Atlantic States Marine Fisheries Commission

South Atlantic State/Federal Fisheries Management Board

August 9, 2012
1:15 p.m. – 2:45 p.m.
Alexandria, Virginia

Draft Agenda

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

1.	Welcome/Call to Order (*L. Daniel)*	1:15 p.m.
2.	Board Consent • Approval of Agenda • Approval of Proceedings from May 1, 2012	1:15 p.m.
3.	Public Comment	1:20 p.m.
4.	Atlantic Croaker Technical Committee Report (*J. Grist*) **Possible Action**	1:30 p.m.
5.	Spot Plan Review Team Trigger Report (*J. Grist*) **Possible Action**	1:50 p.m.
6.	Review Black Drum Public Information Document Public Comment (*D. Chesky*)	2:10 p.m.
7.	Draft Black Drum Interstate Fishery Management Plan • Provide guidance to Plan Development Team (*L. Daniel*)	2:20 p.m.
8.	Consider Fishery Management Plan Reviews and State Compliance (*D. Chesky*) **Action** • Red Drum • Atlantic Croaker	2:30 p.m.
9.	Review nomination for South Atlantic Species Advisory Panel (*D. Chesky*) **Action**	2:40 p.m.
10.	Other Business/Adjourn	2:45 p.m.

The meeting will be held at the Crowne Plaza, 901 N. Fairfax Street, Alexandria, VA 22314; 703-683-6000

MEETING OVERVIEW

South Atlantic State/Federal Fisheries Management Board Meeting
Thursday, August 9, 2012
1:15 p.m. – 2:45 p.m.
Alexandria, Virginia

Chair: Louis Daniel (NC) Assumed Chairmanship: 02/10	Technical Committee Chairs Atlantic Croaker: Chris McDonough (SC) Red Drum: Mike Murphy (FL)	Law Enforcement Committee Rep: Stephen Adams (GA)
Vice Chair: Aaron Podey (FL)	Advisory Panel Chair: Bill Windley (MD)	Previous Board Meeting: May 1, 2012
Voting Members: NJ, DE, MD, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS, SAFMC (12 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from May 1, 2012

3. Public Comment – At the beginning of the meeting, public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Atlantic Croaker Technical Committee Report (1:30 p.m. - 1:50 p.m.) Possible Action

Background

- The Technical Committee performed the yearly trigger exercise and found that the recreational landings trigger tripped. The Committee reviewed the pros and cons of initiating a stock assessment (**Briefing CD**).
- As part of the Board's task from the August 2011 meeting, the Committee also reviewed the current assessment triggers and developed recommendations on whether to modify and/or develop new management triggers.

Presentations

- Summary of Atlantic croaker trigger report for 2012 and recommendations by J. Grist.

Board actions for consideration at this meeting

- Initiate Atlantic croaker stock assessment.
- Develop assessment/management triggers.

5. Spot Plan Review Team Trigger Report (1:50 p.m. - 2:10 p.m.) Possible Action

Background

- The Spot Plan Review Team performed the annual trigger exercise, as now required under the Omnibus Amendment (**Supplemental**). The trigger was not tripped, although close.

Presentations

- Summary of Trigger Report by J. Grist.

Board actions for consideration at this meeting

- Initiate management changes for spot.

6. Review Black Drum Public Information Document Public Comment (2:10 - 2:20 p.m.)

Background

- The Board approved the Black Drum Public Information Document for public comment at the May 2012 Board meeting.
- Public comment closed on July 25, 2012, at 5:00 p.m. EDT (**Supplemental Materials**).
- Staff attended four public hearings in New Jersey, Delaware, Virginia, and North Carolina.

Presentations

- Overview of public comment by D. Chesky.

Board actions for consideration at this meeting

- None.

7. Draft Black Drum Interstate Fishery Management Plan (2:20 - 2:30 p.m.)

Background

- The Board initiated development of an Interstate Fishery Management Plan for Black drum at the November 2011 meeting.
- The Public Information Document has gone through the Public Comment process and has been provided to the Board for their consideration.
- The Board may decide to provide guidance and task the Plan Development Team to draft a Black Drum Interstate Fishery Management Plan for Board review.

Presentations

- None.

Board actions for consideration at this meeting

- None.

8. Red Drum & Atlantic Croaker Fishery Management Plan Reviews (2:30 - 2:40 p.m.) Action

Background

- Compliance reports were due July 1, 2012 (**Briefing CD**).
- The Red Drum Plan Review Team reviewed each state report and compiled the Fishery Management Plan Review (**Supplemental materials**).
- The Atlantic Croaker Plan Review Team reviewed each state report and compiled the Fishery Management Plan Review (**Supplemental materials**).

Presentations

- Overview of the Fishery Management Plan Review Reports by D. Chesky.

Board actions for consideration at this meeting

- Approve 2012 Fishery Management Plan Review and State Compliance Reports.

9. South Atlantic Species Advisory Panel Nomination (2:40 - 2:45 p.m.) Action

Background

- North Carolina nominated Charles (Bernie) McCants, Jr to fill their recreational spot on the South Atlantic Advisory Panel (**Briefing CD**).

Presentations

- **None**

Board actions for consideration at this meeting

- Approve nomination of Mr. McCants to the South Atlantic Advisory Panel.

9. Other Business/Adjourn

DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

SOUTH ATLANTIC STATE/FEDERAL FISHERIES

MANAGEMENT BOARD

Crowne Plaza Hotel - Old Town
Alexandria, Virginia
May 1, 2012

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ATTENDANCE

Board Members

Russ Allen, NJ, proxy for D. Chanda (AA)
Tom Fote, NJ (GA)
Adam Nowalsky, NJ, proxy for Asm. Albano (LA)
John Clark, DE, proxy for D. Saveikis (AA)
Roy Miller, DE (GA)
Bernie Pankowski, DE, proxy for Sen.Venables (LA)
Russell Dize, MD, proxy for Sen. Colburn (LA)
Tom O'Connell, MD (AA)
Bill Goldsborough, MD (GA)
Louis Daniel, NC DNR (AA)
Robert H. Boyles, Jr., SC (LA)
Spud Woodward, GA (AA)
John Duren, GA (LA)
Aaron Podey, FL (AA)
Jack McGovern, NMFS
Wilson Laney, USFWS
A.C. Carpenter, PRFC

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Bill Windley, Advisory Panel Chair

Staff

Vince O'Shea
Bob Beal
Danielle Chesky
Toni Kerns

Guests

Daniel Ryan, DC F & W
Rob O'Reilly, VA DMR

The South Atlantic State-Federal Fisheries Management Board of the Atlantic States Marine Fisheries Commission convened in the Presidential Ballroom of the Crowne Plaza Hotel, Alexandria, Virginia, May 1, 2012, and was called to order at 3:15 o'clock p.m. by Chairman Louis Daniel.

CALL TO ORDER

CHAIRMAN LOUIS DANIEL: I am going to call the South Atlantic State-Federal Fisheries Management Board to order. I'm Louis Daniel; I'm the Chairman of the South Atlantic Board.

APPROVAL OF AGENDA & PROCEEDINGS OF FEBRUARY 9, 2012

You should have an agenda and all of the appropriate meeting handouts available. If you'll look over the agenda, we have our agenda and our minutes from our February 9th meeting.

If there are no corrections to the minutes or any additions to the agenda, I would accept them as approved by consensus. Seeing no changes or corrections, so ordered.

PUBLIC COMMENT

The next item on the agenda is public comment for items that are not on our agenda. Is there anyone in the public that wishes to address the board at this time? Seeing no hands, we will have no public comment.

ELECTION OF VICE-CHAIR

CHAIRMAN DANIEL: The next item on our agenda is to elect a vice-chair. Mr. Duren.

MR. JOHN DUREN: Mr. Chairman, I would like to nominate our distinguished colleague, Aaron Podey, as vice-chairman.

CHAIRMAN DANIEL: Thank you, John. Pat Augustine is not here and I don't know what to do. (Laughter) We have a second from Dr. Rhodes. There could not possibly be any objection so congratulations, Aaron, and thank you for agreeing to do it. It's a great board to work with.

CONSIDER APPROVAL OF THE MODIFIED BLACK DRUM PUBLIC INFORMATION DOCUMENT

The first real action item we have to consider approval of our modified black drum public information document so that we can go out for public comment. Danielle will run us through that document.

MS. DANIELLE CHESKY: This is the Black Drum Public Information Document. To give you an update, our current timeline that we had presented back in February is still on schedule. We had planned the spring/summer to prepare the PID and then send it out for public comment. As of right now we're still on schedule for around the fall of 2013 for review and final approval of a fishery management plan, if needed.

At the February meeting the board requested a few edits to be made to enhance the public information document and make it easier for the public to understand the current situation that we know of black drum and the reasoning behind why the board is considering creating a fishery management plan.

These include specific information on the sizes and age they're being caught. There are concerns that needed to try to show whether or not juveniles or adults were being targeted. Additionally, information was requested to be included on the interjurisdictional movement, so why this should more of an interstate fishery management plan versus single states; and then also to display some of the indices regarding the current population status.

We included quite a few data sets regarding the distribution of the fishery in terms of the sizes that are caught. It ranged from recreational and commercial harvest to some biological sampling programs, going from Delaware all the way down to Florida. To give the board an idea of what we have included and what can be done with that; for example, North Carolina's distribution of the sizes are displayed here with the commercial and recreational.

Using some of the information that the working group had gathered regarding size at maturity, we can add certain lines to it that can show where those 50 percent maturity levels might be. I think if we interpreted correctly what the board was trying to get at in terms of displaying where the fishery is; and so comparing North Carolina, let's say, to next one to be Delaware in terms of the size distributions of the fishery and where they are in terms of that maturity level.

Additionally, we included quite a bit of tagging data. We used some that was collected down in Georgia back in 1984. This was a particular study that showed quite a bit of local movement as well as some

very long-distance movement. Similar information was included also from Virginia, Maryland and South Carolina that had been gathered by the working group.

These include certain charts for Virginia showing quite a bit of the returns come within Virginia waters but that it is also spread out among the neighboring states as well. Additionally, we included quite a few graphs regarding population status. We included the recreational and commercial harvest for all the states on the board, New Jersey to Florida.

In addition we included some fishery-independent survey indices as well as some fishery dependent ones, and those again range along the geographic span of this board and the fishery. For example, we've got the Maryland charterboat CPUE in addition to South Carolina, just to show you for an example and Georgia.

The indices all have their own story to tell and I think that was the message from the board to put the indices out there and let the public see and make some judgments on them. In terms of the reasons for developing the FMP, those have stayed the same from what you've seen in February. We added additional text to support the charts and graphs and additional information that we included, but our original reasons have remained the same in terms of going after consistent coast-wide management, having a framework ready to implement management measures and to be able to confront issues that may face the fishery now or in the future.

A lot of the key questions have remained the same in terms of information being solicited from the public; in terms of objectives for the management program; the current health of the population; what trends individuals are seeing in the fishery; habitat issues; and also monitoring measures. Again, it's still the same question within it; how would you like the black drum fishery to look in the future. Thank you, Mr. Chairman.

CHAIRMAN DANIEL: And through the review I think we can see that all of our questions, concerns and requests were addressed by staff on the PID. Are there any questions for Danielle on the message that we're sending forward for comment? **Seeing none, I would accept a motion to accept PID and begin to schedule public comment meetings**. Motion by Mr. Miller; second by Mr. O'Connell. Is there any discussion on the motion? Is there any objection to the motion? **Seeing none, the motion carries.**

MS. CHESKY: May I ask are there any states that know right now that they would like to have a public hearing in their state; North Carolina, South Carolina, Delaware, Maryland.

CONSIDER APPROVAL OF THE SPANISH MACKEREL IMPLEMENTATION PLAN

CHAIRMAN DANIEL: All right, the next item on our agenda is to review and approve the Spanish Mackerel Implementation Plan**.** This should be an easy one. Danielle.

MS. CHESKY: Mr. Chairman, we received all of the states implementation plans for Spanish mackerel. The plan development team from the Omnibus Amendment as well as the Spanish Mackerel Plan Review Team recommended that all of them be approved. They saw no issues with the current plans being able to implement the objectives and requirements.

CHAIRMAN DANIEL: Any questions or comments on the implementation plans. It sounds like everybody is doing what they're supposed to do. **I would accept a motion to accept the implementation plans from Mr. Woodward and a second by A.C. Carpenter.** Discussion on that motion? Is there any objection to the motion? **Seeing none, that motion carries**.

POPULATION OF BLACK DRUM STOCK ASSESSMENT SUBCOMMITTEE AND TECHNICAL COMMITTEE MEMBERSHIP

CHAIRMAN DANIEL: The next item, if you'll look in your materials, we are populating a Black Drum Stock Assessment Subcommittee and Technical Committee. There is a memo to the board from Danielle. At present we have membership from New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia and Florida. That probably would suffice.

I have had a discussion with the National Marine Fisheries Service. Right now since that's primarily an in-state waters fishery, if we need somebody we can request it, but at the present time they're not going to offer up anybody on the Black Drum Plan, and I told them I thought that was fine.

I will need a motion, if everyone agrees**, that our stock assessment subcommittee for black drum**

includes Scott Newlin from Delaware, Renee Hoover from Virginia, Ray Mroch from North Carolina, Chris McDonough from South Carolina and Dave Chagaris from Florida. Are there any others? Okay, Danielle.

MS. CHESKY: Mr. Chairman, I just wanted to give the board a quick update. The Assessment Science Committee met back in March to review the current stock assessment schedule. I wanted to pass along – it is part of the Assessment Science Committee Report, but the current schedule is quite packed from 2013 to 2015. The plan right now is that the Black Drum Stock Assessment will be begin and move forward, but I just wanted to pass along the heads up that the schedule for it might slip six to twelve months, just depending upon the workload of staff and individuals. Thank you.

MR. O'REILLY: I heard most of that, Danielle, but I also read where the schedule will be for weakfish and black drum concurrently; is that part of what you're indicating?

MS. CHESKY: Yes, that has been something that has been discussed due to the similarities of the species and the potential timing that might work out to put them together.

CHAIRMAN DANIEL: Is there any objection to the stock assessment subcommittee names that I mentioned going forward as our stock assessment subcommittee? **Okay, with no objection that will be our stock assessment subcommittee for black drum**. **The item is we are populating our South Atlantic Advisory Panel, and it says names in bold.** Clarify that for us, if you will.

MS. CHESKY: Sorry for the confusion. The South Atlantic Advisory Panel was created obviously prior to the board considering management for black drum. Tina has helped me provide a list to the board of our current South Atlantic Advisory Panel members and their noted expertise that was on the nomination forms. Staff is just requesting that the board review that list and see if there needs to be any additions made and to make sure that there is sufficient black drum expertise or experience on the advisory panel.

CHAIRMAN DANIEL: So we don't to take any action if everyone is comfortable with the names on the list. We've got a lot sciaenid expertise and a lot of folks are probably familiar with the black drum fishery. Is there any interest in trying to beat the bushes for more black drum expertise on our advisory panel? Wilson.

DR. WILSON LANEY: Mr. Chairman, there are only two people on there who have listed black drum, and I note for at least case of North Carolina we've got Jimmie Ruhle on there and we don't have any recreational representation. I just wanted to ask Danielle is the normal procedure here to have like a couple of folks from each jurisdiction. I presume that this would remain open and we could bring names for consideration at the next meeting as well.

MS. TINA BERGER: I don't think we're looking for two more folks with black drum expertise, if that is what you were asking, but we are looking for additional folks. If there are people that you would like to put on, at the next board meeting we can have them approved.

CHAIRMAN DANIEL: Yes, we don't have a recreational person from North Carolina so we need to be looking for that, but I don't know many black fisheries' experts unless they're in Virginia or Delaware and the guys out of the Cape Charles Fishing Center or some of those places. Wilson.

DR. LANEY: Well, I was thinking, Louis, of maybe some of those folks down in the Cape Fear who target those big black drum in the Lower Cape Fear might be that we could recruit somebody out of that group of folks.

CHAIRMAN DANIEL: Yes, I wouldn't even begin to know who they are, but we can try and I will announce next week at our North Carolina Marine Fisheries Commission Meeting and maybe get a commissioner interested in doing it. Bill.

MR. BILL WINDLEY: Do we know clearly that the people on the list are still active because we haven't met in a long, long time?

MS. CHESKY: We don't know yet but we will be meeting soon so we can work on that as well and get feedback back to the board in terms of who is active and who wants to remain active as well, if that would be helpful.

MR. WINDLEY: Would you let me know when you come up that?

CHAIRMAN DANIEL: We will. Anything else on that topic? If not, I believe Melissa has got a presentation.

SEAMAP FUNDING UPDATE FOR 2012

MS. MELISSA PAINE: I just have a funding update on the SEAMAP Program for Fiscal Year 2012. In

your briefing book you received a summary on that funding situation. The whole SEAMAP Program will have a 3.9 percent decrease in their funding from what they received last year.

You can see in that same document the allocation that the SEAMAP South Atlantic Committee gave to its various projects, and that would have been if they had received the level funding. That committee will be meeting in a couple of weeks to discuss how to deal with that 3.9 percent decrease in their funding situation.

I just also wanted to note just on other updates on the SEAMAP Program, the long-running coastal survey continues to collect age and growth samples of weakfish, croaker and southern kingfish. Since 2011 they also added age, growth and diet sampling of bluefish, Spanish and king mackerel.

They're also continuing work on their SEAMAP Reef Fish Survey which is in collaboration with the MARMAP Program, and that program has exhibited or will have a 40 percent reduction in their budget this year, so there will be some discussion on how to revise that component of the SEAMAP work to help them out with that reduction in their funding.

The other thing to note is that the SEAMAP South Atlantic has been working really hard on getting their data base online and that will actually happen by the end of this month, so we should be able to have that data base accessible online, and that is through the South Carolina DNR Website. I can send a link out to the group once that is available. Thank you.

CHAIRMAN DANIEL: Thank you. Any questions on SEAMAP funding? If we find that we have an extra hundred grand laying around that can help the bridge net survey in Beaufort, that would be a good add-on to the SEAMAP Program, I think. It would be something for us to discuss if that opportunity arises, but they're dealing with essentially the same species and that would be a neat opportunity, perhaps.

MS. PAINE: We actually have that written into the SEAMAP five-year management plan; that if there were an increase in funding that we might be able to support the bridge net sampling.

OTHER BUSINESS

CHAIRMAN DANIEL: That's excellent; and we approved that? Cool, good, we've already done it. All right, any other business to come before the South Atlantic Board. Wilson.

DR. LANEY: Just really quickly, Mr. Chairman, I'll mention the Cooperative Winter Tagging Cruise has been sort of under the auspices of SEAMAP in the past. Even though it hasn't directly received SEAMAP funding, it is still considered I think under that umbrella. I'll just remind everybody we did secure funding from the North Carolina Coastal Recreational Fishing License Program to conduct that project next January.

That is fully funded to the tune of $238,000; but for 2014 and 2015 the committee challenged us to find a match and indicated they would be willing to ante up half of the funding if we find the other half. So given that is state dollars, I'm going to talk to the National Fish and Wildlife Foundation folks and see if they would be willing to consider a federal match if we're eligible for any their programs.

Failing in that, then perhaps the National Marine Fisheries Service would consider participating in the program once again; and failing in that, then I'll be coming back to you at some future meeting saying, hey, we've got half the funding; now where can we find the other half? Just a heads up on that for the future.

ADJOURNMENT

CHAIRMAN DANIEL: Yes, please give; give often and generously. Anything else for the South Atlantic Board? If not, we will stand adjourned.

(Whereupon, the meeting was adjourned at 3:35 o'clock, May 1, 2012.)

Atlantic States Marine Fisheries Commission
Atlantic Croaker Technical Committee

Annual Review of Assessment Triggers 2012

Introduction

Amendment 1 to the Interstate Fishery Management Plan for Atlantic Croaker directs the Atlantic Croaker Stock Assessment Subcommittee (SASC) to conduct a benchmark stock assessment every five years (ASMFC 2005). In each non-assessment year, the Atlantic Croaker Technical Committee (TC) is required to conduct a set of "trigger" exercises to review Atlantic croaker data. The first trigger is the only hard trigger which, if activated, initiates an assessment in a non-assessment year. If the TC notices substantial changes in one or more of the remaining triggers, the TC can also request that a stock assessment be conducted.

Prior to 2010, the triggers were evaluated on a management area basis, using the mid- and south Atlantic management regions as defined in Amendment 1. The 2010 ASMFC assessment assumed a single, coastwide stock for Atlantic croaker, which was supported by the SEDAR review panel (ASMFC 2010). Following the recommendations of the stock assessment and TC, the South Atlantic State-Federal Fisheries Management Board approved Addendum I to Amendment I at its March 2011 meeting and established the Atlantic croaker stock as a single management unit, rather than the previously divided units (ASMFC 2011). The triggers are evaluated according to this single, coastwide unit.

Evaluation of Assessment Triggers

1. Relative percent change in landings

    a. A stock assessment will be triggered if the most recent year's commercial landings are less than 70% of the previous two years' average landings.

    Commercial landings data were obtained from the ACCSP Data Warehouse. Annual commercial landings of Atlantic croaker along the U.S. east coast have been variable since at least 1950 (Figure 1). Over the last decade, commercial landings have generally declined. In 2011, approximately 11.9 million pounds were landed by commercial fisheries (Table 1). This value represents 74.0% of the average of the previous two years' commercial landings (Average, 2009 – 2010 = 16.1 million pounds). Therefore, the trigger **is not** activated.

    b. A stock assessment will be triggered if the most recent year's recreational landings are less than 70% of the previous two years' average landings.

    Estimates of recreational fisheries statistics were provided by the MRFSS. Recreational harvest of Atlantic croaker (Type A + B1) from New Jersey to the east coast of Florida ranged from a low of 1.35 million pounds in 1982 to a high of 11.1

million pounds in 2001 during 1981 through 2011 (Figure 2). The recreational harvest totaled 2.7 million pounds in 2011 (Table 1). This value represents 55.8% of the average of the previous two years' recreational harvest (Average, 2009 – 2010 = 4.9 million pounds). As such, the trigger **is** activated.

2. Biological Data Monitoring

   a. The technical committee will compare the most recent year's mean length data from the recreational fishery to the average of the previous two years' mean lengths.

      For the 2012 trigger exercise, the recreational fishery average lengths were computed from the MRFSS length frequency data collected from New Jersey to the east coast of Florida during the MRFSS angler-intercept survey and represent harvested (Type A + B1) fish. The data, as processed, are weighted to account for the effects of non-random sampling of the catch across strata (see ASMFC 1994 for details).

      The average total length of Atlantic croaker harvested by recreational anglers in 2010 was 10.2 inches (Table 2). The average of the 2009 – 2010 recreational harvest average lengths was 9.8 inches. The average total length in 2011 increased by 4.08%, relative to the 2009 – 2010 average. The average lengths for the Mid-Atlantic and South Atlantic states differed, with an average 2011 length in the Mid-Atlantic of 10.3 inches versus 9.8 inches average length for the South Atlantic states (Table 2). These average lengths reflect a decrease in the Mid-Atlantic compared to 2009 - 10 (2.09%) but an increase in the South Atlantic (5.95%). These differences are likely due to differences in growth between the regions. Fish tend to reach larger sizes at higher latitudes in their range, which is common with other sciaenidae (red drum, spot).

   b. The technical committee will compare the most recent year's mean size (length and weight) data from the commercial fishery to the average of the previous two years' mean size (length and weight) data.

      The average total length of Atlantic croaker observed in 2011 was compared to the average of the 2009 and 2010 average lengths for major commercial gears using data provided by New Jersey, Maryland, Virginia, and North Carolina. The average length of Atlantic croaker samples from the commercial fisheries decreased in 2011 relative to the 2009 – 2010 average for all state-gear combinations evaluated except for the New Jersey gill net and the North Carolina ocean gill net and fly net fisheries (Table 2). The observed decreases in average length, compared to the previous two-year average, ranged from less than 0.1 to 0.8 inches.

      A similar comparison was performed for average weights, which found that changes in average length did not necessarily correlate with similar changes in average weight. The average weight of Atlantic croaker sampled from New Jersey's fisheries (gill net, trawl, and pound net) and North Carolina's ocean gill net fishery all increased, while all other fisheries reported a decline in the sampled average weight

(Table 3). The largest relative changes were seen in North Carolina's long haul (-36.77%) and inside gill net (-24.08%) fisheries.

c. The technical committee will monitor the overall age composition (proportion at age) and calculate the mean size at age for the age groups that are present in the state samples.

The proportion, mean length, and mean weight of commercial landings at age for Atlantic croaker were calculated for 2007–2011 using data provided by New Jersey, Maryland, Virginia, and North Carolina (Table 4). Note that lengths and weights were not always available for every aged fish. The majority of Atlantic croaker commercial landings in these states have been comprised of fish age 1 and older (Figure 3–Figure 6). There is evidence of a strong 2006 year-class in the New Jersey (Figure 3), Virginia (Figure 5), and North Carolina (Figure 6) age compositions. Maryland, Virginia, and North Carolina also showed evidence of a strong 2008 year class.

The average length and average weight at age of Atlantic croaker sampled from the commercial fisheries was variable during 2007–2011 within each state (Figure 7–Figure 14). The majority of the differences in average length at age within each state were less than 0.75 inches when comparing 2007-2011. In comparisons of average weight at age within states among 2007-2011, most of the differences were less than 0.15 pounds. Larger differences in average length and average weight at age among these years are often attributable to variation in sample sizes at age among years.

3. Commercial Fisheries Effort vs. Landings

a. The technical committee will monitor annual commercial fisheries effort and landings by state and gear to evaluate trends. As the reliability of the effort data improves, monitoring of annual effort and landings will be replaced by monitoring of CPUE (by state and gear).

The SASC for the 2010 assessment reviewed the available commercial fisheries effort data from the states and determined the data were insufficient to calculate a CPUE series for the commercial fisheries (ASMFC 2010). That SASC also noted that supplementary information needed to standardize effort data among the states is either unavailable or not consistently provided. The SASC concluded the commercial CPUE data were not adequate indicates of abundance for croaker.

Although the SASC concluded that the CPUE data were unreliable to use in the stock assessment to estimate overall abundance, the TC felt that the trends in effort and landings data were good indicators to monitor changes in the fishery and the populations. Annual commercial landings and associated effort for major gears in Virginia, North Carolina, and Florida were evaluated. Effort is measured as the number of trips and was only available for positive trips; that is, only trips that landed Atlantic croaker were included. Virginia's commercial landings of Atlantic croaker in the anchor and drift gill-net fisheries again decreased from the previous year, while haul seine and pound-net landings decreased in 2011 after increases in 2010 (Figure 15). Effort decreased in all of Virginia's gears from 2010 to 2011. Effort levels have

varied for the four fisheries over the years, with all indicating an overall decline in effort for the past five years. Landings-per-unit-effort stayed relatively level, with the exception of a sharp drop in the haul seine fishery.

Commercial landings and effort showed steep decreases in all but North Carolina's ocean gill-net and Florida's hook-and-line fisheries, which showed a slight uptick in what has been an overall declining trend over the past two decades (Figure 16).

Effort in Florida's commercial cast-net fishery has shown an overall increase over the available time series, although the decrease seen in 2010 remained level in 2011. Landings have been on a downward trend since 2008 (Figure 17). Both effort and landings in Florida's commercial hook-and-line fishery generally increased from the beginning of the time series to a peak in 2000, after which the fishery's landings and efforts decreased and have been variable.

4. Recreational Catch Rates

Amendment 1 specifies that the recreational fishery CPUE index will be calculated based on directed trips (ASMFC 2005). In the 2010 stock assessment, recreational fishery CPUE was calculated using the directed trips method and the method of Stephens and MacCall (2004; ASMFC 2010). However, the MRFSS index was not used in the final configuration of the stock assessment model. The SASC and SEDAR review panel for that assessment were concerned about the reliability of the directed trips-based methods as it may under-represent trips that did not catch Atlantic croaker. The SASC was concerned that the Stephens and MacCall method resulted in unrealistic species associations and a large number of positive trips being rejected in the analysis. The SEDAR review panel recommended that stratifying the data into subareas based on expected species associations would alleviate this problem.

The language in Amendment 1 also states that recreational fishery CPUE indices will be calculated for each state (ASMFC 2005); however, the TC feels the MRFSS data are insufficient for calculating state-specific catch rates.

For the 2011 trigger exercise, recreational fishery catch rates were calculated using the directed trips approach, a modification of the Stephens and MacCall method, and the Jacquard Index, which is a similar approach used during the 2005 stock assessment (K. Drew, ASMFC, pers. comm.). The TC evaluated the methods but was not comfortable presenting a recreational CPUE index that was not endorsed by a peer review panel.

5. Surveys

The SASC for the 2010 assessment carried out a thorough evaluation of fisheries-independent surveys along the U.S. Atlantic Coast that have encountered Atlantic croaker (ASMFC 2010). The purpose was to evaluate how each survey represents and characterizes the Atlantic croaker population. For each survey, the SASC considered the length of the time series, sample timing and spatial coverage, catchability/availability to the survey gear, changes in sampling methodology, and survey design. Out of thirty-one surveys examined, four were selected for use in the assessment model. The surveys chosen were the NMFS Bottom Trawl Survey, VIMS Juvenile Fish and Blue Crab Trawl Survey, SEAMAP-South Atlantic Coastal Survey, and the North Carolina Pamlico Sound

Survey, also known as Program 195 (P195). These surveys cover a large area or sample the core area, have demonstrated regular encounters with Atlantic croaker, and have collected sufficient sample sizes to develop frequency distributions. Table 5 provides a brief description of these surveys and how they were used to develop indices for Atlantic croaker. A summary and time series of additional surveys considered during the stock assessment and used in previous trigger exercises is also included (Table 6).

All four main indices were calculated using the same methods and data subsets that were used for the 2010 ASMFC assessment, with the exception of the NMFS and the VIMS indices. For the 2010 assessment, which considered data through 2008, the NMFS index was calculated using data collected in the fall (inshore) component of the survey and was based on stratification by depth and latitude (ASMFC 2010). Based on a recommendation by the review panel, only observations from the mid- and deep-depth strata were included in the calculations. The modifications to the NMFS Bottom Trawl Survey in 2009 included changes to the survey vessel, trawling gear, tow speed and duration, station allocation, and fishing protocols (Miller et al. 2010; NEFSC 2010). The shallow and mid-depth strata of the inshore series are no longer sampled. Thus data collected in 2009 and later cannot be stratified by depth using the NMFS strata designations. Species-specific calibration factors were estimated to allow conversion of catch rates between the new and old survey vessels (Miller et al. 2010). For this trigger exercise, the 2011 NMFS fall index was calculated based on stratification by latitude only and the recommended calibration factor for Atlantic croaker (1.134) was applied to convert the 2009 – 2011 index values into units of measure equivalent to data collected prior to 2009. With the same level of latitudinal pooling and use of the same strata, the long term trends should be relatively comparable. The next stock assessment will consider any impacts of the change in vessel and protocol on the long term trends.

The fall components of the NMFS and SEAMAP surveys have primarily encountered age-1 Atlantic croaker. The NMFS index varied from year to year with no obvious trend from 1972 to 1993 (Figure 18). After 1993, the index has remained variable but with an overall increasing trend through the end of the time series. Since 2003, the NMFS index exceeded the time-series average, except for 2008. The SEAMAP index has been variable and without trend over the survey time series (Figure 19). The SEAMAP index, which only includes the fall data, saw a drastic decrease (70%) from 2010 to 2011; however, the SEAMAP index calculated from the entire data set (spring, summer and fall) increased 146% to the highest value in the time series (Table 6).

Data from the VIMS and NC P195 surveys were used to develop young-of-year indices for Atlantic croaker. The VIMS index used in the 2010 stock assessment was modified to allow for the estimation of confidence intervals, which was not reliable under the former calculation method. To produce the new index, the delta-lognormal mean of the catches within each stratum were calculated following Fletcher (2008) and using the Cox formulation of the mean (at the stratum level); the variance of the index was estimated using a bootstrap approach. The index varied without trend from the beginning of the time series through 2006 (Figure 20), with small spikes in 1991 and 1997. From 2007 to 2009, the VIMS index exhibited an increasing trend, spiking in 2009. The plot (Figure 20) shows both the VIMS index with and without the Bay tows included, which

contributed to the large spike in 2009. In 2011 the VIMS index continued to decrease and fell below the time-series average.

The young-of-year index derived from the NC P195 survey varied without trend over the survey time series (Figure 21). The index increased slightly in 2008 followed by a small decrease in 2009. The NC P195 index spiked again in 2010, while the 2011 index decreased to 2009 levels. The index has been below the time-series average for five of the last seven years.

Summary

According to Amendment 1, the trigger is tripped if the recreational or commercial landings fall below 70% of the previous two years' average landings. For 2011, the recreational landings tripped, falling to 55.8% of the previous two years' average. Thus, this would trigger an update or benchmark stock assessment. However, given the following pros and cons of performing a stock assessment, **the TC does not recommend the Board initiate a stock assessment, whether update or benchmark, at this time**.

a. Reasons supporting an update or benchmark assessment in 2013:
    1. The recreational landing trigger was tripped, and the TC has observed a continued downward trend of the commercial landings and some of the length and weight triggers.
    2. An update assessment would update the F-reference point to see where current relative F is in relation to the reference point.
    3. Although the peer review did not accept the last stock assessment's biomass estimates, the update would provide the best estimate of the biomass trend.
    4. A benchmark assessment could provide changes to the model sturcutre and incorporation of new data sources, which may result in peer-review approved estimates of biomass and F
b. Reasons against an update or benchmark assessment in 2013:
    1. The last peer-reviewed stock assessment did not accept the biomass estimate or corresponding biomass reference point, so an update will not provide a peer-reviewed value.
    2. As with the previous assessment, the shrimp trawl bycatch is not quantifiable. This was the biggest concern and issue in the last stock assessment and prevented the peer review from accepting the biomass estimates.
    3. A rushed benchmark assessment may not fully address the concerns of the previous peer review. In addition, a shorter time frame between benchmarks limits model improvements.
    4. The NCDMF has secured funding to perform a study on inshore and near-shore shrimp trawl bycatch to characterize total catch, species catch, size composition of targeted and non-targeted species (to include Atlantic Croaker). These data are expected to be available for the next benchmark stock assessment, which will begin in 2014/15, and will be valuable data to improve shrimp trawl bycatch estimates.

5. There are no other methods, in which the TC is confident, to estimate biomass from other data sources or indices.
6. Bait fishery landings cannot be accurately quantified for Atlantic croaker (specifically the species composition in New Jersey and Virginia; some information available from North Carolina).
7. Time is needed to quantify the switch from MRFSS to MRIP estimates.

Rather, **the TC recommends the Board task the TC with further developing a management and assessment trigger package, by which if tripped, the TC would review the data and provide a recommendation to the Board on the best path forward.** This option would give the Board additional management tools to monitor and react to changes in the croaker fishery and stock, as the TC could evaluate the available data and recommend whether an assessment or management changes would be most effective. At its meeting in June in Charleston, SC, the TC reviewed possible methods for designing management/assessment triggers for Atlantic croaker, using some of the methods to develop the spot triggers included in the Omnibus Amendment as well as methods used by NC DMF to develop a stoplight approach for managing blue crab. These methods can afford the Board additional options while providing a comprehensive look at the status of the fishery and stock; however, they will take additional time to develop.

The TC has concerns about the decrease in landings seen over the past decade but, the fishery-independent indices do not indicate the stock is currently in trouble. Thus, **the TC is not recommending the Board initiate any management measures; however, the TC would support the Board in developing management measures, should the Board decide to begin that process**. Some management options for the Board would include coastwide measures like a minimum size or harvest limits; a maximum coastwide quota based on some level of past landings (75^{th} percentile, one standard deviation above the mean, etc.) or possible use of a fishery-independent index; or allocating a quota among the states.

Finally, **the TC has included a list of research needs for the next stock assessment**, should Board members have the option or ability in the next three years to support such studies. The research needs include:

a. Bait landings composition
b. Shrimp trawl bycatch research (NC, other states, federal)
c. Genetic studies for stock distribution (north/south break?)
d. Movement (tagging or telemetry research)
e. Effort (fishing pressure) by gear description

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Table 1. Comparison of Atlantic croaker commercial landings and recreational harvest estimates from the most recent year, 2011, to the average of the estimates from the previous two years, 2009 and 2010.

Fisheries Data	Pounds		2011 as % of 2009–2010 Avg.
	Avg., 2009–2010	2011	
Commercial Landings	16,075,029	11,891,861	74.0
Recreational Harvest	4,873,357	2,718,328	55.8

Table 2. Comparison of the average total length (inches) of Atlantic croaker observed in the most recent year, 2011, to the average of the average lengths of the previous two years, 2009 and 2010, by fishery, region or state, and gear.

Fishery	State	Gear	Average Length (in)		Percent Change (%)
			Avg., 2009–2010	2011	
Recreational	NJ–East FL	All	9.8	10.2	4.08
Recreational	M. Atlantic (NJ-VA)	All	10.5	10.3	-2.09
Recreational	S. Atlantic (NC-E. FL)	All	9.3	9.8	5.95
Commercial	New Jersey	Gill Net	12.1	12.2	1.07
Commercial	New Jersey	Trawl	11.2	11.2	-0.45
Commercial	Maryland	Pound Net	11.6	11.1	-4.31
Commercial	Virginia	Haul Seine	10.6	10.2	-3.77
Commercial	Virginia	Pound Net	12.4	12.2	-1.61
Commercial	Virginia	Sink/Anchor Gill Net	12.4	11.7	-5.65
Commercial	North Carolina	Long Haul	10.6	9.4	-11.32
Commercial	North Carolina	Inside Gill Net	10.6	9.9	-6.60
Commercial	North Carolina	Ocean Gill Net	12.1	12.3	1.65
Commercial	North Carolina	Fly Net	11.2	11.4	1.79

Table 3. Comparison of the average weight (pounds) of Atlantic croaker observed in the most recent year, 2011, to the average of the average weights of the previous two years, 2009 and 2010, by fishery, state, and gear.

Fishery	State	Gear	Average Weight (lb)		Percent Change (%)
			Avg., 2009–2010	2011	
Commercial	New Jersey	Gill Net	0.89	0.94	5.62
Commercial	New Jersey	Trawl	0.64	0.69	7.81
Commercial	Maryland	Pound Net	0.75	0.80	6.67
Commercial	Virginia	Haul Seine	0.56	0.51	-10.28
Commercial	Virginia	Pound Net	0.97	0.86	-11.34
Commercial	Virginia	Sink/Anchor Gill Net	0.91	0.75	-17.71
Commercial	North Carolina	Long Haul	0.56	0.36	-36.77
Commercial	North Carolina	Inside Gill Net	0.60	0.45	-24.08
Commercial	North Carolina	Ocean Gill Net	0.74	0.79	6.50
Commercial	North Carolina	Fly Net	0.61	0.60	-0.66

Table 4. Number of Atlantic croaker age samples collected from commercial landings, by state, 2007–2011.

State	Number Age Samples				
	2007	2008	2009	2010	2011
New Jersey	338	497	558	749	261
Maryland	277	306	222	344	296
Virginia	344	546	512	451	425
North Carolina	336	739	709	703	
SEAMAP					

Table 5. Summary of information describing the fisheries-independent surveys and how their data were subset to develop indices for Atlantic croaker.

Index	Agency	Program	Survey Design	Sampling Area	Subset Used for Index		
					Season	Area	Size/Age
NMFS	NEFSC	Bottom Trawl Survey	Stratified random	Cape Hatteras to Cape Cod, inshore (fall)	Fall	strata 3180–3440, excluding shallow strata (NJ-NC)	Age 1+
SEAMAP	SCDNR	South Atlantic Coastal Survey (trawl)	Stratified random	Cape Hatteras to Cape Canaveral, coastal waters	Fall		Age 1+
VIMS	VIMS	Juvenile Fish and Blue Crab Trawl Survey	Mixed	Chesapeake Bay and tributaries	Spring		YOY
NC P195	NCDMF	Pamlico Sound Survey (Program 195)	Stratified random	Pamlico Croatan, Roanoke Sounds, and lower Neuse and Pamlico rivers	Spring	excludes Pungo R. stratum	YOY

Table 6. Time series of all indices considered for use in the Atlantic Croaker 2010 stock assessment.

Year	SEAMAP all Weight	SEAMAP Fall Weight	NMFS Fall Number	VIMS Spring DLN	VIMS Spring DLN-Rivers only	NCDMF 120 Numbers	NCDMF 195-Spring Numbers	MDDNR CBT GM	MDDNR BCT GM	FLFWCC 21.3m seine Numbers	FLFWCC 183m seine Numbers	FLFWCC 6.1m trawl Numbers
1972	x	x	0.18	x	x	x	x	x	x	x	x	x
1973	x	x	11.18	x	x	78.04	x	x	x	x	x	x
1974	x	x	18.85	x	x	38.92	x	x	x	x	x	x
1975	x	x	57.25	x	x	30.05	x	x	x	x	x	x
1976	x	x	109.55	x	x	34.27	x	x	x	x	x	x
1977	x	x	65.12	x	x	3.62	x	x	x	x	x	x
1978	x	x	45.77	x	x	24.38	x	x	x	x	x	x
1979	x	x	5.42	x	x	48.24	x	x	x	x	x	x
1980	x	x	5.70	x	x	64.28	x	x	x	x	x	x
1981	x	x	45.48	x	x	16.52	x	x	x	x	x	x
1982	x	x	12.43	x	x	48.33	x	x	x	x	x	x
1983	x	x	24.73	x	x	92.65	x	x	x	x	x	x
1984	x	x	146.80	x	x	60.32	x	x	x	x	x	x
1985	x	x	70.83	x	x	27.74	x	x	x	x	x	x
1986	x	x	75.79	x	x	21.95	x	x	x	x	x	x
1987	x	x	94.12	x	x	52.15	105.77	x	x	x	x	x
1988	x	x	7.69	0.95	0.27	25.28	75.88	x	x	x	x	x
1989	x	x	115.52	14.14	1.43	24.15	125.80	1.01	0.83	x	x	x
1990	12.18	7.72	64.17	6.40	0.60	19.01	355.53	0.11	0.18	x	x	x
1991	29.71	24.53	2.24	28.39	4.93	8.60	266.03	3.09	4.06	x	x	x
1992	25.69	4.32	19.42	2.80	2.17	20.04	65.90	0.91	1.28	x	x	x
1993	13.36	18.68	3.72	7.22	3.27	55.23	437.62	2.02	3.67	x	x	x
1994	13.15	14.64	631.30	0.52	0.26	27.60	164.59	3.52	4.25	x	x	x
1995	9.15	5.08	97.49	2.06	1.25	42.58	157.35	3.01	0.74	x	x	x
1996	5.32	5.14	192.34	0.03	0.01	14.80	65.37	1.46	2.15	0.73	x	x
Continued												

Year	SEAMAP all Weight	SEAMAP Fall Weight	NMFS Fall Number	VIMS Spring DLN	VIMS Spring DLN-Rivers only	NCDMF 120 Numbers	NCDMF 195-Spring Numbers	MDDNR CBT GM	MDDNR BCT GM	FLFWCC 21.3m seine Numbers	FLFWCC 183m seine Numbers	FLFWCC 6.1m trawl Numbers
1997	4.18	2.30	72.06	65.51	8.67	59.25	386.78	3.20	5.32	0.11	x	x
1998	11.51	4.65	158.67	12.68	8.42	97.49	699.99	4.88	30.05	0.40	x	x
1999	11.10	17.48	669.35	4.98	2.46	22.29	744.69	2.24	4.18	1.47	x	x
2000	10.10	4.19	403.93	1.17	0.70	61.53	169.42	0.97	2.76	0.76	x	x
2001	11.28	2.66	51.62	1.55	0.21	28.98	112.28	0.40	0.86	19.59	0.49	x
2002	10.56	9.24	170.81	7.65	4.61	23.22	77.39	2.28	3.50	4.81	1.12	20.13
2003	14.85	14.12	336.07	0.90	0.07	28.82	171.08	0.85	0.81	4.27	1.24	26.18
2004	21.54	15.39	558.17	4.36	2.90	44.80	445.92	0.68	3.51	5.22	0.84	21.72
2005	18.64	23.83	376.15	2.72	1.59	49.38	225.36	0.41	0.44	34.02	0.86	82.50
2006	18.68	12.08	479.58	9.46	5.79	9.41	129.25	1.93	2.10	6.64	1.13	26.69
2007	11.93	9.20	1525.93	6.36	4.18	47.88	111.71	0.53	0.54	2.01	1.25	16.26
2008	15.82	12.02	160.63	28.06	22.21	14.89	300.20	0.96	4.51	8.28	1.64	46.73
2009	16.33	8.67	968.85	114.71	7.32	13.05	79.52	1.46	0.67	5.02	1.32	16.03
2010	16.33	20.39	354.53	29.07	6.63	59.28	1185.43	0.97	0.59	8.05	1.33	107.71
2011	40.30	6.20	730.11	4.43	1.36	4.65	89.87	1.05	1.15	2.88	3.18	15.89

Table 6. (continued)

Year	NJ DR seine Numbers	NJ DB trawl Numbers	NJ OT Aug Numbers	NJ OT Oct Numbers	DE Juvenile GM	DE Adult Numbers
1972	x	x	x	x	x	x
1973	x	x	x	x	x	x
1974	x	x	x	x	x	x
1975	x	x	x	x	x	x
1976	x	x	x	x	x	x
1977	x	x	x	x	x	x
1978	x	x	x	x	x	x
1979	x	x	x	x	x	0.70
1980	0.00	x	x	x	0.20	0.40
1981	0.00	x	x	x	0.19	0.70
1982	0.00	x	x	x	0.00	0.00
1983	0.00	x	x	x	0.00	0.30
1984	0.00	x	x	x	2.17	0.00
1985	0.16	x	x	x	7.15	x
1986	0.29	x	x	x	2.18	x
1987	0.00	x	x	x	1.24	x
1988	0.00	x	1.59	0.00	0.00	x
1989	0.27	x	0.00	0.00	4.94	x
1990	0.00	x	0.00	0.00	0.06	0.10
1991	0.14	0.19	4.87	0.38	2.00	2.90
1992	0.09	4.27	0.15	6.18	15.01	0.90
1993	1.12	1.96	0.18	0.77	13.22	1.30
1994	0.37	2.10	9.87	0.87	6.04	4.00
1995	3.67	30.67	40.46	12.95	22.52	6.70
1996	5.21	52.33	6.38	5.36	42.92	24.37
Continued						

Year	NJ DR seine Numbers	NJ DB trawl Numbers	NJ OT Aug Numbers	NJ OT Oct Numbers	DE Juvenile GM	DE Adult Numbers
1997	0.89	23.70	3.97	3.21	24.05	57.72
1998	3.14	79.09	0.56	2.64	27.66	69.64
1999	0.88	77.04	140.13	20.92	45.30	81.54
2000	3.59	35.05	47.69	45.38	15.84	34.55
2001	1.04	179.27	15.72	22.51	60.72	11.24
2002	5.26	175.51	392.90	133.40	88.82	226.68
2003	0.06	1.57	21.72	40.70	4.64	131.63
2004	0.91	6.31	365.59	159.77	17.19	30.35
2005	1.22	17.95	28.62	172.79	5.54	17.23
2006	1.82	262.66	7.56	25.97	11.77	193.10
2007	2.27	10.32	46.28	205.03	4.47	7.14
2008	2.74	157.23	0.85	75.00	7.50	42.00
2009	0.40	8.58	247.03	0.15	16.50	107.00
2010	0.15	11.66	10.74	10.31	17.60	9.00
2011	0.00	2.43	345.44*	63.95	4.50	13.00

*August OT was not completed until 9/14/11, due to Hurricane Irene

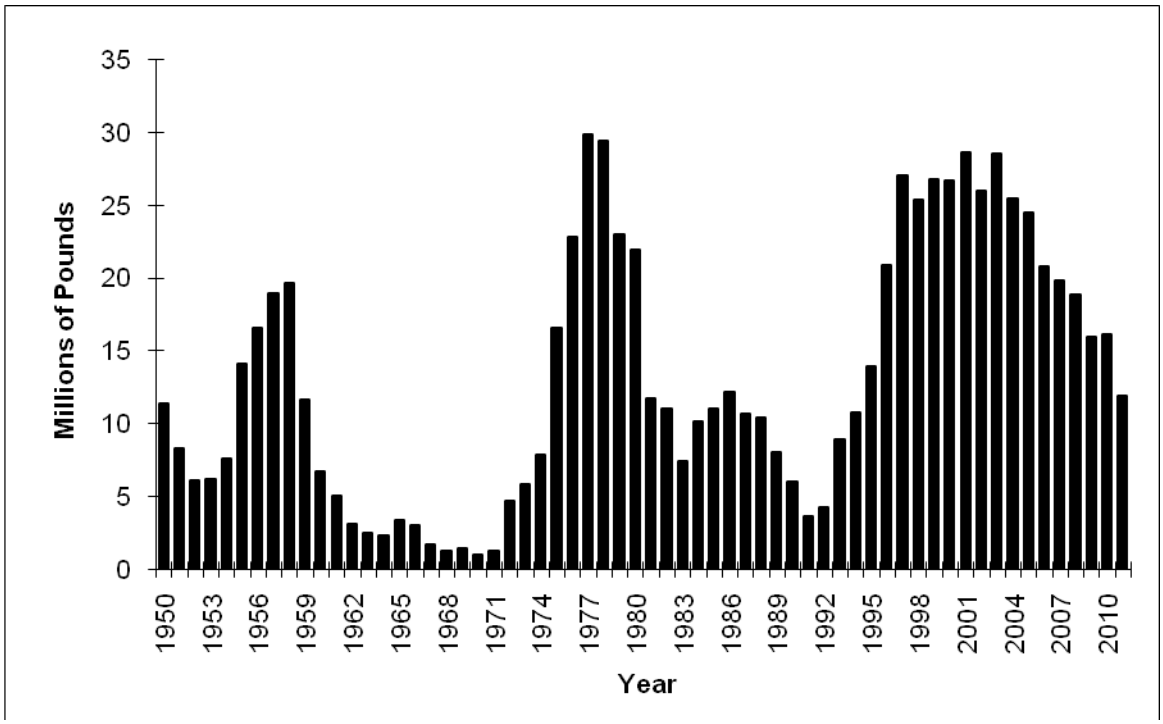

Figure 1. Annual commercial landings (pounds) of Atlantic croaker along the U.S. east coast, 1950–2011.

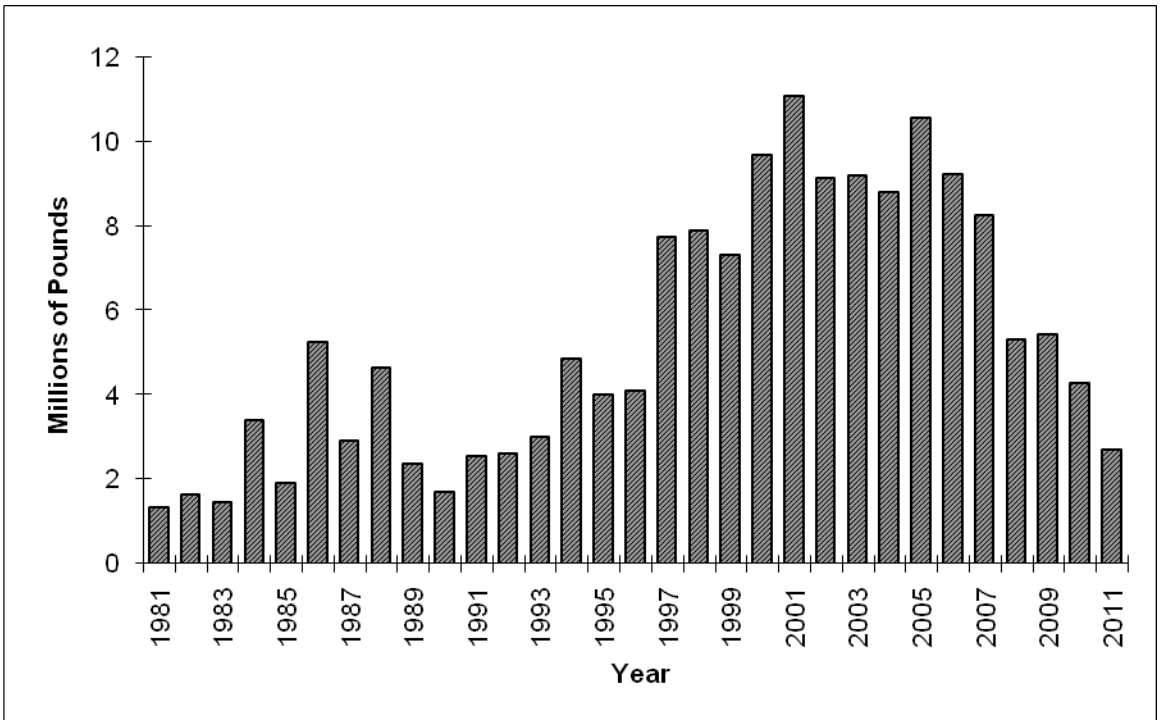

Figure 2. Annual recreational harvest (pounds; Type A + B1) of Atlantic croaker along the U.S. east coast, 1981–2011.

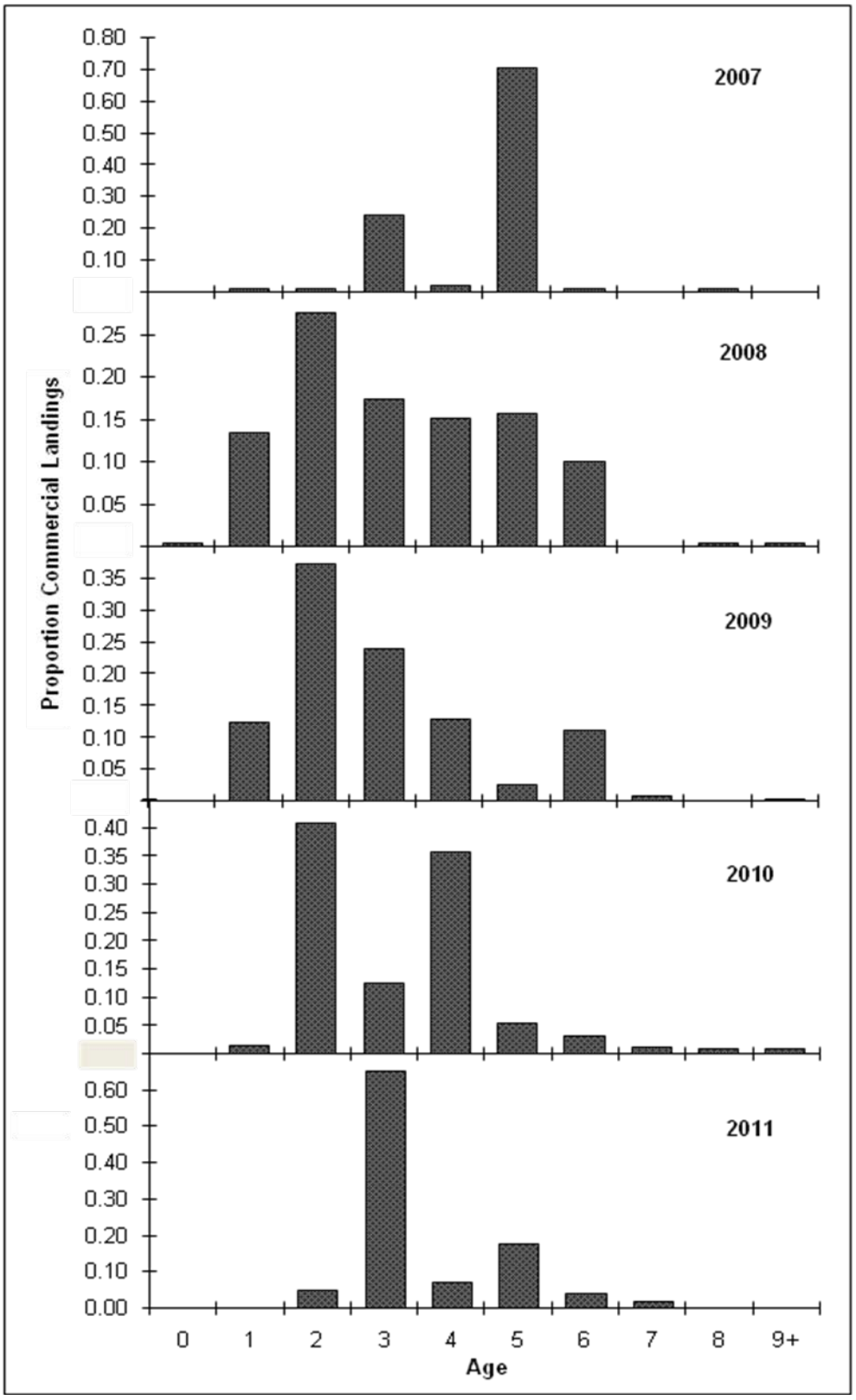

Figure 3. Proportion of Atlantic croaker commercial landings (pounds) at age for New Jersey pooled over all gears, 2007–2011.

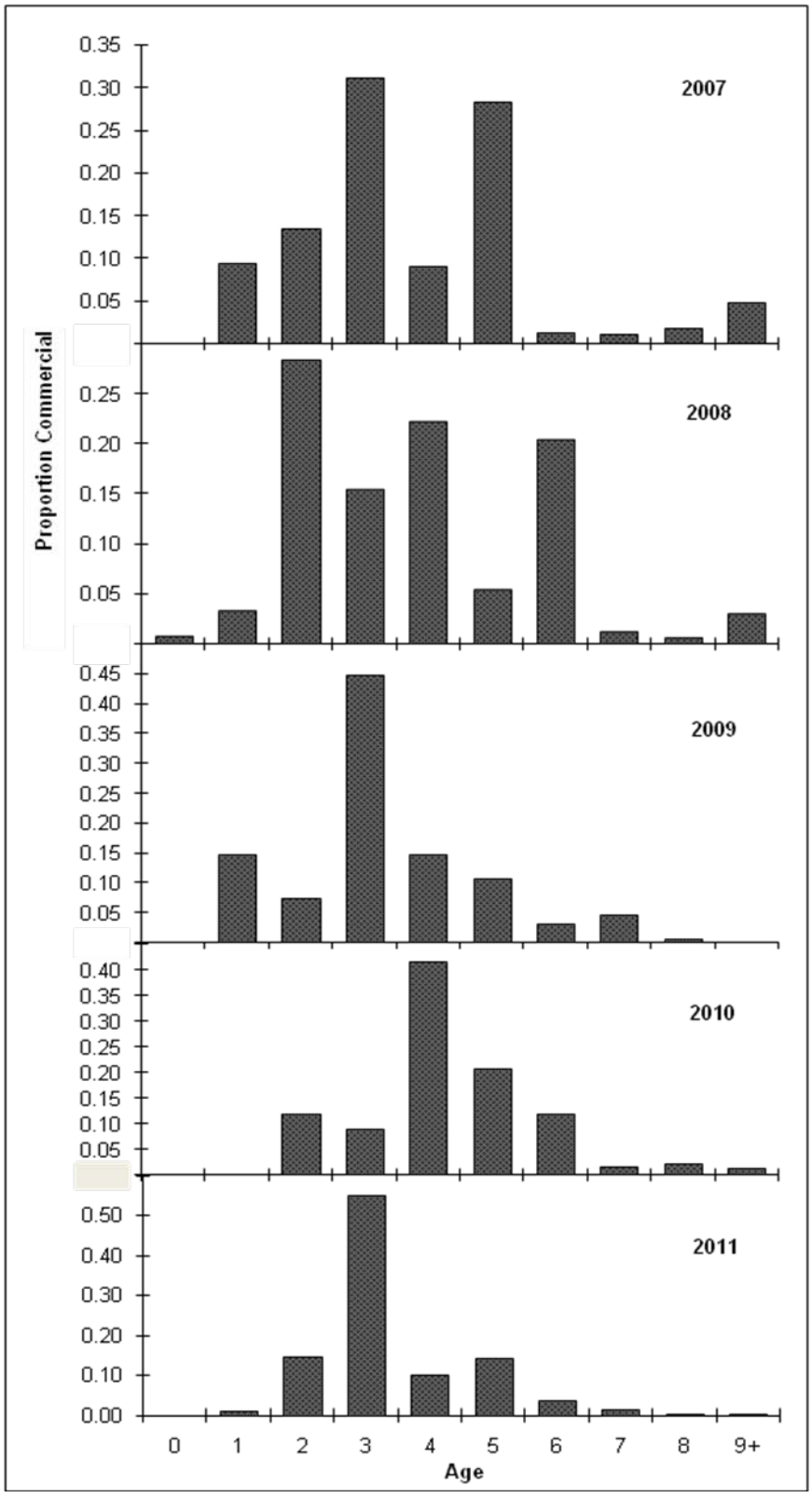

Figure 4. Proportion of Atlantic croaker commercial landings (pounds) at age for Maryland pooled over all gears, 2007–2011.

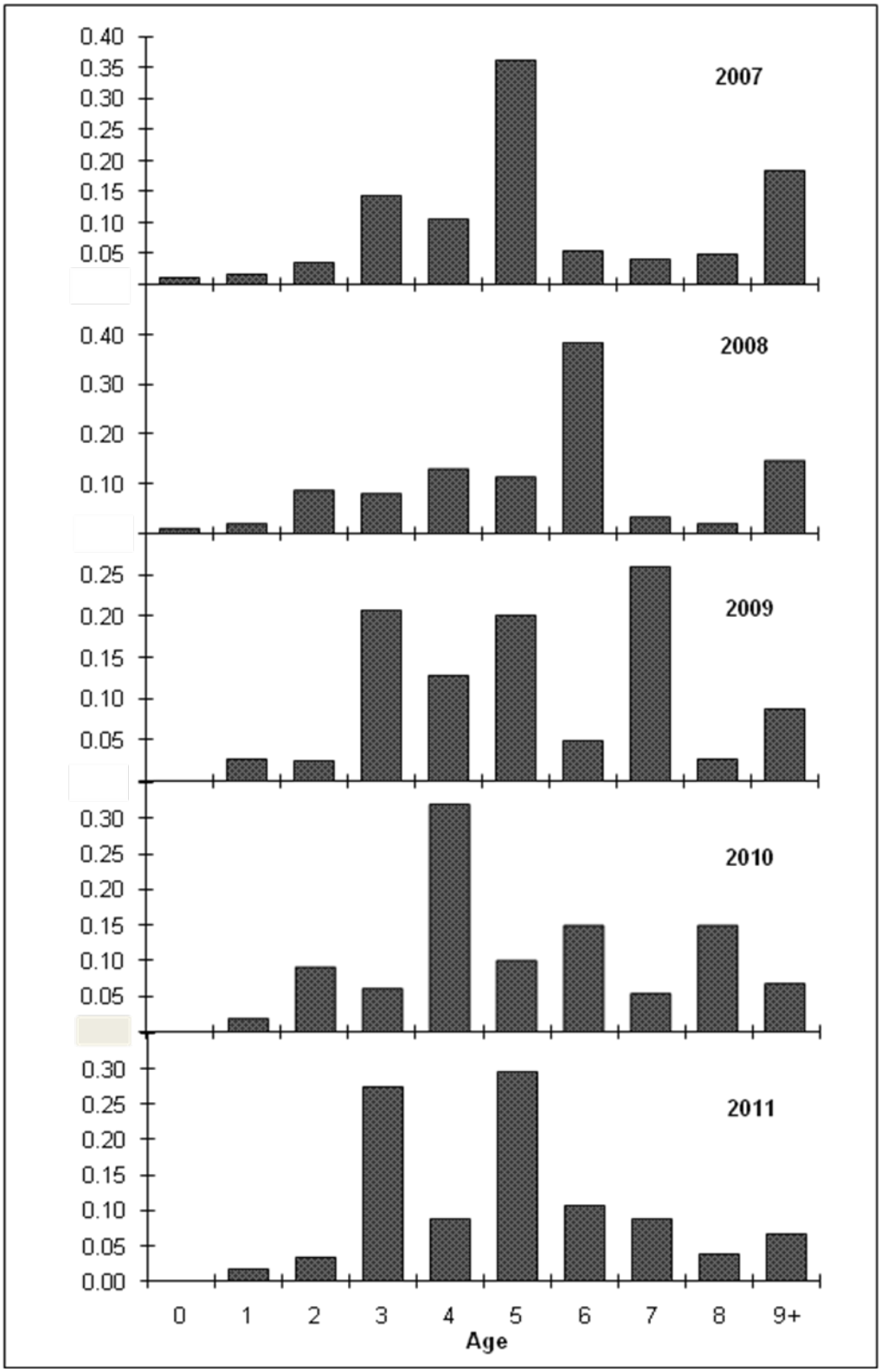

Figure 5. Proportion of Atlantic croaker commercial landings (pounds) at age for Virginia pooled over all gears, 2007–2011.

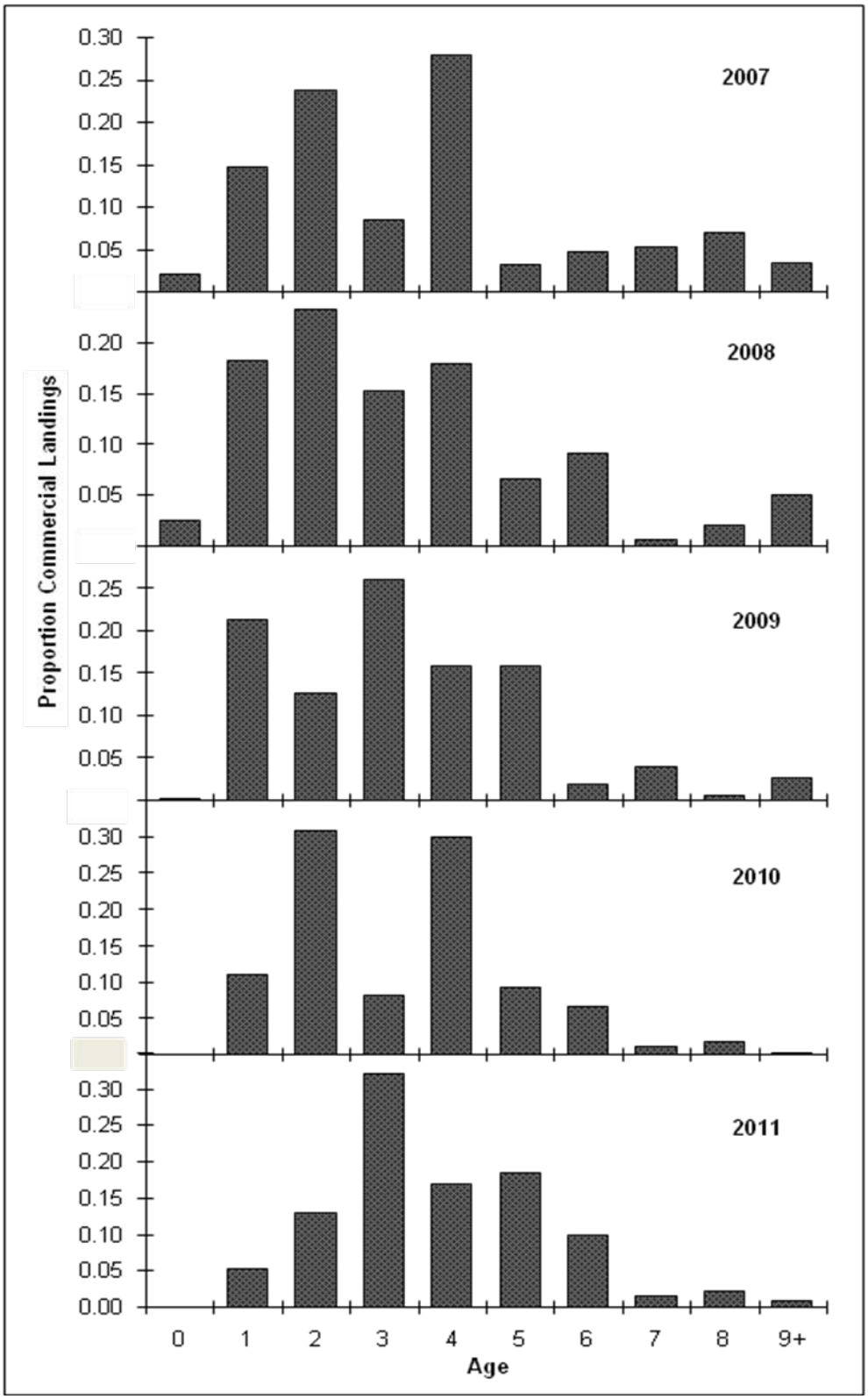

Figure 6. Proportion of Atlantic croaker commercial landings (pounds) at age for North Carolina pooled over all gears, 2007–2011.

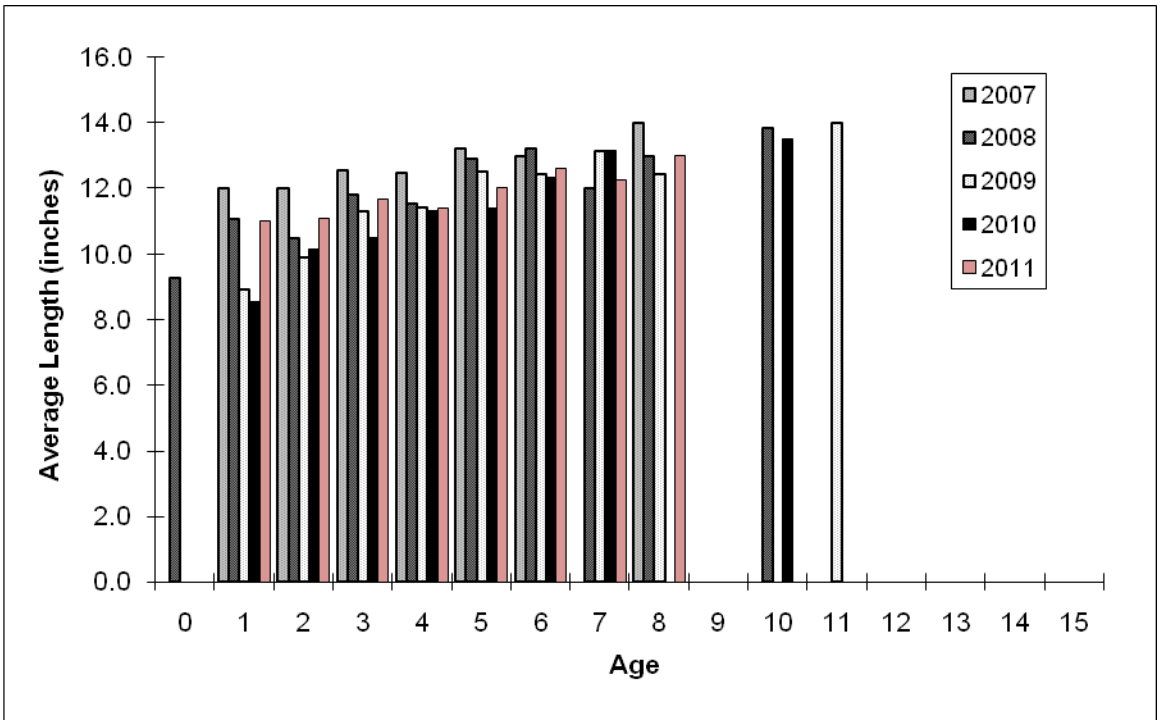

Figure 7. Average total length (inches) at age of Atlantic croaker sampled from New Jersey's commercial landings pooled over all gears, 2007–2011.

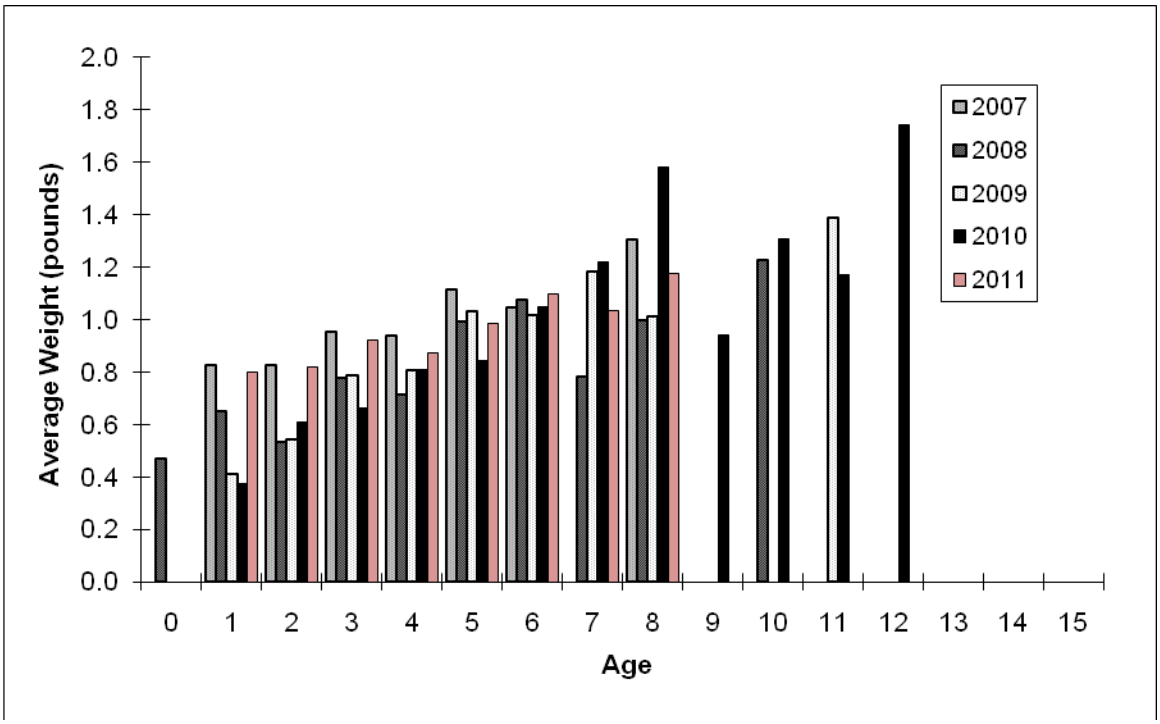

Figure 8. Average weight (pounds) at age of Atlantic croaker sampled from New Jersey's commercial landings pooled over all gears, 2007–2011.

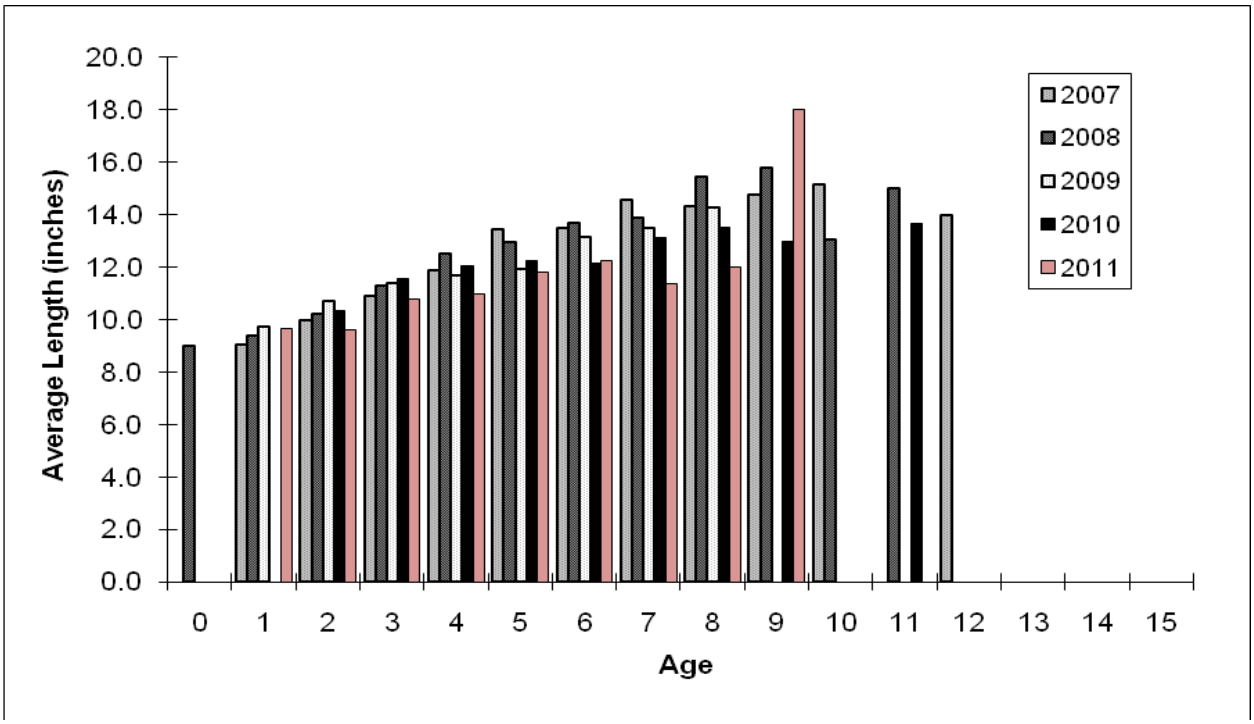

Figure 9. Average total length (inches) at age of Atlantic croaker sampled from Maryland's commercial pound-net landings, 2007–2011.

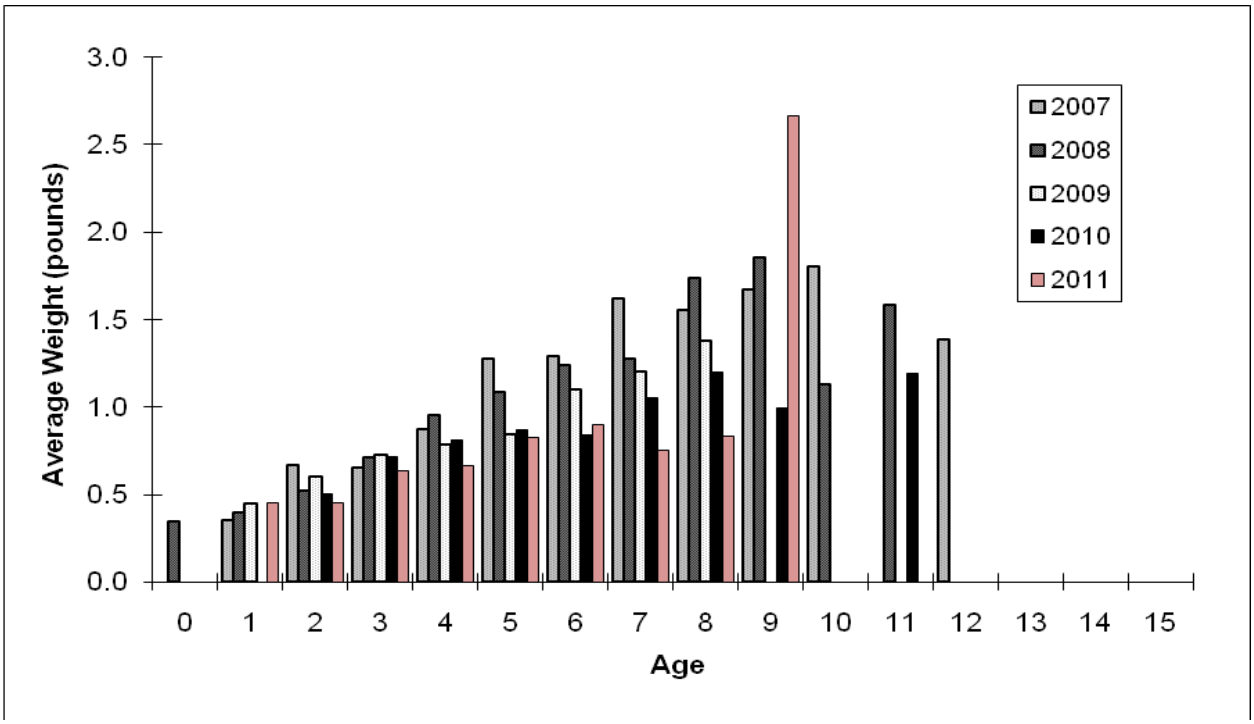

Figure 10. Average weight (pounds) at age of Atlantic croaker sampled from Maryland's commercial pound-net landings, 2007–2011.

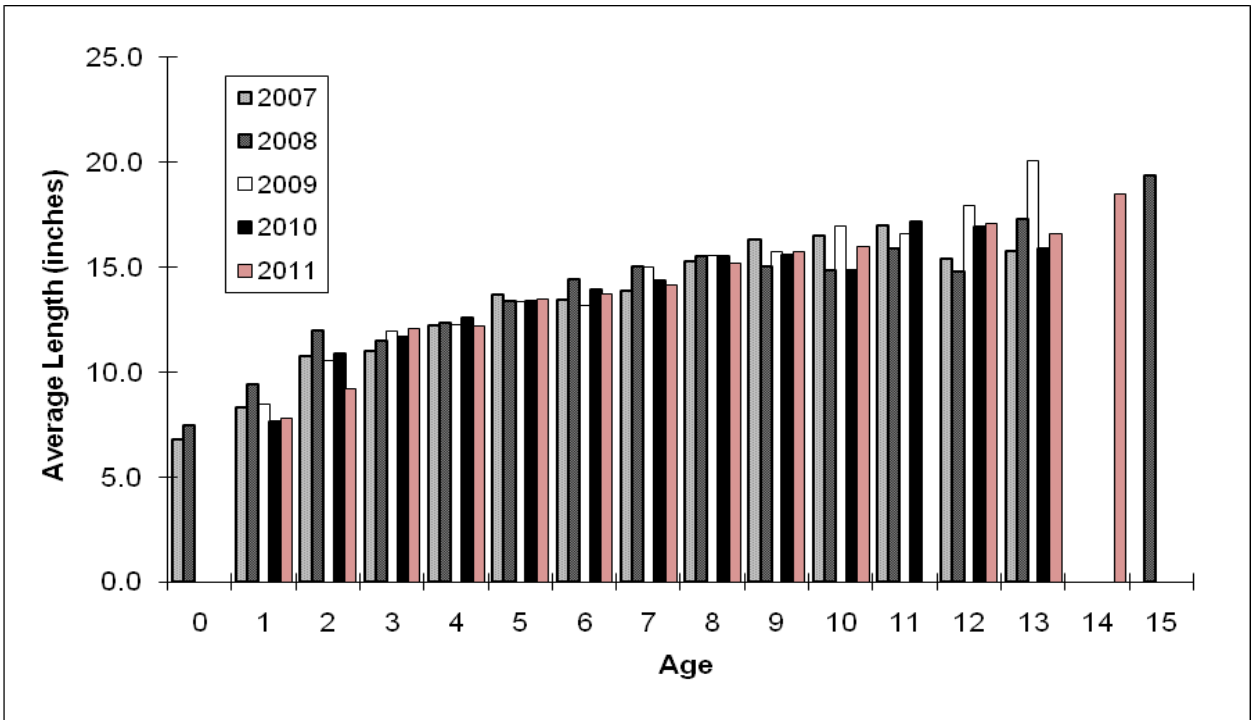

Figure 11. Average total length (inches) at age of Atlantic croaker sampled from Virginia's commercial landings pooled over all gears, 2007–2011.

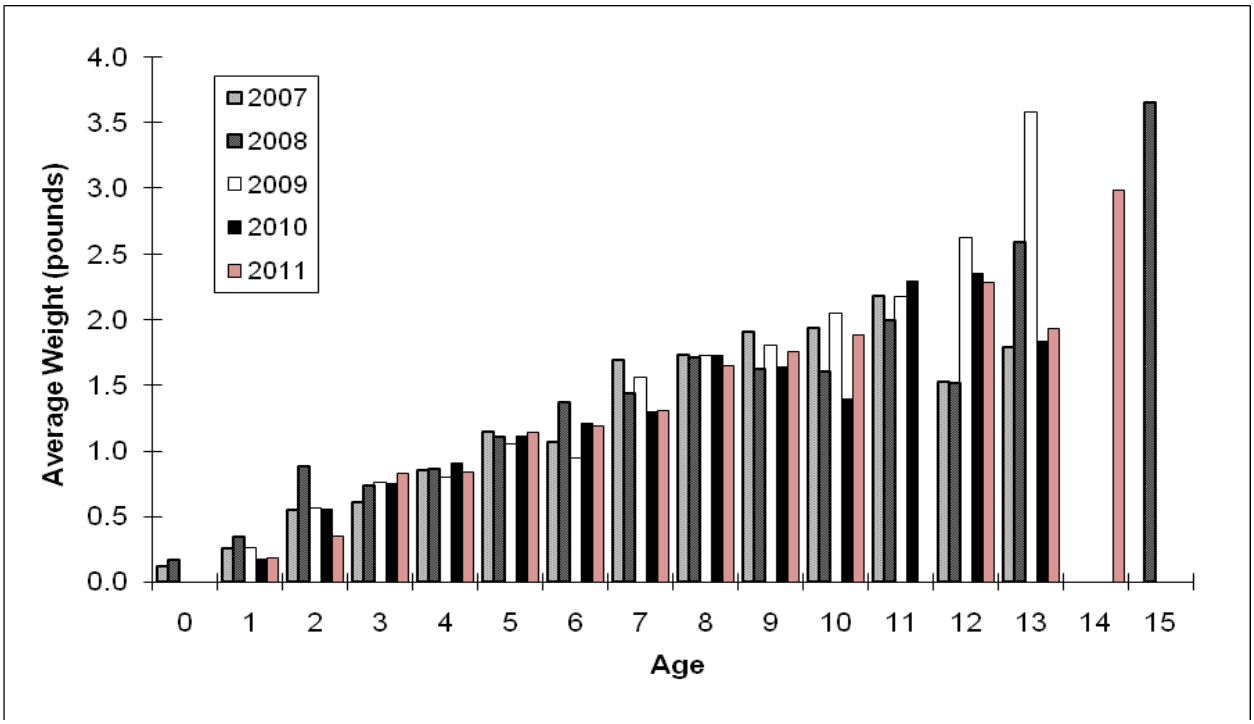

Figure 12. Average weight (pounds) at age of Atlantic croaker sampled from Virginia's commercial landings pooled over all gears, 2007–2011.

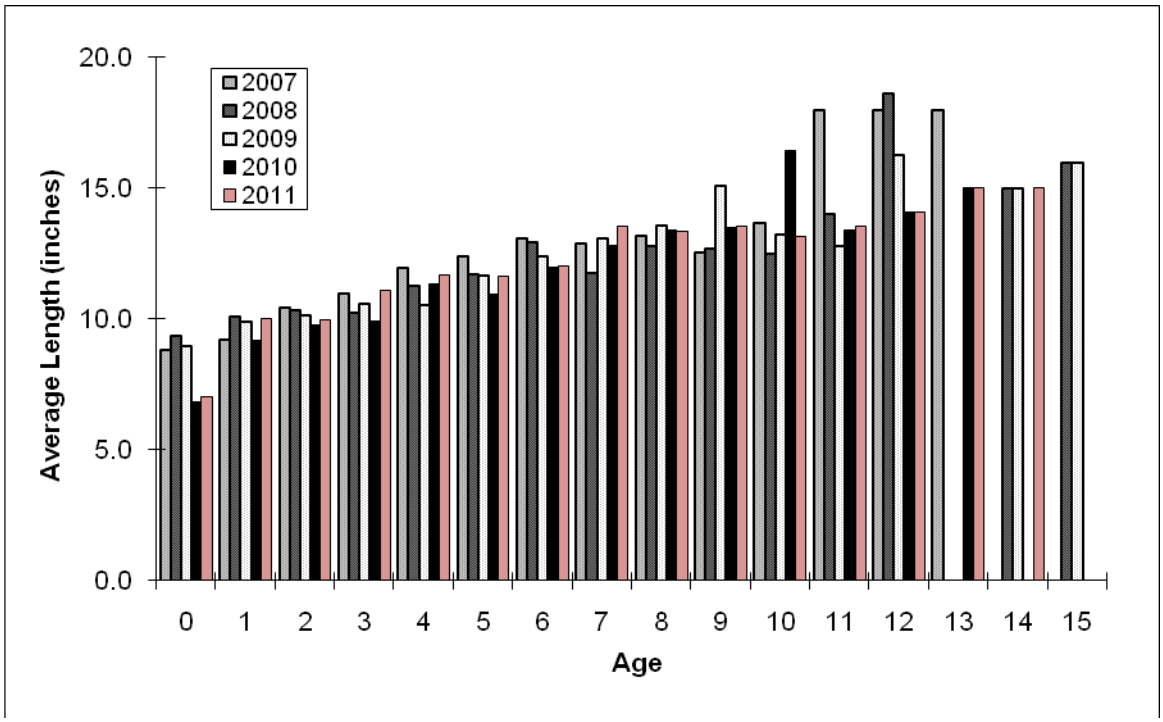

Figure 13. Average total length (inches) at age of Atlantic croaker sampled from North Carolina's commercial landings pooled over all gears, 2007–2011.

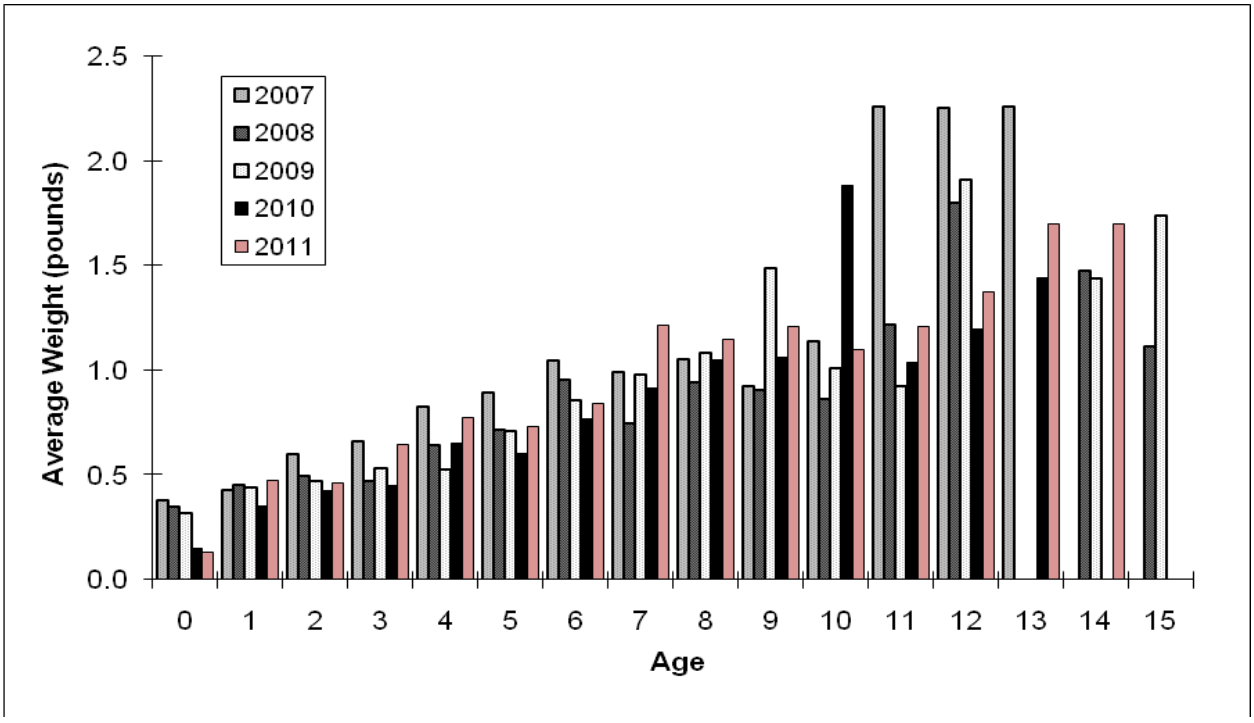

Figure 14. Average weight (pounds) at age of Atlantic croaker sampled from North Carolina's commercial landings pooled over all gears, 2007–2011.

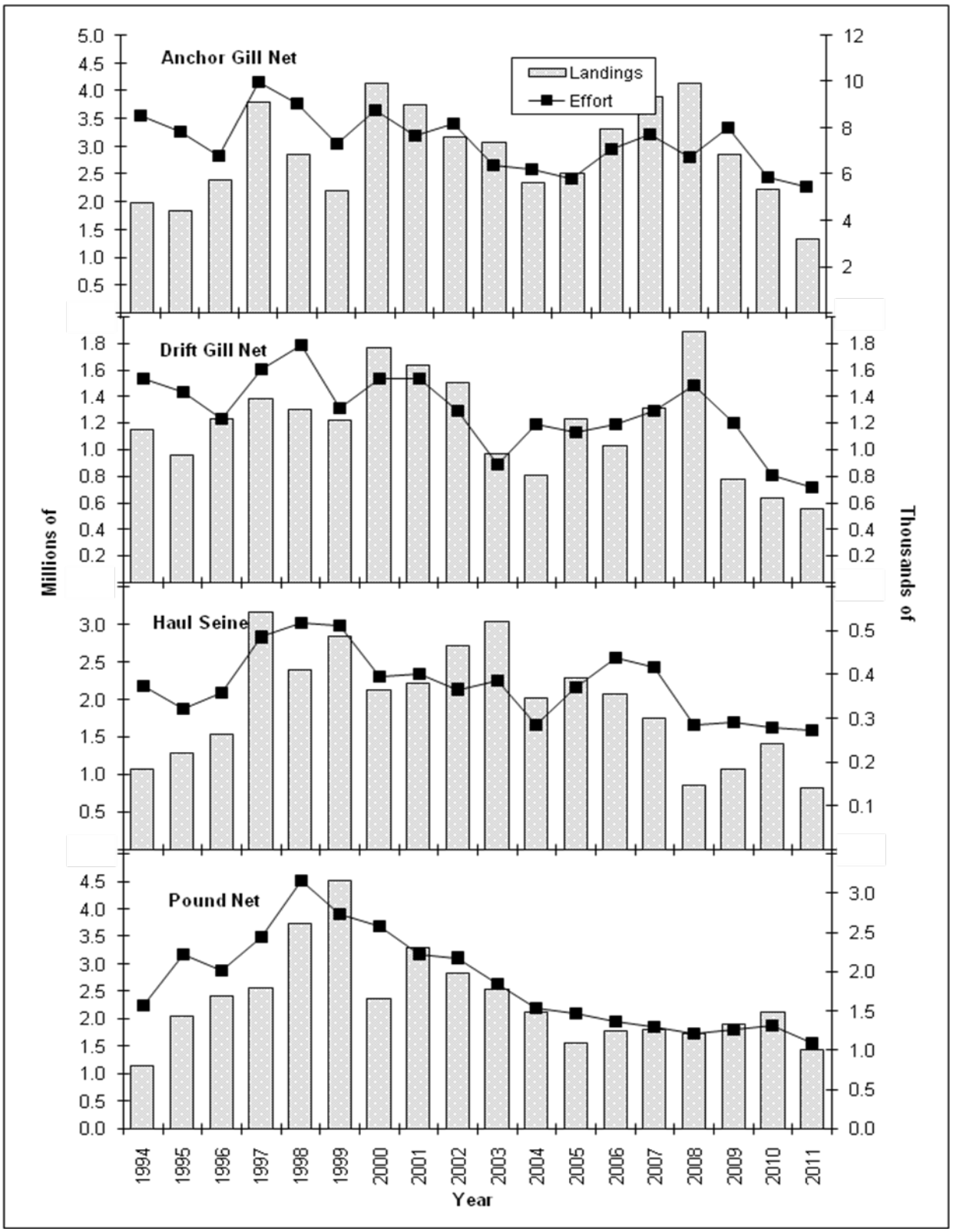

Figure 15. Annual landings (pounds) and effort (trips) in Virginia's Atlantic croaker commercial fisheries, by gear, 1994–2011.

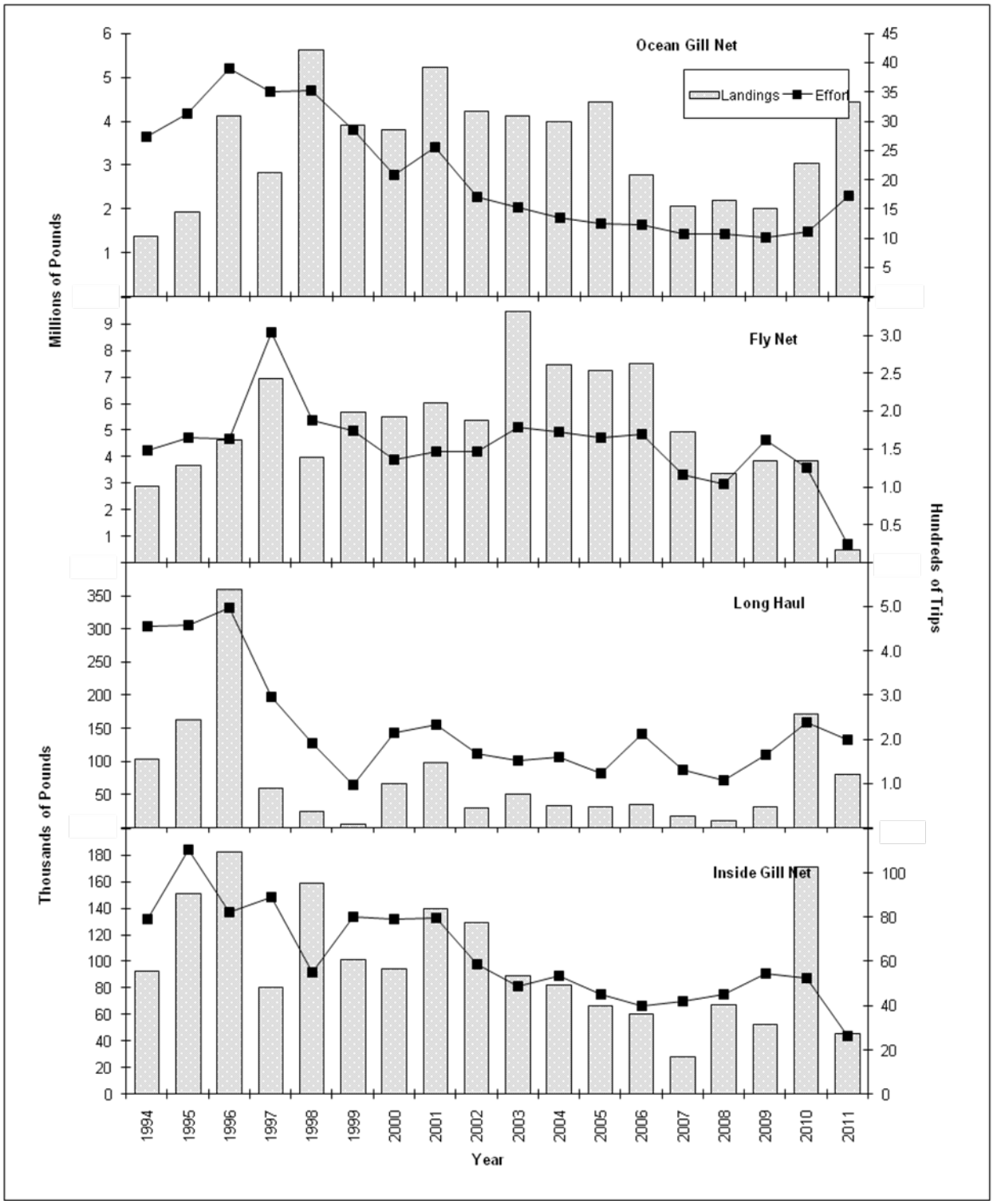

Figure 16. Annual landings (pounds) and effort (trips) in North Carolina's Atlantic croaker commercial fisheries, by gear, 1994–2011.

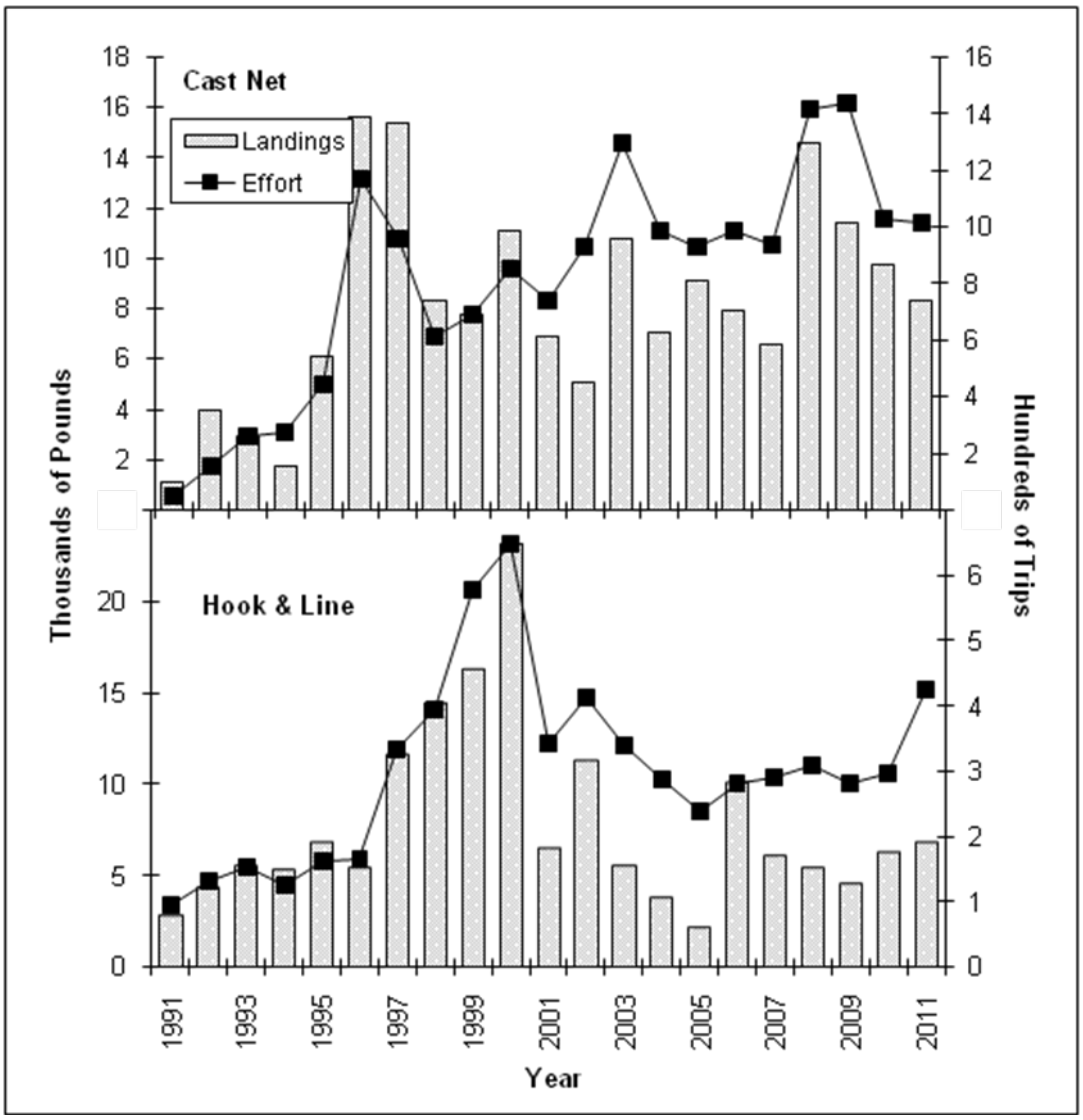

Figure 17. Annual landings (pounds) and effort (trips) in Florida's Atlantic croaker commercial fisheries, by gear, 1991–2011.

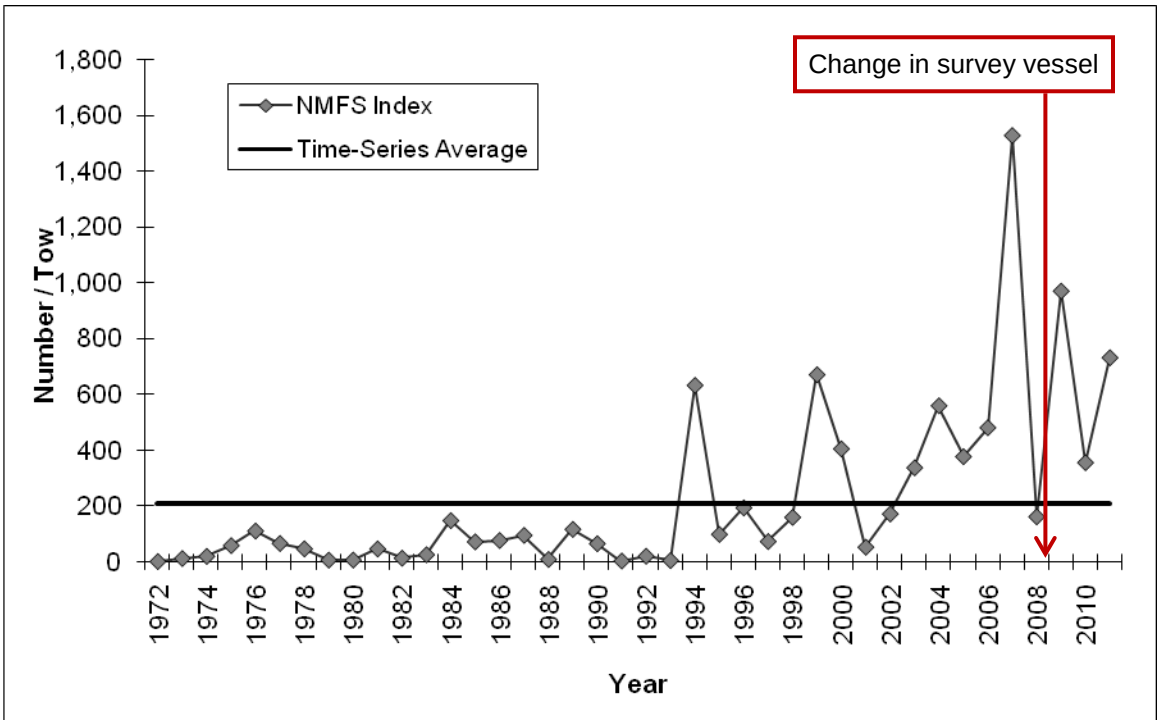

Figure 18. Annual index of relative abundance for Atlantic croaker derived from the NMFS Bottom Trawl Survey, Fall data,1972–2011.

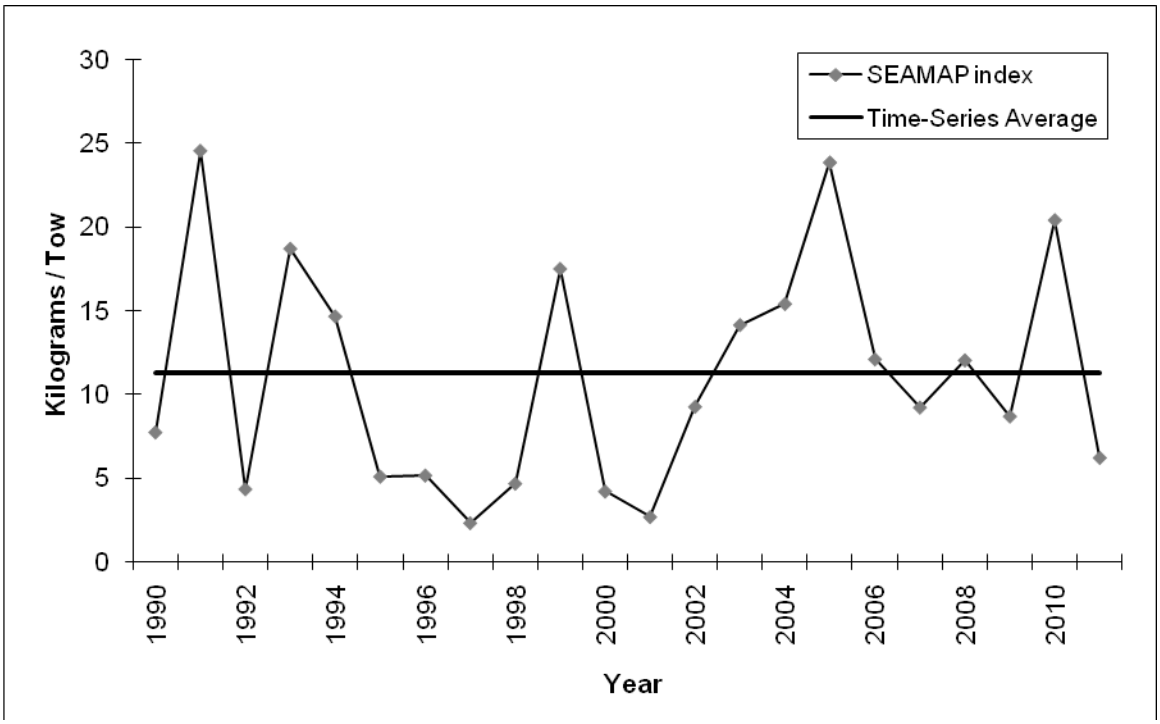

Figure 19. Annual index of relative abundance for Atlantic croaker derived from the SEAMAP-South Atlantic Coastal Survey, Fall data, 1990–2011.

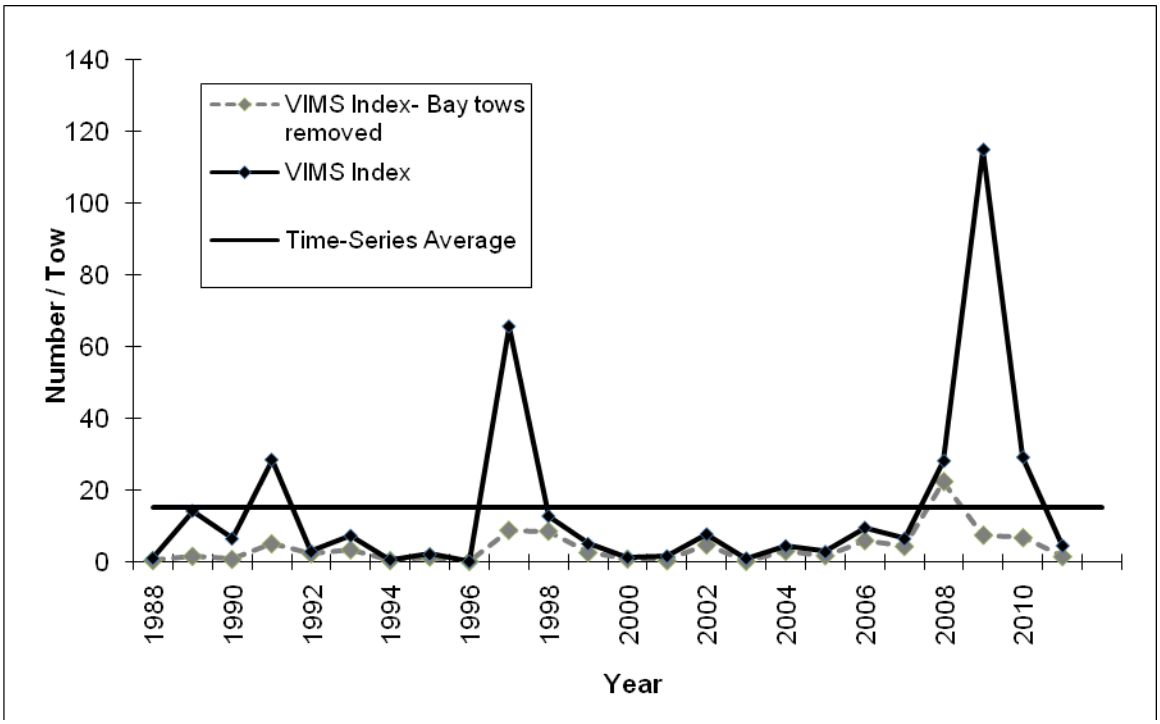

Figure 20. Annual young-of-year index for Atlantic croaker derived from the VIMS Juvenile Fish and Blue Crab Trawl Survey, 1988–2011.

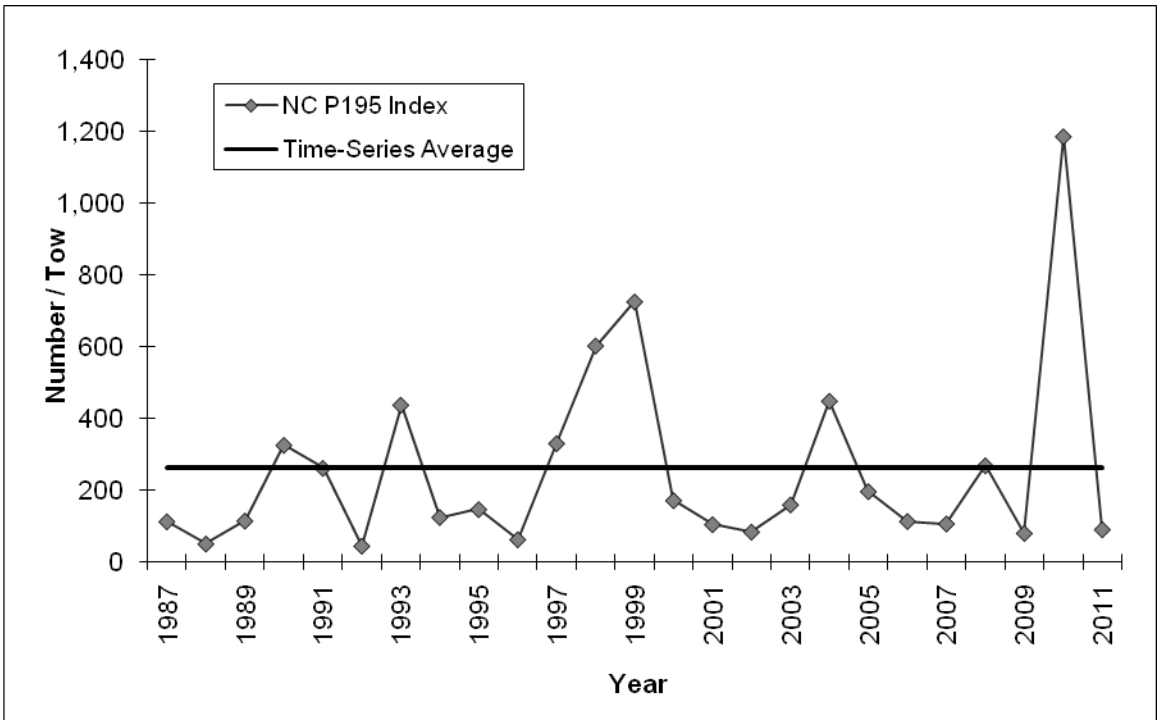

Figure 21. Annual young-of-year index for Atlantic croaker derived from the North Carolina Pamlico Sound Survey (Program 195), 1987–2011.

Atlantic States Marine Fisheries Commission

PUBLIC INFORMATION DOCUMENT FOR AN INTERSTATE FISHERY MANAGEMENT PLAN FOR BLACK DRUM

ASMFC Vision Statement:
Healthy, self-sustaining populations for all Atlantic Coast fish species or successful restoration well in progress by the year 2015.

February 2012

The Atlantic States Marine Fisheries Commission seeks your comment on an Interstate Fishery Management Plan for Black Drum

The public is encouraged to submit comments regarding this document during the public comment period. Comments will be accepted until **5:00 PM (EST) on July 20, 2012**. Regardless of when they were sent, comments received after that time will not be included in the official record. The South Atlantic State-Federal Fisheries Management Board will consider the public comment received on this document when developing the first draft of the Interstate Fishery Management Plan.

You may submit public comment in one or more of the following ways:

1. Attend public hearings held in your state or jurisdiction.
2. Refer comments to your state's members on the South Atlantic State-Federal Fisheries Management Board or South Atlantic Species Advisory Panel, if applicable.
3. Mail, fax, or email written comments to the following address:

Danielle Chesky
1050 North Highland St., Suite 200 A-N
Arlington, VA 22201
Fax: (703) 842-0741
dchesky@asmfc.org (subject line: Black Drum)

If you have any questions please call Danielle Chesky at (703) 842-0740.

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YOUR COMMENTS ARE INVITED

The Atlantic States Marine Fisheries Commission (Commission) is developing an interstate fishery management plan for black drum. Management authority for this species within internal waters and from zero to three nautical miles offshore currently lies with the coastal states. This plan would act to coordinate state management throughout the management unit through the Commission.

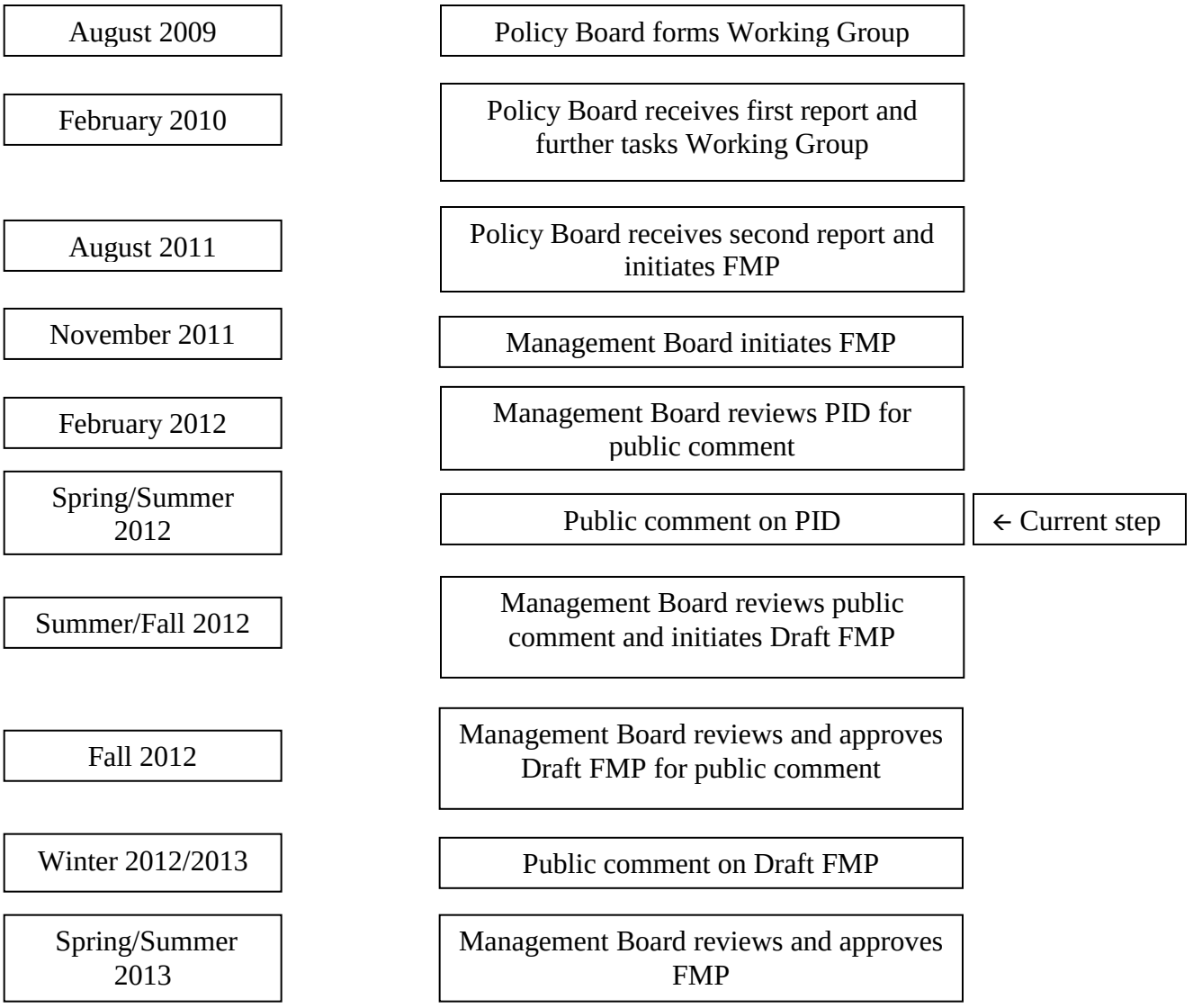
This is your opportunity to inform the Commission about changes observed in the fisheries, actions you feel should or should not be taken in terms of management, regulation, enforcement, research, and any other concerns you have about the resources or the fisheries, as well as the reasons for your concerns.

WHY IS THE ASMFC PROPOSING THIS ACTION?

In November 2009, the Commission's Interstate Fishery Management Program Policy Board (Policy Board) tasked staff with assessing the feasibility of developing a stock assessment and coastwide fishery management plan. Members of the Policy Board raised concerns that the fishery targets juveniles and have greatly expanded in recent years. Staff reported back at the February 2010 meeting, briefly summarizing that the data may be sufficient for a stock assessment, although significant deficiencies likely existed. The Policy Board formed a Black Drum Working Group and tasked the group with developing an in-depth data review on black drum as well as recommendations on the feasibility of conducting a coastwide stock assessment in anticipation of a potential interstate fishery management plan. The working group reported to the Policy Board in August 2011, with recommendations on the status of the data, feasibility of a stock assessment, and management recommendations. The Policy Board accepted the working group's recommendations and voted to initiate an interstate fishery management plan (FMP) for black drum and tasked the South Atlantic State-Federal Fisheries Management Board (Management Board) with developing and implementing the FMP. At its November 2011 meeting, the Management Board voted to initiate the FMP and a stock assessment concurrently.

WHAT IS THE PROCESS FOR DEVELOPING AN INTERSTATE FISHERY MANAGEMENT PLAN?

The publication of this document and announcement of the Commission's intent to develop an interstate FMP for black drum is the first step of the FMP development process. Following the initial phase of information gathering and public comment, the Commission will evaluate potential management alternatives and the impacts of those alternatives. The Commission will then develop a Draft FMP, incorporating the identified management alternatives, for public review. Following that review and public comment, the Commission will specify the management measures to be included in the FMP, as well as a timeline for implementation. The proposed timeline for completion of the FMP is as follows:


August 2009
Policy Board forms Working Group
February 2010
Policy Board receives first report and further tasks Working Group
August 2011
Policy Board receives second report and initiates FMP
November 2011
Management Board initiates FMP
February 2012
Management Board reviews PID for public comment
Spring/Summer 2012
Public comment on PID
← Current step
Summer/Fall 2012
Management Board reviews public comment and initiates Draft FMP
Fall 2012
Management Board reviews and approves Draft FMP for public comment
Winter 2012/2013
Public comment on Draft FMP
Spring/Summer 2013
Management Board reviews and approves FMP

WHAT IS THE PURPOSE OF THIS DOCUMENT?

The purpose of this document is to inform the public of the Commission's intent to gather information concerning the black drum fisheries and to provide an opportunity for the public to identify major issues and alternatives relative to the management of this species. Input received at the start of the FMP development process can have a major influence in the outcome of the FMP. This document is intended to draw out observations and suggestions from fishermen, the public, and other interested parties, as well as any supporting documentation and additional data sources.

To facilitate public input, this document provides a broad overview of the issues already identified for consideration in the FMP; background information on the black drum population, fishery, and management; and a series of questions for the public to consider about the management of the species. In general, the overarching question on which the ASMFC is seeking public comment is: **"How would you like the black drum fishery to look in the future?"**

WHAT GENERAL ISSUES WILL BE ADDRESSED?

Reasons for developing an interstate FMP for black drum:

1. To provide for consistent coastwide management for the migratory black drum population;
2. To provide a framework to implement management measures for black drum, should it be necessary for the conservation of the stock; and
3. To confront issues that may face the fishery now or in the future.

ISSUE 1: CONSISTENT COASTWIDE MANAGEMENT OF A MIGRATORY STOCK

Background: Black drum are currently managed on a state-by-state basis. Within its primary harvest range (New Jersey to Florida), some states have not implemented management measures while other states have implemented size limits, creel limits, and total quotas. The minimum size requirements in effect range from 10" to 16", though some states are currently considering a 32" minimum size. Maximum sizes range from 24" to 26", and creel limits range from 1 to 15 per person/day and 500 to 10,000 pound commercial trip limits. The working group expressed concern that, although the stock has generally appeared healthy throughout the past, increased fishing pressure, due to more restrictive regulations on other species, may negatively impact the stock.

Past tagging efforts have shown black drum to be migratory. Music and Pafford (1984) found that most black drum tagged in Georgia did not move far from the area of release. However, in Georgia 13% of all returned fish had moved more than 100 km, reaching as far south as West Palm Beach, Florida (619 km), and as far north as Murrells Inlet, North Carolina (437 km) (Table 1). Further, migration is not necessarily related to size, as the two black drum that had travelled the farthest from their release sites in Georgia were less than 350 mm TL. Within the South Carolina Marine Game Fish Tagging Program, the majority (99.6%) of recaptures were caught within 1-2 miles of the initial tagging location (WG Report 2011). Nine specimens were recaptured out of state from 9 to 381 miles from the initial tagging location for these fish. Seven of these specimens were recaptured in North Carolina and two were recaptured in Florida. Additional tagging efforts within Virginia and Maryland showed similar

trends of a majority of recaptures occurring nearby with some far-traveling migrants (Table 2, Table 3).

Statement of the Problem: Lack of consistent coastwide regulations may negatively impact the black drum population as fishing pressures shifts from other stocks.

Objective: Develop coastwide management measures for black drum to provide consistent protection for the stock along the coast.

Considerations:

- What is the status of the fishery?
- What precautionary measures may be necessary for continued conservation of the stock until the stock status is known?
- Are there regional differences in the fishery and/or in the black drum stock that need to be considered when implementing management measures?
- What are the recent trends in the recreational and commercial fisheries, in terms of landings and effort (see Figure 1 and Figure 2)?
- How accurate are the recreational data due to how the fishery is conducted?
  - If accuracy of the data is an issue, how can it be improved?

ISSUE 2: ESTABLISH A FRAMEWORK TO QUICKLY IMPLEMENT MANAGEMENT MEASURES, IF NECESSARY FOR THE CONSERVATION OF THE STOCK

Background: The Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA) was enacted for the purpose of supporting and encouraging the development, implementation, and enforcement of effective interstate conservation and management of Atlantic coastal fishery resources. Enforcement of state compliance with mandatory plan provisions is carried out by the Secretary of Commerce, who, upon recommendation by the Commission, has the authority to declare a moratorium in a state's fishery if that state has not implemented and enforced the plan as required and if doing so is necessary for the conservation of the fishery in question. Under the ACFCMA, the Commission is responsible for:

- Preparing and adopting coastal FMPs to provide for the conservation of coastal fishery resources,
- Specifying the requirements necessary for states to be in compliance with the plan and identifying each state that is required to implement and enforce the plan,
- Reviewing, at least annually, each state's implementation and enforcement of the plan to determine whether each state is effectively implementing and enforcing the plan within established timeframes, and
- Notifying the Secretaries of Commerce and the Interior if it determines that a state is not in compliance with the plan.

Additionally in 1995, the Commission adopted an Interstate Fisheries Management Program (ISFMP) Charter to establish standards and procedures for the preparation and required elements of coastal fishery management plans (ASMFC 2009). Such elements include compliance requirements, criteria for

designating a state as *de minimis* and related exemptions, procedures for conservation equivalency, if applicable, and adaptive management measures.

Statement of the Problem: Black drum populations are not subject to any of the protections or benefits gained from an interstate fishery management plan. Fishing effort has increased on the stock since the 1980s and is expected to continue to increase due to restrictions on other fisheries. The framework of an FMP affords managers tools to react quickly to changes in the population and the fishery and provide protection across the range of the migratory stock.

Objective: Develop an interstate FMP for black drum that is consistent with ACFCMA and the ISFMP Charter's standards and procedures, providing states with a management framework.

Considerations:

1. Recommended versus mandatory management measures: All to none of the new measures selected by the Management Board could be recommended or mandatory measures. These possibly include:
   - Size limits
   - Creel limits
   - Trip limits
   - Closed seasons/areas
   - Monitoring requirements
   - Biomass or fishing level targets and thresholds
   - Annual, seasonal, or area-specific quotas
   - Methods to limit entry into the fishery
   - Management or assessment triggers
2. *De minimis* criteria: A state may be granted *de minimis* status (exempting it from certain, specified requirements) if, under existing conditions of the stock and scope of the fishery, conservation and enforcement actions taken by the state would be expected to contribute insignificantly to a required coastwide conservation program (ASMFC 2003). Other Commission FMPs use a *de minimis* range from 0.1% to 2% landings limit compared to coastwide total landings (or commercial and recreational landings separately or jointly).
3. Overfishing definition: An overfishing definition is a standard element within the Commission's FMPs. Assessment results are compared to the overfishing biological reference point(s) to determine stock status. Black drum has yet to undergo a stock assessment, which is projected to occur concurrently during the development of the interstate FMP.
4. Adaptive management measures: Adaptive management provides the flexibility to implement management changes through the addendum process. Addendums, in contrast to amendments, are defined within the FMP and can be an efficient way to institute management measures, while still providing public input opportunities, in response to changes in the fishery or stock population. Measures subject to the addendum process can be defined within the FMP. Contrasting the two methods, an

amendment generally takes 12-18 months to complete, whereas an addendum takes 6-12 months.

ISSUE 3: CONFRONT ISSUES THE FISHERY MAY FACE NOW AND IN THE FUTURE

Background: Currently, the black drum fishery has not been assessed, but no indices or warning signs have materialized to indicate that the stock is in jeopardy. Although the catch-per-unit-effort calculated from the Maryland Charter Boat fleet indicates a downward trend (Figure 3), most other indices, including Delaware's bottom trawl surveys (Figure 4), North Carolina's gill net survey (Figure 5), the trammel surveys in South Carolina (Figure 6) and Georgia (Figure 7), and Florida's young-of-year and post-young-of-year survey (Figure 8) relay little to no trend. Although most surveys do not suggest an unhealthy population level, the Black Drum Working Group noted their concerns that the targeted size range of the fishery tends to be on immature juveniles. Black drum have been shown to begin maturing at 450-499 mm total length (TL) for males, with 50% of them reaching maturity at about 590 mm (age 4 or 5) (Murphy and Taylor 1989). Females begin maturing at 450-550 mm TL, with 50% reaching maturity at 650-699 mm (age 5 or 6). As depicted in length frequency charts of the recreational and commercial harvests (Figure 9 - Figure 14), the majority of fish caught have yet to reach maturity and spawn for the first time. Coupled with the migratory nature of the stock (Music and Pafford 1984, Table 1 - Table 3) and that the actions or lack of action by one state may impact the fishery of another state, coastwide management could be a viable option for ensuring the ability to react to future changes.

Statement of the Problem: Although the stock is not currently considered to be depleted or in trouble, there is currently no framework or forum for states to confront issues relating to the migratory black drum population and/or their black drum fisheries.

Objective: Develop an interstate FMP to provide a framework for addressing issues that may arise in the fishery, both in the near- and long-term.

Considerations:

- What issues face the fishery now?
- What issues has the fishery faced in the past? Have these issues involved interactions with the fishery of another state?
- What potential issues could arise in the fishery in the near-term?
- What potential issues could arise in the fishery in the long-term?
- What tools should be included in the FMP for managers to address these issues? Should these all be included under adaptive management, which would require an addendum (6-12 month process), or should some of these tools require an amendment (18-24 month process)?

BACKGROUND INFORMATION ON BLACK DRUM AND CURRENT MANAGEMENT

Description of the Resource: Black drum range from the Gulf of Maine to Argentina, spanning the entire Commission jurisdiction (Figure 15). Atlantic coast black drum conduct an age-specific inshore migration, northward in the spring and southward in the fall (Jones and Wells 2001). Some genetic work has suggested clinal variation in the Gulf of Mexico (Gold and Richardson 1998), but little other differentiation has been shown (Gold and Richardson 1991). Further, tagging work has suggested migration of some parts of the stock over long distances (Music and Pafford 1984, Table 1 - Table 3).

Black drum are the largest members within the family Sciaenidae, reaching over 46" and 120 lbs. The species is long-lived, reaching up to 60 years of age (Murphy et al. 1998). Black drum are known to spawn during the winter and early spring, with females maturing at 4-6 years and produce on average 32 millions eggs each year (Fitzhugh et al. 1993).

Description of the Fisheries: Recreational harvest of black drum has increased along the Atlantic coast in the last decade. In 2009-2010, harvest was down from the time series peak observed in 2008 (Figure 1). Although New Jersey, Delaware, Virginia, Georgia, and Florida have experienced apparent increases in black drum harvested by anglers, the majority of the recent coastwide increase in harvest comes from North Carolina; increased harvest in South Carolina also occurred until harvest restrictions were enacted in 2007. Florida and North Carolina fisheries comprise the majority of black drum harvested along the Atlantic Coast.

Coastwide commercial landings of black drum reported by NMFS averaged approximately 368,000 lbs in the 1950s and 60s, then declined to an average of approximately 211,000 lbs in the 1970s and 80s (Figure 2). Since 1990, landings have slowly increased to an average of approximately 270,000 lbs. Since 2000, the majority of black drum harvested coastwide are landed in North Carolina and Virginia. A smaller portion of the coastwide black drum harvest is landed in Delaware, Florida, New Jersey, and Maryland. Landings reported from South Carolina are generally low and indicative of reported bycatch rather than a targeted fishery. Georgia, New York, Connecticut, Rhode Island, and Maine occasionally report small amounts of black drum landings as well; however, the magnitude of these landings is so small that the total annual state landings records are confidential. In recent years, gill nets and pound nets have been the primary gear used coastwide.

Description of Stock Status: To date, a coastwide stock assessment has not been performed for black drum. Two regional stock assessments have been completed in the past for black drum on the Atlantic Coast. An assessment of black drum in Florida indicated that the static spawning potential ratio was at least 26%–36% under fishing mortalities estimated for the mid to late 1980s. This observation suggests that the black drum stock in Florida could sustain the level of fishing occurring during the early 1990s (Murphy and Muller 1995). In 2001, yield-per-recruit and catch curve analyses were conducted for black drum that suggested

fishing mortality in the Chesapeake Bay was below F_{MSY} and would likely stay below F_{MSY}, unless fishing on animals 5 years in age or greater in other areas along the coast increased (Jones and Wells 2001). F_{MSY} is defined as the level of fishing that can sustain the stock level to provide the maximum yearly yield to the fishery.
Further, recent survey indices, in general, do not indicate any consistent trends (Figure 3 - Figure 8).

Description of Management: Black drum is managed by state fisheries agencies from New Jersey to Florida. All states in this range currently have some level of regulations for black drum except for North Carolina (Table 4). The minimum size requirements in effect range from 10” to 16”, and New Jersey is currently proposing to raise the minimum size to 32”. Maximum sizes range from 24” to 26”, and creel limits range from 1 to 15 per person/day and 500 to 10,000 pound commercial trip limits.

Catch is tracked by states and the federal government for the commercial fishery and through the Marine Recreational Information Program (MRIP) for the recreational fishery. One concern with MRIP estimates of weight and length is that black drum angling in some states (e.g., Delaware) is conducted during the evenings and nighttime; if these times of day are not adequately sampled, dockside intercept samples may not be representative of the population. Also, black drum seasons in some states (e.g., Maryland and Virginia) are of short duration, so the number of angler intercepts during these periods may not be adequate to characterize these pulse fisheries.

WHAT ISSUES DO WE WANT YOUR INPUT ON?

A series of questions is provided to help facilitate the public comment process. Please also provide any general comments on the black drum population or management.

- What is your perception of the health of the black drum population, and what trends and/or issues do you see in the fishery?
- What should be the objectives for the black drum management program?
- Should there be biological reference points, such as fishing mortality and biomass targets and thresholds, for black drum?
- Should managers be prompted to revise the management program when a target is met (more conservative) or not until a threshold is met (less conservative)?
- What should be the management measures for the black drum commercial and recreational fisheries? For example, should there be minimum size limits, maximum size limits, creel limits, trip limits, quotas, bycatch limits, closed seasons, closed areas, permit requirements, and/or limited entry into the fishery?
- Should fishery regulations be implemented coast-wide or state-by-state?
- Should any or all of the fishery regulations be mandatory for states to adopt? If a state delays implementation, what should be the penalty?
- What recommendations should be made for federal regulations?
- Should *de minimis* criteria be defined and adopted that would exempt some states from specific management requirements because the states' landings are insignificant to the coastwide total? Below what level of harvest should a state's harvest be considered insignificant?
- Should states be permitted to submit proposals for alternative management that achieves the same conservation goals as the required management program (e.g., a less restrictive bag limit given a more restrictive minimum size limit)?
- What adaptive management measures should be included in order to use the more efficient addendum process?
- Should the FMP include monitoring measures (such as research surveys and biological sampling from the fisheries) for black drum? Should state adoption of monitoring measures be recommended or mandatory? If a state delays implementation, what should be the penalty?
- What habitat issues are present for black drum? How should these issues be addressed or evaluated further?

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Tables

Table 1. Number tagged, number and percent recaptured, days at large and distance traveled for black drum in 50 mm length groups. Taken from Music and Pafford (1984).

				Days At Large		Distance Traveled (km)	
Length Group	Number tagged	Number recaptured	Percent returned	Avg	Max	Avg	Max
101 - 150	1	0	0.0				
151 - 200	37	5	13.5	226	359	4.8	24
201 - 250	165	28	17.0	173	529	29.3	445
251 - 300	66	27	40.9	126	424	18.2	165
301 - 350	62	26	41.9	100	321	77.5	619
351 - 400	17	5	29.4	138	455	88.4	217
401 - 450	4	1	25.0	331	331	0.0	0
Total	352	92	26.1	141	529	41.2	619

Table 2. Number of tagged and recaptured black drum (2007-2009) and cumulative recapture rates in the Virginia Game Fish Tagging Program.

State	Number of Returns	Percent of Returns
Virginia	145	79.2%
Maryland	36	19.7%
North Carolina	1	0.5%
Delaware Bay	1	0.5%

Table 3. Number and percent of tag returns by state from the Maryland black drum tagging survey.

State	Number of Returns	Percent of Returns
Maryland	45	83.3%
Florida	5	11.1%
Virginia	2	3.7%
New Jersey	1	1.9%

Table 4. Current state regulations for black drum.

State	Recreational		Commercial			Notes
	Size limit	Bag limit	Size limit	Trip Limit	Annual Quota	
ME->NY	-	-	-	-	-	
NJ	16” min	3/person/day	16” min	10,000 lbs	65,000 lbs	
NJ Proposed	32” min	2/person/day	32” min	5,000 lbs	50,000 lbs	
DE	16” min	3/person/day	16” min	10,000 lbs	65,000 lbs	
MD	16” min	1/person/day 6/vessel (Bay)	16” min		1,500 lbs Atlantic Coast	Ches Bay closed to commercial harvest
VA	16” min	1/person/day	16” min	1/person/day*	120,000 lbs	*without Black Drum Harvesting and Selling permit
NC	-	-	-	-	-	
SC	14” min 27” max	5/person/day	14” min 27” max	5/person/day		Commercial fishery primarily bycatch
GA	10” min	15/person/day	10” min	15/person/day		
FL	14” min 24” max	5/person/day	14” min 24” max	500 lbs/day		One fish >24” allowed for recreational fishers

Figures

Figure 1. State trends in estimated recreational harvest (Type A + B1; in numbers) of black drum from 1981-2010 (MRIP, June 2011). Note differences in scale.

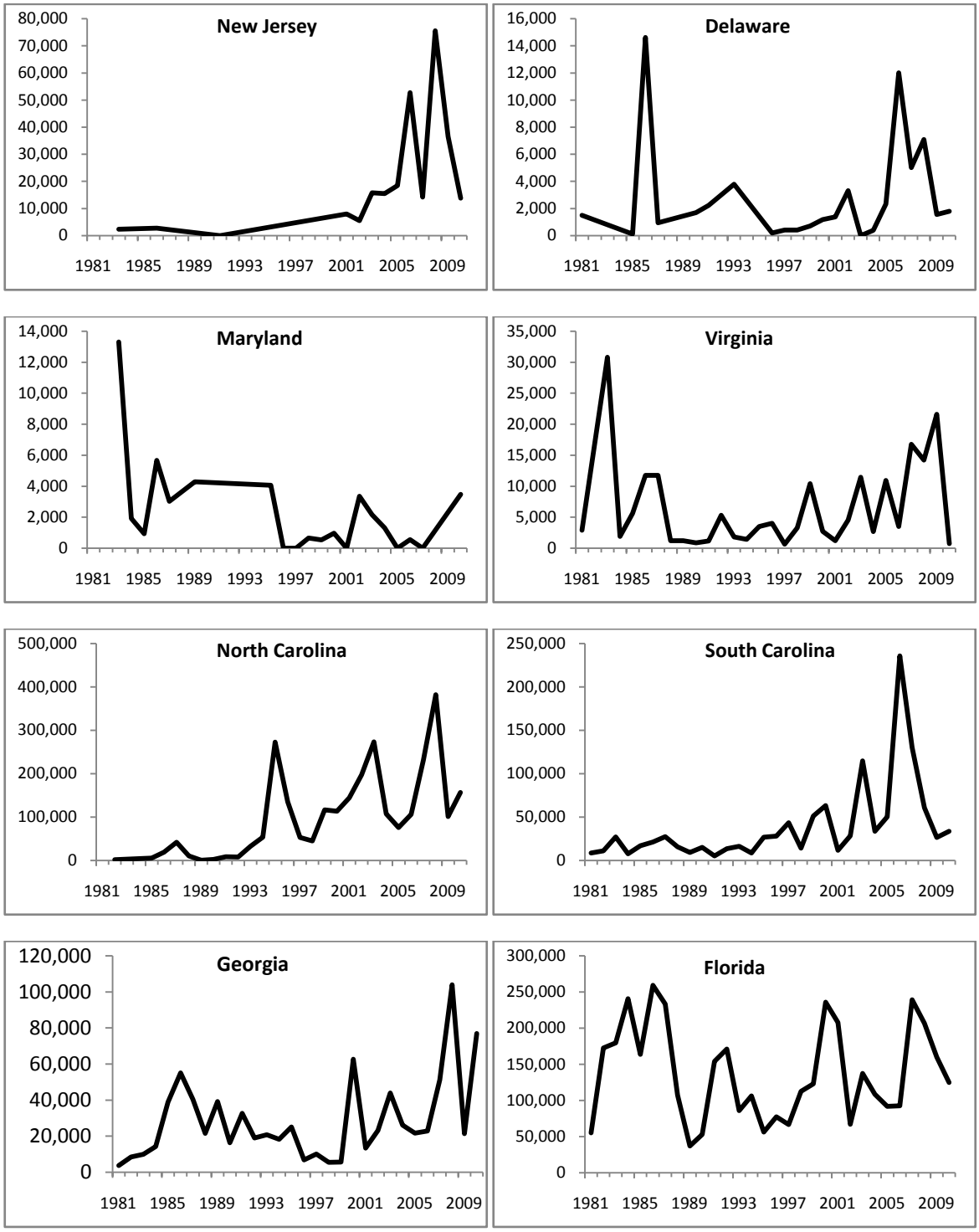


Figure 2. State trends in commercial harvest (in pounds) of black drum from 1950-2010 (NMFS Statistics). Note that South Carolina and Georgia landings are not graphed beginning in 1993 and 1999, respectively; South Carolina designated black drum as a game fish and Georgia landings are confidential. Additionally, Maryland prohibited a Chesapeake Bay commercial fishery since 1998. Note differences in scale.

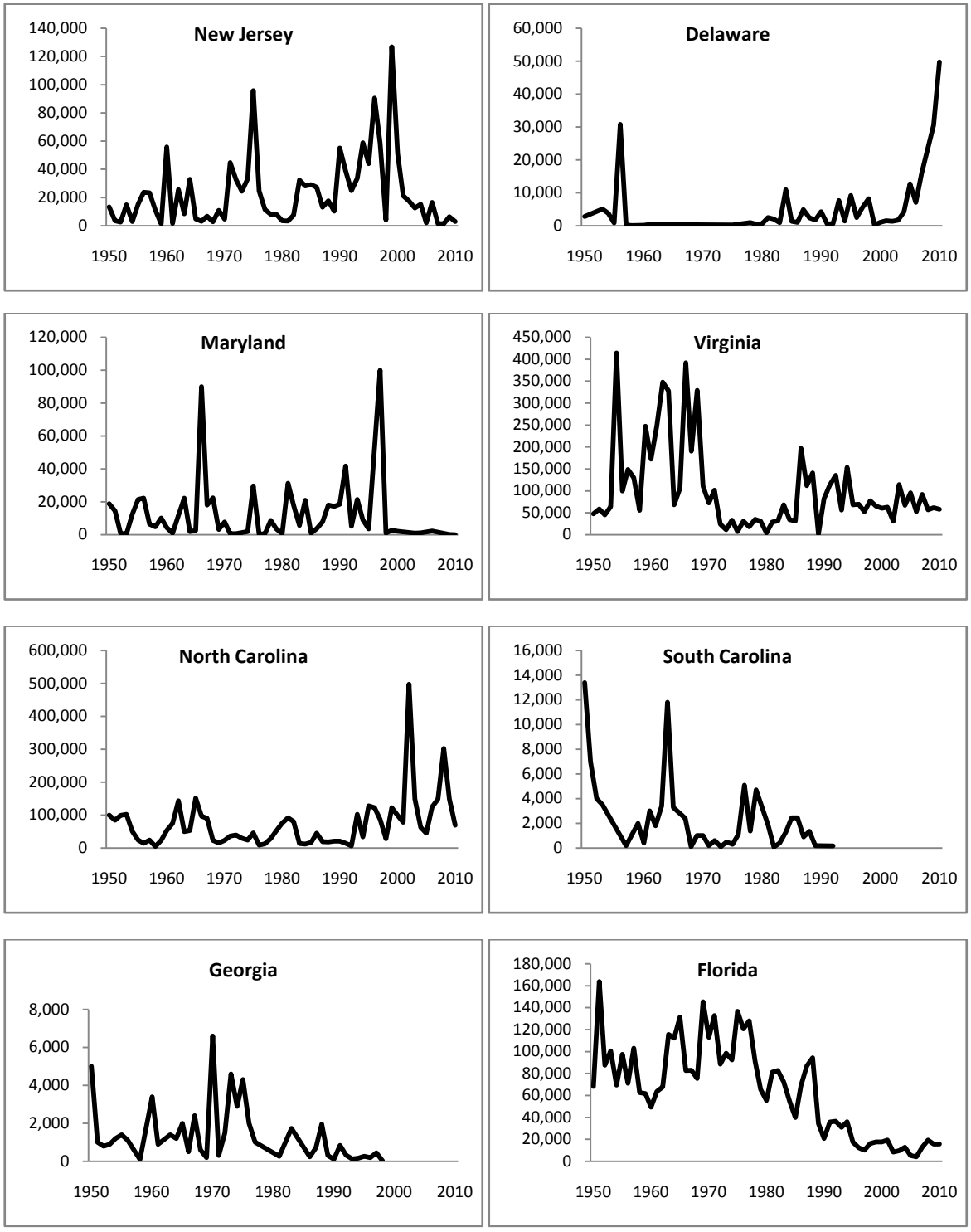


Figure 3. Maryland charter boat black drum harvest per angler CPUE (number of fish caught per day and only days on which black drum were caught), 1993-2010.

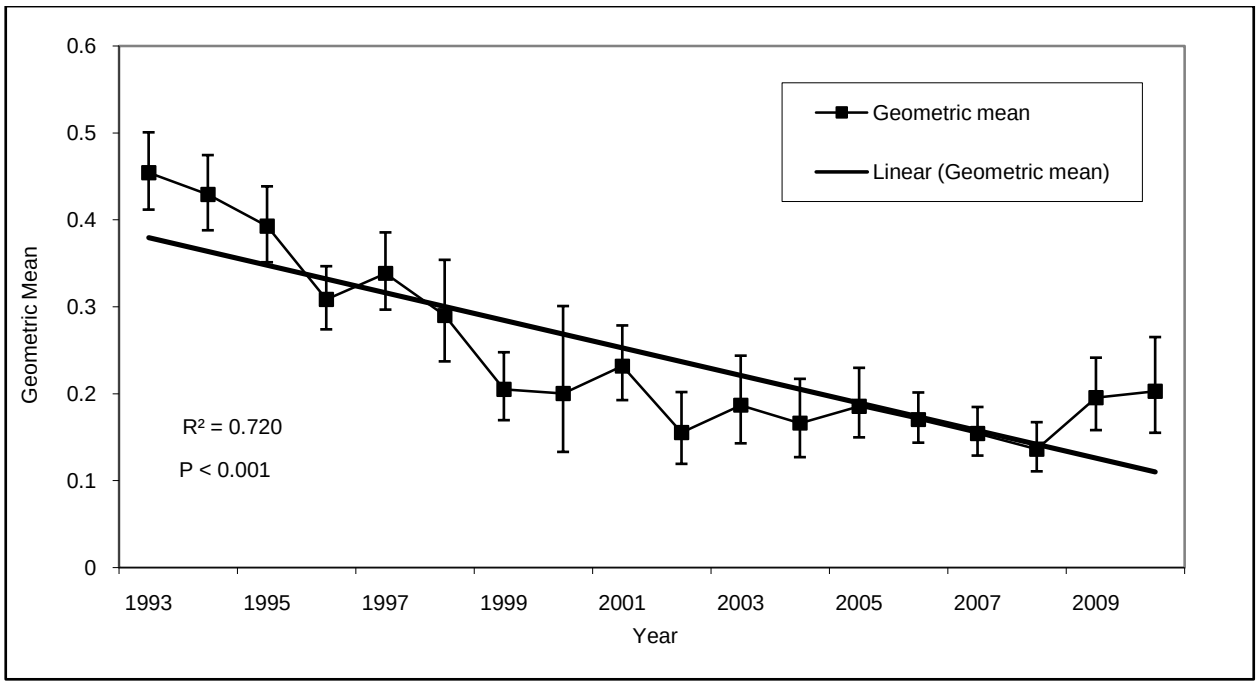


Figure 4. Mean catch per tow of juvenile black drum in the 16- and 30-foot Delaware bottom trawl surveys, 1990-2010.

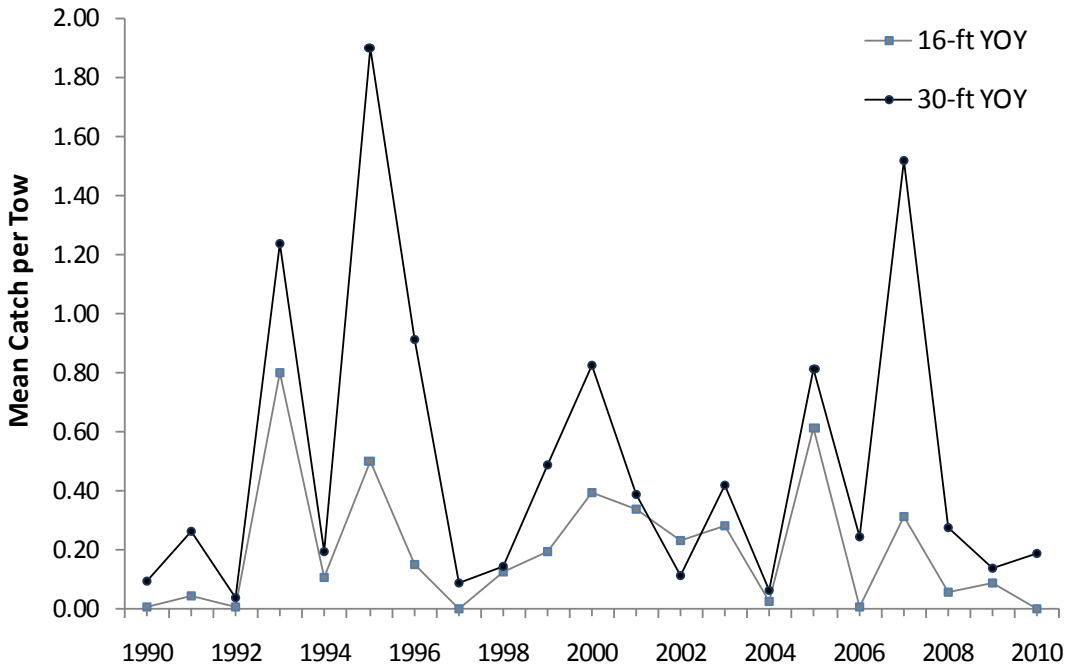


Figure 5. Annual arithmetic and geometric abundance indices for black drum from Program 915 (NC Independent Gill Net Survey). CPUE is number of individuals in a 12 hour gill net set.

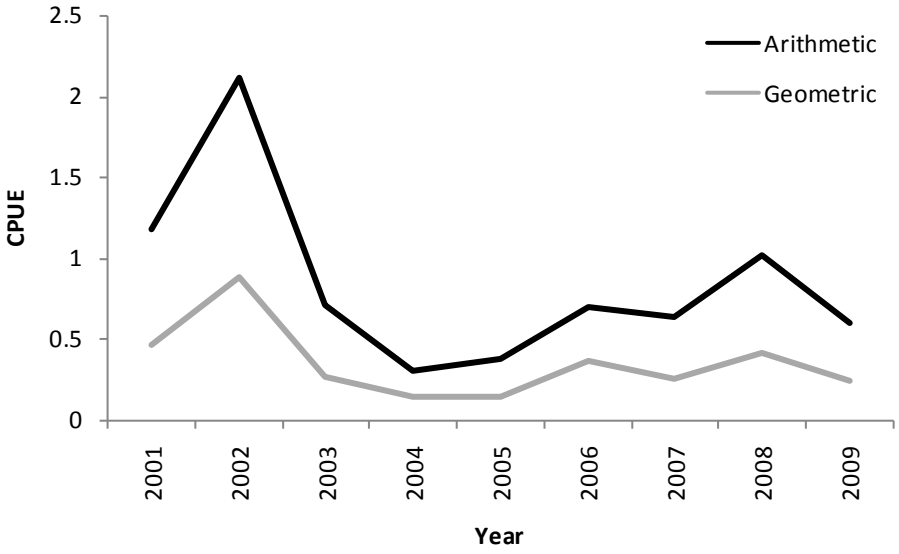


Figure 6. Mean annual CPUE (black drum per 10-minute set) of black drum for SCDNR trammel survey.

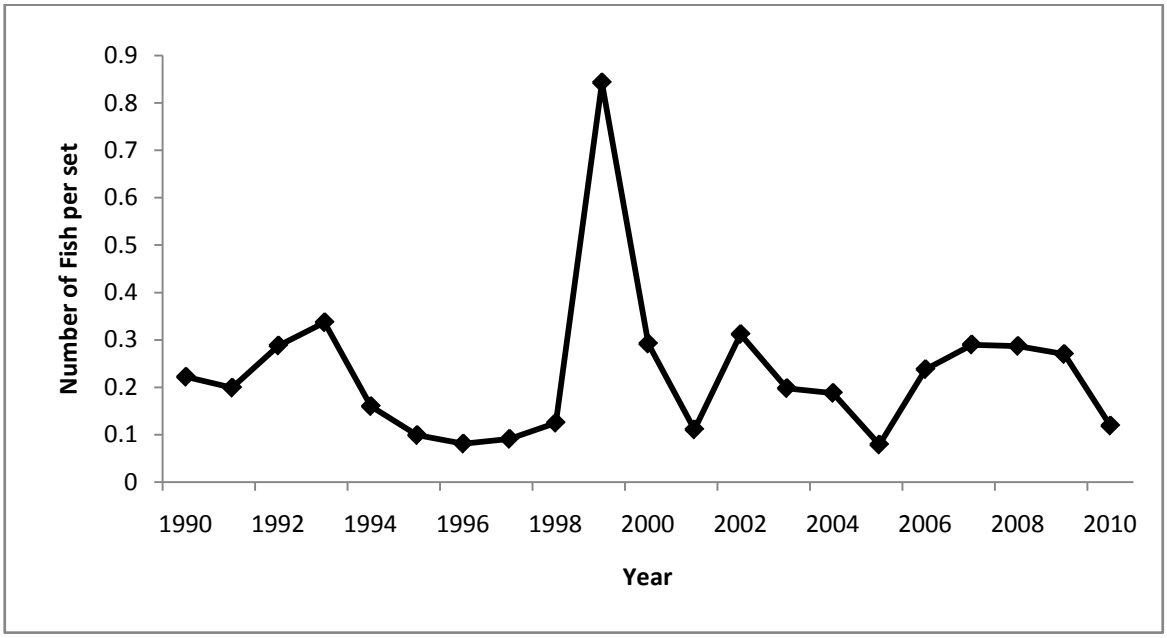
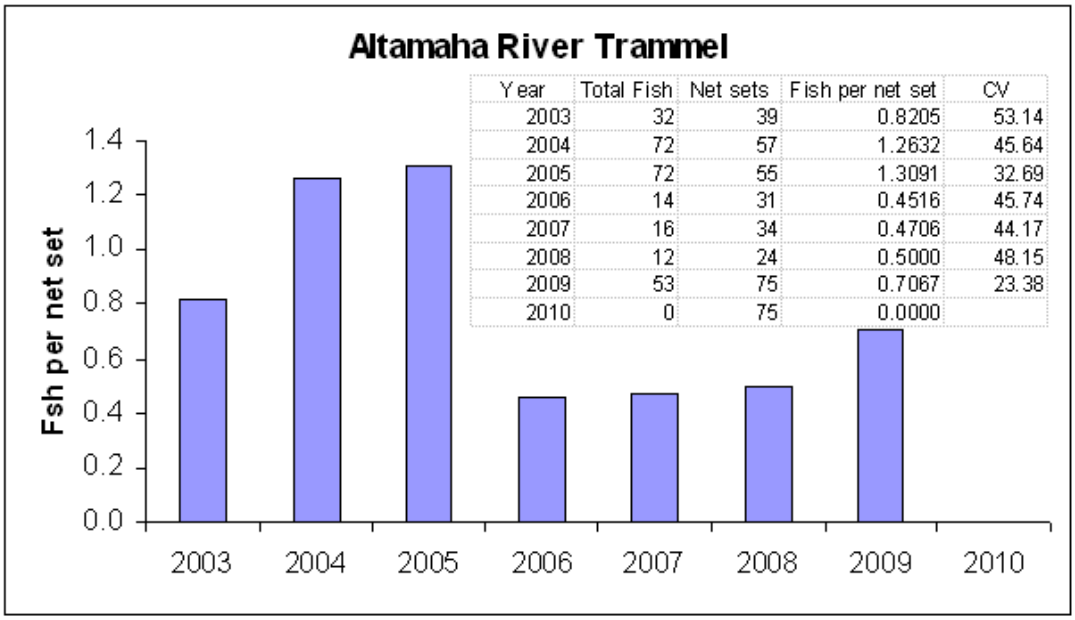


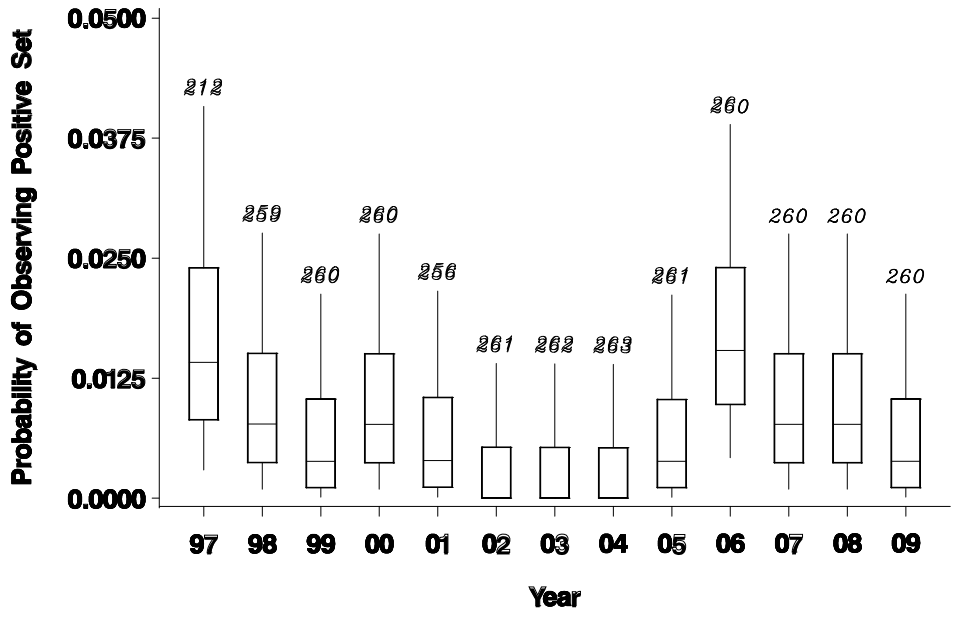
Figure 7. CPUE of black drum in the GA DNR Altamaha River trammel net survey.



Year	Total Fish	Net sets	Fish per net set	CV
2003	32	39	0.8205	53.14
2004	72	57	1.2632	45.64
2005	72	55	1.3091	32.69
2006	14	31	0.4516	45.74
2007	16	34	0.4706	44.17
2008	12	24	0.5000	48.15
2009	53	75	0.7067	23.38
2010	0	75	0.0000	

Figure 8. Proportion of fishery-independent-monitoring sets that captured black drum from 1997-2009. (a) Young-of-the-year; (b) Post-YOY.

a. Atlantic coast YOY



b. Atlantic coast post-YOY

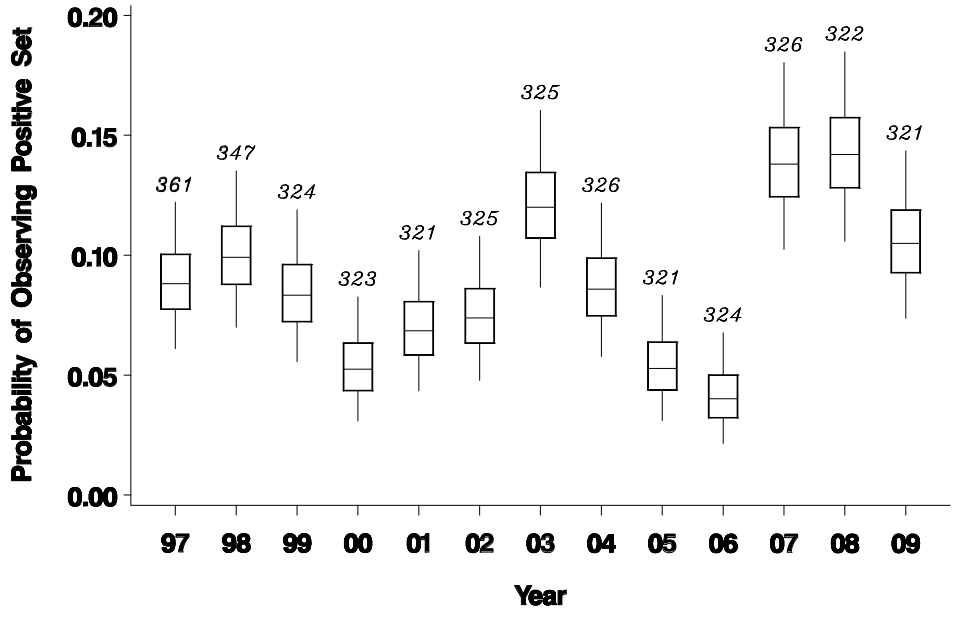


Figure 9. Length distribution of recreational and commercial black drum harvest in Delaware, 2009-2010.

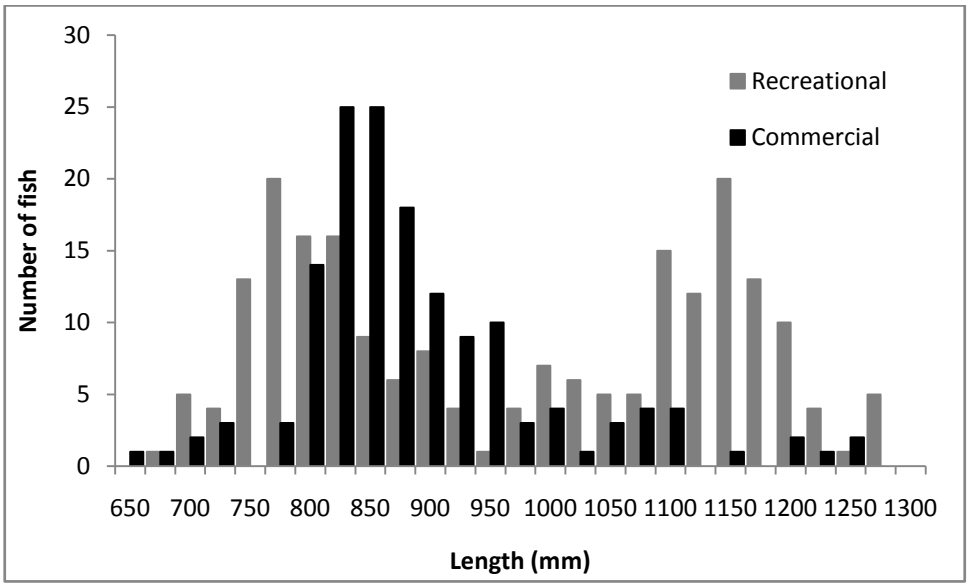


Figure 10. Total length distribution of black drum sampled in the VMRC Biological Sampling Program, 1998-2010.

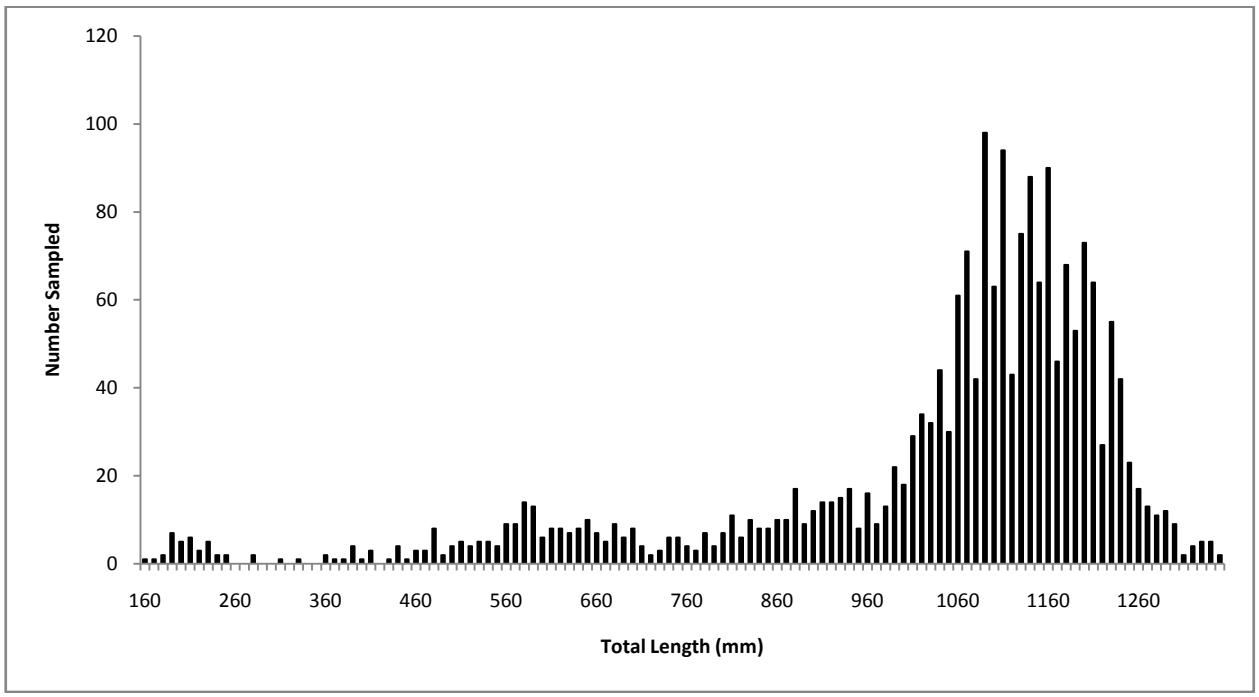


Figure 11. Length frequency distribution for black drum in North Carolina for the recreational (1982-2010) and commercial (1990-2009) fisheries.

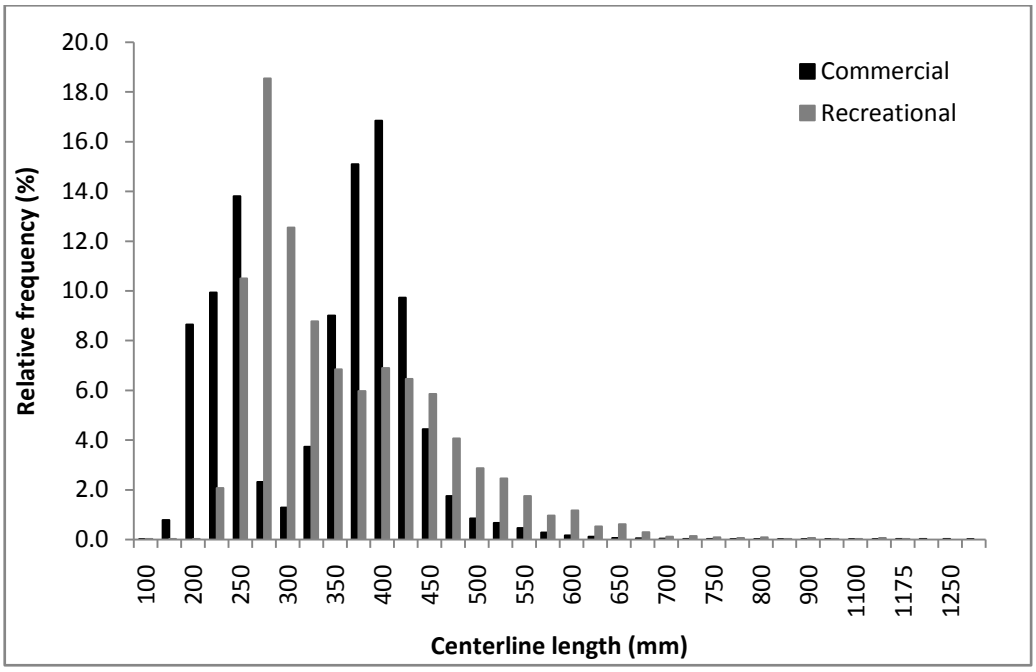


Figure 12. Fishery dependent length frequency distribution for black drum in South Carolina by data source, 1986-2010.

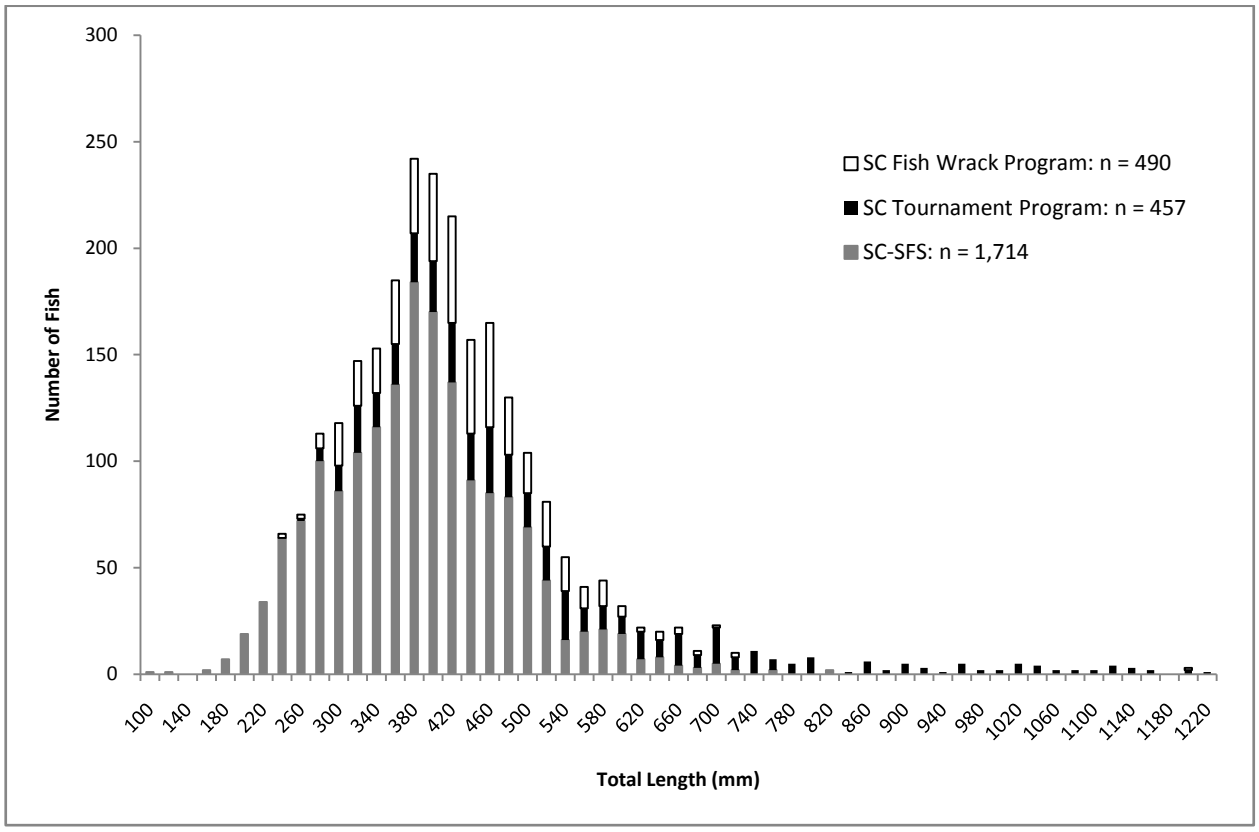


Figure 13. Length distribution of black drum in the Georgia MRFSS survey, 2005 to 2010 and angler carcass donations.

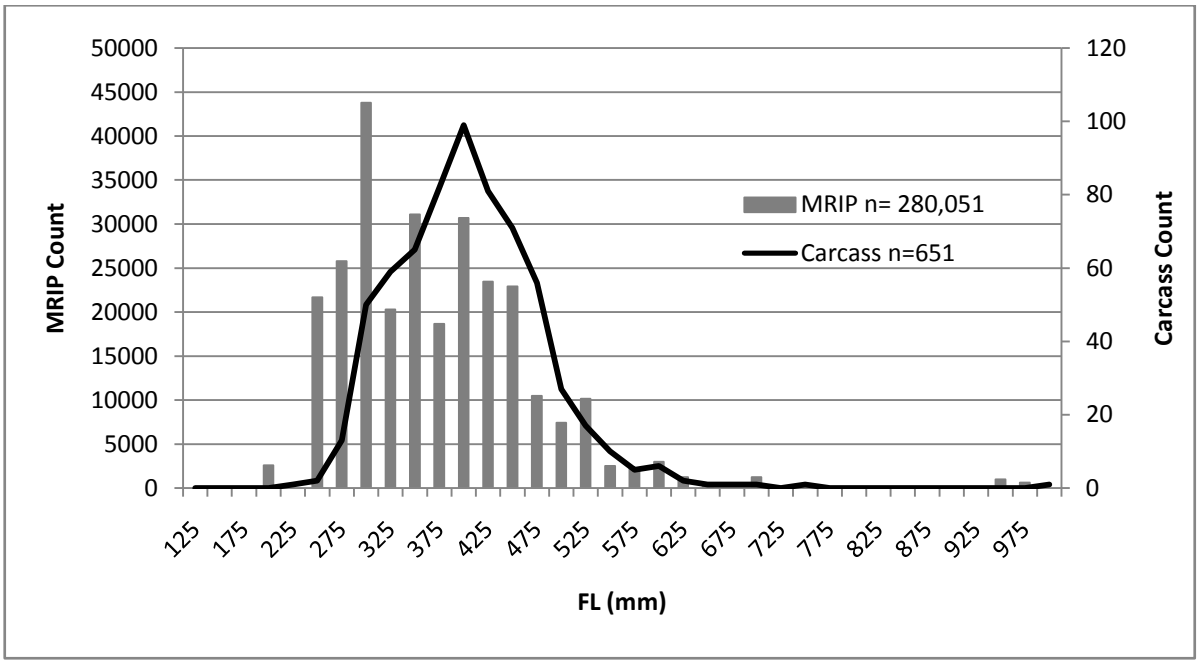


Figure 14. Estimated length frequencies for the total seen catch (Type A) of black drum during the periods 1982-1989 (gray) and 1990-2009 (black) from the Atlantic coast of Florida.

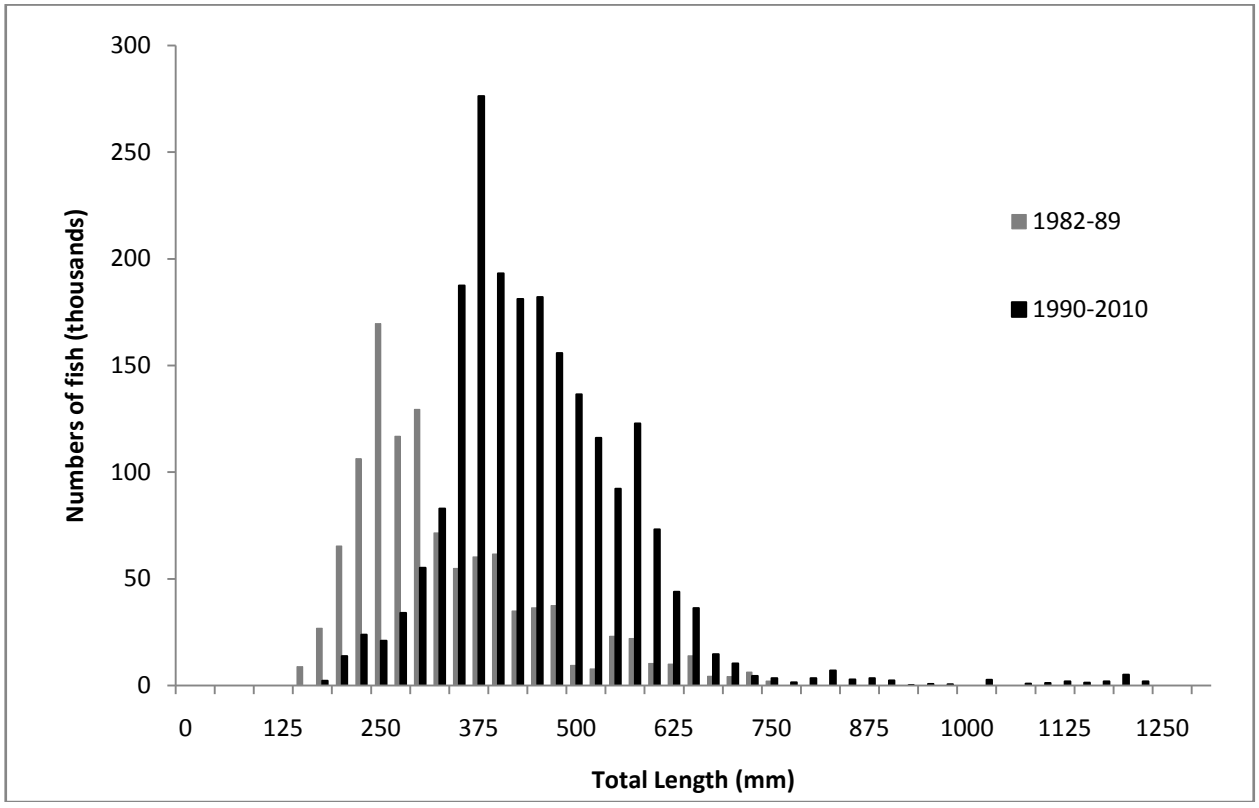
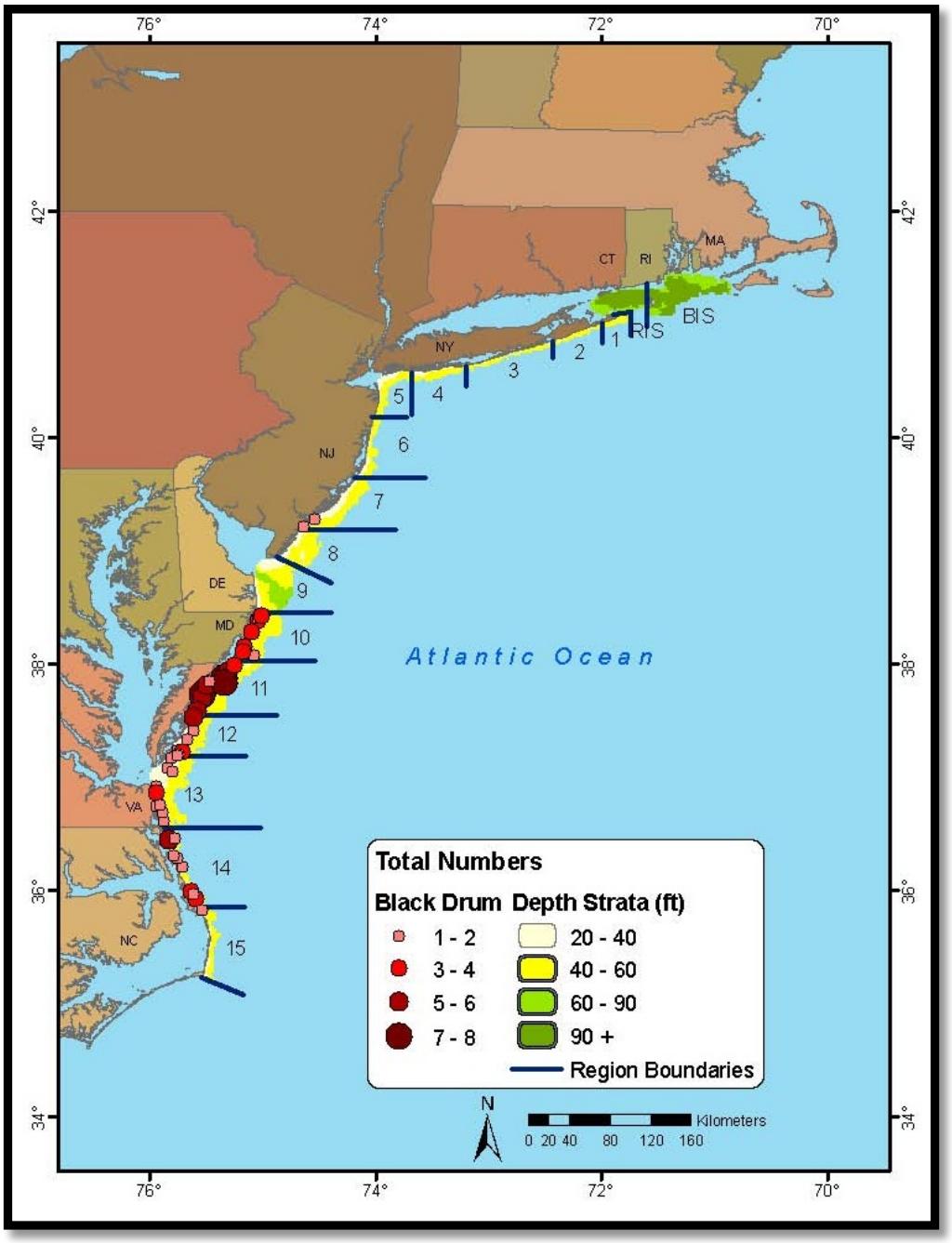


Figure 15. Spatial distribution of black drum catches in the NEAMAP survey.



State of New Jersey
Department of Environmental Protection

DIVISION OF FISH AND WILDLIFE

Annual State Report for Atlantic Croaker: 2011 and Fishery Summary for 2012

June 2012

Report By: Jennifer Pyle

Submitted to the Atlantic States Marine Fisheries Commission as a Requirement of Amendment 1 to the Interstate Fisheries Management Plan for Atlantic Croaker

I. Summary of Atlantic Croaker Fishery And Resource Monitoring in New Jersey

Amendment 1 to the Interstate Fishery Management Plan for Atlantic Croaker (November 2005) does not require restrictions for the harvest of Atlantic croaker along the Atlantic coast. There have been no significant changes in monitoring or regulations regarding this species during 2011.

II. Request for *De minimus* Status

New Jersey is not requesting *de minimus* status for its Atlantic croaker fisheries.

III. New Jersey Atlantic Croaker Fishery and Management Program: 2011

A. Fishery Dependent Monitoring

New Jersey initiated biological monitoring of commercially harvested Atlantic croaker in 2006 in conjunction with funding from the Atlantic Coastal Cooperative Statistics Program (ACCSP). Length data (FL and TL, mm) and otoliths were collected from 274 Atlantic croaker in 2011 (Table 1). The mean size (total length) of commercially harvested Atlantic croaker in 2011 was 313.6 mm with a range of 267 mm to 366 mm (Figure 1). Both the mean length and weight for 2011 were higher than the overall average (2006-2011).

Age determination of Atlantic croaker samples collected in 2011 continued to show the strength of the 2006 year class, as well as the 2008 year class (Figure 2). The 2006 year class was dominant in 2008 and 2009. The 2008 year class was dominant in 2010 and 2011. Both were consistent with high abundance in the Delaware Estuary surveys (Table 2, Figure 4).

The recreational fishery for Atlantic croaker in New Jersey is not monitored by any state program. Fork length data for 2004 to 2011 was acquired through the Marine Recreational Fisheries Statistics Survey (MRFSS). The size range of recreationally harvested fish was 203 mm to 305 mm with the majority of the 2011 harvest (60.2%) in the 225 mm range (Figure 3).

B. Fishery Independent Monitoring

The New Jersey Ocean Trawl Survey is a multispecies survey that started in August 1988 and samples the near shore waters from the entrance of New York Harbor south, to the entrance of the Delaware Bay five times a year (January, April, June, August and October). There are 15 strata with 5 strata assigned to 3 different depth regimes; inshore (3 to 5 fathoms), mid-shore (5 to 10 fathoms), and off-shore (10 to 15 fathoms). Station allocation and location is random and stratified by strata size. All species taken during these surveys were weighed and measured. Catch per unit effort (CPUE) in number of fish per tow and length frequency was calculated for each year. For this report, indices of abundance for Atlantic croaker and length frequency were calculated for the August and October trawls only, when juveniles recruit to the gear and abundance is most consistent.

Juvenile abundance for New Jersey was measured in two additional surveys in the Delaware Estuary. A near shore fixed station trawl survey has been conducted in Delaware Bay from April through November since 1991 at eleven stations using a 16 foot otter trawl. A seine survey utilizing a bagged, 100-foot long by 6-foot deep by ¼-inch mesh beach seine has been conducted for striped bass young-of-year in the Delaware River since 1980. The survey consists of seining 32 stations twice monthly from August through October. For Atlantic croaker the CPUE is calculated for the lower 24 stations within the Delaware River.

Data for the three surveys can be found in Table 2. The CPUE indices for the ocean trawl were well above average for 2011. Both Delaware Estuary survey indices were low and well below the time series average. All of the indices varied greatly from year to year but have generally

increased since the early 1990s through the present (Figure 4). Length frequency of Atlantic croaker caught during the 2011 Ocean Trawl Survey ranged from 170 to 380 mm with a mean of 260.6 mm (Figure 5). This average is below the time series average of 274.4 mm.

C. New Jersey Regulations on Atlantic Croaker in 2011

New Jersey had not enacted any size or possession limits through 2011 for its Atlantic croaker recreational or commercial fisheries.

D. New Jersey Atlantic Croaker Harvest

Commercial fishery landings for Atlantic croaker were obtained from the National Marine Fisheries Service (NMFS) statistics website (1950-2007) and the Standard Atlantic Fisheries Information System (SAFIS) (2008-2011) (Table 3, Figure 6). The 2011 landings of 465,117 pounds were 26.4% greater than the 2010 landings of 342,116 pounds. This ended a six year stretch of decreasing landings. The 2011 landings are slightly below the long term average.

Recreational catch data were obtained from the MRFSS website for the years 1991-2011 (Table 4A, Figure 7). Queried 6/26/12, recreational catch (164,032 fish) and harvest (49,563 fish) were the lowest since the late 1990s and were both well below the long term averages of 857,468 and 396,155 respectively. Table 4B shows recreational catch data for the years 2004-2011 obtained from the MRIP website.

E. Addendum III Habitat Requirements

No mandatory measures related to habitat or habitat protection are implemented through this amendment.

IV. New Jersey Atlantic Croaker Fishery and Management Program: 2012

A. New Jersey Regulations on Atlantic Croaker in 2012

The New Jersey recreational fishery regulations at N. J. A. C. 7:25-18.1 will remain the same for 2012.

B. Atlantic Croaker Monitoring Programs for 2012

New Jersey will continue to collect commercial harvest data through ACCSP sampling and abundance index data through various programs.

C. Changes in Management and/or Monitoring of Atlantic Croaker in 2012

No changes from the previous year.

V. Plan Specific Requirements

There are no plan specific requirements in Amendment 1.

VI. Law Enforcement Reporting Requirements

There are no plan specific law enforcement reporting requirements in Amendment 1.

ACKNOWLEDGEMENTS

The enthusiasm and hard work of the many individuals and groups involved with the Atlantic croaker data collection is greatly appreciated. These include the following Division employees for their assistance with data processing/analysis, laboratory analysis, and field sampling: Russ Allen, Tom Baum, Heather Corbett, Maryellen Gordon, Debbie Vareha, Dan Allen, Patrick Barker, Kevin DeCristofer, Shana Fehring, Becky Ford, Kirsten Gash, Matt Heyl, Amber

Johnson, Rocky Kasler , Steve Luell, Cody Meyer, Mike Torre, Linda Barry, Hugh Carberry, Anthony Mazzarella and other participants of the Ocean Trawl Survey.

Ray Ringen and Jamie Darrow of the Division's Wildlife Conservation Corps, volunteered their time to assist on the Delaware River Recruitment Survey.

The cooperation of businesses and the general public are greatly appreciated. The Division thanks the personnel of the various marinas whose boat ramps and facilities were utilized by the Division. These include RiverGate Boat Ramp in West Deptford and Hawk Island Marina in Delanco.

Table 1. Biological characterization sample summary from commercially harvested Atlantic croaker landed in New Jersey: 2006-2011

	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**Mean**
# Lengths	363	340	608	960	750	274	549
Mean length (total, mm)	337.1	345.8	307.4	302.3	289.4	313.6	309.5
# Weights	364	340	608	960	750	274	549
Mean weight (kg)	0.54	0.56	0.38	0.37	0.33	0.43	0.41
# Otoliths	364	340	500	560	750	274	465
# Aged	363	338	497	558	749	261	461

Table 2. New Jersey indices of abundance, geometric mean, for Atlantic croaker: 1980-2011

Year	DRseine	DBtrawl	OTAug	OTOct	OTAug-Oct
1980	0.00	-	-	-	-
1981	0.00	-	-	-	-
1982	0.00	-	-	-	-
1983	0.00	-	-	-	-
1984	0.00	-	-	-	-
1985	0.09	-	-	-	-
1986	0.11	-	-	-	-
1987	0.00	-	-	-	-
1988	0.00	-	0.19	0.00	0.16
1989	0.04	-	0.00	0.00	0.00
1990	0.00	-	0.00	0.00	0.00
1991	0.08	0.09	0.12	0.06	0.25
1992	0.04	0.95	0.08	0.25	0.16
1993	0.27	0.75	0.09	0.27	0.18
1994	0.10	0.33	0.49	0.18	0.33
1995	0.59	2.31	1.41	1.24	1.32
1996	0.57	2.23	0.31	0.91	0.58
1997	0.17	2.79	N/A	0.54	0.68
1998	**0.61**	7.67	0.25	0.00	0.18
1999	0.23	4.95	1.12	0.93	1.02
2000	0.47	2.55	2.40	1.08	1.67
2001	0.27	2.75	1.17	1.66	1.40
2002	**1.46**	**29.02**	**4.17**	**10.07**	**6.60**
2003	0.02	0.25	0.69	3.54	1.79
2004	0.18	0.67	**5.07**	**17.44**	**9.01**
2005	0.15	1.51	2.90	**10.78**	5.78
2006	**0.69**	**28.40**	0.70	1.13	0.91
2007	0.39	0.95	1.59	5.06	2.93
2008	0.43	**17.74**	0.42	6.62	2.29
2009	0.10	0.69	1.59	0.09	0.68
2010	0.06	0.50	1.45	1.30	1.37
2011	0.00	0.33	**16.16**	2.92	**7.20**
Mean	0.22	5.12	1.84	2.75	1.94

Table 3. New Jersey's Atlantic croaker commercial landings: 1950-2011

Year	Pounds	Year	Pounds	Year	Pounds
1950	37,900	1971	100	1992	51,600
1951	50,000	1972	400	1993	183,414
1952	82,700	1973	37,100	1994	117,256
1953	156,700	1974	45,100	1995	334,654
1954	369,200	1975	885,100	1996	621,889
1955	741,300	1976	700,600	1997	1,994,446
1956	76,800	1977	1,478,600	1998	1,029,332
1957	103,500	1978	654,900	1999	2,071,046
1958	400	1979	91,000	2000	2,130,465
1959	1,800	1980	12,000	2001	1,389,837
1960	8,100	1981	23,500	2002	1,828,484
1961	56,900	1982	100	2003	1,575,738
1962	4,300	1983	200	2004	2,067,992
1963		1984	57,700	2005	1,847,753
1964		1985	48,800	2006	1,617,144
1965		1986	106,000	2007	1,358,000
1966		1987	357,600	2008	946,062
1967		1988	30,100	2009	585,552
1968		1989	137,100	2010	342,116
1969		1990	644	2011	465,117
1970	200	1991	31,292	Mean Weight	466,865

Table 4A. New Jersey's Atlantic croaker recreational catch (number) and harvest (number and weight), from MRFSS: 1991-2011

Year	Catch	Harvest	Weight (lbs)	Mean Weight (lbs)
1991	107,868	16,235	4,264	0.30
1992	4,103	0	0	-
1993	8,351	2,552	844	0.30
1994	18,820	1,567	818	0.50
1995	46,204	15,184	9,515	0.60
1996	52,623	35,037	39,099	1.10
1997	453,557	342,089	278,758	0.80
1998	364,729	143,404	135,733	0.90
1999	1,217,586	357,261	301,957	0.80
2000	1,712,189	1,023,442	1,125,730	1.10
2001	2,031,434	1,177,813	1,132,214	1.00
2002	622,475	253,472	268,423	1.10
2003	1,525,899	692,391	682,698	1.00
2004	2,006,984	1,172,210	1,151,926	1.10
2005	2,535,032	1,254,957	1,189,849	1.00
2006	1,333,092	698,428	765,867	1.10
2007	927,231	355,067	409,392	1.20
2008	2,285,159	475,373	422,833	0.90
2009	304,269	158,108	79,405	0.50
2010	285,192	95,104	54,776	0.60
2011	164,032	49,563	29,234	0.60
Mean	857,468	396,155	384,921	

Table 4B. New Jersey's Atlantic croaker recreational catch (number) and harvest (number and weight) from MRIP: 2004-2011

Year	Catch	Harvest	Weight (lbs)	Mean Weight (lbs)
2004	2,093,090	855,927	861,987	1.00
2005	2,919,750	1,227,349	1,183,631	1.00
2006	1,014,711	511,220	638,138	1.20
2007	996,316	406,238	441,806	1.10
2008	2,974,920	600,975	526,458	0.90
2009	301,835	193,464	127,115	0.70
2010	230,218	63,027	36,087	0.60
2011	103,246	40,855	21,460	0.50
Mean	1,329,261	487,382	479,585	

Figure 1. Length frequencies from commercially harvested Atlantic croaker landed in New Jersey: 2008-2011

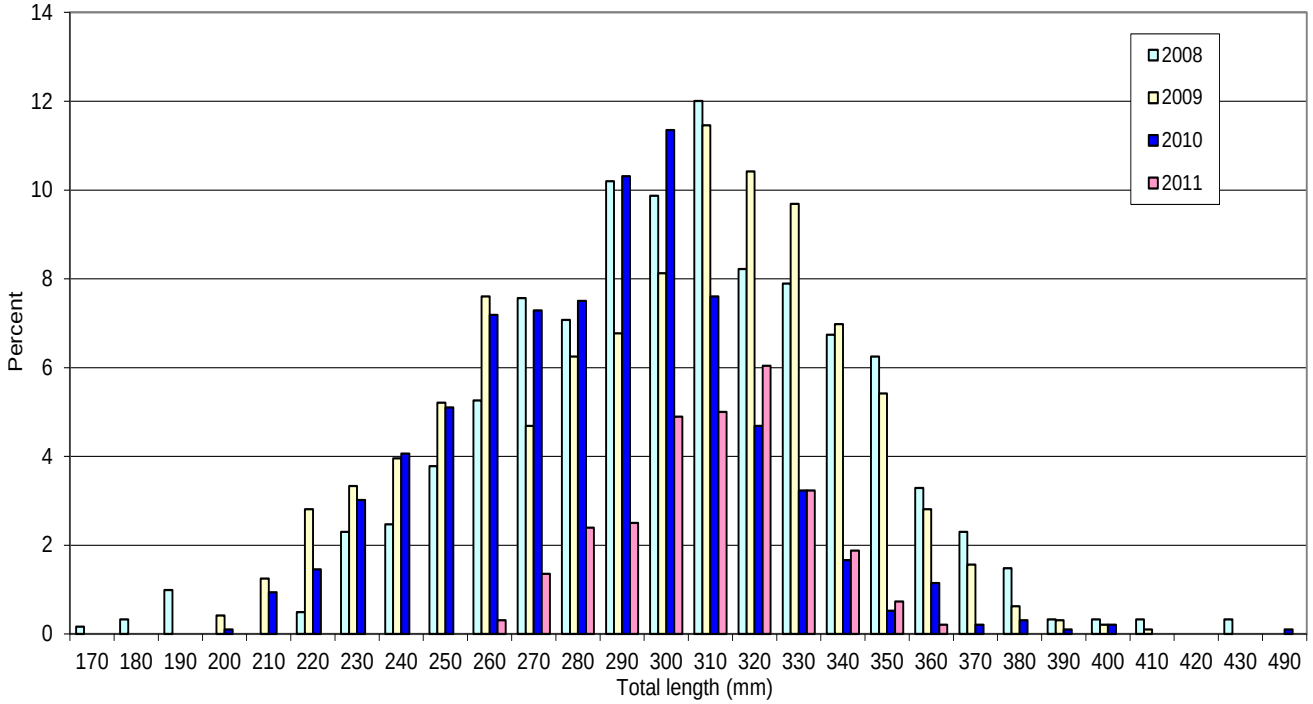


Figure 2. Age frequencies from commercially harvested Atlantic croaker landed in New Jersey: 2006-2011

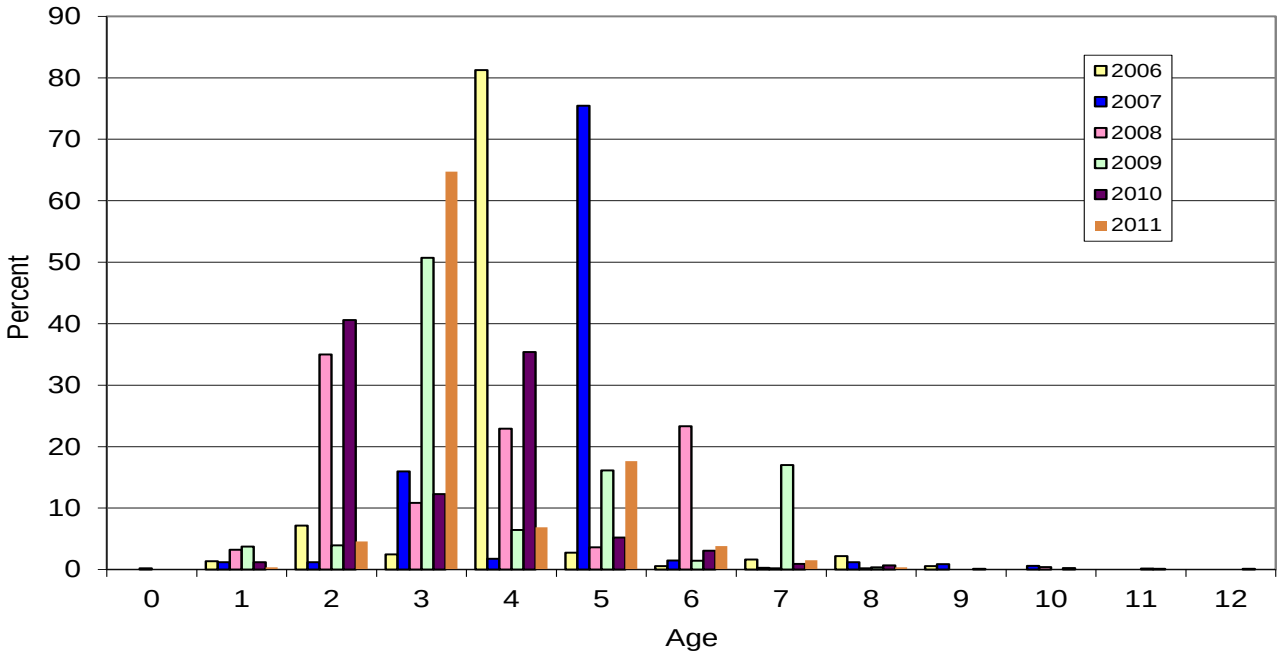


Figure 3. New Jersey's recreational length frequencies, from MRIP: 2008-2011

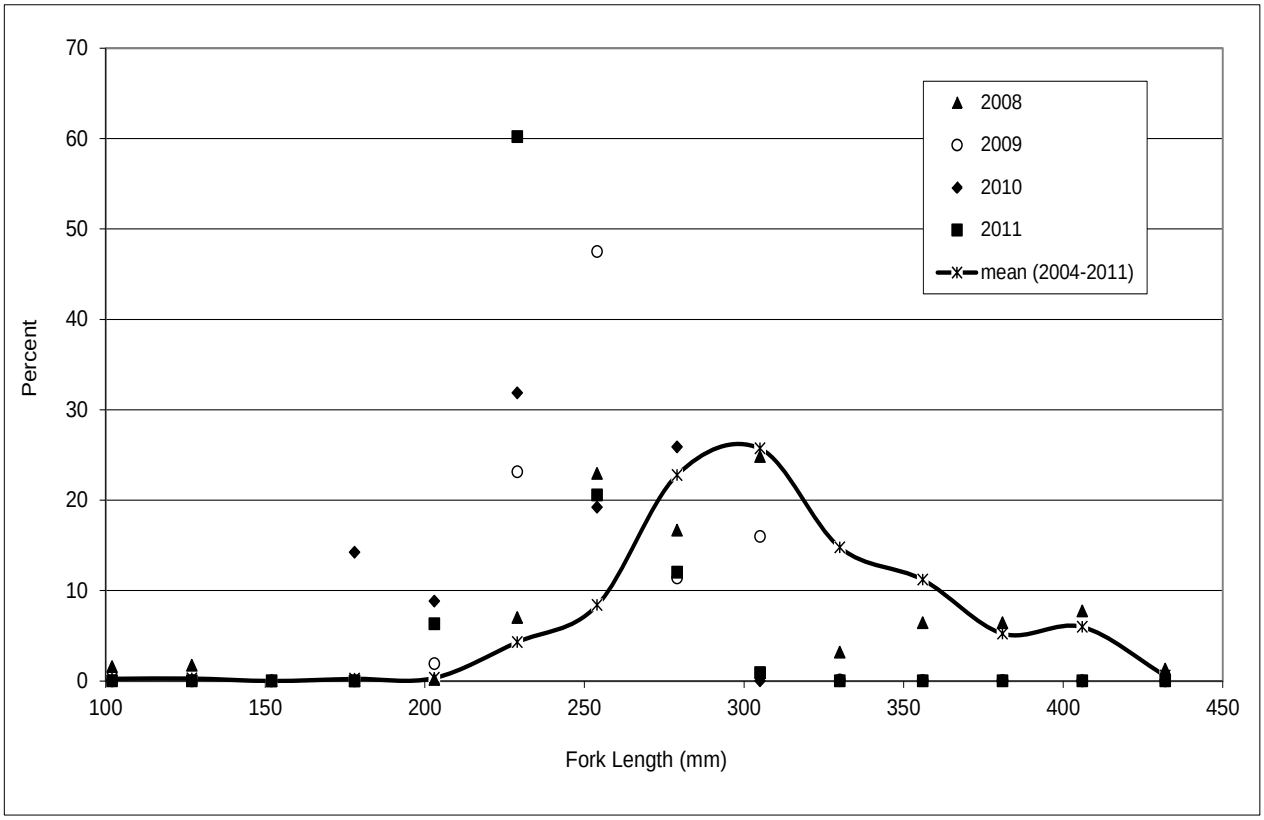


Figure 4. New Jersey indices of abundance, geometric mean, for Atlantic croaker: 1991-2011

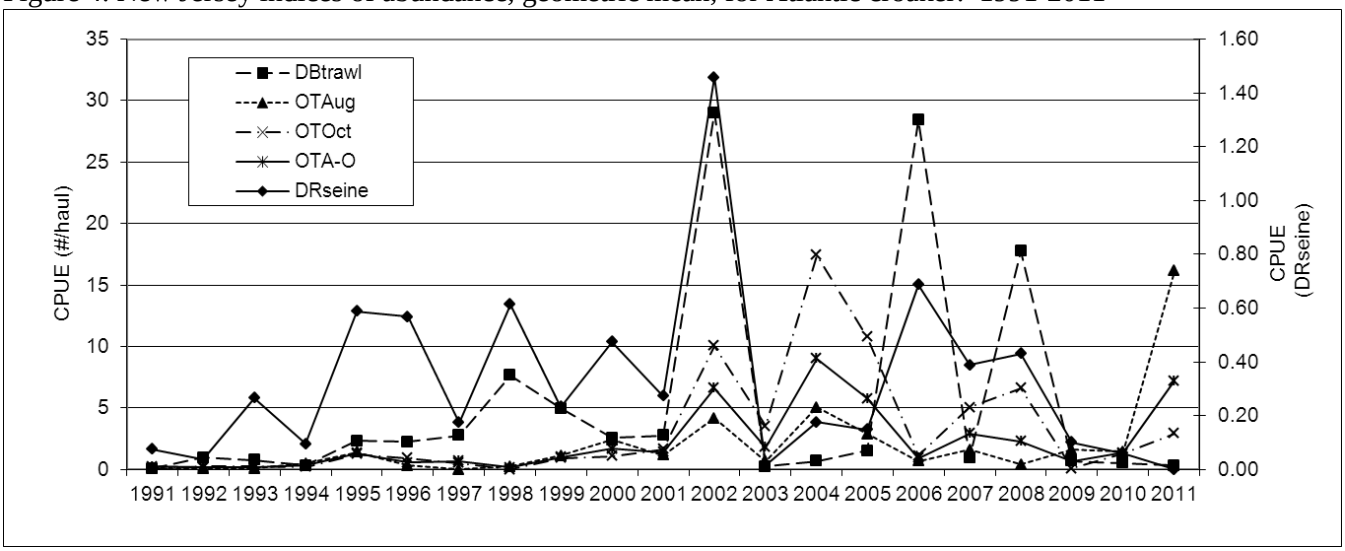


Figure 5. Ocean Trawl Survey Atlantic croaker length frequency: 2011

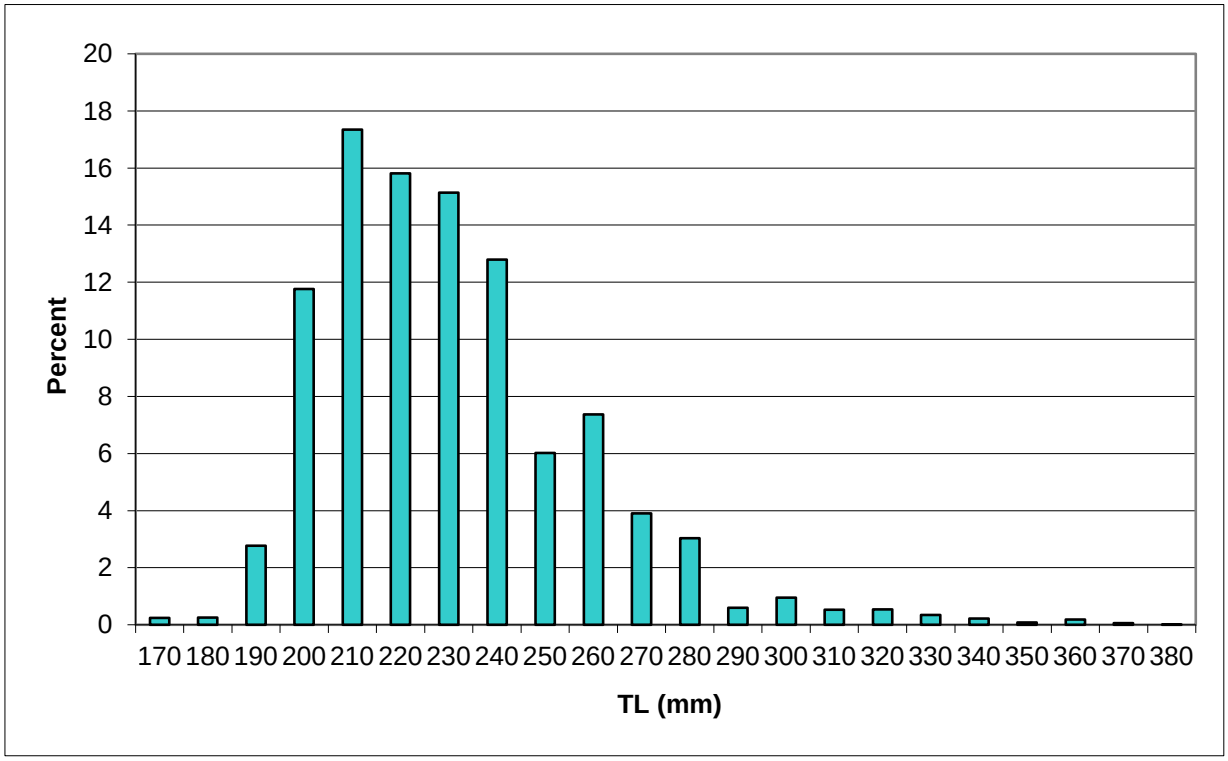


Figure 6. New Jersey's Atlantic croaker commercial landings: 1950-2011

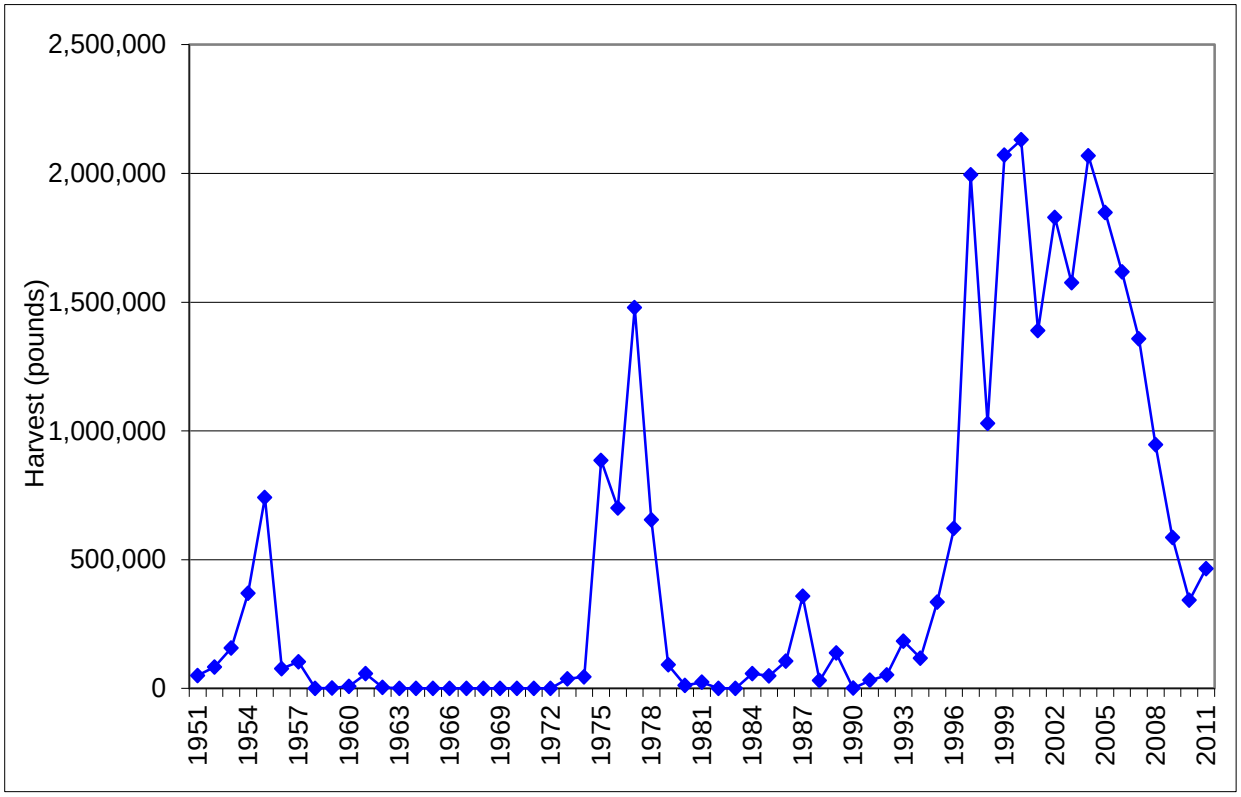
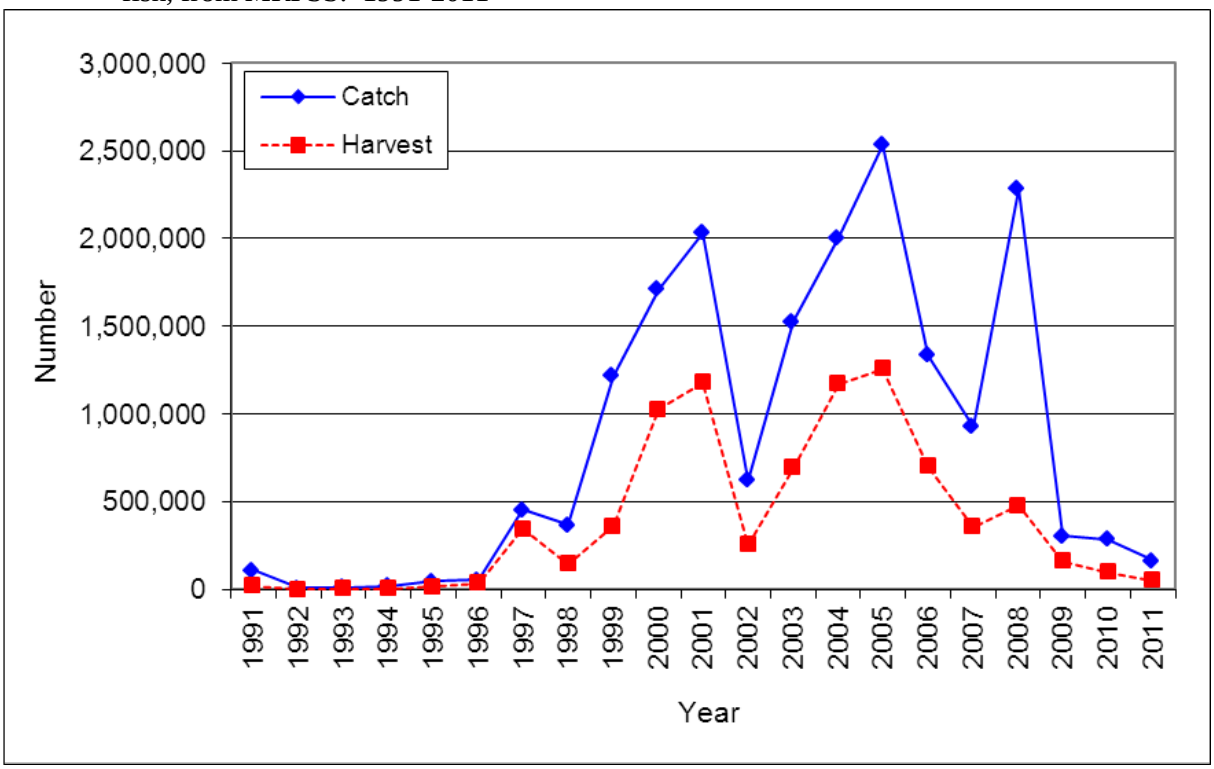


Figure 7. New Jersey's Atlantic croaker recreational catch and harvest, in number of fish, from MRFSS: 1991-2011



State of Delaware
Atlantic Croaker Annual Compliance Report

July 1, 2012

1. Introduction

Delaware maintained previously enacted Atlantic croaker regulations during the past year and stayed in compliance with the Atlantic States Marine Fisheries Commission (ASMFC) Fishery Management Plan (FMP) Amendment 1 for Atlantic croaker. Atlantic croaker supported a minor commercial fishery and a major recreational fishery in Delaware during 2011.

2. Request for *de minimis* status

Delaware's 2011 commercial Atlantic croaker harvest (11,932 lbs.) was less than 1% of coast wide landings for the year, thus qualifying Delaware for commercial fishery *de minimis* status.

Delaware's 2011 recreational Atlantic croaker harvest (92,289 fish or 52,889 lbs.) was approximately 2% of coast wide landings and does not qualify Delaware for recreational fishery *de minimis* status.

3. 2011 fishery and management program

a. Fishery-dependent monitoring

Commercial fishermen are required to report daily landings (weight) of all species taken by month, location, and gear type. No additional fishery-dependent Atlantic croaker monitoring was conducted in 2011.

b. Fishery-independent monitoring

Atlantic croaker abundance was monitored by the Delaware Division of Fish and Wildlife's two trawl surveys. The adult finfish trawl survey used a

30’ trawl to sample nine offshore Delaware Bay and River stations monthly during March through December. The juvenile finfish trawl survey used a 16’ trawl to sample 39 inshore Delaware Bay and River stations monthly during April through October. The annual report for both trawl surveys (Greco and Michels 2012) is available from the Delaware Division of Fish and Wildlife.

A total of 1,158 Atlantic croaker were caught by the adult finfish trawl survey in 2011, which made Atlantic croaker the ninth most abundant species caught by the survey in 2011. The 2011 Atlantic croaker catch per nautical mile towed was a 49% increase from 2010 (Table 1) and 2011 was the second consecutive year below the time-series mean.

Atlantic croaker were the fourth most abundant fish species caught in 2011 by the juvenile finfish survey. The young-of-the-year index, calculated as the geometric mean number of young-of-the-year (YOY) Atlantic croaker caught by the juvenile finfish trawl survey during September and October in Delaware Bay and River decreased 74% from 2010 and fll below the time-series mean for the first time since 2008 (Table 1).

Table 1. Juvenile finfish annual index of abundance of YOY Atlantic croaker, and adult finfish trawl relative abundance (number per nautical mile (n/NM)) of adult Atlantic croaker in the Delaware Estuary from 2005 through 2011.

Year	YOY index	Relative abundance (n/NM)
2011	4.5	13
2010	17.6	9
2009	16.5	107
2008	7.5	42
2007	4.5	7
2006	11.8	193
2005	5.5	17
1980 – 2010 mean YOY index	15.9	

c. Atlantic croaker regulations

1. Synopsis of commercial regulations in place

a. *Open Season*: All year

b. *Minimum Length*: 8 inches total length

c. *Trip Limit*: No limit

d. *Gear Limit:* No limit

A commercial food fishing license is required to sell Atlantic croaker. Commercial food fishing licenses cost $150 for residents and $1,500 for non-residents per year. The gears used to harvest Atlantic croaker in 2011, gill net, fish pot, and hook and line, have additional permitting requirements. Gill net permits cost $5 per 300 feet of net and fish pot permits cost $1 per pot for residents and $10 per pot for non-residents. The number of gill net permits issued is fixed at 117 permits and all those permits were issued in 2011. The number of commercial hook and line permits is fixed at 172 permits, but 63 permits were still available at the end of 2011. There is no charge for a commercial hook and line license.

2. Synopsis of recreational regulations in place

a. *Open Season*: All year

b. *Minimum Length*: 8 inches total length

c. *Possession Limit*: No daily limit

A recreational fishing license was required to fish in Delaware tidal waters during 2011. The fishing license cost $8.50 for residents and either $20 for an annual license or $12.50 for a one week license for non residents. In addition to hook and line fishing, Atlantic croaker may be taken with recreational gill nets. Recreational gill net licenses cost $5 for residents and $50 for non-residents. Recreational gill net fishermen may fish up to 200 ft. of fixed gill net in certain areas and at certain times of the year, and are required to follow the same size, creel limits, and seasons as hook and line fishermen.

d. Atlantic croaker harvest

1. Commercial harvest

Delaware commercial Atlantic croaker landings were 11,932 pounds during 2011, a 50% increase from the 6,024 pounds landed during 2010. The 2005 landings (37,492 pounds) were the highest recorded in Delaware since landings reporting was mandated in 1984 (Newlin and Glanden 2012a). Gill net landings accounted for 84%, and hook and line and fish pot landings combined accounted for 16% of the 2011 commercial catch.

2. Recreational harvest

Estimate of 2011 recreational catch from the Marine Recreational Information Program (MRIP) report (Newlin and Glanden 2012b).

Months (2011)	Number of Atlantic croaker harvested[1]
May - June	971
July –August	81,113
September-October	10,205
TOTAL	**92,289**

[1] Atlantic croaker harvested was an estimate based on creel surveys. Atlantic croaker landings were reported in numbers rather than pounds as this estimate was considered more accurate than weight.

Atlantic croaker was third in numbers harvested among all Delaware's marine recreational species in 2011. The 2011 estimated Atlantic croaker recreational harvest was 18% higher than the 2010 estimated harvest (75,404) and 80% lower than the 2009 estimated harvest (451,849). The 2011 Atlantic croaker harvest was 89% lower than the 2005 estimated harvest (825,267), which was the highest recreational harvest in the 1981 through 2011 time series.

4. Planned management programs for 2011

a. Regulations

No changes in Atlantic croaker regulations are anticipated for 2011.

b. Monitoring programs to be conducted in 2011

Commercial landings reports will continue to be mandated. Delaware will continue its trawl surveys for the foreseeable future.

c. Changes from 2010

None.

References cited

Newlin, S. and G. Glanden. 2012a. Commercial fishing in Delaware 2011. Annual landings report. Delaware Division of Fish and Wildlife, Dover, DE 19901.

Newlin, S. and G. Glanden. 2012b. Marine recreational fishing in Delaware 2011 Annual landings report. Delaware Division of Fish and Wildlife, Dover, DE 19901.

Michels, S. F. and M. J. Greco. 2012. Coastal finfish assessment survey 2011. Delaware Division of Fish and Wildlife, Report F-42-R-23, Dover.

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Joseph P. Gill, Deputy Secretary

Maryland Atlantic Croaker (*Micropogonias undulatus*) Compliance Report to the Atlantic States Marine Fisheries Commission - 2011

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I. Introduction

Atlantic croaker (*Micropogonias undulatus*) are found in Maryland's Chesapeake Bay, offshore waters and coastal bays from late spring through early fall. Landings are highest in the southern portion of Maryland's Chesapeake Bay, with adults becoming less common north of the Bay Bridge. Atlantic croaker support important recreational and commercial fisheries in Maryland. They are part of a mixed species fishery, with commercial catch historically dominated by pound nets, and recreational harvest primarily from bottom fishing boat anglers. Maryland waters also provide extensive juvenile croaker habitat.

Maryland has a minimum size limit of nine inches (229mm) total length (TL) for both commercial and recreational fishermen. Recreational harvest is restricted to 25 fish per day and is open year round, while commercial fishermen have no quota, but are limited to a season of March 16th through December 31st.

Preliminary 2011 commercial harvest of 706,122 pounds increased 30% compared to the 2010 harvest. The recreational harvest estimate decreased 51% to 554,206 fish in 2011, and 2011 release estimates decreased 64% from 2010 levels to 365,716 fish.

II. Request for *de minimis* status

N/A

III. 2011 Fishery and Management Programs.

a. Fishery dependent monitoring

MD DNR fisheries biologists sampled commercial pound nets bi-weekly in Maryland's portion of the Chesapeake Bay from May 24 through September 07, 2011. All croaker captured were measured. Seafood dealer sampling began in 2009, but only one trip was conducted on June 9, 2011. Atlantic croaker sampled from fish houses were harvested from pound nets and gill nets. Atlantic croaker mean length from the onboard pound net survey decreased to 281 mm TL compared to 2010, and was the third lowest value of the 19 year time series (Table 1). Seafood dealer mean length and weight increased in 2011 to 310 mm TL and 370 g respectively, for pound net caught fish, compared to 2010 (269 mm TL and 257 g; Table 2). Gill net caught fish were also measured during dealer sampling for the first time in 2011, with a mean length of 316 mm TL and a mean weight of 459 g (n = 244). The length frequency distribution for 2011 demonstrated a reduction in larger fish, with the primary peak occurring in the 250 and 270 mm size groups (Figure 1). A 229 mm TL commercial size limit in Maryland artificially truncates the seafood dealer survey length frequency distribution. No sub-legal fish were recorded in the 2011 seafood dealer survey. The 230 mm length group only accounted for 1.6% of the pound net caught Atlantic croaker seafood dealer samples, with generally inclining abundance through the 310 mm size (Figure 2). Gill net fish house length frequency peaked in the 290 and 310 mm length groups with catches dropping of quickly for both smaller and large fish (Figure 3).

In 2011 pound net catches, females averaged 303 mm TL and 395 g (n=136), while males averaged 288 mm TL and 321 g (n=109). This was a decrease for females while the males showed almost no change compared to 2010 values of 320 mm TL and 456 g for females, and 289 mm TL and 320 g for males. In 2011 females accounted for 56% of the pound net samples, slightly lower then in 2008 (64%), 2009 (69%) and 2010 (66%). 2011 gill net samples were slightly larger than those from pound nets, with mean lengths and weights of 311 mm TL and 441 g for females (n = 43) and 314 mm TL and 491 g for males (n = 9). Gill net samples were 79% female and 21% male, but sample size was low, so these percentages may not reflect the actual male to female composition of the gill net harvest.

Otoliths were taken form a sub-sample of both pound net (n = 245) and gill net caught fish (n = 51) in 2011. Prior to 2011 Maryland croaker otoliths were processed and read by South Carolina DNR, but Maryland DNR took over the processing and reading of our otoliths beginning in 2011. Age three was the dominate age for both gear types (Figure 4). As would be expected, pound nets caught a wider range of ages (ages 1 – 9 and 11) than gill nets (ages 1 and 3 – 6) which tend to be more size selective. Atlantic croaker tend to fully recruit to the pound net fishery at age three (Table 3). The 2008 year-class continues was the second most common year class in 2009 and 2010, before fully recruiting in 2011. This would indicate a strong 2008 cohort.

b. **Fishery independent monitoring**

A 4.9-m semi-balloon otter trawl has been used to sample Maryland's Atlantic coastal bays since 1972 (Bolinger *et al* 2007). Since 1989, 20 fixed stations have been trawled for six minutes at monthly intervals during April-October. Prior to 1989, monthly effort, tow time and locations sampled varied considerably. Consequently, index values for juvenile Atlantic croaker prior to 1989 are not as reliable and, therefore, were not computed. The geometric mean catch per hectare (GM) of juvenile croaker was used as a standardized index of abundance (Bolinger *et al* 2007). The 2010 GM of 1.05 was close to the 23 year time series mean of 1.65 (Figure 5, Table 4).

Finfish collected by Maryland's Chesapeake Bay blue crab trawl survey have been enumerated since 1980, (Davis et al.1995). However, since some data entry inconsistencies make electronic data files prior to 1989 incomplete for all species, only data from 1989 through 2010 were used to generate a Chesapeake Bay Atlantic croaker juvenile index. Data from 1980 thru 1988 are being verified and/or entered from the original data sheets, and may be available in the future. The Chester River, Eastern Bay, Choptank River, and Patuxent River each contain six fixed sampling locations, while Tangier Sound has five stations and Pocomoke Sound, eight. Each site is sampled once a month from May thru October. A 4.9 m semi-balloon otter trawl with a body and cod end of 25-mm-stretch-mesh and a 13-mm-stretch-mesh cod end liner is towed for 6 min at 4.0-4.8 km/h.

A Chesapeake Bay juvenile trawl index was calculated as the geometric mean catch per tow. Since juvenile Atlantic croaker have been consistently caught only in Tangier Sound, Pocomoke Sound and the Patuxent River, only these areas were utilized in this analysis to minimize zeros that may represent unsuitable habitat rather than abundance. The Atlantic croaker Chesapeake Bay juvenile index was lower from 2005-2007 than in the late 1990s. However, this index increased to the third highest of the 20 year time series for 2008 at 4.51 fish per tow, but declined in 2009 and 2010 to 0.67 and 0.59 fish per tow respectively. The 2011 index value increased to 1.15 the tenth lowest value of the 23 year time series (Figure 6, Table 4).

Seine surveys are also conducted in the Maryland coastal bays and Chesapeake Bay. These surveys, designed primarily to catch other species, utilize a 30.5 meter, 6.35mm mesh beach seine (4 ft. height in Chesapeake Bay and 6 ft. height in the Coastal bays). Atlantic croaker presence in these surveys is incidental; however, a GM index is calculated for each survey. The surveys do tend to capture juvenile croakers in years of high abundance and little to none during low abundance years (Figure 7, Table 4).

c. Atlantic Croaker Regulations

From the Code of Maryland Regulations: 08.02.05.18.18 Croaker:

A. Minimum Size.

(1) A recreational angler may not catch or possess a croaker less than 9 inches total length.

(2) A person licensed to catch finfish for sale may not catch or possess a croaker less than 9 inches total length.

B. Recreational Catch Limit. Except for a person licensed to catch finfish for sale, a person may not catch or possess more than 25 croaker per day.

C. Commercial Season. The commercial season for taking croaker is March 16 through December 31.

D. General.

(1) The Secretary may modify catch limits or open or close a season for croaker by publishing notice in a daily newspaper of general circulation at least 48 hours in advance, stating the effective hour and date of the modification.

(2) The Secretary shall make a reasonable effort to disseminate public notice of a modification under §D(1) of this regulation through various other media so that an affected person has reasonable opportunity to be informed of the modification.

d. Commercial and Recreational Harvest

Commercial Harvest

The following 2011 landings are considered preliminary and may change slightly. The 2011 commercial harvest of 706,122 pounds increased 30% compared to the 2010 harvest of 490,067 pounds (Table 5, Figure 8). Gill nets accounted for 59% of the harvest followed by pound nets at 31%, while all other gear types accounted for 5% or less of the 2011 harvest (Table 6). Pound net was the dominate gear in Maryland for catching croaker in 2008, as in most years historically, but was exceeded by gill net harvest in 2009 through 2011. Gill net harvest increased by 93% in 2011, catches from the pound net, fyke net and hook and line fisheries also increased, while the trawl and pot fisheries declined (Table 7). Seventy-seven percent of the preliminary MD harvest in 2011 was from the Chesapeake Bay and the remaining catch occurred in Atlantic coastal waters and Maryland's coastal bays.

Recreational Harvest

Recreational harvest estimates from the Marine Recreational Information Program (MRIP) for Maryland decreased 51% from 1,136,589 fish (PSE = 19.9) in 2010 to 554,206 fish (PSE = 22.3) in

2011 (Table 5, Figure 9; MRIP 2011, personnel communication). Croaker harvest in 2011 was below the 1981-2010 average of 762,907 fish. Recreational release estimates for Atlantic croaker in Maryland decreased 64% from 1,011,236 fish (PSE = 25.9) in 2010 to 365,716 fish (PSE = 28.3) in 2011 (Figure 9; MRIP 2011, personnel communication). The 2011 release estimate was below the long term average of 1,280,319 fish.

Maryland charter boat captains are required to maintain daily logs of where they fish, how many fish of each species they harvest, how many they release and how many anglers participated. No indication of target species is recorded, so the catch per unit effort (CPUE) includes only trips in which croaker were captured. The number of anglers was used as effort and the number of croakers harvested was used as catch. The annual geometric mean number of croaker per angler was calculated for 1993-2011. The 2011 data is preliminary but should not change significantly. Reported charter boat harvest and effort peaked in 2000, and effort has steadily declined through 2011 (Figure 10). Harvest declined from 2000 through 2003, but was relatively stable through 2009, and declined in 2010 and 2011. Geometric Mean CPUE increased steadily from 2.7 fish per angler in 2003 to the time series high of 6.0 fish per angler in 2010 before falling to 4.7 in 2011 (Figure 11). The 2011 value is still above the long term mean of 4.1. The majority of croaker caught by charter boat anglers were harvested, with the years of highest releases coinciding with the years of highest harvest (Figure 12).

e. Habitat Recommendations

There were no habitat requirements in Amendment 1.

IV. Planned Mangement Programs for 2012

a. No regulation changes are planned for 2012

b. Maryland will continue to monitor commercial pound nets and collect otoliths for aging. Maryland may also continue fish house sampling of commercial catch in 2012 to maintain adequate sample sizes of Atlantic croaker if necessary.

V. Plan Specific Requirements

None

References

Bolinger, A., S. Doctor, A. Luettel, M. Luisi, and G. Tyler. 2007. Investigation of Maryland's Coastal Bays and Atlantic Ocean Finfish Stocks. Federal Aid Project Report No. F-50-R-15. Maryland Department of Natural Resources. Annapolis, Maryland.

Davis, G. R., B. K. Daugherty, and J. F. Casey. 1995. Analysis of blue crab, *Callinectes sapidus*, stocks in the Maryland portion of the Chesapeake Bay from summer trawl data. Maryland Department of Natural Resources, Annapolis, Maryland.

Table 1. Atlantic croaker mean total length in mm, standard deviation and number sampled from the onboard pound net survey, 1993 – 2011.

1993	233	35	471
1994	259	34	1081
1995	286	42	974
1996	294	31	2190
1997	301	39	1450
1998	310	40	1057
1999	296	54	1399
2000	302	45	2209
2001	317	37	733
2002	279	73	771
2003	287	55	3352
2004	311	43	1653
2005	317	48	2398
2006	304	66	1295
2007	307	54	2963
2008	298	62	1532
2009	320	50	91
2010	295	34	1970
2011	281	31	1764

Table 2. Mean total length in mm and mean weight in grams for Atlantic croaker sampled from fish house sampling in Maryland, 2009 - 2011.

Year	Mean Length	Mean Weight	n
2009	300	370	1287
2010	269	257	546
2011	314	430	365

Table 3. Proportion at age, number of length samples and number of age samples for Atlantic croaker captured in commercial pound nets, 1999-2011.

Year	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10	Age 11	Age 12	Age 13	# Aged	# Measured
1999	0.0	34.0	22.5	3.3	9.4	4.2	16.0	6.0	4.2	0.4					180	1,399
2000	0.0	10.1	42.5	25.1	1.0	1.4	4.9	7.4	5.3	2.2					145	2,209
2001	No Data															
2002	18.4	4.0	10.1	8.9	29.4	24.0	1.0	0.0	3.0	0.5	0.6				66	771
2003	0.0	15.2	38.6	1.3	12.2	26.6	3.8	0.1	0.2	0.1	0.7	0.3	1.0		129	3,352
2004	0.0	0.6	54.9	5.0	5.4	6.9	23.3	3.1	0.0	0.2	0.0	0.6			161	1,653
2005	0.0	10.1	4.8	51.5	7.6	1.5	7.3	11.4	5.6	0.0	0.1	0.1			190	2,398
2006	16.7	6.3	18.1	4.8	36.8	2.3	3.2	5.0	5.2	1.8	0.0	0.0	0.0	0.1	253	1,295
2007	0.0	11.2	14.4	30.0	8.8	27.0	1.3	1.1	1.6	3.3	1.0	0.3			275	2,963
2008	5.5	7.2	28.3	14.0	19.0	4.5	17.6	1.0	0.4	0.5	1.7	0.3			288	1,532
2009	0.0	30.9	8.5	37.4	11.1	7.8	1.8	2.2	0.3						222	1,381
2010	0.0	1.2	25.7	8.7	36.5	15.8	9.4	0.9	1.3	0.3	0.0	0.3			267	2,516
2011	0.0	0.8	17.4	48.2	11.3	16.6	3.6	1.7	0.3	0.1	0.0	0.0			245	1,886

Table 4. Maryland juvenile Atlantic croaker geometric mean indices. Both seines and the Chesapeake trawl are per haul and the coastal bays trawl is per hectare.

	Chesapeake Bay		**Coastal Bay**	
	Trawl	Seine	Trawl	Seine
Year	Geometric Mean	Geometric Mean	Geometric Mean	Geometric Mean
1959		0.00		
1960		0.00		
1961		0.00		
1962		0.00		
1963		0.00		
1964		0.02		
1965		0.00		
1966		0.00		
1967		0.00		
1968		0.00		
1969		0.00		
1970		0.00		
1971		0.00		
1972		0.04		
1973		0.01		
1974		1.30		
1975		3.11		
1976		0.06		
1977		0.00		
1978		0.07		
1979		0.00		
1980		0.00		
1981		0.00		
1982		0.01		
1983		0.47		
1984		0.00		
1985		0.00		
1986		0.00		
1987		0.00		
1988		0.00		
1989	0.83	0.00	1.01	0.06
1990	0.18	0.01	0.11	0.02
1991	4.06	0.94	3.09	0.70
1992	1.28	0.01	0.91	0.10
1993	3.67	0.01	2.02	0.06
1994	4.25	0.24	3.52	0.09
1995	0.74	0.03	3.01	0.05
1996	2.15	0.00	1.46	0.10
1997	5.32	0.24	3.20	0.35
1998	30.05	0.84	4.88	0.19
1999	4.18	0.10	2.24	0.02
2000	2.76	0.02	0.97	0.06
2001	0.86	0.00	0.40	0.02
2002	3.50	0.30	2.28	0.08
2003	0.81	0.00	0.85	0.00
2004	3.51	0.00	0.68	0.00
2005	0.44	0.00	0.41	0.00
2006	2.10	0.11	1.93	0.18
2007	0.54	0.01	0.53	0.00
2008	4.51	0.28	0.96	0.03
2009	0.67	0.01	1.46	0.00
2010	0.59	0.00	0.97	0.00
2011	1.15	0.00	1.05	0.00

Table 5. Maryland Atlantic croaker commercial harvest in pounds and MRIP recreational estimated harvest in numbers.

Comercial			
Year	Pounds	Year	Pounds
1929	2,215,799	1971	200
1930	2,113,380	1972	500
1931	900,825	1973	37,300
1932	1,355,501	1974	120,300
1933	1,806,866	1975	639,700
1934	2,131,100	1976	1,069,100
1935	3,399,900	1977	692,300
1936	2,812,800	1978	597,000
1937	982,900	1979	97,400
1938	3,024,900	1980	7,080
1939	2,498,600	1981	2,104
1940	3,432,000	1982	7,091
1941	4,406,000	1983	417
1942	5,960,000	1984	27,072
1943		1985	9,510
1944	4,998,915	1986	135,922
1945	2,510,803	1987	119,409
1946	2,992,316	1988	98,855
1947	1,914,323	1989	89,173
1948	2,216,778	1990	2,473
1949	2,351,731	1991	6,183
1950	2,517,692	1992	17,050
1951	1,850,611	1993	114,159
1952	850,304	1994	158,918
1953	462,927	1995	489,506
1954	912,825	1996	792,326
1955	1,704,639	1997	1,088,969
1956	1,748,667	1998	1,006,529
1957	1,399,996	1999	948,191
1958	658,471	2000	902,379
1959	838,201	2001	1,488,815
1960	585,934	2002	894,879
1961	48,769	2003	713,205
1962	11,100	2004	1,354,982
1963	1,500	2005	972,801
1964	2,400	2006	466,833
1965	400	2007	474,388
1966	800	2008	592,211
1967	1,200	2009	433,238
1968	100	2010	490,067
1969	400	2011	546,896
1970	100		

Recreational		
Year	Number Harvested	Number Released
1981	0	16,233
1982	10,452	0
1983	108,355	1,507,184
1984	211,035	70,192
1985	21,276	13,132
1986	123,578	43,399
1987	208,488	32,074
1988	1,005,452	273,231
1989	22,871	41,822
1990	100,673	88,688
1991	288,471	3,352,190
1992	117,427	856,292
1993	805,560	2,504,362
1994	1,633,581	1,628,824
1995	827,183	496,046
1996	775,115	403,776
1997	1,053,232	1,497,670
1998	1,126,058	3,021,780
1999	1,209,572	2,483,800
2000	2,674,880	4,967,856
2001	1,319,928	1,585,806
2002	1,223,385	2,523,276
2003	1,619,766	1,393,224
2004	870,844	819,473
2005	809,894	950,695
2006	833,190	1,791,610
2007	1,092,784	1,630,587
2008	689,154	2,068,910
2009	1,038,428	774,805
2010	848,050	930,477
2011	657,672	1,086,149

Table 6. Maryland 2011 preliminary commercial Atlantic croaker harvest by gear.

Gear	Harvest	Percent of Harvest
Pound net	217,050	30.7
Gill Net	415,829	58.9
Trawl	7,414	1.0
Pots	18,544	2.6
Hook and line	13,523	1.9
Fyke Nets	32,389	4.6
Other	1,373	0.2
Total	706,122	

Table 7. Percent difference in Maryland Atlantic croaker 2010 and 2011 preliminary harvest by commercial fishing gear.

Gear	2010	2011	Percent Difference
Pound net	198,870	217,050	9.1
Gill Net	215,506	415,829	93.0
Trawl (Atlantic Ocean)	20,180	7,414	-63.3
Hook and line	9,917	13,523	36.4
Fyke nets	18,239	32,389	77.6
Other Pots and Traps	27,355	19,917	-27.2

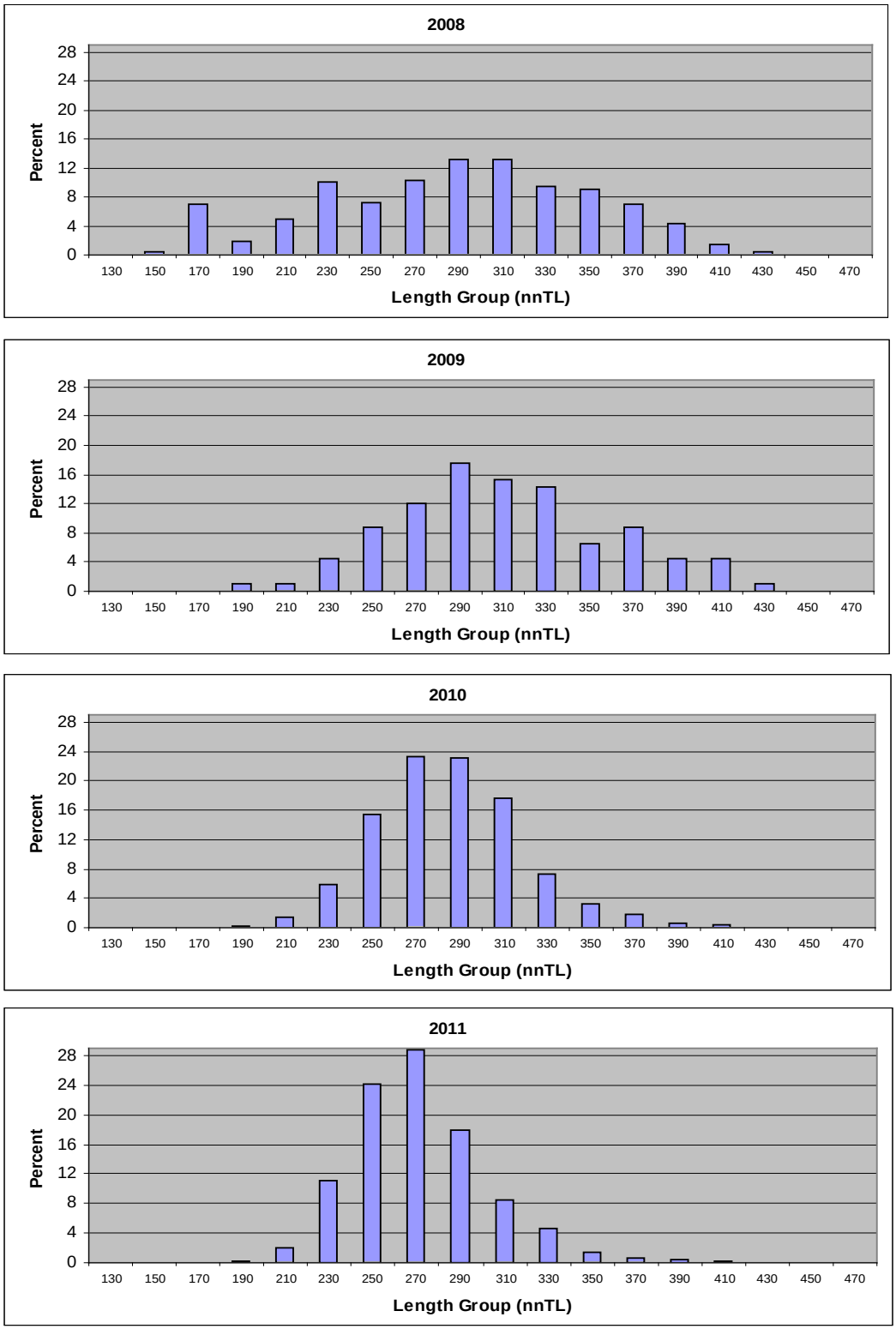

Figure 1. Atlantic croaker length frequency distributions from onboard pound net sampling, 2008-2011.

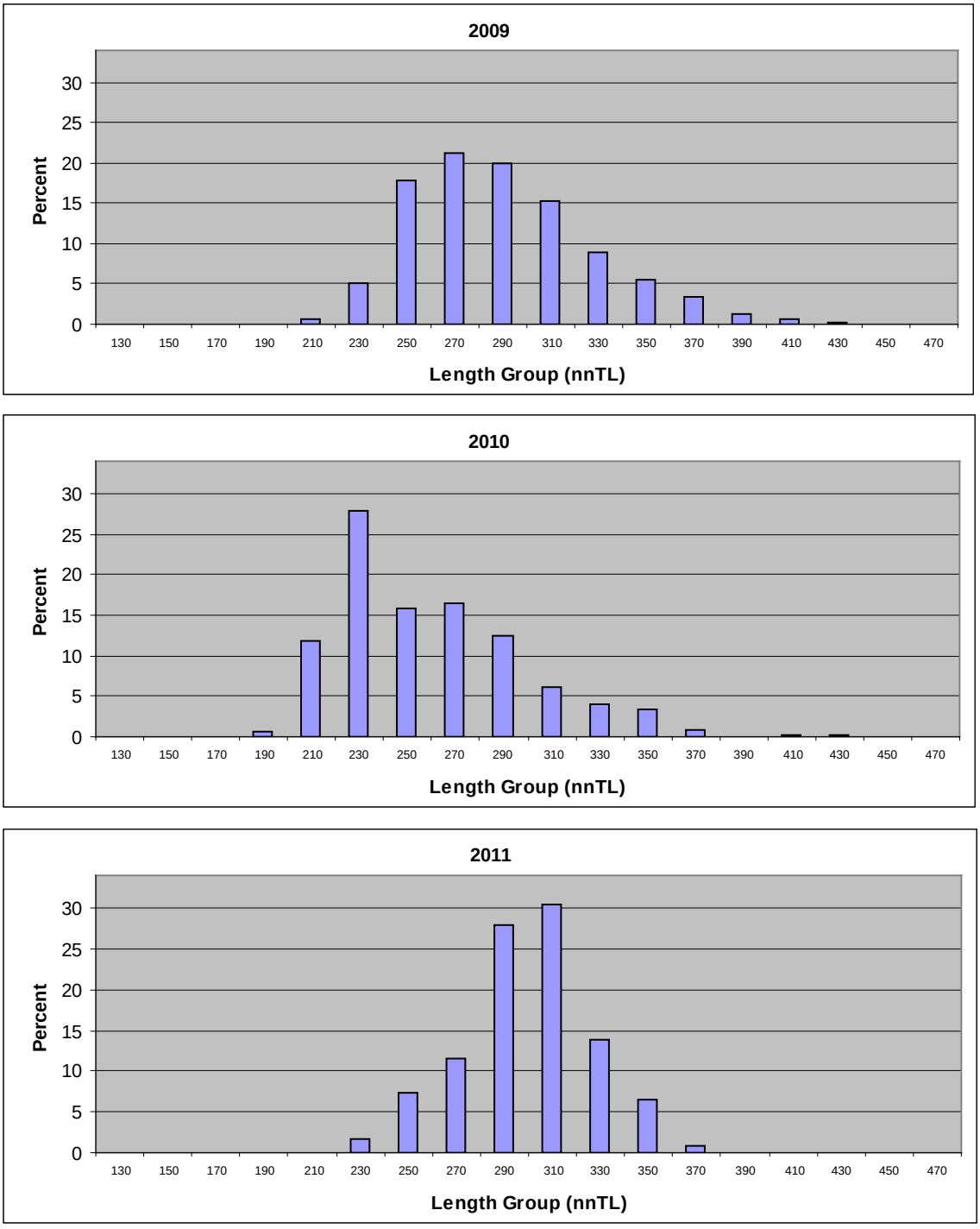

Figure 2. Atlantic croaker pound net length frequency distributions from seafood dealer sampling, 2009 - 2011.

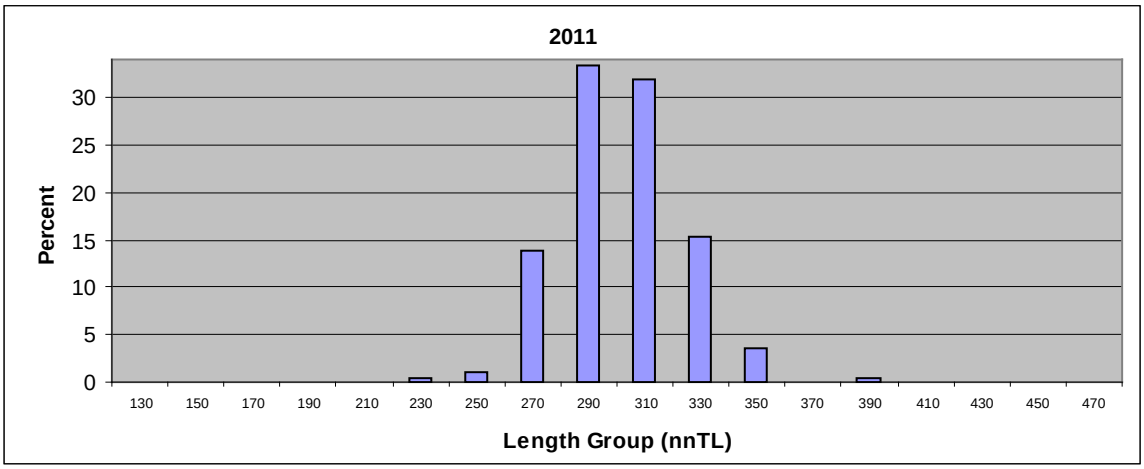

Figure 3. Atlantic croaker length frequency distribution from seafood dealer sampling of gill net fishery, 2011.

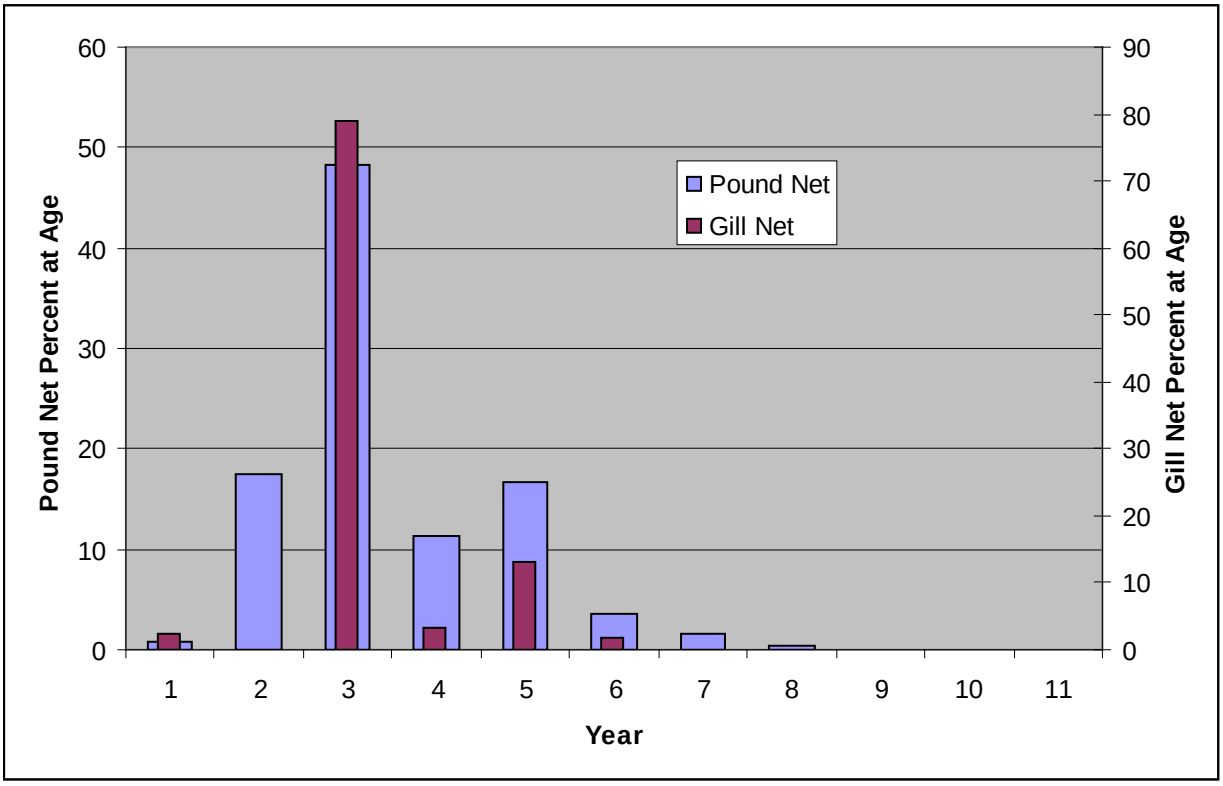

Figure 4. Proportion at age Atlantic croaker captured in commercial pound nets and gill nets by gear, 2011.

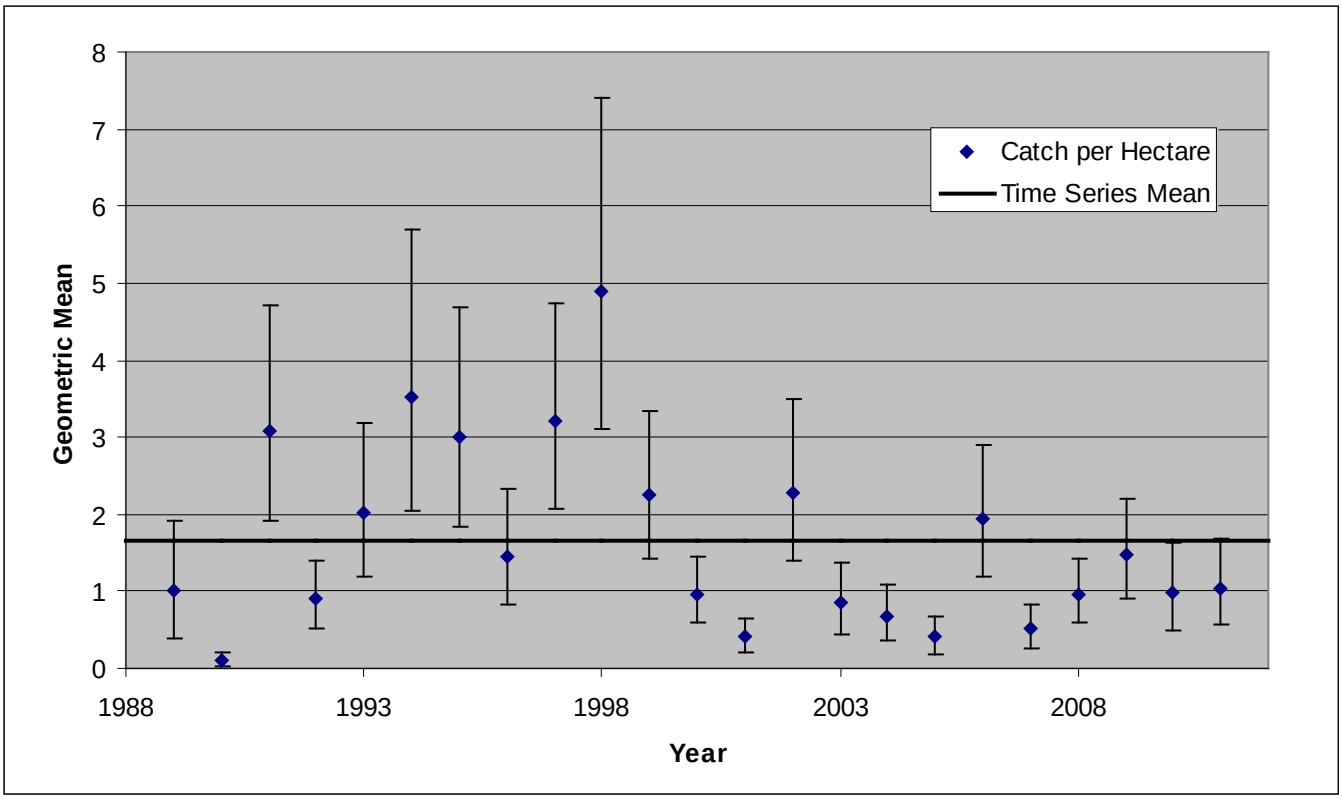

Figure 5. Coastal bay trawl juvenile Atlantic croaker annual geometric mean catch per hectare, upper and lower 95% confidence limits and time series mean, 1989-2011.

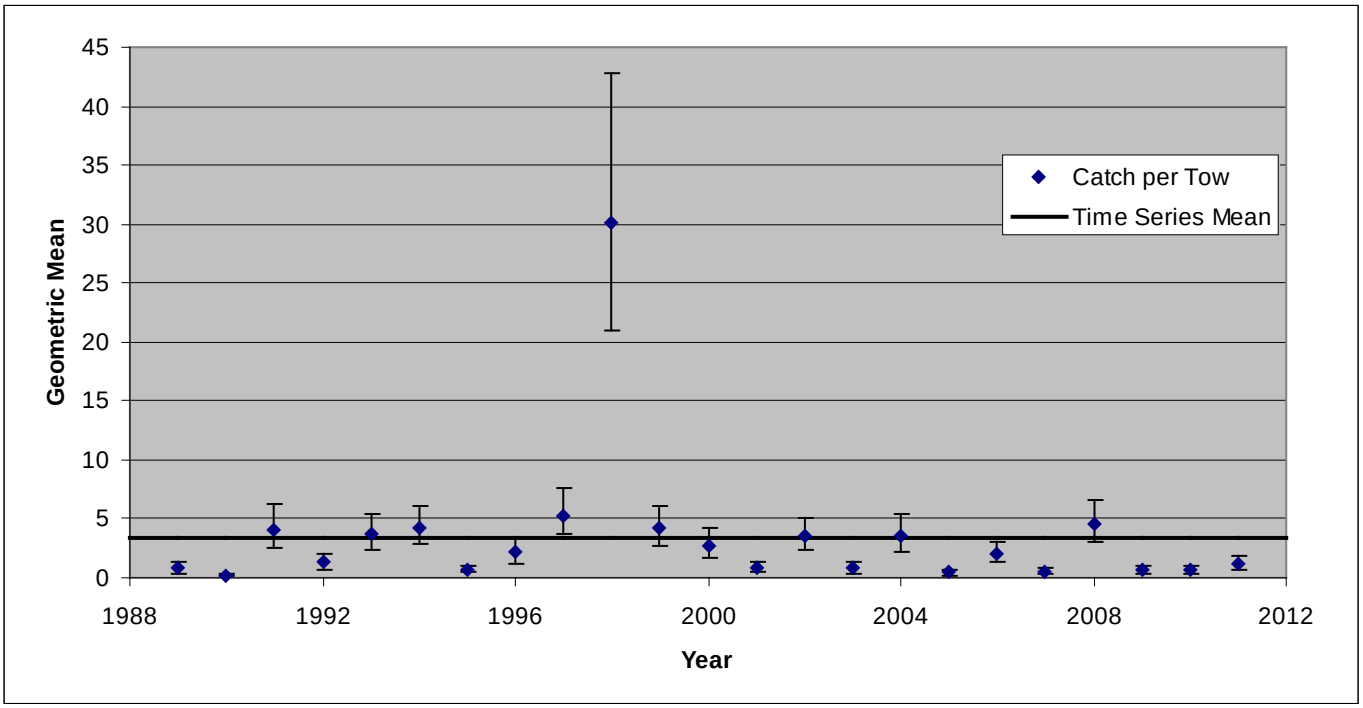

Figure 6. Maryland juvenile Atlantic croaker annual geometric mean catch per trawl, 95% confidence intervals and time series mean for Maryland's lower Chesapeake Bay, 1989 – 2011.

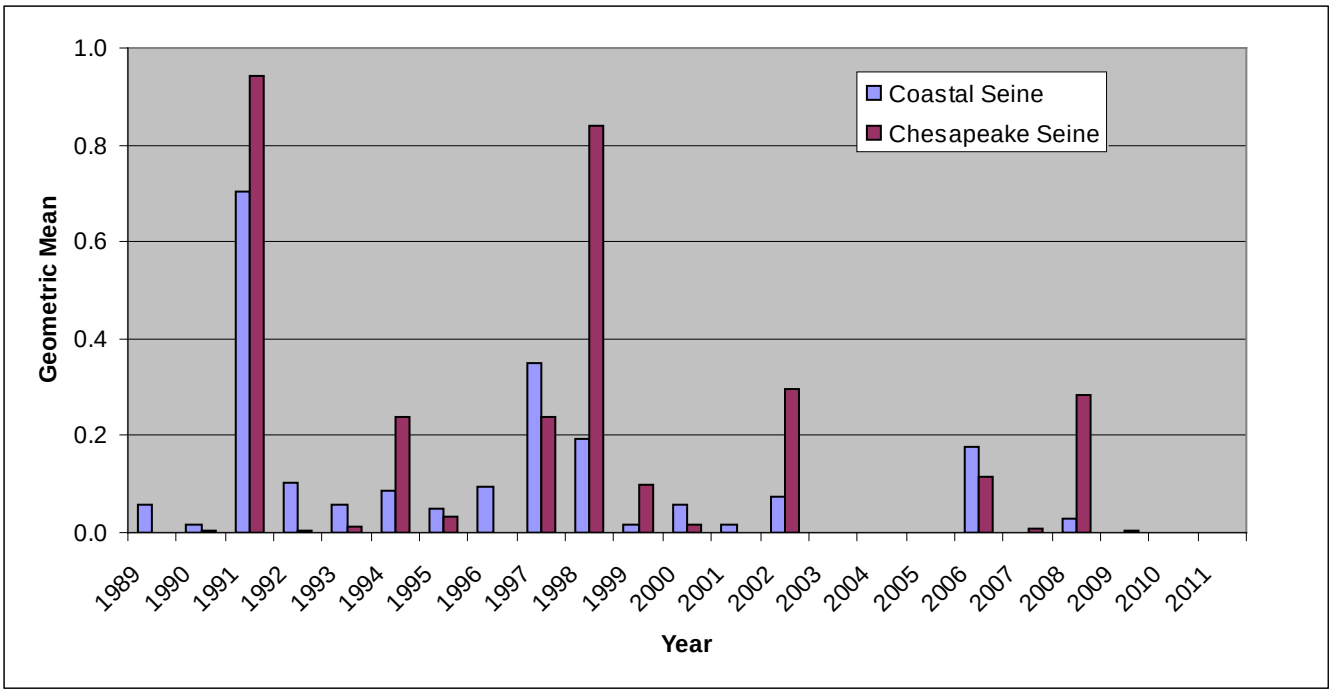

Figure 7. Geometric mean catch per haul for juvenile croaker derived from two seine surveys in Maryland, 1989-2011.

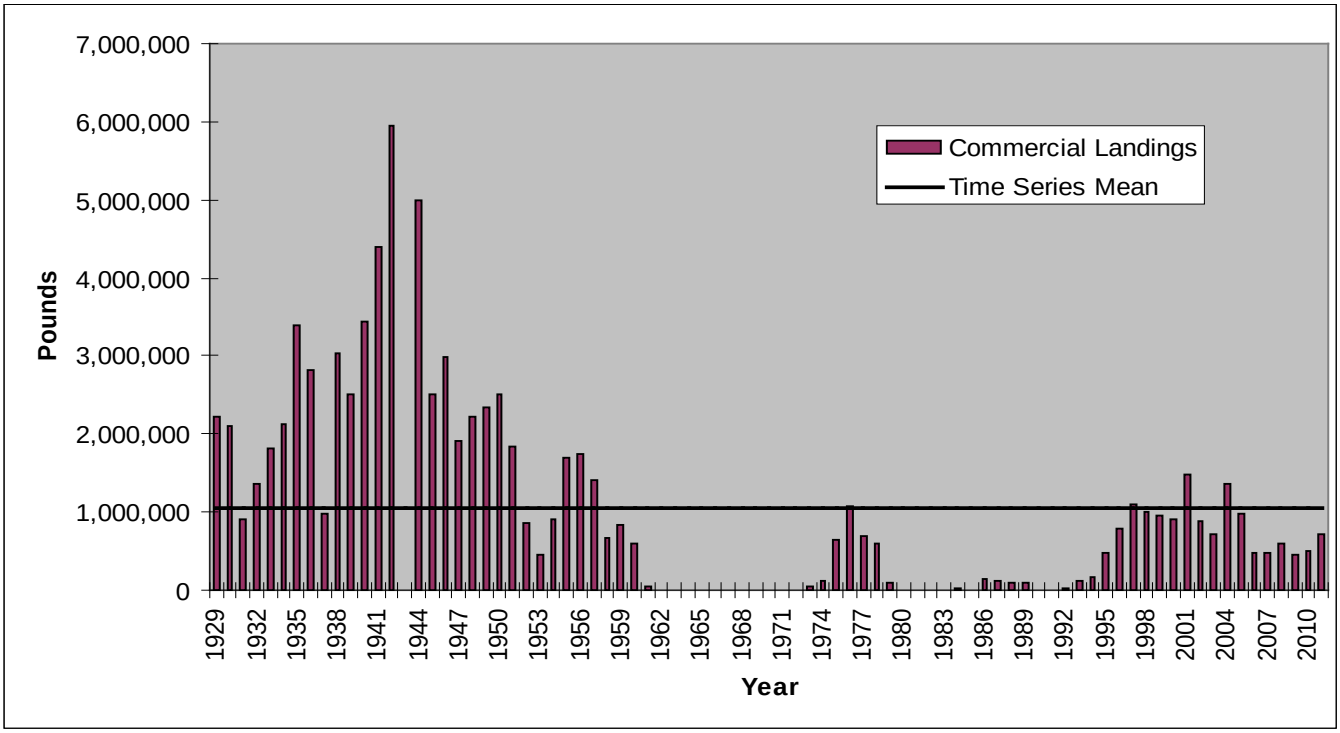

Figure 8. Maryland commercial landings from 1929 – 2011 (2011 landings preliminary) and time series mean.

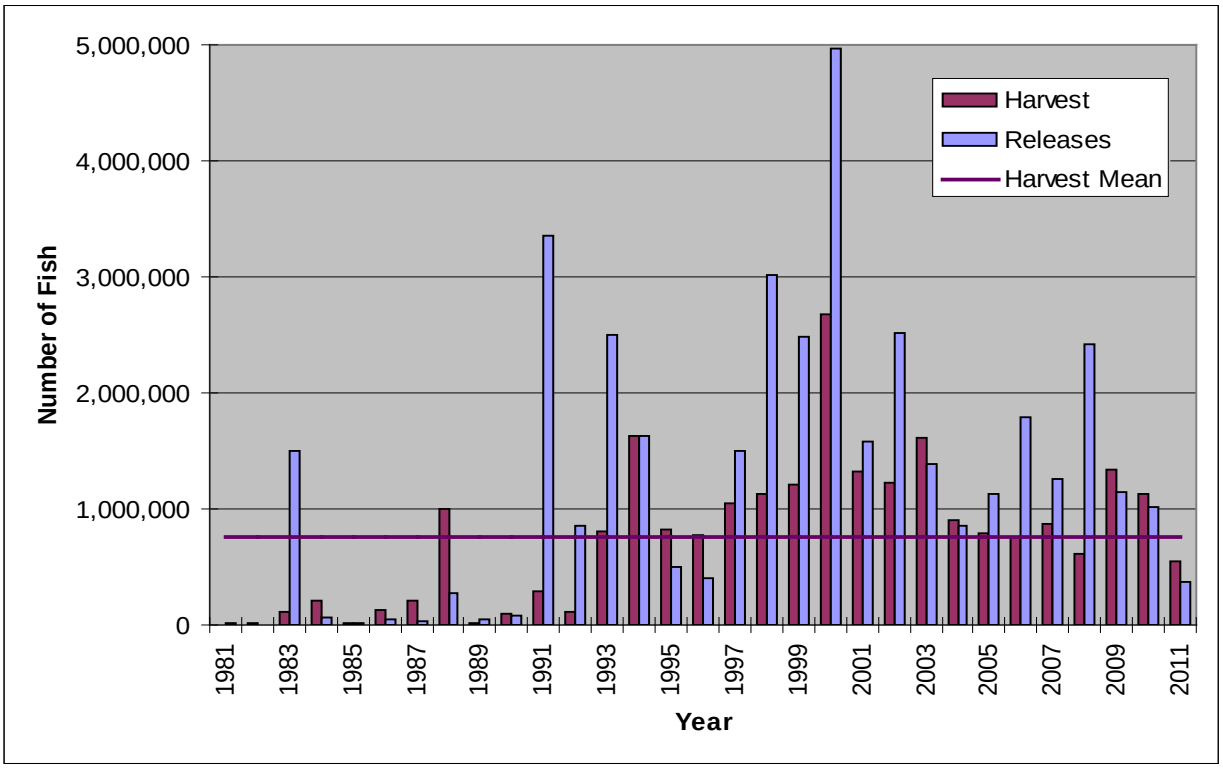

Figure 9. Recreational MRIP Atlantic Croaker harvest estimates, release estimates and harvest time series mean for Maryland waters, 1981-2011.

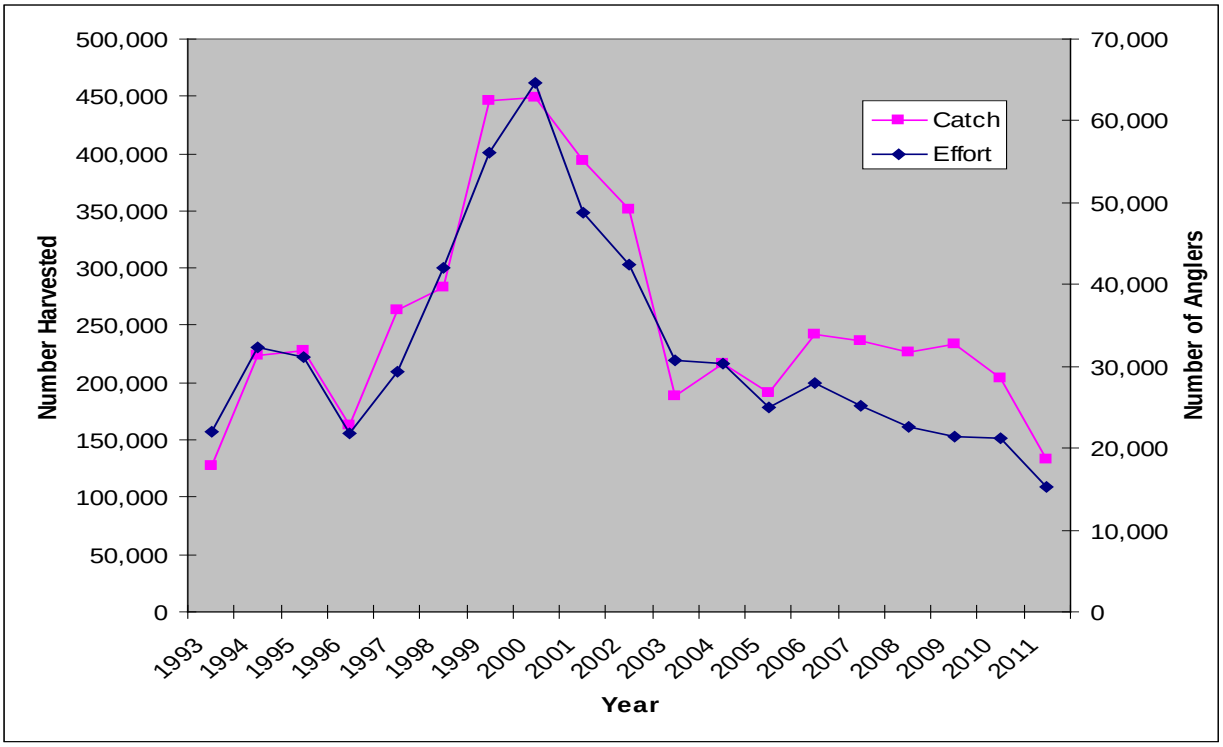

Figure 10. Maryland charter boat Atlantic croaker harvest and number of anglers, 1993-2011.

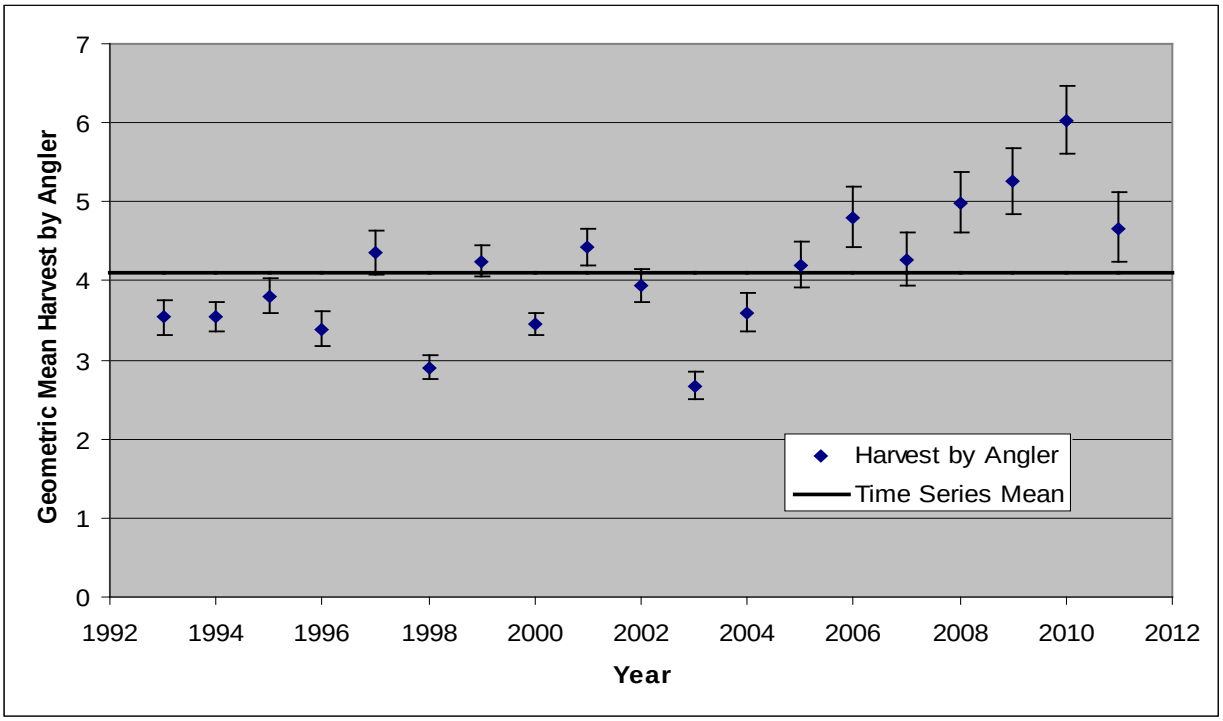

Figure 11. Maryland charter boat Atlantic croaker harvest geometric mean catch per angler, 95% confidence intervals and time series mean, 1993-2011.

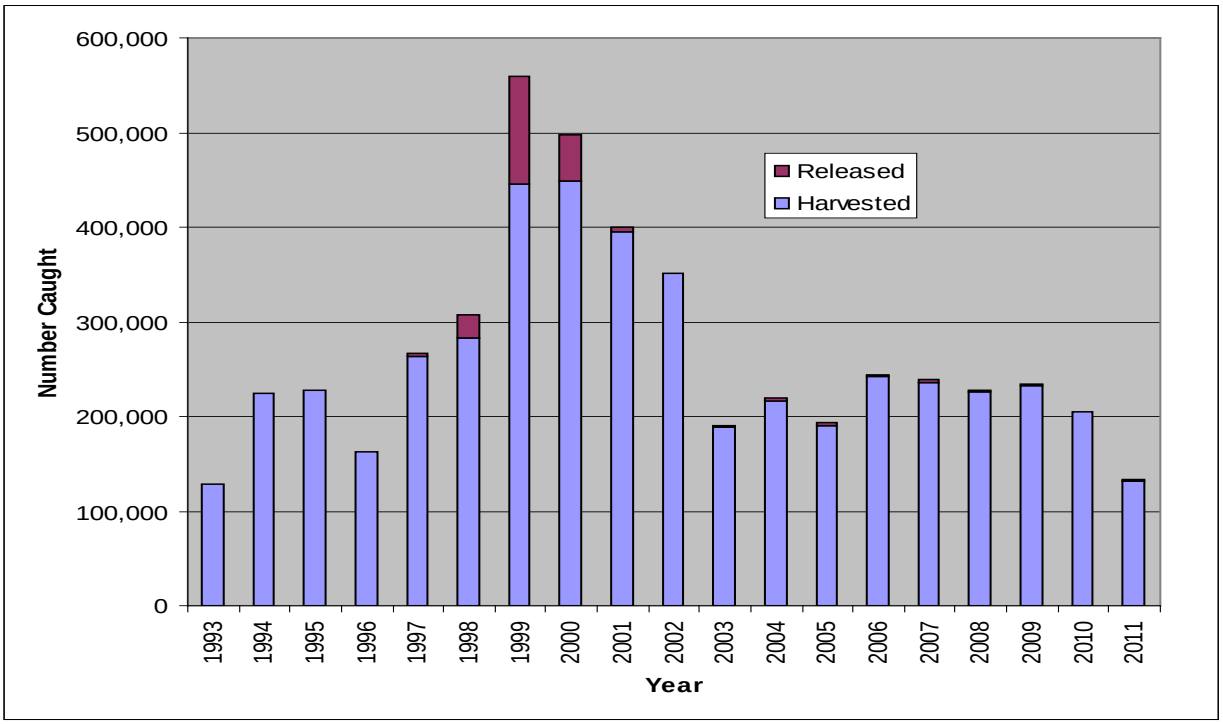

Figure 12. Number of reported Atlantic croaker harvested and released from Maryland charter boat logs, 1993-2011.

MARYLAND - VIRGINIA
"Potomac River Compact of 1958"
Potomac River Fisheries Commission
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ATLANTIC CROAKER
2011 Annual State Report
June 1, 2012

I. Introduction

Commercial harvest of Atlantic croaker in the Potomac River in 2011 showed an increase of about 68 percent from 2010.

II. Request *de minimis,* where applicable – N/A

III. Previous calendar year's fishery and management program

A. Fishery Dependent Monitoring

Pound nets are the primary commercial gear for Atlantic croaker. Haul seines, fyke nets, and several miscellaneous gear types can occasionally contribute to the total croaker harvest. The PRFC has a mandatory commercial harvest daily reporting system.

B. Fishery Independent Monitoring

Maryland DNR personnel have conducted an annual juvenile abundance survey since 1954. Atlantic croaker data has been recorded from 1959 to present. Fixed stations and some auxiliary stations are used each year for a beach haul seine survey in which the juveniles of all species encountered are identified and recorded. The YOY geometric mean has been at zero for the past three years (Figure 2). For further details, refer to the MD DNR web site http://www.dnr.state.md.us/fisheries/juvindex/index.html

C. Regulations in Effect

The commercial pound net season was February 15 through December 15. There were no size or harvest limits.

In 2011, it became mandatory for pound netters to properly install six PRFC approved fish cull panels in the sides of their pound nets. Studies have shown that small croaker are released alive when the fish cull panels are used.

The recreational Atlantic croaker season was January 1 through December 31. There was no size limit and the catch limit was 25 fish per person per day.

D. Harvest

Commercial Atlantic croaker harvest in 2011 totaled 238,050 pounds. This estimate is from the PRFC's mandatory commercial daily harvest reporting system. The pound net fishery effort is expressed as "PN fished days" which is one pound net fished one time. The fyke

net fishery effort is expressed as "FN fished days" which is one fyke net fished one time. The haul seine fishery effort is expressed as "hauls" and is one-fishing of the haul seine. The hook and line effort is expressed as "hours" fished. Miscellaneous gear effort is expressed as "gear days".

Harvest (lbs)	Gear	Effort
224,668	Pound Net	749 PN fished days
9,598	Miscellaneous	81 gear days
3,052	Haul Seine	13 hauls
672	Fyke Net	23 FN fished days
60	Hook & Line	15 hours

For the private recreational fishery, the PRFC 'adds-on' to the MRFSS phone survey. Results are reported and included as either MD or VA catches. Contact information is supplied to the NOAA For Hire Survey for all charter boats licensed to operate in the Potomac.

E. Losses

The PRFC's mandatory commercial harvest daily reporting system collects harvest data as well as discards or releases. In 2011, pound net fishermen in the Potomac reported releasing 25 pounds of undersize croaker. The pound net fish cull panels release small croaker before the net is fished; therefore an unknown amount of small fish were released/escaped from the net and were not reported.

Tables and Figures:

Table 1 shows the Potomac River commercial harvest of Atlantic croaker by gear type from 1964 through the reporting year.
Figure 1 illustrates the Potomac River commercial Atlantic croaker harvest.
Figure 2 illustrates the Potomac River geometric mean for young-of-year croaker.

IV. Planned management programs for the current calendar year

A. Summarize regulations that will be in effect

The pound net fishery is a limited entry fishery, with a maximum of 100 licenses on a total riverwide basis. A pound net is defined as a fixed fishing device with one head, trap or pound measuring not less than 20 feet square at the surface of the water on the channel end and only one leader or hedging not less than 300 feet in length. We have no specific regulations for Atlantic croaker.

New regulation effective January 1, 2011 – all pound nets in the Potomac River must have at least six PRFC approved fish cull panels properly installed in each pound net to help release undersize fish. These fish cull panels were being used by some pound netters on a voluntary basis prior to 2011. Tests have shown that when these cull devices are used, 100 percent of croaker less than nine inches were released alive.

B. Monitoring programs

We expect MD will continue the annual juvenile abundance survey. We will continue our mandatory daily harvest reports.

C. Any changes from the previous year - None

Table 1

Potomac River Commercial Harvest (lbs) for CROAKER by gear type

YEAR	HAUL SEINE	POUND NET	FYKE NET	GILL NET	H & L	MISC.	LBS. LANDED IN MARYLAND	LBS. LANDED IN VIRGINIA	TOTAL
1964	-	-	-	-	-	3,012	-	3,012	3,012
1965	-	-	-	-	-	11,784	-	11,784	11,784
1966	-	-	-	-	-	6,906	110	6,796	6,906
1967	-	-	-	-	-	16,840	166	16,674	16,840
1968	-	-	-	-	-	-	-	-	-
1969	-	-	-	-	-	-	-	-	-
1970	-	-	-	-	-	1,010	-	1,010	1,010
1971	-	-	-	-	-	50	-	50	50
1972	-	-	-	-	-	1,505	-	1,505	1,505
1973	-	-	-	-	-	3,756	29	3,727	3,756
1974	-	-	-	-	-	5,124		5,124	5,124
1975	-	-	-	-	-	41,660	1,594	40,066	41,660
1976	30,905	250,570	-	-	-	-	36,781	244,694	281,475
1977	468	1,251,270	-	4,912	-	-	20,013	1,236,637	1,256,650
1978	-	351,568	-	54	-	69	1,729	349,962	351,691
1979	-	55,138	-	-	-		84	55,054	55,138
1980	2,024	182,092	-	-	-		2,089	182,027	184,116
1981	-	648	-	-	-	-	67	581	648
1982	-	188	-	-	-	-	44	144	188
1983	-	1,549	-	-	-	-	115	1,434	1,549
1984	30,139	43,562	-	-	-	-	24,714	48,987	73,701
1985	374	19,447	-	33	-	-	1,087	18,767	19,854
1986	4,430	94,498	-	25	420	-	12,802	86,571	99,373
1987	18,480	84,211	-	-	-	-	20,738	81,953	102,691
1988	-	12,791	-	-	5	-	901	11,895	12,796
1989	21	5,558	-	-	0	-	1,179	4,400	5,579
1990	-	5,115	-	-	0	-	396	4,719	5,115
1991	-	996	-	-	0	-	55	941	996
1992	-	17,684	-	-	8	8	1,512	16,180	17,692
1993	9,113	253,331	-	-	31	7	85,811	176,671	262,482
1994	3,873	236,350	27	-	8	13	62,239	178,032	240,271

Table 1 continued

Potomac River Commercial Harvest (lbs) for CROAKER by gear type

							LBS. LANDED IN		
YEAR	HAUL SEINE	POUND NET	GILL NET	FYKE NET	H & L	MISC.	MARYLAND	VIRGINIA	TOTAL
1995	417	605,244	-	22	334	167	58,426	547,758	606,184
1996	-	1,426,949	-	67	269	-	378,490	1,048,795	1,427,285
1997	602	1,517,044	-	521	29	-	558,386	959,810	1,518,196
1998	965	607,347	70	2,280	74	149	264,266	346,619	610,885
1999	106	1,189,266	25	335	335	71	609,238	580,900	1,190,138
2000	9,649	1,794,411	2	5,387	252	2,429	572,073	1,240,057	1,812,130
2001	14,260	1,940,177	-	7,848	683	326	705,840	1,257,454	1,963,294
2002	232	1,412,828	3	1,679	59	6,293	574,739	846,355	1,421,094
2003	604	1,114,131	-	10,431	506	2,331	799,902	328,101	1,128,003
2004	922	1,625,702	-	4,158	72	742	1,241,669	389,927	1,631,596
2005	-	480,142	-	1,461	72	237	388,378	93,534	481,912
2006	65	669,277	-	603	-	331	516,730	153,546	670,276
2007	172	186,278	-	483	6	1,628	109,951	78,616	188,567
2008	16	336,454	-	571	-	21	253,025	84,037	337,062
2009	1,643	229,908	-	167	27	2,356	148,395	85,706	234,101
2010	1,825	156,882	-	1,010	630	2,224	85,996	76,575	162,571
2011	3,052	224,668	-	672	60	9,598	89,234	148,816	238,050

Figure 1

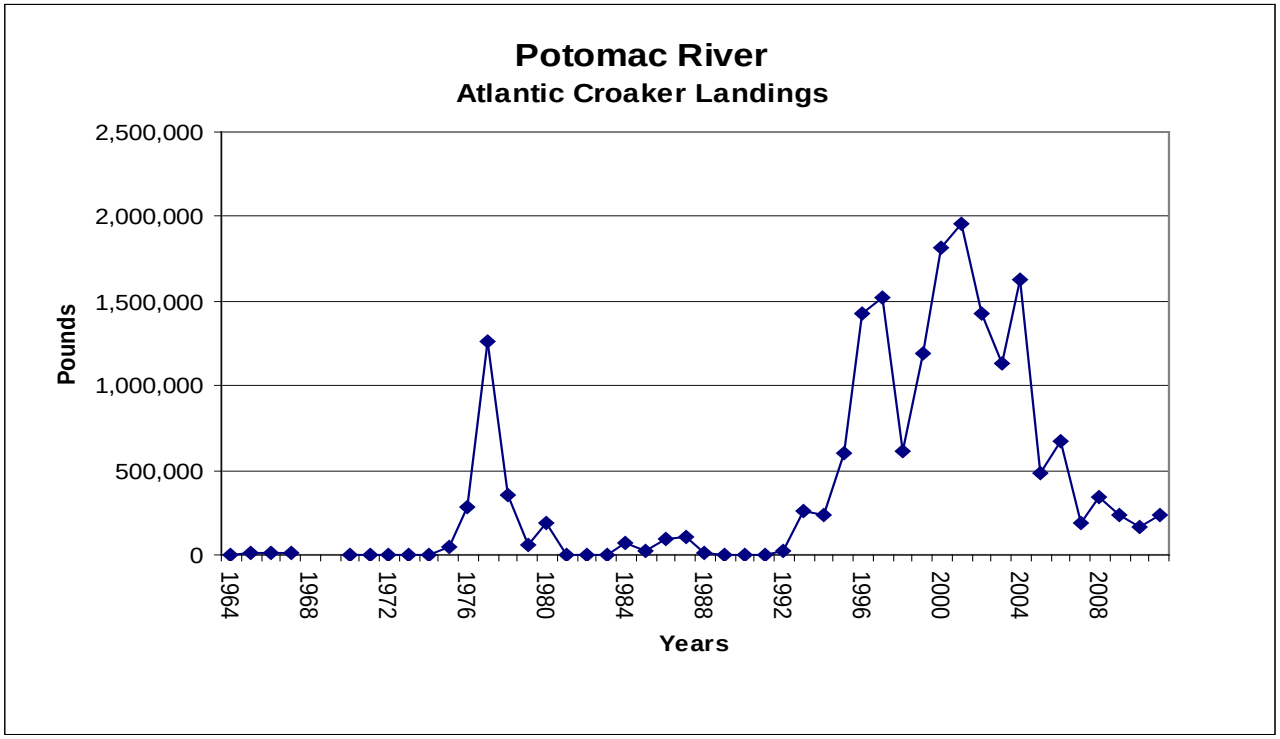
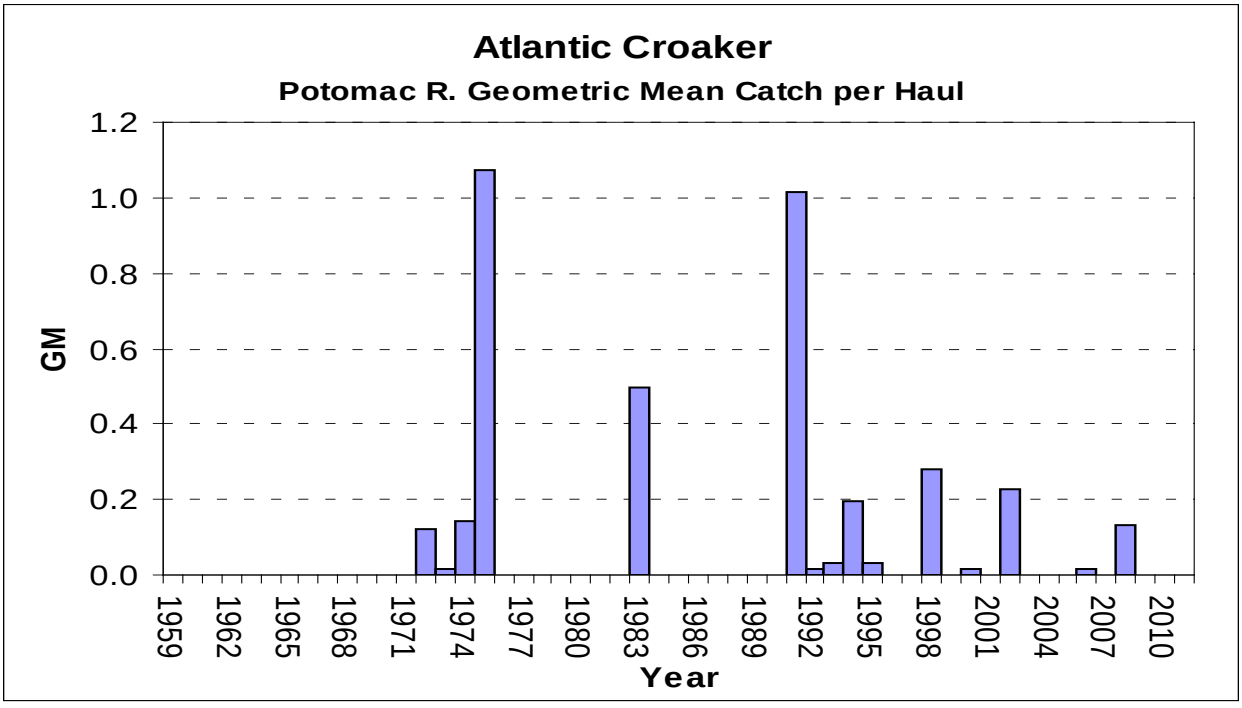


Figure 2 - MD DNR state wide annual young of the year survey



COMMONWEALTH of VIRGINIA

Marine Resources Commission
2600 Washington Avenue
Third Floor
Newport News, Virginia 23607

Douglas W. Domenech
Secretary of Natural Resources

Jack G. Travelstead
Commissioner

June 27th, 2012

MEMORANDUM

TO: **Danielle Chesky, Atlantic Croaker FMP Coordinator**
Atlantic States Marine Fisheries Commission

FROM: **Joe Grist, Senior Manager, Fisheries Management Division**
Virginia Marine Resources Commission

SUBJECT: **Virginia's Report on the 2011 Atlantic Croaker Fisheries Management Program**

1. Introduction

Summary of the year: highlight any significant changes in monitoring, regulations, or harvest.

Virginia continued its collection of biological data from commercial fisheries. A sample of 5,822 total lengths was collected in 2011. For age determination, 425 Atlantic croaker were sampled in 2011, and an average of 369 Atlantic croaker has been sampled, for age, per year, since 1998.

Commercial landings (5,631,520 pounds), in 2011, were lower than in 2010 and were the lowest total since 1994. Virginia recreational landings (1,749,128 pounds) were below the 2004 through 2009 average MRIP landings of 5.0 million pounds.

Delta random stratified index values for Atlantic croaker young-of-year relative abundance estimates based on the spring recruitment window of April through June are provided by the Virginia Institute of Marine Science (VIMS). The 2011 croaker index value was 4.09 which was down 68.5% from the 2010 value of 13.00.

No direct changes in management measures or regulatory requirements occurred in 2011 or are planned for 2012.

2. There is no request for *de minimis*, by the VMRC.

3. Previous calendar year's fishery and management program

   a. Activity and results of fishery-dependent monitoring (provide general results and references to technical documentation).

      Tables 1 and 2 characterize the recent collections of biological data from Atlantic croaker fisheries. Table 1 provides a summary of the numbers of Atlantic croaker measured for length and weight, the number of fish sexed, and the number of fish that were aged based on otoliths. Please note that age data collections began in 1998, under a cooperative agreement between the Old Dominion University (ODU) Center for Quantitative Fisheries Ecology and the VMRC. Table 2 provides seasonal information on length and age collections, according to sampled commercial gear types.

   b. Activity and results of fishery-independent monitoring (provide general results and references to technical documentation).

      Delta random stratified index values for Atlantic croaker young-of-year relative abundance estimates based on the spring recruitment window of April through June are provided by the Virginia Institute of Marine Science (VIMS). This index was updated for the most recent Atlantic croaker benchmark assessment, and all values presented reflect the index update from 1987 through 2011 (Table 3). The 2011 value of 4.09 is 68.5% lower than the 2010 value of 13.00, and 85% below the three year average of 27.11 from 2008 through 2010.

   c. Copy of regulations that were in effect, including a reference to the specific compliance criteria as mandated in the FMP.

      At this time, there is no regulation in effect or required by the ASMFC. Trawling within Virginia waters has been banned since July 1, 1989.

   d. Harvest broken down by commercial (by gear type where applicable) and recreational, and non-harvest losses (when available).

      Gill net, pound net, and haul seine harvests accounted for 41.1%, 29.9%, and 14.6% of the 2011 landings, respectively (Table 4). In 2011, seventy-six percent of the landings occurred during the months of April through August (Table 5). Table 6 provides information on landings of Atlantic croaker, by market category. In recent years, large, medium, and unclassified (mixed market categories) fish have accounted for most of the landings.

      The 2011 estimate of Virginia's recreational harvest (A+B1) for Atlantic croaker in terms of weight was 1.7 million pounds (Table 7). Recreational harvest has been declining over the last six years from a high of 7.1 million pounds in 2006 to a low of

1.7 million pounds in 2011 (Table 7). Virginia's recreational harvest of Atlantic croaker, in terms of numbers, was 3.3 million fish, 48% less than the average annual landings over the 2004 through 2010 time-period (Table 8).

Non-harvest losses from the commercial fishery are not monitored by the VMRC. However, the gill net fishery utilizes mesh sizes that select for marketable fish. The pound net and haul seine fisheries do contribute to the bait component, as well as the market landings. The number of Atlantic croaker released alive by the recreational fishery in 2011 was 4.87 million fish (Table 9). The number of Atlantic croaker released alive by recreational anglers exceeded the number harvested for the third straight year from 2009 through 2011 (Figure 1).

e. Review of progress in implementing habitat recommendations.

Locations of juvenile Atlantic croaker are known from the monthly trawl surveys performed by the VIMS. Both the Juvenile Fish and Blue Crab Trawl Survey and the CHESMMAP Trawl Survey of adult fishes and the VMRC field collection program have compiled data, concerning the locations (habitats) of adult Atlantic croaker.

The VMRC collaborates with other state agencies (VIMS, Department of Environmental Quality, ODU (plankton monitoring), Division of Shellfish Sanitation (shellfish monitoring), and the Department of Health) as part of a Harmful Algal Bloom (HAB) Response Team Network that monitors and assesses hypoxic and other water quality events. The VMRC and Department of Environmental Quality (DEQ) collaborate on fish kill events, and the DEQ is the lead agency for fish kill events and the response team.

All permit applications for dredging undergo a joint permit application process involving federal and state agencies, including the VMRC, and are gauged against habitat requirements for fisheries resources.

4. Planned management programs for the current calendar year

a. Summarize regulations that will be in effect (copy of current regulations if different from 3c.

No change.

b. Summarize monitoring programs that will be performed.

Fishery-dependent (VMRC) and fishery-independent (VIMS trawl survey and CHESMMAP) collections will continue, as in 2011.

c. Highlight any changes from the previous year.

No change.

North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries

Beverly Eaves Perdue
Governor

Dr. Louis B. Daniel III
Director

Dee Freeman
Secretary

North Carolina Atlantic Croaker Compliance Report for 2011

Jason Rock
North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries
943 Washington Square Mall
Washington, NC 27889

June 29, 2012

I. INTRODUCTION

In 2011, 4,838 commercial trips harvested 5,054,186 lbs of Atlantic croaker valued at $3,164,034 in North Carolina. Compared to 2010, landings decreased by approximately 31%, while the number of trips decreased 33%. In North Carolina, commercial landings have declined each year from 2003 to 2008, increased in 2009 and 2010, and then declined again in 2011. This recent decrease in landings is just 56% of the 10-yr average (9,050,604 lbs). Recreational harvest (100,692 lbs) accounts for less than 2% of the total state croaker landings and decreased 57% when compared to 2010. During 2011 there were no changes to regulations or monitoring programs, specifically for Atlantic croaker.

II. REQUEST FOR DE MINIMIS

North Carolina does not request *de minimis* status for 2011.

III. 2011 FISHERY AND MANAGEMENT PROGRAM (Atlantic Croaker Plan Specific)

A. FISHERY DEPENDENT MONITORING

Directed Commercial Harvest

Four gear types (gill nets, fly nets, flounder trawls, and haul seines) are used in directed commercial trips and harvest of Atlantic croaker, and account for approximately 99% of the total landings. In 2011, 4,838 commercial trips harvested 5,054,186 lbs of Atlantic croaker valued at $3,164,034 in North Carolina. These catch rates are reported by the North Carolina Trip Ticket Program, a fishery-dependent program initiated by the North Carolina Division of Marine Fisheries (NCDMF) in 1994. The program was designed to better assess fisheries with more detailed harvest data.

A trip ticket is the form used by fish dealers to report commercial landings information. Trip tickets collect information about the fisherman, the dealer purchasing the product, the transaction date, crew number, area fished, gear used and the quantity of each species landed for each trip. Some trip tickets also collect the species of shrimp landed and disposition (heads on/off), the state of catch, bottom type (public or leased) and lease number. Each month, dealers are required to send these forms to the NCDMF for processing (http://www.ncfisheries.net/statistics/tripticket/index.htm).

Commercial fishing activity is monitored through fishery-dependent sampling conducted under Title III of the Interjurisdictional Fisheries Act and has been ongoing since 1982. Data collected in this program allows the size distribution of Atlantic croaker to be characterized by gear/fishery (Assessment of North Carolina Commercial Finfisheries, Completion Reports 1984-2007, North Carolina Department of Environment and Natural Resources, Division of Marine Fisheries). Further sub-sampling is conducted to procure samples for age determination (sectioned otoliths), sex ratio, reproductive condition, and weight (Survey of Population Parameters of Marine Recreational Fishes in North Carolina. Completion Report Project F-42 Segments, North Carolina Department of Environment and Natural Resources, Division of Marine Fisheries).

Recreational Harvest Estimate

Marine Recreational Information Program (MRIP)

The MRIP consists of two complementary surveys: 1) a telephone survey of households in coastal counties to get trip information and 2) an intercept survey of anglers at shore side access sites to obtain catch rates and species composition. The data from the two surveys are combined to provide estimates of the total number of fish caught, released, and harvested; the weight of the harvest; the total number of trips; and the number of people participating in marine recreational fishing. In 2011, an estimated 434,567 directed recreational trips harvested 100,692 lbs (PSE=13) of Atlantic croaker.

Recreational Commercial Gear License (RCGL)

Commercial fishing gears such as gill nets, crab pots, and shrimp trawls have been used for recreational purposes in the coastal waters of North Carolina for many years. The use of these types of gears provides pleasure and a source of sustenance for both North Carolina residents as well as individuals from other states. To participate in these activities the user must possess a RCGL that entitles the individual to use limited amounts of commercial gear to catch fish for personal consumption but does not allow for sale of the catch. The RCGL survey was discontinued in 2009 due to budget cuts.

B. FISHERY INDEPENDENT MONITORING

North Carolina has no current fishery-independent monitoring programs specifically for Atlantic croaker. However, the North Carolina Division of Marine Fisheries (NCDMF) has conducted a stratified random trawl survey in Pamlico Sound (Pamlico Sound Survey, Program 195) since 1987 to obtain juvenile abundance indices (JAI) for several economically important species, including Atlantic croaker. The yearly 2011 croaker JAI (mean number of individuals/tow) was 105 (2010 JAI=1,020). From 2002-2011 the average JAI was 366.

C. REGULATIONS IN EFFECT (INCLUDING CRITERIA MANDATED BY FMP)

Commercial Regulations

There are no direct restrictions on the commercial harvest of Atlantic croaker within coastal, joint, or inland waters of NC. There are however numerous indirect restrictions that effect the commercial harvest and bycatch of Atlantic croaker in North Carolina (coastal and joint waters Table 1, inland waters Table 2). Atlantic croaker has nongame fish status in inland waters and a noncommercial special device license is required if three (3) or fewer special devices are used regardless of purpose (commercial or recreational).

Table 1. NC commercial fishery restrictions that indirectly affect the harvest and bycatch of Atlantic croaker in **coastal and joint waters**.

Action	Proclamation/Rule	Year
Area restrictions and incidental finfish limits taken by shrimp and crab trawls in inside waters limit these gears from having no more than 500 pounds of finfish from December 1 through February 28 and 1,000 pounds of	Rule: 15A NCAC 3J .0104(a)	1991

Action	Proclamation/Rule	Year
finfish from March 1 to November 30.		
Finfish taken in shrimp and crab trawls in the Atlantic Ocean. It is unlawful to possess finfish incidental to shrimp or crab trawl operations from December 1 through March 31 unless the weight of the combined catch of shrimp and crabs exceeds the weight of finfish.	Rule: 15A NCAC 3J.0202 (5)(a)	1997
Limits the catch of unclassified bait to 5,000 lbs per vessel per day	Rule: 15A NCAC 3M.0162	
Establish a minimum mesh size restriction in shrimp trawls (1 ½" tailbag) and crab trawls (3").	Rule: 15A NCAC 03L.0103 and 0292	
Limit head rope length internally to 90 feet and establish shrimp trawl prohibited areas	Rule: 15A NCAC 03L. 0103 &15A NCAC 03R. 0114	2006
Bycatch reduction devices (BRDs) required in all shrimp trawls.	Proclamation and consent of the MFC. Rule: 15A NCAC 3J .0104	
Increase minimum mesh size restrictions for crab trawls to 4" in western Pamlico Sound.	By proclamation. (NC southern flounder FMP)	2005
Minimum mesh size for flynets. A minimum stretched mesh length of less than 3" hung on the square or 3 ½" hung on a diamond. Flynets are defined as nets having the first body (belly) section consisting of 35 or more continuous meshes of 8" or greater (stretched mesh) webbing behind the bottom and top line with tailbags less than 15 feet in length. Tailbags constructed of square mesh may have the terminal 3 feet of mesh hung on a diamond with a minimum stretched mesh length of 2".	Proclamation: FF-26-92 (ASMFC Weakfish FMP)	
Closure of ocean waters south of Cape Hatteras to the SC State line to fly nets.	Proclamation: FF-18-94 Rule:15A NCAC 3J.0202 (4)	1994
No person may possess aboard or land from any vessel using a fly net more than 100 pounds of weakfish during any one day or trip, whichever is longer, in state waters or within 200 miles of the shore in the Atlantic Ocean. The weight of the weakfish possessed shall not exceed 10% of the combined catch up to 100 pounds of weakfish, unless all fly nets onboard meet the following requirements: 1) The fly net has a large mesh in the wings that measure 8" to 64" (inside stretched mesh length; and 2) The first body section (belly) of the net has 35 or more meshes that are at least 8 inches (inside stretched mesh length); 3) Mesh decreases in size throughout the body of the net to a tailbag of a	Proclamation: FF-14-96 (Revised FF-66-2010) (implement restrictions required to comply with Addendum IV of Amendment 4 of the ASMFC weakfish FMP)	1996

Action	Proclamation/Rule	Year
minimum length of 15 feet in length with a minimum inside stretched mesh length of 3 ½" hung on the square or 3 ¾" hung on a diamond. 4) Tailbags constructed of square mesh may have the terminal three feet constructed of material hung on a diamond with a minimum inside stretched mesh length of 2".		
Mandatory use of long haul cull panels and swipe nets south/west of a line from Bluff Point in Pamlico Sound to Ocracoke island.	Rule: 15A NCAC 3J .0109 (3)	1999, 2004
No person may possess aboard or land from, any vessel using or having on board a gill net with a mesh length less than 2 7/8 inches stretched mesh, more than 100 pounds of weakfish during any one day or on any trip, whichever is longer, in state waters or within 200 miles of the shore in the Atlantic Ocean. The weight of weakfish possessed shall not exceed 10% of the total weight of the combined catch up to 100 pounds of weakfish.	Proclamation: FF-14-96 (Revised FF-66-2010) (implement restrictions required to comply with Addendum IV of Amendment 4 of the ASMFC weakfish FMP)	1996
Small mesh (< 5") estuarine gill net attendance requirements from May 1 to November 30 in select areas in inside waters. Also the small mesh gill net attendance requirement extended to include weekends, December through February under spotted seatrout FMP.	Rule: 15A NCAC 3J .0103 (h) (NC red drum and spotted seatrout FMPs)	1998, 2008, 2010
Authorized gear allowed and restrictions applied to the Recreational Commercial Gear License. Modified 2008 to allow mechanical retrieval of shrimp trawl.	Rule: 15A NCAC 3O .0302	1999, 2008
Inside large mesh gillnets (excluding strike nets) which are defined as: ≥ 4 in through 6 ½ in. stretch mesh, protective turtle restrictions are: Restrict the number of days during the week that fishermen could operate (Mon – Fri) and limit soak times to night time. Establish a maximum yardage limit of 2,000 yards. Nets must be deployed as low profile with a net height of no more than 15 meshes, all cork and other buoys removed except as required for identification, and set in individual 100-yard shots with at least a 25-yard break between individual shots. Provide observer coverage of gill nets	Proclamation M-8-2010	2010
Exempts portions of Croatan and Roanoke	Proclamation M-28-2012	2012

Action	Proclamation/Rule	Year
sounds and all of Albemarle and Currituck sounds and their tributaries and the Neuse, Bay, and Pamlico rivers from actions of Proclamation M-8-2010 above.		
Closes Southern Core Sound, Back Sound, the Straits, North River and tributaries to large mesh gill nets from April 1 through November 30.		

Table 2. NC commercial fishery restrictions that indirectly effect the harvest and bycatch of Atlantic croaker in inland waters.

Action	Proclamation/Rule	Year
Nongame fishes, except alewife and blueback herring (greater than six inches in length) and bowfin, taken by hook and line, grabbling or by licensed special devices may be sold. Alewife and blueback herring less than 6 inches in length may be sold except in those waters specified in Paragraph (d) of Rule .0402 of this Section, where their possession is prohibited	Rule: 15A NCAC 10C.0401 (b)	?
Game fishes and their young taken while netting for bait shall be immediately returned unharmed to the water	Rule: 15A NCAC 10C.0402 (c)	?
Except in designated public mountain trout waters, and in impounded waters located on the Sandhills Game Land, there is a year-round open season for the licensed taking of nongame fishes by bow and arrow. The use of special fishing devices in impoundments located entirely on game lands is prohibited. Seasons and waters in which the use of other special devices is authorized are indicated by counties below:	Rule: 15A NCAC 10C.0407 (b)	?

Recreational Regulations

Hook and Line

Currently there are no direct recreational restrictions on the harvest of Atlantic croaker within coastal, joint, or inland waters of North Carolina.

RCGL

15A NCAC 3O .0302: AUTHORIZED GEAR FOR RCGL
(a) The following are the only commercial fishing gear authorized (including restrictions) for use under a valid Recreational Commercial Gear License:

(1) One seine 30 feet or over in length but not greater than 100 feet with a mesh length less than 2 1/2 inches when deployed or retrieved without the use of a vessel or any other mechanical methods. A vessel may be used only to transport the seine;
(2) One shrimp trawl with a headrope not exceeding 26 feet in length per vessel.
(3) With or without a vessel, five eel, fish, shrimp, or crab pots in any combination, except only two pots of the five may be eel pots. Peeler pots are not authorized for recreational purposes;
(4) One multiple hook or multiple bait trotline up to 100 feet in length;
(5) Gill Nets:
    (A) Not more than 100 yards of gill nets with a mesh length equal to or greater than 2 1/2 inches except as provided in (C) of this Subparagraph. Attendance is required at all times;
    (B) Not more than 100 yards of gill nets with a mesh length equal to or greater than 5 1/2 inches except as provided in (C) of this Subparagraph. Attendance is required when used from one hour after sunrise through one hour before sunset in internal coastal fishing waters east and north of the Highway 58 Bridge at Emerald Isle and in the Atlantic Ocean east and north of 77° 04.0000' W. Attendance is required at all times in internal coastal fishing waters west and south of the Highway 58 Bridge at Emerald Isle and in the Atlantic Ocean west and south of 77° 04.0000' W; and
    (C) Not more than 100 yards of gill net may be used at any one time, except that when two or more Recreational Commercial Gear License holders are on board, a maximum of 200 yards may be used from a vessel;
    (D) It is unlawful to possess aboard a vessel more than 100 yards of gill nets with a mesh length less than 5 1/2 inches and more than 100 yards of gill nets with a mesh length equal to or greater than 5 1/2 inches identified as recreational commercial fishing equipment when only one Recreational Commercial Gear License holder is on board. It is unlawful to possess aboard a vessel more than 200 yards of gill nets with a mesh length less than 5 1/2 inches and more than 200 yards of gill nets with a mesh length equal to or greater than 5 1/2 inches identified as recreational commercial fishing equipment when two or more Recreational Commercial Gear License holders are on board;

(6) A hand-operated device generating pulsating electrical current for the taking of catfish in the area described in 15A NCAC 03J .0304;
(7) Skimmer trawls not exceeding 26 feet in total combined width.
(8) One pound net used to take shrimp with each lead 10 feet or less in length and with a minimum lead net mesh of 1 1/2 inches, and enclosures constructed of net mesh of 1 1/4 inches or greater and with all dimensions being 36 inches or less. Attendance is required at all times and all gear must be removed from the water when not being fished. Gear is to be marked and set as specified in 15A NCAC 03J .0501.

(b) It is unlawful to use more than the quantity of authorized gear specified in Subparagraphs (a)(1) through (a)(7) of this Rule, regardless of the number of individuals aboard a vessel possessing a valid Recreational Commercial Gear License.

(c) It is unlawful for a person to violate the restrictions of or use gear other than that authorized by Paragraph (a) of this Rule.

(d) Unless otherwise provided, this Rule does not exempt Recreational Commercial Gear License holders from the provisions of other applicable rules of the Marine Fisheries Commission or provisions of proclamations issued by the Fisheries Director as authorized by the Marine Fisheries Commission.

D. COMMERCIAL AND RECREATIONAL HARVEST

Directed Commercial Harvest

Four gear types (gill nets, fly nets, flounder trawls, and haul seines) are used in directed commercial trips and harvest of Atlantic croaker, and account for more than 99% of the total landings. The total harvest of Atlantic croaker in 2011 was 5,054,186 lbs (Table 3) and occurred in 4,838 trips (Table 4).

Table 3. North Carolina commercial harvest (lbs) of Atlantic croaker by gear, 1994-2011.

YEAR	ESTUARINE GILLNET	OCEAN SINK GILLNET	FLOUNDER TRAWL	FLYNET	HAUL SEINE	OTHER	Grand Total
1994	93,172	1,373,566	109,399	2,869,275	103,573	66,768	4,615,754
1995	151,519	1,923,282	70,676	3,650,520	162,890	62,397	6,021,284
1996	183,373	4,102,497	71,846	4,615,359	358,764	629,997	9,961,834
1997	81,238	2,810,345	225,337	6,944,964	61,423	588,360	10,711,667
1998	159,212	5,608,831	1,081,913	3,964,733	25,270	25,937	10,865,897
1999	101,445	3,903,184	466,319	5,656,496	7,159	50,903	10,185,507
2000	94,826	3,805,749	660,116	5,481,846	67,146	12,945	10,122,627
2001	140,116	5,230,828	470,800	6,025,709	99,776	50,195	12,017,424
2002	130,055	4,209,753	448,727	5,362,031	31,545	7,042	10,189,153
2003	89,234	4,114,734	688,888	9,476,207	51,480	8,653	14,429,197
2004	82,587	3,970,134	461,163	7,432,523	34,643	11,952	11,993,003
2005	66,982	4,440,748	130,448	7,223,644	32,114	9,356	11,903,292
2006	61,167	2,756,604	39,526	7,499,038	35,964	4,255	10,396,554
2007	28,384	2,057,705	246,428	4,939,253	17,999	11,528	7,301,296
2008	67,405	2,180,372	202,939	3,326,199	11,789	3,063	5,791,766
2009	52,582	2,000,817	187,291	3,847,541	33,251	13,945	6,135,437
2010	171,825	3,037,799	112,504	3,807,850	171,746	10,435	7,312,159
2011	45,923	4,437,331	22,970	459,381	80,810	7,771	5,054,186
Mean	100,059	3,442,460	316,516	5,143,476	77,075	87,527	9,167,113

Table 4. North Carolina commercial trips that landed Atlantic croaker by gear, 1994-2010.

YEAR	ESTUARINE GILLNET	OCEAN SINK GILLNET	FLOUNDER TRAWL	FLYNET	HAUL SEINE	OTHER	Grand Total
1994	7,906	2,730	66	148	455	3,044	14,349
1995	11,054	3,131	61	166	459	3,394	18,265
1996	8,222	3,899	107	163	497	2,530	15,418
1997	8,881	3,507	73	304	296	2,153	15,214
1998	5,486	3,520	343	188	192	933	10,662
1999	7,999	2,863	192	175	98	1,653	12,980
2000	7,891	2,081	152	137	216	1,334	11,811
2001	7,983	2,565	104	147	234	1,922	12,955
2002	5,874	1,715	75	147	169	835	8,815
2003	4,862	1,540	60	179	153	567	7,361
2004	5,341	1,360	66	173	161	777	7,878
2005	4,488	1,246	31	166	125	454	6,510
2006	3,971	1,230	25	170	213	291	5,900
2007	4,216	1,082	56	116	131	346	5,947
2008	4,484	1,078	34	105	109	294	6,104
2009	5,474	1,019	47	162	165	321	7,188
2010	5,249	1,119	16	125	239	526	7,274
2011	2,622	1,729	5	25	199	258	4,838
Mean	6,222	2,079	84	155	228	1,202	9,971

Directed Recreational Harvest Estimates

Hook and line

The total recreational hook and line harvest of Atlantic croaker in 2011 was 100,692 lbs, with 434,567 trips taken (Table 5). Data from 1994-2003 uses the old MRFSS calculation method and 2004-2011 uses the new MRIP calculation method.

Table 5. North Carolina recreational harvest of Atlantic croaker 1994-2011, with number of directed trips, landings in number and pounds, and number of discards.

Year*	Directed Trips	Harvest Number	Harvest (lbs)	PSE	Discard Number
1994	679,123	1,179,735	351,230	6.9	3,110,528
1995	462,683	850,606	326,135	10.4	1,172,716
1996	447,907	662,240	346,501	10.9	1,218,799
1997	396,140	661,116	309,457	15.6	1,443,568
1998	343,675	387,427	161,117	11.2	1,060,928
1999	372,719	442,185	212,991	12.1	1,368,478
2000	473,684	391,056	201,306	13.0	1,569,385
2001	447,251	635,552	355,009	14.4	1,256,807
2002	300,282	408,944	242,184	16.9	925,806
2003	465,690	490,399	317,606	17.7	1,552,315
2004	458,658	511,418	300,440	17.4	1,656,049
2005	418,723	326,777	163,751	21.8	1,401,413
2006	598,319	556,024	218,775	21.1	2,578,819
2007	452,667	461,162	129,675	17.8	1,608,120
2008	462,894	317,940	133,416	17.0	1,419,019
2009	479,822	368,990	132,895	16.5	1,912,670
2010	500,412	478,156	233,607	11.9	1,598,139
2011	434,567	246,676	100,692	13.4	1,798,230
Mean	455,587	520,911	235,377		1,591,766

*1994-2003 use old the MRFSS calculation and 2004-2011 use the new MRIP calculation method

RCGL

Refer to 2009 Atlantic croaker compliance report for past trends in RCGL data.

Non-harvest losses

Non-harvest losses of Atlantic croaker within North Carolina are not available at this time.

E. REVIEW OF PROGRESS IN IMPLEMENTING HABITAT RECOMMENDATIONS

There were no new implementations in the habitat recommendations during the past year.

IV. PLANNED MANAGEMENT PROGRAMS FOR THE CURRENT CALENDAR YEAR

A. Regulations that will be in effect

No new regulations are planned for the current year.

B. Summary of monitoring programs that will be performed

Monitoring programs will be the same as the previous fishing year. As listed and described in sections 3A – 3C, the NCDMF will continue to monitor Atlantic croaker harvest in the commercial and recreational fisheries through the utilization of the NC Trip Ticket Program and MRIP.

C. Highlight any changes from the previous year

The change in the recreational index from MRFSS data to include the new MRIP data.

South Carolina
Atlantic Croaker Fishery and Management Program
Compliance Report for the Year 2011

1 July, 2012

Prepared by: Christopher McDonough

Marine Resources Division
South Carolina Department of Natural Resources

I. INTRODUCTION

There were 44 lbs reported for commercial landings for Atlantic croaker in 2011. This follows very limited reported commercial landings for Atlantic croaker in 2009 (215 lbs) and 2010 (3 lbs) which was primarily incidental by-catch from shrimp trawlers. Commercial landings are monitored through the South Carolina commercial fisheries monitoring program, which reports its data to the National Marine Fisheries Service (NMFS) and the ACCSP (Atlantic Coastal Cooperative Statistics Program). This species is also a relatively minor component of the coast wide recreational landings (see below). No regulatory changes were implemented under State law that would affect South Carolina's croaker landings or any reporting requirements for the fishery.

II. REQUEST FOR *de minimis*

The Atlantic croaker ISFMP allows for a state to request ***de minimis status if, for the preceding three years for which data are available, their average commercial landings or recreational landings (by weight) constitute less than 1% of the coast wide commercial or recreational landings for the same two year period. A state that qualifies for de minimis based on their commercial landings will qualify for exemptions in their commercial fishery only, and a state that qualifies for de minimis based on their recreational landings will qualify for exemptions in their recreational fishery only.***

Although there have been reported commercial landings for Atlantic croaker in South Carolina for seven of the past ten years ((2001-2011), all reported years made up significantly less than 1% of the reported Atlantic coast landings required for *de minimis* status. This fulfills the above requirement for the commercial fishery in South Carolina to be in *de minimis* status. The recreational landings of Atlantic Croaker (A + B1) for South Carolina and the percentage of the coast wide landings made up by these catches were:

Table 1. Recreational landings (by weight) for Atlantic croaker in South Carolina.

Year	SC Landings (lbs) (A + B1)	Coastal Landings (lbs) (A+B1)	SC Percentage of Landings (2-yr mean)
2005	42,088	10,566,687	0.68
2006	19,010	9,226,037	0.52
2007	39,368	8,242,078	0.26
2008	35,322	5,306,627	0.16
2009	39,112	5,443,248	0.20
2010	14,462	4,303,466	0.70
2011	234,916	2,747,968	0.77

There was greater than an order of magnitude increase in recreational landings between 2010 and 2011 in South Carolina following a down year in 2010 and three years of relatively stable harvest levels prior to that. However, all reported landings in South Carolina for either 2 or 3 year periods since 2005 have been less than the 1.0% minimum of the Atlantic coast landings for *de minimis* status for this segment of the fishery. Additionally, there are no ASMFC management measures restricting the recreational harvest of Atlantic croaker in Amendment 1. Thus, *De minimis* status is requested for both the commercial and recreational sectors of the Atlantic croaker fishery in South Carolina.

III. ATLANTIC CROAKER FISHERY AND MANAGEMENT PROGRAM

A. Fishery Dependent Monitoring:

South Carolina's croaker fishery is recreational in nature. Fishery dependent data related to Atlantic croaker are available primarily through the SCDNR State Finfish Survey (SFS), the National Marine Fisheries Service's Marine Recreational Information Program Survey (MRIPS), and an SCDNR-managed mandatory trip reporting system for licensed charterboat operators.

State Finfish Survey - The State Finfish Survey (SFS) is a fishery dependent intercept survey designed to collect primarily catch/effort data and length measurements of selected species taken by private boat anglers in South Carolina waters and federal waters off the state. The SFS measured 108 Atlantic croaker in 2011 ranging from 153-312 mm total length. The mean size ± standard error for the group was 219.9 ± 3.26 mm total length. The SFS began collecting length data on Atlantic croaker in 2009.

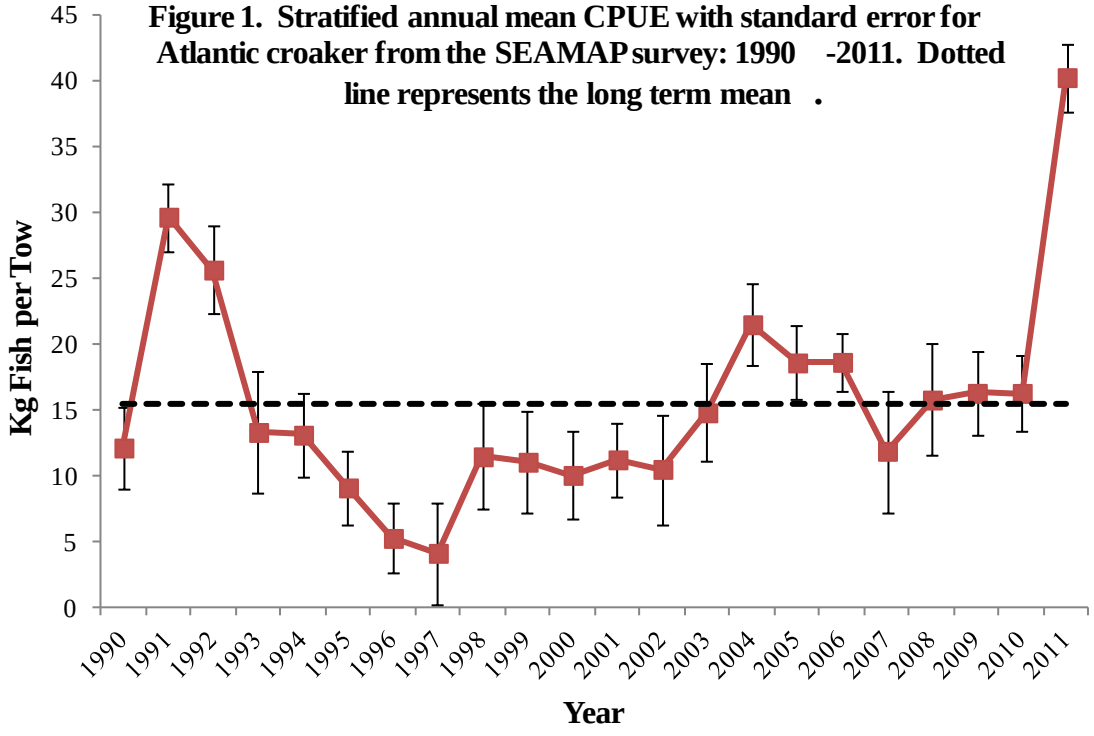
Marine Recreational Information Program Survey - The MRIPS data indicated a sizable increase in harvest (A + B1) in 2011 (234,916 lbs) from the previous year in 2010 (14,462 lbs). This represents greater than an order of magnitude (~1500%) increase in harvest over 2010 harvest levels. Large annual increases in harvest (>50.0%) have been observed in previous years (1984, 1986, 1994, 2009) and do not necessarily reflect changes in stock status, as the changes occurred over a single year after which they generally decreased by at least 50% the following year. Percent standard error (PSE) level was relatively good (26.5%) for 2011 indicating harvest estimates were reasonable. (www.st.nmfs.gov/st1/recreational/queries/index.html)

B. Fishery Independent Monitoring:

While Atlantic croaker are not necessarily a specifically targeted species for SCDNR monitoring programs or projects, they are a common component species of three fishery independent monitoring efforts conducted by the SCDNR. The summary catch effort data for each of the fishery independent surveys can be found in Table 2 at the end of this report.

The first is the Southeast Area Monitoring and Assessment – South Atlantic Program (SEAMAP-SA) conducted by SCDNR staff. This shallow water (15 to 30 ft) trawl survey monitors status and trends of numerous coastal species within the South Atlantic Bight from Cape Canaveral, FL to Cape Hatteras, NC. The annual stratified mean catch per tow in weight for Atlantic croaker in 2011 increased by almost a factor of four (40.3 kg/tow) over 2010 (16.3 kg/tow) and was a 146.9% increase in CPUE (Fig. 1).

Figure 1. Stratified annual mean CPUE with standard error for Atlantic croaker from the SEAMAP survey: 1990 -2011. Dotted line represents the long term mean .



The second survey was an inshore estuarine trammel net survey. The trammel net survey has been conducted since 1991 and is currently an ongoing program. It uses a stratified random sampling protocol from seven different estuaries (as strata) with individual sampling sites chosen at random within each estuarine area on a monthly basis. The trammel net program was designed to monitor important recreational finfish species over a broad geographic range. Because of size selectivity due to mesh size, the trammel net survey only samples adult Atlantic croaker. While Atlantic croaker are common in the trammel net, their occurrence is highly

seasonal, with the months of May through September accounting for 95% or greater of the total annual catch. Therefore, only those months were used to calculate the index. In 2011 there was a 71.9% increase in CPUE from 2010 (2.24 fish per set up from 1.26 fish per set) reversing the decline in CPUE observed between 2009 and 2010 (Fig. 2). Annual CPUE values ranged from 0.39 to 3.60 fish per set and catch effort in 2011 was above the long term mean of 1.48 fish per set.

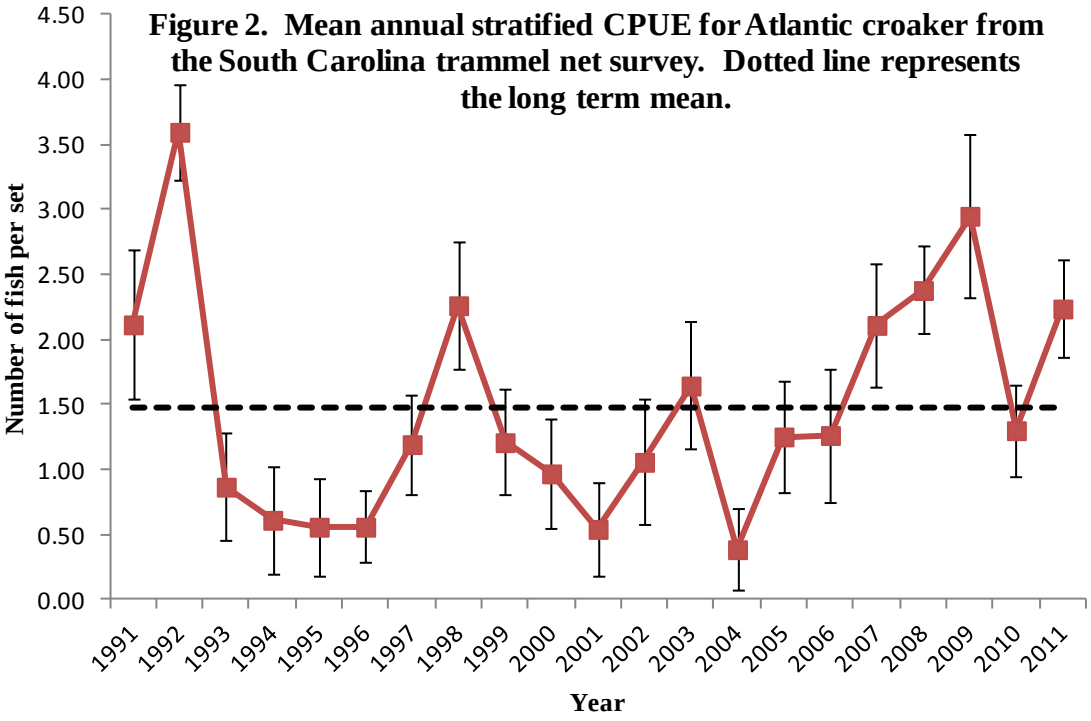
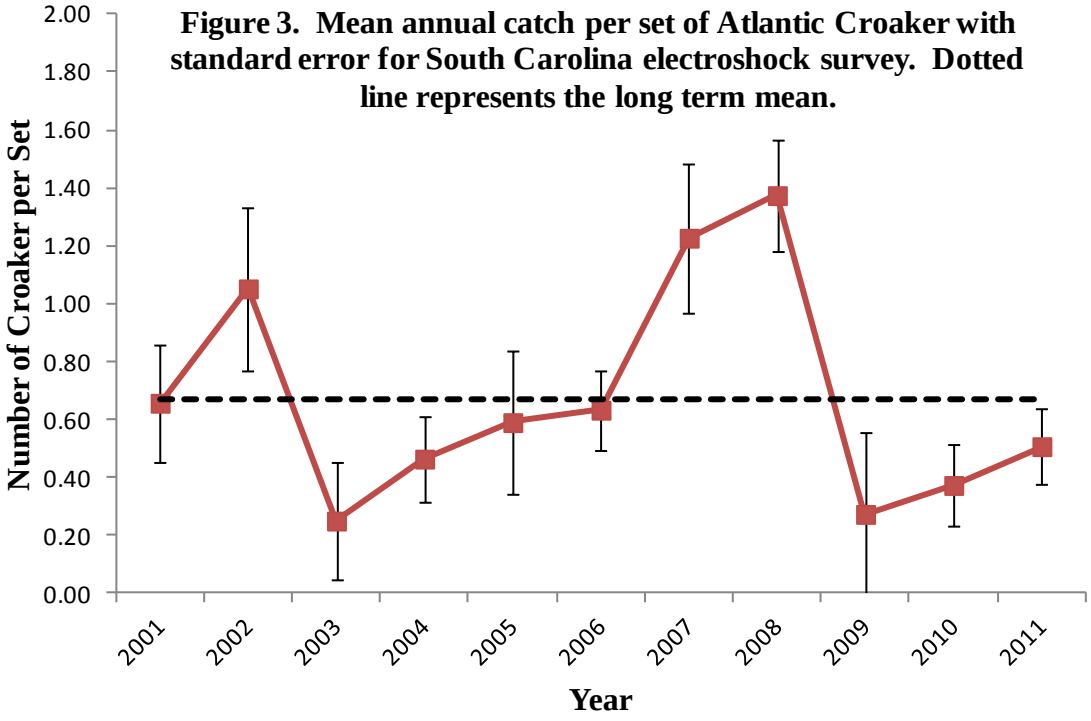


Figure 2. Mean annual stratified CPUE for Atlantic croaker from the South Carolina trammel net survey. Dotted line represents the long term mean.

The third survey was an electroshock survey conducted in low salinity brackish and tidal freshwater portions of different South Carolina estuaries. The electroshock program monitors the abundance and trends of recreationally important finfish in these low salinity estuarine areas using a monthly random stratified design of 6 estuarine strata. The majority of croaker captured by the electroshock survey were juveniles (< 100 mm standard length), with stratified mean catch effort data (CPUE) being equivalent to the number of fish captured per set. The standard electroshock set sampled 0.25 mile of shoreline. Mean annual CPUE ranged from 0.25 to 1.37 from 2001 to 2011 (Fig. 3). Catch per unit effort dropped 76.2% in 2002, increased steadily until 2008, and then dropped significantly (80.1%) again in 2009. Catch per unit effort increased 35.9% in 2011, but still remained below the long term average CPUE for all years at 0.67 ± 0.054 fish per set.

Figure 3. Mean annual catch per set of Atlantic Croaker with standard error for South Carolina electroshock survey. Dotted line represents the long term mean.



Since the electroshock survey captured primarily juvenile croaker (fish < 100 mm standard length), the mean annual CPUE values serve as a proxy index for relative juvenile abundance. The index value for 2011 indicated a continued increasing trend in juvenile Atlantic croaker abundance since 2009.

Table 2. South Carolina Atlantic croaker CPUE indices (weight or number of Atlantic croaker per set or tow) for fishery independent surveys from 1990 to 2011. All CPUE values are stratified mean annual CPUE based on randomly stratified sampling protocols.

Year	SEAMAP Weight (kg)	SEAMAP Number	SC-SEAMAP Weight (kg)	SC-SEAMAP Number	Trammel Number	Electroshock Number
1990	12.18	243.9	9.94	240.9	-	-
1991	29.71	452.1	9.23	166.1	2.12	-
1992	25.69	424.0	10.85	179.8	3.60	-
1993	13.36	209.2	4.14	62.6	0.87	-
1994	13.15	237.7	3.14	52.9	0.61	-
1995	9.15	150.5	3.85	62.4	0.56	-
1996	5.32	117.4	4.83	92.6	0.56	-
1997	4.18	73.7	1.44	33.7	1.19	-
1998	11.51	238.7	4.57	99.4	2.26	-
1999	11.10	221.1	5.44	105.9	1.21	-
2000	10.10	171.3	8.03	175.4	0.97	-
2001	11.28	236.1	2.49	81.0	0.54	0.66
2002	10.56	166.4	5.98	135.2	1.06	1.05
2003	14.85	220.6	6.93	89.1	1.65	0.25
2004	21.54	353.5	5.70	96.9	0.39	0.46
2005	18.64	365.0	6.84	139.5	1.25	0.59
2006	18.68	378.2	7.90	150.1	1.26	0.63
2007	11.93	174.1	5.53	92.5	2.11	1.23
2008	15.82	270.5	19.06	228.2	2.38	1.37
2009	16.33	332.2	18.47	462.4	2.95	0.27
2010	16.33	314.9	8.94	169.6	1.30	0.37
2011	40.30	827.6	25.09	518.7	2.24	0.51

C. Atlantic Croaker Regulations in Effect:

Section 50-5-1915 requires for-hire boats to maintain a logbook of catch data.

Section 50-5-380 of the South Carolina Code gives the Department authority to require wholesale dealers and others to submit mandatory landings reports on a monthly basis. This information forms the basis for the state's commercial landings monitoring. Additionally, Section 50-5-360 requires that anyone, who buys, receives or handles any live or fresh saltwater fish or any saltwater fishery products taken or landed in the state

must obtain a wholesale dealers license. South Carolina currently has no specific laws pertaining to size or possession limits for Atlantic croaker in state waters.

D. Atlantic Croaker Harvest:

Currently, there is no directed commercial fishery for Atlantic croaker in South Carolina and the only reported landings come from incidental shrimp trawl by-catch data. The reported landings for 2011 were low at 44 lbs reported.

The reported total recreational harvest of Atlantic croaker for South Carolina for 2011 from the MRIPS was 234,916 lbs (PSE = 26.5%). However, while there was an increase in landings, the South Carolina portion of the total Atlantic coast landings was still below the 2 and 3 year average landings required for *de minimis* status.

E. Habitat Recommendations – Not applicable.

IV. PLANNED ATLANTIC CROAKER MANAGEMENT PROGRAMS

A. Regulations in Effect:

No regulatory changes are anticipated for croaker in 2012.

B. Monitoring programs that will be performed:

No new programs dedicated to the monitoring of this species are planned at this point however all previously described sampling activities will continue.

C. Changes from the Previous Year:

None.

V. PLAN SPECIFIC REQUIREMENTS – Not applicable.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION

MARK WILLIAMS
COMMISSIONER

A.G. 'SPUD' WOODWARD
DIRECTOR

June 26, 2012

Danielle Chesky
FMP Coordinator
Atlantic States Marine Fisheries Commission
1050 N. Highland St., Suite 200 A-N
Arlington VA, 22201

Danielle:

Please find enclosed Georgia's 2011 Atlantic Croaker Compliance Report. Please let me know if you require additional information.

Sincerely,

Kirby Wolfe
Marine Fisheries Section

cc: Pat Geer

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912.264.7218 | FAX 912.262.3143 | WWW.COASTALGADNR.ORG

State of Georgia Atlantic Croaker Compliance Report for the Year 2011

1. Introduction: Summary of the year: highlight any significant changes in monitoring, regulations, or harvest.

The minimum size limit for Atlantic croaker landed in Georgia is eight (8) inches total length for both commercial and recreational fisheries. The bag/creel limit is 25 fish per person per day for both fisheries except that there is no quantity limit for trawlers harvesting shrimp for human consumption. The season is open year round for both.

Commercial harvest of Atlantic croaker in Georgia is limited to sales of fish caught within the recreational size and bag limit. During 2011, less than three dealers reported landings thereby making that information confidential. Pursuant to the requirement in Section 4.2.6, the Georgia Department of Natural Resources, Coastal Resources Division (CRD) has a trip ticket system for commercial fisheries that conforms to ACCSP standard data element requirements. Through this program, commercial harvest will be continuously monitored.

The Atlantic croaker is not ranked among the top species targeted by recreational anglers in Georgia. From 2007-2011, only ~0.55 % of the average ~606,500 directed trips in Georgia are for croaker. However, recreational harvest will continue to be monitored through the National Marine Fisheries Service's (NMFS) Marine Recreational Information Program (MRIP). CRD has been the contractor for the intercept survey since 2000.

The Marine Sportfish Population Health Survey (MSPHS) uses a variety of sampling gear including trammel nets, gill nets, and hook and line to collect fishes of recreational importance from two Georgia estuaries. During 2011, 366 trammel and gill net sets resulted in the capture of 125 Atlantic croaker.

2. Request for *de minimis*, where applicable.

No Georgia dealers reported Atlantic Croaker landings in 2011. The three-year coastwide landings average is 19.6 million pounds. Based on this average and Georgia's reported landings of less than 1,000 pounds, the State of Georgia requests *de minimis* status for Atlantic croaker commercial fisheries.

Table 1. Atlantic Croaker, NMFS Commercial Landings Query, Atlantic Coastwide	
Year	Pounds
2008	17,915,237
2009	15,887,616
2010	16,148,333
GRAND TOTALS:	49,951,186
3-YR AVERAGE	16,650,395
2011 coastwide commercial landings were not available at the time of reporting.	

The three-year Atlantic croaker coastwide recreational landings, as estimated by the NMFS Marine Recreational Information Program (MRIP), averaged 4.6 million pounds. In contrast, Georgia's coastwide estimated average landings were 22,795 pounds or 0.5% for the same time period. The state of Georgia requests *de minimis* status for Atlantic croaker recreational fisheries.

Table 2. Atlantic Croaker, NMFS Marine Recreational Information Program (MRIP)				
Annual Data for Catch Type A+B1 (Harvest), all fishing modes and areas combined.				
	Atlantic Coast		Georgia Coast	
Year	Weight (lbs)	PSE	Weight (lbs)	PSE
2009	6,222,596	11.7	36,771	40.5
2010	4,743,197	13.1	10,067	29.4
2011	2,824,749	11.6	21,548	48.1
3-yr AVERAGE	4,596,847		22,795	
			0.5% of Coastwide landings	

3. Previous calendar year's fishery and management program

a. Activity and results of fishery dependent monitoring.

Finfish Carcass Recovery: The Marine Sportfish Carcass Recovery Project, a partnership with recreational anglers along the Georgia coast, is used to collect biological data from finfish such as red drum, spotted seatrout, southern flounder, sheepshead, and southern kingfish. Chest freezers are located at public access points along the Georgia coast. Each freezer is clearly marked and contains a supply of plastic bags, pencils, and data card. Anglers place their filleted fish carcasses in plastic bags along with completed data card in the freezer. CRD personnel collect the carcasses and process them to determine species, length, and sex. Sagittal otoliths are removed and processed to determine the age of the fish. In 2011, a total of 2,856 fish carcasses were donated through this program. Of that 11 Atlantic croaker were donated.

b. Activity and results of fishery independent monitoring.

The Marine Sportfish Population Health Survey (MSPHS) is a multi-faceted ongoing process used to collect information on the biology and population dynamics of recreationally important finfish. Currently two Georgia estuaries are sampled on a seasonal basis using entanglement gear. Specific information collected includes: 1) age composition of the stock; 2) size and age at first spawning; 3) ratio of males to females in the stock; 4) movement and/or migration; 5) fishing mortality; 6) growth; and 7) spawning season. To provide age information, otoliths are removed from a size-stratified sub-sample of the catch from select sampling events.

Trammel and Gill Nets: During the June to August period, young-of-the-year red drum in the Altamaha River Delta and Wassaw estuary are collected using gillnets to gather data on relative abundance and location of occurrence During September to November, fish populations in the Altamaha River Delta and Wassaw estuary are monitored using trammel nets to gather data on relative abundance and size composition.. Bycatch Atlantic croaker are measured and released. Table 3 provides relative catch statistics for each gear and area.

Table 3. Preliminary annual trammel net and gill net data summarized by estuary, including effort, catch-per-unit-effort and length statistics for Atlantic Croaker, 2008.

Gear	Sound	Effort	CPUE	Total N	CL Mean	CL Min	CL Max
Trammel	Wassaw	75		0			
	Altamaha	75	0.03	2	249	225	273
Gill	Wassaw	108	0.27	29	221	198	264
	Altamaha	108	0.87	94	227	162	320

Ecological Monitoring Survey: CRD continually monitors estuarine finfish data as part of the monthly Ecological Monitoring Survey conducted onboard the research vessel Anna. A 40-foot flat otter trawl is towed for 15 minutes through each of 42 stations every month in six Georgia estuaries. In 2011, 504 tows (observations) were conducted totaling 127.0 hours of tow time. A total of 15,733 Atlantic croaker were observed totaling 218.45 kg. Lengths ranged from 14mm TL to 392mm TL, with a mean of 116.02mm TL.

Table 4. Atlantic Croaker observed during Ecological Monitoring Surveys.					
Year	2007	2008	2009	2010	2011
Total Number	20,416	33,102	30,299	28,061	15,733
Total Weight (kg)	360.3	550.4	546.52	301.6	218.45
Avg. Length (mmTL)	113.39	115.53	123.47	110.24	116.02
Minimum Length (mmTL)	16	21	17	10	14
Maximum Length (mmTL)	247	250	250	217	392
Observed Time (hrs)	129.79	130.44	127.41	126.23	127
CPUE (croaker/hr)	157.3	253.77	237.8	222.301	123.882

c. Copy of regulations that were in effect, including a reference to the specific compliance criteria as mandated in the FMP.

4.1 Recreational Fisheries Management Measures

4.1.1 Recreational Bag and Size Limits - Georgia's current minimum size limit for Atlantic croaker is 8 inches total length with a twenty-five (25) fish bag limit. (O.C.G.C. 27-4-130.1 and DNR Rule 391-2-4-.04 previously submitted).

4.2 Commercial Fisheries Management Measures - Trawlers fishing for shrimp for human consumption are exempt from the creel and possession limits for Atlantic croaker; however, the minimum size of eight (8) inches total length does apply. A commercial fishing license is required to sell (O.C.G.A. 27-4-130.1 and 27-4-110 previously submitted).

4.2.4 Commercial Gear Restrictions - Hook and line and trawl gear is the only feasible methods for direct harvest of Atlantic croaker in Georgia as gill nets have been banned in state waters since the 1950's, except for shad. There is no directed fishery for Atlantic croaker using either gear. (O.C.G.A. 27-4-113 and 114 previously submitted).

4.2.6 Data Collection and Reporting Requirements - Georgia is in full compliance with the ACCSP data collection and reporting requirements. Seafood dealers are required to maintain a record and report seafood purchased for commercial harvests in Georgia. Records must be submitted to the Department by the 10th day of the

month subsequent to fishing. (O.C.G.A. 27-4-110 and 136 and DNR Rule 391-2-4-.09 previously submitted). Harvesters are required to maintain a logbook of fishing activity but at this time, are not required to report that activity (O.C.G.A. 27-4-118 previously submitted).

4.2.6.1 Vessel Registration System - Every commercial vessel fishing in Georgia waters in required to purchase either a trawler or non-trawler boat license, dependent on fishing practices (27-2-8 previously submitted).

4.3 For-Hire Fisheries Management Measures

4.3.1 Bag and Size Limits and 4.3.2 Maximum Size Limit - Georgia for-hire and charter boats, if licensed as commercial fishermen, may harvest and sell their catch, as would other commercial fishermen, however they are restricted to a recreational limits.

4.3.3 Data Collection and Reporting Requirements - If a for-hire captain sells his catch in Georgia, he is subject to the same reporting requirements as dealers and harvesters as noted above.

d. Harvest broken down by commercial (by gear type where applicable) and recreational, and non-harvest losses (when available).

Commercial: No Georgia dealers reported Atlantic croaker landings in 2011.

Recreational: Since the year 2000 CRD has been the contractor for the intercept survey within the NMFS Marine Recreational Information Program (MRIP). In 2011, survey clerks interviewed 1,776 anglers. It is estimated that 354,755 anglers (PSE 8.8) completed 970,147 trips (PSE 10.5). Coastal Georgia residents accounted for 41.3% (146,400 PSE 11.7) of the total anglers. Non-coastal residents accounted for 36.9% (130,755 PSE 16.8) and out of state anglers accounted for the remaining 21.8% (77,599 PSE 18.1). Expanded data are presented in tabular format below.

		Number of Angler Trips		A +B1 + B2 Released + Harvest		B2 Released Alive		A+B1 Harvest	
FISHING AREA	MODE	Total	PSE	Total	PSE	Total	PSE	Total	PSE
INLAND	CHARTER	8,936	12.7	2,980	35.2	2,976	35.3	4	106.9
	PRIVATE	557,074	13.8	147,225	25.9	133,029	28.5	14,196	35.8
	SHORE	254,426	23.4	135,116	32.8	105,271	38.5	29,844	60.2
INLAND Total		**820,437**	11.9	**285,320**	20.5	**241,276**	23.0	**44,044**	42.4
OCEAN (<= 3 MI)	CHARTER	2,873	22.1	327	79.2	327	79.2		
	PRIVATE	24,802	31.0	6,891	85.8	6,891	85.8		
	SHORE	80,154	33.8	13,999	71.2	13,999	71.2		
OCEAN (<= 3 MI) Total		**107,829**	26.1	**21,217**	54.7	**21,217**	54.7	**0**	.
OCEAN (> 3 MI)	CHARTER	3,878	21.4						
	PRIVATE	38,003	30.0						
OCEAN (> 3 MI) Total		**41,880**	27.3	**0**	.	**0**	.	**0**	.
Grand Total		**970,147**	10.5	**306,538**	19.5	**262,493**	21.6	**44,044**	42.4

e. Review of progress in implementing habitat recommendations.

With over 2,344 linear miles of coastline and tidal marsh covering 378,000 acres, the entirety of Georgia's coast provides habitat for Atlantic croaker. CRD is involved in

activities related to many of the recommendations in Section 4.3, but without a specific focus on Atlantic croaker. The Georgia Coastal Management Program (GCMP) provides an overarching entity under which many activities related to habitat protection are conducted both by CRD staff and others who are funded with Coastal Incentive Grants.

CRD entered into an oyster reef restoration & enhancement partnership with several organizations, including, The Nature Conservancy, University of Georgia's Marine Extension Service, and Coastal Conservation Association. Oyster reefs are considered essential fish habitat and their enhancement has numerous benefits. During this report period, oyster cultch material has been deployed in the inter-tidal zone of three additional restoration / enhancement sites. Oyster spat will recruit to the cultch material as well as recruited oysters causing these habitats to enhance in size and ecological value for years to come.

Georgia's "Marshland Protection Act" requires permits from the Coastal Marshlands Protection Committee and the U.S. Corps of Engineers for all activities that alter the marsh. This includes oyster restoration / enhancement projects. Thus, the appropriate federal and state regulatory agencies are informed of all restoration / enhancement sites. This minimizes the potential of negative impacts to critical habitats from other permitted activities.

During 2011, the Coastal Marshlands Protection Committee issued 18 new permits and 11 modifications for structures such as commercial, industrial and community docks. CRD also issued 17 bulkhead permits (13 new, 4 modifications) and 144 revocable family dock permits (133 new, 11 modifications).

4. Planned management programs for the current calendar year

a. Summarize regulations that will be in effect. (Copy of current regulations if different from 3c.)

There are no planned changes to Atlantic croaker regulations in 2011. The eight (8) inch minimum limit and twenty-five fish bag limit will remain in effect for recreational fisheries. A commercial fishing license is required in order to sell Atlantic croaker and the eight (8) inch minimum size applies but there is no quantity limit for food shrimp trawlers.

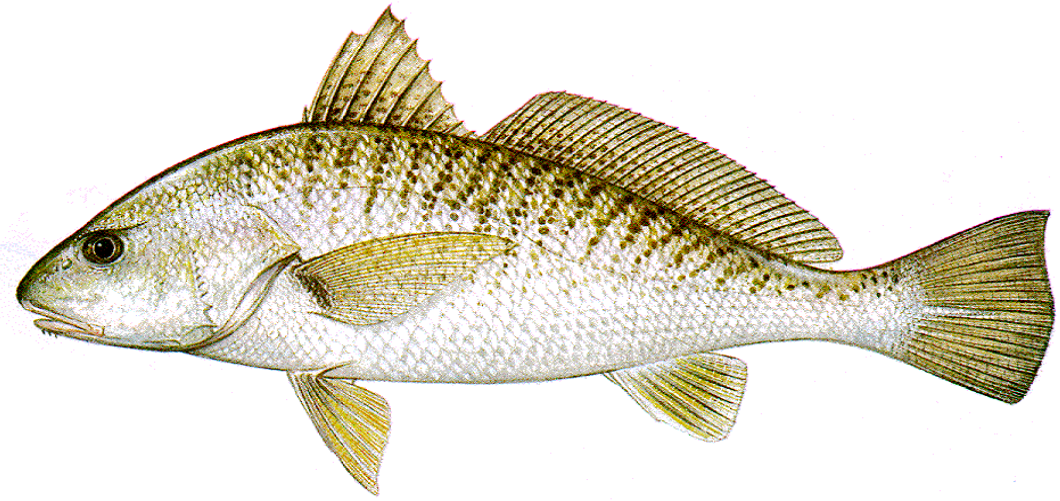
b. Summarize monitoring programs that will be performed.

Monitoring described in Section III will continue throughout 2011.

c. Highlight any changes from the previous year.

There are no changes planned in 2011 from the previous year.

The 2012 Atlantic States Marine Fisheries Commission Compliance Report for Atlantic croaker, *Micropogonius undulates,* on Florida's Atlantic coast



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Executive Summary

In 2011, Florida's total harvests of Atlantic croaker on the Atlantic coast were 251,926 lbs, of which 82% were from the recreational fishery.

Average recreational harvests of Atlantic croaker on Florida's Atlantic coast for 2009-2011 represented 3.5% of the 2009-2011 average coast wide recreational harvests. Average commercial landings of Atlantic croaker Florida's Atlantic coast during 2008-2010 and 2008-2011 represented 0.2% and 0.22%, respectively, of the 2008-2010 coast wide commercial landings. Consequently, the Florida Fish and Wildlife Conservation Commission requests continuation of the State of Florida's *de minimis* status for the Atlantic croaker commercial fishery on the Atlantic coast.

Preliminary estimates of commercial landings and effort for Atlantic croaker in 2011 amounted to 45,193 pounds from 1,846 trips. These landings were mostly taken from inland waters (26.3%) and the federal EEZ (61.3%) using gillnets (58%), cast nets (18%), and hook-and-lines (15%).

In 2011, evaluation of trip limit and quota compliance was not possible for the Atlantic croaker commercial fishery on the Atlantic coast of Florida, because such management regulations are nonexistent. However, the limitation on the use of entangling gears since 1995 subsequently resulted in substantial reductions of Atlantic croaker commercial landings on the east coast of Florida.

There are no bag and minimum size limits for Atlantic croaker caught by commercial fishers on Florida's Atlantic coast. However, comparison with the most conservative size limit of Maryland (i.e., 9 inches or 228. 6 mm TL) indicated that the size of most fish caught by commercial fishermen was well above 228.6 mm since 1995. In 2011, 40 fish out of 41 fish measured were larger than 228.6 mm TL. However, this observation cannot be regarded as representative of the fishery, because the sample size was small and the fish were mainly sampled from landings by hook-and-line.

In 2011, an estimated number of 474,826 Atlantic croaker weighing approximately 206,733 pounds were kept by anglers on Florida's east coast. The ratio "fish released alive /fish kept" was 0.95

In 2011, evaluation of compliance with the minimum size limit and daily recreational bag limit was not possible because there are no such management regulations for Atlantic croaker caught by anglers on the east coast of Florida. However, the size of most fish sampled from the recreational fishery until 2010 was below 228. 6 mm.

The head boat fishery for Atlantic croaker on the east coast of Florida is marginal: it landed only 31 pounds of Atlantic croaker in 2010 (recent year of harvest time series).

There are no size and bag limits for Atlantic croaker caught by the head-boat fishery on Florida's Atlantic coast. However, most of the fish sampled from this fishery exceeded Maryland's size limit of 9 inches in the most recent years.

Seine-based IOAs and trawl-based IOAs for YOY Atlantic croaker showed zigzags over time. IOAs for sub-adult/adult Atlantic croaker trended upward during 2001-2011.

No management programs are planned for the current year.

I. INTRODUCTION

Atlantic croaker (*Micropogonius undulates*) occur in the Atlantic coastal waters from the Gulf of Maine to Argentina. This species is one of the most abundant inshore demersal fish along the US Atlantic coast, and supports important recreational and commercial fisheries especially from New York to North Carolina. On Florida's Atlantic coast, Atlantic croaker are seldom found south of the Indian River Lagoon.

There are no specific regulations directed at Atlantic croaker in Florida. However, the ban of entangling gears in Florida enacted during the mid-1990s may have had direct effects on Atlantic croaker harvests by commercial fishermen. This report provides with an account of the response to such regulations of Atlantic croaker recreational and commercial fisheries on Florida's Atlantic coast in 2011. Because of lack of Florida-specific management regulations for Atlantic croaker, pertinent information in this respect is compared with those documented in ASMFC (2005).

Total harvests of Atlantic croaker in the commercial and recreational sectors for 2011 amounted to 251,926 pounds (Table 1; Fig. 1). They represented 132% of the 1995-2010 average harvest. In general, total harvests of Atlantic croaker on Florida's Atlantic coast varied without trend since 1995, averaging about 194,000 pounds annually.

The proportion of Atlantic croaker harvested by the recreational fishery varied without trend over years at well above 55% (Fig. 1). Since 1995, that proportion varied between 57 (in 2010) and 96%. Head boat-fishery was nearly nonexistent during 1985-2011.

II. REQUEST FOR *De Minimis* STATUS

To determine whether the State of Florida met the *de minimis* requirements for Atlantic croaker fisheries on the Atlantic coast, the commercial landings for 2008-2010 or 2008-2011 and the recreational harvests (Type A+B1) for 2009-2011 were used (Table 2). Atlantic coast wide commercial landings came from the National Marine Fisheries Service (NMFS)'s website. Commercial landings on Florida's Atlantic coast were extracted from the state of Florida's Marine Fisheries Information System or "trip tickets" (TTK) program. Atlantic coast wide and Florida's Atlantic coast recreational landings (Type A+B1) were extracted from the NMFS' Marine Recreational Fisheries Statistics Survey (MRFSS).

The average of Atlantic croaker recreational harvests on Florida's Atlantic coast for 2009-2011 represented 3.5% of the 2009-2011 coast wide average recreational harvests of Atlantic croaker. The average of Atlantic croaker commercial landings on Florida' s Atlantic coast during 2008-2010 and 2008-2011 represented 0.2% and 0.22%, respectively, of the 2008-2010 coast wide average commercial landings. The Florida Fish and Wildlife Conservation Commission (FWC) requests continuation of Florida' s *de minimis* status for the Atlantic croaker commercial fishery on the east coast of Florida.

III. PREVIOUS CALENDAR YEAR'S FISHERY AND MANAGEMENT PROGRAM

A. Activity and Results of Fishery Dependent Monitoring Program

Commercial Fishery

Description of 2011 Fishery

Commercial fishery data came from the State of Florida's TTK system. Both edited TTK (batches 1- 1130) and unedited TTK (batches 1127-1138) received by FWC through April, 2012 were used. Landings for 2011 were preliminary and subject to change.

Preliminary Atlantic croaker commercial landings in 2011 amounted to 45,193 pounds from 1,846 trips. They were 22% higher than those of 2010 (Fig. 2; Table 3). Atlantic croaker commercial landings declined steadily since 1988 but varied without trend, at low levels, during 1995-2005 (average = 23,000 pounds*year^{-1}). The number of trips varied without trends prior to 1995 and during 1995-2005, averaging 3200 trips*year^{-1} and 1376 trips*year^{-1}, respectively. Both commercial landings and the number of trips increased slightly in most recent years. During 1995-2011, lower commercial landings of Atlantic croaker corresponded to the reduction of the number of trips since 1995 and conversely in earlier years (Figs. 2).

In 2011, commercial landings and trips were lowest during winter months and July-August and relatively high during May-June and September-December (Fig. 3).

The number of primary fishermen (i.e., those who landed more than 100 pounds a year) varied between 97 and 175 during 1987-1994. Since 1995, they varied between 23 and 85 fishermen. Their preliminary estimate in 2011 was 59. No fisherman landed more than 10,000 pounds a year since 1995. Between 1995 and 2011, primary fishermen represented 10-31% of all fishermen, made 34-66% of trips and contributed for 66-91% of landings. In 2011, these percentages were 20%, 53%, and 90%, respectively.

Based on dealer records for 2011, the share of Atlantic croaker landed on the east coast of Florida was 61.3% for the federal EEZ, 26.3% for inland waters, and 12.4% for the state territorial sea, where 20.7%, 56%, and 23.4% of trips were made, respectively. Atlantic croaker landed in 2011 (Table 4; Fig. 4) were essentially caught using cast nets (18%), gillnets (58%), hook-and-lines (15%), and trawls (5%). Compared with 2010, the commercial landings in 2011 declined for cast nets (-17%) but they increased by 69% and 9% for gill nets and hook and lines, respectively. Cast-netting, gillnetting, and hook-and-lining accounted for 55%, 18%, and 23% of trips made in 2011, respectively (Table 4; Fig. 5). In 2011, various fishing practices showed different spatial allocations of effort and landings (Table 5). Gillnetters mainly operated in the federal EEZ, where their trips and landings accounted for 85% of trips and 94% of landings made, respectively. Commercial fishermen using cast nets and hook-and-lines spread their activities throughout the fishing grounds. However, the former showed high occurrence in inland waters (71% of trips and 47.5% of landings) and state territorial sea (63% of trips and 47% of landings). Hook-and-liners mostly fished in Florida's territorial sea (35% of trips and 36.4% of landings) and inland waters (23% of trips and 31% of landings). Trawlers that reported

Atlantic croaker landings mainly operated in Florida's territorial sea (0.9% of trips and 13% of landings).

Trip Limit and Quota Compliance

There are no commercial trip or vessel limit and annual commercial quota established for Atlantic croaker on the east coast of Florida either by FWC or by the Atlantic States Marine Fisheries Commission (ASMFC). However, the limitation on the use of entangling gears since 1995 resulted in substantial reductions of annual Atlantic croaker commercial landings on the east coast of Florida in subsequent years (Fig. 2).

Size Limit

There is no minimum size limit for Atlantic croaker caught by commercial fishermen on the east coast of Florida. However, compared with the most conservative size limit for Maryland (9 inches or 228. 6 mm TL; ASMFC, 2005), the size distributions of Atlantic croaker measured in the commercial fishery on the Atlantic coast of Florida during 992-2011 indicate that, apart from 1997, 2000-2002, and 2007, most fish sizes were above 228.6 mm during the last fifteen years (Fig. 6).The median total length (TL) of fish showed a slightly increasing linear trend during the period of record, and also was above 228.6 mm TL in most years. In 2011, 40 fish out of the 41 fish measured were larger than 228.6 mm TL. However, this observation cannot be regarded as representative of the fishery because the sample size was small and the fish were mainly sampled from landings by hook-and-line.

Recreational Fishery

Description of 2011 Fishery

Estimates of the recreational fishery data came from the NMFS' MRFSS website. However, it was impossible to evaluate the compliance with the bag and size limits for any one year. In fact, no management regulations are directed at Atlantic croaker recreationally harvested on the east coast of Florida. Moreover, lack of intercept data in 2011 did not permit to update non-website recreational fishery statistics in that year.

The annual variations of recreational Atlantic croaker harvests, standardized numbers of trips (estimated by dividing the total number of fish caught – Type A+B1+B2 – each year by the annual standardized total catch rates, derived themselves from a GLM for catch rates), and directed trips made on Florida's Atlantic coast broadly followed a similar pattern (Fig. 7; Table 6). In general, larger numbers of angler-trips corresponded to high landings and vice versa (Figs. 7, 8).

The recreational harvests (Type A+B1) of Atlantic croaker on the east coast of Florida were high and averaged about 2,436,500 fish and 1,265,900 pounds annually during 1982-1987. They were low and stabilized at annual averages of about 391,000 fish and 206,000 pounds thereafter (Fig. 7; Table 6). The lowest recreational harvests of Atlantic

croaker over 1982-2011 were observed during 1996-1998 and 2002-2003. In 2011, the anglers' harvest of Atlantic croaker on Florida's Atlantic coast was estimated at a number of 474,826 weighing approximately 206,700 pounds. The number and weight of Atlantic croaker harvested in 2011 were 55% and 30%, respectively, of the average harvests during 1996-2011 (i.e., 306,970 fish and 158,800 pounds). The ratio of released fish to those kept by anglers showed a long-term increasing trend, varying between 0.06 and 2.4 fish released for 1 fish kept (Fig. 9). In most years, less than one fish was released alive for every Atlantic croaker kept by anglers. In 2011, the ratio "fish released alive/fish kept" was 0.95.

Size and Bag limits

There are no management regulations about the size and bag limits for the recreational fishery directed at Atlantic croaker on the east coast of Florida. However, two aspects are worth noticing about the sizes of Atlantic croaker measured in the recreational fishery on that coast (Fig. 10). First, the annual size distributions of Atlantic croaker have somehow changed, perhaps due also to changes in the sampling designs. Second, the annual median sizes of fish exhibited a slight linear increase. Except in 1985 and 2010, fish median sizes and the total-length-intercept for their long-term trend were well above the size limits documented in ASMFC (2005).

Head boat fishery

Description of 2010 Fishery

Head-boat fishery for Atlantic croaker on the Atlantic coast of Florida is marginal (Fig. 1; Table 1). Head-boat fishery data were available during 1981-2010. In 2010, this fishery landed about 31 pounds of Atlantic croaker.

Size and Bag limits

There are no management regulations about the size and bag limits for Atlantic croaker caught by the head-boat fishery on the east coast of Florida. Biological samples from this fishery were available during 1972-2010, but few or no Atlantic croaker have been measured each year on Florida's Atlantic coast (Table 7). Thus, the few Atlantic croaker targeted by the head-boat fishery on Florida's Atlantic coast exceeded Maryland's size limit of 9 inches in the most recent years.

B. Activity and Results of Fishery Independent Monitoring (FIM) Program

The FWC-Fish and Wildlife Research Institute (FWRI)'s FIM program initiated sampling activities on estuarine, bay and coastal systems of the Florida Atlantic at northern Indian River Lagoon in 1990, southern Indian River Lagoon in 1997 and northeast Florida (Jacksonville study area) in 2001. The sampling gears commonly used were a 21.3-m

center bag seine, a 6.1-m otter trawl and a 183-m haul seine. These gears were designed to collect, respectively, juvenile and sub-adult fishes (especially young-of-the-year, YOY) in shallow areas (< 1.8 m), juvenile, sub-adult and adult fish in deep waters (1 – 7.6 m) and sub-adult and adult fish in shallow waters (< 2.5 m) along shorelines. Additional sampling methods and strata are provided in various FWC/FWRI FIM annual data summary reports.

Indices of abundance (IOAs) data for juvenile (YOY) Atlantic croaker (< 41 mm standard length, SL) were available from 21.3-m seine and 6.1-m trawl samples. They were examined to assess recruitment along Florida's east coast (northeast Florida and the northern Indian River Lagoon). Habitats in these estuaries suitable for recruitment of Atlantic croaker were primarily sampled from December-April, a period considered as general recruitment season for Florida's east coast. IOAs data for large juvenile and sub-adult/adult Atlantic croaker (SL: 6-10 inches, i.e. >149 mm SL; White and Chittenden, 1977) were collected using 183-m haul seines in the previous estuarine systems and also in the Southern Indian River Lagoon. These indices were derived by including all fish that were greater than 149 mm SL collected between May and October. For the YOY IOAs, analyses covered the period 1996-2011. IOAs for fish at least 149 mm SL were derived over 2001-2011, just to standardize both the time periods and the gears used between the three labs located along Florida's Atlantic coast (i.e., Jacksonville, Indian River, and Tequesta).

All IOAs were computed using an Analysis of Covariance (ANCOVA) to reduce spatial and temporal variability between sets. Location, time, and environmental variables were treated as either classification variables (zone, year, month, gear, deployment technique, sediment type, and presence / absence of bottom vegetation) or covariates (water temperature, salinity, and percent cover of bottom vegetation) in the ANCOVA analyses. The GLM procedure was used to complete all ANCOVA analyses. In order to normalize the data, water temperature, salinity, percent bottom vegetation, and number of animals per haul were natural log transformed [ln (X+1)] prior to analysis. With the exception of year, all variables that were not significant ($P>0.05$) were dropped and the analysis was repeated. With the ANCOVA analyses, least squares adjusted means and standard errors were calculated for each year.

IOAs were calculated as the median annual number of fish per set (i.e., CPUE). Median values were determined from the least-squares adjusted means by multiplying the standard error by a random normal deviate and adding it to the least-squares mean. These data were then back-transformed. The process was repeated 500 times for each year to create a sampling distribution of back-transformed means. Summary statistics (10, 25, 75, and 90 percentiles) were then calculated.

Seine-based IOAs (1996-2011) and trawl-based IOAs (2002-2011) for YOY Atlantic croaker showed zigzags over time (Figs. 11 and 12; Table 8). IOAs for sub-adult/adult Atlantic croaker trended upward during 2001-2011 (Fig. 13; Table 8)

C. Copy of regulations that were in effect, including a reference to the specific compliance criteria as mandated in the FMP.

N/A – Atlantic croaker is not a regulated saltwater species in Florida. However, it is generally believed that the limitation on the use of entangling gears in state waters and

the requirement on the possible use of nets measuring up to 500 sq ft with stretched-mesh size up to 2 inches have substantially affected any harvest by commercial fishermen.

D. Harvest broken down by commercial and recreational and non-harvest losses.

See Table 1 and Figure 1 for the cumulative harvest of Atlantic croaker on the Atlantic coast of Florida by fishery.

See Table 3 and Figure 2 for the commercial landings and effort and Table 4 and Figures 4 and 5 for commercial landings and effort by gear type.

See Table 6 and Figure 7 for recreational harvests in numbers and weight.

E. Review of Progress in implementing habitat recommendations.

N/A

IV. PLANNED MANAGEMENT PROGRAMS FOR THE CURRENT YEAR

No management programs are planned for the current year.

ACKNOWLEDGENMENT - Dr. Richard Paperno developed the fishery-independent indices of relative abundance for young-of the-year and sub-adult/adult Atlantic croaker on the Atlantic coast of Florida.

5.0 LITERATURE CITED

ASMF, 2005. Amendment 1 to the interstate fishery management plan for Atlantic croaker. Fishery Management Report 41. 92 p.

White, M. L. and M.E. Chittenden, Jr. 1977. Age determination, reproduction and population dynamics of the Atlantic croaker, *Micropogonias undulatus*. Fish. Bull., US 75:109-123.

Table 1 - Summary of Atlantic croaker harvests (pounds) by fishery sector on the Atlantic coast of Florida, 1985-2011. The recreational harvests are fish kept by anglers (Type A+B1). The 2011 recreational and commercial harvests were preliminary and subject to change. The 2011 head-boat harvests were not available.

	Commercial landings (lbs)	Recreationl landings (Type A + B1; lbs)	Head boat landings (lbs)	Total lbs
1985	153,803	684,449		838,252
1986	173,531	2,783,651		2,957,182
1987	217,932	1,005,052	23	1,223,007
1988	140,033	316,899	12	456,944
1989	95,021	268,335	16	363,372
1990	104,402	127,526		231,928
1991	56,739	460,454		517,193
1992	79,040	407,671	172	486,883
1993	52,031	180,517	35	232,583
1994	96,018	337,474	1	433,493
1995	22,879	301,918		324,797
1996	26,045	50,038		76,083
1997	36,577	113,095	1	149,673
1998	26,418	141,755		168,173
1999	26,824	231,694	2	258,520
2000	37,953	242,914	6	280,873
2001	14,831	320,487	8	335,326
2002	17,191	117,880		135,071
2003	16,348	79,397		95,745
2004	11,413	155,105	1	166,519
2005	16,520	118,587		135,107
2006	30,272	111,401		141,673
2007	27,028	158,054	8	185,090
2008	31,560	223,699	52	255,311
2009	32,313	221,032	36	253,381
2010	36,960	48,843	31	85,834
2011	45,193	206,733		251,926

Table 2-Annual recreational (Type A+B1) and commercial landings (lbs) used to determine the *de minimis* status for the state of Florida with regard to Atlantic croaker fisheries on Florida's Atlantic coast. Commercial landings for 2011 were preliminary for the state of Florida; they were not available for other Atlantic coastal states. Florida's and coastwide recreational landings in 2011 were preliminary.

	Coastwide commercial landings (lbs)	Florida's commercial landings (lbs	Coastwide recreational landings (Type A+B1, lbs)	Florida's recreational landings (Type A+B1, lbs)
2008	17,958,414	31,560		
2009	15,976,568	32,313	6,222,596	221,032
2010	16,148,333	36,960	4,743,197	48,843
2011		45,193	2,746,852	206,733
Average	16,694,438	33611*	4,570,882	158,869
		36506**		
(Florida's average landings/coastwide average landings)x100		0.20%***		3.48%
		0.22%****		

* Estimated using landings reported during 2008-2010. ** Estimated using landings reported during 2008-2011.
Estimated using averages of coastwide and Florida's commercial landings during 2008-2010. * Eistimated using averages of coastwide commercial landings during 2008-2010 and of Florida's commercial landings during 2008-2011.

Table 3 - Commercial landings (pounds) and number of trips for Atlantic croaker on the east coast of Florida, 1985-2011. Estimates for 2011 were preliminary and subject to change.

	Landings (lbs)	Trips
1985	153,803	3,163
1986	173,531	3,351
1987	217,932	3,505
1988	140,033	2,968
1989	95,021	2,865
1990	104,402	3,407
1991	56,739	3,188
1992	79,040	4,074
1993	52,031	2,405
1994	96,018	3,170
1995	22,879	1,262
1996	26,045	1,391
1997	36,577	1,441
1998	26,418	1,120
1999	26,824	1,433
2000	37,953	1,640
2001	14,831	1,163
2002	17,191	1,400
2003	16,348	1,653
2004	11,413	1,305
2005	16,520	1,331
2006	30,272	1,578
2007	27,028	1,704
2008	31,560	2,100
2009	32,313	2,215
2010	36,960	1,685
2011	45,193	1,846

Table 4 - Florida's Atlantic coast commercial landings (pounds) and trips made by gear type for Atlantic croaker, 1984-2011. The 2011 estimates were preliminary and subject to change. Gear-specific records prior to 1991 were unavailable. * Not indicated for confidentiality purposes.

Landings

	CAST NET	GIG/SPEAR	GILL NET	HOOK AND L	OTHER	TRAMMEL	TRAWL	UNKNOWN	Grand Total
1984								5653	5653
1985								153803	153803
1986								173531	173531
1987								217932	217932
1988								140033	140033
1989								95021	95021
1990								104402	104402
1991	1064		10016	2762	343	2702	380	39472	56739
1992	3897		47194	4290	76	16777	946	5860	79040
1993	2897	*	27290	5468	363	12983	1953	1071	52031
1994	1738	*	34239	5226	159	4180	49335	1136	96018
1995	6059		6454	6833	225	460	2802	46	22879
1996	15606	*	92	5414	438		4433	60	26045
1997	15366	*	1406	11574	*		7946	280	36577
1998	8250		3397	14426	*		160	176	26418
1999	7723		1349	16362	121		645	625	26824
2000	11073	11	1396	23169	776		974	554	37953
2001	6856	56	300	6511	378		660	71	14831
2002	5053	*	161	11246	634		95		17191
2003	10749	13	63	5445	15		64		16348
2004	7022		175	3752	458		*		11413
2005	9039		1715	2153	3370		244		16520
2006	7924	*	9351	10101	425		2463		30272
2007	6527		10718	6049	1098		2637		27028
2008	14574	35	4959	5432	2526		4034		31560
2009	11395	82	9090	4548	2704		4494		32313
2010	10020	122	15436	6258	3590		1534		36960
2011	8280	18	26085	6813	1632	10	2355	*	45193

Trips

	CAST NET	GIG/SPEAR	GILL NET	HOOK AND L	OTHER	TRAMMEL	TRAWL	UNKNOWN	Grand Total
1984								361	361
1985								3163	3163
1986								3351	3351
1987								3505	3505
1988								2968	2968
1989								2865	2865
1990								3407	3407
1991	50		616	94	47	294	18	2069	3188
1992	158		2140	130	5	1381	24	236	4074
1993	262	*	1065	153	10	837	24	53	2405
1994	277	*	2204	124	18	373	126	47	3170
1995	441		531	163	20	67	31	9	1262
1996	1171	*	14	166	*		27	9	1391
1997	958	*	71	335	*		61	14	1441
1998	615		92	395	*		10	7	1120
1999	689		80	579	5		54	26	1433
2000	853	8	55	650	21		37	16	1640
2001	738	*	30	344	25		17	6	1163
2002	928	*	15	413	32		10		1400
2003	1296	6	5	339	5		*		1653
2004	989		13	288	14		*		1305
2005	929		123	238	34		7		1331
2006	984	*	259	282	36		16		1578
2007	936		401	290	52		25		1704
2008	1417	4	288	310	50		31		2100
2009	1436	5	426	281	46		21		2215
2010	1031	4	292	295	53		10		1685
2011	1016	7	328	426	49	*	18	*	1846

Table 5 – Gear-specific relative contributions (%) of Atlantic croaker commercial landings and trips in various fishing grounds on Florida's Atlantic coast in 2011 (estimates were preliminary and subject to change).

	Landings by fishing ground			Trips by fishing ground		
Gears	Federal EEZ	Inland waters	State sea	Federal EEZ	Inland waters	State sea
CAST NET	0.10	47.45	46.80	2.09	71.37	62.94
GIG/SPEAR	0.00	0.08	0.14	0.00	0.58	0.23
GILL NET	93.65	0.00	2.16	84.86	0.00	0.70
HOOK AND L	3.95	31.01	36.38	10.18	23.02	34.73
OTHER	0.36	12.01	1.86	1.04	4.16	0.47
Trammel		0.08			0.10	
TRAWL	1.93	9.36	12.66	1.83	0.68	0.93
Unknown		0.01			0.10	
Grand Total	**100**	**100**	**100**	**100**	**100**	**100**

Table 6 - Estimated MRFSS numbers and pounds of Atlantic croaker harvested, released alive and caught and estimated standardized total catch rates, standardized and directed numbers of trips made by recreational anglers on the Atlantic coast of Florida (1982-2011). The last three time series were not estimated for 2011 because there were no intercept data in 2011.

Years	Harvests (A+B1, numbers)	released (B2, numbers)	Harvests (A+B1; lbs)	caught (A+B1+B2; #)	Standardized CPUE	Standardized trips	Directed Trips
1982	1,682,619	188,276	754,955	1,870,896	2.4187	773,501	107,473
1983	1,148,228	379,021	510,597	1,527,248	1.5179	1,006,166	186,058
1984	2,781,743	236,432	1,856,600	3,018,173	1.9670	1,534,415	244,051
1985	1,306,955	1,146,583	684,449	2,453,537	2.7712	885,375	115,153
1986	5,118,552	318,511	2,783,651	5,437,064	3.0140	1,803,965	281,197
1987	2,580,728	1,770,697	1,005,052	4,351,424	2.5351	1,716,473	250,783
1988	685,778	200,630	316,899	886,408	2.2268	398,060	97,895
1989	359,417	72,821	268,335	432,238	2.2097	195,609	105,207
1990	304,065	168,143	127,526	472,208	2.4561	192,261	60,377
1991	1,030,115	647,824	460,454	1,677,940	2.9676	565,421	209,143
1992	754,596	251,342	407,671	1,005,939	2.6334	381,990	228,624
1993	304,067	138,875	180,517	442,942	2.1435	206,648	80,500
1994	599,032	331,735	337,474	930,768	2.4138	385,603	92,898
1995	438,076	141,732	301,918	579,808	2.2370	259,195	67,925
1996	116,575	126,299	50,038	242,875	1.6995	142,914	30,359
1997	235,430	116,276	113,095	351,706	2.3136	152,019	39,120
1998	234,361	152,744	141,755	387,105	2.3874	162,143	36,910
1999	403,982	967,894	231,694	1,371,874	2.8324	484,354	104,051
2000	455,871	428,132	242,914	884,002	2.5457	347,250	87,407
2001	426,264	282,461	320,487	708,726	2.4772	286,095	97,650
2002	177,752	217,054	117,880	394,805	1.9581	201,630	53,380
2003	165,459	192,357	79,397	357,815	2.0070	178,287	58,301
2004	415,570	253,952	155,105	669,521	2.5058	267,186	110,914
2005	302,785	293,693	118,587	596,476	2.0756	287,378	74,382
2006	172,586	187,561	111,401	360,148	2.0043	179,689	60,449
2007	310,130	321,559	158,054	631,688	2.2093	285,923	108,626
2008	449,054	596,450	223,699	1,045,504	2.1966	475,966	111,287
2009	438,209	406,821	221,032	845,032	2.7661	305,499	105,955
2010	132,664	188,637	48,843	321,302	1.7291	185,825	206,550
2011	474,826	451,177	206,733	926,001	-	-	-

Table 7 – Atlantic croaker samples collected from the head-boat fishery on Florida's Atlantic coast, 1989 – 2010. To compare with Maryland's size limit in the recreational sector, the sample sizes are split into fish of size smaller than 9 inches and of size greater or equal to 9 inches.

	Samples with fish		
Year	<9 inch	>=9 inch	Total
1989	3		3
1990	1	1	2
1992	12		12
1993	8		8
1996		1	1
1999	2	2	4
2000	4	1	5
2001	1	2	3
2002		1	1
2004		1	1
2005		12	12
2006		4	4
2008		10	10
2009	2	7	9
2010	1	18	19

Table 8 - Fishery-independent catch in number (No), effort (number of sets), and various statistics derived for the YOY and sub-adult/adult indices of relative abundance (i.e., catch rates, expressed as median number of fish per set) for Atlantic croaker on the east coast of Florida (IRL = Indian River Lagoon; JAX = Jacksonville).

Florida's East Coast Atlantic croaker IOAS - YOY
Do not include northern IRL Zone H prior to 1998; 1998-2001: do not include JAX but all of northern IRL (Zone H added); 2002-2011: include all of nothern IRL and JAX
23.3 - m Bag seines
< 41 mm - SL

Year	No. animals	No. sets	Median	25th	75th	min	max
1996	20	40	0.0336	-0.008761	0.0751	-0.1356	0.2798
1997	3	49	0.0921	0.0573	0.1301	-0.08	0.2486
1998	22	60	0.4678	0.2983	0.6523	-0.1045	1.365
1999	88	76	0.3826	0.235	0.5464	-0.3325	1.3116
2000	593	100	0.7738	0.5755	0.9823	0.0533	1.6068
2001	982	95	0.6404	0.492	0.806	0.0581	1.6464
2002	1216	243	0.2004	-0.0310	0.3899	-0.4870	1.4396
2003	1118	248	0.0013	-0.1458	0.1929	-0.5895	1.2169
2004	1335	258	0.0837	-0.0959	0.2897	-0.4813	1.4819
2005	10461	290	0.8470	0.5416	1.1979	-0.0871	2.8703
2006	2057	291	0.2486	0.0434	0.4714	-0.4450	1.6513
2007	575	290	-0.1008	-0.2502	0.0701	-0.5747	1.3326
2008	2514	290	0.5207	0.2978	0.7742	-0.4281	2.0397
2009	1466	290	0.1565	-0.0385	0.3899	-0.5283	1.8544
2010	2287	290	0.4759	0.2097	0.7328	-0.3592	2.1811
2011	773	282	-0.0199	-0.1815	0.1543	-0.5275	1.0083
Total	**25,510**	**3,192**					

Florida's East Coast Atlantic croaker (include all northern IRL and JAX)
IOAs -YOY
6.1 - m trawls
< 41 mm - SL

Year	No. animals	No. sets	Median	25th	75th	min	max
2002	2973	145	2.0858	1.6065	2.6129	0.5435	5.4235
2003	4922	188	1.9100	1.5240	2.4548	0.5951	4.7715
2004	4436	204	1.7964	1.3828	2.2194	0.4634	4.2223
2005	16918	205	6.7930	5.6435	8.0253	2.7379	13.6634
2006	5469	205	2.7987	2.2307	3.3778	0.8311	5.7249
2007	3332	205	1.5720	1.2158	1.9430	0.5150	3.3312
2008	9583	205	3.1541	2.5462	3.8070	1.0869	7.1921
2009	3282	205	2.4394	1.8902	3.0100	0.7342	5.5933
2010	21982	204	5.4080	4.5691	6.4429	1.8267	12.7045
2011	3258	205	1.4008	1.1023	1.7912	0.3042	3.8218
Total	**76,155**	**1,971**					

Florida's East Coast Atlantic croaker (include JAX , all northern IRL and southern IRL). IOA - Sub-Adult/Adult
183 - m Haul seines
> 149 mm - SL

Year	No. animals	No. sets	Median	25th	75th	min	max
2001	132	270	0.1387	0.0436	0.2405	-0.2017	0.5899
2002	311	278	0.1964	0.0930	0.3026	-0.1663	0.7112
2003	352	282	0.3779	0.2572	0.4873	-0.0808	0.8879
2004	236	283	0.2696	0.1681	0.3794	-0.1419	0.8146
2005	240	280	0.3843	0.2587	0.5087	-0.0137	0.9274
2006	314	278	0.3218	0.2276	0.4390	-0.0561	0.9527
2007	353	282	0.3594	0.2631	0.4592	-0.0510	0.9076
2008	438	267	0.3500	0.2230	0.4720	-0.1168	1.2012
2009	341	255	0.4043	0.2765	0.5526	-0.0392	0.9983
2010	343	256	0.5175	0.3858	0.6578	0.0609	1.3275
2011	820	258	0.5643	0.4261	0.6928	0.1381	1.3753
Total	**3,880**	**2,741**					

Figure 1 - Total harvests (lbs) and proportions of recreational harvests of Atlantic croaker on Florida's Atlantic coast, 1985-2011. Recreational harvests are fish kept by anglers (Type A+B1). Harvests for 2011 were preliminary and subject to change. The contribution of the head boat (HB) fishery in total harvests was insignificant.

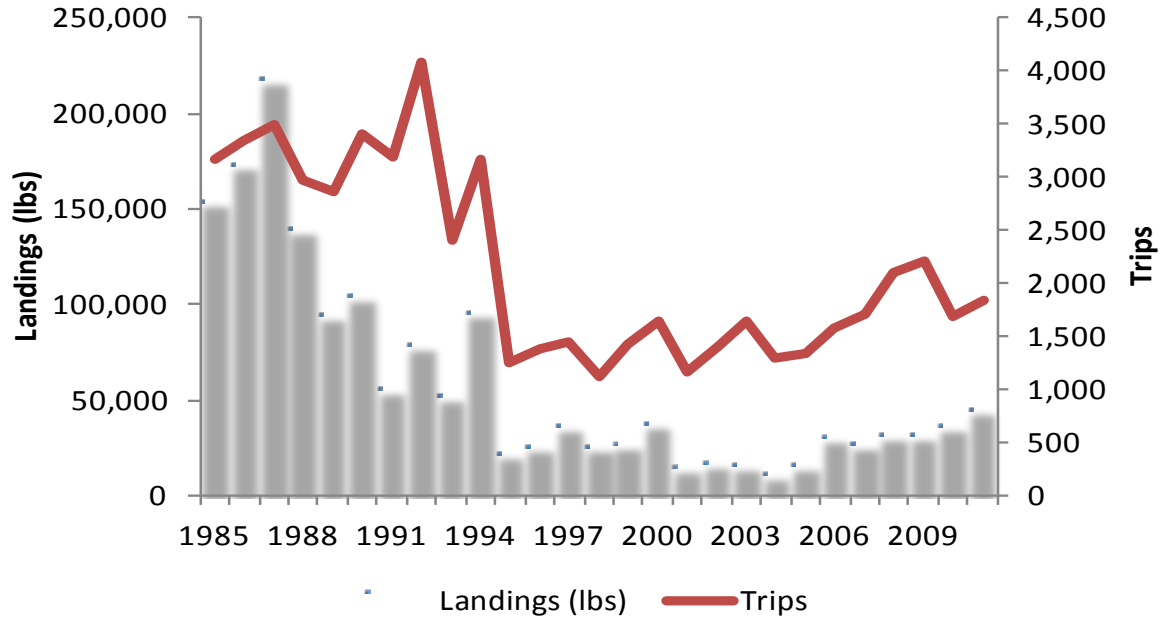


Figure 2 - Commercial landings (lbs) of Atlantic croaker and number of trips reporting Atlantic croaker commercial landings on Florida's Atlantic coast, 1985-2011. The 2011 estimates were preliminary and subject to change.

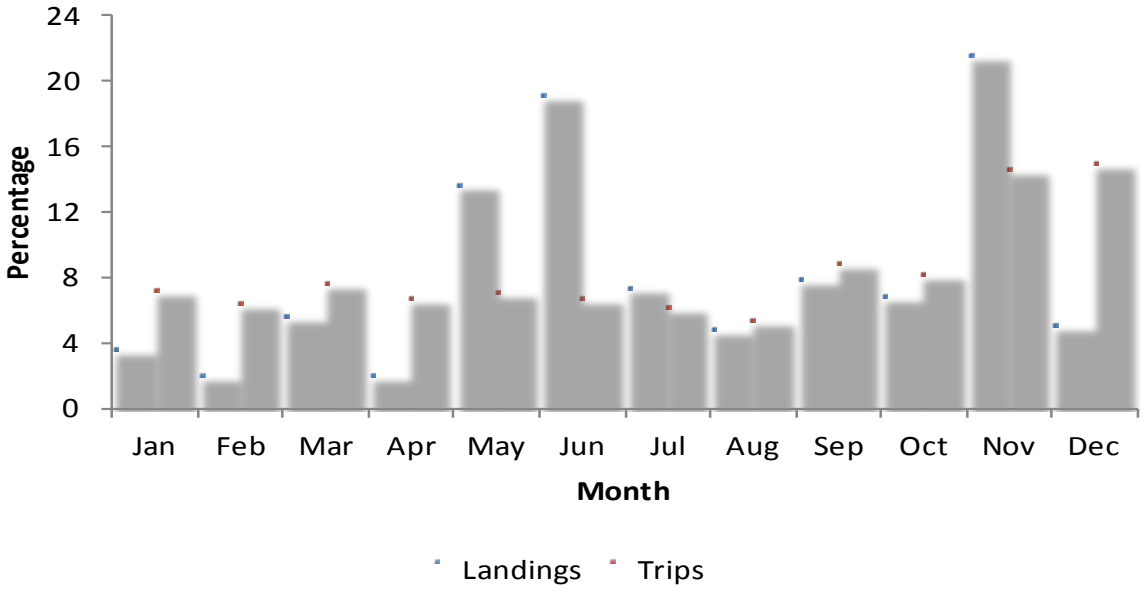


Figure 3 – Variations of monthly percentages of Atlantic croaker commercial landings and trips on the Atlantic coast of Florida in 2011.

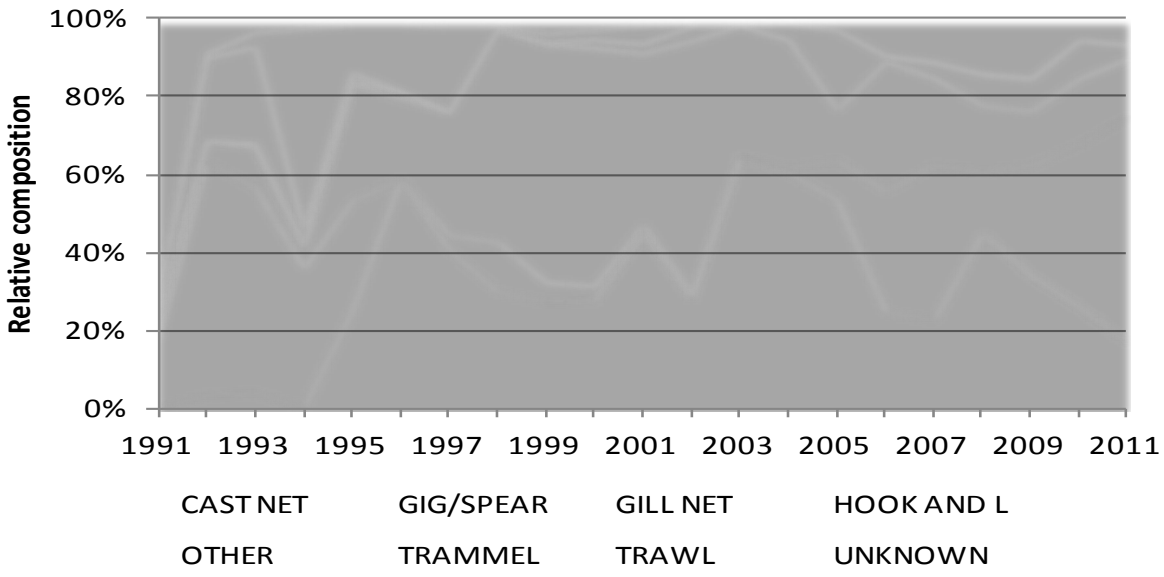


Figure 4 – Composition (%) of Atlantic croaker commercial landings by gear type on Florida's Atlantic coast, 1991 - 2011. The 2011 commercial landings were preliminary and subject to change.

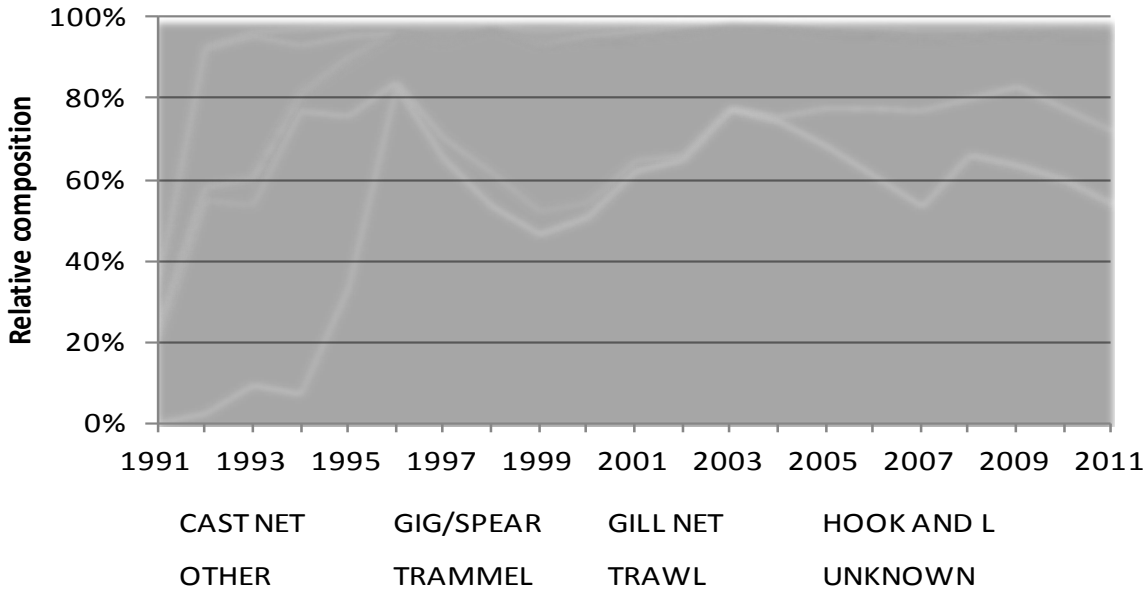


Figure 5- Composition (%) of commercial trips by gear type reporting Atlantic croaker on Florida's Atlantic coast, 1991 - 2011. The 2011 commercial trip estimates were preliminary and subject to change.

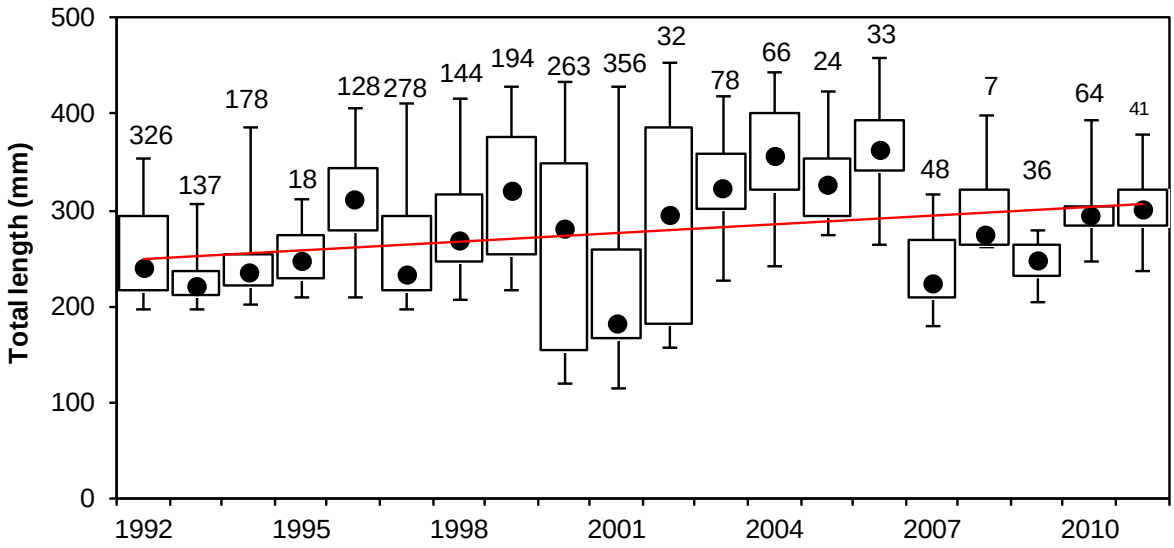


Figure 6– Size distributions of Atlantic croaker measured in the commercial fishery on the Atlantic coast of Florida, 1992-2011. The dark circle represents the median, the box represents the 25th - 75th percentiles and the vertical whiskers extend from 2.5th -97.5th percentiles. Numbers of fish measured are shown above the upper whiskers. The red line indicates the long-term trend of the annual median total length of fish measured.

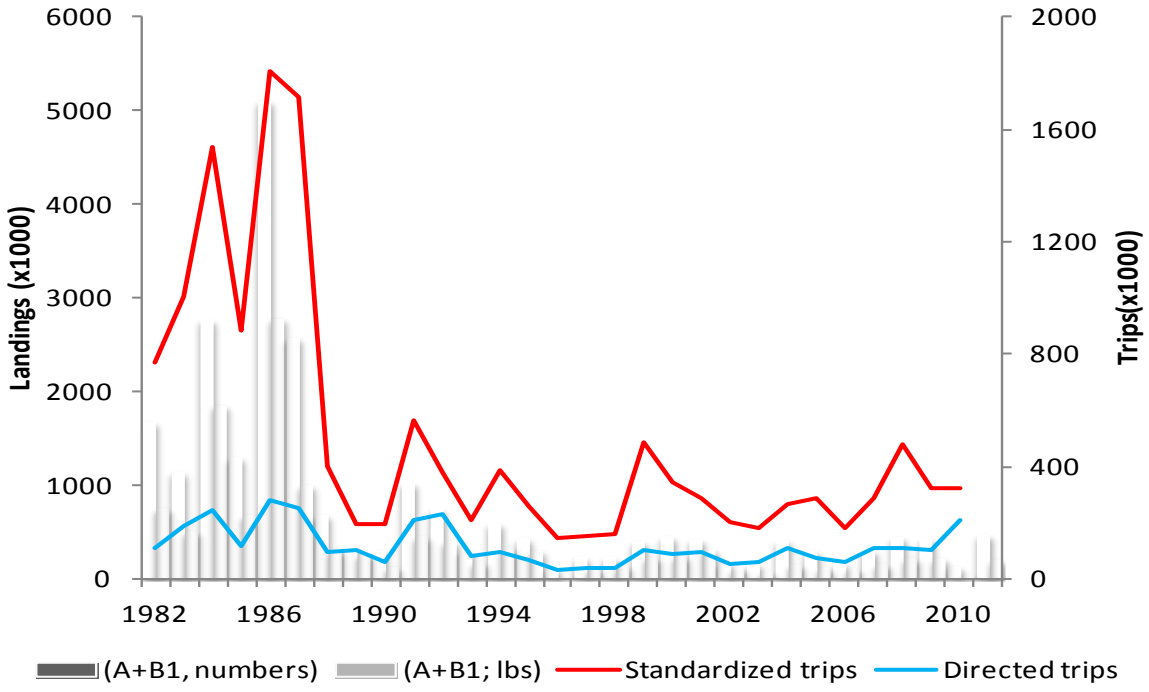


Figure 7 – Variations of the recreational harvests in number and weight (lbs), and of the numbers of standardized and directed angler-trips reporting Atlantic croaker on Florida's Atlantic coast, 1982-2011. The 2011 estimates were preliminary and subject to change. The 2011 numbers of standardized and directed angler-trips were not estimated because there were no intercept data in 2011.

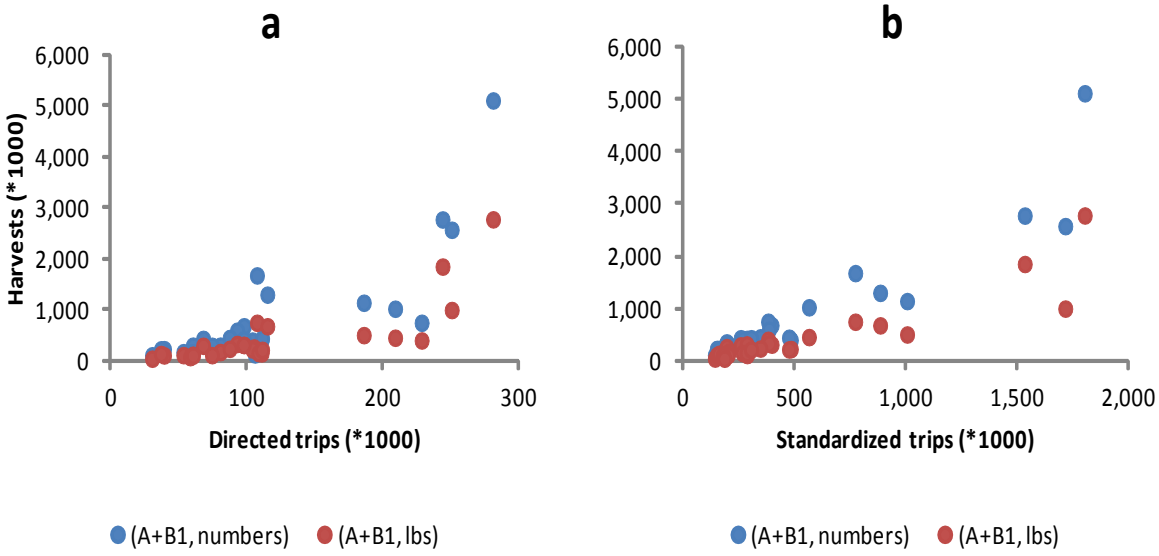


Figure 8 – Relationships between the recreational harvests (type A+B1) in weights (lbs) and numbers, and the numbers of directed trips (a) and standardized trips (b) made on Florida's Atlantic coast, 1982-2010.

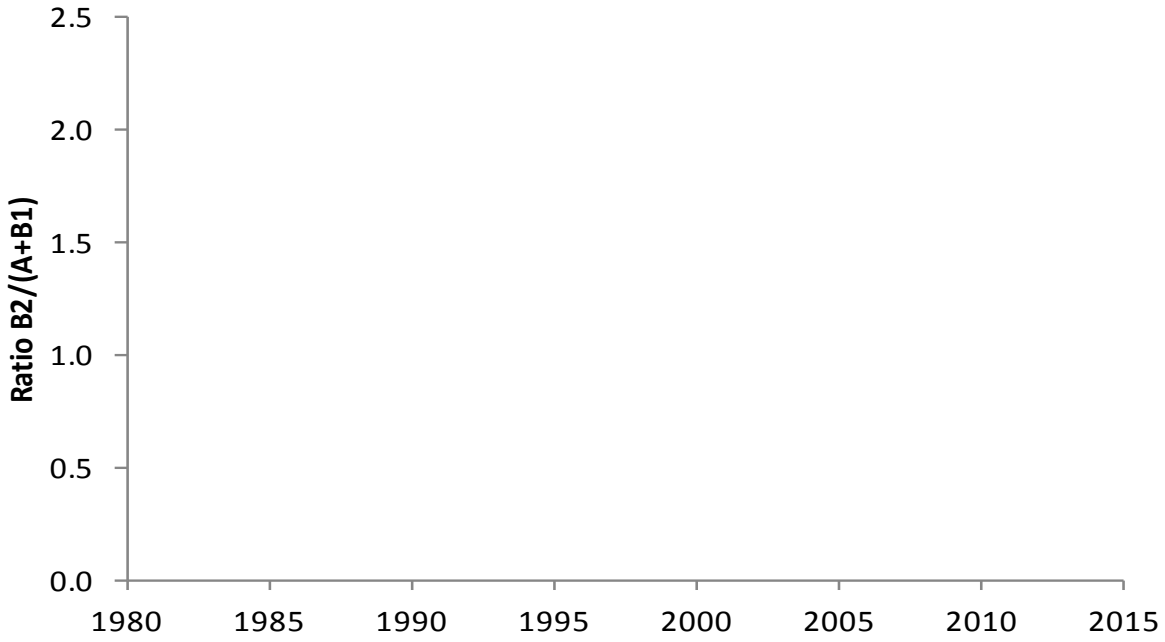


Figure 9 – Variations of the ratio "fish released alive (type B2)/fish kept (Type A+ B1)" for Atlantic croaker recreationally harvested on the east coast of Florida, 1982 – 2011. The ratio in 2011 was preliminary and subject to change.

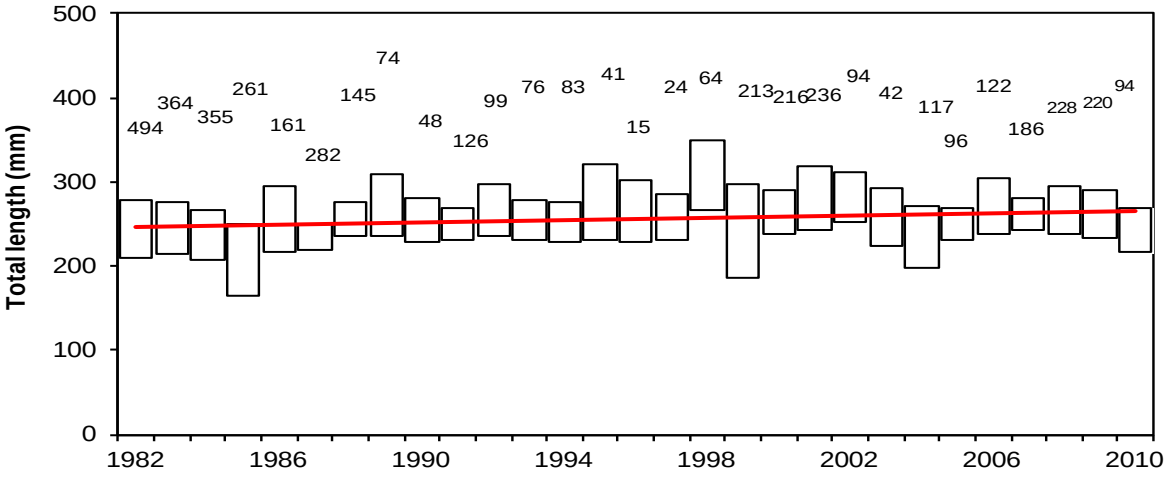


Figure 10 – Size distributions of Atlantic croaker measured in the recreational fishery on the Atlantic coast of Florida, 1982-2010. The dark circle represents the median, the box represents the 25th – 75th percentiles and the vertical whiskers extend from 2.5th -97.5th percentiles. Numbers of fish measured are shown above the upper whiskers. The red line indicates the long-term trend of the median total length. The 2011 size distribution is not shown because there were no intercept data in 2011.

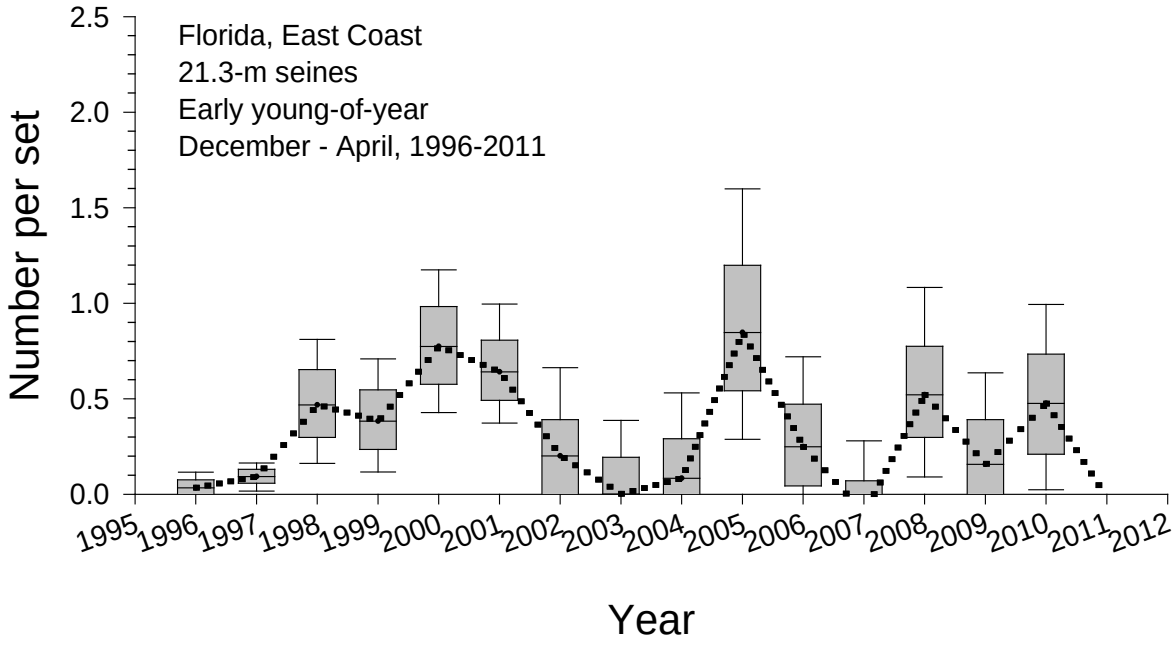


Figure 11 – Indices of relative abundance for young-of-the year Atlantic croaker (< 41-mm SL) collected using 21.3-m seines during monthly stratified-random sampling surveys on the east coast of Florida, 1996-2011. The box represents the 25th and 75th percentiles, the vertical line represents the 10th to 90th percentiles, and the horizontal line represents the median estimate

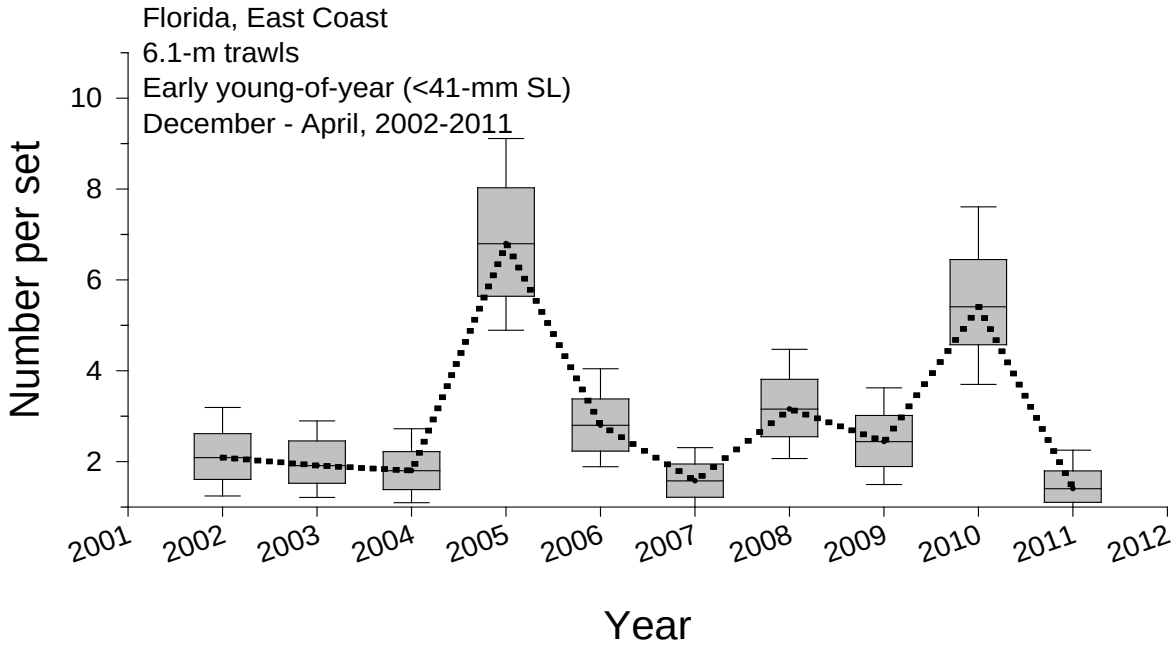


Figure 12 – Indices of relative abundance for young-of-the year Atlantic croaker (< 41-mm SL) collected using a 6.1-m trawl during monthly stratified-random sampling surveys on the east coast of Florida, 2002-2011. The box represents the 25th and 75th percentiles, the vertical line represents the 10th to 90th percentiles, and the horizontal line represents the median estimate

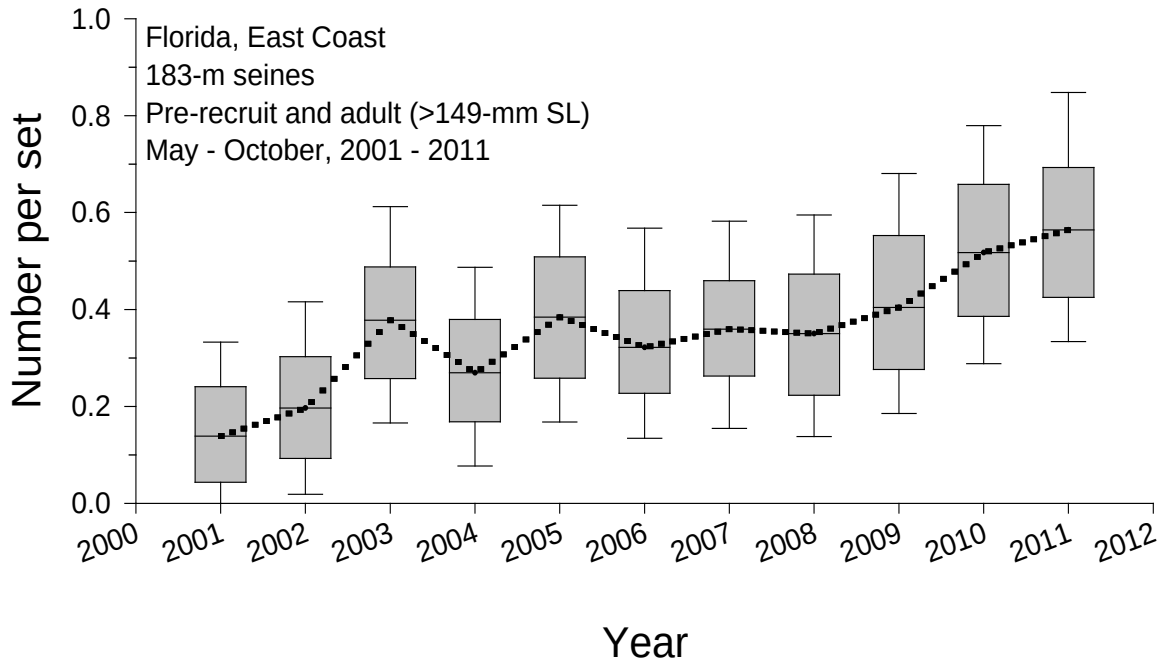


Figure 13 – Indices of relative abundance for large juvenile and sub-adult/adult Atlantic croaker (> 149-mm SL) collected using 183-m Haul seines during monthly stratified-random sampling surveys on the east coast of Florida, 2001-2011. The box represents the 25th and 75th percentiles, the vertical line represents the 10th to 90th percentiles, and the horizontal line represents the median estimate.

State of New Jersey
Department of Environmental Protection

Division of Fish & Wildlife

Annual State Report for Red Drum in 2011 and Fishery Summary for 2012

June 2012

Report By: Jennifer Pyle

Submitted to the Atlantic States Marine Fisheries Commission as a Requirement of Amendment 2 to the Interstate Fisheries Management Plan for Red Drum

I. SUMMARY OF RED DRUM FISHERY AND RESOURCE MONITORING IN NEW JERSEY

In compliance to Amendment 2 to the Interstate Fishery Management Plan (FMP) for Red Drum, New Jersey has maintained the required size and possession limits of 1 fish between 18 and 27 inches for both recreational and commercial fishermen.

II. REQUEST FOR *DE MINIMUS* STATUS

New Jersey requests *de minimus* status under Amendment 2 to the Interstate Fishery Management Plan for Red Drum.

III. NEW JERSEY RED DRUM FISHERY AND MANAGEMENT PROGRAM: 2011

A. Fishery Dependent Monitoring

The Bureau of Marine Fisheries does not conduct any fishery dependent monitoring for red drum.

B. Fishery Independent Monitoring

The New Jersey Bureau of Marine Fisheries conducts five nearshore (within 12 nautical miles) trawl surveys each year. These surveys occur in January/February, April, June, August, and October. All species taken during these surveys are weighed and measured. Catch per unit effort (CPUE) in number of fish per tow and biomass (kilograms) per tow is calculated each year. No red drum have been caught in nearshore waters since this survey began in 1988.

C. New Jersey Regulations on Red Drum in 2011

On May 22, 2002, the Atlantic States Marine Fisheries Commission approved Amendment 2 to the FMP, at which time, those States in the Northern region of red drum distribution, such as New Jersey, were required to develop and implement size and possession limits to meet the FMP's management goal. In November 2002, New Jersey adopted by Notice of Administrative Change the following red drum management measures for both recreational and commercial fishermen under N.J.A.C. 7:25-18.1:

(a) For the purpose of this subchapter, the following common names shall mean the following scientific name(s) for a species or group of species, except as otherwise specified elsewhere in this subchapter.

Common Name	Scientific Name
Red Drum	Sciaenops ocellatus

(b) A person shall not purchase, sell, offer for sale, or expose for sale any species listed below less than the minimum length, measured in inches, except as may be provided elsewhere in this subchapter, and subject to the specific provisions of any such section. Any commercially licensed vessel or person shall be presumed to possess the following species for sale purposes and shall comply with the minimum sizes below. Fish length shall be measured from the tip of the snout to the tip of the tail (total length), except as noted below.

Species	Minimum Size
Red Drum	18 (inches)

3. A person shall not take in any one day or possess more than the possession limit specified below for each species listed, except as may be provided elsewhere in this subchapter, and subject to the specific provisions of any such section.

Species	Possession Limit
Red Drum	1, no more than 27 inches

(c) A person angling with a hand line or with a rod and line or using a bait net or spearfishing shall not have in his or her possession any species listed below less than the minimum length, nor shall such person take in any one day or possess more than the possession limits as provided below, nor shall such person possess any species listed below during the closed season for that species. Exceptions to this section as may be provided elsewhere in this subchapter shall be subject to the specific provisions of any such section. Fish length shall measure from the tip of the snout to the tip of the tail (total length), except as noted below:

Species	Open Season	Minimum Size (inches)	Possession Limit
Red Drum	Jan. 1 to Dec. 31	18	1, no more than 27 inches

D. New Jersey Red Drum Harvest

Commercial fishery landings for red drum were obtained from the National Marine Fisheries Service statistics website (1950-2007) and the Standard Atlantic Fisheries Information System (SAFIS) from 2008 to present (Table 1). There was no red drum harvested in New Jersey waters in 2010. Recreational catch data were obtained from the Marine Recreational Fisheries Statistical Survey website for the years 1980-2011. There was no red drum harvest throughout the time period although 301 fish were reported caught and released in 1992.

E. Addendum III Habitat Requirements

No mandatory measures related to habitat are implemented through this amendment.

IV. NEW JERSEY RED DRUM FISHERY AND MANAGEMENT PROGRAM: 2012

A. New Jersey Regulations on Red Drum in 2012

See III C above for New Jersey's 2012 red drum regulations.

B. Red Drum Monitoring Programs for 2012

There will be no fishery dependent resource monitoring program for red drum in 2012. The State's ocean stock assessment program will continue in 2012 and any red drum taken will be weighed and measured.

C. Significant Changes in Management and/or Monitoring of Red Drum in 2012.

No changes from the previous year.

V. PLAN SPECIFIC REQUIREMENTS

There are no plan specific requirements in Amendment 2.

VI. LAW ENFORCEMENT REPORTING REQUIREMENTS

There are no plan specific law enforcement reporting requirements in Amendment 2.

Table 1. New Jersey's Commercial and Recreational Red Drum Landings: 1950-2011

Year	Commercial (pounds)	Recreational (number)
1951	100	-
1992	-	301 (caught not harvested)
1998	311	-
1999	241	-
2004	12	-
2009	129	-
2010	0	0
2011	0	0

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIROMENTAL CONTROL
DIVISION OF FISH & WILDLIFE
89 Kings Highway
Dover, Delaware19901

OFFICE OF THE
DIRECTOR

January25, 2012

Danielle Brzezinski
Atlantic States Marine Fisheries Commission
1050 North Highland Street
Suite 200A-N
Arlington, VA 22201

Dear Danielle:

The following will constitute Delaware's annual compliance report for red drum for 2011. If this information is not satisfactory, please let me know and we will supply whatever additional information we have available.

1. Introduction

Delaware is a *de minimis* State for red drum with no landings of red drum reported either commercially or recreationally in 2011. There were no changes in monitoring, regulations or harvest for 2011 and there are none planned for 2012.

2. Request for *de minimis* status

Once again, Delaware requests continuation of its *de minimis* status. There were no landings of red drum either commercially or recreationally in Delaware in 2011. Any action by Delaware with respect to a particular management measure would not contribute significantly to the overall red drum management program.

3. Previous calendar year's fishery and management program

a. Fishery Dependent Monitoring

Red drum were not commercially harvested in Delaware as reported through either the Delaware commercial fisherman log book system or the Federal Dealers reporting system (SAFIS) in 2011. Historically, there have not been any reported commercial landings of red drum in Delaware

since 1999 through the fisherman log books and since 2006 through the federal dealer system. Both of these reports may be suspect.

According to the Marine Recreational Fisheries Statistical Survey, red drum was not recreationally caught or harvested in Delaware in 2011. During wave 6 (Nov – Dec) of 2008, 214 red drum were reported caught in inland waters. In 2006, 901 red drum weighing 1,466 lbs. were reported from the Atlantic Ocean less than 3 miles offshore. Prior to 2006, there were only a few records of red drum having been caught going back as far as 1981. Because a MRFSS positive intercept for red drum is a relatively rare event in Delaware, a single angler intercept could account for this 2006 total.

Year	No.Caught	No.Released	No. Kept	Pounds Kept
2003	731	731	0	0
2004	86	86	0	0
2005	0	0	0	0
2006	1,909	1,007	901	1,466
2007	0	0	0	0
2008	214	214	0	0
2009	0	0	0	0
2010	0	0	0	0
2011	0	0	0	0

The Delaware survey is augmented annually to three times the base level of interviews by the Delaware Division of Fish and Wildlife.

b. Fishery Independent Monitoring

No red drum were taken in 2011 during 90 hauls in the 30-ft bottom trawl in the Delaware Bay or in 231 tows of a 16-ft bottom trawl in the Delaware Bay or in 84 tows of the 16-ft trawl in Delaware's Inland Bays. Other finfish taken by the 30-ft trawl were 29,266 finfish representing 58 species. With the 16-ft trawl, 34,687 individuals of 47 species were taken in the Delaware Bay. In the inland Bays, 19,476 finfish representing 38 species were collected.

c. Regulations

Delaware's red drum regulations remained unchanged for 2011 with a legal slot of 20-27 inches TL and a daily possession limit of 5 fish/person/day. This regulation brings Delawarein compliance with the 40% reduction as detailed in Table 19 from Amendment 2 to the Interstate Fishery Management Plan for Red Drum. No red drum below or above this legal slot limit may be possessed. These regulations apply to both

recreational and commercial fishermen. No red drum may be caught and sold in Delaware by anyone not in possession of a commercial foodfishing permit which costs $150 for residents and $1,500 for non-residents. Commercial gill netting (Delaware's principle commercial fishing gear-type) is a limited entry fishery with the number of commercial gill net permits being fixed at 111. Between 1988 and 2003, Delaware had a legal slot of 18-27 inches with an allowance for one fish/day over 27 inches and a daily harvest limit of five red drum. Prior to 1988, there were no specific regulations pertaining solely to red drum in Delaware.

4. Planned calendar year's fishery and management program

a. Regulations

b. Monitoring Programs

c. Changes from previous year

***Deminimis* –** Delawareagain requests consideration as a *deminimis* state for purposes of compliance with the FMP for red drum.Thank you for your attention to this request.

Sincerely,

John Clark
Administrator of Fisheries

cc: Red drum compliance report 2011

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Joseph P. Gill, Deputy Secretary

Maryland Red Drum (*Sciaenops ocellatus*) Compliance Report to the Atlantic States Marine Fisheries Commission – 2011

Prepared by

Harry W. Rickabaugh Jr.

Maryland Department of Natural Resources
Fisheries Service

June 2012

Harry Rickabaugh Jr. Matapeake Terminal 301 Marine Academy Drive Stevensville, MD 21666
(410) 643 - 6776 extension 2109 • www.dnr.maryland.gov • TTY users call via Maryland Relay

I. Introduction

Red drum (*Sciaenops ocellatus*) are captured in the Atlantic Ocean off the coast of Maryland and in Maryland's portion of Chesapeake Bay by both commercial and recreational fishermen. Red drum is an infrequent species in Maryland's portion of Chesapeake Bay. However, when Bay salinity increases because of reduced freshwater inflow, red drum catch by bottom fishing anglers becomes more common. Surf casters along the 35 miles of Maryland's Atlantic coast may occasionally catch legal size fish, but more commonly catch oversized individuals.

In 2003, the Maryland Department of Natural Resources (MD DNR) instituted an 18 – 27 inch total length (TL) size limit and one fish per person per day creel limit for recreational fishermen, and an 18 – 25 inch TL size limit and five fish per day catch limit for commercial fishermen. These changes were instituted to meet the requirements outlined in Table 19 of Amendment 2 to the Red Drum Fisheries Management Plan (ASMFC 2002).

II. Request for *de minimis* status

N/A

III. 2011 Fishery and Management Programs.

a. MD DNR fisheries biologists sampled commercial pound nets bi-weekly in Maryland's portion of the Chesapeake Bay from May 24 through September 07, 2011. Seafood dealer sampling began in 2009, but only one trip was conducted on June 9, 2011. Two red drum were encountered during onboard pound net sampling measuring 665mm and 690mm TL in 2011. Both specimens were longer than the 25 inch maximum commercial limit and were released. No red drum were encountered during dealer sampling.

b. There was no fishery independent monitoring for red drum in 2011.

c. Red drum regulations:

"FISHERIES SERVICE 08.02.05"

.16 Red Drum.

A: Recreational Fishery.

(1) Notwithstanding Natural Resources Article, 4-734, Annotated Code of Maryland, a person may not catch or possess red drum less than 18 inches in total length or greater than 27 inches in total length.

(2) A person may not catch or possess more than one red drum per day.

B: Commercial Fishery.

(1) Notwithstanding Natural Resources Article, 4-734, Annotated Code of Maryland, a commercial licensee may not catch or possess red drum less than 18 inches in total length or greater than 25 inches in total length.

(2) A commercial licensee may not catch or possess more than five red drum per day.

SOURCE: COMAR (http://www.dsd.state.md.us/comar/08/08.02.05.16.htm).

The above regulations conform to those outlined in Table 19 of Amendment 2 (ASMFC 2002).

III. 2011 Fishery and Management Programs (Continued)

d. Commercial fishermen in MD are required to report all red drum harvested on daily fishing reports submitted to DNR. Preliminary 2011 commercial harvest records indicated no red drum were harvested (Figure 1). Red drum harvest has been very low in recent years; however, this low level of harvest may not reflect a decrease in abundance in Maryland, since more liberal regulations were in effect during previous years. Prior to the regulation change in 2003, commercial fishermen in Maryland were allowed to keep one fish over 27 inches per day. Harvests were lower prior to 1988, with years of zero reported harvest being more common, than in subsequent years.

   The Marine Recreational Information Program (MRIP) estimated that recreational fishermen in Maryland did not harvest or release any red drum in 2011 (Figure 2; MRIP 2011). The MRIP survey design may not adequately sample the recreational red drum harvest or catch and release fishery, because of the seasonal nature of Maryland's red drum fishery. The current MRIP survey indicates harvest or releases only occurring in 15 of 31 years. While Maryland's red drum fishery is quite modest, it is very likely anglers caught some fish each year. MD DNR issues sportfishing recognition citations for red drum that are caught and released in Maryland waters. In 2011, anglers submitted one entry to the catch and release citation program for red drum measuring 38 inches TL captured in Chesapeake Bay. Licensed charter boat captains in Maryland are also required to keep log books of their clients catch. Log books from 2011 indicate 12 red drum were caught, 5 of which were harvested. The 2011 harvest level is tied for the sixth lowest harvest of the 19 year time series (Figure 3). Red drum catches were reported every year from 1993-2011, except for 1996. MRIP estimated no harvest in nine years with reported charter boat harvest.

e. There were no habitat requirements in Amendment 2.

IV. Planned Management for 2012.

a. No regulation changes are planned for 2012.

b. MD DNR will continue to monitor commercial pound nets in 2012. MD DNR also may monitor fish houses for other species throughout the summer, and red drum will be measured if they are available, and time permits.

V. Plan Specific Requirements

None

VI. Law enforcement requirements

None.

References

ASMFC. 2002. Amendment 2 to the Interstate Fisheries Management Plan for Red Drum. Fisheries Management Report No. 38 of the Atlantic States Marine Fisheries Commission. Washington, D.C.

MRIP. 2011. Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division.

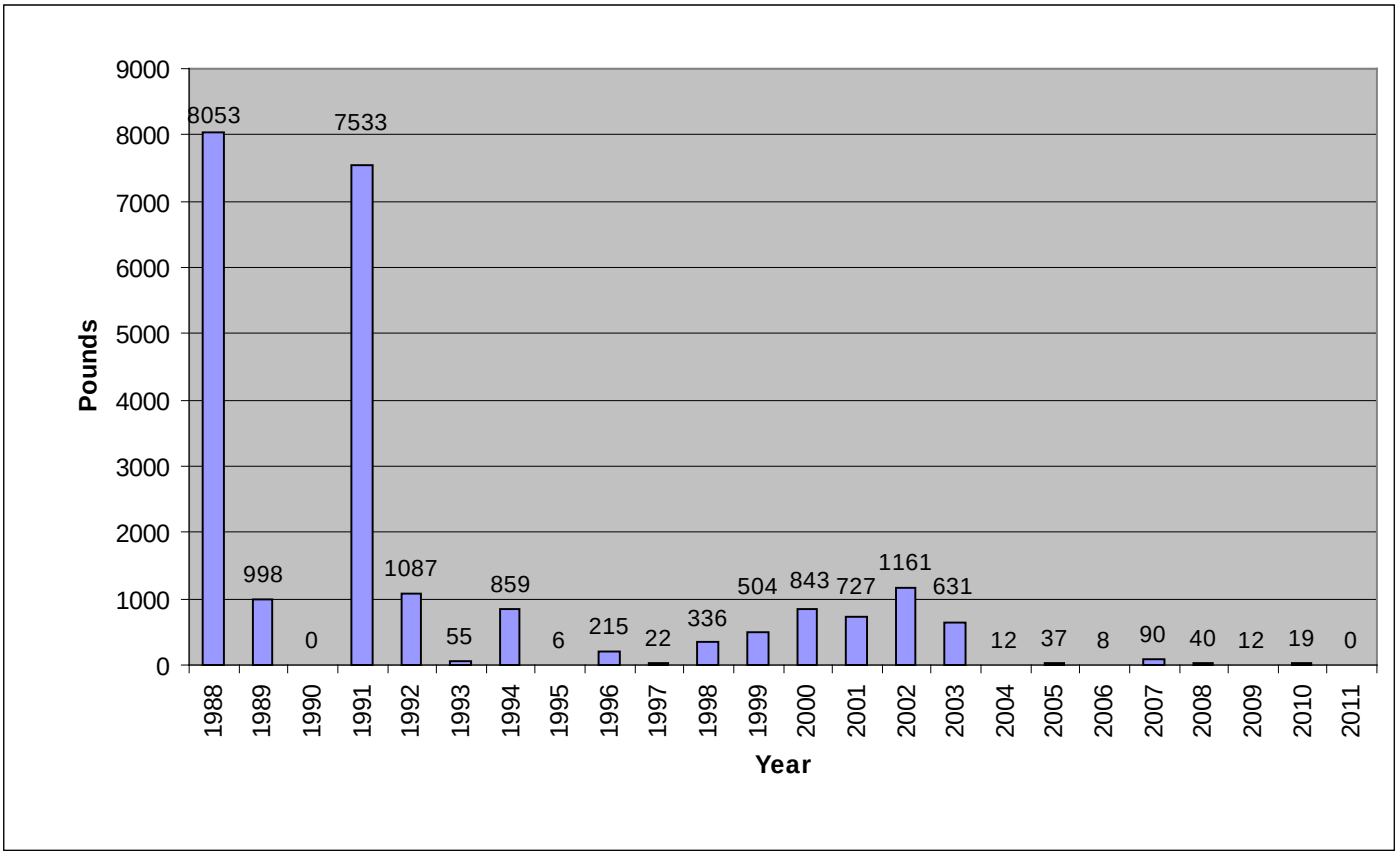


Figure 1. Commercial red drum landings reported to Maryland DNR, 1988-2011.

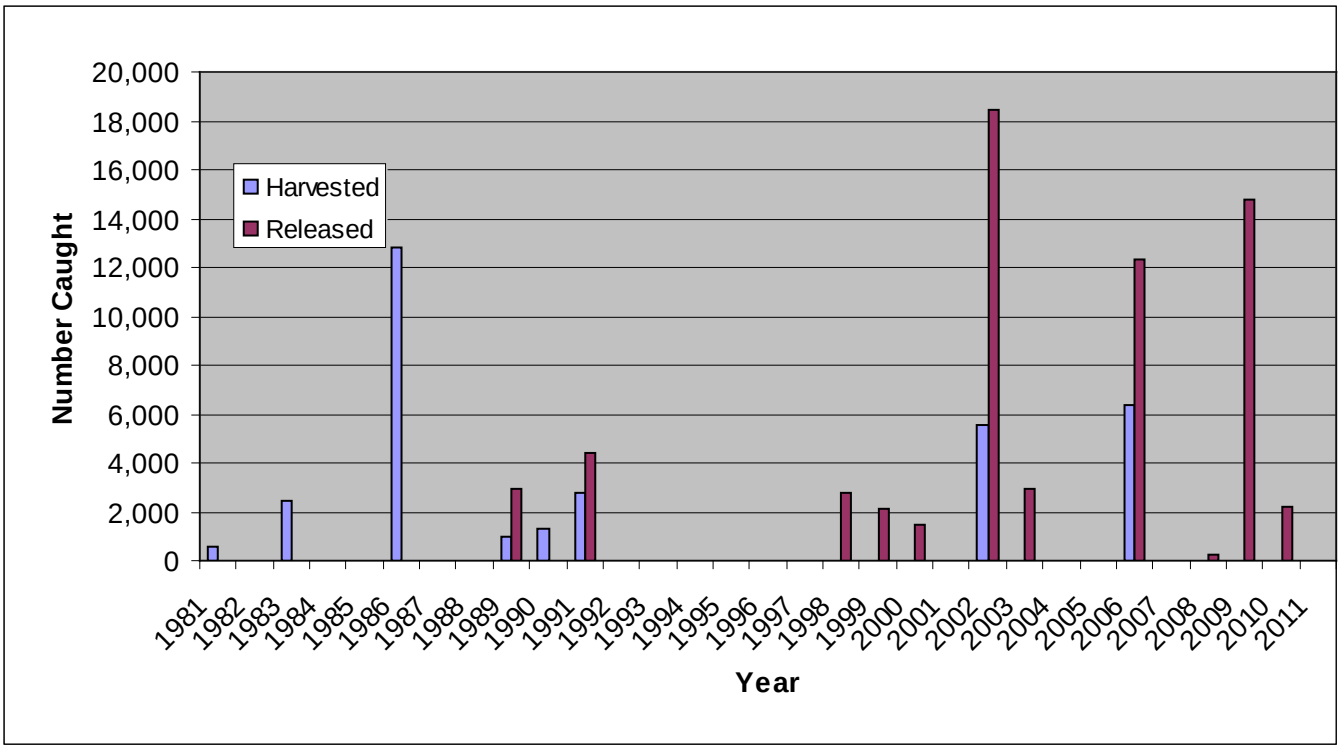


Figure 2. MRIP harvest and release estimates for red drum in Maryland, 1981-2011.

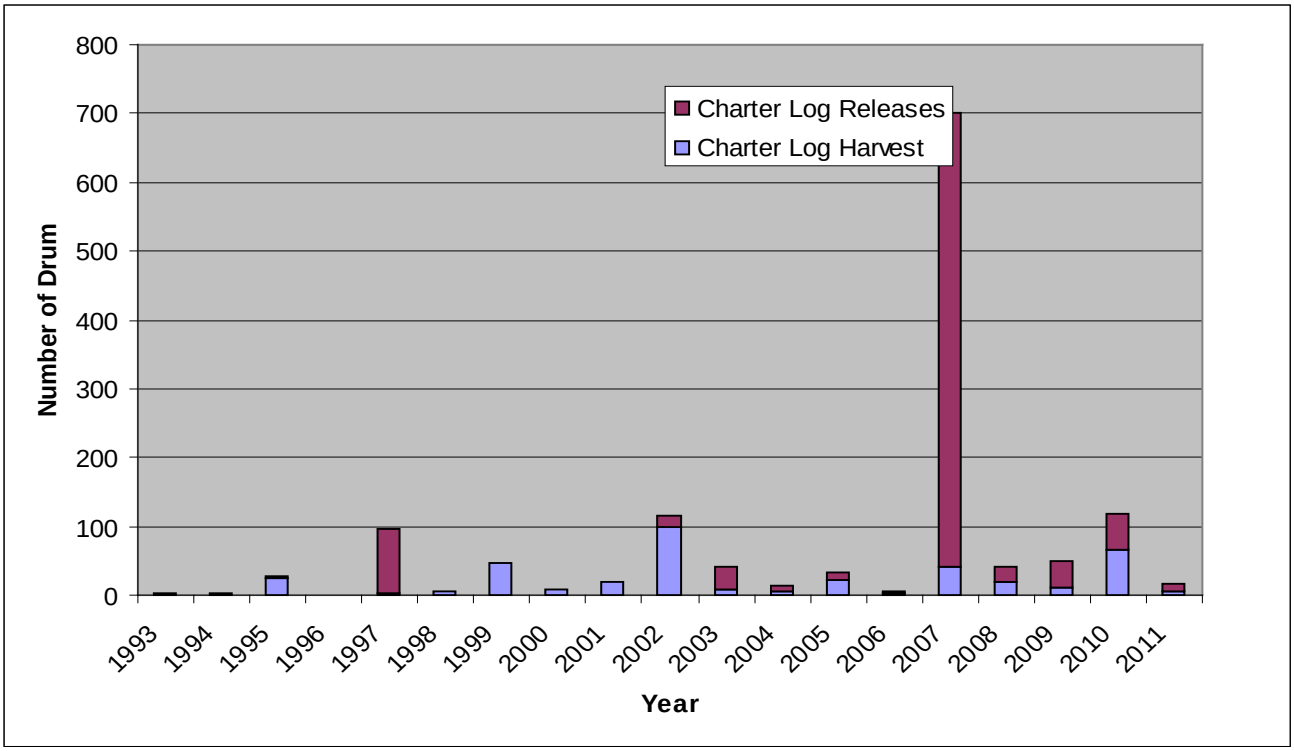


Figure 3. Red drum harvest and releases reported from Maryland's charter boat fishery in numbers, 1993-2011.

MARYLAND - VIRGINIA
"Potomac River Compact of 1958"
Potomac River Fisheries Commission
222 Taylor Street
P.O. BOX 9
Colonial Beach, Virginia 22443
TELEPHONE: (804) 224-7148 · (800) 266-3904 · FAX: (804) 224-2712

Red Drum
2011 Annual State Report
June 1, 2012

I. Introduction

Commercial harvest of red drum in the Potomac River in 2011 was negligible.

II. Request *de minimis,* where applicable – N/A

III. Previous calendar year's fishery and management program

A. Fishery Dependent Monitoring

Red drum are taken as incidental harvest in the commercial pound net fishery. The PRFC has a mandatory commercial harvest daily reporting system that collects harvest as well as discards or releases. There were no reported releases of red drum in 2011 in the Potomac River.

B. Fishery Independent Monitoring - None.

C. Regulations in Effect

The commercial red drum season was January 1st through December 31st. There was an 18" minimum and a 25" maximum size limit and the catch limit was five fish per person per day.

The recreational red drum season was January 1st through December 31st. There was an 18" minimum and a 25" maximum size limit and the catch limit was five fish per person per day.

D. Characterization of Harvest

Commercial red drum harvest in 2011 was reported as 3 pounds, from the PRFC's mandatory commercial harvest reporting system. The pound net fishery effort is expressed as "PN fished days' which is one pound net fished one time.

Harvest (lbs)	Gear	Effort
3	Pound Net	1 PN fished day

We know of no directed recreational harvest of red drum. The PRFC 'adds-on' to the MRFSS phone survey. Results are reported and included as either MD or VA catch.

Tables and Figures:

Table 1 shows the annual Potomac River commercial harvest of red drum from 1988 through the reporting year.
Table 2 shows commercial pound net harvest of red drum and CPUE.

Figure 1 illustrates the Potomac River commercial red drum harvest.
Figure 2 illustrates the Potomac River commercial red drum harvest and pound net CPUE.

IV. Planned management programs for the current calendar year

A. Summarize regulations that will be in effect

The pound net fishery is a limited entry fishery, with a maximum of 100 licenses on a total riverwide basis. A pound net is defined as a fixed fishing device with one head, trap or pound measuring not less than 20 feet square at the surface of the water on the channel end and only one leader or hedging not less than 300 feet in length. We have no specific regulations for red drum.

New regulation effective January 1, 2011 – all pound nets in the Potomac River must have at least six PRFC approved fish cull panels properly installed in each pound net to help release undersize fish. These fish cull panels were being used by some pound netters on a voluntary basis prior to 2011.

B. Monitoring programs - We will continue our mandatory daily harvest reports.

C. Any changes from the previous year. - None

Table 1

Potomac River Commercial Harvest (lbs) for Red Drum by gear type

				LBS LANDED		
YEAR	POUND NET	HOOK & LINE	MISCELLANEOUS	IN MARYLAND	IN VIRGINIA	TOTAL
1988	2	-	-	-	2	2
1989	86	-	-	-	86	86
1990	86	-	-	29	57	86
1991	3,808	-	-	1,033	2,775	3,808
1992	196	-	-	-	196	196
1993	-	-	-	-	-	0
1994	-	-	-	-	-	0
1995	-	-	-	-	-	0
1996	-	-	-	-	-	0
1997	4	-	-	-	4	4
1998	-	-	-	-	-	0
1999	186	-	-	-	186	186
2000	10	-	-	-	10	10
2001	191	-	-	-	191	191
2002	285	23	2	2	308	310
2003	47	-	-	-	47	47
2004	-	-	-	-	-	0
2005	51	-	-	-	51	51
2006	2	-	-	-	2	2
2007	58	-	-	-	58	58
2008	69	-	-	-	69	69
2009	157	-	-	35	122	157
2010	22	-	-	-	22	22
2011	3	-	-	-	3	3

Table 2

Potomac River Commercial Red Drum Pound Net Harvest & CPUE

Year	Pounds	Effort	CPUE
1988	2	18	0.11
1989	86	78	1.10
1990	86	88	0.98
1991	3,808	304	12.53
1992	196	62	3.16
1993			
1994			
1995			
1996			
1997	4	8	0.50
1998			
1999	186	44	4.23
2000	10	3	3.33
2001	191	10	19.10
2002	310	75	4.13
2003	47	5	9.40
2004			
2005	51	5	10.20
2006	2	1	2.00
2007	58	12	4.83
2008	69	13	5.31
2009	157	27	5.81
2010	22	5	4.40
2011	3	1	3.00

Figure 1

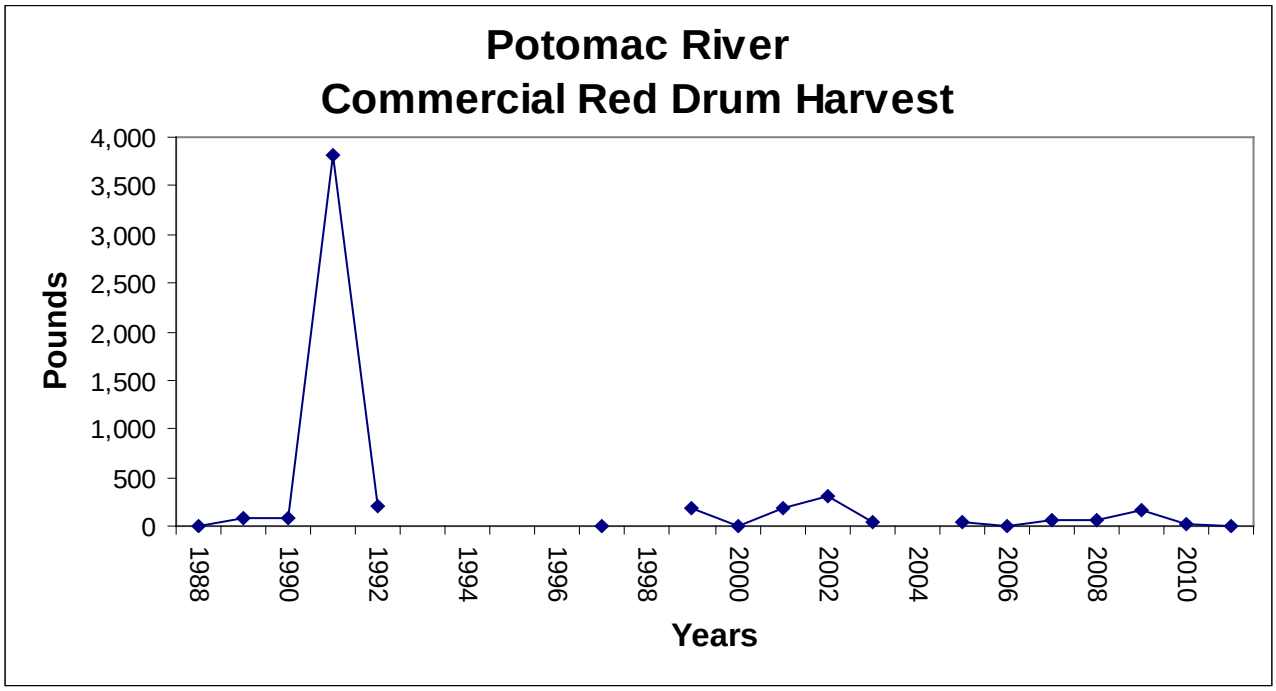
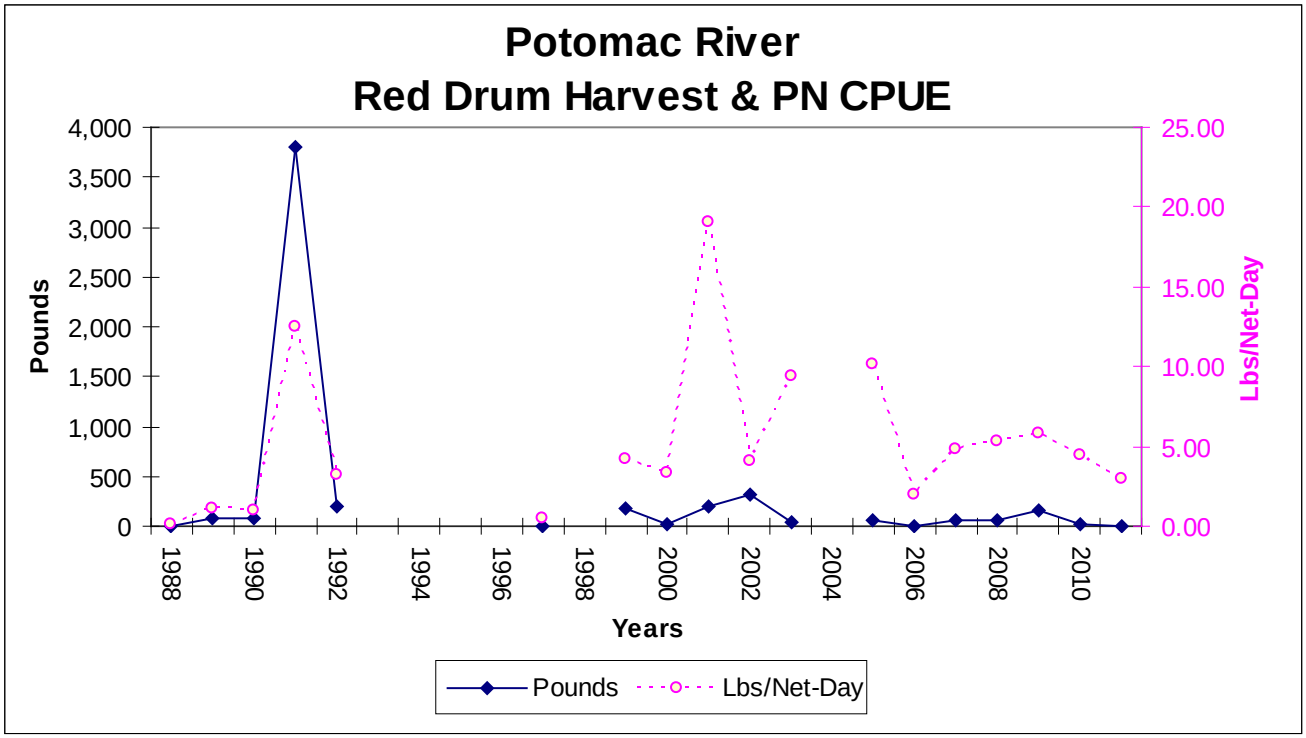


Figure 2



COMMONWEALTH of VIRGINIA

Marine Resources Commission
2600 Washington Avenue
Third Floor
Newport News, Virginia 23607

Douglas W. Domenech
Secretary of Natural Resources

Jack G. Travelstead
Commissioner

June 29, 2012

MEMORANDUM

TO: Danielle Chesky, FMP Coordinator
Atlantic States Marine Fisheries Commission

FROM: Joseph Grist, Senior Manager, Fisheries Management Division
Virginia Marine Resources Commission

SUBJECT: Virginia's 2012 Compliance Report for Red Drum

I. Introduction

From spring to fall, red drum *(Sciaenops ocellatus)* is harvested in the coastal waters of Virginia. Any fisherman in Virginia, whether recreational or commercial, is limited to the possession of three red drum and a slot limit of 18.0 through 26.0 inches in total length (Regulation 4 VAC 20-280-10 et seq.).

The Virginia Marine Resources Commission (VMRC) currently operates a mandatory reporting program (Regulation 4 VAC 20-610-10 et seq.) for recording commercial harvests and obtains recreational fisheries data from the Marine Recreational Fisheries Statistics Survey (MRFSS), the Marine Recreational Information Program (MRIP) the Virginia Game Fish Tagging Program (VGFTP), and the Marine Sportfish Collection Project (MSCP).

II. Request for *de minimis* status

The VMRC does not request *de minimis* status for this fishery.

III. Previous Calendar Year's Fishery and Management Program

a. Activity and results of Fishery Dependent Monitoring

1. Commercial fishery dependent monitoring

Due to the small number of red drum captured by the commercial fishery, sampling opportunities are limited. In the past eight years, the total number of red drum sampled ranged from a high of 113 in 1999 to a low of six in 2004. In 2011, there were seven fish sampled from haul seines, gill nets, and pound nets. Ages of those

fish, determined by otolith techniques, ranged from zero to one year of age (two 0-year olds, five 1-year olds). All samples taken outside of the legal harvest ranges were obtained from confiscated fish.

2. Recreational fishery dependent monitoring

The Virginia Game Fish Tagging Program (VGFTP) began in 1995 and is jointly operated by the VMRC and the Virginia Institute of Marine Science (VIMS). It utilizes trained volunteers who target and tag several primary species depending on data needs for the current year. Since 1995, volunteer participants in the VGFTP have tagged 28,635 red drum and recorded 3,269 recaptures (11.4% recapture rate). Volunteer anglers with the VGFTP tagged and released 1,219 red drum in 2011 with 282 recaptures (23.1% recapture rate).

Starting in June 2007 VMRC began the Marine Sportfish Collection Project (MSCP). This project involves freezers placed at various high frequency weigh stations, where recreational anglers can voluntarily leave whole fish or carcasses. Red drum is one of the species the project collects. Zero recreational red drum samples were collected through the MSCP during 2011. This is the first time since 2006 that no recreational samples have been collected through the MSCP.

b. Activity and results of fishery independent monitoring

There were no fishery independent monitoring programs during the 2011 calendar year.

c. Copy of regulations in effect for 2011

See addendum 1.

d. Harvest for commercial and recreational fisheries

Virginia's commercial fishery harvested 4,369 pounds of red drum in 2011. This is an increase compared to the previous year (Table 1). Gill nets accounted for the greatest percentage of the red drum harvest in 2011, with 95% of the total harvest. Hook-and-line, pound nets, and haul seines, combined, accounted for 5%, of the 2011 harvest (Table 2).

According to the MRIP, the 2011 estimated recreational harvest of red drum in Virginia totaled zero fish, with an additional 61,330 fish released (Table 3). In Virginia, saltwater anglers took 2,898,696 trips in 2011 for all species (Table 4).

Currently, no fishery-independent sampling programs or estimates of non-harvest loss are available.

e. Review of progress in implementing habitat recommendations

There have not been programs initiated relating specifically to red drum.

IV. 2011 Planned Red Drum Fisheries Management

a. Summarize regulations that will be in effect for 2012

In 2012 the Virginia commercial and recreational fisheries will continue to be constrained by a three-fish possession limit, and it shall be illegal possess any red drum less than 18 in length or greater than 26 inches in length (Regulation 4 VAC 20-280-10 et seq.).

b. Summarize monitoring programs that will be performed

The VMRC will continue to monitor commercial harvests of red drum through the mandatory reporting program and to collect biological data from commercial and recreational fisheries, as well as fishery-independent sampling when possible. The VGFTP will continue to tag red drum in 2012. A yearly summary report, which includes annual data of all tagged and recaptured fish, is available by July 1st.

c. Highlight any changes from the previous year

N/A

Table 1. Virginia commercial harvest of red drum, 1996-2011.

Year	Pounds
1996	2,006
1997	3,638
1998	6,436
1999	10,856
2000	11,509
2001	4,951
2002	7,361
2003	2,716
2004	638
2005	527
2006	2,607
2007	6,505
2008	4,585
2009	8,315
2010	3,634
2011	4,369
Total	80,653

Table 2. Virginia commercial harvest of red drum, by gear, in 2011.

Gear	Pounds
Gill Net, Sink/Anchor, Other	4,155
Hook-and-Line, Pound Net, Haul Seine (Combined)*	214
Total	4,369

*Data combined due to confidentiality rules.

Table 3. Virginia red drum recreational harvest (A+B1) and releases (B2) 1996-2011.

	Harvest (Type A +B1)				Released Alive (Type B2)	
Year	Number	PSE [Number]	Weight (lb)	PSE [Weight]	Number	PSE [Number]
1996	572	99.2	1,513	0	2,424	46.3
1997	1,920	62.3	1,810	0	109,754	36.1
1998	13,070	30.2	34,861	34.4	93,660	22.3
1999	12,425	38.7	92,794	39.1	232,893	31.4
2000	22,603	27.8	95,596	28.8	196,541	35.7
2001	6,967	39.8	51,890	16.9	30,365	31.1
2002	49,795	22.8	155,212	24.7	801,239	14.7
2003	13,607	38.1	57,213	39.3	43,379	40.1
2004*	5,005	84.7	32,415	78.9	33,777	33.4
2005	2,766	101.6	7,624	101.6	28,351	44.9
2006	12,665	62.8	21,039	61.4	185,859	41.6
2007	46,405	28.8	209,248	30.4	110,566	28.9
2008	20,847	29	72,510	29.1	236,787	18.5
2009	38,670	27.2	148,573	31.2	178,396	44.1
2010	11,076	32.3	40,323	31.7	28,580	32.2
2011	0	.	0	.	61,330	61.8

*2004-2011 taken from MRIP data

Table 4. Total number of recreational trips taken in Virginia, all species combined, 1996-2011.

Year	Trips
1996	2,743,913
1997	3,712,259
1998	2,956,024
1999	2,693,943
2000	3,390,719
2001	4,128,242
2002	3,253,844
2003	3,113,183
2004*	3,663,879
2005	3,964,054
2006	3,787,818
2007	3,511,486
2008	3,498,928
2009	3,047,706
2010	2,596,891
2011	2,898,696
Average	3,310,099

*2004-2011 taken from MRIP data

Addendum 1.

VIRGINIA MARINE RESOURCES COMMISSION
"PERTAINING TO SPECKLED TROUT AND RED DRUM"
CHAPTER 4VAC20-280-10 ET SEQ.

PREAMBLE

This chapter establishes minimum size limits for the taking or possession of speckled trout and red drum (channel bass) by commercial and recreational fishermen. The minimum size limits will protect the spawning stocks and increase yield in the fishery. This chapter is designed to assure that Virginia is consistent with all federal and interstate management measures for speckled trout and red drum. In addition, this chapter establishes a commercial landings quota for speckled trout. The goal of these management measures is to perpetuate the speckled trout and red drum resources in fishable abundance throughout their range and generate the greatest possible economic and social benefits from their harvest and utilization over time.

This chapter is promulgated pursuant to authority contained in §§28.2-201 and 28.2-304 of the Code of Virginia. This chapter amends and re-adopts, as amended, previous Chapter 4VAC20-280-10 et seq., which was adopted December 17, 2002, and effective January 1, 2003. The effective date of this chapter, as amended, is April 1, 2011.

4VAC20-280-10. Purpose.

The purpose of this chapter is to protect and rebuild the spawning stocks of speckled trout and red drum, minimizing the possibility of recruitment failure, and to increase yield in their fisheries.

4VAC20-280-20. Definitions.

The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise.

"Red drum" means red drum or channel bass and is any fish of the species *Sciaenops ocellatus*.

"Speckled trout" means speckled trout or spotted seatrout and is any fish of the species *Cynoscion nebulosus*.

4VAC20-280-30. Size limits.

A. It shall be unlawful for any person to take, catch, or possess any speckled trout less than 14 inches in length provided however, the catch of speckled trout by pound net or haul seine may consist of up to 5.0%, by weight, of speckled trout less than 14 inches in length.

B. It shall be unlawful for any person fishing with hook-and-line, rod-and-reel, or hand-line to possess more than one speckled trout 24 inches or greater from December 1 through March 31 of any year.

C. It shall be unlawful for any person to take, catch or possess any red drum less than 18 inches in length or greater than 26 inches in length.

D. Length is measured in a straight line from tip of nose to tip of tail.

4VAC20-280-40. Possession limits.

A. It shall be unlawful for any person fishing with hook-and-line, rod-and-reel, or hand-line to possess more than 10 speckled trout from April 1 through November 30 in any year.

B. It shall be unlawful for any person fishing with hook-and-line, rod-and-reel, or hand-line to possess more than 5 speckled trout from December 1 through March 31 in any year.

C. It shall be unlawful for any person to possess more than three red drum.

4VAC20-280-50. Commercial landings quota.

A. For each 12-month period of September 1 through August 31, the commercial landings of speckled trout shall be limited to 51,104 pounds.

B. When it is projected that the commercial landings quota will be met by a certain date within the above period, the Marine Resources Commission will provide notice of the closing date for commercial harvest and landing of speckled trout during that period; and it shall be unlawful for any person to harvest or land speckled trout for commercial purposes after such closing date for the remainder of that period.

4 VAC 20-280-60. Penalty.

A. Pursuant to §28.2-304 of the Code of Virginia, any person violating any provision of 4VAC20-280-40 C of this chapter shall be guilty of a Class 1 misdemeanor.

B. Pursuant to §28.2-903 of the Code of Virginia, any person violating any provision of this chapter other than 4VAC20-280-40 C shall be guilty of a Class 3 misdemeanor, and a second or subsequent violation of any provision of this chapter, other than 4VAC20-280-40 C, committed by the same person within 12 months of a prior violation is a Class 1 misdemeanor.

North Carolina's 2011 Red Drum Compliance Report
June 27, 2012

1. Introduction

The management goal for Amendment 2 is to achieve and maintain the Optimum Yield for the Atlantic coast red drum fishery as the amount of harvest that can be taken by U.S. fishermen while maintaining the Spawning Potential Ratio (SPR) at or above 40%. The regulatory requirements of Amendment 2 state that:

1) All states are required to implement red drum harvest controls (e.q. bag and size limits) in order to achieve a minimum 40% SPR.
2) A maximum size limit of 27 inches or less shall be implemented for all red drum fisheries.
3) All states must maintain current or more restrictive commercial fishery regulations for red drum, i.e. no relaxation of current fisheries management measures.

In August 2003, the ASMFC South Atlantic Board approved a motion to allow the NC Fisheries Director to raise or lower the daily commercial trip limit while maintaining the 250,000 pound harvest cap. More recently in 2009, the Board honored a request by North Carolina to monitor the annual 250,000 lb commercial cap based on a September 1 to August 31 fishing year. Changes to the fishing year were considered resource equivalent and were made to be consistent with existing monitoring conducted by North Carolina under the NC Red Drum FMP.

The 250,000 pound harvest cap was modified to 224,142 lb in 2010/2011, as part of a payback for a commercial overage in 2009/2010. The 2010/2011 harvest was 126,185 lb. The commercial harvest for calendar year 2011 was 91,951 lb. No regulatory changes occurred during 2011.

2. Current/Previous Years Management Program in North Carolina

a. Activity and results of fishery dependent monitoring.

Commercial red drum landings and the red drum commercial cap are monitored through the North Carolina trip ticket program. Under this program licensed fishermen can only sell commercial catch to licensed NCDMF fish dealers. The dealer is required to complete a trip ticket every time a licensed fisherman lands fish. Trip tickets capture data on gears used to harvest fish, area fished, species harvested, and total weights of each individual species. Trip tickets are submitted to NCDMF on the 10th of the month following the month in which the landings occurred. Landings are available approximately 30-45 days after they are submitted from the dealers.

Commercial fishing activity is monitored through fishery dependent sampling conducted under Title III of the Interjurisdictional Fisheries Act and has been ongoing since 1982. Data collected in this program allow the size and age distribution of red drum to be characterized by gear/fishery. Predominant fisheries for red drum include estuarine gill nets, long haul seine/swipe nets, pound nets, and beach haul seines. (Assessment of North Carolina Commercial Finfisheries, North Carolina Department of Environment and Natural Resources, Division of Marine Fisheries Completion Reports 1984-2007; NCDMF unpublished data). Over the past decade gill nets have been the dominant gear used for red drum accounting for >90% of the overall harvest. In 2011, 90.8% of the red drum harvest

was taken in gill nets, followed by pound nets with 6.6%. In all, 647 red drum, primarily from set gill nets, were measured from the commercial fishery (Table 1). With the 18 to 27 inch slot limit on harvest, nearly all landings were from age one and two year old fish.

Recreational fishing activity is monitored through the Marine Recreational Information Program (MRIP).

b. Activity and results of fishery independent monitoring.

NCDMF has conducted a juvenile red drum seine survey on an annual basis since 1991 (Survey of Population Parameters of Marine Recreational Fishes in North Carolina, North Carolina Department of Enviroment and Natural Resources, Division of Marine Fisheries Completion Report, Grant F-42, 1991-2011). The seine survey provides an index of abundance for juvenile (age-0) red drum with sampling occurring from September through November. The relative abundance of juvenile red drum is highly variable with both high and low abundance occurring in recent years. In 2011, 1,260 juvenile red drum were taken in 116 seine samples for an overall state mean CPUE of 10.9. The 2011 overall mean CPUE was higher than 2010 (4.7) and was higher than the long term average of the survey (5.8; Figure 1). Information gathered from this survey is currently used as an input parameter in the ASMFC Atlantic coast red drum stock assessment.

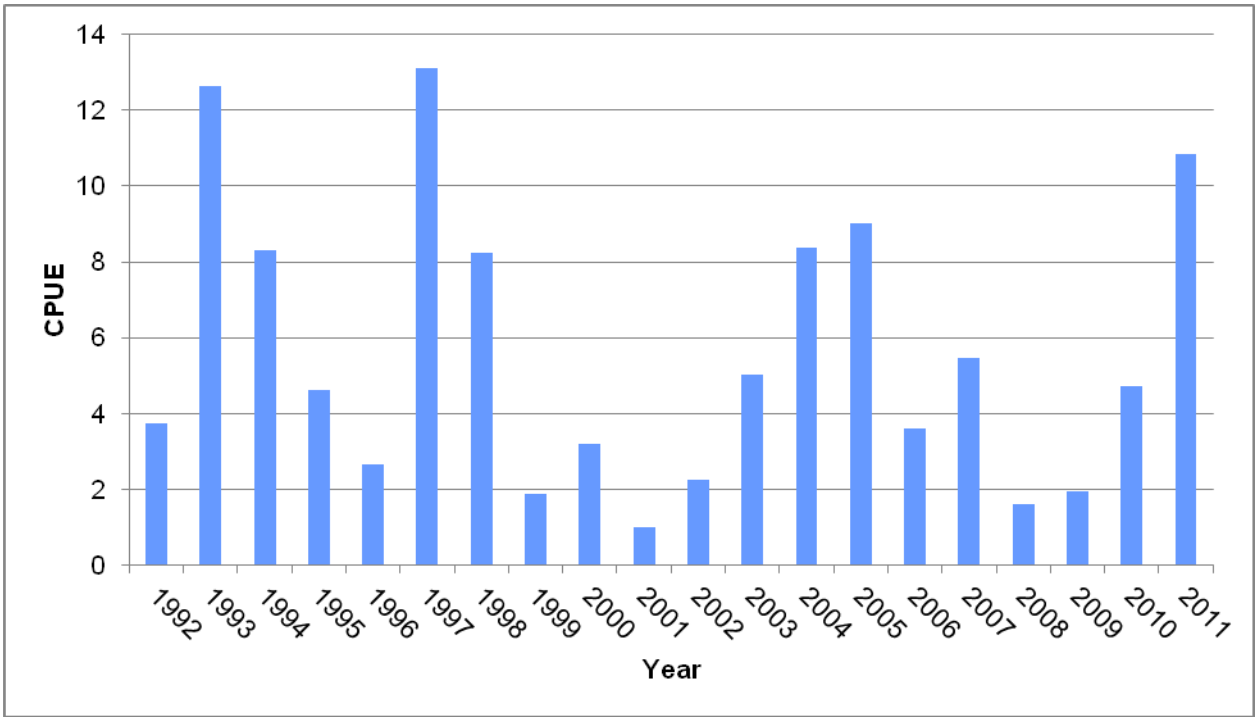


Figure 1. The annual juvenile (age-0) abundance index from the North Carolina Red Drum Juvenile Seine Survey for the period of 1992-2011.

A fishery independent gill net survey was initiated by the NCDMF in May of 2001. The survey utilizes a stratified random sampling scheme designed to characterize the size and age distribution for key

estuarine species in Pamlico Sound (Pamlico Sound Independent Gill Net Survey, North Carolina Department of Environment and Natural Resources, Division of Marine Fisheries Completion Report, Grant F-70, 1991-2011). By continuing a long-term database of age composition and developing an index of abundance for red drum this survey will help managers assess the red drum stocks without relying solely on commercial and recreational fishery dependent data. Additionally, data collected is used to help improve bycatch estimates, evaluate the success of management measures, and look at habitat usage. The overall red drum CPUE was 0.43 (n=100) in 2011, the lowest in the past ten years (Figure 2). The low CPUE is likely reflective of low recruitment during 2008 and 2009 as reflected by age-0 red drum in the red drum seine survey. The age composition for 2011 is currently unavailable but lengths from the survey are generally representative of ages 1-4. During 2011, the average fork length was 22 inches with a range of 11 to 47 inches.

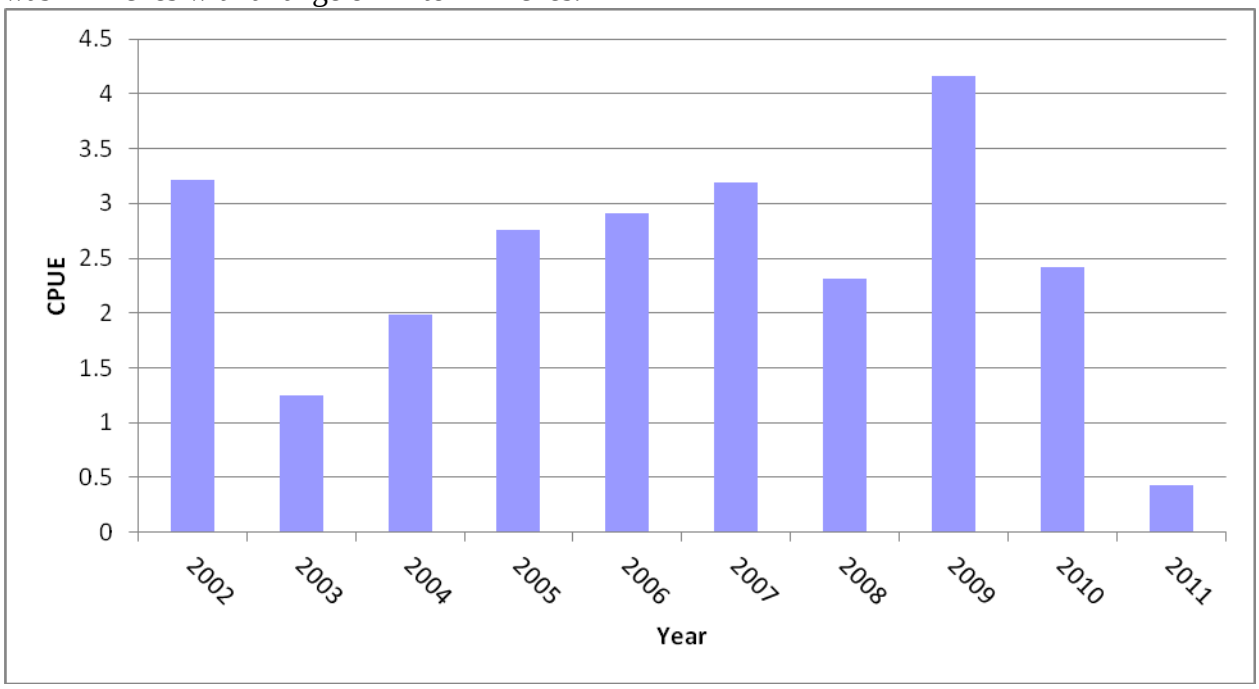


Figure 2. Annual weighted red drum CPUE (ages combined) from the North Carolina Pamlico Sound Independent Gill Net Survey.

North Carolina initiated an adult red drum longline survey in 2007 that was continued in 2011. The primary objective of the survey is to develop a sampling protocol that provides a fisheries independent index of abundance for adult red drum occurring in North Carolina. Initially, all sampling was non-random (exploratory) and was used to standardize proper methods and effort. From July through October, sampling was standardized and a stratified random sample design was implemented. A standard sample consisted of 1,500 meters of mainline set with 100 gangions placed at 15 meter intervals (100 hooks/set). Soak times were approximately 30 minutes. All random sampling took place in Pamlico Sound. During the 2011season, 406 red drum were captured out of 72 stratified random sets (5.64 red drum per set) which is slightly above the time series average of 5.32 red drum per set. Red drum ranged from 29 to 48 inches fork length with most being >40 inches in length. Sampling is scheduled to continue in 2012.

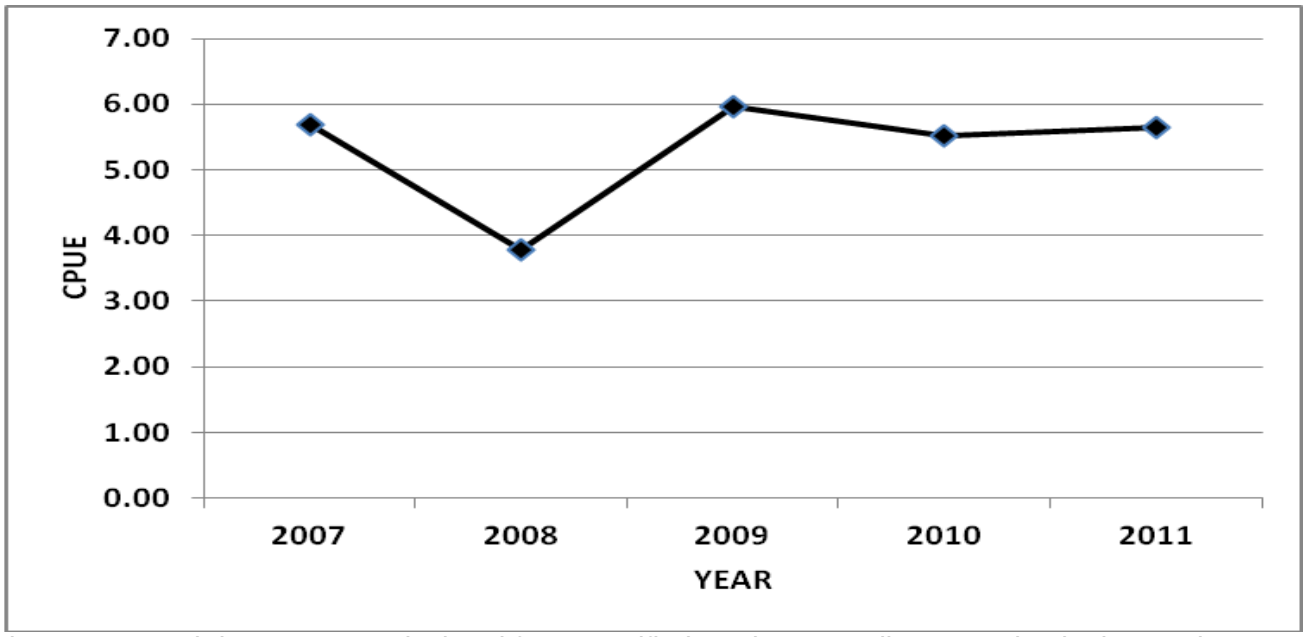


Figure 3. Red drum CPUE calculated from stratified random sampling occurring in the North Carolina Red Drum Longline Survey for the period of 2007 to 2011.

c. Regulations in effect for North Carolina in 2011.

15A NCAC 03M .0501 RED DRUM

(a) It is unlawful to remove red drum from any type of net with the aid of any boat hook, gaff, spear, gig, or similar device.
(b) It is unlawful to take or possess red drum taken by any boat hook, gaff, spear, gig, or similar device.
(c) It is unlawful to possess red drum less than 18 inches total length or greater than 27 inches total length.
(d) It is unlawful to possess more than one red drum per person per day taken-by hook-and-line or for recreational purposes.
(e) The annual commercial harvest limit (September 1 through August 31) for red drum is 250,000 pounds. The annual commercial harvest limit is allotted in two periods: September 1 through April 30 at 150,000 pounds, and May 1 through August 31 at 100,000 pounds plus any remainder from the first period allotment. Any annual commercial harvest limit that is exceeded one year will result in the poundage overage being deducted from the subsequent year's commercial harvest limit and the Fisheries Director shall adjust the period allotments accordingly. If the harvest limit is
projected to be taken in any period, the Fisheries Director shall, by proclamation, prohibit possession of red drum taken in a commercial fishing operation for the remainder of that period.
History Note: Authority G.S. 113-134; 113-182; 113-221; 113-221.1; 143B-289.52;
Eff. January 1, 1991;
Amended Eff. March 1, 1996; October 1, 1992; September 1, 1991;
Temporary Amendment Eff. May 1, 2000; July 1, 1999; October 22, 1998;
Amended Eff. April 1, 2001;
Temporary Amendment Eff. May 1, 2001;
Amended Eff. April 1, 2009; October 1, 2008; August 1, 2002.

15A NCAC 03M .0512 COMPLIANCE WITH FISHERY MANAGEMENT PLANS
(a) In order to comply with management requirements incorporated in Federal Fishery Management Council Management Plans or Atlantic States Marine Fisheries Commission Management Plans or to implement state management measures, the Fisheries Director may, by proclamation, take any or all of the following actions for species listed in the Interjurisdictional Fisheries Management Plan:
(1) Specify size;
(2) Specify seasons;
(3) Specify areas:
(4) Specify quantity;
(5) Specify means and methods; and
(6) Require submission of statistical and biological data.
(b) Proclamations issued under this Rule shall be subject to approval, cancellation, or modification by the Marine Fisheries Commission at its next regularly scheduled meeting or an emergency meeting held pursuant to G.S. 113-221.1.
History Note: Authority G.S. 113-134; 113-182; 113-221; 113-221.1; 143B-289.4;
Eff. March 1, 1996;
AMENDED EFF. OCTOBER 1, 2008.

Under proclamation authority the NCDMF Director maintains the following restrictions:

- Commercial trip limit - set by NCDMF Director at a level that reduces discard mortality while still maintaining harvest below the commercial cap. Currently set at 10 fish per day.
- 50% bycatch rule - no person may possess red drum incidental to any commercial fishing operation unless the weight of the combined catch of finfish (excluding menhaden) exceeds the weight of the red drum retained.

The intent of these rules are to prevent the targeting of red drum and to only allow red drum harvest incidental to legitimate fisheries where red drum bycatch is most common.

d. Harvest by commercial (gear type), recreational, and non-harvest losses (when available)

Commercial landings in 2011 were 91,951 lb.; a decrease from 2010 landings (231,760 lb.) and lower than the ten-year mean of 152,150 lb (2002-2011). Gill nets dominated the catch in 2011 accounting for 90.8% of the commercial landings (Table 1).

Table 1. North Carolina's 2011 red drum commercial harvest (lb. and percent by gear) and the number of individuals measured by NCDMF.

Gear	Landings (lb)	%	Number Measured
Beach Seine	210	0.23%	6
Long Haul/Seine Net	1,404	1.53%	4
Pound Net	83,488	6.57%	44
Gill Net	6,037	90.80%	593
Other Gears	812	0.88%	0
Total	91,951	100%	647

In addition to calendar year landings, North Carolina monitors the 250,000 lb annual cap based on a fishing year starting September 1 and ending August 31. For the 2008/2009 fishing year, landings totaled 148,875 lb. During the 2009/2010 fishing year, North Carolina exceeded the 250,000 lb annual cap with landings totaling 275,858 lb. Under the compliance requirements of Amendment 2, North Carolina is required to reduce the 250,000 lb cap in 2010/2011 by 25,858 lb. Landings during the 2010/2011 fishing year totaled 126,185 lb.

Table 2. North Carolina's annual commercial harvest based on a fishing year beginning September 1 and ending August 31.

Fishing Year	Landings (lb)	Annual Cap
2009/2010	275,858	250,000
2010/2011	126,185	224,142*
2011/2012	TBD	250,000

*adjusted to pay back overage in 2009/2010 fishing year

Recreational landings in 2011 were 212,245 lb.; a decrease from 2010 landings (314,724 lb) and near the ten-year average (2002-2011 – 223,967 lb).

Non-harvest loss in the commercial fishery is currently not fully known. The primary loss is likely due to undersized bycatch of red drum in the gill net fishery. Small mesh gill nets (<5 inch stretch mesh) select for red drum less than 18" TL and are a significant source of the bycatch mortality, particularly in months when water temperatures are high. In October of 1998, as part of the state NC Red Drum FMP, measures were taken requiring the attendance of small mesh gill nets (<5" stretch mesh). These regulations required the attendance of small mesh gill nets from May 1 through October 31 in areas known to be critical for juvenile red drum. Amendment 1 to the NC Red Drum FMP, passed in 2008, takes further action by extending small mesh gill net attendance rules through November.

Adequate NCDMF observer data is available to provide some estimates of estuarine gill net discards from 2004 to 2006. Total dead red drum discards were estimated by multiplying the total number of trips for a fishery (NC Trip Ticket Program) by the CPUE (number or weight of dead red drum discards per observed trip) of that fishery. Overall, estimates of dead discards ranged from 20,142 lb in 2004 to 68,997 lb in 2005 and represented between 20% and 39% of the total commercial removals by weight. The majority of the dead discards were undersized (<18 inch). By number, commercial dead red drum discards represented approximately 50% of the total commercial removals. Estimates from this study were included in the most recent stock assessment (SEDAR 18).

Non-harvest loss in the recreational fishery is primarily the result of regulatory discards. The total number of releases in the recreational fishery is estimated through the MRIP. The most recent stock assessment assumes an 8% mortality rate for all releases. With the low recreational bag limit of one fish and an increasing trend in the catch and release fishery, non-harvest losses are a significant contributor to the overall fishing mortality in the red drum fishery. Beginning in 2009, as a result of Amendment 1 to the NC Red Drum FMP, barbless circle hooks along with short leaders and fixed sinkers will be required in the

Pamlico Sound adult red drum fishery from July through September. The rule will apply to anyone fishing at night using natural bait and a hook size greater than 4/0. This rule is designed to reduce deep hooking which traditionally was common in this fishery. Research has shown that for this fishery, circle hooks rigged in this fashion can significantly reduce discard mortality.

e. Review of progress in implementing habitat recommendations.
No new implementation at this time.

3. Planned management program for the current calendar year.
   a. Regulations Summary
   In compliance with the requirements of the ASMFC Red Drum Amendment 2 FMP North Carolina will continue under its current management program.
   North Carolina's current regulations:
   - Maintain a prohibition on the possession of all red drum <18 inches or >27 inches TL
   - Maintain the current recreational bag limit at 1 fish
   - Maintain a commercial trip limit along with the 50% bycatch requirement. Director maintains the authority to adjust the trip limit as necessary to avoid commercial cap overages and to prevent excessive discards.
   - Maintain commercial landings within the commercial cap (250,000 lb) based on a September 1 to August 31 fishing year and implement management measures that require that any annual overages in the commercial cap be deducted from the following year (see 3c. below).
   - Require attendance of small mesh gill nets from May 1 through November 30 in order to help reduce non-harvest mortality in the commercial fishery (See Section 2d).

   b. Current monitoring programs outlined in Section 2a,b will be continued.

   c. Changes from previous year.
   No changes planned.

South Carolina

Red Drum Fishery and Management Program

Compliance Report for the Year 2011

DNR

July 1, 2012

Prepared by: Steve Arnott and Erin Levesque
Marine Resources Division
South Carolina Department of Natural Resources

I. INTRODUCTION

The red drum, ***Sciaenops ocellatus***, is one of the most sought after recreational fish species along the South Carolina coastline, with a status equivalent to that of striped bass in the mid-Atlantic and southern New England states.

Anglers of all modes (beach-bank, private-rental boats, charter boats) target a variety of sizes of red drum in both the estuarine and near-shore coastal waters of South Carolina. Initial analysis of fishery dependent and fishery independent data in the 1980s showed that red drum were overfished along the southeastern coast of the U.S., with survival of young fish until sexually maturity considered insufficient to ensure a 'healthy' spawning stock biomass.

A series of management measures were put in place to reduce fishing mortality to levels that permitted sufficient escapement of sub-adults into the adult spawning population. These included US Exclusive Economic Zone regulations that banned both recreational and commercial harvest, and South Carolina state water regulations that banned commercial harvest and imposed new recreational regulations, including seasonal gear restrictions and size, slot and bag limits.

The history of changes in the management measures passed by the South Carolina legislature and signed into law by the governor was summarized in a document entitled "Marine Resources Division Background Information Related to Red Drum Creel Limits" by David Whitaker and Mel Bell on April 27, 2005. The authors indicated that South Carolina's creel and size limits for red drum have changed at least seven times within the past 20 years (**Table 1**). A full history of regulations for all the Atlantic states is available from the SEDAR 18 stock assessment[1].

The 2006 session of the South Carolina legislative process resulted in the most recent changes to red drum regulations within the state. These modification were implemented in 2007 and increased the bag limit to three fish per angler per day (previously two), but decreased the maximum allowable size by one inch, with a new slot of 15 to 23 inches total length (previously 15 to 24 inches).

II. REQUEST FOR *de minimis*

Not applicable.

III. PRESENT RED DRUM FISHERY AND MANAGEMENT PROGRAM

A. Fishery Dependent Monitoring:

[1] SEDAR18-DW03 Atlantic States Red Drum Management Overview

Current fishery dependent monitoring only covers the recreational sector, since commercial harvest was banned when red drum was designated a state game fish in 1987.

Fishery dependent data on red drum are available through the SCDNR State Finfish Survey (SFS), the National Marine Fisheries Service's Fisheries Statistics Division, and a SCDNR-managed mandatory trip reporting system for licensed charter boat operators.

Additional biological data are obtained by SCDNR staff from (i) angler-donated fish carcasses left at prescribed freezer drop-off locations (freezer program), (ii) measurements and biological samples taken from fish at tournament weigh-ins (although most tournaments have now eliminated red drum as a target species), (iii) fishery-based evaluation of the impacts of SCDNR's experimental red drum stocking program, and (iv) public participation in various SCDNR tag-return programs.

State Finfish Survey (SFS) - The SFS is a fishery dependent survey designed to collect catch, effort and length data for certain species taken by private boat anglers in either South Carolina state, or adjacent federal waters and are available from 1988 – the present. Data are not collected for other fishing modes, e.g. shore based anglers.

Among the 2,009 angler parties that were interviewed during 2011, 519 (26%) of them said they were targeting red drum. These 519 parties had a statewide mean catch rate of 0.88 red drum per fishing hour and caught a total of 1,706 red drum, of which 499 (29.2%) were harvested. Together, all of the 2,009 angler parties that were interviewed (including those not targeting red drum) caught 2,761 red drum, harvesting 797 (28.9%) of them.

Marine Recreational Statistics Survey (MRFSS) – According to the catch data time series database of the National Marine Fisheries Service's Fisheries Statistics Division[1], the total number of red drum caught in South Carolina (all areas combined) by all modes of anglers in 2011 was 825,794, with 751,968 (83.4%) caught in inland waters (creeks, estuaries, etc), 60,230 (12.8%) caught within 3 miles of shore, and 13,596 (3.8%) caught further than 3 miles offshore.

Of the 825,794 red drum that were caught, 664,291 (80.4 %) were released alive and 161,503 (19.6 %) were harvested (**Fig. 1A**). These values were calculated using the new MRIP method[2], but they are reasonably similar to values calculated using the previous MRFSS methodology (total catch of 776,542, with 628,744 released alive and 147,798 harvested).

[1] http://www.st.nmfs.noaa.gov/st1/recreational/queries/index.html, accessed 25 June 2012.
[2] See http://www.countmyfish.noaa.gov/aboutus/downloads/MRIP_Catch_Estimation_Presentation_(Jan_26).pdf

The National Marine Fisheries Service estimated that 1.8 million marine recreational angler fishing trips occurred in South Carolina during 2011, which is lower than the 2.3 million trips estimated for 2010 (**Fig. 1B**). Most of the trips occurred in inland waters (1.1 million trips, or ~63%), followed by coastal waters (≤ 3 miles from shore; 0.6 million trips, or ~34%) and then offshore waters (> 3 miles from shore; 53 thousand, or ~3 %).

Charter Vessel Trip Reporting – Since 1993, the Statistics Section of the Office of Fisheries Management at SCDNR has implemented a mandatory trip reporting system for participants in the charter boat fishery. The main target species of the inshore component of the charters is red drum. There has been a continued growing trend in the number of captains that carry patrons to fish for red drum, with a total of 586 vessels being licensed in 2011. The fishery is conducted throughout the year, and more charter boat activity occurs in the central and southern parts of the state (from Winyah Bay south) because there are many more large bays and sounds that provide appropriate habitat for red drum. The fishery targets a wide range of sizes, with the majority of the catch being sub-adult red drum (< 5 years old). Most captains either require, or strongly suggest, the practice of catch and release, even for legal-size fish.

Based on mandatory logbook reports, a total of 4,852 charter boat trips took place during 2011. These trips caught 43,578 red drum (mean of 9.0 red drum per trip), of which 40,256 (92.2%) were released alive, 56 (0.1%) were released dead and 3,322 (7.6%) were harvested.

Prior to 1999, only the total release rate was recorded (i.e. alive + dead releases). However, over the last decade the release rate of live red drum by charter boats has remained fairly steady (mean = 93.9%), as has the release rate of dead red drum (mean = 0.1%).

South Carolina Marine Game Fish Tagging Program – Since 1974, the SC Marine Resources Division's Office of Fisheries Management has operated a tagging program that trains volunteer anglers to deploy external tags in marine game fish. The program serves as useful tool for promoting the conservation of marine game fish, and partnering with the public has proved an efficient and cost-effective way of collecting data that incorporates anglers into the data acquisition process. In 1993, anglers tagging red drum were asked to concentrate their efforts on fish over 18 inches and to not place tags in smaller fish. Before this request, red drum of all sizes were routinely tagged.

Historically, red drum has accounted for most of tagging activity by volunteer anglers. During 2011, the species accounted for 49% of all fish tagged, with tags being applied to 368 red drum ranging from 13-46 inches total length (mean = 24.4 inches). There were 56 reported recaptures of red drum during 2011, of which 53 (95%) were released alive.

B. Fishery Independent Monitoring:

SCDNR uses three fishery independent surveys to monitor the abundance of red drum in South Carolina waters. These include an electrofishing survey, which catches juvenile and sub-adult red drum in upper estuary nursery habitats; a trammel net survey, which catches larger sub-adults in lower estuary habitats; and a longline survey, which catches large adult fish in deeper sounds and outside the estuaries. Nearly all of the captured red drum are released alive, with those ≥ 350 mm receiving an external tag. Scales are removed from some of the red drum caught in the electrofishing and trammel net surveys for ageing purposes, and some red drum are sacrificed for other biological sampling purposes (otolith ageing, reproductive assessment, mercury analysis, parasite studies, etc). A small fin clip (< 1 cm^2) is also taken from every captured red drum and archived by the SCDNR Genetics Laboratory. The data from the surveys is used for examining aspects such as abundance indices, age and sex composition, age and size at maturity, movement patterns and genetic structure of the population.

Data from all of the SCDNR fishery independent surveys describe below were incorporated into the most recent stock assessment of red drum[1].

Inshore Fisheries Program – Electrofishing Survey

The electrofishing survey began in late 2000. It uses a monthly stratified random sampling design and covers five strata, including the Combahee and Edisto Rivers (entering ACE Basin, St. Helena Sound), the Ashley and Cooper Rivers (entering Charleston Harbor) and the Waccamaw River (entering Winyah Bay). A total of 3,098 random electrofishing sets have been made in these five strata since January 2001, with 263 occurring in 2011.

The mean catch per unit effort (CPUE) of red drum in the electrofishing survey was generally similar in 2011 compared with 2010, with a slight decrease in two of the strata (Cooper and Ashley Rivers) and a slight increase in the remaining three strata (**Fig. 2**).

Inshore Fisheries Program – Trammel Net Survey

The trammel survey began in late 1990 and uses a stratified random sampling design. It initially covered two strata (Charleston Harbor and the lower Wando River), but has expanded over time and presently covers seven monthly strata and two quarterly strata. The monthly strata include ACE Basin, lower Ashley River, lower Wando River, Charleston Harbor, Muddy/Bulls Bay, Cape Romain and Winyah Bay. The quarterly strata include Colleton River and Broad River, both located within Port Royal Sound in the southern part of the state. A total of 14,605 random trammel sets have been made in these nine strata since January 1991, with 974 occurring in 2011.

[1] SEDAR 18.

Compared with 2010, the mean CPUE of red drum declined in seven of the nine trammel net strata during 2011, but increased slightly in Charleston Harbor and Colleton River (**Fig. 3**).

Previous analyses have shown that annual changes in red drum CPUE fluctuate in a synchronous manner across estuaries along the South Carolina coastline[1]. With this assumption, and after standardizing CPUE from each stratum onto a common scale (**Fig. 4**), it is evident that red drum in South Carolina generally declined during the 1990s before increasing again from 2000-2004 (**Fig. 4A**) due to a series of strong year classes. Since then, the population has undergone another, smaller oscillation, as shown in both the trammel (**Fig. 4A**) and electrofishing (**Fig. 4B**) surveys. Note, however, that the trend for the electrofishing survey tends to precede that of the trammel net survey by one year because it generally catches younger fish (electro vs. trammel 1yr lagged cross-correlation; $r = 0.90$, $p < 0.001$; **Fig. 4C**).

Inshore Fisheries Program - Ocean Bottom Longline Survey

The longline survey began in 1994. At that time, it used one-mile, 120 hook sets and visited a relatively small number of fixed stations. The data were used for determining preliminary estimates of adult red drum abundance, as well as size and (partial) age composition.

In July 2007, the longline survey was redesigned. It now uses shorter gear (third-mile, 40 hook sets) and covers many more stations (>340) spread over a larger extent of the South Carolina coastline. Stations are sampled using a stratified random design to give more rigorous estimates of fish abundance. Sampling occurs in August – December in four strata located off Winyah Bay, Charleston Harbor, St Helena Sound and Port Royal Sound. A total of 1,986 random sets have been deployed by the new longline survey since the July 2007, with 366 of them occurring in 2011.

Annual mean CPUE data from the longline survey are presented in **Fig. 5**, but with only five years of information, it is too soon to explore any meaningful long-term trends in the adult red drum population.

A portion of adult red drum caught by the longline surveys has been sacrificed to determine age composition of the adult stock. Prior to 2007, only some small size classes of red drum were selectively sacrificed, but since then, all size classes have been taken (as requested by the Atlantic States Marine Fisheries Commission). Under the new system, a total of 327 fish have been sacrificed (57 in 2011). The year class composition of these fish (n = 270 aged, to date) is shown in **Fig. 6**, and further analysis has shown that a significant correlation

[1] Arnott et al. (2010) *Mar Ecol Prog Ser*. 415: 221-236.

exists between these adult year class data and the corresponding juvenile recruitment indices determined from the electrofishing and trammel net surveys[1].

Inshore Fisheries Program – Tagging Studies

The trammel net, electrofishing and longline surveys each have a tag-recapture component. The tagging data have been used for a variety of purposes, such as estimating angler tag-reporting rates[2], calculating mortality[3] and examining movement patterns.

By the end of 2011, the trammel net survey had tagged a total of 45,056 red drum, including 2,094 that were tagged during 2011. The electrofishing survey has tagged far less red drum because it was initiated more recently and catches fewer red drum per year, especially in the size range big enough to tag (i.e. ≥ 350 mm). From 2001 – 2011, the electrofishing survey tagged a total of 5,844 red drum, including 594 in 2011.

Historically, the sub-adult, shallow water component of the red drum population was also tagged by some other (now discontinued) surveys. These included a stop net survey, which tagged a total of 4,608 red drum between 1986 and 1998, and a separate trammel net survey (different net dimensions), which tagged a total of 3,665 red drum between 1994 and 1997.

By the end of 2011, the above-mentioned sub-adult tagging programs, together, resulted in a total of 26,303 reported tag recapture events, including 12,229 recaptures by recreational anglers and 14,074 recaptures by SCDNR surveys. During 2011 alone, 909 reported tag recapture events occurred, with 604 by anglers and 305 by SCDNR surveys.

The SCDNR tag recapture data indicate that there has been a notable long-term increase in the proportion of fish released alive, rising from < 10% in the mid-1980s to ~80% in recent years. This trend closely reflects those seen from other data sources, including MRFSS, the SCDNR State Finfish Survey and the Charter Vessel Trip Reporting program (**Fig 7**). The release rate from chartered trip tends to be higher than other sectors, which is not surprising since the charter captains encourage their customers to release fish. Nevertheless, the general increase in release rates over time is probably due to a combination of regulatory changes (**Table 1**), as well as a shift in fishing "ethic" among the angling public. This shift is evident from the fact that there has also been an increase in the percent of legal-sized fish released alive, despite more stringent harvest regulations. The observed change in angler behavior over time implies that inadvertent mortality

[1] Arnott et al. (2010) *Mar Ecol Prog Ser*. 415: 221-236.
[2] Denson et al (2002) *Fish Bull.* 100: 35-41.
[3] Latour et al (2001) *N Am J Fish Manag.* 21: 733-744.

caused by hook injuries[1] may be of increasing in importance for managing and assessing the population.

The old and new longline surveys have also tagged adult red drum since 1994. Many of the tagged fish have been multiple-tagged using a combination of two types of plastic darts, a stainless steel dart tag and a PIT tag (passive integrated transponder tag). The purpose of the multiple tag study was to examine tag retention[2]. A number of tagged fish have also been injected with tetracycline to validate annulus formation in the adult otoliths.

The old long-line survey that ran from 1994-2006 (1 mile, 120 hook sets) tagged 2,703 adult red drum. Since the inception of the randomly stratified longline survey in 2007 (third mile, 40 hook sets), 1,043 red drum have been tagged, including 329 in 2011. During 2011, 35 of the longline-tagged red drum were recaptured by the longline survey itself, and a further 10 were recaptured by recreational anglers. All (100%) of these angler recaptures were released alive.

Data from all these surveys have been archived in electronic databases and have been made available to biologists during assessments.

C. Red Drum Regulations in Effect:

South Carolina's current red drum-related fisheries regulations meet all management plan compliance criteria listed in Section 5.1.1.1 of Amendment 2 to the ASMFC Interstate Fishery Management Plan for Red Drum (June 2002).

Harvest controls – Recreational anglers are limited to three fish per person per day in state waters and no harvest in federal waters. Red drum must be between 15 and 23 inches total length to be retained. Fish may be taken by rod and reel year-round, or by gigging November through March. The state's combination of bag limit and size limits are within the recommended range.

Maximum size limit – Retained red drum must be no greater than twenty-three inches total length, which is below the ASMFC-required a maximum of twenty-seven inches or less.

Commercial restrictions – Commercial harvest of red drum is prohibited in South Carolina, as is the sale of native caught fish.

D. Red Drum Harvest:

Recreational harvest data - The National Marine Fisheries Service's Fisheries Statics Division estimated that the recreational harvest of red drum during 2011

[1] Vecchio & Wenner, 2007. *N Am J Fish Manag*. 27: 891–899.
[2] Hendrix, C. (2010). Master's Thesis, College of Charleston, Charleston, SC.

was 161,503 fish, which was lower than the 172,708 estimated for 2010 (see section A, above, and **Fig. 1**).

Commercial harvest data – Not applicable.

Non-harvest losses – Non-harvest-related losses undoubtedly occur in red drum stocks, whether from by-catch associated with other legitimate fisheries, or losses related to dramatic weather events. No specific program currently exists to track such losses.

E. Progress Related to Habitat Recommendations:

Through about three decades of experience, monitoring and research, SCDNR scientific and fisheries management staff has amassed a significant amount of general and specific knowledge pertaining to the different habitats of importance to the success of red drum in the state's estuarine and nearshore coastal waters. Much of this knowledge has been acquired through the significant efforts of the various on-going fishery independent and fishery dependent programs previously described. However, no specific section, program or project within the SCDNR has been assigned responsibility for oversight or implementation of the specific red drum-related habitat conservation and restoration recommendations listed in Section 4.4 of Amendment 2 to the Red Drum Plan. Current habitat development-focused projects, such as those responsible for the restoration of estuarine oyster reefs[1], may provide some benefit to juvenile and sub-adult red drum in some areas, but evaluation of any potential benefit is needed before this can be fully substantiated.

IV. PLANNED RED DRUM MANAGEMENT PROGRAM FOR 2012

A. Summary of Regulations:

No changes foreseen

B. Planned Monitoring Activities:

Fishery dependent and fishery independent red drum-related monitoring activities described for 2011 will continue in 2012 without significant change.

C. Changes from 2011

No changes in South Carolina's current overall red drum management program or strategy are anticipated to occur in 2012.

[1]South Carolina Oyster Reef Restoration Program, http://score.dnr.sc.gov/

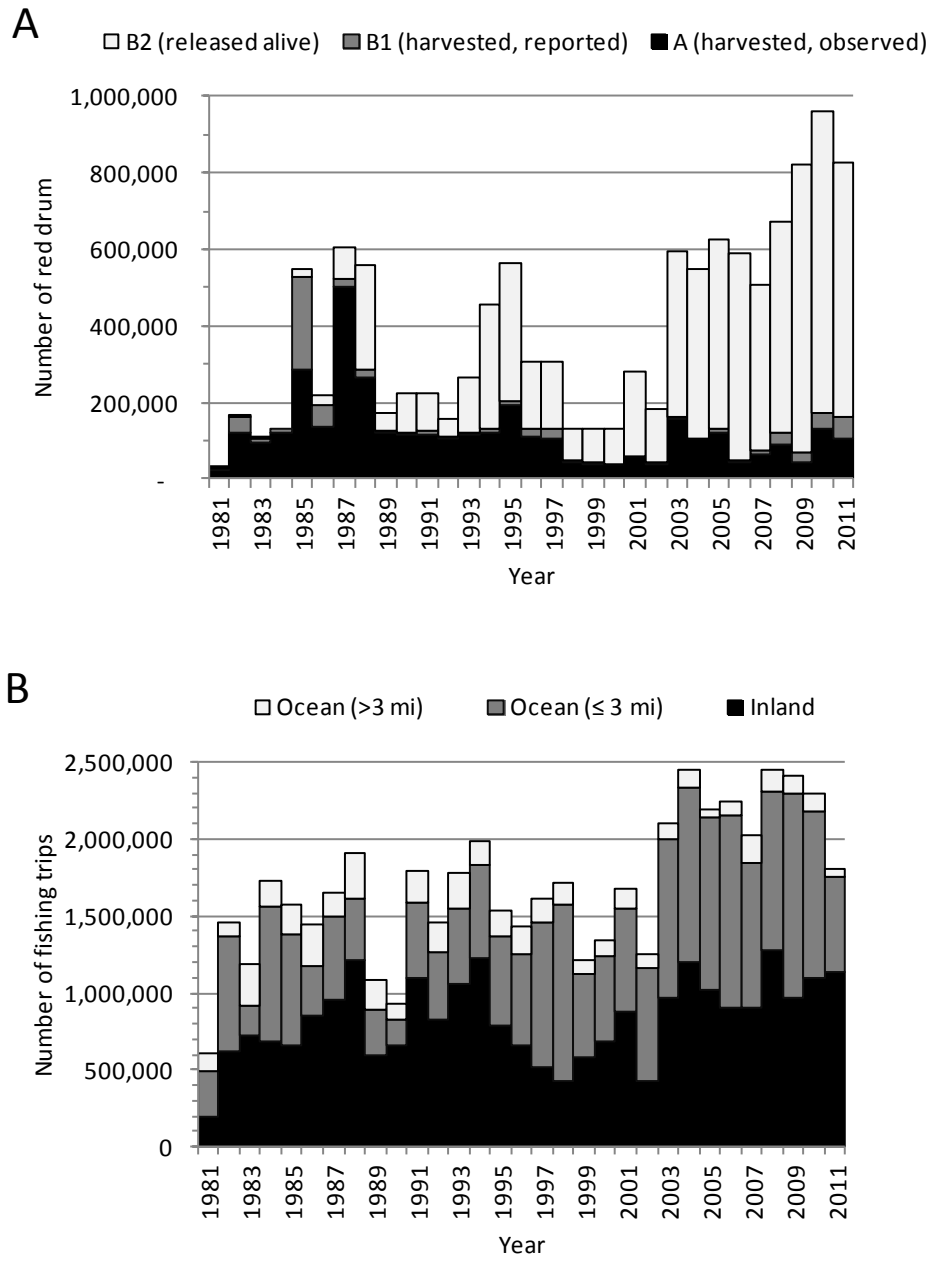
V. PLAN SPECIFIC REQUIREMENTS

Not applicable.

Table 1. History of changes in red drum size and bag limits in the South Carolina recreational fishery.

Year	Action
1986	No creel limit; Minimum size 14 inches TL, June 1- Sept. 1; May keep one fish per day greater than 32 inches TL
1987	Game fish status (no commercial harvest); Creel limit set at 20 fish per day; May keep one fish per day greater than 32 inches TL
1988	14-inch TL minimum, June 1 to October 1; 20 fish creel, one fish greater than 32 inches
1990	Creel limit is 20 fish per day; Slot limit of 14 to 32 inches TL established; May keep one fish greater than 32 inches TL in State Waters; So. At. Fish. Mgt Council prohibits retention of red drum in Federal Waters
1991	Creel limit reduced to 5 fish per day; Slot limit remains at 14-32 inches TL; May keep one fish greater than 32 inches TL
1993	Creel limit remains at 5 fish per day; Slot limit is changed to 14 to 27 inches TL; No larger fish may be retained.
2001	Creel limit is reduced to 2 fish per day; Slot limit slot is modified to 15 to 24 inches TL.
2007	Creel limit is raised to 3 fish per day; slot limit is modified to 15 to 23 inches TL

Fig. 1. (**A**) Annual estimates of the number of red drum caught in South Carolina since 1981, by disposition. (**B**) Annual estimates of the number of fishing trips per year in South Carolina, by area. (Note: "Inland" refers to brackish creeks, estuaries, bays, sounds, etc.). Data are from the National Marine Fisheries Service, Fisheries Statistics Division[1].



[1] http://www.st.nmfs.noaa.gov/st1/recreational/index.html, accessed June 25, 2012.

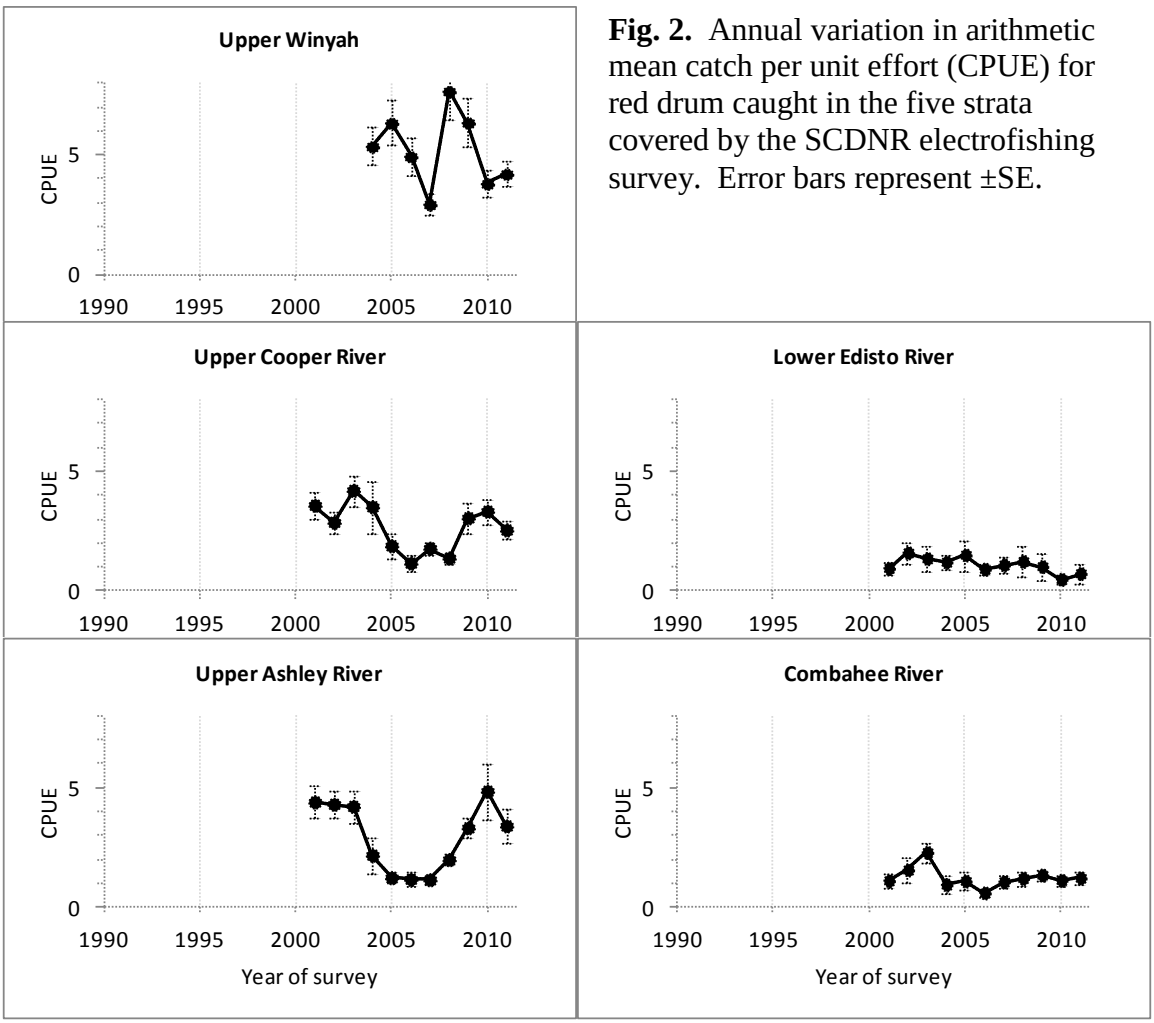


Fig. 2. Annual variation in arithmetic mean catch per unit effort (CPUE) for red drum caught in the five strata covered by the SCDNR electrofishing survey. Error bars represent ±SE.

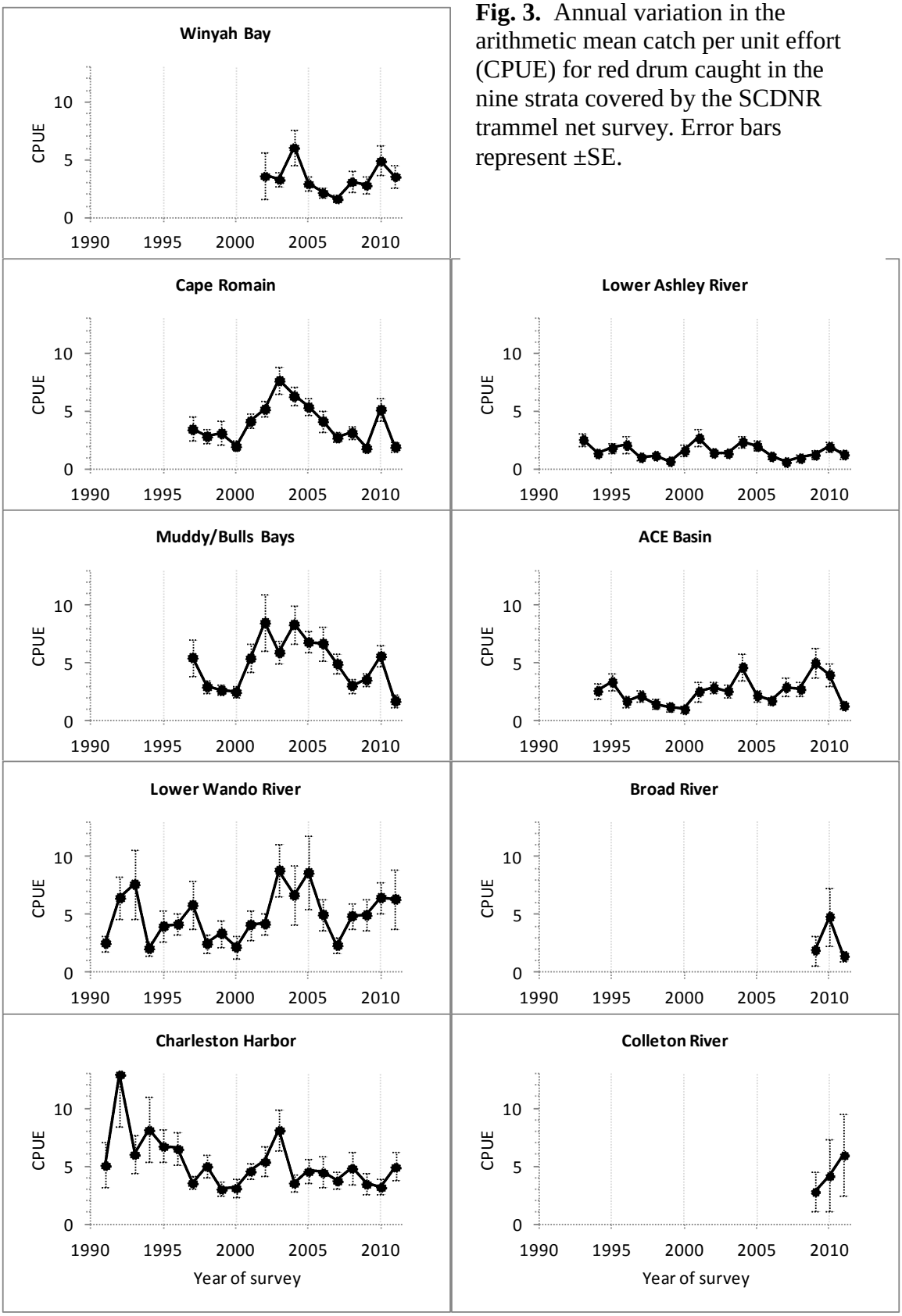


Fig. 3. Annual variation in the arithmetic mean catch per unit effort (CPUE) for red drum caught in the nine strata covered by the SCDNR trammel net survey. Error bars represent ±SE.

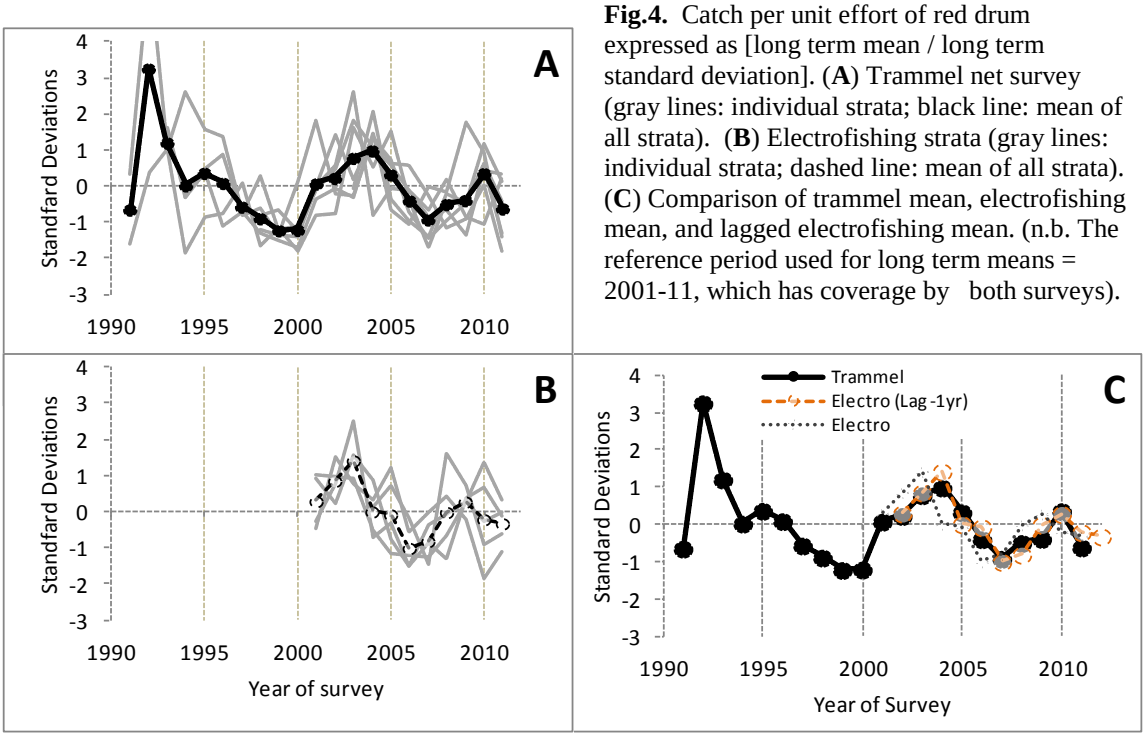


Fig.4. Catch per unit effort of red drum expressed as [long term mean / long term standard deviation]. (**A**) Trammel net survey (gray lines: individual strata; black line: mean of all strata). (**B**) Electrofishing strata (gray lines: individual strata; dashed line: mean of all strata). (**C**) Comparison of trammel mean, electrofishing mean, and lagged electrofishing mean. (n.b. The reference period used for long term means = 2001-11, which has coverage by both surveys).

Fig. 5. Arithmetic mean CPUE (±SE) of adult red drum caught by the SCDNR longline survey during the months August-December. Data are shown for random sets (third-mile, 40 hook sets) in the inner and outer (offshore) sections of each stratum.

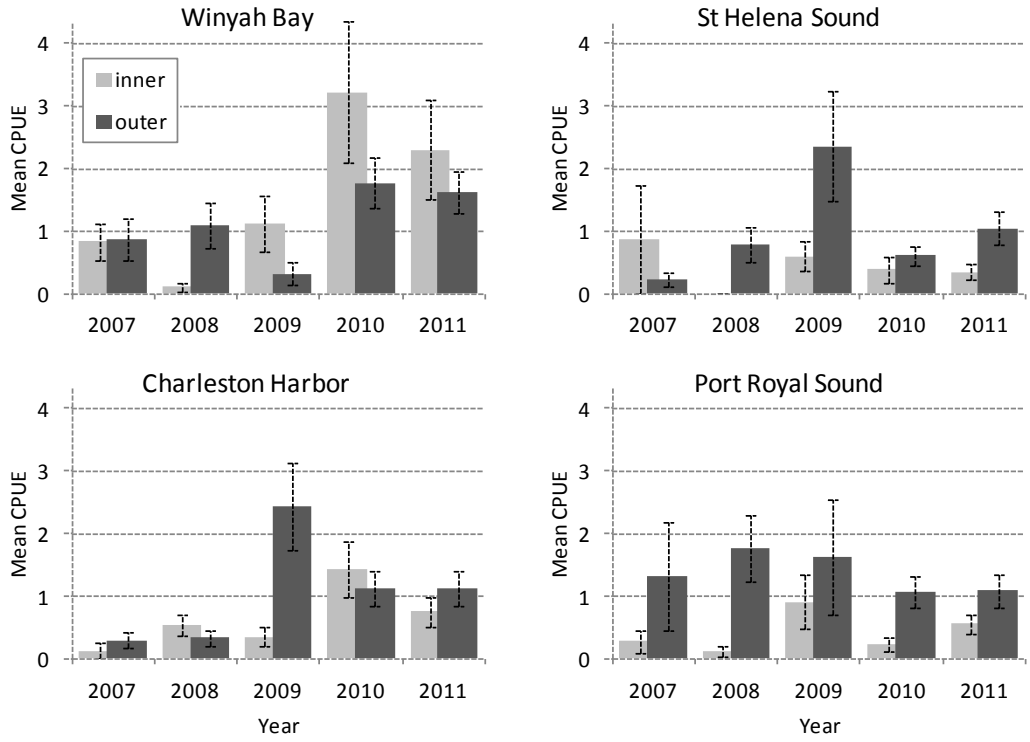


Fig. 6. Year class composition of harvested adult red drum caught by the SCDNR longline survey between 2007 and 2010.

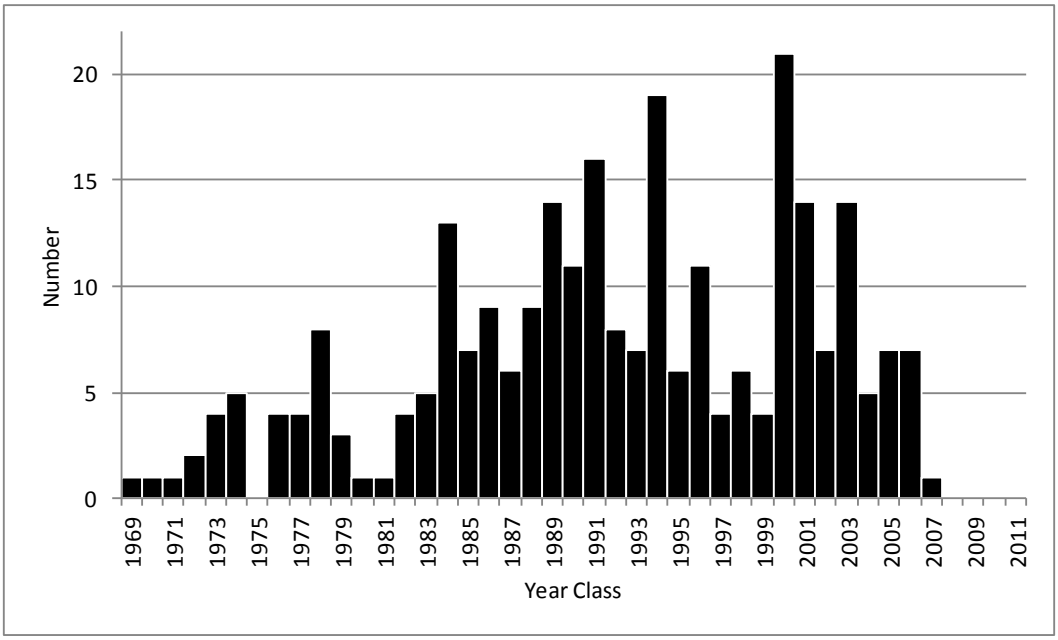
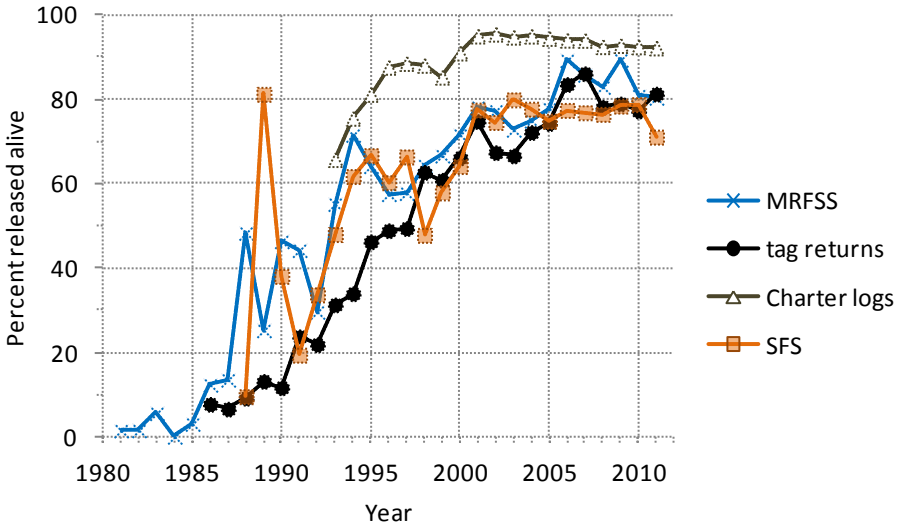


Fig. 7. Estimated annual percentage of B2 red drum (released alive) based on data from MRFSS, tag return information from the SCDNR Inshore Fisheries tagging program, SCDNR charter boat logs, and the SCDNR State Fishery Survey.



Note: The early charter boat data is for releases of both dead and alive red drum. However, since 1999, when records of separate release dispositions have been recorded, the dead component has only accounted for ~0.1% of all releases).

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION

MARK WILLIAMS
COMMISSIONER

A.G. 'SPUD' WOODWARD
DIRECTOR

June 26, 2012

Danielle Chesky
FMP Coordinator
Atlantic States Marine Fisheries Commission
1050 N. Highland St., Suite 200 A-N
Arlington VA, 22201

Danielle:

Please find enclosed Georgia's 2011 Red Drum Compliance Report. Please let me know if you require additional information.

Sincerely,

Kirby Wolfe
Marine Fisheries Section

cc: Pat Geer

ONE CONSERVATION WAY | BRUNSWICK, GEORGIA 31520-8686
912.264.7218 | FAX 912.262.3143 | WWW.COASTALGADNR.ORG

State of Georgia Red Drum Compliance Report for the Year 2011

1. Introduction: Summary of the year: highlight any significant changes in monitoring, regulations, or harvest.

Georgia currently has a size slot limit of 14 to 23 inches total length. The daily bag/creel limit is five fish per person.

Commercial harvest of red drum in Georgia is limited to sales of fish caught within the recreational slot size and bag limit. During 2011, less than three dealers reported landings thereby making that information confidential. Pursuant to the requirement in Section 4.2.6, the Georgia Department of Natural Resources, Coastal Resources Division (CRD) has a trip ticket system for commercial fisheries that conforms to ACCSP standard data element requirements. Through this program, commercial harvest will be continuously monitored.

The red drum is typically ranked among the top three species targeted by recreational anglers in Georgia. As such, recreational harvest will continue to be monitored through the National Marine Fisheries Service's (NMFS) Marine Recreational Information Program (MRIP). CRD has been the contractor for the intercept survey since 2000.

The Marine Sportfish Population Health Survey (MSPHS) uses a variety of sampling gear including trammel nets, gill nets, and hook and line to collect red drum and other fishes of recreational importance from two Georgia estuaries. During 2011, 366 trammel and gill net sets resulted in the capture of 295 red drum.

2. Request for *de minimis*, where applicable.

Georgia is not seeking *de minimis* status at this time.

3. Previous calendar year's fishery and management program

a. Activity and results of fishery dependent monitoring.

Finfish Carcass Recovery

The Marine Sportfish Carcass Recovery Project, a partnership with recreational anglers along the Georgia coast, is used to collect biological data from finfish such as red drum, spotted seatrout, southern flounder, sheepshead, and southern kingfish. Chest freezers were located at public access points along the Georgia coast. Each freezer is clearly marked and contains a supply of plastic bags, pencils, and data card. Anglers place their filleted fish carcasses in plastic bags along with completed data in the freezer. CRD personnel collect the carcasses and process them to determine species, length, and sex. Sagittal otoliths are removed and processed to determine the age of the fish.

In 2011, a total of 2,852 fish carcasses were donated through this program. Of that 19.3 % 551 were red drum with an average length of 403 mm CL (275 mm CL min, 575 mm CL max), which were reported from at least 14 recovery locations.

b. Activity and results of fishery independent monitoring.

The MSPHS is a multi-faceted ongoing process used to collect information on the biology and population dynamics of recreationally important finfish. Currently two Georgia estuaries are sampled on a seasonal basis using entanglement gear. Specific information collected includes: 1) age composition of the stock; 2) size and age at first spawning; 3) ratio of males to females in the stock; 4) movement and/or migration; 5) fishing mortality; 6) growth; and 7) spawning season. To provide age information, otoliths are removed from a size-stratified subsample of the catch from select sampling events.

Gill Nets and Trammel

Between June and August young-of-the-year red drum in the Altamaha river delta and Wassaw estuary are collected using gillnets to gather data on relative abundance and location of occurrence. Centerline lengths are measured in millimeters and total numbers recorded by species. All fish are then released (Table 1).

Between September and November, fish populations in the Altamaha River Delta and Wassaw estuary are monitored using trammel nets to gather data on relative abundance and size composition. Centerline lengths are measured in millimeters and total numbers recorded by species. During fall trammel net sampling size-stratified sub-samples of red drum are used to produce age-specific fishery-independent indices of relative abundance**.** Each fish is measured, weighed, and sex determined. Sagittal otoliths are removed. Whole ovaries are removed from each female, weighed and assigned a level of development based on macroscopic evaluation. All fish not sub-sampled are released.

Table 1. Preliminary annual trammel net and gill net data summarized by estuary, including effort, catch-per-unit-effort and length statistics for red drum, 2011.

Gear	Sound	Effort	CPUE	Total N	CL Mean	Cl Min	CL Max
Trammel	Wassaw	75	1.18	6	370.8	331	404
	Altamaha	75	2.08	29	485.0	310	708
Gill	Wassaw	108	4.32	143	278.3	216	709
	Altamaha	108	3.17	117	293.7	236	483

Evaluation of Spawning Stock

The Coastal Resources Division fishery management plan for red drum recommends a periodic (every 5 years) collection of adult red drum to determine the age structure of spawning stock. The ASFMC Red Drum Technical Committee has validated the collection of adult red drum as a source of supplemental information for the regional red drum assessment. Collections of adult red drum (1988-1991, 2002 and 2007) have been limited to a geographic area extending from Cabretta Inlet on Sapelo Island to Pelican Spit at the ocean terminus of the Hampton River.

Each sampling year, field-work is conducted in the same locations and with identical gear. Each specimen is measured and weighed. Sagittal otoliths are removed and used to assign an age and birth-year to the specimen. In addition, tissue samples are removed for evaluation of the presence of contaminants and genetic samples collected to help identify stock structure, movement patterns, and the degree of mixing.

The information collected from red drum sacrificed during the autumn of 2007 was used in combination with other data to conduct a regional red drum assessment during 2009. The next collection of adult red drum to determine the age structure of spawning stock is scheduled for the fall of 2012.

Adult Red Drum Index of Abundance

During this report period, sampling occurred using a bottom long-line from May through December. Two hundred eighty-four (284) sets consisting of 17,040 hooks and 142 hours of soak time produced 87 red drum.

c. Copy of regulations that were in effect, including a reference to the specific compliance criteria as mandated in the FMP.

4.1 Recreational Fisheries Management Measures

4.1.1 Recreational Bag and Size Limits

4.1.2 Maximum Size Limit

Georgia's current size slot limit for red drum is 14 to 23 inches total length with a daily five fish bag limit. Based on Amendment 2 to the Interstate Fishery Management Plan these harvest regulations result in an escapement rate that achieves a 40% SPR. (O.C.G.C. 27-4-130.1 and DNR Rule 391-2-4-.04 previously submitted)

4.2 Commercial Fisheries Management Measures

Commercial harvest of red drum is limited to the recreational slot size and bag limits. A commercial fishing license is required to sell (O.C.G.A. 27-4-110 previously submitted).

4.2.4 Commercial Gear Restrictions

Hook and line is the only feasible method for harvesting red drum in Georgia. Although law allows harvest with beach seines, purse seines, and cast nets, the recreational bag limit makes it impractical to target red drum with these gears. (O.C.G.A. 27-4-113 and

114 previously submitted).

4.2.6 Data Collection and Reporting Requirements
Georgia is in full compliance with the ACCSP data collection and reporting requirements. Seafood dealers are required to maintain a record and report seafood purchased for commercial harvests in Georgia. Records must be submitted to the Department by the 10th day of the month subsequent to fishing. (O.C.G.A. 27-4-110 and 136 and DNR Rule 391-2-4-.09 previously submitted). Harvesters are required to maintain a logbook of fishing activity but at this time, are not required to report that activity (O.C.G.A. 27-4-118 previously submitted).

4.2.6.1 Vessel Registration System
Every commercial vessel fishing in Georgia waters is required to purchase either a trawler or non-trawler boat license, dependent on fishing practices (27-2-8 previously submitted).

4.3 For-Hire Fisheries Management Measures
4.3.1 Bag and Size Limits
4.3.2 Maximum Size Limit
Georgia for-hire and charter boats are limited to the recreational bag limits previously listed.

4.3.3 Data Collection and Reporting Requirements
If a for-hire captain sells his catch in Georgia, he is subject to the same reporting requirements as dealers and harvesters as noted above.

d. Harvest broken down by commercial (by gear type where applicable) and recreational, and non-harvest losses (when available).

Commercial

Georgia's commercial landings continue to be minimal. Less than 1000 pounds with a value of less than $2,000 were reported sold in 2011. Since the number of dealers involved was less than three, exact landings are considered confidential and cannot be reported. All red drum were harvested by hook and line.

Recreational

Since 2000, CRD has been the contractor for the intercept survey within the NMFS's Marine Recreational Information Program (MRIP). In 2011, survey clerks interviewed 1,776 anglers. It is estimated that 354,755 anglers (PSE 8.8) completed 970,147 trips (PSE 10.5). Coastal Georgia residents accounted for 41.3% (146,400 PSE 11.7) of the total anglers. Non-coastal residents accounted for 36.9% (130,755 PSE 16.8) and out of state anglers accounted for the remaining 21.8% (77,599 PSE 18.1). Expanded data are presented in tabular format below.

Table 2. Red Drum (# fish) expanded NMFS data for Georgia, 2011.

		Number of Angler Trips		A +B1 + B2 Released + Harvest		B2 Released Alive		A+B1 Harvest	
FISHING AREA	MODE	Total	PSE	Total	PSE	Total	PSE	Total	PSE
INLAND	CHARTER	8,936	12.7	10,949	48.0	9,227	56.5	1,722	36.0
	PRIVATE	557,074	13.8	303,545	20.2	200,072	28.4	103,473	22.2
	SHORE	254,426	23.4	2,868	55.8	2,658	59.8	210	90.8
INLAND Total		**820,437**	11.9	**317,361**	19.4	**211,956**	26.9	**105,405**	21.8
OCEAN (<= 3 MI)	CHARTER	2,873	22.1	320	81.9	320	81.9	0	.
	PRIVATE	24,802	31.0	1,556	94.6	0		1,556	94.6
	SHORE	80,154	33.8	162	93.9	162	93.9	0	.
OCEAN (<= 3 MI) Total		**107,829**	26.1	**2,039**	73.7	**482**	62.9	**1,556**	94.6
OCEAN (> 3 MI)	CHARTER	3,878	21.4	13	116.7	13	116.7	0	.
	PRIVATE	38,003	30.0	1,330	98.8	1,330	98.8	0	.
OCEAN (> 3 MI) Total		**41,880**	27.3	**1,343**	97.9	**1,343**	97.9	**0**	.
Grand Total		**970,147**	10.5	**320,743**	19.2	**213,781**	26.7	**106,962**	21.5

e. Review of progress in implementing habitat recommendations.

With over 2,344 linear miles of coastline and tidal marsh covering 378,000 acres, the entirety of Georgia's coast provides habitat for red drum. CRD is involved in activities related to many of the recommendations in Section 4.4, but without a specific focus on red drum. The Georgia Coastal Management Program (GCMP) provides an overarching entity under which many activities related to habitat protection are conducted both by CRD staff and others who are funded with Coastal Incentive Grants.

Habitat conservation and restoration has been addressed in previous compliance reports. Included in the following are only additions or changes within the reporting year.

CRD entered into an oyster reef restoration & enhancement partnership with several organizations, including, The Nature Conservancy, University of Georgia's Marine Extension Service, and Coastal Conservation Association. Oyster reefs are considered essential fish habitat and their enhancement has numerous benefits. During this report period, oyster cultch material has been deployed in the inter-tidal zone of three additional restoration / enhancement sites. Oyster spat will recruit to the cultch material as well as recruited oysters causing these habitats to enhance in size and ecological value for years to come.

Georgia's "Marshland Protection Act" requires permits from the Coastal Marshlands Protection Committee and the U.S. Corps of Engineers for all activities that alter the marsh. This includes oyster restoration / enhancement projects. Thus, the appropriate federal and state regulatory agencies are informed of all restoration / enhancement sites. This minimizes the potential of negative impacts to critical habitats from other permitted activities.

During 2011, the Coastal Marshlands Protection Committee issued 18 new permits and 11 modifications for structures such as commercial, industrial and community docks. CRD also issued 17 bulkhead permits (13 new, 4 modifications) and 144 revocable family dock permits (133 new, 11 modifications).

An important function of the Georgia Coastal Management Program (GCMP) is to ensure that federal projects affecting coastal resources are consistent with the enforceable policies of the Program. The GCMP also works to maintain and to improve customer service regarding consolidation, coordination, and timeliness of processing revocable licenses for private recreational docks and shoreline stabilization.

GCMP also provides a process by which permit applications relative to the Coastal Marshlands Protection Act and Shore Protection Act are processed and reviewed for compliance.

CRD has built 22 offshore artificial reefs over the past 30 years. These reefs are known habitat for adult red drum during winter months. CRD continuously adds material to these reefs thereby increasing the available habitat. No materials were deployed during 2011.

4. Planned management programs for the current calendar year

a. Summarize regulations that will be in effect.

There are no planned changes to red drum regulations in 2011. The 14 to 23 inch size slot limit and five fish bag limit will remain in effect. A commercial fishing license is required in order to sell red drum and the recreational limits apply.

b. Summarize monitoring programs that will be performed.

Monitoring described in Section III will continue throughout 2011.

c. Highlight any changes from the previous year.

There are no changes planned in 2011 from the previous year.

Florida's Compliance Report Under Amendment 2 to the Interstate Fishery Management Plan for Red Drum

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9 July 2012

I. Introduction

While there have been no significant changes in Florida's Atlantic coast monitoring programs, the fishing regulations were changed in February 2012 to incorporate regional management and a higher bag limit in Northeast Florida. The fishery-dependent monitoring programs continued at 13,255 Marine Recreational Fisheries Statistics Survey (MRFSS) intercepts during 2011. Fishery-independent monitoring of red drum continued for young-of-the-year in the northern Indian River Lagoon and lower St Johns River area and larger red drum in the lower St. Johns River and both the northern and southern Indian River Lagoon areas. Biostatistical data were collected through both the fishery-independent and fishery-dependent monitoring programs during 2010. Recreational harvest (including 8% release mortality) of red drum on Florida's Atlantic coast during 2011 was estimated at about 264,100 fish, representing a 24% increase over the 2008-2010 mean harvest of about 214,000 red drum.

II. Request for *de minimis*, where applicable.

Florida does not request *de minimis* status at this time.

III. Previous calendar year's fishery and management program

a. Activity and results of fishery dependent monitoring (provide general results and references to technical documentation).

Fishery-dependent monitoring of red drum consists in Florida solely of sampling from the recreational fishery. There is no commercial fishery for red drum in Florida. During 2011, MRFSS samplers conducted 13,255 trip interviews at Florida's Atlantic coast boat ramps, bridges, and other fishing sites, the lowest number of interviews made since 1997. Since 1999, the number of intercepts made has ranged from about 13,300 to 22,200 (Table 1). Data collected during these intercepts are used to identify patterns in average observed total-catch rates and to describe the sizes of red drum landed by anglers. In 2012, Florida has changed to regional management of red drum with a two-fish per harvester per day bag limit north of the Flagler/Volusia County line. Regional standardized total-catch (MRFSS Type A+B1+B2) rates for anglers targeting red drum in Northeast Florida have fluctuated around a decreasing trend since peak rates observed during the early 1990's (Fig. 1). More recently, total catch rates have increased. In Southeast Florida, similar fluctuations are apparent. A small FWC

program is used to conduct a random survey of Florida's licensed anglers to collect information on the sizes of red drum that they kept or released alive. This program has met with very limited success on the Atlantic coast and has recently been modified to include voluntary, self-reported data using postcards left at fishing spots during MRIP interviews.

b. Activity and results of fishery independent monitoring (provide general results and references to technical documentation).

The Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute (FWC-FWRI) has three field laboratories on the Atlantic coast whose staff conduct random, stratified sampling using 183-m haul seines. Two of these laboratories also utilize a 21.3-m, 3.2-mm mesh seine for young-of-the-year monitoring. Stratified random sampling for subadult abundance has been carried out in the northern Indian River Lagoon since 1990 and in the lower reaches of the St. Johns River since 2001. In these areas and in the Tequesta/southern Indian River Lagoon (since 1997), 183-m, 5-cm-stretched-mesh haul seines are used to monitor the abundance of larger fish (FWC-FWRI 2011). The survey design for sampling newly recruited red drum (<40 mm standard length) during the September-March recruitment window in the Southeast region is considered comparable since September 1995. Here the relative abundance indices have shown peaks during 1998 and 2002-2004 (Fig. 2). After 2004, relative abundance declined to a fairly constant but lower level during through 2010 (2011 information requires early 2012 data that are not yet available). Within the Northeast region (St. Johns River/Nassau Sound), juvenile abundance increased to a peak in 2002 and 2003 but declined markedly in 2004 and 2005 before rebounding in 2006 (Fig. 2). After 2006, relative abundance remained fairly constant at a moderate level before dropping sharply in 2010. Catch rates for larger, near-legal-size red drum captured in the 183-m haul seine follow an increasing trend during 2004-2008 in the Southeast region before settling at lower relative abundance levels in 2009 and 2010 (Fig. 3). In the Northeast region, catch rates have fluctuated without long-term trend since 2002, though the short term trend since 2008 has been upward. Random samples of red drum lengths and otoliths (only from fish larger than 300 mm SL) are taken under all of these programs. During 2011, 747 lengths were measured and 117 otolith pairs collected during these Fishery-Independent Monitoring programs.

c. Copy of regulations that were in effect, including a reference to the specific compliance criteria as mandated in the FMP.

Appendix A contains the current regulations for managing red drum (Chapter 68B-22, Florida Administrative Code).

Current, red drum regulations call for an 18-inch minimum size, 27-inch maximum size in both management regions designated along the Atlantic coast of Florida (Northeast: Nassau County through Flager County; Southeast Volusia through Miami-Dade County). There is a one-fish-per-person-per-day bag limit in the Southeast and a 2-fish-per-preson-per-day limit in the Northeast. Florida's

current regulations in the Southeast region meet the management measures included in Amendment 2. Florida's 18" minimum size limit, 27" maximum size limit, and one-fish bag limit correspond to a 40.7 percent SPR in Table 20. In the Northeast region where the bag limit was relaxed in February 2012, a regional stock assessment estimated the static SPR averaged 76% during 2008-2010 (FWC-FWRI unpublished data). The same analysis estimated the 2008-2010 sSPR in the Southeast region averaged 30% with the most recent two years ranging 33-36%. These estimates, weighted by the annual recruitment estimated for each region, give an overall average sSPR of about 62% for the Atlantic coast of Florida during 2008-2010 (Murphy 2012).

d. Harvest broken down by commercial (by gear type where applicable) and recreational, and non-harvest losses (when available).

Harvest (including 8% of red drum released alive that are thought to subsequently die) of red drum on the Atlantic coast of Florida has shown an increasing trend since 1989 when the fishery opened under management regulations quite similar to those in place today. From a low of 28,000 red drum harvested in 1988 the harvest increased to nearly 310,000 fish by 2005. Harvest fluctuated around an average of about 229,000 fish during 2000-2011. The 2011 harvest was estimated at 264,092 fish (Table 1).

e. Review of progress in implementing habitat recommendations.

No mandatory measures related to habitat or habitat protection has been implemented through this amendment (Amendment 2 of the Red Drum FMP, Section 4.4). However, habitat areas of particular concern range over the entire estuarine system, from lower reaches of rivers to the inlets. Numerous government entities, including municipal, county, state, and federal, and numerous agencies, including water management districts, aquatic preserves, and national estuary programs, strive to protect and rehabilitate habitat utilized by red drum. There are no specific habitat recommendations in Amendment 2 for red drum but progress made in restoring and conserving habitat is available from reports from many agencies charged with the stewardship of Florida's Atlantic coast estuaries.

IV. Planned management programs for the current calendar year

a. Summarize regulations that will be in effect (copy of current regulations if different from 3c).

Regulations have changed from those in force during the last compliance report submission. The Florida Fish and Wildlife Conservation Commission is using a regional management (northern zone -- Nassau south through Flagler County; southern zone -- Volusia south through Miami-Dade County) scheme for red drum found in coastal waters adjacent to Florida. The only difference in management across regions is the bag limit: one fish per day in the southern region and two fish per day in the north.

b. Summarize monitoring programs that will be performed.

Monitoring will remain the same during 2011 as it was in 2010 (see III b.), though we are still evaluating ways to increased the collection of angler-volunteered catch information (many more angler logbooks using a shortened 'card' system).

c. Highlight any changes from the previous year.

In February 2012, the management of red drum in Florida was geographically subdivided into northern and southern regions. The only difference in management across regions is the bag limit: one fish per day in the southern region and two fish per day in the north.

Literature

Anonymous. 2010. Regional analysis of Florida's gulf and Atlantic stocks of red drum. Report from the Florida Fish and Wildlife Research Institute Stock Assessment Sub-group to the Division of Marine Fisheries Management, Florida Fish and Wildlife Conservation Commission, Tallahassee.

FWC-FWRI. 2011 (In Prep.). Fisheries-independent monitoring program 2010 annual data summary report. Compiled by the Fishery-Independent Monitoring Program staff, Fish and Wildlife Research Institute, Florida Fish and Wildlife Conservation Commission, St. Petersburg. FWRI In-House Report 2011-.

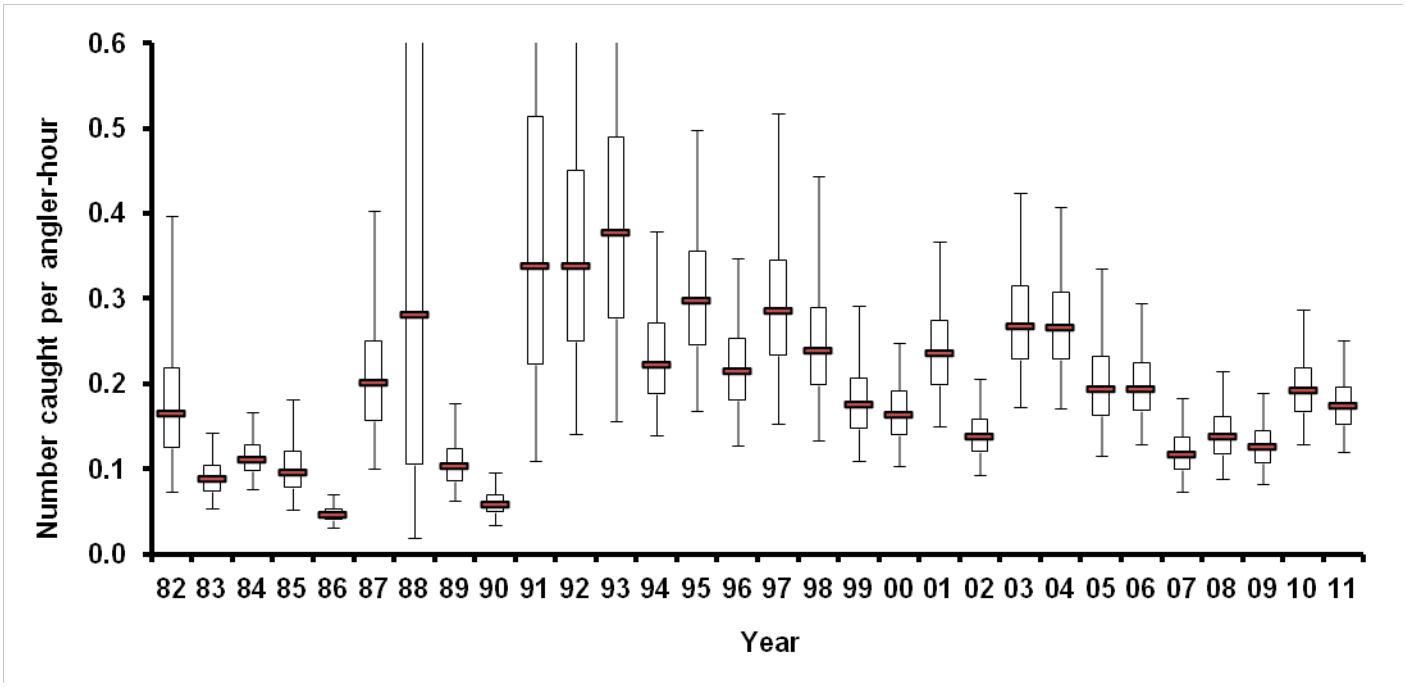
Murphy, M.D. 2005. A stock assessment of red drum, *Sciaenops ocellatus*, in Florida: status of the stocks through 2003. Fish and Wildlife Research Institute, Florida Fish and Wildlife Conservation Commission, St. Petersburg. FWRI In-House Report 2005-006.

Murphy, M.D. 2012. Compliance evaluation for the regional management of red drum in Florida and recent increase in bag limit in Florida's northern region along the Atlantic coast. Report to the ASMFC Red Drum Technical Committee, 20 January 2012.

Table 1. Reported fishing effort and estimated number of red drum reported landed by the commercial fishery, total number of trip interviews made by the Marine Recreational Information Program, estimated number of recreational fishing trips directed at catching red drum*, estimated number of red drum landed, released alive, and overall kill (which includes landings and 8% release mortality of fish released alive) for the recreational fishery, and total numbers of red drum deaths attributed to the fisheries operating on the Atlantic coast of Florida during 1982-2010. For a description of the data and estimation methods for the commercial trips and landings and recreational trips see Murphy (2005). All numbers for recreational catch were derived from 'estimate' data files provided by the Marine Recreational Fisheries Statistics Survey but were adjusted for the change in For-Hire Survey methodology. MRIP data were retrieved from the MRIP website July 9,2012. *2011 estimates remain to be estimated using newly formatted data

	Commercial Trips	Commercial landings	Total MRFSS trips sampled	Directed Recreational Trips	Recreational landings	Recreational released alive	Total recreational kill	Total number killed
1982		32,749	4,496	188,098	75,245	10,172	205,214	237,963
1983		28,803	4,884	577,916	204,400	54,723	348,892	377,695
1984		29,963	5,820	661,638	344,514	47,196	553,157	583,120
1985	2,575	21,180	4,733	459,518	549,381	193,399	280,657	301,837
1986	1,705	16,394	4,907	400,545	265,185	100,095	121,449	137,843
1987	595	9,170	4,659	133,913	113,441	377,959	81,461	90,631
1988	29	107	6,082	12,871	51,224	233,988	28,261	28,368
1989	0	0	5,381	186,555	9,542	172,303	48,532	48,532
1990	0	0	5,057	162,600	34,748	68,667	49,773	49,773
1991	0	0	6,018	393,432	44,280	645,773	154,390	154,390
1992	0	0	11,434	332,817	102,728	284,893	127,056	127,056
1993	0	0	13,395	341,136	104,265	465,656	102,392	102,392
1994	0	0	15,144	548,158	65,140	691,261	176,240	176,240
1995	0	0	14,039	484,090	120,939	683,706	151,622	151,622
1996	0	0	11,753	471,357	96,926	500,374	186,853	186,853
1997	0	0	12,225	441,165	146,823	560,559	120,080	120,080
1998	0	0	13,680	644,031	75,235	481,009	146,463	146,463
1999	0	0	18,029	804,500	107,982	565,981	171,458	171,458
2000	0	0	17,058	1,301,294	126,180	693,152	246,522	246,522
2001	0	0	19,728	1,325,181	191,070	850,044	245,637	245,637
2002	0	0	22,191	1,024,703	177,633	663,879	172,119	172,119
2003	0	0	19,833	1,089,709	119,009	748,765	219,232	219,232
2004	0	0	16,218	1,201,354	159,331	1,006,814	217,273	217,273
2005	0	0	16,697	1,425,981	136,728	1,405,967	308,027	308,027
2006	0	0	18,916	1,253,654	195,550	847,269	213,641	213,641
2007	0	0	17,817	1,474,730	145,859	758,684	222,122	222,122
2008	0	0	15,152	1,284,081	161,427	889,550	230,410	230,410
2009	0	0	14,665	856,733	159,246	521,659	121,368	121,368
2010	0	0	15,043	1,107919	79,635	1,414,115	288,957	288,957
2011	0	0	13,255	*	175,828	1,051,143	264,092	264,092

Northeast Region -- Nassau County south through Flagler County



Southeast Region -- Volusia County south through Miami-Dade County

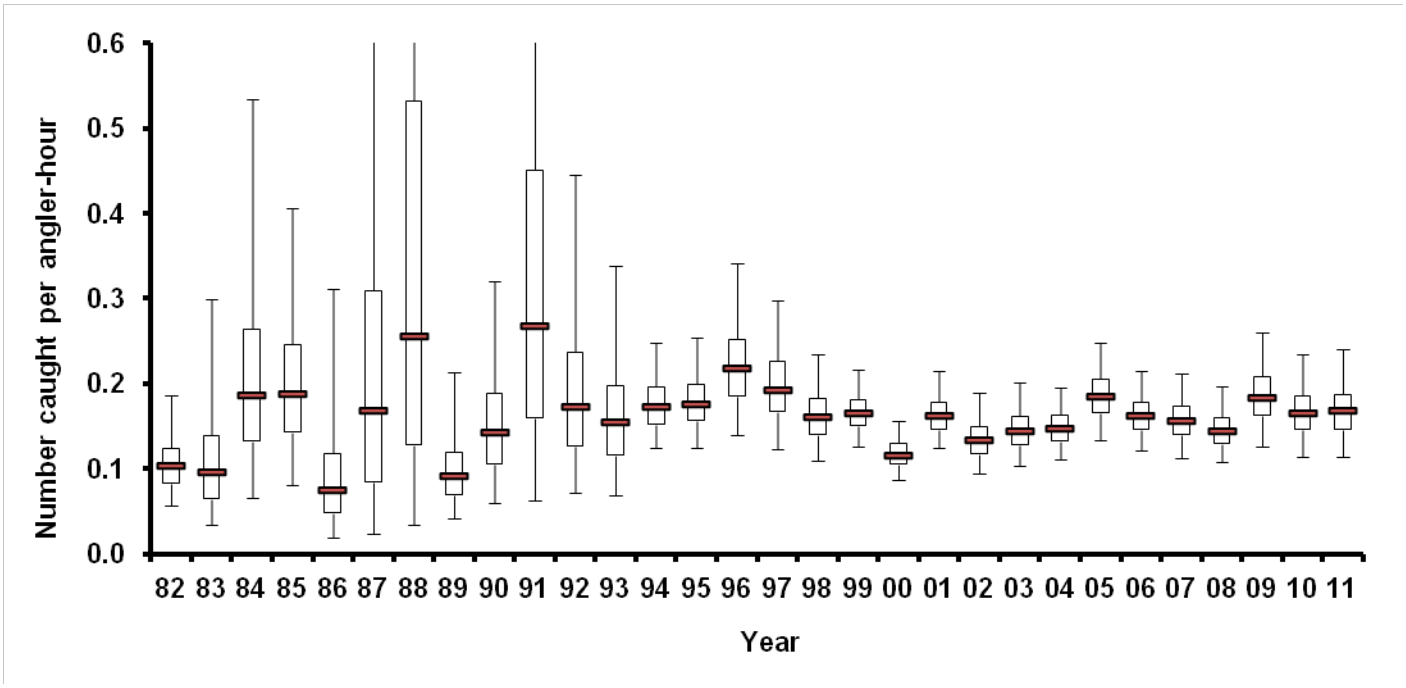
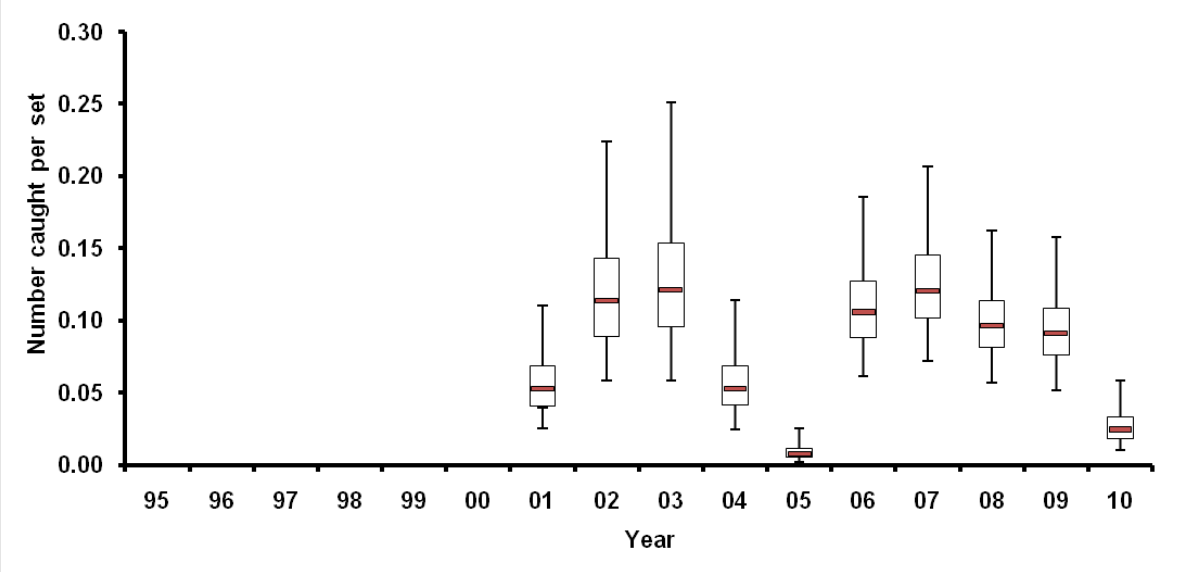


Figure 1. Standardized catch-per-angler-hour for anglers targeting red drum in the Northeast and Southeast regions along Florida's Atlantic coast during 1982-2011. A targeted trip is defined as those in which red drum were caught or those where the angler indicated that red drum were being sought during the fishing trip. The distribution of the standardized estimates show the median (horizontal bar), the interquartile range (box) and the tails of the distributions to the 2.5th and 97.5th percentiles as the whiskers.

Northeast Region



Southeast Region

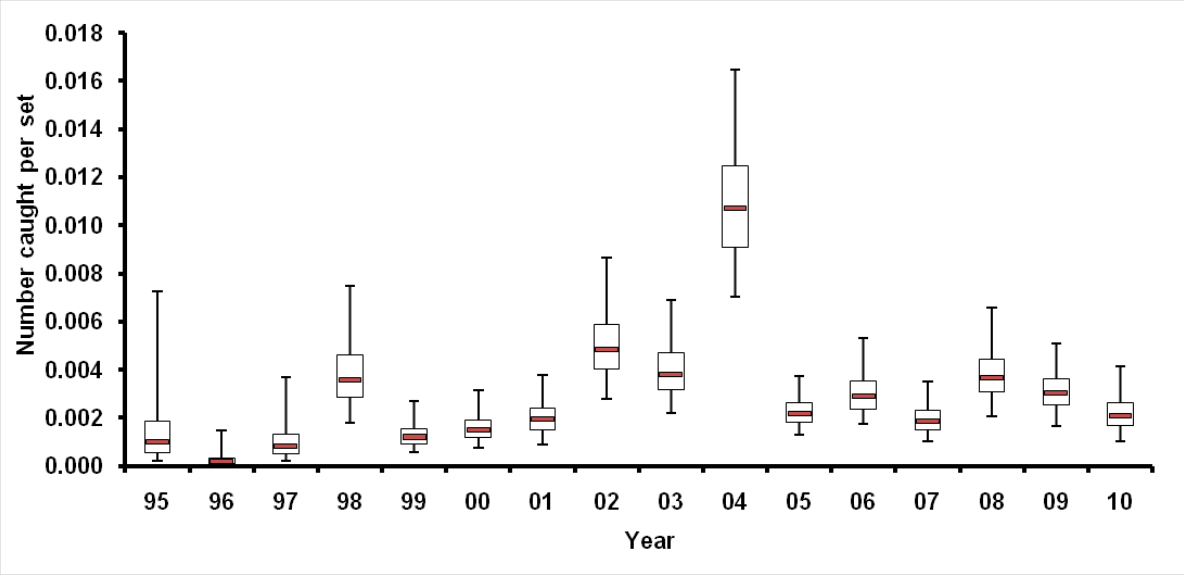
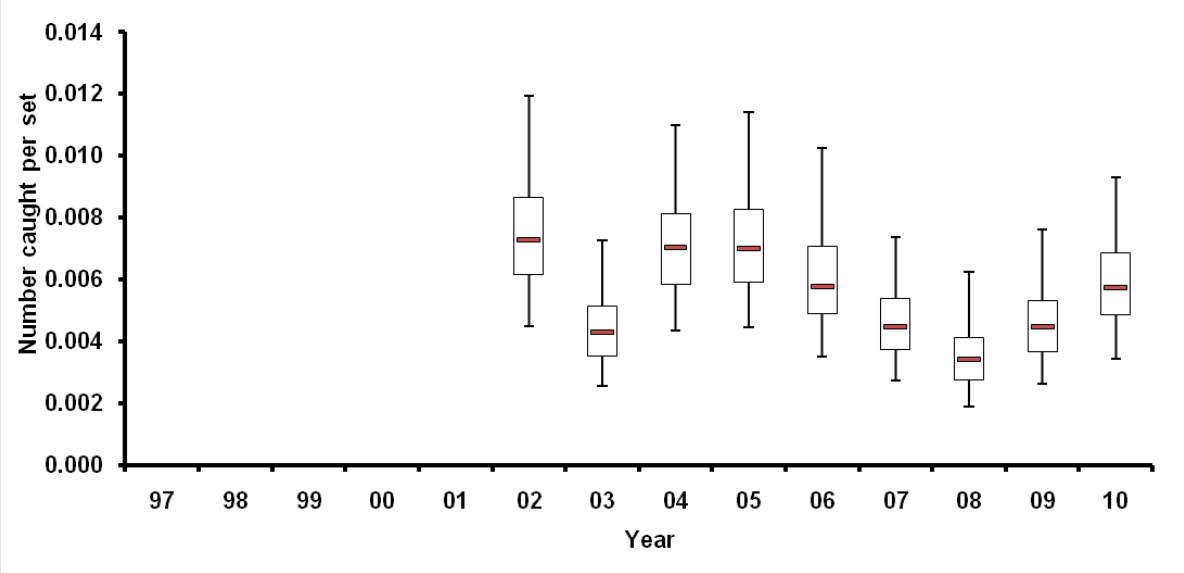


Figure 2. Standardized catch-per-set of red drum less than 40 mm SL in the Northeast and Southeast regions along the Florida Atlantic coast during 1995-2010. Data were restricted to within a recruitment window of September through March, with the year label indicating the September-December year. The January-March 2012 data were not available yet to determine the 2011 catch rate.

Northeast Region



Southeast Region

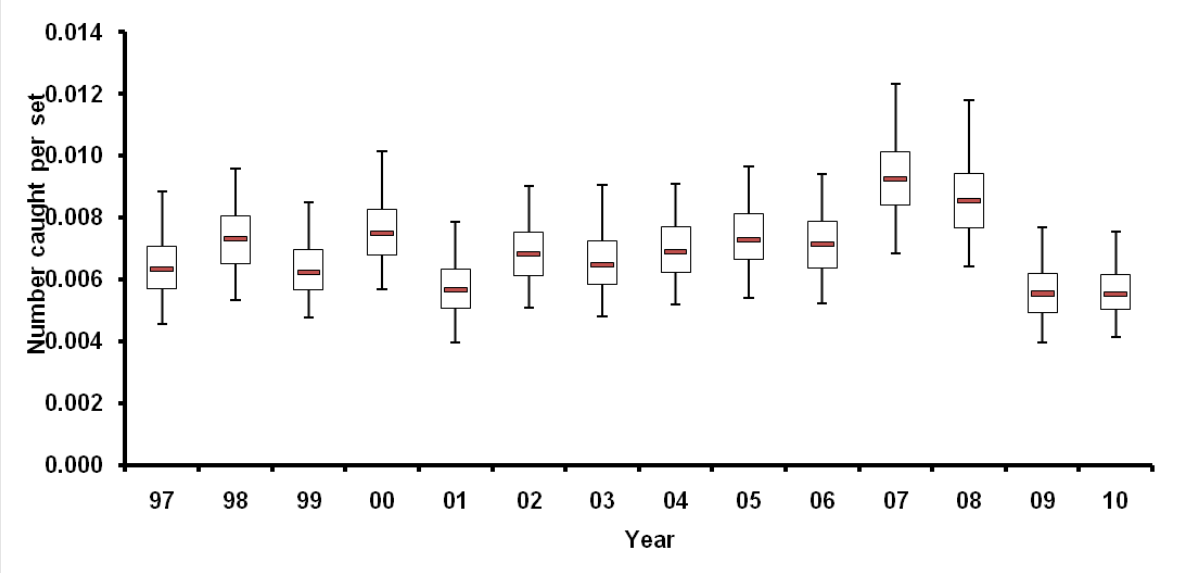


Figure 3. Standardized catch-per-set of red drum larger than 300 mm SL in the Northeast and Southeast regions along the Florida Atlantic coast during the 1997-2010 calendar years. Data symbols are explained in the caption for Figure 2.

APPENDIX A.

CHAPTER 68B-22
RED DRUM (REDFISH)

68B-22.001 Purpose and Intent; Repeal of Certain Laws; Designation as Protected Species.

(1) The purpose and intent of this chapter is to protect, manage, conserve and replenish Florida's depleted red drum (redfish) resource, species Sciaenops ocellatus, which has suffered extreme declines in abundance in recent years.

(2) Accordingly, it is the intent of this chapter to repeal and replace those portions of Section 370.11(2)(a)4., F.S. (1985), dealing with redfish. This chapter is not intended, and shall not be construed, to repeal any other portion of Section 370.11(2)(a)4., F.S. (1985); any other subdivision of Section 370.11, F.S. (1985); or any other general or local law directly or indirectly relating to or providing protection for the redfish resource.

(3) Redfish are hereby declared and designated a protected species. The purposes of this designation are to increase public awareness of the need for extensive conservation action in order to prevent this resource from becoming endangered and to encourage voluntary conservation practices, including catch-and-release practices for all redfish caught unless they are needed for food.

Rulemaking Authority Art. IV, Sec. 9, Fla. Const., Chapter 83-134, Laws of Fla., as amended by Chapter 84-121, Laws of Fla. Law Implemented Art. IV, Sec. 9, Fla. Const., Chapter 83-134, Laws of Fla., as amended by Chapter 84-121, Laws of Fla. History–New 9-12-85, Amended 1-1-89, 6-3-91, Formerly 46-22.001.

68B-22.002 Definitions.

(1) "Catch, hold and release", means the intentional release of a live redfish, possessed in a live well or recirculating tank aboard a boat, for the purpose of harvesting another redfish.

(2) "Fishing pier" means a platform extending from shore over water, used primarily to provide a means for persons to harvest or attempt to harvest fish therefrom. The term shall not be construed to include any residential dock, marina, or facility at which vessels are launched or moored, but shall include any abandoned bridge serving the function of a fishing pier.

(3) "Fishing tournament", as used in this chapter, means a fishing competition involving 50 or more participants that has written rules and regulations, requires an entry fee, and awards prizes to competitors.

(4) "FWC" means the Florida Fish and Wildlife Conservation Commission.

(5) "Harvest" means the catching or taking of a fish by any means whatsoever, followed by a reduction of such fish to possession. Fish that are caught but immediately returned to the water free, alive and unharmed are not harvested. In addition, temporary possession of a fish for the purpose of measuring it to determine compliance with the minimum or maximum size requirements of this chapter shall not constitute harvesting such fish, provided that it is measured immediately after taking, and immediately returned to the water free, alive and unharmed if undersize or oversize. A person engaged in catch, hold, and release pursuant to Rule 68B-22.007, F.A.C., shall not be considered to have harvested a redfish if it is released alive.

(6) "Land," when used in conjunction with the harvest of a fish, means the physical act of bringing the harvested fish ashore.

(7) "Northeast Region" means all state waters lying north of the Flagler-Volusia County Line to the Florida-Georgia border, and adjacent federal Exclusive Economic Zone (EEZ) waters.

(8) “Northwest Region” means all state waters north and west of a line running due west from the westernmost point of Fred Howard Park Causeway (28°9.35'N., 82°48.398'W.), which is approximately 1.17 miles south of the Pasco-Pinellas County Line, to the Florida-Alabama border, and adjacent federal Exclusive Economic Zone (EEZ) waters.

(9) “Person” means any natural person, firm, entity or corporation.

(10) “Red drum” or “redfish” means any fish of the species Sciaenops ocellatus, or any part thereof. “Native redfish” means any redfish harvested from waters subject to the jurisdiction of the Fish and Wildlife Conservation Commission and the State of Florida.

(11) “South Region” means state waters lying between the Flagler-Volusia County Line on the Atlantic Ocean and the southern boundary of the Northwest Region on the Gulf of Mexico in Pinellas County, as specified in subsection (8), and adjacent federal Exclusive Economic Zone (EEZ) waters.

(12) “Spearing” means the catching or taking of a fish by bow hunting, gigging, spearfishing, or by any device used to capture a fish by piercing the body. Spearing does not include the catching or taking of a fish by a hook with hook and line gear or by snagging (snatch hooking).

(13) “Total length” means the straight line distance from the most forward point of the head with the mouth closed, to the farthest tip of the tail with the tail compressed or squeezed, while the fish is lying on its side.

(14) “Vessel” means and includes every description of water craft used or capable of being used as a means of transportation on water, including nondisplacement craft and any aircraft designed to maneuver on water.

Rulemaking Authority Art. IV, Sec. 9, Fla. Const. Law Implemented Art. IV, Sec. 9, Fla. Const. History–New 9-12-85, Amended 2-12-87, 1-1-89, 1-1-96, 1-1-98, Formerly 46-22.002, Amended 3-17-04, 7-1-06, 2-1-12.

68B-22.003 Size Limits.

No person shall harvest in or from the waters of the State of Florida at any time, or unnecessarily destroy, any redfish of total length less than 18 inches, nor greater than 27 inches.

Rulemaking Authority Art. IV, Sec. 9, Fla. Const. Law Implemented Art. IV, Sec. 9, Fla. Const. History–New 9-12-85, Amended 2-12-87, 1-1-89, Formerly 46-22.003.

68B-22.005 Bag and Vessel Limits; Sale Prohibited.

(1) Northwest and Northeast Regional Bag Limit – Except as provided for in Rule 68B-22.007, F.A.C., in the northeast and northwest regions, no person shall harvest nor possess more than two native redfish per day while in, on, or above the waters of the state or on any dock, pier, bridge, beach, boat ramp, or other fishing site adjacent to such waters, and any parking location adjacent to said fishing sites.

(2) South Regional Bag Limit – Except as provided for in Rule 68B-22.007, F.A.C., in the south region, no person shall harvest nor possess more than one native redfish per day while in, on, or above the waters of the state or on any dock, pier, bridge, beach, boat ramp, or other fishing site adjacent to such waters, and any parking location adjacent to said fishing sites.

(3) Vessel Limit – Notwithstanding subsections (1) and (2) above, no more than 8 red drum shall be possessed aboard any vessel in or on state waters at any time.

(4) Transport Possession Limit – No person shall possess more than six native red drum while in transit on land.

(5) Sale of Native Redfish Prohibited – The purchase, sale, or exchange of any native redfish is prohibited. This prohibition, however, does not apply to legally harvested non-native redfish that have entered the State of Florida in interstate commerce. The burden shall be upon any person possessing such redfish for sale or exchange to establish the chain of possession from the initial transaction after harvest, by appropriate receipt(s), bill(s) of sale, or bill(s) of lading, and to show that such redfish originated from a point outside the waters of the State of Florida, and entered the state in interstate commerce. Failure to maintain such documentation or to promptly produce same at the request of any duly authorized law enforcement officer shall constitute a violation of this rule.

Rulemaking Authority Art. IV, Sec. 9, Fla. Const. Law Implemented Art. IV, Sec. 9, Fla. Const. History–New 2-12-87, Amended 1-1-89, 6-3-91, 1-1-96, Formerly 46-22.005, Amended 3-17-04, 2-1-12.

68B-22.006 Other Prohibitions; Applicability.

(1) The harvest of any redfish in or from state waters by or with the use of any multiple hook in conjunction with live or dead natural bait is prohibited. Spearing or snagging (snatch hooking) of redfish in or from state waters is prohibited.

(2) It is unlawful for any person to possess, transport, buy, sell, exchange or attempt to buy, sell or exchange any redfish harvested in violation of this chapter.

(3) No operator of a vessel in or on state waters shall allow the possession aboard the vessel of any redfish not in compliance with established bag limits, size limits, seasons or any prohibited gear as specified in this chapter or in Chapter 68B-4, F.A.C.

(4) All redfish harvested from Florida waters shall be landed in a whole condition. The possession, while in or on state waters, on any public or private fishing pier, or on a bridge or catwalk attached to a bridge from which fishing is allowed, or on any jetty, of any redfish that has been deheaded, sliced, divided, filleted, ground, skinned, scaled or deboned is prohibited. Mere evisceration or "gutting" of redfish, or mere removal of gills from redfish, before landing is not prohibited. Preparation of redfish for immediate consumption on board the vessel from which the fish were caught is not prohibited.

(5) Provisions of this rule chapter shall not apply to redfish artificially spawned and raised in commercial aquaculture facilities. Failure to maintain appropriate receipt(s), bill(s), bill(s) of sale, or bill(s) of lading, that such redfish were artificially spawned and raised in commercial aquaculture facilities, shall constitute a violation of this rule.

(6) The simultaneous possession aboard a vessel of any gill net or entangling net together with any redfish is prohibited.

Rulemaking Authority Art. IV, Sec. 9, Fla. Const. Law Implemented Art. IV, Sec. 9, Fla. Const. History–New 2-12-87, Amended 6-3-91, 1-1-96, 1-1-98, Formerly 46-22.006.

68B-22.007 Catch-Hold-and-Release Tournament Exemption.

(1) Except as provided in this rule, the practice of catching, holding, and releasing redfish is prohibited. The Executive Director of the FWC, or his designee, shall issue a tournament exemption permit to the director of a catch-and-release fishing tournament to allow redfish to be caught, held, and released during the tournament, and to allow the tournament to exceed redfish bag and possession limits pursuant to subsection 68B-22.005(1), F.A.C., after redfish have been weighed-in, provided that each of the following conditions is met:

(a) Tournament anglers and tournament staff agree to attempt to release alive all redfish that are caught, including those fish that are weighed-in.

(b) Each two person team of tournament anglers possesses no more than two live redfish in the boat's live well or recirculating tank at any one time.

(c) All boats used in the tournament contain recirculating or aerated live wells that are at least 2.4 cubic feet or 18 gallons in capacity.

(d) Dead redfish possessed by a two person team of tournament anglers are not discarded. A dead redfish is considered harvested and will count as the daily bag limit for the team of tournament anglers who harvested that fish.

(e) Redfish are maintained in an aerated recovery holding tank prior to release. Recovery holding tank requirements may be specified in the tournament exemption permit at the FWC's discretion in order to increase survival of released redfish.

(f) The tournament provides the FWC with a description of the aerated recovery holding tank(s) used to maintain redfish alive after weigh-in.

(g) The tournament provides the FWC with a description of the location where tournament caught redfish will be released after they are weighed in. In order to increase survival of released redfish, release locations may be specified in the tournament exemption permit at the FWC's discretion.

(h) The tournament permit holder shall submit a post-tournament report to the FWC indicating the number of fish weighed-in each day of the tournament, the number of fish weighed-in dead each day, and the number of fish

that died after being weighed-in, but prior to release each day. The FWC may specify additional tournament reporting requirements as a condition of the tournament exemption permit.

(i) The tournament agrees to allow FWC staff the opportunity to collect research data and conduct research and onboard monitoring during the tournament, as needed.

(2) Application for issuance of a tournament exemption permit shall be made on a form provided by the FWC (Form DMF-SL 5000 (3-04), incorporated herein by reference). Tournament exemption permits will only be issued to catch-and-release redfish tournaments that agree to the permit conditions in subsection (1).

(3) Any anglers participating in a redfish tournament for which a tournament exemption permit has been issued shall have a copy of the permit in his or her possession at all times during tournament operating hours.

(4) Any violation of the conditions and requirements specified within the tournament exemption permit will be considered a violation of this rule.

Rulemaking Authority Art. IV, Sec. 9, Fla. Const. Law Implemented Art. IV, Sec. 9, Fla. Const. History–New 3-17-04.

ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. **Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.**

Form submitted by:_____ State:_____
(your name)

Name of Nominee: **Charles Bernard (Bernie) McCants, Jr**

Address**: 2325 Windy Woods Dr**

City, State, Zip: **Raleigh, NC 27607**

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): **919.602.4516** Phone (evening**): 919.602.4516**

FAX: **919.668.7064** Email: **bernie.mccants@duke.edu**

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. South Atlantic Advisory Panel
   2. _____
   3. _____
   4. _____
2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

   yes_____ no____**X**_____
3. Is the nominee a member of any fishermen's organizations or clubs?

   yes _____**X**____ no_____

   If "yes," please list them below by name.

Raleigh Salt Water Sportfishing **Coastal Conservation Association - NC**

Cape Hatteras Anglers Club **NC Beach Buggy Association**

Outer Banks Preservation Association

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

Red Drum, Spotted Seatrout, Tarpon, Coastal Sharks, Cobia, Spot, Dolphin, Black Sea Bass Amberjack, Yellowfin Tuna, Bluefish, Flounder, Spanish Mackerel, Sea Mullet , Bonito Pompano Northern Puffer, False Albacore

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

Red Drum, Spotted Seatrout, Tarpon, Coastal Sharks, Cobia, Spot, Dolphin, Black Sea Bass Amberjack, Yellowfin Tuna, Bluefish, Flounder, Spanish Mackerel, Sea Mullet, Bonito, Pompano Northern Pugger, False Albacore Saillfish, Grouper, Blue Marlin, Bluefin Tuna, Weakfish, Striped Bass

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? _____ years

2. Is the nominee employed only in commercial fishing? yes_____ no_____

3. What is the predominant gear type used by the nominee?_____

4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)?_____

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? _____ years

2. Is the nominee employed only in the charter/headboat industry? yes _____ no_____

If "no," please list other type(s)of business(es) and/occupation(s):_____

_____

3. How many years has the nominee lived in the home port community? _____ years

If less than five years, please indicate the nominee's previous home port community.

_____

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? ~ 55 years

2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes _____ no ___X_____

   If "yes," please explain.

_____

_____

_____

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? _____years

2. Is the nominee employed only in the business of seafood processing/dealing?

   yes _____ no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

_____

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? ____ years

2. Is the nominee employed in the fishing business or the field of fisheries management? yes _____ no _ _ __

   If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

North Carolina State University, B.S, 1967-1971, Zoology

1973 – Present	Associate in Medicine, Department of Medicine, Duke Clinical Research Institute, Durham, North Carolina
1971 – 1977	Medical Corpsman Specialist 5th class, North Carolina Army National Guard,

FISHERIES-RELATED EXPERIENCE:

2004-2009	Recreational fishing representative on the Finfish Advisory Committee to the NC Marine Fisheries Commission.
2007-2008	Recreational fishing representative on the Red Drum Fisheries Management Plan Advisory Committee to the NC Marine Fisheries Commission.
2006	Governor's Nominee to South Atlantic Fisheries Council
2002-2004	Recreational fishing representative on the Inland Advisory Committee to the NC Marine Fisheries Commission.
2004-2006	President and *Newsletter* editor, Raleigh Salt Water Sportfishing Club
1985-2006	Held a variety of offices on the Board of Directors of Raleigh Salt Water Sportfishing Club
1979-Present	Member, Raleigh Salt Water Sportfishing Club
1984-Present	Member, NC Beach Buggy Association
1985-Present	Member, Cape Hatteras Anglers Club
1982-1985	Participated in red drum tagging program for NC Division of Marine Fisheries.

Nominee Signature: _____ Date:

Name: **Bernie McCants**
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

_____ _____
State Director State Legislator

_____
Governor's Appointee