative GPA: 3.65, Dean's List (2016-2019)
- Related coursework: Ichthyology, Fish Management, Environmental Chemical Analysis, Surface Water Hydrology, Scientific Writing, Management & Conservation of Natural Resources, Principles of Geographical Information Systems, Fundamentals of Cartography, Fundamentals of Geographic Databases
- Involvement: President(2019) & Treasurer(2018), The Wildlife Society

TECHNICAL SKILLS & HOBBIES: Proficient with Microsoft Suite (word, excel, outlook, PowerPoint, access); efficient with ESRI ArcGIS software. Completed DNR Boaters Education Certification, CPR and First Aid, and MD Hunting/Firearm Safety Certification. Nationally ranked USAPL powerlifter, and wildlife/portrait photographer. Member of American Fisheries Society.

Potomac River Fisheries Commission (PRFC)   3
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

J. BLAIR PARSONS III,
PMP, CISSP, ITIL4

Chief Information Officer (CIO)

PROFILE

Blair Parsons is a partner and CIO of Talent & Technical Solutions Corporation (TTSC). He has been an IT industry leader for the last 16 years where he has served in various senior leadership roles, including: Activity Command Information Officer (ACIO), Senior IT Program Manager (PM), Senior Software Engineer PM, and Senior Information Systems Engineer. Blair is laser focused on continuous process improvement through advanced use of IT systems both on-prem and in the cloud to provide accountability, performance monitoring, process metrics, and advanced reporting. His accomplishments include the design and implementation of a dynamic, workflow based, custom action tracking system at NAVSEA; a custom, Talent Management application across the US Navy; and numerous successful cloud native system migrations and refactoring projects.

CONTACT

PHONE: 540.903.3537

EMAIL: blair@tts-c.com

WEBSITE: www.tts-c.com

PROFESSIONAL HIGHLIGHTS

TTSC – Chief Information Officer (CIO)
Oct 2019 – Current

♦ Design and execute the corporate IT solutions business strategy to include identification of solutions and services being offered, targeting of customer markets and outreach to potential clients, development of technology roadmaps and trends assessments, and establishment of partner programs for rapid execution and value maximization.

♦ Lead all IT related efforts, including the implementation and deployment of MS365, design and development of the TTSC Assessment Model (OAM), design and development of the tts-c.com corporate home page, and design and development of the PowerBI OAM Dashboard.

Falconwood, Inc – Senior Cloud Engineer (DevSecOps)
Sep 2019 – April 2020

CACI – Senior IT Program Manager (PM) / ACIO
Oct 2017 – Sep 2019

CACI – Developer, Group Lead, Project Manager
July 2004 – Sep 2017

EDUCATION

MASTER OF BUSINESS ADMINISTRATION (2010)
University of Mary Washington ▪ Fredericksburg, VA

MASTER OF MANAGEMENT OF INFORMATION SYSTEMS (2010)
University of Mary Washington ▪ Fredericksburg, VA

BACHELOR OF SCIENCE IN COMPUTER SCIENCE (2004)
University of Mary Washington ▪ Fredericksburg, VA

CERTIFICATIONS

PROJECT MANAGEMENT PROFESSIONAL (PMP) (2016)
Project Management Institute (PMI) ▪ ACTIVE

CERTIFIED INFORMATION SYSTEMS SECURITY PROFESSIONAL (CISSP) (2016)
International Information System Security Certification Consortium (ISC)² ▪ ACTIVE

ITIL 4 FOUNDATION (2020)
ITIL ▪ ACTIVE

Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Ranking Guide - New Projects:

Program Priority	Point Range	Description of ranking consideration
Catch and Effort	0-10	Rank based on range within module and level of sampling defined under Program design. When considering biological or bycatch funding rank according to priority matrices.
Biological Sampling	0-8	
Bycatch/Species Interactions	0-6	
Social and Economic	0-4	
Metadata	+2	Additional points if metadata collected and supplied to Program defined within the proposal.

Project Quality Factors	Point Range	Description of ranking consideration
Multi-Partner/Regional impact including broad applications.	0-5	Rank based on the number of Partners involved in project or regional scope of proposal (e.g. fisheries sampled).
Contains funding transition plan / Defined end-point	0-4	Rank based on quality of funding transition plan or defined end point.
In-kind contribution	0-4	1=1%-25% 2=26%-50% 3=51%-75% 4=76%-99%
Improvement in data quality/quantity/timeliness	0-4	1=Maintain minimum level of needed data collections. ↓ 4=Improvements in data collection reflecting 100% of related module as defined within the Program design.
Potential secondary module as a by-product (In program priority order)	0-4, 0-3, 0-2, 0-1	Rank based on single additional module data collection and level of collection as defined within the Program design of individual module.
Innovative	0-5	Rank based on new technology, methodology, financial savings, etc.
Impact on stock assessment	0-3	Rank based on the level of data collection that leads to new or greatly improved stock assessments.

Other Factors	Point Range	Description of ranking consideration
Innovative	0-3	Rank based on new technology, methodology, financial savings, etc.
Properly Prepared	0-5	Meets requirements as specified in funding decision document Step2b and Guidelines
Merit	0-3	Ranked based on subjective worthiness

Potomac River Fisheries Commission (PRFC)   5
ACCSP Funding Proposal: Geographic Information System Tracking Enhancement for Potomac River Fisheries Commission Commercial Fisheries
Bold Comments indicate sections that help with the ranking process
Highlighted text indicates changes from the first submission

Geoff White, Director
Atlantic Coastal Cooperative Statistics Program
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22204

August 18, 2023

Dear Mr. White,

The Mid-Atlantic Fisheries Management Council is pleased to submit the proposal titled "*Improving Catch and Effort Data Collection from Recreational Tilefish Anglers*" for your review. We believe this proposal is an important first step toward improved recreational angler reporting of tilefish catch and efforts.

Please address questions to Hannah Hart of the Mid-Atlantic Fisheries Management Council.

Sincerely,

Hannah Hart

Mid-Atlantic Fisheries Management Council
800 N. State Street, Suite 201,
Dover, DE 19901
hhart@mafmc.org

Phone (302) 526-5263

Enclosures:
ACCSP Proposal: "Improving Catch and Effort Data Collection from Recreational Tilefish Anglers"
Appendix A: Principal Investigators' Curricula Vitae

Proposal for Funding made to:
Coordinating Council and the Operations Committee
Atlantic Coastal Cooperative Statistics Program
1050 N. Highland St., Ste. 200 A-N
Arlington, VA 22201

FY24: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers

Submitted By:
Hannah Hart
Mid-Atlantic Fisheries Management Council
800 N. State Street, Suite 201,
Dover, DE 19901
hhart@mafmc.org
Phone: (302) 526-5263

José L. Montañez
Mid-Atlantic Fisheries Management Council
800 N. State Street, Suite 201,
Dover, DE 19901
jmontanez@mafmc.org
Phone: (302) 526-5258

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   2
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

Proposal for FY2024 ACCSP Funding

Applicant Name: Mid-Atlantic Fisheries Management Council

Project Title: **Improving Catch and Effort Data Collection from Recreational Tilefish Anglers**

Project Type: New Project

Requested Award Amount: **$109,589**

ACCSP Program Priorities: Recreational Catch and Effort Module
.

Principal Investigators: Hannah Hart
José L. Montañez

Requested Award Period: One year upon receipt of funds

Submission Date: August 18, 2023

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   3
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

Objectives:

This proposal aims to involve private anglers in the recreational fishing community who hold tilefish permits and are required to report their tilefish catch using a mobile application. The goal is to engage them through different outreach initiatives, which will be described in detail later in the proposal, to raise awareness about the tilefish reporting regulations and promote the use of the app. Our objective is to enhance and optimize our tilefish application, eFin Logbook, to encourage its usage and enable convenient reporting of mandatory species interactions.

Specific objectives include:
- Improve compliance with recreational tilefish mandatory reporting.
- Conduct outreach activities to the recreational fishing community.
- Include features such as Weather, Buoy and Tide data, and nautical mapping.
- Improve the collection and analysis of analytic metadata within eFin such as number and locations of trips, ports landed, number of catches submitted, usage of specific app features, errors encountered during upload, etc.

Background/Need

The MAFMC is responsible for developing and implementing fishery management plans (FMPs) that promote the conservation and sustainable use of fishery resources in the Mid-Atlantic region. The Council's management decisions are based on the best available scientific information and are designed to prevent overfishing while achieving optimum yield from each fishery. Tilefish is managed by the Mid-Atlantic Fishery Management Council (MAFMC) from Maine through the Virginia/North Carolina border. For most fisheries, recreational catch and effort are estimated by National Oceanic Atmospheric Administration's (NOAA) Marine Recreational Information Program (MRIP) using a suite of surveys to collect data from anglers. **However, because tilefish are caught far offshore and relatively few anglers participate in the fishery, MRIP estimates may not accurately capture recreational catch and effort. To address these concerns, in August 2020, mandatory permitting and reporting requirements for private recreational vessels fishing for blueline or golden tilefish were implemented.** <mark>**Although for-hire and commercial fishermen have been reporting their harvest for many years, mandating private recreational anglers to report tilefish trips electronically was a first for the east coast.**</mark> **Under these regulations, private recreational vessels must obtain a federal private recreational tilefish vessel permit to target or retain golden or blueline tilefish. These vessel operators are also required to submit vessel trip reports electronically within 24 hours of returning to port for trips where tilefish were targeted or retained. These requirements are intended to improve our understanding of recreational tilefish catch and effort.**

In August 2020, the MAFMC and Harbor Light Software Inc., engaged with a community of recreational anglers who actively participated in tilefish fishing and harvesting as part of their seasonal endeavors. The group consisted of six anglers who generously shared their insights on mandatory reporting and provided valuable suggestions for developing a dedicated reporting application tailored to the needs of recreational anglers.

The group provided feedback requesting an intuitively designed application specifically catering to the needs of recreational anglers. They emphasized the importance of integrating various tools that are currently accessed through separate apps, such as weather updates, mapping functionalities, and buoy data. The aim was to create a single, user-friendly application that consolidates these features in addition to mandatory reporting.

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   4
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

eFin mobile application
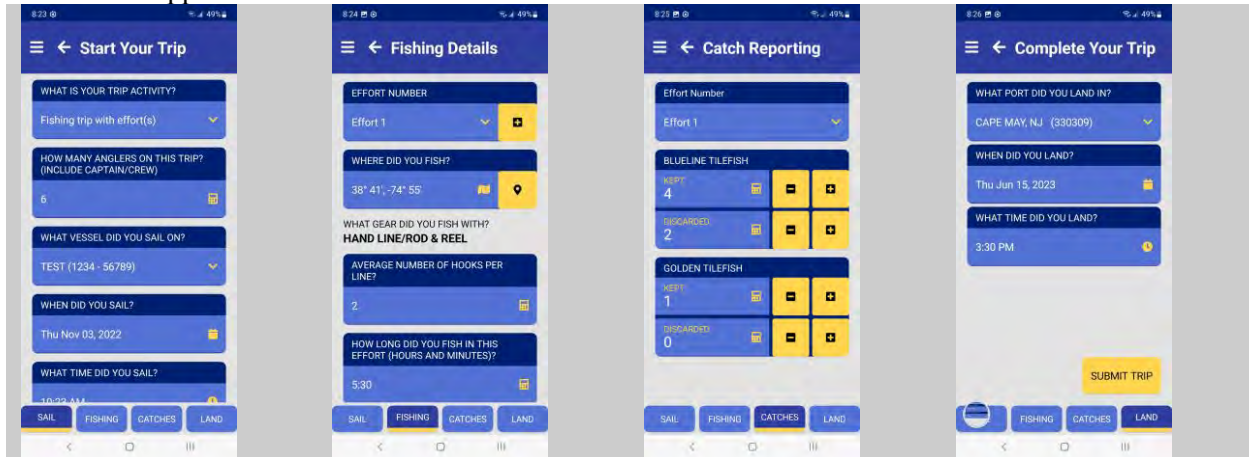
Since the mandatory permitting and reporting requirements were implemented, angler reporting rate has been very low. Collectively from 2020 through 2022 about 1,994 permits have been issued, but only 75 trips have been reported (about 1,483 blueline and golden tilefish). This mismatch between the number of permits issued and the number of reported trips highlights the need for outreach to improve the overall awareness of and compliance with the tilefish permitting and reporting requirements. At this time, it is unclear if anglers are simply unaware of the requirements or if there are other hurdles associated with the lack of reporting. **Additional outreach will provide insight into this issue and enable us to identify potential solutions. Successful reporting is critical to improving our understanding of recreational golden and blueline tilefish catch and effort and will ensure that the fisheries are being monitored and managed appropriately. Additionally, given the increasing interest in private recreational reporting requirements for other fisheries, successful tilefish reporting could provide a gold standard for future discussions or actions on this topic.**

Results and Benefits

This proposal is intended to increase reporting of tilefish by recreational anglers. It is critical that management decisions for the tilefish fishery are based on the best available scientific information and are designed to prevent overfishing while achieving optimum yield from each fishery. The Mid-Atlantic Fishery Management Council (MAFMC)'s implementation of mandatory reporting for tilefish represents a significant stride towards sustainable fisheries management. This initiative not only serves to enhance the monitoring and conservation of tilefish populations but also offers valuable insights and lessons for other agencies considering mandatory recreational reporting for different species.

We expect the following tasks to produce results that reflect increased reporting of private recreational caught tilefish and will improve private recreational data on tilefish catch and effort.

Outreach/Education:
- Providing outreach to existing tilefish permit holders and to all recreational anglers who target tilefish will ensure that fishermen are well-informed about the mandatory reporting requirements.
- Marketing and education to recreational anglers who have not yet applied for a tilefish permit can increase the number of anglers reporting and increase compliance rates.

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   5
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

Software Development:
- Increasing the functionality of the eFin application to be a more desirable tool for tracking, managing and ultimately reporting data through the inclusion of fishing-related tools such as weather, tides and solunar information. Adding supplemental features into the application is expected to increase usage and therefore increase catch and effort reporting.
- Leverage nautical maps and GPS data to provide anglers with geospatial data to track and manage their fishing efforts. Like other feature enhancements, nautical mapping is expected to increase usage of the application and therefore increase catch and effort reporting.
- Collection of analytics enhances the understanding of user behavior and the overall effectiveness of the app. This information can be used to evaluate user interest, identify peak fishing times and tailor the app features accordingly.

Metadata:
The process of collecting application analytics provides valuable metadata that enhances the understanding of user behavior and the overall effectiveness of the app. For example, tracking the locations where users conduct fishing trips offers insightful metadata about the geographical distribution of fishing activities. The number of catches submitted serves as metadata that indicates the level of engagement and activity within the application. Recording errors during data uploads provide crucial metadata to assist in refining the app's performance, enhancing user experience and minimizing obstacles in data submission.

Enhancements to analytics infrastructure will enable better understanding of the effectiveness of efforts to increase the usage of the application and the analysis of any correlations between outreach efforts and increased reporting results. By improving the infrastructure for the collection of analytics, data will be retained on a persistent basis without manually tabulating data periodically, making analysis more convenient and more valuable.

Data Delivery Plan
eFin currently utilizes GARFO's Fish Online Application Programming Interface (API) to report data to GARFO. No modifications to the data delivery plan are planned.

Approach:
The following outlines the tasks required to complete the outreach initiatives in this project:

Task A: Public outreach to all current tilefish permit holders to include, but not limited to the following list of tasks. Emphasis of specific tasks will be determined based on analyzing the results of different marketing strategies, and adjusting priorities based on each task's effectiveness.
- Evaluate existing and past outreach initiatives through ACCSP, and gather methodologies that have been successful for other Partners.
- Research fishing clubs in each state and engage with them to communicate tilefish reporting requirements.
- Work with partners to add informational handouts to fishing licensing materials.
- Create marketing materials for both mailing and electronic distribution.
- Distribute handouts to local tackle shops, fishing clubs, popular areas where anglers congregate, etc.

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   6
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

- Research area-wide tournaments and evaluate opportunities for outreach.
- Advertisement or sponsorship in angler magazines.
- Provide anglers who engage with the program incentives such as hats, waterproof rulers, stickers, etc.

Task B: Development and modification of the existing eFin application.

- Mapping functionality will be added to enable users to view trip tracks and catch locations. Location data will rely on GPS functionality embedded in the user's mobile device. The presentation of map data is planned to use nautical maps based on sources such as NOAA electronic nautical maps. This effort will leverage efforts to incorporate nautical mapping into Harbor Light Software's AnglerCatch application as part the ACCSP project *"Collection of Recreational Fishing Data from Citizen Science Sources"* funded during 2023.
- The addition of weather, buoy, tide and solunar data to eFin will be implemented by leveraging existing functionality built into Harbor Light Software's AnglerCatch application, which supports these features for recreational anglers in the Rhode Island – New England region. These features currently utilize free public API's from the following sources:
  o NOAA's Integrated Ocean Observing System (IOOS) Sensor Observational Service (station data)
  o National Oceanic and Atmospheric Administration National Weather Service (weather conditions)
  o NOAA Center for Operational Oceanographic Products and Services (CO-OPS) (tides and currents)
  o Visual Crossing Corporation (solunar data)

- Enhancements to analytics will be done by leveraging the existing analytics reporting framework embedded in other fisheries applications such as eTrips mobile, eDR mobile, Dockside Intercept, SciFish and AnglerCatch. Back-end collection, retention and analysis of data will be upgraded to use Microsoft Azure Analytics to overcome data retention time limit reductions in the current Microsoft AppCenter-based reporting platform of only 28 days. While not committed within this project, the back-end enhancements implemented in this project can also be applied to the other mentioned fisheries applications to enhance their analytics management if needed.

Task C: Post mortem analyses will be conducted to assess how the outreach and expanded reporting capabilities improved reported tilefish data compared to previous years. Specifically, we can investigate if there was an increase in the number of users, number of trips/fishes reported, or improvements to the ratio of permit holders reporting trips compared to data from as early as 2020. Additionally, the metadata described above will help identify if additional hurdles exist or if targeted outreach efforts are still needed to optimize recreational data.

Geographic location:
All states north of the North Carolina/Virginia border, with a targeted focus on Mid-Atlantic / New England states with known private recreational tilefish effort. Target states include Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine.

Funding Transition Plan:

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

7

This is a one-year project proposal with a defined end point. No additional funds are anticipated currently.

Milestone Schedule:

The milestone schedule is based on the starting month of the project as month "1."

Task	1	2	3	4	5	6	7	8	9	10	11	12	13
Complete requirements gathering	X	X											
App Enhancements		X	X	X	X								
Marketing and Outreach				X	X	X	X	X	X	X	X	X	
Data Review						X	X	X	X	X	X	X	
Semi and Annual Report Writing						X	X					X	X

Project Accomplishments Measurement:

Enhance eFin functionality for recreational anglers	Increase the functionality of eFin and promote submission of Tilefish mandatory fishing data to increase the quantity of available data.	Increased quantity of uploaded catch data from eFin resulting in an improved number of submitted fishing reports over previous years.
Outreach	Promote eFin as a tool for submitting recreational Tilefish and educate anglers on reporting.	Increased data submissions. Improved public perception of MAFMC fisheries management efforts.
Analysis of data	Collect analytics data regarding application usage which can be correlated with outreach activities and compared with reporting participation in prior years	Data availability over the course of the project regarding reporting trends for tilefish application usage.

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   8
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

Cost Summary

Item	Description	ACCSP Cost	Partner In-Kind
Personnel Costs (a)			**$6,300**
Hannah Hart	4% of Hannah Hart Salary		$3,200
José Montãnez	2% of Jose Montanez Salary		$3,100
Fringe (b)	28% of Salaries		**$1,764**
Travel (c)		**$10,439**	
Mileage	5250 miles @ .655/mile	$3439	
Flights	7 airline trips @ $450/trip	$3150	
Hotels	14 nights @$200/night	$2800	
Per Diem	14 @$75/day	$1050	
Equipment (d)			
n/a			
Supplies (e)		**$23,000**	
Printing	Printing outreach materials	$8,000	
Recruitment, promotional items	Hats, towels, rulers etc.	$10,000	
Postage	Mailing out promotional items, outreach documents, etc.	$5,000	
Contractors (f)		**$66,150**	
Software Development	223.5 hours @ $170/hour	$38,000	
Project Management	75 hours @ $150/hour	$11,250	
Outreach Coordinator	260 hours @ $65/hr	$16,900	
Other (g)		**$10,000**	
Direct and inbound marketing	See "Other" in Budget Narrative	$10,000	
Total Direct Costs			8,064
Indirect Charges	Applied to Hannah Hart, Jose Montanez salaries		$2,142
Totals		**$109,589**	**$10,206**
Total Project Cost	**$119,795**		
In-kind versus Direct Percent Contributions	**8.5%**		
Requested Amount	**$109,589**		

Budget Narrative:

a. **Personnel (0 Requested; $6,300 Match)** MAFMC will provide in-kind support. There is no request for salary from the ACCSP. MAFMC lead staff CVs are attached.

b. **Fringe (0 Requested; $1,764 Match)** MAFMC will provide in-kind matching funds to cover fringe expenses associated with match salary.

c. **Travel ($10,439 Requested)**

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   9
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

Funds will be used for staff to travel from Maine to North Carolina to attend fishing association meetings, tournaments, and fishing shows to distribute promotional materials and perform outreach activities. Funds are requested to support travel for one staff member on 25 trips approximately 1-2 days each. Costs are estimated for travel to 15 local informational sessions/tournaments/fishing shows, assuming a 350-mile allowance per session, at a rate of $0.665/mile, 14 days per diem at $75/day, 7 airplane fairs at $450/ticket, 14 hotel nights at $200/night.

d. **Equipment (0)**

e. **Supplies ($23,000 Requested; $0 Match)**
MAFMC will utilize funds to print outreach, promotional and training materials to inform users of the tilefish reporting requirements. Funds will also be used to purchase promotional items such as hats, fishing towels or other items to recruit participants and enhance the fishing community's understanding of the reporting requirements. Costs were estimated based on 1000 anglers. Printing of materials was estimated at $8.00 per anglers. Promotional items were estimated at $10 per angler. Postage for shipping of printed and outreach items was estimated at $5 per angler.

f. **Contractual ($66,150 requested; $0 Match)**
Harbor Light Software will develop software to add functionality to the eFin application, specifically adding support for ESRI nautical maps and support for improved back-end analytics management. This is budgeted to be 223.5 hours @ $170/hour. We are budgeting 75 hrs of Project Management activities at a rate of $150/hour for status meetings and development management. 260 hours was budgeted for an Outreach Coordinator ($65/hour) to design and distribute informational materials, contact fishing organizations, set up and attend fishing shows and tournaments, etc.

g. **Other ($10,000 Requested; $0 Match)**
Funds will be used to target recreational anglers through such things as paid articles in fishing forums, email blast sponsorships through fishing publications, attendance or sponsorship of fishing tournaments, informational booths at fishing shows.

h. **Indirect ($0 Requested; $2,142 Match)**
MAFMC will provide in-kind indirect charges of 34% applied to MAFMC staff salaries.

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   10
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

Appendix A: Curricula vitae for the principal investigators

Hannah R. Hart

Hhart@mafmc.org | (630) 702-9299   800 North State Street, Suite 201
Dover, DE

EDUCATION

University of North Florida   *Jacksonville, Fl*
Masters of Science in Biology   Dec 2015
   Relevant Coursework: Histology, Physiology, Quantitative Ecology, Ethics in Scientific writing, GIS, Animal Behavior, and Evolution.

Florida Institute of Technology   *Melbourne, Fl*
Bachelor of Science in Marine Biology   May 2013
   Relevant Coursework: Biochemistry, Organic Chemistry 1 &2, Genetics, Microbiology, Oceanography, Crustacean Aquaculture, Invertebrate Zoology, Community Ecology, Comparative Vertebrate Anatomy, Marine Ecology, and Biology of Fishes.

EXPERIENCE

Mid-Atlantic Fishery Management Council (MAFMC), *Fishery Management Specialist*   May 2022- Present
   ● Develop and lead Fishery Management Plan (FMP) activities for scup and blueline tilefish.
   ● Represent the MAFMC on Highly Migratory Species (HMS) topics.
   ● Coordinate and facilitate all work associated with the Northeast Trawl Advisory Panel.
   ● Actively engage and collaborate with stakeholders on fishery management challenges.
   ● Conduct data analysis to inform management decisions.

Florida Fish and Wildlife Conservation and Commission (FWC), *Regional Fisheries Biologist IV*   Jan 2018- May 2022
   ● Represent the FWC Division of Marine Fisheries Management on several internal and external teams and boards.
   ● Work with local stakeholders, including recreational and commercial fishermen, other government agencies, non-government agencies, and divers to better understand fishery issues in Florida and the south Atlantic.
   ● Represent the division at state and federal fishery management meetings.
   ● Develop fishing regulation through various data analyses to improve long-term sustainability, engage with the public on potential changes, and prepare technical and legal documents.
   ● Review grant proposals, stock assessments, and prepare comprehensive review papers.

Florida Fish and Wildlife Conservation and Commission (FWC), *Biological Scientist I*   May 2014- Jan 2018
   ● Coordinated weekly sampling trips with commercial blue crabbers.
   ● Analyzed and recorded catch data for weekly and annual reports.
   ● Assisted with offshore and inshore sampling efforts using seine nets, trawl nets, rod and reel, and traps.
   ● Fish and invertebrate identification, dissections, and tissue sampling (otoliths, gonads, stomach content, and other tissue samples).
   ● Published blue crab research in the Journal of Marine and Coastal Fisheries.

Adjunct Professor, *Jacksonville University*   Jan 2017- Dec 2017
   ● Independently taught Anatomy and Physiology lectures and laboratories.
   ● Created lesson plans, exams, assignments and prep all biweekly labs.
   ● Graded all course work and held weekly office hours.

University of North Florida, *Research assistant*   Oct 2015- April 2016
   ● Assisted with offshore data collection using longline, gillnet, and drumline fishing methods.

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   11
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

- Shark and fish dissections and tissue sampling (blood, fin clip, digestive tract, bile, reproductive tract, and others).
- Utilize ultrasound technology on pregnant female sharks.

University of North Florida, *Graduate Teaching assistant*   Jan 2015- May 2015
- Independently taught two Biology 1 laboratories.
- Created lesson plans, held weekly office hours, and presented curriculum for weekly classes.
- Maintained lab, prepared laboratory exercises, and graded all course materials.

VOLUNTEER AND RESEARCH

Gills Club member, *Volunteer*   Oct 2015- Present
- Visit local schools and community events to educate the public about sharks.
- Promote shark research and conservation through social media.

Graduate Research, *University of North Florida*   Aug 2013- Dec 2015
- Physiological and molecular identification of peptide transporter 1 (PEPT1) in bonnethead sharks.
- Utilized immunohistochemistry techniques, standard PCR, and DNA isolation and sequencing.
- Published research in the Journal of Comparative Physiology B.

SKILLS
- Well versed in Microsoft Word, PowerPoint, Excel, SigmaPlot, SPSS, R statistics, SAS, and GIS.
- Strong communications and writing skills.
- Boat trailering, net mending, and open water scuba certification.
- Completed a comprehensive facilitation training course, professional writing course, and stock assessment course.
- Successfully published three peer reviewed scientific articles.

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   12
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

José L. Montañez

jmontanez@mafmc.org | (302) 526-5258   800 North State Street, Suite 201
Dover, DE

EDUCATION

Mississippi State University
Starkville, MS
Ph.D. in Agricultural Economics (minor in Aquaculture and Wildlife Fisheries)   2002

Mississippi State University
Starkville, MS
M.A. in Agricultural Economics (minor in Marketing)   1991

University of Hawaii
Manoa, HI
Specialized academic study and hatchery and field training in the biology and culture of freshwater prawn,
Macrobrachium rosenbergii   May – Aug 1984

University of Miami
Coral Gables, Fl
B.S. Marine Science Biology (minor in Chemistry)   1984

EXPERIENCE

Mid-Atlantic Fishery Management Council (MAFMC), *Fishery Management Specialist*   *Oct 1994*- Present
- Develop and lead Fishery Management Plans for various commercial and recreational fisheries.
- Actively engage and collaborate with stakeholders on fishery management challenges.
- Conduct data analysis to inform management decisions.

Mississippi State University, *Research Assistant*   *Nov 1991*- Sep 1994
- Analyzed biological and economic data for diverse aquaculture projects, including development of non-traditional or alternative aquaculture practices.
- Dissemination of marketing, economic, and biological aspects related to different aquaculture practices to the public and private sectors.

Mississippi State University, *Graduate Research Assistant*   *Jan 1990*- Oct 1991
- Data collection and analysis for agricultural projects, concentrating on economic problems and marketing analysis.

SKILLS
- Microsoft Word, PowerPoint, Excel, STATA, and SAS.
- Strong communications and writing skills.
- Scuba certification.
- Completed a comprehensive facilitation/conflict management training course.

PUBLICATIONS AND REFERENCES
- Provided upon request.

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   13
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

Summary of Proposal for Ranking

Proposal Type: New Project

Primary Program Priority and Percentage of Effort to ACCSP modules:

Catch and Effort- 100% (10 points)
This project will provide catch and effort level data that has been determined to be a long term, high priority need for tilefish estimates, particularly from recreational anglers. The increase in quality and quantity of data collected through this project will help to improve the stock assessment process. Tilefish is on the top 25% of the ACCSP's Biological Priority Matrix and is considered a data poor species.

Metadata: (2 points)
Metadata will be created utilizing custom-built analytics. Created metadata will be collected and made available to the ACCSP. Page 6.

Project Quality Factors:

- **Multi-partner/Regional impact including broad applications: (5 points)**
  The partner in this proposal is the Mid Atlantic Fisheries Management Council targeting Maine to the North Carolina/Virginia border. All ACCSP partners will benefit as the lessons learned, data collected, and application enhancements have a transferability to other ACCSP partners throughout the Atlantic coast who are considering mandatory recreational reporting in the future.

- **Contains funding transition plan: (4 points)**
  This is a one-year project proposal with a defined end point. No additional funds are anticipated at this time. Page 8.

- **In-kind contribution (1 point = 1% - 25%)**
  MAFMC's in-kind contribution is 8.5% of the requested amount. Partner contribution is listed on page9.

- **Improvement in data quality/quantity/timeliness (4 points)**
  The proposed project addresses the critical need of the MAFMC to improve upon the quantity, quality and timeliness of recreational catch and effort of tilefish, a data poor species.

- **Potential secondary module as a by-product: (0 points)**
  No second module

- **Innovative (5 points)**
  The MAFMC is the first ACCSP partner to mandate recreational reporting for anglers. This proposal would be the first such ACCSP-funded project to gather information about private recreational reporting initiatives.

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   14
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

- **Impact on stock assessment**
  Currently, private recreational data collected through MRIP does not accurately capture recreational catch and effort and is not included in the golden tilefish stock assessment and for the Mid-Atlantic region there is no accepted blueline tilefish stock assessment. Improved recreational data is a high priority for these species and such data collected through eFIN is invaluable and could be used in future stock assessments.

Other Factors:

- **Properly prepared (5 points)**
  This proposal follows the guidelines found in the ACCSP Funding Decision Process Documents.

ACCSP Funding Proposal: Improving Catch and Effort Data Collection from Recreational Tilefish Anglers   15
Yellow Highlighted comments indicate changes made to initial proposal
Bold lettering indicates areas of the proposal that help with the ranking criteria

Proposal for Funding made to:
Atlantic Coastal Cooperative Statistics Program
Operations and Advisory Committees
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22204

A comprehensive verification program for accountable electronic harvest reporting in Maryland's commercial fisheries

Initial submission: 16 June 2023
Revised submission: 10 August 2023

Submitted by:
Stephanie Richards
Maryland Department of Natural Resources
500 Taylor Ave, B2
Annapolis, MD 21401
Stephanie.Richards@maryland.gov

Applicant Name: Maryland Department of Natural Resources

Project Title: A comprehensive verification program for accountable electronic harvest reporting in Maryland's commercial fisheries

Project Type: New project

Primary Program Priority: Catch, effort, and landings data

Requested Award Amount: $524,940.00

Requested Award Period: March 1, 2024 – June 30, 2025

Principal Investigator: Stephanie Richards, Commercial Harvest Reporting Supervisor, Maryland Department of Natural Resources

Atlantic Coastal Cooperative Statistics Program (ACCSP) Proposal for the State of Maryland 2023

Objectives:
Project Goal: Improve industry accountability and data accuracy in electronic harvest reporting for Maryland commercial and for-hire charter fisheries through a scalable harvest verification framework.

1. Develop a comprehensive (a) dockside monitoring program for Maryland commercial fisheries and (b) onboard monitoring program for Maryland's Chesapeake Bay for-hire charter fishery.
2. Implement the (a) dockside and (b) onboard monitoring programs and track program performance.
3. Evaluate resources required by the Maryland Department of Natural Resources (MDNR) over the short- and long-term to successfully implement a harvest verification program as electronic reporting is transitioned from a pilot program to a formal regulatory reporting option for Maryland commercial fisheries. This evaluation will include budget and level of effort.

Need:
Over the past decade, Maryland has developed an accountable, electronic harvest reporting program for the benefit of managers and harvesters alike. The commercial blue crab, finfish, shellfish, and for-hire charter fisheries operating in the Chesapeake Bay may all report in FACTS™ (Fishing Activity and Catch Tracking System, FACTS™). FACTS™ is a daily, trip-level accountable electronic reporting system that simplifies harvest reporting while providing data to fishery managers in real-time. Harvesters are required to submit a start hail and end hail for each fishing trip they take. These hails include information on fishing effort, harvest details, and where and when harvest offload will occur to allow for harvest verification.

Third-party harvest verification is a recommendation of the ACCSP Accountability Workgroup (ACCSP 2022 Data Accountability Report) and has been a crucial part of Maryland's current electronic harvest reporting program for improving data accuracy and industry accountability. To date, in Maryland harvest verification has only been conducted for individual fisheries at a pilot scale for a small portion of harvesters reporting in FACTS™. Dockside and onboard monitoring during pilot programs have identified fishery-specific mis-reporting issues and underscored the continued need for verification to ensure harvest is reported accurately and harvesters are using best reporting practices (Slacum et al. 2013, Oyster Recovery Partnership (ORP) 2020, 2022, & 2023). For example, dockside and onboard monitoring of the for-hire charter fleet revealed that vessel captains consistently incorrectly reported, or failed to report: discarded fish, fish kept for bait, and the harvest of non-target species (ORP 2022). Specifically, monitoring efforts quantified that 30-55% of striped bass releases and 30-45% of species kept for bait (primarily spot) were misreported by charter captains (ORP 2022). These data allowed the FACTS™ team to explore and implement options to improve reporting, such as a pop-up message to prompt harvesters to report bycatch and improve the quality of data used by fisheries managers. Discrepancies between dockside monitor and harvester reports were minimal during the shellfish pilot (94% of catch amounts matched), which suggests that harvest verification by monitors was effective at improving industry accountability and data accuracy (ORP 2023).

Permitting of harvesters to use FACTS™ to report their harvest is ongoing, so many current FACTS™ users were not participating during periods when dockside monitors have been funded by individual projects. Some fisheries such as the finfish and blue crab fisheries were last monitored four years ago. Therefore, our current understanding of the breadth of reporting compliance and industry training/outreach needs

is limited. Developing and implementing a comprehensive harvest verification program will be critical for identifying ongoing reporting errors and improving data quality.

The improvements in data quality and ability for managers to access and use electronic harvest data has prompted the Maryland Department of Natural Resources (MDNR) to begin transitioning electronic reporting in Maryland from a voluntary pilot program to an established regulatory reporting program. Currently, FACTS™ is being used voluntarily by <20% of all active commercial license holders in Maryland, but use varies among fisheries. Over 27,000 unique Chesapeake Bay fishing trips were reported with FACTS™ in 2022 alone; scaling up will result in at least an order of magnitude more trips reported electronically. Significant financial and personnel resources and an expansion of the existing FACTS™ infrastructure will be required for FACTS™ to accommodate harvest reports from all Maryland commercial license holders. MDNR will need to consider how the existing harvest verification program can be scaled up as FACTS™ becomes an established regulatory program for all Maryland harvesters.

This project aims to improve data quality through industry accountability and data accuracy in electronic harvest reporting for Maryland commercial and for-hire fisheries. This will be accomplished by developing and implementing a comprehensive dockside and onboard monitoring program that can be scaled as FACTS™ becomes an established, regulatory reporting program. Part of this effort includes evaluating resources and level of effort required over the short- and long-term to effectively verify harvest. We expect that additional data needs will be uncovered through subsequent phases, but this project will provide a foundation for verifying harvest reports to support the expansion of electronic harvest reporting in Maryland. The results of this project can guide verification efforts in other states/regions seeking to implement ACCSP's Accountability Workgroup recommendations of developing a harvest verification framework for fisheries reporting electronically.

Results and Benefits:
This project addresses three main goals: (1) improve data accuracy and industry accountability, (2) improve data accessibility, and (3) maintain or improve Maryland e-reporting program functionality. The results will ultimately guide MDNR's plan to scale the existing FACTS™ e-reporting platform and process to a formal regulatory reporting option for all Maryland Chesapeake Bay fisheries. **The proposed project will support the development of the first comprehensive program to monitor all of Maryland's commercial fisheries.** The results and framework developed here will also inform similar efforts in other jurisdictions looking to incorporate harvest verification in existing e-reporting programs, and could prove valuable for improving data accuracy in regional fisheries assessments.

Specific project results and benefits include:
- Improved confidence in harvest data and an improved ability to make management decisions.
- Improvements to the existing verification program framework so that dockside and onboard monitors can be used more efficiently.
- An estimate of the number of trips that should be monitored, number of monitors required, and the individual level of effort needed to verify a reasonable portion of harvest trips. In pilot programs, the target was to verify 10% of harvest trips. With the expansion of e-reporting in Maryland, this project will inform what target is reasonable for significantly improving reporting accountability and accuracy.
- Establish a level of effort-cost ratio to allow MDNR to determine the overall cost to operate an all fisheries-wide monitoring program. The efficiency and effort data will provide MDNR with information needed for a full funding request.

- Identify outreach needs; strengthen communication between MDNR, monitors, and harvesters; and educate industry members of best harvest reporting practices.
- Identify any additional FACTS™ electronic system development needs to support a comprehensive, full-time verification program.
- We will continue to work with ACCSP to develop automated data sharing, auditing, and validation tools. Additional API and ACCSP Data Warehouse development needs will be addressed to ensure data availability to partners. Examples include: recommendations to ACCSP for how to expand the existing data structure to indicate whether individual harvest reports were verified.
- We will work closely with ACCSP to develop the dockside monitoring framework so that it can be adopted by other jurisdictions along the Atlantic Coast. The reporting bias, compliance, and outreach needs identified in this project can be used to inform similar efforts in other jurisdictions looking to expand e-reporting capacity, and could prove valuable for regional fisheries assessments.

The goals of this project directly meet the Atlantic States Marine Fisheries Commission Strategic Plan, Goal 3 – Produce dependable and timely marine fishery statistics for Atlantic coast fisheries – by improving data accuracy through harvest verification. This project also satisfies requirements in ASMFC fisheries management plans for species such as striped bass – which is a primary target species for the for-hire charter fishery and is fished commercially – and Maryland state plans for species such as blue crabs and oysters.

While this project specifically focuses on developing a harvest verification program for Maryland's Chesapeake Bay fisheries, we expect that the project outcomes can be incorporated into the existing (or future) federal electronic reporting framework for Maryland's coastal fisheries. Currently, >90% of Maryland's coastal fisheries report following ACCSP electronic reporting standards, and therefore MDNR's data accountability and reporting needs are more immediate for the Chesapeake Bay. The FACTS™ team will continue to work with ACCSP to assess the needs and requirements for a future e-reporting module for Maryland's coastal fisheries.

Data Delivery Plan:
Maryland harvest data are submitted from FACTS™ to the ACCSP Data Warehouse semi-annually (March and September). An application programming interface (API) is already under development to facilitate real-time transfer of harvest trip data entered in FACTS™ to ACCSP. The data collected by monitors will be included as metadata for the trips sampled. Data entered by monitors are linked to the verified trip by a Trip ID number that is created when the harvester submits a start hail at the beginning of the trip.

MDNR will continue to work with ACCSP to develop automated auditing and data validation tools, as recommended by the ACCSP Accountability Workgroup. An application programming interface (API) is already under development to facilitate real-time transfer of harvest trip data entered in FACTS™ to ACCSP. In addition, MDNR will work with ACCSP to recommend options for expanding the existing data structure to indicate whether an individual harvest trip was verified by monitors. This information is currently shared as metadata, but including this information directly as part of the primary data matrix may improve the ability to access and use this information for management needs, or to communicate information to stakeholders.

Approach:
The existing Maryland e-reporting team is comprised of Maryland Department of Natural Resources (MDNR), Oyster Recovery Partnership (ORP), and Electric Edge Systems Group (EESG). The roles of each project team organization are described under tasks outlined in each project objective.

Objective 1 – Development/Design
The schedule will be developed by ORP with input from MDNR. ORP has designed and managed harvest verification programs for the finfish and blue crab (ORP 2020), for-hire charter (ORP 2022), and shellfish (ORP 2023) fishery pilot projects and has the required expertise to design a more comprehensive monitoring program. MDNR will provide feedback on the proposed monitoring schedule and guidance on reporting needs and requirements.

The FACTS™ team will develop a schedule that will target 5% of trips reported in FACTS™ across all fisheries with dockside monitoring and 15% of charter captains reporting trips in FACTS™ for onboard monitoring of the for-hire charter fishery. In 2021 and 2022, FACTS™ received ~30,000 trips across the finfish, blue crab, shellfish (oyster and clams), and for-hire charter fisheries. We anticipate that reporting will be similar through 2025; although participation is incrementally increasing, no new modules, such as dealer reporting, may be added to the system in this timeframe, and reporting in FACTS™ continues to be voluntary. These targets will allow for the dockside monitoring of 1,500 trips and onboard monitoring of ~45 charter captains, which is on the order of or greater than monitoring efforts conducted during individual pilot programs that were effective at identifying mis-reporting and improving industry accountability (Tables 1 & 2; Slacum et al. 2013, ORP 2020, 2022, & 2023). If this level of effort is not effective at identifying continued reporting errors and improving industry accountability, additional monitoring effort will be employed in future years as MDNR transitions e-reporting to a full-time, mandatory program.

Table 1. Pilot-scale dockside and onboard monitoring effort for each Maryland Chesapeake Bay commercial fishery.

E-reporting Pilot Program	Time Period	Monitor Effort Goal	Active Monitors	# Trips Reported	# Trips Monitored	Actual Effort
For-hire Charter (dockside)	2020-2022	10%	4	36,832	753	2%
For-hire Charter (onboard)	2020-2022	---	1	36,832	81	0.2%
Shellfish	2021-2022	10%	3	2,848	171	6%
Commercial Finfish & Blue Crab	2019	10%	6	10,870	250	2%
Blue Crab	2012	20%	5	1,226	84	7%

Table 2. Pilot-scale onboard monitoring effort for the For-hire Charter fishery, based on the number of captains observed.

Time Period	# Captains Reporting	Active Observers	# Captains Observed	Effort
2020-2022	291	1	36	12%

The project team will develop a schedule for dockside and onboard monitoring that considers variations in time of year, reporting requirements, and operations specific to each Maryland fishery. The team will evaluate previous Maryland fishery-specific monitoring programs and will build on the lessons learned through each pilot project to create efficiencies in monitoring and improve monitoring success rates. For example, common landing times for each fishery will be evaluated and monitors will be scheduled to overlap these landing times. MDNR's current management priorities will be assessed to determine whether additional harvest data should be monitored or if updates to the previous monitoring protocols are necessary.

We will employ a stratified sampling approach based on two strata: (1) dockside monitors will target areas of known activity (i.e., common landing locations) and (2) perform random spot checks at landing locations that are in more remote locations or represent landing locations specific to individual harvesters (e.g., for harvesters who land at their home). This approach will improve monitoring efficiency and collect data that is representative of the landing patterns for each of Maryland's Chesapeake Bay fisheries. For example, several blue crab harvesters land at locations specific to each individual, while the for-hire charter captains more commonly land at heavily trafficked public marinas or docks. We will also leverage the existing working relationship and data-sharing tools between the FACTS™ team and MDNR's APAIS survey staff to minimize the number of for-hire charter trips sampled through both monitoring programs. The resulting schedule will aim to sample each fishery and target every species reported within each FACTS™ module proportional to the number of trips reported for each. All harvesters will have an equal probability of being monitored during each monitoring cycle.

Objective 2 – Implementation
Implementation and management of dockside and onboard monitors will be conducted by ORP in coordination with MDNR. ORP managed day-to-day activities and data collected through three of the previous four pilot projects that employed monitors (ORP 2020, 2022, & 2023) and has the required expertise and staff to maintain this role. MDNR will conduct outreach to harvesters to notify them of monitor activities and review monitor requirements and procedures. Outreach by MDNR will be critical for enforcing harvester compliance. MDNR and ORP will document industry and stakeholder response to monitor activities, and adapt outreach and monitor protocol as needed to enforce best reporting practices and respond to industry concerns or questions.

Eight dockside monitors will be deployed across four regions (Figure 1) of Maryland's Chesapeake Bay. These distinct regions were assigned for previous dockside monitoring programs and will allow for dividing sampling effort geographically while reducing individual monitor travel time and therefore increasing the number of trips a monitor could verify in one shift. Dockside monitors will target trips across all fisheries during each shift. Shifts will be scheduled on weekends and weekdays and will overlap with common landings times for each fishery, which will be determined in Objective 1.
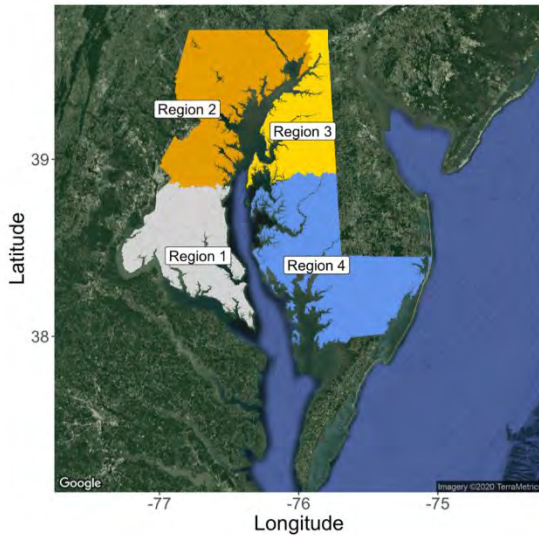
Figure 1. Dockside monitor regions used to guide verification efforts in Maryland.

Two of the eight monitors will be assigned to both dockside and onboard monitoring trips; onboard observers will be assigned to two regions (eastern vs. western shores). We will attempt to allocate monitoring effort evenly between and within these two regions to sample a variety of trips using different gear types, which can vary by location (ORP 2022). Onboard observers will schedule and pay for charter trips ahead of time to reserve a spot on the vessel. Onboard observers will be scheduled for trips occurring on the weekends and weekdays and during different times of day to ensure that monitors are verifying a representative sample of charter captains. The two monitors conducting onboard observation will be full-time staff with full insurance and liability coverage.

Monitoring will be conducted over 10 months from June 2024 through March 2025 to sample trips occurring during the peak fishing activity for each Maryland Chesapeake Bay fishery. Monitors will report a separate trip in FACTS™ for each trip they verify – the data reported will vary for each fishery (e.g., Table 3). Monitors will be instructed to flag charter trips that harvest ACCSP priority/target species including black sea bass, cobia, and Spanish mackerel and finfish trips that harvest American shad and Atlantic menhaden. Harvest of these priority species has been reported in Maryland's Chesapeake Bay in FACTS™ over the past several years, although the frequency and amount of harvest has varied among species.

Table 3. Trip and harvest level details collected by dockside monitors. Onboard observers collect the same harvest details for the for-hire charter fishery. Additional data may be collected for an individual fishery if management needs change.

FACTS™ Fishery Module	Report Details
All Trips (all modules)	Date; Trip start; Time of arrival at landing location; Time spot check occurred; Harvester name; Spot check location; Spot check conducted (Y/N); Trip ID; Comments; Harvester e-signature
For-hire Charter	Species name; Size of fish (legal/undersized); Catch disposition; Count of fish; Weight of fish; Discard reason; Hooking location; Angler count
Shellfish (clam)	Species; Disposition (food or bait); Unit of measure (bushels, count); Quantity; Price/unit
Shellfish (oyster)	Unit (bushels, dozens); Quantity; Crew count; Gear type
Finfish	Species name; Unit (lbs, bushels, boxes, baskets); Quantity (per species)
Blue Crab	Quantity of #1 males, #2 males, females, mixed males, peelers, soft crabs, eels

Monitors will be trained by ORP and be provided with training and sampling materials. Training covers all aspects of each fishery monitored, how to use FACTS™ to intercept trips at their respective landing locations, and the variables monitors will observe and document during dockside and onboard trips. The existing monitor training procedures will be updated to reflect the results from Objective 1. An individual from ORP will conduct random data QA/QC spot checks throughout the project to ensure that

data are being sampled consistently, monitors are using best reporting practices, and to identify and resolve any monitor reporting errors. Monitor data entered in FACTS™ will also be subject to routine inspection conducted on all FACTS™ data by MDNR.

ORP will analyze data collected through this project and compare monitor reports with harvester reports to uncover any reporting bias or issues specific to each fishery. DNR will manage monitor data reported in FACTS™ and will format data for submission to ACCSP. This includes working with ACCSP to understand how to treat additional information about whether a harvest trip was verified.

Objective 3 – Resource Evaluation
The improved data quality and enhanced ability for managers to access and use electronic harvest data has prompted MDNR to begin transitioning electronic reporting in Maryland from a voluntary pilot program to a full-time, formal regulatory reporting option. The harvest verification activities outlined in this proposal support the expansion from ~20% to 100% of all Maryland commercial license holders by providing MDNR with information on program cost, level of effort, and educational needs to effectively verify harvest and improve industry accountability.

Significant resources and an expansion of the existing FACTS™ infrastructure will be required for FACTS™ to accommodate harvest reports from all Maryland commercial license holders. Specific challenges related to expanding harvest verification include (a) a current lack of understanding of the level of monitoring required to effectively verify harvest and (b) the associated costs. MDNR needs to gain a better understanding of these components to scale the existing verification program as FACTS™ transitions to a formal regulatory reporting option for all Maryland harvesters. The data collected through, and costs associated with activities under Objectives 1 and 2 will begin to help fill these data gaps.

MDNR and ORP will evaluate the success of this project (according to the Project Accomplishment Measurements) and conduct a power analysis to assess the (a) level of effort and (b) resources/cost required to scale up a monitoring program to verify a sufficient portion of harvest trips (or captains) reported in FACTS™. The specific goal of this exercise will be to identify what proportion of trips sampled under Objective 2 should be verified to improve data accuracy and enforce best reporting practices. We will randomly subsample portions of data at decreasing intervals to identify at what level of effort (i.e., what % of trips) the metrics calculated on the subsampled data are within a reasonable margin of error of the results of the full dataset. A reasonable margin of error (e.g., 5%) will be guided by MDNR and ACCSP's management and data quality goals.

The cost associated with the level of monitoring effort determined through the power analysis will be assessed using the real costs incurred under Objectives 1 and 2. This will be used to create an effort-cost ratio, which will be used to develop a budget for MDNR to understand the monitoring costs and needs to scale up FACTS™ to a full-time program. Calculating an effort-cost ratio will be especially helpful for predicting the short- and long-term costs associated with making individual FACTS™ modules a formal reporting option incrementally.

Developing an understanding of data management, structure, and sharing needs will also be essential to expanding the capabilities and efficiency of e-reporting in Maryland. ACCSP and MDNR have begun developing additional tools and resources to improve data accessibility and facilitate data sharing. MDNR will continue to work with ACCSP to develop automated auditing and data validation tools, which is a

priority recommendation from the ACCSP Accountability Workgroup. One additional outcome of this project will be for MDNR to provide recommendations to ACCSP for expanding the existing data structure to indicate whether a harvest trip was verified.

References:

Atlantic Coastal Cooperative Statistics Program Accountability Workgroup Report, 2022. 1050 N Highland St 200a n, Arlington, VA 22201.

Oyster Recovery Partnership (ORP). 2020. Dockside monitoring of blue crab and finfish harvesters using Maryland's electronic commercial fisheries harvest reporting system. Prepared for the Atlantic States Coastal Cooperative Statistics Program and Maryland Department of Natural Resources. Oyster Recovery Partnership, 1805A Virginia Street, Annapolis, MD 21401.

Oyster Recovery Partnership (ORP). 2022. Chesapeake Bay charter captains using Maryland's electronic commercial fisheries harvest reporting system. Prepared for the Atlantic States Coastal Cooperative Statistics Program and Maryland Department of Natural Resources. Oyster Recovery Partnership, 1805A Virginia Street, Annapolis, MD 21401.

Oyster Recovery Partnership (ORP). 2023. Integrating shellfish industry reporting into a comprehensive electronic reporting system. Prepared for the National Fish and Wildlife Foundation (Grant #70612) and Maryland Department of Natural Resources. Oyster Recovery Partnership, 1805A Virginia Street, Annapolis, MD 21401.

Slacum, HW Jr., J. Dew-Baxter, R. Corbin, & B. Richkus. 2013. Pilot project to test and evaluate rapid and accountable commercial blue crab reporting in Maryland. Prepared for the Blue Crab Industry Design Team and the Maryland Department of Natural Resources. May 2013. Versar, Inc. 9200 Rumsey Rd., Columbia, MD 20145.

Geographic Location:
The project will be administered out of Maryland Department of Natural Resources headquarters in Annapolis, MD. The scope of the project covers all state waters in Maryland's Chesapeake Bay. Data will be collected from hundreds of landing locations across the Maryland portion of the Chesapeake Bay.

Milestone Schedule:

	2024										2025					
Activity	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Obj 1: Develop monitor and observer schedule	▓	▓	▓													
Obj 2: Hire and train monitors		▓	▓													
Obj 2: Implement and manage monitoring program				▓	▓	▓	▓	▓	▓	▓	▓	▓	▓			
Obj 3: Assess level of effort and resources													▓	▓	▓	
Data feeds to ACCSP							▓						▓			
Semi and Annual Report Writing							▓							▓	▓	▓

Project Accomplishments Measurement:

The success of the project will be measured by tracking progress and accomplishments related to three main goals: (1) Improve data accuracy and industry accountability, (2) improve data accessibility, and (3) maintain or improve program functionality.

Goal	Metrics
Improve data accuracy & industry accountability	Dockside monitor • Monitor success rate across all fisheries (number of trips attempted to be monitored vs. number of trips monitored) • Monitor success rate for each fishery • Proportion of harvester and monitor reports that report the same catch across all fisheries • Proportion of harvester and monitor reports that report the same catch (and other reporting components) for each fishery Onboard monitor • Monitor success rate (number of captains attempted to be monitored vs. number of captains actually monitored) • Number and frequency of species observed from ACCSP Biological Priority matrix (e.g., black sea bass, cobia, Spanish mackerel) • Proportion of bycatch reported accurately (number of discards reported by captains vs. number of discards reported by monitors)
Improve data accessibility	• Number of trips provided to ACCSP with completed harvest verification
Maintain or improve program functionality	• Proportion of landing locations monitored (compared to number of landing locations reported by harvesters) • Number of monitors trained and active • Proportion of trips monitored (compared to total number of trips reported in FACTS^{TM})

Cost Summary (Budget):

Description	Calculation	Federal Requested	Non-Federal In Kind
Personnel (DNR)		$2,379.20	$4,156.00
Administrator III	$29.74 x 80hrs	$2,379.20	
Program Manager II	$42.04 x 40hrs		$1,681.60
Database Specialist II	$30.56 x 40hrs		$1,222.40
Program Manager III	$44.89 x 20hrs		$897.80
Administrative Specialist	$17.71 x 20hrs		$354.20
Fringe (DNR)		$832.72	$1,454.60
Administrator III	Personnel Costs x 35%	$832.72	
Program Manager II			$588.56
Database Specialist II			$427.84
Program Manager III			$314.23
Administrative Specialist			$123.97
Travel (DNR)		$0.00	$0.00
Equipment		$0.00	$0.00
(items > $5,000)			
Supplies		$0.00	$0.00
Contractual		$521,017.92	$342,208.75
Project management & monitoring staff	(see Budget Narrative)	$449,096.00	
At-sea monitoring trips	$130/trip x 45 trips	$5,850.00	
Field travel expenses	$0.625/mile x 100,800 miles	$63,000.00	
Supplies	(see Budget Narrative)	$3,071.92	
Other		$0.00	$0.00
Totals			
Total Direct Charges		$524,229.84	$347,819.35
Indirect Charges	(Personnel + Fringe) x 0.2211 (17.11% MDNR Negotiated amount + 5% NOAA Admin fee)	$710.16	
Grand Total		**$524,940.00**	**$347,819.35**
Percent Contribution		60%	40%

MDNR is committed to modernizing its fishery-dependent reporting system and has been supporting the development of a comprehensive e-reporting and management system since 2012. Annual system operations and user support (by MDNR employees and outside contractors) are provided through state funding. System development has been supported by state funds, but major system advancements have been accomplished with additional support from external grant funds. Maryland has completed the development of five fishery modules in FACTS™ – blue crab, finfish, for-hire charter, shellfish, and dealers – and is now focused on refining and scaling up other critical components of the FACTS™ system to facilitate the transition of electronic reporting into a full-time harvest process for Maryland's state-managed fisheries.

Requested Federal Funds: $524,940.00

Personnel (MDNR Staff): $2,379.20
Salary for MDNR Principal Investigator (Administrator III) at $29.74 x 80 hours = $2,379.20. The project PI is the Commercial Harvest Reporting Supervisor with MDNR (see CV, attached) and will provide the following contributions to this project:
- Provide guidance on fishery reporting program requirements, assistance with day-to-day harvest reporting management
- Provide input on lessons learned, data gaps, management needs during schedule development (Objective 1)
- Conduct outreach to harvesters regarding monitor requirements, including sending FACTS™ messaging system updates (Objective 2)
- Manage harvester accounts, including back entry for hailing errors (Objective 2)
- Assist with evaluating monitor effort-cost ratio and data, provide feedback on project results and participate in report writing as needed (Objective 3)

Fringe: $832.72
Fringe for MDNR Principal Investigator (Administrator III). Salary at $29.74 x 80 hours x MDNR fringe rate of 35% = $832.72

Contractual: $521,017.92
Oyster Recovery Partnership will be contracted to assist with project coordination, hiring and management of dockside and onboard monitors, and data analysis and management. Oyster Recovery Partnership (ORP) is a 501(c)(3) non-profit organization that designs, promotes, and implements consensus-based and sustainable ecological restoration, shellfish aquaculture, and commercial fishery activities to improve the environment and expand economic opportunities in the Chesapeake Bay. ORP has been an integral partner in the development, testing, and maintenance of MDNR's FACTS™ electronic harvest reporting in Maryland since the inception of the blue crab e-reporting pilot project in 2012. ORP has coordinated and managed previous dockside verification programs as part of several electronic harvest reporting pilot programs in Maryland. The total contractual cost breaks down into the following line items:
- Project management & monitoring staff ($449,096.00) – Salary and administrative charges for ORP staff and monitors.

Personnel	Description	Hours	Total Cost
Senior Administrator; Senior Fisheries Expert	Provides oversight of major partnerships/contracts; responsible for organizational financial and staff resources; plans, directs, and administers all aspects of agency program; support activities under Objective 1-3	160	$19,122.85
Fisheries Program Manager	Directs and coordinates activities of agency program; project manager; manages all activities under Objective 1-3	1,950	$105,881.52
Fisheries Scientist	Manage monitor schedule and day-to-day activities under Objective 2; manages data; assist in developing reports; assist with activities under Objective 1-3	1,600	$65,946.53
Fisheries Technician	Conduct dockside monitoring	1,216	$27,797.76
Fisheries Technician	Conduct dockside monitoring	1,216	$27,797.76
Fisheries Technician	Conduct dockside monitoring	1,216	$27,797.76
Fisheries Technician	Conduct dockside monitoring	1,216	$27,797.76
Fisheries Technician	Conduct dockside and onboard monitoring	1,616	$36,941.76
Fisheries Technician	Conduct dockside and onboard monitoring	1,616	$36,941.76
Coastal Resource Scientist I	Conduct dockside monitoring; conducts entry-level technical biological work and data analysis	816	$26,903.39
Coastal Resource Scientist I	Conduct dockside monitoring; conducts entry-level technical biological work and data analysis	816	$26,903.39
Senior Manager	Performs oversight of managerial policies, practices, methods, agency programs, organizations, procedures, and other functions of management; assist with contract management and invoicing	100	$7,003.73
Fiscal Account Manager	Ensures appropriate and consistent interpretation of and compliance with statutory and generally accepted accounting principles; compiles and submits invoices	120	$7,902.47
Payroll & Finance Specialist	Screens, controls, and enters payroll records, tax, and deduction authorization data electronically	120	$4,357.57
Total		**13,778**	**$449,096.00**

- At-sea monitoring trips ($5,850.00) – Target 45 trips x $130/trip = $5,850.00

- Field travel expenses ($63,000.00) – Mileage for dockside and onboard monitors to travel to landing locations across the state. Estimated 100,800 miles for 8 monitors for 10 months to target 1,500 landings and 45 onboard for-hire charter trips, reimbursed at the current state rate of $0.625/mile = $63,000.00

- Supplies ($3,071.92) – Training and sampling supplies and service fees to support monitor activities. We are only requesting funds for supplies that are needed at this time.

Item	Description	Calculation	Total Cost
Tablet	Electronic tablets to enter harvest trip report into FACTS™	$85/tablet x 2 tablets needed	$170.00
Data service plan for tablets	Data service plan for tablets	$17.50/tablet/month x 8 total tablets x 10 months activity	$1,400.00
Tablet charger	Hardware	$11.99 each x 5 needed	$59.95
Hat	Monitor uniform	$20 each x 2 needed	$40.00
ID badge holder	Monitor uniform	$4.99 each x 2 needed	$9.98
Fish ID guide	Training materials	$8.95 each x 2 needed	$17.90
Binder	Training materials	$8.87 each x 3 needed	$26.61
Supply case	Sampling materials	$3.50 each x 5 needed	$17.50
Scale	Sample materials – for weighing landed fish	$39.99 each x 2 needed	$79.98
Crate	Sampling materials	$30 each x 4 needed	$120.00
Tape Measure	Sample materials – for measuring landed fish	$2.00 each x 7 needed	$14.00
Printing fee	Cost to print training materials and emergency field datasheets (if cell/data service not available)	$0.37/page x 1600 pages	$592.00
Rite in the Rain Paper	Paper for printing training materials and emergency field datasheets (if cell/data service not available)	$131/ream x 4 reams (500 pages each)	$524.00
Total			**$3,071.92**

Indirect Charges: $710.16
MDNR has negotiated a federal indirect rate of 17.11% for 2023. Indirect costs apply to MDNR salary and fringe only, and includes a 5% NOAA administrative fee. See attached negotiated rate agreement. This rate may change in 2024, and we will adjust the rate as needed for final proposal submission.

Total Non-Federal In-Kind Contribution: $347,819.35

Personnel In-Kind: $4,156.00
MDNR will use combined state and federal grant funding to accomplish the project objectives. This process has been successfully implemented for several previous e-reporting projects. MDNR will provide in-kind support by dedicating four staff to assist in the management and staffing of the project. All staff are integral members of the current FACTS™ e-reporting team and three staff participated in all or portions of the previous e-reporting pilot projects. Job duties for each staff are intricately related to the goals and activities proposed in this project and offering time in-kind will not jeopardize the team's ability to complete the project objectives.

Personnel	Calculation	Non-Federal In-kind
Program Manager II	$42.04 x 40hrs	$1,681.60
Database Specialist II	$30.56 x 40hrs	$1,222.40
Program Manager III	$44.89 x 20hrs	$897.80
Administrative Specialist	$17.71 x 20hrs	$354.20
Total		**$4,156.00**

Fringe In-Kind: $1,454.60
Fringe for MDNR staff offering in-kind time in support of the project. MDNR fringe rate is 35% of salary.

Personnel	Calculation	Non-Federal In-kind
Program Manager II	$42.04 x 40hrs x 0.35	$588.56
Database Specialist II	$30.56 x 40hrs x 0.35	$427.84
Program Manager III	$44.89 x 20hrs x 0.35	$314.23
Administrative Specialist	$17.71 x 20hrs x 0.35	$123.97
Total		**$1,454.60**

Contractual In-Kind: $342,208.75
Since the success and function of this project rely on the existing FACTS™ structure, data procedures, and maintenance, the funding that supports the ongoing work for maintaining FACTS™ is offered in-kind for 13 months of the project. This includes the 10 months that monitors will be actively reporting in FACTS™ and 3 additional months during which FACTS™ data will be accessed and used to conduct activities under project Objectives 1 and 3.

ORP is under contract from MDNR to provide staff and technology to administer, maintain, and support the FACTS™ electronic reporting system, a 24hr helpline, and a 24hr call center for Maryland's e-reporting operations through June 2025. The executed contract offers the following in kind for 13 months of the proposed project:

Service	Description	Total In-kind
Program Management, User Support, Training, Outreach	ORP staff time to manage and support daily e-reporting functions, training, and outreach needs, including coordinating a 24hr helpline.	$68,602.08
System Operations and Maintenance	Service fee to the FACTS™ electronic reporting system software developer (Electric Edge Systems Group) to maintain the FACTS™ system. The FACTS™ system has functions that are used by monitors to schedule spot checks based on daily trips reported by hails. Dockside and onboard monitors also submit harvest details directly into FACTS™ using tablet computers.	$251,940.00
Call Center	Low-tech harvesters or harvesters who are experiencing limited cell data service have access to a 24hr call center to report harvest. The call center representatives enter the trip and harvest details directly into FACTS™. While not directly supporting the monitor function of this project, the call	$17,121.00

	center accepts harvest from harvesters who may be checked by a dockside or onboard monitor.	
Program IT	Text integrator service for messaging harvesters through FACTS™. Helpline phone cost and service plan.	$4,545.67
Total		**$342,208.75**

Funding Transition Plan:

Harvest verification is a key component of Maryland's electronic harvest program. Understanding the level of effort and resources required to implement a comprehensive harvest verification program is a priority as MDNR transitions FACTS™ from a pilot to a formal regulatory reporting program. The proposed project is Phase I of this process. In calendar year 2024, we will apply for additional funding to support Phase II. Results from the proposed project will be used to further evaluate and identify resource needs so that MDNR can develop a request for state funds to establish a formal monitoring program. The process outlined here follows the same process used to add fishery-specific modules in FACTS™ over the past 11 years. Using federal funds to support pilot-scale projects and support the development of a state budget has been successful in expanding Maryland's electronic harvest reporting and data management capabilities and capacities, and maintaining this process.

Proposal Summary

Proposal Type: New project

Program Priority: Catch and Effort (80%)

The proposed project will support the development of the first comprehensive verification program to monitor all of Maryland's commercial fisheries. Harvest verification is a recommendation of the ACCSP Accountability Workgroup and has been a crucial part of Maryland's current electronic harvest reporting program to improve data accuracy and industry accountability. Dockside and onboard monitors will be used to verify catch, effort, and landings data for trips reported electronically.

Metadata – The data collected by monitors will be sent to ACCSP as metadata for the trips sampled, which are linked using a unique Trip ID.

Project Quality Factors:

Multi-Partner/Regional impact and broad applications – This project will focus on verifying harvest from four Maryland Chesapeake Bay fisheries. Many of these species are managed at the regional level (e.g., striped bass), and harvest and verification data collected during this project will be used by regional partners. Part of this project includes evaluating resources and the level of effort required to effectively verify harvest, which can guide verification efforts in other states/regions seeking to implement ACCSP's Accountability Workgroup recommendations of developing a harvest verification framework for fisheries reporting electronically.

Funding Transition Plan – This proposal contains a Funding Transition Plan on page 17. The proposed project is Phase I of II for which federal funds will be requested. The results of these projects will help inform MDNR's state budget requests for the anticipated funding transition. The use of federal funds to guide the development of a budget and acquisition of state funds has successfully been applied to develop Maryland's e-reporting platform since 2012.

In-Kind Contribution – 40% of this project is funded by MDNR

Improvement in data quality/quantity/timeliness
- Data Quality – Developing and implementing a comprehensive harvest verification program using dockside and onboard monitoring will improve trip-level harvest data accuracy and improve industry accountability.
- Data Quantity – MDNR is transitioning e-reporting to a formal regulatory reporting option and this project will help guide efforts to scale up capacity to accept and verify more harvest trips electronically.
- Timeliness – A detailed data delivery plan and data recommendations/outcomes from this project are outlined on page 5. MDNR will work with ACCSP to improve data delivery timeliness and how verification data are shared and used.

Potential Secondary Module
- Biological Sampling (15%) – The proposed project will improve harvest reporting for ACCSP priority species including black sea bass, cobia, and Spanish mackerel, which have been reported in FACTS^{TM} during Chesapeake Bay for-hire charter trips. This project will also contribute to the following Recreational Technical Committee's goals: (a) comprehensive for-hire data collection and monitoring; (b) improve recreational fishery discard and release data (through for-hire trips); (c) improve in-season monitoring by designing a monitoring program that accounts for seasonality of specific target species/fisheries.

- Socioeconomic (5%) – The proposed project addresses the Committee on Economics and Social Sciences priority to collect trip-level detail on fishing activity information. Adding a harvest verification component will enforce reporting, can collect additional socioeconomic data, and will ensure that licensees not submitting reports are truly not fishing.

The facilities and services of the Maryland Department of Natural Resources are available to all without regard to race, color, religion, sex, sexual orientation, age, national origin, or physical or mental disability. This document is available in an alternative format upon request.

Stephanie V. Richards
stephanierichards@hotmail.com

(301) 421-0163
3301 Lyncrest Ct., Burtonsville, MD 20866

EDUCATION

George Mason University
Bachelor of Arts in Biology

Fairfax, VA
May 1989

PROFESSIONAL EXPERIENCE

November 2022 – Current: **Commercial Harvest Reporting Supervisor, Maryland Department of Natural Resources, Fishing and Boating Services**

- Manage the Commercial Harvest Reporting Program for reporting compliance and the timely/accurate processing of harvest data, including the E-Reporting with FACTS™ system and monthly paper reports.
- Coordinate transition of the E-Reporting with FACTS™ pilot program to a formal regulatory reporting option for real-time commercial harvest reporting for 5000+ Maryland watermen.
- Supervise the data entry (QA/QC) of monthly harvest reports, customer service, pilot program recruitment/training, and database management for paper and electronic reporting.
- Issuance of Pilot Program Participant Permits for the E-Reporting with FACTS™ program. Includes 12% of the Blue Crab/Finfish license holders and 88% of the for-hire Charter fleet, for 1700+ active permits.
- Data management for accuracy and FACTS™ trip level reporting (28,304 trips in 2021), for hailing-based system with real-time harvest reporting. Verification provided by Roving Monitors and Onboard Observers.
- Respond to request for proposals (RFP) and write federal grant reports. Provide E-Reporting with FACTS™ program summary for annual Fisheries Management Plan (FMP) report to Maryland General Assembly.
- Review and approve invoices for pilot activity: Roving Monitors, Onboard Observers, and general expenses.
- Coordinate with Maryland Natural Resources Police (NRP) for program development, including field officer training, verification of trip activity and compliance with Pilot Program Permit terms and conditions.
- Point of contact for E-Reporting with FACTS™ 24 hour Helpline staff for all issues requiring department review, including electronic transfer of striped bass quota and charter vessel registration updates.
- Serve on Atlantic Coastal Cooperative Statics Program (ACCSP) Operations Committee.

April 2015 – November 2022: **E-Reporting Program Coordinator, Maryland Department of Natural Resources, Fishing and Boating Services**

- Coordinate expansion of the E-Reporting with FACTS™ commercial fisheries real-time harvest reporting pilot program. Move from initial phase (Blue Crab) to additional modules (Finfish, Charter, Shellfish, Roving Monitors and Onboard Observers) for 5000+ Maryland watermen.
- Program requirements gathering; work with both department staff and industry members (design teams) to inform fisheries managers. Address technology accessibility in a diverse stakeholder population.
- Manage program outreach, recruitment, and training, including but not limited to: curriculum development, conducting program participant in-person training sessions, developing online training modules, producing a video tutorial series, creating website content, and authoring printed program materials.
- Responsible for management of database for 2000+ recruits, harvest reporting compliance review, and customer service support.
- Issuance of Pilot Program Participant Permits for the E-Reporting with FACTS™ program. Includes 10% of the Blue Crab/Finfish license holders and 85% of the for-hire Charter fleet, for 1500+ active permits.
- Data management for accuracy and FACTS™ trip level reporting (28,304 trips in 2021), for hailing-based system with real-time harvest reporting. Verification provided by Roving Monitors and Onboard Observers.
- Prepare semi-annual and final reports for federal program grants, respond to Public Information Act (PIA) requests, and provide program updates to MDNR leadership, as needed.
- Review and approve contractor invoices for pilot projects, including roving monitor activity, onboard observer bookings, and general program expenses.
- Provide E-Reporting with FACTS™ program summary for annual Fisheries Management Plan (FMP) report to Maryland General Assembly.
- Coordinate with Maryland Natural Resources Police (NRP); provide support and training for officers. NRP leadership mandated system training for all field officers.
- Point of contact for E-Reporting with FACTS™ 24 hour Helpline staff for all issues requiring department review, including electronic transfer of striped bass quota and charter vessel registration updates.
- Serve on Atlantic Coastal Cooperative Statics Program (ACCSP) Operations Committee.

March 2013 – April 2015: **Administrative Coordinator, Maryland Department of Natural Resources - Fisheries, Aquaculture Division**
- Manage the issuance of 1600+ Shellfish Aquaculture Harvester Permits (SAHP), required for all workers engaged in harvest activity on established leases.
- Coordinate distribution and review of 300+ Annual Usage Reports for evaluation of lease activity.
- Process lease transfer requests, including comprehensive review of historical lease documents to confirm legal status of the owner.
- Attend Aquaculture Coordinating Council (ACC) meetings, prepare and distribute minutes, and make presentations, as needed.
- Manage databases for shellfish aquaculture lease records and data entry/verification of monthly harvest reports.
- Prepare end of month activity summaries for MDNR leadership review, including but not limited to analysis of SAHP issuance, summertime landing declarations, annual usage planting data, and public notice publication of lease applications.
- Prepare Army Corps of Engineers (ACOE) Annual Executive Summary for Regional General Permit (RGP-1) lease activity report and permit verification.
- Manage Shellfish Aquaculture Sanctuary Hotline for reporting harvest activity on designated lease locations.

June 2012 – March 2013: **Administrative Aide, Maryland Department of Natural Resources – Fisheries, Harvest Reporting and Statistics**
- Complete processing of monthly commercial fisheries harvest reports for 5000+ Maryland waterman.
- Conduct stakeholder outreach to improve accuracy of commercial harvest reporting using paper reports.

PRESENTATIONS

Chesapeake Bay Charter Captains Using Maryland's Electronic Commercial Fisheries Harvest Reporting System. Amrhein, E., Coleman, K.E., Aus, J., Slacum, H.W. Jr., Richards, S., Stevenson, B., Walters, B., Kennedy, C., and Corbin, R. Poster presentation by Amrhein, E. at American Fisheries Society Meeting, November 2021.

Chesapeake Bay Charter Captains Using Maryland's Electronic Commercial Fisheries Harvest Reporting System. Amrhein, E., Coleman, K.E., Aus, J., Slacum, H.W. Jr., Richards, S., Stevenson, B., Walters, B., Kennedy, C., and Corbin, R. Updated poster presentation by Amrhein, E. at Chesapeake Community Research Symposium, June 2022

Improving Shellfish Harvest Data through Daily Electronic Reporting. Amrhein, E., Walters, J., Caretti, O., Slacum, H.W. Jr., Coleman, K., Baxter, J., Richards, S., Kennedy, C., Stevenson, B., Mole, M., and Corbin, R. Presentation by Amrhein, E. at National Shellfisheries Association Conference, March 2023.

TECHNICAL REPORTS

Richards, S., Amrhein, E., Caretti, O., Slacum, H.W. Jr., Stevenson, B., Kennedy, C., Corbin, R. and Mole, M. 2023. **Expanding Accountability in Reporting: A Tool for Comprehensive For-Hire Data Collection and Monitoring in Maryland**. NOAA Final Project Report, NA19NMF4740192

Richards, S., Amrhein, E., Coleman, K.E., Aus, J., Slacum, H.W. Jr., Stevenson, B., Walters, B., Kennedy, C., and Corbin, R. 2021-2022. **Expanding Accountability in Reporting: A Tool for Comprehensive For-Hire Data Collection and Monitoring in Maryland**. NOAA Semi-Annual Progress Reports, NA19NMF4740192

Oyster Recovery Partnership. 2023. **Integrating Shellfish Industry Reporting into a Comprehensive Electronic Reporting System**. Prepared for the National Fish and Wildlife Foundation. Oyster Recovery Partnership, 1805A Virginia Street, Annapolis, MD 21401.

Oyster Recovery Partnership. 2022. **Chesapeake Bay Charter Captains using Maryland's Electronic Commercial Fisheries Harvest Reporting System**. Prepared for the Atlantic States Coastal Cooperative Statistics Program. Oyster Recovery Partnership, 1805A Virginia Street, Annapolis, MD 21401.

SELECT HONORS

2015, 2016 Fisheries Service Award – Special Recognition, Maryland Department of Natural Resources
2011 Divers Alert Network (DAN) Provider Award, Emergency Responder – Emergency Rescue

PROFESSIONAL SERVICE

Scholarship Reviewer: 2011 NOAA Earnest F. Hollings Undergrad Scholarship Program
Professional Society: American Fisheries Society (AFS), national membership

SELECT CERTIFICATIONS, TRAININGS, & ADVANCED LEARNING

2020 Divers Alert Network (DAN) Diving Emergency Management Provider (DEMP) Certification
2018 Problem Solving and Decision Making, MAT, Association of Fish & Wildlife Agencies
2018 Leadership and Supervisory Training Program, MDNR, Anne Arundel Community College
2015 Hazard Analysis Critical Control Point (HACCP) FDA Certification, University of Maryland Extension

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

State and Local Governments
Indirect Cost Negotiation Agreement

EIN: 52-6002033 **Date:** 09/16/2022

Organization: Report Number: 2022-0395 Maryland Department of Natural Resources

580 Taylor Avenue, B-4 Tawes State   **Filing Ref.:**
Office Building

Annapolis, MD 21401 Last Negotiation Agreement dated: 05/13/2021

The indirect cost rate contained herein is for use on grants, contracts, and other agreements with the Federal Government to which 2 CFR Part 200 applies subject to the limitations in Section II.A. of this agreement. The rate was negotiated by the U.S. Department of the Interior, Interior Business Center, and the subject organization in accordance with the authority contained in applicable regulations.

Section I: Rate

Start Date	End Date	Rate Type	
07/01/2022	06/30/2023	Fixed Carryforward	**Name Rate Base Location Applicable To**
			Indirect 17.85 % (A) All Forest Service
			Indirect 18.19 % (A) All Park Service
			Indirect 26.92 % (A) All Resource Assessment Service
			Indirect 19.82 % (A) All Wildlife & Heritage Service
			Indirect 11.43 % (A) All Natural Resources Police
			Indirect 82.21 % (A) All Chesapeake & Coastal Services
			Indirect 17.11 % (A) All Fishing & Boating Services

(A) Base: Total direct salaries and wages, <u>including</u> fringe benefits. The rate applies to all programs administered by the non-federal entity. To determine the amount of indirect costs to be billed under this agreement, direct salaries and wages and related fringe benefits should be summed and multiplied by the rate. All other program costs should be eliminated from the calculation.

Treatment of fringe benefits: Fringe benefits applicable to direct salaries and wages are treated as direct costs; fringe benefits applicable to indirect salaries and wages are treated as indirect costs.

Section II: General

A. **Limitations:** Use of the rate(s) contained in this agreement is subject to any applicable statutory limitations. Acceptance of the rate(s) agreed to herein is predicated upon these conditions: (1) no costs other than those incurred by the subject organization were included in its indirect cost rate proposal, (2) all such costs are the legal obligations of the grantee/contractor, (3) similar types of costs have been accorded consistent treatment, and (4) the same costs that have been treated as indirect costs have not been claimed as direct costs (for example, supplies can be charged directly to a program or activity as long as these costs are not part o f the supply costs included in the indirect cost pool for central administration).

B. **Audit:** All costs (direct and indirect, federal and non-federal) are subject to audit. Adjustments to amounts resulting from audit of the cost allocation plan or indirect cost rate proposal upon which the negotiation of this agreement was based will be compensated for in a subsequent negotiation.

C. **Changes:** The rate(s) contained in this agreement are based on the accounting system in effect at the time the proposal was submitted. Changes in the method of accounting for costs which affect the amount of reimbursement resulting from use of the rate(s) in this agreement may require the prior approval of the cognizant agency. Failure to obtain such approval may result in subsequent audit disallowance.

D. **Rate Type:**
   1. Fixed Carryforward Rate: The fixed carryforward rate is based on an estimate of the costs that will be incurred during the period for which the rate applies. When the actual costs for such period have been determined, an adjustment will be made to the rate for a future period, if necessary, to compensate for the difference between the costs used to establish the fixed rate and the actual costs.

   2. Provisional/Final Rate: Within six (6) months after year end, a final indirect cost rate proposal must be submitted based on actual costs. Billings and charges to contracts and grants must be adjusted if the final rate varies from the provisional rate. If the final rate is greater than the provisional rate and there are no funds available to cover the additional indirect costs, the organization may not recover all indirect costs. Conversely, if the final rate is less than the provisional rate, the organization will be required to pay back the difference to the funding agency.

   3. Predetermined Rate: A predetermined rate is an indirect cost rate applicable to a specified current or future period, usually the organization's fiscal year. The rate is based on an estimate of the costs to be incurred during the period. A predetermined rate is not subject to adjustment.

E. **Rate Extension:** Only final and predetermined rates may be eligible for consideration of rate extensions. Requests for rate extensions of a <u>current</u> rate will be reviewed on a case-by-case basis. If an extension is granted, the non-Federal entity may not request a rate review until the extension period ends. In the last year of a rate extension period, the non-Federal entity must submit a new rate proposal for the next fiscal period.

F. **Agency Notification:** Copies of this document may be provided to other federal offices as a means of notifying them of the agreement contained herein.

G. **Record Keeping:** Organizations must maintain accounting records that demonstrate that each type of cost has been treated consistently either as a direct cost or an indirect cost. Records pertaining to the costs of program administration, such as salaries, travel, and related costs, should be kept on an annual basis.

H. **Reimbursement Ceilings:** Grantee/contractor program agreements providing for ceilings on indirect cost rates or reimbursement amounts are subject to the ceilings stipulated in the contract or grant agreements. If the ceiling rate is higher than the negotiated rate in Section I of this agreement, the negotiated rate will be used to determine the maximum allowable indirect cost.

I. **Use of Other Rates:** If any federal programs are reimbursing indirect costs to this grantee/contractor by a measure other than the approved rate(s) in this agreement, the grantee/contractor should credit such costs to the

Section II: General (continued)

affected programs, and the approved rate(s) should be used to identify the maximum amount of indirect cost allocable to these programs.

J. **Central Service Costs:** If the proposed central service cost allocation plan for the same period has not been approved by that time, the indirect cost proposal may be prepared including an amount for central services that is based on the latest federally-approved central service cost allocation plan. The difference between these central service amounts and the amounts ultimately approved will be compensated for by an adjustment in a subsequent period.

K. **Other:**

1. The purpose of an indirect cost rate is to facilitate the allocation and billing of indirect costs. Approval of the indirect cost rate does not mean that an organization can recover more than the actual costs of a particular program or activity.

2. Programs received or initiated by the organization subsequent to the negotiation of this agreement are subjec t to the approved indirect cost rate(s) if the programs receive administrative support from the indirect cost pool. It should be noted that this could result in an adjustment to a future rate.

3. Indirect cost proposals must be developed (and, when required, submitted) within six (6) months after the close of the governmental unit's fiscal year, unless an exception is approved by the cognizant agency for indirect costs

Section III: Acceptance

Listed below are the signatures of acceptance for this agreement:

By the State and Local Governments By the Cognizant Federal Government Agency <u>Maryland Department of</u>

<u>Natural Resources US Department of the Interior - FWS</u>

Signature Signature

Katina Conn Craig Wills
Name: Name:

                                            Division Chief
                                      Indirect Cost & Contract Audit Division

Director, Finance & Administrative Services   Interior Business Center
Title: Title:
  9/19/2022 9/19/2022

                                      Date Date

                                      Negotiated by: Elena Chan
                                      Telephone: (916) 930-3824

                                      Next Proposal Due Date: 12/31/2022

June 16, 2023

To the members of the Operations and Advisory Committees:

The FY2024 Administrative Budget contains a few changes to the core request, and clearly identifies optional projects for consideration. ACCSP leadership continues to make concerted efforts to maximize the potential of the administrative budget by finding additional sources of funding and exploring opportunities to gain efficiencies, which is evidenced in the budget reductions found in travel. Additionally, the ASMFC has again decreased its overhead rate from 12.94% to 11.56%. These combined efforts have resulted in a minimal increase in the Administrative Budget compared to FY2023.

In alignment with the direction of these groups last year, there are two options included in the FY2024 Administrative Budget designed to address single year expenditures that address partner needs but only require ACCSP resources. Each option includes a cost, description of the need, and brief approach so that they can be evaluated independently.

Attachment I of the FY2024 Administrative Budget request, the 2019 ASMFC Strategic Plan (Goal 3), provides an overview of the high-level tasks and milestones expected for the coming year.

Sincerely,

Geoff White

ACCSP Director

Funding Proposal
FY24 ACCSP Administrative Budget

Applicant Name: Atlantic States Marine Fisheries Commission

Project Title: Administrative Support to the Atlantic Coastal Cooperative
                           Statistics Program

Principal Investigator: Geoff White, Director, ACCSP

Requested Award Amount: $2,260,327
    Additional Option 1: $ 50,000
    Additional Option 2: $ 50,000

Request Type: Maintenance/Administrative

Requested Award Period: March 1, 2024 through February 28, 2025

A. Goals

The Atlantic Coastal Cooperative Statistics Program (ACCSP) is a state-federal cooperative partnership between 23 entities responsible for fisheries management, and fisheries data collection on the Atlantic Coast: the 15 Atlantic coast states and the District of Columbia, two federal fisheries agencies (Commerce's NOAA Fisheries and Interior's U.S. Fish and Wildlife Service), three regional fisheries management councils (New England, Mid-Atlantic, and South Atlantic), the Potomac River Fisheries Commission, and the Atlantic States Marine Fisheries Commission (ASMFC). Partner agencies are listed in the original ACCSP Memorandum of Understanding.

The Program was established in 1995 to design, implement, and conduct marine fisheries statistics data collection programs and to integrate those data into a single data management system that will meet the needs of fishery managers, scientists, and the general public.

By establishing and maintaining data collection standards and providing a data management system that incorporates state and federal data, ACCSP will ensure that the best available statistics can be used for fisheries management.

B. Objectives

1. Manage and expand a fully integrated data set that represents the best available fisheries-dependent data;

2. Continue working with the program partners to improve fisheries data collection and management in accordance with the evolving ACCSP standards within the confines of limited funds;
3. Explore the allocation of existing Program funds and work with partners to pursue additional funding;
4. Maintain strong executive leadership and collaborative involvement among partners at all committee levels;
5. Monitor and improve the usefulness of products and services provided by the ACCSP;
6. Collaborate with program partners in their funding processes by providing outreach materials and other support to demonstrate the value of ACCSP products and the importance of maintaining base support for fishery-dependent data collection programs to state partners and their executive and legislative branches as well as to all other partner agencies; and,
7. Support nationwide systems as defined in the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

C. Need

Various state and federal fishery management agencies on the Atlantic coast collect data on the status and trends of specific fish populations and the fisheries that utilize these resources; however, it is often difficult to develop sound recommendations to fisheries managers due to inconsistencies in the way data are collected and managed. The various data sets often cannot be integrated to provide accurate information at the state, regional, or coast-wide level. In addition, the disparate manner in which these data are collected and managed places duplicative burdens on fishermen and dealers reporting to multiple state and federal agencies and regions. Due to rapidly changing stock conditions, within-season regulatory changes and catch quotas have become common fishery management strategies. Timely and accurate harvest information for both recreational and commercial fisheries is required to determine the need for and effects of these management measures.

The Atlantic Coastal Fisheries Cooperative Management Act of 1993 mandated a cooperative state-federal program for the conservation of Atlantic coastal fisheries. Section 804 of the Act requires the Secretaries of Commerce and the Interior to develop a program to support state fisheries programs and those of the ASMFC, including improvements in statistics programs. Since the mid-1990s, the ASMFC has provided administrative support for this coordinated effort to improve data collection and management activities.

In 1995 the states, the ASMFC, and the federal fishery management agencies on the Atlantic coast entered into a Memorandum of Understanding (MOU) to develop and implement a cooperative state-federal statistics program that would meet the management needs of all participating agencies. All program partners signed the MOU for the ACCSP at the Commission's 54th Annual Meeting in Charleston, SC. Following signing, an Operations Plan was developed to outline the specific tasks and timetables required to develop and initiate implementation of this program. In October of 2016, an updated MOU was approved that made the ACCSP a program of the ASMFC. This governance change integrates the long-term and annual planning processes

with those already in existence for the ASMFC and conform to policy as set by the ACCSP Coordinating Council.

D. Results and Benefits

The ACCSP developed and adopted 1999, 2004 and 2012 versions of the Program Design (now renamed Atlantic Coast Fisheries Data Collection Standards), which document the standards and protocols for collection and management of commercial, recreational, and for-hire fisheries statistics. Program partners developed and approved minimum data elements for collection of catch, effort, biological, social, and economic statistics. The ACCSP also developed standard codes and formats to ensure consistency of all data collected under the Program. These standards require periodic review and revision as the needs of fisheries managers and the state of the art of fisheries science change.

In 2000, the first version of the Data Warehouse was made available to the program partners. Since then, it has grown to encompass almost a 70-year time series of fisheries-dependent catch and effort data. Loading of biological data has begun. These data are constantly reviewed and updated as needed.

In 2004, the first version of the Standard Atlantic Fisheries Information System (SAFIS) eDR (electronic dealer reporting) was deployed, followed in 2008, by eTRIPS (electronic trip reporting). This system is used to collect data from commercial and recreational fishermen and dealers and is now deployed from Maine to Georgia. SAFIS is an ongoing and evolving system, requiring support, review, and revision.

The ACCSP will continue to reduce duplication of effort by dealers and fishermen, make more efficient use of limited funds, promote education of resource users, and provide a more complete information base for formulating management policies, strategies, and tactics for shared resources. An integrated multi-agency program using standard protocols for reporting compatible information will lead to more efficient and cost-effective use of current federally and state funded data collection and management programs. The ACCSP will reduce the burden on the fishing industry to provide information in multiple formats to multiple agencies, in alignment with the coastwide One Stop Reporting initiative, and will provide more accurate and timely information to achieve optimum public benefits from the use of fishery resources along the Atlantic coast. The ACCSP will ensure the timely dissemination of accurate data on commercial and recreational fisheries for use in stock assessments and fisheries management through a comprehensive and easily accessible data management system.

E. Approach

The ACCSP is managed collaboratively by committee: the Coordinating Council, composed of high-level fisheries policy makers from all the program partners, is the governing body; the Operations Committee provides guidance in standards setting and funding priorities. An Advisory

Committee provides industry input into the process. A number of other [technical committees](#) provide input into various aspects of the process.

Program planning builds on basic principles related to the goals stated in the ACCSP MOU:

- Development of data collection standards and the implementation of data collection programs will be done cooperatively, across jurisdictional lines;
- Consistent coast-wide data collection standards will be implemented by all program partners that include data on all fishing activities -- commercial, recreational and for-hire fisheries;
- Once achieved, data collection improvements will be maintained;
- These data will be loaded and maintained in a central data repository and provided to data users through a user-friendly query system;
- Program planning will be done collaboratively, by consensus;
- The program will be responsive and accountable to partner and end-user needs; and
- Focus on activities that yield maximum benefit.

Goal 3 of the ASMFC Strategic Plan (Attachment I) provides high-level activities to be conducted by ACCSP staff and committees under the FY24 Administrative Budget. As a program of the ASMFC, administrative support of ACCSP activities is funded through indirect charges of all ACCSP awards, including the Administrative Grant. Note that program activities and staff in support of the Marine Recreational Information Program are separately funded and therefore not included in this plan.

The ACCSP initially developed common standards collaboratively, by consensus, then began to work with program partners to implement the standards, according to a commonly agreed upon priority. All ACCSP technical committees, except for the Advisory Committee which is composed of industry and recreational representatives, are comprised of managers and staff of the partner agencies and set policy by consensus. Only the Coordinating Council votes directly on motions.

The standards, known as the [Atlantic Coast Fisheries Data Collection Standards](#), for data collection and management are developed and maintained by ACCSP Technical Committees, with review and oversight by the Operations Committee, and advice from the Advisory Committee. The ACCSP Coordinating Council makes policy level decisions to adopt the program standards. The full-time ACCSP staff coordinates all activities conducted by the ACCSP.

The [Atlantic Coast Fisheries Data Collection Standards](#) documents all completed standards and provides the basic framework for full implementation of the ACCSP by all program partners. The ACCSP is continuously evolving as technology and the needs of management and science change over time. Therefore, the *Standards* and supporting systems are always developing. Support for the implementation of ACCSP modules is provided by staff in various jurisdictions. To this end, funding is required to provide for full-time staff for all ACCSP activities, as well as for travel and meeting expenses.

The ACCSP Director, reporting to the Executive Director of the ASMFC, provides leadership for the Program, overall programmatic management and guidance, and is responsible for the day-to-day operations. The ACCSP Deputy Director supports the ACCSP Director on operation and development of the Program and is responsible for managing the competitive ACCSP funding process, coordinating cross-team project management, and providing support for a wide range of Program activities. The ACCSP Program Assistant aids the ACCSP Director and ACCSP Deputy Director, provides staff support for program and technical committees by drafting, maintaining, and coordinating program documents, and publicizes the availability and benefits of the Program. The Data Team Leader provides guidance for data compilation and dissemination related activities. The Recreational Team Lead coordinates MRIP survey implementation and recreational and for-hire data standards. The Data Coordinators and Developers provide programming services and system support required to develop and fine-tune the data management systems, assist users as they access the system and provide quality management and control. The Data Coordinators also complete custom data requests, QA/QC existing data, maintain data feeds, and directly participate in data intensive activities such as a stock assessment data workshops. The ACCSP Software & IT Manager manages the information systems infrastructure and security and coordinates the development and management of ACCSP data collection systems. The Software Team staff provides expert consultation to partners as they implement new reporting, and licensing/permitting systems. The Software Team will continue to support development of SAFIS.

ACCSP staff will follow Goal 3 of the ASMFC 2019 Strategic Plan during FY24, in consultation with all partners. Specific tasks to be accomplished during the period include initiation and maintenance of Partner data feeds from the commercial, recreational, and biological modules; implement the redesign of SAFIS eDR (dealer reporting); maintenance of Federal Information Security Management Act procedures; and support of other partner projects by providing technical expertise as necessary.

The ASMFC has basic responsibility for the logistics of all committee meetings which support the development of the ACCSP, including: the ACCSP Coordinating Council, the ACCSP Operations Committee, the Advisory Committee, the Recreational Technical Committee, the Commercial Technical Committee, the Information Systems Committee, the Biological Review Panel, the Bycatch Prioritization Committee, the Standard Codes Committee. Full-time ACCSP personnel staff these committees for planning of work, providing minutes and other documents, and other follow-up.

The ACCSP has helped foster an improved atmosphere of cooperation among its partners. The Program has succeeded in establishing coast-wide fisheries data standards that all program partners have agreed to adopt. Data collection and management systems will be developed and deployed and maintained as the standards and Partner needs evolve. Program partners remain engaged in the process, and the program has made substantial progress towards its goals.

1. Geographic Location: Atlantic Coast (Maine through Florida)

2. Milestone Schedule: See Goal 3 of the ASMFC 2019 Strategic Plan (Attachment I)

This is a continuation from previous projects. Table 1 contains the base administrative budget amounts by year since implementation began in 1999.

Table 1. Administrative funding for ACCSP from 2000-2023

Year	Funding	Number of Staff
2000	$681,451	3
2001	$1,054,466	5
2002	$1,178,677	6
2003	$1,302,768	7
2004	$1,298,319	8
2005	$1,409,545	8
2006	$1,380,598	8
2007	$1,489,189	8
2008	$1,447,620	9
2009	$1,527,996	9
2010	$1,509,899	9
2011	$1,530,699	9
2012	$1,509,555	9
2013	$1,582,780	9
2014	$1,718,447	9.5
2015	$1,731,666	9.5
2016	$1,623,360	9.5
2017	$1,855,113	9.5
2018	$1,854,249	9.5
2019	$1,816,503	9.5
2020	$2,012,744	11
2021	$2,069,244	12
2022	$2,224,272	13
2023	$2,211,126	13

3. Cost Summary: The ACCSP requests $2,026,108 for administrative support, committee travel and systems operations during FY24. The addition of the 11.56% indirect rate raises the request to $2,260,327. The minimal increase in request from FY23 reflects an increase in staff salaries balanced with decreases in ASMFC indirect and funding requested for travel due to recent in-person attendance not warranting travel and resulting in webinar meetings. A future increase to previous levels in travel request is possible if the desire to meet in-person outweighs the current roadblocks to travel.

The funds used for the ACCSP shall be accounted for separately from all other ASMFC funds.

4. Personnel

Program personnel funded through this grant, except the Recreational Team Lead, are dedicated 100% to the ACCSP and are full-time employees of the Atlantic States Marine Fisheries Commission. Note that personnel associated with the MRIP state conduct and 85% of the Recreational Team Leader are funded under separate authority and not accounted for in this document. Fringe benefits which include health care, vision, dental, annual and sick leave are calculated at 28%. ASMFC salaries are kept confidential, thus only totals are displayed. Additionally, an agreement has been put in place with NMFS Highly Migratory Species (HMS) to partially fund the Information Systems Specialist responsible for maintaining HMS data feeds.

- ACCSP Director - Geoff White
- ACCSP Deputy Director – Julie DeFilippi Simpson
- Program Assistant – Marisa Powell
- ACCSP Software & IT Manager – Edward Martino
- Recreational Team Lead (15%) – Alex DiJohnson
- Software Developer – Jamal Oudiden
- Software Developer – Daniel Mestawat
- Software Developer – Kranthi Kumar Palla
- Data Team Lead – Michael Rinaldi
- Data Analyst - Jennifer Ni
- Senior Data Coordinator – Joseph Myers
- Senior Data Coordinator – Heather Konell
- Data Coordinator – Anna-Mai Christmas-Svajdlenka
- Data Coordinator – VACANT

Salaries and Wages		
Total Salary	$	1,390,632
Benefits @28%	$	389,377
Total Costs	$	1,780,008

5. Travel

Travel is broken down into two general categories; committee meetings and staff travel. Given the current decline in in-person meetings and shift to using remote meeting technologies (such as online meetings), this year's request decreases the ask for committee travel, which is now equally balanced with staff travel. In future years, face-to-face meetings may be required more to complete the tasks assigned. In addition to staff travel to support committee meetings, staff travel is needed for implementation planning, data collection activities, outreach efforts, and information system development meetings with partners.

The Program funds fares to and from the meeting site, per diem according to Office of Personnel and Management guidelines and facilities costs for the meeting itself. (The daily rate per meeting includes cost of airfare or mileage, lodging, meals, and other travel related expenses.) Reimbursable participants include state fisheries directors and biologists, state and university scientists, law enforcement personnel and citizen advisors from Maine through Florida. Meetings will be held in various locations on the Eastern Seaboard, including but not limited to: Annapolis, MD; Norfolk, VA; Charleston, SC; Portland, ME; Alexandria, VA; Providence, RI; Tampa, FL; Washington, D.C.

The travel budget is based on an ASMFC average estimated $275 per day multiplied by meetings multiplied by days multiplied by non-federal membership plus staff.

Committee Travel	Meetings	Days	Membership	Total	Staff	Total	Grand Total
Biological Review panel	1	0	15	$0	1	$0	$0
Bycatch Prioritization	1	0	15	$0	1	$0	$0
Commercial Technical Committee	1	0	15	$0	1	$0	$0
Coordinating Council (with ASMFC)	2	0.5	12	$3,300	2	$550	$3,850
Operations and Advisory Committees	1	2.5	20	$13,750	2	$1,375	$15,125
Recreational Technical	1	1	15	$4,125	1	$275	$4,400
Information Systems Committee	1	0	15	$0	1	$0	$0
Total Committees				$21,175		$2,200	$23,375
Staff Travel							
Partner Coordination	5	2	2	$5,500			
Data Support (Stock Assessment etc)	1	5	2	$2,750			
IT/SAFIS Support	3	1	1	$825			
Outreach/Training	4	1	2	$2,200			
GulfFIN Coordination	2	1.5	2	$1,650			
Staff Training	2	4	5	$11,000			
Total Staff Travel				$23,925			
Grand Total							$47,300

Attachment II provides the FY23 schedule of the funding cycle and calendar of meetings, which serves as a tentative schedule for FY24.

6. Supplies

Supply costs include supplies not covered by the ASMFC indirect. This includes ACCSP specific materials for outreach, smaller information systems items such as network switches and cables.

Supplies	
Misc Hardware (cables, network switches, etc)	$4,600
Backup Tapes	$1,000
Total	$5,600

7. Equipment

ACCSP maintains several large server systems and related hardware in support of the Data Warehouse, website, SAFIS and administrative functions. These systems typically have a 5-year life cycle after which they require upgrade or replacement. In cases of the larger items, lease options have been explored, but it appears that, in part due to current staffing, it is more cost effective to own and maintain the equipment internally.

Included in the costs are normal life cycle replacements of laptop and desktop systems, assuming replacement of 3 systems annually. Costs are based upon current market surveys and an estimate of our needs. In FY24, we will require replacement of one server and several staff computers.

Equipment	
Infrastructure Replacement of one server	$ 9,000
Desktop/Laptop Systems	$ 7,500
Total	**$16,500**

8. Other Costs

Hardware and software support are supplied by several different vendors and includes costs associated with licensing and maintenance fees (such as *Oracle* licensing).

The Program maintains a high-speed internet connection and associated infrastructure in support of the server systems. The primary internet connection is covered by ASMFC. The second connection, using an entirely different technology and provider provides redundancy to the primary connection in case of failure. The system is configured to automatically fail over in the event of a failure of the primary internet connection. A previously maintained ACCSP funded connection dedicated to the NOAA Fisheries Greater Atlantic Regional Fisheries Office (GARFO) to provide full time secure connectivity requested by the Region has been replaced with a VPN

connection through NOAA's OCIO office. Coordination of ACCSP with the OCIO has resulted in a permanent decrease in costs in this area by about $10,000.

Outside vendors include Hewlett Packard for systems hardware and software support; Oracle for database management systems support; DLT Solutions and Trident Solutions for hardware support. All pricing is based on the GSA schedule.

Software maintenance and development workload at times exceeds staff's resources. Contract services will be utilized to provide services that staff may be unable to perform.

E-Reporting Support

Funds are requested for electronic reporting outreach and support activities. Interest among state Partners and harvesters has been steadily rising and a steady stream of new users are adopting the system where agencies will accept electronic reports though SAFIS. SAFIS eTrips in both the mobile and on-line versions are likely to be the top applications used by commercial harvesters in the Southeast as voluntary electronic reporting for commercial harvesters is rolled out. This is especially true as eTRIPS is the only application on the east coast that is considered compliant with the One Stop Reporting (OSR) requirements. In addition, most trips will be reported to the SAFIS system regardless of the tool selected.

Funds requested include both costs associated with initial deployment and ongoing support. Initial startup costs include, but are not limited to, in-person and virtual training workshops for harvesters and partner agency personnel and published training guides and videos that will be available via the ACCSP website. ACCSP continues to contract for help desk support for SAFIS which includes 24/7 helpdesk support, a toll-free number to contact support personnel, and a helpdesk ticketing program designed to keep track of all requests and provide feedback to the Program. The ACCSP Director and ASMFC Executive Director have secured external funding to support the help desk and FISMA costs in FY2024.

Other Expenses	
Software Support	$60,000
Hardware Support	$7,500
Communications/Internet Connectivity	$16,700
Printing (outreach)	$2,500
Software Development	$90,000
Help Desk Support	$0
Total	**$176,700**

Budget Summary

Budget Summary	2024
Personnel	$1,390,632
Fringe Benefits	$389,377
Travel	$47,300
Equipment	$16,500
Supplies	$5,600
Other	$176,700
Total Program	**$2,026,108**
ASMFC Overhead (11.56%)	**$234,218**
Total Proposal	**$2,260,327**

Resources actively sought to support ACCSP activities in addition to the Administrative Grant

2023 Support	Coverage	Funding Expected
HMS	Partial Data Analyst	$ 40,000
NOAA Fisheries Office of Science and Technology	ACCSP SAFIS Help Desk and FISMA Support	$215,000
MRIP	State Conduct of MRIP APAIS, FHTS ME-GA, and additional surveys in some states (LPIS in ME, Catch Cards in MD & NC, and LPBS in NC). Includes Recreational Team Staff (3).	Total Grant: $5,912,000 ACCSP: $ 540.305

9. Additional options

Each of the following options represents projects that ACCSP staff recommends in support of partner priorities in FY2024 that will not be possible without support additional to the base Administrative Proposal. To provide the Operations Committee, Advisory Panel, and Coordinating Council with transparency and an opportunity for prioritization, two additional options are presented. Each option includes a requested amount and explanation of the project. Option 1 focuses on enhancements to the storage and display of VMS data as follow-up to a previously funded project. This option is supported by the original proposers (MA and RI) but not being offered by them as all costs are internal to ACCSP. Option 2 requests support to

funding the upgrading ACCSP mobile applications from Xamarin to .NET as required by the sunsetting of Xamarin.

Option 1: Storage and Display of VMS Data

Cost: $50,000

The storage and display of VMS data by SAFIS and SAFIS applications further moves towards ACCSP being the sole repository for fisheries-dependent data collection, which makes multi-jurisdiction management more streamlined and data more easily available and accessible. This project ultimately addresses the ACCSP's catch and effort priority by further integrating and advancing data collection methods to include location tracking, which will support emerging management issues and improve the quality of data used to make decisions. The addition of geographic/positional fisheries-dependent data streams is becoming a priority of ACCSP and its partners and integral to SAFIS and SAFIS applications keeping current with emerging technologies.

This project, in part, originated in response to implementation of Addendum XXIX to Amendment 3 to the Interstate Fishery Management Plan for American Lobster through the Atlantic States Marine Fisheries Commission published in March 2022. The Addendum implements electronic tracking requirements for federally-permitted vessels in the American lobster and Jonah crab fishery, with the goal of collecting high resolution spatial and temporal effort data. Earlier phases of this project collaborated with both ACCSP and ASMFC to support the successful development of Addendum XXIX and successfully adopted specifications for tracking devices to ensure the collected data met both management and assessment needs. A basic administrative interface for viewing tracking and trip data was built in SAFIS. While significant effort has already been invested in developing this interface and associated backend, the interface (and related backend mechanics) will need to be refined and enhanced as a significant volume of VMS track data begins to be ingested by the system. These improvements are needed to aid state mangers in adhering to compliance requirements as well as allowing for useful data extractions for management data requests. In addition, using the existing administrative interface as an example, a separate interface catering to the exact needs of law enforcement will need to be scoped.

While the SAFIS VMS administrative interface was originally designed to be used by state managers for compliance issues related to Addendum XXIX, the backend of this interface was purposefully designed to be scalable to allow for additional frameworks (e.g., individual state opt-in programs) to be added in the future. Because VMS data allows for significantly more robust accountability for these 'opt-in' programs, state managers and law enforcement have been interested in leveraging the capabilities of low-cost cellular trackers. Positional data generated from VMS devices linked with trip-level data is needed to accomplish the rigorous monitoring associated with these types of management programs especially where the current level of reported location data is insufficient. Furthermore, with the increasing presence of other ocean uses in recent years (e.g., renewable energy, aquaculture) in historically utilized

commercial fishing areas, the ability to track spatiotemporal use with catch may be of interest to various commercial fishing stakeholders and management groups. This project intends to add a new framework (e.g., Rhode Island Black Sea Bass Aggregate Program) into the SAFIS VMS interface and database. This will serve as a proof of concept as additional frameworks will need to be added in the future.

Objectives:
To continue development of an API-based integration of geographical vessel-monitoring data with electronically reported trip data for small scale inshore fisheries through an ACCSP hosted web-based administrative application within SAFIS. Within the scope of the project, the following additional objectives will be met:
- Collaborate with Atlantic States Marine Fisheries Commission Law Enforcement Committee to scope an enforcement specific administrative interface for the Vessel Tracking Application on SAFIS.
- Develop standard operating procedures (SOP) and detailed workflows for administrators to effectively utilize the ACCSP SAFIS Vessel Tracking Application in a consistent manner.
- Enhance the existing administrative tool to develop the ability to access different compliance frameworks within the existing ACCSP SAFIS Vessel Tracking Application.

Option 2: Mobile application development: Xamarin migration to .NET

Cost: $50,000

For the maintenance of mobile applications, Xamarin allows developers to create a single source code that can be shared across multiple device platforms for distribution. For ACCSP, this means the mobile applications for eTRIPS, eDR, DIA, and SciFish can be built once and distributed to the Android, Apple, and Microsoft stores with minimal additional efforts. This provides application availability to end users with minimal additional resource expense for ACCSP.

Microsoft acquired Xamarin in February of 2016. In 2022, Microsoft released .NET MAUI and stated that support for Xamarin would continue until it is fully replaced by .NET MAUI in May of 2024. This means that in the time period of the next year, all the ACCSP applications listed above will need to be migrated. This is done by updating the projects to be SDK-style projects and then updating the dependencies to .NET 6+. While a migration tool is available, Microsoft has noted that most cases require additional effort to migrate the application after running the tool. The funds requested here are to migrate all of the ACCSP mobile applications prior to the cessation of support. This is an unavoidable one-time cost that is not factored into the standard Administrative budget.

ATLANTIC STATES MARINE FISHERIES COMMISSION

Five-Year Strategic Plan 2019-2023

*The nation behaves well if it treats the natural resources
as assets which it must turn over to the next generation
increased and not impaired in value.*

Theodore Roosevelt

Introduction

Each state has a fundamental responsibility to safeguard the public trust with respect to its natural resources. Fishery managers are faced with many challenges in carrying out that responsibility. Living marine resources inhabit ecosystems that cross state and federal jurisdictions. Thus, no state, by itself, can effectively protect the interests of its citizens. Each state must work with its sister states and the federal government to conserve and manage natural resources.

Beginning in the late 1930s, the 15 Atlantic coastal states from Maine to Florida took steps to develop cooperative mechanisms to define and achieve their mutual interests in coastal fisheries. The most notable of these was their commitment to form the Atlantic States Marine Fisheries Commission (Commission) in 1942, and to work together through the Commission to promote the conservation and management of shared marine fishery resources. Over the years, the Commission has remained an effective forum for fishery managers to pursue concerted management actions. Through the Commission, states cooperate in a broad range of programs including interstate fisheries management, fisheries science, habitat conservation, and law enforcement.

Congress has long recognized the critical role of the states and the need to support their mutual efforts. Most notably, it enacted the Atlantic Coastal Fisheries Cooperative Management Act (Atlantic Coastal Act) in 1993, which built on the success of the Atlantic Striped Bass Conservation Act of 1984. Acknowledging that no single governmental entity has exclusive management authority for Atlantic coastal fishery resources, the Atlantic Coastal Act recognizes the states' responsibility for cooperative fisheries management through the Commission. The Atlantic Coastal Act charges all Atlantic states with implementing coastal fishery management plans that will safeguard the future of Atlantic coastal fisheries in the interest of both fishermen and the nation.

Accepting these challenges and maintaining their mutual commitment to success, the Atlantic coastal states have adopted this five-year Strategic Plan. The states recognize circumstances today make the work of the Commission more important than ever before. The Strategic Plan articulates the mission, vision, goals, and objectives needed to accomplish the Commission's mission. It serves as the basis for annual action planning, whereby Commissioners identify the highest priority issues and activities to be addressed in the upcoming year. With 27 species currently managed by the Commission, finite staff time, Commissioner time and funding, as well as a myriad of other factors impacting marine resources (e.g., changing ocean conditions, protected species interactions, offshore energy, and aquaculture), Commissioners recognize the absolute need to prioritize activities, dedicating staff time and resources where they are needed most and addressing less pressing issues as resources allow. Efforts will be made to streamline management by using multi-year specifications where possible and increase stability/predictability in fisheries management through less frequent regulatory changes. A

key to prioritizing issues and maximizing efficiencies will be working closely with the three East Coast Regional Management Councils and NOAA Fisheries.

Mission

The Commission's mission, as stated in its 1942 Compact, is:

> *To promote the better utilization of the fisheries, marine, shell and anadromous, of the Atlantic seaboard by the development of a joint program for the promotion and protection of such fisheries, and by the prevention of physical waste of the fisheries from any cause.*

The mission grounds the Commission in history. It reminds every one of the Commission's sense of purpose that has been in place for over 77 years. The constantly changing physical, political, social, and economic environments led the Commission to restate the mission in more modern terms:

> *To promote cooperative management of marine, shell and diadromous fisheries of the Atlantic coast of the United States by the protection and enhancement of such fisheries, and by the avoidance of physical waste of the fisheries from any cause.*

The mission and nature of the Commission as a mutual interstate body incorporate several guiding principles. They include:

➢ States are sovereign entities, each having its own laws and responsibilities for managing fishery resources within its jurisdiction
➢ States serve the broad public interest and represent the common good
➢ Multi-state resource management is complex and dependent upon cooperative efforts by all states involved
➢ The Commission provides a critical sounding board on issues requiring cross-jurisdictional action, coordinating cooperation, and collaboration among the states and federal government

Vision

The long-term vision of the Commission is:

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Values

The Commission and its member states have adopted the following values to guide its operations and activities. These values affirm the Commission's commitment to sustainable

fisheries management for the benefit of recreational and commercial fishermen and coastal communities. They also acknowledge the growing importance of managing fisheries in a more holistic and adaptive way, seeking solutions to cross cutting resource issues that lead to long-term ecological and socio-economic sustainability.

- ➢ Effective stewardship of marine resources through strong partnerships
- ➢ Decisions based on sound science
- ➢ Long-term ecological sustainability
- ➢ Transparency and accountability in all actions
- ➢ Timely response to new information through adaptive management
- ➢ Balancing resource conservation with the economic success of coastal communities
- ➢ Efficient use of time and fiscal resources
- ➢ Work cooperatively with honesty, integrity, and fairness

Driving Forces

The Commission and its actions are influenced by a multitude of factors. These factors are constantly evolving and will most likely change over the time period of this Strategic Plan. However, the most pressing factors affecting the Commission today are changing ocean conditions, resource allocation, the quality and quantity of scientific information, competing ocean uses, a growing demand to address ecosystem functions, and interactions between fisheries and protected species. The Strategic Plan, through its goals and broad objectives, will seek to address each of these issues over the next five years.

Changing Ocean Conditions
Changes in ocean temperature, currents, acidification, and sea level rise are affecting nearly every facet of fisheries resources and management at the state, interstate, and federal levels. Potential impacts to marine species include prey and habitat availability, water quality, susceptibility to disease, and spawning and reproductive potential. The distribution and productivity of fishery stocks are often changing at a rate faster than fisheries stock assessments and management can keep pace with. Several Commission species, such as northern shrimp, Southern New England lobster, Atlantic cobia, black sea bass, and summer flounder are already responding to changes in the ocean. In the case of northern shrimp and Southern New England lobster, warming ocean waters have created inhospitable environments for species reproduction and survivability. For cobia, black sea bass, and summer flounder, changing ocean conditions have contributed to shifts in species distributions, with some species expanding their ranges and others moving into deeper and/or more northern waters to stay within preferred temperature ranges. Where shifts are occurring, the Commission may need to reconsider state-by-state allocation schemes and make adjustments to our fishery management plans. For other species depleted due to factors other than fishing mortality (e.g., habitat degradation and availability, predation), the states will need to explore steps that can be taken to aid in species recovery. And, if a stock's viability is compromised, Commission resources and

efforts should be shifted to other species that can be recovered or maintained as a rebuilt stock.

Allocation
As noted above, resource allocation among the states and between various user groups will continue to be an important issue over the next five years. Many of the Commission FMPs divvy up the available harvestable resource through various types of allocation schemes, such as by state, region, season, or gear type. The changing distribution of many species has further complicated the issue of resource allocation with traditional allocation schemes being challenged and a finite amount of fishery resources to be shared. Discussion may be difficult and divisive, with some states (and their stakeholders) wanting to maintain their historic (traditional) allocations, while others are seeking a greater share of the resource given increased abundance and availability in their waters. States will need to seek innovative ways to reallocate species so that collectively all states feel their needs are met. What will be required to successfully navigate these discussions and decisions is the commitment of the states to work through the issues with honesty, integrity, and fairness, seeking outcomes that balance the needs of the states and their stakeholders with the ever changing realities of shifting resource abundance and availability.

Science as the Foundation
Accurate and timely scientific information form the basis of the Commission's fisheries management decision-making. Continued investments in the collection and management of fishery-dependent and -independent data remain a high priority for the Commission and its member states. The challenge will be to maintain and expand data collection efforts in the face of shrinking state and federal budgets. Past and current investments by state, regional and federal partners of the Atlantic Coastal Cooperative Statistics Program (ACCSP) have established the program as the principal source of marine fishery statistics for the Atlantic coast. State and regional fishery-independent data collection programs, in combination with fishery statistics, provide the scientific foundation for stock assessments. Many data collection programs will continue to be strained by budget restrictions, scientists' workload capacities, and competing priorities. The Commission remains committed to pursuing long-term support for research surveys and monitoring programs that are critical to informing management decisions and resource sustainability.

Ecosystem Functions
Nationally, there has been a growing demand for fisheries managers to address broader ecosystem functions such as predator-prey interactions and environmental factors during their fisheries management planning. Ecosystem science has improved in recent years, though the challenges of comprehensive data collection continue. A majority of the Commission's species are managed and assessed on a single species basis. When ecosystem information is available, the Commission has managed accordingly to provide ecosystem services. The Commission remains committed to seeking ecological sustainability over the long-term through continuing its work on multispecies assessment modeling and the development of ecosystem-based reference points in its fisheries management planning process.

Competing Ocean Uses

Marine spatial planning has become an increasingly popular method of balancing the growing demands on valuable ocean resources. More specifically, the competing interests of commercial and recreational fishing, renewable energy development, aquaculture, marine transportation, offshore oil exploration and drilling, military needs, and habitat restoration are all components that must be integrated into successful ocean use policies. The Commission has always emphasized cooperative management with our federal partners; however, the states' authorities in their marine jurisdictions must be preserved and respected. The Commission will continue to prioritize the successful operation of its fisheries, but it will be imperative to work closely with federal, state, and local governments on emerging ocean use conflicts as they diversify into the future.

Protected Species

Like coastal fishery resources, protected species, such as marine mammals, sea turtles, and listed and candidate fish species, traverse both state and federal waters. The protections afforded these species under the Marine Mammal Protection Act and Endangered Species Act can play a significant role in the management and prosecution of Atlantic coastal fisheries. The Commission and the states have a long history of supporting our federal partners to minimize interactions with and bycatch of marine mammals and sea turtles. The listing of Atlantic sturgeon under the Endangered Species Act has added a whole new level of complexity in the ability of the Commission and its member states to carry out their stewardship responsibilities for these important diadromous species. The species spends the majority of its life in state waters and depend on estuarine and riverine habitat for their survival. Listing has the potential to jeopardize the states' ability to effectively monitor and assess stock condition, as well as impact fisheries that may encounter listed species. It is incumbent upon the Commission and its federal partners to work jointly to assess stock health, identify threats, and implement effective rebuilding programs for listed and candidate species.

More recently, the depleted status of the Northern right whale population and the potential impacts to this population by entanglement in fishing gear, particularly lobster and crab gear, has heighted concern for both whales and the lobster industry.

Increased Cooperation and Collaboration among the States and between the States and Our Federal Partners

Demands for ecosystem-based fisheries management, competing and often conflicting ocean uses, and legislative mandates to protect marine mammals and other protected species, further complicate fisheries management and require quality scientific information to help guide management decisions. There is a growing concern among fishery managers that some "control" over fisheries decisions and status has been diminished due to political intervention and our inability to effect changing ocean conditions and other environmental factors that impact marine resources. Fisheries management has never been more complex or politically charged. State members are pulled between what is best for their stakeholders versus what is best for the resource and the states as a whole.

While the issues may seem daunting, they are not insurmountable. In order for the Commission to be successful, the states must recommit to their collective vision of "Sustainable and Cooperative Management of Atlantic Coastal Fisheries," recognizing that their strength lies in working together to address the fisheries issues that lie ahead. Given today's political and environmental realities, the need for cooperation among the states has never been more important. It is also critical the states and their federal partners seek to strengthen their cooperation and working relationships, providing for efficient and effective fisheries management across all agencies. No one state or federal agency has the resources, authority, or ability to do it alone.

GOALS & OBJECTIVES

The Commission will pursue the following eight goals and their related strategies during the five-year planning period, from 2019 through 2023. It will pursue these goals through specific objectives, targets, and milestones outlined in an annual Action Plan, which is adopted each year at the Commission's Annual Meeting to guide the subsequent year's activities. Throughout the year, the Commission and its staff will monitor progress in meeting the Commission's goals, and evaluate the effectiveness of the strategies. While committed to the objectives included in this plan, the Commission is ready to adopt additional objectives to take advantage of new opportunities and address emerging issues as they arise.

Goal 1 - Rebuild, maintain, fairly allocate, and promote sustainable Atlantic coastal fisheries

Goal 1 focuses on the responsibility of the states to conserve and manage Atlantic coastal fishery resources for sustainable use. Commission members will advocate decisions to achieve the long-term benefits of conservation, while balancing the socio-economic interests and needs of coastal communities. Inherent in this is the recognition that healthy and vibrant resources benefit stakeholders. The states are committed to proactive management, with a focus on integrating ecosystem services, socio-economic impacts, habitat issues, bycatch and discard reduction measures, and protected species interactions into well-defined fishery management plans. Fishery management plans will also address fair allocation of fishery resources among the states. Understanding changing ocean conditions and their impact on fishery productivity and distribution is an elevated priority. Successful management under changing ocean conditions will depend not only on adjusting management strategies, but also in reevaluating and revising, as necessary, the underlying conservation goals and objectives of fishery management plans. Improving cooperation and coordination with federal partners and stakeholders can streamline efficiency, transparency, and, ultimately, success. In the next five years, the Commission is committed to ending overfishing and working to rebuild overfished Atlantic coast fish stocks, while promoting sustainable harvest of and access to rebuilt fisheries. Where possible, the Commission will seek to aid in the rebuilding of depleted stocks, whose recovery is hindered by factors other than fishing pressure.

Annual action planning will be guided by the following objectives:

- Manage interstate resources that provide for productive, sustainable fisheries using sound science
- Strengthen state and federal partnerships to improve comprehensive management of shared fishery resources
- Adapt management to address emerging issues
- Practice efficient, transparent, and accountable management processes
- Evaluate progress towards rebuilding fisheries
- Promote sustainable harvest of and access to rebuilt fisheries
- Strengthen interactions and input among stakeholders, technical, advisory, and management groups

Goal 2 – Provide sound, actionable science to support informed management actions

Sustainable management of fisheries relies on accurate and timely scientific advice. The Commission strives to produce sound, actionable science through a technically rigorous, independently peer-reviewed stock assessment process. Assessments are developed using a broad suite of fishery-independent surveys and fishery-dependent monitoring, as well as research products developed by a broad network of fisheries scientists at state, federal, and academic institutions along the coast. The goal encompasses the development of new, innovative scientific research and methodology, and the enhancement of the states' stock assessment capabilities. It provides for the administration, coordination, and expansion of collaborative research and data collection programs. Achieving the goal will ensure sound science is available to serve as the foundation for the Commission's evaluation of stock status and adaptive management actions.

Annual action planning will be guided by the following objectives:

- Conduct stock assessments based on comprehensive data sources and rigorous technical analysis;
- Characterize the risk and uncertainty associated with the scientific advice provided to decision-makers
- Provide training to enhance the expertise and involvement of state and staff scientists in the development of stock assessments
- Streamline data assimilation within individual states, and among states and ASMFC
- Proactively address research priorities through cooperative state and regional data collection programs and collaborative research projects, including stakeholder involvement
- Explore the use of new technologies to improve surveys, monitoring, and the timeliness of scientific products
- Promote effective communication with stakeholders to ensure on-the-water observations and science are consistent

- Utilize ecosystem and climate science products to inform fisheries management decisions

Goal 3 - Produce dependable and timely marine fishery statistics for Atlantic coast fisheries

Effective management depends on quality fishery-dependent data and fishery-independent data to inform stock assessments and fisheries management decisions. While Goal 2 of this Action Plan focuses on providing sound, actionable science and fishery-independent data to support fisheries management, Goal 3 focuses on providing timely, accurate catch and effort data on Atlantic coast recreational, for-hire, and commercial fisheries.

Goal 3 seeks to accomplish this through the activities of the Atlantic Coastal Cooperative Statistics Program (ACCSP), a cooperative state-federal program that designs, implements, and conducts marine fisheries statistics data collection programs and integrates those data into data management systems that will meet the needs of fishery managers, scientists, and fishermen. ACCSP partners include the 15 Atlantic coast state fishery agencies, the three Atlantic Fishery Management Councils, the Potomac River Fisheries Commission, NOAA Fisheries, and the U.S. Fish and Wildlife Service.

Annual action planning will be guided by the following objectives:

- Focus on activities that maximize benefits, are responsive and accountable to partner and end-user needs, and are based on available resources.
- Cooperatively develop, implement, and maintain coastwide data standards through cooperation with all program partners
- Provide electronic applications that improve partner data collection
- Integrate and provide access to partner data via a coastwide repository
- Facilitate fisheries data access through an on-line, user-friendly, system while protecting confidentiality
- Support technological innovation

Goal 4 – Protect and enhance fish habitat and ecosystem health through partnerships and education

Goal 4 aims to conserve and improve coastal, marine, and riverine habitat to enhance the benefits of sustainable Atlantic coastal fisheries and resilient coastal communities in the face of changing ecosystems. Habitat loss and degradation have been identified as significant factors affecting the long-term sustainability and productivity of our nation's fisheries. The Commission's Habitat Program develops objectives, sets priorities, and produces tools to guide fisheries habitat conservation efforts directed towards ecosystem-based management.

The challenge for the Commission and its state members is maintaining fish habitat under limited regulatory authority for habitat protection or enhancement. Therefore, the Commission will work cooperatively with state, federal, and stakeholder partnerships to achieve this goal. Much of the work to address habitat is conducted through the Commission's Habitat and Artificial Reef Committees. In order to identify fish habitats of concern for Commission managed species, each year the Habitat Committee reviews existing reference documents for Commission-managed species to identify gaps or updates needed to describe important habitat types and review and revise species habitat factsheets. The Habitat Committee also publishes an annual issue of the *Habitat Hotline Atlantic*, highlighting topical issues that affect all the states.

The Commission and its Habitat Program endorses the National Fish Habitat Partnership, and will continue to work cooperatively with the partnership to improve aquatic habitat along the Atlantic coast. Since 2008, the Commission has invested considerable resources, as both a partner and administrative home, to the Atlantic Coastal Fish Habitat Partnership (ACFHP), a coastwide collaborative effort to accelerate the conservation and restoration of habitat for native Atlantic coastal, estuarine-dependent, and diadromous fishes. As part of this goal, the Commission will continue to provide support for ACFHP, under the direction of the National Fish Habitat Partnership Board.

Annual action planning will be guided by the following objectives:

- Identify fish habitats of concerns through fisheries management programs and partnerships
- Educate Commissioners, stakeholders, and the general public about the importance of habitat to healthy fisheries and ecosystems
- Better integrate habitat information and data into fishery management plans and stock assessments
- Engage local state, and regional governments in mutually beneficial habitat protection and enhancement programs
- Foster partnerships with management agencies, researchers, and habitat stakeholders to leverage scientific, regulatory, political, and financial support
- Work with ACFHP to foster partnerships with like-minded organizations at local levels to further common habitat goals

Goal 5 – Promote compliance with fishery management plans to ensure sustainable use of Atlantic coast fisheries

Fisheries managers, law enforcement personnel, and stakeholders have a shared responsibility to promote compliance with fisheries management measures. Activities under the goal seek to increase and improve compliance with fishery management plans. This requires the successful coordination of both management and enforcement activities among state and federal agencies. Commission members recognize that adequate and consistent enforcement of fisheries rules is required to keep pace with increasingly complex

management activity and emerging technologies. Achieving the goal will improve the effectiveness of the Commission's fishery management plans.

 Annual action planning will be guided by the following objectives:

- Develop practical compliance requirements that foster stakeholder buy-in
- Evaluate the enforceability of management measures and the effectiveness of law enforcement programs
- Promote coordination and expand existing partnerships with state and federal natural resource law enforcement agencies
- Enhance stakeholder awareness of management measures through education and outreach
- Use emerging communication platforms to deliver real time information regarding regulations and the outcomes of law enforcement investigations

Goal 6 – Strengthen stakeholder and public support for the Commission

Stakeholder and public acceptance of Commission decisions are critical to our ultimate success. For the Commission to be effective, these groups must have a clear understanding of our mission, vision, and decision-making processes. The goal seeks to do so through expanded outreach and education efforts about Commission programs, decision-making processes, and its management successes and challenges. It aims to engage stakeholders in the process of fisheries management, and promote the activities and accomplishments of the Commission. Achieving the goal will increase stakeholder participation, understanding, and acceptance of Commission activities.

Annual action planning will be guided by the following objectives:

- Increase public understanding and support of activities through expanded outreach at the local, state, and federal levels
- Clearly define Commission processes to facilitate stakeholder participation, as well as transparency and accountability
- Strengthen national, regional, and local media relations to increase coverage of Commission actions
- Use new technologies and communication platforms to more fully engage the broader public in the Commission's activities and actions

Goal 7 – Advance Commission and member states' priorities through a proactive legislative policy agenda

Although states are positioned to achieve many of the national goals for marine fisheries through cooperative efforts, state fisheries interests are often underrepresented at the national level. This is due, in part, to the fact that policy formulation is often disconnected from the processes that provide the support, organization, and resources necessary to implement the policies. The capabilities and input of the states are an important aspect of

developing national fisheries policy, and the goal seeks to increase the states' role in national policy formulation. Additionally, the goal emphasizes the importance of achieving management goals consistent with productive commercial and recreational fisheries and healthy ecosystems.

The Commission recognizes the need to work with Congress in all phases of policy formulation. Several important fishery-related laws will be reauthorized over the next couple of years (i.e., Atlantic Coastal Act, Magnuson-Stevens Fishery Conservation and Management Act, Interjurisdictional Fisheries Act, Atlantic Striped Bass Conservation Act, and Anadromous Fish Conservation Act). The Commission will be vigilant in advancing the states' interests to Congress as these laws are reauthorized and other fishery-related pieces of legislation are considered.

Annual action planning will be guided by the following objectives:

- Increase the Commission's profile and support in the U.S. Congress by developing relationships between Members and their staff and Commissioners, the Executive Director, and Commission staff
- Maintain or increase long term funding for Commission programs through the federal appropriations process and other available sources.
- Engage Congress on fishery-related legislation affecting the Atlantic coast
- Promote member states' collective interests at the regional and national levels
- Promote economic benefits of the Commission's actions (return on investment)

Goal 8 – Ensure the fiscal stability & efficient administration of the Commission

Goal 8 will ensure that the business affairs of the Commission are managed effectively and efficiently, including workload balancing through the development of annual action plans to support the Commission's management process. It also highlights the need for the Commission to efficiently manage its resources. The goal promotes the efficient use of legal advice to proactively review policies and react to litigation as necessary. It also promotes human resource policies that attract talented and committed individuals to conduct the work of the Commission. The goal highlights the need for the Commission as an organization to continually expand its skill set through training and educational opportunities. It calls for Commissioners and Commission staff to maintain and increase the institutional knowledge of the Commission through periods of transition. Achieving this goal will build core strengths, enabling the Commission to respond to increasingly difficult and complex fisheries management issues.

Annual action planning will be guided by the following objectives:

- Conservatively manage the Commission's operations and budgets to ensure fiscal stability
- Utilize new information technology to improve meeting and workload efficiencies, and enhance communications

- Refine strategies to recruit professional staff, and enhance growth and learning opportunities for Commission and state personnel
- Fully engage new Commissioners in the Commission process and document institutional knowledge.
- Utilize legal advice on new management strategies and policies, and respond to litigation as necessary.

Atlantic Coastal Cooperative Statistics Program

1050 N. Highland Street, Suite 200A-N | Arlington, VA 22201
703.842.0780 | 703.842.0779 (fax) | www.accsp.org

This list includes dates for fiscal year 2023, including ACCSP committee meetings, relevant dates of the funding cycle, as well as meetings or conferences ACCSP typically attends or which may be of interest to our partners. If you have any questions or comments on this calendar, please do not hesitate to contact the ACCSP staff at info@accsp.org.

Jan 24-26:	NEFMC Meeting – Portsmouth, NH
Jan 24-Feb 2:	ASMFC Meeting – Arlington, VA
Feb 1:	2023 FHTS Training– Webinar
Feb 7:	Bycatch Prioritization Committee Annual Meeting –Webinar
Feb 7-8:	APAIS North Atlantic Training- Providence, RI
Feb 7-9:	MAFMC Council Meeting- Washington, D.C
Feb 8:	Biological Review Panel Annual Meeting – Webinar
Feb 23-24:	APAIS South Atlantic Training- Raleigh, NC
Mar 1:	Start of ACCSP FY23
Mar 8:	Recreational Technical Committee Meeting- Webinar
Mar 6-10:	SAFMC Meeting – Jekyll Island, GA
Apr 4-6:	MAFMC Meeting – Durham, NC
Apr 5:	Commercial Technical Committee Annual Meeting – Webinar
Apr 6:	Information Systems Committee Annual Meeting – Webinar
Apr 13:	Operations and Advisory Committees Spring Meeting – Webinar
Apr 18-20:	NEFMC Meeting – Mystic, CT
May 2-4:	ASMFC/Coordinating Council Meeting – Arlington, VA
May 8:	ACCSP issues request for proposals
May 31:	Recreational Technical Committee – Webinar
Jun 6-8:	MAFMC Meeting – Virginia Beach, VA
Jun 12-16:	SAFMC Meeting – St. Augustine, FL
Jun 16:	Initial proposals are due
Jun 23:	Initial proposals are distributed to Operations and Advisory Committees
Jun 27-29:	NEFMC Meeting – Freeport, ME
July 5:	Any initial written comments on proposals due
Week of Jul 10:	Review of initial proposals by Operations and Advisory Committees – Webinar
July 19:	If applicable, any revised written comments due
Week of Jul 24:	Feedback submitted to principal investigators
July 31-Aug 3:	ASMFC Meeting – Arlington, VA

Aug 8-11:	MAFMC Meeting – Annapolis, MD
Aug 18:	Revised proposals due
Aug 25:	Revised proposals distributed to Operations and Advisory Committees
Week of Sep 4:	Ranking exercise for Advisors and Operations Members – Webinar
Sep 11-15:	SAFMC Meeting – Charleston, SC
Sep 19-20:	Annual Advisors/Operations Committee Joint Meeting (in-person; location TBD)
Sep 26-28:	NEFMC Meeting – Plymouth, MA
Oct 3-5:	MAFMC Meeting – New York, NY
Oct 14-20:	ASMFC Annual Meeting/Coordinating Council Meeting – Webinar
Dec 4-8:	SAFMC Meeting – Beaufort NC
Dec 5-7:	NEFMC Meeting – Newport, RI
Dec 11-14:	MAFMC Meeting – Philadelphia, PA

Geoff White

ACCSP Director

EXECUTIVE COMPETENCIES

- Committed to excellence and accountability
- Empowering leadership and inclusive management style
- Leveraging technology and cooperative approach
- Belief in holistic and integrated solutions
- Passion for strategic vision
- Project design and oversight
- Financial responsibility and accountability
- Effective communicator, writer and presenter
- Proven ACCSP ambassador

10836 Tuckahoe Way
N. Potomac, MD 20878
Home: (301) 838-2856
Mobile: (301) 706-1804
Geoff.White@ACCSP.org

SELECTED ACHIEVEMENTS

- Supported reduced fishery reporting burden through One Stop Reporting.
- Improved efficiency of APAIS data collection by integrating tablet data capture, Oracle database, SAS processing and delivery.
- Extended state conduct of MRIP FHTS and LPS with integrated web tools.
- Developed budget and managed over $4.5M annual funding for multiple MRIP surveys through ACCSP and 13 State Partners
- Initiated development of comprehensive for-hire data collection methods.
- Developed and implemented the MRIP APAIS Atlantic state conduct transition
- Conceived and implemented changes to improve availability of ACCSP data

EMPLOYMENT EXPERIENCE

Director, ACCSP 2019 – Present
Responsible for ACCSP strategic direction through the Coordinating Council, and management of ongoing projects. Represent ASMFC and Atlantic states on data related topics in regional and national meetings.

Recreational Program Manager ACCSP 2015 – 2019
Responsible for ACCSP's recreational fishery data standards and implementing state conduct of MRIP APAIS and FHTS surveys. Developed coastwide budgets, data collection, processing, and delivery systems. Managed local staff and guided partner staff in survey completion. Represented ACCSP and Atlantic states on MRIP Regional Council and at national meetings.

Data Team Lead / Systems Admin ACCSP 2008 – 2015
Provided data team leadership and subject expertise for ACCSP data projects and priorities. Engineered transition to state conduct of MRIP APAIS. Responsible for ACCSP information systems maintenance including network, servers, oracle databases, and 2010 office relocation.

Systems Admin -ACCSP 2004–2008
Responisble for the ACCSP's IT infrastructure. Provided subject expertise for partner data access, data translations, and development of web-based recreational and commercial queries.

Fisheries Specialist -ASMFC 1998–2004
Coordinated SEAMAP SA, staffed development of two multi-species assessment models, designed and implemented the Lobster Assessment Database, coordinated fisheries research programs and stock assessment reviews supporting fisheries management.

Marine Scientist -VIMS 1996–1998
Estimated fishing mortality of tautog in Virginia waters. Project results accepted as Virginia's fishery status in the ASMFC Tautog FMP.

MANAGEMENT EXPERIENCE

- Managed multiple concurrent projects and contracts to extend ACCSP capabilities.
- Contributing member of MRIP Regional Implementation Council & MRIP NAS reviews.
- Extended development of the MRIP survey state conduct through leadership of three local staff and 160 remote partner staff.
- Coached RecTech Committee development of Atlantic Recreational Implementation Plan.
- Supported Cooperative agreement funding and management, including proposal writing, information gathering, contract oversight, and report submission.
- Demonstrated ability to bring together diverse groups on issues by coordinating and facilitating workshops.

FISHERIES EXPERIENCE

- Deep understanding of the ACCSP mission, activities, and partners gained over 24 years of working in consensus-driven environment of Atlantic coast fisheries management
- Adept at balancing state and federal partner needs in the development of coastwide data standards, data entry and query tools for recreational and commercial fisheries data
- Proven ability to understand fisheries stock assessment data needs

IT EXPERIENCE

Software Development – Strategic priorities for SAFIS capabilities. Managed and programmed projects to create Data Warehouse end user queries, APAIS web interface, APAIS Tablet application, API data transmission and FHTS CATI.

Oracle DBA – Managed 10 DB instances supporting coastwide standardization of fisheries data collection and dissemination.

Systems Administrator– Performed or directed data center implementation and support including network security & system availability.

EDUCATION & AWARDS

- B.S. Dickinson College
- M.S. Virginia Institute of Marine Science
- ASMFC Stock Assessment Training I-III
- Oracle PL/SQL, DB Administration, Windows & Linux Server Administration
- Project Management & Leadership Training
- ASMFC Employee of the Qtr 2003, 2011
- ASMFC Directors Meritorious Service 2017
- ASMFC Science & Technical Excellence 2019
- Eagle Scout, Boy Scouts of America

Funding Decision Process
Atlantic Coastal Cooperative Statistics Program
May 2023

The Atlantic Coastal Cooperative Statistics Program (the Program) is a state-federal cooperative initiative to improve recreational and commercial fisheries data collection and data management activities on the Atlantic coast. The program supports further innovation in fisheries-dependent data collection and management technology through its annual funding process.

Each year, ACCSP issues a Request for Proposals (RFP) to its Program Partners. The ACCSP Operations and Advisory Committees review submitted project proposals and make funding recommendations to the Deputy Director and the Coordinating Council.

This document provides an overview of the funding decision process, guidance for preparing and submitting proposals, and information on funding recipients' post-award responsibilities, including providing reports on project progress.

Overview of the Funding Decision Process

- **Funding Decision Process Timeline**
- **Detailed Steps**

Funding Decision Process Timeline

April- Operations and Advisory Committees develop annual funding priorities, criteria and allocation targets (maintenance vs. new projects)

May- Coordinating Council issues Request for Proposals (RFP)

June- Partners submit proposals

July- Operations and Advisory Committees review initial proposals, PIs are invited (not mandatory) to this meeting to answer questions and hear feedback; ACCSP staff provide initial review results to submitting Partner

August- Final proposals are submitted. Final proposals must be submitted electronically to the Deputy Director, and/or designee by close of business on the day of the specified deadline. Final proposals received after the RFP deadline will not be considered for funding.

September- Operations and Advisory Committees review and rank final proposals

<u>October-</u> Funding recommendations presented to Coordinating Council; Coordinating Council makes final funding decision

ACCSP Staff submits notification to submitting Partner of funded projects and notification of approved projects to appropriate grant funding agency (e.g. NOAA Fisheries Regional Grants Program Office, "NOAA Grants") by Partner

<u>As Needed-</u> Operation and/or Leadership Team and Coordinating Council review and make final decision with contingencies (e.g. scope of work, rescissions, no-cost extensions, returned unused funds, etc.)

Detailed Steps of Funding Decision Process

<u>1. Develop Annual Funding Priorities, Criteria and Allocation Targets (maintenance vs. new projects).</u>
Prior to issuing the Request for Proposals, the Coordinating Council will approve the annual funding criteria and allocation targets. These will be used to rank projects and allocate funding between maintenance and new projects respectively.

In FY16, a long-term funding strategy policy was instituted to limit the duration of maintenance projects. Maintenance projects are now subject to a funding reduction following their fourth year of maintenance funding.

- For maintenance projects entering year 5 of ACCSP funding in FY20, a 33 percent funding cut was applied to whichever sum was larger: the project's prior two-year-average base funding set in FY16, or the average annual sum received during the project's four years of full *maintenance* funding. In year 6, a further 33 percent cut will be applied and funding will cease in year 7. Please see Appendix A for a list of maintenance projects entering year 6 in FY20 and the maximum funds available for these projects.

- For more recent maintenance projects (i.e., those entering year 5 of maintenance funding after FY20), the base funding will be calculated as the average of funding received during the project's four years as a *maintenance* project. These projects will receive a 33 percent cut in year 5, a further 33 percent cut in year 6, and funding will cease in year 7. Please see Appendix A for a list of maintenance projects entering year 5 or 6 in FY24 and the maximum funds available for these projects.

<u>2. Issue Request for Proposals</u>
An RFP will be sent to all Program Partners and Committees no later than the week after the spring Coordinating Council meeting. The RFP will include the ranking criteria, allocation targets approved by the Coordinating Council, and general Program priorities taken from Goal 3 of the current ASMFC Five-Year Strategic Plan. The RFP and related documents will also be posted on the Program's website here.

All proposals MUST be submitted either by a Program Partner, jointly by several Program Partners, or through a Program Committee. The public has the ability to work with a Program Partner to develop and submit a proposal.   Principle investigators are strongly encouraged to work with their Operations Committee member in the development of any proposal. All proposals must be submitted electronically to the Deputy Director, and/or designee, in the standard format.

3. Review initial proposals
Proposals will be reviewed by staff and the Operations and Advisory Committees. Committee members are encouraged to coordinate with their offices and/or constituents to provide input to the review process. Operations Committee members are also encouraged to work with staff in their offices who have submitted a proposal in order to represent the proposal during the review. Project PIs will be invited to attend the initial proposal review, held in July. The review and evaluation of all written proposals will take into consideration the ranking criteria, funding allocation targets and the overall Program Priorities as specified in the RFP. Proposals may be forwarded to relevant Program technical committees for further review of the technical feasibility and statistical validity. Proposals that fail to meet the ACCSP standards may be recommended for changes or rejected.

4. Provide initial review results to submitting Partner
Program staff will notify the submitting Partner of suggested changes, requested responses, or questions arising from the review. The submitting Partner will be given an opportunity to submit a final proposal incorporating suggested changes in the same format previously described in Step 2(b) by the final RFP deadline.

5. Review and rank final proposals
The review and ranking of all proposals will take into consideration the ranking criteria, funding allocation targets, and overall Program Priorities as specified in the RFP. The Deputy Director and the Advisory and Operations Committees will develop a list of prioritized recommended proposals and forward them for discussion, review, and approval by the Coordinating Council.

6. Proposal approval by the Coordinating Council
The Coordinating Council will review a summary of all submitted proposals and prioritized recommended proposals from the Operations and Advisory Committees. Each representative on the Coordinating Council will have one vote during final prioritization of project proposals. Projects to be funded by the Program will be approved by the Coordinating Council by the end of November each year. The Deputy Director will submit a pre-notification to the appropriate NOAA Grants office of the prioritized proposals to expedite processing when those offices receive Partner grant submissions.

7. Confirmation of final funding amounts

The Director and Deputy Director will be notified by NOAA Fisheries of any federal grant adjustments (e.g. additions or rescissions). Additional funds will generally go to the next available ranked project. Reductions may include, but are not limited to:

- Lower than anticipated amounts from any source of funding
- Rescission of funding after initial allocations have been made
- Partial or complete withdrawal of funds from any source

If these or other situations arise, the Operations Committee will notify Partners with approved proposals to reduce their requested budgets or to withdraw a proposal entirely. If this does not reduce the overall requested amount sufficiently, the Director, Deputy Director, the Operations Committee Chair and Vice-Chair, and the Advisory Committee Chair will develop a final recommendation and forward to the ACCSP Leadership Team of the Coordinating Council. These options to address funding contingencies may include:

- Eliminating the lowest-ranked proposal(s)
- A fixed percentage cut to all proposals' budgets
- A directed reduction in a specific proposal(s)

8. Notification to submitting Partner of funded projects and submittal of project documents to appropriate grants agency (e.g. NOAA Grants) by Partner.

Notification detailing the Coordinating Council's actions relevant to a Partner's proposal will be sent to each Partner by Program staff.

- Approved projects from Non-federal Partners must be submitted as full applications (federal forms, project and budget narratives, and other attachments) to NOAA Grants via www.grants.gov. These documents must reflect changes or conditions approved by the Coordinating Council.
- Non-federal Partners must provide the Deputy Director with an electronic copy of the narrative and either an electronic or hard copy of the budget of the grant application as submitted to the grants agency (e.g. NOAA Grants).
- Federal Partners do not submit applications to NOAA Grants.

9. Operation and/or Leadership Team and Coordinating Council review and final decision with contingencies or emergencies.

Committee(s) review and decide project changes (e.g. scope of work, rescissions, no-cost extensions, returned unused funds, etc.) during the award period.

Proposal Guidance
- **General Proposal Guidelines**
- **Format**
- **Budget Template**

General Proposal Guidelines

- The Program is predicated upon the most efficient use of available funds. Many jurisdictions have data collection and data management programs which are administered by other fishery management agencies. Detail coordination efforts your agency/Committee has undertaken to demonstrate cost-efficiency and non-duplication of effort.

- All Program Partners conducting projects for implementation of the program standards in their jurisdictions are required to submit data to the Program in prescribed standards, where the module is developed and formats are available. Detail coordination efforts with Program data management staff with projects of a research and/or pilot study nature to submit project information and data for distribution to all Program Partners and archives.

- If appropriate to your project, please detail your agency's data management capability. Include the level of staff support (if any) required to accomplish the proposed work. If contractor services are required, detail the level and costs.

- Before funding will be considered beyond year one of a project, the Partner agency shall detail in writing how the Partner agency plans to assume partial or complete funding or, if not feasible, explain why.

- If appropriate to your project, detail any planned or ongoing outreach initiatives. Provide scope and level of outreach coordinated with either the Program Assistant and/or Deputy Director.

- Proposals including a collection of aging or other biological samples must clarify Partner processing capabilities (i.e., how processed and by whom).

- Provide details on how the proposal will benefit the Program as a whole, outside of benefits to the Partner or Committee.

- Proposals that request funds for law enforcement should confirm that all funds will be allocated towards reporting compliance.

- Proposals must detail any in-kind effort/resources, and if no in-kind resources are included, state why.

- Proposals must meet the same quality as would be appropriate for a grant proposal for ACFCMA or other federal grant.

- Assistance is available from Program staff, or an Operations Committee member for proposal preparation and to insure that Program standards are addressed in the body of a given proposal.

- Even though a large portion of available resources may be allocated to one or more jurisdictions, new systems (including prototypes) will be selected to serve all Partners' needs.

- Partners submitting pilot or other short-term programs are encouraged to lease large capital budget items (vehicles, etc.) and where possible, hire consultants or contractors rather than hire new permanent personnel.

- The Program will not fund proposals that do not meet Program standards. However, in the absence of approved standards, pilot studies may be funded.

- Proposals will be considered for modules that may be fully developed but have not been through the formal approval process. Pilot proposals will be considered in those cases.

- The Operations Committee may contact Partners concerning discrepancies or inconsistencies in any proposal and may recommend modifications to proposals subject to acceptance by the submitting Partner and approval by the Coordinating Council. The Operations Committee may recommend changes or conditions to proposals. The Coordinating Council may conditionally approve proposals. These contingencies will be documented and forwarded to the submitting Partner in writing by Program staff.

- Any proposal submitted after the initial RFP deadline will not be considered, in addition to any proposal submitted by a Partner which is not current with all reporting obligations.

Proposal Format

<u>Applicant Name</u>: Identify the name of the applicant organization(s).

<u>Project Title</u>: A brief statement to identify the project.

<u>Project Type</u>: Identify whether new or maintenance project.

> *<u>New Project</u> – Partner project never funded by the Program. New projects may not exceed a duration of one year.*

> *<u>Maintenance Project </u>– Project funded by the Program that conducts the same scope of work as a previously funded new or maintenance project. These proposals may not contain significant changes in scope (e.g., the addition of bycatch data collection to a catch/effort dealer reporting project). PIs must include in the cover letter whether there are any changes in the current proposal from prior years' and, if so, provide a brief summary of those changes. At year 5 of maintenance funding, a project's base funding will be calculated as the average of funding received during the project's four years as a* maintenance *project.*

<u>Requested Award Amount</u>: Provide the total requested amount of proposal. Do not include an estimate of the NOAA grant administration fee.

<u>Requested Award Period</u>: Provide the total time period of the proposed project. The award period typically will be limited to one-year projects.

<u>Objective</u>: Specify succinctly the "why", "what", and "when" of the project.

<u>Need</u>: Specify the need for the project and the association to the Program.

<u>Results and Benefits</u>: Identify and document the results or benefits to be expected from the proposed project. Clearly indicate how the proposed work meets various elements outlined in the ACCSP Proposal Ranking Criteria Document (Appendix B). Some potential benefits may include: fundamental in nature to all fisheries; region-wide in scope; answering or addressing region-wide questions or policy issues; required by MSFCMA, ACFCMA, MMPA, ESA, or other acts; transferability; and/or demonstrate a practical application to the Program.

<u>Data Delivery Plan:</u> Include coordinated method of the data delivery plan to the Program in addition to module data elements gathered. The data delivery plan should include the frequency of data delivery (i.e. monthly, semi-annual, annual) and any coordinate delivery to other relevant partners.

<u>Approach</u>: List all procedures necessary to attain each project objective. If a project includes work in more than one module, identify approximately what proportion of effort is comprised within each module (e.g., catch and effort 45%, biological 30% and bycatch 25%). Please note that only one primary module and one secondary module are considered for ranking.

Geographic Location: The location where the project will be administered and where the scope of the project will be conducted.

Milestone Schedule: An activity schedule in table format for the duration of the project, starting with Month 1 and ending with a three-month report writing period.

Project Accomplishments Measurement: A table showing the project goals and how progress towards those goals will be measured. In some situations the metrics will be numerical such as numbers of anglers contacted, fish measured, and/or otoliths collected, etc.; while in other cases the metrics will be binary such as software tested and software completed. Additional details such as intermediate metrics to achieve overall proposed goals should be included especially if the project seeks additional years of funding.

Cost Summary (Budget): Detail all costs to be incurred in this project in the format outlined in the budget guidance and template at the end of this document. A budget narrative should be included which explains and justifies the expenditures in each category. Provide cost projections for federal and total costs. Provide details on Partner/in-kind contribution (e.g., staff time, facilities, IT support, overhead, etc.). Details should be provided on start-up versus long-term operational costs.

> **In-kind** - [1]Defined as activities that could exist (or could happen) without the grant. [2]In-kind contributions are from the grantee organization. In-kind is typically in the form of the value of personnel, equipment and services, including direct and indirect costs.
>
> [1] The following are generally accepted as in-kind contributions:
>
> i.   Personnel time given to the project including state and federal employees
>
> ii. Use of existing state and federal equipment (e.g. data collection and server platforms, Aging equipment, microscopes, boats, vehicles)

Overhead rates may not exceed 25% of total costs unless mandated by law or policy. Program Partners may not be able to control overhead/indirect amounts charged. However, where there is flexibility, the lowest amount of overhead should be charged. When this is accomplished indicate on the 'cost summary' sheet the difference between the overhead that could have been charged and the actual amount charged, if different. If overhead is charged to the Program, it cannot also be listed as in-kind.

Maintenance Projects: Maintenance proposals must provide project history table, description of completed data delivery to the ACCSP and other relevant partners, table of total project cost by year, a summary table of metrics and achieved goals, and the budget narrative from the most recent year's funded proposal.

Principal Investigator: List the principal investigator(s) and attach curriculum vitae (CV) for each. Limit each CV to two pages. Additional information may be requested.

Budget Guidelines & Template

All applications must have a detailed budget narrative explaining and justifying the expenditures by object class. Include in the discussion the requested dollar amounts and how they were derived. A spreadsheet or table detailing expenditures is useful to clarify the costs (see template below). The following are highlights from the NOAA Budget Guidelines document to help Partners formulate their budget narrative. The full Budget Guidelines document is available here.

Object Classes:

Personnel: include salary, wage, and hours committed to project for each person by job title. Identify each individual by name and position, if possible.

Fringe Benefits: should be identified for each individual. Describe in detail if the rate is greater than 35 % of the associated salary.

Travel: all travel costs must be listed here. Provide a detailed breakdown of travel costs for trips over $5,000 or 5 % of the award. Include destination, duration, type of transportation, estimated cost, number of travelers, lodging, mileage rate and estimated number of miles, and per diem.

Equipment: equipment is any single piece of non-expendable, tangible personal property that costs $5,000 or more per unit and has a useful life of more than one year. List each piece of equipment, the unit cost, number of units, and its purpose. Include a lease vs. purchase cost analysis. If there are no lease options available, then state that.

Supplies: purchases less than $5,000 per item are considered by the federal government as supplies. Include a detailed, itemized explanation for total supplies costs over $5,000 or 5% of the award.

Contractual: list each contract or subgrant as a separate item. Provide a detailed cost breakdown and describe products/services to be provided by the contractor. Include a sole source justification, if applicable.

Other: list items, cost, and justification for each expense.

Total direct charges

Indirect charges: If claiming indirect costs, please submit a copy of the current approved negotiated indirect cost agreement. If expired and/or under review, a copy of the transmittal letter that accompanied the indirect cost agreement application is requested.

Totals of direct and indirect charges

Example. Budget narrative should provide further detail on these costs.

Description	Calculation	Cost
Personnel (a)		
Supervisor	Ex: 500 hrs x $20/hr	$10,000
Biologist		
Technician		
Fringe (b)		
Supervisor	Ex: 15% of salary	$1500
Biologist		
Technician		
Travel (c)		
Mileage for sampling trips	Ex: Estimate 2000 miles x $0.33/mile	$660
Travel for meeting		
Equipment (d)		
Boat	Ex: $7000, based on current market research	$7000
Supplies (e)		
Safety supplies		$1200
Sampling supplies		$1000
Laptop computers	2 laptops @$1500 each	$3000
Software		$500
Contractual (f)		
Data Entry Contract	Ex: 1000 hrs x $20/hr	$20,000
Other (h)		
Printing and binding		
Postage		
Telecommunications charges		
Internet Access charges		
Totals		
Total Direct Charges (i)		
Indirect Charges (j)		
Total (sum of Direct and Indirect) (k)		

Post-award Responsibilities
- **Changing the Scope of Work**
- **Requesting a No-cost Extension**
- **Declaring Unused/Returned Funds**
- **Reporting Requirements**
- **Report Format**
- **Programmatic Review**

Changing the Scope of Work
Partners shall submit requests for amendments to approved projects in writing to the Deputy Director. The Coordinating Council member for that Partner must sign the request.

When Partners request an amendment to an approved project, the Deputy Director will contact the Chair and Vice Chair of the Operations Committee. The Deputy Director and Operations Committee Chairs will determine if the requested change is minor or substantial. The Chairs and Deputy Director may approve minor changes.

For substantial proposed changes, a decision document including the opinions of the Chairs and the Deputy Director will be sent to the Operations Committee and the ACCSP Leadership Team of the Coordinating Council for review.

The ACCSP Leadership Team will decide to approve or reject the request for change and notify the Deputy Director, who will send a written notification to the Partner's principal investigator with a copy to the Operations Committee.

When a requested major amendment is submitted shortly before a Coordinating Council meeting, the approval of the amendment will be placed on the Council Agenda.

The Deputy Director will notify NOAA Grants of any change in scope of work for final approval for non-federal proposals, and the Partner will need to request a Change in Scope through Grants Online. Necessary communications will be maintained between the concerned Partner, the Program and NOAA Grants. Any changes must be approved through the normal NOAA Grants process.

Requesting a No-cost Extension
If additional time is needed to complete the project, Program Partners can request a no-cost extension to their award period. Partners should let the Program know of the need for additional time and then request the extension as an Award Action Request through NOAA Grants Online at least 30 days before the end date of the award.

Necessary communications will be maintained between the concerned Partner, the Program, and NOAA Grants office. Any changes must be approved through the normal NOAA Grants process.

Declaring Unused/Returned Funds

In an effort to limit the instances in which funds are not completely used during the award period, draw down reports from the NOAA Grants offices indicating remaining grant balances will be periodically reviewed during each fiscal year.

While effort should be made to complete the project as proposed, if Program Partners find that they will not be able to make use of their entire award, they should notify the Program and their NOAA Federal Program Officer as soon as possible. Depending on the timing of the action, the funds may be able to be reused within the Program, or they may have to be returned to the U.S. Treasury.

Program Partners must submit a written document to the Deputy Director outlining unused project funds potentially being returned. The Partner must also notify their Coordinating Council member (if applicable) for approval to return the unused funds. If the funding is available for re-use within the Program, the Director and Deputy Director will confer with the Operations Committee Chair and Vice-Chair and the Advisory Committee Chair, and then submit a written recommendation to the ACCSP Leadership Team of the Coordinating Council for final approval on the plan to distribute the returned money.

Necessary communications will be maintained between the concerned Partner, the Program, and NOAA Grants office. Any changes must be approved through the normal NOAA Grants process.

Reporting Requirements

Program staff will assess project performance.

The Partner project recipients must abide by the NOAA Regional Grant Programs reporting requirements and as listed below. All semi-annual and final reports are to include a table showing progress toward each of the progress goals as defined in Step 2b and additional metrics as appropriate. Also, all Partner project recipients will submit the following reports based on the project start date to the Deputy Director:

- Semi-annual reports (due 30 days after the semi-annual period) throughout the project period including time periods during no-cost extensions,
- One final report (due 90 days after project completion).
- Federal Partners must submit reports to the Deputy Director, and State Partners must submit reports to both the Deputy Director and the appropriate NOAA Grants office.

Program staff will conduct an initial assessment of the final report to ensure the report is complete in terms of reporting requirements. Program staff will serve as technical monitors to review submitted reports. NOAA staff also reviews the reports submitted via Grants Online.

A project approved on behalf of a Program Committee will be required to follow the reporting requirements specified above. The principle investigator (if not the Chair of the Committee) will submit the report(s) to the Chair and Vice Chair of the Committee for review and approval. The Committee Chair is responsible for submitting the required report(s) to the Program.

Joint projects will assign one principle investigator responsible for submitting the required reports. The principle investigator will be identified within the project proposal. The submitted reports should be a collaborative effort between all Partners involved in the joint project.

Project recipients will provide all reports to the Program in electronic format.

Partners who receive no-cost extensions must notify the Deputy Director within 30 days of receiving approval of the extension. Semi-annual and final reports will continue to be required through the extended grant period as previously stated.

Partners that have not met reporting requirements for past/current projects may not submit a new proposal.

A verbal presentation of project results may be requested. Partners will be required to submit copies of project specifications and procedures, software development, etc. to assist other Program Partners with the implementation of similar programs.

Report Format
Semi-Annual(s) – Progress Reports: (3-4 pages)
- Title page - Project name, project dates (semi-annual period covered and complete project period), submitting Partner, and date.
- Objective
- Activities Completed – bulleted list by objective.
- Progress or lack of progress of incomplete activities during the period of semi-annual progress – bulleted list by objective.
- Activities planned during the next reporting period.
- Metrics table
- Milestone Chart – original and revised if changes occurred during the project period.

Final Report:
- Title page – Project name, project dates, submitting Partner, and date.
- Abstract/Executive Summary (including key results)
- Introduction
- Procedures

- Results:
  - o Description of data collected.
  - o The quality of the data pertaining to the objective of the project (e.g. representative to the scope of the project, quantity collected, etc.).
  - o Compiled data results.
  - o Summary of statistics.
- Discussion:
  - o Discuss the interpretation of results of the project by addressing questions such as, but not limited to:
  - o What occurred?
  - o What did not occur that was expected to occur?
  - o Why did expected results not occur?
  - o Applicability of study results to Program goals.
  - o Recommendations/Summary/Metrics
- Summarized budget expenditures and deviations (if any).

Programmatic review

Project reports will inform Partners of project outcomes. This will allow the Program as a whole to take advantage of lessons learned and difficulties encountered. Staff will provide final reports to the appropriate Committee(s). The Committees then can discuss the report(s) and make recommendations to modify the Data Collection Standards as appropriate. The recommendations will be submitted through the Program committee(s) review process.

Appendix A: Maximum Funding for Maintenance Projects Entering Year 5 or 6 of Funding in FY24

Projects in Year 5 or 6 of Maintenance Funding	Calculated Base (4-year avg)	Maximum Funding Year 5	Maximum Funding Year 6 (Final Year)
Advancing Fishery Dependent Data Collection for Black Sea Bass (Cetropristis striata) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Vessel Research Fleet Approach	$132,229	$88,153	$43,635

Appendix B: Ranking Criteria Spreadsheet for Maintenance and New Projects

Ranking Guide – Maintenance Projects:

Primary Program Priority	Point Range	Description of Ranking Consideration
Catch and Effort Biological Sampling Bycatch/Species Interactions Social and Economic	0 – 10 0 – 10 0 – 6 0 – 4	Rank based on range within module and level of sampling defined under Program design. When considering biological, bycatch or recreational funding, rank according priority matrices.
Data Delivery Plan	+ 2	Additional points if a data delivery plan to Program is supplied and defined within the proposal.

Project Quality Factors	Point Range	Description of Ranking Consideration
Multi-Partner/Regional impact including broad applications	0 – 5	Rank based on the number of Partners involved in project OR regional scope of proposal (e.g. geographic range of the stock).
> yr 2 contains funding transition plan and/or justification for continuance	0 – 4	Rank based on defined funding transition plan away from Program funding or viable justification for continued Program funding.
In-kind contribution	0 – 4	1 = 1% - 25% 2 = 26% - 50% 3 = 51% - 75% 4 = 76% - 99%
Improvement in data quality/quantity/timeliness	0 – 4	1 = Maintain minimum level of needed data collections 4 = Improvements in data collection reflecting 100% of related module as defined within the Program design. Metadata is provided and defined within proposal if applicable.
Potential secondary module as a by-product (In program priority order)	0 – 3 0 – 3 0 – 3 0 – 1	Ranked based on additional module data collection and level of collection as defined within the Program design of individual module.
Impact on stock assessment	0 – 3	Rank based on the level of data collection that leads to new or greatly improved stock assessments.

Other Factors	Point Range	Description of Ranking Consideration
Properly Prepared	-1 – 1	Meets requirements as specified in funding decision document Step 2b and Guidelines
Merit	0 – 3	Ranked based on subjective worthiness

Ranking Guide – Maintenance Projects: (*to be used only if funding available exceeds total Maintenance funding requested*)

Ranking Factors	Point Range	Description of Ranking Consideration
Achieved Goals	0 – 3	Proposal indicates project has consistently met previous set goals. Current proposal provides project goals and if applicable, intermediate metrics to achieve overall achieved goals.
Data Delivery Plan	0 – 2	Ranked based if a data delivery plan to Program is supplied and defined within the proposal.
Level of Funding	-1 – 1	-1 = Increased funding from previous year 0 = Maintained funding from previous year 1 = Decreased funding from previous year
Properly Prepared	-1 – 1	-1 = Not properly prepared 1 = Properly prepared
Merit	0 – 3	Ranked based on subjective worthiness

Ranking Guide – New Projects:

Primary Program Priority	Point Range	Description of Ranking Consideration
Catch and Effort Biological Sampling Bycatch/Species Interactions Social and Economic	0 – 10 0 – 10 0 – 6 0 – 4	Rank based on range within module and level of sampling defined under Program design. When considering biological, bycatch or recreational funding, rank according priority matrices.
Data Delivery Plan	+ 2	Additional points if a data delivery plan to Program is supplied and defined within the proposal.

Project Quality Factors	Point Range	Description of Ranking Consideration
Multi-Partner/Regional impact including broad applications	0 – 5	Rank based on the number of Partners involved in project OR regional scope of proposal (e.g. fisheries sampled).
Contains funding transition plan / Defined end-point	0 – 4	Rank based on quality of funding transition plan or defined end point.
In-kind contribution	0 – 4	1 = 1% - 25% 2 = 26% - 50% 3 = 51% - 75% 4 = 76% - 99%
Improvement in data quality/quantity/timeliness	0 – 4	1 = Maintain minimum level of needed data collections ⬇ 4 = Improvements in data collection reflecting 100% of related module as defined within the Program design. Metadata is provided and defined within proposal if applicable.
Potential secondary module as a by-product (In program priority order)	0 – 3 0 – 3 0 – 3 0 – 1	Ranked based on additional module data collection and level of collection as defined within the Program design of individual module.
Impact on stock assessment	0 – 3	Rank based on the level of data collection that leads to new or greatly improved stock assessments.

Other Factors	Point Range	Description of Ranking Consideration
Innovative	0 – 3	Rank based on new technology, methodology, financial savings, etc.
Properly Prepared	-1 – 1	Meets requirements as specified in funding decision document Step 2b and Guidelines
Merit	0 – 3	Ranked based on subjective worthiness

Atlantic Coastal Cooperative Statistics Program

Coordinating Council

October 17, 2023

SciFish Executive Summary

Citizen science is an evolving and potentially powerful tool to better understand marine fish populations. With that in mind, the South Atlantic Fishery Management Council (SAFMC), North Carolina Division of Marine Fisheries (NCDMF), and the Atlantic Coastal Cooperative Statistics Program (ACCSP) partnered to develop a citizen science platform, SciFish, to support the capture and sharing of information about fish stocks along the Atlantic coast. SciFish is a mobile application and menu-driven project builder designed to collect citizen science data. It will allow ACCSP partners to easily create a customizable app without the need to develop stand-alone applications for each new data need or project. This will help reduce the cost and time required to create an application from the ground up as well as increase consistency in data fields and structures across projects. Use of the ACCSP data management system provides a reliable and accessible data pathway to support fisheries stock assessment and management. An Organizing Committee has drafted policies and procedures to support the development of new projects within SciFish. These include information on platform administration and oversight, who can develop projects, the project development process, as well as privacy and confidentiality.

For those interested, follow the link for a 7-minute video demonstrating the project builder: ACCSP SciFish Builder.mp4 .

The Coordinating Council is asked to review and take action on the SciFish policies and procedures document, which was approved by the ACCSP Operations and Advisors Committees at their September 2023 meeting.

SciFish Policies & Procedures

DRAFT: 9/29/2023

Table of Contents

SciFish Policies & Procedures

SciFish Policies & Procedures

Vision & Mission

Vision Statement: To create a citizen science mobile application that encourages and supports the capture and sharing of data on Atlantic coast fisheries.

Mission Statement:
- Standardize collection of citizen science data from Atlantic coast fisheries
- Provide a single platform for multiple data collection projects
- Provide a flexible project builder to create new data collection projects with minimal resources
- Provide access to data that supports fisheries stock assessment and management

Platform Administration & Oversight

SciFish is owned and administered through the Atlantic Coastal Cooperative Statistics Program (ACCSP). Primary oversight is provided by the SciFish Advisory Panel (SAP).

SciFish Advisory Panel (SAP)
- SAP is comprised of individuals with citizen science expertise.
- Membership includes one representative from each of the following categories:
  - each region (Northeast, Mid-Atlantic, and Southeast),
  - a federal agency,
  - a state agency,
  - a Council or Commission,
  - each of the following ACCSP Committees (Coordinating Council, Operations, and Advisors), and
  - an ACCSP staff member.
- An individual may represent more than one category (e.g., state and region).
- The ACCSP staff representative is a full member of the panel as opposed to a staff liaison.
- SAP roles and responsibilities include: drafting and recommending updates to SciFish policies and procedures, oversight and implementation of the SciFish application process, and coordination and review of annual SciFish project updates.
- The SAP will bring in consulting expertise as needed based on project for topics such as statistical analysis.

Development of Projects in SciFish

SciFish Project Approach

Projects developed in SciFish will:
- Focus on data collection for marine and/or diadromous fisheries along the Atlantic coast
- Fill data gaps or data deficiencies and address identified research needs

- Use intentional design and clearly articulate how collected data will be used in management and/or stock assessments
- Encourage scientist and fishermen collaboration

Who can develop projects?

Projects developed in the SciFish platform must have an ACCSP partner as a principal investigator (PI) or be sponsored by an ACCSP partner.

Partner sponsors must provide a letter of support to indicate why they feel the project is valuable, identify how the data collected will be used for management or assessment, and outline a plan to monitor project progress. Sponsorship provides an opportunity for partners to endorse/support a SciFish project that will further fisheries management.

SciFish Application & Review Process

Principal investigators must submit applications to develop a citizen science project within the SciFish platform. Principal investigators are responsible for acquiring funding to support their individual projects. Project approval does not include monetary support from ACCSP.

Approved SciFish projects will initially be limited to the data fields included in the current version of the project builder. These data fields were identified via a series of scoping meetings held in spring 2021 with stakeholders along the Atlantic coast. In the future, new data fields may be requested for inclusion in the project builder.

The SciFish application process has multiple steps including both pre- and full application submissions and reviews. The general timeline for these steps is summarized in Table 1. SciFish pre- and full application templates are provided in Appendix A to assist principal investigators in application development. See Appendix B for an example of successful pre- and full applications.

Table 1. Timeline for SciFish Application Process.

Month	SciFish Application Stage
January	
February 1	Full Application
March	
April 1	Pre-Application
May	
June 1	Pre-Application
July	
August 1	Full Application
September	
October 1	Pre-Application
November	
December 1	Pre-Application

**STEP 1: **

- Partners are initially required to submit a short pre-application for their proposed citizen science project. Pre-applications include the following components:
    - *Applicant Name:* Identify the name of the project PI and applicant organization.
    - *ACCSP Sponsor:* If you are not an ACCSP partner, identify which ACCSP partner is sponsoring your project. You will need to upload a letter of support from your ACCSP sponsor.
    - *Project Collaborators:* Identify project collaborators and their respective roles.
    - *Project Title:* A brief statement to identify the project.
    - *Project Goals:* Briefly describe what the project is trying to accomplish and why it is important (e.g., the 'what' and the 'why').
    - *Need:* List the top three research question(s) and/or data gaps your project addresses.
    - *Methods:* Succinctly describe how the project will be carried out and explain why it is a good fit with a citizen science approach. See Pocock et al. 2014 and other resources in Appendix F for information on how and when to use citizen science.
    - *Fields:* Identify which data fields will be collected (Table 2).

Table 2. Data fields included in the current SciFish Project Builder.

Biological sample collected (Y/N)	Gear (amount and type)	Line Cut (Y/N)	Release disposition
Comment	Hook location	Location (area fished, state, and GPS)	Species
Date	Hook type	Number of fish (kept or released)	Time (of fish caught or released)
Depth	Hours fished	Number of people fishing	Trip type
Descending device usage (Y/N)	Information collected in other survey (Y/N)	Photo	Venting (Y/N)
Fish tag number	Length	Predation (Y/N)	
Fish tag color	Length type	Primary target species	

- *Anticipated Outcome*: What are the anticipated outcomes of the project and how would the collected data be used for management or assessment?
- *Timeline*: What is the timeline for project completion?
- *Budget*: What is the estimated budget for the project? What major pieces of your project will require funding? Does it already have funding? If not, where are you planning to seek funding (e.g., what specific grant(s), agency funding, etc.)? See Appendix C for an example Budget Overview.
- Pre-applications are accepted quarterly in April, June, October, and December and will be submitted to ACCSP's Deputy Director.

STEP 2: Pre-Application Review
- The SAP will review pre-applications quarterly in April, June, October, and December using the pre-application review form (see Appendix D). Applicants will receive feedback within approximately 4 weeks.
- Pre-applications that meet the review criteria will be invited to submit full applications.
- Pre-applications that do not meet the criteria will receive feedback provided by the SAP to help refine projects should the applicant wish to resubmit during a later review period.

STEP 3: [Full Application Submission](#)
- Full applications will include the components below. Several questions from the pre-application are repeated since more detailed responses are required in the full application.
    - *Applicant Name:* Identify the name of the project PI and applicant organization.
    - *ACCSP Sponsor:* If you are not an ACCSP partner, identify which ACCSP partner is sponsoring your project. You will need to upload a letter of support from your ACCSP sponsor.
    - *Project Collaborators:* Identify project collaborators and their respective affiliations.
    - *Project Team Members/Roles:* List the individuals that will be involved in the development and implementation of the project throughout its duration. Roles should be identified for each team member (e.g., data users, data managers, outreach, volunteer engagement). If a team role does not yet have an individual identified by name, please indicate 'name TBD'.
    - *Project Title:* A brief statement to identify the project.
    - *Project Goals*: Briefly describe what the project is trying to accomplish and why it is important (e.g., the 'what' and the 'why').
    - *Need:* What research questions and data gaps does the project address? Identify what the data gaps are and how this project addresses them. Describe how addressing these gaps specifically helps assessment and/or management.
    - *Data Use:* Have you discussed the project with the researchers and/or managers who will be using the data and verified the project design (data fields and methodology) is sufficient for the intended use(s)? Please specify the expected data use and users.
    - *Approach:* Explain why this project is a good fit with a citizen science approach. How will citizen scientists benefit from their participation in the project?
    - *Project Methods:* Provide a succinct description of how the project will be carried out.
    - *Fields*: List data fields that will be collected (Table 2).
    - *Data Management Plan:* Data from SciFish citizen science projects will be housed in ACCSP's Data Warehouse. Individual projects will be responsible for QA/QC of their data. Outline the data QA/QC plan for your project, including who will be responsible for QA/QC of your data. If you already have existing documentation, you can simply upload a file.
    - *Volunteer Training Plan*: Describe what type of training volunteers will need, and what methods will be used to provide the training. If you already have existing documentation, you can simply upload a file.
    - *Communication Plan*: Outline the communication plan for the project including identifying target audiences, key messages, volunteer recruitment and retention plans,

as well as sharing project results (approaches and products). If you already have existing documentation, you can simply upload a file.

- o *Project Evaluation*: Identify metrics and/or criteria that will be used to evaluate the success of the project and describe how progress toward project goals will be measured and/or determined.
- o *Project Risk*: What major risks are associated with the project and what can be done to mitigate those risks? Describe risks of project failure (e.g., staffing gap, lack of volunteer recruitment or retention) and/or risks to organization goals/mission if project does not occur. See Appendix C for an example of risk description.
- o *Budget:* What is the estimated budget for the project? Describe the primary components the budget will support. Does it already have funding? If yes, specify the funding source. If not, where are you planning to seek funding (e.g., what specific grant(s), agency funding, etc.)? See Appendix C for an example Budget Overview.
- Full applications are accepted twice a year in February and August and will be submitted to ACCSP's Deputy Director.

STEP 4: Full Application Review
- The SAP will review applications twice a year in February and August using the criteria and scoring in the full application review form (see Appendix D) and notify applicants of their status within approximately 6 weeks.
- Scores for each criterion will be averaged across SAP members for each project. Projects that receive an average score < 3 in any of the criteria will not be approved for that application period.
- If a project falls short of the requirements for approval, the SAP will provide feedback on the application and encourage resubmission of the application for the next full application deadline.

Process for Adding New Data Fields to SciFish
- Data fields currently supported in the SciFish Project Builder are in Table 2. These data fields were identified via a series of scoping meetings held in spring 2021 with stakeholders along the Atlantic coast. In the future, additional data fields can be added to the project builder.
- Eventually partners will be able to submit new data field requests to the SAP via an online form. The SAP will review the requests following a similar approach to ACCSP's standard codes review process. The ACCSP staff person for the Standard Codes Committee will be included in the review and discussion to ensure ACCSP standards are used whenever possible.

Building a Project in the SciFish Platform
- Project building can only begin after a project has been approved by the SAP. Prior to that time, interested parties are welcome to review online materials, request a demo from an SAP member, and/or discuss their project with one or more SAP members.
- A training video will be provided and brief instructions are included in Appendix E.
- Account creation for SciFish project participants is currently done by project managers (e.g., PI's) through SAFIS. ACCSP is exploring an option that would allow SciFish project managers to choose between leaving the account creation 'as is' or allowing SciFish participants to create their own non-SAFIS accounts for individual projects.

Hardware Requirements
- The SciFish platform is available in iOS, Android, and UWP operating systems. Current system requirements are below.
  - ○ Android 8.0 or higher (SciFish application only)
  - ○ iOS- iPads and Phones 11.0 or higher (SciFish application only)
  - ○ UWP (Windows) Windows 10 or higher (SciFish project builder and application)
  - ○ No Kindles. Although they may run Android, they do not update from the Google Store.
- The SciFish project builder is only available in UWP (Windows) so all projects must be built in Windows. The SciFish mobile application is available on Android, iOS, and UWP (Windows).
- As new projects are brought into the SciFish platform, the application will need to be updated within the Apple and Google Play stores.

Data Access
- Data collected through projects on the SciFish platform will be stored in ACCSP's data warehouse. Project managers are responsible for QA/QC for data within their projects. Interested parties should contact project managers for access to project data.
- Metadata tables with general SciFish project information (project title, description, contacts, etc.) are stored and available in the ACCSP Data Warehouse.

Privacy & Confidentiality
- The minimum SciFish Privacy Policy is available at the link below. All projects must adhere to this policy at a minimum. Individual projects can have more stringent privacy policies. Privacy policies should be clearly communicated and easily accessible to all project participants.

  https://www.accsp.org/home/privacy-policy/

Transparency
- The development of projects within SciFish, the project application process, and annual SciFish project summaries are coordinated through ACCSP.
- ACCSP will have a SciFish page on their website. This page will include the SciFish privacy policy and general project information (project title, general descriptions, project contacts, project webpages if available).
- Data collected through the platform are stored and accessible within ACCSP's Data Warehouse. See 'Data Access' section for more details.

Security
- ACCSP acts as the stewards of the data owned by the program partners. Therefore, the confidentiality laws, rules, and regulations of the Partner that originally collected the data apply and shall prevail.
- ACCSP, as a regional Fisheries Information Network (FIN), performs regular internal and external security audits in alignment with our Federal Information Security Management Act compliance. ACCSP is actively engaged with the NOAA Fisheries Office of the Chief Information Officer.

SciFish Branding Standard Practices

Colors

ACCSP Dark Blue:
- (HEX) 363C9C
- (RGB) 54, 60, 146
- (CMYK) 65%, 62%, 0%, 39%
- (Canva) #23438b

ACCSP Teal:
- (HEX) 009090
- (RGB) 0, 144, 144
- (CMYK) 65%, 62%, 0%, 39%
- (Canva) #149693

Font

- Exo - note: this font may need to be downloaded from Google Fonts

Language

While branding for projects with the platform, materials should feature the wording below referencing SciFish.

Graphics

- App Icon: https://securisync.intermedia.net/us2/s/beLRMUuhUr0FOP3waWlC9S003d5f69
- Splash Page (Square): https://securisync.intermedia.net/us2/s/V7vMDXlI5Vt1Z2jafEwIVs003d5f69
- Splash Page (Round): https://securisync.intermedia.net/us2/s/xQtcJO99oekY2nF46Ml7Id003d5f69

Example Branding

Appendix A: SciFish Pre-Application and Full Application Templates

SciFish Pre-Application Template

* 1. Contact Information

Name	[ ]
Agency/Organization	[ ]
Address	[ ]
Address 2	[ ]
City/Town	[ ]
State/Province	-- select state -- ▾
ZIP/Postal Code	[ ]
Country	[ ]
Email Address	[ ]
Phone Number	[ ]

* 2. Are you an ACCSP partner? If no, please specify which ACCSP partner is your sponsor.

☐ No

☐ Yes (please specify)

[   ]

3. Please upload your letter of support from an ACCSP partner, if necessary.

File type must be .pdf or .doc/.docx.

[Choose File] [Choose File]   No file chosen

* 4. Identify project collaborators and their respective roles. Please use N/A if there are no collaborators.

Collaborator 1/Organization
[   ]

Collaborator 2/Organization
[   ]

Collaborator 3/Organization
[   ]

Collaborator 4/Organization
[   ]

* 5. Project Title
[   ]

* 6. Briefly describe the goals of the project and why it is important (e.g., the 'what' and the 'why').

[ ]

Tip: You can increase the size of the box by clicking and dragging the bottom right corner.

* 7. List the top three research question(s) and/or data gap(s) your project address.

Question/Data Gap 1 [ ]

Question/Data Gap 2 [ ]

Question/Data Gap 3 [ ]

* 8. Succinctly describe how the project will be carried out and explain why it is a good fit with a citizen science approach.

[ ]

* 9. Identify which data fields will be collected.

- [ ] Biological sample collected
- [ ] Comment
- [ ] Date Depth
- [ ] Descending device usage
- [ ] Fish tag number & tag color
- [ ] Gear (amount and type)
- [ ] Hook location

- [ ] Hook type
- [ ] Hours fished
- [ ] Information collected in other survey
- [ ] Length
- [ ] Length type
- [ ] Line cut (Y/N)
- [ ] Location (area fished, state, and GPS)
- [ ] Number of fish (kept or released)
- [ ] Number of people fishing

- [ ] Photo
- [ ] Predation
- [ ] Release disposition
- [ ] Species
- [ ] Primary Target
- [ ] Time
- [ ] Trip type
- [ ] Venting

* 10. What is the anticipated outcome of the project and how would the collected data be used for management or assessment?

* 11. What is the timeline for project completion? If your project is ongoing, you can write "ongoing."

* 12. What is the estimated budget for the project?

* 13. What major pieces of your project will require funding?

* 14. Does the project already have funding?

◯ Yes

◯ No

* 15. If not, where are you planning to seek funding (e.g., what specific grant(s), agency funding, etc.)?

SciFish Full Application Template

* 1. Contact Information

Name	[ ]
Agency/Organization	[ ]
Address	[ ]
Address 2	[ ]
City/Town State/Province	[ ]
ZIP/Postal Code	-- select state -- ▼
Country	[ ]
Email Address	[ ]
Phone Number	[ ]

* 2. Are you an <u>ACCSP partner</u>? If no, please specify which ACCSP partner is your sponsor.

☐ Yes

☐ No (please specify)

[   ]

3. Please provide letter of support from your ACCSP sponsor (required if you are not an ACCSP partner).

File must be in .pdf or .doc/.docx format.

[Choose File] [Choose File]   No file chosen

* 4. Identify project collaborators and their respective organizations. Please use N/A if there are no collaborators.

Collaborator 1/Organization
[   ]

Collaborator 2/Organization
[   ]

Collaborator 3/Organization
[   ]

Collaborator 4/Organization
[   ]

* 5. Identify project team members and their respective roles (e.g. data users, data managers, outreach, volunteer engagement). Please use N/A if there are no other team members.

Member 1/Role

[ ]

Member 2/Role

[ ]

Member 3/Role

[ ]

Member 4/Role

[ ]

* 6. Project Title

[ ]

* 7. Briefly describe the goals of the project and why it is important (e.g., the 'what' and the 'why').

1000 character limit

[ ]

* 8. What research question(s) and data gap(s) does the project address? Identify what the data gaps are, how this project addresses them, and how addressing them specifically helps in an assessment and/or management. For each question or gap, please limit your response to 3-5 sentences.

1000 character limit

[ ]

* 9. Have you discussed the project with the researchers and/or managers who will be using the data and verified the project design (data fields and methodology) is sufficient for the intended use(s)? Please specify the expected data use and users.

14

500 character limit

[text box]

* 10. Explain why this project is a good fit with a citizen science approach. How will citizen scientists benefit from their participation in the project?

1000 character limit

[text box]

* 11. Succinctly describe the project methodology.

1000 character limit

[text box]

* 12. Identify which data fields will be collected.

☐ Biological sample collected	☐ Hours fished	☐ Predation
☐ Comment	☐ Information collected in other survey	☐ Release disposition
☐ Date	☐ Length	☐ Species
☐ Depth	☐ Length type	☐ Primary Target
☐ Descending device usage	☐ Line cut (Y/N)	☐ Time
☐ Fish tagged	☐ Location (area fished, state, and GPS)	☐ Trip type
☐ Gear (amount and type)	☐ Number of fish (kept or released)	☐ Venting
☐ Hook location	☐ Number of people fishing	
☐ Hook type	☐ Photo	

* 13. Data from SciFish citizen science projects will be housed in ACCSP's Data Warehouse. However individual projects will be responsible for QA/QC of their data. Outline the data QA/QC plan for your project. If you already have existing documentation and wish to upload a file, please indicate "See File Upload" and load file in question 13.

1000 character limit

```

```

14. Upload Data Management Plan

Upload your data management plan (PDF or Word).

[Choose File] [Choose File]   No file chosen

* 15. Outline the volunteer training plan for the project describing what type of training volunteers will need, and what methods will be used to deliver the training. If you have existing documentation and wish to upload a file, please indicate "See File Upload" and load file in question 15.

1000 character limit

```

```

16. Volunteer Training Plan

Upload your volunteer training plan (PDF or Word).

[Choose File] [Choose File]   No file chosen

* 17. Outline the communication plan for the project including identifying target audiences, key messages, volunteer recruitment and retention plans, and sharing project results (approaches and products). If you have existing documentation and wish to upload a file, please indicate "See File Upload" and load file in question

1000 character limit

[Text box]

18. Communication Plan

Upload your communication plan (PDF or Word).

[Choose File] [Choose File] No file chosen

* 19. Identify metrics and/or criteria that will be used to evaluate the success of the project and describe how progress toward project goals will be measured and/or determined.
1000 character limit

[Text box]

* 20. What major risks are associated with the project and what can potentially be done to mitigate those risks? Describe risks of project failure (e.g., staffing gap, retention of volunteers) and/or risks to organization goals/mission if project doesn't occur.
1000 character limit

[Text box]

* 21. What is the estimated budget for the project?

[Text box]

* 22. Describe the primary components the budget will support.

```

```

* 23. Does the project already have stable funding? If yes, please specify funding source(s).

○ No

○ Yes (please specify)

```

```

24. If not, where are you planning to seek funding (e.g., what specific grant(s), agency funding, etc.)?

```

```

Appendix B: Example of Successful SciFish Pre-Application and Full Application

SciFish Project Builder Pre-Application – NCDMF Draft Submittal

1. Contact Information

Ami Staples
North Carolina Division of Marine Fisheries (NCDMF)
943 Washington Sq Mall
Washington, NC 27808
United States
ami.staples@deq.nc.gov
252-948-3913

2. Are you an ACCSP partner?

Yes

3. Are you sponsored by an ACCSP partner?

No

4. Please upload your letter of support from an ACCSP partner, if necessary.

File must be in .pdf or .doc/.docx format.

N/A

5. Identify project collaborators and their respective roles. Please use N/A if there are no collaborators.

Andrew Valmassoi, NCDMF, License & Statistics Coastal Angling Program, Biologist II

Jeff Moore, NCDMF, License & Statistics Coastal Angling Program, Biologist Supervisor

Brandi Salmon, NCDMF, License & Statistics, Section Chief

Stephanie McInerny, NCDMF, IT Section Chief

6. Project Title

NCDMF Volunteer Tagger Reporting Application

7. Briefly describe the goals of the project and why it is important (e.g., the 'what' and the 'why').

The North Carolina Division of Marine Fisheries (NCDMF) conducts stock assessments to estimate the stock status of fish populations. Tagging programs play a vital role in assessing fish populations by providing information about migration patterns, habitat use, growth rates, mortality rates, and population structure of fish. The information collected through the NCDMF Multi-Species Tagging Program compliments stock assessment estimates, resulting in more informed and responsive management decisions through the fisheries management plan process.

The Multi-Species Tagging Program is a citizen science research project that encourages anglers to participate in fisheries research by reporting tagged fish and/or by becoming a volunteer tagger and tagging fish. This project aims to provide a user-friendly data entry method for volunteer taggers, allowing anglers to record and submit tagging data while in the field and to upload pictures of their tagged fish on their smartphone.

8. What research question(s) and data gap(s) does the project address? Identify what the data gaps are, how this project addresses them, and how addressing them specifically helps in an assessment and/or management. For each question or gap, please limit your response to 3-5 sentences.

Estimate tag-retention and tag-reporting rates (double and high reward tagging) of target species: Red Drum, Southern Flounder, Spotted Seatrout, Striped Bass, and Cobia;

Estimate mortality (natural and fishing), selectivity, growth, and migration rates of target species: Red Drum, Southern Flounder, Spotted Seatrout, Striped Bass, and Cobia; and

Determine migration patterns, habitat use, and population structures of target species: Red Drum, Southern Flounder, Spotted Seatrout, Striped Bass, and Cobia.

9. Succinctly describe how the project will be carried out and explain why it is a good fit with a citizen science approach.

The NCDMF Multi-Species Tagging Program is a fisheries dependent sampling program which requires public participation for the program to be successful. Public participation includes recreational anglers, commercial fisherman, and the public reporting tagged fish that they recapture, and volunteer taggers catching, tagging, and releasing target species.

Currently, volunteer taggers must complete physical data cards in the field and mail the cards into NCDMF once-a-month. This creates a lag-time in data processing and upload to the NCDMF biological database, resulting in a domino effect that delays processing of tag returns and data analysis. Physical data cards can get destroyed or lost before even making it back to dry land. Another issue volunteer taggers face is sending in pictures of their tagged fish. In the current process, volunteer taggers must send a picture of their tagged fish (specifically flounder species) in an e-mail to the tagging biologist for verification of species identification. Having one application, the SciFish Project Builder, that collects the data and uploads pictures will streamline the process and allow for quicker data entry into the NCDMF biological database.

This comprehensive mark-and-recapture study is the literal definition of a citizen science—the practice of public participation and collaboration in scientific research with professional scientists to increase scientific knowledge and understanding of the natural world. Use of the SciFish Project Builder application will improve the reach of the NCDMF Multi-Species Tagging Program, placing scientific research and data collection in the palms of the hands of the fishing public.

12. Identify which data fields will be collected.

Biological sample collected, Comment, Date, Fish tagged, Gear (amount and type), Hook location, Hook type, Length, Length type, Location (area fished, state, and GPS), Release disposition, Species, Time, Photo

11. What is the anticipated outcome of the project and how would the collected data be used for management or assessment?

The NCDMF has conducted tagging studies for a variety of species since 1973 and the current Multi-Species Tagging Program was established in 2014 to standardize procedures and coordination of tagging efforts along North Carolina's coast. Tagging data from these programs have been used in multiple stock assessments associated with the state's Fishery Management Plans, internal and external reports, and both research and management documents. Data collected through the SciFish Project Builder Application will continue to be used to address research questions and data gaps related to the target species: Red Drum, Southern Flounder, Spotted Seatrout, Striped Bass, and Cobia.

Additional users of the data include North Carolina Wildlife Resources Commission; researchers at North Carolina State University, University of North Carolina-Wilmington, Eastern Carolina University, etc.; and partnering state and federal agencies and organizations including the Atlantic State Marine Fisheries Commission and the South Atlantic Fishery Management Council.

12. What is the timeline for the project completion? If your project is ongoing, you can write "ongoing".

Ongoing

13. What is the estimated budget for the project?

$200,000/year

14. What major pieces of your project will require funding?

The major pieces of the NCDMF Multi-Species Tagging Program that require funding include: tagging supplies and equipment for five species (Red Drum, Striped Bass, Southern Flounder, Spotted Seatrout, and Cobia), tag rewards and supplies for tag returns (~700 tag returns reported annually), education and outreach materials, administrative costs, and staffing.

15. Does the project already have funding?

Yes

16. If not, where are you planning to seek funding (e.g., what specific grant(s), agency funding, etc.)?

The NCDMF Multi-Species Tagging Program is funded by the Coastal Recreational Fishing License (CRFL) fund.

1. Contact Information

Ami Staples
North Carolina Division of Marine Fisheries (NCDMF)
943 Washington Sq Mall
Washington, NC 27808
United States
ami.staples@deq.nc.gov
252-948-3913

2. Are you an ACCSP partner? If no, please specify which ACCSP partner is your sponsor.

Yes

3. Please provide letter of support from your ACCSP sponsor (required if you are not an ACCSP partner).

File must be in .pdf or .doc/.docx format.

N/A

4. Identify project collaborators and their respective organizations. Please use N/A if there are no collaborators.

Andrew Valmassoi, NCDMF, License & Statistics Coastal Angling Program, Biologist II

Jeff Moore, NCDMF, License & Statistics Coastal Angling Program, Biologist Supervisor

Brandi Salmon, NCDMF, License & Statistics, Section Chief

Stephanie McInerny, NCDMF, IT Section Chief

5. Identify project team members and their respective roles (e.g., data users, data managers, outreach, volunteer engagement). Please use N/A if there are no other team members.

Ami Staples, NCDMF Tagging Program Biologist, coordinates the NCDMF Multi-Species Tagging Program: order and distribute tags, oversee volunteer tagger group, manage data collection and QA/QC, process tag returns, conduct education and outreach, etc.

Casey Knight, NCDMF Coastwide Programs District Manager, supervises the Fisheries Management dependent sampling programs including the Multi-species Tagging Program, Citation Program, and Carcass Collection Program.

6. Project Title

NCDMF Volunteer Tagger Reporting Application

7. Briefly describe the goals of the project and why it is important (e.g., the 'what' and the 'why').

The North Carolina Division of Marine Fisheries (NCDMF) conducts stock assessments to estimate the stock status of fish populations. Tagging programs play a vital role in assessing fish populations by providing information about migration patterns, habitat use, growth rates, mortality rates, and population structure of fish. The information collected through the NCDMF Multi-Species Tagging Program compliments stock assessment estimates, resulting in more informed and responsive management decisions through the fisheries management plan process.

The Multi-Species Tagging Program is a citizen science research project that encourages anglers to participate in fisheries research by reporting tagged fish and/or by becoming a volunteer tagger and tagging fish. This project aims to provide a user-friendly data entry method for volunteer taggers, allowing anglers to record and submit tagging data while in the field and to upload pictures of their tagged fish on their smartphone.

Currently, volunteer taggers must complete physical data cards in the field and mail the cards into NCDMF once-a-month. This creates a lag-time in data processing and upload to the NCDMF biological database, resulting in a domino effect that delays processing of tag returns and data analysis. Physical data cards can get destroyed or lost before even making it back to dry land. Another issue volunteer taggers face is sending in pictures of their tagged fish. In the current process, volunteer taggers must send a picture of their tagged fish (specifically flounder species) in an e-mail to the tagging biologist for verification of species identification. Having one application that collects the data and uploads pictures will streamline the process and allow for quicker data entry into the NCDMF biological database.

It is our hope that by pilot testing the SciFish Project Builder Application with our volunteer tagger group that we may then further development of this application into a data collection tool for tag returns reported by the public.

8. What research question(s) and data gap(s) does the project address? Identify what the data gaps are, how this project addresses them, and how addressing them specifically helps in an assessment and/or management. For each question or gap, please limit your response to 3-5 sentences.

The North Carolina Division of Marine Fisheries Multi-Species Tagging Program has three main research questions that address data gaps for Red Drum, Striped Bass, Southern Flounder, Spotted Seatrout, and Cobia. The objective of the program is to collect data for stock assessments that address the following data gaps:

1) estimate tag-retention and tag-reporting rates (double and high reward tagging)

2) estimate mortality (natural and fishing), selectivity, growth, and migration rates, and

3) determine migration patterns, habitat use, and population structures.

Currently Spotted Seatrout, Red Drum, Striped Bass, and the Atlantic coast stock of Cobia are managed under the jurisdiction of the Atlantic States Marine Fisheries Commission (ASMFC) Interstate Fishery Management Plans (FMPs), and the eastern portion of the Gulf coast stock of Cobia is managed by the South Atlantic Fishery Management Council (SAFMC). In North Carolina state waters, four species are also managed under NCDMF FMPs with the North Carolina Marine Fisheries Commission (Spotted Seatrout, Red Drum, Southern Flounder) and/or the North Carolina Wildlife Resources Commission (Striped Bass) jointly responsible for management. The current FMPs for these four species include research recommendations to estimate migration and mortality rates through tagging studies. In addition, the SouthEast Data, Assessment, and Review (SEDAR) 28 SAR Section IV 2 includes research recommendations to develop tagging studies for inshore and offshore South Atlantic Cobia populations. The implementation of best management practices, contingent on timely, accurate, and precise assessments of stock status, is a high priority for the NCDMF.

9. Have you discussed the project with the researchers and/or managers who will be using the data and verified the project design (data fields and methodology) is sufficient for the intended use(s)? Please specify the expected data use and users.

The NCDMF has conducted tagging studies for a variety of species since 1973 and the current Multi-Species Tagging Program was established in 2014 to standardize procedures and coordination of tagging efforts along North Carolina's coast. Tagging data from these programs have been used in multiple stock assessments, reports, and both research and management documents. Data collected through the SciFish Project Builder Application will continue to be used to address research questions and data gaps stated in the previous question. Methodology for the Multi-Species Tagging Program follows current research protocols and standards set-forth by the fisheries research community.

Additional users of the data include North Carolina Wildlife Resources Commission; researchers at North Carolina State University, University of North Carolina-Wilmington, Eastern Carolina University, etc.; and partnering state and federal agencies and organizations including the Atlantic State Marine Fisheries Commission and the South Atlantic Fishery Management Council.

10. Explain why this project is a good fit with a citizen science approach. How will citizen scientists benefit from their participation in the project?

The NCDMF Multi-Species Tagging Program is a fisheries dependent sampling program which requires public participation for the program to be successful. Public participation includes recreational anglers, commercial fisherman, and the public reporting tagged fish that they recapture, and volunteer taggers catching, tagging, and releasing target species.

The NCDMF has been conducting tagging studies since the 1970s and since this time, has reached a countless number of anglers through its citizen science research and education initiatives. Moreover, these anglers along with our volunteers not only get to participate in hands-on research, but get to learn about fish movements and migrations, habitat use, stock structure, and so much more. Tagging Program

information is provided to the public through tag reward packets that contain a letter with information about their recaptured tagged fish and certificate with map showing their fish's movements. Volunteer taggers receive annual letters notifying them of how many fish they tag annually and the recaptures that are reported from those fish. This letter also includes a map to show the tagging and recapture locations. Efforts are being made to improve stakeholder engagement by utilizing innovative technologies to move the data online into an interactive experience.

This comprehensive mark-and-recapture study is the literal definition of a citizen science—the practice of public participation and collaboration in scientific research with professional scientists to increase scientific knowledge and understanding of the natural world. Use of the SciFish Project Builder application will improve the reach of the NCDMF Multi-Species Tagging Program, placing scientific research and data collection in the palms of the hands of the fishing public.

11. Succinctly describe the project methodology.

The NCDMF Multi-Species Tagging Program tags Cobia, Red Drum, Southern Flounder, Spotted Seatrout, and Striped Bass throughout the year in both inshore and offshore coastal waters. On average, 15,000 fish are tagged annually by collaborative efforts between division staff, partnering government agencies, volunteer taggers, commercial pound netters, and university researchers. Target species are caught through multiple gears including hook-and-line, electrofishing, trawls, gillnets, pound nets, strike nets, and seines.

Our annual goal is to tag approximately 1,500 to 2,500 fish per species (Red Drum, Southern Flounder, Spotted Seatrout, and Striped Bass) with single low reward tags (yellow). We also tag approximately 6,000 to 9,000 hatchery raised Striped Bass that are released into North Carolina's coastal river systems each year. An additional goal is to double tag fish with low reward tags at a rate of 10 to 25 percent and tag 150 to 250 fish with high reward tags (red). We double tag fish to estimate tag retention rates and we use high reward tags to estimate angler reporting rates. We also have a goal to tag a minimum of 100 to 200 Cobia per year with high reward tags and 25 to 50 Cobia with high reward double tags.

Striped Bass (7 inches or larger) are tagged with Floy FM-84 mono-core internal anchor tags. Spotted Seatrout (12 inches or larger) and Red Drum (26.9 inches or less) are tagged with Floy FM-95W wire-core internal anchor tags. Red Drum (27 inches or larger) are tagged with Hallprint FH-69 steel dart tags. Southern flounder (11 inches or larger) are tagged with Floy FT-4 spaghetti tags. Cobia are tagged with Floy FIM-96 nylon dart tags. Each individual tag is labeled with the text REWARD, NCDMF, phone number (1-800-682-2632), and unique tag number.

12. Identify which data fields will be collected.

Biological sample collected, Comment, Date, Fish tagged, Gear (amount and type), Hook location, Hook type, Length, Length type, Location (area fished, state, and GPS), Release disposition, Species, Time, Trip Type, Photo

13. Data from SciFish citizen science projects will be housed in ACCSP's Data Warehouse. However individual projects will be responsible for QA/QC of their data. Outline the data QA/QC plan for your project.

Data QA/QC will be consistent with current Multi-Species Tagging Program protocols. After data submittal, staff will review the data and contact the volunteer tagger if there are any errors or discrepancies that need to be verified. If needed, data will be corrected, and a second staff member will review the data before submitting it into the NCDMF biological database. Associated tracking logs will be updated with data submittal and tag number transactions.

14. Upload Data Management Plan

15. Outline the volunteer training plan for the project describing what type of training volunteers will need, and what methods will be used to deliver the training.

All NCDMF volunteer tagger applicants must complete an in-person, hands-on training before becoming an eligible volunteer tagger and receiving a tagging kit. Volunteer tagger training sessions are held twice a year during the spring and fall, and last about 3 to 4 hours. Division staff give a brief overview of the NCDMF Multi-Species Tagging Program, go over tagging procedures and how to record data, and discuss proper handling and tagging techniques with real fish.

We will implement the SciFish Project Builder Application in phases so volunteer taggers can become familiar with the new technology. First, we will ask volunteers who would like to participate to sign-up for the application, download it to their smartphone, and attend an in-person or virtual training session. Additional training materials will be developed and made available including written instructions w/ visuals and video tutorials.

Once trained, volunteers will be asked to test the application in the field and use the physical data cards as back-up. Over a pre-determined amount of time, staff will assess the use of the application by reviewing data for accuracy (comparing smartphone entries with physical data cards) and troubleshooting common errors. Staff will also gain feedback from volunteer taggers on the ease of use and preference for virtual data entry or physical data cards. If the SciFish Project Builder Application is deemed successful, we will consider transitioning all future volunteer tagger data collection to the smartphone application.

16. Upload Volunteer Training Plan

17. Outline the communication plan for the project including identifying target audiences, key messages, volunteer recruitment and retention plans, and sharing project results (approaches and products).

The NCDMF Multi-Species Tagging Program has a well-established volunteer tagger group (over 1000 individuals) that will test the SciFish Project Builder App and is considered the target audience for this project. Communications will be maintained through current methodologies which include monthly e-mails and one-on-one e-mails or phone calls with volunteer taggers. Volunteer taggers are mainly

recruited by word-of-mouth and advertisements on NCDMF social media platforms. We currently have a wait list for volunteer taggers because of the interest in our program. Retention of volunteer is maintained through incentive and rewards along with the volunteer's general interest in the program and love of fishing. Currently, project results are distributed annually to volunteer taggers in the form of a letter with a map outlining volunteer tagging efforts and associated tag returns. However, the Multi-Species Tagging Program is working to move these results to an interactive-online interface. By utilizing the SciFish Project Builder Application along with other technologies, we aim to have results updated quarterly to enhance engagement of our volunteer tagger group.

18. Upload Communication Plan

19. Identify metrics and/or criteria that will be used to evaluate the success of the project and describe how progress toward project goals will be measured and/or determined.

The NCDMF Multi-Species Tagging Program is an ongoing research study to collect fisheries tagging data for use in stock assessments to address research questions and data gaps recommended through fisheries management plans. Our main metrics and criteria to evaluate the success of the project are good, clean, and accurate data collection on our target species and the use of the data in analysis. Through our pilot testing of the SciFish Project Builder Application, we will evaluate the accuracy of the data provided by volunteer taggers through multiple verification processes, along with the ease of use of the smartphone application in the field by those volunteer taggers.

20. What major risks are associated with the project and what can potentially be done to mitigate those risks? Describe risks of project failure (e.g., staffing gap, retention of volunteers) and/or risks to organization goals/mission if project doesn't occur.

Potential risks associated with this project include continued funding or agency support for the program, lack of participation, staff turnover, and technical failures in the field. Currently, there is no threat of the budget being cut for the Multi-Species Tagging Program as it is funded by the sale of Coastal Recreational Fishing Licenses and the program has been steadily growing since it was established in 2014. However, the program is run by a state government agency and funding and/or staffing always has a risk of being cut because of budget constraints and/or because of the political climate within the North Carolina government. Ultimately, we see this as a low-risk factor.

We do not foresee a lack of participation from our volunteer tagger group because we have a great deal of interest from the public and have to turn-a-way anglers from participating in the program because we have so much interest. Staff turnover is always a possibility and to ensure the project continues, detailed standard operating procedures will be written outlining the project, policies, and procedures. Technical failures in the field that may arise include applications not working, lack of internet connectivity or cellular signal, phones dropped overboard, fishy hands and fingers not pressing the right buttons, etc. Efforts will be made to reduce these technical issues and other unforeseen issues that arise will be handled on a case-by-case basis.

21. What is the estimated budget for the project?

The NCDMF Multi-Species Tagging Program has an average annual budget of $200,000 per year.

22. Describe the primary components the budget will support.

The primary components that the NCDMF Multi-Species Tagging Program budget supports includes tagging supplies and equipment for five species (Red Drum, Striped Bass, Southern Flounder, Spotted Seatrout, and Cobia) ($53,000), tag rewards and supplies for tag returns (~700 tag returns reported annually) ($37,000), education and outreach materials ($26,000), administrative costs ($10,000), and staffing ($74,000). Staffing in the primary budget item for the SciFish Project Builder Application, along with potential education and outreach materials related to training of volunteer taggers.

23. Does the project already have stable funding? If yes, please specify funding source(s).

Yes, the NCDMF Multi-Species Tagging Program is funded by the Coastal Recreational Fishing License (CRFL) fund.

24. If not, where are you planning to seek funding (e.g., what specific grant(s), agency funding, etc.)?

N/A

Appendix C: Examples of SciFish Application Budget Overview & Risk Description

Example SciFish Application Budget Overview
The language below is an example of the level of detail applicants need to include in their budget overview for the SciFish Application process.

'Partner Agency X' has submitted a proposal for $$$ to 'Funding Source Y' to fund the 'Citizen Science Project Z'. The proposal was submitted in March 2023, and we anticipate knowing if it was successfully funded by June 2023. If funded, the proposal will support a project coordinator who will lead volunteer training and engagement efforts as well as data QA/QC; supplies to develop materials to recruit and retain participants; and travel to promote the project within the fishing community. Additional 'Partner Agency X' staff will be available to assist with outreach and QA/QC tasks.

Example SciFish Application Risk Description
As part of the full SciFish application, applicants are asked to describe the major risks associated with their project and what can potentially be done to mitigate those risks. Risk can include things that may impact the project's success or failure (e.g., staffing gap, lack of volunteers, issues with volunteer retention, funding not available) and/or risks to an organization goals/mission if the project doesn't occur (e.g., impact on data available to make regulatory changes, loss of stakeholder trust and engagement).

The language below is an example of how risk statements could be written within the SciFish project application.

"If ***<event X>*** happens then there is a risk *<**consequence**>* that the project could be impacted in ***<Y way>***" from here. This risk can be mitigated by *<**action Z**>*.

More details and examples on writing risk statements are available at the link below.
How To Write A Good Risk Statement - The Project Management Guide

Appendix D: SciFish Pre and Full Application Review Templates

SciFish Application Process - Pre-Application Ranking

Applicant Name:
Applicant Agency/Organization:
ACCSP Sponsor (if applicant not partner):
Project Title:

Review Criteria	Yes	No	Comments
Pre-Application included all required sections			
Project Collaborators			
Project Goals			
Top 3 Research Questions or Data Gaps			
Methods & Data Fields			
Anticipated Outcome			
Timeline			
Estimated Budget			
Project clearly addresses how collected data will be used in assessment and/or management			
Project is a good fit for citizen science			

	Yes	No	Comments
Does this pre-application meet the review criteria?			
Do you recommend this applicant be invited to submit a full application?			

SciFish Application Process - Full Application Ranking

Applicant Name:
Applicant Agency/Organization:
ACCSP Sponsor (if applicant not partner):
Project Title:

Review Criteria	Criteria Scoring	Score	Comments
Addresses a data gap for assessment and/or management	1 - Not recommended 2 - Poor 3 - Fair 4 - Good 5 - Excellent		
Anticipated use of the data and/or project outcomes will be of value to the industry and partners	1 - Not recommended 2 - Poor 3 - Fair 4 - Good 5 - Excellent		
Technical merit/methodology including whether the project is approriate for a citiizen science approach	1 - Not recommended 2 - Poor 3 - Fair 4 - Good 5 - Excellent		
Identified all the roles necessary for the project (e.g. data users, data managers, outreach, volunteer engagment)	1 - Not recommended 2 - Poor 3 - Fair 4 - Good 5 - Excellent		
Plan and capacity for data QA/QC and analysis	1 - Not recommended 2 - Poor 3 - Fair 4 - Good 5 - Excellent		
Participant / volunteer qualifications and/or ability to train volunteers	1 - Not recommended 2 - Poor 3 - Fair 4 - Good 5 - Excellent		
Volunteer engagement including recruitment, retention, and outreach	1 - Not recommended 2 - Poor 3 - Fair 4 - Good 5 - Excellent		
Project evaluation metrics	1 - Not recommended 2 - Poor 3 - Fair 4 - Good 5 - Excellent		
Addressed pre-application feedback	1 - No 3 - Somewhat 5 - Yes		

Appendix E: Building Projects in SciFish

Building SciFish Projects in EVAL
- PIs will be given access to the EVAL versions of the SciFish Project Builder, SciFish application, and ACCSP Data Warehouse
- Building a project
  - Please review the Project Builder training video prior to building your project
  - Use Project Builder to complete each of the following major sections of your project
    - Project Title
    - Home: Choose command buttons to appear at the top and bottom of the Home Page
    - Records: Define data fields for each record and command buttons to display to the user
    - About: Configure custom text displayed in the About Page describing your project
    - Navigation menu: Configure social media links that appear in the navigation menu
- Testing a project
  - Publish your project
    - Click the Publish button
    - Choose your channel (developer, alpha, beta, SciFish general availability)
    - Record the six-digit number shown
  - SciFish Application
    - Download and open the EVAL application
    - Select Preview from the main menu
    - When prompted, enter the number you recorded to download the project
    - Run through and test your project
  - Viewing data
    - Access the ACCSP Login Test Data Warehouse
    - Navigate to the SciFish item on the left-hand side of the page
    - Data from your project will be visible

Review of SciFish EVAL project
- Once your project is ready in EVAL, one or more members of the SAP will review it to ensure that the project aligns with its application.

Building SciFish Projects in Production
- Once projects have been given SAP approval to move to production, PIs will be given access to the production versions of the SciFish Project Builder, SciFish application, and ACCSP Data Warehouse
- Building a project
  - The steps for building a project are done as outlined above for EVAL
  - Please ensure that the options you choose here align with those that were chosen in your final, approved EVAL build

- Testing SciFish Projects in Production
  - The steps for testing a project are done as outline above for EVAL
  - Once testing is complete, you will coordinate with ACCSP staff member on the SAP to publish your project to production
- Annual project summaries at a high-level will be requested annually by the SAP
- If you need assistance, please refer to the following contacts for help with project development
  - Help desk – for technical issues
  - SAP – for policy issues

Appendix F: Citizen Science Project Development Resources

Below are some of the resources available to assist in the development, implementation, and evaluation of citizen science projects.

SAFMC Citizen Science Program
- Program Webpage
- Program & Project Support Resources- – includes example outreach, communication, and volunteer training approaches; templates for a communication plan, data standards and data requirements documents; list of funding opportunities
- FY20 SciFish ACCSP Final Grant Report – see pages 8-23 for SciFish Scoping Summary

Federal Crowdsourcing and Citizen Science Toolkit
- Produced in collaboration with the White House Office of Science and Technology Policy (OSTP) and the Federal Community of Practice on Crowdsourcing and Citizen Science (CCS) and is intended to help Federal agencies and others design, carry out, and manage citizen science and crowdsourcing projects.

Shirk and Bonney. 2015. Informing a Framework for Citizen Science within the US Fish and Wildlife Service
- Describes framework for developing citizen science projects/programs.

Pocock, M.J.O., Chapman, D.S., Sheppard, L.J. & Roy, H.E. (2014). Choosing and Using Citizen Science: a guide to when and how to use citizen science to monitor biodiversity and the environment. Centre for Ecology & Hydrology.
- Publication that provides guidance to support people using citizen science approach to collect data. It has many helpful resources including a table summarizing how to figure out if citizen science is the right approach for your project.

US Forest Service Citizen Science Toolkit
- Provides many resources for developing citizen science projects.

Phillips et al. 2014. User's guide for evaluating learning outcomes in citizen science.
- Guide for developing evaluation plan for citizen science projects and programs.

Citizen Science Association*
- Community of practice built on collaboration with a mission to advance citizen science through communication, coordination, and education.
- Citizen Science Data Ethics Toolkit
- Citizen Science Data and Metadata Resources
- Citizen Science Ethics Resources
- Citizen Science Law and Policy Resources
- Citizen Science Research and Evaluation Resources

Over the course of the 2023-2024 academic year, the Citizen Science Association will change its name to affirm the broader identity of an Association Advancing Participatory Sciences.

SciStarter
- Online database of citizen science projects. Has resources available for project promotion and recruitment.