Final Agenda

The agenda is subject to change. The agenda reflects the current estimate of time required for scheduled Board meetings. The Commission may adjust this agenda in accordance with the actual duration of Board meetings. It is our intent to begin at the scheduled start time for each meeting, however, if meetings run late the next meeting may start later than originally planned.

Monday, October 19

9:00 – 10:00 a.m. **Atlantic Herring Management Board**
Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey
Other Members: NEFMC, NMFS
Chair: Patterson
Other Participants: Zobel, Brown
Staff: Appelman

1. Welcome/Call to Order *(C. Patterson)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2020
3. Public Comment
4. Set 2021 Fishery Specifications *(M. Appelman)* **Final Action**
   - Set Quota Period for Area 1A
5. Update on New England Fishery Management Council and Commission Coordination Discussions *(T. Kerns)*
6. Other Business/Adjourn

10:00 – 11:00 a.m. **Break**

11:00 a.m. – Noon **Winter Flounder Management Board**
Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey
Other Members: NMFS, USFWS
Chair: Borden
Other Participants: Nitschke, Blanchard, Wood
Staff: Colson Leaning

1. Welcome/Call to Order *(D. Borden)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from February 2019
3. Public Comment
4. Review 2020 Assessment Updates for Gulf of Maine and Southern New England/Mid-Atlantic Winter Flounder Stocks
   - Presentation of Gulf of Maine Stock Assessment Report *(P. Nitschke)*
   - Presentation of Southern New England/Mid-Atlantic Stock Assessment Report *(T. Wood)*
5. Elect Vice-Chair *(D. Borden)* **Action**
6. Other Business/Adjourn

Noon – 1:15 p.m. **Lunch Break**

1:15 – 4:15 p.m. **American Lobster Management Board**
Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia
Other Members: NEFMC, NMFS
Chair: McKiernan
Other Participants: Reardon, Perry, Beal, Celestino, DeVoe, McKown, Webb
Staff: Starks

1. Welcome/Call to Order *(D. McKiernan)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2019
3. Public Comment
4. Consider 2020 American Lobster Benchmark Stock Assessment **Final Action**
   - Presentation of Stock Assessment Report *(K. McKown)*
   - Presentation of Peer Review Panel Report *(M. Celestino)*
   - Consider Acceptance of Benchmark Stock Assessment and Peer Review Report for Management Use *(D. McKiernan)*
   - Consider Management Response to the Assessment and Peer Review *(D. McKiernan)*
5. Report on Data Collection Requirements for 2021 *(A. Webb)*
6. Report on Electronic Tracking Pilot Program *(W. DeVoe)*
7. Consider Approval of Fishery Management Plan Reviews and State Compliance *(C. Starks)* **Action**
   - American Lobster for the 2019 Fishing Year
   - Jonah Crab for the 2018 and 2019 Fishing Years
8. Other Business/Adjourn

Tuesday, October 20

9:00 a.m. – Noon **Atlantic Menhaden Management Board**
Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Other Members: NMFS, PRFC, USFWS
Chair: Woodward
Other Participants: Flora, Kersey, Kaelin
Staff: Appelman (for Rootes-Murdy)

1. Welcome/Call to Order *(S. Woodward)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2020
3. Public Comment
4. Update on Fecundity Estimates Associated with the New Ecological Reference Points and Set 2021-2022 Fishery Specifications *(S. Woodward)* **Final Action**
   - Technical Committee Report *(C. Flora)*
   - Advisory Panel Report *(J. Kaelin)*
5. Other Business/Adjourn

Noon – 1:15 p.m. **Lunch Break**

1:15 – 4:15 p.m. **South Atlantic State/Federal Fisheries Management Board**
Member States: New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Other Members: NMFS, PRFC, SAFMC, USFWS
Chair: Fegley
Other Participants: Franco, Giuliano, Paramore, Rickabaugh, Hodge
Staff: Lewis

1. Welcome/Call to Order *(L. Fegley)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2020
3. Public Comment
4. Consider Atlantic Cobia Addendum l to Amendment 1 for Final Approval *(T. Kerns)* **Final Action**
   - Review Options and Public Comments
   - Consider Final Approval of Addendum I to Amendment 1
5. Review 2020 Traffic Light Analyses for Atlantic Croaker and Spot
   - Review 2020 Reports *(D. Franco, H. Rickabaugh)*
   - Review Management Response Requirements from Addendum III *(S. Lewis)*
6. Consider Approval of Fishery Management Plan Review and State Compliance for 2019 Fishing Year for Red Drum, Atlantic Croaker, and Atlantic Cobia *(S. Lewis)* **Action**
7. Other Business/Adjourn

Wednesday, October 21

8:00 – 10:00 a.m. **Executive Committee**
Members: Abbott, Anderson, Bell, Bowman, Cimino, Clark, Davis, Estes, Gilmore, Keliher, Kuhn, McKiernan, McNamee, Miller, Murphey, Patterson, Woodward
Chair: Keliher
Staff: Leach

1. Welcome/Call to Order *(P. Keliher)*
2. Committee Consent
   - Approval of Agenda
   - Approval of Meeting Summary from August 2020
3. Public Comment
4. Report of the Administrative Oversight Committee *(S. Woodward)*
   - Consider Approval of Fiscal Year 2020 Audit **Action**
5. Future Annual Meetings Update *(L. Leach)*
6. Discuss Pennsylvania's Participation on the Atlantic Menhaden Management Board *(R. Beal)*
7. Progress Update on Recommendations to Improve the Public Comment Process *(R. Beal)*
8. Other Business/Adjourn

10:00 – 10:30 a.m. **Break**

10:30 – 11:15 a.m. **Horseshoe Crab Management Board**

Member States: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Other Members: NMFS, PRFC, USFWS
Chair: Cimino
Other Participants: Brunson, Messeck, Sweka
Staff: Starks

1. Welcome/Call to Order *(J. Cimino)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2019
3. Public Comment
4. Set 2021 Harvest Specifications **Final Action**
   - Review Horseshoe Crab and Red Knot Abundance Estimates and 2020 Adaptive Resource Management (ARM) Model Results *(J. Sweka)*
   - Set 2021 Harvest Specifications *(J. Cimino)*
5. Progress Update on ARM Revisions *(J. Sweka)*
6. Consider Approval of Fishery Management Plan Review and State Compliance for the 2019 Fishing Year *(C. Starks)* **Action**
7. Review and Populate Advisory Panel Membership *(T. Berger)* **Action**
8. Other Business/Adjourn

11:30 a.m. – 12:15 p.m. **Spiny Dogfish Management Board**

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina
Other Members: NMFS
Chair: Batsavage
Other Participants: Newlin, Moran, Didden
Staff: Kerns (for Rootes-Murdy)

1. Welcome/Call to Order *(C. Batsavage)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2019
3. Public Comment
4. Consider Revised Specifications for the 2021 and 2022 Fishing Seasons *(J. Didden)* **Final Action**
5. Elect Vice-Chair *(Batsavage)* **Action**
6. Other Business/Adjourn

12:15 – 1:30 p.m. **Lunch Break**

1:30 – 4:30 p.m. **Atlantic Striped Bass Management Board**
Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina
Other Members: DC, NMFS, PRFC, USFWS
Chair: Borden
Other Participants: Sullivan, Blanchard, Bassano
Staff: Appelman

1. Welcome/Call to Order *(D. Borden)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2020
3. Public Comment
4. Consider Approval of State Implementation Plans for Addendum VI Mandatory Circle Hook Requirements *(M. Appelman)* **Final Action**
5. Review Technical Committee Report on Factors Limiting Recreational Release Mortality Estimates *(K. Sullivan)*
6. Consider Draft Amendment 7 Public Information Document for Public Comment *(M. Appelman)* **Action**
7. Other Business/Adjourn

Thursday, October 22

8:30 – 9:45 a.m. **Atlantic Coastal Cooperative Statistics Program Coordinating Council**
Partners: ASMFC, Connecticut, Delaware, District of Columbia, Florida, Georgia, MAFMC, Maine, Maryland, Massachusetts, NEFMC, New Hampshire, New Jersey, New York, NMFS, North Carolina, Pennsylvania, PRFC, Rhode Island, SAFMC, South Carolina, USFWS, Virginia
Chair: Fegley
Staff: White

1. Welcome/Call to Order *(L. Fegley)*
2. Council Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2020
3. Public Comment
4. Consider Recommendations for FY2021 Submitted Proposals *(J. Simpson)* **Action**
5. Committee and Program Updates *(J. Simpson, G. White)*
6. Elect Chair and Vice-Chair *(Fegley)* **Action**
7. Other Business/Adjourn

10:00 – 11:00 a.m. **Business Session**

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Chair: Keliher
Staff: Beal

1. Welcome/Call to Order *(P. Keliher)*
2. Committee Consent
   - Approval of Agenda
   - Approval of Proceedings from February 2020
3. Public Comment
4. Review and Consider Approval of the 2021 Action Plan *(R. Beal)* **Final Action**
5. Elect Chair and Vice-Chair *(R. Beal)* **Action**
6. Other Business/Recess

11:15 a.m. – Noon **Interstate Fisheries Management Program Policy Board**

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Other Members: DC, NMFS, PRFC, USFWS
Chair: Keliher
Staff: Kerns

1. Welcome/Call to Order *(P. Keliher)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2020
3. Public Comment
4. Chair's Report *(P. Keliher)*
5. Executive Committee Report *(P. Keliher)*
6. Recess

Noon – 12:30 p.m. **Lunch Break**

12:30 – 1:30 p.m. **Interstate Fisheries Management Program Policy Board (continued)**

7. Reconvene
8. Consider Dividing the South Atlantic State/Federal Fisheries Management Board *(T. Kerns)* **Final Action**
9. Set 2021 Coastal Sharks Fishery Specifications *(T. Kerns)* **Final Action**
10. Review Noncompliance Findings (if Necessary) **Action**
11. Other Business/Adjourn

1:30 – 1:45 p.m. **Business Session (continued)**

7. Reconvene
8. Consider Noncompliance Findings (if Necessary) **Final Action**
9. Other Business/Adjourn

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

October 13, 2020

Dr. John F. Quinn, Chairman
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Dear John,

On October 2, 2020, NOAA's Assistant Administrator for Fisheries formally determined that the Atlantic herring stock is overfished based on the best scientific information available.

Consistent with section 304(e)(2) of the Magnuson-Stevens Fishery Conservation and Management Act, we are notifying the Council of this stock status change. Based on the updated overfished status, the Council must prepare and implement a rebuilding program for Atlantic herring within 2 years of the receipt of this notification letter, as required by section 304(e)(3) of the Magnuson-Stevens Act. Consequently, I request that the Council take action to rebuild the Atlantic herring stock.

The Northeast Fisheries Science Center completed the most recent assessment of the Atlantic herring stock in June 2020 using data through 2019. This management track assessment, using an age-structured assessment model, showed that the stock is now overfished, but overfishing is not occurring. This assessment supports a determination that the stock is not subject to overfishing because the 2019 fishing mortality rate (0.25) is less than the maximum fishing mortality threshold (0.54), but is now overfished because spawning stock biomass in 2019 (77,883 mt) is less than minimum stock size threshold (134,500 mt). This is a change from the previous assessment in 2018 that indicated the stock was approaching an overfished condition and overfishing was not occurring.

We recommend that the Council submit the action within 15 months of this notice to ensure sufficient time to implement the appropriate regulations, if approved. We will support the Council's efforts to develop this rebuilding program. If you have any questions regarding this letter, please contact Carrie Nordeen in the Sustainable Fisheries Division at (978) 281-9272, or by email at carrie.nordeen@noaa.gov.

Sincerely,

Michael Pentony
Regional Administrator

cc: Tom Nies, Executive Director, New England Fishery Management Council
Robert Beal, Executive Director, Atlantic States Marine Fisheries Commission
Dr. Jon Hare, Science and Research Director, Northeast Fisheries Science Center
Kelly Denit, Director, Office of Sustainable Fisheries

draft working paper for peer review only

Gulf of Maine winter flounder

2020 Assessment Update Report

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts

Compiled August 2020

This assessment of the Gulf of Maine winter flounder (Pseudopleuronectes americanus) stock is a management track assessment of the existing 2017 area-swept operational assessment (NEFSC 2017). Based on the previous assessment the biomass status is unknown but overfishing was not occurring. This assessment updates commercial and recreational fishery catch data, research survey indices of abundance, and the area-swept estimates of 30+ cm biomass based on the fall NEFSC, MDMF, and MENH surveys.

State of Stock: Based on this updated assessment, the Gulf of Maine winter flounder (*Pseudopleuronectes americanus*) stock biomass status is unknown and overfishing is not occurring (Figures 1-2). Retrospective adjustments were not made to the model results. Biomass (30+ cm mt) in 2019 was estimated to be 2,862 mt (Figure 1). The 2019 30+ cm exploitation rate was estimated to be 0.052 which is 23% of the overfishing exploitation threshold proxy (E_{MSY} *proxy* = 0.23; Figure 2).

Table 1: Catch and status table for Gulf of Maine winter flounder. All weights are in (mt) and E_{Full} is the exploitation rate on 30+ cm fish. Biomass is estimated from survey area-swept for non-overlaping strata from three different fall surveys (MENH, MDMF, NEFSC) using an updated q estimate of 0.71 on the wing spread from the sweep study (Miller et al., 2020).

	2014	2015	2016	2017	2018	2019
	Data					
Recreational discards	5	5	11	5	2	2
Recreational landings	89	85	41	161	80	42
Commercial discards	5	2	3	3	3	4
Commercial landings	215	179	185	210	158	102
Catch for Assessment	315	271	241	378	244	150
	Model Results					
30+ cm Biomass	3,924	2,815	3,156	3,380	2,898	2,862
E_{Full}	0.08	0.096	0.076	0.112	0.084	0.052

Table 2: Comparison of reference points estimated in an earlier assessment and from the current assessment update. An $E_{40\%}$ exploitation rate proxy was used for the overfishing threshold and was based on a length based yield per recruit model from the 2011 SARC 52 benchmark assessment.

	2017	2020
E_{MSY} *proxy*	0.23	0.23
B_{MSY}	Unknown	Unknown
MSY (mt)	Unknown	Unknown
Overfishing	No	No
Overfished	Unknown	Unknown

Projections: Projections are not possible with area-swept based assessments. Catch advice was based on 75% of $E_{40\%}$(75% E_{MSY} *proxy*) using the terminal year fall area-swept estimate

assuming q=0.71 on the wing spread which was updated using the average efficiency from 2009-2019 from the sweep experiment (Miller et al., 2020). Updated 2019 fall 30+ cm area-swept biomass (2,862 mt) implies an OFL of 658 mt based on the E_{MSY} *proxy* and a catch of 494 mt for 75% of the E_{MSY} *proxy*. Alternatively, using the average updated 2018 and 2019 fall 30+ cm area-swept biomass (2,880 mt) implies an OFL of 662 mt based on the E_{MSY} *proxy* and a catch of 497 mt for 75% of the E_{MSY} *proxy*.

Special Comments:

- What are the most important sources of uncertainty in this stock assessment? Explain, and describe qualitatively how they affect the assessment results (such as estimates of biomass, F, recruitment, and population projections).

  The largest source of uncertainty with the direct estimates of stock biomass from survey area-swept estimates originates from the survey gear catchability (q). Biomass and exploitation rate estimates are sensitive to the survey q assumption. However this 2020 update does incorporate the use of a re-estimated q through an average estimate of efficiency from 2009-2019 (q=0.71) from the sweep study for the NEFSC survey. This updated q assumption (0.71) results in a higher estimate of 30+ biomass (2,862 mt) relative to the 2017 estimate q=0.87 assumption (2,343 mt) from the updated fall surveys. Another major source of uncertainty with this method is that biomass based reference points cannot be determined and overfished status is unknown.

- Does this assessment model have a retrospective pattern? If so, is the pattern minor, or major? (A major retrospective pattern occurs when the adjusted SSB or F_{Full} lies outside of the approximate joint confidence region for SSB and F_{Full}

  The model used to determine status of this stock does not allow estimation of a retrospective pattern. An analytical stock assessment model does not exist for Gulf of Maine winter flounder. An analytical model was no longer used for stock status determination at SARC 52 (2011) due to concerns with a strong retrospective pattern. Models have difficulty with the apparent lack of a relationship between a large decrease in the catch with little change in the indices and age and/or size structure over time.

- Based on this stock assessment, are population projections well determined or uncertain? If this stock is in a rebuilding plan, how do the projections compare to the rebuilding schedule?

  Population projections for Gulf of Maine winter flounder do not exist for area-swept assessments and stock biomass status is unknown. Catch advice from area-swept estimates tend to vary with interannual variability in the surveys. Consideration should be given to using multiple surveys to stabilze the biomass estimates and catch advice.

- Describe any changes that were made to the current stock assessment, beyond incorporating additional years of data and the effect these changes had on the assessment and stock status.

  The assumption on q changed from 0.87 to 0.71 using information from the updated sweep experiment (Miller et al., 2020) and incorporation of new survey data were made to this Gulf of Maine winter flounder management track assessment. The new MRIP calibrated catch time series was also updated in this assessment. In addition there were some changes with updated commercial landings data with the switch to using Stockeff data which are mostly due to the changes in the proration with regards to unknown areas from Massachusetts

state landings of winter flounder. However, Changes in total removals will not affect the biomass or catch advice and total removals still remain far below the overfishing definition.

- If the stock status has changed a lot since the previous assessment, explain why this occurred.

  The overfishing status of Gulf of Maine winter flounder has not changed.

- Provide qualitative statements describing the condition of the stock that relate to stock status.

  The Gulf of Maine winter flounder has relatively flat survey indices with little change in the size structure over time. There have been large declines in the commercial and recreational removals since the 1980s. However, this large decline over the time series does not appear to have resulted in a response in the stock's size structure within the catch and surveys nor has it resulted in a change in the survey indices of abundance.

- Indicate what data or studies are currently lacking and which would be needed most to improve this stock assessment in the future.

  Direct area-swept assessments could be improved with additional studies on state survey gear efficiency. Quantifying the degree of herding between the doors and escapement under the footrope and/or above the headrope for state surveys is needed to improve the area-swept biomass estimates. Studies quantifying winter flounder abundance and distribution among habitat types and within estuaries could improve the biomass estimate.

- Are there other important issues?

  The general lack of a response in survey indices and age/size structure are the primary sources of concern with catches remaining far below the overfishing level.

References:

Northeast Fisheries Science Center. 2017. Operational Assessment of 19 Northeast Groundfish Stocks, Updated Through 2016. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 17-17; Commer, Northeast Fish Sci Cent Ref Doc. 17-17; 259 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026. https://repository.library.noaa.gov/view/noaa/16091

Northeast Fisheries Science Center. 2011. 52^{nd} Northeast Regional Stock Assessment Workshop (52^{nd} SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 11-17; 962 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026. CRD11-17

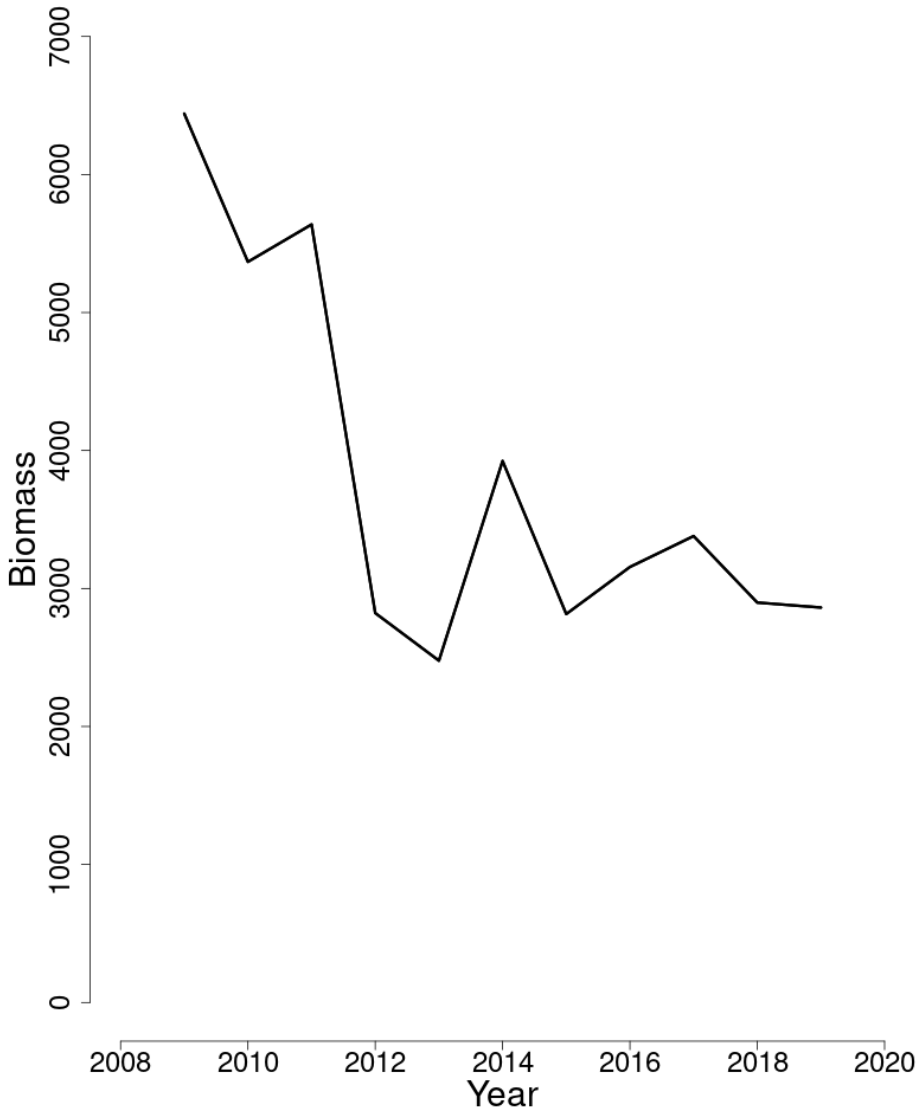

Figure 1: Trends in 30+ cm area-swept biomass of Gulf of Maine winter flounder between 2009 and 2019 from the current assessment based on the fall (MENH, MDMF, NEFSC) surveys.

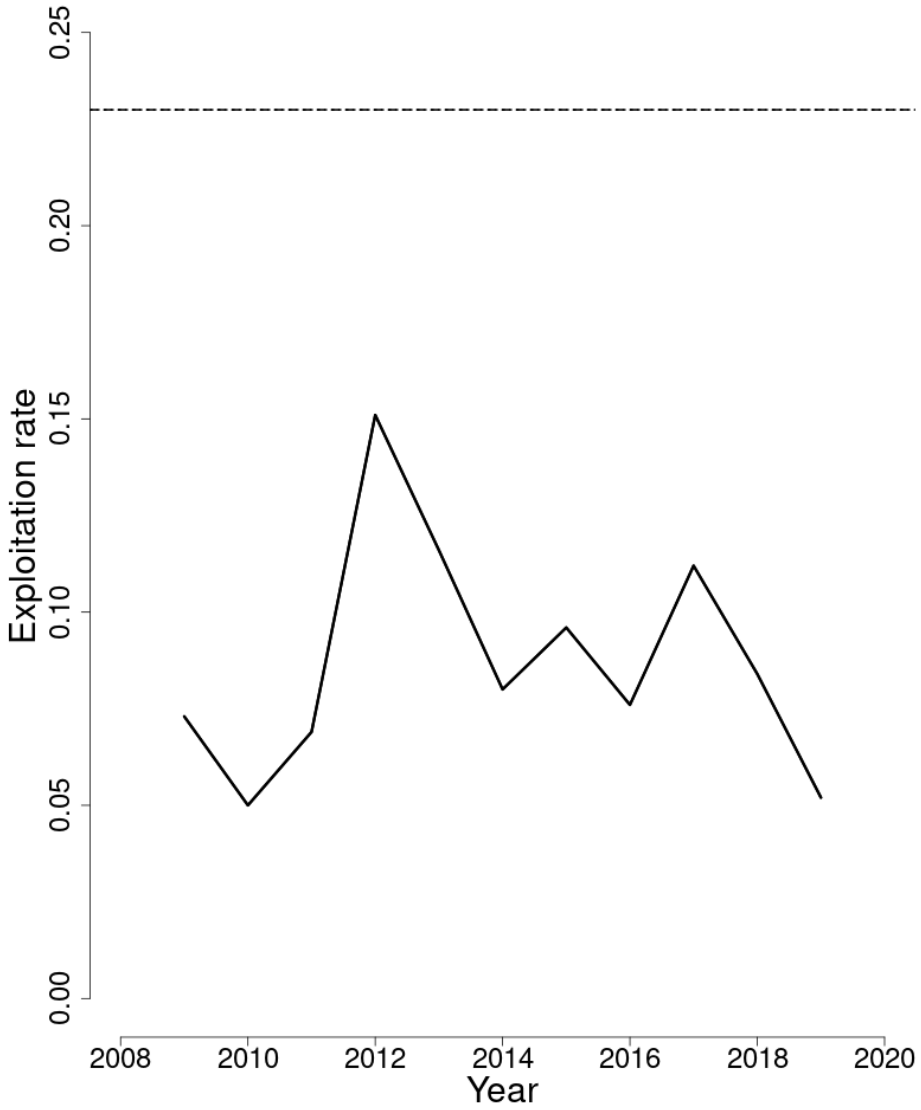

Figure 2: Trends in the exploitation rates (E_{Full}) of Gulf of Maine winter flounder between 2009 and 2019 from the current assessment and the corresponding $F_{Threshold}$ (E_{MSY} *proxy*=0.23; horizontal dashed line).

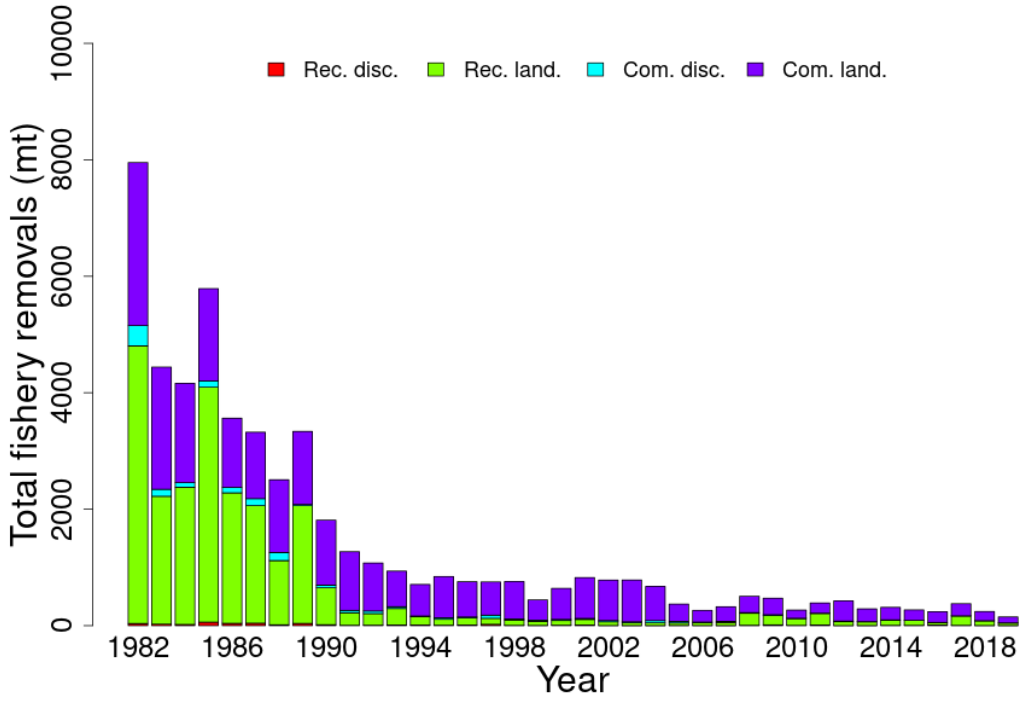

Figure 3: Total catch of Gulf of Maine winter flounder between 2009 and 2019 by fleet (commercial and recreational) and disposition (landings and discards). A 15% mortality rate is assumed on recreational discards and a 50% mortality rate on commercial discards.

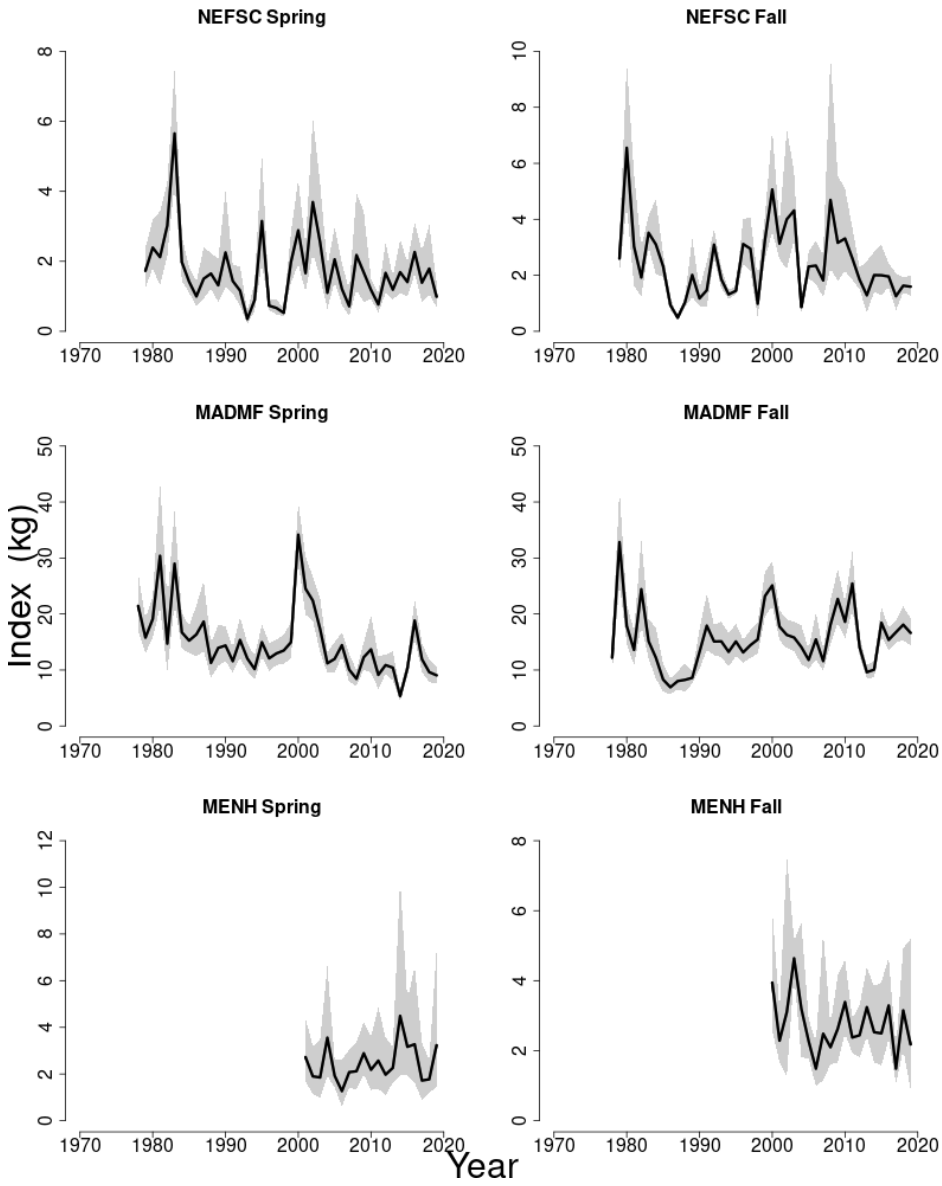

Figure 4: Indices of biomass for the Gulf of Maine winter flounder between 1978 and 2019 for the Northeast Fisheries Science Center (NEFSC), Massachusetts Division of Marine Fisheries (MDMF), and the Maine New Hampshire (MENH) spring and fall bottom trawl (strata 1-3) surveys. NEFSC indices are calculated with gear and vessel conversion factors where appropriate. The approximate 90% lognormal confidence intervals are shown.

draft working paper for peer review only

Southern New England Mid-Atlantic winter flounder

2020 Assessment Update Report

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts

Compiled October 2020

This assessment of the Southern New England Mid-Atlantic winter flounder (Pseudopleuronectes americanus) stock is an operational assessment of the existing banchmark assessment (NEFSC 2011), and follows operational updates in 2015 and 2017. In each assessment since the benchmark the stock was overfished, but overfishing was not occurring (NEFSC 2015, 2017). The current assessment updates commercial fishery catch data, recreational fishery catch data (using new MRIP calibrated data), research survey indices of abundance, and the analytical ASAP assessment models and reference points through 2019. Additionally, stock projections have been updated through 2023.

State of Stock: Based on this updated assessment, the Southern New England Mid-Atlantic winter flounder (*Pseudopleuronectes americanus*) stock is overfished but overfishing is not occurring (Figures 1-2). Retrospective adjustments were not made to the model results. Spawning stock biomass (SSB) in 2019 was estimated to be 3,638 (mt) which is 30% of the biomass target (12,322 mt), and 60% of the biomass threshold for an overfished stock ($SSB_{Threshold} = 6161$ (mt); Figure 1). The 2019 fully selected fishing mortality was estimated to be 0.077 which is 27% of the overfishing threshold ($F_{MSY} = 0.284$; Figure 2).

Table 1: Catch and status table for Southern New England Mid-Atlantic winter flounder. All weights are in (mt), recruitment is in (000s), and F_{Full} is the fishing mortality on fully selected ages (ages 4 and 5). Model results are from the current updated ASAP assessment.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
					Data					
Recreational discards	24	18	11	8	4	13	3	2	4	2
Recreational landings	119	155	126	15	99	39	61	10	10	1
Commercial discards	153	298	482	206	64	82	125	101	108	105
Commercial landings	173	149	134	859	660	661	516	495	326	202
Catch for Assessment	469	620	752	1,087	827	795	704	608	449	310
					Model Results					
Spawning Stock Biomass	5,586	6,577	6,585	6,318	5,209	4,592	3,897	3,667	3,851	3,638
F_{Full}	0.076	0.094	0.117	0.189	0.176	0.178	0.186	0.158	0.111	0.077
Recruits	6,448	4,579	4,251	2,321	4,219	4,955	5,238	3,211	6,185	3,293

Table 2: Comparison of reference points estimated in the 2017 operational assessment and from the current assessment update. F40% was used as a proxy for F_{MSY} and an SSB_{MSY} proxy was calculated from a long-term stochastic projection drawing from the time-series of empirical recruitment. Recruitment estimates are median values of the time-series. 90% CI are shown in parentheses.

	2017	2020
F_{MSY} *proxy*	0.340	0.284
SSB_{MSY} (mt)	24,687	12,322 (6,246 - 21,164)
MSY (mt)	7,532	3,906 (2,014 - 6,624)
Median recruits (000s)	15,802	16,649
Overfishing	No	No
Overfished	Yes	Yes

Projections: Short term projections of biomass were derived by sampling from a cumulative distribution function of the full time-series of recruitment estimates. The annual fishery selectivity, maturity ogive, and mean weights at age used in the projection are the most recent 5 year averages; The model exhibited a minor retrospective pattern in F and SSB so no retrospective adjustments were applied in the projections.

Table 3: Short term projections of total fishery catch and spawning stock biomass for Southern New England Mid-Atlantic winter flounder based on a harvest scenario of fishing at F_{MSY} *proxy* between 2021 and 2023. Catch in 2020 was assumed to be 251 (mt), a value provided by the groundfish PDT. 90% CI are shown next to SSB estimates.

Year	Catch (mt)	SSB (mt)	F_{Full}
2020	251	4,040 (3,310 - 4,906)	0.056

Year	Catch (mt)	SSB (mt)	F_{Full}
2021	1,434	4,313 (3,606 - 5,159)	0.284
2022	1,760	4,871 (4,222 - 5,691)	0.284
2023	2,326	6,335 (4,667 - 11,986)	0.284

Special Comments:

- What are the most important sources of uncertainty in this stock assessment? Explain, and describe qualitatively how they affect the assessment results (such as estimates of biomass, F, recruitment, and population projections).

  A source of uncertainty is the estimate of natural mortality based on longevity, which is not well studied in Southern New England Mid-Atlantic winter flounder, and assumed constant over time. Natural mortality affects the scale of the biomass and fishing mortality estimates. Natural mortality was adjusted upwards from 0.2 to 0.3 during the last benchmark assessment (2011) assuming a max age of 16. However, there is still uncertainty in the true

max age of the population and the resulting natural mortality estimate.

Other sources of uncertainty include the length distribution of the recreational discards. The recreational discards are a small component of the total catch, but the assessment suffers from very little length information used to characterize the recreational discards (1 to 2 lengths in recent years). For this assessment a compiled discard length distribution over all years was used to characterize the recreational discards. In addtion, the paucity of recreational data going forward could be an issue for this assessment.

The population projections are sensitive to the recruitment model chosen, as well as the temporal period selected from which recruitment estimates are drawn.

- Does this assessment model have a retrospective pattern? If so, is the pattern minor, or major? (A major retrospective pattern occurs when the adjusted SSB or F_{Full} lies outside of the approximate joint confidence region for SSB and F_{Full}; see Table **??**).

  The retrospective patterns for both Ffull and SSB are minor and no retrospective adjustment in 2019 was required.

- Based on this stock assessment, are population projections well determined or uncertain? If this stock is in a rebuilding plan, how do the projections compare to the rebuilding schedule?

  Population projections for Southern New England Mid-Atlantic winter flounder are reasonably well determined. However, the results are sensitive to both the recruitment model and the time-period of recruitment used. In addition, while the retrospective pattern is considered minor (within the 90% CI of both F and SSB), the rho adjusted terminal value of F and SSB are close to falling outside of the bounds which would indicate a major retrospective pattern. This would lead to retrospective adjustments being needed for the projections. The stock is in a rebuilding plan with a rebuild date of 2023. A projection using assumed catch in 2020 and F = 0 through 2023 indicated about a 5% chance of reaching the SSB target.

- Describe any changes that were made to the current stock assessment, beyond incorporating additional years of data and the effect these changes had on the assessment and stock status.

  A number of changes were made to the Southern New England Mid-Atlantic winter flounder assessment for this update. Changes and were made to model settings and BRP determination in response to NEFMC SSC concerns with the methodology from the previous benchmark: 'The SSC noted a couple of issues with SNE/MA winter flounder. The first was that the projections were overly optimistic, and this was driven by over estimating recruitment. The SSC noted that we appeared to be in a period of low recruitment, therefore assuming that this recruitment will be higher in the projections was not a reasonable assumption. Additionally, the assessment for this stock was allowing for domed shaped selectivity. This was creating an abundance of cryptic biomass, or biomass seen in the computer output of the population, but which does not show up in catch or survey data.'

  The changes made to the data input and benchmark model for this operational update were: 1. Incorporated new MRIP calibrated time-series, 2. Added a selectivity block from 2010 to present, 3. Forced flat top selectivity for the fleet (Ages 4-7) to get rid of cryptic

biomass, 4. Added NEAMAP Spring Trawl survey index. 5. Shifted from FMSY (assumed B-H S-R relationship) to F40% as a proxy, 6. Used empirical CDF of recruitment time-series for projections instead of assuming B-H stock recruit relationship.

Overall, these changes caused a minor decrease in SSB (getting rid of some cryptic biomass) and cut the SSB reference point in half from 24,687 MT to 12,261 MT. Forcing a flat top selectivity for the fleet increased the SSB retro when compared to the previous operational assessment (Mohn's rho of 0.248 vs 0127). However, the retrospective error for both F and SSB were still considered minor for this assessment.

- If the stock status has changed a lot since the previous assessment, explain why this occurred.

  The stock status of Southern New England Mid-Atlantic winter flounder has not changed since the previous operational updates in 2017 and 2015, and remains the same as the last benchmark assessment in 2011.

- Provide qualitative statements describing the condition of the stock that relate to stock status.

  The Southern New England Mid-Atlantic winter flounder stock shows an overall declining trend in SSB over the time series, with the current estimate (3959 MT) at the time series low. Estimates of fishing mortality have been declining since 2015 and the current value (0.072) is also at a time-series low. Recruitment had a small peak in 2018 (6.4 million), however, it has again dropped below the 10-yr average (4.7 million) in 2019 (3.4 million).

- Indicate what data or studies are currently lacking and which would be needed most to improve this stock assessment in the future.

  The Southern New England Mid-Atlantic winter flounder assessment could be improved with additional studies on maximum age, as well as improved recreational discard length information. In addition, further investigation into the localized struture/genetics of the stock is warranted. Finally, a future shift to ASAP version 4 (during the next research track assessment) will provide the ability to model envirionmental factors that may influence survey catchability and help develop more informed population projections.

- Are there other important issues?
  None.

References:

Northeast Fisheries Science Center. 2011. 52^{nd} Northeast Regional Stock Assessment Workshop (52^{nd} SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 11-17; 962 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026.

Northeast Fisheries Science Center. 2015. Operational Assessment of 20 Northeast Groundfish Stocks, Updated through 2014. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 15-24; 251 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA

02543-1026.

Northeast Fisheries Science Center. 2017. Operational Assessment of 19 Northeast Groundfish Stocks, Updated through 2016. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 17-17; 264 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026.

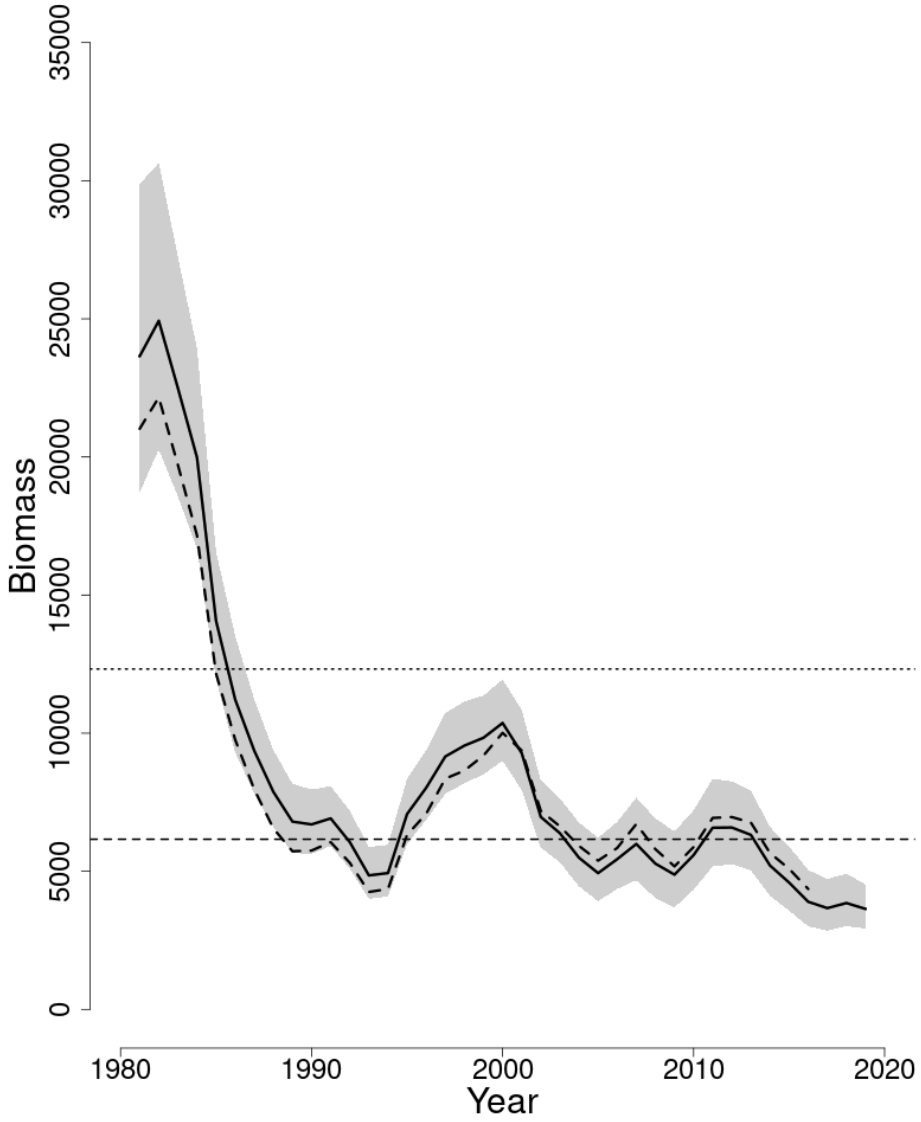

Figure 1: Trends in spawning stock biomass of Southern New England Mid-Atlantic winter flounder between 1981 and 2019 from the current (solid line) and previous (dashed line) assessment and the corresponding $SSB_{Threshold}$ ($\frac{1}{2}$ SSB_{MSY} *proxy*; horizontal dashed line) as well as SSB_{Target} (SSB_{MSY} *proxy*; horizontal dotted line) based on the 2020 assessment. The approximate 90% lognormal confidence intervals are shown.

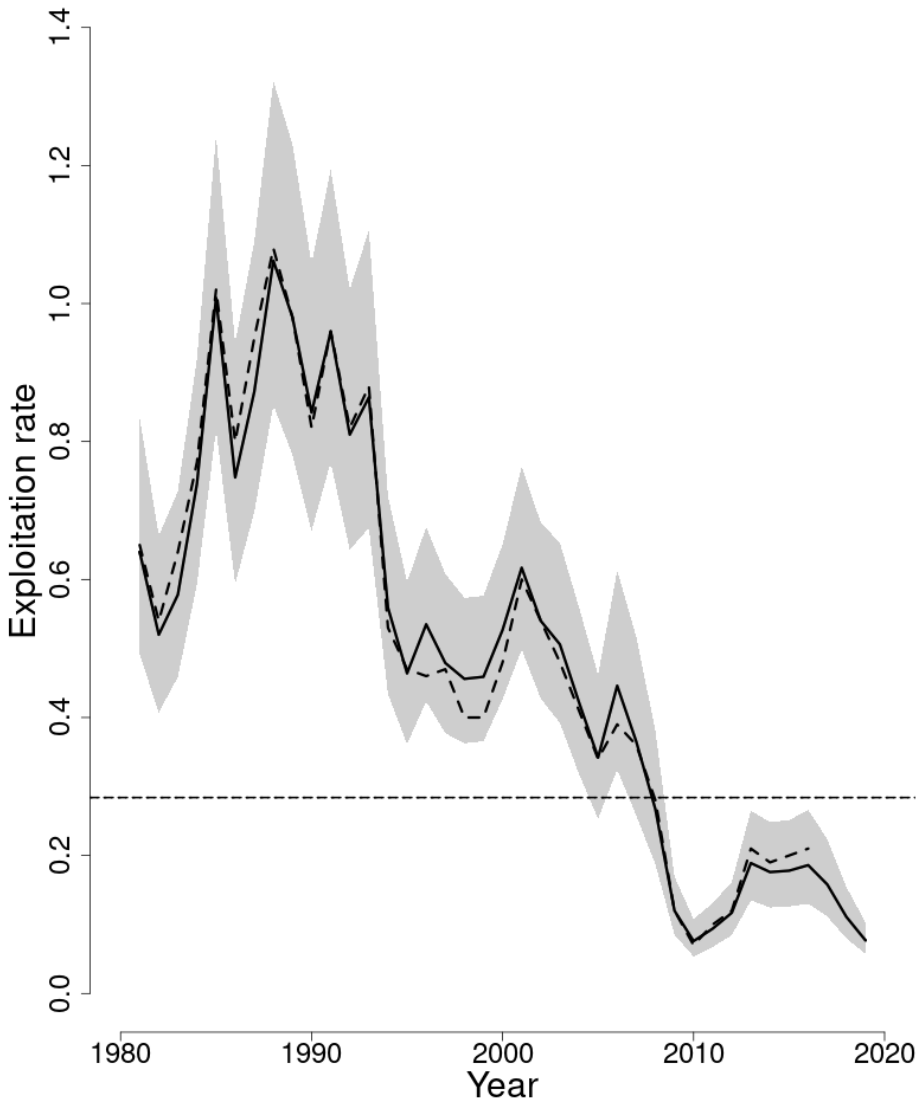

Figure 2: Trends in the fully selected fishing mortality (F_{Full}) of Southern New England Mid-Atlantic winter flounder between 1981 and 2019 from the current (solid line) and previous (dashed line) assessment and the corresponding $F_{Threshold}$ (F_{MSY}=0.284; horizontal dashed line) based on the 2020 assessment. The approximate 90% lognormal confidence intervals are shown.

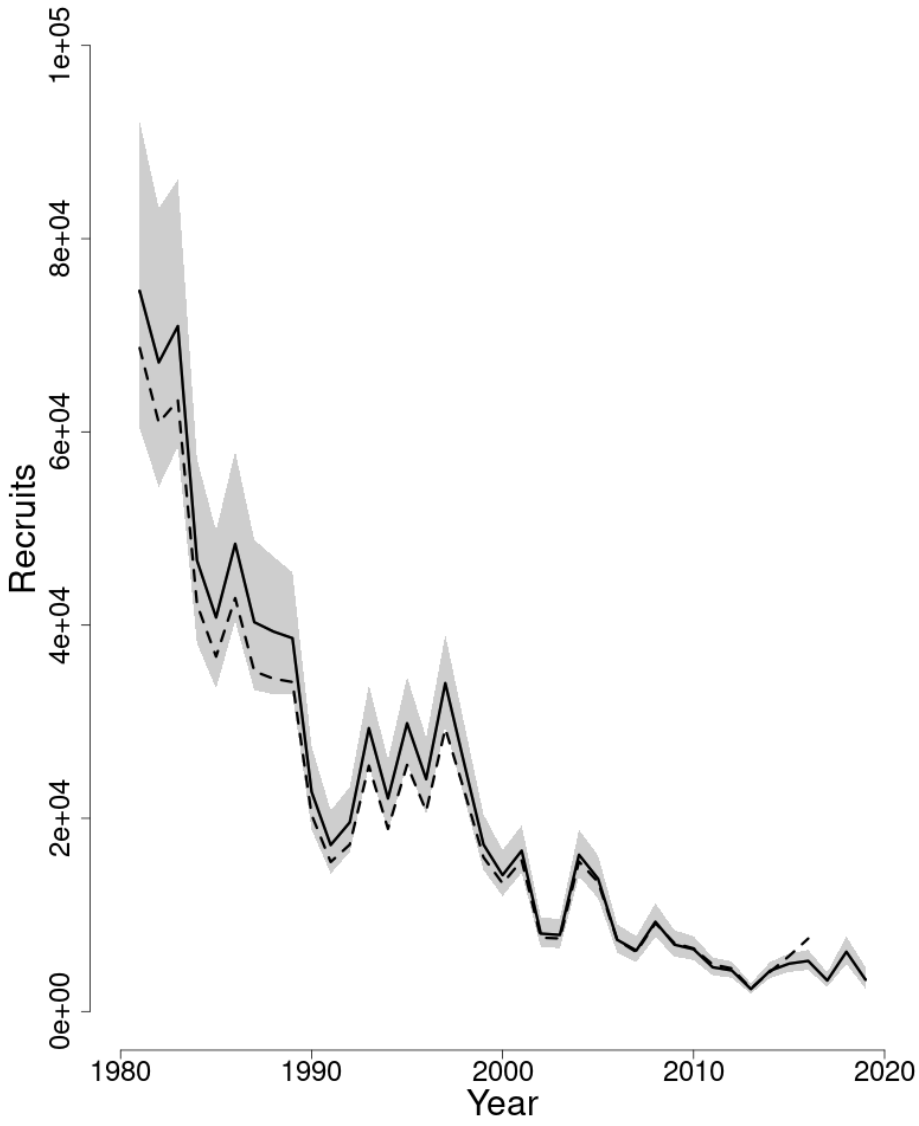

Figure 3: Trends in Recruits (000s) of Southern New England Mid-Atlantic winter flounder between 1981 and 2019 from the current (solid line) and previous (dashed line) assessment. The approximate 90% lognormal confidence intervals are shown.

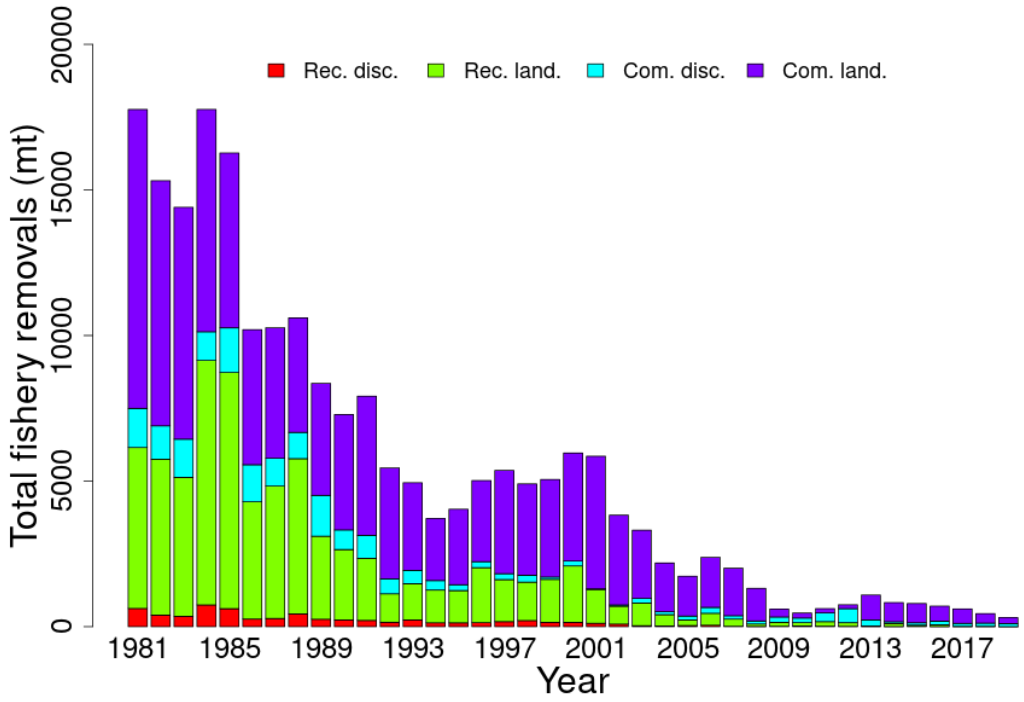

Figure 4: Total catch of Southern New England Mid-Atlantic winter flounder between 1981 and 2019 by fleet (commercial, recreational) and disposition (landings and discards).

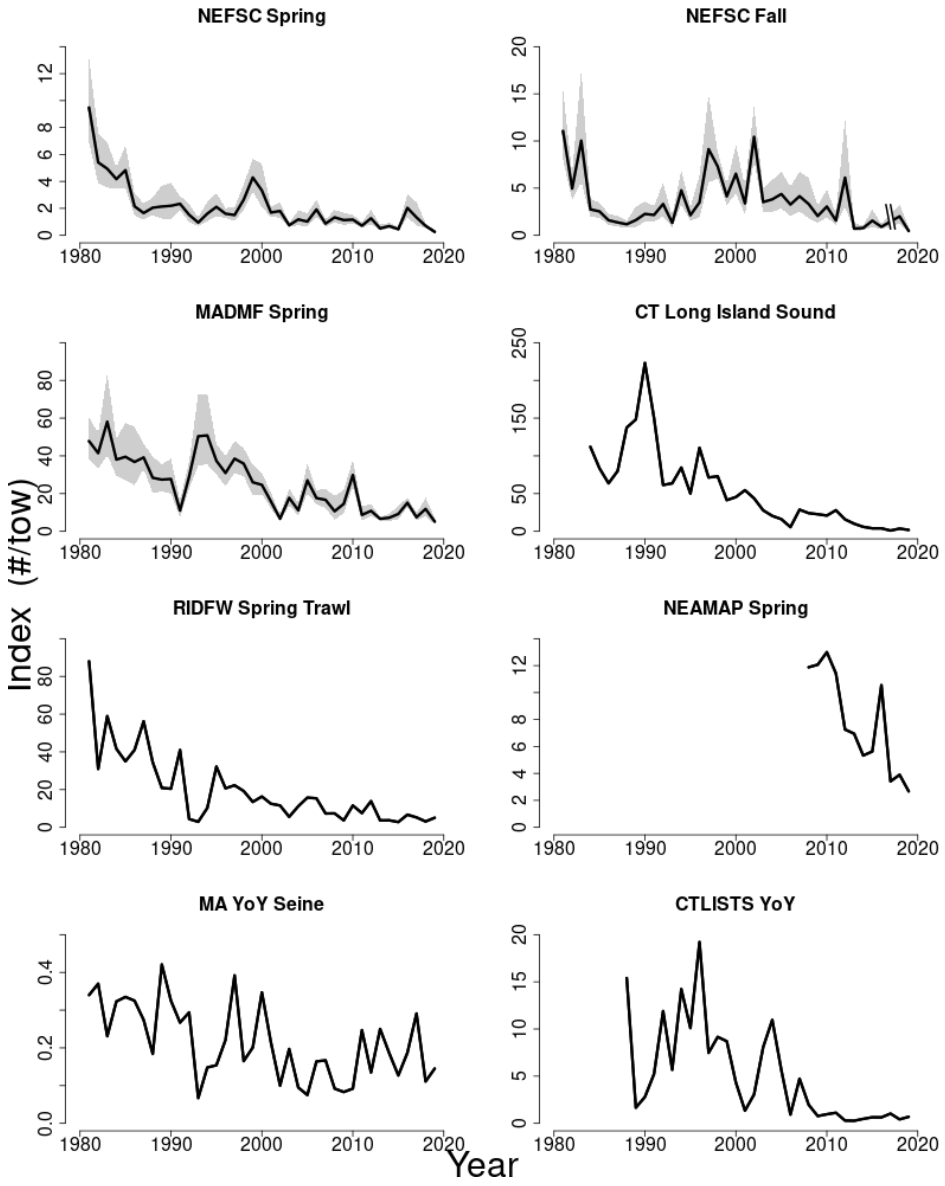

Figure 5: Indices of biomass for the Southern New England Mid-Atlantic winter flounder between 1981 and 2019 for the Northeast Fisheries Science Center (NEFSC) spring and fall bottom trawl surveys, the MADMF spring survey, the CT LISTS survey, the RIDFW Spring Trawl survey, the NJ Ocean Trawl survey, and two YoY surveys from MADMF and CT LISTS. Where available, the approximate 90% lognormal confidence intervals are shown. Slashes through the solid line indicate a hole in the survey time series.

Draft for Board Review

ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

FOR AMERICAN LOBSTER
(*Homarus americanus*)

2019 FISHING YEAR

Prepared by the Plan Review Team

October 2020

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

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This document covers fishery activities in 2019 as well as trap reductions which took place ahead of the 2020 fishing year.

1.0 Status of the Fishery Management Plan

Year of ASMFC Plan's Adoption:	Amendment 3 (1997)
Plan Addenda:	
Addendum II (2001)	Addendum XIV (2009)
Addendum III (2002)	Addendum XV (2009)
Addendum IV (2003)	Addendum XVI (2010)
Addendum V (2004)	Addendum XVII (2012)
Addendum VI (2005)	Addendum XVIII (2012)
Addendum VII (2005)	Addendum XIX (2013)
Addendum VIII (2006)	Addendum XX (2013)
Addendum IX (2006)	Addendum XXI (2013)
Addendum X (2007)	Addendum XXII (2013)
Addendum XI (2007)	Addendum XXIII (2014)
Addendum XII (2008)	Addendum XXIV (2015)
Addendum XIII (2008)	Addendum XXVI (2018)
Management Unit:	Maine through North Carolina
States with a Declared Interest:	Maine through Virginia (Excluding Pennsylvania and DC)
Active Committees:	American Lobster Management Board, Technical Committee, Lobster Conservation Management Teams, Plan Development Team, Plan Review Team, Advisory Panel, Electronic Reporting Subcommittee, Electronic Tracking Subcommittee, Stock Assessment Subcommittee

2.0 Status of the Fishery

2.1 Commercial Fishery

The lobster fishery has seen incredible expansion in landings over the last 40 years. Between 1950 and 1975, landings were fairly stable around 30 million pounds; however, from 1976 – 2008 the average coastwide landings tripled, exceeding 98 million pounds in 2006. Landings have continued to increase over the last decade, reaching a high of 159 million pounds in 2016 (Table 1). In 2019, coastwide commercial landings were approximately 125.8 million pounds, a 15% decrease from 2018 landings of 147.9 million pounds. The largest contributors to the 2019 fishery were Maine and Massachusetts with 80% and 13% of landings, respectively. Landings, in descending order, also occurred in New Hampshire, Rhode Island, New Jersey, New York, Connecticut, Delaware, Maryland, and Virginia. The ex-vessel value for all lobster landings in 2019 was approximately $630 million.

Table 2 shows the break-down of commercial landings by Lobster Conservation Management Area (LCMA). Area 1 has historically had the highest landings and accounted for 80% of total harvest between 1981 and 2012. This is followed by LCMA 3 which accounted for 9% of total landings between 1981 and 2012. Yearly trends in Table 2 show that while landings have generally increased in LCMA 1, they have decreased in LCMA's 2, 4, and 6. Landings by LCMA are updated through each benchmark stock assessment.

Landings trends between the two biological stocks have also changed, as a greater percentage of lobster are harvested from the Gulf of Maine/Georges Bank (GOM/GBK) stock. In 1997, 26.3% of coastwide landings came from the Southern New England (SNE) stock. However, as the southern stock declined and abundance in the Gulf of Maine increased, this percentage has significantly changed. In 2000, only 15.6% of landings came from the SNE stock and by 2006, this declined to 7%. In 2018, approximately 1.8% of coastwide landings came from the SNE stock. The proportion of landings by stock for 2019 could not be calculated due to unreported data from Massachusetts.

2.2 Recreational Fishery

Lobster is also taken recreationally with pots, and in some states, by hand while SCUBA diving. While not all states collect recreational harvest data, some do report the number of pounds landed recreationally and/or the number of recreational permits issued. In 2018, New York reported 2,242 pounds of lobster harvested recreationally, representing 1.9% of state landings. New Hampshire reported 5,659 pounds of lobster harvested recreationally, representing 0.09% of total landings in the state. Maine, Rhode Island, and Connecticut do not collect information on the number of pounds recreationally harvested but did issue 2,112, 490, and 250 recreational lobster licenses, respectively. Massachusetts did not provide recreational landings data for 2019, but for the past five years that data were available (2011-2015) recreational lobster landings represented an average of 1.4% of the total state landings.

3.0 Status of the Stock

The 2015 peer-reviewed stock assessment report indicated a mixed picture of the American lobster resource, with record high stock abundance throughout most of the GOM/GBK and record low abundance and recruitment in SNE (Table 3).

The assessment found the GOM/GBK stock is not overfished and not experiencing overfishing. GOM and GBK were previously assessed as separate stock units; however, due to evidence of seasonal migrations by egg-bearing females between the two stocks, the areas were combined into one biological unit. While model results show a dramatic overall increase in stock abundance in the GOM/GBK, recent young-of-year estimates have been below average. This could indicate a potential decline in recruitment and landings in the coming years.

Conversely, the assessment found the SNE stock is severely depleted and in need of protection. Recruitment indices show the stock has continued to decline and is in recruitment failure. The inshore portion of the SNE stock is in particularly poor condition with surveys showing a

contraction of the population. This decline is expected to impact the offshore portion of the stock, which is likely dependent on recruitment from inshore.

Both the Technical Committee and the Peer Review Panel highlighted the need for management action in SNE. Specifically, the Panel recommended close monitoring of the stock status along with implementing measures to protect the remaining lobster resource in order to promote stock rebuilding.

A benchmark stock assessment for lobster was peer reviewed in August 2020. It will be presented for Board consideration and approval in October 2020.

4.0 Status of Management Measures

4.1 Implemented Regulations

Amendment 3 established regulations which require coastwide and area specific measures applicable to commercial fishing (Table 4). The coastwide requirements from Amendment 3 are summarized below; additional requirements were established through subsequent Addenda.

Coastwide Requirements and Prohibited Actions

- Prohibition on possession of berried or scrubbed lobsters
- Prohibition on possession of lobster meats, detached tails, claws, or other parts of lobsters by fishermen
- Prohibition on spearing lobsters
- Prohibition on possession of v-notched female lobsters
- Requirement for biodegradable "ghost" panel for traps
- Minimum gauge size of 3-1/4"
- Limits on landings by fishermen using gear or methods other than traps to 100 lobsters per day or 500 lobsters per trip for trips 5 days or longer
- Requirements for permits and licensing
- All lobster traps must contain at least one escape vent with a minimum size of 1-15/16" by 5-3/4"
- Maximum trap size of 22,950 cubic inches in all areas except area 3, where traps may not exceed a volume of 30,100 cubic inches.

<u>Amendment 3 to the Interstate Fishery Management Plan for American Lobster (December 1997)</u>

American lobster is managed under Amendment 3 to the Interstate FMP for American Lobster. Amendment 3 establishes seven lobster management areas. These areas include the: Inshore Gulf of Maine (Area 1), Inshore Southern New England (Area 2), Offshore Waters (Area 3), Inshore Northern Mid-Atlantic (Area 4), Inshore Southern Mid-Atlantic (Area 5), New York and Connecticut State Waters (Area 6), and Outer Cape Cod (OCC). Lobster Conservation Management Teams (LCMTs) comprised of industry representatives were formed for each management area. The LCMTs are charged with advising the Lobster Board and recommending changes to the management plan within their areas.

Amendment 3 also provides the flexibility to respond to current conditions of the resource and fishery by making changes to the management program through addenda. The commercial fishery is primarily controlled through minimum/maximum size limits, trap limits, and v-notching of egg-bearing females.

Addendum I (August 1999)
Establishes trap limits in the seven lobster conservation management areas (LCMAs).

Addendum II (February 2001)
Establishes regulations for increasing egg production through a variety of LCMT proposed management measures including, but not limited to, increased minimum gauge sizes in Areas 2, 3, 4, 5, and the Outer Cape.

Addendum III (February 2002)
Revises management measures for all seven LCMAs in order to meet the revised egg-rebuilding schedule.

Technical Addendum 1 (August 2002)
Eradicates the vessel upgrade provision for Area 5.

Addendum IV (January 2004)
Changes vent size requirements; applies the most restrictive rule on an area trap cap basis without regard to the individual's allocation; establishes Area 3 sliding scale trap reduction plan and transferable trap program to increase active trap reductions by 10%; and establishes an effort control program and gauge increases for Area 2; and a desire to change the interpretation of the most restrictive rule.

Addendum V (March 2004)
Amends Addendum IV transferability program for LCMA 3. It establishes a trap cap of 2200 with a conservation tax of 50% when the purchaser owns 1800 to 2200 traps and 10% for all others.

Addendum VI (February 2005)
Replaces two effort control measures for Area 2 – permits an eligibility period.

Addendum VII (November 2005)
Revises Area 2 effort control plan to include capping traps fished at recent levels and maintaining 3 3/8" minimum size limit.

Addendum VIII (May 2006)
Establishes new biological reference points to determine the stock status of the American lobster resource (fishing mortality and abundance targets and thresholds for the three stock assessment areas) and enhances data collection requirements.

Addendum IX (October 2006)

Establishes a 10% conservation tax under the Area 2 trap transfer program.

Addendum X (February 2007)
Establishes a coastwide reporting and data collection program that includes dealer and harvester reporting, at-sea sampling, port sampling, and fishery-independent data collection replacing the requirements in Addendum VIII.

Addendum XI (May 2007)
Establishes measures to rebuild the SNE stock, including a 15-year rebuilding timeline (ending in 2022) with a provision to end overfishing immediately. The Addendum also establishes measures to discourage delayed implementation of required management measures.

Addendum XII (February 2009)
Addresses issues which arise when fishing privileges are transferred, either when whole businesses are transferred, when dual state/federal permits are split, or when individual trap allocations are transferred as part of a trap transferability program. In order to ensure the various LCMA-specific effort control plans remain cohesive and viable, this addendum does three things. First, it clarifies certain foundational principles present in the Commission's overall history-based trap allocation effort control plan. Second, it redefines the most restrictive rule. Third, it establishes management measures to ensure history-based trap allocation effort control plans in the various LCMAs are implemented without undermining resource conservation efforts of neighboring jurisdictions or LCMAs.

Addendum XIII (May 2008)
Solidifies the transfer program for OCC and stops the current trap reductions.

Addendum XIV (May 2009)
Alters two aspects of the LCMA 3 trap transfer program. It lowers the maximum trap cap to 2000 for an individual that transfers traps. It changes the conservation tax on full business sales to 10% and for partial trap transfers to 20%.

Addendum XV (November 2009)
Establishes a limited entry program and criteria for Federal waters of LCMA 1.

Addendum XVI: Reference Points (May 2010)
Establishes new biological reference points to determine the stock status of the American lobster resource (fishing mortality and abundance targets and thresholds for the three stock assessment areas). The addendum also modifies the procedures for adopting reference points to allow the Board to take action on advice following a peer reviewed assessment.

Addendum XVII (February 2012)
Institutes a 10% reduction in exploitation for LCMAs within Southern New England (2, 3, 4, 5, and 6). Regulations are LCMA specific but include v-notch programs, closed seasons, and size limit changes.

Addendum XVIII (August 2012)
Reduces traps allocations by 50% for LCMA 2 and 25% for LCMA 3.

Addendum XIX (February 2013)
Modifies the conservation tax for LCMA 3 to a single transfer tax of 10% for full or partial business sales.

Addendum XX (May 2013)
Prohibits lobstermen from setting or storing lobster traps in Closed Area II from November 1 to June 15 annually. Any gear set in this area during this time will be considered derelict gear. This addendum represents an agreement between the lobster industry and the groundfish sector.

Addendum XXI (August 2013)
Addresses changes in the transferability program for Areas 2 and 3. Specific measures include the transfer of multi-LCMA trap allocations and trap caps.

Addendum XXII (November 2013)
Implements Single Ownership and Aggregate Ownership caps in LCMA 3. Specifically, it allows LCMA 3 permit holders to purchase lobster traps above the cap of 2000 traps; however, these traps cannot be fished until approved by the permit holder's regulating agency or once trap reductions commence. The Aggregate Ownership Cap limits LCMA fishermen or companies from owning more traps than five times the Single Ownership Cap.

Addendum XXIII (August 2014)
Updates Amendment 3's habitat section to include information on the habitat requirements and tolerances of American lobster by life stage.

Addendum XXIV (May 2015)
Aligns state and federal measure for trap transfer in LCMA's 2, 3, and the Outer Cape Cod regarding the conservation tax when whole businesses are transferred, trap transfer increments, and restrictions on trap transfers among dual permit holders.

Addendum XXVI
Advances the collection of harvester and biological data in the lobster fishery by improving the spatial resolution of data collection, requiring harvesters to report additional data elements, and establishing a deadline that within five years, states are required to implement 100% harvester reporting. The Addendum also improves the biological sampling requirements by establishing a baseline of ten sampling trips per year, and encourages states with more than 10% of coastwide landings to conduct additional sampling trips.

4.2 On-Going Management Actions

In response to signs of reduced settlement in the GOM/GBK, the Board initiated Draft Addendum XXVII in August 2017 to increase resiliency through considering the standardization

of management measures in the GOM/GBK stock. Due to the prioritization of actions in response to the Atlantic Large Whale Take Reduction Team recommendations, development of this addendum stalled, but in October 2019 the Board agreed to continue development of the addendum once the ongoing 2020 benchmark stock assessment is completed.

As a result of final action on Addendum XXVI, the Board established an Electronic Tracking Subcommittee and an Electronic Reporting Subcommittee. Membership on the two Committees is comprised of state representatives, technical committee members, federal partners, industry members, ACCSP staff, and ASMFC staff. The purpose of the Electronic Tracking Subcommittee is to design and implement a one-year tracking pilot program in the fishery. In 2019, funding was provided to Maine and Massachusetts to implement a pilot program to test tracking devices which could be used in the lobster fishery. A report on this pilot program should be available in October 2020. The Electronic Reporting Subcommittee was established to guide the development of electronic harvester reporting in the lobster fishery. This includes identifying data needs for an electronic harvester reporting form, evaluating various electronic reporting software, and recommending simple and logical solutions. To date, the Reporting Subcommittee has guided the specifications for data collection to ensure all required data elements from Addendum XXVI can be reported electronically beginning in 2021.

5.0 Ongoing Trap Reductions

Addendum XVIII established a series of trap reductions in LCMAs 2 and 3, with the intent of scaling the size of the SNE fishery to the size of the resource. Specifically, a 25% reduction in year 1 followed by a series of 5% reductions for five years was established in LCMA 2; a series of 5% reductions over five years was established in LCMA 3. The fifth year of reductions took place at the end of the 2019 fishing year and affect trap allocations in the 2020 fishery. Per Addendum XVIII, states with fishermen in Areas 2 and 3 are required to report on the degree of consolidation that has taken place. Trap reductions by jurisdiction ahead of the 2020 fishing year can be found in Table 5. It is important to note that trap reductions also occur as the result of trap transfers as, per Addendum XIX, there is a 10% conservation tax on trap allocation transfers between owners.

6.0 Fishery Dependent Monitoring

The following provisions of Addendum XXVI went into effect January 1, 2019:

- Required reporting of additional data elements
- Requirement to implement 100% harvester reporting within five years
- Baseline biological sampling requirement of ten sea and/or port sampling trips per year

The Addendum XXVI requirement for commercial harvesters to report their fishing location by 10 minute longitudinal/latitudinal square will not be implemented until 2021. Table 6 describes the level of reporting and monitoring programs by each state. *De minimis* states are not required to conduct biological sampling of their lobster fishery.

In 2019, all states except New Jersey and Connecticut completed the required fishery dependent monitoring through sea and/or port sampling trips in 2019. New Jersey only

completed 3 sea sampling trips, noting that there has been a decrease in recent years of compliance and willingness from vessel captains to accommodate onboard observers. Connecticut noted budget constraints and the collapse of the fishery in Long Island Sound as reasons for not conducting sea sampling. Across the management unit, a total of 255 sea sampling trips, 23 port sampling trips, and 20 market sampling trips were performed, sampling a total of 256,282 lobsters. The number of trips and lobsters sampled by individual states are summarized in Table 7.

7.0 Status of Fishery Independent Monitoring

Addendum XXVI also requires fishery independent data collection by requiring statistical areas be sampled through one of the following methods: annual trawl survey, ventless trap survey, or young-of-year survey.

7.1 Trawl Surveys

Maine and New Hampshire: The Maine-New Hampshire Inshore Trawl survey began in 2000 and covers approximately two-thirds of the inshore portion of Gulf of Maine. The spring portion of the survey completed all 120 scheduled tows, and sampled 22,623 lobsters (11,346 females and 11,277 males). Spring survey abundance indices increased from 2018 and are well above the time series mean. The fall survey completed 98 out of 120 scheduled tows, resulting in an 82% completion. A total of 20,823 lobsters were caught and sampled (10,511 females and 10,312 males). Fall survey abundance indices decreased from 2018 (Figure 2).

Massachusetts: The Division of Marine Fisheries conducts spring and autumn bottom trawl surveys in the territorial waters of Massachusetts. Only data collected from the autumn portion of the inshore trawl survey is used to calculate lobster relative abundance indices. After low levels observed in the GOM during the early to mid-2000s, relative abundance indices have increased over the last decade. In SNE, relative abundance from the spring and fall surveys remains low, although the most recent value for legal-sized lobsters was above the time series median value in both seasons (Figure 3).

Rhode Island: The RIDFW Trawl Survey program conducted seasonal surveys in the spring and fall, as well as a monthly survey. In 2019, 44 trawls were conducted in both the spring and fall. 143 trawls were performed as part of the monthly program. Spring 2019 mean CPUEs were 0.11 and 1.16 for legal and sub-legal lobsters, respectively. Fall 2019 CPUE decreased slightly from 2018 to 0.07 for legal lobsters and 1.18 for sub-legal lobsters. The 2019 mean monthly trawl CPUEs were slightly lower than 2017 at 0.07 and 1.17 per tow for legal and sublegal lobsters, respectively. All abundances were low for the time series (Figure 4).

Connecticut and New York: Juvenile and adult abundance are monitored through the Long Island Sound Trawl Survey during the spring (April, May, June) and the fall (September, October) cruises. The spring 2019 lobster abundance index (geometric mean = 0.1 lobsters/tow) was the third lowest in the time series and is similar to the 2017-2018 indices (Figure 5). Spring abundance in the last nine years has been less than 1.0. All indices from 2004-2019 are below the time series median (3.16). The fall 2019 survey sadly marked the first time

since the survey began in 1984 that no lobsters were caught in September and October. The fall time series median (3.54) has not been exceeded since 2004 (Figure 5). Both legal and sublegal size lobster abundance has declined with a similar trajectory.

New York: In 2018, New York initiated a stratified random trawl survey in the near shore ocean waters off the south shore of Long Island from the Rockaways to Montauk Point and the New York waters of Block Island Sound. Sampling was conducted five times a year during the winter (February), spring (May, June), summer (August), and fall (December). Twenty-five to 30 stations were sampled each trip. Ten lobsters were caught during the 2019 survey.

New Jersey: An independent Ocean Trawl Survey is conducted from Sandy Hook, NJ to Cape May, NJ each year. The survey stratifies sampling in three depth gradients, inshore (18'-30'), mid-shore (30'-60'), offshore (60'-90'). The mean CPUE, which is calculated as the sum of the mean number of lobsters per size class collected in each sampling area weighted by the stratum area, increased from 2017 to 2018 for all size classes grouped and legal sizes, but decreased for sublegal sizes (Figure 6).

7.2 Young of Year Index

Several states conduct young-of-year (YOY) surveys to detect trends in abundance of newly-settled and juvenile lobster populations. These surveys attempt to provide an accurate picture of the spatial pattern of lobster settlement. States hope to track juvenile populations and generate predictive models of future landings.

Maine: There are currently 40 fixed stations along the Maine coast. Of these 40 stations 38 have been sampled consistently since 2001 with two additional sites added to zone D in 2005. YOY survey indices in 2019 increased from 2018 in all areas. The 2019 indices in areas 511 and 512 are near the time series averages, while the indices for 513 east and west remain below the series averages (Figure 7).

New Hampshire: New Hampshire Fish and Game conducted a portion of the coastwide American Lobster Settlement Index (ALSI). In 2019, a total of 21 juvenile lobsters were sampled from three sites, 13 of which were deemed older juveniles 5 of which were YOY, and 3 one-year-olds (Y+) were observed. Figure 8 depicts the CPUE of lobsters for all NH sites combined, from 2008 through 2019. For each of these four indices, CPUE shows a general upward trend to a time series high in 2011, with sustained low levels from 2012 through 2019.

Massachusetts: Annual sampling for early benthic phase/juvenile (EBP) lobsters was conducted during August and September, 2019. Sampling was completed at 21 sites spanning 7 regions in Massachusetts coastal waters. Changes to the survey were made in 2019: in SNE two locations were discontinued in Buzzards Bay and both Vineyard Sound sites were discontinued due to lack of productivity and logistical constraints, in GOM two South Shore locations and all three Cape Cod Bay locations were discontinued due the risks associated with increasing white shark presence. Data for all sites were used to generate annual density estimates of EBP lobster and other decapod crustaceans. In 2019 densities of YOY lobsters remained low compared to the

time series average in all sampling locations except the South Shore (Figure 9). In GOM there were no YOY lobsters found in the Boston sampling regions. In SNE there were no YOY lobsters found in the Buzzards Bay sampling locations.

Rhode Island: For 2019, the YOY Settlement Survey was conducted using suction sampling at a total of six fixed stations with twelve randomly selected 0.5 m^2 quadrats sampled at each survey station. Average site abundance of lobster at sampling sites has generally declined since the mid-1990's (Figure 10). The 2019 YOY settlement survey index showed no change from the 2018 level of 0.03 YOY lobster/m^2.

Connecticut: The CT DEEP Larval Lobster Survey in western Long Island Sound was discontinued after 2012. Alternative monitoring data are available for the eastern Sound from the Millstone Power Station entrainment estimates of all stages of lobster larvae. Both programs show a protracted decline in recruitment following the 1999 die-off (correlation between programs: R=0.35, p=0.066) (Figure 11).

7.3 Ventless Trap Survey

To address a need for a reliable index of lobster recruitment, a cooperative random stratified ventless trap survey was designed to generate accurate estimates of the spatial distribution of lobster length frequency and relative abundance while attempting to limit the biases identified in conventional fishery dependent surveys.

Maine: The Maine Ventless Trap Survey changed strategies in 2015 to cover more area by eliminating the vented traps at each site. This change allowed the survey to double the number of sites with ventless traps and increase the sampling coverage spatially to 276 sites. Traps were set during the months of June, July, and August. The stratified mean was calculated for each area using depth and statistical area. Compared to the previous year, in 2019 there were decreases in the number of sublegal (< 83 mm CL) and legal-sized (≥ 83 mm CL) lobsters caught in all three areas (511, 512, and 513) (Figure 12).

New Hampshire: Since 2009, NHF&G has been conducting the coastwide Random Stratified Ventless Trap Survey in state waters (statistical area 513). A total of three sites were surveyed on a monthly basis from January through December in 2019. Catch per unit effort (stratified mean catch per trap haul) from 2009 through 2019 is presented in Figure 13. The highest catch value of the time series was recorded in 2019.

Massachusetts: The coast-wide ventless trap survey was initiated in 2006 and expanded in 2007 with the intention of establishing a standardized fishery-independent survey designed specifically to monitor lobster relative abundance and distribution. The survey was not conducted in 2013 due to a lack of funding; however, starting in 2014 the survey has been funded with lobster license revenues and will continue as a long-term survey. Relative abundance of sub-legal (< 83 mm CL) and legal-sized (≥ 83 mm CL) lobsters for Area 514 (part of LCMA 1) is shown in Figure 14 as the stratified mean CPUE. The average catch of sublegal lobsters is much higher than the catch of legal-sized lobsters, generally increased from 2006

through 2016 but has been declining since, with the 2019 value below the time series average of 4.84 lobsters/trap. The stratified mean catch per trap of legal-sized lobsters in 2019 was 0.52 (± 0.01), and was below the time series average of 0.57.

Figure 15 shows the time series of relative abundance (stratified mean CPUE) for sub-legal (<86 mm CL) and legal-sized (≥ 86 mm CL) lobsters in the southern MA region (Area 538; part of LCMA 2). Due to increasing expense, difficulty getting participating captains, and logistical issues, MA DMF ceased sampling the expanded survey area of SNE (expanded into Federal waters and northern Area 537) in 2018. Survey results reported for the MA SNE survey include only data generated within the original survey area (state waters portion of Area 538) for the entire time series. In 2019, mean CPUEs of the sublegal sized lobsters in the original area were below the time series averages. The mean sublegal CPUE in 2019 was 0.71 (± 0.06), below the time series average of 1.29 lobsters/trap haul. The CPUE of legal-sized lobsters in 2019 was 0.27 (±0.02), above the time series average of 0.22 lobsters/trap haul (Figure 15).

Rhode Island: In 2019, the Ventless Trap Survey was conducted during the months of June-August over 24 sampling sites. A total of 2,560 lobsters were collected from 851 traps over 18 trips. All sampling was conducted in LCMA 2, NMFS Statistical Area 539. The stratified abundance index of sublegal lobsters in the 2019 survey, 4.57 lobsters per ventless trap, remains below the time series mean of 6.23. The abundance index for legal-sized lobsters was almost equal to the time series mean of 0.34 lobsters per ventless trap (Figure 16).

Delaware: A pilot study was initiated in 2018 to assess the population structure of structure-oriented fish in the lower Delaware Bay and nearshore Atlantic Ocean. Sampling was conducted with commercial sized ventless fish pots, from January to December. In 2019, the survey encountered 7 American Lobsters in lower Delaware Bay and 658 American Lobsters in the nearshore Atlantic Ocean with a ratio of 58% males, 36% female and 6% egg laden. The sampled Atlantic Ocean American Lobsters ranged in length from 50 mm to 140 mm.

8.0 State Compliance

States are currently in compliance with all required biological management measures under Amendment 3 and Addendum I-XXIV; however, the PRT notes that New Jersey and Connecticut did not conduct the required amount of sea/port sampling in 2019, as specified in Addendum XXVI. The states' rationales for not meeting the requirement are provided in Section 6.0.

9.0 De Minimis Requests

The states of Virginia, Maryland, and Delaware have requested *de minimis* status. According to Addendum I, states may qualify for *de minimis* status if their commercial landings in the two most recent years for which data are available do not exceed an average of 40,000 pounds. Delaware, Maryland, and Virginia meet the *de minimis* requirement.

10.0 Regulatory Changes

Maine:

- In October 2018, a new lobster trawl limit area was established at the request of the Lobster Zone B Council. DMR was aware that there was potential to refine the area described by the new trawl limit to better meet the needs of Zone B and Zone C fishermen fishing there. The Department held meetings with fishermen from Zone B and Zone C to determine what changes to the area were advisable. At their January 2019 meeting, the Zone B Council supported the Department's proposal to amend this area in accordance with the changes proposed through the meetings that were held. DMR adopted this regulation which amended a five-trap trawl maximum for a specific area, within Zone B, off Hancock County and eliminated the December 31, 2019 sunset on the original area.
- There was an existing regulatory requirement for persons fishing lobster gear and trap/pot gear to mark their buoy lines with specific red marks in the sliver area and in federal waters. Through rulemaking, DMR amended the regulation removing the requirement for the red marks and instead required persons fishing lobster gear and trap/pot gear in all Maine coastal waters to mark their buoy line with purple marks. Inside the Exemption Area, fishermen are required to have three purple marks: a 36-inch mark in the top two fathom of their endline, and a 12-inch mark in the middle and at the bottom of their endline. Outside the Exemption Area, fishermen are required to have 4 purple marks: a 36-inch mark in the top two fathom of endline, and 3 12-inch marks at the top, middle, and bottom of their endline. Finally, all lobster gear and trap/pot gear fished outside the Exemption Area is required to have an additional green mark of a minimum of 6-inches in the top two fathom of buoy line. Lobster gear fished inside the Exemption Area is prohibited from having a green mark. The new marking requirements are required to be in place by September 1, 2020.
- DMR adopted a regulation which defines the area in the Bay of Fundy referred to as the "gray zone" that encompasses approximately 210 square miles around Machias Seal Island where there are overlapping claims of sovereignty by the United States and Canada. In a 2019 Resolve, the Legislature directed the Commissioner of Marine Resources to adopt regulations to define this area to ensure the boundaries of this area are clearly delineated.
- Emergency statutory changes done as a pilot in 2019 required the Commissioner of Marine Resources to allow a person who holds a lobster and crab fishing license to raise and haul lobster traps during any time of the day from September 1, 2019, through October 31, 2019, in an area in the Bay of Fundy referred to as the "gray zone". The gray zone encompasses approximately 210 square miles around Machias Seal Island where there are overlapping claims of sovereignty by the United States and Canada. It also directs the Commissioner to define this area in rule to ensure the boundaries of this area are clearly delineated, which is described above.
    - Emergency statutory changes allowed a person with a student lobster and crab fishing license to fish for or take lobster during the closed season in the Monhegan Lobster Conservation Area if that closed season occurs during an interim between school years, and the student license holder has been issued trap tags to fish only in

the Monhegan Lobster Conservation Area. This law changed the number of Monhegan Lobster Conservation Area trap tags that may be issued by the Commissioner to a student license holder from 15 tags to:

- 10 tags for a student license holder if that person is eight years of age or older and under 11 years of age;
- 25 tags for a student license holder if that person is 11 years of age or older and under 14 years of age; and
- 50 tags for a student license holder if that person is 14 years of age or older and under 23 years of age.

- Statutory changes clarified that a lobster and crab fishing license holder who has a substantial illness or medical condition and has been granted a temporary medical allowance may continue to fish under the license, as long as the license holder does not fish concurrently with the individual authorized to fish under the authority of that license holder through the temporary medical allowance. It added domestic partners to the list of individuals authorized to fish under this provision. It also clarified that the license holder is liable for the activities of the individual fishing under the temporary medical allowance whether or not the license holder is present on the vessel.
- Statutory changes allowed a Class III lobster and crab fishing license holder to engage more crew. The limit increased from two to four the number of unlicensed crew members a Class III lobster and crab fishing license holder may engage to assist in licensed activities.
    - There were three lobster and crab related technical changes put into law.
        - The number of days in a calendar year that constitutes a substantial portion of a vessel's business or trade activities for the purposes of establishing the vessel's base of operations under the commercial fishing laws was changed from 60 to 30.
        - It was clarified that an individual who has had that individual's lobster fishing license or right to obtain a lobster fishing license suspended in this State or in another state is not eligible for a nonresident lobster and crab landing permit.
        - It was clarified that a person who holds a current lobster and crab fishing license does not need to obtain a commercial green crab only license to fish for or take green crabs or possess, ship, transport or sell green crabs.
    - Maine's Joint Standing Committee on Marine Resources carried the following bill over to the next legislative session.
        - LD 28 - An Act Regarding Access to Lobster Licenses. This bill directs the Commissioner of Marine Resources to authorize new zone entrants for a limited-entry lobster zone who have been on a waiting list for 10 or more years and have met certain eligibility requirements. A person authorized as a new zone entrant under this bill must adhere to specific trap tag limits.

Massachusetts

- 3/22/19 – Amended 322 CMR 12.00 to provide regulatory language that allows the Director to extend by declaration the seasonal fixed trap gear closure north and east of Cape Cod to protect right whales.
- 10/18/19 – Establish new lobster processing regulations consistent with changes to state law at G.L. c. 130 s. 44. In their totality, these new rules allow for permitted seafood dealers to process whole live legal sized lobster into shell-on lobster parts for distribution in state and out-of-state. All tails must weight at least 3oz. Previously, whole live legal sized lobster could only be processed into frozen shell-on tails weighing 3 oz.

Delaware

- Delaware updated its lobster regulation in 2019 to keep the state in compliance with the American Lobster FMP.

Virginia

- In February 2020, VMRC passed regulatory language to establish minimum size of escape vents in lobster traps to comply with Addenda II and IV to the Interstate Fishery Management Plan for American Lobster.

11.0 Enforcement Concerns

Maine

- MMP Officers documented violations for illegal lobsters, gear violations, and license violations in 2019. One fisherman was charged for exceeding the boat trap limit and is currently facing a lengthy license suspension. Two fishermen in Southern Maine were also charged with trap tag violations and are facing license suspensions. Patrol officers spent thousands of hours conducting complaint investigations, educational outreach; as well as, routine and targeted enforcement patrols. The Bureau of MP considers the Maine lobster fishery as one that operates with a high degree of regulatory compliance.

Massachusetts

- There were two cases of potential scrubbed eggers and other violations in the fall of 2019, but final outcomes of these cases are still pending.

Rhode Island

- A remaining difficulty enforcement faces with lobster regulations is determining whether lobsters caught truly came from a lobster trap with an associated lobster trap allocation (LTA), or a trap targeting a different fishery (e.g. Rock crab, Black sea bass) without an LTA but operated by an individual or company with LTAs. In 2016, RIDEM DMF proposed that rock crab (*Cancer irroratus*) be included under the new management to help enforce lobster harvesting by removing gear that could catch lobsters outside the LTA program, while also reducing the number of lines in the water for marine mammal protection. Given public comment, industry did not support this because much of the rock crab fishery does not hold a LTA and could not prove history records for qualification.

New York

- No major enforcement issues in New York during 2019. There were minor gear issues with improper vent and escape panels. Due to vessel mechanical problems, limited lobster gear was hauled for inspection.

New Jersey

- During the 2019 calendar year, ten summonses were issued within New Jersey state waters. Of those ten, four were issued due to possession of undersized lobster, two for possession of mutilated parts of lobster, and four were issued for commercially fishing outside of the full access artificial reef zones, as described in State regulations.

12.0 Research Recommendations

The following research recommendations are from the 2015 Stock Assessment and were compiled by the Lobster TC and Stock Assessment Subcommittee.

- ***Ventless Trap Survey***- Calibration work is needed to determine how catch in ventless trap surveys relates to catch in the bottom trawl surveys. It is likely that at low densities, when trawl survey indices have dropped to near zero, ventless trap surveys will still catch lobsters due to the attractive nature of the gear and the ability to fish the gear over all habitat types. Conversely, it is possible that trawl surveys may be able to detect very high levels of lobster abundance, if trap saturation limits the capacity of the ventless traps. Ventless traps may be limited in their ability to differentiate between moderately high and extremely high abundance, and calibration with bottom trawl surveys may help to clarify how catchability might change with changes in lobster density.
- ***Maturation and Growth*** - Increases in water temperatures over the past several decades have likely resulted in changes to size at maturity and growth patterns. Maturity data currently used are more than 20 years old. Changes in size at maturity will subsequently affect growth, since female molting frequency decreases after reaching sexual maturity. It is critical to collect updated information on maturity and growth in order to appropriately assign molt probabilities to lobsters.
- ***Stock Connectivity*** - There is need for a comprehensive large scale tagging study to examine stock connectivity between the GOM and GBK. Historical tagging studies demonstrate movement from the inshore GOM to locations east of Cape Cod in the inshore portions of GBK, and from inshore areas east of Cape Cod to inshore GOM. What is lacking is a tagging study of lobsters in the fall/winter on GBK proper, prior to seasonal migrations which occur in the spring. This information would be extremely valuable to help complement other data used to justify the combination of the GOM and GBK stock and to confirm the connectivity of the GOM and GBK.
- ***Temperature –*** Given the importance of temperature in the life history of lobster, techniques should be developed to incorporate environmental data into population modeling.
- ***Post-Larval Settlement –*** There is a need to examine post-larval settlement dynamics in relation to the movement and re-distribution of spawning stock. Habitat suitability models for spawning stock and settling post-larvae should be developed.

- ***Natural Mortality –*** Methods should be explored to determine age or length-varying natural mortality, as well as looking at more rigorous ways of determining time-varying natural mortality for lobster. These may be driven by climactic shifts and changing predator fields.
- ***Shell Disease*** **-** With the high prevalence of shell disease in the SNE stock, particularly in ovigerous females, some exploration of the potential sub-lethal effects of disease should be examined. These effects could include negative impacts to larval quality, fecundity issues in females who need to re-direct physiological resources to dealing with the disease, and male sperm quality

13.0 Plan Review Team Recommendations

During their review of the state compliance reports, the PRT noted the following issues:

- Massachusetts and Connecticut were unable to provide compliance reports by the August 1 deadline. This has been a recurring issue over the last few years due to delays in data availability and limited staff resources.
- New Jersey only completed three sea/port sampling trips in 2019, and therefore did not meet the minimum requirement of ten trips under Addendum XXVI. The compliance report explains that NJ has seen a decrease in directed vessels within the lobster fleet over the course of recent years, which has resulted in a decrease of observable vessels. Because of this, observers have targeting the remaining vessels more often, much to their dismay, which has led to a decrease of compliance and willingness from Captains to accommodate observers aboard.

The PRT Recommends the Board approve the *de minimis* requests of DE, MD, and VA. Other than the issues noted above, all states appear to be in compliance with the requirements of the FMP.

The following are general recommendations the Plan Review Team would like to raise to the Board:

- The PRT recommends the Board consider reviewing the monitoring requirements in SNE given the status of the stock and the difficulty obtaining sea sampling trips in a fishery with reduced effort. The TC has discussed the need for additional sampling trips in federal waters as the fishery has shifted offshore.
- The PRT recommends the Board continue to make strides to improve the quantification of effort in the lobster fishery. Through Amendment 3 and subsequent addenda, the Board has largely managed effort in the lobster fishery through trap allocations. However, the effectiveness of trap allocations to reduce effort is confounded by their ambiguous relationship to trap hauls and the expansion of the Jonah crab fishery. Monitoring the true level of effort in the lobster fishery through trip-level reporting, number of permits, trap allocations, and trap hauls will provide the Board with much needed information regarding fishery trends, particularly as stock conditions change in the GOM/GBK and SNE.
- The PRT recommends research continue on lobster growth, maturity, and connectivity. Given the increase in water temperature over the last several decades, the TC believes it is

likely that there have been changes to size at maturity and growth patterns which are not captured in the current data.

- The PRT recommends continued research to understand settlement and larval dynamics.
- The PRT recommends coastwide consideration be given to the transfer of tags between traps to eliminate the issuance of exchange tags (similar to current Maine regulations).
- The PRT recommends the TC discuss the best way to present state index information in the annual compliance reports to provide more detailed resolution in size composition of the stock.
- The PRT recommends the Board engage with the Committee on Economic and Social Sciences (CESS) to consider available socioeconomic data to develop metrics that could be used to characterize changes in the fishery.

14.0 Tables

Table 1. Landings (in pounds) of American Lobster by the states of Maine through Virginia. Source: ACCSP Data Warehouse for 1981-2018 landings; state compliance reports for 2019 landings (except Massachusetts and Connecticut). *C= confidential data.*

	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	Total
1981	22,631,614	793,400	11,420,638	1,871,067	807,911	890,218	593,801	55,700	63,108	2,173	**39,129,630**
1982	22,730,253	807,400	11,265,840	3,173,650	880,636	1,121,644	846,215	90,700	64,788	4,713	**40,985,839**
1983	21,976,555	1,310,560	12,867,378	5,114,486	1,654,163	1,207,442	769,913	56,700	76,192	20,619	**45,054,008**
1984	19,545,682	1,570,724	12,446,198	5,259,821	1,796,794	1,308,023	927,474	103,800	98,876	37,479	**43,094,871**
1985	20,125,177	1,193,881	13,702,702	5,140,131	1,381,029	1,240,928	1,079,723	118,500	82,295	42,881	**44,107,247**
1986	19,704,317	941,100	12,496,125	5,667,940	1,253,687	1,416,929	1,123,008	109,000	57,593	93,105	**42,862,804**
1987	19,747,766	1,256,170	12,856,301	5,317,302	1,571,811	1,146,613	1,397,138	84,100	49,820	60,241	**43,487,262**
1988	21,739,067	1,118,900	12,977,313	4,758,990	1,923,283	1,779,908	1,557,222	66,200	22,966	53,696	**45,997,545**
1989	23,368,719	1,430,347	15,645,964	5,786,810	2,076,851	2,344,932	2,059,800	76,500	17,502	45,107	**52,852,532**
1990	28,068,238	1,658,200	16,572,172	7,258,175	2,645,951	3,431,111	2,198,867	68,300	24,941	58,260	**61,984,215**
1991	30,788,646	1,802,035	15,998,463	7,445,172	2,673,674	3,128,246	1,673,031	54,700	26,445	7,914	**63,598,326**
1992	26,830,448	1,529,292	14,969,350	6,763,087	2,534,161	2,651,067	1,213,255	21,000	27,279	753	**56,539,692**
1993	29,926,464	1,693,347	14,350,595	6,228,470	2,177,022	2,667,107	906,498	24,000	46,650	2,940	**58,023,093**
1994	38,948,867	1,650,751	16,176,551	6,474,399	2,146,339	3,954,634	581,396	8,400	7,992	460	**69,949,789**
1995	37,208,324	1,834,794	15,903,241	5,362,084	2,541,140	6,653,780	606,011	25,100	26,955	5,210	**70,166,639**
1996	36,083,443	1,632,829	15,312,826	5,295,797	2,888,683	9,408,519	640,198	20,496	C	C	**71,282,791**
1997	47,023,271	1,414,133	15,010,532	5,798,529	3,468,051	8,878,395	858,426	C	C	C	**82,451,337**
1998	47,036,836	1,194,653	13,167,803	5,617,873	3,715,310	7,896,803	721,811	1,359	19,266	1,306	**79,373,020**
1999	53,494,418	1,380,360	15,875,031	8,155,947	2,595,764	6,452,472	931,064	C	C	C	**88,885,056**
2000	57,215,406	1,709,746	14,988,031	6,907,504	1,393,565	2,883,468	891,183	C	C	C	**85,988,903**
2001	48,617,693	2,027,725	11,976,487	4,452,358	1,329,707	2,052,741	579,753	C	C	C	**71,036,464**
2002	63,625,745	2,029,887	13,437,109	3,835,050	1,067,121	1,440,483	264,425	C	C	C	**85,699,820**
2003	54,970,948	1,958,817	11,321,324	3,561,391	C	946,449	209,956	C	22,778	C	**72,991,663**
2004	71,574,344	2,851,262	11,675,852	3,059,319	646,994	996,109	370,536	13,322	14,931	27,039	**91,229,708**
2005	68,729,623	C	11,291,145	3,174,852	713,901	1,154,470	369,003	C	39,173	C	**85,472,167**
2006	75,419,802	2,364,495	12,077,140	4,918,500	1,599,029	2,207,953	294,906	C	C	C	**98,881,825**
2007	63,987,073	2,468,811	10,046,120	2,299,744	568,696	911,761	334,097	C	C	C	**80,616,302**
2008	69,908,847	2,568,088	10,606,534	2,782,000	427,168	712,075	304,479	C	C	C	**87,309,191**
2009	81,124,201	2,986,981	11,789,536	2,842,088	412,468	731,811	C	C	30,988	C	**99,918,074**
2010	96,244,299	3,648,004	12,772,159	2,928,688	441,622	813,513	692,869	C	C	C	**117,541,155**
2011	104,957,224	3,919,195	13,385,393	2,754,067	198,928	344,232	697,883	8,879	41,077	12,879	**126,319,757**
2012	127,464,332	4,229,227	14,486,344	2,706,384	247,857	550,441	919,351	C	C	C	**150,603,937**
2013	128,015,530	3,817,707	15,158,509	2,155,762	127,420	496,535	660,367	C	C	C	**150,431,830**
2014	124,941,217	4,374,656	15,312,852	2,412,875	127,409	222,843	526,368	26,330	57,414	11,099	**148,013,063**
2015	122,685,803	4,721,826	16,450,414	2,315,708	205,099	147,414	445,060	22,894	29,284	9,474	**147,032,976**
2016	132,750,484	5,782,056	17,784,921	2,260,335	254,346	218,846	349,880	C	C	C	**159,400,867**
2017	112,170,593	5,513,999	16,493,125	2,031,143	130,015	150,317	409,062	32,364	29,136	1,630	**136,961,382**
2018	121,653,778	6,082,881	17,697,083	1,905,689	110,580	112,685	344,547	C	C	C	**147,907,244**
2019	100,891,654	5,983,075	16,674,961	1,787,435	81,807	113,775	292,707	C	C	C	**125,825,414**

Table 2. Estimated lobster landings (in pounds) by lobster conservation management area (LCMA)*. Source: ASMFC Lobster Data Warehouse. This table is only updated in years when stock assessment reports are conducted.

Coastwide Estimated Lobster Landings (lbs) by Lobster Conservation Management Area (LCMA)*								
Year	LCMA 1	LCMA 2	LCMA 3	LCMA 4	LCMA 5	LCMA 6	LCMA OCC	Grand Total
1981	32,369,320	527,284	4,321,500	441,478	115,653	1,220,159	134,327	39,129,721
1982	32,123,750	1,656,479	4,961,680	622,674	99,093	1,359,058	163,105	40,985,839
1983	32,826,685	2,958,366	5,645,179	633,254	71,804	2,428,633	198,448	44,762,369
1984	29,862,411	2,978,985	6,409,741	795,180	135,652	2,704,070	208,832	43,094,871
1985	31,590,759	2,992,330	5,853,851	964,043	170,998	2,273,337	261,929	44,107,247
1986	30,080,507	3,081,903	5,829,275	1,084,282	125,969	2,362,128	298,747	42,862,811
1987	30,682,754	3,219,900	5,357,273	1,473,841	98,486	2,378,765	276,250	43,487,269
1988	32,362,492	3,259,336	5,132,943	1,666,439	85,142	3,195,208	295,985	45,997,545
1989	36,800,166	4,175,114	5,450,786	2,232,935	106,126	3,735,250	352,155	52,852,532
1990	41,720,481	4,374,062	8,783,629	2,431,198	237,410	4,250,654	581,447	62,378,881
1991	43,648,773	4,140,145	8,537,053	2,096,138	115,020	4,393,986	740,267	63,671,382
1992	39,055,380	3,795,367	7,124,248	1,448,866	77,854	4,362,551	738,026	56,602,292
1993	40,962,969	3,772,494	6,773,992	1,597,447	89,495	3,968,663	938,486	58,103,546
1994	51,597,880	5,602,507	5,684,252	554,367	26,013	5,738,398	848,181	70,051,598
1995	49,771,715	4,960,453	5,008,551	962,077	45,054	8,564,325	1,000,609	70,312,784
1996	47,992,628	4,880,328	4,896,782	978,376	52,758	11,705,439	852,532	71,358,843
1997	58,016,197	5,324,775	5,549,295	1,162,862	36,623	11,650,701	849,126	82,589,579
1998	56,187,841	5,273,463	5,043,939	1,534,067	41,963	10,575,143	797,019	79,453,435
1999	65,375,535	6,938,658	6,166,601	1,346,509	77,621	8,331,142	739,904	88,975,970
2000	69,265,611	5,651,160	5,436,618	1,123,486	53,364	3,802,880	765,801	86,098,920
2001	57,531,942	3,862,054	5,525,209	762,408	55,537	3,013,551	611,242	71,361,943
2002	73,607,600	3,445,004	5,483,983	442,425	14,838	2,230,869	786,137	86,010,856
2003	63,005,041	1,110,534	6,978,808	423,583	17,394	1,448,011	804,355	73,787,725
2004	80,448,651	1,184,942	6,722,671	480,203	93,270	1,534,130	993,689	91,457,556
2005	76,240,627	1,464,433	7,442,771	457,275	54,181	1,673,396	966,787	88,299,470
2006	80,846,400	1,853,505	7,588,539	516,130	59,928	1,840,308	1,048,051	93,752,862
2007	70,862,089	1,430,836	6,375,646	617,978	56,866	1,263,648	1,132,991	81,740,055
2008	78,914,865	1,168,921	6,124,979	440,108	322,916	920,951	1,127,422	89,020,163
2009	91,133,844	1,051,241	6,960,119	488,792	308,212	896,594	1,256,201	102,095,002
2010	106,458,701	1,022,528	7,955,472	522,037	184,409	966,505	1,209,482	118,319,134
2011	116,042,515	730,889	7,890,340	488,977	148,587	306,079	1,244,299	126,851,685
2012	138,762,843	627,051	8,111,396	782,684	154,455	286,215	1,223,279	149,947,922
Grand Total	1,886,148,973	98,515,048	201,127,121	31,572,119	3,332,690	115,380,746	23,445,109	2,359,521,806

*Landings data are not collected by LCMA in all states. To separate landings by LCMA, NMFS statistical areas are placed into a single LCMA. For a complete description of how estimates are completed contact Caitlin Starks, at cstarks@asmfc.org.

Table 3. Threshold reference points with stock status variables for lobsters in each stock area. (Source: 2015 Benchmark Stock Assessment).

Variable	GOM	GBK	GOM/GBK	SNE
Effective Exploitation				
Effective exploitation threshold	0.54	1.83	0.5	0.41
Recent effective exploitation (2011-2013)	0.48	1.54	0.48	0.27
Effective exploitation below threshold?	YES	YES	YES	YES
Reference Abundance (millions)				
Abundance threshold	52	0.8	66	24
Recent abundance (2011-2013)	247	1.57	248	10
Abundance above threshold?	YES	YES	YES	NO

Table 4. 2019 LCMA specific management measures

Management Measure	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	OCC
Min Gauge Size	3 1/4"	3 3/8"	3 17/32"	3 3/8"	3 3/8"	3 3/8"	3 3/8"
Vent Rect.	1 15/16 x 5 3/4"	2 x 5 3/4"	2 1/16 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"
Vent Cir.	2 7/16"	2 5/8"	2 11/16"	2 5/8"	2 5/8"	2 5/8"	2 5/8"
V-notch requirement	Mandatory for all eggers	Mandatory for all legal size eggers	Mandatory for all eggers above 42°30'	Mandatory for all eggers in federal waters. No v-notching in state waters.	Mandatory for all eggers	None	None
V-Notch Definition[1] (possession)	Zero Tolerance	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	State Permitted fisherman in state waters 1/4" without setal hairs Federal Permit holders 1/8" with or w/out setal hairs[1]
Max. Gauge (male & female)	5"	5 ¼"	6 3/4"	5 ¼"	5 ¼"	5 ¼"	State Waters none Federal Waters 6 3/4"
Season Closure				April 30-May 31[2]	February 1-March 31[3]	Sept 8-Nov 28[4]	February 1-April 30

[1] A v-notched lobster is defined as any female lobster that bears a notch or indentation in the base of the flipper that is at least as deep as 1/8", with or without setal hairs. It also means any female which is mutilated in a manner that could hide, obscure, or obliterate such a mark.

[2] Pots must be removed from the water by April 30 and un-baited lobster traps may be set one week prior to the season reopening.

[3] During the February 1 – March 31 closure, trap fishermen will have a two week period to remove lobster traps from the water and may set lobster traps one week prior to the end of the closed season.

[4] Two week gear removal and a 2 week grace period for gear removal at beginning of closure. No lobster traps may be baited more than 1 week prior to season reopening.

Table 5: Trap allocation reductions as required by Addendum XVIII for LCMA 2 and 3 fishermen. This table only represents trap allocation reductions reported ahead of the 2020 fishing year and does not represent aggregate trap reductions over multiple years. Traps can also be retired due to the 10% conservation tax on trap transfers. Sources of the trap allocations come from state compliance reports and GARFO 2020 trap allocations published for the trap transfer program.

	Jurisdiction	# of Trap Allocated (For 2020 Fishing Year)	# of Traps Retired (from 2019 to 2020 Fishing Year)	Comments on Trap Transfers
LCMA 2	MA	Not available	Not available	
	RI	62,611	3,516	1,255 traps transferred
	CT	2,544	108	
	NOAA (ME, NH, NY, NJ)	67,158	369	3,694 traps transferred out
LCMA 3	NOAA	105,645	406	4,060 traps transferred out

Table 6. 2019 sampling requirements and state implementation. All states have 100% active harvester reporting except for Maine which has 10% harvester reporting. Sufficient sea sampling can replace port sampling. *De minimis* states (denoted by *) are not required to conduct biological sampling of their lobster fishery.

State	100% Dealer Reporting	10% Harvester Reporting	Sea Sampling	Port Sampling	Ventless Trap Survey	Settlement Survey	Trawl Survey
ME	✓	✓ (10%)	✓	✓	✓	✓	✓
NH	✓	✓	✓	✓	✓	✓	✓
MA	✓	✓	✓	✓	✓	✓	✓
RI	✓	✓	✓	✓	✓	✓	✓
CT	✓	✓				*	✓
NY	✓	✓	✓	✓			✓
NJ	✓	✓	✓				✓
DE*	✓	✓			✓		✓
MD*	✓	✓	✓				✓
VA*	✓	✓					

*Larval data are available for the eastern Long Island Sound from the Millstone Power Station entrainment estimates of all stages of lobster larvae.

Table 7. 2019 sea and port sampling trips and samples by state. *De minimis* states (denoted by *) are not required to conduct biological sampling of their lobster fishery.

State	Sea Sampling			Port Sampling		Market Sampling		State Totals	
	Trips	Samples	Traps	Trips	Samples	Trips	Samples	Trips	Samples
ME	162	202,939	37,423	0	0	0	0	162	202,939
NH	17	10,285	NA	12	1,200	0	0	29	11,485
MA	60	31,185	12,373	0	0	0	0	60	31,185
RI	9	5,364	2,075	11	2,741	0	0	20	8,105
CT	0	0	0	0	0	0	0	0	0
NY	3	77	NA	0	0	20	1,017	23	1,094
NJ	3	1,270	1,309	0	0	0	0	3	1,270
DE*	0	0	0	0	0	0	0	0	0
MD*	1	204	309	0	0	0	0	1	204
VA*	0	0	0	0	0	0	0	0	0
Total	**255**	**251,324**	**53,489**	**23**	**3,941**	**20**	**1,017**	**298**	**256,282**

15.0 Figures

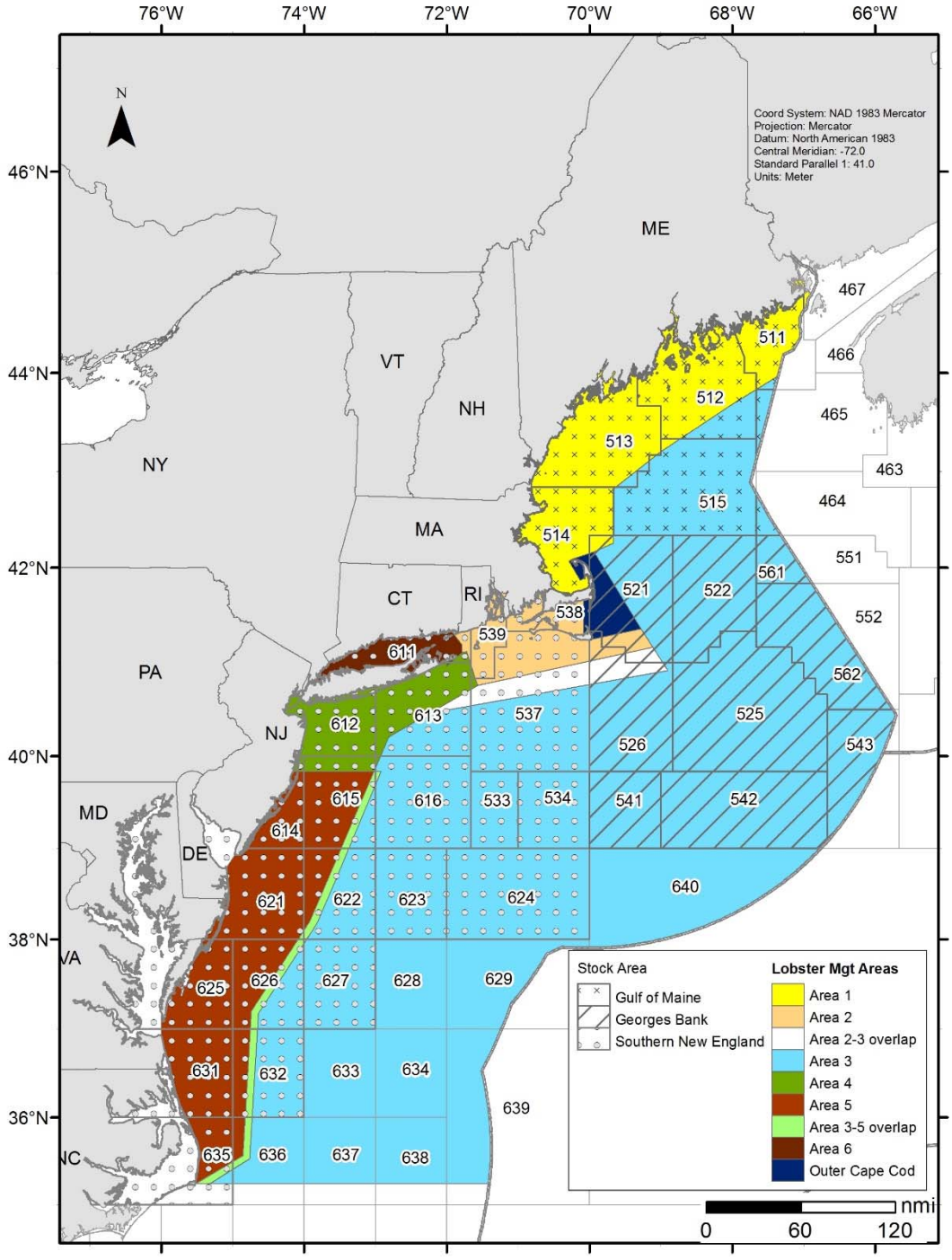

Figure 1: Lobster Conservation Management Areas (LCMAs) and stock boundaries for American lobster.

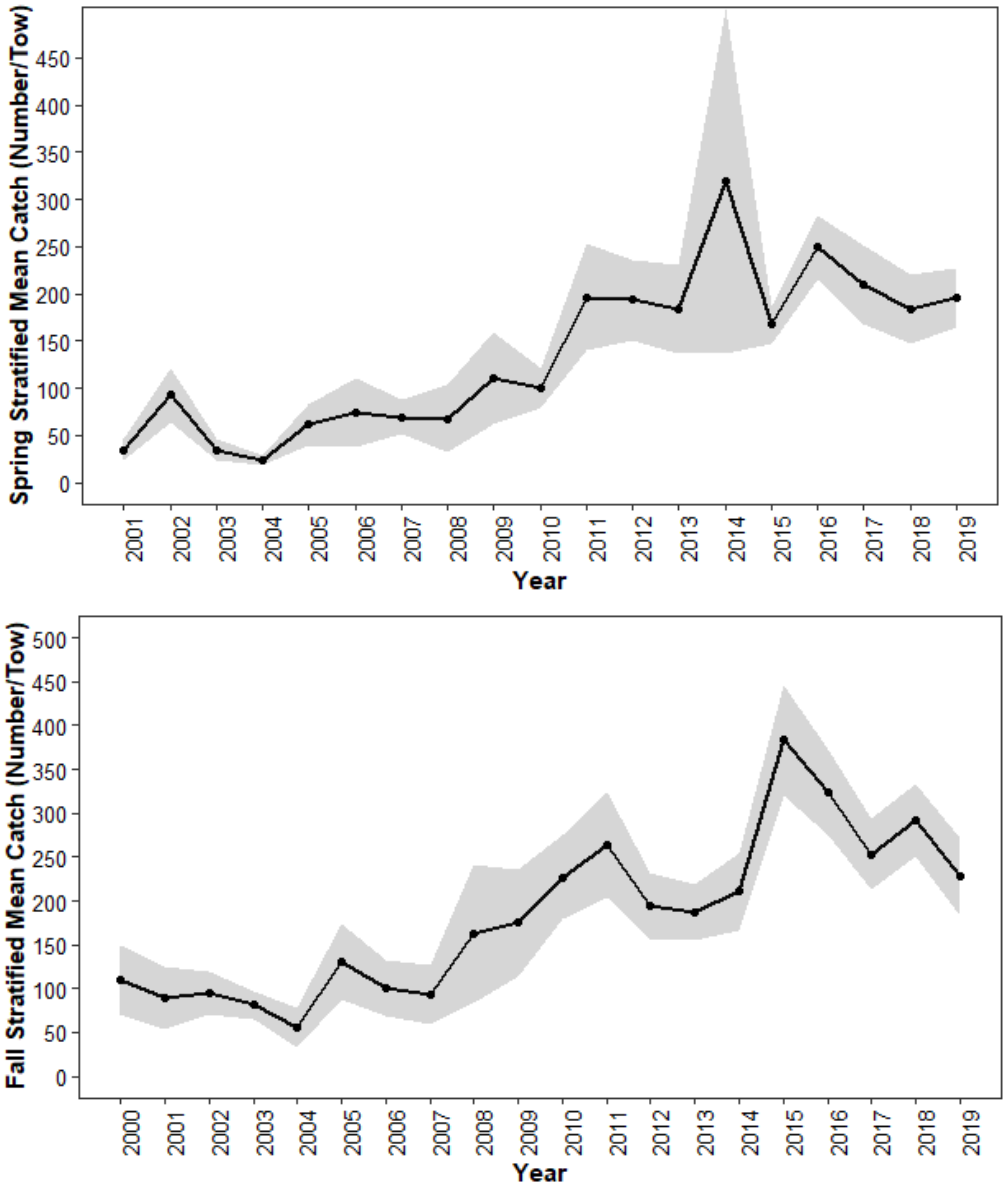

Figure 2: Maine-New Hampshire survey stratified mean abundance indices for lobster, 2000-2019. Results of the spring survey are on the top and results from the fall survey are on the bottom.

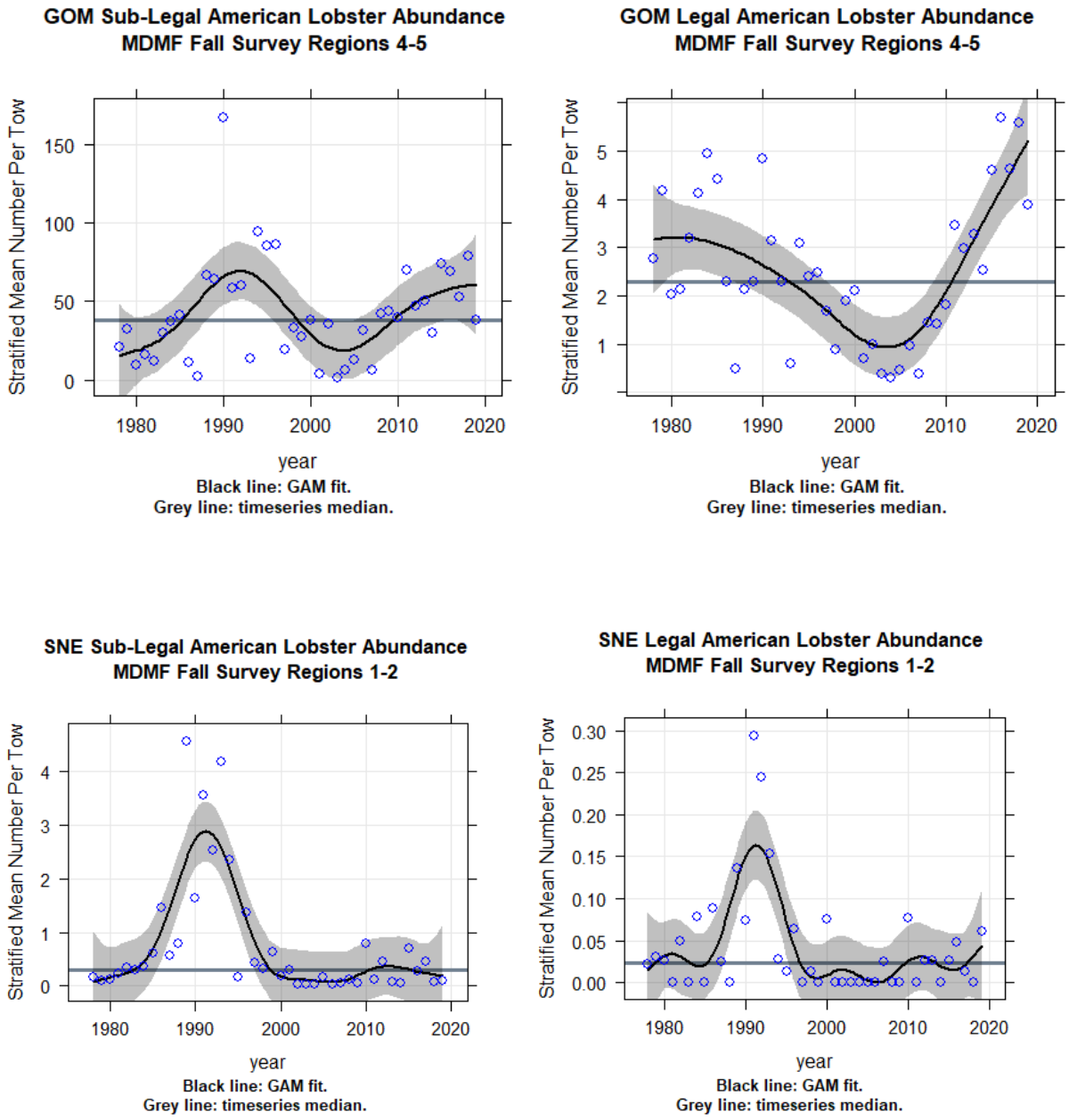

Figure 3: MADMF Fall Trawl Survey sublegal (left) and legal (right) indices from 1978-2019 sexes combined. The top charts are from Gulf of Maine and the bottom charts are from Southern New England.

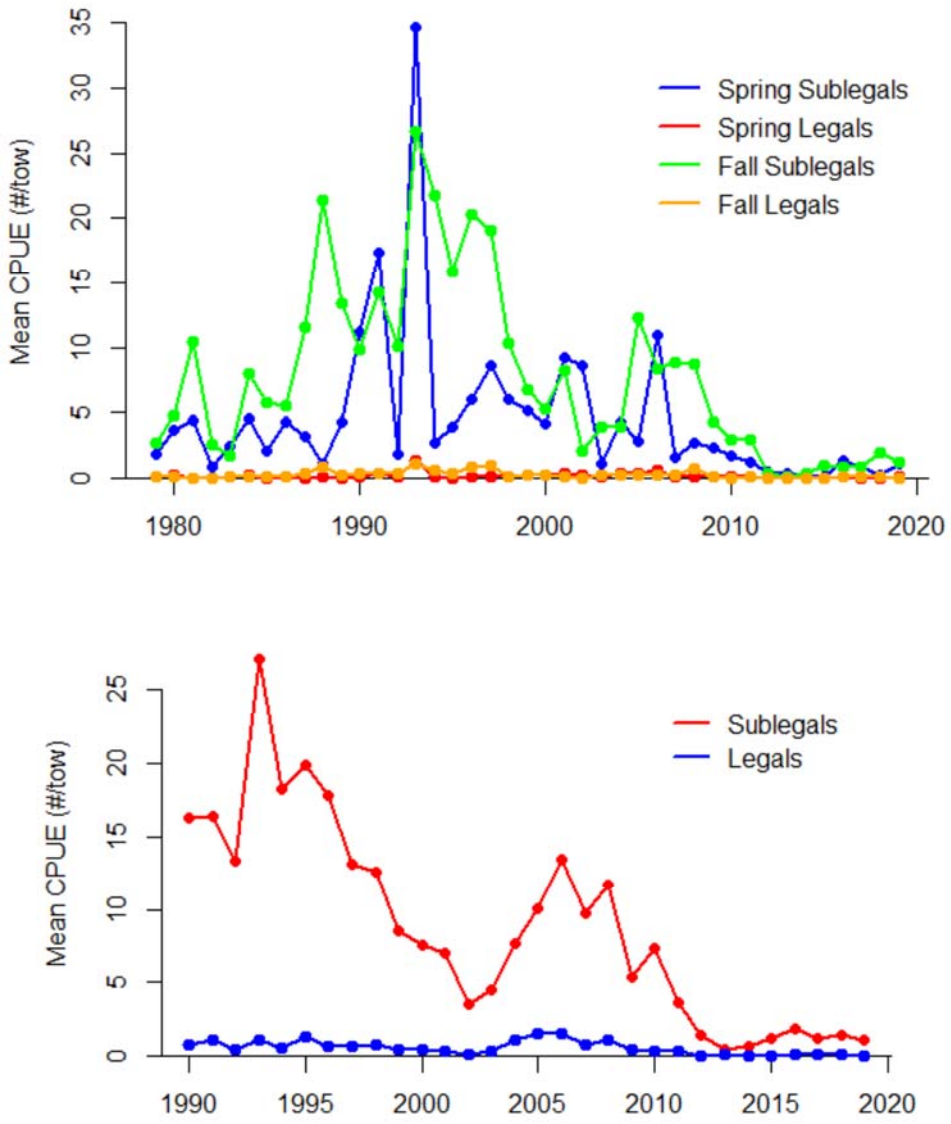

Figure 4: RIDFW Seasonal (spring and fall) Trawl lobster abundances (top) and Monthly Trawl lobster abundances (bottom). CPUE is expressed as the annual mean number per tow for sub-legal (<85.725mm CL) and legal sized (>=85.725mm CL) lobsters.

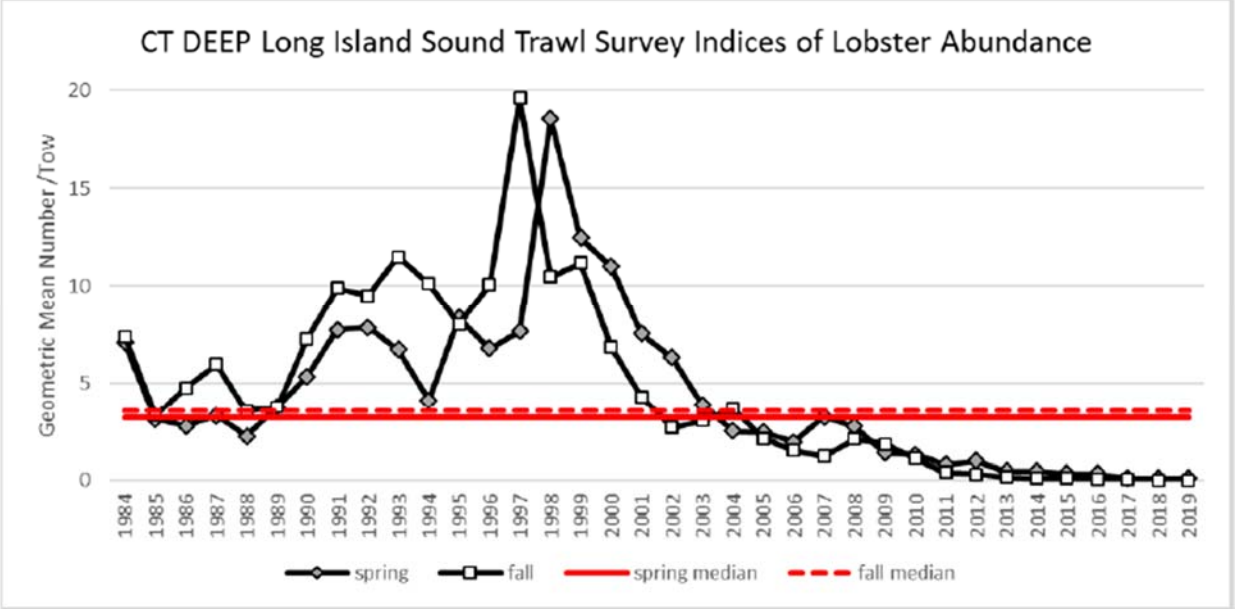

Figure 5: Results of the Long Island Sound Trawl Survey during spring (April-June) and fall (September-October) within NMFS statistical area 611.

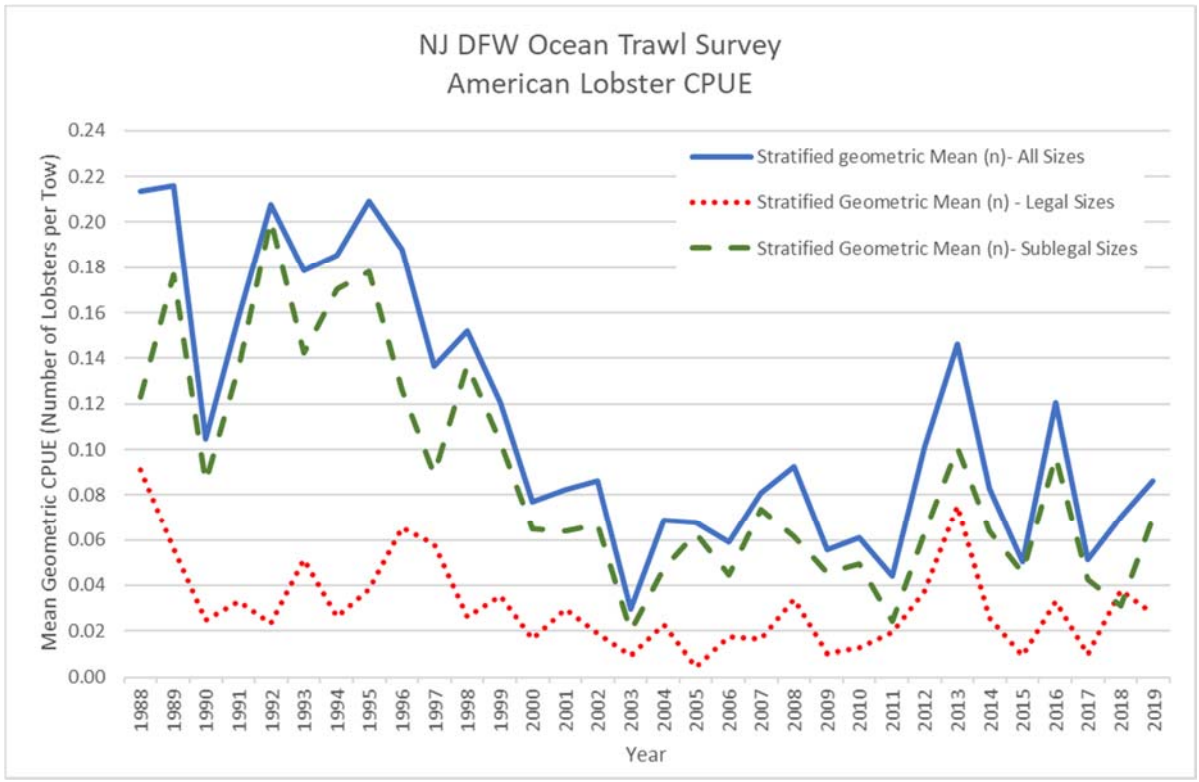

Figure 6: Stratified mean CPUE of all lobsters collected aboard the NJDFW Ocean Trawl Survey. The survey stratifies sampling in three depth gradients, inshore (18'-30'), mid-shore (30'-60'), offshore (60'-90'). The mean CPUE was calculated as the sum of the mean number of lobsters per size class collected in each sampling area weighted by the stratum area.

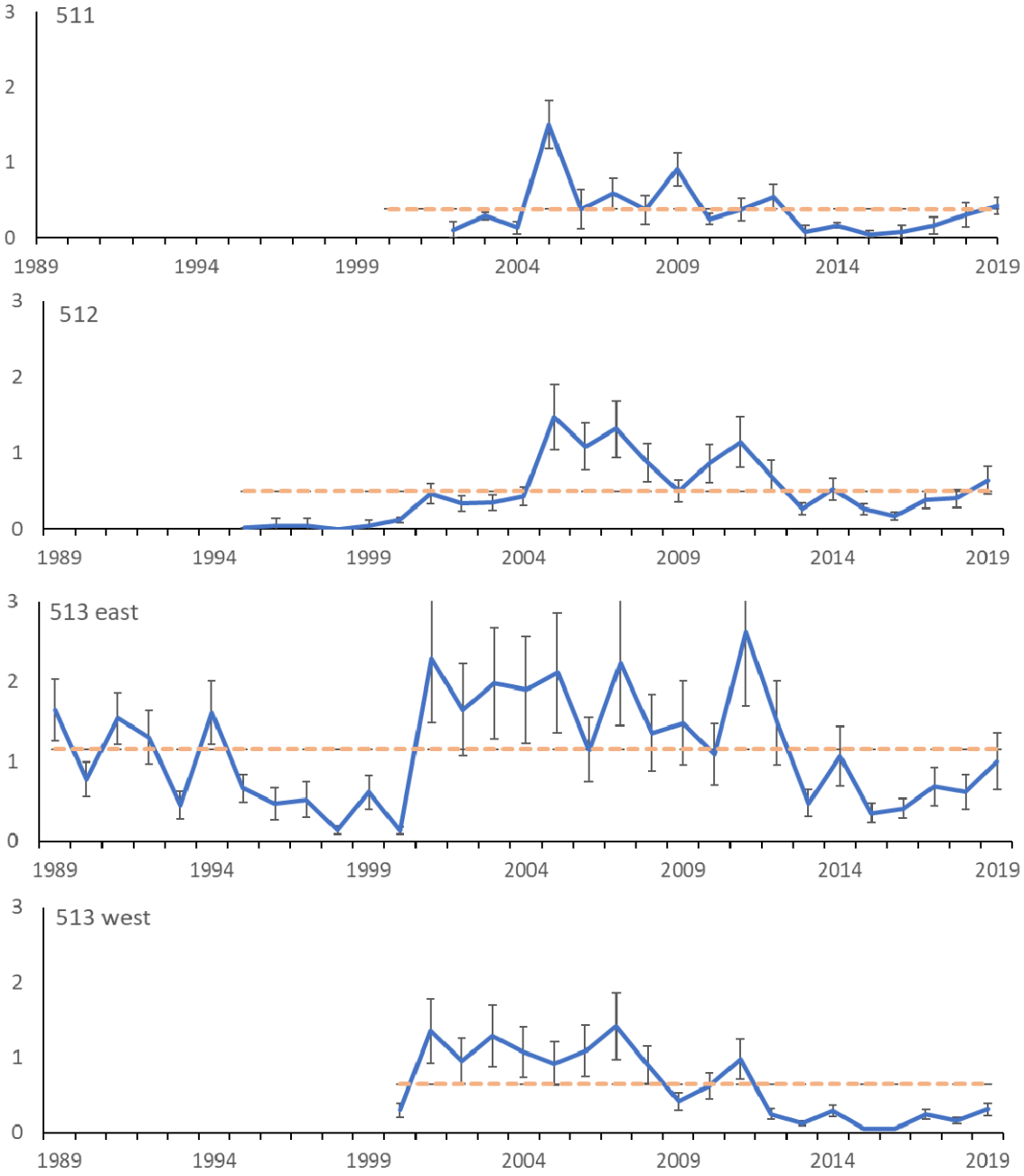

Figure 7: Settlement survey index (average number of YOY per meter squared; blue line) for each statistical area in Maine (1989-2019). The series average for each region is represented by the red dashed line.

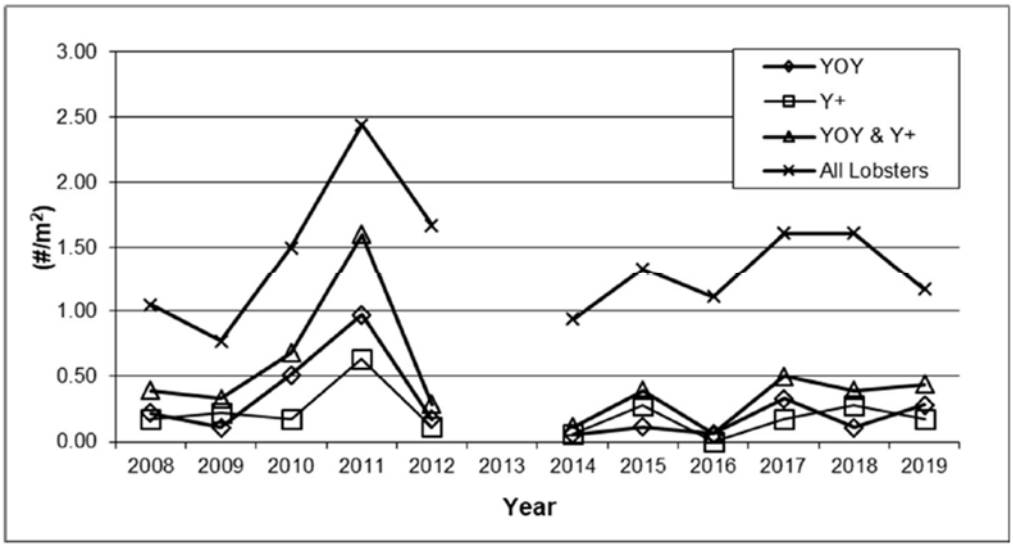

Figure 8: Catch per unit effort (#/m2) of young-of-year (YOY), one-year-olds (Y+), YOY and Y+ combined, and all lobsters during the American Lobster Settlement Index, by location, in New Hampshire, from 2008 through 2019. There were no settlement survey samples collected in NH in 2013.

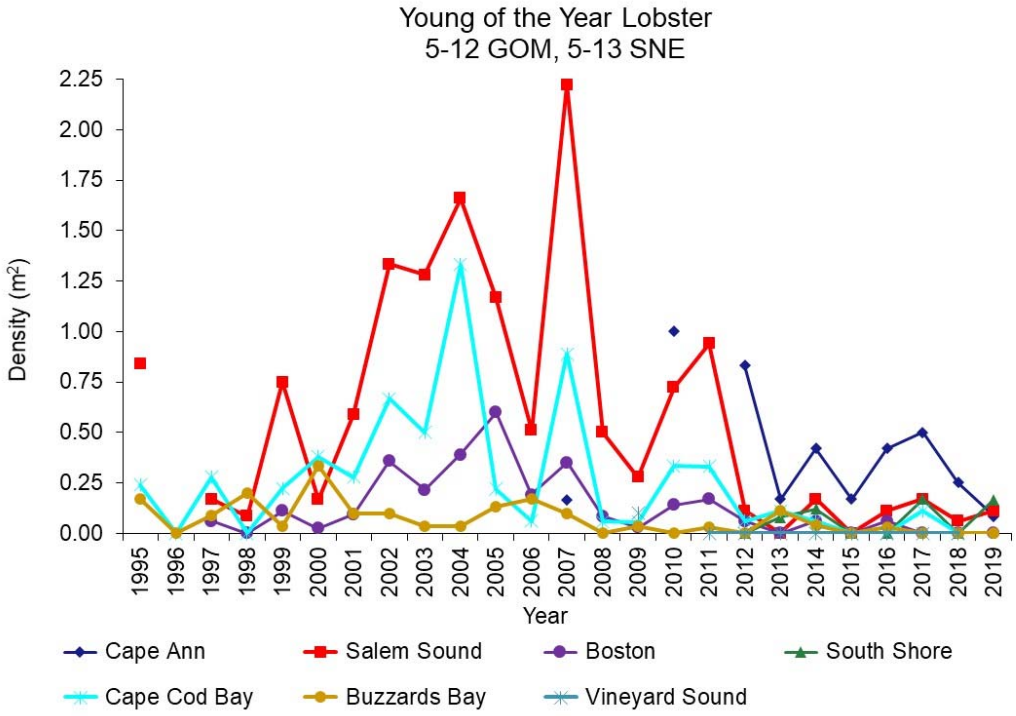

Figure 9: Young-of-year lobster density in seven Massachusetts regions; LCMA 1 – Cape Ann, Salem Sound, Boston, South Shore, Cape Cod Bay, LCMA 2 - Buzzards Bay, Vineyard Sound.

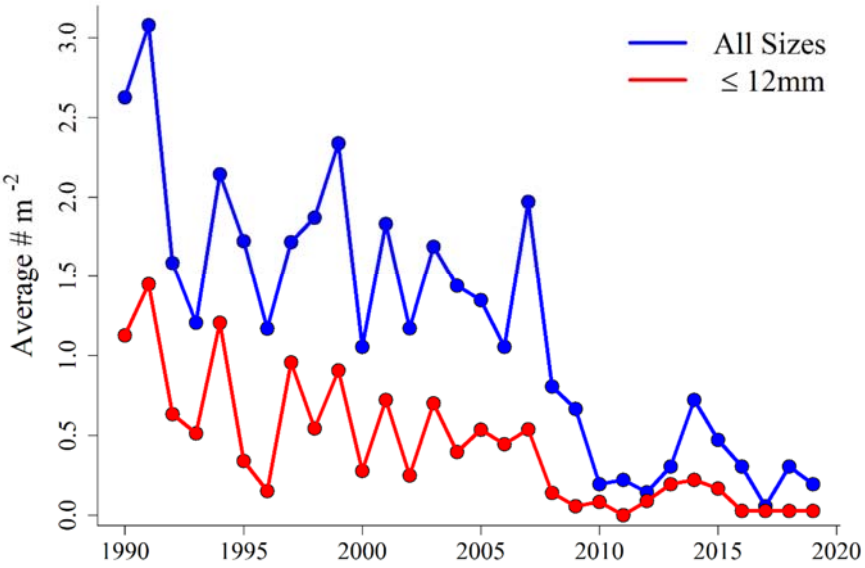

Figure 10: Average abundance of American lobster in Rhode Island suction sampling sites. Abundances are presented for lobsters 12mm and smaller (red line) and all sizes (blue line).

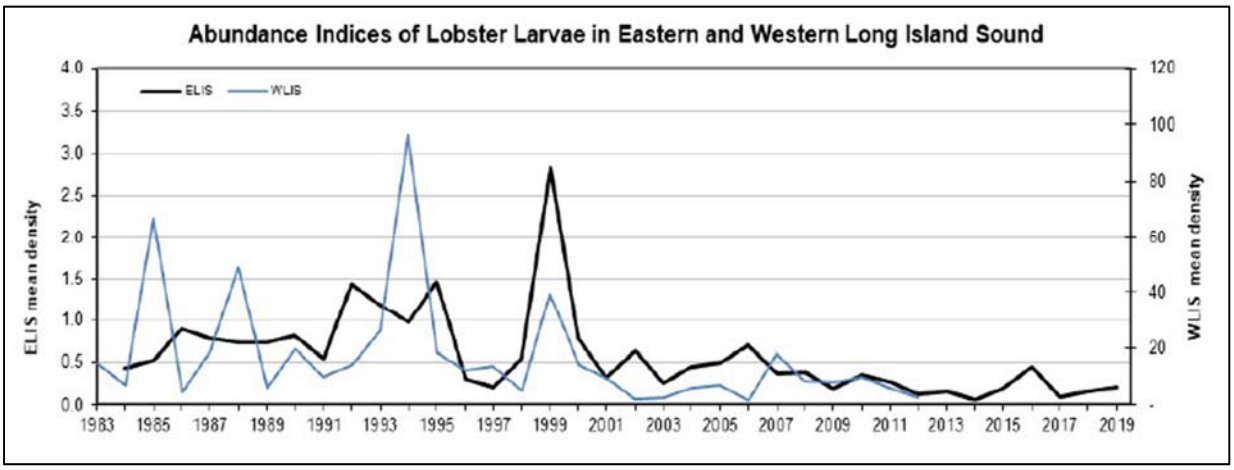

Figure 11: Abundance indices of lobster larvae from the Connecticut DEEP Larval Lobster Survey in western Long Island Sound and from the Millstone Power Station entrainment estimates in eastern Long Island Sound. The Connecticut DEEP survey was discontinued in 2013.

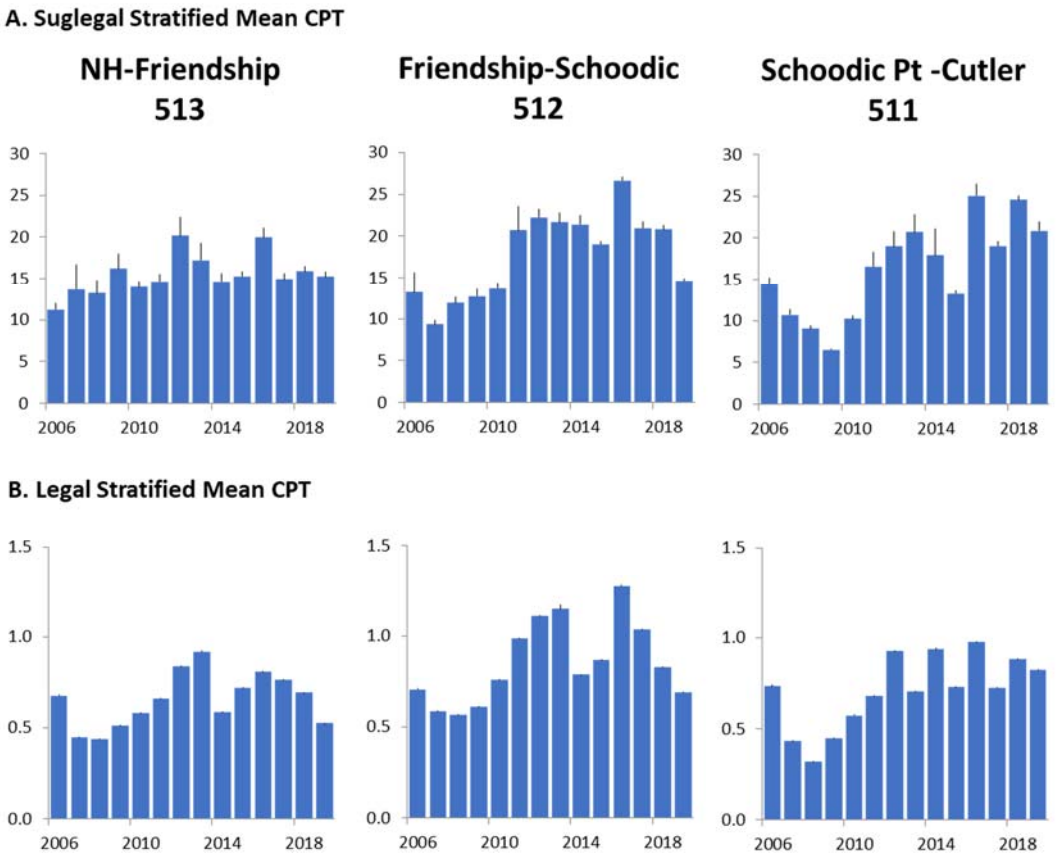

Figure 12: CPUE stratified mean for both sublegal and legal lobsters from Maine's Ventless Trap survey, 2006-2018, by statistical area. Only ventless traps were included in the analysis.

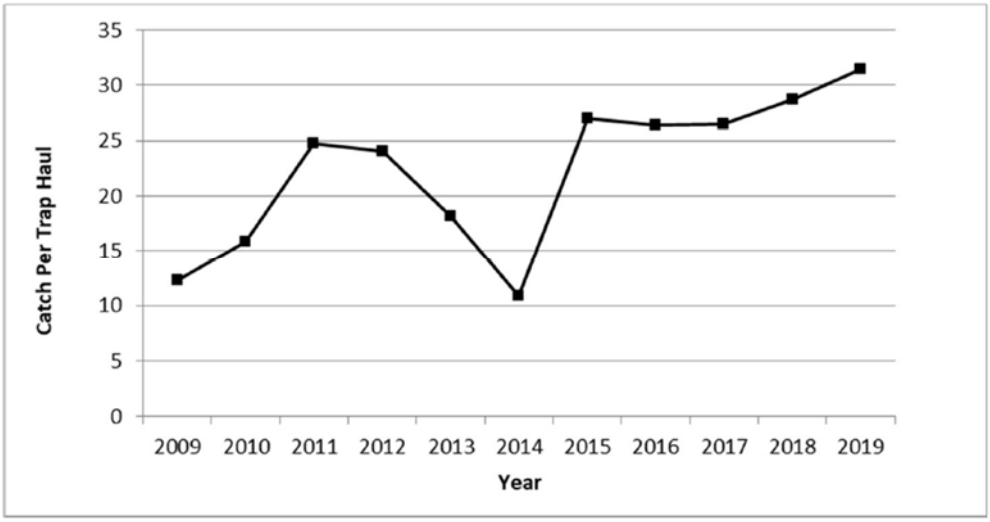

Figure 13: Stratified mean catch per trap haul, for all lobsters captured during the coast-wide random stratified Ventless Trap Survey in New Hampshire state waters from 2009 through 2019.

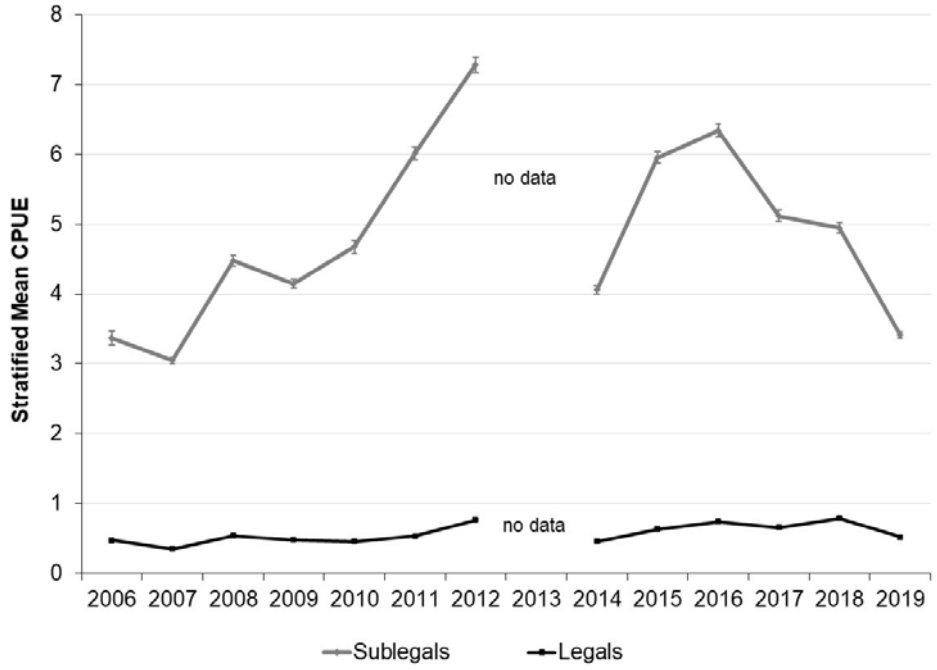

Figure 14: Stratified mean catch per trap haul (±S.E.) of sublegal (< 83 mm, grey line) and legal (≥ 83 mm, black line) lobsters in NMFS Area 514 from MADMF ventless trap survey from 2006-2019.

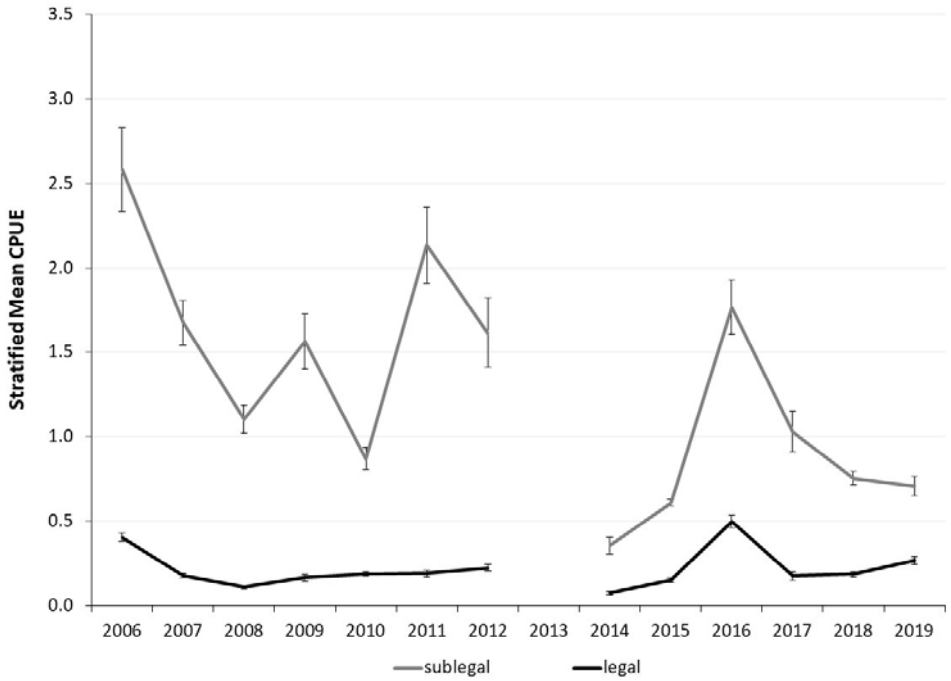

Figure 15: Stratified mean catch per trap haul (±S.E.) of sublegal (< 86 mm, grey line) and legal (≥ 86 mm, black line) lobsters in the original MA SNE survey area (within state waters), Area 538.

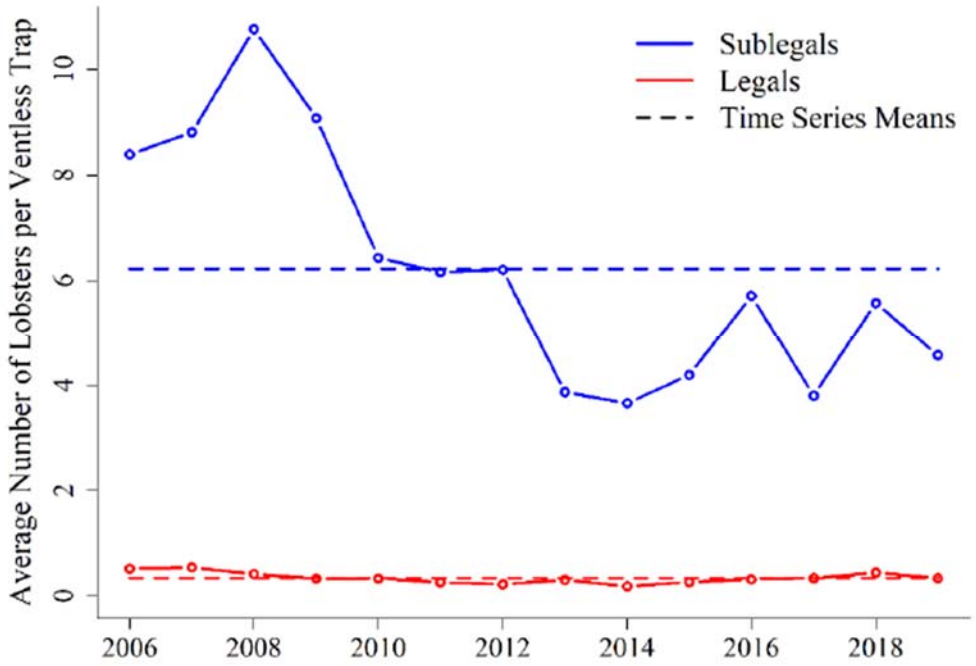

Figure 16: Stratified mean catch (#) per ventless trap for sublegal (<85.725 mm CL) and legal-sized (>=85.725mm CL) lobsters from RIDEM ventless trap survey. The dashed lines indicate time series means for the two indices.

Draft Document for Board Review

ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

For Jonah Crab
(*Cancer borealis*)

2019 FISHING YEAR

Prepared by the Plan Review Team

September 2020

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Draft Document for Board Review

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Draft Document for Board Review

2019 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR JONAH CRAB (*Cancer borealis*)

2018 FISHING YEAR

1.0 Status of the Fishery Management Plan

Year of ASMFC Plan's Adoption:	FMP (2015)
Framework Adjustments:	Addendum I (2016) Addendum II (2017) Addendum III (2018)
Management Unit:	Maine through North Carolina
States with a Declared Interest:	Maine through Virginia (Excluding Pennsylvania and DC)
Active Committees:	American Lobster Management Board, Technical Committee, Plan Review Team, Advisory Panel, Electronic Reporting Subcommittee, Electronic Tracking Subcommittee

2.0 Status of the Fishery

2.1 Commercial Fishery

Historically, Jonah crab was taken as bycatch in the lobster fishery; however, in recent years a directed fishery has emerged causing landings to rapidly increase. Throughout the 1990's, landings fluctuated between approximately 2 and 3 million pounds, and the overall value of the fishery was low. In the early 2000's landings began to increase, with over 7 million pounds landed in 2005. By 2014, landings had almost tripled to 17 million pounds and a value of nearly $13 million dollars. This rapid increase in landings can be attributed to an increase in the price of other crab (such as Dungeness), creating a substitute market for Jonah crab, as well as a decrease in the abundance of lobsters in Southern New England, causing fishermen to redirect effort on Jonah crab.

Today, Jonah crab and lobster are considered a mixed crustacean fishery in which fishermen can target lobster or crab at different times of the year based on slight gear modifications and small shifts in the areas in which the traps are fished. While the majority of Jonah crab is harvested as whole crabs, fishermen from several states, including New York, Maryland and Virginia, land claws. Jonah crab claws are relatively large and can be an inexpensive substitute for stone crab claws. As a result, they can provide an important source of income for fishermen. A historic claw fishery takes place along the Delmarva Peninsula where small boat fishermen harvest Jonah crab claws because they do not have a seawater storage tank on board to store whole crabs.

In 2019, landings along the Atlantic Coast totaled approximately 16 million pounds of Jonah crab, representing $13.1 million in ex-vessel value. The states of Massachusetts (60%) and Rhode Island (25%) were the largest contributors to landings in the fishery. Landings in descending order also occurred in New Jersey, Maine, New York, New Hampshire, Maryland, Connecticut, and Delaware, and Virginia. Over 99% of coastwide landings in 2019 came from trap gear.

2.2 Recreational Fishery

The magnitude of the Jonah crab recreational fishery is unknown at this time; however, it is believed to be quite small in comparison to the size of the commercial fishery.

3.0 Status of the Stock

Jonah crab are distributed in the waters of the Northwest Atlantic Ocean primarily from Newfoundland, Canada to Florida. The life cycle of Jonah crab is poorly described, and what is known is largely compiled from a patchwork of studies that have both targeted and incidentally documented the species. Female crab (and likely some males) are documented moving inshore during the late spring and summer. Motivations for this migration are unknown, but maturation, spawning, and molting have all been postulated. It is also generally accepted that these migrating crab move back offshore in the fall and winter. Due to the lack of a widespread and well-developed aging method for crustaceans, the age, growth, and maturity of Jonah crab is poorly described.

The status of the Jonah crab resource is relatively unknown and no range wide stock assessment has been conducted. Massachusetts, Rhode Island, Maine, and New Hampshire conduct inshore state water trawl surveys, and NOAA Fisheries conducts a trawl survey in federal waters which collects data on Jonah crab abundance and distribution. In addition, several studies are on-going (Section 7.0) to gather more information on the species. A Data Workshop is scheduled for November 2020 to evaluate all available data sources and determine whether enough data of sufficient quality are available to conduct a stock assessment.

4.0 Status of Management Measures

Interstate Fishery Management Plan for Jonah Crab (2015)

Jonah crab is managed under the Interstate Fishery Management Plan (FMP) which was approved by the American Lobster Management Board in August 2015. The goal of the FMP is to promote conservation, reduce the possibility of recruitment failure, and allow for the full utilization of the resource by the industry. The FMP lays out specific management measures in the commercial fishery. These include a 4.75” minimum size and a prohibition on the retention of egg-bearing females. To prevent the fishery from being open access, the FMP states that participation in the directed trap fishery is limited to lobster permit holders or those who can prove a history of crab-only pot fishing. All others must obtain an incidental permit. In the recreational fishery, the FMP sets a possession limit of 50 whole crabs per person per day and prohibits the retention of egg-bearing females. Due to the lack of data on the Jonah crab

fishery, the FMP implements a fishery-dependent data collection program. The FMP also requires harvester and dealer reporting along with port and sea sampling.

Addendum I (2016)

Addendum I establishes a bycatch limit of 1,000 pounds of crab/trip for non-trap gear (e.g., otter trawls, gillnets) and non-lobster trap gear (e.g., fish, crab, and whelk pots). In doing so, the Addendum caps incidental landings of Jonah crab across all non-directed gear types with a uniform bycatch allowance. While the gear types in Addendum I make minimal contributions to total landings in the fishery, the 1,000 crab limit provides a cap to potential increases in effort and trap proliferation.

Addendum II (2017)

Addendum II establishes a coastwide standard for claw harvest. Specifically, it permits Jonah crab fishermen to detach and harvest claws at sea, with a required minimum claw length (measured along the forearm of the claw) of 2.75" if the volume of claws landed is greater than five gallons. Claw landings less than five gallons do not have to meet the minimum claw length standard. The Addendum also establishes a definition of bycatch in the Jonah crab fishery, whereby the total pounds of Jonah crab caught as bycatch must weigh less than the total amount of the targeted species at all times during a fishing trip. The intent of this definition is to address concerns regarding the expansion of a small-scale fishery under the bycatch limit.

Addendum III (2018)

Addendum III improves the collection of harvester and biological data in the Jonah crab fishery. Specifically, the Addendum improves the spatial resolution of harvester data collection by requiring fishermen to report via 10 minute squares. It also expands the required harvester reporting data elements to collect greater information on gear configurations and effort. In addition, the Addendum established a deadline that within five years, states are required to implement 100% harvester reporting, with the prioritization of electronic harvester reporting development during that time. Finally, the Addendum improves the biological sampling requirements by establishing a baseline of ten sampling trips/year, and encourages states with more than 10% of coastwide landings to conduct additional sampling trips.

5.0 Fishery Monitoring

The provisions of Addendum III went into effect January 1, 2019. Specifically, Addendum III requires reporting of additional data elements, the implementation of 100% harvester reporting within five years, and the completion of a minimum of ten sea and/or port sampling trips per year for biological sampling of the lobster/Jonah crab fishery. The Addendum III requirement for commercial harvesters to report their fishing location by 10 minute longitudinal/latitudinal square will not be implemented until 2021. *De minimis* states are not required to conduct fishery-independent sampling or port/sea sampling.

Overviews of the states' port and sea sampling are as follows:

- Maine: In 2019, Jonah crab data were collected on 15 lobster sea sampling trips for a total of 1,794 crabs. Sampling occurs through the lobster sea sampling program, which has a sampling protocol for Jonah crab including collecting data on carapace width, sex, reproductive status, cull status, and shell hardness. Maine's lobster port sampling program was suspended in 2011.
- New Hampshire: Staff sampled 72 Jonah crab on 8 sea sampling trips and collected information on sex, the presence of eggs, cull condition, molt stage, and carapace length. NH initiated a quarterly port sampling program in late 2016. Quarterly sampling took place at shellfish dealers, where an interview with the captain occurred and a biological sample was taken. A total of 222 Jonah crab were sampled through this new program, which were sexed, measured for carapace length, and weighed (when feasible).
- Massachusetts: Massachusetts conducted 11 port sampling trips and sampled 7,452 Jonah crab from four different boats. Data collected include shell width, sex, egg bearing status, cull status, and shell hardness.
- Rhode Island: Rhode Island DMF did not conduct sea sampling for Jonah crab in 2019, due to a lack of funding specific to this purpose. Inshore lobstermen who also target Jonah crab generally target either lobster or crab during a given trip, so opportunity to sample Jonah crab and lobsters simultaneously is limited. Rhode Island DMF conducted port sampling of Jonah crab from two fishing trips in 2019, sampling a total of 345 Jonah crabs.
- Connecticut: No sea sampling or port sampling trips were conducted for Jonah crab.
- New York: Staff conducted 11 market sample trips, sampling 204 Jonah crab. No sea sampling trips were conducted for Jonah crab.
- New Jersey: No sea or port sampling trips were conducted for Jonah crab in 2019.
- Delaware: No sea or port sampling trips were conducted for Jonah crab.
- Maryland: Maryland conducted one multi-day sea sampling trip and sampled 100 Jonah crab. Data collected included carapace width, egg bearing status, cull status, shell hardness, sex and whether the landings are whole crabs or parts.
- Virginia: No sea or port sampling trips were conducted for Jonah crab.

6.0 Status of Surveys

The FMP for Jonah crab encourages states to expand current lobster surveys (i.e. trawl surveys, ventless trap surveys, settlement surveys) to collection biological information on Jonah crab. The following outlines the fishery-independent surveys conducted by each state.

Maine

A. Settlement Survey

The Maine settlement survey was primarily designed to quantify lobster young-of-year (YOY), but has also collected Jonah crab data from the sites throughout the survey. Jonah crab information collected includes carapace width, sex (when large enough), ovigerous condition, claw status, shell hardness, and location. The density of YOY Jonah crab has increased over the past two decades with high values in 2012 and 2016 (Figure 1). In 2019, density of YOY Jonah crab decreased sharply from 2018 (Figure 1). The density of all Jonah crabs also decreased from 2018 in each of the sampled areas.

B. State Trawl Survey

The ME/NH Inshore Trawl Survey began in 2000 and is conducted biannually (spring and fall) through a random stratified sampling scheme. Jonah crab data has been collected throughout the history of this survey. The 2019 spring survey completed all 120 scheduled tows and sampled a total of 179 Jonah crab. The spring abundance indices for Jonah crab significantly increased from 2013 to 2016, but declined in 2017, 2018, and 2019 (Figure 2). The 2019 fall survey completed 98 tows and sampled 225 Jonah crab. Abundance indices for Jonah crab declined in 2017 and 2018, and very slightly in 2019 (Figure 2).

C. Ventless Trap Survey

Maine began its Juvenile Lobster Ventless Trap Survey in 2006. Since the beginning of the survey, Jonah crab counts were recorded by the contracted fishermen, but the confidence in early years of this data is low because of the confusion between the two *Cancer* crabs (Jonah crab vs. rock crab) and similar common names. In 2016, the survey began collecting biological data for Jonah crab including carapace width, sex, ovigerous condition, claw status, shell hardness, and location. In 2019 concentrations of Jonah crab were highest in Statistical Area 511 and decrease to the southwest (Figure 3).

New Hampshire

A. Settlement Survey

Since 2009, species information has been collected on Jonah crab in the New Hampshire Fish and Game portion of the American Lobster Settlement Index. Figure 4 depicts the CPUE (#/m^2) of Jonah crab for all NH sites combined, from 2009 through 2019. The time series shows a general upward trend to a time series high in 2018, followed by a decrease in 2019.

B. Ventless Trap Survey

Since 2009, New Hampshire Fish and Game has been conducting the coastwide Random Stratified Ventless Trap Survey in state waters (statistical area 513). A total of six sites were surveyed twice a month from June through September in 2018. Beginning in 2016 all Jonah crab were evaluated for sex and carapace length. A total of 51 Jonah crab over 19 trips were measured during the 2019 sampling season.

Massachusetts

A. Settlement Survey

The Juvenile Lobster Suction Survey has consistently identified *Cancer* crabs to genus level since 1995Jonah crab since 2011, and to the species level since 2011. The number of Jonah crab per square meter were higher in 2018 and 2019 than any other point in the survey in all regions except Buzzards Bay, where Jonah crabs are rarely encountered (Figure 5).

B. Ventless Trap Survey

The MA DMF Ventless Tray Survey is conducted in MA territorial waters of NMFS SA 514 and 538. Stratified mean catch per trawl haul (CPUE) for the survey is standardized to a six-pot trawl

with three vented and three ventless traps. The Jonah crab relative abundance index from Area 514 (Figure 6) has been fairly stable since 2009, with the exception of a down year in 2012. NMFS SA 538 had shown a modest increase in abundance from 2010 to 2017 but has declined since (Figure 7).

C. Trawl Survey

The MA DMF Trawl Survey data are divided into two regions, Gulf of Maine (survey regions 4 and 5), and Southern New England (survey regions 1-3). Recent trends in both regions during the fall, and GOM in the spring have been positive (Figure 8). The spring survey in SNE consistently catches few, if any crabs. While trends are generally positive, 2019 data points for all seasons and regions were below their time series medians, except for the spring survey in GOM.

Rhode Island

A. Settlement Survey

The RI DEM DMF YOY Settlement Survey (Suction Sampling) intercepts Jonah crabs. The 2019 Jonah crab index was 0.14/m2 (Figure 9).

B. Ventless Trap Survey

Since its inception in 2006, the RI Ventless Trap Survey (VTS) has recorded counts of Jonah crab per pot. In 2014, carapace width and sex were also recorded for all individuals. In 2019, the stratified abundance index of Jonah crabs was 1.25 crabs per ventless trap, similar to the time series mean of 1.23 crabs per ventless trap (Figure 10).

B. Trawl Survey

RIDEM has conducted spring and fall trawl surveys since 1979, and a monthly trawl survey since 1990. However, the survey did not begin counting Jonah crab specifically until 2015. Given the short time series of Jonah crab data available and few Jonah crab observations by the surveys, the information is not available at this time. As the datasets for Jonah crab from these trawl surveys grow, these data will be provided as abundance indices.

Connecticut

A. Trawl Survey

Jonah crab abundance is monitored through the Long Island Sound Trawl Survey (LISTS) during the spring (April, May, June) and fall (September and October) cruises, all within NMFS statistical area 611. The survey documents the number of individuals caught and total weight per haul by survey site in Long Island Sound. The Long Island Sound Trawl Survey caught one Jonah crab in the fall 2007 survey and two in the fall 2008 survey. Both observations occurred in October at the same trawl site in eastern Long Island Sound. The fall 2018 trawl survey documented a total of 0.4 kg of Jonah crab, with crabs observed in one site in the central basin and one site in the eastern basin of Long Island Sound.

New York

A. Trawl Survey

New York initiated a stratified random trawl survey in the near shore ocean waters off the south shore of Long Island in 2018 from the Rockaways to Montauk Point and the New York waters of Block Island Sound. Three sampling cruises were conducted in 2019 during the winter (February), spring (June), and fall (December). The second trip in the spring during May and the summer trip in August were not conducted due to mechanical issues. Twenty-five to 30 stations were sampled each trip. Twenty-four Jonah crabs were caught during the 2019 survey. They ranged in size from 20 to 144 mm shell width (SW) and averaged 53 mm SW.

New Jersey

A. Trawl Survey

A fishery-independent Ocean Trawl Survey is conducted from Sandy Hook, NJ to Cape May, NJ each year. The survey stratifies sampling in three depth gradients, inshore (18'-30'), mid-shore (30'-60'), and offshore (60'-90'). In 2019, a cruise was not conducted in April. The mean CPUE, which is calculated as the sum of the mean weight of Jonah crab collected in each sampling area weighted by the stratum area, has remained low throughout the time series, but increased slightly in 2019 (Figure 11).

7.0 Recent and On-Going Research Projects

A. Maturity Study

MA DMF, in collaboration with AOLA and CFRF, has conducted a Jonah crab maturity study. Results suggest that females mature at a smaller size than males (~88-94mm carapace width vs. ~103-117mm carapace width, depending on region sampled). Importantly, the sizes at maturity for both sexes are below the current minimum legal size for harvest (121 mm).

In addition, a graduate student at the University of Maryland Eastern Shore completed a master's thesis on the size at sexual maturity and reproductive biology of Jonah crabs in the Mid-Atlantic Bight in the spring of 2018. Jonah crabs were collected as bycatch in black sea bass and lobster pots from December 2015 to September 2017 as well as from the 2016 and 2017 Virginia Institute of Marine Science Mid-Atlantic Sea Scallop dredge survey. Measurements included: sex, weight, length, width, chela length and height, abdomen width (females), molt condition, presence/absence of egg clutches, and presence/absence of external sperm plugs. A gonadosomatic index was created for female Jonah crabs.

B. Tagging Study

MA DMF, in collaboration with AOLA, NH F&G, and ME DMR, completed a Jonah crab tagging study in 2018 in which over 32,000 Jonah crabs were tagged across 12 different NMFS statistical areas. Preliminary data suggests that most Jonah crab are not migrating far; Most of the recaptures (over 900 crabs) were recaptured within 5 km of where they were released, though six crabs traveled more than 100 km. None of the seven crabs recaptured after more than 600 days had molted.

C. Declawing Study

New Hampshire Fish and Game and Wells National Estuarine Research Reserve conducted a laboratory study to investigate mortality rates associated with declawing Jonah crabs. Four mortality trials were conducted over three seasons. Mortality rates (% died) by treatment were: Controls=16%, 1-claw removed=51%, and 2-claws removed=70%. Additional research is being conducted to assess how declawing clawing affects mating, feeding and movement.

D. Growth and Fishery Dependent Data

In 2019, two collaborative studies between the University of Rhode Island and Rhode Island DEM were published. The first of these was a growth study, which described molt increments for adult females and males and molting seasonality and molt probabilities for adult males in Rhode Island Sound. The second was an interview study in which fifteen in-person interviews were conducted with Jonah crab fishermen to collect their knowledge concerning Jonah crab biology and fishery characteristics. The interviews provided insight into aspects of the species biology and life history that have not been characterized in the literature (e.g., seasonal distribution patterns); identified topics requiring further study (e.g., stock structure and spawning seasonality); and highlighted predominant concerns related to fishery management (e.g., inshore-offshore fleet dynamics).

E. CFRF Research Fleet

The Commercial Fisheries Research Foundation (CFRF) has expanded their lobster commercial research fleet to sample Jonah crab. Biological data collected include carapace width, sex, shell hardness, egg status, and disposition. As of September 2020, 90,701 Jonah crabs have been sampled through the program.

8.0 State Compliance

All states except New York have implemented the provisions of the Jonah Crab FMP and associated addenda. The implementation deadline for the Jonah Crab FMP was June 1, 2016; the implementation deadline for Addendum I was January 1, 2017; the implementation deadline for Addendum II was January 1, 2018; and the implementation deadline for Addendum III was January 1, 2019 (with the exception of the 10 minute square reporting requirement).

- New York has not yet implemented the full suite of management measures required under the Jonah Crab FMP or Addendum I and II. New York crab legislation currently prohibits harvest of female crabs with eggs, limits recreational harvest to 50 crabs, establishes a 4.75" minimum carapace width, and establishes a 2.75" minimum claw length for harvest of claws only. Regulations to limit the directed trap fishery to lobster permit holders only and the 1,000 crab bycatch limit have not been implemented. New York will need to revise the crab legislation to require a lobster permit for the directed trap fishery and adopt regulations to allow a 1,000 crab daily bycatch to crab permit holders; it is unclear how long it will take to get the legislation revised. The state notes that NY has been seeing a decline in Jonah crab landings over time, and according to the

draft FMP, New York contributed to 0.8% of the coastwide Jonah crab landings in 2019. New York does currently have limited entry for crab licenses and a moratorium on the lobster license.

9.0 De Minimis Requests.

The states of Delaware, Maryland, and Virginia, have requested *de minimis* status. According to the Jonah crab FMP, states may qualify for *de minimis* status if, for the preceding three years for which data are available, their average commercial landings (by weight) constitute less than 1% of the average coastwide commercial catch. Delaware, Maryland, and Virginia meet the *de minimis* requirement.

10.0 Research Recommendations

The following research questions were compiled by the Jonah Crab TC and need to be answered in order to complete a coastwide stock assessment.

- ***Growth Rates*** – While there has been some research on Jonah crab growth rates, more studies are needed to determine growth rates along the entire coast. In particular, it is necessary to determine the molt frequency, molt increment, and if there is a terminal molt.
- ***Maturity and Reproduction –*** Studies are needed to determine the size at maturity of crabs in different regions, the size ratio of mating crabs, and sperm limitations.
- ***Migration –*** There are several tagging studies on-going in the Jonah crab fishery. Hopefully these studies will elucidate the migrations of Jonah crab as well as seasonal habitat preferences.
- ***Natural Mortality*** – An estimate of natural mortality must be developed for Jonah crab in order to carry out a stock assessment. In particular, it will be critical to determine the natural mortality of mature crabs.

11.0 Plan Review Team Recommendations

The following are recommendations from the Plan Review Team:

- The PRT recommends the Board approve the *de minimis* requests of DE, MD, and VA.
- The PRT raises concerns about the unimplemented Jonah crab regulations in NY, particularly the regulations to limit the directed trap fishery to lobster permit holders only and the 1,000 crab bycatch limit. Similar issues were raised in the 2018 and 2019 compliance reports and have not been addressed within the last year.
- The PRT notes that MA and CT have been unable to meet the August 1 deadline for compliance reports for the last several years.
- The PRT recommends that jurisdictions with crab-only fishermen report on the number of these fishermen, their collective number of traps fished, and the rules governing their fishing activity.
- The PRT recommends continued research of the Jonah crab species so that a coastwide stock assessment can be completed in the near future.
- The PRT recommends the LEC review compliance in the Jonah crab fishery, given it is a fairly new fishery management plan and lessons may be learned.

12.0 Tables

Table 1. Landings (in pounds) of Jonah crab by the states of Maine through Virginia. 2010-2018 landings were provided by ACCSP based on state data submissions. 2019 landings were submitted by the states (except for Massachusetts and Connecticut) as a part of the compliance reports and should be considered preliminary. *C= confidential data*

	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	Total
2010	1,093,962	C	5,689,431	3,720,440	C	968,122	30,441		18,045	C	11,690,987
2011	1,096,592	C	5,379,792	3,213,119	C	69,440	26,909		92,401	C	9,947,027
2012	556,675	C	7,540,510	3,774,300	2,349	410,349	68,459		C	C	12,560,390
2013	379,073	340,751	10,109,590	4,651,796	51,462	371,675	C		C	C	16,075,597
2014	348,295	404,703	11,904,611	4,435,934	C	83,060	C		153,714	C	17,413,451
2015	312,063	C	9,128,876	4,298,894	C	207,424	68,116	C	39,750	C	14,253,340
2016	602,206	150,341	10,660,871	4,224,092	C	165,427	260,856	C	14,656	C	16,093,104
2017	1,042,807	113,354	11,698,342	4,111,281	C	158,231	433,132	C	23,564	C	17,594,243
2018	1,054,489	22,118	13,227,380	4,665,701	C	231,642	880,192	C	60,628	C	19,816,742
2019*	761,695	70,704	9,697,607	4,078,838	C	122,879	1,262,451	C	47,739	C	16,043,181

**2019 values for MA and CT were provided by ACCSP because they were not provided in the state compliance reports. All other 2019 landings were provided in state compliance reports.*

13.0 Figures

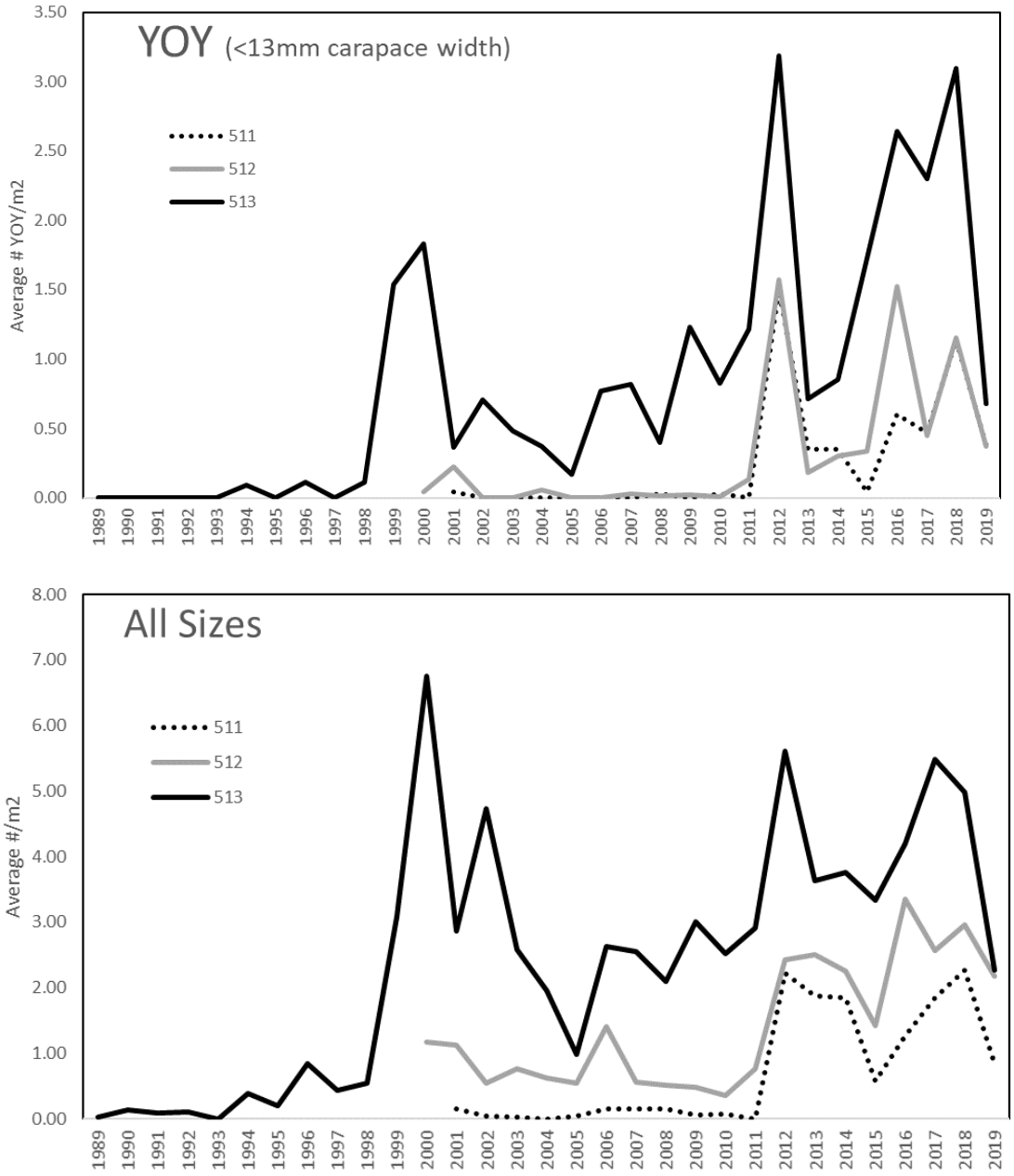

Figure 1: The density of Jonah crab measured over time in the Maine Settlement Survey by statistical area. The top graph shows the density of YOY Jonah crab (<13mm carapace width) and the bottom graph shows the density of all Jonah crab.

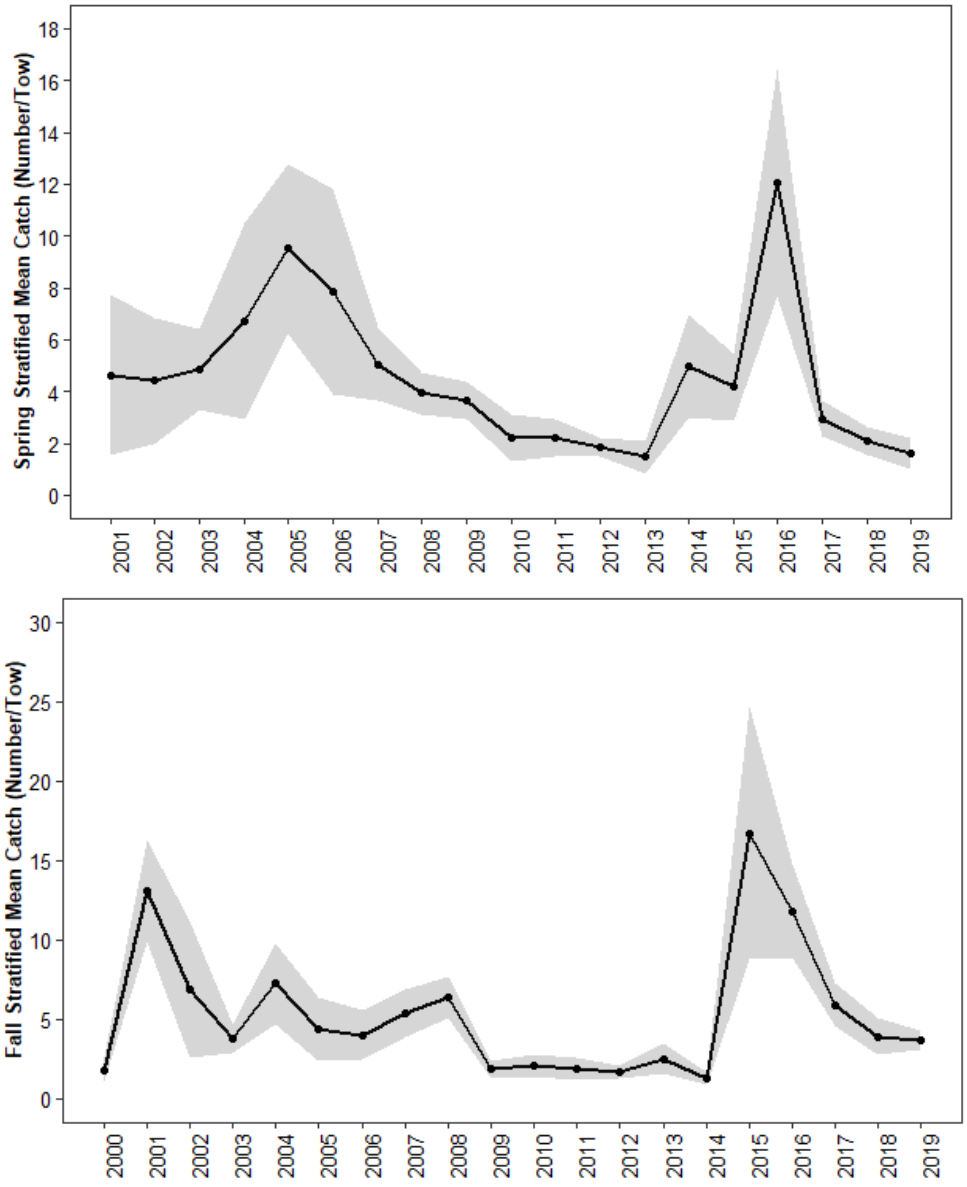

Figure 2: Maine-New Hampshire survey abundance indices for Jonah crab, 2001-2018. Results of the spring survey are on the top and results from the fall survey are on the bottom.

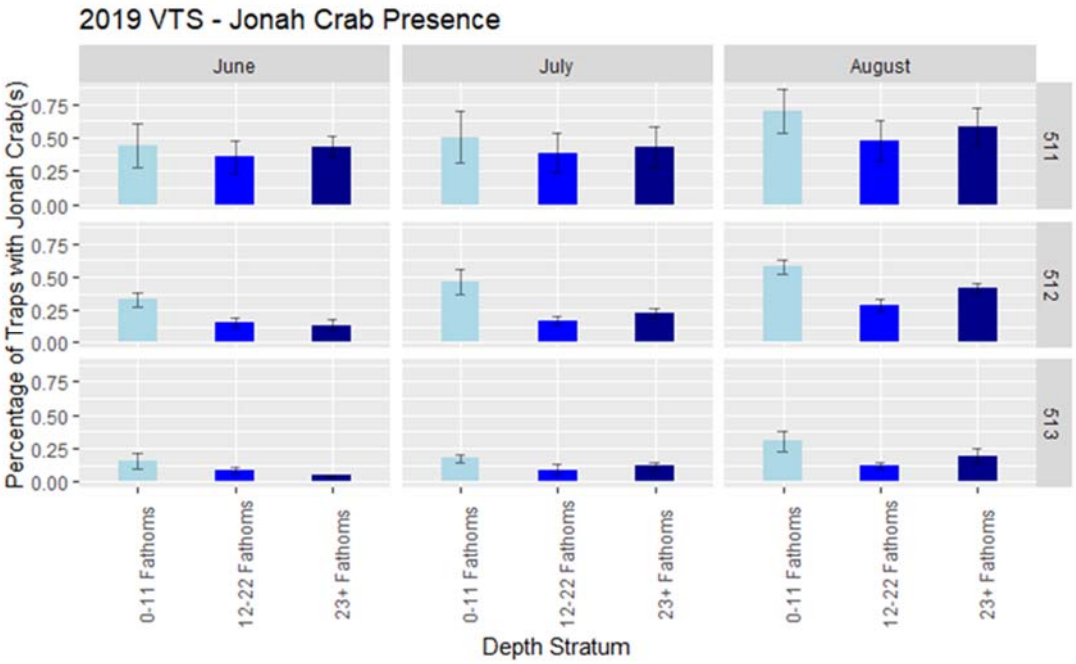

Figure 3: Jonah crab size frequency by sex from the 2018 Maine Ventless Trap Survey.

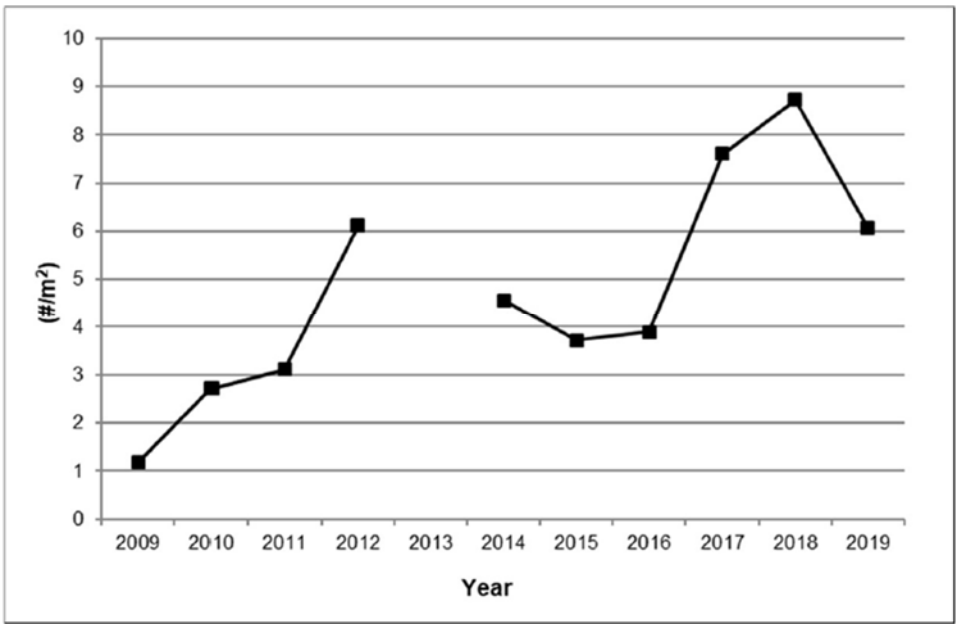

Figure 4: Catch per unit effort (#/m^2) of Jonah crab during the American Lobster Settlement Index Survey, in New Hampshire, from 2009 through 2018.

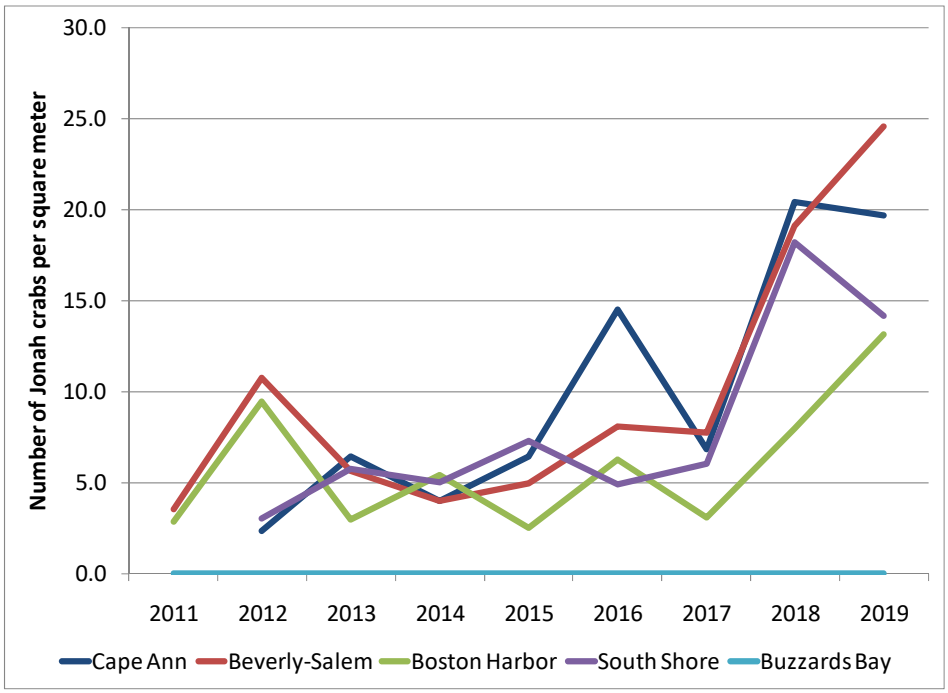

Figure 5: Number of Jonah crab per square meter from the MA DMF juvenile lobster suction survey. Cape Ann, Beverly/Salem, Boston Harbor, South Shore, and Cape Cod Bay are in NMFS statistical area 514; Buzzards Bay and Vineyard Sound are in statistical area 538.

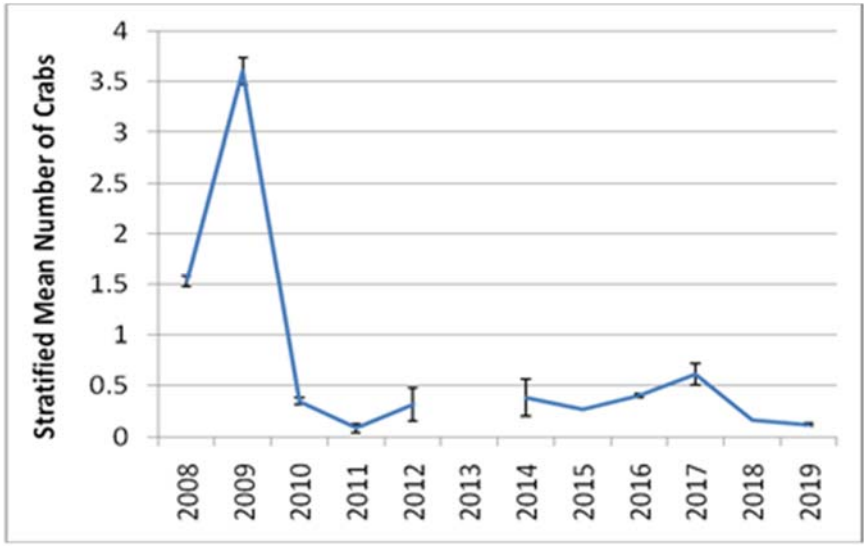

Figure 6. Number of Jonah crab per trawl haul from NMFS stat area 538 from the MA DMF Ventless Trap Survey. CPUE is standardized to a six pot trawl with three vented and three ventless traps. Error bars are ± two times the standard error. The survey did not occur in 2013.

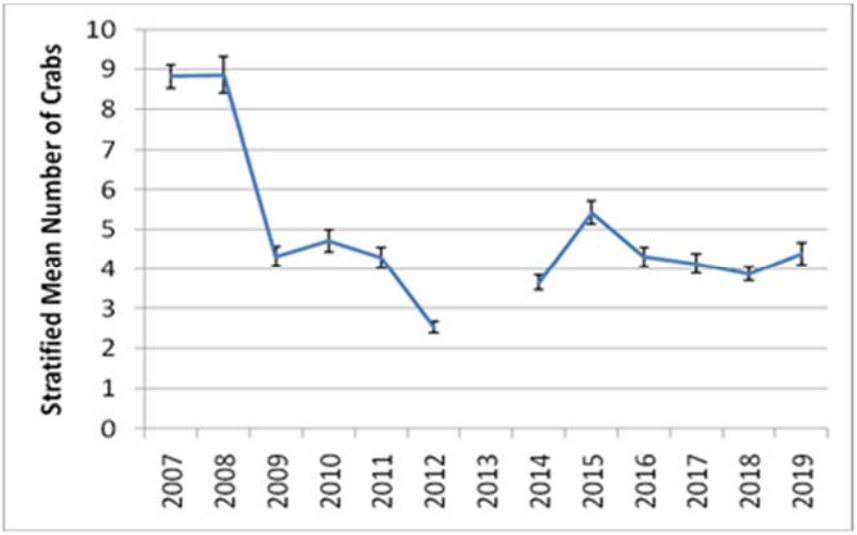

Figure 7. Number of Jonah crab per trawl haul from NMFS stat area 514 from the MA DMF Ventless Trap Survey. CPUE is standardized to a six pot trawl with three vented and three ventless traps. Error bars are ± two times the standard error. The survey did not occur in 2013.

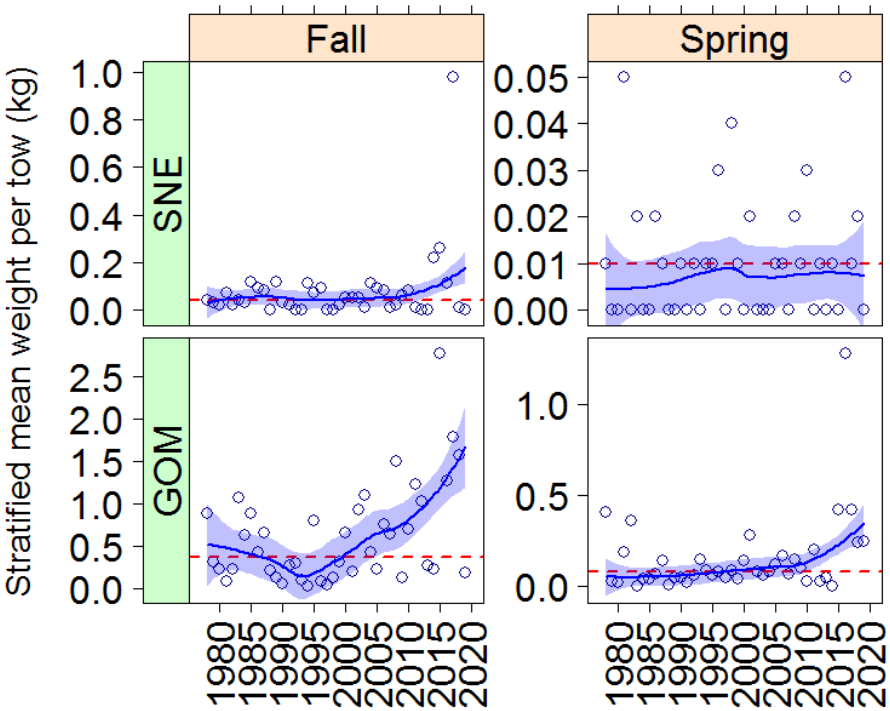

Figure 8. Bootstrapped Jonah crab mean weight (kg) per tow from the DMF bottom trawl survey by season and region. Red, dashed line is the time series median, blue line is a loess fit using family=symmetric and span=0.66. These settings provide a resistant fit to outliers at the end of the time-series. Blue shaded area is an approximate 95% confidence interval for the fit.

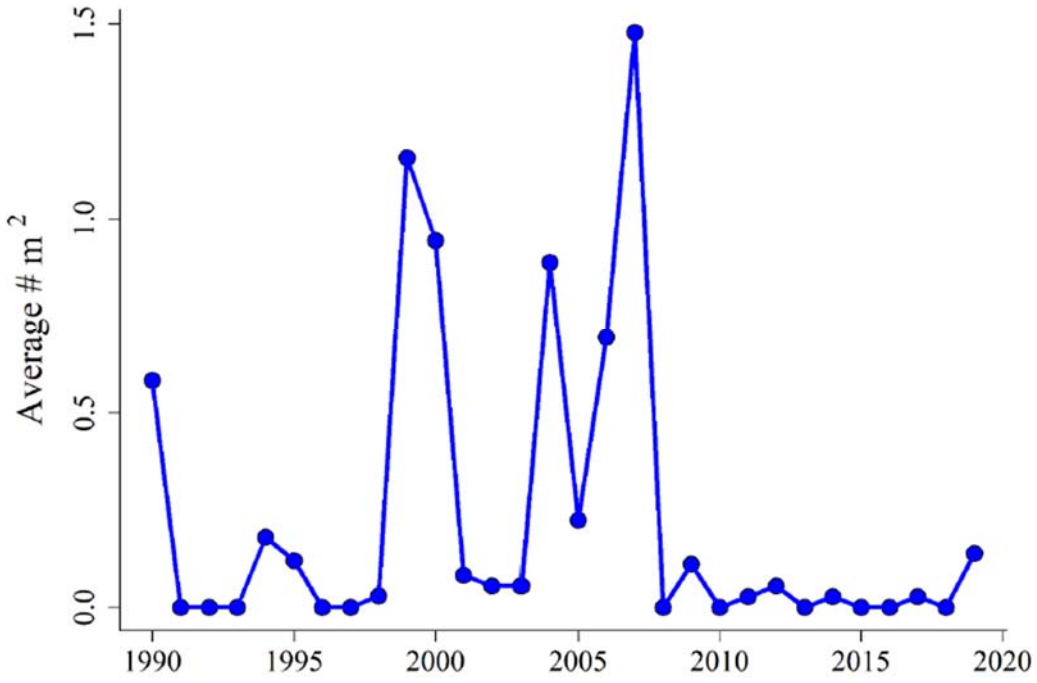

Figure 9. Rhode Island YOY Settlement Survey trend for all Jonah crabs caught.

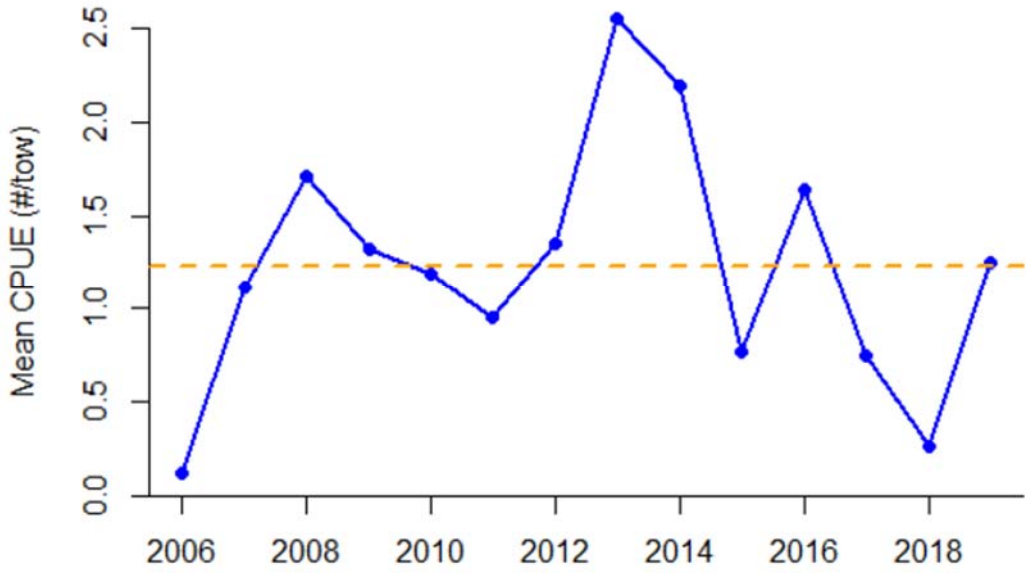

Figure 10. Average number of Jonah crabs caught per ventless trap in RI DMF's ventless trap survey, 2006-2019.

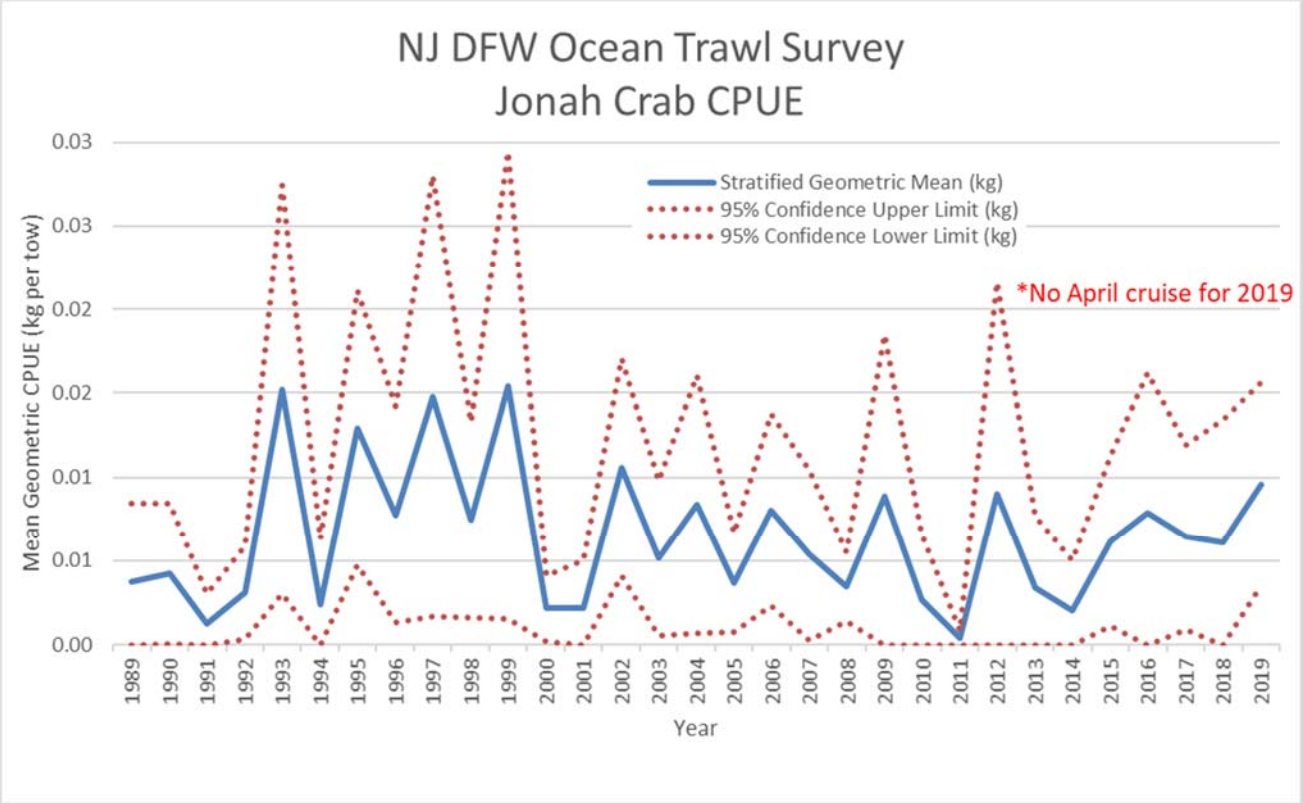

Figure 11. Stratified mean CPUE of all Jonah crab collected aboard the NJDFW Ocean Trawl Survey. The survey stratifies sampling in three depth gradients, inshore (18'-30'), mid-shore (30'-60'), offshore (60'-90'). The mean CPUE was calculated as the sum of the mean weight (in kg) of Jonah crab per size class collected in each sampling area weighted by the stratum area.

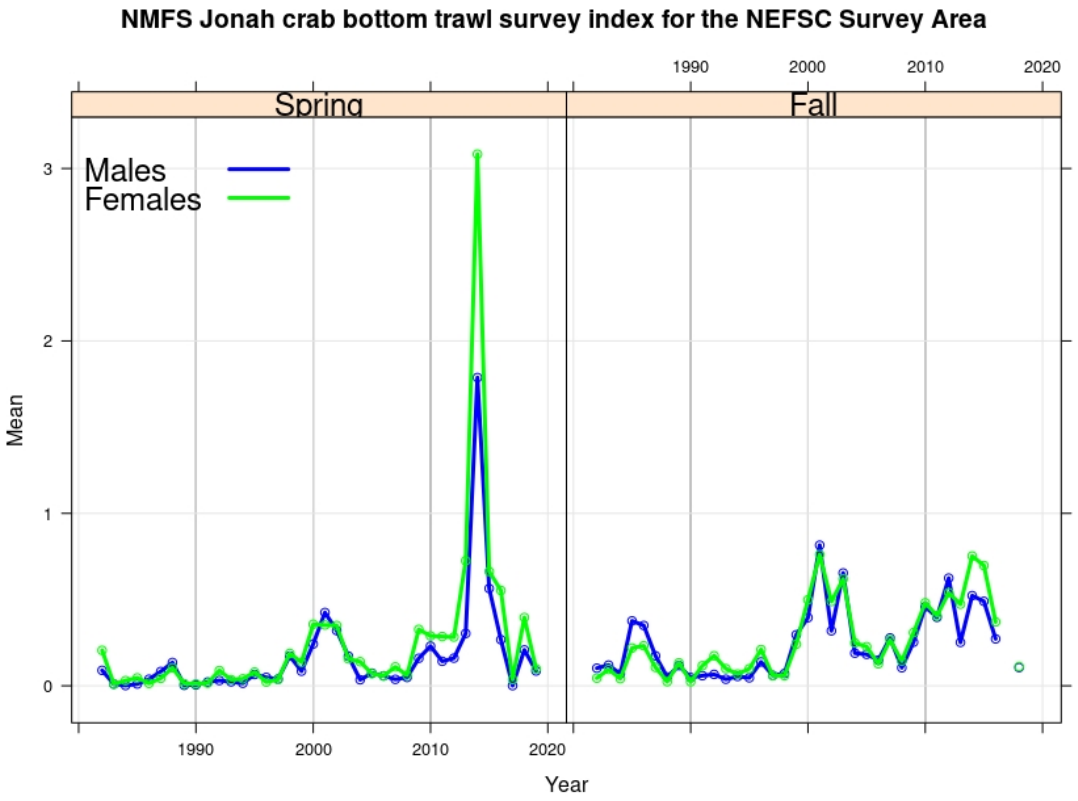

Figure 12. NMFS Jonah Crab index (mean number per tow) from the bottom trawl survey for the NEFSC Survey Area, through spring 2019.

Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: Atlantic Menhaden Management Board

FROM: Atlantic Menhaden Advisory Panel

DATE: October 13, 2020

SUBJECT: Recommendations on 2021-2022 Fishery Specifications

The Advisory Panel (AP) met virtually at 5:00 PM on October 8, 2020 to (1) review updated fecundity (FEC) target and threshold ecological reference points (ERP); (2) provide recommendations on the 2021-2022 fishery specifications; and (3) elect a new AP Chair. AP members in attendance represented commercial harvesters and processors, recreational anglers, and conservation coalition members. Additionally, three AP members were unable to participate and instead submitted written comments ahead of time, which were raised during the meeting by the AP Chair.

Participating AP Members:
Vincent Balzano (ME)
Melissa Dearborn (NY)
Jeff Deem (VA – written comment)
Paul Eidmen (NJ)
Bob Hannah (MA – written comment)
Peter Himchak (NJ)
Ken Hinman (VA – written comment)
Jeff Kaelin (NJ, Chair)
James Kellum (VA)
Meghan Lapp (RI)
Patrick Paquette (MA)
David Sikorski (MD)
Scott Williams (NC)

The following is a summary of the meeting and discussion had by the AP members. Individual AP comments, which were summited by both participating and non-participating members, are appended to this report.

ERP Fecundity Target and Threshold
ASMFC Staff reviewed the updated FEC target and threshold based on the ERP fishing mortality (F) target and threshold approved by the Board in August 2020. The AP asked clarifying questions to better understand the ERP assessment and how the FEC reference points were calculated. There were no recommendations made by the AP.

2021-2022 Total Allowable Catch Alternatives
7 AP members spoke or submitted comment in favor of status quo (216,000 mt) for 2021-2022. Rationale included:

- Given the precautionary nature of previous TAC decisions, which resulted in F below the ERP F target in recent years, a risk of 66% of exceeding the ERP F target will not adversely impact the role menhaden play in the environment.
- It is overly precautionary to set the TAC for menhaden based on the risk of exceeding the ERP F target. For example, the federal risk policy for setting an acceptable biological catch (ABC) is based on risk of exceeding the overfishing limit (OFL), a value akin to the ERP F threshold; status quo has a 0% chance of exceeding the F threshold in both years.

- Since the striped bass population is overfished, there is less demand for menhaden right now and it was explained previously that even setting the TAC to zero for menhaden would not be enough to restore the striped bass population.
- Given the precautionary nature of the TAC in recent years, maintaining the TAC at current levels for the next 2-years is reasonable, and supportive of the environment and the fishery.
- The TAC should remain status quo particularly during this time of economic crisis due to the COVID-19 pandemic. Additionally, harvest in 2020 will be well below the TAC due to lost fishing opportunity thus providing an additional buffer to the fishery.

5 AP members spoke or submitted comment in favor of setting the TAC at a level associated with a 50% probability of exceeding the ERP F target in 2021 and 2022. Rationale included:

- Fishing at the ERP F target is intended to maintain a forage base for striped bass and other predator species that support important commercial and recreational fisheries; 50% risk tolerance of exceeding that F target is appropriate and consistent with past decisions.
- The Board should continue on the path of ecosystem-based management and not revert back to single-species management approaches. These TAC values are guided by new ERP modeling and management approaches which the Board committed to in August with the adoption of ERPs.
- It's important the Board give the ERP models every opportunity to do what they are intended to do; future decisions should be consistent with the ERPs that have been implemented.
- These decisions go beyond helping rebuild the striped bass population. Anything less than a 50% probability isn't appropriate. The value of other fisheries that depend on menhaden as forage must continue to be considered.
- Yes, there is good abundance of menhaden right now, and that is the result of precautionary management actions; these new ERPs allow for continued success.

Elect New AP Chair

Megan Lapp (RI) was elected the new AP Chair. Ms. Lapp will assume the chair position following the 2020 ASMFC Annual Meeting. The AP thanked Mr. Kaelin for his years of professionalism and service as Chair of the AP.

Other Comments

AP members shared on-the-water experiences in recent years, and commented that there have been more small fish and fewer large, older fish in the catch particularly in the Northeast. The AP also expressed concern about the 6,000 pounds incidental catch provision, namely that participation (effort) has increased to concerning levels in recent years and the harvest under the provision does not count towards the TAC. The AP recommends that these issues be addressed in the next management document for Atlantic menhaden.

The AP adjourned at 6:45 PM.

Max Appelman

From: Jeff Deem <deemjeff@erols.com>
Sent: Wednesday, October 7, 2020 1:28 PM
To: Max Appelman
Cc: Jeff Kaelin
Subject: [External] Menhaden AP

Max:
Good afternoon.

I understand you will be handling the Menhaden AP meeting tomorrow afternoon. I wanted to let you know that I may not be able to participate. I have surgery tomorrow morning for a Parkinson's Disease treatment that may take five hours. If I am able I will be on line. If not, I have a few questions that I would like answered if possible.

First, I have seen a study that stated that Menhaden provide only 20% of a striped bass' diet. In determining the amount of forage required for striped bass did they use menhaden as 20% or does it assume using menhaden to meet 100% of the forage needs for the desired striped bass stock size?

Second, why are recruits predicted to drop dramatically if fecundity is expected to rise.?

I have not heard who is willing step into the Chairman's position other than Megan Lapp. If there are other volunteers I would have to consider them all. At the moment, I have no problem with her in that seat.

On the TAC. This fishery has grown so substantially that we allocated percentages to states that had not seen enough menhaden for a directed fishery in 50 years, if ever. I am comfortable with leaving the TAC where it is or adding a slight increase unless we see a substantial drop in the stock size.

Thanks for your time. I hope to be on line.
Jeff Deem

Max Appelman

From: Ken Hinman <khinman@wildoceans.org>
Sent: Wednesday, October 7, 2020 8:06 PM
To: Kirby Rootes-Murdy; ATLANTIC MENHADEN ADVISORY PANEL
Cc: Spud Woodward; Max Appelman; JEFF KAELIN; ATLANTIC MENHADEN INTERESTED
Subject: [External] RE: REMINDER: Atlantic Menhaden AP Webinar scheduled for October 8 from 5-7pm- Draft Agenda and Memos

Dear Kirby, Max, Spud, Jeff *et al*,

Because of a prior commitment to do volunteer work in Lexington, I will be unable to participate in the Atlantic Menhaden Advisory Panel webinar tomorrow evening. I have read the materials from the Technical Committee (stock projection memo) and, as you know, have been participating in the development of ecological reference points (ERPs) for menhaden for two decades now. So I am providing my position on the proposed TAC for 2021-22 and accompanying rationale for inclusion in the AP summary.

Position: Adopt a Total Allowable Catch that has no more than a 50% chance of exceeding the ERP target, i.e., the maximum fishing mortality rate (F) on menhaden that sustains striped bass at their biomass target. According to the TC's stock projection memo (Table 1), that would correspond to a TAC of no more than 176,800 tons in 2021 and 187,100 tons in 2022.

Rationale: Such a conservative TAC would also provide a buffer to account for the overfished status of Atlantic herring and the poor condition of alternative prey species (river herring, shad, butterfish and mackerel, e.g.), the needs of other dependent predators (seabirds, marine mammals, sharks and large pelagic fishes), and other uncertainties, which is precisely what an ERP should do.

In my opinion, anything less would not constitute an ecosystem-based approach to managing menhaden and could not be characterized as such. The ASMFC has invested significant time and resources to get us to this "point," and the Menhaden Management Board should be strongly urged by the Advisory Panel to take this action which will benefit so many Commission-managed species and the fisheries that depend on them, directly and indirectly.

Thank you for considering my views and I hope you have a productive meeting.

Best regards,

Ken Hinman
Lovettsville, Virginia

From: Kirby Rootes-Murdy [mailto:krootes-murdy@asmfc.org]
Sent: Friday, October 02, 2020 11:26 AM
To: ATLANTIC MENHADEN ADVISORY PANEL
Cc: Spud Woodward; Max Appelman; JEFF KAELIN; ATLANTIC MENHADEN INTERESTED
Subject: REMINDER: Atlantic Menhaden AP Webinar scheduled for October 8 from 5-7pm- Draft Agenda and Memos

Good Morning Atlantic Menhaden AP members,

Max Appelman

From: Robert Hannah <zoey01930@yahoo.com>
Sent: Thursday, October 8, 2020 2:51 PM
To: Max Appelman
Subject: [External] Scheduled AP Webinar

Good afternoon Max,
Do to a family matter that just arose I will not be able to participate in this evenings meeting. How ever I do have a few comments and concerns I would like to be included in the minutes of the meeting.
As a stakeholder in the Fisheries, I would like the TAC to stay as Status Quo.
However I do have concerns about the "year classes" from the 2020 season. There was a change in the catch/year classes that until this year were not noted. We saw very few 5-6 year old fish that were landed; mostly 2-4 year old class fish. Which makes me wonder if there is a gap in the year classes. Typically up north we would see and be fishing on the older year class fish.
Another area that concerns me is the 6 thousand pound permits. This permit was originally put in place as a By-Catch permit for the Rock Fisherman in the Chesapeake. However states have now turned it into a full time Seine Fishery, growing in numbers yearly.
All of these added permits will have a dramatic impact on the limited numbers of fish and the Fisheries as a whole. And unless I am mistaken this catch is not counted in the yearly TAC.
Thank you for including me in this meeting. I would like to be kept informed and participate in future meetings.
Regards, Robert Hannah

Sent from my iPad

Max Appelman

From: Peter Himchak <Peter.Himchak@cookeaqua.com>
Sent: Thursday, October 8, 2020 6:55 PM
To: Max Appelman
Cc: JEFF KAELIN
Subject: [External] My comments on the TAC setting process for 2021 and 2022

Max, Kindly accept my comments as an AP member.

Comments for the ASMFC Atlantic Menhaden Advisory Panel Webinar

October 8, 2020

In my 45 year career in fisheries management, I have had the privilege and benefit of serving on both the Mid-Atlantic Fishery Management Council (6 years) and many ASMFC Management Boards (8 years), after serving on many ASMFC Technical Committees.

I am quite familiar with the concept of risk analysis, especially when dealing with target and threshold reference points, and the overarching goal of maintaining resource sustainability and preventing overfishing.

I served on the MAFMC during the development of the ABC Control Rules and Risk Policies for the conservation and management of all federally managed species under the Magnuson Act.

In setting an Acceptable Biological Catch (ABC), the Councils' risk policies mandated that there could not be greater than a 50% risk of exceeding the Overfishing Limit (OFL), that is, a value akin to a threshold reference point, either F or biomass, used in the ASMFC process.

I find it confounding and overly precautionary that the emphasis on setting menhaden TAC projections for 2021 and 2022 are all highlighted by the risk of exceeding the target ERP value (Table 2) and there is little to no discussion on the non-existent to minimal risk associated with exceeding a threshold ERP values under any of the scenarios (Table 3).

I realize that the target ERP is defined as the maximum F on menhaden and therein, I think, lies the misguided discussion on risk, because if one reads the entire definition of the target ERP F, it is based on keeping striped bass at their biomass target when striped bass are fished at their F target.

The striped bass resource is overfished and overfishing is occurring, hence the current biomass of striped bass is significantly below its target biomass, and even below its threshold biomass. So, what biomass of striped bass currently exists that does not have access to sufficient numbers of menhaden as forage? None!

It has been pointed out in the SEDAR 69 ERP Assessment Report and presented by ERP WG representatives that no decrease in the menhaden TAC, even to the extent of a moratorium, alone, can restore striped bass to their target biomass.

It will take serious management action through an AM 7 to restore striped bass to their target biomass by 2029. In the meantime, the industries are being forced to leave more and more menhaden in the water for an unachievable goal.

The ASMFC has managed menhaden in such a precautionary manner since the implementation of AM 2 in 2013 that even with the development of ecological reference points, the resource was demonstrated to be below the target ERP F.

In this context, even a risk analysis of 70% of exceeding a target ERP F is should not be troublesome in diminishing the ecological role that menhaden serve in the ecosystem.

The commercial fisheries for menhaden have been critically constrained for many years under a precautionary TAC, always a risk assessment on target values and not threshold values, that simply asking to maintain an existing TAC of 216,000 mts. for the next 2 years is reasonable and supportive of the ecosystem.

The Board is being asked to set a short term 2 year menhaden TAC and the TAC is being driven by the need for forage, primarily for striped bass. The striped bass resource has less than a 50% probability of achieving its target biomass by 2029. So, why is the industry being asked to consider anything less than the current TAC, that would be a significant increase of fish left in the water when there are already sufficient numbers of menhaden in the water already to serve their ecological functions.

Peter Himchak

Max Appelman

From: paulyfish reeltherapy.com <paulyfish@reeltherapy.com>
Sent: Wednesday, October 14, 2020 8:21 AM
To: Max Appelman; Toni Kerns
Subject: [External] Addition to my comments on the Management board option

10 13 20
Dear Max:
Atlantic menhaden serve as forage for striped bass, bluefish, weakfish, summer flounder, bluefin tuna and other species that drive the recreational fishing economy in on the East coast, as well as whales, dolphins, birds that contribute to ecotourism activities.
The Atlantic States Marine Fisheries Commission's visionary action in August 2020 to adopt Ecological Reference Points for Atlantic menhaden management was an important acknowledgment of the key role menhaden play in the ecosystem. Now, at its October meeting, the Commission must effectively implement this new system by setting a coast-wide catch limit that is likely to succeed in meeting the new ecological target.
According to the Atlantic Menhaden Technical Committee, the TAC that would lead to a 50% probability of exceeding the new ecosystem target fishing mortality rate for 2021-2022 (combined) is 176,800 mt per year. This catch limit would be consistent with other species managed by the Commission.
However, given the poor condition of other forage species, especially Atlantic herring, the Board should adopt an additional conservation buffer to assure adequate forage for striped bass and other species. In fact, Atlantic herring are now overfished, justifying a substantial reduction in catch to assure adequate forage for striped bass and other species.
In the ecological reference points decision document presented by the ERP Work Group to Management Board in August, the "threshold scenario," (which included Atlantic herring at levels higher than current levels but below 2017 levels), required Target F=.03, far lower than the current ERP Target F =.19.
For this reason and others, I am requesting that the Menhaden Management Board adopt the most conservative 2021-2022 Total Allowable Catch limit (TAC) option of 148,700 MT. This option has a 25% probability of exceeding the ERP Target.
We thank you for your ongoing managerial leadership and we look forward to collaborating with you to rebuild striped bass and other key species managed by the ASMFC.
Sincerely,

Paul
Capt. Paul Eidman
Menhaden Advisory panel member

Capt. Paul Eidman
732.614.3373
paulyfish@reeltherapy.com

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www.reeltherapy.com
www.menhadendefenders.org
www.anglersconservationnetwork.org
www.anglersforoffshorewind.org

Comments Submitted by Stakeholders

October 8, 2020

Kirby Rootes-Murdy
Senior Fishery Management Plan Coordinator
Atlantic States Marine Fisheries Commission (ASMFC)
1050 North Highland Street, Suite 200 A-N
Arlington, Virginia 22201

Dear Mr. Rootes-Murdy and members of the ASMFC Atlantic Menhaden Management Board:

On behalf of conservation-minded recreational anglers from Maine to Florida, we urge the ASMFC to adopt a precautionary Total Allowable Catch (TAC) for Atlantic menhaden that has no more than a 50% probability of exceeding the fishing mortality (F) target under the newly adopted Ecological Reference Points (ERPs) for 2021-2022.

We commend the Board for its decision to adopt ERPs at its August meeting, recognizing the integral role that menhaden play as forage for a broad array of fishes, marine mammals, and seabirds. Among the species menhaden supports are iconic target species for recreational anglers. Striped bass, which is the most intensely targeted recreational species along the Atlantic coast (16.6 million trips in 2018),[1] feed heavily on menhaden and was the most sensitive species to menhaden harvest in the NWACS-MICE model used to develop ERPs.[2] Further south, tarpon, which are an important contributor to East Florida's $5 billion marine recreational fishing economy,[3] rely on menhaden during seasonal migrations up and down the South Atlantic coast.

With ERPs in place, the Board should move to implement management measures based on what now represents the best available science for menhaden management. And in line with precautionary approaches to setting the menhaden TAC in recent years—the TACs for 2017-2020 were never projected to have more than a 20.5% probability of exceeding the single-species target F[4,5,6]—the Board should move to select a TAC that has no more than a 50% probability of exceeding the new ERP target F. According to the Atlantic Menhaden Technical Committee, the TACs that would lead to a 50% probability of exceeding the ERP target F for 2021-2022 combined is 176,800 mt.[7] While this TAC represents an approximate 18% reduction from the current 216,000 mt TAC, it is similar to the TACs implemented for 2013-2014 (170,800 mt) and for 2015-2016 (187,880 mt).

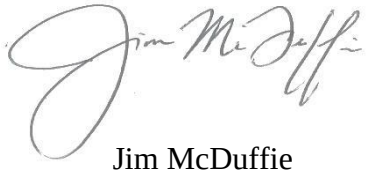
In practice, however, a 50% probability of success should be considered a bare minimum given recent deterioration in the status of some stocks included in the NWACS-MICE model, along with the fact that the model only includes a handful of the numerous species that depend on menhaden. The recently adopted ERPs assume 2017 stock status for the five species other than menhaden included in the model. However, the recent stock assessment update for Atlantic herring—the sole menhaden prey substitute included in the model, which was neither overfished nor experiencing overfishing in 2017—determined that the species is now overfished, with recruitment having declined since 2013 and now at record-low levels.[8] This decline in Atlantic

herring is likely to lead to increased predation pressure on menhaden not currently captured in the NWACS-MICE model. Moreover, a key predator of menhaden, striped bass, has also become overfished since 2017.[9] While reducing directed fishing mortality on striped bass is the most critical factor in helping the stock to rebuild, ensuring a robust forage base will help to ensure the species' ability to recover. Lastly, while the NWACS-MICE model represents the best available science for menhaden management, it only includes a small number of managed finfish species, to the exclusion of other menhaden predators such as marine mammals, seabirds, and fishes such as tarpon. In the absence of a more comprehensive ecosystem model, adopting a TAC with a precautionary buffer that ensures a greater than 50% probability of meeting the target F will help to account for the needs of these predators, while also recognizing recent declines in the striped bass and Atlantic herring stocks.

In August, the Board set a nationwide precedent by adopting ERPs for Atlantic menhaden and thus formally accounting for its ecosystem role in management. We urge the Board to take the crucial next step and adopt a precautionary approach to protecting both forage species and the predators that depend on them and support valuable coastal fisheries. We thank you for your consideration.

Sincerely,

Willy Goldsmith, Ph.D.
Executive Director
American Saltwater Guides Association



Jim McDuffie
President and CEO
Bonefish & Tarpon Trust

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[1] Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division (Oct 6, 2020).
[2] ASMFC (Feb 2020). Atlantic Menhaden Assessments Overview. http://www.asmfc.org/uploads/file/5e5e84fbAtlanticMenhadenAssessmentsOverview_Feb2020.pdf
[3] NOAA Fisheries. 2019. Addendum to Fisheries Economics of the United States 2016. https://www.fisheries.noaa.gov/resource/document/addendum-fisheries-economics-united-states-2016
[4] ASMFC (Oct 2016). Timeline for Atlantic Menhaden Action. Presentation to the Atlantic Menhaden Management Board. http://www.asmfc.org/files/Meetings/2016AnnualMeeting/AtlanticMenhadenBoardPresentationsOct2016.pdf
[5] ASMFC (Nov 2017). Atlantic Menhaden Draft Amendment 3. Presentation to the Atlantic Menhaden Management Board. http://www.asmfc.org/files/Meetings/AtlMenhadenBoardNov2017/AtlanticMenhadenBoardPresentations_Nov2017.pdf
[6] ASMFC (Aug 2019). 2019 Fishery Management Plan Review for Atlantic Menhaden. Presentation to the Atlantic Menhaden Management Board. http://www.asmfc.org/files/Meetings/2019SummerMtg/AtlMenhadenBoardPresentations_Aug2019.pdf
[7] ASMFC (Sep 2020). Atlantic Menhaden Technical Committee Stock Projection Memo. http://www.asmfc.org/files/Meetings/79AnnualMeeting/AtlanticMenhadenBoard.pdf
[8] NOAA Fisheries Northeast Fisheries Science Center (Sep 2020). 2020 Management Track Peer Review Committee Report. https://s3.amazonaws.com/nefmc.org/9a_2020-Management-Track-Assessment-Report-Revised-8-12-2020_508.pdf
[9] ASMFC (May 2019). ASMFC Stock Assessment Overview: Atlantic Striped Bass. https://www.asmfc.org/uploads/file/5cc9ba4eAtlStripedBassStockAssessmentOverview.pdf

CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

October 13, 2020

Kirby Rootes-Murdy
Senior Fishery Management Plan Coordinator
Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200 A-N
Arlington, VA 22201

Re: Chesapeake Bay Foundation Comments on Fishery Specifications for Atlantic Menhaden

The Chesapeake Bay Foundation, Inc. (CBF) respectfully submits the following comments regarding the Atlantic States Marine Fisheries Commission's (ASMFC) upcoming specification setting effort for the Atlantic Menhaden fishery for the 2021 and 2022 fishing seasons. CBF is a 501(c)(3) non-profit organization, founded in 1967 whose mission is to restore and protect the ecological health of the Chesapeake Bay. CBF's 300,000 members and e-subscribers across the United States, have long expressed a particular interest in the management of Atlantic Menhaden (menhaden) due to its vital role in the ecosystem. This has led to CBF's strong advocacy efforts over the last 20 plus years for a precautionary approach to management of the menhaden resource in the Chesapeake Bay and along the entire Atlantic Coast.

In November 2017, ASMFC's Atlantic Menhaden Management Board (the Board) approved Amendment 3 to the Interstate Fishery Management Plan for Atlantic menhaden "with the goal of managing the menhaden resources in a way that balances menhaden's important ecological role, primarily as a prey species, with the needs of all user groups."[1] This past summer, in support of that stated goal, the Board unanimously approved the use of ecological reference points (ERPs) for the management of Atlantic menhaden. This decision was years in the making and the Board should be commended for taking such an important step in the management of this important forage species.

The Board's upcoming fishery specification decision will be extremely important in trying to reach the previously stated objectives for the Atlantic menhaden fishery using the newly adopted ERPs to set a total allowable catch (TAC). In order to meet the objective of ensuring Atlantic menhaden's ecological role, we urge ASMFC's Atlantic

[1] Letter from Robert E. Beal, Atlantic States Marine Fisheries Commission, to The Honorable Wilbur Ross, Secretary of Commerce, p. 1, November 15, 2019

Menhaden Management Board to adopt a TAC that has no more than 50% probability of exceeding the ERP target for menhaden during the 2021 and 2022 fishing seasons.

ASMFC management boards have commonly adopted management options with at least a 50% chance of reaching their management objective in the past. In addition, this minimal level of assurance of management success is required by National Standard 1 for the eight regional fishery management councils. Given the uncertainty noted in the projection analysis performed by the Atlantic menhaden Technical Committee (TC), adoption of a TAC with at least a 50% chance of success will help ensure the ecosystem needs are met by leaving sufficient forage in the water[2].

From an ecological perspective there are numerous reasons for setting a fishery specification with at least a 50% chance of meeting the ERP target. First, it will help ensure that striped bass, a species that is currently considered "overfished" based on the most recent stock assessment[3] and highly dependent upon menhaden, can begin to rebuild with sufficient forage in place to help ensure these predators are in no way prey limited as their population rebounds. Next, with several other important forage species including Atlantic herring[4] and American shad[5] currently considered overfished or depleted based on recently released assessments, adopting a TAC with at least a 50% chance of success will help ensure the wide array of piscivorous predators in the Mid-Atlantic region will have adequate forage throughout their geographic range.

The Board will also need to consider setting a separate TAC for the 2021 and 2022 seasons or keeping a single TAC for both years. Based on the TC's projection memo, menhaden recruitment is expected to fall after the 2020 fishing season[6]. Falling recruitment is of particular concern here in the Chesapeake Bay region were low recruitment has been experienced for over 20 years. In order to hopefully minimize any drop in recruitment in future years, we believe it is in the best interest of the menhaden resource to set the TAC at a single more conservative level for the next two years.

We appreciate your consideration of these comments. As noted, this fishery specification decision will be extremely important for not only ensuring a healthy population of Atlantic menhaden, but also the host of predators that are dependent on them as an essential part of their diet. Continued precautionary management by the Board will help ensure not only a more prolific menhaden population, but a more robust Mid-Atlantic ecosystem that will help ensure the recovery of a number of menhaden predators whose current populations are at levels that are raising management concerns.

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[2] Atlantic Menhaden Technical Committee. Stock Projection Memo. September 30, 2020

[3] Atlantic States Marine Fisheries Commission. Summary of the 2019 Benchmark Stock Assessment for Atlantic Striped Bass. 2019

[4] Wilberg, M., Houde, E., Serchuk, F. 2020 Management Track Peer Review Committee Report. 2020

[5] Atlantic States Marine Fisheries Commission. 2020 American Shad Benchmark Stock Assessment and Peer Review Report. 2020

[6] Atlantic Menhaden Technical Committee. Stock Projection Memo. September 30, 2020

Sincerely,

Chris Moore

Chris Moore
Senior Regional Ecosystem Scientist
Chesapeake Bay Foundation

cc: Alison Prost, Vice President, Environmental Protection & Restoration, CBF
Peggy Sanner, Virginia Executive Director, CBF
Christy Everett, Hampton Roads Director, CBF
Allison Colden, Maryland Fisheries Scientist, CBF

October 13, 2020

Via Electronic Mail
Mr. Spud Woodward
Chairman, Menhaden Management Board
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201

RE: Total Allowable Catch for the Atlantic Menhaden Fishery, 2021-22

Dear Chairman Woodward:

The Menhaden Fisheries Coalition, representing menhaden harvesters for bait and reduction purposes, as well as those who rely on this fishery, respectfully asks the Menhaden Management Board to adopt a status quo total allowable catch (TAC) for the next two years. This request is consistent with the current ecological reference point (ERP) target of 0.19 given current ecosystem conditions, the status of the menhaden resource, and present socio-economic realities. We explain why below and hope you and the members of the Menhaden Board will give these comments serious and thoughtful consideration.

The Menhaden Fisheries Coalition has supported and continues to support management of menhaden to maintain both the fishery itself (and those who depend upon it) and the stock's role in the ecosystem. More specifically, the Coalition supports the use of current ERP fishing mortality rate (F) target, which the Board adopted at its August 2020 meeting.

The primary issue facing the Board next week is the trade-off in terms of foregone allowable catch to marginally increase the certainty with which that target will be achieved. For example, to get to a 50 percent certainty, it would require nearly a 20 percent cut in the menhaden TAC. For reasons explained below, we do not believe the benefits of increased certainty outweigh the negative impacts that would result.

As we noted in our letter to the Board prior to the August 2020 meeting, the Commission's management of this stock has achieved an F that has mostly been at or below the ERP target over the past 19 years. In only four years since 1998 was the target exceeded, and then by only a small amount. Menhaden has not been overfished on an ecological basis since the early 1980s. Consistently, menhaden biomass, measured in terms of fecundity, has been above ecosystem target levels over the same timeframe (in fact, back to the early 1990s). Both conditions – F below, and fecundity above, target – prevailed in 2017, the year of the latest (peer-reviewed) stock assessment.

The most surprising aspect of these results is that there were no active management measures in place until 2013, when the first fishery-wide TAC was established. Furthermore, since Amendment 2 established the initial TAC, the Board has not managed the stock using single-species reference points, but rather by *ad hoc* ecosystem management achieved through precautionary catch limits.

We recognize that the projections show that maintaining the current TAC for the next two years has a 65 percent chance of exceeding the target in 2021, and 60 percent in 2022. No doubt, this likelihood should be considered as the Board makes its decision.

But there are other factors which should weigh in this decision. First of all, fishing at the status quo has a zero percent chance of resulting in overfishing. Second, the stock is projected to remain above its ERP fecundity target levels even if the current harvest level is maintained. Third, and perhaps most importantly, the ERP target F is premised on the assumption that striped bass are their target biomass levels and being sustainably fished. Neither of these conditions currently prevail.

In other words, the ERP target is currently the best estimate of fishing mortality rates necessary to provide forage for a fully rebuilt striped bass population.

Further, the other assumptions used to develop the target are that the other predators in the model – weakfish, bluefish, and dogfish – are at 2017 abundance. Both spiny dogfish and bluefish have subsequently been assessed and have been found to be below 2017 levels. Atlantic herring, the other prey species in the model, is also less abundant than 2017. However, sensitivity analyses have shown that the model over-estimates the importance of herring to striped bass.

It appears, then, that even if maintaining the status quo TAC might result in an F slightly above the target, the current menhaden population is large and healthy enough to provide ample extra forage for its depleted primary predators. Thus, there is little to no risk that the amount of menhaden left in the water will be too low to satisfy its ecological role. This is one reason that a higher risk of exceeding the target should be deemed acceptable.

Another is that, while the Commission has not finalized its risk policy, the current draft under consideration would allow for setting a TAC at a level with a 60 to 65 percent probability of exceeding the target. The conditions under which such a result would be deemed acceptable include a population which is below its target F and above its biomass target. Both are true for the menhaden fishery. Another factor is the amount of uncertainty in the stock assessment. The menhaden stock assessment is among the most robust in fisheries management.

The final factor—short-term socio-economic impacts—is perhaps the most important. The TAC needed to achieve a 50 percent probability the target would not be exceeded in 2021 is 176,800 mt. That is a reduction of over 39,000 mt, or a decrease of 18 percent, from current levels. While the impact a reduced TAC may have on overfished predator stocks is uncertain, it is certain that such dramatic cuts will have high negative short-term social and economic impacts.

The confluence of coronavirus pandemic, which has reduced demand for many fish stocks, and the need to reduce herring catches, has led to the menhaden fishery being one of the few bright spots for coastal fishing communities. Demand for menhaden products and menhaden as bait are extremely strong, even as other revenue sources are drying up for many communities.

The lobster and crab fisheries are particularly feeling the squeeze as prices for their products are dropping while the cost of bait is increasing. Next year, no more than 5,000 mt of herring will be allowed to be harvested. To add to that an 18 percent cut in menhaden catches will cause hardship for all these fisheries at a time when they and their communities can ill afford it.

Thus all the conditions specified in the draft risk policy are met that would allow for a higher probability of exceeding the target: low F, high abundance, low uncertainty in the assessment, and large, negative short-term socio-economic impacts. We also note that this draft risk policy is even more risk-averse than most similar policies utilized at the federal level, which generally focus on probabilities that thresholds, not targets, will be exceeded. Generally speaking, federal risk policies allow for some risk – as much as 50 percent – that overfishing will occur. Here, the status quo presents no such risk.

In summation, the Menhaden Fisheries Coalition strongly encourages you and your fellow Board members to maintain the current TAC for the next two years. You should reject the argument that to do so ignores the ERP target and is an abandonment of the Board's objective to manage menhaden on an ecological basis. Rather, accepting a higher risk of exceeding the target F is a straightforward application of routine fisheries management principles and an exercise of managerial discretion which recognizes that assumed conditions – principally a rebuilt striped bass population – do not reflect current reality.

For nearly two decades, the Board has managed menhaden in a manner that has created conditions that have allowed for successful management of important predator stocks. That is, for about 20 years, menhaden have been fished at levels suggested by the ecosystem model. Undoubtedly, the commitment to continue managing menhaden for its ecological role will pay dividends as ending overfishing and rebuilding of these stocks occurs. Under current conditions, however, there is no apparent risk to these objectives by maintaining the current TAC, which will also support the fisheries, people, and communities that depend upon the menhaden fishery.

Thank you very much for your time and attention to these comments.

Sincerely,

/s/ Wayne Reichle
Chairman, Menhaden Fisheries Coalition
President, Lund's Fisheries, Inc. Cape May, NJ

cc: Members of the Atlantic Menhaden Management Board

From:	Tom Lilly
To:	Tina Berger
Subject:	[External] Fwd: CHANGES REQUESTED TO SECURE SOME BALANCE TO CHESAPEAKE BAY
Date:	Monday, October 12, 2020 10:39:02 AM
Attachments:	2020-07-24_172246 Katie Drew.pdf 2020-08-25_220701 WATTS.pdf 2020-10-12_095502 CBF Release.pdf 2020-09-05_160101 Cierci.pdf 2020-09-05_163750 MILLER.pdf

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Tina Please distribute this...Sending the last 2 scans by next mail...can you acknowlege ? Thanks

To The ASMFC Commissioners, Policy Board, Menhaden Board and Menhaden Technical Committee., Bob Beal ..... Will you please consider these things before you make an allocation to Virginia? Your past allocation resulted in one company, Omega Protein, receiving 90.04% of the Virginia allotment or 335,348,569 pounds of menhaden.

If you managers knew there is enough menhaden left in the Chesapeake Bay to properly feed and grow our precious wildlife while the factory fishing was going on, that would be one thing. However, we understand you have never had that critical information. (scan Drew 2246) . There seems to be complete uncertainty whether the bay's forage base is ever rebuilt because there are 12 industrial sized purse seiners targeting the flow of food. There is complete uncertainty whether the most important obligation the Commission and the State agencies have to the Bay and its people is being fulfilled. That obligation is to conserve their natural resources by allocating menhaden where they do the most ecological, social and economic good. Our question is " Should the board proceed with setting a TAC or an allocation to Virginia when they do not know if the bay fish and wildlife will have adequate forage during the season" ? To proceed with a Virginia allocation which is based solely on history and not based on science or the proper socio-economic factors or any standard of fairness or equality would seem to violate your basic rules and principles Are we correct here or not?

There are certain "inconvenient" facts about Chesapeake Bay's two iconic and represenative species. ospreys and striped bass. There are thousands of nesting ospreys covering our 200 mile long main Bay. Our Ospreys, like our large striped bass breeding stock, are highly dependent on menhaden. When Osprey brood feeding demands peak they are not finding enough menhaden. So many babies are starving that Ospreys are dying out in the main bay according to Dr. Bryan Watts of the Center for Conservation Biology of William and Mary College, Virginia, one of the country's most experienced avian biology researchers. (scan 0701). If there are menhaden to be found Ospreys will find them and they are not finding enough of them.This fact alone should be enough to make the managers realize that the Omega purse seiners are removing far too much menhaden from the bay. A recent CBF press release echoes Dr Watt's letter. (scan 5502) What do you value ? Saving the ospreys ,that represent our many struggling bird species on Chesapeake Bay or the commercial taking of menhaden ? Please discuss this at the upcoming meeting.

The second "inconvenient" fact in the CBF press release is that menhaden in the striped bass diet has fallen fron 70% to 8%. The large breeding stock is far below target. Director Bob Beal describes the Bay fisheries as in poor condition. Are those two facts/opinions not enough to reduce the Virginia allocation substantially ? If not what would be? Researchers from Maryland DNR have concluded that the mycobacteriosis that devastated Bay striped bass during the early 1990s was due to insufficient menhaden when the stock rebounded after the moratorium. We are setting up exactly the same scenerio right now as the stock multiplies due to conservation measures. because we are not allowing the forage base to rebuild in Chesapeake Bay. Do the Board members agree there is substantial risk here that can be eliminated by reducing the Virginia allocation ? As we said, there are 12 industrial sized purse seine ships targeting the schools of memhaden as the schools try to migrate back into the Bay.. Dr. Cierci and Dr. Miller have written on this subject (scans 0101 and 3750) Do the Board members agree with what Dr, Cierci and Dr. Miller have to say? If so what action are you taking?

What do you value? Continuing to give Omega Protein 15,000 schools of menhaden forage or restricting that fishing in some reasonable way so the ecology of Chesapeake Bay can be restored and the striped bass spawning stock rebuilt? To understand the declines in the commercial catches, the watermen, the fishermen and the charters from data from VMRC and MD DNR see scan (4349)

Please review the attached Amendment 3 comparisons to see the vast differences in benefits between saving the menhaden to benefit the people of Virginia and Maryland compared to giving the resource to Omega Protein. For example.... the benefits are four thousand to one (Omega fishermen vs Virginia and Maryland fishermen).....two thousand to one (Omega Protein, one business vs 2,000 traditional bay food fish watermen and charter operations) , 120 vs 3,700 (crew members on Omega Boats vs crew on watermen and charter boats) $6 million vs $885 Million (retail spending Omega (estimate) vs retail from anglers) , 9 vs 284,000 (Omega fishing boats vs. Virginia and Maryland fishing boats) , $6 million vs $ 1.59 billion (investment in fishing boats by Omega vs Bay owners) (see scan 4500)

Thank you for your consideration Thomas Lilly Menhaden Project 443 235 4465

AMENDMENT 3 COMPARISON . We consider the number of people, jobs and businesses that are affected by whether menhaden are allocated to Omega Protein or to "user groups" three and four. These are the people , the jobs and businesses, that benefit by leaving menhaden in the water to feed and grow abundant and healthy fish

OMEGA	MARYLAND	VIRGINIA	BENEFIT RATIOS
(1.) BUSINESSES AFFECTED (2019 data)			
One foreign Owned company	645 Charter Businesses 683 finfish watermen	269 Charter Businesses 270 Finfish watermen	1 versus 1,867 businesses

There were 88,009 Virginia charter trips in 2000 , the trips dropped from 65,943 in 2015 to 33,197 in 2019. . there were 412,000 number of anglers in 2009 to 294,000 in 2019.
There were 18,199 Maryland charter trips in 2,000, 16,771 in 2010 and 9,571 in 2019., according to the figures the Number of anglers stayed constant around 112,000.
The number of finfish watermen in Maryland was 1,112 in 2000. In 2010 it was 953 and in 2018 was 783.

CONCLUSION Reducing the allocation to Omega would benefit 1,867 traditional Maryland and Virginia small businesses. If fishing improved by 20% it would allow many of these people to stay in business and increase the chances younger people would continue to work on the water. That alone is a very meaningful goal to achieve. Charter captains could provide more successful fishing for up t0 400,000 to 500,000 customers in just our two states.

(2.) COMMERCIAL CREWS AFFECTED			
8 purse seiners with 15 crew, 120 crew	1,328 working boats with 2,656 crewmen	523 working boats with 1,046 crewmen	120 versus 3,702 (crew)

CONCLUSION

Fewer watermen and fewer fish means much less fresh Maryland and Virginia caught Fresh fish for our local markets and restaurants . There is a lot of dollars added as fresh fish moves from the waterman at the dock to the wholesaler to the distributor and then to the retail level of markets and restaurants. The 935 finfish watermen sell to over 90 independent fish wholesalers in the two states . All of this economic activity occurs only when menhaden are left in the water to grow abundant healthy fish for our watermen to catch. None of this happens when the menhaden are taken and exported.

(3.) FISHERMEN AFFECTED			
Omega has 120 Fishermen	228,000 anglers includes 30,000 Seniors add at least 30,000 children	428,000 fishermen	120 versus 656,000 fishermen

CONCLUSION Maryland has seen a decline in salt water anglers of over 50,000 and Virginia over 20,000. Many of these people have given up the thing they enjoyed most. The numbers are not there but this means thousands of kids aren't fishing, People in our area are not fishing close to what it was just a few years ago. Based on average spending this is a loss of over 100 Million dollars annually to the two states.

(4.) RETAIL SPENDING BY ANGLERS...SALES TAX COLLECTION ...WAGES.....JOBS

OMEGA	MARYLAND	VIRGINIA	TOTAL/RATIO
$ 6 million spending	$225 million spending	$360 million	$6 million vs $885 million
$ 20 thousand tax	$13.5 million tax	$18 million tax	$.30 vs $21.5 million tax
$ 20 million wages	$108 million wages	$139 million	$20 vs $274 million
300 jobs	1,972 jobs	2,864 jobs	300 vs. 4,836 jobs

CONCLUSION The ASMFC striped bass Amendment 6 section 2.2.5 states the impact of recreational striped bass fishing as $7.7 billion and supporting 104,867 jobs. When menhaden serve their natural purpose of growing more abundant healthy fish their value is spread up and down the Atlantic Coast to the economic benefit of hundreds of thousands of our fellow citizens not just to one foreign fish meal company

(5.) ECONOMIC IMPACT OF RETAIL SPENDING ON FISHING BOATS.....JOBS SUPPORTED.....
TAX REVENUE (NMMA report – Michigan State University)

OMEGA	MARYLAND	VIRGINIA	TOTALS/RATIOS
8 boats	142,952 power boats	264,379 power boats	
	100,000 boats fishing	184,000 boats fishing	8 vs. 284,000 boats
Retail spending...			
$4-6 million	$1.0 billion total , average	$1.2 billion total,average	$ 6 million vs.
	$5,600 @ is $560 million	$5,600 @ is $1.03 billion	$1.59 billio

Businesses directly involved (boat building, motor work, supplies, services and dealers);

Unknown –	50% total Md. Businesses is	50% total Va. Businesses is	
Estimate 30	521	378	30 vs. 899

Existing Jobs for recreational boating vs Omega existing jobs for 8 boats in use same categories

Unknown-			
Estimate 100	6,641	6,628	100 vs 13,239

(reference National Marine Manufacturing Assoc....scans 0196,0197)

(6) INVESTMENT IN FISHING BOATS

OMEGA	MARYLANDERS	VIRGINIANS	TOTALS/RATIOS
8 boats @	60,000 boats @	66,000 boats@	8 vs 126,000 boats

$600,000 is $4.8 million	$20,000@ is $1.2 billion	$20,000 is $1.32 billion	$4.8 million vs. $2.52 billion

COMMENT The Omega boats are owned by one foreign company to our knowledge. The 100,000 plus boats used for fishing by Maryland and Virginia families often are often the favorite way that families spend quality time together enjoying Chesapeake Bay , its rivers and creeks. Collectively these Maryland and Virginia friends and families spend 4,304,000 days saltwater fishing according to the ASA . For the entire Atlantic states this total would be over 99 million days. If fishing on the Chesapeake rebounded even twenty percent from its low rate now we could see a million or more days of enjoyable fishing by families, friends and kids in Maryland and Virginia resulting in hundreds of millions of dollars of economic impact.

MARINAS AFFECTED BY THE QUALITY OF COMMERCIAL AND SPORT FISHING

Omega operates from one Marina.	There are over 500 marinas In Maryland (marinas.com)	There are over 300 marinas in Virginia	1 versus 800

CONCLUSION There is a direct connection between the frequency of use of our marinas, boat ramps and parks both on the bay and ocean. We believe numbers of people fishing and fishboat use has declined by over 50% in a few short years.

< 87 Results for **katie drew**

Re: [External] Our discussion

From: Katie Drew <kdrew@asmfc.org>
To: THOMAS LILLY <foragematters@aol.com>
Cc: PHILIP ZALESAK <flypax@md.metrocast.net>
Date: Thu, Feb 27, 2020 12:04 pm

Hi, Tom--

Per our phone discussion:

1.) Yes, ASMFC has access to fairly timely reporting for reduction fishery landings in Chesapeake Bay (generally speaking, landings from the bait fishery in Chesapeake Bay are not finalized until the following year). We do not know how many menhaden are left in the water in Chesapeake Bay specifically. We can estimate how many menhaden will be left after a fishing season on a coastwide level (Bay and ocean combined) based on our model projections, but the model projections and the stock assessment do not have the spatial structure to calculate how many menhaden are in the Bay vs. the coast.

2.) We do not have the ability to measure or calculate the number of menhaden in the Maryland portion of Chesapeake Bay on a daily/weekly/monthly level.

Katie

From: Tom <foragematters@aol.com>
Sent: Wednesday, February 26, 2020 4:25 PM
To: Katie Drew
Cc: PHILIP ZALESAK
Subject: [External] Our discussion

Katie;
Nice speaking to you. Please confirm that the ASMFC receives information as to the volume of the weekly and monthly menhaden catch by Omega but does not have a measure of how much menhaden is left in the water, in Virginia, as that fishing progresses daily, weekly and monthly.
Is it also correct to say that the ASMFC does not have a means to measure and does not know the amount of menhaden in the water in the Maryland Chesapeake Bay on any given day , week or month as the menhaden season progresses ?
As usual, thanks for your help.

Sent from my iPhone

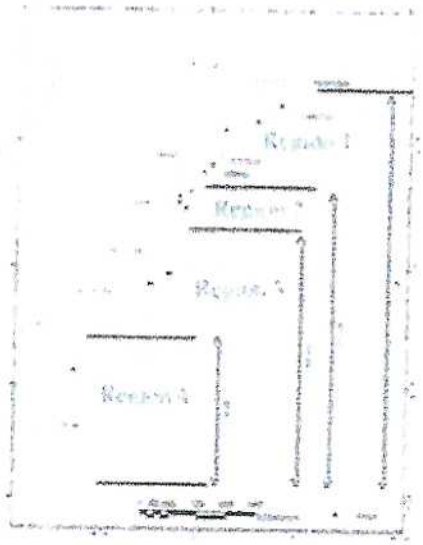

Figure 1. Atlantic menhaden regions studied for migration - Region 2 encompasses the Chesapeake Bay Region (reference (e))

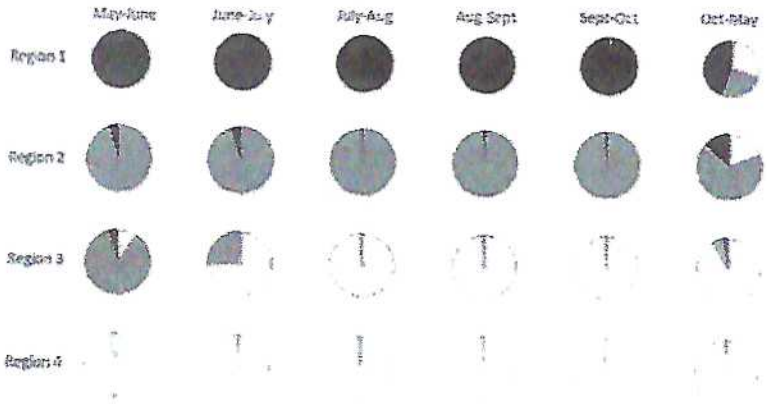

Figure 2. Estimated movement rates for each month May through October and between October and May. Each pie chart shows the fraction of the population in a region that was estimated to move to each of the other regions. Note migration during the reduction fishing season in Region 2. There is very little migration (reference (e)).

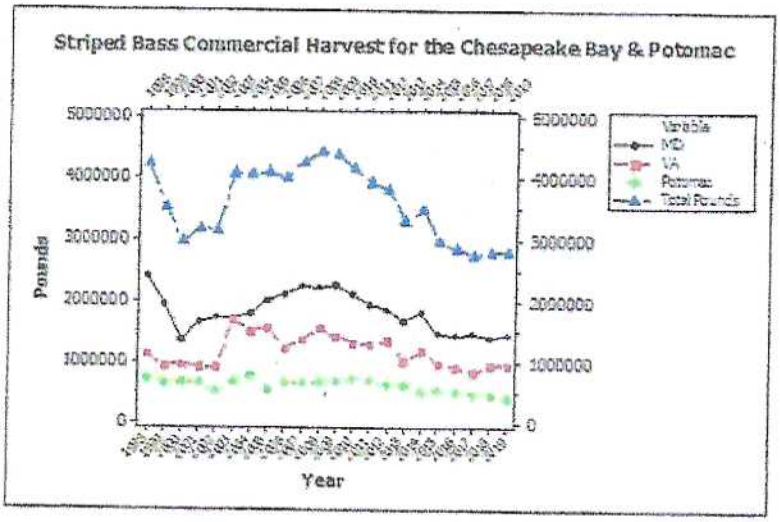

Figure 3. Decline in the Commercial Harvest of Striped Bass in the Chesapeake Bay and Potomac River since 1998 (Source: MD DNR, VMRC, and the PRFC)

14508
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– 30 –

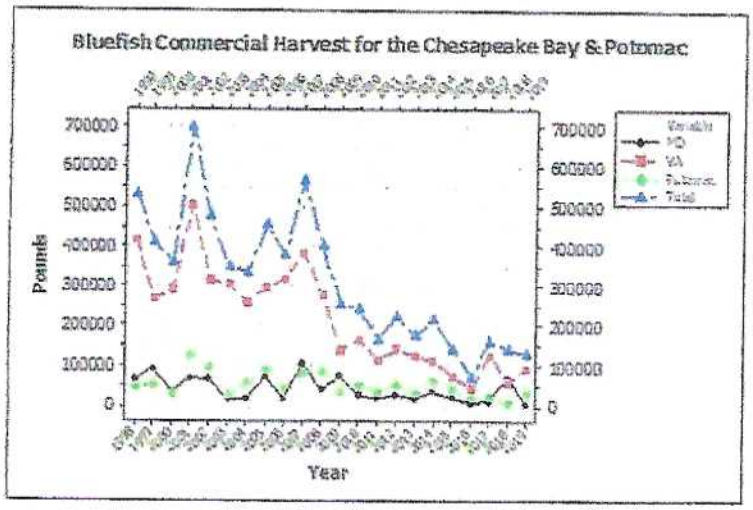

Figure 4. Decline in Commercial Harvest of Bluefish in the Chesapeake Bay and Potomac River since 1998 (Source: MD DNR, VMRC, and PRFC)

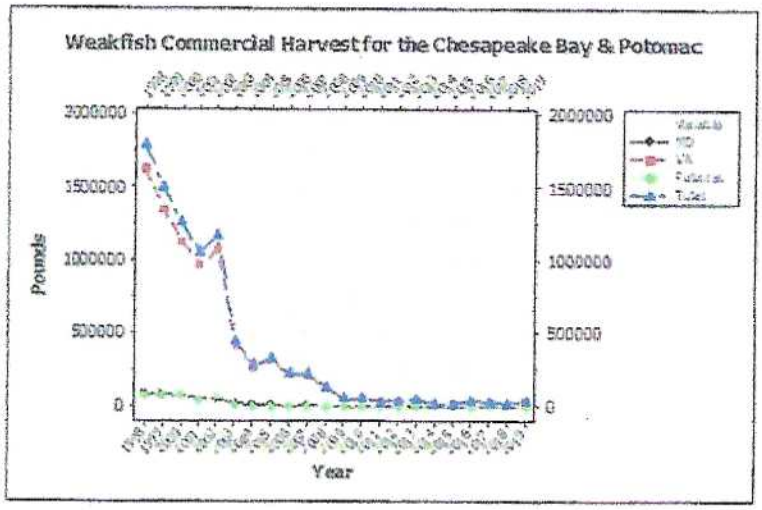

Figure 5. Decline in the Commercial Harvest of Weakfish in the Chesapeake Bay and Potomac River since 1998 (Source: MD DNR, VMRC, and PRFC)

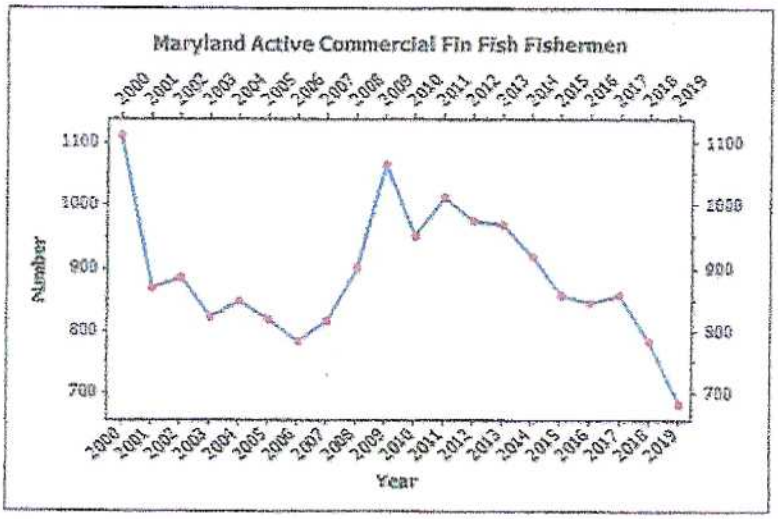

Figure 6. Decline in Maryland Commercial Fin Fish Fishermen since 2000 (Source: Gina Hunt, MD DNR – 2/28/2020)

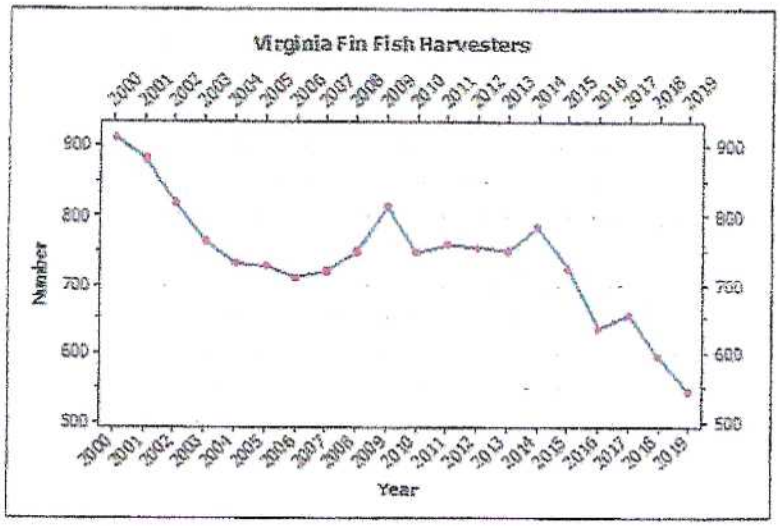

Figure 7. Decline in Virginia Fin Fish Harvesters since 2000 (Source: Pat Geer, VMRC – 4/21/2020)

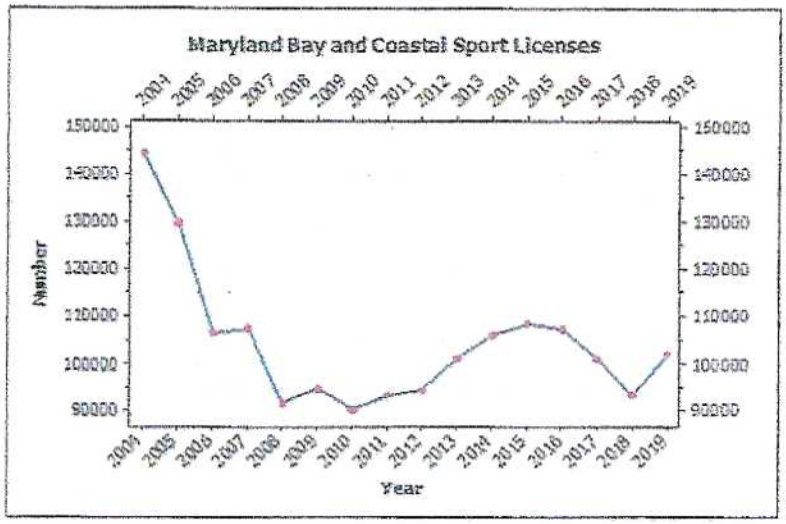

Figure 8. Decline in Maryland Resident Bay and Coastal Sport Licenses since 2004 (Source: Paul Genovese, MD DNR – 8/20/2019)

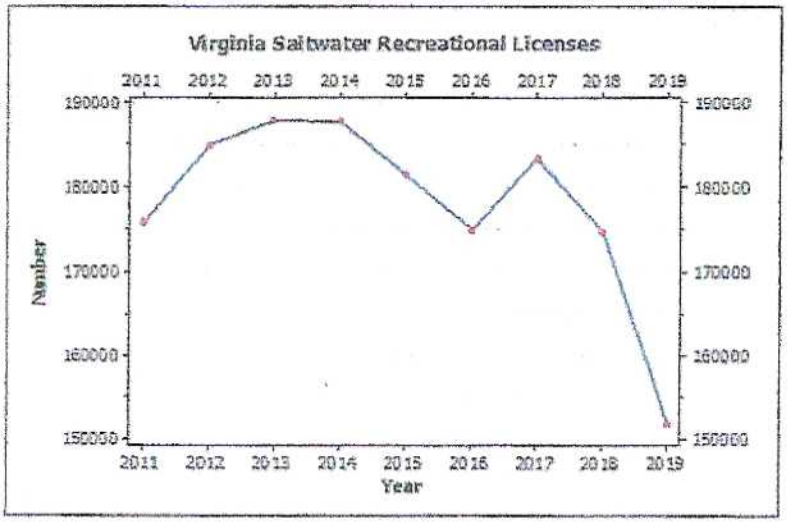

Figure 9. Decline in Virginia Recreational Saltwater Licenses (Source: Alicia Nelson, VMRC - 10/23/19)

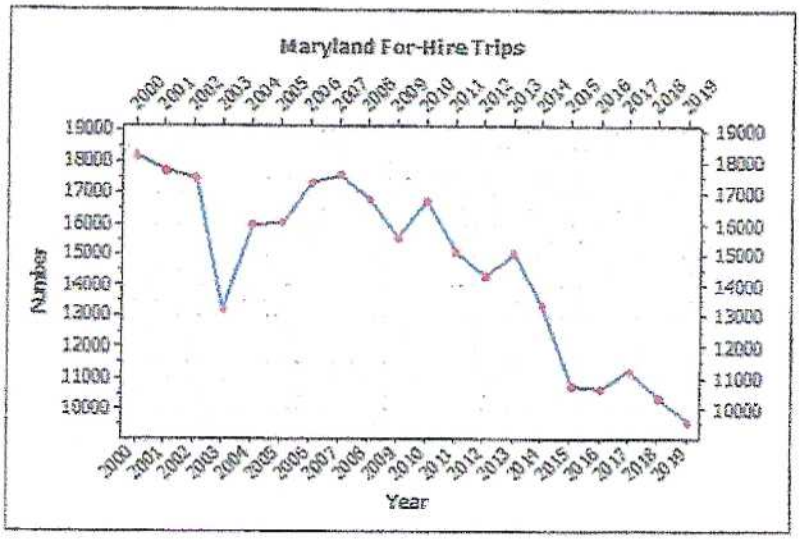

Figure 10. Decline in Total Number of For-Hire Trips (Source – Gina Hunt, MD DNR – 2/28/2020)

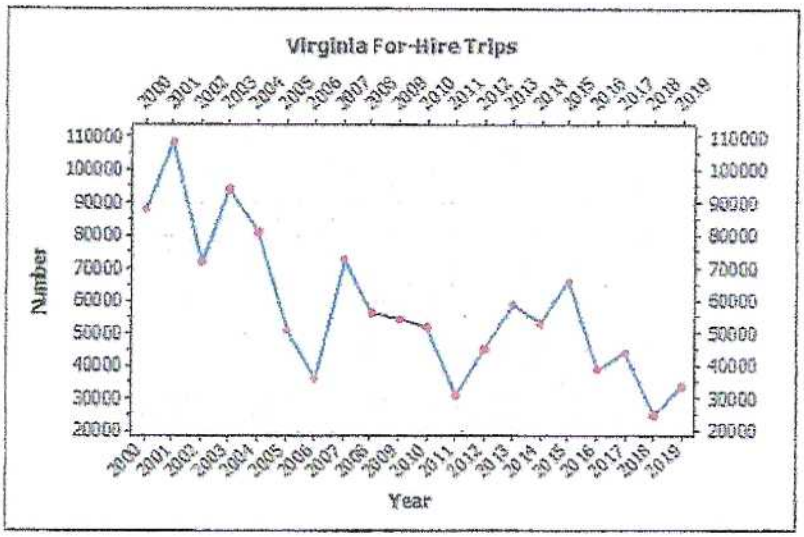

Figure 11. Decline in Total Number of For-Hire Trips (Source: Pat Geer, VMRC – 4/21/2020)

The Center for Conservation Biology

William & Mary

20 August 2020

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The Honorable Ralph Northam
Governor, State of Virginia
PO Box 1475
Richmond, VA 23218

Dear Governor Northam,

The menhaden is a keystone fish within the Chesapeake Bay ecosystem. Many of our most iconic species including the bald eagle, osprey, great blue heron and brown pelican depend on menhaden stocks to sustain their breeding populations within the Bay. Other species such as common loons and northern gannets that stage within the Chesapeake also depend on menhaden to fuel their migrations. Approximately 30% of the North Atlantic gannet population comes into the Bay during the spring to feed on menhaden before flying north to breeding grounds in Newfoundland.

Deep withdraws of menhaden stocks for the reduction fishery is having an impact on consumer species. We have conducted fieldwork with osprey throughout the lower Chesapeake Bay for 50 years and data demonstrate ongoing impacts. Through three generations of graduate students (1975-2006) we have observed shifts in diet and an associated reduction in productivity. Fish delivery rates were more than three times higher in 1975 compared to 2006. Menhaden, once the dominant fish in the diet now represents less than 30%. Shifts in diet away from menhaden have been coincident with a 90% reduction in menhaden stocks (Maryland, DNR haul surveys). No other fish species available to consumers provides the energy content of menhaden. Reductions in menhaden stocks have caused osprey productivity to decline to below DDT-era rates. These rates are insufficient to support the osprey population within the main stem of the Bay.

Menhaden provide critical ecosystem services within the Chesapeake Bay. We request that the needs of the broader ecosystem be considered when setting harvest policy and that menhaden stocks be maintained at levels that support a healthy Chesapeake Bay ecosystem.

Sincerely,

Bryan Watts

Bryan D. Watts, Ph.D.
Mitchell A. Byrd Professor of Conservation Biology
Director, Center for Conservation Biology
College of William and Mary

From: Cieri, Matthew
Matthew.Cieri@maine.gov
Subject: Re: YOUR REMARK ??
Date: Aug 2, 2020 at 10:17:54 AM
To: Tom Lilly foragematters@aol.com

Hi Tom,

Yes, that is correct. That is what our work showed. At the current striped bass fishing mortality, striped bass won't rebuild no matter how low they set menhaden fishing mortality.

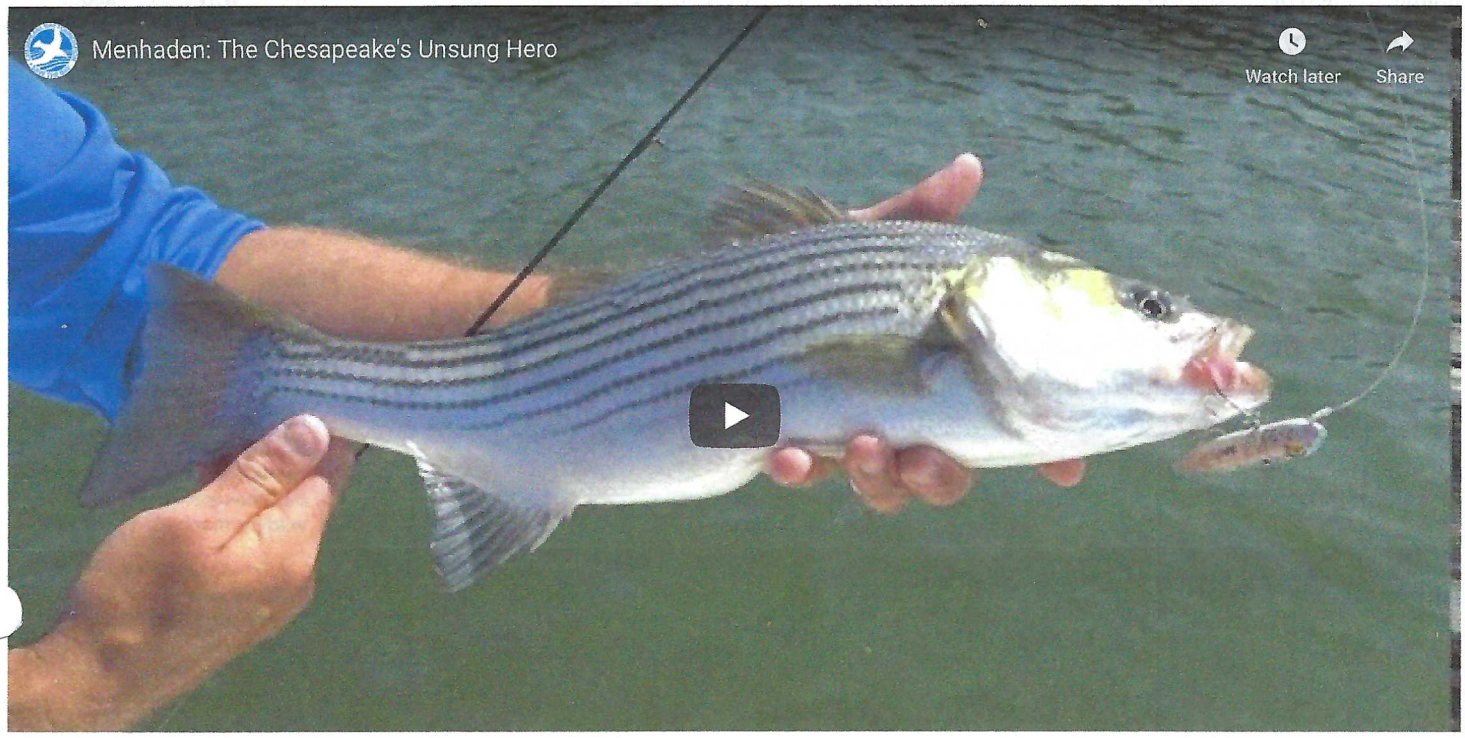
Any meaningful rebuilding of striped bass has include reductions in the striped bass fishing mortaiity from where it currentiy is. They can get part of the way there with reductions in menhaden fishing, but it won't be enough to rebuild the stock to target levels without reductions in striped bass fishing mortality.

Matt

From: Tom Lilly <foragematters@aol.com>
Sent: Sunday, August 2, 2020 12:06:20 AM
To: Cieri, Matthew <Matthew.Cieri@maine.gov>
Subject: YOUR REMARK ??

8/13 4536

ATLANTIC MENHADEN



42 9/05

The Most Important Fish in the Bay

UPDATE: August 5, 2020—the Atlantic States Marine Fisheries Commission has taken the first step to formally consider the importance of menhaden to other predators, including striped bass, bluefish, and weakfish, in its management framework. This is the first time that ASMFC has committed to including Ecological Reference Points, the value of the species to the ecosystem, in its fishery management plans. *(Read CBF's press release)* (http://www.cbf.org/news-media/newsroom/2020/all/asmfc-adopts-groundbreaking-change-to-menhaden-fishery-management.html)

Atlantic menhaden, *Brevoortia tyrannus*, are small, nutrient-packed fish that are central to the Chesapeake Bay's food chain and support one of the largest commercial fisheries on the Atlantic coast. As a result of their environmental and economic importance, management of the menhaden fishery is a political flashpoint across the region.

Why are menhaden (also called bunker or pogy) important in the Chesapeake Bay?

Menhaden have been called the "most important fish in the sea." In the Bay, they create a vital connection between the bottom and top of the food chain. They eat tiny plants and animals, called plankton, by filtering them from the water. In turn, menhaden are a rich food source for many predator fish—including rockfish (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/rockfish/) (striped bass), bluefish, and weakfish—as well as ospreys (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/ospreys/), bald eagles, dolphins, and whales. (See our video, *Why Whales Follow Menhaden into the Bay (http://www.cbf.org/news-media/multimedia/video/why-whales-follow-menhaden-into-the-bay.html).*)

Rockfish, in particular, historically relied on menhaden for a large portion of their diet. Researchers have raised concerns that a lack of menhaden could make rockfish more vulnerable to disease.

Why should I care about menhaden?

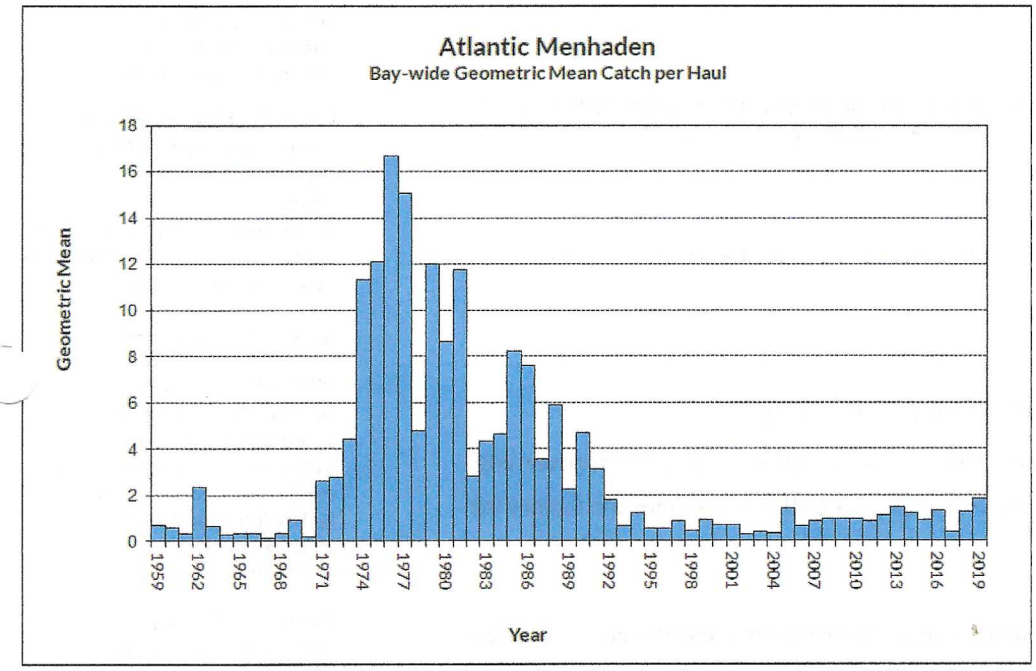
MENHADEN (/ABOUT-THE-BAY/MORE-THAN-JUST-THE-BAY/CHESAPEAKE-WILDLIFE/MENHADEN

- American Shad (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/american-shad/)
- Blue Crabs (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/blue-crabs/)
- Cormorants (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/cormorants-the-miraculous-comeback-of-a-misunderstood-bird.html)
- Cownose Ray (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/misunderstood-the-cownose.html)
- Eastern Oysters (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/eastern-oysters/)
- Lined Seahorse (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/the-lined-seahorse-a-rare-romantic.html)
- Loon (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/call-of-the-loon.html)
- Menhaden (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/menhaden/)
  - A Timeline of Menhaden Conservation (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/menhaden/timeline-

If you enjoy feeling the tug of a big rockfish on the end of your line (and savoring the taste of it at dinner) or watching osprey snatch a silvery fish from the water, you have menhaden to thank! These small fish are the unsung heroes of the Chesapeake Bay, providing a rich food source for many of our favorite critters.

What are the threats facing menhaden?

The Bay is one of the most important nurseries for menhaden, helping to sustain the population along the Atlantic coast. Menhaden eggs hatch in the open ocean before drifting on currents into the Bay, where juvenile fish live and grow for their first year of life. But long-running scientific surveys show the number of young menhaden in the Chesapeake Bay dropped dramatically in the early 1990s and remains low.



This graph represents the average number of juvenile menhaden available ("abundance"), which has a direct impact for predators like striped bass and osprey. Unfortunately, the number of young menhaden produced in the Bay each year has been poor for the last 20 years.

DURELL, E.Q., AND WEEDON, C. 2019. STRIPED BASS SEINE SURVEY JUVENILE INDEX WEB PAGE. DNR.MARYLAND.GOV/FISHERIES/PAGES/JUVENILE-INDEX.ASPX. MARYLAND DEPARTMENT OF NATURAL RESOURCES, FISHERIES SERVICE

At the same time, almost three-quarters of all menhaden caught on the East Coast are harvested by the Omega Protein Corporation—a Canadian-owned company that fishes largely in or near the mouth of the Bay. Omega operates the sole remaining menhaden reduction facility on the U.S. East Coast in Reedville, Virginia. The plant reduces (cooks and grinds up) the fish for a variety of uses, such as nutritional supplements, food additives, and feed for livestock and fish farms.

Menhaden by the Numbers

70% The amount of an adult rockfish's diet historically filled by menhaden.

8% The amount of an adult rockfish's diet currently filled by menhaden.

of-menhaden-conservation.html)

Northern Green Frog (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/northern-green-frog-at-home-in-the-bog.html)

Ospreys (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/ospreys/)

Pelicans (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/moving-on-up-pelicans-are-at-home-on-the-bay.html)

River Otters (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/aquatic-ambassadors-river-otters-are-poster-pups-for-conservation.html)

Rockfish (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/rockfish/)

Sea Nettles (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/sea-nettles.html)

Smallmouth Bass (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/smallmouth-bass.html)

Sturgeon (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/sturgeon.html)

Terrapins (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/terrapins-swimming-for-shore.html)

Tundra Swans (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/tundra-swans-a-fading-winter-chorus-in-the-chesapeake.html)

Stay up to date about the Bay!

8%	*The rockfish population in the Chesapeake Bay is showing signs of malnourishment and increasing mortality.*
75%	The amount of an osprey nestling's diet filled by menhaden in the 1980s.
28%	The amount of an osprey nestling's diet filled by menhaden today. *Though the number of nests throughout the Bay region has improved, nestling mortality is as high as it was in the DDT era.*
65%	The annual removal of adult menhaden from East Coast waters.
2,500	The number of jobs supported by menhaden-dependent species in Virginia alone.
$236	In millions, the total amount fishing for menhaden-dependent species contributes to Virginia's economy.
8%	The current Atlantic menhaden population compared against historical levels.

Why is there a harvest cap for menhaden in the Bay?

Menhaden migrate along the Atlantic coast from Florida to Maine. An interstate governing body—the Atlantic States Marine Fisheries Commission (ASMFC)—manages the fishery for the 15 states that share the coastline.

Over the past two decades, **fishery managers have raised concerns that the concentration of fishing effort in Bay waters could disrupt the Bay's food chain**, harming populations of rockfish and other predator species. As a precaution, the ASMFC first set a cap for Omega's industrial menhaden harvest in the Bay in 2006. In 2017, the ASMFC voted to update the cap to reflect more recent menhaden harvest levels in the Bay.

In blatant disregard for the fishery management process, Omega knowingly exceeded the cap in 2019 (http://www.cbf.org/news-media/newsroom/2019/virginia/cbf-expresses-deep-concern-with-omega-proteins-announcement-it-will-violate-the-bay-menhaden-cap.html). The violation resulted in a unanimous ASMFC vote (http://www.cbf.org/news-media/newsroom/2019/virginia/fisheries-board-finds-virginia-out-of-compliance-with-menhaden-harvest-cap.html) referring Virginia to the U.S. Department of Commerce for noncompliance with interstate fishery rules. The Secretary of Commerce decided to uphold the ASMFC decision (http://www.cbf.org/news-media/newsroom/2019/virginia/us-commerce-department-takes-action-after-virginia-menhaden-limit-exceeded.html). The new harvest cap approved by the VMRC in April 2020 lowers the amount of menhaden that

SIGN UP (HTTP://WWW.US/STAY-UP-TO-DATE-ABOUT-THE-BAY.HTML)

In the News

08/05/20: ASMFC Adopts Groundbreaking Change to Menhaden Fishery Management (http://www.cbf.org/news-media/newsroom/2020/all/asmfc-adopts-groundbreaking-change-to-menhaden-fishery-management.html)

04/28/20: New Menhaden Limits Approved by VMRC, Preventing Fishery Shutdown (http://www.cbf.org/news-media/newsroom/2020/virginia/r-menhaden-limits-approved-by-vmrc-preventing-fishery-shutdown.html)

02/27/20: Menhaden Legislation Approved by Virginia House And Senate (http://www.cbf.org/news-media/newsroom/2020/virginia/n-legislation-approved-by-virginia-house-and-senate.html)

01/29/20: Menhaden Legislation Approved by Virginia House and Senate Committees (http://www.cbf.org/news-media/newsroom/2020/virginia/n-legislation-approved-by-virginia-house-and-senate-committees.html)

12/19/19: U.S. Commerce Department Takes Action after Virginia Menhaden Limit Exceeded (http://www.cbf.org/news-media/newsroom/2019/virginia/u-commerce-department-takes-action-after-virginia-menhaden-limit-exceeded.html)

11/21/19: CBF Statement on Gov. Northam's Call for Action on Menhaden (http://www.cbf.org/news-media/newsroom/2019/virginia/c

can be caught in the Chesapeake Bay to 51,000 metric tons per year. Due to Omega Protein's excess harvest during the 2019 fishing season, this year's level will be further lowered to 36,192 metric tons. The VMRC's action avoids a shutdown of the menhaden ishery due to noncompliance with the ASMFC.

statement-on-gov-northams-call-for-action-on-menhaden.html)

VIEW MORE (HTTPS://WWW MEDIA/NEWSR PRIMARY_ISSUI

How can better management protect menhaden and the Bay?

For more than 25 years (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/menhaden/timeline-of-menhaden-conservation.html), CBF has worked with partners toward a healthy menhaden population in the Chesapeake Bay to ensure that this nutrient-packed fish can fulfill its key role in the food chain. In 2012, ASMFC's Benchmark Stock Assessment showed the total menhaden population was at its lowest level on record. Peer-reviewed population estimates showed menhaden have been overfished for 32 of the past 54 years. A strong fisheries management plan was needed to rebuild the population, and once rebuilt, to maintain it. (See *A Timeline of Menhaden Conservation* (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/menhaden/timeline-of-menhaden-conservation.html).)

For decades, management decisions and catch limits relied on "single species" stock assessments, independent of other species. In other words, **they accounted for demand from the fishing industry, but did not account for demand from rockfish, osprey, and other animals that rely on menhaden for food.** This did not necessarily mean there would be sufficient stock to sustain the larger ecosystem needs.

That changed in August 2020, when the ASMFC adopted benchmarks, known as ecological reference points (http://www.cbf.org/blogs/save-the-bay/2017/10/a-historic-opportunity-for-fish-and-fishermen.html), that will allow managers to **account for menhaden's role in the food chain** and set catch limits accordingly. CBF has been a strong proponent of this process and will continue to advocate for an ecosystem-based approach to menhaden management.

SAVE THE BAY

Founded in 1967, the Chesapeake Bay Foundation (CBF) is the largest independent conservation organization dedicated solely to saving the Bay.

October 13, 2020

Spud Woodward
Chair
Atlantic Menhaden Management Board
Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200 A-N
Arlington, Virginia 22201

Dear Chairman Woodward and Members of the Atlantic Menhaden Management Board,

As members of the recreational fishing and boating industry, we write to encourage the Board to capitalize on its visionary decision to establish ecological reference points (ERPs) by adopting a conservative total allowable catch which allows striped bass to reach its biomass target.

As you know, menhaden are an important food source for striped bass, bluefish, and other gamefish that keep Americans coming back to Atlantic waters and spending money in our coastal communities. Unfortunately, many menhaden predators are in decline, including striped bass, the species most dependent on menhaden as forage. Scientific studies have shown Atlantic menhaden make up between 23%[1] and 66%[2] of striped bass diets.

This is of particular concern to the recreational fishing and boating community because striped bass fishing is the largest marine recreational fishery in the United States, contributing billions of dollars to the economy. Striped bass are now overfished, so it is imperative that the ASMFC do what it can to improve the viability of this fishery, including leaving more menhaden in the water to help them rebuild.

According to the Atlantic Menhaden Technical Committee projections, in order to have a 50% probability of achieving the menhaden ERP fishing mortality (F) target that will bring striped bass back to its spawning stock biomass target (when striped bass are fished at their respective F target), menhaden catch must be reduced to 176,800 metric tons. Given the importance of menhaden to striped bass, we encourage the Board to adopt a more conservative quota, one that has a greater than 50% probability of achieving the ERP F target.

Furthermore, the purpose of the ecosystem modeling was to establish menhaden ERPs that enable striped bass to rebuild to its biomass target. To put it simply, if menhaden are not maintained at their ERP F target, then striped bass are unlikely to rebuild to their biomass target no matter what measures are put in place to reduce striped bass fishing mortality. Our community was supportive of measures to reduce the striped bass fishery to its F target and maintaining menhaden at their ERP F target is the complimentary management step needed to rebuild the valuable striped bass fishery.

---

[1] Overton, A. S. 2003. Striped Bass predator-prey interactions in Chesapeake Bay and along the Atlantic coast. University of Maryland, Eastern Shore, Princess Anne

[2] Hartman, K. J., and S. B. Brandt. 1995. Comparative energetics and the development of bioenergetics models for sympatric estuarine piscivores. Canadian Journal of Fisheries and Aquatic Sciences 52:1647-1666

Our community is also concerned with the recent overfished status of Atlantic herring, an important alternative prey for striped bass identified through the development of ERPs. The ERP F target is based in part on the 2017 condition of Atlantic herring when the stock was above its SSB threshold. However, even after accounting for seasonal prey availability, if Atlantic herring were modeled at their current SSB level, menhaden F would need to be significantly reduced. Therefore, in the context of ecosystem-based management of forage, our community recommends that the Board use an additional buffer to account for management and scientific uncertainties.

The tradeoffs associated with setting a conservative quota for menhaden are worth it when you consider that saltwater recreational fishing along the Atlantic is enjoyed by 6 million anglers annually, contributing $11.3 billion to the economy and supporting 120,236 jobs. The jobs created by these fisheries are the lifeblood of our Atlantic coastal communities as more than 90% of the sportfishing and boating industry is made up of small businesses. As we recover economically from this unprecedented pandemic, it is vital that the recreational fishing community have abundant fishing opportunity and that gamefish have adequate forage.

Over the past decade, recreational fishing organizations, coastal businesses and hundreds of thousands of individual anglers and conservationists have called on managers to leave enough menhaden in the water to feed the wildlife that support vibrant recreational fishing, boating and other industries that boost coastal economies. As stewards of our shared public resources, we are partners in the ASMFC process and share a unified goal of healthy fish populations and fishing communities. We urge the Board to follow through on its visionary step to establish ecological reference points, by adopting a conservative coastwide total allowable catch that will help rebuild the iconic striped bass fishery.

Sincerely,

Glenn Hughes
President
American Sportfishing Association
Alexandria, VA

Chris Edmonston
President
BoatU.S.
Springfield, VA

Jeff Angers
President
Center for Sportfishing Policy
Baton Rouge, LA

Patrick Murray
President
Coastal Conservation Association
Houston, TX

Chris Horton
Senior Director Fisheries Policy
Congressional Sportsmen's Foundation
Washington, DC

Whit Fosburgh
President and CEO
Theodore Roosevelt Conservation Partnership
Washington, DC

Matt Gruhn
President
Marine Retailers Association of the Americas
Minneapolis, MN

Frank Hugelmeyer
President
National Marine Manufacturers Association
Washington, DC

Massachusetts Lobstermen's Association, Inc.

8 Otis Place ~ Scituate, MA 02066
781.545.6984

October 13, 2020

Mr. Robert E. Beal, Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201

Sent via: comments@asmfc.org

Dear Robert,

The Massachusetts Lobstermen's Association (MLA) submits the following comments on behalf of its 1800 members to the Atlantic States Marine Fisheries Commission as they greatly rely on the continued success of the Atlantic menhaden fishery to support their businesses and families alike. Whereas, scores of our Massachusetts commercial lobster/crab fishermen greatly depend on steady access to Atlantic menhaden for bait in order to conduct their commercial lobster/crab fishing businesses.

Whereas, the 2020 Atlantic menhaden stock assessment brought some favorable news for the Atlantic menhaden species and that the fishery is sustainably fishing. With the menhaden neither being over fished nor experiencing overfishing brings great relief to the lobster industry that greatly depends on menhaden as a bait source. This is a great accomplishment to everyone involved; from the fisheries managers to the fishermen, job well done.

Established in 1963, the MLA is a member-driven organization that accepts and supports the interdependence of species conservation and the members' collective economic interests. The MLA continues to work conscientiously through the management process with the MA Division of Marine Fisheries, the Atlantic States Marine Fisheries, and the New England Fisheries Management Council to ensure the continued sustainability and profitability of the many resources in which our fishermen depend upon.

The MLA does not support any cuts to the overall Total Allowable Catch (TAC) to the Atlantic menhaden fishery as it is currently harvesting less than 1% of the total biomass, leaving more than enough fish in the water for its ecosystem function; food. The commercial Atlantic menhaden fishery continues to comply with management changes all the while never seeming to attain these goals leaving the fisheries managers coming back for more.

How is it that the Atlantic menhaden fishery is sustainably harvesting less than 1% of the biomass and the striped bass biomass is still failing? Could it be more than what striped bass are eating and where they are eating it, or has Atlantic menhadens role in the ecosystem function become less desirable to the striped bass? There certainly are plenty of fish to go around and we do not want to lose any more Atlantic menhaden from the Total Allowable Catch.

Thank you for the opportunity to comment and your consideration is much appreciated.

Sincerely,

Beth Casoni

MLA, Executive Director

Atlantic States Marine Fisheries Commission

South Atlantic State/Federal Fisheries Management Board

October 20, 2020
1:15 – 4:15 p.m.
Webinar

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. Fegley)* 1:15 p.m.

2. Board Consent 1:15 p.m.
   - Approval of Agenda
   - Approval of Proceedings from August 2020

3. Public Comment 1:25 p.m.

4. Atlantic Cobia Addendum I to Amendment 1 for Final Approval *(T. Kerns)* **Final Action** 1:45 p.m.
   - Review Options and Public Comments
   - Consider Final Approval of Addendum I to Amendment 1

5. Review 2020 Traffic Light Analyses for Atlantic Croaker and Spot 2:45 p.m.
   - Review 2020 Reports (*D. Franco and H. Rickabaugh)*
   - Review Management Response Requirements from Addendum III *(S. Lewis)*

6. Consider Fishery Management Plan Review and State Compliance for 2019 Fishing Year for Red Drum, Atlantic Croaker, and Atlantic Cobia *(S. Lewis)* **Action** 4:00 p.m.

7. Other Business/Adjourn 4:15 p.m.

The meeting will be held via webinar, click here for details.
Sustainable and Cooperative Management of Atlantic Coastal Fisheries

MEETING OVERVIEW

South Atlantic State/Federal Fisheries Management Board Meeting
Tuesday, October 20, 2020
1:15 – 4:15 p.m.
Webinar

Chair: Lynn Fegley (MD) Assumed Chairmanship: 02/20	Technical Committee (TC) Chairs: Black Drum: Harry Rickabaugh (MD) Cobia: Angela Giuliano (MD) Atlantic Croaker: Dawn Franco (GA) Red Drum: Lee Paramore (NC) Spot: Harry Rickabaugh (MD)	Law Enforcement Committee Representative: Capt. Chris Hodge (GA)
Vice Chair: Vacant	Advisory Panel Chair: Craig Freeman (VA)	Previous Board Meeting: August 3, 2020
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 August 3, 2020

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. Consider Atlantic Cobia Addendum I to Amendments 1 for Final Approval (1:45-2:45 p.m.) Final Action

Background

- In February 2020, the Board initiated Draft Addendum I to Amendment 1 to consider reflecting the updated MRIP data (used in SEDAR 58) in allocation percentages, reconsider *de minimis* measures, and update the method for calculating the commercial trigger so that it can be calculated in scenarios when commercial harvest has not approached the quota. The Cobia Plan Development Team developed Draft Addendum I with management options for each of these issues.
- The Board approved draft Addendum I for public comment in August 2020. Public hearings were held via webinar in September and early October. (**Briefing Materials**).

Presentations

- Review of options and public comment summary (**Supplemental Materials)** by T. Kerns

Board actions for consideration at this meeting

- Review and consider final approval of Draft Addendum I.

5. Review 2019 Traffic Light Analyses for Atlantic Croaker and Spot (2:45-4:00 p.m.)

Background

- The Traffic Light Analyses is updated annually for both spot and Atlantic croaker to asses changes to the population in non-benchmark stock assessment years.
- Addendum III (2020) of the Atlantic Croaker FMP and Addendum III (2020) of the Spot FMP of the Spot FMP incorporated region specific indices, established the reference points for all surveys, changed the management trigger for Spot and Atlantic Croaker, and outlined management responses if management is triggered.
- The Spot and Croaker Technical Committees ran the TLA for each species with the additional year's data.

Presentations

- Review of 2020 Traffic Light Analyses for Atlantic Croaker and Spot by D. Franco and H. Rickabaugh.
- Overview of management response from Addendum III by S. Lewis

6. Consider Approval of 2019 Fishery Management Plan Reviews and Compliance for Red Drum, Atlantic Croaker, and Atlantic Cobia (4:00-4:15 p.m.) Action

Background

- Red Drum state compliance reports are due on July 1. The Red Drum Plan Review Team (PRT) has reviewed state reports and compiled the annual FMP Review. New Jersey and Delaware have requested *de minimis* status.
- Atlantic Croaker state compliance reports are due on July 1. The Atlantic Croaker Plan Review Team (PRT) has reviewed state reports and compiled the annual FMP Review. New Jersey requested *de minimis* status for both its recreational and commercial fisheries, and Delaware, South Carolina, Georgia, and Florida requested *de minimis* status for their commercial fisheries.
- Atlantic cobia state compliance reports are due on July 1. The Cobia Plan Review Team (PRT) has reviewed state reports and compiled the annual FMP Review. New Jersey, Delaware, and Maryland requested recreational *de minimis* status. New Jersey, Delaware, Maryland, and Georgia requested commercial *de minimis* status.

Presentations

- 2020 FMP Reviews for Red Drum, Atlantic Croaker, and Cobia by S. Lewis.

Board actions for consideration at this meeting

- Consider approval of the 2020 FMP Review, state compliance reports, and New Jersey and Delaware's *de minimis* requests for Red Drum.
- Consider approval of the 2020 FMP Review, state compliance reports, and New Jersey, Delaware, South Carolina, Georgia, and Florida's *de minimis* requests for Atlantic Croaker
- Consider approval of the 2020 FMP Review, state compliance reports, and New Jersey, Delaware, Maryland, and Georgia's *de minimis* requests for Cobia.

7. Other Business/Adjourn

Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

MEMORANDUM

TO: **South Atlantic Fisheries Management Board**

FROM: **Savannah Lewis, FMP Coordinator**

DATE: **October 10, 2020**

SUBJECT: **Public Comment on Cobia Draft Addendum I**

The following pages represent a summary of all comments received by ASMFC on Cobia Draft Addendum I as of 5:00 PM (EST) on October 6th, 2020 (closing deadline).

A total of 9 comments were received on Draft Addendum I from individuals and organizations. Two organizations, Virginia Saltwater Sportfishing Association and American Sportfishing Association submitted comments on Draft Addendum I. The remainder of comments (7) came from individual stakeholders.

Four public hearings were held by webinar for seven jurisdictions, some jurisdictions combined hearings: Delaware, Maryland, PRFC, Virginia, North Carolina, South Carolina, and Georgia. 25 individuals attended two of the hearings, and 7 of these individuals provided comments.

The following tables (pages 2-3) are provided to give the Board an overview of the support for specific management options contained in the Draft Addendum. Summaries of the public hearings can be found next. These are followed by letters sent by organizations and letters/emails sent by individuals.

M20-113

Public Comment Summary Tables

Addendum I
Issue 1: Recreational and Commercial Allocation

Written Comments	**A. Status Quo**	**B. 97%/3%**	**C. 96%/4%**	**D. 95%/5%**
Individual	7	-	-	-
Organization	-	2	-	-
Public Hearings				
VA	1	1	1	-
DE/PRFC/MD	-	-	-	-
NC	3	-	-	-
SC/GA	-	-	-	-
Total	11	3	1	0

Addendum I
Issue 2: Commercial Trigger

Written Comments	**A. Status Quo**	**B. 97%/3%**
Individual	-	-
Organization	-	1
Public Hearings		
VA	1	2
DE/PRFC/MD	-	-
NC	2	1
SC/GA	-	-
Total	3	4

Addendum I

Issue 3: Commercial *De Minimis* Set Aside

Written Comments	**A. Status Quo**	**B. 3% or 3,000**	**C. 3% or 5,000**	**D. 4%**	**E. 4% or 3,000**	**F. 4% or 5,000**
Individual	-	-	1	-	-	-
Organization	-	1	-	-	-	-
Public Hearings						
VA	-	-	-	-	1	1
DE/PRFC/MD	-	-	-	-	-	-
NC	-	-	-	-	-	-
SC/GA	-	-	-	-	-	-
Total	0	1	1	0	1	1

Addendum I

Issue 4: Recreational and Commercial Allocation

Written Comments	**A. Status Quo**	**B. 31 FL**	**C. 33 FL**
Individual	-	-	1
Organization	-	-	-
Public Hearings			
VA	-	-	3
DE/PRFC/MD	-	-	-
NC	-	-	2
SC/GA	-	-	-
Total	0	0	6

Cobia Draft Addendum I Public Hearing Summaries

Virginia Webinar

September 22, 2020
14 Participants: Dewey Hemiliright, John Bello, Travis O'Neal, Jack Lythgoe, Chris Moore, David Sikorski, Susanna Musick, Mike Avery, Mark Hiltke, Michael Heath, Wes Blow, Shirley Edgerton, Chris Batsavage, Mike Auriemmma
Staff: Toni Kerns (ASMFC), Savannah Lewis (ASMFC), Par Greer (VMRC), Jill Ramsey (VMRC), Shanna Madsen (VMRC), Olivia Phillips (VMRC)

Issue 1: Recreational and Commercial Allocation

- ➔ **1 in favor of option A, 1 in favor of option B, and once in favor of option C**
- One individual supported option D to allow for the highest available quota outside of status quo to accommodate the growing commercial harvest of *de minimis* states.

Issue 2: Commercial Trigger Calculation

- ➔ **1 in favor of option A, two in favor of option B**
- No Comments

Issue 3: Commercial *De Minimis* Set Aside

- ➔ **1 in favor option E, 1 in favor of option F**
- No Comments

Issue 4: *De Minimis* Size Limits

- ➔ **2 in favor option C**
- No Comments

Additional Comments: The public hearing participant expressed a growing concern among recreational anglers about the spawning stock of cobia. They wonder if measures to allow for better protection of larger fish and more harvest of smaller fish would be an appropriate management measure. Over the years, the recreational anglers have seen a decline in the bigger fish, and they do not want to see a decline in the stock.

North Carolina Webinar

October 1, 2020
11 Participants: Charlie Locke, Dewey Hemilright, William Gorham, , Tilman Gray, Patrick Parsons, Joey Vandyke, Travis Kemp, Aaron Kelly, Blake Huling, Mike Waine, Scott Williams
Staff: Toni Kerns (ASMFC), Savannah Lewis (ASMFC), Chris Batsavage (NCDNR), Brandi Salmon (NCDNR), Anne Markwith (NCDNR), Meredith Whitten

Issue 1: Recreational and Commercial Allocation

- ➔ **4 in favor of of Option A**
- One participant was strongly in favor of status quo because the commercial industry has closed for the last three years and has not had the opportunity to try and harvest the 8% quota at the

increased quota. They indicated that the de minimis landings will only increase, and, since their quota is dependent on the commercial quota, that the new quota should be able to accommodate the growing fishery. The cobia fishery is mainly a bycatch fishery, and should be open year round due to consumer demand, high price per pound, and year round fish availability. There was also concern that if a future stock assessment decreases the quota, that the commercial industry would be hit very hard at 3% of the total quota. Another participant agreed with this statement. A third participant also agreed with keeping it status quo, and recommended revisiting a change in allocation in a few years once the commercial industry has a chance to try and catch their quota.

- One participant brought up that when quota gets taken away from the commercial industry that the consumer also loses. Cobia is considered a public trust resource and cut to the resource deprive the public who may not be able to afford to go out and catch their own cobia. Since North Carolina has an abundant supply of wild caught cobia, why not provide those fish over farm raised fish.

Issue 2: Commercial Trigger Calculation

- ➔ **2 in favor of option A, 3 in favor of option B**
- No Comments

Issue 3: Commercial *De Minimis* Set Aside

- ➔ **No votes**
- One participant said that de minimis states are only increasing harvest, so we should give them as much as possible to allow that fishery to grow.

Issue 4: *De Minimis* Size Limits

- ➔ **2 in favor of option C**
- No Comments

Additional Comments: One participant commented that bycatch needs to be explored further, and should have been fleshed out more prior to this stage in the document approval. They requested more information be made available at the board meeting regarding discards and commercial harvest by gear type.

South Carolina and Georgia Commission Webinar

September 29, 2020
Staff: Toni Kerns (ASMFC), Savannah Lewis (ASMFC), Mel Bell (SC), Doug Haymans (GA), Dawn Franco(GA), Kathy Knowlton (GA), Carolyn Belcher (GA), Michael Auriemma (NJ)

No members of the public attended.

Delaware, Maryland, and Potomac River Fisheries Commission Webinar

September 24, 2020
Staff: Toni Kerns (ASMFC), Savannah Lewis (ASMFC), John Clark (DE), Lynn Fegley (MD), Martin Gary (PRFC)

No members of the public attended.

October 1, 2020

Toni Kerns
Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200
Arlington, Virginia 22201

Dear Ms. Kerns

The American Sportfishing Association (ASA) appreciates the opportunity to provide comments to the Atlantic States Marine Fisheries Commission (ASMFC) on Draft Addendum 1 to Amendment 1 to the Atlantic Migratory Group Cobia Fishery Management Plan (FMP).

ASA is the nation's recreational fishing trade association and represents sportfishing manufacturers, retailers, wholesalers, and angler advocacy groups, as well as the interests of America's 49 million recreational anglers. ASA also safeguards and promotes the social, economic, and conservation values of sportfishing in America, which results in a $125 billion per year impact on the nation's economy.

The recreational fishery for Atlantic cobia is economically important to the sportfishing industry throughout the Southeast and Mid-Atlantic regions. To help assist ASMFC in developing a comprehensive FMP for cobia, that is responsible to the resource and its fisheries, we submit the following comments on Draft Addendum 1 to the cobia FMP.

3.1 Recreational and Commercial Allocations

We support Option B – 97% Recreational and 3% Commercial.

It is unclear from Draft Addendum 1 what the allocations would be if the new MRIP data were simply included in the original allocation timeframe calculation. However, this can be calculated by reconstructing commercial landings from Table 2 in Draft Addendum 1 and then applying both recreational and commercial landings data to the allocation equation detailed on page 3 of the addendum. This computation yields a 97.38% allocation to the recreational sector and a 2.62% allocation to the commercial sector.

To us, this represents a more realistic view of status quo than option A because it uses the same landings data for both allocation and fishery specifications. Furthermore, the draft Addendum considers allocation options that result in an increase in commercial quota (options A, C and D), but the specific need for that increase is not substantially justified. Therefore, until we better understand the need to increase commercial quota (beyond just changes to MRIP data) we support the implementation of Option B.

Thank you for your consideration.

Sincerely,

Michael Waine
Atlantic Fisheries Policy Director
American Sportfishing Association

Virginia Saltwater Sportfishing Association, Inc (VSSA)
3419 Virginia Beach Blvd #5029
Virginia Beach, VA 23452
www.ifishva.org

Toni Kerns, FMP Coordinator
1050 N. Highland St., Suite 200 A-N,
Arlington, Virginia 22201

Dear Toni Kerns,

October 5, 2020

Subject: Cobia Draft Addendum I

On behalf of the Virginia recreational anglers, VSSA offers the following comments to the Cobia Draft Addendum I:

With respect to Issue 3.1 Recreational and Commercial Allocations, VSSA recommends **Option B, recreational quota of 97% and commercial quota 3%.**

As ASMFC assesses MRIP catch estimates for the 2020 fishing season, VSSA urges ASMFC to give strong consideration to the data collected by VMRC mandatory reporting numbers which likely offers a more accurate assessment of actual catch estimates for the state of Virginia.

Thank you for your time and consideration.

Sincerely,

Mike Avery
Mike Avery, Secretary

Copy to Virginia Marine Resources Commission

Comments

From: Patrick Caton <patrickmcaton@gmail.com>
Sent: Sunday, October 4, 2020 4:34 PM
To: Comments
Subject: [External] Cobia draft addendum

My name is Patrick Caton, I am the captain of the Little Clam in Hatteras NC. I participate in commercial fishing and recreational fishing for cobia. The recreational quota and commercial quota should stay at 92% and 8%, and dropping of the commercial quota would be an insult to the commercial fisherman, and the consumers. Stay at 92% and 8%.
Patrick Caton
F/V Little Clam

Comments

From: info@rocksolidfishing.com
Sent: Thursday, October 1, 2020 8:36 PM
To: Comments
Subject: [External] Cobia Ad 1

Samantha thank you for conducting the meeting this evening. Going over the Cobia Draft Addendum this evening I wanted to submit comment. I care and am involved with the fishery. I feel I understand many facets of the cobia fishery. Issue 1 option A Status Quo. Is what I feel is the correct option. In my mind trying to evaluate the poundage as opposed to single fish as in the recreational sector I quickly tried to compare apples to oranges and came up with something that could make sense to me. 50,000 some pounds of fish divided by say 30 lb average comes to 1800 fish. If the commercial gets to stay at their allotted 8% that's only 3600 more fish. I always hedge towards conservation, however I do not like waste. These fish are discarded to the sharks when these fisherman are not allowed to sell them. It is a year round incidental by catch. Spanish mackerel nets, bottom fishing, king mackerel trolling, shark nets and more. I do not see this as any issue letting these folks retain and sell this valuable resource. I also do not feel it will lend itself to more opportunistic large mesh gillnetters targeting cobia. It is just letting the commercial folks sell what is already caught. That increase will not decrease or change the recreational landing because those fish are not swimming down the coast regardless if they are sold or shark food.

Issue 2 option b The old triggers are outdated time to try a new approach

Issue 3 C no more than 5000lbs This will be an issue in the future as Northern de minumus states want to sell more fish

Issue 4 option C The more mature fish will give more opportunity for spawning.

Hope I conveyed my thoughts on the Addendum gotta get some sleep gotta fish tomorrow when I get a chance I will sleep at A holiday Inn express so I can truly grasp the trigger de minimus. Kidding thank you Capt Aaron Kelly

Capt Aaron Kelly
Rock Solid Fishing
252-441-6575
Rocksolidfishing.com

Comments

From: Tilman Gray <tilmangrayjr@yahoo.com>
Sent: Thursday, October 1, 2020 7:22 AM
To: Comments
Subject: [External] Cobia

I commercial fish out of Hatteras year round and I have seen great evidence that we have our own stock of cobia and I'm tired of throwing good product over. We need more cobia.
Sent from my iPhone

Comments

From: obxlocke@aol.com
Sent: Tuesday, October 6, 2020 4:59 PM
To: Comments
Subject: [External] Cobia Draft Addendum 1

Dear Ms. Kerns, Technical Committee, and ASMFC Members;

As a commercial fisherman from North Carolina, I vote for status quo on the quota allocation -- keeping it at 8% of ACL for commercial fishermen.

We have been constrained the last three falls with early closures and have not been able to utilize the cobia's we catch incidentally while targeting other species. We have year-round access to cobia's and need the 8% to ensure we do not waste the resource we encounter. There is substantial market demand for this fish by the consumer, and status quo now will mean they can have year-round access to this fish. After all, isn't this a public trust resource? The consumer has no seat at the table for these policy discussions.

Also in consideration should be that North Carolina has moved it's commercial size limit to 36 inches fork length for ease of enforcement. Therefore, we are allowing bigger fish to reproduce. The data shows that at 33 inches 100% of the females are mature. This larger size limit also means North Carolina, when compared to other states, will exhaust the quota (poundage) sooner even when keeping to the 2 fish per person (up to 6 per boat) limit.

As far as the de minimis states are concerned, there will be increased landings as waters warm and these fish move northward. These states allocation comes off the commercial quota. They can keep fishing with no closure. These fish come off the total commercial allocation. Therefore, as more de minimis states catch fish, our piece of the pie will get smaller. Again, this argues for status quo -- the 8% allocation.

From a management stand point, we do not even know what the effect will be from a simple increase in quota (leaving all other management status quo). Will the recreational even catch their increased number of fish?? Give us a chance to harvest this fish for a year or two and then if the Technical Committee deems necessary, we can revisit allocation.

We already are having to go back and retrieve quota that was given away to the recreational sector for Spanish mackerel managed by SAFMC. A total of 1.5 million pounds was left on the table while the commercial season closed early the last two years. Let's not repeat that past mistake.

Thanks for your consideration,

Charlie Locke
F/V Salvation
Wanchese, N.C.
252-982-6488

Comments

From: Francis Hemilright <fvtarbaby@embarqmail.com>
Sent: Tuesday, October 6, 2020 3:22 PM
To: Comments
Subject: [External] Cobia Addendum 1

Savannah Lewis
FMP Coordinator ,Cobia

Option A. (Status Quo) The recreational quota will be 92% of the coastwide total harvest quota set through Board specification. The commercial quota will be 8% of the coastwide total harvest quota set through Board specification. Under the 2020-2022 total quota, the recreational quota would be 73,703 fish and the commercial quota would be 146,232 pounds.

I support this option because this will allow for the unaccountable regulatory discards to be turned into landings, I don't understand how states have no method to account for number of trips that met the trip limit because there is no counting the numbers of fish landed on trip tickets, only pounds harvested, that a problem.
Given that in commercial Cobia landings there are two different fishery's one directed by hook&line [with sight casting] and by-catch non sight casting, also in NC there is Cobia available year around and fisherman are limited on size of Cobia that they can incidentally catch based on size net that they use to catch other fish.so allowable size limit should be under reviews by-catch aren't targeting the largest fish as possible

There is no methodology for state water fisherman or dealers to report numbers fish harvest and or discards of released fish for fisherman.

Also as we are seeing this stock increasing over last few year and expanding northerly in there range, it would be really good if the ASMFC could address these issue's of accounting of harvest in numbers of fish, size of harvested of fish in gear used, season of harvest and dealer report of numbers of fish, by doing this it would give opportunity to see the needs of fitting available quota to the commercial Cobia and its expanding range.

Inclosing
contrary to what i heard in public this is not a [WINDFALL]
To the commercial fisherman has been constrained by a per person or vessel limit and when its reached you discard the rest if and when ,with management given no mechanism to report numbers of fish discarded or landed,
Commercial are giving access to the consumer for fresh seafood with Cobia.

Thank you for considering my comments,
Dewey Hemilright

Comments

From: Thomas Newman <thomas.newman03@gmail.com>
Sent: Monday, October 5, 2020 12:29 PM
To: Comments
Cc: DEWEY HEMILRIGHT; Chris Batsavage; Charlie Locke
Subject: [External] Cobia Draft Addendum I

I want to mainly comment on 3.1 Issue 1 : Recreational and Commercial Allocations

I recommend option A. (Status Quo)

First point I would like to make is commercial landings presented in Figure 1 have been on an upward trend since 1999. That timeline also corresponds with multiple early season harvest closures when the opportunity for commercial harvest was cut short. We needed the extra quota in the past and we are going to need it in the future according to the trend of increased harvest.

Second point I would like to make is the commercial landing numbers were not recalculated like the recreational harvest was using the new MRIP numbers. We have had good concrete data on our landings for many years, especially in my home state of North Carolina. If we are to really look at these numbers on a fair playing field, the commercial landings should be at the very lease extrapolated to show what landings could have been during years our cobia quota was caught before our fall fisheries even began, now that MRIP numbers show the overall quota should have been higher in the past.

Third point I would like to make is that reducing our allocation from 8% to 3% is not just a simple 5% reduction. It is actually a 62.5% reduction of the current commercial allocation! And when the overall quota is reduced in the future, would we automatically go back to an 8% allocation if a reduction happens? I would guess no and then that would leave us with a very small commercial quota that would leave us coming up short again.

Fourth point I would like to make is that reducing commercial allocation doesn't just hurt the fishermen, it hurts consumers. Restaurants, retailers, and individuals who buy seafood will have to buy farm raised cobia when the season is closed. Probably from foreign countries with inferior fisheries laws and food safety regulations.

I also think this is a slight of hand attempt to set a precedent for quota grab from the recreational industry through these new MRIP numbers. As each new stock assessment happens the trends are going to be very similar. Recreational landings will show over harvest resulting in overall quota increases for both sectors. Commercial landings remain static because our landings were already correct and it looks like we are under harvesting when in reality our fishing patterns have revolved around quota for decades. We slow our harvest through regulations as quotas are beginning to fill and we switch to other species when quotas are full. Common sense tells you, our past harvest data would have be higher if our quotas had been higher.

I think a precedent needs to be set across all species going into a new era of stock assessments with recalculating recreational landings with MRIP numbers. Give the commercial industry at least 5 years on any overall quota increases to have the opportunity to land the additional quota before reallocation is even put on the table.

Thank you for your time,
Thomas E Newman III
252-542-0449
Sent from my iPhone

Comments

From: Mac Bishop <macbishop17@gmail.com>
Sent: Thursday, October 1, 2020 7:08 AM
To: Comments
Subject: [External]

We as commercial fisherman need this extra quota. There is cobia off our beaches year around. With more regulations being put on us in inland waters, making it to where we can't fish in the sound there will be coming caught in the ocean

DRAFT DOCUMENT FOR BOARD REVIEW

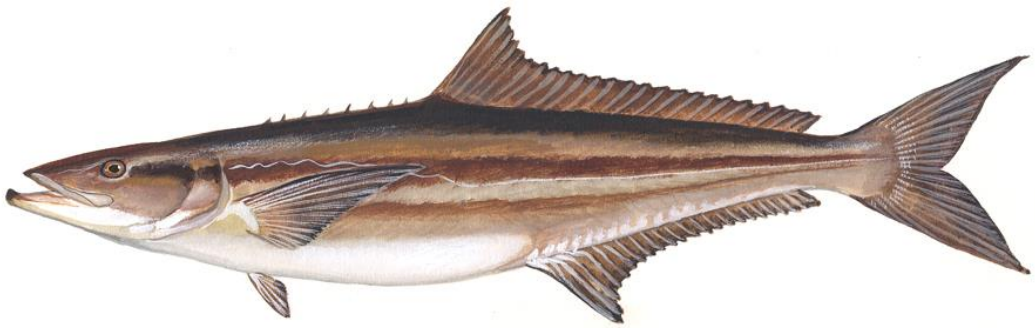
ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

FOR

ATLANTIC COBIA
(*Rachycentron canadum*)

2019 FISHING YEAR



Prepared by the Plan Review Team
Drafted October 2020

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

DRAFT DOCUMENT FOR BOARD REVIEW

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I. Status of the Fishery Management Plan

Date of FMP Approval: Original FMP – November 2017

Amendments: Amendment 1 – August 2019

Management Areas: The distribution of the Atlantic stock of cobia from Georgia through New York

Active Boards/Committees: South Atlantic State/Federal Fisheries Management Board; Cobia Technical Committee, Plan Development Team, and Plan Review Team; South Atlantic Species Advisory Panel

The Atlantic States Marine Fisheries Commission (ASMFC) adopted an interstate Fishery Management Plan (FMP) for the Atlantic Migratory Group of cobia (Atlantic cobia) in 2017 (ASMFC, 2017). Prior to the FMP, federal management was through the South Atlantic Fishery Management Council's (SAFMC) Fishery Management Plan for Coastal Migratory Pelagic Resources (CMP FMP), while New York, New Jersey, Delaware, Virginia, North Carolina and South Carolina had regulations for their respective state waters.

The FMP established a complementary management approach between the ASMFC and SAFMC. Under the ASMFC, Atlantic cobia are managed as part of the South Atlantic State/Federal Fisheries Management Board (Board). Through the FMP, regulations for states with a declared interest were required to reflect several measures established federally through the CMP FMP.

In March, 2019, Regulatory Amendment 31 to the CMP FMP became effective (SAFMC, 2018). This removed Atlantic cobia from the CMP FMP, resulting in management solely through the ASMFC.

In August, 2019, the Board approved Amendment 1 to reflect removal of Atlantic cobia from the CMP FMP, assume management responsibilities previously accomplished through the SAFMC and CMP FMP, and establish recommendations for measures in federal waters. Amendment 1 stated requirements are to be implemented by July, 2020.

Amendment 1 maintains many regulations of the original Commission FMP and previous CMP FMP. These include a 36-inch fork length (or 40 inch total length) recreational minimum size limit, 1 fish per person recreational bag limit, a recreational daily vessel limit not to exceed 6 fish per vessel, a 33-inch fork length (or 37-inch total length) commercial minimum size limit, and a commercial possession limit of 2 cobia per person not to exceed 6 cobia per vessel.

There are four plan objectives:

1) Provide a flexible management system to address future changes in resource abundance, scientific information, and fishing patterns among user groups or areas.
2) Promote cooperative collection of biological, economic, and social data required to effectively monitor and assess the status of the cobia resource and evaluate management efforts.
3) Manage the cobia fishery to protect both young individuals and established breeding stock.

4) Develop research priorities that will further refine the cobia management program to maximize the biological, social, and economic benefits derived from the cobia population.

In February, 2020, the Board approved an annual total harvest quota of 80,112 fish for 2020-2022, based on results from the Southeast Data, Assessment, and Review (SEDAR) 58 stock assessment for Atlantic cobia. However, states with commercial harvest had an agreement to harvest a smaller portion of that amount in 2020. SEDAR 58 used updated recreational catch estimates from the Marine Recreational Information Program's (MRIP) 2018 transition and calibration to the mail-based Fishing Effort Survey effort estimates, which replaced those of the Coastal Household Telephone Survey. All recreational numbers shown in this and future FMP Reviews are based on the FES estimates.

Given the increased recreational catch estimates used in the SEDAR 58 assessment, the total annual quota approved by the Board also increased, resulting in increases to both the recreational and commercial quotas. As this increase in recreational harvest did not truly reflect a change in previous effort, only the estimate of that effort, Addendum I to Amendment 1 was initiated to reconsider the percent allocations to the commercial and recreational sectors to better reflect the observed harvest. The increase in commercial quota also highlighted the need for potential changes to the commercial trigger percentage calculation. The current calculation method is dependent on recent harvest, and, if the quota increases above recent harvest levels or the harvest has been very low, the commercial trigger cannot be calculated. Data from SEDAR 58 also indicated that changes may need to be made to the management of both commercial and recreational *de minimis* states to address the portion of quota set aside for *de minimis* states, as well as accommodate the potential reproductive benefit from a greater minimum size limit and limit regulatory inconsistency among states.

II. Status of the Stock

SEDAR 58

In 2020, the Board approved the SEDAR 58 Atlantic Cobia benchmark assessment for management use which continued to use the Beaufort Assessment Model (BAM), a forward-projecting statistical catch-at-age model used in the prior assessment, SEDAR 28 (SEDAR 2013). SEDAR 58 provided new reference points and determined that the stock is not overfished and overfishing is not occurring (Figures 1 and 2). This assessment used the recalibrated recreational catch data from MRIP, which yielded much higher estimates the biomass and spawning stock biomass estimates as compared to SEDAR 28 (Figure 3). Even with the large changes in biomass estimates, the trends of abundance, recruitment, and relative status were very similar between the two assessments. Stock structure also remained unchanged from the SEDAR 28 assessment which established the stock boundary between Atlantic and Gulf of Mexico cobia at the FL/GA border with the Atlantic stock extending northward to New York.

Updated Reference Points

The assessment proposed updated reference points of $F_{40\%}$ and $SSB_{F40\%}$ as the target reference points (Figures 4 and 5). The reference points were selected at the fishing rate and SSB that allows the population to reach 40% of the maximum spawning potential the stock would have obtained in

the absence of harvest. These reference points serve as proxies for maximum sustainable yield-derived relationships due to insufficient data for cobia.

Updated Maturity
Reproductive data from SEDAR 58 indicated that there is potential reproductive benefit for using a larger minimum size than 29 inches fork length. An increased minimum size would allow more female cobia to reach maturity before being susceptible to harvest.

Status of the Stock and Fishery
Spawning stock biomass showed little overall trend throughout the estimated time series, but the terminal year is the lowest in the time series. Age structure estimated by the base run indicated a slight decline in the number of younger fish in the last decade, but the rest of the age structure was above the expected values in 2017. The estimated fishing mortality rates have generally increased through the assessment time frame, peaking in 1996, with the recreational fleet as the largest contributor to total F ($F_{2015\text{-}2017}/F_{40\%}$ = 0.29).

III. Status of the Fishery

This report includes the updated recreational estimates from the Marine Recreational Information Program following the transition to the mail-based Fishing Effort Survey (FES) on July 1, 2018. Figure 6 shows coastwide recreational landings including estimates using both the previous Coastal Household Telephone Survey (CHTS) and FES calibration for comparison. Past recreational estimates have been calibrated to the FES and, therefore, are different from those shown in FMP Reviews and state compliance reports prior to 2019. Previous management (prior to the new quota specification for 2020) used recreational limits and targets based on the CHTS data, and numbers presented in this report reflect the new MRIP numbers. Estimates for 2019 cannot be compared to management in previous years due to changes in MRIP but will be revised in future FMP reviews.

Total Atlantic cobia landings are estimated at 1.9 million pounds in 2019. (Figure 7, Tables 2 and 3). The commercial and recreational fisheries harvested 3% and 97% of the 2019 total, respectively. Commercial landings of Atlantic cobia in 2019 span from Rhode Island through Georgia (Table 2). Coastwide commercial landings show an increasing trend since low harvests in the 1970s and early 1980s but comprise a small portion of the total harvest due, in part, to a current 8% allocation of the total annual catch limit (Figure 7). Coastwide cobia commercial landings in 2019 were estimated at 60,592 pounds. The commercial fishery was projected to meet the ACL and was closed on September 4, 2019, for the remainder of the year. Virginia (51%) and North Carolina (35%) harvested the majority of the commercial landings (Table 2).

Recreational harvests have fluctuated widely throughout the time series, often through rapid increases and declines. Average harvests for the time series are 991,652 pounds (Figure 7, Table 3) and 35,262 fish (Figure 8, Table 4). This fishery has grown noticeably over the time series, with average harvests over the last 10 years of 1,830,682 pounds and 63,839 fish. The 2019 recreational

harvest was 1.9 million pounds or 67,923 fish. Virginia (83% of pounds, 82% of fish) and North Carolina (13% of numbers, 15% of fish) harvested the majority of recreational landings by pounds and number of fish. Average weight (recreational harvest in pounds divided by recreational harvest in numbers) in 2019 was 28 pounds per fish.

Recreational releases of live fish have generally increased throughout the time series (Figure 8, Table 5). In 2019, 301,536 recreationally-caught fish were released. Increased recreational releases over the last four years are likely attributable to a combination of management actions, including establishment of an ACL, closures of the recreational fishery in federal waters, and newly-introduced state regulations.

IV. Status of Assessment Advice

Current stock status information comes from SEDAR 58 (SEDAR, 2020), which determined the stock is not overfished and overfishing is not occurring. Results of this assessment were approved for management use by the Board at their February 2020 meeting, and, as such, have been incorporated into ASMFC's FMP.

The stock assessment could be improved by developing a fishery-independent sampling program for abundance of cobia and other coastal migratory pelagic species. The currently used fishery-dependent index cause notable uncertainty in part due to the lack of an effective sampling methodology. In addition, due to federal water closures, the index could only be calculated through 2015. The assessment could also benefit from improved characterization of age, reproductive, genetic, and migratory characteristics, tag-based information on natural mortality, and more precise recreational catch estimates.

V. Status of Research and Monitoring

There are no monitoring or research programs required annually of the states except for the submission of a compliance report. The following fishery-dependent (other than catch and effort data) and fishery-independent monitoring programs were reported in the 2019 reports.

<u>Fishery-Dependent Monitoring</u>

- Maryland DNR – Commercial pound net survey in lower Chesapeake Bay and Potomac River from May through September. 6 fish since 1993 (2019: 1 fish, 1197 mm total length (TL)).
- Virginia MRC – Recreational cobia permit that requires reporting of cobia trips and catch to renew harvest in the following year also collects weight and length information. In addition, the Virginia Biological Sampling Program collects donated carcasses from both commercial and recreational fisheries. In 2019 they collected length (n=439), weight (n=51), sex (n=431), and age (n=432) from the data.
- North Carolina DMF – Commercial fishery-dependent sampling, 20 lengths in 2019. MRIP length sampling, 30 lengths in 2019. Recreational Carcass Collection Program, 42 lengths in 2019.
- South Carolina DNR – In 1993, the SCDNR initiated a mandatory trip-level logbook reporting system for all charter vessels to collect basic catch and effort data. The charter boat logbook

reports include: date, number of fishermen, hours fished, fishing locale (inshore, 0-3 miles, and > 3 miles offshore), fishing location (based on a 10 x 10 mile grid map), fishing method, target species, species caught, catch (number landed versus number released by fish species), and estimated landed pounds per vessel per trip. There were 1,252 cobia reported in 2019.

- Georgia CRD – Collected age, length, and sex data through the Marine Sportfish Carcass Recovery Project (2019: 0 cobia).
- NMFS – Collected recreational catch, harvest, release, and effort data, as well as length measurements via MRIP.

Fishery-Independent Monitoring

- New Jersey DEP – Ocean Trawl Survey: 31-year time series (1988-2019), total of 22 cobia caught (2019: 1 fish, 1.05 lb).
- Delaware DFW – No cobia caught in either finfish trawl survey (16ft or 30ft) or any other fishery-independent sampling.
- Maryland DNR –Coastal Bays Surveys since 1972; 3 cobia caught in beach seine and 5 in otter trawl for entire time series (0 cobia in either gear in 2019).
- South Carolina DNR – Estuarine trammel net survey (1994-2019) has caught a total of 17 cobia. SEAMAP trawl survey (1989-2019) has caught a total of 354 cobia, with 1.6% positive tows.
- Georgia CRD – Marine Sportfish Population Health Survey, includes summer gillnet survey and fall trammel net survey, 0 cobia caught in 2019.

VI. Status of Management Measures and Issues

Fishery Management Plan

Due to revised MRIP numbers, commercial and recreational quota allocations are currently being reconsidered through Addendum I. Current harvest using the recalculated values cannot be directly compared to previously set ACL. This is most evident with estimated recreational harvest and the RHL set for the 2018-2020 time period.

In 2020, Virginia updated their cobia regulation to provide language clarification and clarification for their cobia recreational and commercial harvest reporting.

North Carolina increased the minimum size limit for the 2020 commercial fishery season from 33 in FL to 36 in FL to have a uniform size limit across recreational and commercial fisheries.

De Minimis

The FMP requires adherence to state harvest targets, allocated to non-*de minimis* states from a RHL. The RHL is derived from the CMP FMP's former recreational ACL. One percent of the recreational ACL is designated to account for harvest in *de minimis* states.

Delaware established regulations to put them in compliance with the ISFMP in May 2020.

The FMP allows states to request *de minimis* status if their recreational harvests (in pounds) in two of the previous three years are less than 1% of annual coastwide recreational landings during that time period. If a state qualifies for *de minimis*, the state may choose to match all FMP-related recreational management measures (including seasons and vessel limits) implemented by an adjacent non-*de minimis* state (or the nearest non-*de minimis* state if none are adjacent) or the state may choose to limit its recreational fishery to 1 fish per vessel per trip with a minimum size of 29 inches fork length (or a total length equivalent) with no seasonal restrictions. Commercial regulations in *de minimis* states are also limited to a minimum size of 33 in FL with 2 fish per person for a total of 6 fish per vessel.

New Jersey, Delaware, and Maryland requested recreational *de minimis* status through the annual reporting process. All of these states qualify for *de minimis* status.
New Jersey, Delaware, Maryland, and Georgia, requested *de minimis* status for commercial fisheries through the annual reporting process. All of these states qualify for *de minimis* status.

VII. Implementation of FMP Compliance Requirements for 2019

The PRT finds that all states have implemented the requirements of the Fishery Management Plan.

VIII. Recommendations of the Plan Review Team

Management
The PRT recommends that the Board approve the 2020 FMP Review, state compliance, and *de minimis* requests from New Jersey, Delaware, Maryland, and Georgia.

Research

The following are important research recommendations from the PRT:

<u>Biological</u>

1) Obtain more precise and timely estimates of harvest from the cobia recreational fishery.

2) Investigate release mortality and fishing mortality within the commercial and recreational fisheries along the US Atlantic coast.

3) Continue to collect and analyze current life history data from fishery independent and dependent programs, including full size, age, maturity, histology workups and information on spawning season timing and duration. Any additional data that can be collected on any life stages of cobia would be highly beneficial.

4) Increase spatial and temporal coverage of age samples collected regularly in fishery dependent and independent sources. Prioritize collection of age data from fishery dependent and independent sources in all states.

5) Collect genetic material to continue to assess the stock identification and any Distinct Population Segments that may exist within the management unit relative to recommendations made by the SEDAR 58 Stock ID Process.

6) Conduct a high reward tagging program to obtain improved return rate estimates. Continue and expand current tagging programs to obtain mortality and growth information and movement at size data.

7) Conduct studies to estimate fecundity-at-age coastwide and to estimate batch fecundity.

8) Obtain better estimates of bycatch and mortality of cobia in other fisheries, especially juvenile fish.

9) Obtain estimates of selectivity-at-age for cobia through observer programs or tagging studies.

10) Define, develop, and monitor adult and juvenile abundance estimates through the expansion of current or development of new fishery independent surveys.

Social

1) Using social impact analysis approaches such as updating applicable recreational and commercial fisheries community profiles and measures of social vulnerability (See Jepson & Colburn, 2013), evaluate the local and regional dependency on cobia resources managed by the Commission.

Economic

1) Obtain better data (e.g. more comprehensive and timely) to estimate the annual economic impacts, net benefits, and economic contributions of recreational and commercial Atlantic cobia fishing on coastal communities and regions.

2) Obtain cost and expenditure data for recreational fishing trips targeting cobia by fishing mode, for different states, and for anglers returning to private sites, who would not be sampled by the MRIP.

3) Estimate willingness-to-pay associated with recreational cobia angling.

Habitat

1) Expand existing fishery independent surveys in time and space to better define and cover cobia habitats.

2) Conduct otolith microchemistry studies to identify regional recruitment contributions.

3) Conduct new and expand existing satellite tagging programs to help identify spawning and juvenile habitat use and regional recruitment sources.

IX. References

ASMFC. 2017. Interstate Fishery Management Plan for Atlantic Migratory Group Cobia. ASMFC, Arlington, VA. 85 p.

SAFMC. 2018. Amendment 31 to the Fishery Management Plan for Coastal Migratory Pelagics Resources in the Gulf of Mexico and Atlantic Region. NOAA Award # FNA10NMF441001. Charleston, SC. 209 pp.

SEDAR. 2013. SEDAR 28 – South Atlantic Cobia Stock Assessment Report. SEDAR, North Charleston SC. 420 pp. available online at: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=28

SEDAR. 2020. SEDAR 58 – Atlantic Cobia Stock Assessment Report. SEDAR, North Charleston SC. 500 pp. available online at: http://sedarweb.org/sedar-58

X. Figures

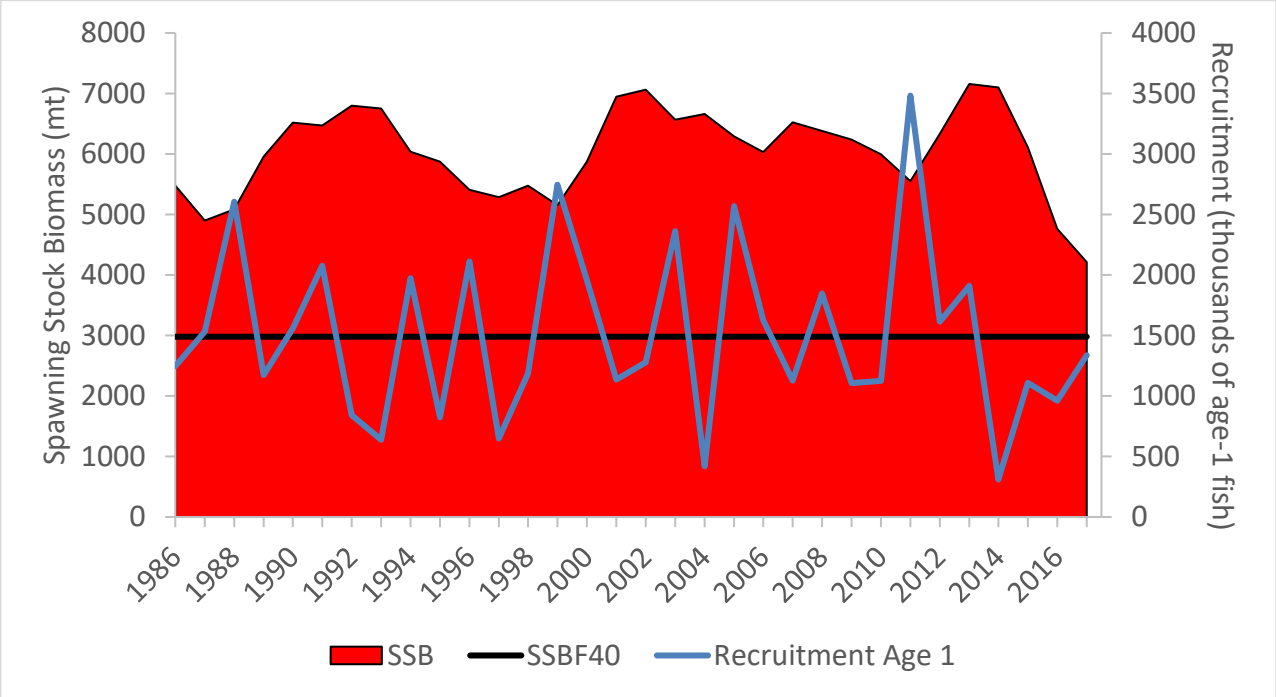


Figure 1. Atlantic Cobia spawning stock biomass (SSB) and recruitment of year 1 fish. (SEDAR, 2020)

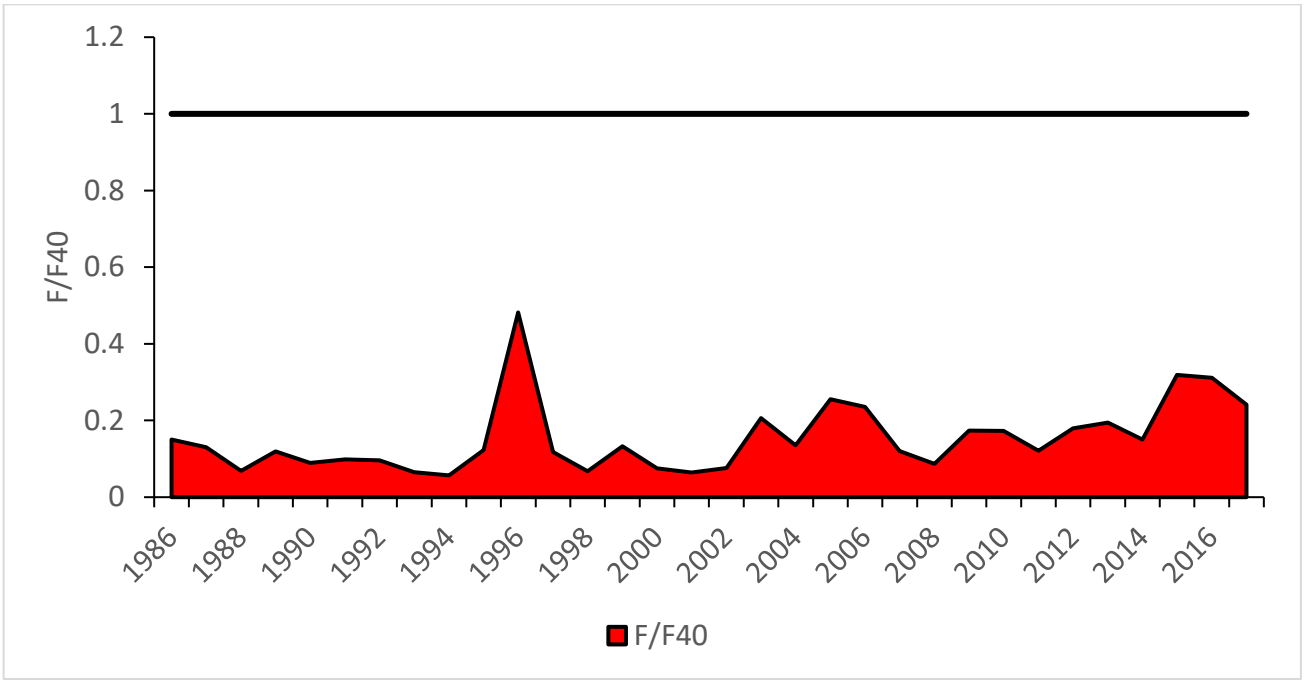


Figure 2. Atlantic Cobia fishing mortality (F) relative to the F40 reference point from 1986-2017. (SEDAR, 2020)

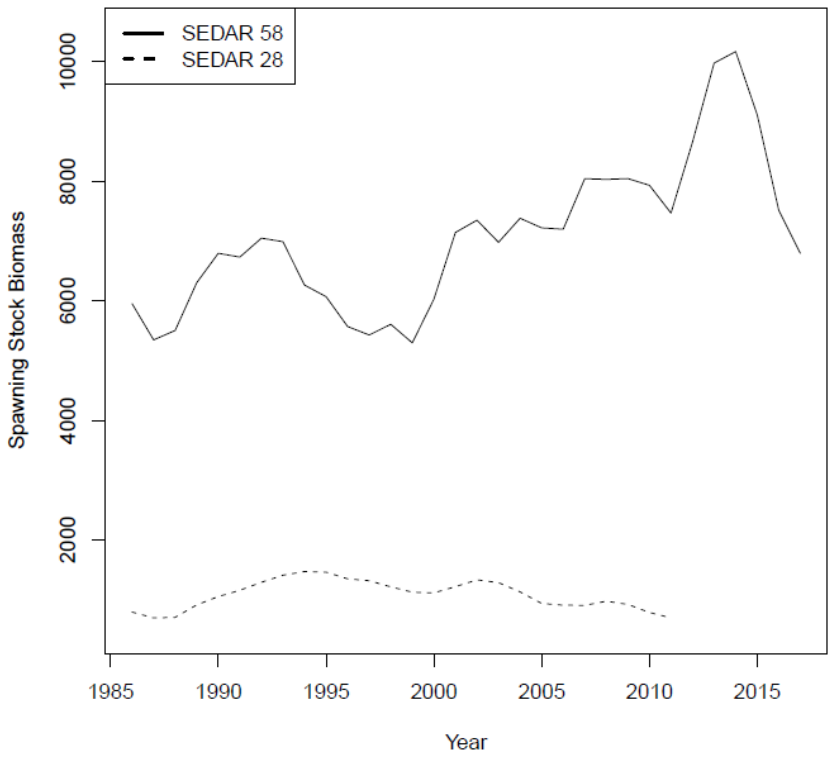


Figure 3. Comparing spawning stock biomass from the current assessment (SEDAR 58) to the last assessment (SEDAR 28). (SEDAR, 2020)

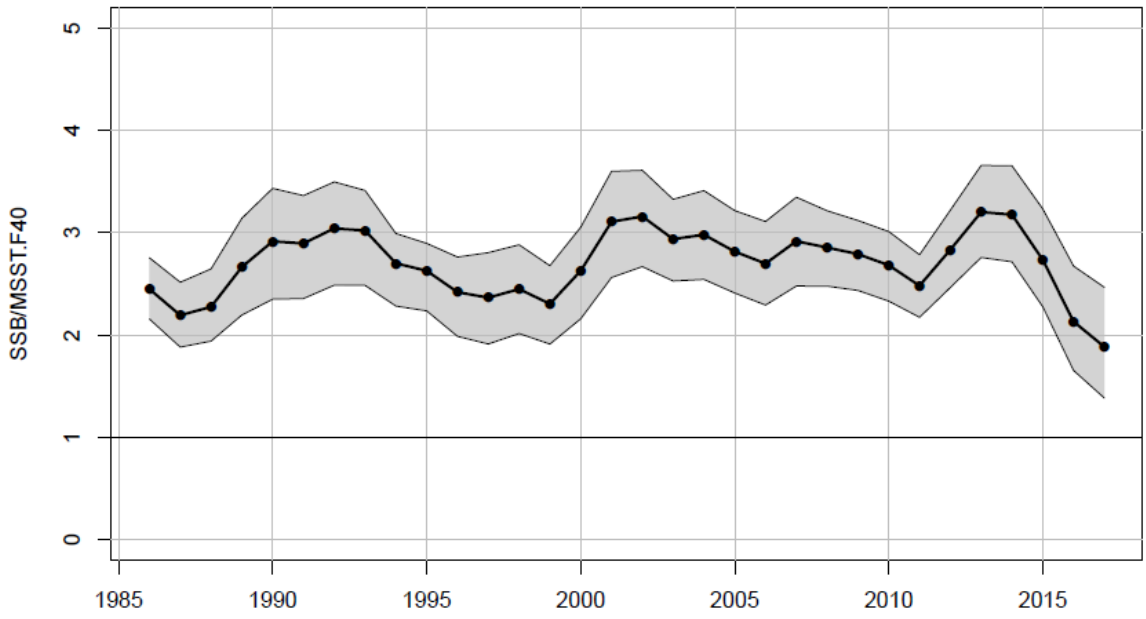


Figure 4. Estimated time series of Spawning Stock Biomass (SSB) relative to the Minimum Stock Size Threshold (MSST) (SEDAR, 2020).

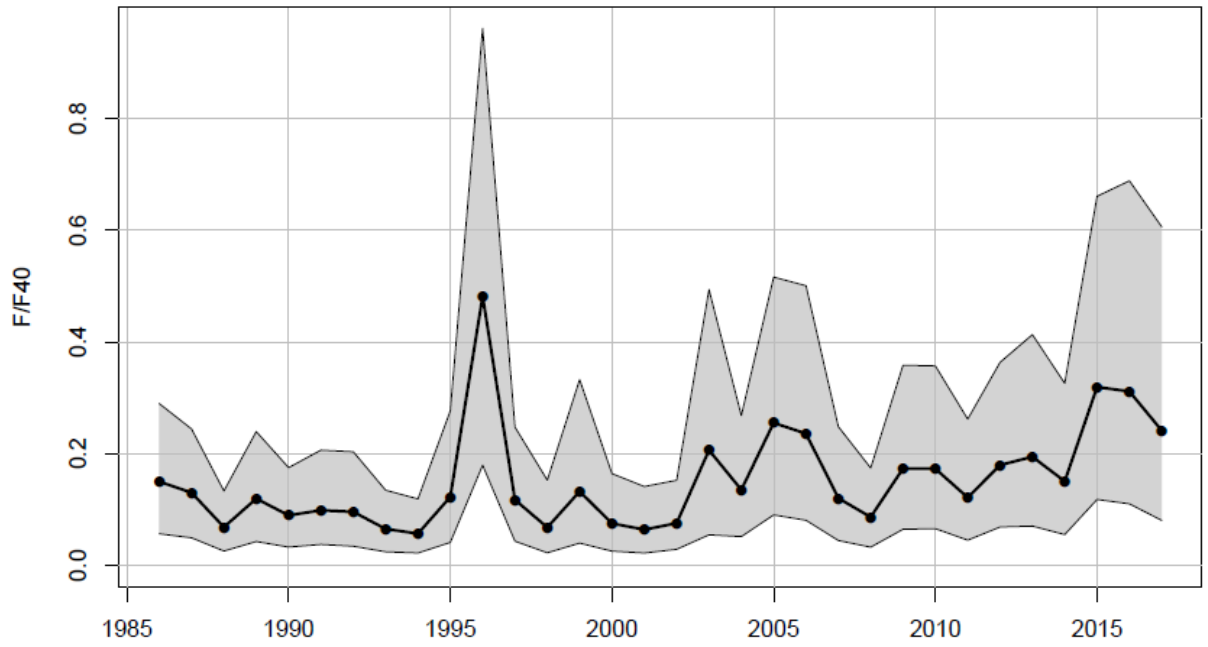


Figure 5. Estimated time series of Fishing Mortality (F) relative to F at Maximum Sustainable Yield ($F_{40\%}$) (SEDAR, 2020).

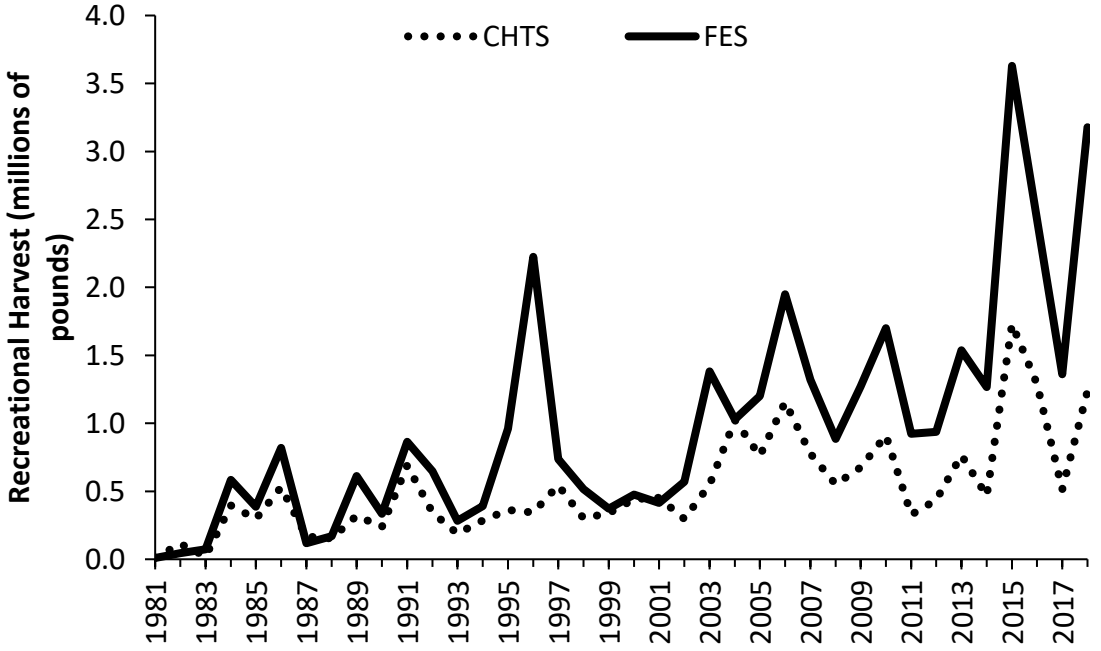


Figure 6. Cobia recreational harvest estimated using the Coastal Household Telephone Survey (CHTS) and the mail-based Fishing Effort Survey (FES). (Source: personal communication with NOAA Fisheries, Fisheries Statistics Division. [05/2019])

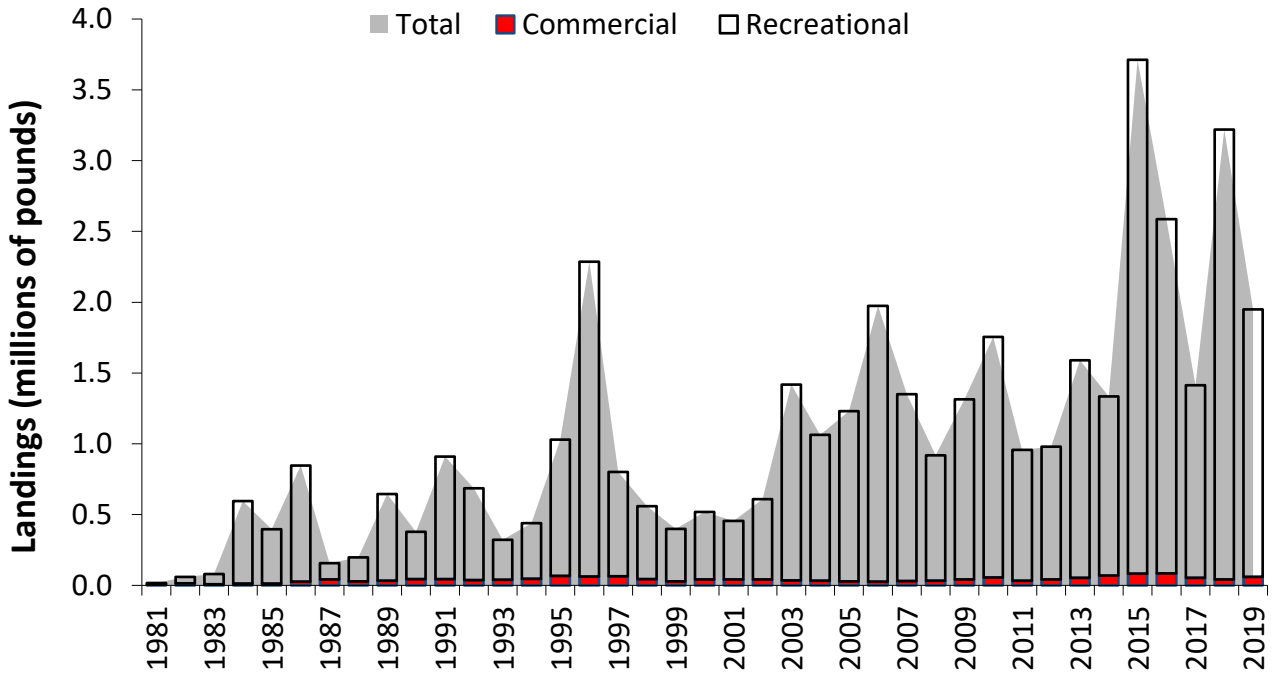


Figure 7. Commercial and recreational landings (pounds) of Atlantic cobia. Recreational data not available prior to 1981. See Tables 2 and 3 for values and data sources.

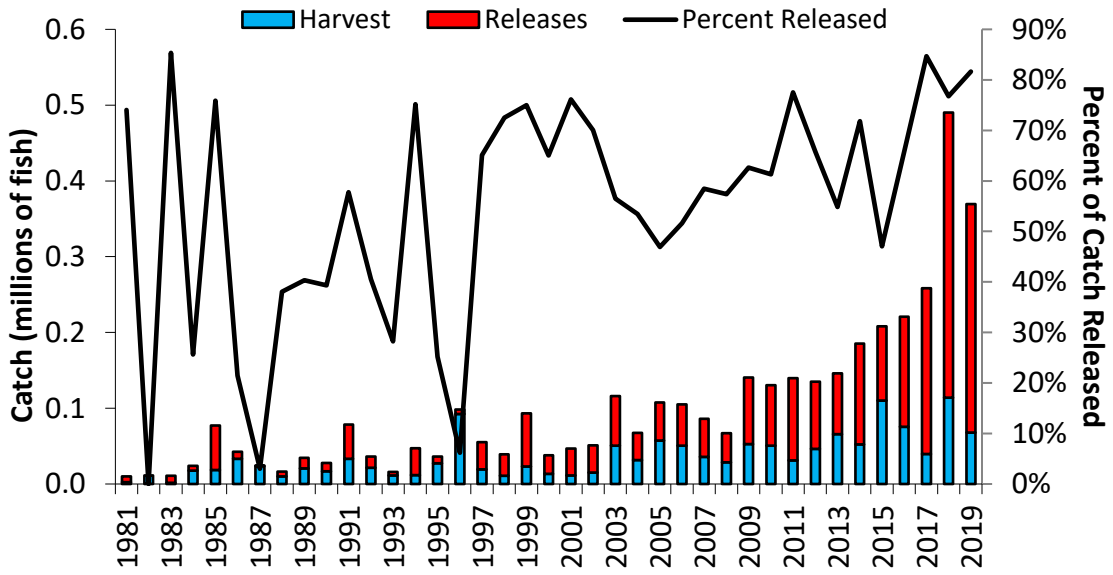


Figure 8. Recreational catch (harvest and live releases) of Atlantic cobia (numbers) and the proportion of catch that is released. See Tables 4 and 5 for values and data sources.

XI. Tables

Table 1. Atlantic cobia regulations for 2019.

State	Recreational Measures	Commercial Measures
NJ	*De minimis*; same as Virginia	Coastwide Possession Limit: 2 fish per person Minimum Size: 33 in fork length or 37 in total length Vessel Limit: 6 fish If commercial fishing in state waters is closed, commercial fishing in federal waters will be recommended to mirror state closures Deviations -Virginia possession limit is per licensee rather than per person -North Carolina has 36 minimum fork length -No commercial harvest in South Carolina state waters -GA possession limit is 1 fish per person and minimum size is 36 in fork length
DE	*De minimis*; same as Virginia Season: June 1-September 15	
MD	*De minimis*; same as Virginia	
PRFC	Bag limit: 1 per person Minimum Size: 40” Vessel Limit: 3 fish Season: June 1-September 30	
VA	Bag Limit: 1 fish per person Minimum Size: 40 in total length Vessel Limit: 3 fish Season: June 1-September 30	
NC	Bag Limit: 1 fish per person Minimum Size: 36 in fork length Vessel Limits/Seasons: Private May 1-31: 2 fish June 1-Dec 31: 1 fish For-Hire May 1-Dec 31: 4 fish	
SC	Bag Limit: 1 fish per person Minimum Size: 36 in fork length Vessel Limits: Southern Cobia Management Zone: 3 fish Other areas: 6 fish Season: Southern Cobia Management Zone: June 1-April 30 Other Areas: Open year-round -If recreational fishing in federal waters is closed, recreational fishing in all SC state waters is also closed.	
GA	Bag Limit: 1 fish per person Minimum Size: 36 in fork length Vessel Limit: 6 fish Season: March 1-October 31	
For all instances when a bag or possession limit is not equal to the vessel limit, the more restrictive rule applies.		

Table 2. Commercial landings (pounds) of Atlantic cobia by state, 2002-2019. (Sources: 2020 state compliance reports for 2019 fishing year; for years prior to 2019, personal communication with Atlantic Coastal Cooperative Statistics Program [ACCSP], Arlington, VA)

Year	N of NJ	NJ	DE	MD	PRFC	VA	NC	SC	GA	Total
2002	70	2,086		C		11,445	21,058	5,007	C	41,012
2003	282	621	C	C		7,387	21,313	4,746	C	35,192
2004	758	576		211		6,143	20,162	4,014	705	32,569
2005	C	329		C		6,084	17,886	3,773	C	28,829
2006		C		48		2,705	20,270	2,405	C	25,428
2007	137	1,589		C		5,928	19,005	3,408	245	30,312
2008	C	C		C		6,755	22,047	3,016	C	33,096
2009	134	1,134		196		5,980	31,898	2,078	C	41,900
2010	C	270		C		8,504	43,715	2,499	C	55,755
2011	563	C		C		8,500	19,924	4,020	C	33,394
2012	369	699		C		5,382	31,972	3,359	C	41,781
2013	1317	885	C	C		10,900	35,456	3,829	C	53,177
2014	311	359		C		21,255	41,798	3,492	C	68,076
2015	235	212		C		25,352	52,684	2,487	C	82,117
2016	297	282	C	C		29,459	48,244	4,064	C	83,583
2017	195	C	C	C		26,748	16,890	4,261	C	52,376
2018	678	707		C		21,355	16,578	2,723	C	42,690
2019	1543	1,367	C	C	2,375	31,647	21,553	2,447	C	60,592

C: confidential landings.

Table 3. Recreational harvest (pounds) of Atlantic cobia by state, 2002-2019. Values shown are the new MRIP numbers. (Sources: 2020 state compliance reports for 2019 fishing year; for years prior to 2019, personal communication with MRIP [Queried September 2020])

Year	NJ	DE	MD	VA	NC	SC	GA	Total
2002				242,697	319,178	3,446	3,557	568,878
2003			98,524	120,097	223,508	940,447	459	1,383,035
2004				76,408	420,684	426,301	106,405	1,029,798
2005		5,044		792,006	401,557	1,549	899	1,201,055
2006	6,768			1,596,234	196,330	148,146	1,918	1,949,396
2007				499,736	218,447	538,625	63,024	1,319,832
2008				182,451	167,463	37,124	499,198	886,236
2009				855,629	320,075	94,996	1,831	1,272,531
2010			1,179	557,907	808,227	100,614	230,865	1,698,792
2011				341,751	399,192		182,799	923,742
2012	60,473			47,547	102,077	214,512	512,499	937,108
2013				488,181	980,541	24,005	43,915	1,536,642
2014				499,218	645,427	79,171	42,481	1,266,297
2015				1,166,000	1,925,762	434,899	102,917	3,629,578
2016			307	1,505,528	838,363	159,345		2,503,543
2017				488,287	872,861		390	1,361,538
2018		15,053	4,647	2,259,661	685,962	205,647	6,081	3,177,051
2019				1,573,485	254,963	58,204	1,632	1,888,284

Table 4. Recreational harvest (numbers) of Atlantic cobia by state, 2002-2019. Values shown are the new MRIP numbers. (Sources: 2020 state compliance reports for 2019 fishing year; for years prior to 2019, personal communication with MRIP [Queried September 2020])

Year	NJ	DE	MD	VA	NC	SC	GA	Total
2002				7,833	7,196	140	53	15,222
2003			2,364	4,872	6,948	36,319	6	50,509
2004				2,399	12,522	12,010	4,498	31,429
2005		88		38,530	18,491	32	44	57,185
2006	246			39,231	5,154	6,026	116	50,773
2007				13,127	6,262	13,144	3,221	35,754
2008				8,522	3,972	1,649	14,481	28,624
2009				33,504	12,823	6,111	65	52,503
2010			42	16,580	24,030	2,914	6,905	50,471
2011				12,663	10,711		7,990	31,364
2012	18,287			1,429	3,805	7,626	15,104	46,251
2013				24,145	37,617	1,580	2,638	65,980
2014				21,585	24,601	3,883	2,168	52,237
2015				38,672	47,110	15,575	8,934	110,291
2016			56	43,780	26,421	5,437		75,694
2017				14,613	25,025		19	39,657
2018		581	206	80,679	25,331	6,340	233	113,939
2019				55,770	10,090	1,991	72	67,923

Table 5. Recreational live releases (numbers) of Atlantic cobia by state, 2002-2019. Values shown are the new MRIP numbers. (Sources: 2020 state compliance reports for 2019 fishing year; for years prior to 2019, personal communication with MRIP [Queried September 2020])

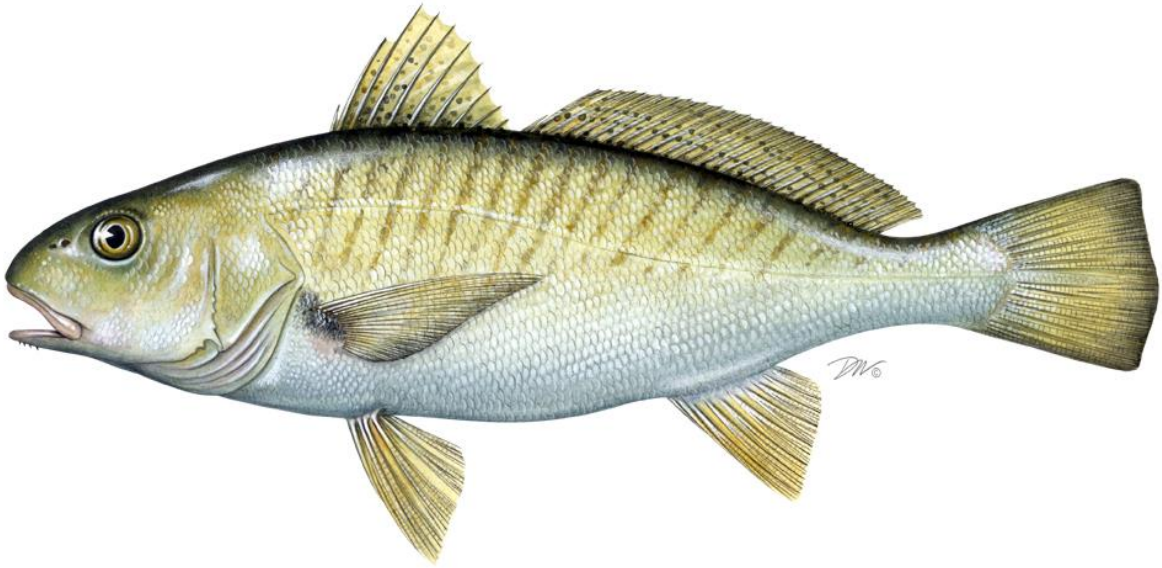
Year	NJ	DE	MD	VA	NC	SC	GA	Total
2002				15,932	14,036	5,627		35,595
2003			2,556	24,462	21,722	15,976	794	65,510
2004	38			9,984	11,079	13,226	1,752	36,079
2005				25,984	19,083	5,503		50,570
2006				21,512	11,425	21,163		54,100
2007				5,581	12,695	32,022	17	50,315
2008	34			5,091	24,028	1,172	8,166	38,491
2009				32,620	55,374	43		88,037
2010	8,212			20,863	48,590	2,156	40	79,861
2011				26,523	47,151	29,021	5,619	108,314
2012	178			17,184	66,567	4,404	383	88,716
2013				35,731	35,398	7,438	1,577	80,144
2014				58,092	32,184	42,811		133,087
2015	416			40,689	44,254	12,369	283	98,011
2016			1,075	81,482	39,237	20,255	2,917	144,966
2017				77,184	125,251	11,359	4,830	218,624
2018	2,879		21,384	194,865	68,219	71,020	18,056	376,423
2019	10,166	30	251	184,716	38,285	59,008	9,080	301,536

ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

FOR ATLANTIC CROAKER
(Micropogonias undulatus)

2019 FISHING YEAR



Prepared by the Plan Review Team
Drafted October 2020

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

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I. Status of the Fishery Management Plan

Date of FMP Approval:	Original FMP – October 1987
Amendments:	Amendment 1 – November 2005 (implemented January 2006) Addendum I – March 2011 Addendum II – August 2014 Addendum III – February 2020
Management Areas:	The Atlantic coast distribution of the resource from New Jersey through Florida
Active Boards/Committees:	South Atlantic State/Federal Fisheries Management Board; Atlantic Croaker Technical Committee, Stock Assessment Subcommittee, and Plan Review Team; South Atlantic Species Advisory Panel

The Fishery Management Plan (FMP) for Atlantic Croaker was adopted in 1987 and included the states from Maryland through Florida (ASMFC 1987). In 2004, the South Atlantic State/Federal Fisheries Management Board (Board) found the recommendations in the FMP to be vague, and recommended that an amendment be prepared to define management measures necessary to achieve the goals of the FMP. The Interstate Fisheries Management Program Policy Board also adopted the finding that the original FMP did not contain any management measures that states were required to implement.

In 2002, the Board directed the Atlantic Croaker Technical Committee (TC) to conduct the first coastwide stock assessment of the species to prepare for developing an amendment. The Atlantic Croaker Stock Assessment Subcommittee developed a stock assessment in 2003, which was approved by a Southeast Data Assessment Review (SEDAR) panel for use in management in June 2004 (ASMFC 2005a). The Board quickly initiated development of an amendment and, in November 2005, approved Amendment 1 to the Atlantic Croaker FMP (ASMFC 2005b). The amendment was fully implemented by January 1, 2006.

The goal of Amendment 1 was to utilize interstate management to perpetuate the self-sustainable Atlantic croaker resource throughout its range and generate the greatest economic and social benefits from its commercial and recreational harvest and utilization over time. Amendment 1 contains four objectives:

1) Manage the fishing mortality rate for Atlantic croaker to provide adequate spawning potential to sustain long-term abundance of the Atlantic croaker population.
2) Manage the Atlantic croaker stock to maintain the spawning stock biomass above the target biomass levels and restrict fishing mortality to rates below the threshold.
3) Develop a management program for restoring and maintaining essential Atlantic croaker habitat.

4) Develop research priorities that will further refine the Atlantic croaker management program to maximize the biological, social, and economic benefits derived from the Atlantic croaker population.

Amendment 1 expanded the management area to include the states from New Jersey through Florida. Consistent with the stock assessment completed in 2004, the amendment defined two Atlantic coast management regions: the south-Atlantic region, from Florida through South Carolina; and the mid-Atlantic region, from North Carolina through New Jersey.

Amendment 1 established biological reference points (BRPs) to define an overfished and overfishing stock status for the mid-Atlantic region only. Reliable stock estimates and BRPs for the South Atlantic region could not be developed during the 2004 stock assessment due to a lack of data. The BRPs were based on maximum sustainable yield (MSY), and included threshold and target levels of fishing mortality (F) and spawning stock biomass (SSB): F threshold = F_{MSY} (estimated to be 0.39); F target = 0.75 X F_{MSY} (estimated to be 0.29); SSB threshold = 0.7 X SSB_{MSY} (estimated to be 44.65 million pounds); and SSB target = SSB_{MSY} (estimated to be 63.78 million pounds). An SSB estimate below the SSB threshold resulted is an overfished status determination, and an F estimate above the F threshold resulted is an overfishing status determination. The Amendment established that the Board would take action, including a stock rebuilding schedule if necessary, should the BRPs indicate the stock is overfished or overfishing is occurring.

Amendment 1 did not require any specific measures restricting recreational or commercial harvest of Atlantic croaker. States with more conservative measures were encouraged to maintain those regulations (Table 1). The Board was able to revise Amendment 1 through adaptive management, including any regulatory and/or monitoring requirements in subsequent addenda, along with procedures for implementing alternative management programs via conservation equivalency.

The Board initiated Addendum I to Amendment I at its August 2010 meeting, following the updated stock assessment, in order to address the proposed reference points and management unit. The stock assessment evaluated the stock as a coastwide unit, rather than the two management units established within Amendment I. In approving Addendum I, the Board endorsed consolidating the stock into one management unit, as proposed by the stock assessment. In addition, Addendum I established a procedure, similar to other species, by which the Board may approve peer-reviewed BRPs without a full administrative process, such as an amendment or addendum.

In August 2014, the Board approved Addendum II to the Atlantic Croaker FMP. The Addendum established the Traffic Light Approach (TLA) as the new precautionary management framework to evaluate fishery trends and develop management actions. The TLA was originally developed as a management tool for data poor fisheries. The name comes from assigning a color (red, yellow, or green) to categorize relative levels of population indicators. When a population characteristic improves, the proportion of green in the given year increases. Harvest and abundance thresholds of 30% and 60% were established in Addendum II, representing

moderate and significant concern for the fishery. If thresholds for both population characteristics achieve or exceed a threshold for a three year period, then management action is enacted.

The TLA framework replaces the management triggers stipulated in Addendum I, which dictated that action should be taken if recreational and commercial landings dropped below 70% of the previous two year average. Those triggers were limited in their ability to illustrate long-term declines or increases in stock abundance. In contrast, the TLA approach is capable of better illustrating trends in the fishery through changes in the proportion of green, yellow, and red coloring. A 2018 TC report recommended several updates to the current TLA approach (ASMFC 2018). The Board initiated an Addendum III to incorporate these updates.

In February 2020 the Board approved Addendum III to Amendment 1 of the Atlantic Croaker FMP. This addenda adjusted the TLA to incorporate additional fishery-independent indices, age information, use of regional characteristics, and changes to the management triggering mechanisms. Management triggers and responses include bag limits for the recreational fishery and percentage harvest reductions from a 10 year average for the commercial fishery. The response will be defined by which percent threshold (30% or 60%) that was exceeded in any of the 3 out of 4 terminal years.

Addenda III did not add or change any management measures or requirements, unless management-triggering mechanisms are tripped. The only pre-existing requirement is for states to submit an annual compliance report by July 1st of each year that contains commercial and recreational landings as well as results from any monitoring programs that intercept Atlantic croaker.

II. Status of the Stock

The most recent stock assessment, conducted in 2017, upon peer review was not recommended for management use. Therefore, current stock status is unknown. The Peer Review Panel did not indicate problems in the Atlantic croaker fishery that would require immediate management action but did recommend continued evaluation of the fishery using the annual TLA.

The conclusions of the 2010 stock assessment (ASMFC 2010), which is the most recent assessment that was recommended by peer review for management use, were that Atlantic croaker was not experiencing overfishing and biomass had increased and fishing mortality decreased since the late 1980s. The 2010 assessment was unable to confidently determine stock status, particularly with regards to biomass, due to an inability to adequately estimate removals from discards of the South Atlantic shrimp trawl fishery. Improvements on estimation of these discards were made in the 2017 assessment, allowing the potential for shrimp trawl discards to be included as supplemental information with the annual TLA. Annual monitoring of shrimp trawl fishery discards is important because these discards represent a considerable proportion of Atlantic croaker removals, ranging from 7% to 78% annually during 1988-2008, according to the 2010 assessment (ASMFC 2010).

One of the primary reasons that the 2017 stock assessment did not pass peer review was due to conflicting signals in harvest and abundance metrics. Theoretically, increases in adult abundance should result in more fish available to be caught by the fishery; thus, fishing would be more efficient (greater catch per unit effort) and harvest would increase in a pattern similar to adult abundance. However, several of the most recent abundance indices have shown increases while harvest has declined to some of the lowest levels on record. One factor that has been identified to contribute to overestimates of adult abundance is an increase in the number of juveniles misclassified as adults in surveys that historically have typically caught adults. In response to this conflict, the Atlantic Croaker TC has recommended several changes to the annual TLA in 2019 such as additional abundance indices and survey length-composition information so that the TLA abundance metric would more accurately reflect trends in the stock.

Addendum III addressed the concerns of the TC. The addendum added indices from the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP) and the South Carolina Department of Natural Resources (SCDNR) Trammel Net Survey into the adult composite characteristic index. In addition, all surveys used revised adult abundance indices and not have an established reference period of 2002-2012. Regional metrics where also used to characterize the fisheries north and south of the Virginia-North Carolina state line. The ChesMMAP and the NEFSC surveys will be used to characterize abundance north of the state line, and SCDNR Trammel Net and SEAMAP surveys will be used to characterize abundance south of the state line.

III. Status of the Fishery

This report includes updated recreational estimates from the Marine Recreational Information Program's transition to the mail-based Fishing Effort Survey (FES) on July 1, 2018. Past recreational estimates have been calibrated to the FES and, therefore, are different from those shown in FMP Reviews and state compliance reports prior to 2018.

Total Atlantic croaker harvest from New Jersey through the east coast of Florida in 2019 is estimated at 4 million pounds (Tables 2 and 3, Figure 1). This represents a 91% decline in total harvest since the peak of 47.4 million pounds in 2003 (92% commercial decline, 90% recreational decline). The commercial and recreational fisheries harvested 53% and 46% of the 2019 total, respectively.

Atlantic coast commercial landings of Atlantic croaker exhibit a cyclical pattern, with low harvests in the 1960s to early 1970s and the 1980s to early 1990s, and high harvests in the mid-to-late 1970s and the mid-1990s to early 2000s (Figure 1). Commercial landings increased from a low of 3.7 million pounds in 1991 to 28.6 million pounds in 2001; however, landings have declined every year since 2010 to 2.1 million pounds in 2019, the lowest of the time series (1950-2019). Within the management unit, the majority of 2019 commercial landings came from North Carolina (66%) and Virginia (30%).

From 1981-2019, recreational landings of Atlantic croaker from New Jersey through Florida have varied by count between 5.6 million fish and 36.2 million fish and by weight between 1.8 million pounds and 18.9 million pounds (Tables 3 and 4, Figure 2). Landings generally increased until 2003, after which they showed a declining trend through 2019. The 2019 landings are estimated at 5.6 million fish and 1.8 million pounds, the lowest recreational harvest on record. Virginia was responsible for 54% of the 2019 recreational landings, in numbers of fish, followed by Florida (14%).

The number of recreational releases generally increased over the time series until 2013, after which numbers of releases have generally decreased through 2019 (Figure 2). However, percentage of released recreational catch has shown a slight increasing trend from the 1990s through 2019. In 2019, anglers released 19.6 million fish, a slight increase from the 18.2 million fish released in 2018. Anglers released an estimated 78% of the recreational croaker catch in 2019, the highest percentage on record (Figure 2).

IV. Status of Assessment Advice

A statistical catch-at-age (SCA) model was used in the 2010 Atlantic croaker stock assessment (ASMFC 2010). This model combines catch-at-age data from the commercial and recreational fisheries with information from fishery-independent surveys and biological information such as growth rates and natural mortality rates to estimate the size of each age class and the exploitation rate of the population. The assessment was peer reviewed by a panel of experts in conjunction with the Southeast Data, Assessment, and Review (SEDAR) process.

The benchmark stock assessment conducted in 2017 was not recommended for management use due to uncertainty in biomass estimates resulting from conflicting signals among abundance indices and catch time series as well as sensitivity of model results to assumptions and model inputs. Specifically, model-estimated values of stock size, fishing mortality, and biological reference points are too uncertain for use; however, the trends in model-estimated parameters and ratio-based fishing F reference points are considered reliable. One noted improvement in this assessment was in the estimation of Atlantic croaker discards by the shrimp trawl fishery. The Review Panel recommended incorporation of shrimp trawl discard estimates into the annual monitoring of Atlantic croaker through the TLA. The TC recommended several changes to the TLA that would help resolve some of the conflict between harvest and abundance signals which resulted in the creation of Addendum III. The Board approved Addendum III in February 2020, and the TLA reports will incorporate the changes.

V. Status of Research and Monitoring

There are no research or monitoring programs required of the states except for the submission of an annual compliance report. The following fishery-dependent (other than catch and effort data) and fishery-independent monitoring programs were reported in the 2019 compliance reports.

Fishery-Dependent Monitoring

- New Jersey: initiated biological monitoring of commercially harvested Atlantic croaker in 2006 in conjunction with ACCSP, but was unable to do so in 2019 due to lack of commercial trips. Recreational MRIP length sampling indicated the majority of harvest was 220-229 mm FL.
- Delaware: collects trip-based information on pounds landed, area fished, effort, and gear type data through mandatory monthly state logbook reports submitted by fishermen.
- Maryland: commercial pound net fishery biological sampling; seafood dealer sampling
- PRFC: has a mandatory commercial harvest daily reporting system, with reports due weekly.
- Virginia: commercial fishery biological sampling (5,357 length measurements, 5,342 weight measurements, 227 otolith ages, and 348 sex determinations in 2019)
- North Carolina: commercial fishery biological sampling since 1982 for length (2019 n=4,427), weight, otolith, sex determination, and reproductive condition.
- South Carolina: recreational fishery biological sampling via MRIP and a SCDNR-managed mandatory trip reporting system for licensed charter boat operators. In 2013, SCDNR took over its portion of MRIP data collection.
- Georgia: collects biological information, including length, sex, and maturity stage, through the Marine Sportfish Carcass Recovery Project (6 fish in 2019)

Fishery-Independent Monitoring

- New Jersey: 3 nearshore ocean (within 12 nm) juvenile trawl surveys (New Jersey Ocean Trawl Survey, 1988-present: 2019 CPUE (0.43) was well below time-series average (1.89); nearshore Delaware Bay juvenile trawl survey, 1991-present: 2019 survey index (0.54) was well below time series average (4.11); Delaware River juvenile seine survey, 1980-present: 2019 survey index (0.04) was well below time series average (0.21).
- Delaware: offshore Delaware Bay adult finfish trawl survey (1990-present; 2019 #/tow = 1.42; 87% decrease in relative abundance from the 2018 index, below mean for time series); nearshore Delaware Bay juvenile finfish trawl survey (1980-present; 2019 index decreased from 5.43 in 2018 to 3.89; Inland Bays index decreased from 2.41 in 2018 to 1.59 in 2019).
- Maryland: summer gill net survey was initiated in 2013 on lower Choptank (43 fish were captured in 2019); Atlantic coast bays juvenile otter trawl survey (standardized from 1989-present; 2019 GM of 2.03 fish/hectare is the first value above the long term mean since 2012 of the 30-year time series); Chesapeake Bay juvenile trawl index (standardized from 1989-present; CPUE increased from 1.13 fish/tow in 2018 to 4.895 in 2019).
- PRFC: Maryland DNR conducts an annual juvenile beach haul seine survey in the Potomac River (1954-present; YOY GM increased slightly from 0.00 in 2018 to 0.05 in 2019).
- Virginia: Virginia Institute of Marine Science (VIMS) Juvenile Finfish and Blue Crab Trawl Survey (1988-present; 2019 index was 15.64, which is up from the 2018 value of 0.61).
- North Carolina: Pamlico Sound juvenile trawl survey (1987-present; 2019 juvenile abundance index (mean number of individuals/tow) was 1,111, a 712% increase from 2018); Pamlico Sound gill net survey (2001-present; 2019 CPUE 0.4 fish per sample, below time series mean)

- South Carolina: SEAMAP shallow water (15-30 ft) trawl survey from Cape Hatteras to Cape Canaveral (1989-present; 2019 CPUE increased by 41.2% from 2018); inshore estuarine trammel net survey for adults (May-September, 1991-present; 2019 CPUE decreased 12.7% from 2018); estuarine electroshock survey for juveniles (2001-present; 2019 CPUE increased by 216% from 2018, to just above the long term mean); SCECAP estuarine trawl survey (1999-present, primarily targets juveniles, 2019: 96.8 #/hectare increased from 41.9 #/hectare in 2018, 2019 is the second highest catch level in the data series).
- Georgia: Marine Sportfish Population Health Survey (trammel and gill net surveys in the Altamaha River Delta and Wassaw estuary, 2002-present; 2019 trammel net index (GM #/standard net set): 0.1, gill net index: 0.5); Ecological Monitoring Survey (trawl, 2003-present; 2019 index (GM #/standard trawl) was 11.6).
- Florida: YOY seine survey (2002-present; 2019 index decreased by 47% from 2018); sub-adult/adult haul seine survey (2001-present; 2019 index value decreased by 9% from 2018).

The Northeast Fishery Science Center (NEFSC) performs a randomly stratified groundfish survey along the U.S. east coast. Atlantic croaker are one of the main species caught throughout much of the survey area and, since the surveys started in 1972, it provides a long term data set. Regionally, mean CPUE (catch-per-unit-effort) of Atlantic croaker has increased from north to south. Since 1994, there has been an increase in annual catch variability. The NEFSC survey was not carried out in 2017 due to mechanical issues with the RV Bigelow. Catch levels in 2019 (269.7 fish per tow) declined 31.5% from 2018 (394 fish per tow) and dropped below the long term mean (498 fish per tow) for the third year in a row. The CPUE for 2017 was estimated as the mean of 2015-2016 and 2017 as a place holder in the index. The estimated CPUE for 2017 (457.9 fish per tow) was just below the long term mean.

VI. Status of Management Measures and Issues

Fishery Management Plan

Amendment 1 was fully implemented by January 1, 2006, and provided the management plan for the 2009 fishing year. There are no interstate regulatory requirements for Atlantic croaker. Should regulatory requirements be implemented in the future, all state programs must include law enforcement capabilities adequate for successfully implementing the regulations. Addendum I to Amendment 1 was initiated in August 2010 and approved in March 2011, in order to 1) revise the biological reference points to be ratio-based, and 2) remove the distinction of two regions within the management unit, based on the results of the 2010 stock assessment. Addendum II was approved August 2014 and established the TLA management framework for Atlantic croaker in order to better illustrate long-term trends in the fishery. Addendum III was approved February 2020 and adjusted management though the TLA by incorporating additional fishery-independent indices, age information, use of regional characteristics, and changes to the management-triggering mechanisms.

Traffic Light Approach

Analysis of the harvest composite index for 2019 shows that the population characteristic tripped for a fourth consecutive year at the 30% threshold in the Mid-Atlantic (Figure 3) and for the seventh consecutive year above the 30% threshold in the South Atlantic (Figure 4). The mean proportion of red color in the Mid-Atlantic from 2017-2019 was 68.3%, with a red proportion exceeding the 60% threshold in 2018 and 2019. The mean proportion of red color in the South Atlantic from 2017-2019 was 46.2%. The harvest composite index was comprised of commercial and recreational landings.

The abundance composite TLA index was broken into the two regional components based on age composition. Due to a delay in recalibration of the ChesMMAP survey, which is used in the annual TLA reviews, no data points were available for Atlantic croaker for 2019 for juvenile and adult abundance indices for the Mid-Atlantic region. Even without data points for 2019, the Mid-Atlantic adult composite index was generated from the NEFSC and ChesMMAP surveys and has been above the 30% threshold since 2008 (Figure 5). Atlantic adult composite index was generated from SEAMAP and SCDNR trammel net survey and had a relatively high proportion of green (Figure 6).

The TLA harvest composite characteristic triggered in both the Mid-Atlantic and South Atlantic in 2019 at the 30% threshold for three of the last four consecutive years. Being above the 30% threshold indicates moderate concern. For the Mid-Atlantic, the adult composite characteristics exceeded 30% in 2019, hitting the requirement of exceeding the threshold for three of the four previous years. The South Atlantic adult composite characteristics did not exceed the 30% level in 2019.

Overall, there is a continued trend of disconnect between the harvest and abundance indices with the harvest metric exhibiting a decreasing trend, while the abundance metric had an increasing trend, specifically in the South Atlantic. However, because harvest indices for both regions and abundance indices for the Mid-Atlantic were above 30% in 3 of the last 4 years, management response as outlined in Addendum III management guidelines will be enacted. All non-*de minimis* states will be required to implement a 50 fish per person per day bag limit and a 1% reduction in commercial harvest from their 10 year average.

De Minimis Requests

States are permitted 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 coastwide commercial or recreational landings for the same three year period. A state may qualify for *de minimis* in either its recreational or commercial sector, or both, but will only qualify for exemptions in the sector(s) that it qualifies for as *de minimis*. Amendment 1 does not include any compliance requirements other than annual state reporting, which is still required of *de minimis* states, thus *de minimis* status does not exempt states from any measures.

In the annual compliance reports, the following states requested *de minimis* status: New Jersey (commercial and recreational), Delaware (commercial fishery), South Carolina (commercial fishery), Georgia (commercial fishery), and Florida (commercial fishery). The commercial and recreational *de minimis* criteria for 2019 are based on 1% of the average coastwide 2017-2019 landings in each fishery: 46,665 pounds for the commercial fishery and 46,176 pounds for the recreational fishery. The Delaware, South Carolina, and Georgia commercial fisheries all qualify for *de minimis* status, but landings are confidential. The Florida commercial fishery does not qualify for *de minimis* status with a three-year average of 51,141 pounds (1.6% of the coastwide three-year average). However, given Florida's longstanding *de minimis* status and the small margin above the average landings threshold, the Atlantic Croaker Plan Review Team (PRT) recommends Florida maintain *de minimis* status.

Changes to State Regulations
No state regulation changes in 2019

Atlantic Croaker Habitat
In winter of 2017, the ASMFC Habitat Committee released *Atlantic Sciaenid Habitats: A Review of Utilization, Threats, and Recommendations for Conservation, Management, and Research*, which outlines the habitat needs of Atlantic croaker at different life stages (egg, larval, juvenile, adult). This report also highlights threats and uncertainties facing these ecological areas and identifies Habitat Areas of Particular Concern. It can be found online at: http://www.asmfc.org/files/Habitat/HMS14_AtlanticSciaenidHabitats_Winter2017.pdf.

Bycatch Reduction
Atlantic croaker is subject to both direct and indirect fishing mortality. Historically, croaker ranked as one of the most abundant bycatch species of the south Atlantic shrimp trawl fishery, resulting in the original FMP's recommendation that bycatch reduction devices (BRDs) be developed and required in the shrimp trawl fishery. Since then, the states of North Carolina through Florida have all enacted requirements for the use of BRDs in shrimp trawl nets in state waters, reducing croaker bycatch from this fishery (ASMFC 2010). However, bycatch and discard monitoring from the shrimp trawl fishery have historically been inadequate, resulting in a major source of uncertainty for assessing this stock, as well as other important Mid- and South Atlantic species. Most of the discarded croaker are age-0 and thus likely have not yet reached maturity (ASMFC 2010). The North Carolina Division of Marine Fisheries conducted a two-year study, published in 2015, to collect bycatch data from state shrimp trawlers (Figure 7). It found that Atlantic croaker represent between 34-49% of the total observed finfish bycatch by weight in estuarine waters and between 20-42% in ocean waters. The at-net mortality for Atlantic croaker was found to be 23% (Brown 2015). These data will be valuable for incorporating estimates of removals in future stock assessments.

Atlantic croaker are also discarded from other commercial fishing gears, primarily due to market pressures and few restrictions on croaker harvest at the state level. The National Oceanic and Atmospheric Administration (NOAA) Fisheries Pelagic Observer Program provides data to estimate these discards for use in assessments; however, the time series is limited and

only discards from gill nets and otter trawls could be estimated for the 2010 assessment based on the available data. Since 1988, estimated discards have fluctuated between 94 and 15,176 mt without trend, averaging 2,503 mt (ASMFC 2010).

Atlantic croaker is also a major component of the scrap/bait fishery. Landings from this fishery are not reported at the species level, except in North Carolina, which has a continuous program in place to sample these landings and enable estimation of croaker scrap landings for use in the stock assessment. As part of the 2010 stock assessment, North Carolina estimated the scrap/bait landings, which have declined in recent years, from a high of 1,569 mt in 1989 to a low of 84 mt in 2008, primarily due to restrictions placed on fisheries producing the highest scrap/bait landings (ASMFC 2010). Regulations instituted by North Carolina include a ban on flynet fishing south of Cape Hatteras, incidental finfish limits for shrimp and crab trawls in inside waters, minimum mesh size restrictions in trawls, and culling panels in long haul seines.

South Carolina has also begun a state monitoring program to account for bait landings. The state initiated a bait harvester trip ticket program for all commercial bait harvesters licensed in South Carolina. The impetus for this program is to track bait usage of small sciaenid species (croaker, spot, and whiting) as well as other important bait species.

Several states have implemented other commercial gear requirements that further reduce bycatch and bycatch mortality, while others continue to encourage the use of the BRD devices. NOAA Fisheries published a notice on June 24, 2011 for public scoping in the Federal Register to expand the methods for reducing bycatch interactions with sea turtles, which may have additional effects on the bycatch of finfish like Atlantic croaker in trawls (76 FR 37050). Continuing to reduce the quantity of sub-adult croaker harvested should increase spawning stock biomass and yield per recruit.

Atlantic croaker are also subject to recreational discarding. The percentage of Atlantic croaker released alive by recreational anglers has generally increased over time. Discard mortality was estimated to be 10% for the 2010 stock assessment (ASMFC 2010). The use of circle hooks and appropriate handling techniques can help reduce mortality of released fish.

VII. Implementation of FMP Compliance Requirements for 2020

The PRT finds that all states have fulfilled the requirements of Amendment 1.

VIII. Recommendations

Management and Regulatory Recommendations

- Consider approval of the *de minimis* requests from New Jersey, Delaware, South Carolina, Georgia, and Florida for their commercial fisheries.
- Encourage the use of circle hooks to minimize recreational discard mortality.
- Consider the basic research and monitoring information needed for informed management in light of the budgetary constraints limiting all state governments.

Research and Monitoring Recommendations

High Priority

- Increase observer coverage for commercial discards, particularly the shrimp trawl fishery. Develop a standardized, representative sampling protocol for observers to use to increase the collection of individual lengths and ages of discarded finfish.
- Describe the coast-wide distribution, behavior, and movement of croaker by age, length, and season, with emphasis on collecting larger, older fish.
- Continue state and multi-state fisheries-independent surveys throughout the species range and subsample for individual lengths and ages. Ensure NEFSC trawl survey continues to take lengths and ages. Examine potential factors affecting catchability in long-term fishery independent surveys.
- Investigate environmental covariates in stock assessment models including climate cycles (e.g., Atlantic Multi-decadal Oscillation, AMO, and El Niño Southern Oscillation, El Niño) and recruitment and/or year class strength, spawning stock biomass, stock distribution, maturity schedules, and habitat degradation.
- Continue to develop estimates of length-at-maturity and year-round reproductive dynamics throughout the species range. Assess whether temporal or density-dependent shifts in reproductive dynamics have occurred.
- Re-examine historical ichthyoplankton studies for an indication of the magnitude of estuarine and coastal spawning, as well as for potential inclusion as indices of spawning stock biomass in future assessments. Pursue specific estuarine data sets from the states (NJ, VA, NC, SC, DE, MD) and coastal data sets (MARMAP, EcoMon).
- Investigate the relationship between estuarine nursery areas and their proportional contribution to adult biomass, i.e., are select nursery areas along Atlantic coast ultimately contributing more to SSB than others, reflecting better quality juvenile habitat?

Medium Priority

- Conduct studies of discard mortality for recreational and commercial fisheries by each gear type in regions where removals are highest.
- In the recreational fishery, develop sampling protocol for collecting lengths of discarded finfish and collect otolith age samples from retained fish.
- Encourage fishery-dependent biological sampling, with proportional landings representative of the distribution of the fisheries. Develop and communicate clear protocols on truly representative sampling.
- Quantify effects of BRDs and TEDs implementation in the shrimp trawl fishery by examining their relative catch reduction rates on Atlantic croaker.
- Utilize NOAA Fisheries Ecosystem Indicators bi-annual reports to consider folding indicators into the assessment; identify mechanisms for how environmental indicators affect the stock.
- Encourage efforts to recover historical landings data, determine whether they are available at a finer scale for the earliest years than are currently reported.
- Collect data to develop gear-specific fishing effort estimates and investigate methods to develop historical estimates of effort.
- Develop gear selectivity studies for commercial fisheries with emphasis on age 1+ fish.

- Conduct studies to measure female reproductive output at size and age (fecundity, egg and larval quality) and impact on assessment models and biomass reference points.
- Develop and implement sampling programs for state-specific commercial scrap and bait fisheries in order to monito the relative importance of Atlantic croaker. Incorporate biological data collection into the program.

IX. References

Atlantic States Marine Fisheries Commission (ASMFC). 1987. Fishery Management Plan for Atlantic Croaker. Washington (DC): ASMFC. Fishery Management Report No. 10. 90 p.

ASMFC. 2005a. Atlantic Croaker Stock Assessment & Peer Review Reports. Washington (DC): ASMFC. 370 p.

ASMFC. 2005b. Amendment 1 to the Interstate Fishery Management Plan for Atlantic Croaker. Washington (DC): ASMFC. Fishery Management Report No. 44. 92 p.

ASMFC. 2010. Atlantic Croaker 2010 Benchmark Stock Assessment. Washington (DC): ASMFC. 366 p.

ASMFC. 2018. Memorandum 18-8: Recommended Updates to the Annual Traffic Light Analyses for Atlantic Croaker and Spot.

Kevin Brown. 2015. Characterization of the commercial shrimp otter trawl fishery in the estuarine and ocean (0-3 miles) waters of North Carolina. Morehead City (NC): NCDEQ, Division of Marine Fisheries. Abstract.

X. Figures

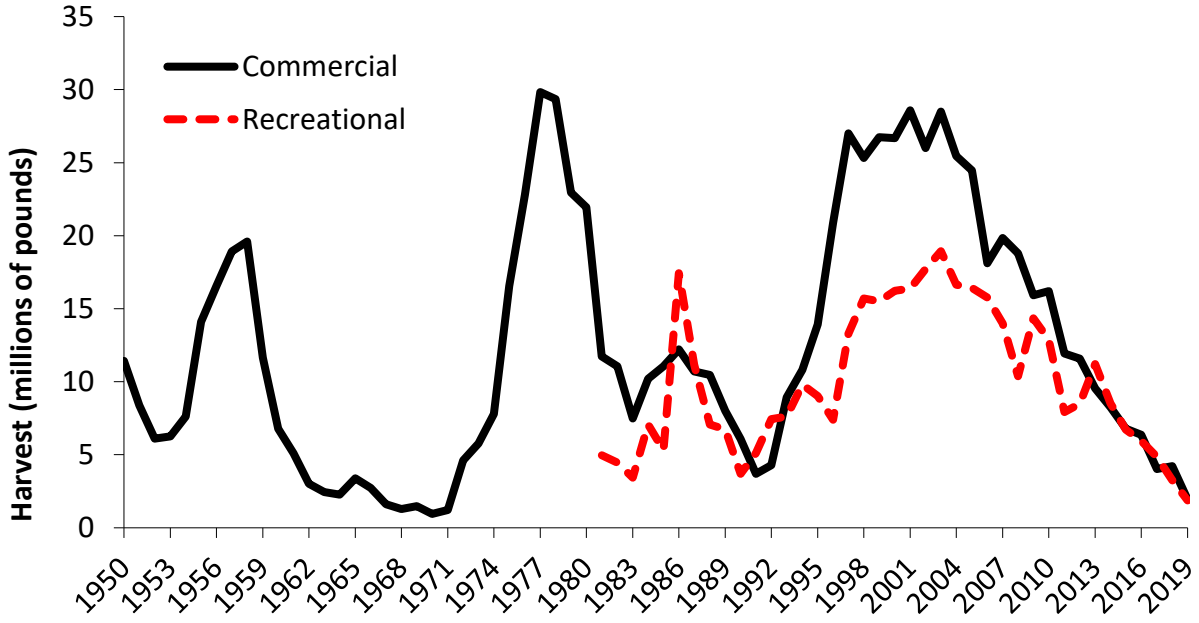


Figure 1. Atlantic croaker commercial and recreational landings (pounds) from 1950-2019. (See Tables 2 and 3 for source information. Commercial landings estimate for 2019 is preliminary. Reliable recreational landings estimates are not available prior to 1981. Recreational landings estimates are based on the mail-based Fishing Effort Survey.)

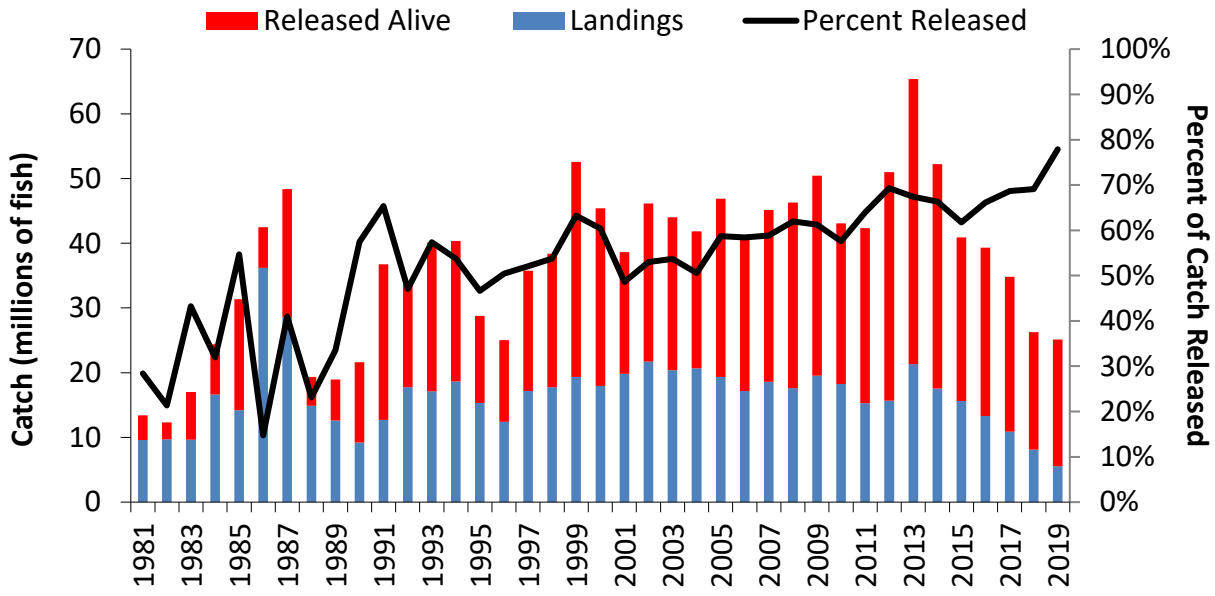


Figure 2. Recreational catch (landings and alive releases, in numbers) and the percent of catch that is released, 1981-2019, based on the mail-based Fishing Effort Survey calibration. (See Tables 4 and 5 for values and source information.)

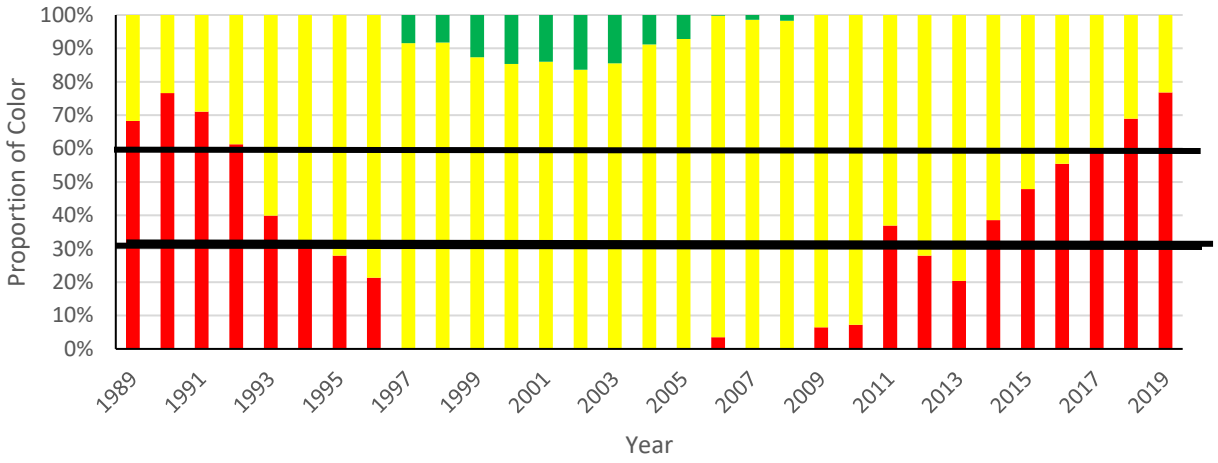


Figure 3. Annual color proportions for harvest composite TLA of Mid-Atlantic region (NJ-VA) for Atlantic croaker recreational and commercial landings

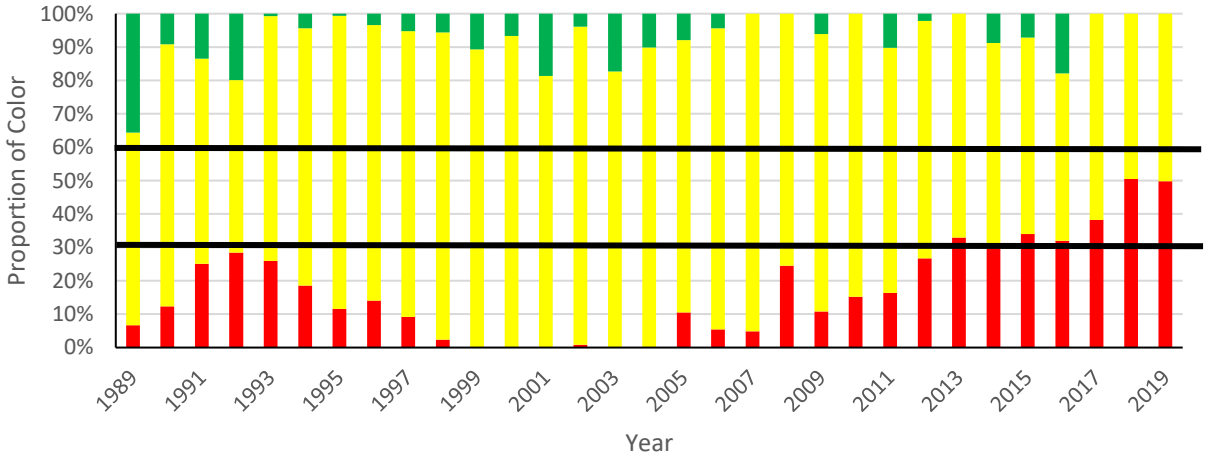


Figure 4. Annual color proportions for harvest composite TLA of South Atlantic region (NC-FL) for Atlantic croaker recreational and commercial landings using a 2002-2012 reference period

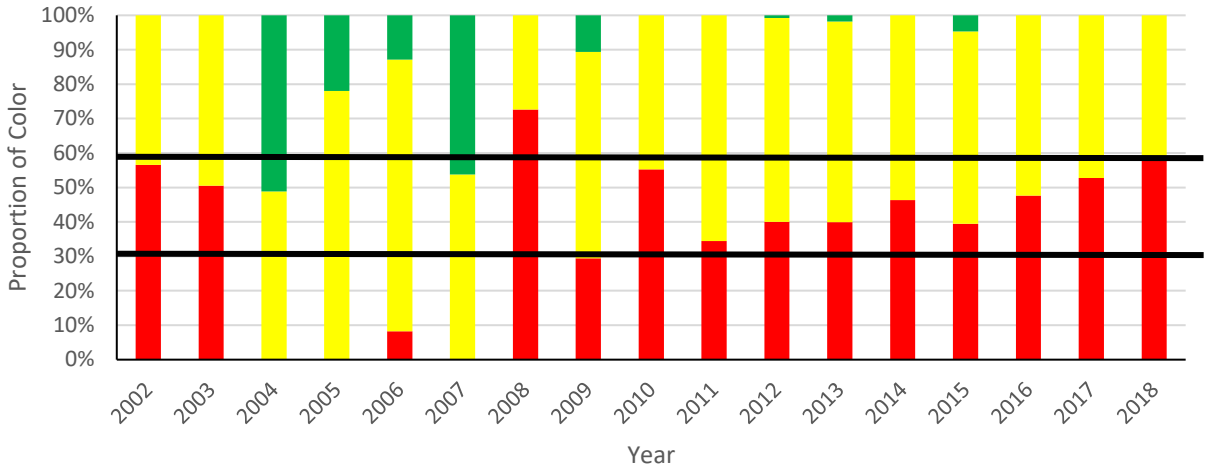


Figure 5. Adult (age 2+) Atlantic croaker TLA composite characteristic index for the Mid-Atlantic (NEFSC and ChesMMAP surveys)

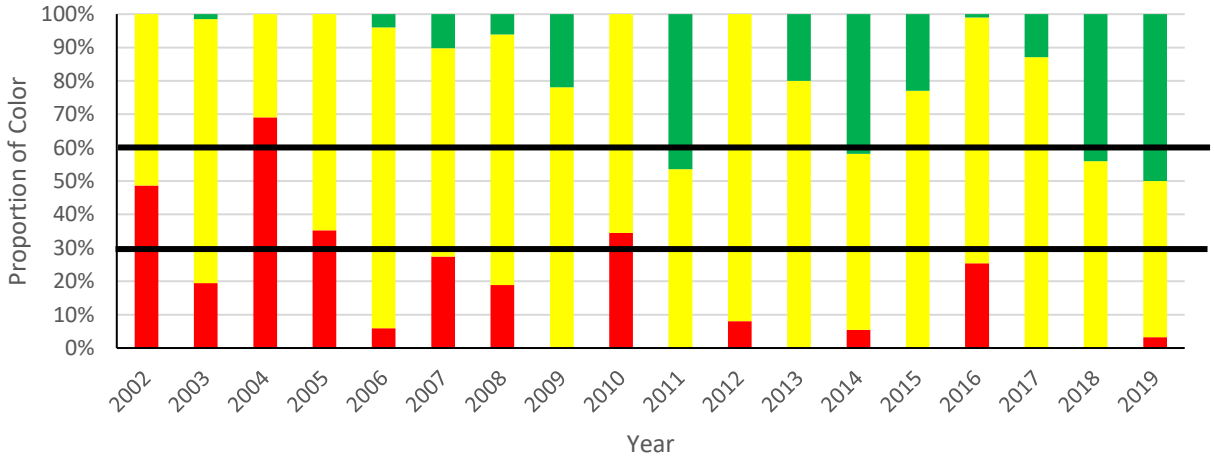


Figure 6. Adult (age 2+) Atlantic croaker TLA composite characteristic index for the South Atlantic (SEAMAP and SCDNR trammel survey)

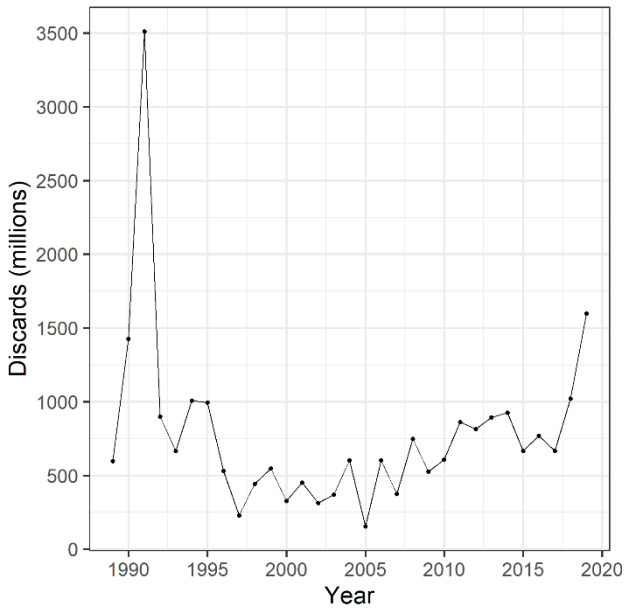


Figure 7. Discard of Atlantic croaker in the South Atlantic Shrimp Trawl Fishery

XI. Tables

Table 1. Summary of state regulations for Atlantic croaker in 2019.

State	Recreational	Commercial
NJ	none	otter/beam trawl mesh restriction for directed croaker harvest (>100 lbs in possession)
DE	8" minimum; recreational gill nets (up to 200 ft.) with license	8" minimum
MD	9" min, 25 fish/day, charter boat logbooks	9" minimum; open 3/16 to 12/31
PRFC	25 fish/day	pound net season: 2/15 to 12/15
VA	none	none
NC	recreational use of commercial gears with license and gear restrictions	none
SC	mandatory for-hire logbooks, small Sciaenidae species aggregate bag limit of 50 fish/day	none
GA	25 fish/day	25 fish/day limit except for trawlers harvesting shrimp for human consumption (no limit)
FL	none	none

* A commercial fishing license is required to sell croaker in all states with fisheries. For all states, general gear restrictions affect commercial croaker harvest.

Table 2. Commercial harvest (pounds) of Atlantic croaker by state, 2010-2019.
(Estimates for 2019 are preliminary. Sources: 2020 state compliance reports for 2019 fishing year and for years prior to 2019, personal communication with ACCSP, Arlington, VA, except PRFC [compliance reports only].)

Year	NJ	DE	MD	PRFC	VA	NC	SC	GA	FL	Total
2010	342,116	C	542,233	162,571	7,796,179	7,312,159	C		37,229	16,199,394
2011	458,397	C	714,347	243,196	5,415,432	5,054,186	C		47,649	11,933,396
2012	363,381	C	915,432	273,849	6,842,005	3,106,616	C		74,527	11,582,978
2013	332,813	C	820,777	130,285	6,237,602	1,927,938	C		76,463	9,538,901
2014	265,166	C	443,661	177,777	4,697,381	2,629,908	247		45,587	8,261,609
2015	81,311	C	294,038	118,996	4,426,957	1,819,067	C		39,096	6,784,146
2016	55,210	C	101,949	168,889	3,825,737	2,164,015	302		57,538	6,374,527
2017	1,068	C	42,958	114,319	2,822,005	1,007,963	256		43,033	4,032,941
2018	C	C	44,306	16,561	2,450,984	1,643,607	C		54,409	4,210,715
2019	C	C	2,865	C	846,007	1,277,829	C		68,179	2,194,902

C: Confidential data

Table 3. Recreational harvest (pounds) of Atlantic croaker by state, 2010-2019. (Sources: 2020 state compliance reports for 2019 fishing year and for years prior to 2019, personal communication with ACCSP, Arlington, VA)

Year	NJ	DE	MD	VA	NC	SC	GA	FL	Total
2010	79,889	106,268	2,472,032	9,295,413	638,817	27,184	35,593	209,519	12,864,715
2011	50,153	123,487	1,188,916	4,584,599	360,390	583,280	38,219	995,506	7,924,550
2012	259,645	147,737	1,980,417	4,664,264	307,338	30,149	29,815	1,063,337	8,482,702
2013	1,637,516	253,447	1,581,384	6,442,166	453,881	84,248	89,781	642,887	11,200,818
2014	750,580	427,615	1,265,217	4,354,046	758,751	104,434	138,423	712,090	8,511,554
2015	263,749	189,320	871,596	3,514,410	557,735	181,909	248,431	881,185	6,708,335
2016	7,133	10,959	407,010	2,998,022	443,728	81,896	116,313	1,893,203	5,958,264
2017	0	26,441	238,659	3,383,057	237,160	310,621	100,565	555,389	4,851,892
2018	34,125	5,859	191,854	2,245,518	164,644	81,251	83,258	445,663	3,252,172
2019	973	23,973	38,895	995,491	224,337	133,227	97,791	358,941	1,873,628

Table 4. Recreational harvest (numbers) of Atlantic croaker by state, 2010-2019. (Sources: 2020 state compliance reports for 2019 fishing year and for years prior to 2019, personal communication with ACCSP, Arlington, VA)

Year	NJ	DE	MD	VA	NC	SC	GA	FL	Total
2010	142,887	207,601	2,994,889	12,961,723	1,280,446	88,399	121,252	470,168	18,267,365
2011	91,014	212,613	1,530,723	8,891,276	873,659	949,132	129,941	2,593,963	15,272,321
2012	830,891	202,283	2,565,599	8,786,350	848,495	132,264	104,944	2,190,268	15,661,094
2013	2,707,410	530,236	2,308,987	12,517,286	1,300,804	336,140	264,984	1,332,465	21,328,324
2014	852,733	806,256	2,197,125	9,533,829	1,935,961	600,482	289,781	1,359,207	17,576,096
2015	339,021	334,676	1,738,576	8,024,381	1,437,019	555,263	790,014	2,429,723	15,648,673
2016	8,236	24,546	659,318	7,276,719	1,109,570	268,470	402,254	3,553,777	13,302,890
2017	0	65,606	423,790	7,644,516	666,930	765,227	371,301	969,146	10,906,516
2018	104,321	12,370	305,469	5,472,329	472,917	335,833	241,382	1,176,999	8,121,620
2019	3,031	53,048	69,771	3,055,510	651,268	593,475	332,073	801,751	5,559,927

Table 5. Recreational releases (number) of Atlantic croaker by state, 2010-2019. (Sources: 2020 state compliance reports for 2019 fishing year and for years prior to 2019, personal communication with ACCSP, Arlington, VA)

Year	NJ	DE	MD	VA	NC	SC	GA	FL	Total
2010	380,916	1,056,528	3,060,983	13,470,836	4,571,287	621,497	651,984	1,014,552	24,828,583
2011	252,419	214,603	937,220	14,160,124	7,005,152	1,187,686	748,696	2,559,976	27,065,876
2012	3,336,964	1,036,383	7,090,976	15,140,369	3,878,710	1,070,703	781,302	2,999,225	35,334,824
2013	2,980,744	1,811,661	7,557,223	18,480,099	6,729,556	3,754,143	1,361,943	1,265,571	44,025,744
2014	703,031	1,396,970	2,806,693	10,314,405	10,347,332	4,742,718	2,057,898	2,265,961	34,635,008
2015	240,840	309,389	1,236,293	6,815,343	9,632,560	3,236,774	1,320,939	2,451,253	25,243,391
2016	139,085	390,655	726,662	6,993,470	7,254,382	5,233,835	1,178,630	4,073,001	25,989,720
2017	152,540	230,455	2,829,255	8,464,305	4,631,445	4,755,853	1,059,539	1,770,846	23,894,238
2018	144,637	85,424	203,081	5,359,179	4,311,368	5,568,892	1,403,560	1,072,381	18,148,522
2019	33,333	101,523	1,243,785	6,642,685	3,634,211	3,768,288	1,893,287	2,259,705	19,576,817

Atlantic States Marine Fisheries Commission

Executive Committee

October 21, 2020
8:00 – 10:00 a.m.
Webinar

Draft Agenda

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

1. Welcome/Introductions *(P. Keliher*)

2. Committee Consent
   - Approval of Agenda
   - Approval of Meeting Summary from August 2020

3. Public Comment

4. Report of the Administrative Oversight Committee *(S. Woodward)*
   - Consider Approval of Fiscal Year 2020 Audit **ACTION**

5. Future Annual Meetings Update *(L. Leach)*

6. Discuss Pennsylvania's Participation on the Atlantic Menhaden Board *(R. Beal*)

7. Progress Update on Recommendations to Improve the Public Comment Process *(R. Beal)*

8. Other Business/Adjourn

The meeting will be held via webinar, click here for details.
Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Atlantic States Marine Fisheries Commission

Horseshoe Crab Adaptive Resource Management Subcommittee & Delaware Bay Ecosystem Technical Committee Conference Call

Call Summary

Tuesday, September 29, 2020
10:00 AM - 12:00 PM

Call Attendees Representing Each Committee:
Horseshoe Crab Adaptive Resource Management Subcommittee: John Sweka (Chair), Conor McGowan, Dave Smith, Henrietta Bellman, Jason Boucher, Jim Lyons, Larry Niles, Linda Barry, Sam Robinson, Steve Doctor, Wendy Walsh
Delaware Bay Ecosystem Technical Committee: Wendy Walsh (Chair), Adam Kenyon, Mandy Dey, Eric Hallerman, Henrietta Bellman, Jordy Zimmerman, Mike Millard, Steve Doctor
Horseshoe Crab Technical Committee Members: Jeff Brunson (Chair), Adam Kenyon, Catherine Fede, Claire Crowley, Derek Perry, Jeff Dobbs, Joanna Burger, Jordy Zimmerman, Mike Millard, Samantha MacQuesten, Steve Doctor
ASMFC Staff: Caitlin Starks, Kristen Anstead

The Adaptive Resource Management (ARM) Subcommittee and the Delaware Bay Ecosystem Technical Committee (DBETC) met via webinar to review the most recent population estimates for horseshoe crabs and red knots, the results of the ARM for 2021, and supporting horseshoe crab and red knot data sets. Below are the agenda items and summary of the committees' discussion and decisions.

1. **Survey Results for 2019 Horseshoe Crab (Eric Hallerman)**

Eric presented the Virginia Tech Trawl Survey results for 2019. The survey began earlier than previous years due to predicted bad weather later in the sampling season. Overall, the population numbers were down in all stage groups in both the Delaware Bay Area and the Lower Delaware Bay. Mean prosomal widths have been declining throughout the time series.

The committees discussed the effects of timing in 2019 on the population estimates. Eric noted that the last few years have been active hurricane years which meant the survey had to begin earlier than previous years. Sampling early may mean that crabs have not left the nearshore waters to go offshore and therefore fewer crabs would be caught in the trawl, resulting in lower population estimates. Eric encouraged the committees to use the supplemental surveys in New Jersey and Delaware to compare results. Additionally, Kristen Anstead and John Sweka

are exploring index standardization so that the population estimates could be developed using covariates, such as temperature or sampling week. The standardized indices would be compared to the current delta indices and may provide an opportunity to control for the effect of covariates and potentially decrease error associated with population estimates.

The 2020 sampling season has just completed and the survey is funded through 2021. Additionally, Eric has hired a co-PI for the survey, Francesco Ferretti.

Last year during this meeting, the ARM and DBETC agreed that for running the ARM model each year, primiparous crabs should be included in the adult abundance estimates (from the swept area delta distribution values) and that half a year of the annual mortality from the assessment (0.274) should be applied to account for the ~6 month time lag between the survey and the spawning season when they interact with red knots. Therefore, the adult horseshoe crab abundance inputs for this year's ARM run is 4,666,785 females and 8,889,736 males.

2. **Survey Results for 2020 Red Knots (Jim Lyons)**

Jim presented the red knot stopover population estimate for 2020. Due to the pandemic, the field crews could not use volunteers and there were a smaller number of resightings than previous years. Population estimation was still possible despite fewer data points but there were some unusual patterns in the data. For example, the arrival probabilities showed that nearly 60% of the population was present at the beginning of the season, versus approximately 5% in past years. Very few of the birds that arrived early in the season remained in Delaware Bay which is also unusual, as usually there is a high chance of birds remaining in the area when they arrive early. Larry Niles and Mandy Dey agreed that it was an unusual year for birds; the birds left early and there were very cool waters in May with a couple of tropical storms that may have been a factor.

The estimate for red knots used in the ARM model is 40,444 birds for 2020.

3. **Review Results of ARM Model Run (Conor McGowan)**

Conor used the horseshoe crab and red knot abundance indices in the optimization matrix of the ARM model and determined that the harvest recommendation is harvest package 3, or 500,00 male-only harvest. He noted that both red knots and female horseshoe crabs are still below their population thresholds.

4. **Review of Supplementary Surveys for Horseshoe Crabs and Red Knots**
    a. **NJ Ocean Trawl Survey (Lindy Barry)**

Lindy showed the indices of relative abundance for horseshoe crabs from the New Jersey Ocean Trawl Survey. Since 2010, there has been an increasing trend through the terminal year of

2019. She noted that in 2019, the April cruise did not run but that the survey has not been heavily influenced by April's cruise since 2010. While Lindy showed the group several versions of the index (male-only, female-only, all crabs), the indices used in the stock assessment are the April and August cruises using a delta distribution.

b. DE Bay 30 ft. Trawl Survey and Spawning Survey (Jordy Zimmerman)

Jordy reviewed the DE Bay 30ft Trawl Survey for male and female horseshoe crabs, as well as sexes combined. For the stock assessment, April-July months were included using the delta distribution and that index shows an increase in crabs since 2013 through 2019. The Delaware Bay spawning survey, which is used by the ARM for providing a sex ratio of males to females on the spawning beaches, recorded a sex ratio of 6.1:1 (male :female) in 2019, far exceeding the minimum threshold of 2:1 (male:female) required in the ARM.

c. Shorebird survey (Mandy Dey)

Mandy gave the committee an update on the status of red knots including the continued decline of red knots on the main wintering area in Tierra del Fuego and the peak abundance in Delaware Bay, which has been low and stable in past years but higher in 2018-2019.

5. Board Recommendation

The ARM Subcommittee and DBETC recommend harvest package 3, or 500,000 male-only harvest, for the Delaware Bay states for 2021.

MEETING OVERVIEW

Spiny Dogfish Management Board Webinar
October 21, 2020
11:30 a.m. - 12:30 p.m.

Chair: Chris Batsavage (NC) Assumed Chairmanship: 10/19	Technical Committee Chair: Scott Newlin (DE)	Law Enforcement Committee Representative: Moran (NJ)
Vice-Chair: VACANT	Advisory Panel Chair: VACANT	Previous Board Meeting: October 2019
Voting Members: ME,NH, MA, RI, CT, NY, NJ, DE, MD, VA, NC, NMFS, USFWS (13 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 2019

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 should use the webinar raise your hand function and the Board Chair will let you know when to speak. 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 Board 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. Consider Revised Specifications for the 2021 and 2022 Fishing Seasons (11:45 a.m.-12:00 p.m.) Final Action

Background

- The Mid-Atlantic Fishery Management Council (Council) Scientific and Statistical Committee (SSC) recently revised their risk policy for 2021. Based on changes to the risk policy the Spiny Dogfish commercial quota could increase up to 27% from the current 2020 fishing year.
- Earlier this month the Council met to review and consider changes to specifications based on the SSC's recommendations. The Council set new and identical specifications for the 2021 and 2022 spiny dogfish fishing years (begins May 1). The new quota will be 29.6 million pounds, which is a 27% increase from the current quota and aligns with the SSC and Monitoring Committee recommendations. The Council did not recommend any trip limit changes at this time, but plans in 2021 to conduct socio-economic analyses of potential trip limit changes.

Presentations

- Review of Council October Meeting on Spiny Dogfish Specification by J. Didden

Board Actions for consideration

- Revise 2021 and set 2022 Specifications

6. Elect Vice-Chair

7. Other Business/Adjourn

This is an excerpt of the full MAFMC's SSC Report, with a focus on spiny dogfish content

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

M E M O R A N D U M

Date: September 25, 2020

To: Michael P. Luisi, Chairman, MAFMC

From: Paul J. Rago, Ph.D., Chair, MAFMC Scientific and Statistical Committee

Subject: Report of the September 8-9, 2020 SSC meeting

The SSC met via webinar on September 8th and 9th 2020 to address the following topics: (1) update previously recommended ABC for Spiny Dogfish for 2021 and recommend ABC for 2022 and adjust for revised Council Risk Policy, (2) review previously recommended ABC for Chub Mackerel for 2021, (3) discuss potential effects of missing data for 2020 on SSC deliberations in 2021 and beyond, (4) discuss the scope of work of the socio-economic workgroup, (5) discuss a variety of topics related to wind energy development, and (6) review and comment on the Mid-Atlantic State of the Ecosystem report (Attachment 1). The SSC benefited from the opportunity to discuss several topics in detail including the wind energy presentations from BOEM, RODA, ROSA and the NEFSC.

Nineteen of the 20 of the SSC members participated in the meeting (Attachment 2). All participation was via webinar owing to travel and health concerns. Members of the public also attended the sessions, but only those who spoke are listed in Attachment 2. Technical support of Council staff, as in previous meetings was outstanding. SSC members appreciated the new web feature to obtain all of the meeting materials in a single downloadable file. https://www.mafmc.org/ssc-meetings/2020/september-8-9

The meeting proceeded under the usual format of an initial presentation, followed by questions from the SSC, and then members of the public. Subsequent discussions followed a similar pattern and deliberate efforts were made to ensure all attendees had an opportunity to contribute. For Spiny Dogfish and Chub Mackerel, the discussions were guided by the SSC's species leads, Yan Jiao and Gavin Fay, respectively. To ensure accurate and transparent decision making, a rapporteur (Gavin Fay) summarized the Spiny Dogfish decisions. Neither Spiny Dogfish nor Chub Mackerel required the SSC to evaluate an updated coefficient of variation for the Overfishing Limit.

I acknowledge and appreciate the contributions of all the SSC members and in particular those who contributed text to this report directly: Yan Jiao and Gavin Fay for spiny dogfish, Dave Secor for wind energy, Sarah Gaichas for providing her meeting notes, and Brandon Muffley for overall support and preparation of the Attachments. Tom Miller, Ed Houde, and John Boreman provided useful comments on an earlier draft. I also thank all of the representatives from BOEM (Brian

Hooker), RODA (Annie Hawkins), ROSA (Lyndie Hice-Dunton) and NEFSC (Wendy Gabriel, also MAFMC SSC) for their excellent presentations on wind energy development.

Spiny Dogfish

Jason Didden began with an overview of the current specifications, a review of the previous year's data update from the NEFSC, and a summary of the Fishery Performance Report from the Advisory Panel. No data update from the Northeast Fisheries Science Center (NEFSC) was available for this meeting. The NEFSC Spring Bottom Trawl survey, a pivotal component in the assessment, was not conducted in 2020 due to COVID concerns. Spiny Dogfish specifications for 2021 will be the last year of a 3-year package. A Research Track assessment will be conducted in 2022 but those results may not be available for consideration by the SSC when it meets that year. To compensate for that time lag, staff recommended continuation of the ABC for 2021 into 2022. Application of the Council's updated risk policy increased the 2021 ABC by about 1,500 mt to 17,498 mt because the P* (the acceptable probability of overfishing) increased from 0.296 to 0.333.

The seasonal pattern of dogfish catches in 2020 have been similar to 2019 despite initial lags due to COVID concerns. Prices have been below $0.20/lb for the past 3 years. Weak demand, availability of processors and low trip limits (6,000 lb) constrain landings. Some AP member expressed concerns about underestimation of Spiny Dogfish abundance while others noted that stability is needed to maintain prices rather than expand markets.

Follow-up discussions by the SSC focused on utility of the partial year of data for the 2020 spring survey (first leg only), and the potential benefits of updating earlier projections with the actual catch estimates from 2019. Kathy Sosebee, Spiny Dogfish assessment lead, reported that the earlier projections for 2022, under the previous risk policy, was 20,660 mt, or roughly 3,000 mt greater than the staff recommendation for 2022. This reassured the SSC that the continuation of the 2021 quota into 2022 would not, in and of itself, pose a significant risk to the population. SSC discussions noted the importance of Spiny Dogfish as predators and potentially as prey, although relatively little is known about these predator-prey relationships. The influence of temperature and salinity on the distribution of Spiny Dogfish has been summarized in the literature but its utility for adjusting abundance estimates for availability has not been evaluated.

The SSC's responses to the terms of reference provided by the MAFMC (in italics) are as follows:

1. *Specify a revised ABC for the 2021 fishing season based on the Council's recently approved changes to the risk policy. If revising the 2021 ABC with the new risk policy is inappropriate, specify an alternative ABC for 2021 (e.g., previous recommendation) and provide any supporting information used to make this determination;*

   The SSC recommends a revision of the 2021 ABC upwards to **17,498 mt** for the 2021 fishing season, based on the Council's revised risk policy (P* = 0.333). This recommendation agrees with the Council Staff recommendation.

The SSC notes that the estimated 2019 female biomass was above the biomass threshold, the 2019 data update indicated little evidence to suggest that stock condition has changed substantially from what was indicated in the 2018 benchmark assessment, and there are no biomass or trend updates for 2020 because the NEFSC spring trawl survey was not conducted in 2020.

2. *Specify an ABC for the 2022 fishing season the SSC deems most appropriate with the information given;*

The SSC recommends a 2021 ABC of **17,498 mt** extend to the 2022 fishing year.

A research track assessment for Spiny Dogfish is planned for March 2022, that will reveal new scientific information about the status of the stock.

The SSC is concerned about the uncertainty caused by the lack of the 2020 NEFSC spring trawl survey and reliance on the longer-term projection from the 2018 assessment. However, based on the stock projection from the 2018 benchmark assessment the SSB is expected to continue to increase given the estimated MSY proxy level. Slow growth, late age of maturity, low fecundity, and high age of recruitment create inertia in the stock dynamics and therefore reduce interannual fluctuations in forecasts. Coupled with the way the index information is used in the assessment, reliance on a projection may then be less sensitive for Spiny Dogfish than for some other stocks. If index data from the 2021 NEFSC spring trawl survey becomes available these could provide an opportunity for revision if needed.

3. *Provide any relevant data and/or assessment considerations for the 2022 research track assessment.*

The SSC agrees with the recommendations from the 2018 assessment, with some revision to recommendations 4 and 7.

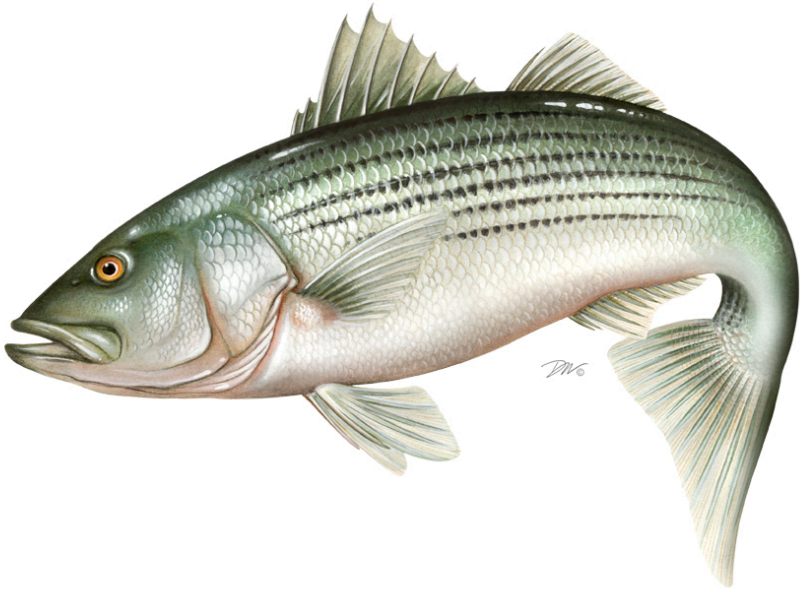
1. Revise the assessment model to investigate the effects of stock structure, distribution, sex ratio, and size of pups on birth rate and first year survival of pups.
2. Explore model-based methods to derive survey indices for Spiny Dogfish.
3. Consider development of a state-space assessment model.
4. Compile and examine the available data from large scale (international) tagging programs, including conventional external tags, data storage tags, and satellite pop-up tags, and evaluate their use for clarifying movement patterns and migration rates.
5. Investigate the distribution of Spiny Dogfish beyond the depth range of current NEFSC trawl surveys, possibly by using experimental research or supplemental surveys.
6. Continue aging studies for Spiny Dogfish age structures (e.g., fins, spines) obtained from all sampling programs (include additional age validation and age structure exchanges), and conduct an aging workshop for Spiny Dogfish, encouraging participation by NEFSC, Canada DFO, other interested state agencies, academia, and other international investigators with an interest in dogfish aging (US and Canada Pacific Coast, ICES).
7. Evaluate the ecosystem context of Spiny Dogfish including quantifying their role as predator and prey, and effects of climatic factors such as changes in temperature and salinity on the distribution, growth and survival, as they impact both population dynamics and reference points.

Atlantic States Marine Fisheries Commission

PUBLIC INFORMATION DOCUMENT

For Amendment 7 to the Interstate Fishery Management Plan For

ATLANTIC STRIPED BASS



October 2020

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

This draft document was developed for Management Board review and discussion. This document is not intended to solicit public comment as part of the Commission/State formal public input process. Comments on this draft document may be given at the appropriate time on the agenda during the scheduled meeting. If approved, a public comment period will be established to solicit input on the issues contained in this document.

The Atlantic States Marine Fisheries Commission seeks your input on the initiation of Amendment 7 to the Atlantic Striped Bass Fishery Management Plan

The public is encouraged to submit comments regarding this document during the public comment period. Comments must be received by **5:00 PM (EST) on Month Day, 2021.** Regardless of when they were sent, comments received after that time will not be included in the official record. The Atlantic Striped Bass Management Board will consider public comment on this document when developing the first draft of Amendment 7.

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

1. Attend public hearings held in your state or jurisdiction, if applicable.
2. Refer comments to your state's members on the Atlantic Striped Bass Board or Atlantic Striped Bass Advisory Panel, if applicable.
3. Mail, fax, or email written comments to the following address:

Toni Kerns
ISFMP Director
Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200A-N
Arlington, Virginia 22201
Fax: 703.842.0741
comments@asmfc.org (subject line: Striped Bass PID)

If you have any questions please call Toni Kerns at 703.842.0740.

YOUR COMMENTS ARE INVITED

The Atlantic States Marine Fisheries Commission (Commission) is developing an amendment to revise the Interstate Fishery Management Plan (FMP) for Atlantic striped bass. The Commission is responsible for developing fishery management plans for Atlantic striped bass which are based on the best available science and promote the conservation of the stock throughout its range. The states and jurisdictions of Maine through North Carolina, including Pennsylvania, the District of Columbia, and the Potomac River Fisheries Commission, participate in the management of this species as part of the Commission's Atlantic Striped Bass Management Board (Board).

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

WHY IS THE ASMFC PROPOSING THIS ACTION?

The last time a new plan amendment to the Atlantic Striped Bass FMP was adopted was in 2003 (Amendment 6). Since then, the status and understanding of the striped bass stock and fishery has changed considerably which raises concern that the current management program no longer reflects current fishery needs and priorities. The results of the 2018 Benchmark Stock Assessment in particular led the Board to discuss a number of significant issues facing striped bass management. Consequently, in August 2020, the Board passed the following motion:

"Move to initiate an Amendment to the Atlantic Striped Bass Fishery Management Plan focused on the following management topics: (1) fishery goals and objectives; (2) stock rebuilding/timeframe; (3) management triggers; (4) biological reference points; (5) regional management (recreational measures, coastal and producer areas, regional reference points); (6) recreational discard mortality; (7) conservation equivalency; (8) recreational accountability; and (9) coastal commercial quota allocation.

Each of these topics will be presented in a Public Information Document in order to solicit stakeholder comment focused on prioritizing the importance of each topic for continued development and inclusion in the Amendment."

WHAT IS THE PROCESS FOR DEVELOPING AN AMENDMENT?

The publication of this document is the first step of the Commission's formal amendment process. Following this initial phase of information gathering and public comment, the Commission will evaluate potential management alternatives. The Board will select the range of issues to be addressed through this Amendment, and identify potential management options; other issues not addressed here can be addressed through a subsequent management

document. The Commission will then develop Draft Amendment 7, incorporating the identified management options, for public review. Following that review and public comment, the Commission will specify the management measures to be included in Amendment 7, as well as a timeline for implementation. In addition to issues identified in this Public Information Document (PID), Draft Amendment 7 may include issues identified during the public comment period of the PID.

The timeline for completion of Amendment 7 is as follows. Please note that the timeline is subject to change per the direction of the Board:

October 2020	Board reviews Draft PID and considers approving for public comment ***Current Step***
Nov 2020 – Jan 2021	Public comment on PID
February 2021	Board reviews public comment; directs Plan Development Team to develop Draft Amendment
March – July 2021	Preparation of Draft Amendment with input from Technical Committee and Advisory Panel
August 2021	Board reviews Draft Amendment and considers approving for public comment
August – September 2021	Public comment on Draft Amendment
October 2021	Board reviews public comment and selects final measures for the Amendment; Policy Board and Commission approve the Amendment

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 Atlantic striped bass 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 amendment process can have a major influence in the final outcome of the amendment. This document is intended to solicit observations and suggestions from commercial and recreational anglers, 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 amendment; background information on the Atlantic striped bass population, fisheries, and management; and a series of questions for the public to consider about the management of the

species. In general, the primary question on which the Commission is seeking public comment is: **"How would you like management of the Atlantic striped bass fishery to look in the future?"**

WHAT ISSUES WILL BE ADDRESSED?

The primary issues considered in the PID are:

1. Fishery Goals and Objectives
2. Biological Reference Points
3. Management Triggers
4. Stock Rebuilding Targets and Schedule
5. Regional Management
6. Management Program Equivalency (Conservation Equivalency)
7. Recreational Release Mortality
8. Recreational Accountability
9. Coastal Commercial Allocation
10. Any other issues concerning the management of Atlantic striped bass

ISSUE 1: Fishery Goals and Objectives

Background: The current goal and objectives of the Atlantic Striped Bass FMP were established in 2003 in Amendment 6. They are:

GOAL

"To perpetuate, through cooperative interstate fishery management, migratory stocks of striped bass; to allow commercial and recreational fisheries consistent with the long-term maintenance of a broad age structure, a self-sustaining spawning stock; and also to provide for the restoration and maintenance of their essential habitat."

OBJECTIVES

- Manage striped bass fisheries under a control rule designed to maintain stock size at or above the target female spawning stock biomass level and a level of fishing mortality at or below the target exploitation rate.
- Manage fishing mortality to maintain an age structure that provides adequate spawning potential to sustain long-term abundance of striped bass populations.
- Provide a management plan that strives, to the extent practical, to maintain coastwide consistency of implemented measures, while allowing the States defined flexibility to implement alternative strategies that accomplish the objectives of the FMP.
- Foster quality and economically viable recreational, for-hire, and commercial fisheries.
- Maximize cost effectiveness of current information gathering and prioritize state obligations in order to minimize costs of monitoring and management.

- Adopt a long-term management regime that minimizes or eliminates the need to make annual changes or modifications to management measures.
- Establish a fishing mortality target that will result in a net increase in the abundance (pounds) of age 15 and older striped bass in the population, relative to the 2000 estimate.

Statement of the Problem: The status and understanding of the striped bass stock and fishery has changed considerably since implementation of Amendment 6 in 2003. As a result, both managers and stakeholders have expressed concern that the existing goals and objectives of this management program may be outdated, and no longer fully reflect current fishery needs and priorities. Some of the objectives may need to be refined, while other priorities may be missing entirely. The Board identified management stability, flexibility, and regulatory consistency as guiding themes for future striped bass management, and discussed the desire to balance these principles to the extent practical.

Public Comment Questions: Are the existing goal and objectives of Amendment 6 still in line with current fishery needs and priorities? Which specific priorities (if any) are missing from the existing goal or objectives? Which of the existing objectives (if any) should be removed or refined? Do the existing objectives balance the need for management stability, flexibility, and regulatory consistency? Which of these three themes do you value most?

ISSUE 2: Biological Reference Points

Background: Biological reference points (BRPs) are used in fisheries management to measure stock status and evaluate management plan effectiveness. The current BRPs for striped bass are coastwide in nature and based on historical stock performance, and given in terms of threshold and target levels of female spawning stock biomass (SSB) and fishing mortality (F). Specifically, the 1995 estimate of female SSB is used as the SSB threshold, with the SSB target set at 125% of the threshold. When female SSB is below the threshold level, the stock is declared overfished. The F target and threshold are the values of F estimated to achieve the respective SSB target and threshold over the long-term. When F is above the threshold, the stock is experiencing overfishing. The current SSB and F target and threshold values are based on results of the 2018 Benchmark Stock Assessment, which represents the best available science on the coastwide stock (NEFSC 2018a and 2018b; Table 1). The FMP manages towards the target levels, providing an additional buffer to help achieve the management plan's objectives.

Table 1. Current female spawning stock biomass (SSB) and fishing mortality (F) target and threshold reference points for Atlantic striped bass based on results of the 2018 benchmark assessment.

	Female SSB	***F***
Threshold	SSB_{1995} = 91,436 mt (202 million lbs)	0.24
Target	$SSB_{threshold}$ x 1.25 = 114,295 mt (252 million lbs)	0.20

The female SSB threshold and target were first implemented through Amendment 6 in 2003. Model-based reference points, such as the biomass needed to achieve maximum sustainable yield (MSY), were uncertain, resulting in reliance on empirical-based reference points. The SSB in 1995 was selected as the threshold because that was the year the Commission declared the stock recovered from its depleted status in the 1980s, and many desirable stock characteristics were achieved, such as an expanded age structure. The additional 25% buffer for the target was an ad hoc decision to account for uncertainty in the SSB estimates, and also produced a target value comparable to those observed prior to the stock's collapse in the 1970's. The current F reference points were implemented in 2014 through Addendum IV to Amendment 6 and are linked to the SSB reference points. The previous F reference points were calculated independently of the SSB reference points and were based on MSY. The 2013 Benchmark Stock Assessment moved away from that approach primarily due to uncertainty in the F_{MSY} estimates because of difficulty fitting a stock-recruit relationship and the inconsistency between the F_{MSY} reference point and the empirical SSB reference points.

While the definitions for the SSB threshold and target have remained unchanged since 2003, the estimated female SSB time series (values and trajectories) has changed with each new stock assessment. Those changes are often more pronounced in a benchmark assessment as new or improved data and advancements in population modeling are incorporated. As a result, the female SSB reference point values, and the Commission's understanding of stock performance has changed over time.

Figure 1 shows results of the last four benchmark stock assessments for striped bass (the 2002, 2007, 2013, and 2018 benchmarks) which demonstrates how the Commission's understanding of stock condition in 1995 has changed over time. Note that in 2003, when the SSB reference points were established, the most recent assessment information indicated the stock was above the SSB target. Also, while the general pattern of SSB is consistent across the assessments, the magnitude of the estimates and trajectories change. For example, the 2007 and 2013 benchmark assessments indicated that female SSB was above the SSB target for a period of time during the early 2000's, but the

2018 benchmark shows that the SSB target has not been reached at any point during the 1982-2017 time series. It is worth noting, however, that the 2018 benchmark also indicates that F has consistently exceeded the F associated with achieving the SSB target since 1996 (Figure 2).

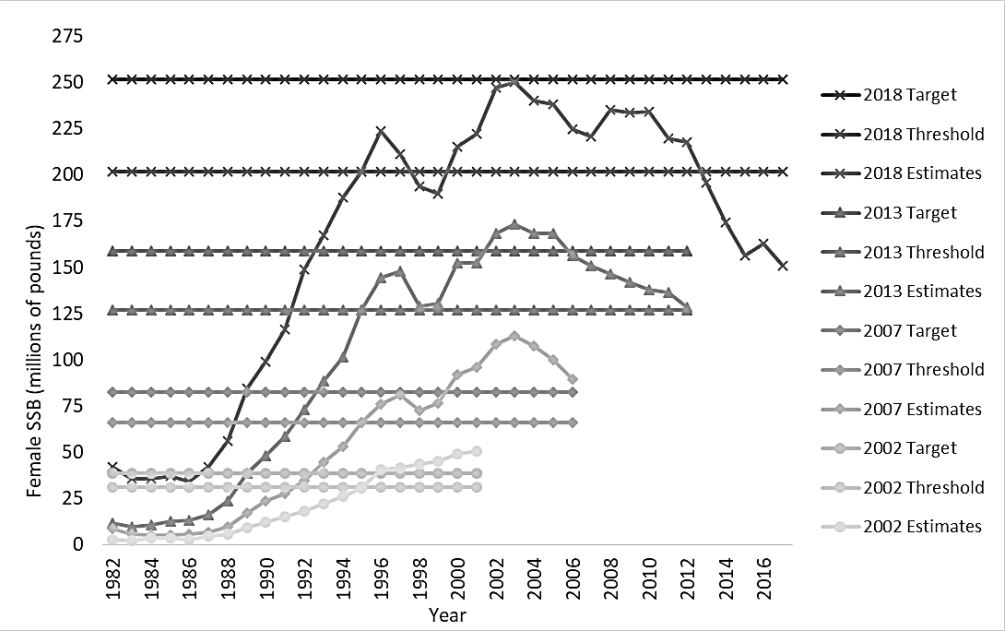


Figure 1. Historical perspective of Atlantic striped bass female spawning stock biomass (SSB) estimates and resulting SSB target and threshold since implementation of Amendment 6 in 2003. The SSB threshold and target are based on the estimate of female SSB in 1995 which has changed over time with improved data and modeling techniques. Source: ASMFC.

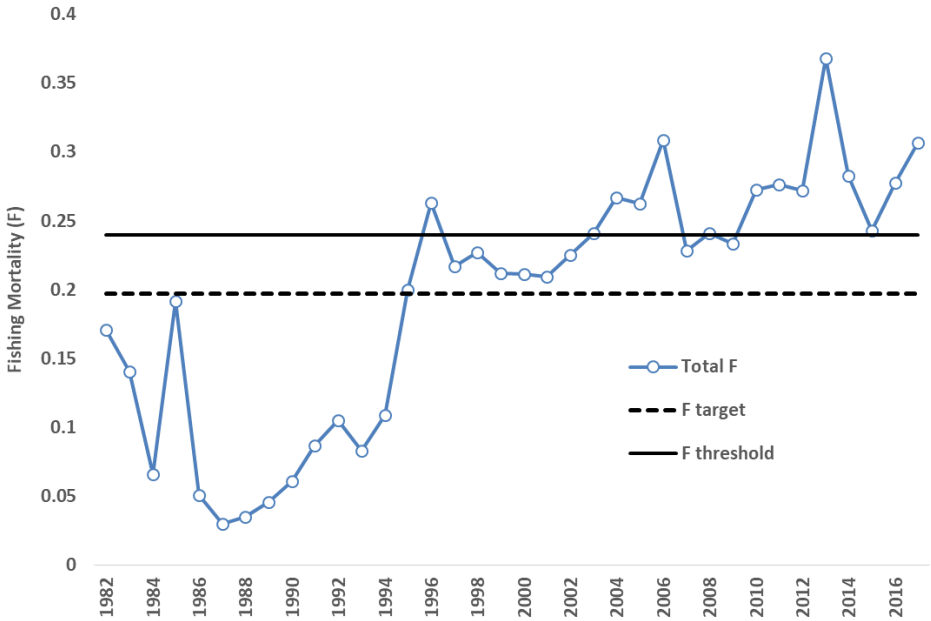


Figure 2. Current estimates of fishing mortality (F) relative to the F target and threshold, 1982-2017. Source: NEFSC, 2018

Potential alternatives to the current reference points are restricted by data and modeling limitations. Unfortunately, the statistical-catch-at-age (SCAA) model currently used in striped bass stock assessment is unable to produce reasonable estimates for model-based reference points, such as MSY or SPR (spawning potential ratio). The Technical Committee (TC) has made considerable progress on a two-stock SCAA model which may be able to produce reasonable SPR-based reference points in the future, but the model needs more work and is not available for management use at this time. However, other empirical-based reference points could be considered, such as the estimate of SSB in a year other than 1995 as the SSB threshold, or a percentage other than 125% for the SSB target. For example, the TC discussed 1993 as a possible alternative proxy year because SSB was lower than in 1995 but still produced a strong year-class (Figure 3).

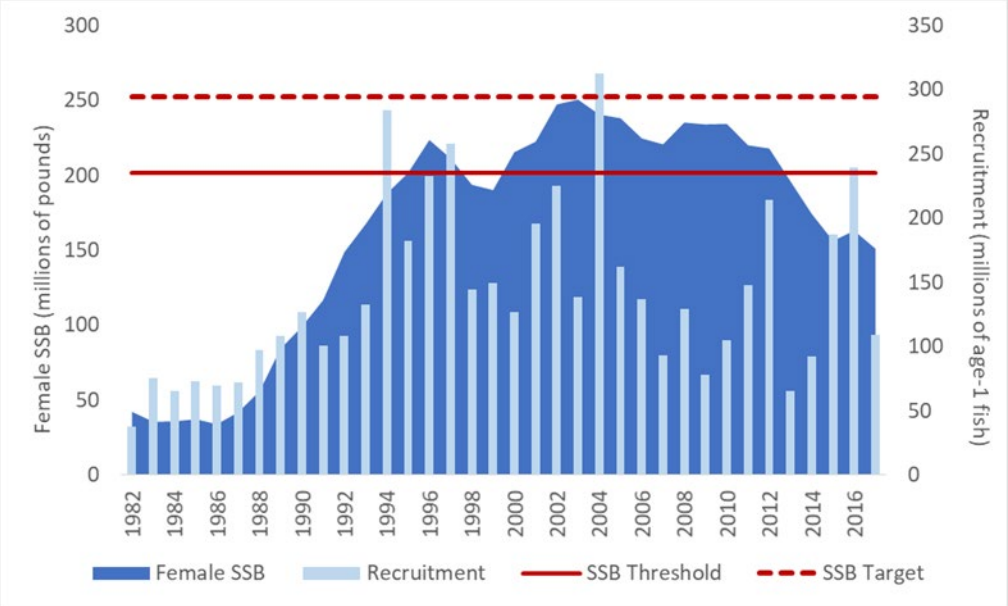


Figure 3. Current estimates of female spawning stock biomass (SSB) relative to the SSB target and threshold, and recruitment (age-1 fish), 1982-2017. The 1994 recruitment estimate, which represents the 1993 year-class, was the first large recruitment event in the time series. Source: NEFSC 2018a.

The Atlantic Striped Bass FMP has also managed specific areas of the fishery with different F rates (i.e., the Chesapeake Bay, and the Albemarle Sound/Roanoke River (A/R) management area in North Carolina), although these F rates were not used to determine overall stock status and are not considered BRPs in the context of this section. The Board has expressed interest in establishing separate reference points for the primary stocks that contribute to the coastwide migratory population, but the current SCAA model does not allow for this. The two-stock SCAA model that is under development has the potential to produce a set of reference points for the Chesapeake Bay stock and for the ocean region (which includes the Delaware Bay/Hudson River stock complex), but this remains a long-term objective. However, the current SCAA model does separate fishery removals into two fleets or regions, and these fleet components could be used to explore regional management programs which is discussed in Issue 5: Regional Management (page 13).

Statement of the Problem: It's approaching two decades since the 1995 estimate of female SSB was selected as the basis for BRPs for striped bass. However, improved data and advancements in assessment modeling have changed our understanding of historical stock performance since the stock was declared restored. This is an appropriate time to revisit the BRPs to ensure they are reliable indicators of stock performance and are properly aligned with the FMP's goal and objectives.

Public Comment Questions: Is the 1995 estimate of female SSB still an appropriate benchmark for determining stock status? Is there a better empirical reference year or other empirical approach that should be considered? Is a 25% buffer appropriate for the SSB target? Should the Board prioritize development of model-based reference points and/or stock-specific reference points for the Chesapeake Bay and other stock components? What stock characteristics (abundance of large fish available to anglers, diverse age structure, etc.) should the BRPs attempt to achieve to balance the needs of diverse striped bass fisheries and the state of the resource?

ISSUE 3: **Management Triggers**

&

ISSUE 4: Stock Rebuilding Target and Schedule

Background: Amendment 6 includes a series of management triggers to prevent overfishing the striped bass resource. The triggers are based on the BRPs and juvenile recruitment indices, and are paraphrased below. Management measures implemented by the Board are to be held in place for at least three years, unless a trigger or threshold is violated (although CE has allowed for exceptions to this 3-year timeframe; see Issue 6 on page 15). Upon reaching any (or all) of these triggers, the Board is required to modify the management program to ensure the goal and objectives of Amendment 6 are achieved.

Management triggers established in Amendment 6 are:

1) If the F threshold is exceeded in any year, the striped bass management program must be adjusted to reduce the F to a level that is at or below the target within one year.
2) If female SSB falls below the threshold, the striped bass management program must be adjusted to rebuild the biomass to the target level within an established timeframe [not to exceed 10-years].
3) If the F target is exceeded in two consecutive years and the female SSB falls below the target within either of those years, the striped bass management program must be adjusted to reduce the F to a level that is at or below the target within one year.
4) If female SSB falls below the target for two consecutive years and the fishing mortality rate exceeds the target in either of those years, the striped bass management program must be adjusted to rebuild the biomass to a level that is at or above the target within an established timeframe [not to exceed 10-years].
5) If any Juvenile Abundance Index shows recruitment failure (i.e., an index value lower than 75% of all other values in the dataset) for three consecutive years, then the Board will review the cause of recruitment failure (e.g., fishing mortality, environmental conditions, and disease) and determine the appropriate management action.

The BRP-based management triggers require action on different timelines. When the F-based triggers are met, corrective action is required quickly, as management action can reduce F immediately by reducing total removals. When the SSB-based triggers are met, changes to the management program can occur gradually over a long period of time (up to 10-years); this is in recognition of the fact that striped bass are slow to mature, with 100% of females reaching maturity by age 9, and as a result, the impact of management action on SSB will not be fully realized until the protected age classes are mature. This also provides stability for the fishery while rebuilding the stock. The latest science also indicates that the SSB target has never been reached which raises questions that it may be an unreasonably high management target given current objects for fishery performance and changing or altered ecosystem conditions (e.g., climate change, and changes in other predator and prey population abundance). Meanwhile, the recruitment-based trigger is evaluated on a 3-year cycle and has not been triggered since it was established, even though the stock experienced a period of variable, but below average recruitment from about 2005-2014 which contributed to stock declines in recent years.

Of note, the BRP-based management triggers are based on the most recent estimate of F and/or SSB. While significant changes in SSB tend to occur slowly over time due to the biology of the species (i.e., long lived and late to mature), F is a measure of fishing pressure which is variable from year-to-year. As a result, the Board is sometimes criticized for having 'knee-jerk' reactions when responding to a single point estimate of F. Additionally, development of both short- and long-term rebuilding programs are informed by simulations of stock performance in the future based on assumptions of F, recruitment, and other variables. As a result, these stock projections are inherently uncertain, particularly the further out they project.

Statement of the Problem: The management triggers are intended to keep the Board accountable and were developed at a time when the stock was thought to be at historic high abundance and well above the SSB target. However, as perceptions of stock status and fishery performance have changed, shortfalls with how the management triggers are designed have emerged. When SSB is below the target level, the variable nature of F can result in a continued need to for management action. Additionally, the shorter timetables for corrective action are in conflict with the desire for management stability, and the use of point estimates introduces an inherent level of uncertainty in decision making. Furthermore, the Board is sometimes criticized for considering changes to the management program before the stock has a chance to respond to the most recent set of management changes. Lastly, the observed long period of below average recruitment which contributed to recent declines in biomass has raised

questions about the recruitment-based trigger and whether it is designed appropriately.

Public Comment Questions: Which management triggers (if any) should be revisited? What is an appropriate timeframe to respond to overfishing or overfished determinations? Should the F-based triggers account for annual variability in fishing mortality? What is more important, rebuilding the stock quickly, or mitigating impacts to fisheries? In other words, do you prefer significant changes to rebuild the stock quickly, or smaller incremental changes over time to gradually rebuild the stock?

***ISSUE 5:* Regional Management**

Background: The Atlantic striped bass population is assessed and managed on a coastwide basis. However, the population is actually comprised of several stocks each with unique contributions to the coastwide population. Striped bass fisheries are conducted very differently throughout the species range due to the size and availability of fish in those areas (and other cultural differences), although there are some regional similarities.

To address this, previous striped bass management programs have managed specific regions of the fishery differently. Under Amendment 5 (1995), fisheries in the Chesapeake Bay and A/R were managed under a lower F rate than the rest of the coast which allowed these regions to implement different harvest strategies including size limits, bag limits, and catch quotas. Fisheries included in the ocean region, like in the Delaware Bay and River, and the Hudson River, were also able to implement lower size limits during certain seasons, although this was accomplished through management program equivalency (see Issue 6 on page 15). This regional management approach for the Chesapeake Bay and the A/R was maintained in Amendment 6. However, with implementation of Addendum IV to Amendment 6 in 2015, the entire striped bass population is once again managed under the same F rate (i.e., the coastwide F reference points). Addendum IV also formally defers management of the A/R stock to the state of North Carolina (under the auspices of the Commission) based on evidence that the stock contributes minimally to the coastwide population.

Although the coastwide F reference points include the effects of harvesting smaller striped bass in the Chesapeake Bay (and in other areas like the Delaware Bay and Hudson River), they do not reflect the heavily male-skewed sex ratio in the Chesapeake Bay catch. During the 2018 benchmark assessment, the current single-stock SCAA model was modified into a competing two-stock SCAA model; a Chesapeake Bay stock and a mixed ocean stock which included all other stock components of the population. The intent of the two-stock model approach was to develop separate reference points for the Chesapeake Bay stock and the ocean region (which includes the Delaware Bay/Hudson River

stock complex), however, this model requires further testing and is not ready for management at this time.

There are stock assessment tools available now that the Board could use to pursue a different management program for the Chesapeake Bay region. The current single-stock SCAA model separates fishery removals into an ocean fleet and a Chesapeake Bay fleet, and these fleet components can be used to explore different management programs for the two regions. This approach would be unique in the Commission framework and would raise a number of questions about implementation. In this scenario, the F target and threshold would be set for the entire coastwide stock complex, and the Chesapeake Bay region and the ocean region would be allocated a proportion of the overall F to manage towards. With further model development, additional regions could be added. The Board would decide how to allocate total F to each region, which could be based on historical performance of each fishery or other management objectives. The Board would also have to decide how to implement accountability for each region. Currently, if total removals have to be reduced to bring the overall coastwide F down to the F target, both regions take an equal percent cut. With a regional F management program, the reduction could be based on whether a region has exceeded its allocation of F and by how much. The Board would also have to consider whether a region would have to reduce harvest if it exceeds its regional F allocation, but the overall F for the stock was no exceeded.

Statement of the Problem: An ongoing objective of the Atlantic Striped Bass FMP is to provide regional flexibility while maintaining coastwide regulatory consistency to the extent practical. Previous striped bass management regimes have allowed specific regions to manage their fisheries independently (under a different F rate than the rest of the coast) to balance these competing priorities. While the development of stock-specific reference points has been identified as a research priority, there are tools available now that the Board could use to pursue different management programs for the Chesapeake Bay and ocean regions. However, the appropriate allocation of F between these two regions is ultimately a policy decision, and must be considered carefully along with other management implications.

Public Comment Questions: Should separate regional management programs be pursued for the Chesapeake Bay and the ocean region (which includes the Delaware Bay/Hudson River stock complex)? If so, how should the Board determine the appropriate allocation of fishing mortality between the two regions? Should development of similar assessment tools be prioritized to support regional management programs for other areas of the coast?

ISSUE 6 Management Program Equivalency (Conservation Equivalency)

Background: Management program equivalency (hereafter referred to as 'conservation equivalency' or CE) has been an explicit component of the striped bass management program since the stock was declared rebuilt in 1995. The Atlantic Striped Bass FMP (and Commission's ISFMP Charter) employs CE to provide states and jurisdictions (hereafter states) flexibility to develop alternative regulations that achieve the same quantified level of conservation for the resource as the FMP standards. Allowing states to tailor their management programs in this way avoids the unequal impacts that result from implementing one set of management measures for all states.

The striped bass population in managed on a coastwide basis, although the fisheries are executed very differently due to size and availability of fish and a wide range of fishing cultures and priorities. This makes it difficult to develop a 'one-size-fits-all' regulation for the entire fishery. The primary motivation for states to propose alternative measures through CE has been to ameliorate social and economic impacts of actions to reduce harvest. States typically pursue CE to adjust commercial size limits and quotas, or to implement different recreational bag limits, size limits, and seasons.

The process and application of CE is detailed in the Commission's Conservation Equivalency Policy and Technical Guidance Document. To implement CE, states must develop a CE proposal demonstrating, through quantitative analysis, how the proposed regulations are equivalent to the FMP standards. Guidance regarding data use and methods that states should follow when developing CE proposals are typically provided by the TC, while the Board determines what constitutes equivalency on an ad hoc basis (e.g., the level of harvest (or reduction) that proposed measures must achieve). All CE proposals are subject to technical review and Board approval before the state can implement a CE program, as well as a post-implementation review of effectiveness. However, it is challenging to evaluate the effectiveness or success of CE programs once implemented because of the difficulty in separating the effects of the CE program from other factors like angler behavior and availability of fish that determine the amount of catch and release (see Issue 7 and Issue 8 on page 16 and 19, respectively) that occurs. As a result, CE programs, once implemented, typically become the new baseline for future regulatory changes for that state and fishery. Furthermore, CE proposals for the recreational fishery generally rely on state-level catch and effort data estimated by the Marine Recreational Information Program (MRIP) which are less precise then regional or coast-wide estimates.

The fundamental conflict between allowing flexibility through CE and achieving regulatory consistency among states escalated recently with the implementation of Addendum VI. For the recreational fishery, the Addendum implemented a 1-fish bag limit and a 28 inch to less than 35 inch slot limit for

the ocean region and a 1-fish bag limit and an 18 inch minimum size limit for the Chesapeake Bay in order to reduce recreational removals by 18% coastwide. However, at the state-level, some states were predicted to reduce removals by more than 18% (and some by less) due to varying contributions of each states fishery to the total, and state's needed to only demonstrate an 18% reduction at the state-level in CE proposals, which could result in falling short of overall target reductions. Also, majority of states pursued CE and submitted a very large number of options for TC review, which raised questions for additional guidelines regarding the submission of CE proposals.

Statement of the Problem: There is an essential tension between managing the striped bass fishery on a coastwide basis while allowing states to deviate from the coastwide standard, and thus creating regulatory inconsistency among states and within shared waterbodies. However, there is perceived value in allowing states to implement alternative regulations tailored to the needs of its fishery, even though it is difficult to evaluate the effectiveness of CE programs once implemented. There is limited guidance on how and when CE should be pursued, particularly when the stock is overfished and rebuilding is required, and how 'equivalency' is defined.

Public Comment Questions: Should CE be part of the striped bass FMP? Should the Board restrict the use of CE based on stock status, data restrictions, differences from neighboring state, and/or any other potential issues? Should the Board provide a strict definition for 'equivalency' (e.g., equal to the level of harvest the fishery would have achieved under the standard measure)? Should more quantitatively rigorous and clearly defined data requirements for proposals be required as a pre-requisite for CE to be considered? Should there be limitations to how many CE proposals a state can submit?

ISSUE 7 Recreational Release Mortality

Background: Recreational releases are fish caught and released alive during recreational fishing trips. A proportion of releases die as a result of that fishing interaction, which is referred to as release mortality (or dead releases).

The number of striped bass harvested recreationally, as well as those caught and released alive, are estimated by MRIP. The number of striped bass that die after being caught and released is estimated by multiplying the total number of live releases by an estimated rate of hooking mortality. The stock assessment currently applies a 9% hooking mortality rate to all recreationally released striped bass. This does not mean that every time a fish is released alive it has a 9% chance of dying. Under some conditions, the released fish has a higher or lower probability of dying, but overall, coastwide, it is assumed that 9% of all striped bass released alive die.

This 9% hooking mortality rate estimate is from a study by Diodati and Richards (1996) which took place in a saltwater environment and encompassed a range of variables including hook types, hooking locations, and angler experience levels. The TC conducted a meta-analysis of other striped bass release mortality studies which confirmed that an overall 9% discard mortality rate accounts for the variation in conditions and factors that attribute to release mortality coastwide. Applying this hooking mortality rate to the estimated number of striped bass caught and released from 2015 to 2019 results in an annual average of 2.8 million dead releases per year.

Since 1990, roughly 90% of all striped bass caught recreationally were released alive (Figure 4) either due to cultural preferences (i.e., fishing with the intent to catch and release striped bass) or regulation (e.g., the fish is not of legal size, was caught out of season, or the angler already caught the bag limit).

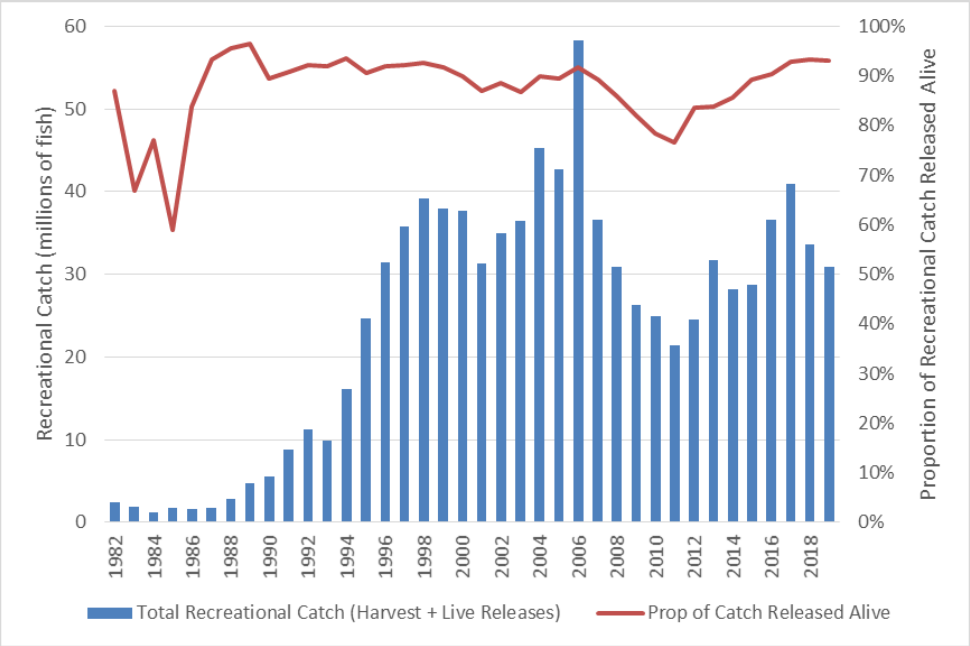


Figure 4. Total recreational catch (harvest + live releases) and the proportion of catch released alive, 1982-2019. Source: MRIP; excludes inshore estimates from A/R in North Carolina.

In 2019, more fish were estimated to have died from catch and release fishing than were harvested by the recreational fishery (2.59 million fish and 2.15 million fish, respectively; Figure 5). Because release mortality accounts for a significant proportion of total fishing mortality, Addendum VI sought to lower the rate at which fish die after being released by requiring the use of non-offset circle hooks when fishing for striped bass with bait (circle hooks have been proven to help reduce rates of gut-hooking when fished correctly). In addition to hook type,

studies have shown other factors influence release mortality including environmental conditions (e.g., salinity, air and water temperatures), angler experience, and angler behavior (e.g., how fish are handled). Addendum VI also encourages states to develop education campaigns to increase compliance with circle hook regulations and to encourage responsible angler behavior.

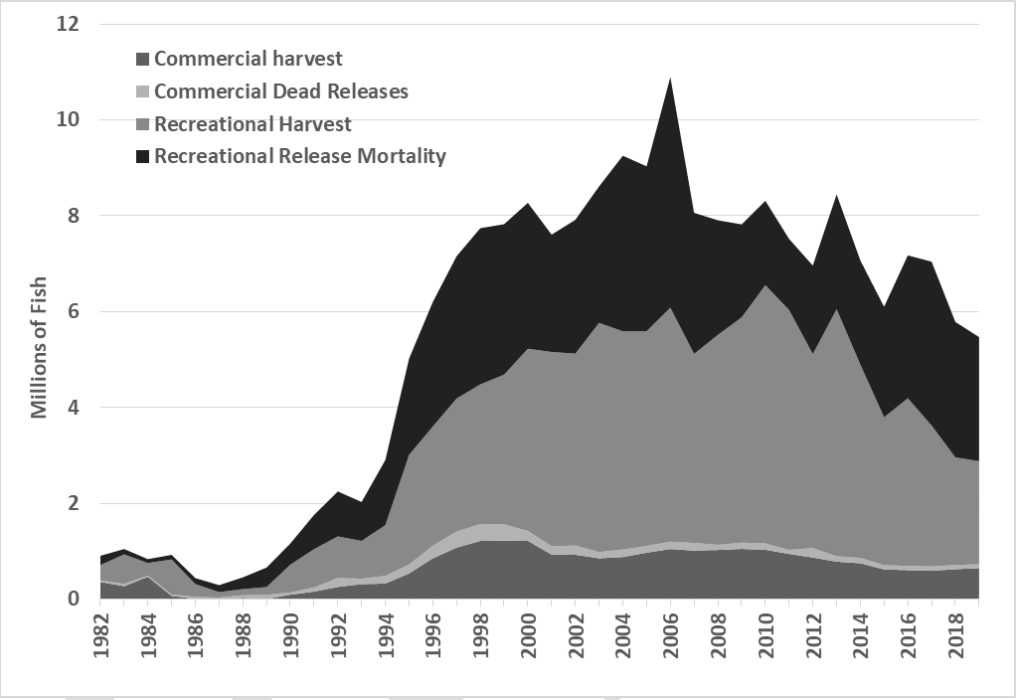


Figure 5. Total striped bass removals by sector in numbers of fish, 1982-2019. Note: Harvest is from ACCSP/MRIP, commercial discards and recreational release mortality is from ASMFC. Estimates exclude inshore harvest from A/R in North Carolina.

Statement of the Problem: Recreational release mortality constitutes such a large component of annual fishing mortality because the striped bass fishery is predominantly recreational and an overwhelming majority of the catch is released alive. The source of mortality does not matter to the health of the stock, as long as the overall fishing mortality is below the threshold. The current management program, which primarily uses bag limits and size limits to control harvest, is not designed to control the catch and release fishery which makes it difficult to control overall fishing mortality. Some stakeholders value the ability to harvest striped bass, either commercially or recreationally, while others value the experience of fishing for striped bass regardless of whether they are able to retain fish. The acceptable proportion of release mortality in total removals should reflect the management objectives for the fishery. Nonetheless, in order to better control all sources of fishing mortality, managers could consider additional gear restrictions to help increase the chance of survival after being released, or additional effort

controls (i.e., time and area closures) to reduce the number of trips interacting with striped bass and thus the overall number of striped bass released alive.

Public Comment Questions: Should management focus on reducing the rate at which fish die after being released alive through additional gear restrictions similar to recent actions regarding the use of circle hooks (e.g., banning gaffing or the use of treble hooks)? Should management focus on reducing effort in the fishery in order to reduce the total number of striped bass caught and released? What are some ways to improve awareness and stewardship of the resource?

ISSUE 8: Recreational Accountability

Background: The striped bass resource currently supports commercial fisheries in eight jurisdictions and recreational fisheries in 16 jurisdictions along the Atlantic coast. The commercial fishery is regulated through Addendum VI with state-by-state commercial quota allocations and size limits (see Issue 9 on page 20 for more information about the striped bass commercial quota). Many jurisdictions have imposed additional management measures, including time and area closures, and gear restrictions, which are designed to control effort and the size of fish in the catch. Quotas are allocated to the states on an annual basis. If a state exceeds its quota in a given year, the state's quota is reduced by the amount of the overage the following year on a pound-for-pound basis. States are able to monitor the commercial quota closely throughout the year via landings and dealer reports which are typically required on a daily or weekly basis depending on the state. The state closes the fishery when its quota (or a percentage of the quota) is projected to be landed.

Unlike the commercial sector, the recreational striped bass fishery is not managed by a quota system; instead, the fishery is managed with size limits and bag limits (and with seasons in some states). As a result, recreational removals (combined harvest and release mortality) fluctuate from year-to-year with changes in angler effort and changes in the size, age structure, and distribution of the population throughout its range. Additionally, recreational catch and effort data are estimated in two-month intervals, called 'waves', via angler intercept and mail-based surveys administered by MRIP. These estimates are generally available six weeks after the end of a wave, which limits manager's ability to monitor the fishery during the season.

Some recreational fisheries, such as summer flounder and black sea bass, are managed by an annual recreational harvest limit (RHL) due to federal mandates. In the federal process, stock projections, estimates of release mortality, and management uncertainty are considered when setting the RHL for a species. Management measures (e.g., bag limits, size limits, and seasons) are implemented at the state, regional, or coastwide level, to collectively achieve the RHL. If the RHL is projected to be exceeded in a given year, the states may be required to adjust measures prior to that season to address potential for overharvest. Conversely, if

recreational removals are projected to be less than the RHL, the states may be allowed to liberalize measures to fully utilize the RHL. While this approach allows for recreational accountability, it can also lead to frequent annual regulatory changes.

Statement of the Problem: The Atlantic Striped Bass FMP does not use an RHL or quota to manage the recreational fishery, which makes it difficult to evaluate whether removals from the sector are too high and to implement accountability measures. The use of RHLs is an effective way to implement accountability, however, recreational removals are inherently variable from year-to-year and MRIP data can have high levels of uncertainty (particularly at the state-level). Furthermore, a quota-based management approach conflicts with the stated objective of management stability for the fishery.

Public Comment Questions: Should the Board consider implementing an RHL for recreational striped bass management? How should an RHL overage or underage be addressed? Should stock status be considered when handling an RHL overage or underage? Are there additional accountability measures the Board should consider for managing the recreational striped bass fishery?

ISSUE 9: Coastal Commercial Quota Allocation

Background: The Atlantic Striped Bass FMP uses a quota system to manage the commercial fishery. Each state from Maine to North Carolina is allocated a commercial quota in pounds of fish for harvest in the ocean region. A separate Chesapeake Bay commercial quota is allocated to Maryland, Virginia, and the Potomac River Fisheries Commission per the state/jurisdiction's mutual agreement. Quota overages are paid back the following season on a pound-for-pound basis, while the transfer of quota between states and rollover of unused quota from one year to the next is not permitted. Commercial harvest in the A/R is managed separately by the state of North Carolina with Commission oversight.

In general, the coastal commercial quota allocation is based on average landings during 1972-1979 and assuming a 28" minimum size limit. This historical base period was first used for management in 1989 when Amendment 4 required closed seasons in order to reduce commercial harvest to 20% of the base period. State-specific quotas were first implemented under Amendment 5 (1995) when the Commission declared the stock fully rebuilt; states were allocated 70% of their average landings during the 1972-1979 base period. Under Amendment 6 (2003), the quotas were increased to 100% of the base period, with some exceptions (see page 57 of *Amendment 6, Appendix 3* for details). Of note, Delaware's quota was held at its 2002 level under Amendment 6 due to evidence that F was too high in Delaware Bay at that time. The Amendment 6 quota allocations have since been reduced by 25% in 2015 (Addendum IV) and by an additional 18% in 2020 (Addendum VI) in response to declining stock status (Table 2). Throughout quota

management, states have used CE to implement different commercial size limits resulting in changes to respective quota amounts.

Table 2. Changes in base quotas for Atlantic striped bass commercial fisheries by state and region since implementation of Amendment 6 in 2003. All quota amounts are in pounds.

State	Reference Period	Amendment 6		
	1972-1979 Average	Amend 6 † (2003)	Adden IV º (2015)	Adden VI ^ (2020)
Maine	250	250	188	154
New Hampshire	5,750	5,750	4,313	3,537
Massachusetts	1,159,750	1,159,750	869,813	713,247
Rhode Island	243,625	243,625	182,719	148,889
Connecticut	23,750	23,750	17,813	14,607
New York	1,061,060	1,061,060	795,795	652,552
New Jersey	321,750	321,750	241,313	197,877
Delaware *	184,046	193,447	145,085	118,970
Maryland	131,560	131,560	98,670	74,396
Virginia	184,853	184,853	138,640	113,685
North Carolina	480,480	480,480	360,360	295,495
Maryland (Chesapeake Bay)		Set annually based on fishing mortality rate of F=0.27	3,120,247	2,588,603
PRFC (Chesapeake Bay)				
Virginia (Chesapeake Bay)				

*Quota combined for Delaware Bay and ocean region
†Beginning in 2003, quota reduced through CE for NY (892,293) and MD (126,396). Beginning in 2007, quota reduced through CE for RI (239,963)
ºAddendum IV quota changed through CE for MD (90,727), RI (181,572), NJ (215,912)
^Addendum VI quota changed through CE MA (735,240), NY (640,718), NJ (215,912), DE (142,474), MD (ocean: 89,094; bay: 1,445,394), PRFC (572,861), VA (ocean: 125,034; bay: 983,393)

Under Amendment 5, the Chesapeake Bay quota was also based on average landings during the 1972-1979 base period, and split among the three jurisdictions based on their percent contribution to the 1994 harvest: Maryland = 52.359%, PRFC = 15.226%, and Virginia = 32.414%. Under Amendment 6, management in the Chesapeake Bay transitioned to a harvest control model where the commercial quota changed annually with exploitable biomass (Table 2). However, under Addendum IV the Chesapeake Bay quota was made static again and reduced to its 2012 harvest level minus 20.5%. Addendum VI further reduced the Chesapeake Bay commercial quota by 18%, although states pursued CE to lessen the impact of further cuts to the quota.

Unlike the commercial fishery in Chesapeake Bay, the ocean region regularly underutilizes the quota. The ocean quota underage is mainly attributed to designated game fish status in several states including Maine, New Hampshire, Connecticut, and New Jersey which collectively share about 10% of the commercial quota in the ocean region. Furthermore, the underage has increased in recent years since migratory striped bass have not been available to the ocean fishery in North Carolina resulting in zero harvest since 2012 (North Carolina holds 13% of the ocean quota) and raising questions about altered migratory pathways or preferred foraging areas as a result of climate change.

Statement of the Problem: For decades, the striped bass commercial quota allocation has been based on harvest data from the 1970s which may not be an appropriate baseline anymore. Harvester reporting during that time was not required and there is evidence that harvesters would sell fish in other states resulting in further inaccuracies in state estimates. Additionally, the coastal commercial quota is not set annually based on changes in available biomass, rather state-specific quotas are fixed in terms of pounds of fish until an assessment indicates removals need to be adjusted. Furthermore, there is an increasing disconnect from the 1970's base period over the years with the continued use of CE and other management actions that have occurred within Chesapeake Bay.

Public Comment Questions: Is the 1972-1979 landings period still an appropriate baseline for the coastal commercial allocation? Should other allocation approaches be considered? Should the coastwide quota be explicitly set on an annual basis, or following an updated stock assessment or benchmark?

ISSUE 10: Other Issues

Background: The intent of this document is to solicit feedback on a broad range of issues for consideration in the next amendment for Atlantic striped bass. Stakeholder feedback should generally focus on **"How would you like management of the Atlantic striped bass fishery to look in the future?"**

After reading the above issues, are there any other topics that should be addressed in Amendment 7? Some examples may include:

- Impacts due to climate change;
- Habitat degradation;
- Limited resources for law enforcement officers; and
- Research priorities

When providing comment on other management issues, it's important to indicate how the issue can be addressed through Board action.

BACKGROUND INFORMATION ON THE MGMT & STOCK STATUS OF ATLANTIC STRIPED BASS

Summary of Fishery Management

Atlantic striped bass (*Morone saxatilis*) have supported valuable commercial and recreational fisheries on the U.S. Atlantic coast for centuries. The Commission coordinates interstate management of the species in state waters (0-3 miles from shore), while management authority in the exclusive economic zone (3-200 miles) lies with NOAA Fisheries. The first Interstate FMP for the species was approved in 1981 in response to declining juvenile recruitment and depressed landings throughout the coast from Maine through North Carolina. The FMP and subsequent amendments and addenda focused on addressing the depleted spawning stock and recruitment failure. Despite these management efforts, the Atlantic striped bass stock continued to decline prompting many states (beginning with Maryland in 1985) to impose a complete harvest moratorium for several years until recruitment improved. State fisheries reopened in 1990 under Amendment 4 which aimed to rebuild the resource rather than maximize yield. The stock was ultimately declared rebuilt in 1995 and as a result, Amendment 5 to the Atlantic Striped Bass FMP was adopted which relaxed both recreational and commercial regulations along the coast.

The Atlantic striped bass fishery is currently managed through Amendment 6 to the FMP, which was implemented in 2003. Amendment 6 modified the BRPs, and established a list of management triggers based on the BRPs and juvenile recruitment. The coastal commercial quotas were restored to 100% of the states' average landings during the 1972-1979 historical base period at a 28" minimum size, with few exceptions (see Issue 9 on page 20). In the recreational fisheries, all states were required to implement a two-fish bag limit with a minimum size limit of 28 inches except for states with approved CE programs (see Issue 6 on page 15). The Chesapeake Bay and A/R regulatory programs were managed by a lower F target than the ocean region, which allowed these jurisdictions to implement separate seasons, harvest caps, and size and bag limits as long as they remain under that F target. No minimum size limit can be less than 18 inches under Amendment 6.

Five addenda to Amendment 6 have been implemented. Addendum I, approved in 2007, recommended research and angler education programs to address bycatch and release mortality. Addendum II, approved in 2010, modified the definition of recruitment failure so that each juvenile abundance index would have a fixed threshold for determining recruitment failure. Addendum III, approved in 2012, requires all states with a commercial striped bass fishery to implement a uniform commercial harvest tagging program to improve compliance and enforcement.

Addendum IV, approved in 2014, established new coastwide F reference points as recommended by the 2013 benchmark, eliminated the separate F rates used to manage the Chesapeake Bay and A/R regions, and changed commercial and recreational measures to reduce F to the new F target. To achieve this, the

Addendum implemented a 25% reduction to coastal commercial quotas, a 1-fish bag limit and 28" minimum size limit in recreational ocean fisheries (equivalent to a 25% reduction in removals), and 20.5% reductions in the Chesapeake Bay commercial and recreational fisheries. Addendum VI, approved in 2019 in response to the 2018 benchmark assessment, implemented additional 18% reductions to fishery removals to end overfishing and again try to reduce F to the target. This required an 18% reduction to all commercial quotas (ocean and Chesapeake Bay), a 1-fish bag limit and 28" to less than 35" slot limit for ocean recreational fisheries, and a 1-fish bag limit and 18" minimum size limit for Chesapeake Bay recreational fisheries beginning in 2020. For 2021, the addendum also requires mandatory use of circle hooks while recreationally fishing with bait. CE was employed by some states to implement alternative recreational or commercial measures from the Addendum IV and Addendum VI standards described above. There is no Addendum V; an action was initiated under this title in 2017 to consider liberalizing regulations, but the action was postponed and ultimately replaced by the development of Addendum VI.

The EEZ has been closed to the harvest, possession, and targeting of striped bass since 1990, with the exception of a defined route to and from Block Island in Rhode Island to allow for the transit of vessels in possession of striped bass legally harvested in adjacent state waters. In addition, an Executive Order issued in 2017 prohibits the sale of striped bass from the EEZ. In 2018, the Consolidated Appropriations Act directed NOAA Fisheries (in consultation with ASMFC) to review the federal moratorium once the 2018 benchmark was completed, and consider lifting the ban, however, there has not been any movement by NOAA on this directive as of late.

Summary of Stock Status

The 2018 Benchmark Stock Assessment for Atlantic striped bass is the latest and best information available on the status of the coastwide striped bass stock for use in fisheries management. The assessment was peer-reviewed at the 66th Northeast Regional Stock Assessment Review Committee (SARC) meeting in November 2018. The accepted assessment model is a forward projecting statistical catch-at-age (SCA) model which uses catch-at-age data and fishery-dependent and -independent survey indices to produce annual estimates of female SSB, F, and recruitment. Notably, the 2018 benchmark was the first assessment for striped bass to use the improved MRIP survey methods to estimate recreational fishery catches. The new time series of recreational catch estimates is on average 2.3 times higher than the values used in previous stock assessments, resulting in higher estimates of stock size.

The reference points currently used for management are based on stock conditions in 1995, the year the stock was declared rebuilt (see Issue 2 on page 6). The biomass threshold is the level of SSB in 1995, the biomass target is 125% of

the threshold, and the F threshold and target are the levels of F projected to achieve the biomass reference points over the long-term, respectively. The specific values of these reference points have been updated after each benchmark stock assessment based on the time series of SSB estimates.

The results of the 2018 benchmark indicate that the Atlantic striped bass stock is overfished and overfishing is occurring. Female SSB in 2017 was estimated at 68,576 metric tons (151 million pounds), which is below the SSB threshold of 91,436 metric tons (202 million pounds) (Figure 3). Female SSB peaked in 2003 and has been declining since then; SSB has been below the threshold level since 2013. Total F in 2017 was estimated at 0.31, which is above the F threshold of 0.24 (Figure 2). Total F has been at or above the threshold in 13 of the last 15 years of the assessment (2003-2017). Striped bass experienced a period of lower recruitment from 2005-2011 (Figure 3) which contributed to the steep decline in SSB that the stock has experienced since 2010. Recruitment was high in 2012, 2015, and 2016 (corresponding to strong 2011, 2014, and 2015 year classes), but estimates of age-1 striped bass were below average in 2013, 2014, and 2017.

Summary of the Fishery

The Atlantic striped bass fishery is predominantly recreational with the sector accounting for 88% of total harvest by weight since 2005 and 82% in terms of numbers of fish (Table 3 and Table 4). In 2019, total removals (commercial and recreational combined, including harvest and dead releases) was estimated at 5.47 million fish; the recreational sector accounted for 87% of total removals by number.

Commercial Fishery

The commercial fishery is managed via a quota system resulting in relatively stable landings since implementation of Amendment 6 in 2003 (see Issue 9 on page X). From 2004 to 2014, coastwide commercial harvest averaged 6.8 million pounds (1 million fish) annually (Table 3 and Table 4). From 2015-2019, commercial landings decreased to an average of 4.7 million pounds (619,279 fish) due to implementation of Addendum IV and a reduction in the commercial quota. Commercial discards are estimated to account for <2% of total removals per year since 2004 (Table 3 and Table 4).

There are two sets of quota allocations; one to all states (Maine through North Carolina, excluding Pennsylvania) for harvest in the ocean, and a second allocation to Maryland, PRFC, and Virginia for harvest in Chesapeake Bay. Although the regional allocations are about equal, the majority of commercial harvest comes from Chesapeake Bay; roughly 60% by weight and 80% in numbers of fish since 1990. The differences between landings in weight and in numbers of fish is primarily attributed to the availability of smaller fish and lower size limits in Chesapeake Bay relative to the ocean fishery. Additionally, the ocean fishery tends

to underutilize its allocations due to lack of availability in state waters (particularly off of North Carolina) and designated game fish status in some states (Maine, New Hampshire, Connecticut and New Jersey).

Recreational Fishery

The recreational fishery is managed via bag and size limits and therefore recreational catch and harvest vary from year to year with changes in angler effort and the size and availability of fish. From 2004-2014, recreational harvest averaged 54.8 million pounds (4.6 million fish) annually (Table 3 and Table 4). From 2015-2019, recreational harvest averaged 33.6 million pounds (2.8 million fish) in part due to declining biomass and implementation of Addendum IV.

The vast majority of recreational striped bass catch is released alive either due to angler preference or regulation; roughly 90% annually since 1990. Based on peer reviewed literature, a 9% release mortality rate is used to estimate the number of fish that die as a consequence of being caught and released. Despite this low rate, the popularity of striped bass as a targeted recreational species means that catch and release fishing contributes a significant source of mortality to the stock each year. In 2019, recreational anglers caught and released an estimated 28.8 million fish, of which 2.60 million are assumed to have died which represents 47% of total striped bass removals in 2019 (Table 3).

A large proportion of recreational harvest comes from Chesapeake Bay. From 2004-2014, 33% of recreational harvest in numbers of fish came from Chesapeake Bay. From 2015-2018, that percentage increased to 45%, likely as a result of the strong 2011, 2014, and 2015 year classes moving through the fishery. The majority of recreational harvest in the ocean fishery comes from Massachusetts, New York, and New Jersey.

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Tables

Table 3. Total striped bass removals (harvest plus release mortality) by sector in numbers of fish, 1990-2019. Note: Harvest is from ACCSP/MRIP, release mortality is from ASMFC. Estimates exclude inshore harvest from North Carolina.

Year	Commercial		Recreational		Total Removals
	Harvest	Release Mortality	Harvest	Release Mortality	
1990	93,888	46,912	578,897	442,811	1,162,508
1991	158,491	88,486	798,260	715,478	1,760,714
1992	256,476	184,638	869,779	937,611	2,248,505
1993	314,483	113,410	789,037	812,404	2,029,333
1994	325,401	162,970	1,055,523	1,360,872	2,904,765
1995	537,412	189,819	2,287,578	2,010,689	5,025,498
1996	854,094	263,510	2,487,422	2,600,526	6,205,552
1997	1,076,460	337,085	2,774,981	2,969,781	7,158,307
1998	1,215,219	353,224	2,915,390	3,259,133	7,742,966
1999	1,223,572	339,103	3,123,496	3,140,905	7,827,075
2000	1,216,812	208,415	3,802,477	3,044,203	8,271,906
2001	931,412	175,656	4,052,474	2,449,599	7,609,141
2002	928,085	191,561	4,005,084	2,792,200	7,916,931
2003	854,326	130,646	4,781,402	2,848,445	8,614,819
2004	879,768	158,311	4,553,027	3,665,234	9,256,339
2005	970,403	141,415	4,480,802	3,441,928	9,034,549
2006	1,047,648	153,276	4,883,961	4,812,332	10,897,218
2007	1,015,226	159,830	3,944,679	2,944,253	8,063,988
2008	1,027,837	107,778	4,381,186	2,391,200	7,908,000
2009	1,049,959	130,819	4,700,222	1,942,061	7,823,061
2010	1,031,430	133,970	5,388,440	1,760,759	8,314,599
2011	944,777	85,848	5,006,358	1,482,029	7,519,013
2012	870,606	197,412	4,046,299	1,847,880	6,962,196
2013	784,379	111,580	5,157,760	2,393,425	8,447,144
2014	750,263	113,080	4,033,746	2,172,342	7,069,431
2015	621,952	88,497	3,085,725	2,307,133	6,103,307
2016	606,087	87,827	3,500,434	2,981,430	7,175,777
2017	592,670	91,338	2,939,777	3,420,645	7,044,430
2018	625,177	90,092	2,244,766	2,826,667	5,786,702
2019	650,511	78,990	2,150,935	2,589,045	5,469,481

Table 4. Total recreational and commercial striped bass harvest by sector in pounds and numbers of fish, 1990-2019. Note: Harvest is from ACCSP/MRIP. Estimates exclude inshore harvest from North Carolina.

Year	Numbers of Fish			Pounds		
	Commercial	Recreational	Total	Commercial	Recreational	Total
1990	93,888	578,897	672,785	715,902	8,207,515	8,923,417
1991	158,491	798,260	956,751	966,096	10,640,601	11,606,697
1992	256,476	869,779	1,126,255	1,508,064	11,921,967	13,430,031
1993	314,483	789,037	1,103,520	1,800,176	10,163,767	11,963,943
1994	325,401	1,055,523	1,380,924	1,877,197	14,737,911	16,615,108
1995	537,412	2,287,578	2,824,990	3,775,586	27,072,321	30,847,907
1996	854,094	2,487,422	3,341,516	4,822,874	28,625,685	33,448,559
1997	1,076,460	2,774,981	3,851,441	6,077,751	30,616,093	36,693,844
1998	1,215,219	2,915,390	4,130,609	6,552,111	29,603,199	36,155,310
1999	1,223,572	3,123,496	4,347,068	6,474,290	33,564,988	40,039,278
2000	1,216,812	3,802,477	5,019,289	6,719,521	34,050,817	40,770,338
2001	931,412	4,052,474	4,983,886	6,266,769	39,263,154	45,529,923
2002	928,085	4,005,084	4,933,169	6,138,180	41,840,025	47,978,205
2003	854,326	4,781,402	5,635,728	6,750,491	54,091,836	60,842,327
2004	879,768	4,553,027	5,432,795	7,317,897	53,031,074	60,348,971
2005	970,403	4,480,802	5,451,205	7,121,492	57,421,174	64,542,666
2006	1,047,648	4,883,961	5,931,609	6,568,970	50,674,431	57,243,401
2007	1,015,226	3,944,679	4,959,905	7,047,179	42,823,614	49,870,793
2008	1,027,837	4,381,186	5,409,023	7,190,701	56,665,318	63,856,019
2009	1,049,959	4,700,222	5,750,181	7,216,792	54,411,389	61,628,181
2010	1,031,430	5,388,440	6,419,870	6,996,713	61,431,360	68,428,073
2011	944,777	5,006,358	5,951,135	6,789,792	59,592,092	66,381,884
2012	870,606	4,046,299	4,916,905	6,516,868	53,256,619	59,773,487
2013	784,379	5,157,760	5,942,139	5,819,678	65,057,289	70,876,967
2014	750,263	4,033,746	4,784,009	5,937,949	47,948,610	53,886,559
2015	621,952	3,085,725	3,707,677	4,829,997	39,898,799	44,728,796
2016	606,087	3,500,434	4,106,521	4,831,442	43,671,532	48,502,974
2017	592,670	2,939,777	3,532,447	4,816,395	37,961,037	42,777,432
2018	625,177	2,244,766	2,869,943	4,770,463	23,069,028	27,839,491
2019	650,511	2,150,935	2,801,446	4,199,502	23,556,287	27,755,789

ATLANTIC STATES MARINE FISHERIES COMMISSION

2021 DRAFT Action Plan

For Review by the Business Session

October 8, 2020

Goal 1 – Rebuild, maintain and fairly allocate Atlantic coastal fisheries

Goal 1 focuses on the responsibility of the states to conserve and manage Atlantic coastal fishery resources for sustainable use. Commission members will advocate decisions to achieve the long-term benefits of conservation, while balancing the socio-economic interests of coastal communities. Inherent in this is the recognition that healthy and vibrant resources mean more jobs and more opportunity for those that live along the coast. The states are committed to proactive management, with a focus on integrating ecosystem services, socioeconomic impacts, habitat issues, bycatch and discard reduction measures, and protected species interactions into well-defined fishery management plans (FMPs). FMPs will also address fair (equitable) allocation of fishery resources among the states. Understanding global climate change and its impact on fishery productivity and distribution is an elevated priority. Improving cooperation and coordination with federal partners and stakeholders can streamline efficiency, transparency, and, ultimately, success. In the next five years, the Commission is committed to making significant progress on rebuilding overfished or depleted Atlantic fish stocks.

Fisheries management and stock assessment activities anticipated for 2020 and into 2021 are outlined below. Activities are divided into high priority species (those with significant management action, stock assessment activity, or are of critical importance to the states and their stakeholders) and medium-low priority species. For most species, there are several activities that occur on an annual or ongoing basis, including specification setting; FMP review and state compliance reports; and ensuring cooperation and consistent management programs among the states, regional councils, and NOAA Fisheries for shared resources. While ongoing activities are not listed below, they continue to be conducted. The focus of the Action Plan is to highlight new and high profile activities where the Commission will focus its resources and energies for the next two years.

HIGH PRIORITY SPECIES FOR 2021

American Eel

- **Continue development of a benchmark stock assessment for peer review in 2022, including coordination with U.S. Geological Survey and Fisheries and Oceans Canada**
- **Monitor international action on the Convention of International Trade of Endangered Species through communications with US Fish and Wildlife Service (USFWS)**

American Lobster

- **Consider management response to the 2020 benchmark stock assessment and peer review, if necessary**
- Develop a management strategy for the Gulf of Maine/Georges Bank (GOM/GBK) stock that acknowledges the effects of climate change and addresses the resilience of the stock (Addendum XXVII)
    - Monitor and respond if necessary to GOM research on impacts of changing ocean conditions
- Implement Addendum XXVI data elements to improve data collection and characterization of the fishery. Continue to work with ACCSP and all partners to ensure required data elements are incorporated into SAFIS.

- Continue to monitor and respond as necessary to NOAA rulemaking on Atlantic Large Whale Take Reduction Plan Modifications
- Continue to work with the Law Enforcement Subcommittee, the states and NOAA Fisheries to improve enforcement of management measures in both state and offshore waters
- Work with NOAA Fisheries to ensure consistency in state and federal regulations (e.g., trap cap in Area 3, trap banking, data collection)

Atlantic Herring ***SHOULD THIS BE MOVED TO MEDIUM/LOW PRIORITY***

- **Finalize and implement Addendum III**
- **Monitor federal activities to publish final rule for Amendment 8 and respond if necessary**
- **Monitor New England Fishery Management Council (NEFMC) activities as Framework 7 (spawning protections for Georges Bank and Nantucket Shoals) and Framework 8 (specifications and incidental catch limits) are developed**
- Continue to improve coordination and collaboration with NEFMC
- Conduct meetings as necessary to establish state effort control (days-out) programs for Area 1A

Atlantic Menhaden

- **Review Amendment 3 quota allocations and initiate management action if necessary**
- **Initiate the stock assessment update to be completed in 2022**

Atlantic Striped Bass

- **Develop Draft Amendment 7 to ensure stock rebuilding and address current fishery management issues**
- **Complete the 2021 stock assessment update and address findings in Amendment 7 if necessary**
- Develop long-term strategy to continue winter striped bass tagging efforts offshore of NC and VA, including funding, administration, and at-sea support

Black Sea Bass

- **Finalize, in coordination with the Mid-Atlantic Fishery Management Council (MAFMC), addendum/amendment on commercial/recreational allocation taking into account calibrated recreational estimates**
- **Develop, in coordination with the MAFMC, a management action to address recreational reform**
- **Implement Addendum XXXIII (state commercial allocations)**
- **Contribute data for 2021 management track assessment and 2022 research track assessment**

Bluefish

- **Finalize, in coordination with MAFMC, amendment addressing issues including: commercial/recreational allocation taking into account calibrated recreational estimates, commercial allocation, goals and objectives, quota transfers, and a rebuilding program**
- **Develop an management action, in collaboration with the MAFMC, to address recreational reform**
- **Review the effectiveness current fishery-independent data requirements and evaluate the optimal range and sample size for age data**
- **Contribute data for 2021 management track assessment and 2022 research track assessment**

Horseshoe Crab

- **Complete the revision and peer review of the Adaptive Resource Management (ARM) Framework to use modelling approaches from the benchmark stock assessment**
- Secure long-term funding for the Horseshoe Crab Benthic Trawl Survey for use in the ARM Framework

Scup

- **Finalize, in coordination with MAFMC, amendment addressing commercial/recreational allocations taking into account recalibrated recreational estimates**
- **Develop, in collaboration with MAFMC, a management action to address recreational reform**

Summer Flounder

- **Finalize, in coordination with MAFMC, amendment addressing commercial/recreational allocations taking into account recalibrated recreational**
- **Participate in MAFMC Management Strategy Evaluation regarding the benefits of minimizing discards and converting discards into landings in the recreational sector**
- **Develop, in coordination with MAFMC, a management action to address recreational reform**

Tautog

- **October: Board review 2021 stock assessment update. Consider management response if necessary**

MEDIUM-LOW PRIORITY SPECIES

Atlantic Croaker

- **Implement measures triggered from the 2020 traffic light analysis (TLA) as outlined in Addendum III**

Atlantic Sturgeon

- Monitor state and federal activities in response to an Endangered Species Act listing of Atlantic sturgeon, including 5-year status review and recovery plan

Black Drum

No new tasks

Coastal Sharks

- **February: Board review of the 2021 SEDAR Blacktip Shark Stock Assessment and Peer Review. Consider management response if necessary.**
- **Monitor activities of NOAA Fisheries Highly Migratory Species (HMS) Division with regards to coastal shark management actions and consider development of complementary management actions as needed for consistency, including monitoring HMS Amendment 14 (annual catch limits and accountability measures)**

Cobia

- **Implement Addendum I (allocation and *de minimis* measures)**
- Continue to monitor and respond as necessary to NOAA rulemaking

Jonah Crab

- **Implement Addendum XXVI data elements to improve data collection and characterization of the fishery. Continue to work with ACCSP and all partners to ensure required data elements are incorporated into SAFIS.**
- **Identify data availability, limitations, and uncertainty, and recommended stock assessment approaches**

Northern Shrimp

- **Conduct stock assessment update and set specifications (current moratorium sunsets in 2021)**
- **Continue to explore long-term management options given environmental changes in the Gulf of Maine and depleted stock status**

Red Drum

- **Continue to work on assessment simulation models for use in future stock assessments**

Shad and River Herring

- **Consider management response to the 2020 American Shad Benchmark Stock Assessment and Peer Review**
- **Identify improvements to the FMP with regard to recreational management in systems with low harvest/abundance, sustainable fishery management plan (SFMP)/alternative management plan requirements and content, and incorporation of assessment information in SFMPs**
- **Complete updates to the shad habitat plans**
- Monitor management activities of NEFMC and MAFMC including, but not limited to, shad and river herring catch caps and bycatch avoidance programs

Spanish Mackerel

- Work through SEDAR to prepare Benchmark Stock Assessment for Peer Review in 2022

Spiny Dogfish

- **Contribute data and participate in 2022 research track stock assessment**

Spot

- **Implement measures triggered from the 2020 TLA as outlined in Addendum III**

Spotted Seatrout

No new tasks

Weakfish

No new tasks

Winter Flounder

- **In collaboration with NEFMC, consider management response to the management track assessment, if necessary**

CROSS CUTTING ISSUES

- **Raise awareness of COVID-19 related impacts to the Marine Recreational Information Program's (MRIP) ability to produce catch estimates**
- **Raise awareness to MRIP data standards and impacts to Commission FMPs and stock assessments**
- **Seek ways within existing management structures to address the concerns of the recreational community with regard to Commission-managed and jointly-managed species**
- **Participate in and provide administrative support for scenario planning activities to address changes in stocks and fisheries due to climate and fisheries governance**
- **Evaluate COVID-19 impacts on 2020 fishery-dependent and fishery-independent data collection; develop strategies to mitigate impacts to stock assessments and management**
- Work with the states and NOAA Fisheries on changes to the Take Reduction Plan for North Atlantic Right Whale
- Participate in a workshop with MAFMC's Research Steering Committee to examine reestablishing the Research Set Aside program
- Monitor developments related to changing ocean conditions, ocean acidification, stock distributions, ecosystem services, ocean planning and potential fisheries reallocations

Goal 2 – Provide the scientific foundation for stock assessments to support informed management actions

Sustainable management of fisheries relies on accurate and timely scientific advice. The Commission strives to produce sound, actionable science through a technically rigorous, independently peer-reviewed stock assessment process. Assessments are developed using a broad suite of fishery-independent surveys and fishery-dependent monitoring, as well as research products developed by a coastwide network of fisheries scientists at state, federal, and academic institutions. The goal encompasses the development of new, innovative scientific research and methodology, and the enhancement of the states' stock assessment capabilities. It provides for the administration, coordination, and expansion of collaborative research and data collection programs. Achieving the goal will ensure sound science is available to serve as the foundation for the Commission's evaluation of stock status and adaptive management actions.

Several fisheries science activities occur on an annual or ongoing basis, including development of stock assessments and conducting peer reviews; stock assessment scheduling and evaluation of scientists' workloads; updating Commission research priorities and distributing to funding agencies; external research proposal reviews; development of ecological reference points models; supporting multispecies/diet data collection; fish ageing and tagging programs; gear technology research; and participation in Marine Recreational Information Program (MRIP) catch estimation calibrations and Atlantic Coastal Cooperative Statistics Program (ACCSP) committees. While ongoing activities are not listed below, they continue to be conducted.

SCIENCE COMMITTEE ACTIVITIES

- **Evaluate and pursue expansion of coastwide stock assessment analytical capacity**
- **Continue incorporating socioeconomic information in management documents and streamline processes for producing socioeconomic analyses through the Committee on Economics and Social Sciences**
- Develop proposals and pursue support for outstanding fisheries research priorities through the Management and Science Committee (MSC)
- Finalize a Commission policy regarding risk and uncertainty for consideration and approval by the ISFMP Policy Board

DATA COLLECTION

- Coordinate the Southeast Area Monitoring and Assessment Program (SEAMAP) South Atlantic component
    - **Collaborate with the Southeast Coastal Ocean Observing Regional Association (SECOORA) to host SEAMAP South Atlantic survey data**
- Coordinate the Northeast Area Monitoring and Assessment Program (NEAMAP); implement action items stemming from the 2020 NEAMAP Summit
    - **Develop common methodology protocols for NEAMAP surveys**
    - **Conduct Maturity Staging Workshop**
    - **Conduct Trawl Survey Calibration Workshop**

- Collect new data to address data deficiencies
    - Collect new fishery-dependent data using black sea bass research fleet
    - Assess fixed gear and right whale interactions in the Gulf of Maine
    - Increase bycatch monitoring of sturgeon, shad and river herring, and sciaenids in state waters, as resources allow
    - **Establish, in coordination with the U.S. Geological Survey (USGS) and state agencies, American shad and river herring genetics repository for stock identification purposes**
    - Increase diet data collection to support ecosystem-based assessments and management, through new or existing programs (e.g., SEAMAP), as resources allow
- Promote the collection of acoustic tagging information and work with the Atlantic Coastal Telemetry network to integrate tagging studies along the coast; secure telemetry tagging data for use in stock assessments

FISHERIES RESEARCH

- Conduct an Atlantic Menhaden Ageing Workshop
- Conduct a Fish Ageing Quality Assurance Workshop among Atlantic coast state and university laboratories to ensure consistency between new and historical age data
- Collaborate with university researchers to develop next iteration of lobster length-structured assessment model, **with incorporation of time-varying thermal habitat effects and growth**
- Seek opportunities to collaborate with academic institutions to advance population dynamic models for use in stock assessments
- Partner with USGS to identify shared research priorities and opportunities for enhanced scientific support to the Commission

ECOSYSTEM-BASED MANAGEMENT & CHANGING OCEAN CONDITIONS

- Standardize timeline of Commission assessments to support timely updates to ERP assessments for Atlantic menhaden
- Evaluate the effects of changing ocean conditions on stock productivity and distribution; **develop criteria for adding/subtracting states from fishery management boards when stock distributions change**
- Collaborate with NOAA Fisheries Northeast and Southeast Fisheries Science Centers to include Commission interests in Ecosystem Status Reports
- Track the development of state and federal activities related to changing ocean conditions and impacts to fisheries

COMPETING OCEAN USES

- Participate in Responsible Offshore Science Alliance and provide forum for the states to discuss interactions between fisheries resources and offshore energy development
- **Explore opportunities to characterize the geographic extent of fisheries using trackers as a tool**
- Continue the Commission's role in aquaculture activities, including policy development and interstate shellfish seed tracking through the Aquaculture Committee

Goal 3 - Produce dependable and timely marine fishery statistics for Atlantic coast fisheries

Effective management depends on quality fishery-dependent data and fishery-independent data to inform stock assessments and fisheries management decisions. While Goal 2 of this Action Plan focuses on providing sound, actionable science and fishery-independent data to support fisheries management, Goal 3 focuses on providing timely, accurate catch and effort data on Atlantic coast recreational, for-hire, and commercial fisheries.

Goal 3 will accomplish this through the Atlantic Coastal Cooperative Statistics Program (ACCSP), a cooperative state-federal program that designs, implements, and conducts marine fisheries statistics data collection programs and integrates those data into data management systems that will meet the needs of fishery managers, scientists, and fishermen. ACCSP partners include the 15 Atlantic coast state fishery agencies, the three Atlantic Fishery Management Councils, the Potomac River Fisheries Commission, NOAA Fisheries, and the U.S. Fish and Wildlife Service (USFWS).

On a continuing basis, ACCSP does the following:

- Reviews and maintains coastwide standards for data collection and processing in cooperation with all program partners
- Provides funding to its Program Partners supporting data collection management and innovation through a competitive process
- Maintains commercial dealer reporting and commercial and for-hire fishermen catch reporting through the Standard Atlantic Fisheries Information System (SAFIS) electronic applications
- Coordinates state conduct of the Marine Recreational Information Program (MRIP) Access Point Angler Intercept Survey (APAIS) and the For-hire survey (FHS)
- Consolidates and integrates partner data and provides user-friendly, on-line public and confidential access to those data via the Data Warehouse
- **Maintains security protocols for ASMFC network and information systems to comply with Federal Information Security Management Act**

PROGRAM MANAGEMENT

- **Monitor ACCSP funded projects, and select FY2022 Partner projects**
- **Implement method for distribution and revision of Atlantic coast data standards which will improve accessibility and be more responsive to partner needs**
- **Implement communication strategies in accordance with the ASMFC Communications Plan**
- **Update Atlantic Recreational Implementation Plan**

FISHERIES-DEPENDENT DATA COLLECTION

SAFIS

- Support partner agency implementation of electronic trip reporting, including a single submission to meet the reporting requirements of multiple partner agencies

- Extend major redesign of the SAFIS database and applications for dealer landings (SAFIS eDR) that includes an integrated reporting solution to streamline reporting, and reduce duplication. This will be accomplished by;
    - **Integrating the SAFIS Management System (SMS) Switchboard into the eDR applications providing greater flexibility for partners and end users**
    - **Restructuring data processing to use a single pathway for online, mobile, and uploaded data entry**
- **Implement updated participant and permit database design to provide better resolution of individual and corporation fishing records**
- **Coordinate implementation of trip management system with universal trip ID**

DATA STANDARDS, DISTRIBUTION AND USE

Data Warehouse

- Update Data Warehouse structures and queries to incorporate new data elements collected by partner systems
- Continue to expand data warehouse content, **with specific emphasis on biological data and recreational estimates**
- **Implement additional processes and partner communication designed to improve data integrity**

Recreational Fisheries

- **Evaluate utility of, and standards for, private angler voluntary mobile application data**
    - **Define appropriate uses of the data to guide stakeholder expectations**
    - **Develop core fields for collection and availability of data to promote compatibility across source applications**
- Develop methodology to more fully incorporate for-hire logbooks into catch statistics

Goal 4 – Promote compliance with fishery management plans to ensure sustainable use of Atlantic coast fisheries

Fisheries managers, law enforcement personnel, and stakeholders have a shared responsibility to promote compliance with fisheries management measures. Activities under the goal seek to increase and improve compliance with FMPs. This requires the successful coordination of both management and enforcement activities among state and federal agencies. Commission members recognize that adequate and consistent enforcement of fisheries rules is required to keep pace with increasingly complex management activity and emerging technologies. Achieving the goal will improve the effectiveness of the Commission's FMPs.

The Commission's Law Enforcement Committee (LEC) carries out much of Goal 4. Most of these activities occur on an annual basis or as part of the FMP development process. Proposed changes in management are evaluated to determine enforceability and effectiveness. The LEC provides managers with feedback on the practicality of regulations to foster stakeholder buy-in and compliance.

COMPLIANCE

- **Explore methods for improved enforcement of offshore lobster regulations**
- Incorporate and reference the revised "Guidelines for Resource Managers" in reviews and evaluations of proposed changes to management programs
- Annually review and comment on (as needed) NOAA Fisheries enforcement priorities to ensure they support the enforceability and effectiveness of Commission management programs
- Aquaculture: Review and provide input on enforcement issues associated with American eel or other aquaculture proposals, including offshore aquaculture proposals
- Evaluate interagency measures to enhance traceability of fishery products across jurisdictional boundaries

PARTNERSHIPS

- Engage and support NOAA Fisheries and USFWS Offices of Law Enforcement, U.S. Department of Justice, and U.S. Coast Guard to facilitate the enforceability of Commission FMPs
- Work to sustain financial support for Joint Enforcement Agreements (JEAs)

STAKEHOLDER AWARENESS

- Use emerging communication platforms and tools to deliver real time information regarding regulations and the outcomes of law enforcement investigations
    - Explore the use of electronic tools to communicate real-time commercial and recreational regulations

Goal 5 – Protect and enhance fish habitat and ecosystem health through partnerships and education

Goal 5 aims to conserve and improve coastal, marine, and riverine habitat to enhance the benefits of sustainable Atlantic coastal fisheries and resilient coastal communities in the face of changing ecosystems. Habitat loss and degradation have been identified as significant factors affecting the long-term sustainability and productivity of our nation's fisheries. The Commission's Habitat Program develops objectives, sets priorities, and produces tools to guide fisheries habitat conservation efforts directed towards ecosystem-based management.

The challenge for the Commission and its state members is maintaining fish habitat in the absence of specific regulatory authority for habitat protection or enhancement. Therefore, the Commission will work cooperatively with state, federal, and stakeholder partnerships to achieve this goal. Much of the work to address habitat is conducted through the Commission's Habitat and Artificial Reef Committees. In order to identify critical habitat for Commission managed species, each year the committee reviews existing reference documents for Commission-managed species to identify gaps or updates needed to describe important habitat types and review and revise species habitat factsheets. The Habitat Committee also publishes an annual issue of the *Habitat Hotline Atlantic*, highlighting topical issues that affect all the states.

The Commission and its Habitat Program endorses the National Fish Habitat Partnership, and will continue to work cooperatively with the program to improve aquatic habitat along the Atlantic coast. Since 2008, the Commission has invested considerable resources, as both a partner and administrative home, to the Atlantic Coastal Fish Habitat Partnership (ACFHP), a coastwide collaborative effort to accelerate the conservation and restoration of habitat for native Atlantic coastal, estuarine-dependent, and diadromous fishes. As part of this goal, the Commission will continue to provide support for ACFHP, under the direction of the National Fish Habitat Partnership Board.

EDUCATE

- Educate Commissioners, stakeholders, and the general public about the importance of habitat to healthy fisheries and ecosystems
- Publish a Habitat Management Series document on acoustics affecting fish habitat for ISFMP Policy Board review and acceptance
- Identify mechanisms to evaluate ecosystem health for consideration by Technical Committees and Boards

INTERGRATE

- Complete Fish Habitats of Concern descriptions to be considered for integration into Commission FMPs
- Increase communication on ecosystem-based management with Commission committees to find overlap with fish habitat related issues
- Explore opportunities to integrate habitat data into stock assessments where possible

LEVERAGE PARTNERSHIPS

- Engage local, state, and regional governments in mutually beneficial habitat protection and enhancement programs through partnerships
- Foster partnerships with management agencies, researchers, and habitat stakeholders to leverage regulatory, political, and financial support
- Engage in state and federal agency efforts to ensure response strategies to changing ocean conditions are included in habitat conservation efforts
- Work with ACFHP to foster partnerships with like-minded organizations at local levels to further common habitat goals
- Promote development of effective fish passage approaches and projects through state and federal collaboration
- Provide administrative home and support to the Atlantic Coast Fish Habitat Partnership, including the following activities
    - **Collect information on the long-term successes of ACFHP on-the-ground conservation projects**
    - Develop fundraising strategy to solicit donations from the private sector (foundations, corporations) for targeted on-the-ground projects
    - Work with partners to protect, restore, or maintain resilient Regional Priority Habitats to optimize ecosystem functions and services to benefit fish and wildlife

- Restore habitats by funding fish passage and non-fish passage projects (SAV, oyster reefs, salt marshes)

Goal 6 – Strengthen stakeholder and public support for the Commission

Stakeholder and public acceptance of Commission decisions are critical to our ultimate success. For the Commission to be effective, these groups must have a clear understanding of our mission, vision, and decision-making process, as well as the opportunities that stakeholders have to participate in our process through advisory panels and public comment. The goal seeks to do so through expanded outreach and education efforts about Commission programs, decision-making processes, and its management successes and challenges. It aims to engage stakeholders in the process of fisheries management, and promote the activities and accomplishments of the Commission. Achieving the goal will increase stakeholder participation, understanding, and acceptance of Commission activities.

On a continuing basis, the Commission conducts outreach and stakeholder engagement though a number of products and activities. These include publications (e.g., bi-monthly Fisheries Focus, Annual Report to Congress), press releases, meeting summaries, stock assessment overviews, website and social media platforms, industry tradeshows and state festivals, and stakeholder engagement through the advisory panel process. Building strong relationships with local, regional and national media contacts, and networking/collaborating with our management partners from the Councils, states and federal agencies are also critical components of our outreach program, which occur on an ongoing basis.

INCREASE PUBLIC UNDERSTANDING AND SUPPORT OF ASMFC

- **Build upon Fisheries Management 101 webpage content to create Fisheries Management 101 Primer (to include interplay with Council on shared resources) or use by Commissioners/state agencies**
- **Explore methods for highlighting current status for all stocks**
- **Update *Guide to Fisheries Science and Stock Assessments***
- Identify 3-4 high profile issues and seek to proactively address stakeholder criticisms and concerns through various outreach tools
    - **Focal areas for 2021: striped bass amendment development; implementation of mandatory circle hooks for striped bass recreational fishery; and ERPs**
- Promote high profile species and stock assessment results through various outreach tools and platforms
    - **2021: Horseshoe Crab ARM Benchmark Assessment and management track assessments for Atlantic striped bass, bluefish, black sea bass and summer flounder**

MAXIMIZE USE OF CURRENT AND NEW TECHNOLOGIES

- **Update/upgrade website: modify to be https compliant; increase user friendliness; develop new content for ERPs and climate change effects on managed species**
- **Use webinars, videos and story maps to engage and inform public about current activities (management, science, habitat, and data collection and management)**

- Use new technologies and communication platforms to more fully engage the broader public in the Commission's activities and actions
- Use story mapping and photo journaling to better communicate science and management activities
- Monitor the success of website and social media platforms in reaching broader constituency and effectively communicating ASMFC mission, programs and activities

FACILITATE STAKEHOLDER PARTICIPATION

- Continue to evaluate effectiveness of current advisory panel process and consider possible changes to enhance engagement and provide management boards with useful stakeholder input
- Explore additional tools to gather public comment on proposed management actions (e.g., online surveys)
- Clearly define Commission processes to facilitate stakeholder participation, as well as transparency and accountability
    - Develop outreach materials that highlight opportunities for public engagement in the Commission's fisheries management and stock assessment processes

MEDIA RELATIONS AND NETWORKING

- Increase interdepartmental coordination on outreach activities through **the implementation of Communications Plan**
    - **Conduct a survey of ASMFC outreach products/tools to access effectiveness/success of products/tools and identify new platforms and opportunities for outreach moving forward**
- Strengthen national, regional, and local media relations to increase coverage of Commission actions
- Track media communications and coverage through ASMFC-related news clippings and media tracking sheet
- Work with other Northeast Regional Coordinating Council communication members to coordinate outreach on shared stock assessments
- Work with Atlantic Coast Fisheries Communication Group, comprised of Public Information Officers from the Councils, states and federal agencies, to share successful tools, identify key media contacts and work cooperatively on joint projects
    - **Conduct meeting in 2021**

Goal 7 – Advance Commission and member states' priorities through a proactive legislative policy agenda

State input is critical for a coherent national fisheries policy. The Commission recognizes the need to work with Congress, the Administration and partner organizations in policy formulation, and will be vigilant in advocating state interests to Congress. The Commission will pursue federal resources for states to implement and comply with the Atlantic Coastal Fisheries Cooperative Management Act

(Atlantic Coastal Act) and to improve or maintain fisheries data collection. The importance of habitat restoration, research on the impacts of changing ocean conditions, and the need for effective marine enforcement will also be communicated to Congress and our management partners.

DEVELOP AND STRENGTHEN RELATIONSHIPS WITH MEMBERS OF CONGRESS AND STAFF

- Encourage Commissioners to communicate with Members of Congress as needed and facilitate in person meetings when possible
- Provide state-specific 'ASMFC Meeting Previews' to congressional staff ahead of quarterly Meetings
- Provide opportunities for the Executive Director to communicate with congressional staff on a regular basis

ENGAGE CONGRESS AND THE ADMINISTRATION ON FISHERY-RELATED LEGISLATION AND ISSUES

- **Engage with the Administration and Congressional representatives following the November 2020 election on fisheries priorities and emerging issues**
- **Utilize the Legislative Committee to increase the Commission's effectiveness on Capitol Hill**
    - **Review pending legislation of interest to the Commission and make recommendations to the ISFMP Policy Board**
    - **Explore reauthorization of the Atlantic Striped Bass Conservation Act and Atlantic Coastal Fisheries Cooperative Management Act**
    - **Explore a Commission line-item for annual federal appropriations**
    - **Explore authorizing legislation to fund the Horseshoe Crab Trawl Survey**
- Monitor federal legislation affecting the Commission, including policy and annual appropriations bills and develop Commission positions on pending federal legislation
    - Existing laws: Atlantic Coastal Act, Interjurisdictional Fisheries Act, Anadromous Fish Conservation Act, Magnuson-Stevens Act, Federal Aid in Fish Restoration Act, and Endangered Species Act
    - Pending Legislation/Emerging Issues: forage fish management, user group and state-by-state allocations, **disaster declarations** energy initiatives (offshore wind, hydropower, oil and gas exploration), shark fin trade, right whales, and living shorelines

PURSUE FEDERAL RESOURCES TO SUPPORT MANAGEMENT ACTIVITIES

- Communicate the Commission's federal funding needs to Congress and advocate for sufficient appropriations
    - Priority line items include Regional Councils and Fishery Commissions, Interjurisdictional Fisheries Act, Fisheries Data Collections, Surveys and Assessments, SEAMAP, and Fisheries Information Networks
    - Priority projects, programs, and activities include: Atlantic Coastal/National Fish Habitat Partnership, Cooperative Enforcement Joint Enforcement Agreements, NEAMAP, GOM lobster research, Mid-Atlantic Horseshoe Crab Trawl Survey, National Sea Grant College Program, Saltonstall-Kennedy Grant Program, and National Estuarine Research Reserves

    - Increase Wallop-Breaux funding for the Atlantic, Gulf, and Pacific States Marine Fisheries Commissions via Wallop-Breaux Reauthorization legislation
    - Seek federal funding support for long-term monitoring surveys and species-specific initiatives
- Engage the Administration (Commerce and Interior Departments) on funding and policy issues, including Secretarial implementation of the Atlantic Coastal Act
- Communicate state and Commission funding needs to NOAA Fisheries and U. S. Fish and Wildlife Service

PARTNERSHIPS

- **Continue to explore opportunities to collaborate with the U.S. Geological Survey in providing scientific support to the Commission**
- Coordinate with the Gulf, Pacific, and Great Lakes Commissions on policy items of mutual interest including federal funding for fisheries programs. Executive Directors should continue to provide unified positions on funding and legislative priorities to lawmakers and federal agencies, where appropriate
- Continue participation on Marine Fisheries Advisory Committee, the Marine Fisheries Initiative and Association of Fish and Wildlife Agencies

Goal 8 – Ensure the fiscal stability and efficient administration of the Commission

Goal 8 will ensure that the business affairs of the Commission are managed effectively and efficiently, including workload balancing through the development of annual action plans to support the Commission's management process. It also highlights the need for the Commission to efficiently manage its resources. The goal promotes the efficient use of legal advice to proactively review policies and react to litigation as necessary. It also promotes human resource policies that attract talented and committed individuals to conduct the work of the Commission. The goal highlights the need for the Commission as an organization to continually expand its skill set through training and educational opportunities. It calls for Commissioners and Commission staff to maintain and increase the institutional knowledge of the Commission through periods of transition. Achieving this goal will build core strengths, enabling the Commission to respond to increasingly difficult and complex fisheries management issues.

On a continuing basis, the Commission staff conservatively manages fiscal resources to achieve the proper balance between allocating funds to coastwide priorities and ensuring fiscal stability. Tasks performed to accomplish this balance include monitoring expenditures on a monthly basis; managing the reserve fund; fine-tuning meeting and travel policies; and preparing and participating in the annual audit and indirect cost proposal.

Human resources management is an ongoing process of recruitment and selection of employees; thoroughly orienting and introducing new employees to the culture of the Commission; maintaining

good working conditions for all employees; managing employee relations; and training to enhance and increase their current skills. Ongoing tasks to accomplish this are annual review and revision of position descriptions; facilitating staff participation at national and regional conferences; and providing professional training opportunities. Additionally, human resource support is provided to cooperative programs such as APAIS and ACFHP. All human resources documents are reviewed at least annually to ensure compliance with federal regulations and consistency with current practices.

Further, Commission staff keeps abreast of changes in technology and evaluates the need for updating the Commission's hardware and software. Ensuring consistency of resources and training across the Commission as well as documenting processes and verifying database information are ongoing tasks conducted by the staff.

The Commission process can be overwhelming to new Commissioners. The staff is committed to providing a thorough introduction and orientation to new Commissioners. Tasks conducted throughout the year include documenting institutional knowledge and updating on a regular basis the Commissioner Manual. Staff also provides this service to new members of Commission committees.

MANAGE OPERATIONS AND BUDGETS

- **Develop revised statement of work for the ACCSP Cooperative Agreement to respond to the new federal grant reporting requirements**
- **Manage the CARES Act, and all ongoing Cooperative Agreements, insuring deliverables are completed and budgets are responsibly managed**
- **Provide financial support to the states to implement the Atlantic Coastal Act, as COVID-19 cost savings allow**
- Utilize and update as necessary Commission compensation plan, including job classifications and salaries based on location

UTILIZE CURRENT INFORMATION TECHNOLOGY

- **Develop a site map of the Commission's electronic filing system for internal use, including protocols for document deletion and archiving**
- **Develop a secure system for scanning all documents for the Finance and Administration Department**
- **Create a template to facilitate electronic approval of documents that have been locked with a secure, authenticated signature**
- **Manage Commission inventory through accounting software, tracking acquisitions and disposals**
- **Ensure adequate resources to support telecommuting and online meetings**
- **Enhance contracts database to add features that assist Program Managers in awareness of payment details, balances and deliverables of Commission contracts**
- **Develop SOPPs for conducting web-based meetings**
- **Provide an annual update to staff, reviewing technology that has changed or could be better-utilized**

MANAGE HUMAN RESOURCES

- **Develop a welcome/introduction document for new employees, similar to an FAQ document.**
- **Continue to refine the telecommute policy**
- **Pursue hiring a Finance and Administration Deputy Director**
- Research options for staff performance review and feedback
- Promote Commission's mission and programs, and recruit new talent through outreach meetings with various marine policy and marine science graduate programs
- Provide training opportunities for ASMFC staff
- Conduct annual meeting with financial advisor to review retirement program performance with staff and provide opportunities for staff to meet individually with financial advisor to match financial goals with investment choices for retirement

ENGAGE AND SUPPORT COMMISSIONERS

- **Conduct a meetings facilitation training workshop for technical committee members**
- Conduct a workshop on parliamentary procedures and meeting management
- Continue process to welcome and orient new Commissioners to allow for full engagement in the Commission process
- Facilitate the retention and transfer of institutional knowledge among Commissioners

ENSURE THE LEGAL COMPLIANCE OF COMMISSION ACTIONS

- Utilize legal advice on new management strategies and policies, and respond to litigation as necessary, whether it be regarding challenges to Commission FMPs, a human resource issue, or access to confidential data