Atlantic States Marine Fisheries Commission

Habitat Committee

October 23-24, 2012
1:00 - 5:00 p.m. and 8:30 a.m. - 12:00 p.m.
Philadelphia, Pennsylvania

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.

Tuesday, October 23rd

1. Welcome and Introductions (*B. Van Dolah*)	1:00 p.m.
2. Review 2012 Action Plan (*M. Caldwell*)	1:15 p.m.
3. Review Draft 2013 Habitat Action Plan (*M. Caldwell*)	2:00 p.m.
Break	2:40 p.m.
4. Fish Passage Update (*J. Kipp*)	3:00 p.m.
5. Habitat Management Series: • Habitat Impacts of Harbor Deepening Projects (*D. Clarke*) • Future Habitat Management Series Topics	3:30 p.m.
6. Adjourn Day 1	5:00 p.m.

Wednesday October 24th

7. Use of Habitat Information in Stock Assessments (*G. Nesslage*) • Eel Stock Assessment & Eel Habitat GIS	8:30 a.m.
8. Discussion of Habitat Bottlenecks (*M. Caldwell*) • Red Drum, Lobster and Black Drum Updates • FMP Outline • Future: Expand to a larger effort?	9:00 a.m.

The meeting will be held at the Radisson Plaza-Warwick Hotel**,** 220 South 17th Street, Philadelphia, PA 215.735.6000

9. Discussion of Habitat Hotline 10:30 a.m.
   - 2012 Issue (*C. Patterson*)
   - Future Issues

10. Election of Vice Chair 11:50 a.m.

11. Other Business/Adjourn 12:00 p.m.

Note:
2:45 pm – 5 pm ISFMP Policy Board Meeting: HC Report & Habitat Program Discussion

MEETING OVERVIEW

Habitat Committee Meeting
Tuesday October 22, 2012 – Wednesday October 23, 2012
1:00 p.m. – 5:00p.m & 8:30 a.m. – 12:00 p.m.
Philadelphia, PA

Chair: Bob Van Dolah (GA) Assumed Chairmanship: 10/10	Vice Chair: Kent Smith (FL)	Previous Committee Meeting: April 25, 2012
Current Membership: NH, MA, RI, NY, NJ, PA, DE, MD, VA, NC, SC, GA, FL, NMFS, NOAA, USACE USEPA, USFWS, USGS, EDF, Nature Conservancy		

1. Committee Consent

- Approval of Agenda
- Approval of Meeting Summary from April 25, 2012

2. Review of 2012 Habitat Action Plan (1:15-2:00 p.m.)

Background

- Review accomplishments and outstanding tasks from the 2012 Habitat Action Plan **(Briefing CD)**.

Presentations

- Review 2012 Habitat Action Plan by M. Caldwell

3. Review Draft 2013 Habitat Action Plan (2:00-2:40 p.m.) Action

Background

- Final opportunity for Habitat Committee input on the Draft 2013 Habitat Action Plan prior to ISFMP Policy Board Approval (**Briefing CD**)

Presentations

- Review Draft 2013 Habitat Action Plan by M. Caldwell

Committee actions for consideration at this meeting

- Approve draft 2013 Habitat Action Plan for ISFMP Policy Board approval.

BREAK (2:40 p.m. – 3:00 p.m.)

4. Fish Passage Update (3:00-3:30 p.m.)

Background

- Update on Commission's Fish Passage Workgroup by J. Kipp (ASMFC Stock Assessment Scientist)

5. Habitat Management Series (3:30-5:00 p.m.)

Background

- Review draft of Harbor Deepening and discuss next steps by D. Clarke (**Briefing CD**)
- Discuss future topics for the series: Impact of Climate Change on Fish Habitat, Sand Mining Along Eastern Seaboard, Impingement from Power Plants, and Estuarine and Nearshore Aquaculture.

6. Adjourn Day 1 (5:00 p.m.)

7. Use of Habitat Information in Stock Assessments (8:30-9:00 a.m.)

Background

- Update on the Eel Stock Assessment and efforts to incorporate habitat information into the assessment, and the use of eel habitat GIS maps by G. Nesslage (Senior Stock Assessment Scientist)

8. Discussion on Bottlenecks (9:00-10:30 a.m.) Action

Background

- Review FMP Outline to determine appropriate location for bottleneck discussion in habitat sections. (**Briefing CD**)
- Review red drum bottleneck discussion and discuss improvements for future habitat sections (**Briefing CD**)
- Committee discussion on framing a large bottleneck effort outside of habitat section updates.

Presentations

- FMP Outline by M. Caldwell

Committee actions for consideration at this meeting

- Approve revisions to the FMP Outline and request ISFMP Policy Board's consideration.

9. Habitat Hotline Discussion (10:30-11:50 a.m.)

Background

- Review state and regional bullets summarizing habitat activities along the east coast by M. Caldwell (**Briefing CD**)
- Discuss content of 2012 Habitat Hotline issue by C. Patterson
- Discuss the future of Habitat Hotline: frequency, content, etc.

10. Election of Vice Chair (11:50 a.m.-12:00 p.m.) Action

Background

- Entertain nominations for vice chair of the Habitat Committee

Committee actions for consideration at this meeting

- Approve a nomination for Vice Chair of the Habitat Committee

11. Other Business/Adjourn (12:00 p.m.)

Atlantic States Marine Fisheries Commission
Habitat Committee Meeting Notes

April 25-26, 2012
4th Floor Meeting Room, Florida Wildlife Research Institute
100 8th Avenue
St. Petersburg, Florida

Wednesday, April 25th:

ASMFC/ACFHP Staff Present: Megan Caldwell, Pat Campfield, and Emily Greene (in part).

Committee Members Present: Russ Babb (NJ), Chris Boelke (NMFS-NE), Douglas Clarke (COE), Patrick Geer (GA), Jimmy Johnson (NC), Jake Kritzer (EDF), Wilson Laney (USFWS-SE), Dawn McReynolds (NY), Rachel Muir (USGS), January Murray (GA), Cheri Patterson (NH), Mark Rousseau (MA), Eric Schneider (RI), Kent Smith (FL), Marek Topolski (MD), Robert VanDolah (SC) and Pace Wilber (NMFS-SE).

Committee Members on Telephone: John Gill (USFWS-NE) and Tony Watkinson (NJ).

Guests Present: Maya Buhler (FSU, FLFWCC intern).

1 – Welcome and Introductions, *B. Van Dolah* 1:04 pm

Bob convened the meeting and noted that we are missing Kent, but he is down copying something and will join us shortly. Bob asked us to do introductions. Everyone did so. Megan noted that she is her own entity. John and Tony joined us on the telephone.

Bob announced that he is pleased to report that Megan is going to be our new Habitat Coordinator for this year. He noted that was one of the recommendations which we have been making to the Commission. She is on contract and we are pleased to have her. She will be discussing the Habitat Program Improvement Proposal, later this afternoon.

2 – Report from the Atlantic Coastal Fish Habitat Partnership Update, *E. Greene* 1:07 pm

Bob asked Emily to do the overview. Emily noted that we had done things a bit different this meeting, in that we invited some of the partners not on the SC, to participate. Several had done so. Emily shared the results of the NFHAP evaluation of the ACFHP. She noted that we will be working on several other tasks, as well as trying to respond to the NFHAP review. Each year, we look at projects for NFHAP funding, so we revised the criteria and application form. Thirdly, we considered whether to apply to the NOAA Community Restoration Grant Program, and the

committee discussed how to get our ducks in a row for that initiative. We discussed how to move forward with the EBTJV and SARP, on our multi-state grant. We will be moving forward with a draft in early May, for a publication for the species-habitat matrix, and also putting the data on the web site, to make them available for the public. Another opportunity is through NFWF, partnering with NOAA, and ACFHP has endorsed three projects for that grant opportunity. Emily noted that we did some implementation planning, narrowing down from 80 tasks to 30 that we want to achieve in the next 18-20 months, and will be identifying the contacts for those. We have identified the first recipient for the Melissa Laser Award, but will keep that secret until the fall ASMFC meeting. We heard a presentation from Melanie Harris of NMFS about their Cape Fear River initiative, and will consider endorsing it. We may try to find a project in that watershed.

Bob VanDolah asked if there was any further discussion about collecting coastal data, for the national coastal assessment. Yes, there was discussion, but there has been no work on that task. Bob confirmed that is going to be an ACFHP initiative. We will discuss later in the meeting, what group does what. Emily noted that Bob is part of that subcommittee (ACFHP Science and Data Subcommittee). Pace asked if the ACFHP still has a S&D Subcommittee? Yes, and it met in February. Bob asked if there were any other questions for Emily.

3 – Presentation of draft Red Drum FMP-Habitat Section, *M. Buhler/K. Smith* 1:15 pm

Bob introduced Maya Buhler, who has done the draft Red Drum FMP Habitat Section. Bob asked Kent Smith to explain how this came to be. Kent noted that he had agreed along with Gabe Gaddis, two years ago, to take on this task. FWC has an intern program, and they found Maya at FSU, who was able to do this in 170 hours. She developed a draft in early March, and given that timeline, she was able to get several reviews. It doesn't have GIS information yet, but we can develop that later.

Jake asked if the red drum on the wall is always there? Kent noted that it changes, depending on the plan.

Bob asked if the folks on the telephone could hear? John Gill indicated that they were not always hearing well, except for Bob.

□ Overview of draft section

Maya jumped right in and gave us a presentation on her draft. Maya gave us the background on the red drum, which is managed by ASMFC. The first plan was prepared in 1984, and we are pushing ten years, which is why she was secured to prepare a new Habitat Section.

Maya reviewed the current FMP objectives. [Read the plan, which is on the ASFMC web site.]

There are three main goals in the Habitat Section: identify important habitats for the stock, determine present conditions and threats, and identify how other fisheries could affect the stock.

Maya reviewed her work. She divided the species into its five life stages, using previous amendments, and updated through current research. She reviewed spawning habitat requirements: estuaries, inlets and passes, near bay mouths, temperature dependent, and spawn from late summer to early fall. Egg and larval habitat: estuaries, bays, seagrasses, use of currents for transport, temperature relationships. Juvenile red drum: SAV, tidal freshwater, estuarine emergent wetlands, oyster reefs, unconsolidated bottom. Preferences change with age. Subadults: tidal creeks, rivers, inlets, aggregate over oysters, mud flats or sand bottoms, waters around barrier islands, jetties and sandbars. Adults: usually in coastal waters, high salinity surf zones (former EFH), artificial reefs, hard or live bottom.

The second part of the Habitat Section is to identify HAPCs, and Maya reviewed the criteria: provide important ecological function, sensitive to human activity, susceptible to ……., etc.

Maya reviewed conditions and threats, including navigation, development and maintenance, ports and cargo, beach nourishment, coastal alternative energy facilities, and construction of groins and jetties. Estuarine spawning, nursery, juvenile and subadult habitat threats: conditions vary depending on urbanization, nutrient enrichment, hydrologic modification, water consumption and groundwater pumping, climate change (SLR and temperature). Adult Habitat: mining for minerals and sand, navigation and related activities, dredging and dumping. Ecosystem considerations are the last part of the Habitat Section. These include habitat complexity, anthropogenic degradation, and oyster reefs. Maya noted the more complex the habitat, the less subject juveniles are to predation. She noted that red drum are generally pretty hardy fish.

□ Determine next steps

Maya addressed where the draft is heading. It is currently under review by the HC, and will then go out for expert review, and ultimately be released to the states. Maya thanked her reviewers, who included Stephen Arnott, Pat Campfield, Bob Van Dolah, Lee Paramore, Fritz Rohde, Bill Roumillat, and Pace Wilber. Bob asked how many HC members had reviewed the draft? Four had. Bob noted that he did not review it until this AM.

Wilson noted that he had provided Maya with an electronic copy of the red drum Habitat Suitability Index (HIS) model, and asked if anyone knew that it had been updated. No one thought that it had been, and Pace noted that he thought that one was constructed for the Gulf of Mexico. He noted that the Corps had sanctioned its use, only for the Gulf. Wilson looked at the model and noted that it didn't say, at least in the parts he was looking at, that it was so constrained, but given that it was written by Gulf scientists, that may well be the case.

Wilson asked Maya if she had access to the EFH designation done by NMFS and SAFMC, despite the fact that it is no longer applicable for use by ASMFC legally. She did not. Wilson noted that it is available on the SAFMC web site.

Kent noted that he had precluded the use of any NMFS-produced documents (joke).

Jake asked if she had referenced or used the ACFHP Species-habitat matrix? She had not. Jake moved to censure her supervisor. Wilson seconded the motion.

Bob asked Maya whether she had considered oyster reefs as a limiting habitat? She didn't believe she had done so, specifically.

Bob asked if we as a HC should be providing some recommendations along the lines of what was outlined in the Habitat Program Operational Plan. Bob noted that most HC members may not be aware of that document. He noted that going through that list, could be useful, in terms of developing some management recommendations. He noted that protection of some key habitats could arise. He asked what people thought about this. It wouldn't be done by Maya; it would be fleshed out by this HC. With regard to next steps, it will go next to the Red Drum TC. Pat confirmed that was the case. It will have to be vetted through that group.

Pat advised that he had coordinated with the Red Drum FMP Coordinator, and she would look at it. Then it will go to the South Atlantic State-Federal Fisheries Management Board. Pat noted that it could likely go to them.

Wilson noted that there is an ongoing EBM work Group in ASMFC, which may have an interest in seeing us move forward with a more ecosystem based approach. He asked Pat if that group had met in a while, and it has not. Wilson noted that we can provide some guidance with regard to what GIS work should be included. Also, the SAFMC is planning to pick up their Ecopath work, along with possibly Pew, who is interested in doing some Ecopath work related to forage fish. There may be some utility to discussion with the SALCC, which Wilson and Roger Pugliese were going to do, to see how they may collaborate.

Rachel asked Wilson what they envisioned with the SALCC? Wilson said they had nothing specific in mind, but he was aware that the SALCC was working on ecological flows, so that was one possible area of collaboration.

Pace asked about the status of the comments? Kent advised that the draft version we have is current and contains all the comments from the reviewers.

Pace was concerned that the EFH paragraph may cause some confusion, and he agreed to revise the language.

There was some discussion about who would be responsible for finalizing the product. Megan may possibly work on it, but she noted that her contract was very limited.

Kent indicated that he would like to have comments from everyone in the next three weeks.

Bob noted that there has been some concern that there is some redundancy built into the plan, due to the format.

Kent noted that they had looked at the shad plan, which was just completed, and used that as

a model.

Wilson noted that the intent of Habitat Sections is to have a stand-alone section which can be included in FMPs. He noted that another option would be to have a more comprehensive, habitat source document, which is more comprehensive. It could include more details regarding ecosystem management considerations. Another option would be to strike some sort of compromise position. He thought that the HC should decide how they want to proceed. He noted that once the HC is satisfied, the can submit the document to the ISFMP Policy Board for approval, and don't have to wait for a plan amendment to submit it.

Bob agreed that it should be the HC's call.

Cheri indicated that she felt that we should be more progressive with this section, and take a more ecosystem-based approach.

Bob noted that he wasn't sure that there is a key juvenile habitat, but if there is, it may be oyster reefs, so protection of those may be a key to providing for juvenile escapement, but he wasn't sure that he would define it as overly limiting to this stock.

Jake indicated he pretty much agreed with everything Bob said. He felt that we should separate out three major questions: to what extent is the species habitat-limited; is the habitat threatened or limiting; and to what extent can we address the concern. Depending on the answer to the first two questions, it could motivate us to get better at answering the last one.

Bob stated that was an excellent point. He noted that we could draft Jake's points into a paragraph or two. He noted that we need to provide this sort of information.

Wilson agreed that Jake's comments and questions lend themselves to a paragraph, or to a more detailed analysis. Wilson noted as well that we can also address such things, for example, as the management of bottlenose dolphin management efforts, which will lead to greater predation on red drum. We could either go into great detail, or just include a paragraph.

Cheri concurred that we need to include more ecosystem considerations in the document.

Pace noted that we can use some of the diagrams from Charlie Wenner's work. Wilson had no issue with that inclusions.

Bob thought that we didn't want to do a greatly detailed document.

Kent suggested that Wilson provide any suggestions to him with regard to some paragraphs which could be included in the present document. He suggested that we don't want to wait on completion of any modeling efforts by the Council. Wilson agreed and noted that he had just provided that information for the HC's knowledge.

Bob suggested that we do try to include some information in the ecosystem section, as well as trying to answer Jake's questions. Bob asked that we provide any comments to Kent, by the end of May. He asked that Pace provide revised text for the EFH section. Bob noted that if we have experts on red drum, and we can get them to review the draft, then do so, and get them to provide recommendations. Bob believes that from an editorial perspective, it can be fixed in a couple of hours. The rest of it may take a sub-group, to develop the ecosystem comments. Bob nominated Kent to head up the ecosystem subgroup. Wilson volunteered. Pat Geer indicated that GA will get it reviewed and provide some comments. Jake noted that he is interested in the bigger questions about how we restructure these sections, but on this one, red drum don't get us his way, so he has less knowledge. Bob reiterated that comments and edits should come to Kent by the end of May. Then Kent will provide the revised draft to Megan, with a copy to Pat. The next step is for it to go to the TC.

Bob asked Tony and John if they had any comments? Tony indicated that it might benefit to have some mitigation options in the plan, maybe talk about what habitats can be improved. If there are certain projects which have impacts, are there mitigation options, such as time-of-year constraints. Tony noted that he works in the permit arena, and indicated that he would find such recommendations useful.

Bob noted that some agencies have provided that kind of information on their web sites, with tables indicating the time of year, and location.

Wilson asked if the document identified specific areas in which red drum spawn, based on hydroacoustic monitoring? Bob noted that he had some issues with some of that sort of information, and he gave some examples. Bob wondered if that information was readily available. Wilson felt it was, for NC. He felt that may be appropriate for GIS maps for inclusion in the document. Kent noted that he didn't have that kind of capability. Wilson noted that in the past, when we needed that expertise, we had developed contracts for that work. He noted that we had contracted with the BaSIC at NCSU, for production of GIS-based maps for the Diadromous Species Habitat Baseline Source document.

Bob noted to Megan that we had little time, as a HC, or as individual members who often lack the authority, to write these documents, so we have always sought contractors, or volunteers. The point is that these documents won't get written, unless we can get the ASMFC to contract for them, or assign them to some other committee. Bob noted that American lobster is next on the list. We have discussed people we know, who might be able to write that one, but it is going to take the ASMFC to pay, to get that one done. Bob noted that the sturgeon document sat on hold for two years, largely as a hold-up through the Commission, to get it reviewed. We have to find a work-around on this, if we are going to update a couple of species a year.

Pat suggested that we need to focus the Habitat Sections. He suggested that we focus on the habitat bottlenecks, which will be most useful for the Commission. That approach will be of the greatest utility, and perhaps can be achieved through the HC or the Commission's limited utility.

Bob said that he also agreed with Kent, that these documents are a great reference document for managers, and they are useful for that purpose in and of themselves, when they are updated. He encouraged again that members get their comments into Kent by the end of May.

Bob asked if anyone else had anything for the good of the cause?

Bob noted that Rachel had come in late and asked her to introduce herself. Rachel did so and noted that she wore a couple of hats. She is the Acting Director for the NE Climate Science Center, and also works with the LCCs. The CSC work area is very large and encompasses 21 states. She noted that she was working on their RFP which was due at noon today. Rachel noted that USGS had advertised their Fisheries Coordinator Position in HQ. That should help us out.

Bob suggested that we take a ten-minute break, before we begin our next discussion.

2:40 PM: We reconvened. Kent noted that some of us are going to a funky little restaurant so we need to meet in the lobby at 6:00 pm. Jimmy is coordinating those who want to go to the ball game, so they should meet also in the lobby at 6:00 pm.

4 – Discussion of Habitat Program Improvement Proposal, *All* 2:00 pm

Bob noted that if Tony and John have comments they should just speak up. They indicated that they will do so.

□ Overview by Bob Van Dolah, Megan Caldwell

Bob noted as he had indicated in his e-mail to all of us, he has had a number of conversations with Vince, since the last spring meeting, to share some of the concerns the HC has had about the lack of a coordinator, as well as Vince's concerns about what the HC has been doing, and making sure the HC has a focus which is meeting the Commission's needs. Vince had a number of questions he raised, which Kent and Bob had previewed. Vince had offered to have those questions researched, and put in a document which the HC could review. Vince contracted with Megan to do that review, and review some of our documents, and conduct the review. The research which Megan did, is summarized in the document Megan produced. Kent and Bob reviewed it before the HC saw it, and it was a good dialog they had with Vince, and Megan on the telephone. Bob stated that in his and Kent's mind, it is a great document with which to step back and see where the HC should go. There were eight questions, and Bob Beal was involved as well. There are six recommendations which we have been asked to discuss. We can either document them, or if we don't agree, refute them and have further dialog with the ASMFC staff and Policy Board. Bob indicated that most of the recommendations are great and he appreciates the work being done.

Bob noted that he was going to blow past the dialog initially, and start with the questions. He asked how many had a chance to read and review the document, prior to the meeting. Many members had done so.

□ Discussion of Recommendations

Bob turned to the first question, which is about the objectives aligning with the ASMFC plan. He sees a number of salient point. The HC is the only one which has a separate Strategic Plan. Bob noted that he could not recall the genesis of a separate SP. Wilson though that it began with Bill Goldsborough. Megan noted that she was the Science Director at the time, and she thought the intent was to clarify the role of the HC. Bob asked if that was generated by the PB, or by Bill? Megan didn't believe it was as a result of the PB. Bob stated that was helpful. Bob noted again that we are the only committee that has a separate one. Bob noted that the recommendation is to do away with the separate plan. He noted that the HP roles do appear as bulleted points in the ASMFC SP. Bob noted that we might have reviewed that plan as part of this discussion. Bob thinks the whole idea is that the Habitat Committee's priorities align with those of the Commission.

John Gill noted that part of the problem he has, is that ASMFC's management approach is species-based, and habitat always doesn't lend itself to that approach. Bob agreed that was a great point.

Bob noted that there is much overlap between the HC membership, and ACFHP membership, and the plan, under Goal 4, now includes tasks related to both institutions. We need to try to sort these out. There are four options with regard to the SP, located on page 4 of the document. Bob read those to the HC.

Bob stated that he preferred the option of merging the Habitat Program Strategic Plan, with the Habitat Program Operational Procedures Manual. That is his preferred option. The result is that we build our Strategic Plan, into the ASMFC SP, and build any operational elements currently in the Operational Plan.

Bob asked if anyone has any questions or comments on that first recommendation?

Jake felt that makes sense. He noted the disconnect between the HC and the Commission process is something we need to fix. He doesn't know why there was a separate plan, because that is before his time. The cross-cutting nature of habitat across all plans, is one good reason, and the lack of habitat regulatory authority, is another good one; finally, the tools used to manage habitat, are far broader than those used to manage fisheries. He can see why the ASMFC would have wanted to pay more attention, back in the day, to habitat as a stand-alone plan. He generally supports the first and second recommendations.

Bob noted that Jake touched on one of the points, which is that the Commission doesn't have habitat regulatory authority. The understanding of the coastal managers needs to be, what they need to protect. This is more problematic than setting fisheries regulations.

Megan was asked by Bob is she had anything to contribute further. She indicated that the HC Strategic Plan was supposed to feed into the ASMFC SP. She felt that the time lines didn't line up, (Bob asked us to shout when we talked so the guys on the phone could hear). The HC

process became very formal, so that it would get into the ASMFC SP. The process is not that formalized, for all the other ASMFC components, so it would be easier and create less work if it is to follow that process. Another point is that the mission and vision may need revisions, and then be included in the Operational Procedures Manual.

Bob noted that is why he wanted to make sure that everyone had copies of the OPM. He noted that there are a lot of elements in that manual, that we are not addressing at all, so we need to review the document. Also, even though we may create an action plan for a particular plan, we don't prioritize them. So, the manual needs some revisions, including what the Coordinator does, and the process for developing the plan, and approval of the PB. We should look at this document carefully at this meeting, as we move forward.

Megan noted that we should take out the strategies, the actual work that we do, and put them in a work plan. There would still be two different documents. Bob noted that the static one has a lot of elements that this HC has not been able to address. That doesn't mean that the HC has to address them all, since the HC is just a piece of the Habitat Program. With ACFHP coming on line, we need to distinguish which ones go with which.

Wilson noted that he thought the whole concept of the proposal was good. He felt that there was good justification for having a separate Habitat Strategic Plan, but didn't object to seeing it eliminated. He noted that he was comfortable with rolling HC measures into the ASMFC SP, as long as the HC continued to develop the strategic planning measures for inclusion into that plan. Wilson asked what discrepancies had been identified in the existing documents?

Megan identified some text on page 3, of the Habitat Strategic Plan, which purportedly comes from ACFCMA, but that isn't in the Act. She also identified some tasks in the ASMFC strategic Plan, which might better be assigned elsewhere.

Bob asked for a vote to support Recommendations 1 and 2. All members voted in favor. Wilson noted with respect to Recommendation 2, he presumed that revision of the Operational Procedures Manual could include ecosystem issues. Bob confirmed that was correct.

Rachel noted that she would like to see the functions of this committee, more with the other committees. We can help them function more with habitat considerations.

Bob asked how this could be done.

Pat Geer asked Pat Campfield how this might occur?

Pat Campfield noted that there has been some cross-fertilization in the past. Some of the MSC activities intersect with HC duties. MSC for example has asked for updates on wind energy, and that is one example where the two committees can collaborate.

Pat asked about the multi-species VPA, and the EBM Work Group. Pat noted that the MSVPA work is largely species-oriented. Pat Geer noted that there are ecosystem considerations in the species interactions.

Bob noted that our contribution is not so much to the species TCs, but to the coastal managers. He noted that they need to know about the relationships between habitat, and coastal species. He noted that the Beach Nourishment document, is very often cited, and we haven't been able to document how much that document is used by coastal managers. He noted that many of the HC members, are not directly involved in fishery management. Bob noted that we have other duties besides just the TCs.

Wilson noted that the HC is different from all the other standing committees, since it is the only one appointed by the Chairman, in contrast to all the others which are appointed by the ISFMP Policy Board. Wilson felt that it was most important for the HC to keep in touch with, and collaborate with, the MSC. He felt that it was less important for the HC to coordinate with the ASC.

Jake asked for some description of all of those other committees. Pat Campfield gave him a brief overview.

Wilson noted that the MSC had recently been charged with revising the Commission's technical operation manuals, and it was possible to consider merging the HP Operational Procedures Manual, into those manuals. Wilson noted that he didn't have strong feelings about such a merger, but would like to hear what the rest of the HC had to say.

Jake noted that he wondered how to achieve liaison. Bob stated that the Coordinator was the entity to be responsible for maintaining that liaisonship.

Megan noted that would support her travel.

Cheri asked Megan, given her limited time, is that a judicious use of her time? Bob said, if we had a full-time Coordinator, would that be a duty for that position to undertake. Cheri felt it would. Rachel stated that we should consider whether the Coordinator would have to perform these functions, or delegate them.

Pat noted that it was hard to find HP materials on the ASMFC web site. Wilson noted it was easy if you knew where to look. Others didn't agree. Jake noted that it was easy if you have been on the HC since its inception. Wilson did agree with Megan that it would be good to have a separate Habitat Program component to the site. Pat did clarify, in response to Pat Geer's question, that the Habitat Program is NOT under the Science Program. It is separate.

Pat Campfield suggested that some comments to Tina Berger, or to the management, that a more clear web site is needed, would be appropriate. Pat suggested that some communication between the coordinator, and the other committee chairs, would be useful. Bob indicated that was the kind of thing that he was considering. Bob noted that ……

Wilson noted that the MSC and HC, usually do meet at the annual meeting.

Pace noted that the Commission should ensure that the multiple committees are coordinated, not the responsibility of the individual committees.

Jake noted that he hoped that we can add recommendations to the report, in addition to either supporting or refuting those in the proposal. Jake noted that he would like to see more Commissioners coming to the HC meetings. He was concerned that we are really disconnected from the Commission and Policy Board. Bob noted that was the perception. Bob noted that since he has been chairman, he has yet to make a presentation to the PB, due to other pressing matters.

Wilson noted that the HC chair is usually on the agenda to address the PB. He noted also that the HC members, should be cultivating relationships with their Commissioners. Also, if we can find a way to enhance our relationship with the Commissioners, we could do so.

Megan noted that the ASMFC pays for Commissioner travel, so they can travel to HC meetings.

Bob asked that we move on to Recommendation 3. The entire HC supported it. Bob noted that he wants to take the message back to Vince O'Shea, that we need a full-time position, in order to allow the HC to fulfill its obligations. He noted that if we take a list to the Executive Director, which demonstrates that Megan's present contract is not sufficient, he feels that would help to justify more support. Bob noted that he feels we can justify at least 50 percent, if not full-time. He views this contract as a trial. He noted that with regard to the red drum draft, Kent is going to take a stab at the revisions, but in the past the Coordinator would have handled that duty.

Pace noted the wording of Recommendation 3, is that the Coordinator supports the Habitat Program, rather than the HC. Pace asked if the other committees that are part of the Habitat Program, are voicing a need for a full-time coordinator. Pat Campfield indicated they have expressed the need for a coordinator (e.g., the Artificial Reef Committee).

Bob noted that he had read the text as committee, where it really says Habitat Program. Bob asked Megan to clarify which it is? Megan stated her thought in writing it, is the Program. She noted that the coordinator in the past has edited the Habitat Hotline. Megan noted that the HC had taken on some of the coordinator responsibilities, for example at one of the previous meetings, we had prepared an issue of HH.

Cheri noted that the coordinator is our conduit to the Commission.

Wilson noted that the coordinator is only ONE conduit to the Commission. Wilson felt that each HC members should be talking directly to their Commissioners. He noted further that part of the breakdown in communication between the HC and commissioners, is due to the fact that we as a HC have NOT been talking to the commission members. Wilson noted that all it takes is one

commissioner, to get a habitat item put on the agenda, if they so choose and the Chairman agrees.

Pat noted that there are issues, such as Fish Passage, which is of interest to the Commissioners.

Bob suggested that we may want to have an action item, to try to enhance communication with the commissioners.

Kent suggested that HC members can provide copies of bulleted lists of items from HC members, to our state delegations.

Jake noted that we could take some time, to review the agenda for upcoming ASMFC meetings, and see where there may be relevant items of interest/concern to us. Jake pulled up the current agenda for the next ASMFC meeting, and noted that the American Eel MB will be discussing the USFWS American Eel Status Review; there is also an item to update the SEAMAP funding. We should be paying attention to the agendas.

Chris Boelke asked if the committee reports are on the Commission agenda? Wilson noted that they usually are on the agenda, and either the committee chair, or coordinator, will give the report. Pat Campfield noted that if these things are bubbling up to the commission level, the commissioners will usually take the time to address them.

Bob noted that he is presuming that we will take some recommendations to the Policy Board, at the annual meeting in Philadelphia.

Pat Geer noted that at the PB, you can usually get more time allocated, up to a thirty-minute block.

Bob moved on to Recommendation 4. He noted that this one entails the preparation of an Annual Work Plan. He noted that we have a plan for 2012. We need to deal with how we will handle 2013. He presumes that there will be some discussion, at our fall meeting.

Pat Campfield noted that the timing is rather tricky. He noted that we did put leads into the present work plan. There is a little bit of an offset for this year, but it didn't happen for 2012. For all the committees, the staff begins with a draft, and then goes to the committee chairs, for review and approval. He thought that Kent and Bob had done that, for the present iteration.

Bob couldn't recall. He suggested that at the fall meeting, the Habitat Coordinator, working with the Chair and Vice Chair, develop a list of priorities, for discussion at the fall meeting. Megan asked Pat Campfield if the timing was such that it could be approved. Pat Campfield indicated that it is the same as it has been historically. There is an Action Plan, which is formally approved, but not necessarily by everyone.

Megan noted that her concern is that any HC issues which may require funding in a future year, be fully addressed and not overlooked or submitted too late. Wilson fully concurred with Megan and felt that resolving this timing was critical.

Bob read Question 3. Bob read over some of the language. He noted that our HC has not been given specific guidance, etc. Bob noted that the thought was to prioritize……He stopped there and asked Megan to add anything she wished.

Megan noted that she understood where the question was going, but she answered it in a more general manner. She noted that all the recommendations were designed to add value and strengthen the Habitat Program. If we want to answer the question about how much HC documents are used, that may take a special effort to answer. One other thing to highlight is the phrase to identify critical habitat bottleneck issues. That is one thing about which Vince feels very strongly, and wants the HC to take this into consideration when modifying the program document.

Bob noted that is a good point and that relates back to our ecosystem discussion earlier this AM, about red drum and habitat considerations. As we deal with each commission species, over time, we should perhaps refocus on that issue, as a discrete effort, rather than more general issues.

Wilson noted that he had a lot of comments on this section. He noted that our charge in the Charter doesn't mention stock rebuilding, but instead charges us with habitat responsibility, not stock rebuilding. He noted that others may disagree. He noted that he will provide his detailed comments to Megan, and had already provided them to Bob and Kent.

Jake disagreed with Wilson. He felt that stock status is a valuable lens, to view the work we do.

Dawn stated, along the lines of habitat bottlenecks, she didn't necessarily agree that we could focus on those. We need to understand the relationship between the species and the habitats, the science. She noted that we are going to do a habitat assessment, in the ACFHP, and that has some bearing on this.

Eric stated that there are other things we can discuss, at the end of tomorrow's meeting. He asked if the TC's don't make recommendations to the MSC, and they rank those for action. So, we could recommend that habitat bottlenecks be a recommendation to the MSC. We could also look at the MSC ranking, and see if there is any low-hanging fruit there, which the HC can address. Eric noted that he has looked at that list in the past, and there may be some things that we can accomplish.

Bob noted that he would relay some comments Vince had provided to him, and he indicated that he didn't think it was speaking out of turn. Vince noted that he has been harangued multiple times, by commissioners who blame the failure of a stock, on habitat and not on management measures, and he has little or no rebuttal to this. He would like the HC to take up the case on this. The thought/logic is that the habitat is the cause for stock failure, and not the management measures. Bob is not convinced, that Vince is convinced, that some of the documents on which

we have focused in the past, are very useful to the commission. We can discuss and debate that statement. Vince has questioned wanting to get a better handle on who is using our documents, including the wind energy. He would like to see better documentation of who is using these documents, and even the FMPs. Bob noted that he is just relaying on his comments. So, Bob feels that we have to consider this, as we re-think our priorities. Those are questions or problems he has faced.

Jake stated that Bob should say to Vince, even if it is true, that habitat is the primary response, we have to respond to it. With regard to the bottleneck question, that has the potential to bring a laser focus to this group. Jake can see that being the major question around which we orient our efforts, e.g., to what extent is task x, addressing those bottlenecks. Jake noted that habitat in general is kind of a diffuse topic and Jake struggles with how you focus this.

Bob noted that he had a couple of hands up, but he wants to give Megan a chance to confirm or refute the comments Bob had made. She noted that Megan has had multiple discussions with Vince and Bob Beal about this.

Megan stated that Vince realizes that resources and capacity are limited in this program, and he would like to see us engage some partnerships to assist us.

Wilson asked if Vince in fact wanted to see us document how much these documents are being used? He noted that he was confused about what Bob had stated in that regard. Bob indicated that Vince does want to see us document their use. Wilson noted that we could do that by tracking hits on the web site and he knows that can be done.

Rachel suggested that we take a pilot species, e.g., weakfish, and try to determine what if any habitat bottlenecks may exist. Bob thought that was a good idea.

Pace stated it was painful to ask, how often the habitat documents have been used, but we need to do it. Pace noted that he can say how often the Beach Nourishment document has been cited, but we can't say how often any project has been modified by our document.

Bob noted that American lobster has been one species where the habitat issue has been particularly onerous to Vince. He noted that Rachel's comments were very appropriate.

Wilson noted that we can easily track, through citation indices, and/or count hits on the web site when documents are downloaded, how much our documents are being used. Tracking the influence those documents have, is not so easy. We can do a survey, but that would take time and money.

Pace gave one example where the Living Shoreline document has made a difference, in a Corps project.

Bob noted that we had decided to create a wind energy guidance document, which would be short, and kept updated with living links, to maximize the utility for habitat managers. We all

agreed that is a great way to go, and will be sending it up to the Policy Board for their review. That is one way to handle this, but it still doesn't get at how much influence it makes.

Pace thinks this one will have an impact.

Bob noted that we can also expect the same approach, with the harbor document, which Doug is taking a crack at. Bob noted that he wasn't convinced that Vince even read the last HH, based on comments Vince made. Those are some basic questions and we have to debate that, in the future. Bob noted that he didn't think Vince was driving what we do, but we have to convince him of the utility.

Pat Campfield suggested that a very effective way for us to discern the utility of HC products, is to talk directly to the state directors. They may not themselves know at the 10,000-foot level, but they can ask their staff.

Bob noted that he was not being critical of Vince at all, just asking the questions. Bob noted that we had a Habitat Managers Database, and it wouldn't take much at all to update it, and use it as a means of sending products out to habitat managers for their review and use.

Wilson noted that he and Pat Campfield had asked that the HMD be updated, and it had not, for various reasons.

Bob returned to the document. He noted that there are a number of ways we have discussed strengthening the relationship between us and the commission. Bob noted that we have touched on all of the questions between the last recommendation, and the next one. He noted that the first statement may not read well. He asked Megan for clarification of that statement, which says that the HC is not capacity-limited…….etc. Bob noted that we have been tasked to prepare Habitat Sections, and address alternative energy issues, and draft Habitat Hotlines, in the absence of a Coordinator. It isn't clear to him what we are doing that is NOT supporting Commission priorities.

Megan agreed that it probably wasn't worded in the best way. She intended to say, that the HC is carrying out what it is assigned, but perhaps it is doing so, in a way beyond the capacity of the HC. She noted that it appears that we are trying to achieve that, with the wind energy document. Megan noted that we perhaps should not try to go beyond our capabilities.

Wilson noted that he felt that the Chair and Vice Chair should push back on that one. He noted that the HC doesn't want to do mediocre work, rather we want to do excellent, comprehensive work. We can't do that unless the Commission gives us the resources to do the work.

Cheri noted that the text should be revised, to say that the HC membership will assess our capacity, not just the coordinator.

Pat Campfield noted that the Chair was being specified as the spokesperson for the HC. It is not efficient to have the entire HC look at everything.

Bob clarified that there will be a draft Annual Work Plan, developed by the Coordinator. It will be reviewed by the HC, but ultimately as the Chair, Bob will advocate for the plan.

Pat Campfield stated the practice. Bob noted that for the 2010 one, we went line-by-line through the entire document. Pat Campfield stated that was after the fact. He noted that in the past, the MSC has stated that some action item has bitten off more than MSC could chew, so the Chair has vetoed something.

Cheri noted that while the Coordinator, or Senior Staff, put together the draft, and it comes down to someone within the HC, to make that decision. Pat Campfield stated that is a back and forth, in evolution. Pat noted that we take the 2011 plan, to build the 2012 plan, so we won't be starting from scratch. There will be items which remain in the 2013 plan. It comes back to the Habitat Coordinator, or senior staff, being plugged in and knowing what the needs are.

Pat Geer noted that the Commissioners can task any committee, any time. He noted that with the assessments, we have had to create a schedule to keep on track. We have to be careful about getting the ear of the commissioners, since we can wind up getting tasked with more things than we anticipated.

Bob noted that he always felt that the HC as a whole had done this task. Wilson concurred and noted that we had done that in the past.

Bob stated that we are at a reasonable stopping point, to pick up with recommendations 5 and 6 tomorrow, and deal with the remaining questions. We can then look at the Operational Procedures Manual, and decide how we want to do that, and what it should look like. We can then have a discussion of the 2012 Action Plan. That is the only way that Bob can see this done prior to the fall meeting. We need to move forward and not wait until 2014 to do anything.

Bob noted that he had promised to keep us on schedule.

Bob noted the plan is to meet in the lobby, at 6:00 pm. Kent noted that he will have the room locked, but doesn't suggest that we leave computers in the room.

Kent reviewed the dinner options. He noted that Ted Peters doesn't take credit cards, only cash, and there is an ATM in the Publix across from the hotel. The restaurant is about a 17-minute drive from the hotel, and has 4.5 stars out of 5. They have hot dogs, hamburgers and smoked fish, usually smoked mullet. All interested should meet Kent in the lobby at 6:00 pm.

The meeting adjourned at 5:00 pm.

End Day 1 5:00 pm

Thursday, April 26th:

5 – Continuation of Habitat Program Proposal Discussion, *All* 8:30 am

Bob reconvened the meeting and reviewed how far we had gotten yesterday in our review of the Habitat Program Improvement Proposal. He reviewed each of the recommendations we had approved, and the qualifications associated with them. He noted that Annual Work Plans would be drafted by the Habitat Coordinator, but with input from the HC. That means we will discuss the 2012-2013 Annual Work Plan at this time. They will be drafted and come back to the HC prior to it going further. Bob noted that we had worked our way up to Recommendation Number 5, which involves putting a description of HC member duties, in the Operational Manual. Bob noted that there was desire to put more specificity in the manual.

Megan noted that the intent here is to write up what a HC member needs to bring to the table. She noted that such a description is present, for NGO members, but not for other appointees. She suggested that we need similar text to describe the duties of other non-NGO members.

Wilson noted that he had picked up on the same thing, and concurred with Megan that it would probably be a good idea to have some description in the Operations Manual. Wilson noted also that he thought there is some language, somewhere in the manual, which essentially says that when agency employees are appointed, they take off their agency hats, and put on their habitat hats.

Rachel stated that she agreed that the committee members are expected to have expertise in habitat, and not to bring agency policy, or regulatory, perspectives to the table.

Bob asked the HC if they were comfortable with the language on page 5, describing the duties of the NGO representatives, being used to describe the duties of ALL HC members. No one objected.

Rachel asked about proxies? Megan and Pace noted that is addressed on page 4 of the document.

Wilson asked how we are going to proceed, since the Operational Manual clearly needs revision, are we going to try to do it today, or assign it to a sub-group.

Bob indicated that he would like for us to do that today, and indicated that Megan has already made some proposed revisions, but if we can't finish today, it will have to be assigned to a sub-group.

Bob turned to the recommendations regarding the relationship between ACFHP, and the HC. There are a number of goals in the current SP which are pertinent to ACFHP, and NOT the HC. Bob noted that the focus of the HC should be the mission of the Commission. He suggested that

Emily, as the ACFHP, should provide updates to the HC. Questions 7 and 8 seek to insure that the two efforts are complementary, but that the HC should focus on other things. Bob thinks that the lines between the ACFHP and HC became blurred. He asked if anyone had any objection to the Recommendation. Bob noted that the Commission is not going to be achieved.

Kent asked if we aren't already doing this? Bob agreed and thought that we are operating that way, now.

Megan stated that this is the opportunity to adopt a new direction for the HP itself, one that ties into the Commission's mission.

Wilson asked, what "new direction" is the HC going to take? He noted that the quotation which Megan cited yesterday, came from the Charter, and NOT the Act. He concurred with Megan that the Act itself does not contain a specific admonition that ASMFC FMPs have Habitat Sections, but it does contain a legal definition of "conservation" which includes "the marine environment," so to Wilson, that includes "habitat."

Megan noted that she didn't disagree, she was just pointing out that there is no legal mandate that happen.

Bob noted that he agreed with Wilson on the need for Habitat Sections.

Rachel stated that the HC does need to continue to maintain an exchange of information with the other adjacent Fish Habitat Partnerships, like SARP. She noted that she is on the SARP and will continue to brief them on issues, for example, like Atlantic sturgeon.

Pat noted that given that Megan is now our coordinator, and Emily is the ACFHP, they will be coordinating regarding partnership activities.

Bob asked if everyone was in agreement with Recommendation 6?

No one objected.

Dawn noted that she felt that we should modify the language, to allow the HC to if needed, collaborate with ACFHP and/or SARP, and if integration is needed.

Pace was concerned that Emily and ACFHP be charged with the responsibility for integrating with the other Fish Habitat Partnerships.

Bob indicated that the path forward on this, is for us to produce a modified version of this document, which can be forwarded to the staff and then the Commission, for action. Bob and Kent noted that there will be some push-back from us with regard to the workload and our need for a full-time position.

☐ Includes discussion of Habitat Hotline format and focus.

6 – Review of 2012 Action Plan – HC Activities, *All* 9:05 am

Bob moved to review of the plan. He noted that items 4.1.1.1, and 4.1.1.2, are both ACFHP responsibilities. Item 4.1.3, is a responsibility which has fallen to us. Several members of the HC are on this committee (Jeff Tinsman, Mark Rousseau). Bob didn't see this as an HC responsibility, except to get a briefing.

Item 4.2: identify important habitat areas. Bob noted that item 4.2.1 has traditionally been ours. We agreed that this one is a HC responsibility. We have not started anything with regard to American lobster. We will hear from Pat Campfield, about the status of Atlantic sturgeon. We have a good path forward for red drum, and have deadlines for comments to Kent, who will then somehow, possibly with Megan's help, or not, and with a subgroup, modify the document to include ecosystem, and habitat bottleneck, language, and Pace will provide revisions to the EFH language. Bob noted that we essentially diverted from American lobster, to red drum, based on the availability of an internship. We need to consider the priority for 2013. Bob noted that from his perspective, American lobster would seem to be a priority.

Pat Campfield noted that at one time, the HC performed an exercise to look at which habitat sections were most out of date, and try to update the sections accordingly. We may want to look at that.

Megan asked if the driver was the date of the FMP, or FMP updates?

Pat Campfield noted that it was the date, but he noted that we do have the authority now to update the Habitat Sections, independent of FMP updates.

Wilson concurred with Pat's assessment.

Lance Stewart noted that with regard to lobsters, it is an extremely important fishery, and there are some real issues with pesticide application and the impact on lobster. Another species for which habitat is really important is river herring.

Jake stated that our selection of species should be driven by stock status, and not how out-of-date the section is. He suggested that SNE lobster, river herring, and winter flounder all quality. He noted that a moratorium has been proposed for SNE lobster, and that is a serious action. He advocated SNE lobster would be a good candidate on which to focus. He thought that we had already updated the river herring habitat section.

Wilson and Pat Campfield indicated that we had they thought updated both American shad, and river herring, habitat sections during the preparation of Amendments 2 and 3 of the Shad and River Herring FMP. Wilson agreed with Jake that the SNE lobster would be a good one.

Jake noted that he had suggested some names in the past, and Jessie Thomas had received some feedback from them that they were reluctant to spend their time, unless they were assured that it would make some substantive difference. He indicated that he could provide a lot of names to us for consideration.

Lance noted that with regard to SNE lobster, river herring, winter flounder, and tautog, there may be some merit to looking at the whole nearshore environment, and concluding that there is some problem there. He stated that the HC is the heartbeat of the Commission, with regard to habitat issues, and we need to be on top of the habitat issues. He noted that there is a lot of new work which shows that there are contaminant issues, especially with lobsters.

Bob noted that there really isn't anyone on the HC with the expertise in impacts of contaminants on aquatic organisms.

Lance felt that just by doing a literature review, the HC can educate itself.

Bob noted that Lance may not be aware of the dialog we have had, regarding the ability of the HC members to actually do any literature searching, on their own time. The job needs to be contracted out, and that will require a cost. That is one of the reasons Bob wanted to get this on the table, because the cost of doing this will have to be put before the Commission, and consider whether to do the work.

Chris Boelke noted that the NMFS NERO is working on developing a shallow-water habitat document, so they can comment on the habitat. He suggested that would be a good starting point. They have a document in draft form.

John Gill asked how they define "shallow" water? Chris stated it was 10 meters. Chris noted that was their definition, not NOAA's. Pace noted that was the NERO's recommendation, not MSA's. The MSA defines it as 4 m.

Eric asked, would it be more productive to pursue a lobster habitat connection, or the habitat bottleneck discussion?

Bob stated that kind of analysis and review needs to happen. Bob noted that going to a more generic, would get us away from an FMP-based approach. We would have to decide what sort of document that would be. It sounds like NMFS is already producing a document that we could use.

Lance stated that with regard to river herring, being shut out of several streams, you can look at the bottom and while EPA standards have not been violated, the pollutants have spread out into the bays, and a lot of shellfish habitat has been lost. We don't have a handle on these things, but we do need to document them. There is a whole life history impact, rather than just a habitat impact.

Chris Boelke stated that is why NMFS feels that it is important to document this. He noted that he didn't want to give the impression that this was going to be a NMFS Technical Memorandum.

Bob asked if there is any objection to going forward with SNE lobster?

Wilson noted that he didn't object, but noted that producing some sort of more generic habitat document, could be perceived as constituting a "new" direction for the HC, and also we could do that under the Habitat Management Series.

Bob noted that we would have the same issue, with producing such a document.

Pat suggested that we might want to coordinate with the ISFMP, similar to what the ASC does, with the stock assessment schedule.

Wilson supported that approach.

Bob moved to 4.2.2. He noted that was an ACFHP responsibility.

John Gill noted that he had raised as an issue the last time, that oyster reefs were not identified as a priority habitat in his region, and he had an issue with that.

Kent noted that he thought that some of that issue has been resolved.

John Gill had an issue with the boundary. He asked if there was an opportunity to revisit the boundary? Kent stated that it was not appropriate for this venue, but he would raise it with Emily.

4.2.3: Bob asked if the HC had any specific activity associated with this particular task, in 2012. Wilson noted that he felt that this one falls well within the responsibility of the HC, and the Habitat Program. Bob didn't disagree, but noted that we have nothing on the plate for 2012.

4.2.4: Bob asked if we had anything going on, with regard to this one. He noted it was rather generic. Wilson felt that we had discussed this one a lot, even yesterday, and we had identified a task, updating the Habitat Managers' Database, which to him seems to fit under this one. Jake stated that he felt this language reflected the core of the HC mission. Marek was in concurrence with Wilson and Jake, regarding the importance of this one, and suggested that we make updating the HM database, could be the action item. He agreed that this statement should be at the heart of everything we do, everything should represent improvement, or movement, through implementation.

Bob agreed. He asked if anyone had any objection to being responsible for updating the contact information, in that database, within a reasonable time frame? There was no objection.

Jimmy asked, what is it exactly that we need to update? He noted that there are some NRCS contacts, for example, who are pretty far inland.

Wilson noted that representatives can use their judgment, but if we want to influence what is happening on the ground, then we need to consider the landscape we want to influence. If we want to be more ecosystem, or landscape-based, then we have to inform the decision-makers.

Marek stated that he would provide the contacts for all the county-level land use planners in his state. If he doesn't do that, nothing will get done.

Bob didn't disagree with anything stated. He suggested that each state representative should look at the list, and make decisions about what should or should not be on the list. The federal agencies should do the same.

Chris Boelke asked, if the list for those individuals we want to send HH to, or more generic?

Bob stated it is the list we would use for all information dissemination. He noted that the last issue of HH, didn't go anywhere except online.

Jake noted, the issue is who we want to do things? That is the issue.

Wilson noted that he agrees with Bob that each member needs to make decisions, but there also needs to be some consistency as well. He suggested he would work with Jimmy on the NC list, but suggested that there would be merit to further discussion.

Task 4.3.1: Bob asked if it was anticipated that there will be any action on this one, in 2012? Wilson and Pat noted that this one is generic, and should be in there, to accommodate any requests from Commissioners.

Task 4.3.2: Bob asked if there was any action planned on this one? Wilson wasn't aware of any, but noted that we could review the list of ASMFC research priorities, and pursue this if needed. Pat noted that we had within the last few years, produced a list of shovel-ready projects, so that need might arise again. Pat Geer suggested that we need to leave it in, as a generic provision.

Task 4.3.3: Bob noted that this one could be perceived as overlapping with ACFHP, and/or with Task 4.2.4. He asked Pat Campfield to comment. Pat noted that this one ties into developing ties at the local level.

Wilson noted that he was doing this, through the Wake County OSAPAC, and if Bob wanted specific examples, he could provide one.

Kent stated that we should try to develop a more specific approach.

Bob wanted a charge to us, specifically, for 2012 and 2013.

Jake noted that this sounds like something ACFHP does, and will continue to do. He noted that in this meeting, we are really trying to discuss separating ACFHP responsibilities, from HC

responsibilities. This may be more of an ACFHP duty. They have an impressive list of partners, and there is overlap between ACFHP and HC, so maybe we should say that this is more in their ballpark.

Bob wondered about the HC fit here.

Jake noted that building the database of HM is a massive undertaking. As a core focus, he suggested that we move more toward habitat managers and influencing them.

Wilson noted that he perceived a difference between ACFHP, which is more of an on-the-ground implementation, than the HC, which should be providing information and influencing habitat managers.

Task 4.3.4: Several HC members felt that this one was more of a ACFHP responsibility. Kent noted that we had discussed that at the ACFHP meeting. The Science and Data Subcommittee is supposed to work on it.

Eric suggested that we could put together another 4-pager, with regard to monitoring, using some existing NMFS and Corps guidance documents as a starting point.

Bob noted that there is some language in the wind energy document, regarding monitoring needs, which is loosely tied to the wind document.

Pace stated that if we were going to do something like this, and begin in 2012, we need to corral the existing federal and other documents, and then stitch them together in 2013. If it doesn't compete well with the other things on our list, then we could eliminate it.

Bob suggested that we keep it on the table to continue discussion of whether it could be a good 2013 activity.

Task 4.3.5: Bob noted that we had not done this one. No one knows of any proposed activity. Jake thought we might want to discuss this for 2013. Wilson noted that if we are going to do this, we would have to have someone design a survey instrument, and then contract with someone to do it. Pace noted that we could examine some existing polls with a view toward deciding whether we need to do our own.

Bob noted that we have 7 more items, and only a limited amount of time so we have two minutes per item.

Task 4.4.1: Jake thought that we are doing this one, with regard to red drum, and Atlantic sturgeon.

Task 4.4.2: Bob noted that we all do this one. He asked if we want to document what HC members are doing? Rachel asked if there is a way to identify us as HC members? She noted that we could resister under the Committee auspices.

Pace noted that he was loath to begin counting activities that individual HC members are doing, as HC activities. Bob agreed but thought that we are going to either say "no activity" or we are going to make a generic statement that HC members did this. Megan stated that …….Rachel felt that it was more of a PR element.

Pat Campfield noted that this was historically more of a Habitat Coordinator element. He noted that Jessie used to attend and participate in the SAFMC Habitat and Environmental Protection AP. Wilson noted that the ASMFC seat was still there, but hadn't been filled since the position was vacant. Pat gave another example in the form of his participation in the NOAA CCC Habitat Blueprint meeting.

Jake suggested that he doesn't want to count everything, but some sort of accounting of linkages would be useful.

Wilson noted that both he and Pat Campfield had attended and participated in the NEFMC habitat workshop, and given a presentation to the MAFMC workshop, as another example of such participation.

Task 4.4.3: Bob noted that this one would take more than two minutes, and he asked Kent to begin the discussion. Kent noted that on the one hand, Vince had questioned the utility of the HH, indicating that it was duplicative of other similar newsletters. But, then, Vince stated that he would like to see a more simplified, quarterly publication, which links to successful habitat restoration activities, which are published on the web. Bob noted that we recognized that without a Habitat Coordinator, we weren't going to be able to publish an HH. The one which the HC did, had a number of useful articles which were very useful for managers. The disconnect with Vince is that we had done, in that issue, exactly what he was wanting us to do. Another piece that we did, was an update about what is going on in various ASMFC states. The question, he said, is twofold: do we continue HH? We won't get a 2012 document out, because we aren't there. Our scheduled working session was supplanted by the need to discuss the Habitat Program Improvement Proposal. If we do decide to do it, then how do we do it?

Marek asked if the HH was intended as a HC document, or a Habitat Program document. Bob thought it was a committee document.

Jake advocated for keeping it. It is useful. The fact that we didn't have the time to do it this time, is unfortunate. It doesn't need to be 20 pages. He didn't want the baby to be thrown out with the bathwater. He didn't see producing one in 2012, as being out of the question.

Chris Boelke suggested that the format might shift to some real resource issues, such as conferences, and tools, etc.

Jake suggested that we could focus on tools for use, and focus on five things.

Bob noted that we are running over on this topic and we will make it up by not doing another one. Bob noted that he felt that the four-pagers we are doing, are very useful. We are finishing up wind, and will sent that to the PB and get some feedback. We were then scheduled to move on to harbor-deepening issues. That was going to consume a significant portion of our offline time, in 2012, and into 2013. We also have these other tasks going on, updating the HM database, and completing red drum, and finishing up the wind energy document. Maybe we can figure out a way to do a ten—pager, but that takes someone to come up with a good idea, and someone to volunteer to do it.

Jake stated that there are two questions, do we do one in 2012, or get rid of it entirely. He didn't want to do the latter. He felt that if we use these meetings for more work time, we can accomplish producing HH. We did get a lot done, and produced a 20-page HH, by working at meetings. Jake felt that we do have to look at 2012.

Wilson stated that he felt that the HH was more of a program document, than an HC document, but could have elements of both in that it can serve as a publication outlet for information which HC members want to distribute. He suggested that we could kill two birds with one stone, by taking the wind energy document and making it a HH issue. He felt that would meet Vince's latest comments about wanting to see a quarterly issue.

Bob noted that if we make it a program document, then Megan's time will be further diminished.

Marek felt that Wilson's comments had merit. He agreed that the past issues, have had a habitat focus, for sure, and were program-oriented and not HC oriented. He asked specifically about whether Megan's 20 percent was HP, or HC? Megan clarified that her contract reads, Habitat Program. Bob noted that the HC time is to be carved out of Megan's time as Habitat Coordinator. Marek noted that Megan can allocate some HH time, as part of her program functions.

Pace noted that if the choice is between spending more time on 4-pagers, or producing HH in the more recent format, he favors ditching the HH.

Marek noted that he feels that we can do HH, like the old ones, which Pace stated that he found very useful.

Jake stated that Pace wasn't really the user that we should be polling on this issue?

Pace thought that he was a valid user.

Megan said that Vince had stated that there are a lot of other habitat newsletters out there, and that any source documents needed to be vetted through the PB.

Wilson felt that we could kill two birds with one stone, by just publishing the wind energy document, as a HH issue. There was much sentiment that was the way to go.

Bob noted that the HH has not traditionally been reviewed by the PB. If we make the wind energy document a HH issue, then it will have to be reviewed by the PB. That would complicate things.

Eric asked, given that our intent was to make the wind energy document a living one, and maintain it on the web site, if we publish it as a HH issue, that might complicate things.

Bob wanted to maintain the present path, with regard to the wind energy document. There was no objection to doing so. Bob suggested that we discuss the HH further, at the annual meeting.

Wilson asked, if some HC members wanted to make an effort, offline, to create a HH issue, would that be well-received by the Chair and Habitat Coordinator?

Bob asked if there was a subcommittee willing to do this.

Jake and Marek indicated they were willing to do so.

Cheri asked, couldn't we do a HH issue, which addresses our new wind energy document, and also includes some information about some of the other wind energy projects? Wilson thought that you could do that, use the HH issue to announce the ASMFC-HC wind energy source document, and also cover some other projects.

Bob agreed to appoint a subcommittee: Cheri, Wilson, Jake and Marek will work on producing a HH issue. Bob indicated that he would provide information on wind projects in SC.

Task 4.4.4: Bob noted that this one was done and ready for publication, but it needs to be dressed up. We were working with Emily on doing that one and dressing it up. But, Vince wanted to get it out there without any window-dressing.

Pat Campfield noted that if it is going to be a PB-approved document, maybe dressing it up would help with approval. Bob noted that we didn't produce the document without PB mandate. Pat Campfield didn't have a problem with dressing up the document. Bob noted that none of us have the HTML skills.

Pace said, some dressing-up can be done quickly, such as putting a windmill in the background. Anyone, including him, can be done quickly. Bob indicated that there was consensus to do that, so the dressed-up version can be sent on to the PB. Pace expressed the hope that few changes will be made to the document. Bob concurred that would be the case. He noted that we are therefore making progress on that. If the PB turns it down, that would be an interesting evolution. If they approve it, then we have port-deepening issues as the next priority for this task.

Task 4.4.5: We are the POC.

Task 4.5.1: That is what we are doing.

Task 4.6.1: The subcommittee will decide whether to do this one.

Task 4.6.2: We're doing this one.

Task 4.6.3: We have discussed this somewhat. Wilson noted that we had discussed doing a HH issue on this. Pace said that TNC is already doing this, via a web site.

Bob asked that we take a ten-minute break. After the break he wants to focus on the Atlantic sturgeon item, and the wind document, and how to move forward with the channel-deepening documents. After lunch, we will continue, and receive a hard copy of the AR deliberations, and the other items.

11:03 AM:

Wilson sent the two files from Doug, to the entire HC, so John and Tony would have it.

John received it.

7 – Status update of Sturgeon Habitat Section adoption in FMP*, P. Campfield* 10:15 am

Pace clarified that the Sturgeon Management Board would review the Atlantic sturgeon habitat chapter, in either August, or October, and depending on any changes required, it would come back to Fritz for further revision, or be handled by Megan. Bob confirmed that was correct. Wilson noted that the MB usually doesn't provide any significant changes.

□ ESA listing status, *W. Laney*

Wilson gave the update on Pat's behalf. The short version was that Atlantic sturgeon had been listed by NMFS as of April 6th. The ASMFC request to NMFS to delay listing implementation for a year, had been denied. The NMFS had responded to all the questions posed by ASMFC. Wilson noted that he and Cheri had met with NMFS SE Region Assistant Administrator, David Bernhart, and Atlantic Sturgeon Coordinator Kelly Shotts, to discuss with them how to proceed with regard to the Cooperative Winter Tagging Cruise. They provided specific advice on how to prepare a request for Section 7 consultation and Wilson will proceed as they advised.

Pat Geer noted that GA is going to be able to continue to do their work.

Cheri noted that we were told that it would not take a year, for a Section 7 consultation, as opposed to a Section 10 Incidental Take permit.

8 – Discussion of Offshore Wind document prior to submission to Policy Board 11:13 am

Pace noted that the document has been reviewed by BOEM, in addition to others. The document in front of us has been revised to reflect the comments. Bob asked if the comments from the BOEM staff were significant? Pace advised they were not. Pace indicated that the most amount of text changed, is that relative to the effect of noise on marine mammals. They backed off the NMFS language, and added a reference to a web site. With regard to the document adhering to its "living" nature, Pace noted that the part with all the links, will have to be diligently maintained, because there are frequent changes. BOEM has now coalesced all of their information, into a single web site. Pace noted that he is concerned about some of the states, from which he has not received any information, being false negatives. He noted that there is some missing information, with regard to Long Island Sound. Dawn briefly addressed that point. Pace noted that he hoped it would be easy, to add the links. The document itself, other than the part about marine mammals, has not changed. Someone re-wrote the hydroplow section. It really has not changed in a material way.

Bob asked if Pace thought that a once-a-year frequency of updates, was reasonable? Pace said he would want it checked, twice a year. Bob stated that it could happen that new links might come to pass and not be included in the document.

Bob asked if anyone had any comments?

Eric had one minor edit, which he indicated that he can e-mail. He thinks that the RI link, goes to the document. He suggested that Pace put a different link in the document. Pace asked that since Eric could not e-mail it now, Eric write it down and give it to him. Dawn also will provide a link to him.

Chris Boelke noted that the document should reference floating turbines, which do occur in the Gulf of Maine. Pace will make that addition. A second comment, under Design and Construction and Operation, which Chris asked, was, whether it was by design that associated operation being affected (i.e., commercial fisheries) was not discussed? Pace indicated that they want to stick to the habitat issues, so that was by design.

Lance noted that there was no proposed site monitoring, prior to excavation, to point out habitat that should be avoided. Lance noted that there are visual techniques now that can be employed to avoid lobster habitat. Also, another issue is the fluid in transmission lines. So there is a five- or ten-year maintenance issue. That could be referenced in the document. Bob asked Lance to clarify the concern. Lance noted that most utility lines, which are buried, have a fluid which acts as an insulator. If these cables leak, or have to be maintained, this becomes a habitat issue which can be referenced. Pace indicated that this can be a short bullet about cable maintenance under the cable section. Bob was not aware of this as an issue. Lance indicated that it was an issue, about 15 years ago, in Long Island Sound. Lance noted that there was no preliminary monitoring routes under study, before that cable was laid. Also, electromagnetic interference is not mentioned. Dawn and Pace indicated that was incorporated in the document. Lance indicated that noting that ROVs could be used for monitoring as well. Pace felt that all of those additions could be added.

Bob asked about the European literature? He noted that there is a link, to a document which he felt would be very useful, produced by the Danish government. Cheri asked that he send the link to the entire HC. Bob noted that one thing we are facing now, and this is covered in the document, is turtle nesting impacts. He noted that they are facing this in SC, and he has been unable to locate any literature regarding whether turbine facilities inshore, close to nesting beaches, would affect turbines. He didn't have any suggestions to make regarding additions to the document to address this concern.

Bob asked if anyone was aware of any other links which should be provided to Pace, to complete this document?

Doug noted that BOEM has produced a source document, produced by Art Popper, and other experts, regarding the effects of underwater sound on critters. It is the most up-to-date review, and references the European literature, both the Danish document, and a document from the UK.

Pace noted that conference and associated document is included in the BOEM web site. The intent for this document is to focus on the hub links, and not list all the individual links. Bob asked if the Danish study is there? Pace indicated that it is on another link, but he agreed that it might be significant enough to list as a stand-alone link. He noted that this is the essence of the yin-and-yang of which sites to list. Pace noted that he didn't have any issue with providing the Danish site, but he is less enthusiastic about including a link to a BOEM conference.

Wilson stated that the criterion he would use, is whether a given document was valuable enough, in the opinion of HC users, to warrant a stand-alone link. He felt that would be better than relying on our ability to stumble through hub-type links, and presume that we can find something.

Pace noted that he wanted to keep things lean and mean and felt that HC members could find what they need. Wilson wasn't sure that was the case, especially based on our discussion yesterday about how hard (or easy) it was to find habitat materials on the ASMFC web site. Wilson noted that it easy for him, since he has had to look for the materials so often that the route is now hard-wired in his brain.

We discussed the timing for getting Board approval, as well as the formatting. Megan and Wilson thought that it was more realistic, to have it presented to the PB in August, and not next week. Wilson asked if the format was to be a Habitat Management Series document, since he thought Tina already has a format for those. Megan will discuss with Bob Beale whether the document can be added to next week's agenda, and also pursue the format issue.

Bob suggested that we begin on the port dredging topic.

John Gill noted that he had to leave, for 45 minutes. Bob indicated that we would go ahead and break for lunch then, for an hour.

Kent reviewed the travel departure list. Members were collaborating on rides.

11:42 AM: The HC broke for lunch.

Lunch 11:45 pm

12:45 PM: The HC reconvened.

Bob noted that while we are waiting for Doug, he wanted to tell us that Megan had talked to Bob Beal, and they decided to send the wind energy document out via e-mail to the Policy Board, for their review, and action at the August meeting. Pace indicated that he would get something to everyone, next week.

Bob noted that he would still like to have a conversation about the Operational Manual, at least to the extent that we discuss the major sections, and whether or not we believe they are applicable to the HC, or not.

9 – Discussion of next "4-pager" document. Topic: Channel Deepening Projects 11:00 am ***Doug Clarke, Bob Van Dolah, Pace Wilber***

10 – Continuation of discussion of next "4-pager" document. 1:00 pm

Doug noted that he was supposed to put an outline together, with Pace and Bob, but circumstances intervened to prevent him finishing that in a timely manner. He advised us that the four pages he had provided, are really a stream of consciousness delivery. He noted that he didn't follow the wind energy format. What we have before us is really a straw man document, which Bob and Pace have not even seen. Doug noted that Wilson had asked, a while back, whether there was any sort of Corps strategic plan, which looks at ALL the ports along the east coast, with a view toward selecting only those which would be the most economically viable. Doug noted that he had talked to Corps HQ, and there is no such plan. This is despite the fact that the Panama Canal deepening is going to be completed by 2014. Some of these harbor deepening projects date back to the 1980's (e.g., Baltimore), and are now seeking widening. Doug noted that he has put some of these examples in the document. Some are ongoing (Savannah, Charleston) and others are on the drawing board. Some of these are big, complex projects, which makes it hard to capture all of this in a four-pager. Some of the projects are so large that we might consider them for future source documents.

Doug noted that the introduction, has information that we can Google, about the Panamax, and post-Panamax vessels for example. Doug noted that he tried to touch on some issues which don't readily come to people's minds, such as the fact that deepening, often leads to widening, and the latter is where major habitat impacts come into play. Doug noted that he was unsure how much time to spend on such items as NEPA, for example, in the document. He did mention New York, Miami, Savannah, and Charleston, some of the post-Panamax projects. There are other proposed projects which are smaller in scope and scale. The impacts are in some cases, pretty obvious, such as salinity intrusion, and tidal excursion changes, and so forth. Doug noted that there are nearly a dozen projects here that have major impacts, and each is unique. Doug

noted that he may have missed some of the direct impacts. They are all permanent changes. Doug noted that he stole a map of the NY harbor bathymetry in the 1800's, and today, and he noted he doesn't see how anyone could miss the implications of such significant harbor/habitat changes. He noted that some of us tend to view these proposed changes, as the final rendition, but he noted that at the Panama Canal, one lock would allow the passage of 60-foot draft vessels, so he wondered where it would end?

Pace noted that there is an ice dam which is going to resolve, and open up the northern channel, to vessels of unlimited depth.

Doug noted that in some cases, dredging may be minimized, if deeper channels facilitate sediment transfer, so there may be some benefit.

Pace noted that he understood the difficulty of dealing with these types of projects, but he felt that there must be some guidance provided for the user. He noted that they had done this in the wind energy document. Pace noted that in the southeast, the message to the Corps is to use the EPA TMDL models, as a template for evaluating the harbor deepening projects. Pace noted that Dawn is shaking her head no. He noted that it would be useful to have the ASMFC take a position on that issue, and perhaps influence it. Another issue, associated with these projects, is SLR and how these channels will affect associated wetlands. There is an issue of whether the Corps should mitigate for an impact, which will happen anyway. The USFWS believes that the Corps should include SLR, but Pace noted that without it in the NEPA document, the Corps mitigation actually is higher than it otherwise would be. There is also a need for discussion about tipping points, i.e., whether a small amount of change now, will lead to a disproportionately higher rate of change. Pace said depending on the scale, the deepening can have a greater, or lesser effect. In Savannah for example, the channel will materially change the cross-sectional area of the channel. There are a bunch of other ones, Pace added.

Bob noted that deepening is certainly a major issue, but with any dredging project, a document in this form may be useful. Bob noted that there is a sentence or two in the document, but there is no addressing of any direct impacts to the biota. Some of the impacts may be considered direct, and others not. He noted that maintenance, for example, may occur in temporal windows and may therefore avoid some impacts. Bob also noted that impacts associated with a particular zone, may change as you move upriver. If you shift the mesohaline zone well upriver, then wetlands extent may change, and he wasn't sure whether that was a direct, or indirect, impact.

Doug noted that Bob was pushing a lot of Doug's buttons. He wasn't sure how much detail we can provide, in this document.

Bob noted that perhaps we could handle that, by just including literature references.

Dawn suggested that we format the paper similarly to the wind energy document. We could list the areas for which we know we will need information. She suggested that we have an order: impact assessment, followed by operations, and so forth.

Doug noted that all of these projects are in various stages. He noted that the NY Harbor project for example, focused on winter flounder. The project was sequenced. For that project, it was more of a coordination issue, more than a stop:go decision on the dredging. Doug noted that we now have a 10-year data set, on winter flounder. The story may be different, for other projects.

Dawn noted that a team of all the players sitting around the table is needed, to secure the needed resources.

Doug summarized the indirect impacts. He indicated that other issues could be greatly expanded. Some projects involve hydro-hammering, or blasting. Miami along is a steep learning curve, and each of the projects has separate lessons learned.

Chris noted they face 1.2 million cubic yards of blasting, for Boston Harbor. It isn't' just the impact of the blasting, but the loss of the hard substrate that is the impact.

Pace asked how much blasting was proposed?

Chris Boelke said he didn't believe there would be much.

Wilson thought that the Cape Fear would require more blasting. Pace didn't believe so.

Pace indicated that his intent was to keep the document short. If there is no blasting for the next ten years, then we don't have to include it now, we could add it later.

Chris Boelke noted that the blasting is a current proposal, so it should be in there now.

John Gill asked if there was any other alternative?

Doug indicated that they could use a hydro-hammer. Doug noted that on the rosy side, blasted material can be used for enhancement, such as was done for Wilmington Harbor, where they used it to build a reef.

Dawn suggested that a section on mitigation would be one way to address this in the document. She noted that it was complicated.

Doug noted that Jeff isn't here, but he understood that the NJ sites are full. Dawn noted that NY wants it, and has sites for it.

Pace stated that they don't want that for Port Everglades.

Bob noted that there are beneficial ways to use the material. In Charleston Harbor, they have used Cooper Marl, to create u-shaped berms which are used to retain the looser material within the disposal site. The berms are very productive for blackfish habitat.

Tony indicated in the Chesapeake, most of the issues have been on the dredging, than on the disposal end. There they are able to find ways to beneficially use it.

Bob agreed that disposal certainly could be a section in the report. Bob asked, can we bulletize some of the sections of the document? Some have advocated that approach. Bob noted that the introduction is quite good, he thought. He noted that we might want to go out on a limb. We have some 20-year old models, some of which were developed for the Gulf, but we should consider what characteristic models we should employ, or whether we need models at all.

Pace noted that some problems can be solved without a model. Pace stated there are nine ports in the SE which are in the process of being deepened, and the collective cost of those is about half the coast of a Wilmington-class aircraft carrier.

Bob asked Doug where he thought we should go.

Doug said that there was one other issue, which is that there are infrastructure changes, which will be used, and we don't usually involve ourselves with such factors as resuspension of sediments by deep-draft vessels. We should not ignore such impacts. It isn't just the maintenance, it is the use of the projects.

Bob thought that was an excellent point, but he wasn't sure how to title that. He noted in Charleston, they are concerned about the impacts of peripheral wakes, on bird-nesting habitats, and ballast water. HE felt that all of those impacts should be addressed.

Wilson felt that it would be appropriate for the HC to put some statement in the introduction of the document, which makes the point that a lot of the habitat impacts could be avoided, if the portion of the proposed projects which were not economically viable, were not built.

Pace noted that Senator Lindsay Graham was already dealing with that issue. Dawn felt that was not something we can control.

Lance noted that in some cases, there are beneficial habitat impacts, such as enhancing flushing, or the creation of contours in the bottom, which are beneficial for some organisms. These things need to be considered. Lance gave us an example of one Newark Bay site, where he had done some consulting. He had done some diving, and found five inches of molluscan shell substrate, which was a thriving juvenile nursery in the late spring and summer. In the winter, it was a killing ground, due to ice scour. He published a paper on this. Lance noted that it was important at that time, to not add any material to that site, since it was already a functional nursery area.

Bob acknowledged the point is that not all disposal, is bad, and we need to capture that point. We do need to look beneficial uses associated with projects.

Doug asked about moving forward. Format is one thing and that can benefit from any feedback on the wind energy document. Assuming that document flies, which it is likely to do, and we take the same basic format, we need input from the HC as to whether it will be a web-based

document. Doug noted that he has made no list of final links. He is going to go through the Corps district links, and the ports authority links, and so forth. The question is how far you go, down into the weeds. This could be extensive if you multiply by 12-15 deepening projects. Also, Doug noted that he wasn't sure how much to discuss NEPA. We could link to environmental documents, or not.

Bob noted that for the wind energy document, HC members were asked to provide useful links, and/or resource documents to feed to Pace, so we can do the same thing for Doug. HC members can provide links to Doug, and it should feed itself. Bob noted that he and Pace will provide a list of bullets to Doug, for Charleston Harbor. The list they develop will probably be somewhat generic, and Bob will work with Pace to come up with a list. The HC can help to flesh this out.

Bob asked if there are other documents of which HC is aware?

Wilson noted one which they used to use in the ES Office, which is somewhat dated, and he will provide that one to Doug. He asked also about the WES and Vicksburg? John Gill noted that was an important site as well. Doug is based there and has a good handle on the resources there.

Doug asked how we want to approach the information we include.

Chris Boelke noted, to Wilson's point, we could have a map which shows all the projects, and that would show how comprehensive this is.

Pace suggested that we could use the map as a background.

Dawn stated that we don't need to explain the regulatory program in this document. Pace agreed, noting that our target audience is the regulatory professionals.

Bob indicated that he, Doug and Pace will work on it some more.

Wilson asked if they want comments back on the present draft, from the rest of the HC? Yes, Bob asked that we provide any comments back to Doug, by the end of May, and also include any links.

Pace asked that comments come to him, and Bob, as well as Doug. If they are to work on bulletizing the comments, that would be beneficial.

Dawn asked if we have it electronically? Yes, Wilson sent it to everyone already earlier today.

11 – Report from the Artificial Reefs Subcommittee, *J. Tinsman* 2:00 pm

Bob provided a hard copy of the Artificial Reef Subcommittee report, provided via e-mail from Jeff Tinsman. Jeff could not be with us due to being the primary caregiver for his wife, who is dealing with cancer.

1:45 PM: Bob asked that we move to the Operational Procedures Manual revisions. He asked Megan to give us a sense of the changes which she is proposing to make.

Megan noted that the first thing in the report is the HP mission. She noted that we could change/update this if we want, and Vince has given her some ideas. She noted that the vision is not in the document, and needs to be moved into the document. She read the vision, which parallels the Commission vision. Megan stated that Vince said the HP shouldn't be paralleling, but supporting the Commission's. Megan noted that the HP is the only program which has its own vision and mission.

Pace stated that he felt we should just not compete with the Commission's mission and vision statements.

Wilson noted that the Commission's mission statement doesn't even mention habitat, and stated that it cross-cuts across all Commission programs.

Megan had crafted a new vision statement, which the HC members present all found acceptable.

We decided that the existing mission statement was appropriate.

Bob indicated that Megan has some language which she will suggest for us to consider.

Pace suggested that the introductory materials should describe all the committees which are part of the Habitat Program. These at present would only be the HC, the Artificial Reef Committee, and ACFHP Steering Committee.

We discussed (Kent brought up) whether to address the relationship of the HC and ASMFC-HP, with the Councils' habitat committees. We noted that the ASMFC has representation on the SAFMC Habitat and Environmental Protection Advisory Panel. Other HC members are involved in habitat institutional components of the other Councils.

We moved through the document and decided section-by-section, whether to retain, or eliminate, the various sections. Megan and Bob kept track of these.

Bob noted that Section III has been our guidance, but there are some portions which he didn't believe we are doing. Bob noted that the section was followed closely, pretty much all the way through, for the red drum section, all the way through page 12. Bob asked if we should add some text to this section, which clearly identified Ecosystem Based Management. The consensus was that we should add it.

Pace noted that he had some questions about the two previous sections. He suggested that there was no Commission policy regarding HAPC's. Wilson noted that was incorrect, in that the PB had signed off on the use of that term. Pace felt that there should be some alternative terminology, to avoid confusion with the MSA regulatory requirement.

Jake asked what the problem was?

Pace stated that you get pushback, when you use a term which has a legal meaning in another context. He indicated that this has pretty often happened.

He suggested that we could use "habitat of concern."

Bob noted that this would have to be vetted through the PB, and he wasn't sure how to approach that task.

Wilson noted that all of this had been dealt with before, and the decision was to use the same language as the MSA.

Pace insisted that it creates a problem and it needs to be fixed. He noted that he understood how the term came to be there, but he questioned the use of it now. He stated that the definition is NOT the same as those used in the MSA.

Bob asked if there was any problem following Pace's request? There was no dissent.

Bob noted that he had skipped over another section, and asked if there was any question on that one?

There were no questions.

Pat asked if we should just eliminate the term HAPC?

Pace indicated that the term HOC should be used, and he felt that would correct the problem. Bob asked if we couldn't also just use the same definitions, as the MSA. Pace didn't think that would do the trick. He noted that by using HOC, he would have two tools, instead of one.

Bob moved to Section 3.7: We discussed why this section is here, and when it might be used. Wilson noted that he thought it was based on the winter flounder FMP, and serves as a placeholder for when we might use it in the future. He noted that we could take it out, but could always add it back in. After further discussion from Pat Geer, and Jake, and Wilson, we decided to leave it in.

Section 4.4: Bob asked if the HC was really doing any of this? Wilson explained that this and the following sections, are intended as standard sections in all the ASMFC FMPs. In many cases, the measures in the Operational Procedures Manual have been pretty much cut and pasted into the FMP.

Pace indicated that to him, these do not serve any purpose.

Wilson stated that the intent of the HC in formulating these, was to insure that FMPS are stand-alone documents, so that if anyone picks up an FMP, they would understand what the partners were doing, to protect habitat.

Jake asked, what is the alternative, if we don't include these?

Pace stated that we could leave the heading, and indicate that these could be used, if needed. He noted that if we were going to do some sort of habitat assessment, we can address them then. Pace noted that these 12 measures, may be the steps that we go through, to determine where a bottleneck might be.

Bob asked for a specific recommendation for what we should do.

Jake suggested that we take the text, and get rid of the examples, and instead have a section that would take us through diagnosing habitat problems, which can serve as a road map.

Marek liked Pace's idea of having a shorter statement, and take these recommendations and put them in an appendix.

Jake noted that the NEFMC, is creating an omnibus habitat amendment, which would be similar.

Pace stated that some of the examples aren't really well done. Pace stated in his opinion that it needs to be put somewhere else, and not lost, but he wouldn't put it in an appendix.

Bob asked Megan if it was clear in her brain, what needed to be done. She stated it was.

Kent asked Megan to let him know, if there was anything else which needs to go into the red drum draft.

Bob indicated that Megan would take a stab at either eliminating, or revising the language. If it is eliminated, it should be captured somewhere else.

Section IV: Bob noted that we are doing this, but not necessarily in the same process as outlined here. He noted that our original charge was to develop an alternative energy document, but we wound up going for a much leaner, and meaner approach. Bob noted that we didn't go back to the PB and ask them if we could slim it down to only wind energy. Wilson noted that we are going to find out soon, if they concur with this approach.

Bob asked Megan if she felt the PB would be upset by the fact that we didn't come back to them? She indicated that as long as Bob explains our rationale for why we changed the document to include only wind energy, they would be fine.

We felt that the process as written in the section was pretty much okay.

Dawn asked, given Bob's discussion with Vince, about the HC not being on point, whether there was something else, and some other topic, which would better serve the Commissioners' use. Dawn was referring to the wording on page 19, IV.A.1.

Bob noted that the Commissioners are one of our audiences, but another important audience is state habitat managers. He suggested that the language may need to be broadened to include that other audience.

Dawn noted that we may be able to provide other information, that fishery managers need some other information that they need to know. Maybe it isn't only what a manager wants to know about wind, but rather the habitat limitations of a given species. Maybe it is more science-based. Maybe that is at what Vince is getting.

Bob noted that we may want to have a specific agenda item, on our 2013 agenda, to look at habitat bottlenecks, and use weakfish as an example. He thought that might be a useful exercise.

Pace noted that NOAA is having a series of workshops now, about how to include habitat information into stock assessments. He indicated that he knows nothing more about the effort, than what he just told us. He asked if ASMFC was undertaking similar efforts?

Wilson indicated that he thought that the MSVPA TC was perhaps considering adding some environmental measures to their model, and the Weakfish TC was also, based on the work done at Virginia Tech.

Bob asked if we should wait on the NOAA efforts to be completed?

Pace noted that there was another workshop, held a year or so ago, and the results from that one are already on the web. Pace asked, if we should make

Bob asked that we consider asking the Commissioner, through the PB, to identify some habitat issues related to particular species. Perhaps they would rather see us working on bottlenecks for weakfish, rather than doing broader source documents. Maybe that is what they want, but they haven't told them what they want. We have given them suggestions, and they have said go forth and do good. Vince has given us some suggestions, but Bob isn't sure where we should go.

Bob noted that our guidance should come from the PB, as much so or more, from Vince. We can react, if the PB gives us some guidance, and do what they want.

2:55 PM: John Gill signed off the call.

Lance noted that it is difficult to say from a Commissioner's perspective, what is needed for overall water quality. We don't usually do that, EPA does. Lance noted that if you looked at the percentage of stream discharge, which is composed of sewage effluent, for example, over the last ten years, that would be very revealing of a large problem. He used blackfish (tautog) as an example, where we created a spawning season, and reduced limit, yet populations have declined

anyway. The underlying question is who is going to come up with the underlying habitat recommendations? He felt that water quality is the underlying problem. He felt that it was going to be hard for us to just ask the Commissioners, what do we want?

Bob noted that we are left with a void of input, from above. Who is making that decision as to what we should be focusing.

Dawn noted that Commissioners are fed information through their technical folks, so it can come up through that chain. Dawn agreed that water quality is habitat.

Bob noted that we clearly will recommend updating the lobster habitat section, to say that the SNE lobster problems are habitat-related, and that we need to work with states, to regulate discharges.

Lance noted that we have climate, and contaminants, and other factors. It isn't overfishing. Also, we have the trending shift in regime northward. Lance felt that we can't answer all of these questions, but we could tie them to some things, which show additional sensitivity to some of these factors. Lance noted that the HC should look at the scope of what is affecting a species.

Bob noted that he came back to the question, of how to get input, in some form. Bob stated that we could tell them what we propose to do, and see how they react. He asked for feedback.

Wilson noted that it is important to consider what the Executive Director's opinion is on a given subject. But, we don't work for the ED, we work for the Commissioners. Wilson suggested that we can ask the Commissioners what they want us to do, similar to developing TORs for assessment review panels.

Megan thought that we basically did that through the Annual Work Planning process.

Wilson stated that he thought we were looking for broader guidance than at that annual level, something more from the 10,000-foot level.

Bob was concerned that we might get something from the 30,000-foot level, rather than for what we are looking.

Megan suggested that we will be handing the wind energy report out, at next week's meeting, and then we can ask them for feedback, at the next Board meeting.

Bob noted that we are trying to solicit Board input on other things, and asked how to do that?

Megan indicated that she was suggesting follow-up, at the August Board meeting.

Bob noted that in a follow up e-mail regarding the wind energy document, we could include the action items we have discussed for the rest of the year, and ask for feedback. Bob noted that we

have already said that we are going to do some of these things in 2012 anyway. Megan suggested that we could ask them if there are other things that they want us to do.

Bob noted that most of the rest of the document consists of relatively new sections. He noted that we have given guidance to Megan. He was still a little fuzzy on that one section. We will all receive a new version from Megan, for review. We will consider it during our fall meeting.

Bob noted that the only thing left on the agenda is the roundtable. He suggested that we take a break and come back by 3:20, and quit at 4:45 pm.

The other thing to discuss is to come up with any other recommendations for the Habitat Program Improvement Proposal. Jake asked if we are going to send some response back to the Commission, with regard to improvement. He noted that it was hard for him to respond, until he sees what we are going to send back.

Bob explained the process. The document that we develop, will go back to Vince. It may come back to the HC, after we receive some response. At the same time, Megan is going to revise the Operational Manual, and also develop a document for 2013. All these documents will come back to the HC for review, before they go forward.

Wilson asked if the Commission chairman was involved in this discussion about the HC and Habitat Program? Bob and Megan indicated that they had no specific knowledge of whether he had, or hadn't. Megan thought that Vince would have likely discussed this with Paul.

Break 3:15 pm

12 – Update of state activities by HC members 3:30 pm

[Missed part here, on phone.]

Tony gave an update on activities in VA. There is a proposal for a new prototype turbine, to test foundations, and the turbine itself, in near-oceanic conditions. A year ago they applied for a permit for geotechnical work, in the area where they want to place one turbine. The state went through the public interest review and no one objected. They originally got some comments from the shipping interests, since the area originally proposed is used as an anchorage. The project went forward and was permitted, under National 52, the nationwide permit which the USCG issues. It is scheduled for construction in 2013 and might be operational by the end of 2013. Tony asked if we had heard about it. MD and NY had heard. Tony noted that VA is big into promoting the wind industry. BOEM has a call out for alternative energy in the ocean, and that is in federal waters. This facility is in state waters of VA, and they are kind of excited about it. They did put in one monitoring condition, which is to monitor noise from the turbine. That may change from one environmental setting, to another. Tony hoped that the research they are requiring will be translated into some sort of policy, possibly. The same consultant which did the EIS work for the Cape Cod project, off Nantucket, is the firm for this project as well. That work they did, is on the VA web site. Google GAMASA, and it will pop up. It was really good

and what was provided helped the project move really quickly. Tony stated that this one may make a good template for other states to use. Tony felt it provides a good overview. The state got $50,000 out of the project, in royalties. They also required decommissioning and so forth. The Commonwealth felt that they were getting paid appropriately, for submerged lands.

Bob asked if the state had adopted any kind of lease agreement, for these sorts of projects?

Tony stated that they sort of have. They have been told to follow the same process which is used for mineral rights. They can lease areas for wind energy development, but in this case they just issued a permit, and did not lease. If they get a whole field of turbines, they would probably go through the leasing process.

3:45 PM: Bob noted that there are 12 of us and he suggested that we limit our comments to five minutes each.

Kent noted that we are all familiar with port deepening issues. Miami is going through, after a challenge by EDF. That was resolved. All permitting was completed in four months, for a massive project. The impacts will affect hundreds of acres of hundred-year-old corals. The contract was awarded to a Chinese company. Another issue is mitigation on sovereign lands. The Marine Industries Association of Florida, is running out of areas to offset SAV losses. There is a movement within DEP to develop a mitigation fund, into which you could pay. The funds would then be used to mitigate elsewhere. FWC would probably be involved, but not as the banker. Another thing that FWC and partners are doing, is regional priority planning efforts, trying to do something on par with Chesapeake Bay. This will direct estuarine habitat planning, within the identified regions. There are a number of different partners, including NOAA, Corps, and USFWS. They are collecting information from plans developed by cities, all the way up to the state, so as to have plans ready to go when funding comes along. They are trying to enhance funding. Kent noted that as far as BP, a 20-million dollar settlement agreement is under discussion. Some projects have been funded, mostly beach nourishment. Florida is not expecting much in the way of damage compensation. They do have effects in subtidal marine habitats.

Marek asked about the mitigation done on private lands, whether it is leased, or imminent domain? Kent noted that there are enormous acreages, held privately, and those are being purchased and set aside as mitigation banks. The state-held banks are a rarity.

Pace noted that NC has EEP, which is very well thought of and huge, so you might want to look to them as a guide. In GA, they are taking some steps in that direction. Kent indicated that he would

NC: Wilson did for Jimmy. He briefed the group on APNEP, the Kerr 216, CHPP and SHA3, and

Jake noted that he isn't a state, but he does work with the NEFMC. They have been working on evaluation of some of the closures done in the EEZ. The Council is taking a look at how

groundfish stocks are responding to the closures, in association with the EFH updates. They may decide to reconfigure the closure areas. The other issue is the assessment for Gulf of Maine cod, which fundamentally changed things and led to a bit of chaos and upheaval. This has led to a reconsideration of the spatial relationships of cod. Jake noted that the assessment was done right, but some of the basic assumptions may have been violated. There are some spatial differences, with cod more abundant in one area, than another. The Council is involved with partners, to look at these differences, to see why there is drastic depletion in half the Gulf, and abundance in the other.

Marek asked if there is any discussion of doing the analysis in a GIS context and doing geographic weighting.

Jake indicated that the SSC has been asked to review the assessment. The strongest statement the SSC made was about stock structure. That led to the NEFSC asking GMRI, to try to answer these questions. There is a workshop in early to mid-June, to synthesize all these data.

Marek noted that such an analysis can shake out concentrations of varying variability.

MD: There have been a number of dam removals, Simpkins Dam, after sediment analysis was done. Sand was there and created some permitting issues. A sediment transport model did very well with its predictions. The second dam removal, Bloede, will also be removed. These are focused on river herring passage. There is a lot of post-removal monitoring planned. There are some small artificial reef deployments continued, very small scale. Some local jurisdictions are using dredge spoil, to create parks. These are designed to accept more spoil, down the road.

Wilson noted that there will be a river herring workshop, in July, on the impacts of climate change on river herring, in Gloucester.

Pace noted that NMFS was beginning to implement their Habitat Blueprint. Each Region of NMFS was told to identify an example project. The one in the SE was tidal creeks in Charleston Harbor, looking them from a human health, and biological perspective. This will pull in the human health perspective, with the Hollins Lab across the street. There will be no new resources for this work, so that is why Charleston was selected. In the NERO, their project has something to do with deepwater corals. There will be multiple line offices involved. In the South Atlantic, and North Atlantic, there will be regional teams created, who will be working within the Commission footprint. There is a rumor that the mid-Atlantic will be the pilot for headquarters.

Pace noted that the diadromous restoration groups in both the SE and NE region completed a 160+ page primer on diadromous fish habitat restoration, and has guidelines with a little “g.” Depending on how much you already know, it will either have a lot, or a little.

The SAFMC, and the HEPAP, which Pace chairs right now, as of January 30, CEBA-2 went into effect, so we now have HAPCs designated for blueline and golden tilefish. These were formerly under the snapper-grouper plan, but are not separate. Also, there are many square miles of deepwater coral, which became an HAPC.

Doug noted that the Corps has several R&D efforts going on with "dredged material." They are trying to restore some of the pits which resulted from dredging. One project is in Mobile Bay, and they are doing some hydroacoustic monitoring there. They haven't found any places on the east coast yet, but Doug heard that there is one potential pit, in CT. Also, the Corps attended the BOEM workshop on underwater sound. They could see the noise issue spilling over into the dredging arena. In NY harbor, they actually collected data on a cutter head dredge, which was ripping the bottom, and are finding that these are not big sound generators. They wanted to put the dredging sounds, in context with harbor sound. The discussion going on now is mostly for blue waters, but it is much more complex in harbor settings. You have to begin from scratch, because you have sound bouncing off other things. You can see the sound drop off, and then pick up again with distance. The Corps is trying to get into this, proactively. Doug felt that we are missing a lot, with regard to soundscapes, including ferries, and barge traffic. He noted that there are sound masking issues, and fish motivation, all need to be considered. He stated that they are getting good information on the sound levels, but it will be harder to follow up on the critters.

Pat Geer noted that January Murray is his Habitat Coordinator, so his staff is complete. He is very pleased about that fact. He noted that she has had a very interesting two weeks, having spent her second week here, and doing oyster restoration the first week, by helicopter. They moved 30 tons of material, in two days' time. Staff were chest-deep in mud doing this work. It was just under a half-acre project. Oyster restoration in GA is going to explode Pat stated, and the CCA is going to get involved. There are shell collection sites being created all over the state. The CCA wants this to get going fast. They are trying to secure a five-year permit, from the Corps, once sites are identified for enhancement. They hope their AR program will take off again, now that January is on board. Pat Geer just got a call last week, requesting to use cremated people on a reef. Kent indicated that FL has been doing this for years. Pat noted that they have been decimated by drought, for years. The blue crab is one species which is impacted. The marsh folks are still arguing with each other. Management wise, they can't do much for the marsh, but for the blue crabs they can do so. Wilson noted that he had sent out a new document on drought impacts to Carolina ecosystems to everyone on the HC. Pat Geer noted that he found that very useful.

Russ Babb noted that NJ had sunk a ship as a new reef, and he referred everyone to the AR e-mail. They are doing habitat restoration each year, usually around 50 acres. Given the damage from Hurricane Irene and Lee, they are trying to plant half a million bushels a year. They have a hard clam restoration effort, focused on Barnegat Bay. That will be phased in over several years, and they will plant 4-5 million clams per year, on several sites. The program is called "Re-Clam the Bay." They are doing a small oyster restoration project. Along with the Barnegat Bay initiative, they have gone through a very public and painful project, to designate what were to be called "conservation" zones, but are now called "boating impact zones." There will be an enhanced effort on boating enforcement. Lastly, they are working on a river herring project on two major tributaries to the Delaware. They will be doing monitoring, and mapping all the blockages, then making recommendations for removal.

The vessel sunk for the reef is in about 150 feet of water. Kent noted that FL still has the largest vessel.

Eric updated us on wind activities in RI. NOAA has approved PRMC as the review agent for any project within 30 miles. They are also using the smart from the start initiative, for wind energy areas. There was Cox's Ledge, which is under consideration as HAPC, and that area was removed from any consideration for wind energy. Deepwater Wind, who wants to put a facility off Block Island, they have their application ready but have not yet submitted it. Eric indicated that they have collaborated on an SAV mapping project. Weather prevented overflights last year. They are also doing some sediment mapping, which is led by URI. URI also has completed 95 percent of the mapping for Narragansett Bay. The next step is to turn that into a biological/sediment map. There was also a small-scale project to see if the sediment maps can be used to better guide the shellfish program, transplantation and so forth.

Russ asked if they ever used rock sand, as a mapping technique. Bob indicated that the university may be using that approach. Eric stated that they don't have a good handle on the environmental factors on the bottom. They would like to know what areas produce more. Eric noted that most of the transplants are moved to half-acre areas, but this is occurring in a rather haphazard way.

NY: Dawn updated the group on the offshore wind collaborative. They filed with BOEM for a turbine facility off Rockaway, but that hasn't surfaced in any formal manner. They just discussed with Liberty, a new LNG facility, also off Rockaway. It would pipe gas to an existing pipeline. Dawn noted that the consultants are learning what sort of issues to address, so this application addresses ballast water and has a generous mitigation package, for not much impacts. Dawn noted that they also permitted a tidal energy project in the East River, permitting about 30 turbines, 6-9 at a time, with lots of hydroacoustic monitoring. The theory is that if they discover lots of impacts, they can halt the project. Another tidal energy project off the east end of LI has come up again. There are major use conflicts there, especially with recreational fishing. They are working on two issues, with the NY Department of State. They are contracted with NOAA to collect a lot of data on habitat, fisheries, mammals and birds in several areas. They have a fund for benthic mapping. A consortium of universities will do a pilot project to look at a lot of techniques. Once complete it will be expanded to other portions of the sound. They are doing another marsh island dredged material restoration.

Pace asked if the LNG thing at Rockaway is USCG, or FERC? Dawn stated it is USCG. Pace stated that the USCG ones, are usually much better than the FERC ones. He noted that the USCG would not take any crap off applicants, like the FERC.

Bob noted that he thought the East River thing had been going on for years, and that they had problems. Dawn confirmed that was the case. They have redesigned the project and are going to try again. Pace noted the last ones broke so fast, that they didn't get in much monitoring. He thought that the turbines were only out for 72 hours.

Kent asked how far offshore the LNG facility was, off Rockaway? Dawn indicated it was 14 miles. All of them seem to be that far offshore.

Bob indicated that he would finish up. Santee-Cooper wants to put out 18-20 turbines, on a fast track, and are doing it in state waters, to avoid state issues. BOEM had their first organizational meeting in SC, to try to fast-track things. SC has just completed an assessment, which includes all biological, habitat and use data in the entire area. Bob noted that the SAA, has received some funding from NOAA to move ahead. Bob chairs the Healthy Ecosystems Team, on which Pace and Wilson also serve. They are compiling lists of data, and the next step is to determine how to turn the data into data layers. They hope that SC Sea Grant will assist with this. Charleston Harbor deepening Bob noted is under a lot of pressure to fast-track the project. The SC Legislature wants to do a 120-million dollar bond issue, in case federal funds don't come along. Bob noted that most of us had heard about the ACFHP projects. Another controversial issue is the firm in SC, which does a lot of beach bulldozing and inlet relocation. He and Pace have been involved in this one. The inlet between Kiawah and ……..Island is the target.

Bob asked for any questions? There were none. Bob noted that we are three minutes ahead of our projected completion date. He noted that we have accomplished a lot, especially given the new document that we had to review. Bob noted that he would see all of us in the fall, in Philadelphia.

Bob asked about Megan's e-mail address? She indicated that she would discuss this with ASMFC. She indicated that she would create a new work e-mail, if she couldn't get one at ASMFC.

The meeting adjourned at 4:45 PM.

Adjourn 5:00 pm

HABITAT COMMITTEE
ACTION PLAN CONFERENCE CALL
August 23, 2012 10am-12pm

PARTICIPANTS

Russ Babb (NJ)
Jimmy Johnson (NC)
Benjamin Lorsen (PA)
Dawn McReynolds (NY)
Janet Nye (US EPA)
Jay Odell (Nature Conservancy)
Cheri Patterson (NH)
Mark Rousseau (MA)
Eric Schneider (RI)
Marek Topolski (MD)
Bob Van Dolah (SC)
Pace Wilber (NMFS)
Chris Boelke (NMFS)
Pat Geer (GA)
January Murray (GA)
Megan Caldwell (Habitat Coordinator)

CONFERENCE CALL PURPOSE

The Habitat Committee convened a conference call to review a draft of the 2013 Habitat Action Plan prior to submitting the document for approval. The Committee also took this opportunity to review their accomplishments and outstanding tasks for the remainder of 2012. The Habitat Committee was provided with a powerpoint presentation summarizing both the draft 2013 Habitat Action Plan, as well as the 2012 activities. A draft of the 2013 Habitat Action Plan, Final 2012 Habitat Action Plan, results of the Habitat Committee Expertise poll, and an excel spreadsheet summarizing stock assessment and FMP development schedules were all distributed to the Committee prior to the call.

DRAFT 2013 HABITAT ACTION PLAN

FMP HABITAT SECTIONS

Revised Task:

Task 4.2.1 – Take the lead in updating FMP habitat sections for American Lobster and Black Drum, working closely with technical committees, other species experts, and staff. For each species, include descriptions of habitat types or areas most critical to restoring or maintaining sustainable stocks. Each habitat section will also discuss the habitat limitations creating a bottleneck to the recovery of a species of concern.

Prior to the call, the Habitat Committee identified American Lobster, Black Drum, and American Eel as species that should undergo an FMP habitat section update. The Committee agreed to schedule for two habitat section updates in 2013 provided the Commission approves a budget for two contractors to facilitate the production of these sections. The Committee also agreed to move forward with developing an American Lobster habitat section, and if the budget allows, a black drum habitat section will also be produced. The Committee agreed to schedule weakfish as third species in line for a habitat update.

Mark Rousseau (MA DMF) identified Tracy Pugh, a PhD candidate, as someone who may be interested in helping with the lobster habitat section.

The Committee also agreed to request an increase in budget to support a Habitat Coordinator for two full days.

HABITAT BOTTLENECKS

Revised Task:

Task 4.2.4 – Develop an approach for describing habitat limitations creating a bottleneck to the recovery of Commission managed species with a poor stock status. Recommendations to address the habitat limitations would also be explored.

The discussion began with attempting to select a candidate species for this effort. For some Commission-managed species, it will be a challenge to provide evidence that a habitat is the limiting factor in the species' recovery. Mark Rousseau suggested lobster as a possible candidate because it seemed more efficient to combine this effort with the FMP habitat update. Eric Schneider added that Rhode Island is participating in a cooperative study, including MA DMF, University of Maine, NOAA, and RI and MA Lobsterman's Association focusing on lobster settlement, which is an important factor in the species success. The group felt that combining the two tasks may also increase participation non-Habitat Committee members. At that time, the point was made that it seemed more efficient to combine this effort with the FMP habitat update. Task 4.2.1 has been modified to include a bottleneck section for the species that will undergo an update in 2013. In addition, Cheri Patterson (NH) suggested a subcommittee work on a revising the FMP Habitat Outline to incorporate habitat bottlenecks. The outline will be revised and will be provided to the Habitat Committee for review at the October meeting.

The bottleneck initiative will be incorporated into the habitat section updates, eliminating the budget request for an additional contractor. The Committee also agreed to discuss a more encompassing bottleneck effort during the October Committee meeting. As part of that discussion, the Committee will weigh the benefits of documenting habitat limitations on a single or multispecies basis, as well as how to move forward with this initiative in the future.

The Committee agreed to maintain the bottleneck task, but to modify it to reflect that it is still in the initial stages of development. To better inform the October discussion, Chris Boelke (NMFS) will provide a recently developed document on shallow water habitat. Jimmy Johnson (NC) will provide a matrix of 6 habitat types in North Carolina, which identifies the species using the habitat and the time of year the habitat is in use. In addition, the ACFHP Habitat Species Matrix will be provided as a point of discussion.

MONITORING STANDARDS SYNTHESIS

Revised Task: Task 4.3.5 Deleted

Most states do not have habitat condition assessments or monitoring standards, other than the required water quality standards. Because ACFHP is addressing monitoring standards and the states do not have much to contribute, the Habitat Committee agreed to remove this task for 2013.

HABITAT PRIORITIES POLL

Revised Task: Task 4.3.6 Deleted

Committee agreed that conducting a poll of ASMFC's constituents to determine priority habitats would be a nebulous task as there would be support for every habitat type. It would be challenging to prioritize habitats. This endeavor may be something for the ACFHP to consider. Megan will talk to Emily Greene (ACFHP Coordinator) about this task to gage the ACFHP's interest. The Committee agreed to remove the task from the Habitat Committee's responsibilities for 2013.

HABITAT MANAGERS DATABASE

Revised Task: only task number changed

Task 4.3.5 - Update habitat managers database to disseminate information about important habitat areas identified in Habitat Committee products

The Committee agreed that the Habitat Managers Database is very out of date. Megan will distribute the previous version of the database to the Habitat Committee members and ask the Committee to make appropriate revisions. Megan will also cross reference the Commission's habitat email and mailing distribution lists.

HABITAT HOTLINE

Revised Task: 4.4.3 revised, 4.6.1 remains the same

Task 4.4.3 – Review and improve format of *Habitat Hotline Atlantic* newsletter to enhance the utility and effectiveness of meeting the target audience's needs. Produce and distribute an annual issue of Habitat Hotline Atlantic newsletter.

Task 4.6.1 – Highlight local habitat activities in *Habitat Hotline Atlantic* and distribute to local governments.

The Committee plans to produce an issue of *Habitat Hotline* before the end of 2012. This issue of Habitat Hotline will highlight the offshore wind document, as well as an ENROC project in New Hampshire. Each state will provide Megan with a few bullets highlighting significant habitat activities in their state or region for 2012. These bullets should certainly include wind projects but are not limited to this topic. For now, the Committee plans to produce an annual issue of Habitat Hotline that will highlight a significant project or Committee effort, as well as a round up of habitat activities in the states, Federal regions, or a National initiative. The Committee will review the bullets during the Committee's October meeting and further discuss the content of the 2012 issue of *Habitat Hotline Atlantic*.

During the Committee's April meeting, a subcommittee was identified to develop the issue. Those subcommittee members were Cheri, Marek, Wilson, and Jake. Russ Babb volunteered to join the group as well.

HABITAT MANAGEMENT SERIES

Revised Task:

Task 4.4.4 – Develop next installment of the Habitat Management Series: Habitat Impacts of Harbor Deepening Projects for ISFMP Policy Board acceptance. Identify a subsequent topic for the Habitat Management Series (e.g. sand mining, power plant impingement, climate change impact on fish habitat, estuarine and nearshore aquaculture).

Committee members agreed that harbor dredging is a timely topic as there was an article in the New York Times this week on the Panama Canal. With the Policy Board's approval of the topic in August, the Habitat Impacts of Harbor Deepening Projects will continue to be developed. Chris Boelke volunteered to be a part of the Habitat Management Series subcommittee. Bob explained that subcommittee members for the effort change with the topic depending on Committee members' interest and expertise. The Harbor Deepening subcommittee (Pace, Doug, and Bob) will outline topical issues related to harbor deepening and will provide the outline to the Committee in October.

The Committee discussed future topics for the Habitat Management Series. Fish Passage was discussed as a possibility but the Commission already has a work group that has produced a rough draft of recommendations. Once the document is finalized, it may be appropriate to highlight the recommendations in a future issue of *Habitat Hotline Atlantic*. Committee members offered the following topics for future installments of the Habitat Management Series: sand mining along the eastern seaboard, impingment from power plants, climate change impact on fish habitat, and estuarine and nearshore aquaculture.

The Committee asked that this task be modified to include the identified future topics to potentially allow for some Commissioner feedback.

OPERATIONAL PROCEDURES MANUAL

Task accepted:

Task 4.5.2 – Revise the Habitat Operational Procedures Manual and submit for ISFMP Policy approval.

In April the Habitat Committee made accepted series of recommendations, and made additional suggestions, to modify the Habitat Operational Procedures Manual. The format of the document will similar to the Habitat Strategic and Management Plan (Stephan et al. 1999), capturing some of the documents historical elements. The subcommittee for this effort will include the coordinator, chair, vice chair, and past chair. This task has been tabled until after the ISFMP Policy Board discussion during the October Annual Meeting. The Committee agreed that the Action Plan should include a task for revising the Operational Procedures Manual.

MAINTENANCE TASKS

The following tasks were all identified as on going or maintenance tasks. These are tasks that will be addressed as part of normal business or on an as needed basis. The Committee agreed these should all remain in the Action Plan. Tasks 4.3.1 Atlantic Coast Project Review, 4.4.1 Distribute ecosystem based management and marine protected area information, Task 4.4.2 Attend habitat meetings and conferences, Task 4.4.5 Serve as a point of contact for energy and habitat related issues, 4.5.1 Conduct an annual program review, and Task 4.6.2 With ACFHP foster partnerships to further common habitat goals.

2012 ACTION PLAN

ACCOMPLISHMENTS

The Habitat Committee completed a FMP Habitat Section update for Atlantic Sturgeon. The Board approved the document for development as an addendum. The addendum will be available for public comment in September.

The Habitat Committee also completed, *Offshore Wind In My Backyard?* The Policy Board accepted this latest installment of the Habitat Management Series. The document is now available on the Commission's website, small announcement will be sent out to Commissioners and interested parties. This same small announcement will appear in September issues of *Fish Focus*. Next issue of *Habitat Hotline Atlan*tic will also highlight the document and announce its availability.

OUTSTANDING TASKS

The Committee reviewed all of the outstanding tasks identified in the 2012 Action Plan. The Committee agreed that it will not be able to complete a lobster habitat section update, make

recommendations to improve the implementation of habitat recommendations, or conduct the habitat priorities poll.

The Committee did devise a plan for completing an issue of *Habitat Hotline* before the end of 2012 (see earlier discussion). The Committee also developed a plan to further the Harbor Deepening paper (discussed above under Habitat Management Series), and the Committee discussed the draft Red Drum Habitat Section update.

Red Drum Habitat Section:
Pace Wilber (NMFS) will distill several powerpoint slides from Charlie Wenner into some useful information to fill out missing elements from the draft, Table on ingress and egress and a flow chart of life stages with predation and habitat dependence. The Committee discussed including a section on bottlenecks for red drum. It does not appear as though habitat is a imitation for red drum. Bob suggested that it is okay to state that the species is not limited by habitat. As part of that discussion the Committee identified several important habitats: oyster reefs (doesn't' seem to be limited in SC and GA), feeder creeks (pollution could cause a limitation but no evidence or siltation could change water flow causing a problem with recruitment in some areas).

Megan will coordinate with Danielle to determine amount of time available to incorporate these additions. She will also talk to Danielle about getting assistance from Technical Committee. In April, the Committee also talked about the importance of including ecosystem considerations and to fill out the ecosystem management section.

SUBCOMMITTEES
Megan prefaced the call with acknowledging that the Habitat Committee has a lot planned for 2013. If the Policy Board approves the Committee's requests, these tasks can be accomplished with Committee involvement with the following subcommittees. Each Habitat Committee member is encouraged to volunteer for at least one of the subcommittees. Megan will send out a request for volunteers in a separate email. She will contact members individually to encourage full committee participation.

<u>FMP Outline</u>
Purpose: revise outline to incorporate a discussion on habitat bottlenecks.
Members: Megan, Cheri, others?

<u>Lobster Habitat Section</u>
Purpose: Identify contractor, provide direction and review contractor's work.
Members: ??

<u>Black Drum Habitat Section</u> (if budget contract approved)
Purpose: Identify contractor, provide direction and review contractor's work.
Members: ??

Red Drum Habitat Section
Purpose: Draft a section on bottlenecks.
Members: Cheri, Marek, Pat Geer, Kent (lead)

<u>Habitat Hotline</u>
Purpose: Develop an annual issue of Habitat Hotline before end of 2012
Members: Cheri, Marek, Wilson, Jake, and Russ. Megan to assemble and format.

Habitat Management Series: Harbor Deepening
Purpose: Continue developing content for the Habitat Impacts of Harbor Deepening Projects.
Members: Pace, Doug, Bob, and Chris. Additional Members Welcome! Megan to format document.

Operational Procedures Manual
Purpose: Revise document to reflect recommendations of the Habitat Committee
Members: Megan, Bob (chair), Kent (vice chair), and Wilson (past chair)

OUTSTANDING TASKS FOR SEPTEMBER – OCTOBER

1. Subcommittee to revise FMP Habitat Outline to incorporate bottlenecks.
    a. Subcommittee: Megan, Cheri, volunteers?
2. Collect papers to inform October Bottleneck Discussion:
    a. Chris Boelke – Shallow Water Habitats
    b. Jimmy Johnson – NC Habitat Matrix
    c. Megan – ACFHP Habitat Species Matrix
3. Megan to speak with Emily Greene about the Habitat Priorities Poll
4. Megan to locate the Habitat Managers Database and distribute to Committee members.
    a. Megan will cross reference with habitat mail and email lists
5. Committee members to provide Megan with bulleted list of habitat activities in their state, region or a national effort.
    a. Megan to compile list and make available for October meeting.
6. Harbor Dredge subcommittee to outline topical issues related to harbor dredging and provide to Committee for October meeting.
7. Pace to provide information on ingress and egress of red drum and a flow chart of life stages with predation and habitat dependence.
8. Red Drum Bottleneck subcommittee (Cheri, Marek, Pat Geer, and Kent (lead)) to develop a section on bottlenecks.
    a. Megan to coordinate timeframe with Danielle and seek TC assistance for additional information.

FINAL 2012 ASMFC ACTION PLAN -- HABITAT

ITEMS IN BLUE WERE IDENTIFIED AS ACFHP RESPONSIBILITIES

GOAL 4 PROTECT, RESTORE AND ENHANCE FISH HABITAT AND ECOSYSTEM HEALTH THROUGH PARTNERSHIPS, POLICY DEVELOPMENT, AND EDUCATION.

This goal aims to improve fish habitat and ecosystem health to the benefit of Commission managed species. Habitat loss and degradation have been identified as significant factors affecting the long-term sustainability of the nation's fisheries. Consequently, the mission of the Commission's Habitat Program is to work through the Commission, in cooperation with appropriate agencies and organizations, to improve and cooperatively manage vital fish habitat for conservation, restoration, and enhancement, and to support the cooperative management of Commission managed species. The Commission's Habitat Program embraces the National Fish Habitat Action Plan, and will continue to work cooperatively with that program to improve aquatic habitat along the Atlantic coast.

The challenge for fisheries managers and the Commission is improving fish habitat in the absence of specific regulatory authority for habitat protection or restoration. This goal calls for the Commission to be a change agent in effectively integrating habitat protection, restoration, and enhancement into fisheries management programs, in recognition of ecosystem-based management principles.

Strategies to Achieve Goal

4.1 Effectively protect, restore, and enhance Atlantic coastal fish habitat through fisheries management programs and partnerships, such as the Atlantic Coastal Fish Habitat Partnership (ACFHP).

Task 4.1.1 – Continue to provide administrative support to the Atlantic Coastal Fish Habitat Partnership (ACFHP). ACFHP Coordinator or Steering Committee representative report progress at Summer and Fall Meetings of the ISFMP Policy Board.

Subtask 4.1.1.1 – Assist in obtaining future funding to support ACFHP operations and fish habitat conservation projects.

Subtask 4.1.1.2 – Continue to provide logistical support for committee meetings and other Partnership activities.

Task 4.1.2 – Continue to provide coordination support for ACFHP, under the direction of the National Fish Habitat Action Plan (NFHAP) Board.

Subtask 4.1.2.1 – Facilitate communication and outreach with ACFHP partners, overlapping partnerships, and new partners. Develop outreach materials and maintain the ACFHP website.

Subtask 4.1.2.2 – Coordinate the implementation of the 5-year ACFHP Conservation Strategic Plan, including development of an Implementation Plan outlining tasks by year to achieve the goals, objectives, and actions in the Strategic Plan.

Subtask 4.1.2.3 – Support the completion of priority ACFHP Science and Data projects - acquire and analyze fish population, habitat, and human impact data; make results available to Partners for the purpose of strategic coastal habitat conservation.

Task 4.1.3 – Coordinate artificial reef activities among the Atlantic coast states, and between the Atlantic and Gulf States Marine Fisheries Commissions.

4.2 Identify important habitat areas for Commission-managed species.

Task 4.2.1 – Take the lead in updating FMP habitat sections for Atlantic sturgeon and American lobster, working closely with technical committees, other species experts, and staff. For each species, include descriptions of habitat types or areas most critical to restoring or maintaining sustainable stocks.

Task 4.2.2 – Prioritize and publicize important habitat types for Commission-managed species as identified in the ACFHP Strategic Plan.

Task 4.2.3 – Work with state and federal agencies, the Councils, and NGOs to build on existing efforts to develop a coast wide GIS of fish habitat resources, to identify important fish habitats for Commission managed species.

Task 4.2.4 – Assess status and develop strategies for improving implementation of habitat recommendations in current fishery management plans.

4.3 Build and support partnerships with fishery and non-fishery management agencies, researchers, and habitat stakeholders to leverage regulatory, political and financial resources.

Task 4.3.1 – Provide information or comment on Atlantic coast projects and permits in accordance with ASMFC project review protocol.

Task 4.3.2 – Facilitate funding and partnership opportunities to promote habitat research in the states.

Task 4.3.3 – Identify partnership opportunities and forge additional relationships with non-governmental organizations to facilitate the promotion of fish habitat through a collaboration of strengths of different stakeholder groups.

Task 4.3.4 – Work with partners to develop monitoring and data standards for assessment of coastal habitat condition and fishery resource status prior to and following alteration projects.

Task 4.3.5 – Poll ASMFC constituent groups to determine public interest and identify publicly-supported fish habitat conservation needs and actions in order to leverage support from the states; use results to prioritize Habitat Program guidance and education activities.

4.4 Educate Commissioners, stakeholders, and the general public about the importance of protecting, restoring, and enhancing habitat to achieve successful fisheries management.

Task 4.4.1 – Facilitate coordination and distribution of information for ecosystem-based management and marine protected area activities, and the potential consequences of significant anthropogenic activities on habitats of concern.

Task 4.4.2 – Participate in regional and national habitat meetings and scientific conferences to facilitate increased communication with agencies and programs that have jurisdiction over habitat.

Task 4.4.3 – Review and improve format of *Habitat Hotline Atlantic* newsletter to enhance the utility and effectiveness of meeting the target audience's needs. Produce and distribute periodic issues of the newsletter.

Task 4.4.4 – Consult with state directors to evaluate the need for an offshore wind guidance document for managers. Provide outline of proposed document for ISFMP Policy Board approval.

Task 4.4.5 – Serve as a point of contact and information conduit at the Commission for energy-related issues affecting fish habitat.

4.5 Implement performance metrics to focus efforts and monitor progress of the Habitat Program.

Task 4.5.1 – Review program goals and evaluate accomplishments annually.

4.6 Engage local governments in habitat protection, restoration, and enhancement programs.

Task 4.6.1 – Highlight local habitat activities in *Habitat Hotline Atlantic* and distribute to local governments.

Task 4.6.2 – Work with ACFHP to foster partnerships with like-minded organizations at local levels to further common habitat goals.

Task 4.6.3 – Provide stakeholders with the tools to effectively communicate, promote and accomplish habitat protection, restoration, and enhancement programs at the local level.

DRAFT 2013 HC ACTION PLAN

ITEMS IN BLUE WERE IDENTIFIED AS ACFHP RESPONSIBILITIES

GOAL 4 PROTECT, RESTORE AND ENHANCE FISH HABITAT AND ECOSYSTEM HEALTH THROUGH PARTNERSHIPS, POLICY DEVELOPMENT, AND EDUCATION.

This goal aims to improve fish habitat and ecosystem health to the benefit of Commission managed species. Habitat loss and degradation have been identified as significant factors affecting the long-term sustainability of the nation's fisheries. Consequently, the mission of the Commission's Habitat Program is to work through the Commission, in cooperation with appropriate agencies and organizations, to improve and cooperatively manage vital fish habitat for conservation, restoration, and enhancement, and to support the cooperative management of Commission managed species.The Commission's Habitat Program embraces the National Fish Habitat Action Plan, and will continue to work cooperatively with that program to improve aquatic habitat along the Atlantic coast.

The challenge for fisheries managers and the Commission is improving fish habitat in the absence of specific regulatory authority for habitatprotection or restoration. This goal calls for the Commission to be a change agent in effectively integrating habitat protection, restoration, and enhancement into fisheries management programs, in recognition of ecosystem-based management principles.

Strategies to Achieve Goal

4.1 Effectively protect, restore, and enhance Atlantic coastal fish habitat through fisheries management programs and partnerships, such as the Atlantic Coastal Fish Habitat Partnership (ACFHP).

Task 4.1.1 – Continue to provide administrative support to the Atlantic Coastal Fish Habitat Partnership (ACFHP). ACFHP Coordinator or Steering Committee representative report progress at Summer and Fall Meetings of the ISFMP Policy Board.

Subtask 4.1.1.1 – Assist in obtaining future funding to support ACFHP operations and fish habitat conservation projects.

Subtask 4.1.1.2 –Continue to provide logistical support for committee meetings and other Partnership activities.

Task 4.1.2 – Continue to provide coordination support for ACFHP, under the direction of the National Fish Habitat Board.

Subtask 4.1.2.1 – Facilitate communication and outreach with ACFHP partners, overlapping partnerships, and new partners. Develop outreach materials and maintain the ACFHP website.

Subtask 4.1.2.2 – Coordinate the implementation of the 5-year ACFHP Conservation Strategic Plan, including development of an Implementation Plan outlining tasks to achieve the goals, objectives, and actions in the Strategic Plan.

Subtask 4.1.2.3 – Support the completion of priority ACFHP Science and Data projects (e.g. acquire and analyze fish population, habitat, and human impact data; make results available to Partners for the purpose of strategic coastal habitat conservation).

Task 4.1.3 – Coordinate artificial reef activities among the Atlantic coast states, and between the Atlantic and Gulf States Marine Fisheries Commissions.

4.2 Identify important habitat areas for Commission-managed species.

Task 4.2.1 – Take the lead in updating FMP habitat sections for American Lobster and Black Drum working closely with technical committees, other species experts, and staff. For each species, include descriptions of habitat types or areas most critical to restoring or maintaining sustainable stocks. Each habitat section will also discuss the habitat limitations creating a bottleneck to the recovery of a species of concern.

Task 4.2.2 – Prioritize and publicize important habitat types for Commission-managed species as identified in the ACFHP Strategic Plan.

Task 4.2.3 – Work with state and federal agencies, the Councils, and NGOs to build on existing efforts to develop a coast wide GIS of fish habitat resources, to identify important fish habitats for Commission managed species.

Task 4.2.4 – Develop an approach for describing habitat limitations creating a bottleneck to the recovery of Commission managed species with a poor stock status. Recommendations to address the habitat limitations would also be explored.

4.3 Build and support partnerships with fishery and non-fishery management agencies, researchers, and habitat stakeholders to leverage regulatory, political and financial resources.

Task 4.3.1 – Provide information or comment on Atlantic coast projects and permits in accordance with ASMFC project review protocol.

Task 4.3.2 – Facilitate funding and partnership opportunities to promote habitat research in the states.

Task 4.3.3 – Identify partnership opportunities and forge additional relationships with non-governmental organizations to facilitate the promotion of fish habitat through a collaboration of strengths of different stakeholder groups.

Task 4.3.4 – Work with partners to develop monitoring and data standards for assessment of coastal habitat condition and fishery resource status prior to and following alteration projects.

Task 4.3.5 - Update habitat managers database to disseminate information about important habitat areas identified in Habitat Committee products

4.4 Educate Commissioners, stakeholders, and the general public about the importance of protecting, restoring, and enhancing habitat to achieve successful fisheries management.

Task 4.4.1 – Facilitate coordination and distribution of information for ecosystem-based management and marine protected area activities, and the potential consequences of significant anthropogenic activities on habitats of concern.

Task 4.4.2 – Participate in regional and national habitat meetings and scientific conferences to facilitate increased communication with agencies and programs that have jurisdiction over habitat.

Task 4.4.3 – Review and improve format of *Habitat Hotline Atlantic* newsletter to enhance the utility and effectiveness of meeting the target audience's needs. Produce and distribute an annual issue of Habitat Hotline Atlantic newsletter.

Task 4.4.4 – Develop next installment of the Habitat Management Series: Habitat Impacts of Harbor Deepening Projects for ISFMP Policy Board acceptance. Identify a subsequent topic for the Habitat Management Series (e.g. Sand mining, Power plant impingement, climate change impact on fish habitat, estuarine and nearshore aquaculture).

Task 4.4.5 – Serve as a point of contact and information conduit at the Commission for energy-related issues affecting fish habitat.

4.5 Implement performance metrics to focus efforts and monitor progress of the Habitat Program.

Task 4.5.1 – Review program goals and evaluate accomplishments annually.

Task 4.5.2 – Revise the Habitat Operational Procedures Manual and submit for ISFMP Policy approval.

4.6 Engage local governments in habitat protection, restoration, and enhancement programs.

Task 4.6.1 – Highlight local habitat activities in *Habitat Hotline Atlantic* and distribute to local governments.

Task 4.6.2 – Work with ACFHP to foster partnerships with like-minded organizations at local levels to further common habitat goals.

Task 4.6.3 – Provide stakeholders with the tools to effectively communicate, promote and accomplish habitat protection, restoration, and enhancement programs at the local level.

ASMFC HABITAT COMMITTEE WHITE PAPER

HARBOR DEEPENING PROJECT IMPACTS ON FISH HABITAT

Introduction

For decades the capacities of commercial deep draft vessels have been influenced by the limiting dimensions of the existing Panama Canal navigation locks, which can pass vessels with a maximum length of 965 ft, width of 106 ft, and draft of 39.5 ft. Vessel designs accommodating these dimensions have been identified as "Panamax" vessels. In 2014 an upgrade of the locks in the Panama Canal will be completed, allowing for passage of "Post-Panamax" class vessels with maximum dimensions of 1,200 ft long, 160 ft wide, and a draft of 49.9 ft. The upgraded canal will more than double the capacity of the largest vessels capable of transiting the locks, from 5,000 twenty-foot equivalent units (TEU) to 12,000 TEUs. Expansion of the locks, which ultimately will service ships with a draft approaching 60 ft, has major implications for economic drivers affecting ports and harbors. Berthing facilities to handle the substantially larger vessels require channels and turning basins that provide safe navigation conditions.

Not surprisingly, multiple ports along the Atlantic coast have initiated or sought authorization for navigation "improvements" in anticipation of the Panama Canal expansion. Channels serving the Ports of Norfolk and Baltimore have already been deepened to 50 ft, and the Port of New York/New Jersey is in the final stages of deepening to 50 ft. Other ports, such as Philadelphia and Miami, are entering construction phases, while others, including Savannah and Charleston, are aggressively pursuing deepening projects. Numerous harbors are engaged in various versions of expansion, although not necessarily to achieve an authorized depth of 50 ft. These include Boston, Wilmington, Brunswick, Jacksonville, and San Juan. Each project differs in details. For example, although the existing navigation channel through the Chesapeake Bay has previously been deepened to 50 ft, the Maryland Port Administration has requested permission to widen the channel from the existing 700 ft to its fully authorized 800 to 1,000 ft width. Clearly these projects can have tremendous economic consequences for local, regional, and national economies. Likewise, however, they also represent large-scale modifications of existing and historical fish habitat. In most cases they also represent a progression in a series of incremental improvements to navigation infrastructure that has occurred in tandem with other alterations to coastal, estuarine, and tidal riverine bathymetric features. One example of cumulative change in harbor-wide bathymetry is given by Wilber and Iocco (2003), who described bathymetric changes due to beach nourishment and commercial sand and gravel mining operations in the Lower Bay of New York Harbor. Perhaps lead into…..although issues can be geographically specific, there are a number if issues to consider when evaluating impacts of harbor deepening projects: list here

Economics, fish habitat, fish assemblages, benthos, water quality , circulation patterns, bathymetry and etc

And then provide some examples you can use below but perhaps shorten as we will get into them later in document

Comment [d1]: Overall , I think the structure should be similar to offshore wind document

Comment [d2]: Good introduction on the whys of deepening . Can we streamline it a bit given document size restraints

Comment [d3]: Need to caveat differing states have differing permit requirements

Although the port projects are generally classified as “deepening” projects, it is important to understand that deepening entails simultaneous widening. Depending on the types of geological formations through which the navigational channels run (e.g., limestone versus silts and clays), side slopes of the constructed channels must allow for sufficient angle of repose. Obviously formations of rock can incorporate steeper side slopes than the gentler side slopes required by softer formations. Thus the authorized width of the channel basin does not always represent the full footprint of modified substrate. To varying extents every deepening project entails a net loss of shallow-water habitat and a net gain of deep-water habitat. (Figure: typical cross-section with side slopes) Inherent in every deepening project are tradeoffs in terms of costs and benefits. With respect to habitat, the shift from shallow- to deep-water habitat may affect fish species assemblages in numerous ways. An individual species dependent on shallows for foraging or spawning may be impacted detrimentally, whereas other species with an affinity for deeper water may benefit. Consequences for population dynamics of individual species may be difficult to predict given that habitat dependencies may be linked to key life history stages. For example, a species may show distinct preferences for spawning in shallows, but larval stages of the same species may feed more effectively in deeper waters. A critical consideration in the planning of deepening projects is that once constructed, the modifications to navigation infrastructure represent essentially permanent seascape alterations. While large-scale bathymetric alterations are relatively simple to grasp, deepening and widening processes entail many other more subtle mechanisms for habitat change. Here we have outlined environmental issues for dredge project development processes and offered information on assessment need and potential recommendations on how to offset identified impacts.

~~This document attempts to capture those potential impacts such that informed decisions can be made as the various projects are pursued. Each project can proceed only through adherence to the NEPA process, which ideally includes transparent consideration of fish habitat as an important attribute in the evaluation of project-specific merits. Awareness of the many inherent tradeoffs affecting fish habitat in deepening projects can minimize conflicts and provide insights into short- and long-term impacts and means to mitigate them.~~

Data Needs for Impact Assessments

Bathymetry changes that alter sediment patterns, altered water circulation, water quality changes (effects of salinity intrusion on fish habitat and nearby marshes, tidal prism, habitat impacts, fishery impacts such has shallow water habitat loss and migratory disruptions, benthos alterations, end species and etc

Direct Impacts

In addition to the physical changes to bathymetric features within a harbor complex, other potential impacts include altered water circulation patterns and accompanying water quality changes. Construction of deeper, wider channels and turning basins within the finite boundaries of a harbor can affect hydrodynamic forces in several ways. Most Atlantic coast harbors sit on historical drowned river valleys that originally consisted of expansive shallows with peripheral tidal wetlands joined to river courses by gently sloping flats rather than naturally deep, tidally-scoured channels. Contemporary bathymetries reveal complex layouts of dredged channels transecting the original flats. Tidal flows and

Formatted: Font: +Body, 11 pt

Comment [d4]: Perhaps you can provide some shorter descriptions of examples regarding impact considerations following listing of them above. Others put in impacts

Formatted: Font: (Default) +Body

Formatted: Font: +Body, 11 pt

Formatted: Font: (Default) +Body

Comment [d5]: This would be first topic of discussion

Comment [d6]: Her e list needs and have some explanation of those assessment needs and why . Some are down below in written text

river discharges move over waterway cross-sections that hold little resemblance to historical conditions. Construction of deep channels across shallow flats tends to constrain flows to within the channels. Likewise, altering the proportionate volumes of shallow and deep waters within a harbor, in tandem with altering the cross-sectional profiles of entrances into the harbor, can substantially change the tidal prism (i.e. the volume of water exchanged between mean high and mean low tides). Changes in tidal prism can be linked to changes in residence times of parcels of water within a harbor, which can in turn affect distribution of pollutants and dissolved nutrients. The physical forces that act upon water circulation patterns can be subtly changed by the creation of deeper water habitat as the influence of wind and wave-driven currents are enhanced or diminished. In general, the consequences of altered bathymetries on water circulation patterns can be predicted, but only by the application of sophisticated hydrodynamic models and substantial investments in model calibration and validation efforts.

In tandem with water circulation pattern changes, various water quality parameters can be affected by deepening projects. Most notably, salinity intrusion can have far-reaching impacts on fish habitat. Pre-construction conditions reflect a balance in occupation of a harbor by fauna and flora adapted to changing salinities at a given location. Numerous studies provide evidence of the responses of organisms of known salinity tolerances to permanent shifts in exposure. Perhaps the classic example is offered by documented impacts on the survival of oyster reefs, as exposure to higher salinities led to invasions of predatory drills. Unless effective mitigation occurs, decline of productive oyster reef habitat can in turn dramatically and detrimentally alter habitat attributes for many fish species. Another salient example involves longer-term impacts on ground water surrounding and vegetation straddling waterways subject to salinity intrusion. Shifts in salinity can influence the location of the turbidity-maximum zone generally associated with the interface between tidal fresh water and the underlying saline wedge. Therefore the overall changes in physical habitat can be manifested as altered composition and abundance of biological assemblages at a given location.

Other water quality parameters of direct relevance to fish habitat can be affected. Water circulation pattern changes can exacerbate or ameliorate dissolved oxygen conditions. Flushing rates and residence times of parcels of water within a harbor can heavily influence the occurrence of seasonal or chronic hypoxia. The availability of nutrients both water and sediment bourn can lead to dissolved oxygen conditions that severely constrain fishes in terms of access to key habitats or, as in the case of benthivores, by limiting access to bottoms that represent foraging habitat. Again, sophisticated calibrated and validated water quality models would be required to predict the spatial and temporal scales of single parameters or synergies among multiple water quality parameters.

Altered bathymetries and water circulation patterns can influence sedimentation patterns within a harbor. Sediment transport pathways in unmodified estuaries can be expected to be quite different than those in estuaries characterized by a network of relatively deep linear channels. Sediment inputs from river discharges and localized sources may interact with the deepened harbor configuration in different ways. For example, the overall effect of wind-wave resuspension over shallow flats may be diminished. Likewise, entrainment of river flows into deep channels may expedite sediment transport to the ocean, as evidence by the accretion of ebb deltas in conjunction with some previous deepening projects. Regardless, the overall effect on the harbor's sediment budget may deserve careful

consideration. In certain reaches of the new navigation infrastructure the need for periodic maintenance dredging may be affected.

Perhaps here insert recommendations regarding minimizing permanent dredge impacts as have been done in other ports– alteration of channel design to limit sensitive habitat destruction ie avoid savs and corals?, remove harvestable bivalves before dredging, avoid vegetated wetlands, and etc.

Indirect Impacts **Title this construction and operation**

As opposed to the permanent primary physical changes present in a deepened harbor setting, construction activities to accomplish the deepening may have temporary, short-term impacts. The deepening/widening process can involve excavation and removal of very large volumes of sediment. A fully developed Dredged Material Management Plan needs to address the potential impacts of placement as well as dredging. Dredging during construction may involve different types of plant that would occur for later maintenance of the channels. Altered water quality in terms of released suspended sediments or the creation of turbidity plumes should be assessed, including key factors such as proximity to sensitive habitats, durations of potential exposure, and mode of potential impact (e.g., suspended or deposited sediment effects).

In addition to issues associated with conventional dredging practices and the handling of dredged material, a subset of deepening projects necessarily require removal of hard substrates such as rock or limestone. In these cases special technologies and processes such as blasting or hydro-hammering may be used. These construction activities deserve careful planning in order to minimize detrimental impacts on fishes, other protected species, or their habitats. Existing guidance on underwater impacts of blasting and other means to fracture hard substrates is in the early stages of development. Each process poses unique challenges in impact assessment and the planning of protective measures. For example, the utility of bubble curtains to reduce the footprint of peak pressures and rise times that cause physical injury to fishes will depend greatly on site-specific conditions. Ancillary impacts make take the form of additional construction activities not directly tied to the channels themselves. In addition to greater water draft requirements, certain harbors may need to alter bridges and abutments to accommodate taller vessels. Those activities may involve pile driving or similar operations.

Secondary impacts include not only short-term impacts during construction, but long-term impacts associated with altered use of the navigation infrastructure. Deepened and widened channels enable the arrival of increasingly larger vessels. Although the increased capacity of the larger vessels may initially equate to the need for fewer vessel arrivals and departures, projections inevitably indicate overall increased traffic volumes. The use of deepened channels by larger vessels in itself may have consequences on sediment resuspension induced by propwash and wakes. Propeller strikes, underwater noise, and other issues may arise linked to “super-sized” vessel traffic.

Perhaps insert here some operational recommendations to mitigate construction and placement impacts discussed above that have been used in other project ie environmental buckets, no barge

Comment [d7]: List and then describe impacts such as turbidity plume and associated contaminants concerns when applicable to area, noise impacts, water quality impacts, increased vessel traffic, entrainment
And should a secondary impact include continued maintenance of these deeper channels?

Perhaps add helpful monitoring information needs; Geographically specific plume studies to understand and avoid impact if possible, geographically specific information needs on fish species of concern sensitive life stages (NY harbor did an extensive study of winter flounder that allowed specific windows to be established), habitat assessments if needed, sediment type and contaminant information, EFH assessments (most projects require some type of assessment so if not list EFH specifically take from it assessment needs?

Comment [d8]: I suggest a separate section on placement impacts and assessment in water, upland disposal, beach nourishment , CADs

overflow, bucket speed reduction, use of certain types of dredges , appropriate fishery windows to protect sensitive life stages , diked disposal areas to avoid siltation,

Do we want to add an overall section on compensatory mitigation for dredge operations. Most would utilize principals of avoidance, minimization and mitigation. Examples of things done for other deepening projects like beneficial reuse- NY harbor deepening restoration of marsh islands that were identified as lost wetland area since inception of tidal wetland regulations and other examples from other ports. Preservation, fish passage and post construction monitoring of mitigation and or habitat impacts, education, capping of contaminated sediment, derelict barge removal and etc

Comment [d9]: Issues such as determining quantity of mitigation necessary for impact

Conclusions

The fact that the expanded Panama Canal lock system may soon allow passage of vessels with a draft approaching 60 ft may inevitably lead to a new class of vessels in the international shipping fleets that drive yet another call for channel deepening. It is imperative therefore that the present spate of deepening projects be conducted as cautiously as possible, with full awareness of their consequences. To the extent possible, lessons should be learned concerning how to maintain and enhance fish habitat during the course of deepening projects and applied to all future projects.

Comment [d10]: These lessons should be included here

Additional information

What to put here? Web links , agencies often involved, important references on dredging or sites that house a lot of them, WES site and etc?

References

Wilber, P. and Iocco, L. E. (2003). Using a GIS to examine changes in the bathymetry of borrow pits in Lower Bay, New York Harbor, USA. Marine Geology 26:49-61.

Harbor Deepening: Potential Habitat and Natural Resources Issues

Water Quality Effects:

- Extent of salinity intrusion into freshwater areas and redistribution of vertical and horizontal salinity zones; examinations should include ranges and frequencies
- Deepening effects on bottom dissolved oxygen levels that may be limiting to fauna
- Exposure of nutrient-rich sediments to the water column?
- Predictive models need to be sufficiently sensitive to predict changes in water quality and circulation appropriate for specific areas of concern.
    - Should be a 3-D model that uses horizontal salinity gradients integrated over depth to drive the baroclinic portion of the convective mode of estuarine circulation. Modifications to depths and salinity gradients on the buoyancy-driven and non-tidal circulation should be examined
    - Vertical resolution should be sufficient to accurately predict conditions in the bottom meter of water
    - Horizontal resolution should be sufficient to accurately predict changes in peripheral water bodies and habitats (e.g. tidal rivers along project, tidal creeks, wetlands)
    - Needs to include both normal and drought conditions based on the historical record as well as severe weather occurrences.
    - Needs to consider potential effects of sea level rise under scenarios that reflect low, moderate, and high rates
    - Calibration and validation of the model(s) should be evaluated using data from stations as close as practicable to sensitive resources

Biological Effects:

- Evaluate effects of water quality changes on the distribution of vegetated wetland species, species distribution and abundance of invertebrate and fish populations
- Ensure that Habitat Suitability Indices (HSI) are appropriate for the area
- Evaluate effects on spawning and migration of anadromous/diadromous species
- Evaluate effects on spawning and movements of non-migratory species
- Determine suitability of dredging windows to minimize impacts related to critical species, including use of differing windows for various sections of the project if warranted (e.g. bottleneck areas, lower estuarine areas versus upper reaches if relevant.
- Evaluate effects on threatened and endangered species and protected marine mammals, including noise issues associated with construction and passage of super-sized vessels

- Evaluate effects on sensitive shoreline habitats (e.g. intertidal shellfish habitats, vegetated shorelines, bird nesting areas) or any Essential Fish Habitat (EFH); this should include effects on the accessibility of those habitats by the species that use them
- Evaluate effects of dredging on sensitive bottom habitats, such as hard bottom/reef habitats, bottom vegetation
- Evaluate effects of disposal activities on adjacent habitats and biota (e.g. effluents from upland disposal, habitats adjacent to ocean disposal areas)
- Evaluate effects on existing habitats altered due to any need to expand approved disposal areas
- Identify potential for beneficial uses of dredged material to enhance/protect existing habitats
- It is important to consider that modifications in infrastructure required for the deepening project (e.g. bridge alterations, private spur channels, existing port facilities) and impact the natural resources identified in the above bullets.

Physical Effects:

- Determine the potential for increased erosion associated with passage of super-sized vessels
- Consider the impacts of redistribution/suspension of contaminants
- Evaluate water circulation patterns and effects on flushing and residence time, especially to tidal creeks and coves
- Identify the location of turbidity maximum zone(s)
- Evaluate potential effects of turbidity plumes associated with construction and impacts of increased sedimentation, both within and outside the channel. Sediment transport models should be used where appropriate.
- Consider potential for intrusion into freshwater aquifer and resultant effects

Note: *Economic and other issues not specific to habitats and associated natural resources are not considered in this document.*

INTRODUCTION
Section 1.4: Habitat Considerations

Part 1.4.1: Habitat Important to the Stocks

Subsection 1.4.1.1: Description of the Habitat

This subsection should describe the habitats, including the associated biological community, which are typically used by the species. Habitats should be classified by life stage to include spawning, egg/larvae, juvenile, sub-adult, and adult resident and migratory habitats.

General descriptions of the functional habitat types that the species uses should be presented, along with a description (narrative, maps, and figures) of the distribution of these habitats. Overall range maps are appropriate, and the use of GIS is encouraged. General migratory pathways should also be identified. Some states have classified/identified areas with important habitat attributes and/or functions for fish such as, "Outstanding Florida Waters" and "Aquatic Preserves" in Florida, and "Primary Nursery Areas" and "Outstanding Resource Waters" in North Carolina. These areas have significance in the states' permitting programs, and should be integrated here if they overlap with habitat where the species is found. Additionally, the seasonality of the species should be addressed.

Information on biological, ecological, physical, and chemical habitat variables should be included in this subsection. Ecological variables include the biological community upon which the species depends or with which the species is associated. Characteristics such as substrate preference, dissolved oxygen levels, temperature, salinity and other pertinent variables should be identified. If habitat "dependence" has not been documented, then habitat utilization or association should be presented in this subsection. Where possible, documented linkages between habitat and species production should be described.

Approaches

A number of approaches have been used to identify species-specific marine fish habitat. Approaches should be combined in order to present the best information with the widest geographic coverage, on a local scale.

Species distribution and/or relative abundance as indicated by fishery independent surveys has been proposed as a surrogate for habitat preference. This approach is useful; however, it is limited by the geographic and technical bounds of the fishery independent survey and should be augmented by additional information.

Important habitats for managed species have also been identified by local technical experts. Peer reviewed information of this type, including a review of relative abundance and distribution data, has been assembled for most Atlantic estuaries by the National Ocean Service.

In most cases, species-specific information is not available for all local habitats. In these instances, alternative information should be presented. Examples of alternative information include habitat suitability modeling, identification of usable habitats, and presentation of information for similar species. The limitations of each of these approaches should be clearly stated, and multiple approaches should be considered.

A method applied to marine habitats that may have more significant use in the future is habitat suitability (HSI) modeling. This methodology includes the identification of specific habitat variables that are significant to the distribution of the species. The coexistence of these variables can then be identified regionally and used to predict species presence in areas where species distribution is unknown. HSI modeling is limited by both the number of developed and tested models and the geographic range over which the assumptions are valid.

The identification of usable habitats is similar to habitat suitability modeling, although somewhat less refined. It simply includes the regional identification of all habitat types that are used by the species or with which the species is associated in other regions.

Finally, for species for which a paucity of information exists, identification of habitats used by similar species (i.e., species of the same genus or with similar life history characteristics) should be used as a surrogate.

Elements and format

1. A narrative description of important habitats, including the elements discussed above. Information should be presented using the following outline:

I. Description of Habitats (including residence and migration routes)
- Part A. Spawning Habitat
- Part B. Eggs & Larvae Habitat
- Part C. Juvenile Habitat
- Part D. Sub-Adult Habitat
- Part E. Adult Habitat

2. Maps describing local and regional habitats, migratory routes, and species range

3. A table that includes any significant environmental factors affecting the species at different life stages, with citations for all information included.

Subsection 1.4.1.2: Identification and Distribution of Habitat and Habitat of Concern

Habitat of Concern, or HOCs, are areas within EFH that may be designated according to the Essential Fish Habitat Final Rule (2002) based on one or more of the following considerations: (i) the importance of the ecological function provided by the habitat, (ii) the extent to which the habitat is sensitive to human-induced environmental degradation, (iii) whether, and to what extent, development activities are, or will be, stressing the habitat type, or (iv) the rarity of the habitat type. Descriptions of EFH are not currently being included in Commission FMPs. The definition of HOCs is therefore modified to be areas within the species' habitat that satisfy one or more of the aforementioned criteria.

A HOC is a subset of the "habitats" described in Subsection 1.4.1.1, and could include spawning habitat (e.g., particular river miles or river reaches for striped bass populations), nursery habitat for larvae, juveniles and subadults, and/or some amount of foraging habitat for mature adults. HOCs are geographic locations which are particularly critical to the survival of a species. Determination of the amount of habitats (spawning, nursery, subadult, adult residence, and adult migration routes) described in Subsection 1.4.1.1 that should be classified as HOCs may be difficult. The intent of this subsection is to identify areas that are unequivocally essential to the species, since all used habitats have already been identified in Subsection 1.4.1.1.

Examples of HOCs include: any habitat necessary for the species during the developmental stage at which the production of the species is most directly effected; spawning sites for anadromous species; benthic areas where herring eggs are deposited; primary nursery areas; submerged aquatic vegetation in instances when species are determined to be "dependent" upon it; and inlets such as those located between the Atlantic Ocean and bays or sounds, which are the only areas available for providing ingress by larvae spawned offshore to their estuarine nursery areas.

The extent of HOCs for a species may depend on the current stock size and/or the stock size for which a species Management Board and Technical Committee establishes targets. Given the current state of knowledge with regard to the relationship between habitat and production of individual species, this information is not likely to be available for many species.

If known, the historical extent of HOCs should also be included in this subsection, in order to establish a basis for Subsection 1.4.1.3. Use of GIS is encouraged to depict the historical and current extent of HOCs, and determine the amount of loss/degradation, which will assist in targeting areas for potential restoration.

Subsection 1.4.1.3: Present Condition of Habitats and Habitat of Concern

This subsection should include, to the extent the information is available, quantitative information on the amount of habitat and HOCs that are presently available for the species, and information on current habitat quality. Reasons for

reduction in areal extent (either current or historical), should be addressed, for example, “dam construction has eliminated twenty percent of historical spawning habitat.”

All current threats to the species’ habitat should be discussed in this subsection. If known, relative impacts from these activities should be identified and prioritized. For example, hydrological alterations and their impacts are a high priority for anadromous species. These may include freshwater inflow/diversions; changes in flows due to hydropower, flood control, channel modifications, or surface/aquifer withdrawals; and saltwater flow changes due to reductions in freshwater inflows or deepening of navigation channels, which facilitate upstream salinity increases. Threats should also be assessed for their effect on the ability to recreationally and commercially harvest, consume, and market the species.

This subsection will serve as a basis for the development of recommended or required actions to protect the species’ habitat, which will be outlined in Section 4.4. For example, the effectiveness of water quality standards should be reviewed in this subsection. If they are ineffective or inappropriate at protecting water quality at a level appropriate to assure the productivity and health of the species, then a recommendation should be included under the recommendations section (Section 4.4) for improvement of water quality standards.

Elements and format

This subsection should include separate segments for each different type of habitat that was identified in Subsection 1.4.1.1. The following outline should be used:

I. Habitat Type 1

- A. Estimates of habitat quantity and any changes over time, such as but not limited to aerial extent and trends over time, availability to the species and changes in availability, etc.
- B. Description of habitat quality and any changes over time, such as but not limited to water quality, functional ability of wetlands, etc.
- C. Description of current threats, including:
    - a. What is the magnitude of the impact, especially in light of the use by the species?
    - b. What is the length in time of the impact and does it occur when the habitat is used by the species?
    - c. Are the impacts irreversible?
    - d. How can the impacts be avoided, minimized, or mitigated? (This information will be especially important for Section 4.4)
    - e. Estimates of cumulative and secondary impacts to the habitat.
- E. Any affects of degradation or loss of this habitat on the ability to harvest and/or market the species

II. Habitat Type 2 (etc...)

Subsection 1.4.1.4: Ecosystem Considerations

There are increasing attempts to incorporate ecosystem management into fisheries management. Ecosystem management can be interpreted as: a) the incorporation of the protection and enhancement of habitat features that contribute to fish production into the fishery management process; and b) the consideration of how the harvest of one species might impact other species in an ecosystem and incorporating that relationship into management decisions. The process of considering more than one species in fisheries management decisions is also called multi-species management.

Human activities can influence habitats or entire ecosystems by altering one or multiple elements contributing to such systems at any time. Given that the flow of energy and nutrients between organisms and their environment provide the framework for understanding ecosystems, a focus on ecological function and how abiotic structure affects the biotic community structure and vice versa is essential. Abiotic factors include the space providing connectivity between specific life history stage habitats, spatial and temporal uses of those habitat, water quality and quantity, and the physical changes to these factors over time. Biotic factors include the position of these species within the food web (i.e., forage species, predator/prey), community dynamics, biotic engineering of habitat, etc.

In addition, the spatial and temporal resiliency of the system (the measure of the ability of a system to withstand stresses and shocks, and recover to pre-stress characteristics) is another consideration to include in this section.

This section should focus on ecosystems functions on a landscape scale rather than duplicating habitat use information contained in the preceding sections of this document.

MONITORING PROGRAM SPECIFICATIONS/ELEMENTS
Section 3.7: Habitat Monitoring Program

The purpose of this section is to outline habitat monitoring considerations for a given FMP. Building upon the baseline information covered in Section 1.4, FMP developers are encouraged to identify specific habitat variables that should be monitored that are significant to the distribution of the species. This section may also include information on existing habitat monitoring programs. The goal of habitat monitoring programs should be to provide guidance to achieve integration of fish management activities with management of habitat and habitat areas of particular concern.

It is recommended that stock assessments be coordinated with existing state, federal, and regional habitat monitoring programs to achieve cost benefits and allow for synthesis of water quality, aquatic habitat, and watershed information to better assess whether declines in fishery stocks are caused by degraded habitats or ecosystems.

Section 1.4 provides a strong foundation for the establishment of a robust monitoring plan. FMP authors and managers are encouraged to use all available information to determine those limiting factors that can best serve as timely indicators of habitat loss or degradation. It is recommended that documented linkages between habitat and species production be described.

The identification, distribution, and present condition of habitat and habitat of concern (HOC) (Subsections 1.4.1.3 and 1.4.1.3) requires extensive background information to determine what areas are unequivocally essential to the species. These subsections will already describe many of the currently reported habitat variables that are applied by state, federal, regional, and other fishery management entities to monitor habitat condition. By maximizing the use of existing data and monitoring programs, FMP developers may recommend that certain factors be periodically observed and documented to detect changes in habitat quality or quantity.

Elements of a monitoring program should include the following:

1. Development of a monitoring plan based on historic and existing habitat quality and quantity records/data.

2. Designation of reference sites based on life stage requirements.

3. Determination of appropriate spatial and temporal scales for monitoring specific habitat types and locations.

4. Coordination of monitoring of essential habitat across all life stages.

5. Enhanced coordination of fish stock assessment and management with habitat monitoring.

As the Atlantic Coast fisheries community moves toward ecosystem-based adaptive management that is more integrated with coastal habitat, existing monitoring programs on local and regional scales should be better coordinated to provide efficient and meaningful monitoring to quantify and track changes in quality habitat for the life stages of all fishes. A broad overview of existing monitoring programs has revealed common approaches, issues, and needs for a future Atlantic Coast monitoring program. Below are elements that should be considered for such a monitoring program:

1. Issues and options associated with monitoring programs

a. Scale:
   1. Regional vs. site specific - broad indicators/remote sensing tools vs. single indicators
   2. Regional approaches – existing landscape approaches e.g. river basin/coastal association or commission data
   3. Species range approach – monitor on a species by species FMP approach

b. Frequency: Cost-benefit

c. Prediction: Quantify/track cumulative effects of climate change and continued watershed and coastal development on aquatic habitat

1. Land use/management plans to select landscape indicators
2. Climate prediction models to select precipitation/storm surge effects to monitor

d. Location: Overlay all life-stage habitat types for all species with FMPs and develop coordinated monitoring by location

e. Existing fish stock information: Coordinate with collection and analysis of habitat information

2. Monitoring indicators: Referenced with natural variation and analyzed spatially/temporally

a. Large-scale: Remote sensing and existing monitoring programs- coordinate and fill gaps

1. Land use – include infrastructure (roads, etc.), water, development, dredging, channelization, riprap, etc.
2. Specific habitat types (quantity and quality)
3. Temperatures of rivers, tributaries, estuaries, and oceans – ridge to reef
4. Sediment movement and changes
5. Water quality and quantity

b. Intermediate-scale: Aquatic communities, species numbers, diversity, and distributions

3. Integration of habitat and water quality data with fishery monitoring data through Geographic Information System (GIS) analysis

MANAGEMENT PROGRAM IMPLEMENTATION
Section 4.4: Habitat Conservation and Restoration

This section should emphasize that each state should implement identification and protection of habitat for the given species within its jurisdiction, in order to ensure the sustainability of important life history stages that either are produced or reside within its boundaries. It should also be noted that such efforts should inventory historical habitats, identify habitats presently used, and specify those that are targeted for recovery, and impose or encourage measures to retain or increase the quantity and quality of essential habitats for the given species.

Information from previous sections, including EFH (for joint Commission/federal plans), HOCs, and other known habitat used by the species, should all be considered in crafting recommendations for fish habitat conservation and restoration. This will ensure protection of all values and benefits of habitat for fisheries, and aid in making decisions on setting priorities for fish habitat restoration. This section of the plan should integrate the discussion from Subsections 1.4.1.1 through 1.4.1.4, in developing the recommendations for habitat conservation/restoration. These recommendations should come from an assessment of the qualitative and quantitative information on habitat, the health of the stock, and the status of the fishery.

Recommendations should be directed to the state marine fisheries agency, since these are the agencies involved in development of FMPs. Often the objective of habitat related recommendations will be carried out by another entity such as a state water quality agency. In these cases, the recommendation should be worded so that it directs the state marine fisheries agency to either communicate the recommendation to the other entity, or, to the best of its ability, ensure that the other entity meets the recommended objective. The recommendation

must be clearly stated and may require substantial explanation in order to facilitate its implementation, especially when the objective may be met by another entity.

Part 4.4.1: Preservation of Existing Habitat

Part 4.4.2: Habitat Restoration, Improvement, and Enhancement

Part 4.4.3: Avoidance of Incompatible Activities

Part 4.4.4: Fisheries Practices

Part 4.4.5: Habitat Monitoring

COMPLIANCE

Section 5.1: Mandatory Compliance

Part 5.1.1: Mandatory Elements of State Programs *(as applicable)*

Subsection 5.1.1.5: Habitat Requirements

FMP recommendations and requirements differ in that requirements are mandatory actions under the Atlantic Coastal Fishery Cooperative Management Act (P.L. 103-206 et. seq.), which result in penalties if not implemented. An example of an issue that is appropriate to address as an FMP requirement is a significant impact to a HOC from fishing gear. ISFMP staff species coordinators should be consulted for further information on the use of required measures in FMPs, and the appropriateness of habitat-related requirements that may be considered for inclusion in this section.

MANAGEMENT AND RESEARCH NEEDS

Section 6.2: Research and Data Needs

Part 6.2.4: Habitat

This section should contain any recommendations, preferably in priority order, for research that the ASMFC views as necessary for the sound management of the species and its habitat. This may include basic life history information, which will result in the more complete identification of the habitat requirements of the species for all life stages, tagging studies for determination of migratory pathways and habitat use patterns, and other habitat related information. Recommendations should be developed by reviewing Subsections 1.4.1.1 through 1.4.1.4, and identifying topics requiring further information.

Research recommendations should provide for the comprehensive identification of the habitat requirements of the species, or species assemblages, that define the

interrelationship between the species, its environment, and potentially perturbing natural and human activities. Research is encouraged at an appropriate spatial and temporal scale that is directed at determining and reasonably predicting the impacts of natural and human activities on HOCs. The habitat research plan of the National Marine Fisheries Service may be a useful reference, since it provides a framework to conduct coastal and estuarine research, and, most importantly, transfers results to those management components involved in permit reviews and development of habitat sections of FMPs.

Red Drum Habitat Bottlenecks

Red drum utilize all available estuarine and nearshore habitats throughout their life history. Although regional habitat types, such as mesohaline SAV communities, might be limited locally, red drum can use multiple habitat types at each stage of their development. There is no supporting evidence that habitat is currently limiting to populations of red drum throughout their range.

For example, oyster reefs are an important habitat to red drum at the juvenile and subadult life stages. In South Carolina, the abundance of red drum is not limited by the availability or health of oyster reef habitat, despite significant reductions of oyster reef habitat throughout the range of the red drum population. Data from Georgia's Marine Sportfish Health Survey (MSPHS) suggests over 80% of all juvenile red drum (< 375mm CL) captured since 2003 are associated with shell/oyster habitat. In comparison, less than half of the stations sampled were associated with shell. Since red drum use multiple habitat types at each stage of their development, limitation of one habitat type does not necessarily reduce survival of that life stage's cohort.

Creeks, tributaries, and estuaries are important habitats for red drum. Larval, juvenile, and subadult red drum are particularly sensitive to pollution contributed by watershed scale human activities. There is currently no evidence that chemical pollution is a limiting factor for juvenile and subadult red drum. However, changes in hydrology due to watershed activities that alter stormwater flow and sedimentation might restrict red drum larval recruitment both locally and regionally. The potential for impact on larval red drum recruitment is dependent upon the scale of stormwater change within the watershed and creek systems. Additionally, sediment accumulation may alter SAV abundance and circulation patterns resulting in lower recruitment into small creeks.

While these sensitive habitats have been identified as important to various life stages of red drum, none of them are believed to currently limit the successful recruitment of red drum individuals to regional stocks.

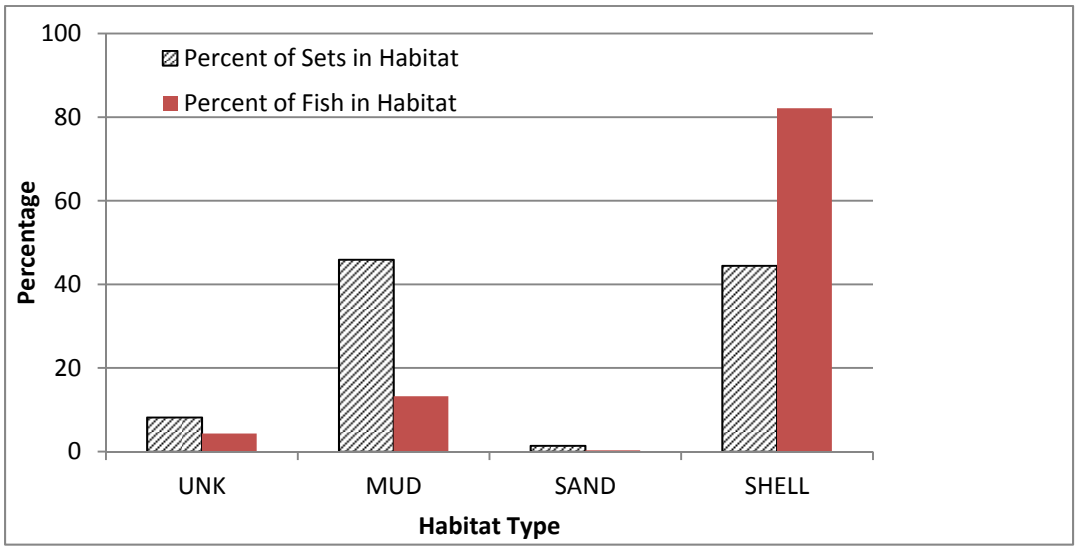

Figure 2. Red drum habitat preference from Georgia DNR MSPHS. Total sets across habitat types from 2003-2012.

Table 3.2. Partial listing of finfish and shellfish species observed in collections from shell bottom in North Carolina, and ecological functions provided by the habitat.

Species*	Shell Bottom Functions [1]					Fishery [2]	2010 Stock Status[3]
	Refuge	Spawning	Nursery	Foraging	Corridor		
ANADROMOUS & CATADROMOUS FISH							
American eel	**X**		**X**	**X**	**X**	**X**	**U**
Striped bass			**X**	**X**		**X**	**V- Albemarle Sound, Atlantic Ocean, D- Central/Southern**
ESTUARINE AND INLET SPAWNING AND NURSERY							
Black drum				**X**		**X**	
Blue crab	**X**	**X**	**X**	**X**	**X**	**X**	**C**
Oyster	**X**	**X**	**X**	**X**		**X**	**C**
Gobies/blennies	**X**	**X**	**X**	**X**			
Grass shrimp	**X**	**X**	**X**	**X**			
Hard clam	**X**	**X**	**X**	**X**		**X**	**U**
Mummichog	X	X			X		
Oyster toadfish	**X**	**X**	**X**	**X**		**X**	
Red drum	**X**		**X**	**X**	**X**	**X**	**R**
Spotted seatrout				**X**		**X**	**D**
Stone crab	**X**		**X**	**X**		**X**	
Weakfish	X		X	X	X	X	D
MARINE SPAWNING , LOW-HIGH SALINITY NURSERY							
Atlantic croaker				X		X	C
Brown shrimp	**X**		**X**	**X**	**X**	**X**	**V**
Southern flounder				**X**		**X**	**D**
Spot	X		X	X	X	X	C
Striped mullet				X		X	V
MARINE SPAWNING , HIGH SALINITY NURSERY							
Black sea bass	**X**		**X**	**X**	**X**	**X**	**C- north of Hatteras, D- south of Hatteras**
Gag	**X**		**X**	**X**	**X**	**X**	**C**
Pigfish				**X**		**X**	
Pinfish	**X**		**X**	**X**	**X**	**X**	
Pink shrimp	**X**		**X**	**X**	**X**	**X**	**V**
Sheephead	**X**		**X**	**X**	**X**	**X**	**C** [4]
Spanish mackerel						X	V
Summer flounder	X			X	X	X	R

* Scientific names listed in Appendix I. Names in **bold** font are species whose relative abundances have been reported in the literature as being generally higher in shell bottom than in other habitats. Note that lack of bolding does not imply non-selective use of the habitat, just a lack of information.

[1] Sources: Pattilo et al. 1997; SAFMC 1998; Lenihan et al. 1998, 2001; Coen et al. 1999; Grabowski et al. 2000; Peterson et al. 2003a; Barrios 2004; ASMFC 2007; A. Barrios unpub. data

[2] Existing commercial or recreational fishery. Fishery and non-fishery species are also important as prey

[3] V=viable, R=recovering, C=Concern, D=Depleted, U=unknown ().

[4] Status of reef fish complex as a whole. Sheepshead and Atlantic spadefish have not been evaluated in North Carolina.

Atlantic Coastal Fish Habitat Partnership

Species-Habitat Matrix Project
Summary Report

August 2009

Introduction

Inception of the ACFHP Species-Habitat Matrix

In May 2007, the Atlantic Coastal Fish Habitat Partnership (ACFHP) held its first workshop to discuss the continuing formation of a new partnership for the Atlantic coast under the auspices of the National Fish Habitat Action Plan. At this workshop, the ACFHP Science and Data Working Group was established to provide scientific support to the partnership. In particular, this group was formed to provide the scientific basis for a Conservation Strategic Plan for the ACFHP. With this in mind, partnership representatives Jake Kritzer (Environmental Defense Fund) and Mari-Beth DeLucia (The Nature Conservancy) suggested creating a matrix of species and their habitats to guide the partnership in determining which habitats along the Atlantic coast are used, on a broad regional scale, by the most species.

Following the initial workshop, a subgroup of the Science and Data Working Group convened to design the Matrix. The details of the design and subsequent activities are outlined in the methods section of this report.

Purpose of the ACFHP Species-Habitat Matrix

The primary purpose of the ACFHP Species-Habitat Matrix is to provide a starting point for prioritizing habitats (on both a coastwide and regional basis) in order to focus the protection and restoration efforts of ACFHP. It is a conservation planning tool to evaluate the relative importance of various coastal, estuarine, and freshwater habitats in terms of their value to a number of selected fish and invertebrate species. Specifically, the Matrix evaluates the importance of different habitat types as shelter, nursery, feeding, or spawning areas for each species. The goal is to provide an index of habitat value through this one lens. The Matrix is limited in that it does not consider other important functions of habitat that also benefit each species. Filtering water, processing nutrients, securing sediments, maintaining dissolved oxygen levels, and other ecosystem functions are critical for fishes and invertebrates, but are not considered in the analysis in order to keep the matrix and analyses simple and manageable. However, the additional ecosystem functions of habitats are considered separately in conservation planning in combination with the Matrix results.

Other Uses of the ACFHP Species-Habitat Matrix

While ACFHP designed this Matrix specifically to help the Partnership prioritize habitats, there are many other potential uses for this work in the future. The Matrix could assist natural resources agencies, non-governmental organizations, or other groups in identifying monitoring or research focuses, identifying data gaps, or assessment work. In addition, a comprehensive database for Atlantic coast species could be compiled from the associated references. Please note that any use of the Species-Habitat Matrix should keep in mind the Qualifiers and Exclusions noted in the following section.

Qualifiers and Exclusions

- The Matrix is not a comprehensive index of all species or habitats along the Atlantic coast.
- This Matrix will not assess the amount, condition, or vulnerability of habitat types.
- The Matrix does not begin to cover the full range of ecosystem services associated with habitats, and their importance to the health and sustainability of the ecosystem as a whole. It will not evaluate habitats in terms of ecological functions, such as buffering coastal areas, water filtration, nutrient processing, trapping and stabilizing sediments, and so on.
- A representative grouping of species was chosen for each region, in an attempt to cover most functional groups within the ecosystems of that region. The species lists include mostly finfish and selected motile invertebrates. Although bivalves are of tremendous ecological and economic value, most of the major species are included as habitat categories, and therefore are not included as species as well. In this way, they have heightened importance given that the focus of ACFHP is habitat protection and restoration.
- The Matrix does not consider the natural rarity of a habitat type, current habitat trends, or comparative use with information obtained from the *Assessment of Existing Information* (a separate ACFHP project).
- The use of pelagic habitats was not considered as part of this Matrix. This Matrix should only be used to evaluate utilization of physical habitat, not use of the water column. Water quality should be acknowledged as an important consideration for all species included in this Matrix.
- There may be habitats that are important for some species that do not fit readily into the scheme provided in this Matrix. While we acknowledge that not every habitat is included, we think that most habitats for most species are covered.
- Differentiations between life history stages for each species should be based upon the generally accepted distinctions provided in the literature for that species.

Methods

Regional Breakdown and Regional Leads

This Matrix was completed for four regions of the Atlantic coast (Figure 1). Each region had a regional lead that was responsible for finding volunteers to complete the Matrix for the various species included in that region. Regions and regional leads are as follows: New England (Cape Cod north to Canada), Leads- Lou Chiarella, Kim Damon-Randall, and Vin Malkoski; Mid-Atlantic (Cape Cod to Cape Hatteras), Leads- Bill Shadel, Marek Topolski, and Caroly Shumway; South Atlantic (Cape Hatteras to Cape Canaveral), Lead- Kay Davy; and South Florida (south of Cape Canaveral), Leads-Kent Smith, Eddie Matheson, and Jeff Beal. A complete list of Matrix contributors can be found in ***Appendix A*** of this report.

Figure 1. ACFHP Regions

Discussion of Spreadsheet and Determination of Categories

The ACFHP Species-Habitat Matrix exists in a series of Microsoft Excel spreadsheets. The left-hand columns consist of 26 habitat types nested within seven habitat categories (see *Habitat Characterizations* below for more detail). The species are listed across the top of each row, with four columns included per species (one for each life stage: eggs/larvae, juveniles/YOY, adults, and spawning adults). At each intersection of a habitat type and species' life stage is a "score" reflecting the species' use of the habitat type at that life stage. By summing these scores across a habitat type,

an index of the habitat's value for a collective group of species can be generated. An example of a completed matrix for red drum is illustrated in Figure 2 below.

Additionally, each region had its own list of species covering the major functional groups found in that region. An attempt was made to cover a range of trophic levels (e.g., from bay anchovy to oyster toadfish to various coastal sharks), as well as to include species of commercial and recreational importance. Strictly freshwater species are not included within the focus of ACFHP, and therefore are not present in the Matrix.

Each species could be scored for one, two, three, or four regions, depending on its relative prevalence in each region. Therefore, some species, such as American eel, were scored for all regions, whereas a species like Caribbean reef squid was only scored for South Florida. The species list for each region was determined by a group of experts from that region. Ultimately, 36 species were scored for New England, 55 for Mid-Atlantic, 62 for South Atlantic, and 62 for South Florida (see ***Appendix B*** for complete lists). The total number of species included in the ACFHP Species-Habitat Matrix across all regions was 131.

Red Drum **South Atlantic**

Habitat Category	Habitat Type	Eggs-Larvae	Juv/YOY	Adults	Spawning adults
Marine and estuarine shellfish beds	Oyster reef		H	M	
	Scallop beds				
	Hard clam beds				
	Dead shell accumulations		H	M	
Other sessile fauna	Primary coral reef architecture				
	Patch reef, soft corals or anemones amidst soft sediment				
	Live rock			L	
Macroalgae	*Fucus* sp., *Laminaria* sp., *Ulva lactuca* mats, *Sargassum* sp., and other drift algae				
SAV	Tidal fresh and oligohaline *spp.*		L		
	Mesohaline and polyhaline *spp.*		L		
Tidal vegetation	Saltwater marsh	VH	VH	M	
	Brackish marsh		L		
	Tidal freshwater marshes		L		
	Mangrove		H		
Coastal inert substrate	Loose fine bottom		M	H	M
	Loose coarse bottom		M		M
	Firm hard bottom		L	L	H
	Structured sand habitat		M	M	

Habitat Category	Habitat Type	Eggs-Larvae	Juv/YOY	Adults	Spawning adults
Riverine	Higher gradient headwater tributaries				
	Lower gradient tributaries		H		
	Higher gradient large mainstem river				
	Lower gradient large mainstem river		H		
	Low order coastal streams		H		
	Non-tidal freshwater mussel beds				
	Coastal headwater ponds				
	Non-tidal freshwater marshes				

Figure 2. Example of Red Drum Species-Habitat Matrix

*Habitat Characterizations (see **Appendix C** for more detailed descriptions)*

Marine and Estuarine Shellfish Beds
- Oyster reef
- Scallop beds
- Hard clam beds
- Dead shell accumulations

Other Sessile Fauna
- Primary coral reef architecture
- Patch reef, soft corals, or anemones amidst soft sediment
- Live rock (inert hard bottom with hydroids, bryozoans, tube worms, sponges, etc.)

Macroalgae
- *Fucus* sp., *Laminaria* sp., *Ulva lactuca* mats, *Sargassum* sp., and other drift algae

Submerged Aquatic Vegetation (SAV)
- Tidal fresh and oligohaline spp.
- Mesohaline and polyhaline spp.

Tidal Vegetation
- Saltwater marsh
- Brackish marsh
- Tidal freshwater marshes
- Mangrove

Coastal Inert Substrate
- Loose fine bottom
- Loose coarse bottom
- Firm hard bottom
- Structured sand habitat

Riverine
- Higher gradient headwater tributaries
- Lower gradient tributaries
- Higher gradient large mainstem river
- Lower gradient large mainstem river
- Low order coastal streams
- Non-tidal freshwater mussel beds
- Coastal headwater ponds
- Non-tidal freshwater marshes

Instructions and Scoring

Each regional matrix was distributed to the regional leads, who, in turn, distributed it to the other contributors to fill out. The following instructions, scoring scheme, and format for references were sent along with the Microsoft Excel spreadsheets in an attempt to standardize the evaluations:

Overall Summary

Attached you will find the ACFHP Species-Habitat Matrix Excel workbook. Note that the list of species across the top of the table divides into four major life history stages for each species. Down the left hand side of the table, you will notice a list of habitat types. ACFHP wants to score, or evaluate, the relative importance of each specific habitat type to a given life history stage for each species. This "Matrix" will help us in identifying key species-habitat relationships for the Partnership's efforts.

Each species' use of a habitat will be scored using an algorithm that will ultimately aid in identifying those habitats types and categories which provide the greatest amount of benefit for multiple species. Species' use of specific habitats will be evaluated on a five score basis: Very High, High, Medium, Low, or Unknown. Your job will be to fill in the cells of each life history stage with a VH, H, M, L, or U. The scoring system (i.e., what each letter stands for) is described below. Ultimately, we will be able to replace these letters and test several numeric scoring methods.

Regional Guidelines

- There are four regions within ACFHP:
  - New England (Canadian border to Cape Cod)
  - Mid-Atlantic (Cape Cod to Cape Hatteras)
  - South Atlantic (Cape Hatteras to Cape Canaveral)
  - South Florida (Cape Canaveral south)
- Each region will submit ONE matrix. It is up to the regional leads to compile and combine results from their team members.

- Team members must cite their findings, and multiple citations per species are strongly encouraged wherever possible.
- Multiple team members working on the same species would be ideal, but one person per species is acceptable.

General Guidelines

- Use the best available literature – scientific journal articles, agency reports, ASMFC documents, species reviews, fishery management plans, federal reports, etc. – to help you identify and score important habitats for the species within your region. You can also cite expert opinion, but please make sure you document it well (include full name, contact info, and agency or organization).
- The east-west limits of ACFHP range from headwaters that are, or once were, accessible from the sea to the three-mile state jurisdictional limit. If a species' life stage primarily occurs beyond the three-mile limit (e.g., "Spawning Adults" for American eel), that life stage should not be included in the Matrix. Future expansions of the Matrix might range further offshore, but initially our focus is the headwater to three-mile extent of ACFHP.
- Document your references for each rank or species-habitat relationship in a separate Microsoft Word (or compatible) document, and record any comments you may have. See example format at end of this document.
- Only use the "Spawning Adults" column if habitat use by adults is fundamentally different between spawning and non-spawning periods (e.g., diadromous species). If it is not, only complete the "Adults" column and grey out the "Spawning Adults" column.
- "YOY" and "Juvenile" have been combined into one category because available information for different species is defined differently, with information for some species specific to young of the year and information for other species applicable more broadly to immature fish. This column combines these young life stages.
- If the species does not use the habitat for a specific life history stage, leave the corresponding cell blank. This means that blank cells have a meaning, so if the habitat use is actually unknown, be sure to indicate that with a U.
- For any species that are not found in your region, please make their columns gray so that we know those species were not considered.
- Do not combine scoring letters (e.g., H-M). Use the literature and your best professional judgment if you cannot decide between two scores. Document any additional thoughts or rationale in your accompanying documentation.

Scoring Scheme

- *Very High (VH)*: Essential contributor; the given life history stage for this species cannot be completed without enough high quality occurrences of this habitat type.
- *High (H)*: Important contributor to the success of this life history stage; can be occasionally substituted by use of one or more additional habitat types, but the majority of this life history stage takes place in this habitat type.
- *Moderate (M)*: Moderate contributor; one of many habitat types which contribute to the success of this species life history stage; substitutions with other habitat types are frequently found; not a major contributor of success but one of many.
- *Low (L)*: Not an essential contributor, used incidentally; other habitat types play a much greater role in success for this life history stage.
- *Unknown (U)*: If something is truly an unknown (to science) you can put a U. Be sure to include any questions or issues which might be related to the issue in your accompanying documentation.

Example Format for References and Comments

Name: Jane Doe
ACFHP Region: South Atlantic
Assigned Species: American eel, American shad, etc.

Reference(s):

American eel (general)

Van Den Avyle, M. J. 1984. Species profiles: Life histories and environmental requirements of coastal fishes and invertebrates (South Atlantic) – American eel. U.S. Fish and Wildlife Service Report No. FWS/OBS-82/11.24, and U.S. Army Corps of Engineers Report No. EL-82-4, Washington D.C.

U.S. Fish and Wildlife Service. 2007. 12-month Finding on a Petition to List the American Eel as Threatened or Endangered. Washington, D.C.

American eel (eggs-larvae)

Helfman, G. S., D. E. Facey, L. S. Hales, Jr., and E. L. Bozeman, Jr. 1987. Reproductive ecology of the American eel. American Fisheries Society Symposium 1: 42-56.

American eel (comments or notes)

[Note: When a reference is specific to a life history stage please note here.]

Although American eels spawn in the Sargasso Sea, exact location, depth, etc. is still unknown.

American shad (NEW PAGE)

Repeat format above

Matrix Review and Completion

Once the original contributors from each region completed a scored matrix for each species, the coastwide matrix leads (Mari-Beth DeLucia, Emily Greene, Jake Kritzer, and Jessie Thomas-Blate) compared the scores for each species among regions. The Matrix leads determined that all species had some minor differences, and most species had some major differences in their scoring among regions. The group was not sure if this was a reflection of actual regional differences or subjective interpretation of the literature.

Consequently, a Species-Habitat Matrix Review Work Group of experts was formed (see ***Appendix A*** for a list of members). This work group met on February 19 and 20, 2009, in Raleigh, North Carolina, to discuss these regional differences and review each completed matrix based on literature cited and personal knowledge of the species. At this meeting, differences among regions were discussed and altered as appropriate. Following the meeting, the revised matrices were distributed to the original contributors for their final review.

A series of additional reviews occurred via conference calls with a subset of workgroup experts. For species for which the workgroup members did not feel qualified to render a score, independent reviews were utilized (see ***Appendix A*** for a list of these individuals).

Analysis

After completion and review of the Matrix, rankings (i.e., L, M, H, and VH) were converted to numerical scores using the **"4-3.5-2-1" System** in which Very High = 4; High = 3.5; Moderate = 2; and Low = 1. Rankings of "U" (unknown) were not part of the analysis, but were recorded as knowledge gaps. This scoring/ranking system was modified by the Matrix developers from The Nature Conservancy's 5-S Planning Framework (TNC 2000). The non-linear numeric relationship reflects that habitats ranked Very High or High represent important or essential habitats to a specific life stage, and should receive proportionally higher numerical scores than those habitats that are only used occasionally or in conjunction with many other habitats by a species. However, this also allows for a variety of analyses to be run on the results that can answer questions such as, "what habitat type received the most scores regardless of ranking?"

Analyses were run on both the broader Habitat Categories (i.e., Riverine), as well as the more specific Habitat Types (i.e., low order coastal streams). The results of this analysis can be found, ranked according to the five highest scoring habitats for each metric, in region-specific summary tables in ***Appendix D***.

Matrix Analysis Metrics (assessed by region):

Habitat Category with Highest Overall Score: Sum of scores across all fish species and life stages for all habitat types within a habitat category.

Habitat Type with Highest Overall Score: Sum of scores across all fish species and life stages within a habitat type.

Habitat Type with Highest Nursery Score: Sum of scores across all fish species within a habitat type, for the juvenile/young-of-year life stage.

Habitat Type with Highest number of H/VH Scores: Count of boxes valued with H and VH scores, across all fish species and life stages within a habitat type.

Habitat Type with Highest number of L/M Scores: Count of boxes valued with L and M scores, across all fish species and life stages within a habitat type.

Habitat Type with Highest # of Boxes with Any Score: Count of boxes valued with L, M, H, and VH scores, across all fish species and life stages within a habitat type.

Ratio of H/VH to L/M Scores: Count of H and VH scores (as described above) divided by the count of L and M scores (as described above).

Results and Discussion

New England

Coastal Inert Substrate was the highest scoring habitat category in the New England region. Of course, the ranking of the categories are clearly not independent of the number of habitat types within each. Still, four habitat types within the *Coastal Inert Substrate* category were among the five highest scoring of all habitat types, suggesting that high category ranking is not due solely to the number of habitat types, but also reflects their individual importance.

Loose Fine Bottom had the highest overall score among habitat types, and was also the highest ranked type for four of the five remaining analyses (i.e., highest juvenile/YOY score; highest number of H/VH scores; highest number of M/L scores; highest number of any score). This result is perhaps not surprising, given that *Loose Fine Bottom* is likely to be the most abundant habitat type, and therefore is likely to be used by the greatest number of species. If this is the case, the results highlight the fact that, although the Matrix is not designed to provide insights into habitat rarity, condition, or other features, these characteristics have an influence on habitat use and therefore on the Matrix results.

The only scoring system for which *Loose Fine Bottom* was not the top-ranked habitat was the ratio of H/VH to L/M scores. The purpose of this metric is to identify those habitat types that tend to be

used mostly by habitat specialists, with less use by habitat generalists or less opportunistic use. The top five habitat types highlighted by this metric all fall within the *Riverine* category, a result that was influenced in part by the diadromous species in the Matrix. For diadromous species, *Riverine* habitats are of critical importance, but these habitats are not always of direct use to purely marine or estuarine species. However, the relative score of *Riverine* habitat meant that, not only did this category have the highest proportion of H and VH scores, but also that its aggregate score made it the second ranked category.

Submerged Aquatic Vegetation was the third highest ranked category in New England, a notable result given that the category only contains two habitat types. The importance of this category was driven largely by the *Mesohaline-Polyhaline Species* habitat type, which was one of the top five habitat types according to raw score, and one of the top types in four of the five other metrics considered. Like *Loose Fine Bottom*, the *Mesohaline-Polyhaline Species* habitat type only failed to rank by the ratio of H/VH to L/M scores, again due to the dominance of riverine habitat types. The highest position for *Mesohaline-Polyhaline Species* occurred when the scores were restricted to juvenile and YOY life stages, where it ranked second, underscoring the importance of this habitat type as a nursery ground.

Mid-Atlantic

The results for the Mid-Atlantic region were very similar to those for New England. *Coastal Inert Substrate* was the highest ranking category, and *Loose Fine Bottom* was the highest ranking habitat type by all metrics except for the ratio of H/VH to L/M scores. There again, the *Riverine* habitat types dominated. *Submerged Aquatic Vegetation* also scored fairly high, according to several metrics driven by the importance of *Mesohaline-Polyhaline Species* much more than by *Tidal Freshwater and Oligohaline Species*.

The similarity in the results between these two regions is no doubt due to a similar distribution of many important determinants of species and habitat abundance and distribution, as well as habitat use by species. These determinants may be either natural variables (e.g., oceanography, geology, hydrology, and climate) or anthropogenic (e.g., population density, urbanization, and agricultural patterns). These factors do not change abruptly at Cape Cod, and maintain a high degree of similarity between the two regions.

South Atlantic

Although the same factors that likely lead to the similarities between New England and the Mid-Atlantic also continue through the South Atlantic, the results show less similarity. This is driven in part by much larger differences in the suite of species considered in the South Atlantic compared to the more northern regions. The South Atlantic shares many tropical and sub-tropical species with the South Florida region, and the addition of those species has a pronounced effect on the results. The sheer number of new species changes the relative weight of others, and their ecology changes patterns of habitat use.

For example, the *Riverine* category, and the habitat types within it, does not rank as high in the South Atlantic as it does in the Mid-Atlantic and New England. In the South Atlantic, some diadromous species are no longer present (e.g., Atlantic salmon, sea-run brook trout, sea lamprey, and rainbow

smelt), and those that remain are an even smaller proportion of the overall species list due to the new species considered. Also, *Oyster Reef* and *Live Rock* appear as more important habitat types in the South Atlantic by several metrics, likely reflecting the beginnings of the reef fish fauna that becomes truly dominant in South Florida.

Additionally, even along generally continuous gradients, it is possible to cross thresholds that lead to large ecological changes. One notable result in the South Atlantic is the greater importance of the *Tidal Vegetation* category and the *Saltwater/Brackish Marsh* type within it. Moving south along the Atlantic coast, the increases in elevation moving inland become much more gradual, resulting in more extensive marsh systems that allow for greater use by more species. *Coastal Inert Substrate* (especially *Loose Fine Bottom*) still ranks highly in the South Atlantic, but is not as dominant as it is in the northern regions.

South Florida

The arising dominance of reef fishes in the southern tropical and sub-tropical range of the Atlantic coast is clear in the South Florida region. The *Other Sessile Fauna* category scored highest; *Patch Reef, Soft Corals, and Anemones* was the highest scoring habitat type, and the *Primary Coral Reef Architecture* habitat type ranked highest in two of the five other metrics. The sheer number of species in the South Florida matrix, and the high ranks of the sessile fauna habitats within the region, perhaps suggest that these habitats need to be broken into more precise habitat types within this region than is required elsewhere in order to refine conservation planning.

Live Rock and *Firm Hard Bottom* also rank much higher than in any other region. *Firm Hard Bottom* is not part of the *Other Sessile Fauna* category, but has many of the same structural and functional attributes. In fact, unlike any of the other three regions, the results for *Coastal Inert Substrate* in South Florida are driven as much or more by the importance of *Firm Bottom* as they are by *Loose Fine Bottom*, which is the dominant type within the category elsewhere.

Only by the nursery habitat metric (i.e., highest juvenile/YOY score) does another habitat type rank highest, with *Mesohaline-Polyhaline SAV* in the top spot. Of course, many of the fishes that spend most of their lives on coral reefs also use SAV at young life stages.

Future directions

The results of this project will guide conservation strategic planning for ACFHP, in conjunction with other scientific projects. However, the Matrix effort produced an extensive database that may be used to address other ecological and management questions than those considered here. Those additional analyses will continue to help inform the work of ACFHP as the partnership further develops. At present, the initial results have provided a great deal of information on the importance of the various habitat types in each region, and shaped our planning to date.

As noted earlier, the Matrix does not consider all of the ecosystem functions provided by habitats, only their value as living space. A parallel planning tool would look at the full range of ecosystem services provided by a habitat type to help inform decision-making. For example, in all regions, *Shellfish Beds* generally scored very low. However, it is well known that shellfish are important in

maintaining water quality, and therefore are important for other invertebrates and fishes, even if those species do not live directly on or among shellfish. Furthermore, the ACFHP Assessment of Existing Information is an example of another tool that provides more explicit information on habitat status and trends in each region.

In the future, the Matrix will be updated based on new information that emerges in the fish ecology and restoration literature. Matrix updates will also include information gathered from monitoring programs implemented under ACFHP-sponsored restoration projects. Through this process, the ACFHP Species-Habitat Matrix will identify knowledge gaps and set conservation priorities. In turn, new research to address priorities will feed back into the Matrix to make this evaluation more robust and improve our understanding of species-habitat relationships in future versions.

References

With more than 100 species included in the matrix, and multiple references used to rank habitat use by each, several hundred scientific papers, reports, books, management plans, and other sources were used to complete this analysis. Because this volume of literature is too great to list in full in this summary report, we are in the process of creating a searchable online database of the full reference list, as well as the notes for each species describing the scores given. Please contact the ACFHP Coordinator with questions about references and notes, and for updates on development of the online database.

Appendix A: Matrix Contributors

List of Matrix Developers

New England

Mike Brown (Maine Department of Marine Resources)
Brad Chase (Massachusetts Division of Marine Fisheries)
Lou Chiarella (NOAA Fisheries- Northeast)
Kim Damon-Randall (NOAA Fisheries- Northeast)
Merry Gallager (Maine Division of Inland Fisheries and Wildlife)
Dana Hartley (NOAA Fisheries- Northeast)
Mike Johnson (NOAA Fisheries- Northeast)
Jeremy King (Massachusetts Division of Marine Fisheries)
Jake Kritzer (Environmental Defense Fund)
Mark Lazzari (Maine Department of Marine Resources)
Greg Mackey (Maine Department of Marine Resources)
Vin Malkoski (Massachusetts Division of Marine Fisheries)
Sean McDermott (NOAA Fisheries- Northeast)
Rory Saunders (NOAA Fisheries- Northeast)
Marcy Scott (NOAA Fisheries- Northeast)
David Stevenson (NOAA Fisheries- Northeast)
James Sulikowski (University of New England)
Carl Wilson (Maine Department of Marine Resources)
Gail Wippelhauser (Maine Department of Marine Resources)

Mid-Atlantic

Mike Celestino (New Jersey Department of Environmental Protection)
Julie Devers (US Fish and Wildlife Service)
Bob Greenlee (Virginia Department of Game and Inland Fisheries)
James Mowrer (Virginia Department of Game and Inland Fisheries)
Jay Odell (The Nature Conservancy)
John Odenkirk (Virginia Department of Game and Inland Fisheries)
Anna Pfeiffer-Herbert (University of Rhode Island)
Harry Rickabaugh (Maryland Department of Natural Resources)
Bill Shadel (The American Littoral Society)
Caroly Shumway (The Nature Conservancy)
Jim Thompson (Maryland Department of Natural Resources)
Marek Topolski (Maryland Department of Natural Resources)
Alan Weaver (Virginia Department of Game and Inland Fisheries)
Keith Whiteford (Maryland Department of Natural Resources)

South Atlantic

Carolyn Belcher (Georgia Department of Natural Resources)
Prescott Brownell (NOAA Fisheries-Southeast)
Gabe Gaddis (Georgia Department of Natural Resources)
Chris Kalinowsky (Georgia Department of Natural Resources)
Jack McGovern (NOAA Fisheries-Southeast)
Ron Michaels (Georgia Department of Natural Resources)
Trish Murphey (North Carolina Division of Marine Fisheries)
Jim Page (Georgia Department of Natural Resources)
Eric Robillard (Georgia Department of Natural Resources)
Bill Roumillat (South Carolina Department of Natural Resources)

South Florida

Doug Adams (Florida Wildlife Research Institute)
Jeff Beal (Florida Fish and Wildlife Conservation Commission)
Theresa M. Bert (Florida Wildlife Research Institute)
David Blewett (Florida Wildlife Research Institute)
Angela Collins (Florida Wildlife Research Institute)
Jim Colvocoresses (Florida Wildlife Research Institute)
Bill Curnow (Florida Wildlife Research Institute)
Bob Glazer (Florida Wildlife Research Institute)
Bob Gorecki (Florida Wildlife Research Institute)
Kevan Gregalis (Florida Wildlife Research Institute)
Kathy Guindon (Florida Wildlife Research Institute)
Anthony Knapp (Florida Wildlife Research Institute)
Bob McMichael (Florida Wildlife Research Institute)
Melissa Nasuti (Florida Wildlife Research Institute)
Gregg Poulakis (Florida Wildlife Research Institute)
Caleb Purtlebaugh (Florida Wildlife Research Institute)
William Sharp (Florida Fish and Wildlife Conservation Commission)
Kent Smith (Florida Fish and Wildlife Conservation Commission)
Justin Solomon (Florida Wildlife Research Institute)
Ron Taylor (Florida Wildlife Research Institute)
Julie Vecchio (Florida Fish and Wildlife Conservation Commission)
Brent Winner (Florida Wildlife Research Institute)

List of Species-Habitat Matrix Review Work Group Members

Jeff Beal (Florida Fish and Wildlife Conservation Commission)
Lou Chiarella (NOAA Fisheries- Northeast)
Kim Damon-Randall (NOAA Fisheries- Northeast)
Kay Davy (NOAA Fisheries- Southeast)
Mari-Beth DeLucia (The Nature Conservancy)
Emily Greene (Atlantic Coastal Fish Habitat Partnership)
Jake Kritzer (Environmental Defense Fund)
Wilson Laney (U.S. Fish and Wildlife Service)
Vin Malkoski (Massachusetts Division of Marine Fisheries)
Eddie Matheson (Florida Fish and Wildlife Conservation Commission)
Jay Odell (The Nature Conservancy)
Doug Rader (Environmental Defense Fund)
Fritz Rohde (NOAA Fisheries- Southeast)
Caroly Shumway (The Nature Conservancy)
Jessie Thomas-Blate (Atlantic States Marine Fisheries Commission)
Marek Topolski (Maryland Department of Natural Resources)

List of Individuals Who Provided Additional Review or Specific Feedback

Hank Brooks (Virginia Institute of Marine Science)
Paul Caruso (Massachusetts Division of Marine Fisheries)
Chris Chambers (NOAA Fisheries- Northeast)
David Conover (Stony Brook University)
Dennis Devries (Auburn University)
Ashton Drew (North Carolina State University)
Jim Gartlan (Virginia Institute of Marine Science)
Steve Gephard (Connecticut Department of Environmental Protection)
Frank Germano (Massachusetts Division of Marine Fisheries)
Karen Greene (NOAA Fisheries- Northeast)
Lisa Hendrickson (NOAA Fisheries- Northeast)
Penny Howell (Connecticut Department of Environmental Protection)
Margaret Hunter (Maine Department of Marine Resources)
Kohl Kanwit (Maine Department of Marine Resources)
Alison Leschen (Massachusetts Division of Marine Fisheries)
Joseph Luczkovich (East Carolina University)
Jason McNamee (Rhode Island Department of Environmental Management)
Jack Musick (Virginia Institute of Marine Science)
Stew Michaels (Delaware Division of Fish and Wildlife)
Bob Sadzinski (Maryland Department of Natural Resources)
Byron Young

Appendix B: List of Species Included for Each Region

New England

Alewife
American eel
American lobster
American shad
Atlantic cod
Atlantic herring
Atlantic mackerel
Atlantic menhaden
Atlantic salmon
Atlantic silverside
Atlantic sturgeon
Atlantic tomcod
Bay anchovy
Black sea bass
Blue crab
Blueback herring
Bluefish
Butterfish
Cunner
Horseshoe crab
Little skate
Loligo squid
Northern shrimp
Ocean pout
Oyster toadfish
Pollock
Rainbow smelt
Red hake
Sand lance
Sea lamprey
Sea-run brook trout
Shortnose sturgeon
Spiny dogfish
Tautog
Windowpane flounder
Winter flounder

Mid-Atlantic

Alewife
American eel
American lobster
American shad
Atlantic cod
Atlantic croaker
Atlantic herring
Atlantic mackerel
Atlantic menhaden
Atlantic needlefish
Atlantic salmon
Atlantic silverside
Atlantic sturgeon
Atlantic tomcod
Bay anchovy
Black sea bass
Blue crab
Horseshoe crab
Little skate
Loligo squid
Northern puffer
Ocean pout
Oyster toadfish
Pollock
Rainbow smelt
Red drum
Red hake
Sand lance
Sandbar shark
Scup
Sea lamprey
Sea-run brook trout
Shortnose sturgeon
Spanish mackerel

Blueback herring
Bluefish
Bonefish
Butterfish
Clearnose skate
Cunner
Cyprinidontids
Dusky shark
Gizzard shad
Hickory shad
Spiny dogfish
Spot
Spotted sea trout
Striped bass
Summer flounder
Tarpon
Tautog
Weakfish
Windowpane flounder
Winter flounder

South Atlantic

Atlantic croaker
American eel
American shad
Atlantic bluefin tuna
Atlantic bonito
Atlantic menhaden
Atlantic sharpnose shark
Atlantic silverside
Atlantic spadefish
Atlantic sturgeon
Bay anchovy
Black drum
Black grouper
Black sea bass
Blacktip shark
Blue crab
Blue runner
Blueback herring
Bluefish
Bonnethead shark
Brown shrimp
Cobia
Cocoa damsel
Crevalle jack
Cyprinidontids
Florida pompano
Gafftopsail catfish
Gag grouper
Jolthead porgy
King mackerel
Lane snapper
Little tunny
Oyster toadfish
Permit
Pigfish
Pinfish
Pink shrimp
Red drum
Red grouper
Red snapper
Reef croaker
Schoolmaster snapper
Sheepshead
Shortnose sturgeon
Silver perch
Silver sea trout
Southern flounder
Southern kingfish
Spanish mackerel
Spot
Spotted sea trout
Striped bass
Striped mullet
Summer flounder
Tarpon
Tautog

Great barracuda
Grey snapper
Grey triggerfish
Weakfish
White margate
White shrimp

South Florida

American eel
Atlantic sailfish
Atlantic spadefish
Bar jack
Barred hamlet
Black grouper
Black margate
Blacktip shark
Bluehead wrasse
Bonefish
Brown shrimp
Bucktooth parrotfish
Caribbean spiny lobster
Caribbean reef squid
Cero mackerel
Cobia
Crevalle jack
Dusky squirrelfish
Florida gar
Florida pompano
Florida stone crab
French angelfish
French grunt
Goliath grouper
Great barracuda
Green moray
Grey snapper
Gulf flounder
Hogfish
Jolthead porgy
King mackerel
Ladyfish
Lemon shark
Longsnout butterfly fish
Long-spined sea urchin
Mangrove rivulus
Mutton snapper
Oyster toadfish
Peacock flounder
Permit
Pinfish
Pink shrimp
Queen conch
Queen triggerfish
Red drum
Reef croaker
Sargent major
Schoolmaster snapper
Sheepshead
Sheepshead minnow
Snook (common)
Spanish mackerel
Spanish sardine
Spotted eagle ray
Spotted sea trout
Spotted spiny lobster
Stoplight parrotfish
Striped mullet
Tarpon
Tripletail
Yellowfin mojarra
Yellowtail snapper

Appendix C: Habitat Descriptions

Marine and Estuarine Shellfish Beds

Oyster reef

Structures formed by the Eastern oyster (*Crassostrea virginica)* that provide the dominant structural component of the benthos, and whose accumulated mass provides significant vertical relief (> 0.5 m).

Scallop beds

Areas of dense aggregations of scallops on the ocean floor. Common Atlantic coast species include: 1) the large Atlantic sea scallop (*Placopecten magellanicus*), which ranges from Newfoundland to North Carolina; 2) the medium-sized Atlantic calico scallop (*Argopecten gibbus*), which is found in waters south of Delaware; and 3) the bay scallop (*Argopecten irradians)*, which occurs from Cape Cod to Florida, as well as in the Gulf of Mexico.

Hard clam beds

Dense aggregations of the hard clam (*Mercenaria mercenaria)* found in the subtidal regions of bays and estuaries to approximately 15 meters in depth. Clams are generally found in mud flats and firm bottom areas consisting of sand or shell fragments.

Dead shell accumulations

Shells of dead mollusks sometimes accumulate in sufficient quantities to provide important habitat. Accumulations of Eastern oyster shells are a common feature in the intertidal zone of many southern estuaries.

Other Sessile Fauna

Primary coral reef architecture

Reef-building corals are of the order Scleractinia, in the class Anthozoa, of the phylum Cnidaria. Coral accumulations are restricted to warmer water regions, where the average monthly temperature exceeds 18°C (64°F) throughout the year. Through symbiosis with unicellular algae, reef-building corals are the source of primary production in reef communities.

Patch reef, soft corals, or anemones amidst soft sediment

A patch reef is an isolated, often circular, coral reef usually found within a lagoon or embayment. Soft corals are species of the anthozoan order Alcyonacea, of the subclass Octocorallia. In contrast to the hard or stony corals, most soft corals do not possess a massive external skeleton (examples: sea pens and sea fans). Anemones are cnidarians of the class Anthozoa, and possesses a flexible cylindrical body and a central mouth surrounded by tentacles found in soft sediments.

Live rock (**inert hard bottom with hydroids, bryozoans, tube worms, sponges, etc.)**

Calcareous rock that is removed from the vicinity of a coral reef with some of the life forms still living on it. These may include bacteria, coralline algae, sponges, worms, crustaceans, and other invertebrates.

Macroalgae

Large marine multi-cellular macroscopic algae (seaweeds). There are three types of macroalgae: green, brown, and red. Examples of macroalgae species found along the Atlantic coast:

Chlorophyta (green algae)

Ulva lactuca, sea lettuce

Phaeophyta (brown algae)

Fucus vesiculosus, bladderwrack; *Laminaria* spp.; *Sargassum* spp.

Rhodophyta (red algae)

Chondrus crispus, Irish moss

SAV

Submerged aquatic vegetation (SAV) refers to rooted, vascular plants that live below the water surface in large meadows or small patches in coastal and estuarine waters. SAV can be further classified by the range of salinity of the waters in which they are found.

Tidal fresh and oligohaline species

Generally found in areas where salinity ranges from 0.5 to 5.0 ppt. Examples include:
Vallisneria americana, wild celery
Ceratophyllum demersum, coontail

Mesohaline and polyhaline species

Generally found in areas where salinity ranges from 5.0 ppt up to 30 ppt. Examples include:
Zostera marina, eelgrass
Ruppia maritime, widgeon grass

Tidal Vegetation

Saltwater and brackish marsh

Saltmarsh is a type of marsh that is a transitional intertidal between land and brackish water. The low marsh zone floods twice daily, while the high marsh floods only during storms and unusually high tides. Smooth cordgrass (*Spartina alterniflora*) dominates the regularly flooded low marsh along much of the Atlantic coast. In addition, salt meadow cordgrass (*Spartina patens*), saltgrass (*Distichlis spicata*), and needle rush (*Juncus* sp.) species comprise much of the vegetative community of the mid to upper saltmarsh and brackish marsh.

Tidal freshwater marsh

Tidal freshwater marsh occurs where the average annual salinity is below 0.5 ppt. It is found along free-flowing coastal rivers, and is influenced twice daily by the incoming tides. Tidal freshwater marsh can be located just upstream of the salt front, where the river essentially backs up as it meets resistance from high tides. Tidal freshwater marsh is characterized by salt intolerant plant species. Plant species often found in freshwater tidal marshes include: giant cordgrass (*Spartina cynosuroides*), sawgrass (*Cladium jamaicense*), cattails (*Typha* sp.), arrow arum (*Peltandra virginica*), pickerelweed (*Pontedaria cordata*), blue flag (*Iris virginica*), and softstem bulrush (*Scirpus validus*).

Mangrove

The mangrove ecological community includes four tree species collectively called mangroves. This swamp system occurs along intertidal and supratidal shorelines in southern Florida. The four species found in Florida mangrove swamps are:

Rhizophora mangle, red mangrove
Avicennia germinans, black mangrove
Laguncularia racemosa, white mangrove
Conocarpus erectus, buttonwood

Coastal Inert Substrate

Loose fine bottom (mud, silt, sand)

Submerged underwater bottom habitat in estuaries and oceans where the dominate-sized sediment type is mud, silt, or sand.

Loose coarse bottom (gravel to cobble)

Submerged underwater bottom habitat in estuaries and oceans where the dominant sediment type ranges from gravel to cobble.

Firm hard bottom (boulders to embedded rock)

Submerged underwater bottom habitat in estuaries and oceans where embedded rock or boulders is the dominate sediment type.

Structured sand habitat (shoals, capes, offshore bars, etc.)

Linear, narrow sand features that develop where a stream or ocean current promotes deposition of sand.

Riverine

Higher gradient headwater tributaries

Streams in which the dominant substrate is comprised of gravel and cobble. The stream slope is greater than 2.0%. This characterization includes 1st to 3rd order streams.

Lower gradient tributaries

Streams in which the dominant substrate is comprised of sand, gravel, and small cobble. The stream slope is between 0.51% and 2.0%. This characterization includes 1st to 3rd order streams.

Higher gradient large mainstem river

Rivers in which the dominant substrate is sand, gravel, and cobble. The stream slope is between 0.51% and 2.0%. This characterization includes 4th order rivers and above.

Lower gradient large mainstem river

Rivers in which the dominant substrate is fine sediments (silt-mud-sand). The stream slope is between 0.51% and 2.0%. This characterization includes 4th order rivers and above.

Low order coastal streams

Generally low gradient 0% to 0.05% in slope. This characterization includes 1st to 3rd order streams located along the coast.

Non-tidal freshwater mussel beds

Freshwater mussel beds, located above tidal influence.

Coastal headwater pond

A pond connected to coastal streams and rivers, generally located near the headwaters.

Non-tidal freshwater marsh

A marsh that occurs in the non-tidal section along a river. The main feature of a freshwater marsh is its openness, with only low-growing or "emergent" plants. It may include grasses, rushes, reeds, typhas, sedges, and other herbaceous plants (possibly with low-growing woody plants) in a context of shallow water.

Appendix D: Summary Results of the Species-Habitat Matrix by Region

(Note: The habitat category in which a habitat type falls is shown in brackets. Raw analysis scores are shown in parentheses.)

New England	Highest Score	2nd Highest Score	3rd Highest Score	4th Highest Score	5th Highest Score
Habitat Category with Highest Overall Score	Coastal Inert Substrate (491)	Riverine (372)	Submerged Aquatic Vegetation (155)	Marine & Estuarine Shellfishbeds (133)	Tidal Vegetation (109)
Habitat Type with Highest Overall Score [Habitat Category]	Loose Fine Bottom (154.5) [Coastal Inert Substrate]	Loose Coarse Bottom (123) [Coastal Inert Substrate]	Structured Sand (108.5) [Coastal Inert Substrate]	Firm Hard Bottom AND Mesohaline-Polyhaline spp. (105) [Coastal Inert Substrate and Submerged Aquatic Vegetation]	
Highest Type with Highest Nursery (juv/yoy) Score [Habitat Category]	Loose Fine Bottom (52) [Coastal Inert Substrate]	Mesohaline-Polyhaline spp. (48.5) [Submerged Aquatic Vegetation]	Loose Coarse Bottom (38.5), Structured Sand (38), AND Firm Hard Bottom (37.5) [Coastal Inert Substrate]		
Habitat Type with Highest # of H/VH Scores	Loose Fine Bottom (22)	Higher Gradient Large Mainstem River (17)	Loose Coarse Bottom (16)	Structured Sand Habitat (15)	Mesohaline-Polyhaline (14)
Habitat Type with Highest # of L/M Scores	Loose Fine Bottom (50)	Loose Coarse Bottom (44)	Firm Hard Bottom (42)	Mesohaline-Polyhaline (36)	Structured Sand (35)
Habitat Type with Highest # of Boxes with Any Score	Loose Fine Bottom (72)	Loose Coarse Bottom (60)	Firm Hard Bottom (54)	Structured Sand Habitat AND Mesohaline-Polyhaline (50)	
Ration of H/VH to L/M Scores	Higher Gradient Large Mainstem River	Lower Gradient Tributaries	High Gradient Headwater Tributaries	Coastal Headwater Ponds	Lower Gradient Large Mainstem River

Mid-Atlantic	Highest Score	2nd Highest Score	3rd Highest Score	4th Highest Score	5th Highest Score
Habitat Category with Highest Overall Score	Coastal Inert substrate (647)	Riverine (575)	Submerged Aquatic Vegetation (265.5)	Marine & Estuarine Shellfish beds (219)	Tidal Vegetation (179)
Habitat Type with Highest Overall Score [Habitat Category]	Loose fine bottom (260) [Coastal Inert Substrate]	Mesohaline-Polyhaline spp. (175.5) [Submerged Aquatic Vegetation]	Lower Gradient Large Mainstem River (147) [Riverine]	Loose coarse bottom (134.5) [Coastal Inert Substrate]	Structured sand habitat (124.5) [Coastal Inert Substrate]
Habitat Type with Highest Nursery (juv/yoy) Score [Habitat Category]	Loose Fine Bottom (93.5) [Coastal Inert Substrate]	Mesohaline-Polyhaline spp. (70.5) [Submerged Aquatic Vegetation]	Lower Gradient Large Mainstem River (53) [Riverine]	Loose coarse bottom (50.5) [Coastal Inert Substrate]	Structured sand habitat (49) [Coastal Inert Substrate]
Habitat Type with Highest # of H/VH Scores	Loose fine bottom (41)	Lower gradient large mainstem river (23)	Mesohaline-Polyhaline spp. (22)	Lower gradient tributaries (21)	Higher gradient large mainstem river (19)
Habitat Type with Highest of #L/M Scores	Loose fine bottom (68)	Loose coarse bottom (67)	Firm hard bottom (57)	Mesohaline-Polyhaline spp. AND Structured sand habitat (55)	
Habitat Type with Highest # of Boxes with Any Score	Loose fine bottom (109)	Loose coarse bottom AND Mesohaline-Polyhaline spp. (77)	Firm hard bottom (70)	Structured sand habitat (67)	
Ration of H/VH to L/M Scores	Lower gradient tributaries	Higher gradient large mainstem river	High gradient headwater tribs AND lower gradient large mainstem river	Loose fine bottom	

South Atlantic	Highest Score	2nd Highest Score	3rd Highest Score	4th Highest Score	5th Highest Score
Habitat Category with Highest Overall Score	Coastal Inert Substrate (583.5)	Tidal Vegetation (555)	Riverine (480)	Submerged Aquatic Vegetation (237)	Marine and Estuarine Shellfish beds (218)
Habitat Type with Highest Overall Score [Habitat Category]	Saltwater/brackish marsh (353.5) [Tidal Vegetation]	Loose fine bottom (295.5) [Coastal Inert Substrate]	Mesohaline-Polyhaline spp. (151.5) [Submerged Aquatic Vegetation]	Lower gradient large mainstem river (126) [Riverine]	Tidal Freshwater marshes (125.5) [Tidal Vegetation]
Habitat Type with Highest Nursery (juv/yoy) Score [Habitat Category]	Saltwater/brackish marsh (154.5) [Tidal Vegetation]	Loose fine bottom (109.5) [Coastal Inert Substrate]	Mesohaline-Polyhaline spp. (79) [Submerged Aquatic Vegetation]	Oyster reef (55.5) [Marine and Estuarine Shellfish Beds]	Lower gradient large mainstem river (53) [Riverine]
Habitat Type with Highest # of H/VH Scores	Saltwater/brackish marsh (82)	Loose fine bottom (53)	Lower gradient tribs AND Higher gradient large mainstem river (18)	Live rock (17)	
Habitat Type with Highest # of L/M Scores	Mesopolyhaline-Polyhaline (80)	Loose fine bottom (68)	Dead shell accumulations (64)	Structured sand habitat (60)	Oyster reef (56)
Habitat Type with Highest # Boxes with Any Score	Loose fine bottom (121)	Saltwater/brackish marsh (114)	Mesohaline-Polyhaline spp. (88)	Dead shell accumulations (66)	Oyster reef AND Structured sand habitat (65)
Ration of H/VH to L/M Scores	Higher gradient large mainstem river	Saltwater/brackish marsh	High gradient headwater tributaries	Lower gradient tributaries	Loose fine bottom

South Florida	Highest Score	2nd Highest Score	3rd Highest Score	4th Highest Score	5th Highest Score
Habitat Category with Highest Overall Score	Other sessile fauna (937.5)	Coastal inert substrate (685.5)	Tidal vegetation (378.5)	Riverine (308.5)	Submerged Aquatic Vegetation (304.5)
Habitat Type with Highest Overall Score [Habitat Category]	Patch reef, soft coral or anemones amidst soft sediment (322) [Other Sessile Fauna]	Primary coral reef architecture (312.5) [Other Sessile Fauna]	Live rock (303) [Other Sessile Fauna]	Firm hard bottom (241.5) [Coastal Inert Substrate]	Loose fine bottom (185.5) [Coastal Inert Substrate]
Habitat Type with Highest Nursery (juv/yoy) Score [Habitat Category]	Mesohaline-polyhaline (139) [Submerged Aquatic Vegetation]	Patch reef, soft coral or anemones amidst soft sediment (110) [Other Sessile Fauna]	Live Rock (108.5) [Other Sessile Fauna]	Primary Coral Reef Architecture (97.5) [Other Sessile Fauna]	Mangrove (92) [Tidal Vegetation]
Habitat Type with Highest # of H/VH Scores	Primary coral reef architecture (69)	Patch reef, soft corals or anemones amidst soft sediment (66)	Live rock (59)	Firm hard bottom (46)	Mesohaline-polyhaline spp. (45)
Habitat Type with Highest # of L/M Scores	Mesohaline-polyhaline (54)	Loose coarse bottom (52)	Loose fine bottom (50)	Live rock (46)	Dead shell accumulations (45)
Habitat Type with Highest # Boxes with Any Score	Patch reef, soft coral or anemones amidst soft sediment (108)	Live rock (105)	Primary coral reef architecture AND Mesohaline-Polyhaline spp. (99)	Firm hard bottom (93)	
Ration of H/VH to L/M Scores	Primary coral reef architecture	Patch reef, soft corals or anemones amidst soft sediment	Live rock	Firm hard bottom	Mangrove AND Mesohaline-Polyhaline spp.

Table 4.4. Partial list of species documented to use submerged aquatic vegetation habitat.

Species*	SAV Functions [1]					2010 Stock status [2]
	Refuge	**Spawning**	**Nursery**	**Foraging**	**Corridor**	
ANADROMOUS & CATADROMOUS FISH						
River herring (blueback herring and alewife)	X		X	X	X	D-Albemarle Sound, U-Central/Southern
Striped bass				X		V- Albemarle Sound, Atlantic Ocean, D-Central /Southern
Yellow perch		**X**				**C**
American eel	X		X	X	X	U
ESTUARINE AND INLET SPAWNING AND NURSERY						
Bay scallop	**X**	**X**	**X**	**X**		**R**
Blue crab	**X**		**X**	**X**	**X**	**C**
Grass shrimp	**X**		**X**	**X**		
Hard clam	**X**		**X**	**X**		**U**
Red drum	**X**		**X**	**X**	**X**	**R**
Spotted seatrout	**X**		**X**	**X**	**X**	**D**
Weakfish	X		X	X	X	D
MARINE SPAWNING, LOW-HIGH SALINITY NURSERY AREA						
Atlantic croaker	X		X	X	X	C
Atlantic menhaden	X		X	X	X	V
Brown shrimp	**X**		**X**	**X**	**X**	**V**
Southern flounder			X	X		D
Spot	X		X	X	X	V
Striped mullet	X		X	X	X	V
White shrimp	X		X	X	X	V
MARINE SPAWNING, HIGH SALINITY NURSERY						
Black sea bass	X		X	X	X	D- south of Hatteras, C- north of Hatteras
Bluefish			X	X		V
Gag	X		X	X	X	C
Kingfish spp.	X		X	X	X	U
Pinfish	**X**		**X**	**X**	**X**	
Pink shrimp	**X**		**X**	**X**	**X**	**V**
Smooth dogfish				**X**		
Spanish mackerel			X	X		V
Summer flounder			X	X		R

* Scientific names listed in Appendix D. Names in **bold** font are species whose relative abundances have been reported in the literature as being generally higher in SAV than in other habitats. Note that lack of bolding does not imply non-selective use of the habitat, just a lack of information.

[1] Sources: ASMFC (1997a), Thayer et al. (1984), NOAA (2001), Peterson and Peterson (1979), NMFS (2002), and SAFMC (1998)

[2] V=viable, R=recovering, C=Concern, D=Depleted, U=unknown (http://www.ncdmf.net/stocks/stockdef.htm, November 2010)

Table 5.2. Partial listing of fish and their use of wetland habitat in coastal North Carolina.

Species*	Wetland Functions [1]					Fishery [2]	2010 Stock Status [3]
	Nursery	Foraging	Refuge	Spawning	Corridor		
RESIDENT FRESHWATER OR BRACKISH							
White perch						X	U
Yellow perch	X					X	C
Catfish						X	U
ANADROMOUS AND CATADROMOUS							
American eel		X	X		X	X	U
Sturgeon spp.	X	X	X		X	X [4]	D
River herring	**X**	**X**	**X**	**X**	**X**	**X[4]**	**D-Albemarle Sound, U-Central/Southern**
Striped bass	X	X	X		X	X	V-Albemarle Sound, Atlantic Ocean, D-Central/Southern
ESTUARINE AND INLET SPAWNING AND NURSERY							
Atlantic rangia clam	X	X	X	X			
Banded killifish	**X**	**X**	**X**	**X**			
Bay anchovy	X	X		X			
Blue crab	**X**	**X**	**X**		**X**	**X**	**C**
Cobia	X	X			X	X	
Grass shrimp	**X**	**X**	**X**	**X**			
Mummichog	**X**	**X**	**X**	**X**			
Naked goby	X	X	X	X			
Red drum	**X**	**X**	**X**		**X**	**X**	**R**
Sheepshead minnow	**X**	**X**	**X**	**X**			
Silversides	X	X		X			
Spotted seatrout	**X**	**X**	**X**		**X**	**X**	**D**
MARINE SPAWNING, LOW-HIGH SALINITY NURSERY							
Atlantic croaker	**X**	**X**	**X**		**X**	**X**	**C**
Atlantic menhaden	X	X			X	X	V
Shrimp	**X**	**X**	**X**		**X**	**X**	**V**
Southern flounder	**X**	**X**	**X**		**X**	**X**	**D**
Spot	**X**	**X**	**X**		**X**	**X**	**C**
Striped mullet	**X**	**X**	**X**		**X**	**X**	**V**
MARINE SPAWNING, HIGH SALINITY NURSERY							
Black sea bass	X	X	X		X	X	D - south of Hatteras, C-north of Hatteras
Pinfish	**X**	**X**	**X**		**X**	**X**	
Summer flounder	**X**	**X**	**X**		**X**	**X**	**R**

Table 8.1. Threat sources, impact severities (both measured and potential), and documentation in the habitat chapters. The primary discussion of a threat is indicated by which chapter(s) it receives the most attention. Note: X = discussed as a section heading, XX = primary discussion of threat affecting multiple habitats. Shading = relative severity of impact; 0% = no impact/unknown, 25% = minor, 50% = moderate, 75% = major.

Threat category	**Source and/or impact**	**Water column**	**Shell bottom**	**SAV**	**Wetlands**	**Soft bottom**	**Hard bottom**
Physical threats/ hydrologic modifications	Boating activity	-	X	X	X	-	X
	Channelization	X	-	-	X	-	-
	Dredging (navigation channels, boat basins)	X	X	X	X	X	X
	Fishing gear impacts	X	X	X	-	X	X
	Infrastructure (i.e., pipelines)	-	-	X	X	X	X
	Jetties and groins	X	-	-	-	XX	-
	Mining	X	-	-	X	X	-
	Obstructions (dams, culverts, locks)	XX	-	-	X	-	-
	Estuarine shoreline stabilization	X	X	X	XX	X	-
	Ocean shoreline stabilization	-	-	-	-	XX	X
	Upland development	-	-	-	X	-	-
	Water withdrawals	XX	-	-	X	-	-
Water quality degradation-sources	Land use and non-point sources	X	-	-	-	-	-
	Water-dependent development (marinas and docks)	XX	X	X	X	X	-
	Point sources	X	-	-	-	X	-
Water quality degradation-causes	Marine debris	X	-	-	-	-	-
	Microbial contamination	XX	X	-	-	-	-
	Nutrients and eutrophication	XX	X	X	X	X	X
	Saline discharge	X	-	-	-	-	-
	Suspended sediment and turbidity	XX	X	X	-	X	-
	Toxic chemicals	X	X	X	X	X	X
Disease and microbial stressors		-	X	X	-	-	-
Non-native, invasive or nuisance species		X	X	X	X	X	X
Sea-level rise/climate change		X	X	X	XX	X	X

First column is Water Column

Second column is Shell bottom

Third column is SAV

Fourth column is Wetlands

Fifth column is Soft Bottom – primarily riverine

Sixth column is Hard Bottom – almost exclusively in the ocean

2012 HABITAT ACTIVITIES ALONG THE EASTERN SEABOARD

NEW HAMPSHIRE

Fish Passage Restoration

Cocheco River: The Gonic Sawmill Dam (GSD) (river mile 15.4) and the Gonic Dam (GD) (river mile 15.7) are the third and fourth dams on the mainstem of the Cocheco River. With funding from NHDES Dam Bureau and USFWS Partners for Wildlife Program, the City of Rochester is pursuing design and engineering for the removal of these two dams. The Gonic Sawmill Dam and an adjacent 8.3 acre parcel are un-owned. The design process is on hold until ownership can be resolved. The NHDES Coastal Program is providing lead coordination and contract administration for this project.

Bellamy River: Sawyer Mill Dams. With funding from the Gulf of Maine Council, a private dam owner is pursuing removal of these two dams (the lower most on the river system). The contracting for feasibility and preliminary design is currently underway. NHDES Coastal Program is providing technical assistance and contract administration for this project.

Lamprey River: Macallen Dam. With funding from NOAA/CLF partnership, the City of Newmarket is pursuing feasibility study for the removal of this head-of-tide dam. NHDES Coastal Program is providing technical assistance.

Exeter River: Great Dam. The feasibility study for the removal of the Great Dam (head of tide) is scheduled to be complete by December 31, 2012.

The construction part of the Winnicut River restoration project was completed in 2011 and evaluation of the restored habitat and fish passage are currently being conducted.

MASSACHUSETTS

Seagrass Restoration

MA Division of Marine Fisheries (MA DMF) is in the second year of an eelgrass restoration project in Boston Harbor and Salem Sound. Last spring, MA DMF hosted two shore side volunteer events, successfully planting one half acres of eelgrass across two locations over a two day period. Project staff also planted an additional acre of eelgrass this past summer, and is currently in the process of identifying addition locations suitable for eelgrass planting through a site selection process that examines test plots planted at several locations in Salem Sound and Boston Harbor.

Atlantic Cod Research

MA DMF staff Micah Dean, William Hoffman, and Mike Armstrong recently published a paper in *North American Journal of Fisheries Management* on spawning Atlantic cod. The purpose of the study was to identify any behavioral changes in spawning cod in areas of suddenly increased fishing pressure (i.e. opening of a previously-closed area to fishing). The findings showed that the fish that fled the area did not return, indicating that concentrated fishing pressure in spawning areas may affect the reproductive ability of Atlantic cod. Read the full article at: *http://www.mass.gov/dfwele/dmf/publications/technical.htm#n*.

Shellfish Planting Guidelines

In January 2012, MA DMF published a guidance document to help the public understand the various state and federal laws, regulations, and policies concerning shellfish planting entitled Shellfish Planting Guidelines. Shellfish planting is conducted to enhance natural shellfish

resources to maintain commercial and recreational fisheries, restore historic populations, mitigate for adversely impacted resources, commercially produce shellfish by private aquaculture, or for ecological services. MA DMF is interested in balancing the interest in shellfish restoration with the important goals of safeguarding human health, protecting wild shellfish stocks, enabling opportunities for commercial and recreational shellfishing, and fostering development of shellfish aquaculture in Massachusetts. The document is available on the *Marine Fisheries* website at: *http://www.mass.gov/dfwele/dmf/programsandprojects/shellfish_planting_guidelines_121611.pdf.*

Coastal Habitat Mapping

In August, MA DMF's Fisheries Habitat Project participated in a seven-day oceanographic survey aboard the U.S. Environmental Protection Agency's (EPA) Ocean Survey Vessel *Bold*. This was the third year of the survey, which to date has collected seafloor data from the Commonwealth waters from Hull to Salisbury, Massachusetts Bay, Buzzard's Bay, Vineyard Sound, south of Martha's Vineyard and Nantucket, and southern Cape Cod Bay. The survey is a unique partnership that also includes participants from the Massachusetts Office of Coastal Zone Management, Massachusetts Department of Environmental Protection, Massachusetts Bays Program, Massachusetts Department of Transportation Highway Division, U.S. Geological Survey (USGS), and EPA. The survey teams collect sediment samples and organisms and take underwater videos and still photos of the seafloor and its marine life. The results aid in the groundtruthing of seafloor sediment and habitat maps created in the 2009 Massachusetts Ocean Management Plan and assist state agencies in siting and permitting of ocean uses.

Coastal Habitat Restoration

In December 2012, the MA In-lieu fee (ILF) program will disburse its first round of funds for restoration projects addressing coastal habitat impacts resulting from coastal alteration projects permitted under the Army Corp of Engineers General Permit (Cat II). The ILF program has accrued over $190,000.00 since December 2008. Projects will be selected from applicants responding to a RFR (Request for Response) posting in September. The deadline to submit proposals is October 31st. Proposals will be reviewed and ranked by a committee comprised of restoration professionals and members of the ILF Program Interagency Review Team (IRT) who will then submit project recommendations to the Corp for final funding approval.

Identifying and Prioritizing Restoration Opportunities

MA DMF hosted two stakeholder workshops as part of a project entitled *Identifying and Prioritizing Restoration Opportunities for Coastal Aquatic Habitats in the Mass Bays Region,* funded by the Mass Bays Research and Planning Grant Program. These workshops were attended by representatives from government agencies, non-profit organizations, and watershed groups within the Mass Bay region, who provided input on restoration priorities in their communities. The goals of the project are to 1) identify and prioritize coastal habitat restoration options in order to facilitate appropriate decision-making when selecting restoration projects and 2) develop a sustainable methodology for assessing and selecting priority restoration sites on a larger, regional scale. DMF presented an analysis of current restoration project inventories and related coastal alteration impacts by habitat types to identify restoration priority gaps, and solicited input from stakeholders on a restoration project ranking methodology developed for this project. This work will help to inform restoration programs and become a useful tool for resource managers in the region.

RHODE ISLAND

Oyster Substrate Enhancement in Ninigret Pond

As part of a cooperative restoration project between RI DEM Fish and Wildlife (RI F&W) and The Nature Conservancy (TNC) cultch was placed at three locations in Ninigret Pond during the summer of 2012. One objective of this project is to evaluate whether substrate enhancement via the placement of cultch is a viable method for oyster habitat restoration in RI coastal ponds. RI F&W and TNC are considering larger scale reef building activities for habitat and substrate enhancement in the coastal ponds and potentially Narragansett Bay.

Monitoring and Management of Artificial Reefs

In 2007 RI DEM in partnership with the RI Department of Transportation created two inshore artificial reef sites by recycling the concrete slabs from the Old Jamestown Bridge (closed in 1992). Construction of Gooseberry Island reef and Sheep Point reef located 1.5 miles south and 1.1 miles east of Newport, respectively, was completed in August 2007. Since their completion, RI Fish and Wildlife (RI F&W) has been monitoring the inshore reefs using multibeam bathymetric surveys and scuba to document the colonization and succession of invertebrate and finfish species. Monitoring was completed in Fall of 2011 and RI F&W has initiated the development of an Artificial Reef Plan for the state.

Wind Energy Planning: RI Ocean Special Area Management Plan (SAMP)

In July of 2010, MA and RI agreed to collaborate in the process to permit and develop offshore wind energy projects in a designated "area of mutual interest" (AMI) in federal waters. The AMI covers 400-square miles in RI Sound beginning 12 miles southwest of Martha's Vineyard and extending 20 miles westward toward Block Island. The MOU states that the RI Ocean SAMP would serve as the planning and assessment guide to help identify the best locations for offshore wind energy project sites in the AMI, through a task force process. In October 2010 the RI Coastal Resources Management Council (CRMC) approved the RI Ocean Special Area Management Plan (SAMP), a national model for marine spatial planning and the first SAMP in the nation to zone offshore waters for future uses and preservation. The Ocean SAMP spans approximately 1,467 square miles over portions of Block Island Sound, Rhode Island Sound and the Atlantic Ocean. More information is available at *http://seagrant.gso.uri.edu/oceansamp/*. On December 6, 2011, the National Oceanic and Atmospheric Administration (NOAA) approved the RI CRMC's Geographic Location Description (GLD) as part of the RI Ocean SAMP. This approval will give CRMC an extended federal consistency review over federal waters. On June 13, 2012, the CRMC announced the RI Ocean SAMP Research Agenda. The research agenda identifies additional research that is needed in the Ocean SAMP area. The agenda was distributed to the Ocean SAMP stakeholder group and the public with a 60-day comment period.

Block Island Wind Farm Project

The Block Island (BI) Wind Farm project, one of two Rhode Island offshore wind farms being developed by Deepwater Wind, is on target to begin construction in 2013. The 5 turbine (30 megawatt) demonstration-scale offshore wind farm will be located in RI state waters roughly 3-miles southeast of Block Island and should supply the majority of Block Island's electricity needs with excess power being transported to the mainland. In July 2011, the RI Supreme Court upheld the Block Island Wind Farm power contract agreed to by the RI Public Utilities Commission. To date, Deepwater Wind has completed the majority of their pre-construction surveys and has started the permitting process for the BI Wind Farm by submitting the required applications to the appropriate agencies.

The BI Wind Farm will be the predecessor to the larger 150-200 turbine Deepwater Wind Energy Center (DWEC), touted as the nation's first 900-1,200 MW-scale offshore regional

energy center. The DWEC would be located within the Wind Energy Area (WEA) identified by the U.S. Bureau of Ocean Energy Management (BOEM) in federal waters offshore the coast of RI and MA, with most turbines located more than 20 miles from the mainland. An Environmental Assessment (EA) for this WEA was released on July 2, 2012 with a 30-day public comment period. BOEM will continue with the next steps in the commercial wind leasing process for the offshore RI and MA WEA.

NEW YORK

Sentinel Monitoring for Climate Change in the Long Island Sound

The Long Island Sound Study has developed a strategy for monitoring for climate change impacts titled, "Sentinel Monitoring for Climate Change in the Long Island Sound Estuarine and Coastal Ecosystems of New York and Connecticut, Volume 1 (2011)." Based on the recommendations of that strategy, the Study has also selected a contractor to begin monitoring impacts specific to coastal forests, shrublands, grasslands, salt marshes, and various bird species in Long Island Sound in both New York and Connecticut.
http://longislandsoundstudy.net/research-monitoring/sentinel-monitoring/

Long Island Sound Seafloor Mapping Pilot

Phase I (pilot) of a project titled "Seafloor Mapping of Long Island Sound" is currently underway in the mid-Sound area of Stratford Shoal, extending from New York, on the North shore of Long Island, to the Connecticut shoreline. Funding is from a June 2004 settlement between Connecticut, New York, Long Island Power Authority, Northeast Utilities, and the Cross Sound Cable Company over the adverse impacts to Long Island Sound from non-compliance with permits for a variety of energy-related infrastructure projects. The fund was created for the purpose of mapping the benthic environment of Long Island Sound and will provide valuable information for preserving and protecting the coastal and estuarine environments and water quality of Long Island Sound. Partners in the research effort include the states of New York and Connecticut, the Environmental Protection Agency (EPA), NOAA, and area universities from New York and Connecticut. This collaborative work will focus on the collection of high resolution geophysical data for the seafloor of Long Island Sound, in the territorial waters of the States of Connecticut and New York. Surveys for a pilot project are currently underway and are further planned for long-term seafloor mapping of Long Island Sound habitats over the next several years.
http://longislandsoundstudy.net/research-monitoring/seafloor-mapping/?doing_wp_cron=1347991250.0713949203491210937500

Hudson River Sustainable Shorelines

The Hudson River Sustainable Shorelines Project aims to develop science-based recommendations for shore zone management that preserve or enhance natural benefits while meeting engineering needs. Along the Hudson River Estuary's 300 miles of shoreline, communities are experiencing increased flooding from changing rainfall patterns and greater inundation from rising waters. Pressure is growing to alter shorelines to hold back the waters and control erosion, and community leaders, regulators, landowners, and funders are faced with important decisions about investments in shoreline infrastructure. These decisions will affect community waterfront use - and determine the future of vital near-shore river habitats.
The Hudson River National Estuarine Research Reserve, with the involvement of many partners, launched the Sustainable Shorelines Project in 2008 to provide science-based information about the engineering, economic, and ecological tradeoffs among shoreline management options, given likely future conditions. New work is focusing on how aspects of structures that can be manipulated, such as the roughness of the substrate used, and the

vegetative cover, to increase ecological benefits. The project will also increase our understanding of how physical forces are reshaping shorelines, develop innovative shoreline demonstration sites, and integrate project results into a decision support tool.

Local government officials, shoreline experts and consultants, shoreline land owners, policy-makers, regulators, engineers, and others shape and guide the project by participating in advisory committees, focus groups, surveys, and case studies. Project findings are being used to make decisions about community waterfronts, regulatory and land use policies, shoreline development and long-term plans that will allow important natural shore zone areas to exist into the future. *http://www.hrnerr.org/hudson-river-sustainable-shorelines/*

Jamaica Bay Marsh Island restoration

Jamaica Bay is a designated Significant Coastal Fish & Wildlife Habitat Area and the largest tidal wetland complex in the New York City metropolitan area. The Bay is immensely valuable to fish and wildlife and to the human environment. NYSDEC mapping analysis has shown that over 2,000 acres (>50% of available acreage) of the bay's vegetated marsh island habitat disappeared between 1924 and 1999, and that the rate of marsh loss has been increasing over time, and estimated that marsh island habitat could vanish by 2024 if no action is taken by the natural resource community.

In response, DEC developed a series of strategic recommendations, including conducting marsh restoration (see *http://www.dec.ny.gov/lands/5489.html*). Fellow stakeholder agencies including the U.S. Army Corps of Engineers (USACE), National Park Service (NPS), The Port Authority of New York & New Jersey (PANYNJ), and the City of New York (NYC) developed a program to begin restoring marsh island habitats. NYSDEC as regulatory agency directed some for mitigation and acted as cost share partner for marsh island projects and committed over 5 million to the effort. In 2003 the NPS constructed a 2-acre pilot project at Big Egg Marsh. This lead to a 43 acre project at Elders Point Marsh - East, which was completed in 2007, and another 40 acres constructed at Elders Point Marsh - West completed in 2010. Another 47 acres of marsh were restored at Yellow Bar Hassock in 2012. The next project will take place at two adjoining islands, Black Wall Marsh and Rulers Bar where ~35 acres of marsh is to be restored beginning in September 2012.*http://www.nan.usace.army.mil/Media/NewsReleases/tabid/3948/Article/4223/army-corps-offers-update-on-marsh-islands-restoration-in-jamaica-bay-new-york.aspx*

NEW JERSEY

Barnegat Bay Initiative

Since late 2010, New Jersey Governor Chris Christie has continued to make progress on a comprehensive action plan to address the health of Barnegat Bay. The ecological health of Barnegat Bay is in decline, threatening the economic health of the region. The Christie Administration has made addressing the degradation of Barnegat Bay as one of its top environmental priorities. Input gained from extensive stakeholder involvement complemented the scientific data and research conducted by the NJ Department of Environmental Protection and other researchers has provided the basis for the Administration's action plan for Barnegat Bay. Highlights of the plan include: a negotiated agreement with Exelon Corporation to cease electric generation operations at the Oyster Creek Generating Station within nine years, funding numerous stormwater mitigations projects, new rules reducing nutrient pollution from fertilizers and standards for post-construction soil restoration, land acquisition, special or sensitive area plans, shellfish enhancement, increased water quality standards and reducing the impacts of personal watercrafts on sensitive habitats.

Restoration Efforts to Repair Storm-Damaged Oyster Beds
Several organizations launched an experimental restoration project in July 2012 in an attempt to repair storm-damaged oyster beds off of Salem County, NJ. Floods resulting from several consecutive storms in 2011, including Hurricane Irene and Tropical Storm Lee, devastated oysters on the northernmost beds of Delaware Bay. These beds comprised about 35 percent of the oysters supporting the NJ's Delaware Bay oyster fishery. The impacts were worse than any other storm in almost 60 years, killing about half of the oysters on these beds. The project was a partnership between the NJ Division of Fish and Wildlife, the NJ Chapter of the Nature Conservancy, the Partnership for the Delaware Estuary and Rutgers University. This 'replanting' program involves strategically placing shells along the Cape Shore region in the lower Bay, where natural recruitment is high, but few survive unless relocated to lower salinities. These newly recruited oysters are being transplanted to the storm-damaged beds, where the attached oysters can grow over time under reduced predator and disease pressures. This program is presently at a pilot scale to monitor and assess how the oyster survive under significant salinity changes as they are moved from areas of approximately 22 ppt to areas that regularly see salinities of less than 7 ppt.

Barnegat Bay Shellfish Restoration
As part of the Department's efforts in Barnegat Bay, NJ Division Fish and Wildlife staff coordinated the planting 1.5 million hard clam seed to enhance 28 acres of shellfish habitat in the Sedge Island Marine Conservation Zone near Island Beach State Park. This hard clam seeding effort was the largest in recent years and confirms the Department's commitment to shellfish enhancement in Barnegat Bay. NJ Division Fish and Wildlife staff will also be coordinating the planting of 1.5 million oyster seed and shell plantings on a former oyster bed as well as the planting of another 1.5 million hard clam seed on numerous sites throughout the Bay.

Delaware River Main Channel Deepening
The Delaware River Main Channel Deepening project continues and involves significant dredging efforts within the existing 40-foot Delaware River Federal Navigation Channel to deepen it to 45 feet along a 100+ mile distance through the Delaware Bay including widening efforts at a number of channel bends. The first section deepened was completed in September 2010, the second phase completed in January 2012, the latter involving the dredging a 4-mile section of the River. In 2012, the State of Pennsylvania provided an additional $15 million to maintain the project, which was then followed this summer by an approximate $31 million in federal project funding.

Shellfish and Submerged Aquatic Vegetation Surveys
The Bureau conducted a stock assessment survey of shellfish, particularly hard clams, in Little Egg Harbor Bay (LEHB). The survey was conducted to gather baseline data in conjunction with the Governor's initiative to restore Barnegat Bay. A total of 196 locations were sampled using a hydraulic clam dredge. Hard clams and other shellfish species of economic value were counted and measured. In addition, submerged aquatic vegetation collected in the dredge was identified and documented. The sites sampled were the same as those evaluated in similar studies conducted in 1987 and 2001. This consistency allows for comparisons among the years to identify population trends. The information collected will enable biologists to estimate the number of hard clams present, to identify sensitive areas for future coastal development projects and to identify areas suitable for 'restoration and enhancement' efforts. A full benthic sampling of shellfish and SAV within Barnegat Bay (north of LEHB) began in May 2012 and is currently ongoing (355 locations scheduled for sampling).

Aquaculture Development Zones Established in Delaware Bay

NJ Division of Fish and Wildlife (Division) staff teamed with those of other state governmental agencies as well as leaders in New Jersey's shellfish aquaculture industry and academia to establish Aquaculture Development Zones (ADZs) in the lower section of Delaware Bay. The goal of creating ADZs was to help facilitate expansion and innovation within the industry by designating areas specifically for aquaculture involving the use of enclosures (i.e., structure such as racks and cages). Staff navigated a lengthy user-conflict and permitting process with both state and federal agencies, centering primarily on horseshoe crab and shorebird issues and impacts. The primary objective of this program was to concentrate the structures in specific areas to minimize user conflicts and to allow for the management and enforcement of best management practices, including environmental access windows associated with threatened and endangered species. The Division applied for and received the necessary state and federal permits for operation in an effort to streamline the process for industry. This improvement allowed prospective leaseholders to bypass a previously lengthy and complicated process that had been deemed an impediment to aquaculture development. Three ADZs encompassing 1,151 acres were established in the lower Delaware Bay. The fourth, a 51-acre intertidal (exposed at low tide) ADZ was located in the area adjacent to the mouth of Green Creek in Cape May County. Extremely popular, this intertidal area has gained the most interest among the industry with all lots being leased.

PENNSYLVANIA

Darby Creek Dam removals

Construction has started on four fish passage projects (remnant pier removal and 3 dam removals) in the lower portion of Darby Creek, tributary to the lower Delaware River in PA. Construction phase of the project has begun and 2 dams (Kent Park and Unnamed "Septa" Dams) along with the remnant bridge (Colwyn) piers have been removed. Construction will continue to remove the Darby Borough Dam and associated instream and riparian restoration will be completed. Project will restore unobstructed migratory and resident fish passage in the lower 9.7 miles of Darby Creek, Delaware County, PA.

Lehigh River Fish Passage Feasibility Project

The Lehigh River Passage Feasibility Project is scheduled to be complete December 2012 and is looking at the engineering feasibility of improving fish passage at Easton (RM 0.0) and Chain (RM 3.0) Dams on the lower Lehigh River. Full and partial dam removal options are being explored in an attempt to improve fish passage of diadromous species as well as provide passage for resident species. The options are aimed at meeting American shad restoration goals since these goals are not being met with the current fish passage facilities that are being operated. An approximate cost will be generated for the various options and will provide the necessary information to determine whether any of the options are practical from an engineering and cost perspective.

DELAWARE

Aquaculture in Delaware's Coastal Bays

Delaware's legislature terminated all existing shellfish leases in Indian River and Rehoboth Bays in the late 1970s, just as aquaculture was gaining a foothold in surrounding mid-Atlantic states. These leases were not productive after MSX decimated oyster populations in the 1950s. Since the late 70s all bay bottom has been public, managed by the Division of Fish and Wildlife, as a Public Trust Resource for commercial and recreational clammers and fishermen. A recently

completed bay-wide clam survey has shown that current management of the hard clam resource has successfully sustained this population at levels identical to the 1970s.

Recently, the Center for the Inland Bays (a local estuary program) has been advocating legal changes to allow leasing in these bays for oyster (native) tray culture and hard clam bottom culture. The former is less problematic, but the latter would transfer a publicly owned resource to private ownership and would further reduce recreational clam bottom. Access was lost to about 40% of the shore zone clam habitat in the 1990s due to marina related closures. Delaware coastal bays are among the most heavily used by tourists in the country. Discussions continue to determine whether aquaculture is in the public interest and is compatible with existing uses, including habitat considerations.

Proposed Wind Farm Study Site

The University of Delaware proposes to construct 7-8 tower bases and transmission lines 3-5 nm offshore. They would then contract with manufacturers who want to field test their units to quantify generating capacity under “real world “ conditions. The proposed site would be immediately adjacent to a permitted artificial reef, and there is concern about acoustical impacts on fish.

Wave Action Desalinization Barge

A group is seeking a permit for a floating barge installation and will use wave energy to create fresh water from ocean water. They have addressed impingement/entrainment concerns by using the bottom as a sand filter for intake water. The barge will create over one million gallons of fresh water per day. The project will need to monitor volume and salinity of discharge water to avoid any impacts to the stenohaline benthos near the site.

MARYLAND

Conowingo Dam, Susquehanna River

The Conowingo Dam Final License Agreement was submitted to FERC on August 31, 2012. Settlement negotiations will be initiated in October and are expected to be completed by June 2013. Results from five studies conducted in 2012 are due at the end of September 2012 for review. One of the studies involved telemetry of American shad. These five studies had been postponed in 2011 due to high spring flows. Efficiency estimates are being developed for the East Fish Lift and are expected to have significant impacts on improving fish passage at Conowingo Dam.

Baltimore Port Dredging

Maryland’s Port Administration presented their ideas for the Baltimore Port’s dredging disposal needs at the Bay Enhancement Work Group meeting on August 30th, 2012. The berthing and turning basin area at Seagirt Marine Terminal has already been expanded to accommodate larger container vessels. The primary issue identified by the Port Administration is disposal of sediments dredged from inside the North Point to Rock Point line, which are legally classified as contaminated and must be placed in a confined disposal area if placed outside of the Port. The Port Administration is exploring the use of the Coke Point area at Sparrows Point as a disposal site for the dredge material. The Port Administration’s plan involves an upland cell and open water fill area that would eventually become a marine terminal. Also being studied is the possibility of over dredging a section of the existing channel to obtain clean sandy material located below the channel. This sandy material could then be used within the Port to cap contaminated sediments. The over dredged section of the channel would be refilled with dredge material from the annual maintenance dredging activity in the Baltimore Port. The Port

Administration estimates that the entire cycle of over dredging a section of channel and refilling it back to grade would take about 18-24 months.

Fish Habitat Management
MD DNR Fisheries Service has developed and implemented impervious surface reference points that provide a basis for managing fisheries at different levels of land development. These reference points have been applied to resident species and are in process of being applied to anadromous species.

Fish Passage
MD DNR Fisheries Service in partnership with American Rivers, NOAA, and the Friends of Patapsco State Park are moving ahead with the removal design for the Bloede Dam on the Patapsco River, Maryland. Additional sediment borings have been taken to supplement seismic data. An advisory committee comprised of public stakeholders has been convened to develop alternatives and cost estimates for how to memorialize the dam's historic significance. Dam removal is currently scheduled for 2013.

VIRGINIA
Plans Suspended for Industrial-Scale Wind Turbine in Chesapeake Bay
What could have been the first in water installation of an industrial scale wind turbine in the US in the Virginia portion of the Chesapeake Bay has been suspend by Gamesa Energy USA. The Virginia Marine Resources Commission (VMRC) had voted unanimously to approve the proposed construction of a 479-foot-tall, five megawatt wind turbine generator prototype in the lower Chesapeake Bay, three miles off the Eastern Shore town of Cape Charles at its March 27, 2012 meeting. The construction of the prototype turbine was scheduled for completion in late 2013. Without a mature offshore wind market in the United States, Gamesa announced its plans to postpone the project on May 7, 1012. The application and supporting information considered for the review of the permit application can be viewed on the VMRC web site at: *http://mrc.virginia.gov/Notices/2012/Gamesa%20Project%20Description%20Feb%202012.pdf*
The information and issues address in the documentation should serve as an example of the appropriate information for any future similar projects in Virginia State waters.

General Permit for Living Shoreline Projects
VMRC is currently developing a general permit for living shoreline projects. During the 2011 session of the General Assembly, legislation was adopted that established living shorelines as the preferred method for shoreline stabilization in the Commonwealth. The legislation defined living shorelines as a shoreline management practice that provides erosion control and water quality benefits; protects, restores or enhances natural shoreline habitat; and maintains coastal processes through the strategic placement of plants, stone, sand fill, and other structural and organic materials, and directed the VMRC to begin development of a general permit with the assistance of VIMS, the Virginia Department of Conservation and Recreation and other. VMRC is currently working with stakeholders and an Ad Hoc advisory panel to identify the appropriate elements to be included in the general permit and develop a draft for consideration. Although various types of living shoreline projects have been permitted and used in Virginia for some time the legislation and general permit are intended to further advance the use of this type of shoreline stabilization. For more information on living shorelines in Virginia see the VIMS web site at *http://ccrm.vims.edu/livingshorelines/*

NORTH CAROLINA

Mapping North Carolina's Estuarine Shoreline

The N.C. Division of Coastal Management has completed a project to create the first ever continuous digital map of more than 12,000 miles of estuarine shoreline in North Carolina. The map is the result of a partnership between the state agency and East Carolina University. Among its findings, the project identified the mileage of shoreline types such as a marsh or a swamp forest and the number of shoreline structures such as piers and bulkheads along estuarine waterways. Estuarine shorelines are found along the coast's broad network of brackish sounds, marshes, rivers and creeks. Estuaries are a unique and important part of coastal life – a transitional area where fresh and salt water mix. From broad, shallow sounds like the Albemarle and Pamlico, to narrow bodies of water such as Core and Masonboro sounds, North Carolina has 2.2 million acres of estuarine waters. These shallow sounds, rivers and creeks make up one of the largest estuarine systems in the United States.

Using the most recently available aerial photography for each county, the estuarine shoreline for all 20 coastal counties has been digitized and is now available to view on the state Division of Coastal Management's website: *http://ims.ncdenr.org/Website/ncshore/viewer.htm*
"This is a really exciting project," said Braxton Davis, director of the state Division of Coastal Management, or DCM. "The maps can be used by DCM, local governments and researchers to assess changes in shorelines and structures, study where and why shorelines are eroding, monitor future changes, and better understand development trends along our estuarine shorelines. This work will provide a wealth of useful data for North Carolina's coastal management program."

Staff from the state Division of Coastal Management and East Carolina University will continue working together to conduct a more in-depth analysis of the shoreline data, including calculating the length of the five distinct shoreline types and the different types of modified shorelines. They will also work to identify regional shoreline development trends and analyze the distribution of various coastal structures.

Shad in the Classroom

Shad in the Classroom is a collaborative project that provides students with an understanding of the science process, inspiration for careers in science, and a desire to protect our waterways, particularly in the Albemarle-Pamlico National Estuary Program (APNEP) region. This project allows students to gain hands-on experience raising American shad from egg to releasable fry. This effort is a collaboration led by the US Fish and Wildlife Service and the North Carolina Museum of Natural Sciences, with substantial financial support from APNEP. Other contributing partners include Partnership for the Sounds, NC State University, the NC Wildlife Resources Commission, the NC Division of Water Quality and the NC Chapter of American Fisheries. The objective of this project is to build an understanding of the life history of shad and an appreciation for our natural world.

North Carolina's rivers in the APNEP region and their floodplain habitat are important spawning grounds for anadromous fish, including the American shad. American shad populations are well below historic levels. Factors affecting the decline of American shad in its historical range include dam construction, overfishing, and water pollution. Shad runs no longer exist in areas where they used to thrive, and they are an important food source for many species both in the coastal and estuarine systems. A fisheries management plan is in place that seeks to restore American shad populations to sustainable levels. Shad in the Classroom is an important outreach tool for raising students' and communities' consciousness on American shad and its management in the APNEP region.

Shad in the Classroom has three major components. First, elementary school classrooms are equipped with the materials to raise shad, which include aquariums and shad eggs. Next, teachers are provided with training to facilitate the program, which includes a one day training on the process of raising shad and an overnight canoe workshop on the Roanoke River to learn about the estuarine ecosystem. Finally, teachers are provided with multimedia presentations and high definition movies which can be used to complement instruction. *http://naturalsciences.org/education/for-educators/shad*

Coastal Habitat Protection Plan

In spite of the difficult economic times, significant progress in improving and protecting coastal habitats continues as agencies move forward with the recommendations found in North Carolina's Coastal Habitat Protection Plan (CHPP). Of significant interest and accomplishment over the past year was the completion of the Strategic Habitat Area 2 (SHA2) analysis and its adoption by the NC Marine Fisheries Commission. This area encompasses the Pamlico Sound and its main tributaries. For more details on the analysis, please visit: *http://portal.ncdenr.org/c/document_library/get_file?uuid=e11da87f-629f-4fac-a40a-cc965c0150a1&groupId=38337*

Also of significant note to the Division of Marine Fisheries was the ability to maintain the Oyster Sanctuary Program even through the tough economic times. Partnerships with organizations outside of state government were instrumental in maintaining this program. These partnerships attest to the importance of maintaining this very significant habitat and resource. The 2011-2012 CHPP Annual Report can be accessed through the One North Carolina Naturally website located at: *http://www.onencnaturally.org/*

SOUTH CAROLINA

Evaluating Wind Energy Development

The State of South Carolina established a formal Renewable Energy Task Force with BOEM to evaluate wind energy development in the coastal waters of the state. Two meetings have occurred with Task Force members to establish Task Force activities and learn more about activities and findings related to a similar Task Force involving BOEM and the State of North Carolina. Prior to establishment of this Task Force, the South Carolina Energy Office had completed several efforts to evaluate and expedite wind energy exploration, including funding a comprehensive GIS analysis of the state's coastal and offshore habitats, biological resources, and coastal uses that was conducted by the SC Department of Natural Resources. Over 70 GIS data layers and a complete report are now available for downloading at http://www.dnr.sc.gov/GIS/gisenergy.html.

Feasibility of Deepening Charleston Harbor

The Corps of Engineers, Charleston District, has initiated intensive planning and feasibility studies to deepen Charleston Harbor channels to accommodate post Panamax vessels. The feasibility study for the project, which is known as Post 45, began in May, 2011 and has received financial commitments for cost sharing from the State Ports Authority. As part of President Obama's "We Can't Wait" initiative, the District plans to complete the feasibility study for Post 45 within four years at a cost of $15 million or less. Both state and federal agencies concerned with protecting the natural resources and sensitive habitats in the Charleston Harbor estuary are working closely with the Corps to ensure that long term adverse impacts do not occur. On a related front, a similar deepening project proposed for the Savannah River has met with several legal challenges involving the South Carolina Savannah River Maritime

Commission and multiple environmental groups due to numerous environmental quality concerns. Among these concerns are extension of the salt water into valuable tidal freshwater wetlands of the Savannah National Wildlife Refuge, further depletion of dissolve oxygen in the upper reaches of the project to the extent that it will require mechanical respirators to avoid hypoxic conditions, and release of toxic cadmium and other pollutants.

Beach Modification

Several beach modification projects have either been given permits to proceed, or the permits are under consideration. These include an extensive sand scraping project on the Isle of Palms to move sand from one section of the beach to an erosional area, an inlet modification project at Capt. Sam's Inlet between Kiawah Island and Seabrook Island to reduce erosional problems on Seabrook Island, and construction of a terminal groin on Folly Beach to reduce erosional problems on the south end of that island where a state park is located. All of these projects have potential to impact important overwintering grounds of the piping plover or a significant bird rookery just southwest of Folly Island.

GEORGIA **see photos**

Offshore Artificial Reef Program

Public interest in the offshore artificial reef program resulted in a total donation of 485 tons of concrete power poles. The "DRH" offshore artificial reef site was identified for reef enhancement and 130 balls were deployed to enhance this existing site. Program divers inspected the site immediately after the deployment and found many great barracuda, *Sphyraena barracuda*, occupying these materials. In order to help ascertain the long-term structural integrity and performance of deployed materials, all (19) offshore reef sites were surveyed via on-site inspections, monitoring, and photo/video/inventory records were obtained by program divers. Significant fish assemblages and invertebrate communities were associated with all observed materials and structures. On-site inspections were annually conducted via side scan sonar and aerial surveys at all of Georgia's 17 inshore artificial reef sites.

Oyster reef restoration was conducted at Cobb and Jointer Creeks sites (Glynn County) located in St. Andrews Sound within one of the state's public oyster picking areas. This restoration project was permitted, planned, developed, and partnered with the University of Georgia. The Cobb Creek site incorporated roughly 7,200 sq ft. (0.165 acre) measuring 1,200' x 6' and the total footprint of the Jointer Creek site included roughly 11,100 sq ft. (0.254 acre) measuring 1,200' x 6'; 250' x 6'; 400' x 6' respectively. The entire development of both sites included 18,300 sq ft (0.42 acres) where 200 pallets were deployed with a total of 3,000 bags of shell (15 bags per pallet), 200 oyster gabions, and 200 oak limb bundles. To maximize efficiency and save money, the oyster reef restoration project at Cobb and Jointer Creeks used helicopters to deploy 3,000 bags of shell (on 200 pallets) with a combined weight of more than 18 tons and 200 gabions (loose recycled oyster shell placed on wooden pallets). Two helicopters transported a total of 80 loads in 9 hours over a 2 day period. 400 staff hours (3 crews) were required to get the materials on site: helipad crew on land, boat crew removing helicopter straps from the materials, and an in water deployment crew creating the oyster reef. An additional 400 staff hours were required to create these oyster reefs (total reef area = 0.42 acres). If boat-based deployment methods were used approximately one month and 2,800 man hours would have been required to transport and stage materials at these sites. In addition to providing bank stabilization, essential fish habitat, and improved water quality, these sites are excellent locations for education and outreach projects show casing restoration of shellfish in Georgia's estuarine waters. Outreach projects included three "bagging events" in which 40 volunteers filled 675 shell bags used in deployments. An approximate total of 970 bushels of oyster shells

were collected in FY-12 from local oyster roasts and restaurants and this material will be used in future restoration projects.

FLORIDA

Brown Algal Bloom

A persistent brown algae bloom on the back of a 2011 phytoplankton bloom continues in the northern Indian River Lagoon causing widespread water column discoloration, focal fish kills, fish population redistribution, and negatively affecting seagrass habitat. Seagrass systems have been affected from the Mosquito Lagoon to Vero Beach, and in some areas where historically dense, are all but absent. The organism causing this superbloom is a pelagophyte, which blooms and causes the water to turn murky brown, and prevents sunlight from reaching seagrass. State agencies and university researchers are monitoring the bloom. The expected duration of the event cannot be determined, as the conditions causing it are not well understood.

Port Deepening Projects

Port deepening projects for the ports of Miami, Port Everglades (Ft. Lauderdale), Palm Beach and Jacksonville are in the project engineering and design phase or are in the NEPA document review phase. Marine habitat resources, including large areas of coral reef, seagrass and hard bottom will be adversely affected, and mitigation efforts and options are being assessed and implemented.

Generating Electricity from the Gulf Stream

A technology-based pilot project assessing the feasibility of the development of the Gulf Stream to generate electricity off the coast of SE Florida is being conducted by Florida Atlantic University (FAU). FAU continues to seek permits in coordination with the Department of Energy and Florida state agencies for technology testing in federal waters. Issues of concern for this project include impingement and entrainment effects of large fields of kinetic current-tapping turbines on pelagic fish and invertebrates and anchoring damage to deep benthic habitats.

NMFS – NORTHEAST

NMFS Northeast Regional Office and the NOAA Chesapeake Bay Program are working with partners in Maryland and Virginia to characterize habitats in Chesapeake Bay. The goal is to identify and prioritize fishery habitats for protection and restoration.

NMFS Northeast Regional Office is involved in the planning stages of the Northeast Corridor High Speed Rail Initiative in order to improve rail service between Washington, DC and Boston, MA. This initiative may result in a number of activities that may affect habitat including bridge and tunnel waterway crossings and coastal wetland impacts.

NMFS Northeast Regional Office is involved in Bureau of Ocean Energy Management Offshore Renewable Energy Task Forces in ME, MA, RI, NY, NJ, DE, MD, and VA. The purpose of these task forces is to identify issues and alternatives relative to the siting of offshore wind facilities, regarding fish habitat, protected resources and potential impact to fishing activities.

The NOAA Habitat Blueprint is being developed to work strategically across programs and partner organizations to address the growing challenge of coastal and marine habitat loss and degradation. The three primary approaches identified within the blueprint include the

establishment of regional habitat focus areas, enhancing habitat science, and strengthening policy and legislation.

NMFS is currently involved in a range of FERC hydropower and hydrokinetic activities throughout the northeast region. Concerns include impacts to fishery resources as well as upstream and downstream fish passage.