



Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 30, 2020
To: Council and Board
From: Matthew Seeley, Council staff
Subject: 2021 Bluefish Specifications Review

The Council and Board will review 2021 specifications for bluefish on Tuesday, August 11, 2020. Recreational management measures for 2021 will be considered later in 2020. Materials listed below are provided for the Council and Board's consideration of this agenda item.

Please note that some materials are behind other tabs. Items are listed in reverse chronological order.

- 1) Monitoring Committee recommendation summary
- 2) September 2020 Scientific and Statistical Committee meeting report (*behind Tab 11*)
- 3) Staff memo on 2021 bluefish specifications dated June 29, 2020
- 4) Bluefish 2020 Northeast Fisheries Science Center data update
- 5) 2020 Advisory Panel Fishery Performance Report
- 6) 2020 Bluefish Fishery Information Document



**Bluefish Monitoring Committee
Meeting Summary
July 28, 2020**

Monitoring Committee Members: Matthew Seeley (Council Staff), Dustin Colson Leaning (ASMFC), Cynthia Ferrio (GARFO), Mike Celestino (NJ-F&W), Richard Wong (DE-F&W), Eric Durrell (MD-DNR), Nicole Lengyel Costa (RI-DMF), Jim Gartland (VIMS), Tony Wood (NEFSC), Kurt Gottschall (CT), Joseph Munyandorero (FL FWC), David Behringer (NC DMF), Same Truesdell (MA DMF), and John Maniscalco (NY DEC).

Others in attendance: José Montañez (Council Staff), Dewey Hemilright (MAFMC), Mike Waine (ASA), Greg DiDomenico (Lund's Fisheries).

Introduction

The Bluefish Monitoring Committee (MC) received a presentation including a summary of the Scientific and Statistical Committee's (SSC's) acceptable biological catch (ABC) recommendation for 2021, recent fishery performance, and the 2020 Northeast Fisheries Science Center (NEFSC) bluefish data update. The SSC recommended a status quo ABC of 7,385 mt (16.28 M lbs) for 2021. The ABC recommendation reflects the results of the 2019 bluefish operational assessment, which designated the bluefish stock as overfished with overfishing not occurring and is in line with the rebuilding projections set within the Bluefish Allocation and Rebuilding Amendment. Following the presentation, the MC discussed various sources of management uncertainty, estimates of discards (recreational and commercial), 2021 expected recreational landings, transfers from the recreational to commercial fishery, commercial management measures, and the implications of COVID-19. Additionally, the MC was offered an opportunity to comment on the status of the Bluefish Allocation and Rebuilding Amendment.

Management Uncertainty

Considering the bluefish flowchart (Figure 1) in the Fishery Management Plan, management uncertainty is accounted for prior to the sector specific annual catch target (ACT) split, which means management uncertainty will affect both the resulting recreational harvest limit (RHL) and commercial quota (CQ), even if management uncertainty exists in only one of the two sectors. The MC recognizes that this may be a concern moving forward since reductions for management uncertainty for only one sector is not feasible. Thus, the MC discussed and is in full support of the alternatives being developed in the Bluefish Allocation and Rebuilding Amendment.

Regarding specifications, the MC discussed various sources of management uncertainty in considering an adjustment from the annual catch limit (ACL) to the fishery-specific annual catch target.

(ACT). Most comments were related to the uncertainties surrounding the recreational dead discards and whether to use a one-year estimate or an average of the most recent two or three years. For the commercial sector, the MC indicated that there is little available data to analyze to make appropriate estimates of commercial discards. To deal with the lack of commercial discard data, the MC recommends increased observer sampling and analyses occur within the commercial fishery. Furthermore, the MC recommends commercial discards be reevaluated in the next research track assessment scheduled for 2022.

Within both sectors of the bluefish fishery, the 2017-2020 fishing years contain significant fluctuations in fishery performance. The 2018 fishing year had the lowest bluefish landings in recent history. The 2019 fishing year warranted major reductions in the bluefish bag limits for the recreational sector and reductions in commercial quota as bluefish was deemed overfished. The 2020 fishing year has been heavily disrupted by the COVID-19 pandemic and may result in unreliable catch and landings estimates. Thus, the MC recommends no reductions be taken for management uncertainty (status quo) until sector specific management uncertainty is reviewed, we develop a better grasp of commercial and recreational discards, and review the results of the next research track assessment. Additionally, the MC feels that the decisions discussed below regarding recreational discards, and 2021 expected recreational landings, account for some of the management uncertainty in the recreational sector providing further support for no management uncertainty reductions.

Recreational Discards

The MC discussed two approaches used to characterize discards in the recreational fishery. First, the MC was presented with the approach the Greater Atlantic Regional Fisheries Office (GARFO) and the Mid-Atlantic Fishery Management Council (Council) uses to monitor the recreational fishery. This approach uses the MRIP estimated mean weight (by year) of harvested fish (A+B1) times the number of released fish (MRIP-B2s) and an assumed 15% release mortality. The MC generally agreed that this estimate does not fully capture recreational fishery dynamics because this approach uses the mean weight of harvested fish, not discards, and the length frequency data suggests that released fish tend to be larger than retained fish. The second approach uses the NEFSC discard estimates, which incorporates a length-weight relationship for released fish data from the MRIP, American Littoral Society tag releases, and volunteer angler surveys from Connecticut, Rhode Island, and New Jersey. However, this sampling approach does not characterize the entire coast, which adds to the uncertainty in these estimates. To further validate this point, staff presented an additional figure detailing the spatial distribution of live release data and release at length data for 2016-2018 (Figure 2). Furthermore, the NEFSC discard estimates are approximately 3x higher than the MRIP estimates, and in some cases, exceed the recreational ACT. Finally, the NEFSC assessment scientist indicated that the next research track assessment would investigate using the MRIP release weight methodology (used by GARFO and the Council to monitor the fishery) to estimate the weight of released fish in the assessment.

Considering the discard variability in recent years, shifts in MRIP to re-calibrated estimates, and the COVID-19 pandemic, the MC recommends using a 3-year (2017-2019) average of MRIP discards to develop the 2021 specifications, using the MRIP release weight methodology. The MC endorsed the NEFSC methodology as the best approach but are not convinced sufficient data are

available to inform the calculations, and hence believe the MRIP approach, while not ideal, has less uncertainty in comparison. Consequently, the MC believes it would be helpful to evaluate the potential or need for a coastwide biological sampling program to provide additional data for the NEFSC approach.

The MC also discussed the cyclical nature of more restrictive management measures potentially resulting in more releases.

The 3-year average results in discards of 6.32 M lbs as opposed to the initial staff recommendation of using the 2019 MRIP discards of 5.17 M lbs. The MC indicated that the 3-year average attempts to smooth the uncertainties associated with the recreational discards.

Commercial Discards

The MC discussed recent reports of increased commercial discards in the bluefish fishery. Commercial discards were not included in the benchmark stock assessment or operational assessment as they were deemed negligible (SAW 60). Last year, some Advisory Panel members indicated that in recent years (i.e., since 2015) localized discards in the commercial fishery are increasing and may not be insignificant. Some MC members (and members of the public, through public comment on the call) also noted that commercial releases may increase in conjunction with, and because of, reductions in quota. The MC further discussed that while commercial discards may have been negligible in the past, with reduced commercial quotas in recent years, the number of regulatory discards could be more significant. As noted in the Management Uncertainty section of this document, the MC recommends that increased observer sampling and analyses occur within the commercial fishery to better understand commercial discards prior to the 2022 research track assessment.

2021 Expected Recreational Landings (ERL)

In recent years, expected recreational landings have been calculated from three-year averages using the most recent complete fishing years during the July MC meeting. This year, the MC recommends waiting until the November Recreational Measures MC meeting to provide a recommendation for ERL. In November, wave 4 recreational data will be available for 2020 and projections can be made using the most up to date data. However, the MC does have major concerns with the fact that the recreational management measures (reductions in bag limits) developed in 2019 were not officially finalized until mid-2020. Additionally, the MC is concerned with the MRIP landing and effort estimates for 2020 as a result of the COVID-19 pandemic. Thus, the MC will review the 2020 projections in November, but may also consider other approaches to develop ERL that have not yet been discussed.

Transfers

The MC recommends no transfer be applied from the recreational fishery to commercial fishery. No transfer can occur (as indicated in the regulations) because the recreational fishery is anticipated to harvest the full RHL.

Resulting Commercial Quota and RHL

The resulting RHL and CQ recommended by the MC for 2021 specifications are 7.19 M lbs and 2.77 M lbs, respectively (Table 1). The decisions made by the MC to recommend MRIP-based 3-year average recreational discard estimates and no transfer, on top of the already restricted quotas results in a very low CQ and RHL for 2021. Defining the RHL and CQ in this manner likely accounts for a large amount of the uncertainty present in the management of the bluefish stock, which faces rebuilding over the next few years. The Monitoring Committee acknowledges that such low levels of allowable landings present challenges to managers and fishery participants.

The MC also noted that the 2021 recommended CQ of 2.77 M lbs is the smallest in recent years, especially considering the 2019 commercial landings (2.78 M lbs) would have exceeded the quota. However, the MC recommends no commercial management measures because the states have discretion to alter their own commercial trip and size limits. A federal size limit could be imposed; however, in reviewing the state-by-state commercial bluefish regulations, the MC noted that many states have already implemented minimum size limits. Additionally, the average size of bluefish varies state to state and the MC does not currently have the data to make an informed decision regarding a single coastwide minimum size limit and does not believe the additional burden on the commercial sector is warranted. If adjustments to a federal season were to be considered, implementation would need to occur through a framework action.

Recreational Management Measures

The MC needs Council/Board action on the RHLs and CQs prior to identifying the associated recreational management measures. To constrain harvest to the RHL, the MC will review the current management measures in place and will reconvene in November 2020 to utilize the Council approved RHLs and CQs to set management measures (as conducted in 2019).

Atlantic Bluefish Flowchart

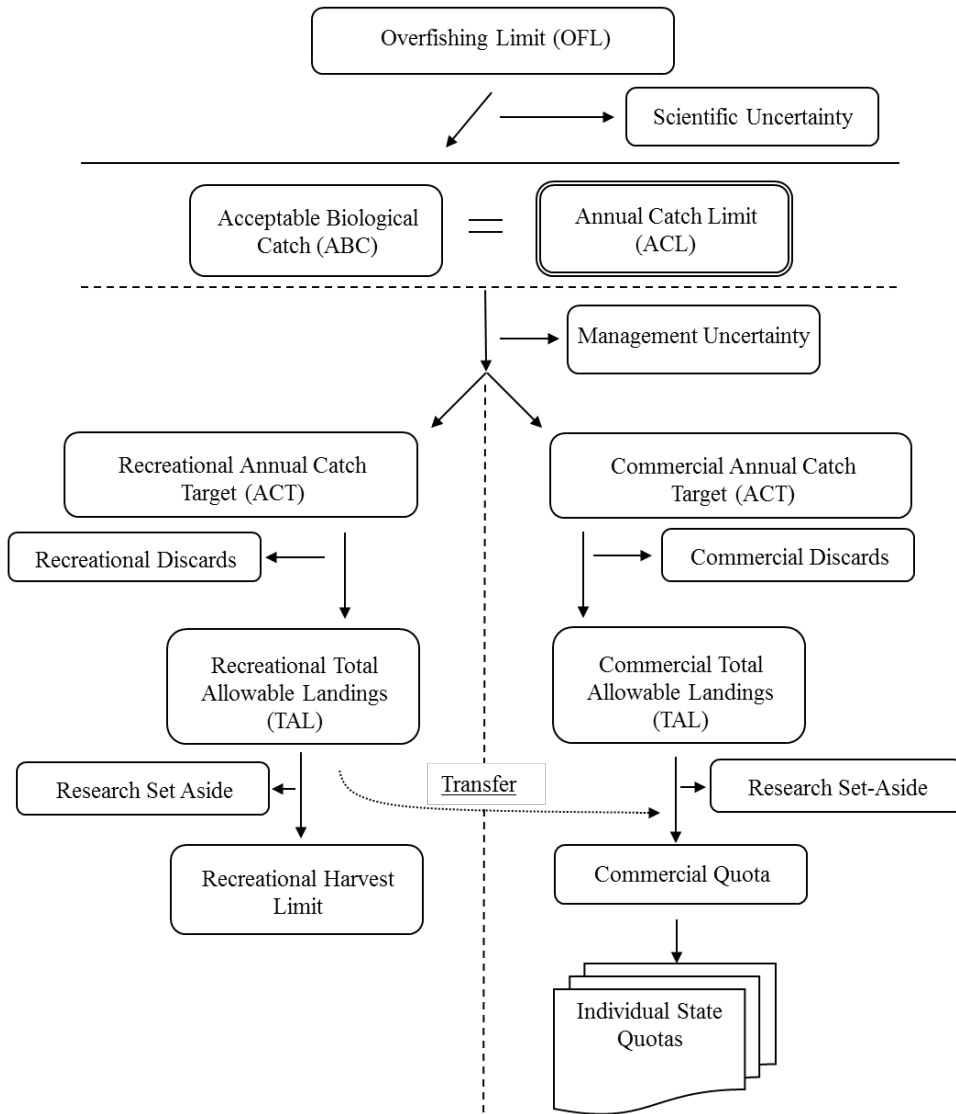


Figure 1. Bluefish specification process as described in Amendment 3 to the Bluefish FMP.

Total spatial distribution of live releases and release at length data (2016-2018)

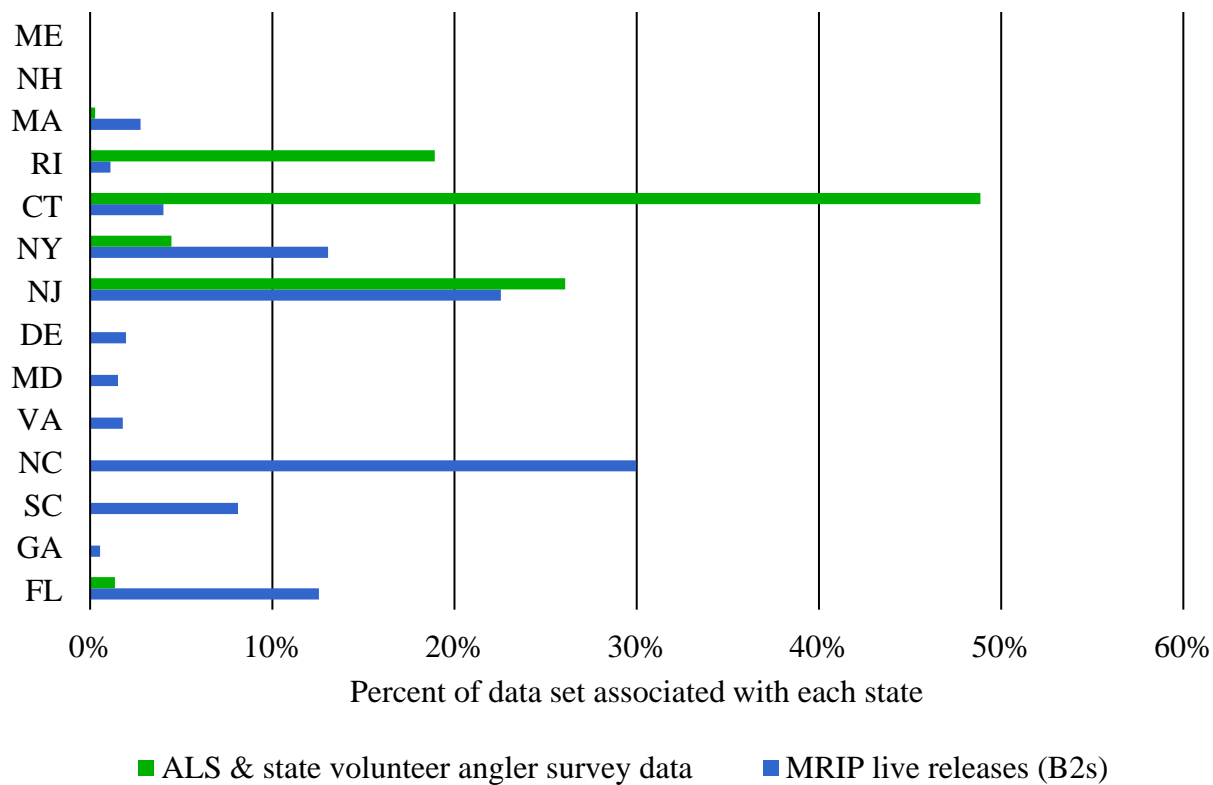


Figure 2. Bluefish total spatial distribution of MRIP live releases and release at length data from the American Littoral Society and volunteer angler survey data (2016-2018).

Table 1. Current (2020) management measures and MC recommended bluefish catch and landings limits for 2021.

Management Measure	2020		Basis	2021		Basis
	M lb ¹	mt		M lb	mt	
OFL	37.98	17,228	Stock Assessment Projections	37.98	17,228	Stock Assessment Projections
ABC	16.28	7,385	Derived by SSC; Council P* policy	16.28	7,385	Derived by SSC; Council P* policy ²
ACL	16.28	7,385	Defined in FMP as equal to ABC	16.28	7,385	Defined in FMP as equal to ABC
Management Uncertainty	0	0	Derived by Monitoring Committee	0	0	Derived by Monitoring Committee
Commercial ACT	2.77	1,255	(ACL – Management Uncertainty) x 17%	2.77	1,255	(ACL – Management Uncertainty) x 17%
Recreational ACT	13.51	6,130	(ACL – Management Uncertainty) x 83%	13.51	6,130	(ACL – Management Uncertainty) x 83%
Commercial Discards	0	0	Value used in assessment	0	0	Value used in the assessment
Recreational Discards	4.03	1,829	2017 discards	6.32	2,868	2017-2019 average discards
Commercial TAL	2.77	1,255	Commercial ACT – commercial discards	2.77	1,255	Commercial ACT – commercial discards
Recreational TAL	9.48	4,301	Recreational ACT – recreational discards	7.19	3,261	Recreational ACT – recreational discards
TAL Combined	12.25	5,556	Commercial TAL + recreational TAL	9.96	4,517	Commercial TAL + recreational TAL
Transfer	0	0	Calculated so Expected Recreational Landings = RHL	0	0	Calculated so Expected Recreational Landings = RHL
Expected Recreational Landings	13.27	6,020	2018 Recreational Landings	15.56	7,056	2019 Recreational landings, but remains TBD in November
Commercial quota	2.77	1,255	Commercial TAL + transfer	2.77	1,255	Commercial TAL + transfer
RHL	9.48	4,301	Recreational TAL – transfer	7.19	3,261	Recreational TAL - transfer

¹ SSC recommendations are made in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds (M lb) the numbers may slightly shift due to rounding. The conversion factor used is 1 mt = 2204.6226 pounds.

² Bluefish projections for the rebuilding plan were developed prior to the Council turning to the new risk policy, thus, the 2020 and 2021 ABCs were developed with the old risk policy. However, the ABCs for 2022 and beyond do incorporate the new Council risk policy.

SSC Report is behind

Tab 11



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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: June 29, 2020
To: Dr. Chris Moore, Executive Director
From: Matthew Seeley, Staff
Subject: 2021 Bluefish Specifications Review

Executive Summary

An operational assessment update for bluefish was peer reviewed in August 2019. The assessment incorporates data through 2018, including the revised time series (1985-2018) of recreational catch provided by the Marine Recreational Information Program (MRIP).¹

2020 catch and landings limits for bluefish (Table 1) were adopted by the Council and Board in October/December 2019. The measures currently implemented for 2020 include an Acceptable Biological Catch (ABC) of 16.28 million lbs or 7,385 mt. The Scientific and Statistical Committee (SSC) should review and recommend any necessary revisions to the 2021 ABC for the Council and Atlantic States Marine Fisheries Commission's (Commission) Bluefish Board (Board) to consider at their joint August 2020 meeting.

Similarly, the Monitoring Committee (MC) should review recent fishery performance and make a recommendation to the Council and Board regarding 2021, annual catch targets (ACTs), total allowable landings (TALs), commercial quotas, recreational harvest limits (RHLs), and any other associated management measures.

Bluefish will be entering a rebuilding plan in 2022 due to the overfished status. All rebuilding projections were developed using the new risk policy for 2022 and beyond. However, 2020-2021 ABCs use the old risk policy since they were projected prior to finalization of the new risk policy. Since there is only one year left in the current two-year specifications package, staff recommends not revising the ABCs using the new risk policy to encourage stability in quotas for the overfished fishery. Also, the new risk policy would only result in an increase in the ABC of ~6.8% compared to the old risk policy under the same B/B_{MSY} ratio = 0.46. Furthermore, a bluefish management

¹ In July 2018, MRIP released revisions to their time series of recreational catch and landings estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology (i.e., a transition from a telephone-based effort survey to a mail-based effort survey). The revised, or calibrated, estimates of catch and landings for most years are several times higher than the previous estimates for shore and private boat modes, substantially raising the overall bluefish catch and harvest estimates.

track assessment is scheduled in 2021 where we will receive data updating the stock status and rebuilding projections.

This memo provides recommendations for review of the 2021 bluefish specifications. For 2021, staff recommends a status quo acceptable biological catch (ABC) of 16.28 million pounds (7,385 mt).

Table 1. Staff recommended 2021 bluefish specifications.

Management Measure	2021		Basis
	mil lb.	mt	
Overfishing Limit (OFL)	37.98	17,228	Stock assessment projections
ABC	16.28	7,385	Derived by SSC, based on old Council risk policy (2019)
ACL	16.28	7,385	Defined in FMP as equal to ABC
Management Uncertainty	0	0	Derived by the Monitoring Committee
Commercial ACT	2.77	1,255	(ACL – Management Uncertainty) x 17%
Recreational ACT	13.51	6,130	(ACL – Management Uncertainty) x 83%
Commercial Discards	0	0	Value used in assessment
Recreational Discards	5.17	2,343	2019 discards
Commercial TAL	2.77	1,255	Commercial ACT – commercial discards
Recreational TAL	8.34	3,782	Recreational ACT – recreational discards
Combined TAL	11.11	5,039	Commercial TAL + Recreational TAL
Transfer	0	0	Calculated so Expected Rec. Landings = RHL
Expected Recreational Landings	15.56	7,056	2019 Recreational Landings
Commercial Quota	2.77	1,255	Commercial TAL + transfer
RHL	8.34	3,782	Recreational TAL – transfer

Introduction

The Magnuson-Stevens Act (MSA) requires each Council's SSC to provide ongoing scientific advice for fishery management decisions, including recommendations for ABC, preventing overfishing, and achieving maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. In addition, the MC established by the Fishery Management Plan (FMP) is responsible for developing recommendations for management measures designed to achieve the recommended catch limits. The SSC recommends ABCs that addresses scientific uncertainty, while the MC recommends ACTs that address management uncertainty and management measures to constrain catch to the TALs.

In late 2019, the Council/Board adopted recommendations for 2020-2021 catch and landings limits for bluefish based on the results of the new operational stock assessment update.

This year, both the SSC and MC will review the 2021 measures and recommend revisions (if necessary) for 2021. The Council/Board will meet jointly to consider these recommendations in August 2020.

Recent Catch and Landings

Commercial and recreational landings and dead discards 1996-2019 are shown in Figure 1.

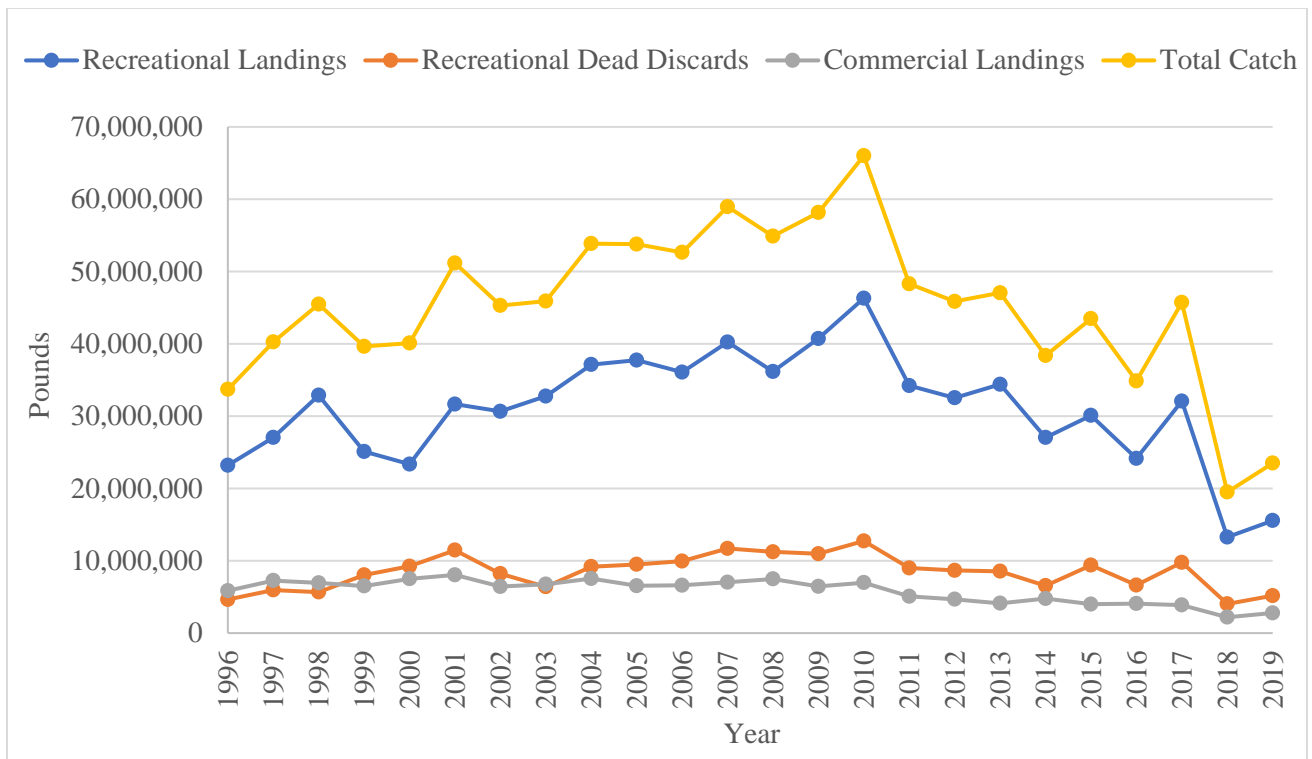


Figure 1. Bluefish catch components from 1996-2019 including the revised MRIP time series for recreational data.

MRIP recreational landings increased by approximately 17% from 2018 to 2019 (13.27 million pounds to 15.56 million pounds) and reported the second lowest recreational landings (2018 is lowest) for the time series. This coincides with effort, as the number of recreational trips² in 2019 (8,301,107) is the third lowest reported in the 2000-2019 period.

Commercial landings increased by approximately 26% from 2018 to 2019 (2.20 million pounds to 2.78 million pounds). This increase came off the lowest recorded landings in the commercial time series (2018). Landings identified through the dealer database (cfders) were broken down with the following gear: gillnet (44%), followed by unknown gear (28%), otter trawl/bottom fish (12%), other (11%) and handline (5%). Recreational and commercial landings and recreational discards (assuming an average coastwide weight of 1.3 pounds) by state are available in Table 2.

Table 2. Recreational landings and discards and commercial landings by state for 2019.

State	Recreational (MRIP) Landings (Pounds)	Recreational (MRIP) Discards (Pounds)	Commercial Landings (Pounds)
ME	0	0	0
NH	0	0	0
MA	719,130	91,871	184,182
RI	931,991	119,316	415,836
CT	1,161,103	159,840	33,392
NY	3,521,431	651,115	594,822
NJ	1,660,208	500,941	203,047
DE	415,267	83,922	4,505
MD	154,451	44,259	22,776
VA	581,458	219,430	169,179
NC	3,011,480	1,396,674	934,883
SC	502,699	1,086,428	0
GA	21,886	48,172	0
FL	2,874,785	764,488	214,338
Unknown	N/A	N/A	262
Total	15,555,889	5,166,456	2,777,222

Review of Prior SSC Recommendations

In September 2019, the SSC recommended new ABCs for 2020-2021, which incorporated the results of the 2019 operational stock assessment. To make this recommendation, the SSC reviewed 2018 fishery performance, the 2019 data update, and materials from the SAW 60 benchmark assessment.

² Estimated number of recreational fishing trips where the primary or secondary target was bluefish, Maine – Florida's East Coast. Source: MRIP.

To derive the 2020-2021 ABCs, a CV of 100% was applied to the OFL with a typical life history. The SSC offered ABCs using the constant/average and varied approach (Table 3). Upon review, the Council selected to move forward with the average ABC approach. This resulted in ABCs of 7,385 mt.

Table 3. 2019 bluefish operational assessment ABC projections for 2020-2021. The projections assume the 2019 ABC of 9,897 mt with recreational catch in ‘New’ MRIP equivalents will be taken in 2019, providing an estimated catch of 22,614 mt in 2019. OFL Total Catches are catches in each year fishing at $F_{MSY} = 0.183$, prior to calculation of the associated annual ABC. The projections sample from the estimated recruitment for 1985-2018 and use the MAFMC SSC OFL CV working group recommended OFL CV = 100%.

Average ABC 2020-2021					
Total Catch, Landings, Discards, Fishing Mortality (F) and Spawning Stock Biomass (SSB) Catches and SSB in metric tons					
Year	OFL Total Catch	ABC Total Catch	ABC F	ABC P* value	ABC SSB
2019	15,373	22,614	0.279	0.679	92,773
2020	14,956	7,385	0.087	0.198	102,166
2021	17,228	7,385	0.075	0.154	115,041

Stock Status and Biological Reference Points

Projections

In August 2019, a bluefish operational assessment, which included revised bluefish MRIP estimates through 2018 changed the stock status and biological reference points from SAW 60, which utilized data through 2014.

The biological reference points for bluefish revised through the 2019 operational assessment include a fishing mortality threshold of $F_{MSY} = F_{35\%}$ (as the F_{MSY} proxy) = 0.183, and a biomass reference point of $SSB_{MSY} = SSB_{35\%}$ (as the SSB_{MSY} proxy) = 438.10 million lbs (198,717 mt). The minimum stock size threshold ($1/2 SSB_{MSY}$), is estimated to be 219.05 million lbs (99,359 mt); Table 4. SSB in 2018 was 200.71 million lbs (91,041 mt) (Figure 2).

Operational assessment results indicated that the bluefish stock was overfished and overfishing was not occurring in 2018 relative to the biological reference points. Fishing mortality on the fully selected age 2 fish was 0.146 in 2018, 80% of the updated fishing mortality threshold reference point F_{MSY} proxy = $F_{35\%} = 0.183$ (Figure 3). There is a 90% probability that the fishing mortality rate in 2018 was between 0.119 and 0.205.

Table 4. Summary of changes in biological reference points and terminal year SSB and F estimates resulting from the SAW/SARC 60 process.

	SAW/SARC 60 (2015) Biological Reference Points and most recent update stock status results (data through 2014)	Bluefish Operational Assessment (2019) Biological Reference Points and stock status results (data through 2018)
Stock Status	Not Overfished, Not Overfishing	Overfished, Not Overfishing
SSB_{MSY}	223.42 million lbs (101,343 mt)	438.10 million lbs (198,717 mt)
½ SSB_{MSY}	111.71 million lbs (50,672 mt)	219.05 million lbs (99,359 mt)
Terminal year SSB	2014: 258.76 million lbs (86,534 mt) 85% of SSB _{MSY}	2018: 200.71 million lbs (91,041 mt) 46% of SSB _{MSY}
F_{MSY}	0.190	0.183
Terminal year F	2014: 0.157 83% of F _{MSY}	2018: 0.146 80% of F _{MSY}

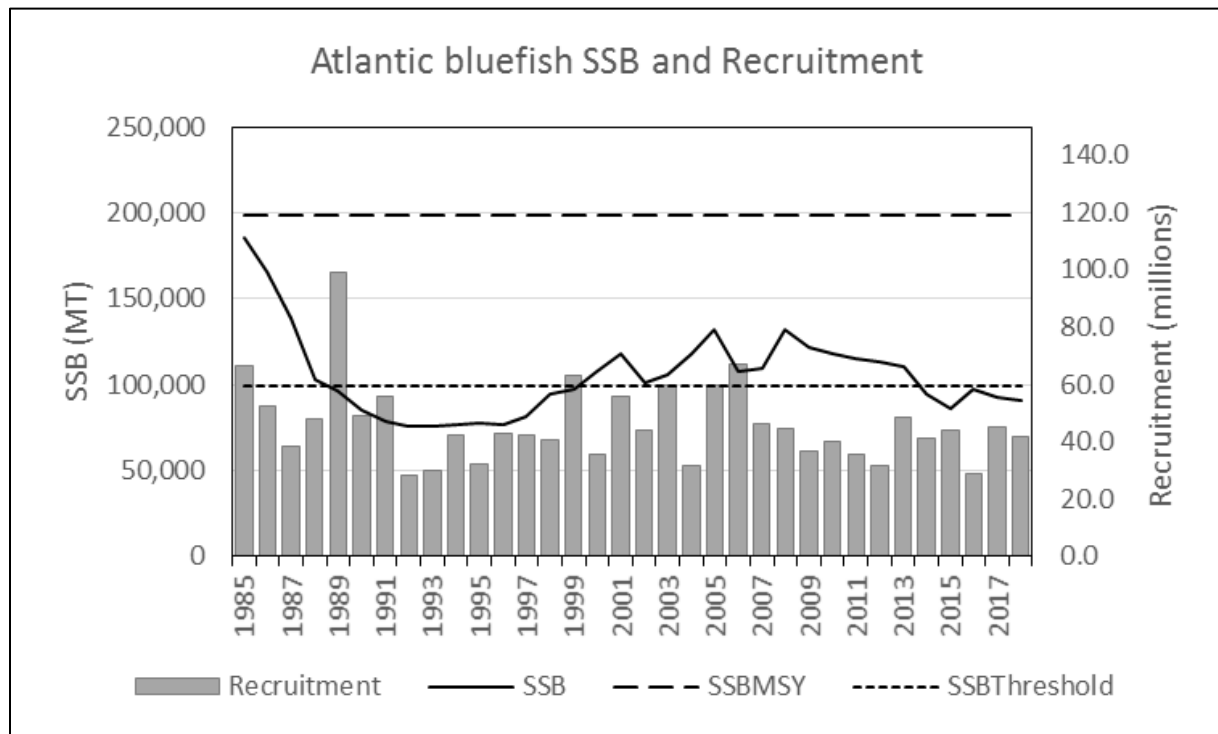


Figure 2. Atlantic bluefish spawning stock biomass (SSB; solid black line) and recruitment at age 0 (R; gray vertical bars) by calendar year. The horizontal dashed line is the updated SSB_{MSY} proxy = SSB_{40%} = 198,717 mt, and the dotted black line is the SSB_{Threshold} = 99,359 mt.

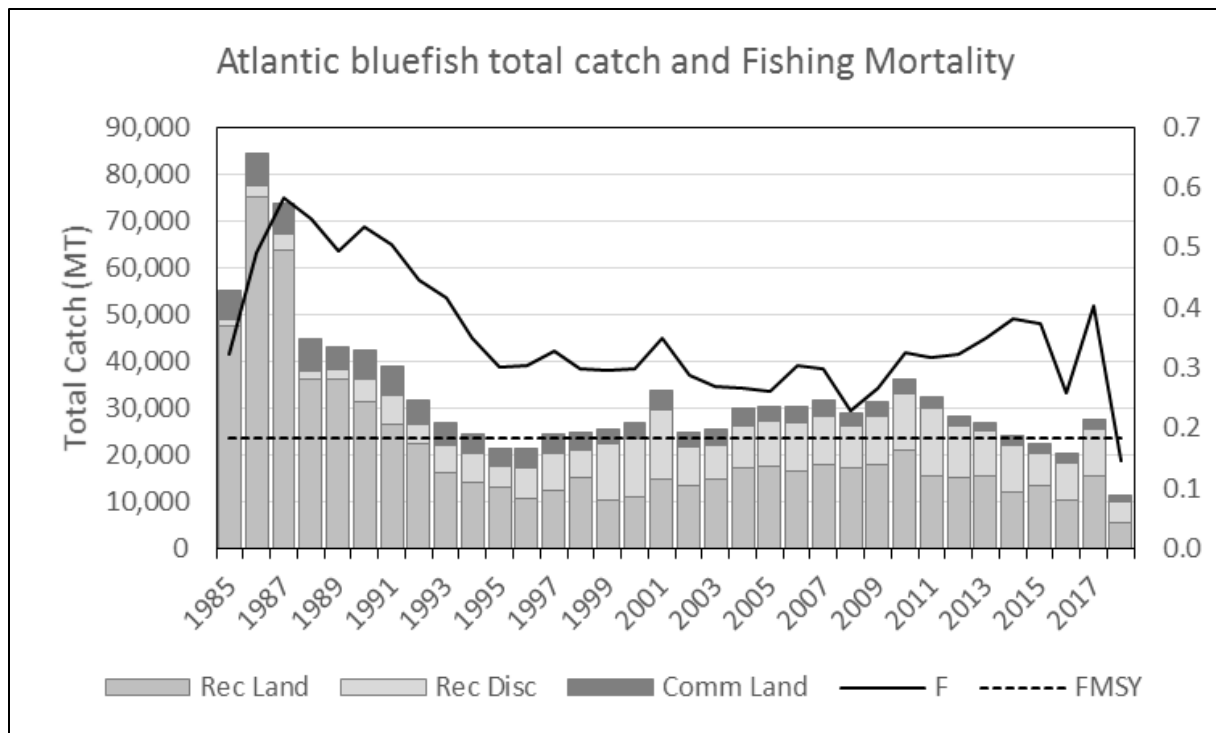


Figure 3. Total fishery catch (metric tons; mt; solid line) and fishing mortality (F, peak at age 3; squares) for Atlantic bluefish. The horizontal dashed line is the updated F_{MSY} proxy = $F_{35\%}$ = 0.183.

The 2019 operational assessment indicated the bluefish stock has experienced a decline in SSB over the past decade, coinciding with an increasing trend in F. Recruitment has remained fairly steady, fluctuating just below the time-series mean of 46 million fish. Both commercial and recreational fisheries had poor catch in 2016 (44.91 million lbs or 20,370 mt) and 2018 (24.89 million lbs or 11,288 mt), resulting in the second lowest and lowest catches on record (excluding 2019), respectively. As a result of the very low catch in 2018, fishing mortality was estimated below the reference point for the first time in the time-series. These lower catches are possibly a result of availability. Anecdotal evidence suggests larger bluefish stayed offshore and inaccessible to most of the recreational fishery during these two years.

Staff Recommendations for 2021 ABCs

For 2021, staff recommends a status quo ABC of 16.28 million pounds (7,385 mt) based on the projections developed from the 2019 bluefish operational assessment, recent fishery performance (Data update and Fishery Information Document), and an understanding that bluefish will enter a rebuilding plan in 2022 (Table 5). Since bluefish is scheduled for a management track assessment in 2021, will enter a rebuilding plan in 2022 due to the overfished status, and development of rebuilding projections alternatives have been drafted (Appendix A), Council staff recommends not updating ABCs with the new risk policy for 2021. Furthermore, consistent ABCs would offer stability in a fishery that is currently overfished.

Table 5. Current fishing year specifications (2020) and 2021 staff recommended specifications for bluefish.

Management Measure	2020 (Current Measures set in 2019)		Basis for 2021 Staff Recommendation	2021 (Staff recommended)	
	M lbs	mt		M lbs	mt
Overfishing Limit	37.98	17,228	Stock assessment projections	37.98	17,228
ABC	16.28	7,385	Derived by SSC, based on old Council risk policy (2019)	16.28	7,385
ACL	16.28	7,385	Defined in FMP as equal to ABC	16.28	7,385
Management Uncertainty	0	0	Derived by the Monitoring Committee	0	0
Commercial ACT	2.77	1,255	(ACL – Management Uncertainty) x 17%	2.77	1,255
Recreational ACT	13.51	6,130	(ACL – Management Uncertainty) x 83%	13.51	6,130
Commercial Discards	0	0	Value used in assessment	0	0
Recreational Discards	4.03	1,829	2019 discards	5.17	2,343
Commercial TAL	2.77	1,255	Commercial ACT – commercial discards	2.77	1,255
Recreational TAL	9.48	4,301	Recreational ACT – recreational discards	8.34	3,782
Combined TAL	12.25	5,556	Commercial TAL + Recreational TAL	11.11	5,039
Transfer	0	0	Calculated so Expected Rec. Landings = RHL	0	0
Expected Rec Landings	13.27	6,020	2019 Recreational Landings	15.56	7,056
Commercial Quota	2.77	1,255	Commercial TAL + transfer	2.77	1,255
Recreational Harvest Limit	9.48	4,301	Recreational TAL – transfer	8.34	3,782

Appendix (A) – Rebuilding Projections

Constant Harvest: 4-year Rebuilding Plan

For this projection alternative, the FMAT requested a constant harvest approach (current ABC) be utilized until the stock is rebuilt (Table A1 and Figure A1). This projection rebuilds the stock by end of year 2025 (4-year rebuilding plan). *This alternative does not require an adjustment to the Council risk policy because the catches are less than those described under the P* approach.*

Table A1. Constant harvest rebuilding projection.

Year	SSB (MT)	Recruits (000s)	F	Catch (MT)	SSBMSY (MT)	SSBthresh (MT)
2019	92,779	43,282	0.279	22,614	198,717	99,359
2020	102,165	43,455	0.087	7,385	198,717	99,359
2021	115,085	43,428	0.075	7,385	198,717	99,359
2022	137,450	43,460	0.064	7,385	198,717	99,359
2023	162,495	43,353	0.052	7,385	198,717	99,359
2024	197,141	43,239	0.045	7,385	198,717	99,359
2025	229,121	43,379	0.039	7,385	198,717	99,359
2026	269,777	43,362	0.034	7,385	198,717	99,359

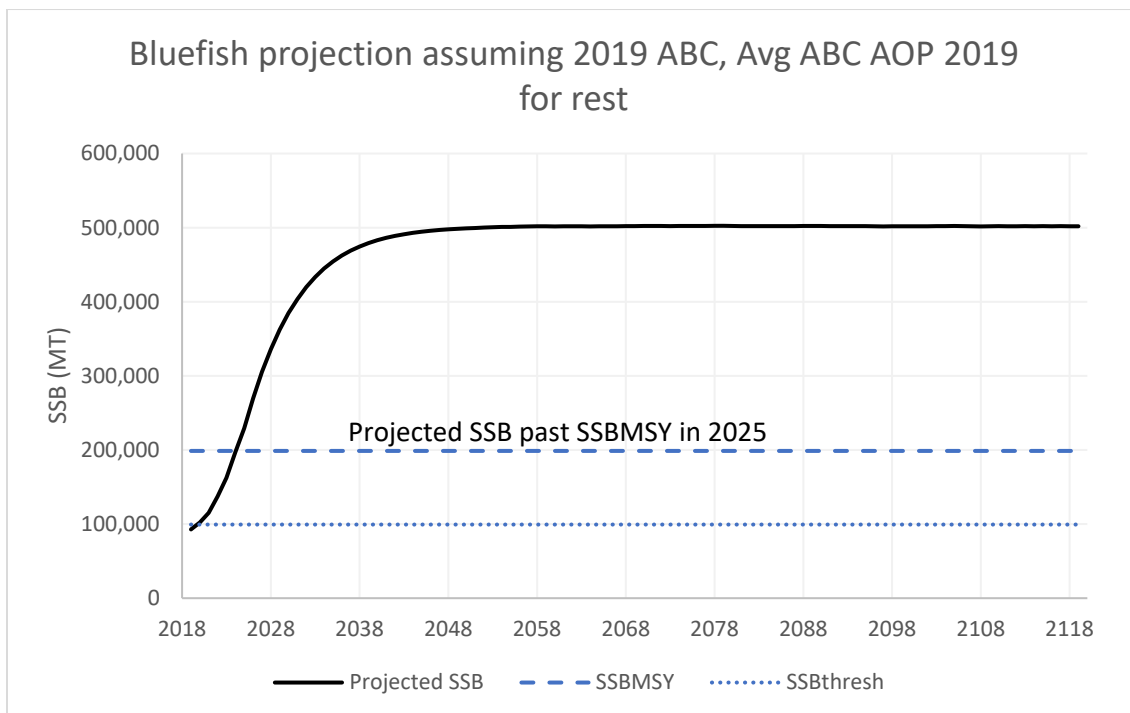


Figure A1. Constant harvest rebuilding projection.

Constant Fishing Mortality (10 years): 10-year Rebuilding Plan

For this projection alternative, the FMAT requested a constant fishing mortality approach (F) be utilized until the stock is rebuilt (Table A2 and Figure A2). This projection rebuilds the stock by end of year 2031 (10-year rebuilding plan). *This alternative requires an adjustment to the Council risk policy for this rebuilding plan only because the catches are higher than those described under the P* approach.*

Table A2. Constant 10-year F rebuilding projection.

Year	SSB (MT)	Recruits (000s)	F	Catch (MT)	SSBMSY (MT)	SSBthresh (MT)
2019	92,732	43,262	0.281	22,614	198,717	99,359
2020	102,174	43,402	0.088	7,385	198,717	99,359
2021	115,012	43,304	0.076	7,385	198,717	99,359
2022	131,624	43,389	0.177	19,616	198,717	99,359
2023	141,297	43,274	0.177	21,894	198,717	99,359
2024	154,661	43,462	0.177	22,990	198,717	99,359
2025	162,976	43,235	0.177	24,398	198,717	99,359
2026	175,734	43,367	0.177	25,907	198,717	99,359
2027	184,062	43,488	0.177	26,904	198,717	99,359
2028	189,900	43,425	0.177	27,595	198,717	99,359
2029	193,952	43,561	0.177	28,100	198,717	99,359
2030	197,035	43,300	0.177	28,463	198,717	99,359
2031	199,167	43,326	0.177	28,723	198,717	99,359

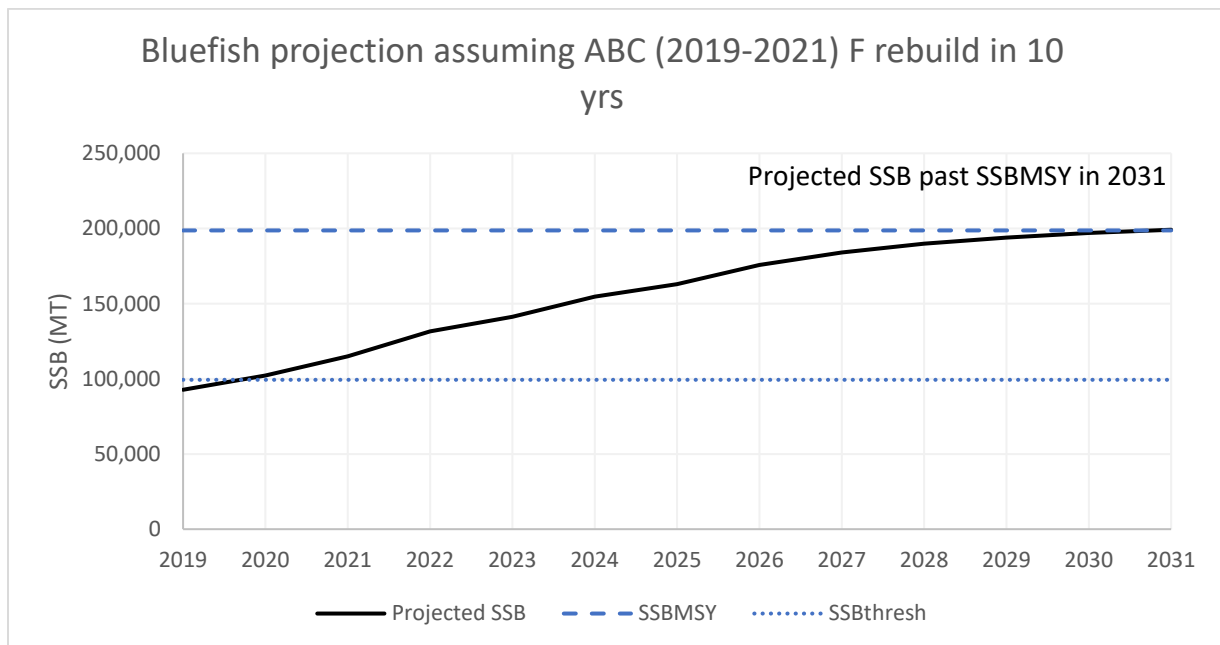


Figure A2. Constant 10-year F rebuilding projection.

Constant Fishing Mortality (7 years): 7-year Rebuilding Plan

For this projection alternative, the FMAT requested a constant fishing mortality approach (F) be utilized until the stock is rebuilt (Table A3 and Figure A3). This projection rebuilds the stock by end of year 2028 (7-year rebuilding plan). *This alternative requires an adjustment to the Council risk policy for this rebuilding plan only because the catches are higher than those described under the P* approach.*

Table A3. Constant 7-year F rebuilding projection.

Year	SSB (MT)	Recruits (000s)	F	Catch (MT)	SSBMSY (MT)	SSBthresh (MT)
2019	92,755	43,320	0.279	22,614	198,717	99,359
2020	102,186	43,531	0.087	7,385	198,717	99,359
2021	115,073	43,310	0.075	7,385	198,717	99,359
2022	132,150	43,390	0.166	18,477	198,717	99,359
2023	143,271	43,292	0.166	20,813	198,717	99,359
2024	158,152	43,272	0.166	22,033	198,717	99,359
2025	168,006	43,395	0.166	23,532	198,717	99,359
2026	182,311	43,336	0.166	25,121	198,717	99,359
2027	191,855	43,578	0.166	26,191	198,717	99,359
2028	198,520	43,411	0.166	26,939	198,717	99,359

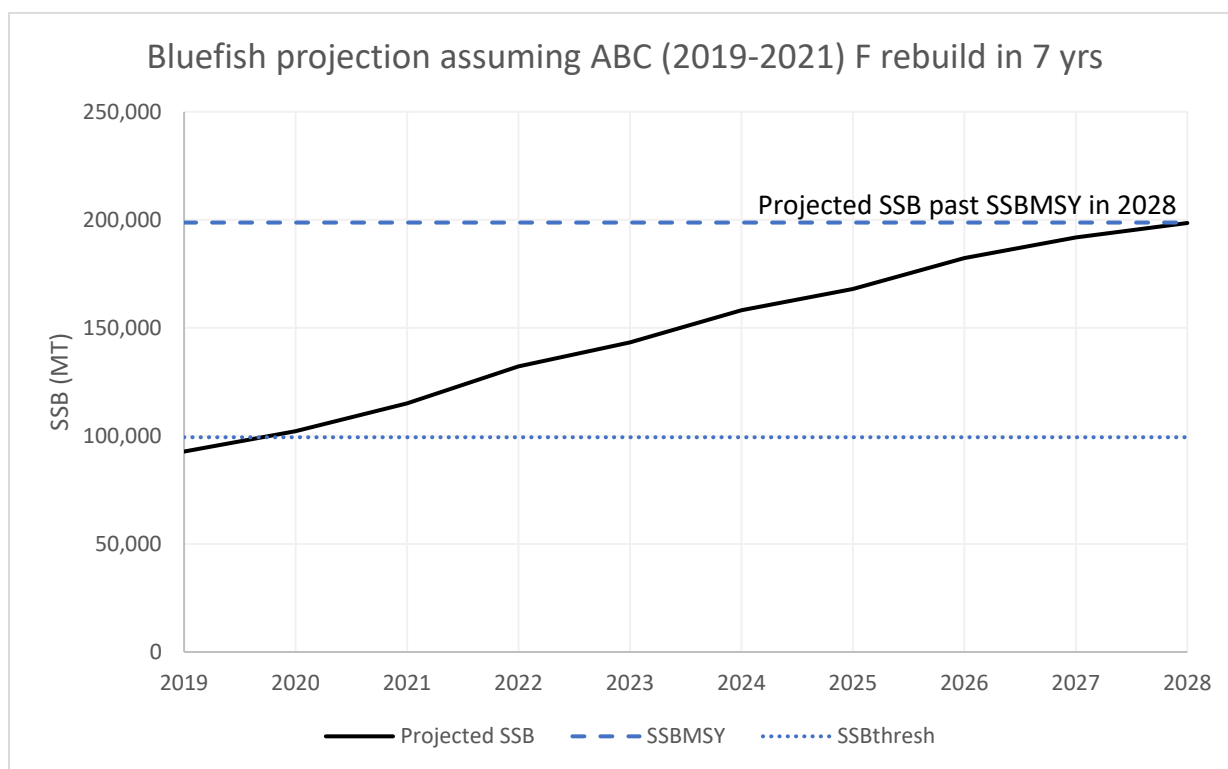


Figure A3. Constant 7-year F rebuilding projection.

Constant Harvest (Highest Catch): 10-year Rebuilding Plan

For this projection alternative, the FMAT requested a constant harvest approach with the highest possible catch to rebuild the stock in 10 years (Table A4 and Figure A4). This projection rebuilds the stock by end of year 2031 (10-year rebuilding plan). *This alternative requires an adjustment to the Council risk policy for this rebuilding plan only because the catches are higher than those described under the P* approach.*

Table A4. Constant harvest rebuilding projection using the highest catch to rebuild over 10-years.

Year	SSB (MT)	Recruits (000s)	F	Catch (MT)	SSBMSY (MT)	SSBthresh (MT)
2019	92,732	43,262	0.280	22,614	198,717	99,359
2020	102,174	43,402	0.087	7,385	198,717	99,359
2021	115,012	43,304	0.075	7,385	198,717	99,359
2022	128,975	43,389	0.231	25,094	198,717	99,359
2023	133,420	43,274	0.215	25,094	198,717	99,359
2024	142,065	43,462	0.209	25,094	198,717	99,359
2025	147,216	43,235	0.200	25,094	198,717	99,359
2026	158,145	43,367	0.188	25,094	198,717	99,359
2027	166,971	43,488	0.180	25,094	198,717	99,359
2028	175,055	43,425	0.173	25,094	198,717	99,359
2029	183,301	43,561	0.166	25,094	198,717	99,359
2030	191,143	43,300	0.160	25,094	198,717	99,359
2031	198,717	43,326	0.154	25,094	198,717	99,359

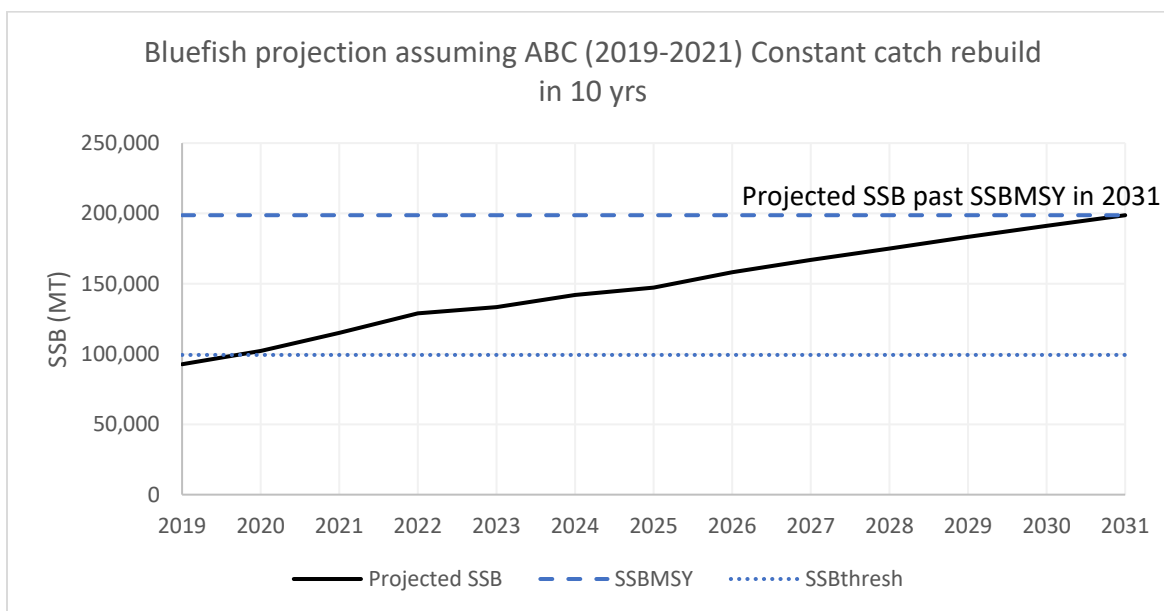


Figure A4. Constant harvest rebuilding projection using the highest catch to over 10-years.

P* Approach (Council Risk Policy): 5-year Rebuilding Plan

For this projection alternative, the FMAT requested using the Council’s risk policy to rebuild the stock (Table A5 and Figure A5). This projection rebuilds the stock by end of year 2026 (5-year rebuilding plan).

Table A5. Rebuilding projection based on P* using the Council’s risk policy to rebuild over 5-years.

Year	OFL Total Catch (MT)	ABC Total Catch (MT)	ABC F	ABC Pstar	ABC SSB (MT)	SSBMSY (MT)	SSBthresh (MT)
2019	15368	22,614	0.280	0.183	92,732	198,717	99,359
2020	16212	7,385	0.087	0.207	102,174	198,717	99,359
2021	17205	7,385	0.075	0.239	115,012	198,717	99,359
2022	20237	11,222	0.098	0.291	135,586	198,717	99,359
2023	23998	15,181	0.113	0.338	154,257	198,717	99,359
2024	26408	18,653	0.127	0.394	176,619	198,717	99,359
2025	28807	23,048	0.144	0.431	191,063	198,717	99,359
2026	30848	26,677	0.157	0.450	207,619	198,717	99,359

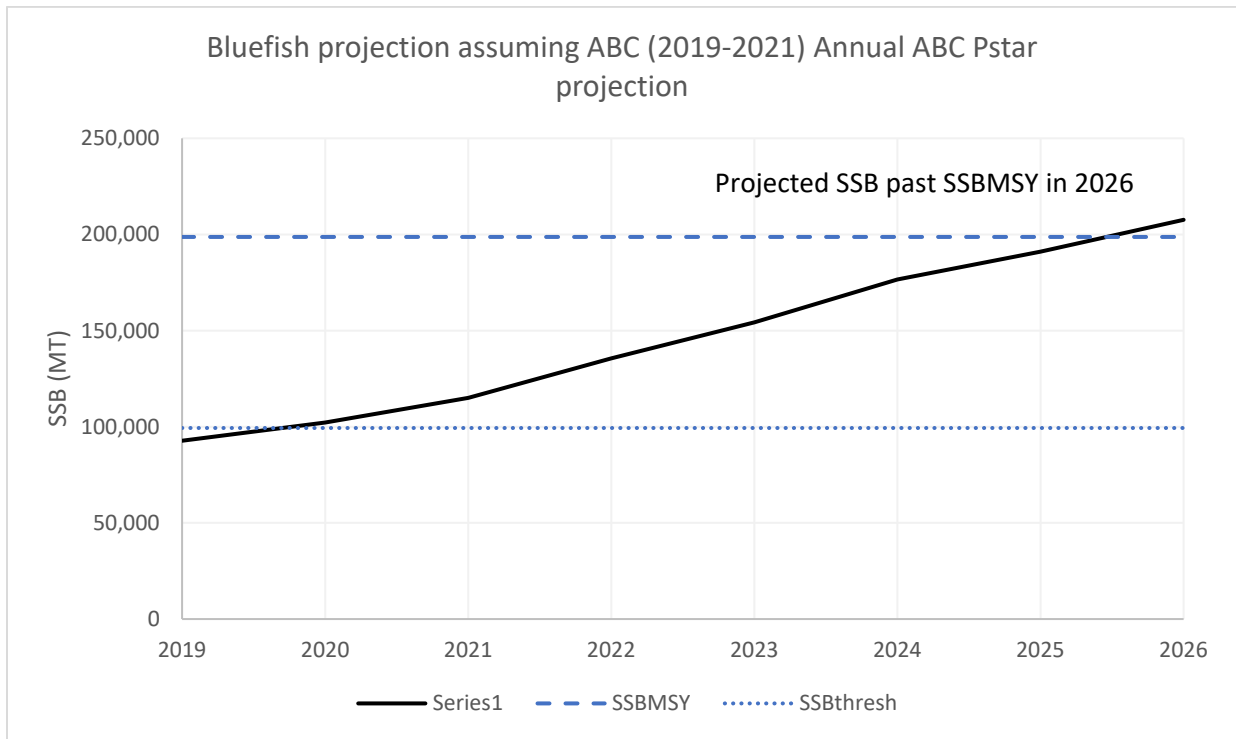


Figure A5. Rebuilding projection based on P* using the Council’s risk policy to rebuild over 5-years.

Below, catch and spawning stock biomass are compared for all five rebuilding projections. The spawning stock biomass target is 198,717 mt.

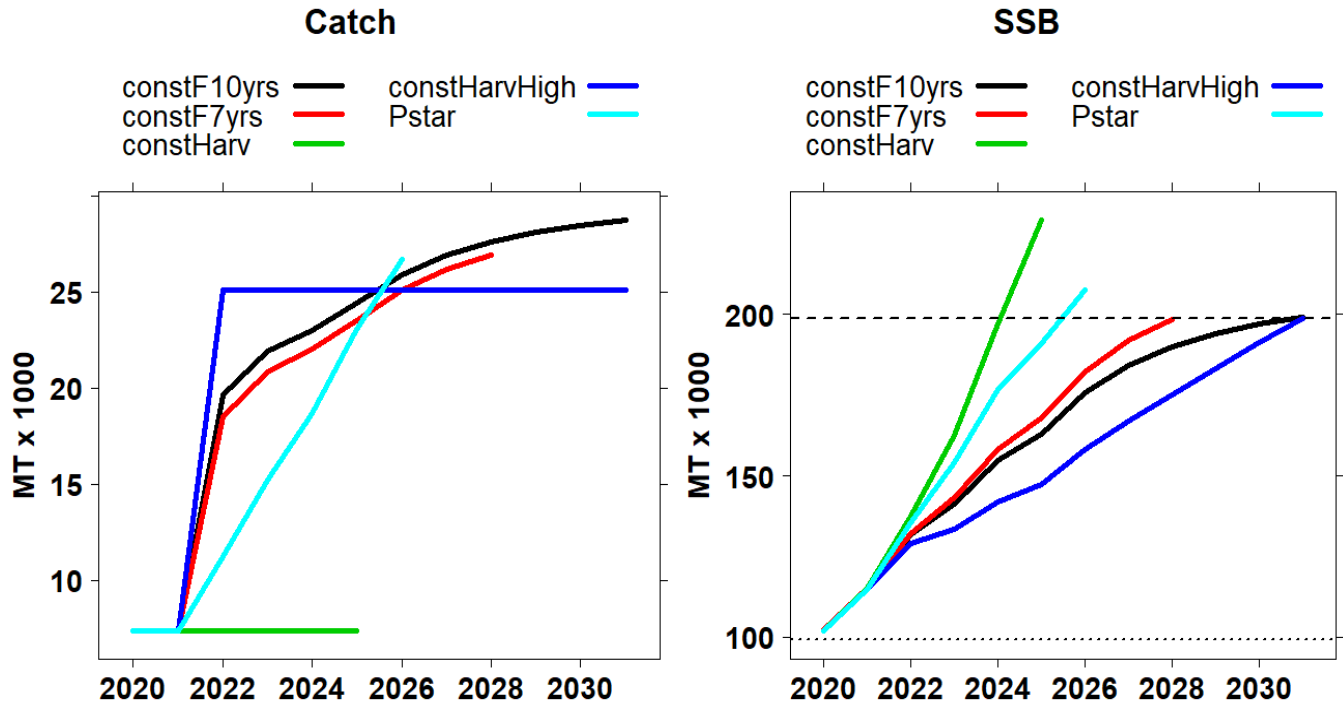


Figure A6. Rebuilding projection comparisons for catch and spawning stock biomass.

Atlantic Bluefish Data Update for 2020

National Marine Fisheries Service
Northeast Fisheries Science Center
166 Water St.
Woods Hole, MA 02543

Commercial bluefish landings in 2019 were 1,381 MT = 3.05 million lbs, an increase of 25% from 2018, and 40% of the 2019 commercial quota (3,497 MT, 7.71 million lbs). Estimated 2019 landings in the recreational fishery were 6,612 MT = 14.58 million lbs, an increase of 16% from 2018, and 125% of the 2019 recreational harvest limit (5,271 MT, 11.62 million lbs). Total recreational discards (assuming 15% mortality, and calculated using NEFSC methodology from SARC60) were 6,992 MT = 15.42 million lbs, an increase of 56% from 2018. Total bluefish catch in 2019 was 14,985 MT = 33.04 million lbs, an increase of 33% from 2018 (Figure 1).

A recreational catch-per-unit-effort index was updated through 2019 from the MRIP intercept data. This index is an important index incorporated into the stock assessment and shows a slight decrease from the 2018 estimate. In addition, the NEFSC Fall bottom trawl survey was updated through 2019, noting that there is no survey value for 2017 due to incomplete sampling (vessel issues). The 2019 NEFSC fall index value of 0.94 is the lowest in the Bigelow time-series, and much lower compared to the 2018 value of 3.31 (Figure 2). The NEFSC fall survey length frequency distributions suggest that typical peak of smaller fish centering around 20 cm (historical bi-modal pattern) was not present in 2019 (Figure 3).

Bluefish Total Catch 1985-2019

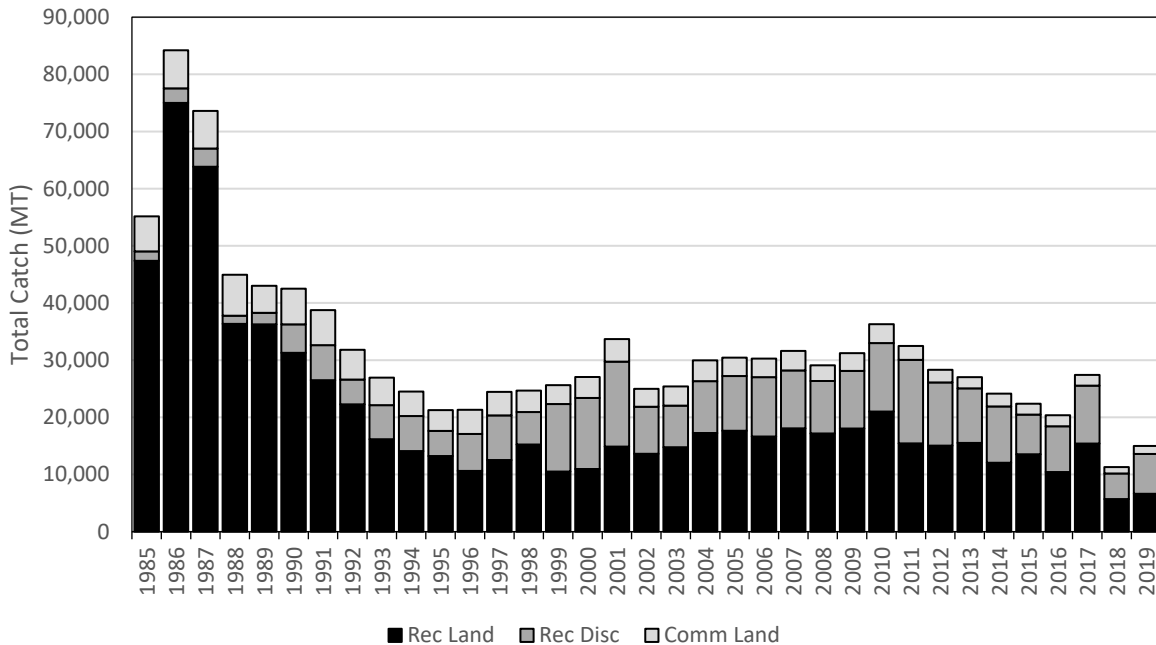


Figure 1. Atlantic bluefish fishery total catch.

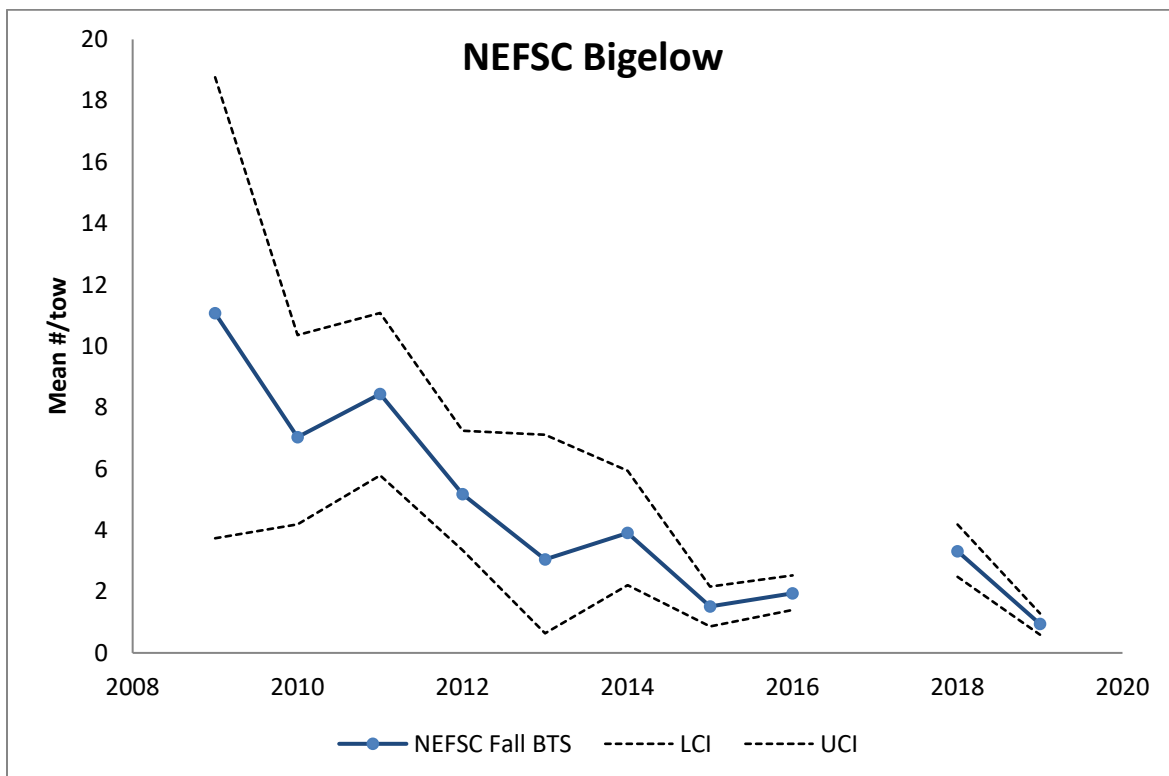
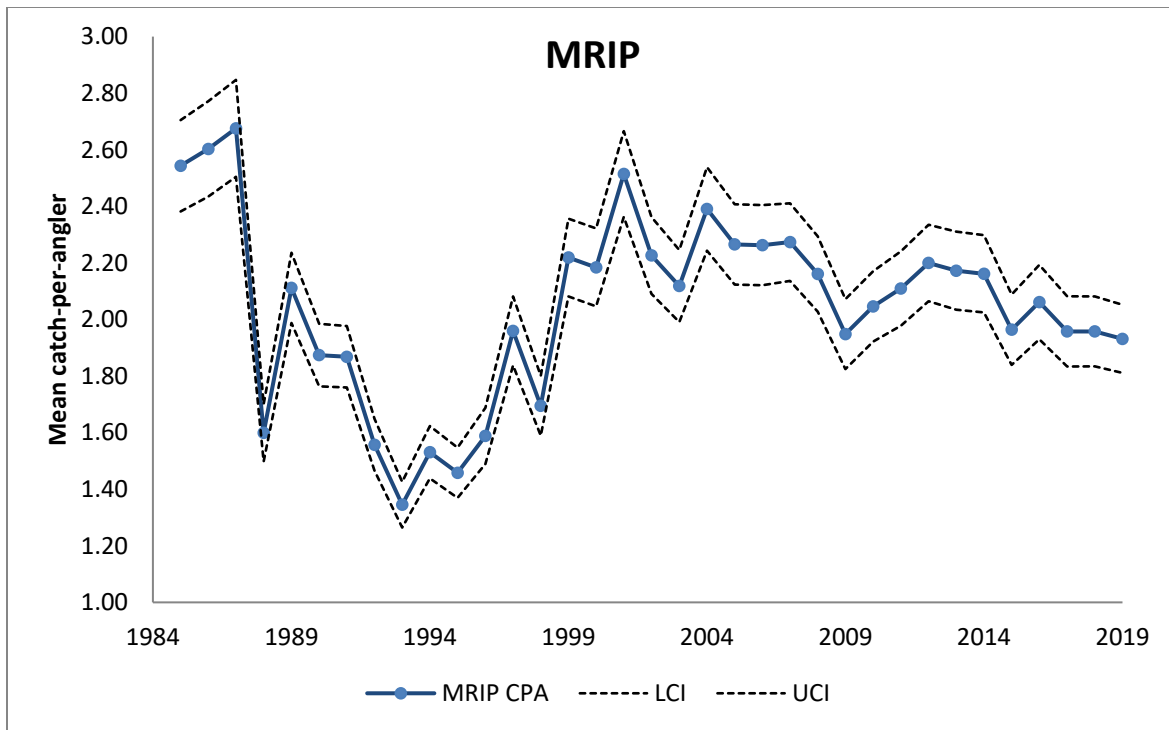


Figure 2. A. MRIP CPUE index and B. NEFSC trawl survey index for bluefish. The Bigelow did not sample southern strata in 2017 so no index value for that year.

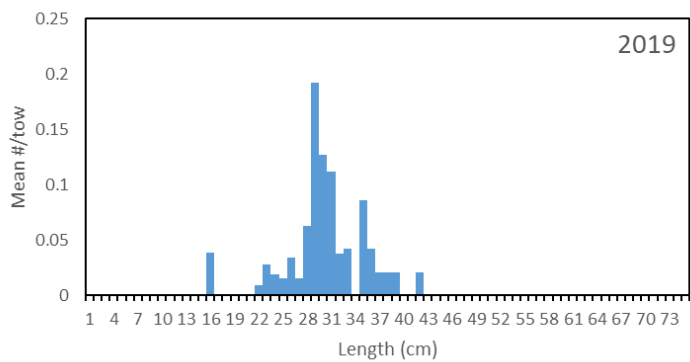
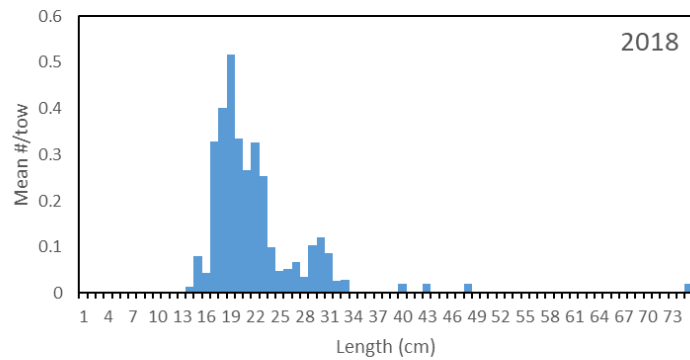
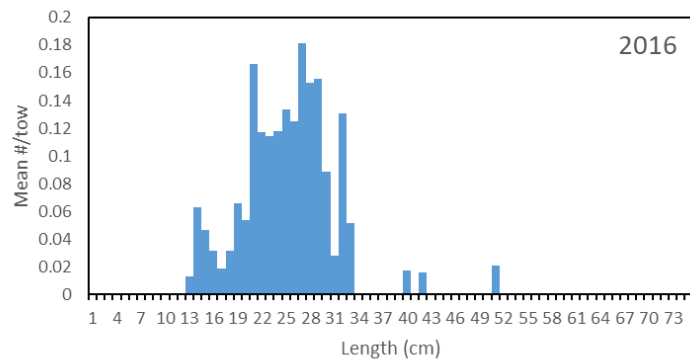
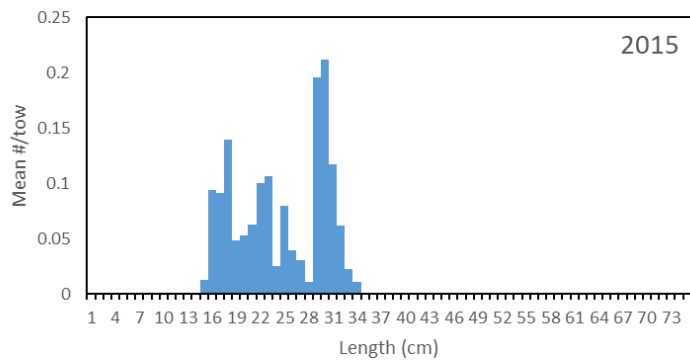


Figure 3. Northeast Fisheries Science Center (NEFSC) fall trawl survey indices at length. There is no valid fall 2017 index for bluefish.

Appendix

This appendix will describe how the science center calculates both recreational landings and discard weights, and why these values are different from using solely MRIP information.

Recreational Landings weight:

Landings weight for the assessment is calculated bi-annually using seasonal length-weight parameters from the NEFSC bottom trawl survey. Landed numbers of fish-at-length are converted to weight using these length-weight equations and summed across lengths and time period to derive total landed weight. In most years, the total MRIP landed weight and the landed weight using science center methodology are not significantly different.

In 2019 there is a noticeable difference in landed weight when comparing the two methodologies.

-The average weight of a landed fish from MRIP for 2019 is 0.6 kg, this is a rounded up value and using the actual numbers and weight values from the MRIP data, the average weight of a landed fish is $7,056,105 \text{ kg} / 12,137,290 = 0.581 \text{ kg}$ per fish. The average weight of a landed fish using science center methodology is 0.545 kg per fish. The difference between these values (0.036 kg) summed across 12,137,290 fish amounts to a 436,942 kg (963,292 lbs) difference in landings weight.

Recreational Discard weight: GARFO and the MAFMC use the MRIP rounded average weight of a landed fish in pounds to calculate total discard weight. For 2019 the MRIP average rounded weight for a landed fish was 1.3 lbs, and the number of dead discards assuming a 15% mortality was 3,974,197. These values result in a discard weight of $1.3 \text{ lbs} * 3,974,197 = 5,166,456 \text{ lbs}$.

The assessment calculates discards weight using methodology that was peer reviewed at SARC60. Annual release length data from the American Littoral Society, the MRIP intercept survey, and volunteer angler surveys from RI, CT, and NJ are compiled and provide a release length distribution that is converted to weight using seasonal length-weight parameters from the NEFSC bottom trawl survey. In 2019 the average weight of a discarded bluefish using science center methodology was 1.759 kg, or ~3 times that of an MRIP landed fish. The total discard weight assuming 15% mortality is $1.759 \text{ kg} * 3,974,197 = 6,992,447 \text{ kg}$ (15,415,689 lbs).

The assessment does not use the average weight of a landed fish because there is evidence that the length distribution of discarded fish is larger than those that are landed (SARC60). The length distributions of landed fish vs discarded fish in 2019 support this statement (Fig A1). The science center methodology aims to incorporate the best scientific information available in order to calculate discard weights.

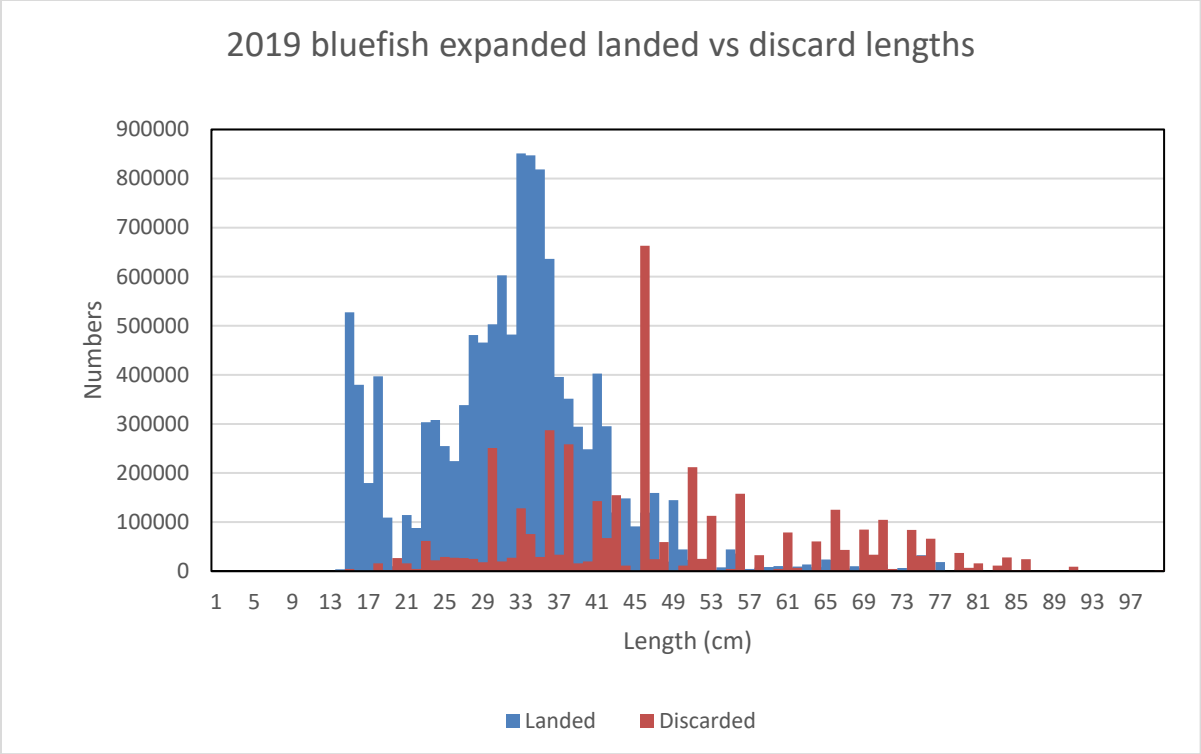


Figure A1. Landed lengths versus discarded lengths for bluefish in 2019.



Bluefish Fishery Performance Report

June 2020

The Mid-Atlantic Fishery Management Council's (Council) and the Atlantic States Marine Fisheries Commission's Bluefish Advisory Panels (AP) met via webinar on June 23, 2020 to review the Fishery Information Document and develop the following Fishery Performance Report. The primary purpose of this report is to contextualize catch histories by providing information about fishing effort, market trends, environmental changes, and other factors. A series of trigger questions listed below were posed to the AP to generate discussion of observations in the bluefish fishery. Please note: Advisor comments described below are not necessarily consensus or majority statements.

MAFMC Advisory Panel members present: Vince Cannuli (MD), Victor Hartley III (NJ), and Judith Weis (NY).

ASMFC Advisory Panel members present: Robert Lorenz (NC), Paul Caruso (MA), and Rusty Hudson (FL)

Others present: Chris Batsavage (MAFMC), Dustin Colson Leaning (ASMFC Staff), Greg DiDomenico (Lunds), Steve Cannizzo (NY), Cynthia Ferrio (GARFO), Paul Rago (MAFMC SSC), Sonny Gwin (MAFMC), Mary Sabo (MAFMC Staff), and Matthew Seeley (MAFMC Staff).

Trigger questions

1. What factors have influenced recent catch (markets/economy, environment, regulations, other factors)?
2. Are the current fishery regulations appropriate? How could they be improved?
3. What would you recommend as research priorities?
4. What else is important for the Council to know?

Factors Influencing Catch

Recreational

There was consensus on the increase in bluefish abundance coastwide with an emphasis on NY and NJ from 2018 to 2019. Southern states (FL) experienced this abundance, however, it was short lived due to many weather-related issues (hurricanes and nor'easters). Advisors also continue to indicate that larger bluefish are often identified to be further offshore and not available to anglers that typically target them (private anglers may not want to travel to where the bluefish are). Small fish (1-3 lbs) were available early in the year while larger fish (5-10 lbs)

were not present for long periods of time.

Paul Caruso (MA) – Bluefish have been scarce in MA. The fishery only marginally improved from 2018 to 2019, and 2018 was one of the worst years we have experienced for the bluefish fishery. There was a lot more smaller fish (2-3-year-old fish) later in the year. The larger fish were hardly ever seen in the spring of 2019 and we think abundance was the primary driver of the recent catch. Abundance may be related to the environment because we are not seeing any sand eels. A few rod and reel fishermen and gillnetters catch bluefish as bycatch. The change in recreational regulations does not matter much to the recreational fishermen.

Captain Victor Hartley (NJ) – There are a whole lot of fish offshore. The for-hire fleet does not go far enough offshore to target where the biomass is. There is a large fleet of for-hire fishermen who target bluefish in the NJ area as their primary species. Most for-hire boats did well in 2019 when targeting bluefish. In terms of bait, Raritan Bay has so much menhaden you can “walk on top of them”. There are a lot of whales and consistent bait in the area. This is the reason for the higher bluefish abundance this year.

Steven Cannizzo (NY-Public) – Party/charter industry in NY. We came off a warm winter with no runoff or ice, however, in April the weather changed and then everything got shut down because of COVID-19. The NY/NJ Bight and Hudson River is an extremely important area for forage fish. The absence of icing and freezing of nearshore habitats helped with bait abundance. Prior to the shutdown, we had an amazing run of weakfish, which was the best in my memory. There were also lots of striped bass coming through the sound. The for-hire fleet have seen so many sand eels in NY and are now seeing a whiting fishery for the first time in a long while. There was also a bluefin tuna run on the beach in 30-40 feet of water due to the abundance of sand eels. NY has seen one of the finest bluefish runs in recent years. Small, medium, and large bluefish are abundant. The shore-based fishermen have seen a huge amount of availability resulting in an abundance of people fishing from shore

Bob Lorenz (NC) – Bluefish have historically been a fish that experiences a cyclical nature. Even when we did not manage them there was a big spike in the 80s. Bluefish are not a primary target for recreational fishermen. In NC, most bluefish targeted are around 1-3 pounds.

Vince Cannuli (MD) – This spring there was a good run of bluefish, both nearshore/inshore and they have been chasing the menhaden inshore. The headboats have not been targeting bluefish in MD, however, the charter vessels are continuing to target bluefish. Two years ago, there were schools of menhaden like what we are seeing now. Last year there were few nearshore schools of menhaden like prior years. There was not a lot of striped mullet last year, but there was a good amount of brown shrimp. There are acres of adult sized menhaden, which is in part why MD gets a good bluefish run. They have been getting good size bluefish upwards of 30 inches. The bay did not freeze at all, which helps the forage species.

Commercial

Captain Victor Hartley (NJ) – Larger bluefish are offshore and available to the commercial fishermen.

Steven Cannizzo (NY-Public) – The commercial fishermen are upset that they have maxed out their quota due to the low amounts. When you see whiting in the mudhole, it bodes well for the rest of the fisheries.

Rusty Hudson (FL) – 2018 was one of the best years they have had in FL (gillnet fishery). However, 2019 was not a good year due to Hurricane Dorian and the continued nor'easters all fall continuing into January, which really hurt FL commercial fishermen. Occasionally, mackerel fishermen target bluefish offshore. The commercial and recreational sampling has paused for 2020 due to COVID-19, which is an issue. Additionally, the estimate of commercial landings for FL was wrong in ACCSP for 2018.

Market/Economic Conditions

Captain Victor Hartley (NJ) – The economy is going to be tough on fishermen. The COVID-19 factor is huge and hurts a lot of for-hire fishermen. Bluefish are not going to be hit as hard because you do not have as many passengers on the boats (i.e. not targeted as often as species like striped bass).

Rusty Hudson (FL) – The value of bluefish the past couple years has been at a great price per pound. The demand has remained high. The price per pound has gotten up to \$1.00, which is much higher than recent prices of around \$0.30.

Vince Cannuli (MD) – Last year, MD had a good run of bluefish and anglers were confused as to why there was a change in bag limit. This seems to be an example of over management.

Management Issues

Captain Victor Hartley (NJ) – The for-hire fleet is not happy about the 5 fish bag limit.

Steven Cannizzo (NY-Public) – For-hire fishermen need a higher bag limit and the Council should explore for-hire sector separation. We are very positive of the future years due to the abundance of bait, and specifically, sand eels. This will be very good for the bluefish fishery.

Research Priorities

Paul Caruso (MA) – Bait abundance is certainly a factor in the northern states and should be researched further. He would be interested to know how harvest has occurred. Abundance in the north is related to the amount of harvest in the south. It would be great to understand how catch in the southern states affects harvest in the northern states.

Bob Lorenz (NC) – Researchers should investigate the cyclical nature of bluefish that has been observed since before the early 1980s.

Other Issues

There seemed to be consensus amongst advisors that they prefer regulations and management measures to remain more stable. Increases in quota are appreciated, however, if they are going to be followed by declines, stakeholders prefer management measures that remain stable.

Bluefish Allocation and Rebuilding Amendment

Issue 1: FMP Goals and Objectives

- Paul Caruso (MA) – If you read about the history of this species and fish for them, you hear about the inshore and offshore cyclical aspect of this fishery. It would be helpful to acknowledge this aspect of the fishery. It is tough to manage this fishery because biomass is highly variable.

Issue 2: Sector Allocation Alternatives

- Greg DiDomenico (NJ-Public) – It is important to understand that the catch-based approach is rewarding the decision made by individual anglers to release their fish. A catch-based approach will reduce the ability for sector transfers to occur.
- Paul Caruso (MA) – From a stock assessment perspective, the catch-based approach does make sense. If you put a confidence interval across these allocations, they are all about the same.
- Captain Victor Hartley (NJ) – Status quo allocations.
- Rusty Hudson (FL) – The state of FL has a problem with MRIP estimates and thus, supports status quo allocations. The full-time series is closest to the status quo.

Issue 3: Commercial Allocations to the States

- Rusty Hudson (FL) – Status quo allocations.
- Captain Victor Hartley (NJ) – NJ commercial representatives would prefer status quo allocations.
- Steve Cannizzo (NY-Public) – Status quo allocations for NY.
- Greg DiDomenico (NJ-Public) – Status quo allocations for NJ.
- Vince Cannuli (MD) – Status quo allocations for MD.

Issue 4: Regional based allocations

- Rusty Hudson (FL) – Listening in on the June joint meeting, I heard support from southern states, but pushback from other states. This alternative set should be further developed. If there is potential to grow the commercial industry, FL would support regional quotas. There may be potential for growth if the mackerel fishery fleet decides to target bluefish.
- Vince Cannuli (MD) – We do not quite understand why bluefish come and go. To restrain the commercial fishery by implementing seasons reduces flexibility and becomes over management. I would not be in favor of the regionalization approach should seasons be implemented.
- Bob Lorenz (NC) – Regionalizing quota would be interesting to investigate further.

Issue 5: Commercial State-to-state transfers refereed approach

- Rusty Hudson (FL) – I support the continued development of the refereed approach. At the very least state to state transfers should remain in the plan.
- Paul Caruso (MA) – State to state transfers are great and the refereed approach may provide stability. Just because you are transferring quota does not mean you are transferring fish, meaning you can lead to localized depletion of fish.

Issue 6: Sector Transfers

- Rusty Hudson (FL) –the MRIP estimates cause many problems for transfers due to the availability of data in a given year caused by the consistent delay. That is going to affect recreational projections. Commercial data is a census and not an estimate.

Issue 7: Rebuilding Plan

- Rusty Hudson (FL) – I am skeptical of the P* approach because of the very low levels of catch. The cyclical nature of the stock will likely lead to variable catch. I would like to see the constant

harvest 10-year approach used. The next management track assessment may show that the stock is doing much better than previously thought.

- Bob Lorenz (NC) – I support a longer rebuilding plan. The cyclical nature of the fish could rebound the stock quite quickly. Due to that, we should not overburden the fisheries with restrictive measures.
- Greg DiDomenico (NJ-Public) – I support the longer rebuilding plan.
- Captain Victor Hartley (NJ) – I support a longer rebuilding plan for stability’s sake.

Issue 8: Sector Specific management uncertainty

- No comments

Issue 9: For-Hire Sector Separation

- Captain Victor Hartley (NJ) – Recreational sector separation should continue to be developed and ultimately implemented. We need to improve management and better use the data we have available for recreational fisheries. Moving to for-hire sector separation is important because we already have VTR data. If we went that route (rec sector separation) we would need a committee of for-hire members to help inform management decisions. There would need to be meetings to discuss setting seasons, bag limit, min size, etc. If people do not submit VTRs, they should not be part of the for-hire allocation.
- Steve Cannizzo (NY-Public) – The for-hire industry needs to be protected against changes in bag limit. There has to be a sector separation or allowance. The allocations should be set using MRIP data since not all vessels submit VTRs. We want as much flexibility as possible for for-hire and recreational fishermen. We would prefer the alternative of for-hire sector “allowances”, which allows a higher bag limit without needing a separate allocation.
- Bob Lorenz (NC) – Fisheries management must be considered fair. The differing bag limits between the two sectors is not fair anymore. The recreational NGOs are going to be against sector separation. There needs to be a fair allocation between for-hire/commercial/private anglers. Additionally, there is an increasing number of private boat anglers that are concerned about for-hire and commercial fisher jobs and economic vitality. These individual recreational anglers could likely support some sector separation in recreational fisheries as a matter of fairness and support to the for-hire fishers who have better and more accurate recording of catches than private anglers.

Issue 10: *de minimis*

- No comments

Late Comments (not on the webinar)

From: Capt. TJ Karbowski [<mailto:tedkarbowski@yahoo.com>]

Sent: Thursday, June 25, 2020 3:28 AM

To: Dustin C. Leaning <DLeaning@asmfc.org>

Subject: Re: [External] Re: Following up after the Bluefish Advisory Panel Meeting

Comments:

Bluefish abundance in Long Island Sound is directly related to the amount of baitfish abundance. When small baitfish such as silversides, juvenile butterfish, juvenile squid or peanut bunker are abundant, generally there are small to medium size bluefish. When adult menhaden are abundant, generally there are large (alligator) bluefish.

The absence of large bluefish the last 5 or so years in our area correlates with the absence of menhaden we have had. Our town, Clinton, CT is known as the “Bluefish Capitol of the World”. Clinton even annually held the annual “Bluefish Festival” for as long as I can remember (possibly even before I was born). The bluefish numbers have been so poor the last several years, that somewhere around 2015 the town actually discontinued the event. At the event would be tables set up with various prepared bluefish dishes; fried, smoked etc. competitions. People couldn’t find bluefish to cook!

This spring (2020), although I cannot say with certainty (but likely due to the COVID-19 effect on the commercial market), that the commercial pair trawlers squid boats that usually operate off of Rhode Island in the spring might not have worked the area as hard, or maybe even at all this year. This is the best run of spring squid in Long Island Sound in at least 8 -10 years. The Sound is currently teeming with life. Squid, Menhaden, Butterfish, Stripers, Bluefish, Fluke, Porgies, Black Sea Bass. It is back to the way it used to be.

Also please keep in mind that Omega Protein has had reg changes this year. I think all of this contributed to the success of this season. – Starting in 2014 (The year Omega Protein started taking most of their quota from the Chesapeake after getting banned from fishing in North Carolina) Long Island Sound was virtually BARREN of life. The Sound was virtually DEAD. Also around this time was when the Rhode Island squid boats started pair trawling for squid just over the border of the entrance to Long Island Sound. – We have not had a decent run of fluke until this year because of this. We ALWAYS had a reliable spring fluke run before that.

Regs: Bluefish regs should be- approx 15 per person. –This is needed for head boat “marketing” and a realistic retention limit for “snappers”. There is not enough rec. anglers harvesting bluefish to even put a small dent in the population. The time and effort involved in the bluefish regulation process should be spent on studying and regulating their forage species which ACTUALLY DOES affect the health of the stock. Set the regs at 15 per. person for at least 5 years and revisit it then.

Research Priorities: Regulate their forage better. That’s the problem.

Allocation: Leave it status quo. No need to pin the recs and commercials against each other.

Additional Comments:

Regulating this species down to 3 per person is ridiculous and highlights how flawed the system is; especially MRIP. In 2019 they had Connecticut anglers harvesting THOUSANDS of bluefish just from “shore” mode alone. The laughable part was the harvest numbers were logged at a time of year when bluefish aren’t even in the Sound. The “New” MRIP numbers are a total SHAM.

Thank you,
Capt. TJ Karbowski
Rock & Roll Charters
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Bluefish Fishery Information Document

June 2020

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for bluefish with an emphasis on 2019. Data sources for Fishery Information Documents are generally from unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources, including previous Fishery Information Documents, please visit <http://www.mafmc.org/bluefish/>.

Key Facts

- According to 2019 operational assessment, bluefish is overfished and overfishing is not occurring. The bluefish stock will enter a rebuilding plan in 2022 to rebuild the stock to the SSB_{MSY} proxy = 438.10 million lbs (198,717 mt).
- In 2019, specifications remained status quo from 2018. However, 2019 is the transition year for when recreational landings are reported using only new MRIP estimates. The 2019 ABC, RHL, and Commercial Quota was developed using old MRIP estimates and cannot be directly compared to the new recreational landings estimates.
- Recreational landings increased from 13.27 million pounds to 15.56 million pounds from 2018 to 2019 (~17% increase).
- Commercial landings increased from 2.20 million pounds to 2.78 million pounds from 2018 to 2019 (~26% increase).

Basic Biology

Bluefish are found worldwide in tropical and subtropical waters, but in the western North Atlantic range from Nova Scotia and Bermuda to Argentina. Bluefish travel in schools of like-sized individuals and undertake seasonal migrations, moving into the Middle Atlantic Bight (MAB) during spring and then south or farther offshore during fall. Within the MAB they occur in large bays and estuaries as well as across the entire continental shelf. Juvenile stages have been recorded in all estuaries within the MAB, but eggs and larvae occur in oceanic waters (Able and Fahay 1998). Bluefish have fast growth rates and reach lengths of 3.5 ft and can weigh up to 27 pounds (Bigelow and Schroeder 1953). Bluefish live to age 12 and greater (Salerno et al. 2001).

Bluefish eat a wide variety of prey items. The species has been described by Bigelow and Schroeder (1953) as “perhaps the most ferocious and bloodthirsty fish in the sea, leaving in its wake a trail of dead and mangled mackerel, menhaden, herring, alewives, and other species on which it preys.”

Bluefish born in a given year (young of the year) typically fall into two distinct size classes suggesting that there are two spawning events along the east coast. Studies suggest, however, that spawning is a single, continuous event, but that young are lost from the middle portion resulting in the appearance of a split season (Smith et al. 1994). As a result of the bimodal size distribution, young are referred to as spring-spawned or summer-spawned. In the MAB, spring-spawned bluefish appear to be the dominant component of the stock.

Status of the Stock

The last bluefish benchmark stock assessment was peer reviewed in June 2015 and approved for use by management at SAW/SARC 60. This benchmark assessment uses a forward-projecting statistical catch-at-age model called ASAP (Age Structured Assessment Program). For the most recent benchmark, the catch-at-age matrices were completely reconstructed to incorporate new age data, including archived historical samples that had not been processed at the time the last benchmark (SAW/SARC 41; 2005) was conducted, and to correct aging errors in the earlier years of the time series (NEFSC 2015).

2019 Operational Assessment Update

In August 2019, a bluefish operational assessment, which included revised bluefish MRIP estimates through 2018 changed the stock status and biological reference points from SAW 60, which utilized data through 2014. All information from this operational assessment were and should be interpreted as preliminary results until publication of the final report.

The biological reference points for bluefish revised through the 2019 operational assessment include a fishing mortality threshold of $F_{MSY} = F_{35\%}$ (as the F_{MSY} proxy) = 0.183, and a biomass reference point of $SSB_{MSY} = SSB_{35\%}$ (as the SSB_{MSY} proxy) = 438.10 million lbs (198,717 mt). The minimum stock size threshold ($1/2 SSB_{MSY}$), is estimated to be 219.05 million lbs (99,359 mt); Table 3. SSB in 2018 was 200.71 million lbs (91,041 mt).

Operational assessment results indicated that the bluefish stock was overfished, and overfishing was not occurring in 2018 relative to the biological reference points. Fishing mortality on the fully selected age 2 fish was 0.146 in 2018, 80% of the updated fishing mortality threshold reference point F_{MSY} proxy = $F_{35\%}$ = 0.183.

Management System and Fishery Performance

Management

The Mid-Atlantic Fishery Management Council (Council or MAFMC) and the Atlantic States Marine Fisheries Commission (ASMFC) work cooperatively to develop fishery regulations for

bluefish off the east coast of the United States. The Council and Commission work in conjunction with the National Marine Fisheries Service (NMFS), which serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state waters (0-3 miles offshore) and federal waters (3-200 miles offshore, also known as the Exclusive Economic Zone or EEZ). The management unit for bluefish is the U.S. waters in the western Atlantic Ocean.

The Bluefish Fishery Management Plan (FMP) was implemented in 1990 and established the Mid-Atlantic Fishery Management Council's management authority over the fishery in federal waters. Amendment 1, implemented in 2000, addressed stock rebuilding and created the Bluefish Monitoring Committee which meets annually to make management measure recommendations to the Council. Amendment 3 incorporated the development of annual catch limits (ACLs) and accountability measures (AMs) into the specification process and Amendment 4 modified recreational accountability measures to accommodate uncertainty in recreational management and catch estimation. The original FMP and subsequent amendments and frameworks are available at: <http://www.mafmc.org/fisheries/fmp/bluefish>.

For bluefish, the annual catch target (ACT) is split 83 percent and 17 percent into recreational and commercial ACTs, respectively, and the discarded component of that catch is deducted to arrive at recreational and commercial total allowable landings (TAL). Additionally, landings above the expected recreational harvest can be "transferred" from the recreational to the commercial fishery as long as the final commercial quota does not exceed 10.5 million pounds.

The Council's Scientific and Statistical Committee (SSC) reviews assessment results and the Advisory Panel's fishery performance report and determines the allowable biological catch (ABC) for the upcoming year. The Council's Bluefish Monitoring Committee develops and recommends specific coastwide management measures (commercial quota, recreational harvest limit) that will achieve the catch target and makes further adjustments to total catch as needed based on management uncertainty. Finally, the Council and Board meet jointly to develop recommendations to be submitted to the NMFS.

An amendment to the Bluefish FMP is being developed to address a variety of changes and concerns with the fishery. The amendment is addressing sector FMP Goals and Objectives, sector allocations, commercial allocations to the states, transfer processes, the rebuilding plan, and other issues. More information can be accessed here: <https://www.mafmc.org/actions/bluefish-allocation-amendment>.

Fishery Performance Relative to Management Measures

The current commercial landings are slightly behind the 2019 landings (Figure 1; as of May 19, 2020). The recreational and commercial landings relative to specified management measures are provided in Table 1. In 2019, MRIP reported the recreational fishery landed 15.56 million pounds compared to the 11.62 million pounds RHL. The recreational landings cannot be directly compared to the RHL because the RHL was set using old MRIP data while the 2019 recreational landings are being reported in new MRIP estimates. 2020 will be the first year that all catch/landings can be compared to the ABC/Commercial quota/RHL. The commercial fishery

landed 2.78 million pounds compared to the quota of 7.71 million pound. Total landings in 2019 are 18.34 million pounds when calculated using the new MRIP estimates and commercial landings.

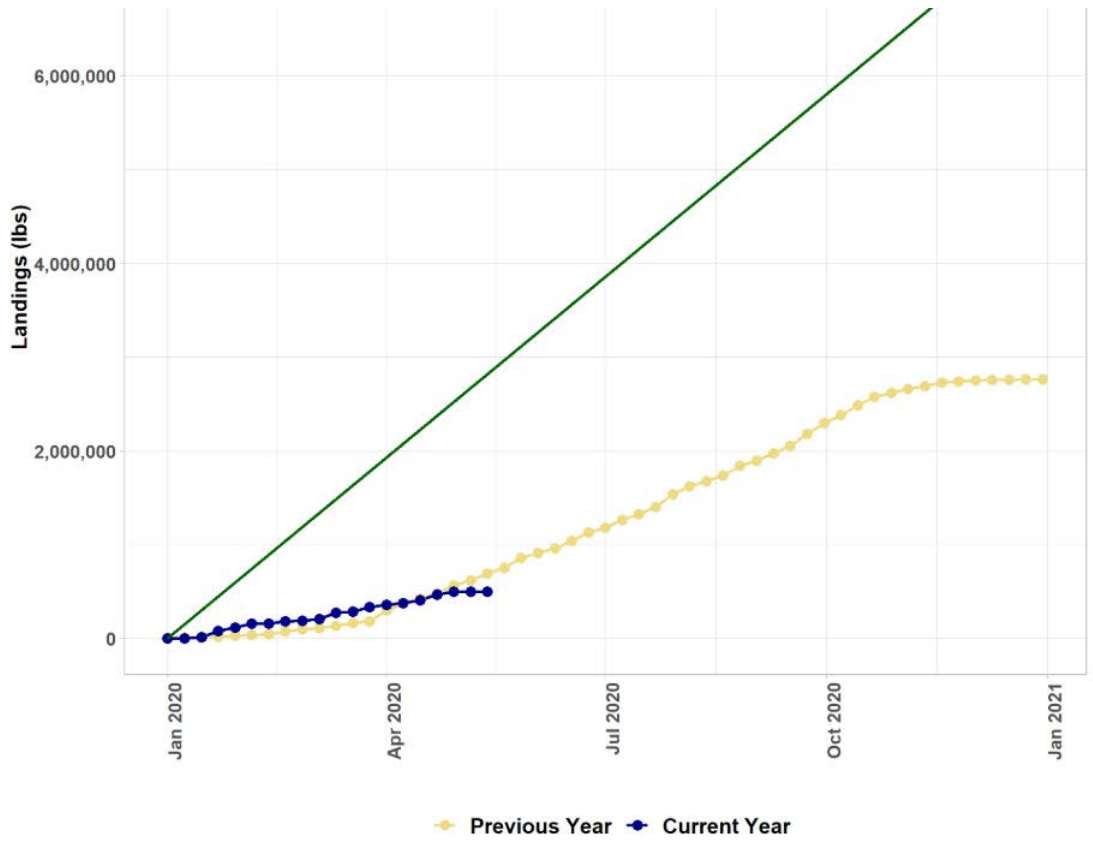


Figure 1. Atlantic bluefish commercial landings for 2020 fishing year to date (May 19, 2020).

Table 1. Summary of bluefish management measures, 2009 – 2020 (Values are in million pounds).

Management Measures	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019⁸	2020⁹
TAC ¹ / ABC ²	34.08	34.38	31.74	32.04	27.47	24.43	21.54	19.45	20.64	21.81	21.81	16.28
TAL ³	29.36	29.26	27.29	28.27	23.86	21.08	18.19	16.46	18.19	18.82	19.33	12.25
Comm. Quota ⁴	9.83	10.21	9.38	10.32	9.08	7.46	5.24	4.88	8.54	7.24	7.71	2.77
Comm. Landings ⁵	7.1	7.55	5.61	4.66	4.12	4.77	4.02	4.1	3.64	2.20	2.78	
Rec. Harvest Limit ⁴	19.53	18.63	17.81	17.46	14.07	13.62	12.95	11.58	9.65	11.58	11.62	9.48
Rec. Landings, Old MRIP ⁶	14.47	16.34	11.5	11.84	16.46	10.46	11.67	9.54	9.52	3.64	N/A	
Rec. Landings, New MRIP	40.73	46.30	34.22	32.53	34.40	27.04	30.10	24.16	32.07	13.27	15.56	
Rec. Possession Limit (# fish)	15	15	15	15	15	15	15	15	15	15	15	3: Private 5: For-Hire
Total Landings	21.57	23.89	17.11	16.5	20.58	15.23	15.69	13.64	13.16	5.84	18.34	
Overage/Underage	-7.79	-5.37	-10.18	-11.77	-3.28	-5.85	-2.5	-2.82	-5.03	-12.98	N/A*	
Total Catch ⁷	25.10	27.93	20.39	19.26	24.06	17.96	18.65	16.09	15.65	6.96	23.50	
Overage/Underage	-8.98	-6.45	-11.35	-12.78	-3.41	-6.47	-2.89	-3.36	-4.99	-14.85	N/A*	

¹ Through 2011. ² 2012 fwd. ³ Not adjusted for RSA. ⁴ Adjusted downward for RSA. ⁵ Dealer and South Atlantic Canvas data used to generate values from 2000-2011; Dealer data (cflders) was used to generate commercial landings. ⁶ Old MRIP. ⁷ Recreational discards were calculated assuming MRIP mean weight of fish landed or harvested in a given year multiplied by the MRIP B2s and assumed discard mortality rate of 15% . ⁸ Values for 2019 and beyond are presented using the new MRIP estimates. ⁹ 2020 will be the first year that the new MRIP landings can be compared to the RHL – this will allow for calculation of total landings, catch, and overage/underages.

*Note: 2019 is the transition year for when recreational landings are reported using only new MRIP estimates. The 2019 ABC, RHL, and Commercial Quota was developed using old MRIP estimates and cannot be directly compared to the new recreational landings estimates.

Landings History

Bluefish catches were estimated via the Marine Recreational Fisheries Statistic Survey (MRFSS) starting in 1981 through 2003. Recreational data for years 2004 and later are available from the Marine Recreational Information Program (MRIP), the data collection that followed MRFSS.

From the early 1980s to the early 1990s, recreational landings declined about 70% (avg. 1981-1983 = 156.34 million pounds; avg. 1991-1993 = 46.14 million pounds) when using new MRIP estimates. Recreational landings continued to decline at a slower rate until reaching a low level in 1999-2000, but have since grown to a peak of over 46 million pounds in 2010 (new MRIP). In 2018, recreational landings dropped to an all-time low of 13.27 million pounds. In 2019, landings still remain low but increased slightly to 15.56 million pounds.

Historically, landings have been relatively stable, however, overall landings have been trending downward since 2010 (Figure 2). Commercial discards are insignificant and are not estimated in the current assessment.

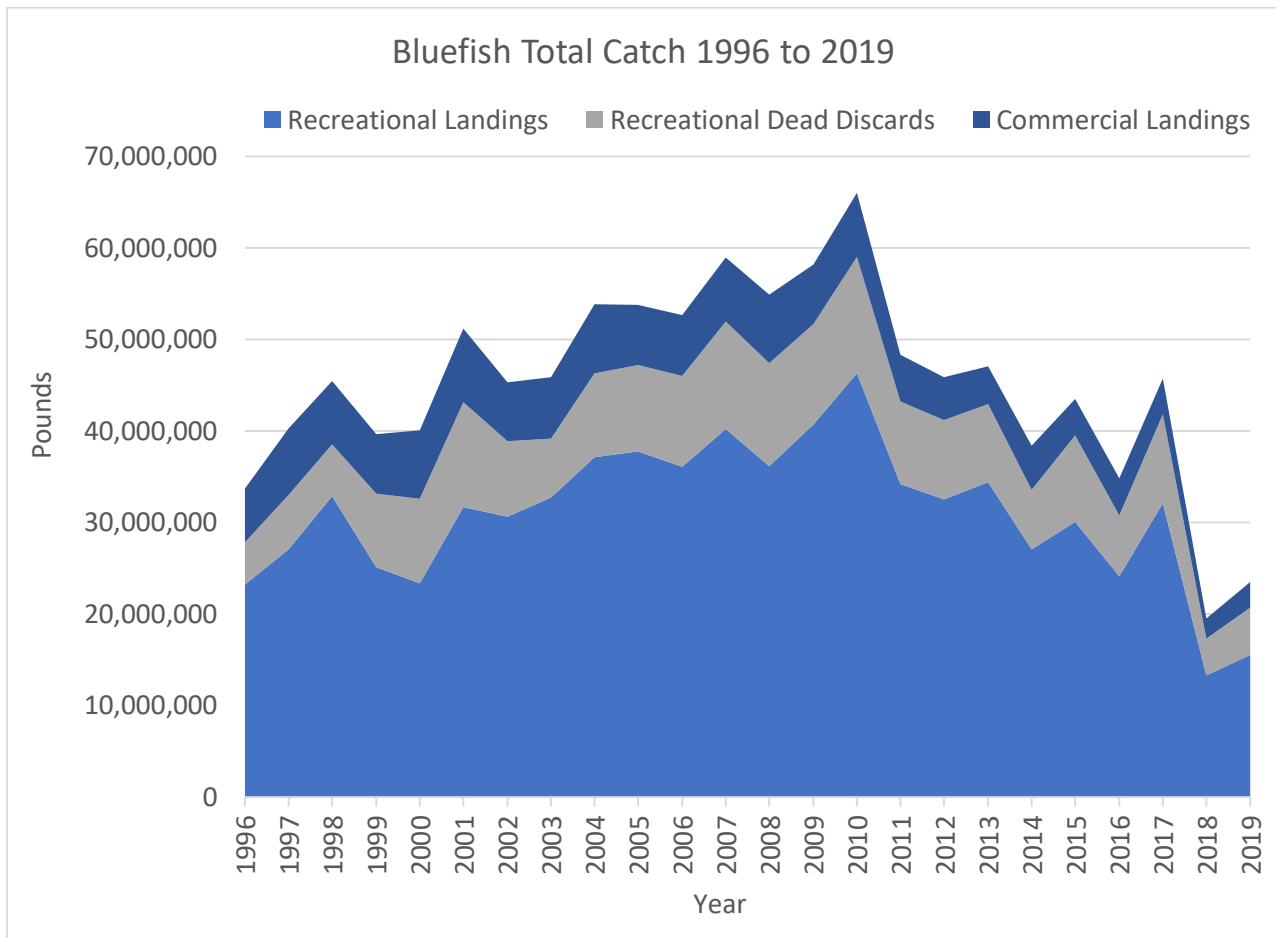


Figure 2. Bluefish catch (landings [AB1] and dead discards [B2*0.15*Avg wt. each year]), 1996-2019. Average weight of a harvested fish is the MRIP rounded average weight in pounds for a given year. (Source: 2019 MRIP and Dealer data – cfders)

Recreational Fishery

Recreational fishery data is reported from MRIP using the new re-calibrated estimates. Trends in recreational trips associated with targeting or harvesting bluefish from 2000 to 2018 are provided in Table 2. Since 2000, the lowest annual estimate of bluefish trips was 7.00 million (2018). The highest annual estimate of bluefish trips in this timeframe was 12.57 million in 2007. For the last 5 years (2015-2019), the number of bluefish trips have ranged from 7.00 million trips in 2018 to 11.16 million trips in 2016 using MRIP data.

Table 2. Number of bluefish recreational fishing trips, recreational harvest, and recreational landings per trip from 2000 to 2019.

Year	# of bluefish trips ^a	Recreational Harvest (N)	Recreational Harvest (lbs)	Recreational landings per “bluefish” trip
New MRIP Estimates				
2000	7,326,957	12,879,485	23,357,120	1.76
2001	9,491,374	18,048,645	31,654,978	1.90
2002	9,617,742	17,607,380	30,654,388	1.83
2003	9,586,532	16,411,932	32,758,670	1.71
2004	10,673,976	18,631,904	37,133,463	1.75
2005	10,927,244	18,341,452	37,742,807	1.68
2006	11,417,723	19,397,272	36,081,958	1.70
2007	12,574,704	19,189,747	40,239,101	1.53
2008	11,259,497	14,845,435	36,166,834	1.32
2009	10,926,384	18,085,386	40,731,438	1.66
2010	12,224,816	21,929,517	46,302,792	1.79
2011	11,057,635	20,814,884	34,218,748	1.88
2012	11,802,073	18,578,838	32,530,917	1.57
2013	9,171,936	19,975,051	34,398,327	2.18
2014	11,814,231	21,510,651	27,044,276	1.82
2015	9,121,415	13,725,106	30,098,649	1.50
2016	11,164,613	14,899,723	24,155,304	1.33
2017	10,354,921	13,845,806	32,071,432	1.34
2018	7,007,966	10,245,710	13,270,862	1.46
2019	8,301,107	12,137,290	15,555,889	1.46

^a Estimated number of recreational fishing trips where the primary target was bluefish or bluefish were harvested regardless of target, Maine – Florida’s East Coast. Source: MRIP.

Recreational Landings by State

Recreational catch and harvest by state for 2019 are provided in Table 3. The greatest overall catches (includes discards) occurred in North Carolina with 9.92 million fish, followed by South Carolina, New York, and Florida, which all exceeded 6 million fish.

The greatest harvest of bluefish by weight in 2019 occurred in New York with 3.52 million pounds, followed by North Carolina with 3.01 million pounds, Florida with 2.87 million pounds, and New Jersey and Connecticut over 1 million pounds. According to MRIP, 0 bluefish were caught in Maine and New Hampshire. Average weights, based on dividing MRIP landings in weight by landings in number for each state, suggest that bluefish size tends to increase toward the north along the Atlantic coast (outside of Florida).

Table 3. MRIP estimates of 2019 bluefish recreational harvest, total catch, and average weight.

State	Harvest			Catch
	Pounds	Number	Average wt (lbs)	Number
New MRIP Estimates				
ME	0	0	0	0
NH	0	0	0	0
MA	719,130	265,628	2.7	736,761
RI	931,991	379,715	2.5	991,593
CT	1,161,103	670,401	1.7	1,490,095
NY	3,521,431	3,037,380	1.2	6,376,431
NJ	1,660,208	741,722	2.2	3,310,648
DE	415,267	151,469	2.7	581,840
MD	154,451	111,769	1.4	338,737
VA	581,458	756,717	0.8	1,882,000
NC	3,011,480	2,752,589	1.1	9,915,020
SC	502,699	877,372	0.6	6,448,797
GA	21,886	26,364	0.8	273,400
FL	2,874,785	2,366,165	1.2	6,286,615
Total	15,555,889	12,137,291	-	38,631,937

Recreational Landings by Mode

Figure 3 reflects new MRIP estimates of landings by mode (1991 through 2019) and indicates that the recent primary modes landing bluefish are private boats and shore mode. Based on recreational harvest in 2019, landings from shore represented 60% of overall landings, followed by private rental mode at 36% and the for-hire sector at 4%. Over the last five years (2015-2019), 60% of the total bluefish landings came from shore, 35% from private/rental boats, and 5% from for-hire boats.

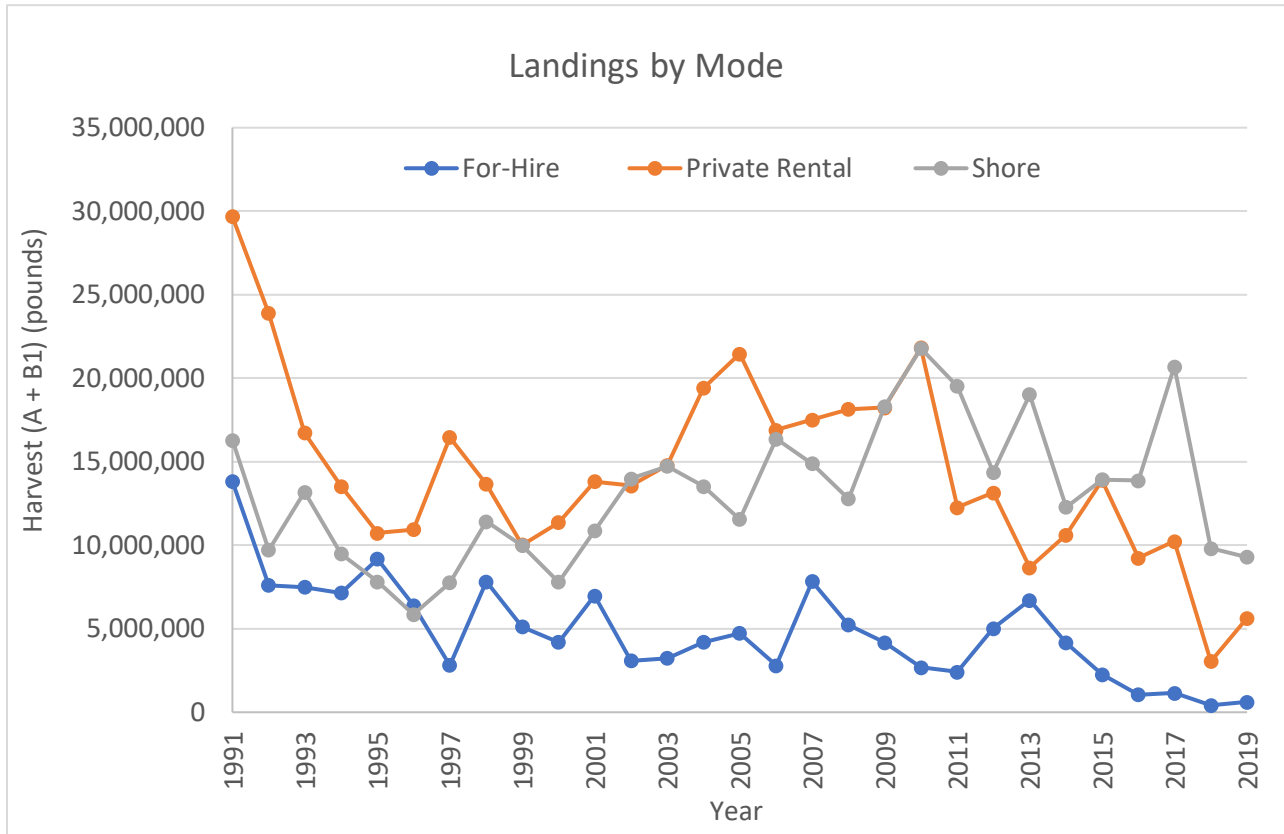


Figure 3. Bluefish recreational harvest (pounds) by mode on the Atlantic Coast, 1991-2019.
Source: MRIP.

Recreational Landings by Area

MRIP classifies catch into three fishing areas, inland, nearshore ocean (< 3 mi), and offshore ocean (> 3 mi). In 2019, ~42% of the landings of bluefish on a coastwide basis came from inland waters, followed by nearshore ocean at ~51%, and offshore waters at ~6% (Figure 4). Over the last five years (2015-2019), 42% of the total bluefish landings came from inland waters, 54% from nearshore ocean, and 4% from offshore ocean.

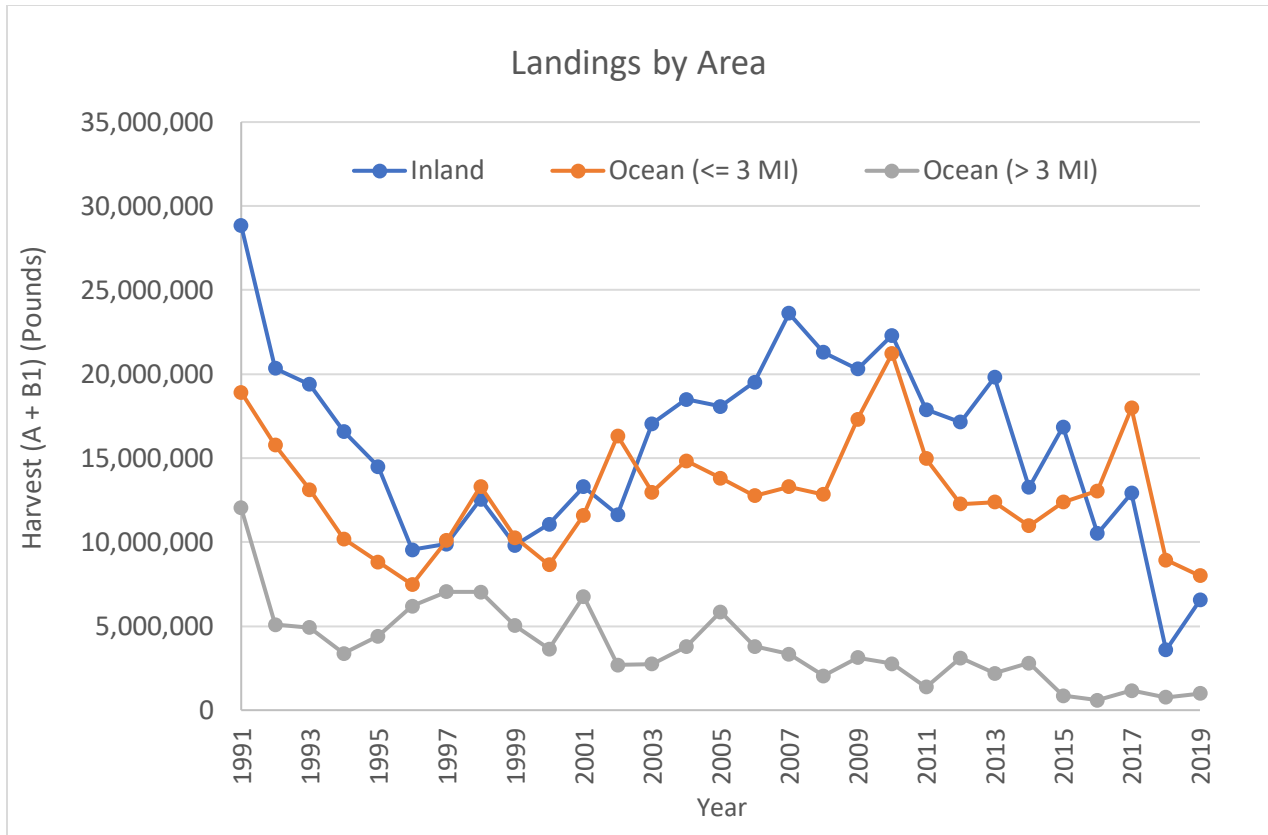


Figure 4. Bluefish recreational harvest (pounds) by area on the Atlantic Coast, 1991-201.
Source: MRIP.

Recreational Discards

In the recreational fishery, bluefish released alive (B2) are estimated by MRIP. To calculate discards¹, a 15% mortality rate is applied to the B2 value. In 2019, there were 3.97 million bluefish dead discards, which represents a downward trend from the 2001 peak of 6.37 million bluefish dead discards (Figure 5).

¹ To estimate discards in pounds, multiply the number of dead discards times the average weight of fish in a given year. For more detailed results, characterize the average weight of a bluefish by state and mode using the MRIP query tool: <https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index>.

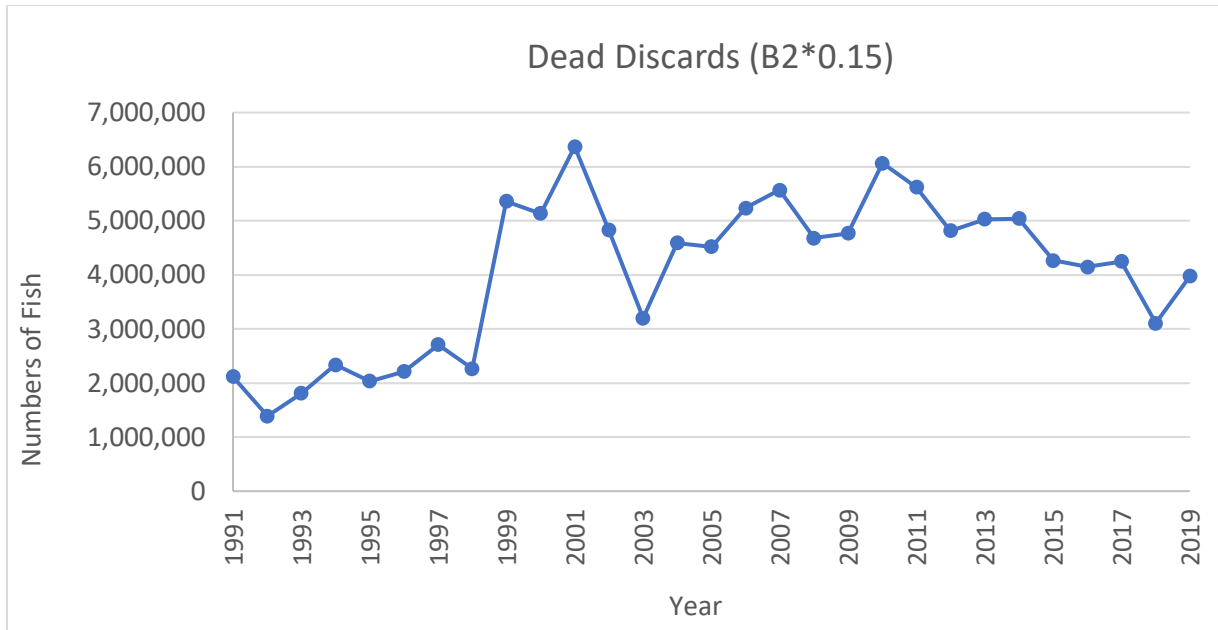


Figure 5. Bluefish dead discards (all areas and modes combined) from 1991-2018. Released alive (B2) fish are assumed to have 15% mortality. Source: MRIP.

Commercial Fishery

Vessel and Dealer Activity

Federal permit data indicate that 2,442 commercial bluefish permits were issued in 2019.² A subset of federally permitted vessels was active in 2019 with dealer reports identifying 483 vessels with commercial bluefish permits that actually landed bluefish. Of the 389 federally permitted bluefish dealers in 2019, there were 146 dealers who actually bought bluefish.

Landings by Gear

Dealer data for 2019 indicate that the majority of the bluefish landings were taken by gillnet (44%), followed by unknown gear (28%), otter trawl/bottom fish (12%), other (11%) and handline (5%).

Landings/Catch by Area

Commercial landings in 2019 were 2.78 million pounds and landings by state are available in Table 4. To present data by area, VTR catch data were used to identify all NMFS statistical areas that accounted for 5 percent or more of the Atlantic bluefish catch or areas which individually accounted for 5 percent or greater of the trips which caught bluefish in 2019 (Table 5). Six

²In addition, there were 851 party/charter bluefish permit issued in 2019. A subset of federally permitted party/charter vessels was active in 2019 with VTR reports identifying 278 vessels with party/charter bluefish permits that actually landed bluefish.

statistical areas accounted for approximately 69% of the VTR-reported catch in 2019. Statistical area 611 was responsible for the highest percentage of the catch and trips that caught bluefish. A map of statistical areas that accounted for a percentage of the Atlantic bluefish catch is shown in Figure 6.

Note: Commercial VTR landings may differ from landings reported through the dealer database because VTR data are only federal landings and some state vessels are not required to submit VTRs.

Table 4. Commercial landings by state for 2019. Source: Dealer data (cfders).

State	2019 Landings (Pounds)
ME	0
NH	0
MA	184,182
RI	415,836
CT	33,392
NY	594,822
NJ	203,047
DE	4,505
MD	22,776
VA	169,179
NC	934,883
FL	214,338
Unknown	262
Total	2,777,222

Table 5. Statistical areas that accounted for at least 5 percent of the total bluefish catch or 5 percent or greater of the trips which caught bluefish in 2019. Source: VTR database.

Statistical area	Pounds of bluefish caught	Percent of 2018 commercial bluefish catch	Number of trips	Percent of 2018 commercial bluefish trips that caught bluefish
611	169,338	18%	1,667	31%
539	166,201	18%	1,051	20%
613	130,35	14%	727	14%
626	80,566	9%	84	2%
632	53,364	6%	27	<1%
612	37,076	4%	287	5%

2019 Commercial Bluefish Catch - VTRs

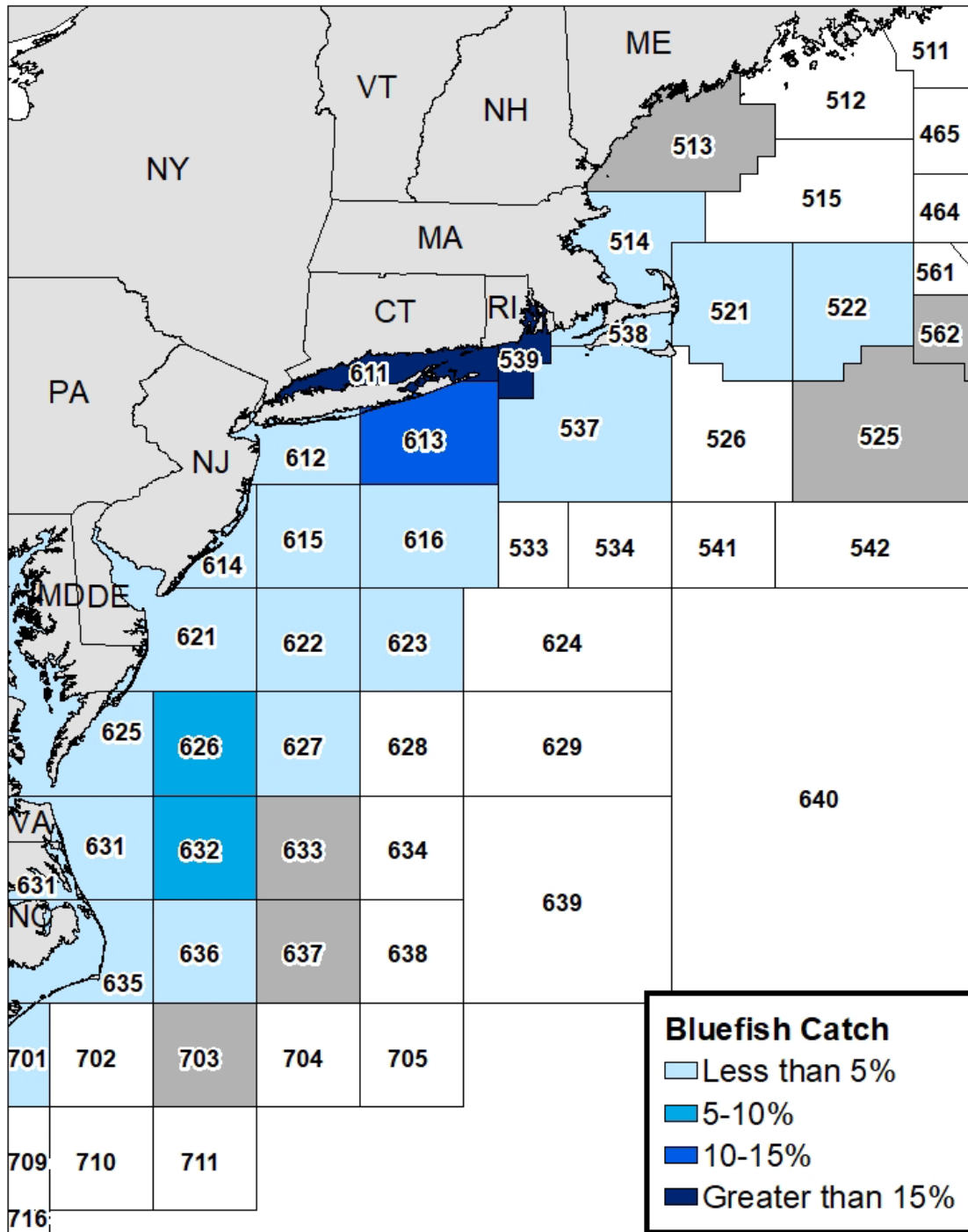


Figure 6. NMFS Statistical Areas that accounted for a percentage of the commercial bluefish catch in 2019. Source: VTR data.

The top commercial landings ports for bluefish in 2019 are shown in Table 6. Six ports qualified as "top bluefish ports," i.e., those ports where 100,000 pounds or more of bluefish were landed.

Hatteras, NC was the most active commercial bluefish port with almost 400,000 pounds landed. The ports and communities that are dependent on bluefish are described in Amendment 1 to the FMP (available at <http://www.mafmc.org/fisheries/fmp/bluefish>). Additional information on "Community Profiles for the Northeast US Fisheries" can be found at http://www.nefsc.noaa.gov/read/socialsci/community_profiles/.

Table 6. Bluefish landings in pounds by port based on NMFS 2019 dealer data (cfders).

Port^a	Pounds	% of total commercial bluefish landings	# vessels
Hatteras, NC	393,056	14%	8
Point Judith, RI	283,941	10%	99
Wanchese, NC	273,277	10%	25
Montauk, NY	269,418	10%	78
Hampton Bays, NY	147,959	5%	30
Little Compton, RI	111,107	4%	14

^a Since this table includes only the “top ports” (ports where landings of bluefish were > 100,000 pounds), it does not include all landings for the year.

Revenue

According to dealer data, commercial vessels landed about 2.78 million pounds of bluefish valued at approximately \$2.37 million in 2019. Average coastwide ex-vessel price of bluefish was \$0.85 per pound in 2019, a ~10% decrease from the previous year (2018 price = \$0.94 per pound). The relative value of bluefish is very low among commercially landed species, less than 1% of the total value, respectively of all finfish and shellfish landed along the U.S. Atlantic coast in 2019. A time series of bluefish revenue and price is provided in Figure 7.

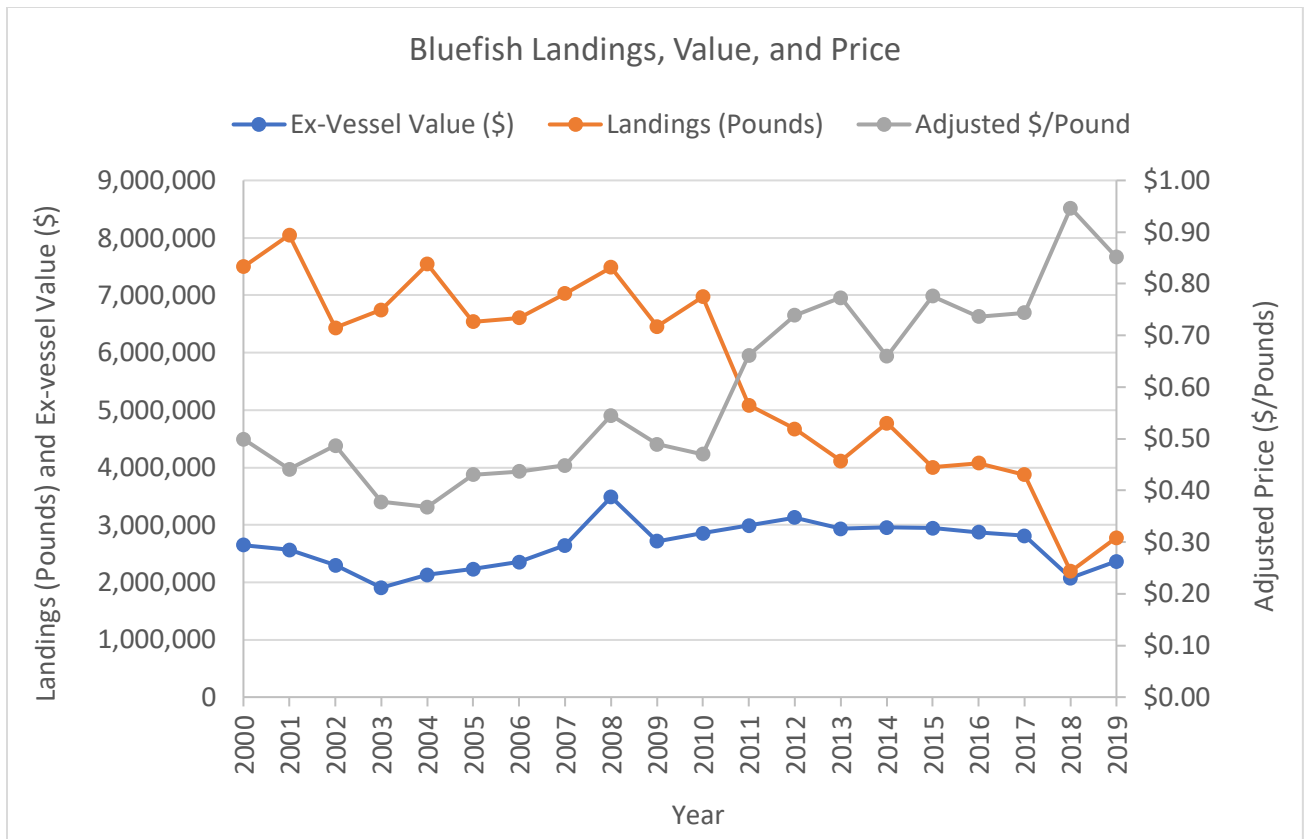


Figure 7. Landings, ex-vessel value, and price (adjusted to 2018 real dollars, 2019 unadjusted) for bluefish, 2000-2019.

Bycatch

The commercial bluefish fishery is primarily prosecuted with gillnets and handlines, although there are other small localized fisheries, such as the beach seine fishery that operates along the Outer Banks of North Carolina. Many of these fisheries do not fish exclusively for bluefish, but target a combination of species including croaker, mullet, Spanish mackerel, spot, striped bass, and weakfish. Given the mixed-species nature of the bluefish fishery, incidental catch of non-target species is not directly attributable to the bluefish fishery.

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