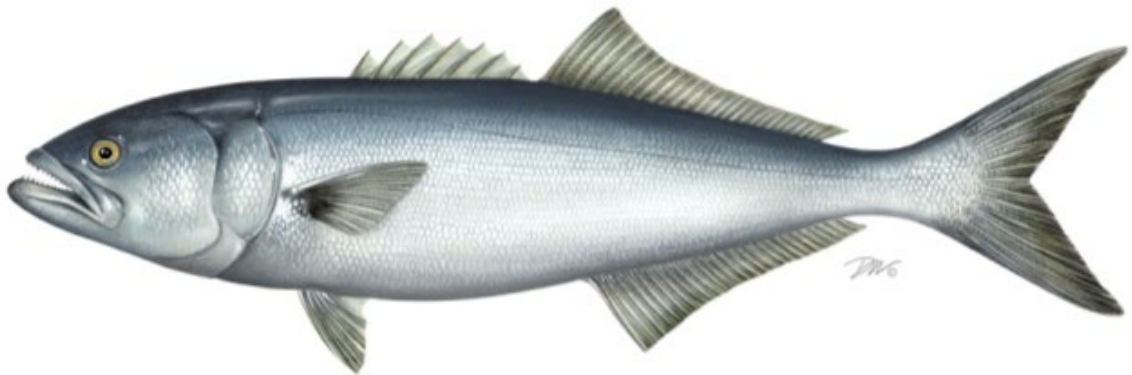


ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

FOR BLUEFISH
(Pomatomus saltatrix)

2018 FISHING YEAR



Prepared by the Plan Review Team

Approved by the Bluefish Management Board
October 2019

Executive Summary

Bluefish from Maine through Florida are jointly managed by the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission under Amendment 1 and Addendum I to the interstate Fishery Management Plan.

A benchmark stock assessment was peer reviewed by the 60th Stock Assessment Review Committee in June 2015. The benchmark assessment was approved by the Management Board and Council for management use. The benchmark assessment concluded that the U.S. bluefish population is not overfished and overfishing is not occurring relative to the new biological reference points defined in the assessment. In August 2019 an updated assessment of bluefish (with data through 2018, including calibrated MRIP estimates) was reviewed. Preliminary results from that review suggest the bluefish stock was overfished and overfishing was not occurring in 2018 relative to the updated biological reference points.

2018 recreational bluefish harvest was estimated at 17.6 million fish weighing 13.47 million pounds (Table 1). Recreational dead discards were estimated at 3.10 million fish. 2018 commercial bluefish landings were estimated at 2.44 million pounds. Each sector harvested under its respective harvest limit and quota. Total removals in 2018 are the lowest in the 1985-2018 time series.

In 2018, all states implemented management programs consistent with the intent of Amendment 1 and Addendum I to the ISFMP. Maine, South Carolina and Georgia requested *de minimis* status for 2019. Maine, South Carolina, and Georgia all qualify for *de minimis* status because their commercial landings in 2018 were less than 0.1% of the coastwide commercial landings estimate.

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REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN FOR BLUEFISH (*Pomatomus saltatrix*)

I. Status of the Fishery Management Plan

<u>Date of FMP Approval:</u>	1989
<u>Amendments:</u>	Amendment 1 (1998); Addendum I (2012)
<u>Management Unit:</u>	Migratory stocks of bluefish in U.S. state and federal waters of the western North Atlantic
<u>States with Declared Interest:</u>	Maine through Florida, excluding Pennsylvania and the District of Columbia
<u>Active Committees:</u>	ASMFC: Bluefish Management Board, Technical Committee, Advisory Panel, Plan Review Team, and Stock Assessment Subcommittee MAFMC: Demersal and Coastal Migratory Species Committee, Monitoring Committee, Advisory Panel, and Scientific and Statistical Committee

The Fishery Management Plan (FMP) for bluefish was adopted by the Atlantic States Marine Fisheries Commission (ASMFC or Commission) and the Mid-Atlantic Fishery Management Council (MAFMC) in October 1989. It was the first FMP developed jointly by an interstate commission and a federal fishery management council.

Bluefish is currently managed under Amendment 1 to the FMP approved in October 1998 and implemented in 2000. The goal of the Amendment is to conserve the bluefish resource along the Atlantic coast, specifically to:

1. Increase understanding of the stock and fishery
2. Provide highest availability of bluefish to U.S. fishermen while maintaining, within limits, traditional uses of bluefish
3. Provide for cooperation among the coastal states, the various regional marine fishery management councils, and federal agencies involved along the coast to enhance the management of bluefish throughout its range
4. Promote compatible management regulations between State and Federal jurisdictions
5. Prevent recruitment overfishing
6. Reduce the waste in both the commercial and recreational fisheries.

States and jurisdictions with a declared interest in the bluefish FMP include all ASMFC member states and jurisdictions, with the exception of Pennsylvania and the District of Columbia. Management issues are addressed jointly through the ASMFC Bluefish Management Board (Board) and the MAFMC Demersal and Coastal Migratory Species Committee (Council). The MAFMC's Bluefish Technical Monitoring Committee (MC) conducts annual plan monitoring,

which is reviewed jointly by the Council's and Board's Bluefish Advisory Panels (AP), and all committee recommendations are then provided to the Board and Council for review. A working group comprised of members from the Commission's Bluefish Stock Assessment Subcommittee (SAS), the Commission's Bluefish Technical Committee (TC), and the MC addresses stock assessment matters. The Board may implement changes to the FMP in state waters through the adaptive management process. The TC, Plan Review Team (PRT), Plan Development Team (PDT), and AP provide technical and industry advice to the Board throughout the adaptive management process.

In February 2012, the Board approved Addendum I to Amendment 1 to the Bluefish FMP. The Addendum establishes a coastwide biological monitoring program to improve the quantity and quality of information available for use in bluefish stock assessments. A summary of these findings from the most recent year are found in Section V.

Annual Fishery Specifications

Commercial and recreational bluefish harvests are managed via sector-specific landings limits (i.e., a coastwide commercial fishery quota and a recreational harvest limit, or RHL). The Council's Scientific and Statistical Committee (SSC) and Bluefish MC annually review the best available information and make fishery specification recommendations to the Council and Board for the subsequent fishing year. Recommendations include commercial quota, RHL, research set-aside (RSA), and other management measures such as minimum size limits and bag limits. The Council and Board meet jointly (typically in August) to consider the SSC's and MC's fishery specification recommendations and formalize commercial and recreational catch limits, and other management measures.

Annual fishery specification recommendations are typically developed as follows: final commercial quota and RHL recommendations are derived from an annual catch limit (ACL), which the FMP defines as equal to the allowable biological catch (ABC), and is in turn equal to or less than an overfishing limit (OFL). After accounting for management uncertainty, 17% of the ACL is allocated to the commercial sector and 83% to the recreational sector; these are the commercial and recreational annual catch targets (ACTs). Discard estimates are deducted from ACTs to derive commercial and recreational total allowable landings (TALs). If the recreational fishery is not projected to land its TAL (by comparison of the recreational landings estimate from the previous year), then quota may be transferred from the recreational to the commercial sector, not to exceed a commercial quota of 10.5 million pounds (the average commercial landings during the period 1990-1997). The final commercial quota is then allocated to the states of Maine through Florida based on average commercial landings during 1981-1989. The state-specific shares are detailed in Table 5.

II. Status of the Stock

The 2019 operational assessment¹ using the recalibrated MRIP estimates for recreational metrics is currently in the process of peer review. It is anticipated that the assessment will be approved by the Board and Council for management use at the joint meeting in October 2019. Preliminary results from this review suggest the Bluefish stock is overfished and overfishing was not occurring. In the interim, the 2015 benchmark stock assessment for bluefish will be referenced in this FMP review.

The 2015 benchmark stock assessment for bluefish was peer reviewed at the 60th SAW/SARC and was approved by the Board and Council for management use. The biological reference points from SARC 41 were based on maximum sustainable yield (MSY). MSY reference points require a reliable stock-recruitment relationship and the 2015 SAS determined that this relationship is poorly defined for bluefish. Therefore, for SAW 60, spawning potential ratio (SPR) reference points were used as a proxy for MSY reference points. $F_{40\%SPR}$ was selected at SAW 60 as the F_{MSY} proxy for the overfishing threshold. This threshold was modified by the SSC to $F_{35\%SPR}$, noting that $F_{40\%SPR}$ might be inappropriate for bluefish, a highly productive species. The biomass target (SSB_{MSY} proxy) was established by projecting the population forward until an equilibrium spawning stock biomass was reached (NEFSC 2015).

The results of the 2015 benchmark assessment indicate that bluefish are not overfished and overfishing is not occurring. Spawning stock biomass (SSB) in 2014 was estimated at 191 million pounds which is below the SSB target (223 million pounds) but above the SSB threshold (112 million pounds). Although variable across the time series, recruitment (age-0 fish) has increased from 16.74 million fish in 2012 to 29.61 million fish in 2014. Fishing mortality (F) in 2014 was estimated to be 0.16 which is below the F threshold ($F_{35\%SPR}=0.19$).

III. Status of the Fishery

From 1985-2018, recreational catch (harvest plus fish caught and released) of bluefish in U.S. waters of the Atlantic coast averaged 44.96 million fish annually (Table 1 and Figure 1). In 2018, recreational catch was estimated at 38.3 million fish which is a 27% decrease relative to 2017. In 2018, recreational anglers harvested an estimated 17.6 million fish weighing 13.47 million pounds (6,111 metric tons). This represents a decrease relative to 2017 harvest in terms of number of fish (26%) and an even larger decrease by weight (59%), indicating that bluefish harvested recreationally in 2018 were considerably smaller than those harvested in 2017. The majority of the recreational harvest (number of fish) came from North Carolina (32%), Florida (20%), New Jersey (14%) and New York (12%). In 2018, recreational dead discards (15% of B2) were estimated at 3.10 million fish (Table 1).

¹ An operational assessment uses an existing model with limited changes, but adds new data to existing data sources. These assessments provide stock status, and involve an integrated peer review with select fishery council science committee members. This type of assessment is intermediate between an update assessment and a benchmark assessment (Source: <https://www.nefsc.noaa.gov/groundfish/operational-assessments-2017/>).

From 1985-1999, annual commercial landings of bluefish in U.S. waters of the Atlantic coast averaged 11.61 million pounds (5,268 metric tons). After the implementation of the Amendment 1 quota system, from 2000-2018 commercial landings of bluefish have averaged 6.11 million pounds (2,773 metric tons) annually (Figure 2). In 2018, commercial landings were estimated at 2.44 million pounds (1,107 metric tons), a decrease of 41% relative to 2017 landings and a 68% underage of the 2018 commercial quota (7.71 million pounds). The majority of commercial landings came from North Carolina (38%), New York (22%), and Florida (13%). Commercial dead discards are considered negligible.

IV. Status of Research and Monitoring

Many states, the National Marine Fisheries Service (NMFS), the Northeast Area Monitoring and Assessment Program (NEAMAP), and the Southeast Area Monitoring and Assessment Program (SEAMAP) conduct fishery-independent surveys. New Hampshire, Rhode Island, Connecticut, New York, New Jersey, Maryland, Virginia, and South Carolina (SEAMAP) provide indices of juvenile bluefish abundance for stock assessment, and Connecticut, New Jersey, Virginia (NEAMAP), and North Carolina provide indices of adult abundance. Year class strength is monitored through a number of fishery-independent surveys (NEFSC 2015). Although not included in the 2015 benchmark assessment (NEFSC 2015), Massachusetts, Delaware, Georgia and Florida also maintain indices of abundance from surveys that encounter bluefish. Refer to Table 3 for status of monitoring efforts by state in 2018.

Commercial landings information is collected by most states from dealer or fisherman reporting programs, which is provided to the Atlantic Coastal Cooperative Statistics Program's (ACCSP) Standard Atlantic Fisheries Information System (SAFIS). Fishermen fishing in federal waters are required to report their landings to NMFS. North Carolina and Virginia are the only states that significantly sample bluefish commercial fisheries for size and age composition of the catch. Recreational catch and harvest is monitored by the Marine Recreational Information Program (MRIP).

Addendum I to Amendment 1 (2012) implemented a biological monitoring program to enhance age and length data used in bluefish stock assessments. Under Addendum I, states that accounted for more than 5% of total coastwide bluefish harvest (recreational and commercial combined) for the 1998-2008 period are required to collect a minimum of 100 bluefish ages (50 from January through June, 50 from July through December). Those states are Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Virginia, and North Carolina. Age samples are primarily collected from fishery-dependent sources (e.g., party/charter boats, fishing tournaments and volunteer anglers), although samples collected from fishery-independent sources are sometimes utilized as needed to fulfill this requirement. In 2018, most of these states were able to collect the minimum of 100 age samples (Table 3), and all states made a good effort to collect 50 age samples from both spring and fall. Massachusetts collected just 98 samples, just under the 100 sample requirement. South Carolina also reported 100 age samples collected by personnel of the SEAMAP-SA coastal trawl survey, and 21 from the South Carolina Inshore Finfish Monitoring program.

As prescribed in the addendum, following the end of the first year of the sampling program, the TC reviewed the sampling design and evaluated the optimal geographic range and sample size for bluefish age data. The TC found the sampling program design to be satisfactory. However, additional TC reviews may be warranted as the program continues, especially in light of the difficulties expressed by some states to collect samples before July.

V. Status of Management Measures and Issues

The Board and Council recommend adjustments to the commercial quota and RHL annually using the specification setting process detailed in Amendment 1 (Section 3.1.1.6) and in Section I of this report. The recreational fishery is allocated 83% of the ACL, and 17% is allocated to the commercial fishery. The coastwide commercial quota is allocated to the states via state-specific percentage shares based on landings from 1981-1989.

The 2018 ACL was 21.81 million pounds (9,895 metric tons); after a transfer of 3.54 million pounds from the recreational to commercial sector, the commercial quota was 7.24 million pounds (3,286 metric tons) and the RHL was 11.58 million pounds (5,253 metric tons). In 2018, neither sector exceeded their respective quota or harvest limit, therefore no federal accountability measures have been triggered for 2019. 2018 state-specific shares and landings, and initial 2019 state-specific shares are listed in Table 5.

The MAFMC and ASMFC have initiated an amendment process that will involve a comprehensive review of the Bluefish Fishery management Plan's sector-based allocations, commercial allocations to the states, transfer processes, as well as FMP goals and objectives, and any other issues highlighted by the Council and Commission through the scoping process.

VI. Current State-by-State Implementation of FMP Compliance Requirements

These states and jurisdictions are required to comply with the provisions of the Bluefish FMP: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Potomac River Fisheries Commission, Virginia, North Carolina, South Carolina, Georgia, and Florida. The following are specific FMP compliance requirements:

- Each state must restrict the possession of bluefish by recreational anglers to no more than fifteen fish per day, or have an ASMFC-approved equivalent conservation program.
- Each state must restrict its commercial fishery to the quota adopted under procedures specified in the FMP.
- These states are required to collect a minimum of 100 age samples per Addendum I to Amendment 1: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Virginia, and North Carolina.
- States must submit annual compliance reports verifying that the above listed FMP requirements have been implemented. Compliance reports should also include an overview

of permitting requirements for commercial and party/charter vessels and commercial dealers.

Based on the annual state compliance reports, the PRT determined all states and jurisdictions implemented a management program in 2018 consistent with the intent of the ISFMP for Bluefish (Amendment 1 and Addendum I). All states implemented a recreational possession limit not exceeding 15 fish per person and were able to collect all or nearly all of the 100 required biological samples. Refer to Table 3 for state monitoring and reporting requirements, Table 4 for fishery regulations by state in 2018, and Table 5 for commercial quota monitoring and harvest.

Maine, South Carolina, and Georgia requested *de minimis* status for 2018. Maine, South Carolina, and Georgia qualify for *de minimis* status because their commercial landings from the most recent year were less than 0.1% of the coastwide commercial landings estimate (Table 5).

VII. Prioritized Research Needs

The following research recommendations were identified at the 60th SAW/SARC:

High Priority

1. Determine whether NC scale data from 1985-1995 are available for age determination; if available, re-age based on protocols outlined in ASMFC (2001); if re-aging results in changes to age assignments, quantify the effects of scale data on the assessment.
2. Develop additional adult bluefish indices of abundance (e.g., broad spatial scale longline survey or gillnet survey).
3. Expand age structure of SEAMAP index.

Moderate Priority

4. Investigate species associations with recreational angler trips targeting bluefish (on a regional and seasonal basis) to potentially modify the MRIP index used in the assessment model.
5. Explore age- and time-varying natural mortality from, for example, predator-prey relationships; quantify effects of age- and time-varying mortality on the assessment model.
6. Continue to evaluate the spatial, temporal, and sector-specific trends in bluefish growth and quantify their effects in the assessment model.
7. Continue to examine alternative models that take advantage of length-based assessment frameworks. Evaluate the source of bimodal length frequency in the catch (e.g., migration, differential growth rates – also multiple cohorts as noted by the PRT).
8. Modify thermal niche model to incorporate water temperature data more appropriate for bluefish in a timelier manner [e.g., sea surface temperature data & temperature data that cover the full range of bluefish habitat (SAB and estuaries)].

VIII. Plan Review Team Comments and Recommendations

- The PRT found that all states implemented regulations consistent with the intent of Amendment 1 and Addendum I of the Bluefish Interstate FMP.
- Maine, South Carolina and Georgia requested and meet the requirements for *de minimis* status for 2018.
- The TC should periodically review the effectiveness of the Addendum I sampling design and evaluate the optimal geographic range and sample size for bluefish age data.
- The PRT notes that the MAFMC and ASMFC have initiated an amendment process that will involve a comprehensive review of the Bluefish Fishery Management Plan's sector-based allocations, commercial allocations to the states, transfer processes, as well as FMP goals and objectives, and any other issues highlighted by the Council and Commission through the scoping process.
- Preliminary results from an August 2019 operational assessment of bluefish (with data through 2018, including calibrated MRIP estimates) suggest the bluefish stock was overfished and overfishing was not occurring in 2018 relative to updated biological reference points.
- The PRT recommends that the TC look into the increased importance of recreational discards in stock assessments. Generating reliable discard length data from recreational anglers could improve the robustness of stock assessments moving forward.

IX. References

Mid-Atlantic Fishery Management Council (MAFMC) and Atlantic States Marine Fisheries Commission (ASMFC). 1998. Amendment 1 to the Bluefish Fishery Management Plan.

Northeast Fisheries Science Center. 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 15-07; 36 p. doi: 10.7289/V5D21VKV

Fisheries of the Northeastern United States. Atlantic Bluefish Fishery; 2015 Final Atlantic Bluefish Specifications. 50 CFR Part 648. Vol 80, No. 151. Thursday, August 6, 2015.

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X. Tables

Table 1. Estimated bluefish recreational harvest (A + B1), releases (B2), dead discards (DD; 15% of B2), total catch (A+B1+B2), and total removals (Harvest+DDs) in numbers of fish by marine recreational anglers, 2008 to 2018. Source: MRIP. These estimates may differ from MRIP estimates depending on query date (Data queried August 6, 2019).

Year	Total Catch (A+B1+B2)	Harvest (A+B1)	Released (B2)	DDs (15% of B2)	Total Removals (Harvest + DD)
2008	46,045,004	14,845,435	31,199,569	4,679,935	19,525,370
2009	49,866,588	18,085,386	31,781,202	4,767,180	22,852,566
2010	62,350,107	21,929,516	40,420,591	6,063,089	27,992,605
2011	58,290,652	20,814,885	37,475,767	5,621,365	26,436,250
2012	50,658,368	18,578,840	32,079,528	4,811,929	23,390,769
2013	53,494,663	19,975,050	33,519,613	5,027,942	25,002,992
2014	55,093,765	21,510,651	33,583,114	5,037,467	26,548,118
2015	42,148,962	13,725,106	28,423,856	4,263,578	17,988,684
2016	42,528,745	14,899,722	27,629,023	4,144,353	19,044,075
2017	52,258,920	23,941,161	28,317,759	4,247,664	28,188,824
2018	38,283,848	17,600,856	20,682,992	3,102,449	20,703,305
Average	44,965,432	20,762,764	24,202,668	3,630,400	24,393,164

Table 2. Bluefish Commercial Landings and Recreational Harvest (A + B1) by weight (metric tons, pounds), 2008-2018. Source: SAFIS and MRIP. Estimates may differ from source websites depending on query date (2018 commercial data queried August 6, 2019; recreational data queried August 6, 2019).

Year	Commercial		Recreational (A + B1)		Total	
	MT	Pounds	MT	Pounds	MT	Pounds
2008	2,734	6,027,113	16,669	36,747,825	19,403	42,774,938
2009	3,137	6,915,525	18,836	41,526,898	21,973	48,442,423
2010	3,310	7,298,147	21,280	46,914,747	24,591	54,212,894
2011	2,458	5,418,960	15,714	34,643,119	18,172	40,062,079
2012	2,220	4,893,437	14,919	32,891,473	17,139	37,784,910
2013	1,994	4,396,929	15,860	34,964,726	17,854	39,361,655
2014	2,280	5,026,123	12,631	27,846,802	14,911	32,872,925
2015	1,922	4,237,385	13,757	30,328,486	15,679	34,565,871
2016	1,930	4,253,923	11,183	24,654,287	13,113	28,908,210
2017	1,880	4,145,055	14,736	32,486,216	16,616	36,631,271
2018	1,107	2,440,289	6,111	13,473,096	7,218	15,913,385
Average	2,270	5,004,808	14,700	32,407,061	16,970	37,411,869

Table 3. Status of compliance with monitoring and reporting requirements, 2018 (Y = compliance standards met, N = compliance standards not met, NA = not applicable).

State/ Jurisdiction	Fishery-independent monitoring		Fishery-dependent monitoring		Annual Reporting Status
	Survey(s)	Status	Type(s)	Status (num. of age samples)	
ME*	NA	NA	Rec and Com harvest	NA	Y
NH	Juvenile	Y	Rec and Com harvest	NA	Y
MA	Juvenile	Y	Rec and Com harvest, Age Samples	Y (98)	Y
RI	Juvenile, Adult	Y	Rec and Com harvest, Age Samples	Y (105)	Y
CT	Juvenile, Adult	Y	Rec and Com harvest, Age Samples	Y (190)	Y
NY	Juvenile	Y	Rec and Com harvest, Age Samples	Y (155)	Y
NJ	Juvenile, Adult	Y	Rec and Com harvest, Age Samples	Y (223)	Y
DE	Juvenile, Adult	Y	Rec and Com harvest	NA	Y
MD	Juvenile	Y	Rec and Com harvest	NA	Y
PRFC	Juvenile	Y	Rec and Com harvest	NA	Y
VA	Juvenile, Adult	Y	Rec and Com harvest, Age Samples	Y (390)	Y
NC	Adult	Y	Rec and Com harvest, Age Samples	Y (732)	Y
SC*	NA	NA	Rec and Com harvest	NA	Y
GA*	NA	NA	Rec and Com harvest	NA	Y
FL	Juvenile, Adult	Y	Rec and Com harvest	NA	Y

*granted *de minimis* for 2018 fishing season

Table 4. Fishery regulations by state, 2018. Minimum size are in total length (TL) except for GA and FL are in fork length (FL).

State/ Jurisdiction	Recreational			Commercial	
	Bag Limit	Season	Size Limit	Trip and Size Limit	Open Season
ME	3 fish	All year	None	No Restrictions	All year
NH	10 fish	All year	None	No Restrictions	July 1 - Sept 30
MA	10 fish	All year	None	5,000 lbs/day or trip (whichever is longer)	All year
RI	15 fish	All year	None	12" min size; 1,000 lbs/bi-wk (1.1-4.30) 8,000 lbs/wk (5.1-11.10) 500 lbs/wk (11.11-12.31)	All year
CT	10 fish	All year	None	9" min size; 1,200 lbs/trip	All year
NY	15 fish	All year	Only 10 fish <12"	9" min size; Trip Limit: 2,000 lbs (Jan- April); 500 lbs (May-Aug); 1,000 lbs (Sept-Dec)	All year
NJ	15 fish	All year	None	9" min size	Closed to H&L from 1.1-6.15 and 8.8-12.31
DE	10 fish	All year	None	No Restrictions	All year
MD	10 fish	All year	8" min size	8" min size	All year
PRFC	10 fish	All year	8" min size	Trip limits after 80% of VA- MD quota is landed	All year
VA	10 fish	All year	None	No Restrictions	All year
NC	15 fish	All year	Only 5 fish > 24"	No Restrictions	All year
SC	15 fish	All year	None	No directed fishery	All year
GA	15 fish	All year	12" min size	12" min size; 15 fish	All Year
FL	10 fish	All year	12" min size	12" min size; 7,500 lbs/day	All year

Table 5. 2018 state-specific shares of commercial bluefish quota and estimated harvest by weight (lbs). Landings data source: SAFIS (query date: June 6, 2019). C = landings values are confidential.

State	% of Federal Quota	2018 Initial Quota*	2018 Transfers	2018 Final Quota	2018 Landings	Overages	% Quota Used	% Coastwide Total	2019 Initial Quota
ME	0.6685	48,424		48,424	29.87	0	0.1%	0.0%	51,538
NH	0.4145	30,025		30,025	C	C	C	C	31,956
MA	6.7167	486,539		486,539	195,378	0	40.2%	8.1%	517,828
RI	6.8081	493,160		493,160	237,099	0	48.1%	9.8%	524,874
CT	1.2663	91,727		91,727	53,367	0	58.2%	2.2%	97,626
NY	10.3851	752,268		752,268	537,035	0	71.4%	22.0%	800,645
NJ	14.8162	1,073,245		1,073,245	56,206	0	5.2%	2.3%	1,142,264
DE	1.8782	136,052		136,052	667	0	0.5%	0.0%	144,801
MD	3.0018	217,442		217,442	25,717	0	11.8%	1.1%	231,426
VA	11.8795	860,518		860,518	93,070	0	10.8%	3.8%	915,857
NC	32.0608	2,322,397		2,322,397	910,202	0	39.2%	37.6%	2,471,746
SC	0.0352	2,550		2,550	C	C	C	C	2,714
GA	0.0095	688		688	C	C	C	C	732
FL	10.0597	728,697		728,697	316,193	0	43.4%	13.1%	775,558
TOTAL^	100.00	8,542,230	0	7,243,726	2,420,934	0	33%		7,709,565

^ totals in table may not match listed quotas due to rounding

XI. Figures

Figure 1. Estimated recreational bluefish harvest (A + B1), releases (B2) and dead discards by recreational anglers in numbers of fish, 1985-2018. Note: Harvest and dead discards are additive. Source: MRIP. Estimates may differ from source websites depending on query date (2018 data queried August 6, 2019).

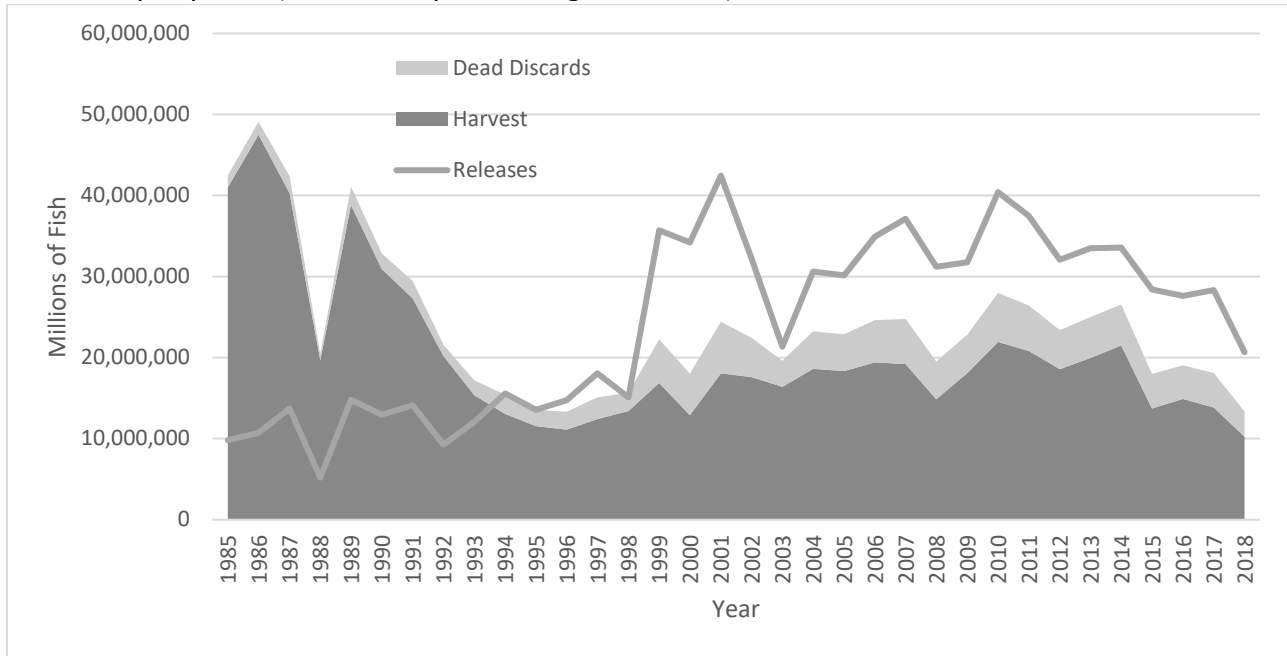


Figure 2. Bluefish recreational harvest and commercial landings estimates by weight, 1985-2018. Source: SAFIS and MRIP. Estimates may differ from source websites depending on query date (2018 data queried August 6, 2019).

