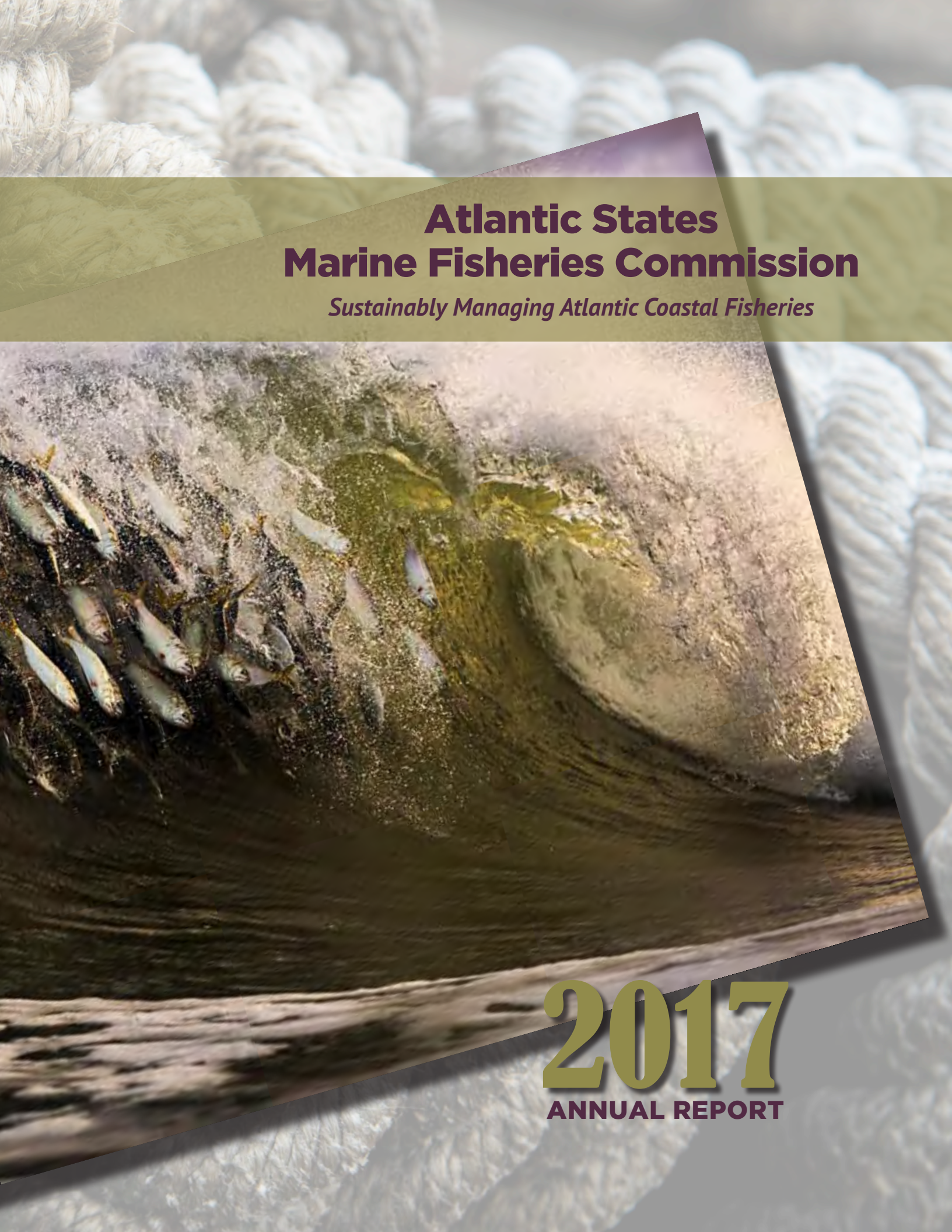
Atlantic States Marine Fisheries Commission

Sustainably Managing Atlantic Coastal Fisheries



2017 ANNUAL REPORT

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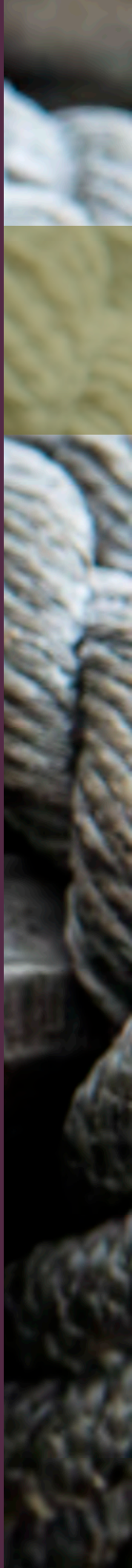

2017 Annual Report of the Atlantic States Marine Fisheries Commission

To the Congress of the United States
and to the Governors and Legislators
of the Fifteen Compacting States

Presented in compliance with the terms of the Compact and the state-enabling acts creating such Commission and Public Law 539 - 77th Congress assenting thereto (Chapter 283, Second Session, 77th Congress; 56 Stat. 267) approved May 4, 1942, as amended by Public Law 721, 81st Congress, approved August 19, 1950

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Executive Director

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Editor

February 2018

Acronyms

AAE	Annual Awards of Excellence
ACCSP	Atlantic Coastal Cooperative Statistics Program
ACFHP	Atlantic Coastal Fish Habitat Partnership
ACFCMA	Atlantic Coastal Fisheries Cooperative Management Act
ACL	Annual catch limits
ARM	Adaptive Resource Management
AMG	Atlantic migratory group
APAIS	Access Point Angler Intercept Survey
API	Application Programming Interface
ASMFC	Atlantic States Marine Fisheries Commission (also referred to as the Commission)
CPUE	Catch-per-unit-effort
DPS	Distinct population segments
DW	Dressed weight
ERPs	Ecological-based reference points
ESA	Endangered Species Act
F	Fishing mortality
FDDV	Fishery-dependent Data Visioning Project
FMP	Fishery Management Plan
GBK	Georges Bank
GOM	Gulf of Maine
GOM/GBK	Gulf of Maine/Georges Bank
HMS	Highly Migratory Species
ISFMP	Interstate Fisheries Management Program
IFA	Interjurisdictional Fisheries Act
IFR	Integrated fisheries reporting
ITC	Interstate Tagging Committee
IUCN	International Union for the Conservation of Nature
LCS	Large coastal shark
MAFMC	Mid-Atlantic Fishery Management Council
MRIP	Marine Recreational Information Program
MSY	Maximum sustainable yield
MT	Metric tons
NEAMAP	Northeast Area Monitoring and Assessment Program
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fisheries Science Center
NMFS	National Marine Fisheries Service; also known as NOAA Fisheries
NOAA	National Oceanic and Atmospheric Administration
PDT	Plan Development Team
PID	Public Information Document
PRT	Plan Review Team
RHL	Recreational harvest limit
RSA	Research Set-Aside
SAFIS	Standard Atlantic Fisheries Information System
SAFMC	South Atlantic Fishery Management Council
SARP	Southeast Atlantic Aquatic Resources Partnership
SAS	Stock Assessment Subcommittee
SAV	Submerged aquatic vegetation
SCA	Statistical catch-at-age
SCS	Small coastal shark
SEAMAP	Southeast Area Monitoring and Assessment Program
SEDAR	SouthEast Data, Assessment, and Review Process
SFMP	Sustainable fishery management plan
SNE	Southern New England
SNE/MA	Southern New England/Mid-Atlantic
SPR	Spawning potential ratio
SSB	Spawning stock biomass
SSC	Scientific and Statistical Committee
TAC	Total allowable catch
TAL	Total allowable landings
TEWG	Technical Expert Working Group
TLA	Traffic Light Analysis
TMS	Trip management system
USFWS	U.S. Fish and Wildlife Service

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GuidingPrinciples

MISSION

To promote cooperative management of fisheries – marine, shell, and diadromous – of the Atlantic coast of the United States by the protection and enhancement of such fisheries, and by the avoidance of physical waste of the fisheries from any cause

VISION

Sustainably Managing Atlantic Coastal Fisheries

GOALS

- Rebuild, maintain, fairly allocate, and promote Atlantic coastal fisheries
- Provide the scientific foundation for, and conduct stock assessments to support, informed management actions
- Promote compliance with fishery management plans to ensure sustainable use of Atlantic coast fisheries
- Protect and enhance fish habitat and ecosystem health through partnerships and education
- Strengthen stakeholder and public support for the Commission
- Advance Commission and member states' priorities through a proactive legislative policy agenda
- Ensure the fiscal stability and efficient administration of the Commission

COMMISSIONER VALUES

- Effective stewardship of marine resources through strong partnerships
- Decisions based on sound science
- Long-term ecological sustainability
- Transparency and accountability in all actions
- Timely response to new information through adaptive management
- Balancing resource conservation with the economic success of coastal communities
- Efficient use of time and fiscal resources
- Work cooperatively with honesty, integrity, and fairness

Commissioners

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Sen. Brian Langley
Stephen R. Train

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Sen. Thad Altman
William R. Orndorf

Preface

The Atlantic States Marine Fisheries Commission (Commission) was formed 76 years ago by the 15 Atlantic coastal states to assist in managing and conserving their shared coastal fishery resources.

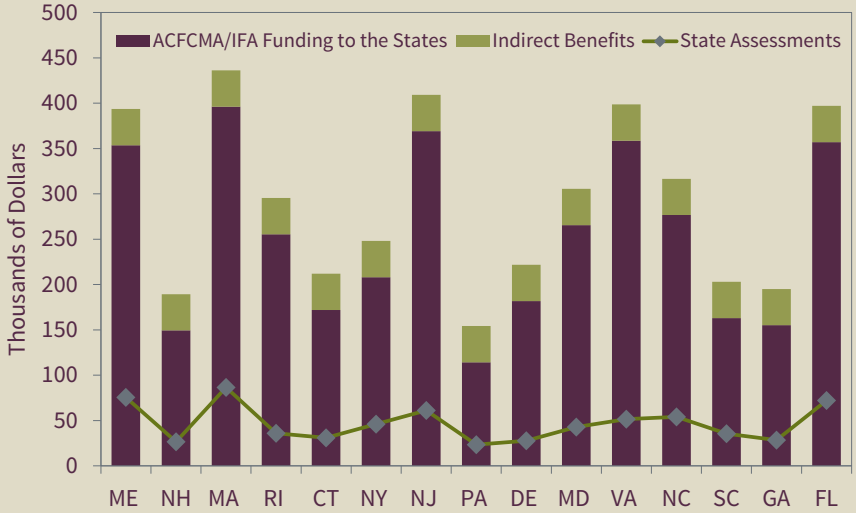
With the recognition that fish do not adhere to political boundaries, the states formed an Interstate Compact, which was approved by the U.S. Congress in 1942. The states have found that their mutual interest in sustaining healthy coastal fishery resources is best promoted by working cooperatively, in collaboration with the federal government. With this approach, the states uphold their collective fisheries management responsibilities in a cost-effective, timely, transparent, and responsive fashion.

For 2017, the Commission's current budget is $11.5 million. The base funding ($665,255) comes from the member states' appropriations, which are determined by the value of commercial fishing landings and saltwater recreational trips within each state. The bulk of the Commission's funding comes from a combination of state and federal grants, the largest being a line-item in the NOAA Fisheries budget appropriated to implement the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA). The Commission also receives funds from NOAA Fisheries to carry out the provisions of the Interjurisdictional Fisheries Act (IFA) (P.L. 99-659). The accompanying graph illustrates the benefits states receive from ACFCMA and IFA.

The U.S. Fish and Wildlife Service (USFWS) also provides grant funding to the Commission through its Federal Aid in Sport Fish Restoration Program (Wallop/Breaux). Also, since 1999, the Commission has overseen the administration of the Atlantic Coastal Cooperative Statistics Program (ACCSP), a state and federal partnership for Atlantic coastal fisheries data collection and management. Funding for this program is provided by ACFCMA and the Fisheries Information Network line in the NOAA Fisheries budget. In 2016, through ACCSP, the Commission was given responsibility for oversight and management for state conduct of the Access Point Angler Intercept Survey (APAIS). Funding for this program is provided by NOAA Fisheries.

The Commission serves as a deliberative body of the Atlantic coastal states, coordinating the conservation and management of nearshore fishery resources, including marine, shell, and diadromous species. The 15 member states of the Commission are (from north to south): Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. Each state is represented on the Commission by three Commissioners: the director of the state's marine fisheries management agency, a state legislator, and an individual appointed by the state's governor to represent fishery interests. These Commissioners participate in deliberations in the Commission's main policy arenas: interstate fisheries management, fisheries science, habitat conservation, and law enforcement. Through these activities, the states collectively ensure the sound conservation and management of Atlantic coastal fishery resources and the resulting benefits that accrue to their fishing and non-fishing public.

2017 Return on State Assessments to the Commission
Source: FY18 ASMFC Assessments and FY17 ACFCMA & IFA Allocations



*Indirect Benefits include travel and per diem for 6 people from each state to participate in Commission meetings. Please note that this figure does not include the collective benefits derived from the work of the FMP Coordinators and Science Staff.

Report to our Stakeholders ROBERT E. BEAL

Working together we can achieve extraordinary things; however, it takes the steadfast commitment of each state to achieve that potential.

On behalf of the Commission and the 15 Atlantic coastal states, I am pleased to present our 2017 Annual Report. The report fulfills our obligation to inform Congress on the Commission's use of public funds, provides our stakeholders with a summary of activities and progress in carrying out our cooperative stewardship responsibilities, and reflects our Commissioners' commitment to accountability and transparency in all they do to manage and rebuild the fisheries under their care.

We remain grateful to the Members of Congress, our Governors and State Legislators for their continued support. Many of our accomplishments would not have been possible without their trust and confidence. In addition, the fiscal, staff, and technical support provided by NOAA Fisheries and USFWS to the Commission and states are an invaluable component of our interstate fisheries management, science, and data collection activities.

As you can see from our Chairman's Report on the next page, 2017 was a busy year in fisheries science and management along the coast. The Commission completed several benchmark assessments and assessment updates, and approved three new plan amendments as well as a new FMP. A critical dimension of Atlantic Menhaden Amendment 3 is the continued commitment to the development and application of ecological reference points, which will account for the many demands placed on the resource and serve as the foundation for future management. The Commission, the member states, and our federal partners have committed to an "all hands on deck" approach to completing the development of these reference points by the end of 2019.

The Commission continues to proactively address new challenges. Warming water temperatures will play a significant role in the productivity, distribution, and management of many Commission-managed species. These changes will require the Commission to examine the rebuilding goals and timelines, as well as the allocation of many economically-important species such as American lobster, black sea bass, and cobia. Northern shrimp serves as an unfortunate reminder of the impacts of warming water on marine species. With the shrimp fishery having been subject to moratorium for the past five years with virtually no signs of stock recovery, managers face a dilemma on how best to manage the resource. The fate of this stock seems to be dependent on environmental conditions rather than management. Should the moratorium be continued to improve chances of recovery or should a small scale fishery be opened to provide a small economic benefit? Managers also continue to wrestle with this same issue as it applies to Southern New England stock of American lobster.

The Commission has also begun preparing for improvements to the Marine Recreational Information Program (MRIP) that will re-estimate historical recreational harvests. This re-estimation will have a considerable impact on the assessment, allocation, and management of many recreationally important species. Upcoming benchmark stock assessments for summer flounder and Atlantic striped bass will incorporate the re-estimated recreational harvest, with the new data likely resulting in substantial changes in stock abundance. Many interstate FMPs have commercial/recreational allocations based on historical landing data. This new MRIP data will require managers to review these management programs.

ACCSP continued to be forward-looking, using and exploring innovative and enhanced data collection methods to improve data quality and data management along the East Coast. Involvement with new Council initiatives on mandatory electronic reporting for for-hire fisheries, increased collaboration with NOAA Fisheries Regional Offices, and continued improvements to the state conduct of APAIS, have positioned ACCSP to be the central fisheries data system for Atlantic coast managers and scientists.

During 2018, the Commission will update its Strategic Plan. I anticipate this plan will account for the challenges faced by the states, as well as capitalize on proactive actions already underway. This new Strategic Plan will also reaffirm the states' commitment to work together toward their common goal of sustainably managing nearshore migratory marine resources. While each state may not get everything they want in every decision made by the Commission, the member states must, at times, make sacrifices for the long-term good of our coastal resources.

While the Commission faced a number of fisheries management and administrative hurdles throughout 2017 that challenged our collaborative process and tested state/federal partnerships, I am convinced, based on our long history, that we have the wherewithal and commitment to weather any storm. We need to remember we all have the same end goal – healthy, sustainable fisheries and thriving fishing communities. Working together we can achieve extraordinary things; however, it takes the steadfast commitment of each state to achieve that potential.

Thank you all for your commitment to the Commission and the successful management of marine resources along the Atlantic coast.

Report from the Chair DOUG GROUT

... now more than ever, it is imperative the states form a united front with the goals of maintaining the integrity of our management process.

2017 was a challenging year for state/federal cooperative fisheries management. The long-standing commitment the states made to each other through our 76-year old Interstate Compact and 24-year old Atlantic Coastal Act was sorely tested. For the first time since passage of the Atlantic Coastal Act in 1993 and the Atlantic Striped Bass Conservation Act in 1984, a Commission noncompliance recommendation had not been supported by the Secretary of Commerce. It is unclear what the full implications of this action will be on interstate management, but we have already begun to hear from some states that their fishing constituents are pushing back on current regulations for several species.

Given this, now more than ever, it is imperative the states form a united front with the goals of maintaining the integrity of our management process, following the letter of the law that guides us, and seeking solutions to the problems raised by individual states so we can avoid the need to request federal intervention to accomplish our management goals. I implore you to remain committed to one another and the principles and values upon which the Commission is founded. I also urge the states to avoid going down the path of noncompliance. No doubt, there will be pressure to do so by your constituents, but continued challenges to our process will slowly chip away at our cooperative management process. As Robert Boyles aptly stated at the August Policy Board meeting, quoting Dr. Franklin, "We must indeed all hang together or most assuredly we shall all hang separately."

While 2017 had its share of challenges, we also made important strides in furthering our strategic goals. We approved new plan amendments for northern shrimp, tautog, and Atlantic menhaden, and a new Cobia Fishery Management Plan (FMP). All are significant in their own right. The Northern Shrimp Amendment is the first Commission plan to address adapting management to new environmental conditions. Under the Tautog Amendment, management shifts from a coastwide basis to regional management to more clearly reflect the largely non-migratory nature of the species. Under the new Menhaden Amendment, we continue to make progress towards ecological-based reference points while modifying the allocation of the resource to match the current needs of the states and various user groups. Under the Cobia FMP, we will work with our South Atlantic Council partners to ensure complementary management of the resource in state and federal waters.

On the fisheries science front, Commission staff and state and federal scientists performed the herculean task of completing benchmark stock assessments for Atlantic sturgeon, Atlantic croaker, spot, and red drum; stock assessment updates for American eel, menhaden, and river herring; and regional stock assessments and an assessment update for tautog. All of these provided much needed insight into the health of these species, as well as identified the continuing challenges of assessing fish stocks given limited data and increasingly complex stock assessment models. We also made substantial progress in developing a policy on risk and uncertainty to aid us in our fisheries management decision-making.

ACCSP continued to make great strides in improving data collection and management along the coast on all fronts – commercial, recreational, and for-hire. Now fully integrated into the Commission, there has been even more connectivity between the ACCSP and the Commission's other programs. State conduct of APAIS is well into its second year and is estimated to have increased the number of angler intercepts by nearly 10%. ACCSP has been collaborating with the Greater Atlantic Regional Fisheries Office on an integrated reporting system, which will allow all related fisheries-dependent data collected from various sources, including vessel, observer, and dealer reports, to be linked. ACCSP has been assisting the Mid-Atlantic and South Atlantic Councils as they move toward mandatory for-hire electronic reporting.

While limited in our ability to directly impact fisheries habitat, the Commission's Habitat Committee and the Atlantic Coastal Fish Habitat Partnership (ACFHP) continued to advance our understanding of the importance of the fisheries-habitat connection and provide us and habitat managers with tools to further habitat conservation. The Habitat Committee released the *Sciaenid Fish Habitat Source Document*, which provides

in-depth information on habitat requirements for nine sciaenid species, as well as habitat threats and research needs. ACFHP completed its five-year Conservation Strategic Plan and two-year Conservation Action Plan, outlining strategies and actions to restore and enhance Atlantic coastal, estuarine, and diadromous fish habitat.

Conservation law enforcement officers from the states and federal agencies came together through the Law Enforcement Committee (LEC) to provide guidance on proposed fisheries management measures, share resources and information on ongoing investigations, and monitor stakeholder compliance with fishing regulations. In 2017, the LEC coordinated enforcement activities directed at illegal glass eel harvest and responded to lobster industry concerns about illegal activity in federal waters by working with our federal partners to place lobster as a high priority for federal and joint enforcement agreement activities.

Overarching all of these activities has been the ever-present need for adequate funding to perform our stewardship responsibilities, strong support from Congress and our federal partners in managing our shared fishery resources, and the willingness to seek innovative ways to adapt our management programs to changing resource and environmental conditions. Luckily, we have a long and illustrious track record of meeting formidable challenges head on through the ingenuity and tireless work of countless individuals and the enduring commitment of the states to work together for the greatest good of all the states, not the one or the few. This very principle – that the states could achieve more together than apart – is the foundation of the Commission and the reason we have been so successful. It has been a great honor to serve as your Chair these past two years. I am excited about the opportunities and challenges ahead and look forward to working with you all and our new Chair and Vice-Chair in the coming year.

Stock Status Overview

In 2017, the Commission maintained sustainable fisheries for a number of rebuilt species such as Gulf of Maine/Georges Bank American lobster, Atlantic herring, Atlantic menhaden, bluefish, black sea bass, and spiny dogfish. The Commission approved a new Cobia FMP and new amendments for Atlantic menhaden, northern shrimp, and tautog. It also updated management programs for four species (via addenda), and initiated four addenda to examine issues including allocation, data collection, and commercial and recreational measures. The Commission and the Mid-Atlantic Fishery Management Council (MAFMC) continued work on the development of an amendment to the Summer Flounder FMP. While these are positive steps forward, there is still substantial work ahead to rebuild valuable Atlantic coastal fishery resources such as American shad, river herring, Southern New England American lobster, winter flounder, and weakfish.

The Commission maintains its role as the deliberative forum for the Atlantic coastal states to come together to discuss the biological, socioeconomic, and environmental issues central to developing management programs for each species. The task of managing finite marine resources continues to grow more complex with the consideration of climate change, predator/prey interactions, habitat and competing ocean uses, in addition to the more traditional considerations of stock maintenance, rebuilding and allocation of fisheries resources.

The following section provides a summary of the statuses of the species managed by the Commission and highlights management activities that occurred throughout 2017. For this summary, a stock that is experiencing overfishing has fish removed at a rate faster than the population can sustain in the long run. Over the long-term, this will lead to declines in the population. An overfished determination occurs when stock biomass falls below the biomass threshold established by the FMP, significantly reducing the stock's reproductive capacity to replace fish removed through harvest. The term depleted reflects low levels of abundance, though it is unclear whether fishing mortality is the primary cause for reduced stock size.

Recovering/rebuilding occurs when stocks exhibit stable or increasing trends and stock biomass is between the threshold and the target levels. A rebuilt/sustainable stock is one whose biomass is equal to or above the biomass level to ensure population sustainability. When between benchmark assessments, a stock can still be considered rebuilt/sustainable if it drops below the target, but remains above the threshold. Concern is when a stock develops emerging issues, e.g., increased effort, declining landings, or impacts due to environmental conditions. Unknown stock status occurs when there is no accepted stock assessment to estimate the stock condition.

Quick Guide to ASMFC Stock Status

STATUS/ TRENDS	SPECIES		OVERFISHED	OVERFISHING	REBUILDING STATUS & SCHEDULE
↓		American Eel	Depleted	Unknown	2017 stock assessment update indicates resource remains depleted
✓	American Lobster 	Gulf of Maine (GOM)/ Georges Bank (GBK)	Not Depleted	N	GOM/GBK stock rebuilt
↓		Southern New England (SNE)	Depleted	N	
↓		American Shad	Depleted	Unknown	Depleted on coastwide basis; Amendment 3 established 2013 moratorium unless river-specific sustainability can be documented
?		Atlantic Croaker	Unknown	Unknown	TLA indicates relatively low harvest in 2016; no management action was triggered.
✓		Atlantic Herring	N	N	Rebuilt; 2015 stock assessment update indicated SSB is above the target and fishing mortality is below the threshold
✓		Atlantic Menhaden	N	N	2018 TAC set at 216,000 mt
↑/⇔		Atlantic Striped Bass	N	N	Rebuilt since 1995; harvest reductions implemented in 2015; fishing mortality estimated below target level in 2015, but female SSB continues to decline towards the threshold; benchmark assessment scheduled for 2018
↓		Atlantic Sturgeon	Depleted	N	40+ year moratorium implemented in 1998; listed in 2012 under the ESA; 2017 benchmark assessment indicates stock is depleted coastwide though slow recovery has been occurring since 1998 and total mortality is sustainable
✓		Black Drum	N	N	FMP approved in 2013; status based on 2015 benchmark assessment, which found 2012 median biomass well above median biomass that produces MSY
✓		Black Sea Bass	N	N	Improved recruitment and declining fishing mortality rates since 2007 have led to steady increases in SSB
✓		Bluefish	N	N	Biomass above threshold but below target
✸		Coastal Sharks		Varies by species & species complex	
✓		Cobia	N	N	FMP approved in 2017; SEDAR research track assessment scheduled for 2019 and SEDAR operational stock assessment scheduled for 2020

✓= Rebuilt /Sustainable ⇔ = Recovering/Rebuilding ↓ = Depleted ? = Unknown ✸ = Concern

STATUS/ TRENDS	SPECIES		OVERFISHED	OVERFISHING	REBUILDING STATUS & SCHEDULE
✸		Horseshoe Crab	Unknown	Unknown	2013 assessment update found New England & NY stocks to have declined, while DE Bay & Southeast stocks have increased over time series. ARM Framework has been used since 2013 to set harvest levels for horseshoe crabs of DE Bay origin; benchmark assessment scheduled for 2018
?		Jonah Crab	Unknown	Unknown	No range-wide assessment; Interstate FMP adopted in August 2015
🡻		Northern Shrimp	Depleted	N	Abundance & biomass indices lowest on record; recruitment indices also very low; fishery moratorium in place from 2014 to 2017 to protect remaining spawning population
⇔	Red Drum 	Northern Region	Unknown	N	sSPR above target and threshold SPRs
		Southern Region	Unknown	N	sSPR above target and threshold SPRs, though high uncertainty
🡻		River Herring	Depleted	Unknown	2017 assessment update indicates stock remains depleted on coastwide basis; Amendment 2 established 2012 moratorium unless river-specific sustainability can be documented
✓		Scup	N	N	Rebuilt
✓		Spanish Mackerel	N	N	Rebuilt
✓		Spiny Dogfish	N	N	Rebuilt since 2008
?		Spot	Unknown	Unknown	TLA indicates relatively low harvest in 2016; no management action was triggered
?		Spotted Seatrout	Unknown	Unknown	Omnibus Amendment includes measures to protect spawning stock & establishes 12" minimum size limit
✸		Summer Flounder	N	Y	2016 assessment update shows biomass trending downward since 2010 and 2015 fishing mortality exceeded threshold by 26%; benchmark stock assessment scheduled for 2018
✸	Tautog 	MA-RI	N	N	Overfished on a coastwide basis and regionally based on 2016 assessment update; Amendment 1 establishes regional stock units and reference points
		Long Island Sound	Y	Y	
		NJ-NY Bight	Y	Y	
		DE / MD / VA	Y	Y	
🡻		Weakfish	Depleted	N	6-year rebuilding period if spawning stock biomass < threshold level; restricted harvest since 2009; Stock assessment update scheduled for 2019
✸	Winter Flounder 	Gulf of Maine	Unknown	N	Stock biomass is unknown; unknown why stock is not responding to low catches and low exploitation rates
🡻		Southern New England/ Mid-Atlantic	Y	N	Current biomass at 18% of SSB target based on 2017 operational assessment

AMERICAN EEL

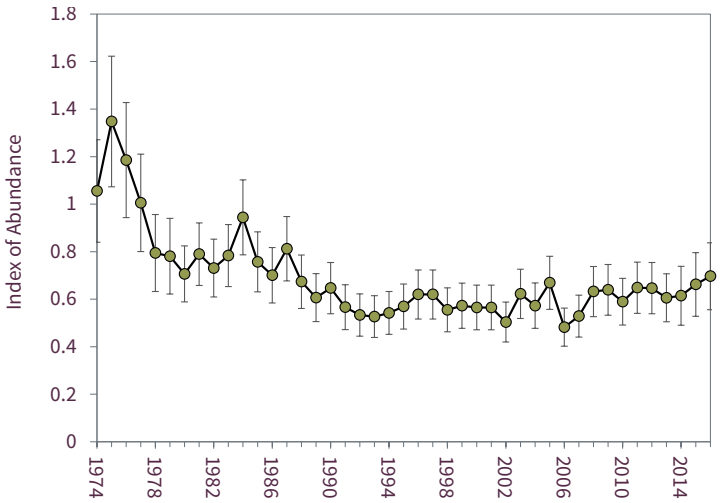
American eel range from Greenland to Central America and as far west as the Mississippi River, and are the only catadromous species (migrating from rivers to the ocean to spawn) found in North America. Individuals grow in freshwater or estuarine environments for three to 30 or more years before maturing and returning to the ocean to spawn and die.

In 2017, the Commission released the findings of the American Eel Stock Assessment Update, which found American eel to remain depleted throughout their U.S. range. No management changes were made in response to the assessment update. American eel continue to be managed under Addenda III and IV to the FMP, with the goal of reducing mortality and increasing conservation of American eel stocks across all life stages.

The commercial eel fishery primarily targets yellow eel. From the mid-1970s to the early 1980s, American eel supported significant fisheries, with landings ranging from 2.5 to 3.6 million pounds. Since 1987, coastwide landings have remained below 1.6 million pounds; in 2014, a coastwide quota of 907,671 was implemented through Addendum IV. State-reported landings of yellow and silver eels in 2016 totaled approximately 925,798 pounds, a 5% increase from 2015 and above the coastwide quota. In response to the overage, the American Eel Management Board initiated a new addendum to consider alternative allocations and management triggers relative to the current management program for both the yellow and glass eel commercial fisheries starting for the 2019 fishing season. The Board will consider the Draft Addendum in early 2018.

40+ Year Index of Abundance of Yellow American Eel along the Atlantic Coast, 1974-2016

Source: ASMFC American Eel Stock Assessment Update, 2017



The error bars represent the standard errors about the estimates.

Timeline of Management Actions: FMP ('99); Addendum I ('06); Addendum II ('08), Addendum III ('13); Addendum IV ('14)

Trend Analysis of Regional and Coastwide Indices of American Eel Abundance by Young-of-the-year (YOY) and Yellow Eel Life Stages

Source: ASMFC American Eel Stock Assessment update, 2017

Region	Life Stage	Time Period	2012 Trend	2017 Trend
Gulf of Maine	YOY	2001–2016	NS	NS
Southern New England	YOY	2000–2016	NS	NS
	Yellow	2001–2010	NS	-
Hudson River	YOY	1974–2009	↓	-
	Yellow	1980–2016	↓	↓
Delaware Bay/ Mid-Atlantic Coastal Bays	YOY	2000–2016	NS	NS
	Yellow	1999–2016	NS	NS
Chesapeake Bay	YOY	2000–2016	NS	NS
	Yellow	1990–2009	↑	↑
South Atlantic	YOY	2001–2015	NS	↓
	Yellow	2001–2016	↓	↓
Atlantic Coast	YOY (short-term)	2000–2016	NS	NS
	YOY (long-term)	1987–2013	NS	NS
	Yellow (40+ year)	1974–2016	NS	↓
	Yellow (30-year)	1987–2016	↓	↓
	Yellow (20-year)	1997–2016	NS	NS

The arrows indicate the direction of the trend if a statistically significant trend was detected (P-value < α; α = 0.05). NS = no significant trend detected. A dash (-) = indices that data were not updated.

Since 2011, there has been a growing international demand for glass eels (an early life stage of American eel) for aquaculture purposes, which has increased landings and the price per pound of glass eels. In 2016, glass eel harvest from Maine and South Carolina totaled approximately 9,400 pounds, an increase from 2015. For 2018, the Board maintained Maine's glass eel quota of 8,688 pounds and approved North Carolina's Aquaculture Plan for 2018-2019, which allows up to 200 pounds of glass eels to be harvested for aquaculture purposes each year. North Carolina has annually submitted Aquaculture Plans since 2016, with less than one pound of glass eels captured for aquaculture purposes in 2017.

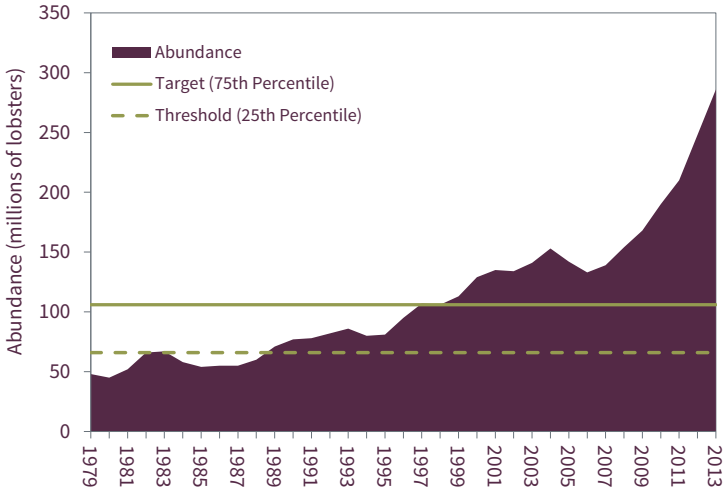
AMERICAN LOBSTER

The 2016 American lobster fishery was one of the most valuable fisheries along the Atlantic coast, with an ex-vessel value of $666.7 million and coastwide landings topping 157.7 million pounds.

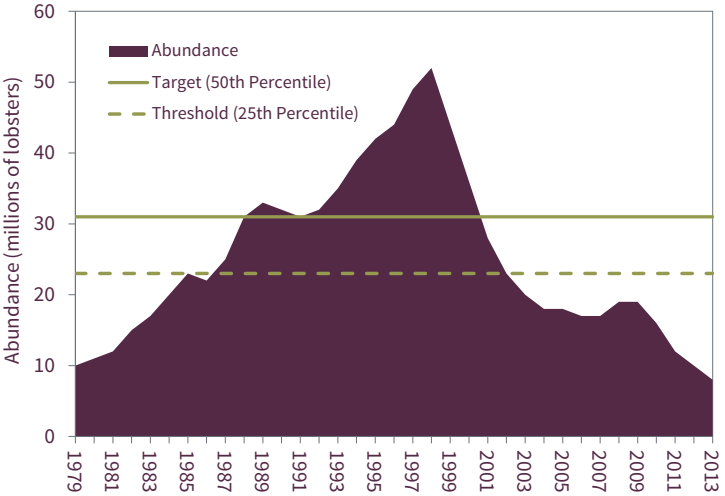
While this level of landings represents a new record for the time series, it masks the regional changes which have taken place. Specifically, the 2015 stock assessment indicated record high abundance for the Gulf of Maine/Georges Bank (GOM/GBK) stock and record low abundance for the Southern New England (SNE) stock.

In 2017, the American Lobster Management Board focused on two management issues: (1) the continued decline of the SNE stock, and (2) deficiencies in current harvester reporting and biological data requirements. The Board initiated Draft Addendum XXV with the goal of responding to the decline in abundance and recruitment of the SNE stock while preserving a functional portion of the lobster fishery. After selecting a 5% increase in egg production and identifying a suite of management tools, the Board decided not to move forward with Addendum XXV for management use. Some Board members felt the proposed measures did not go far enough to protect the stock, while others believed significant reductions had already occurred in the fishery and no further action was needed. The Board continues to discuss future management of the SNE stock, including an evaluation of the goals by which the stock is managed and the identification of latent effort.

American Lobster Gulf of Maine/Georges Bank Abundance
Source: ASMFC American Lobster Benchmark Stock Assessment Report, 2015



American Lobster Southern New England Abundance
Source: ASMFC American Lobster Benchmark Stock Assessment Report, 2015



Timeline of Management Actions: Amendment 3 ('97); Addendum I ('99); Addendum II ('01); Addendum III ('02); Addenda IV & V ('04); Addenda VI & VII ('05); Addenda VIII & IX ('06); Addenda X & XI ('07); Addendum XIII ('08); Addenda XII, XIV & XV ('09); Addendum XVI ('10); Addenda XVII & XVIII ('12); Addenda XIX – XXII ('13); Addendum XXIII ('14); Addendum XXIV ('15)

The Board also initiated action to improve harvester reporting and biological data collection in the lobster and Jonah crab fisheries, approving Draft Addendum XXVI for public comment in October 2017. The Draft Addendum seeks to address deficiencies in the current requirements, including a lack of spatial resolution in the data and the fact that not all harvesters are required to report. In addition, the Draft Addendum looks to advance the collection of biological data, particularly offshore where an increasing percentage of lobster is harvested. The Draft Addendum presents three questions for public comment: (1) what percentage of harvesters should be required to report; (2) should current data elements be expanded to collect a greater amount of information; and (3) at what scale should spatial information be collected. It is expected the Board will take final action on the Draft Addendum in February 2018.

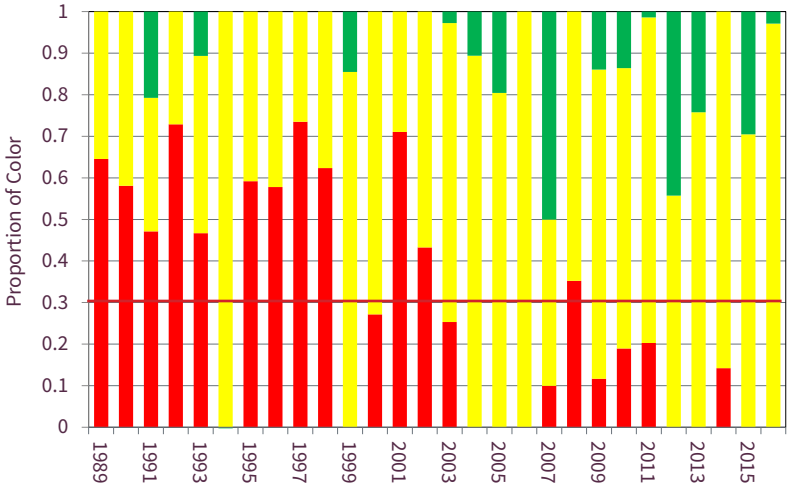
ATLANTIC CROAKER

In 2017, a benchmark stock assessment was completed for Atlantic croaker. This assessment used a stock synthesis model to address a major source of uncertainty from previous assessments – the magnitude of croaker bycatch in South Atlantic shrimp trawls. However, due to conflicting trends in abundance and harvest, as well as other uncertainties, this assessment was not recommended for management use.

A traffic light analysis (TLA) is typically conducted each year for croaker to evaluate fishery trends and to develop state-specific management actions (e.g. bag limits, size restrictions, time and area closures, and gear restrictions) when harvest and abundance thresholds are exceeded for three consecutive years. The name comes from assigning a color (red, yellow or green) to categorize relative levels of indicators which reflect the

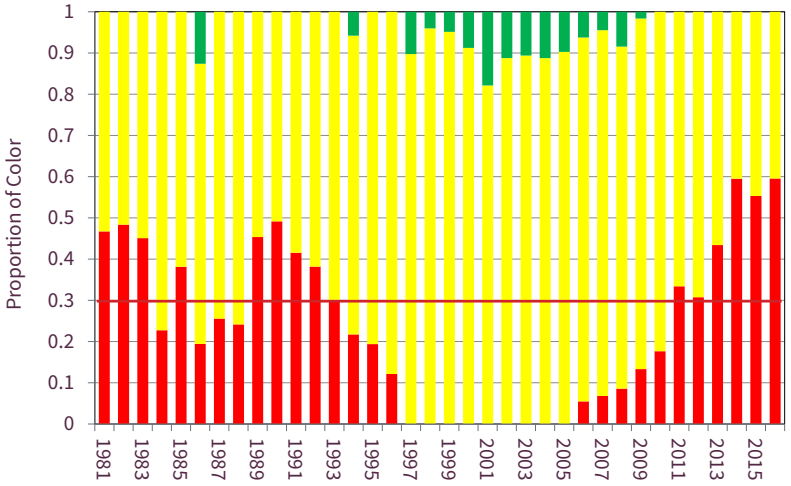
Traffic Light Analysis of Atlantic Croaker (Abundance Metric)

Solid Line represents 30% threshold



Traffic Light Analysis of Atlantic Croaker (Harvest Metric)

Solid Line represents 30% threshold



Management response is triggered when the proportion of red exceeds the 30% threshold level for three consecutive years in both fishery characteristics (harvest and abundance metrics).

Timeline of Management Actions: FMP (‘87); Amendment 1 (‘05); Addendum 1 (‘11); Addendum II (‘14)

condition of the fish population (abundance metric) or fishery (harvest metric). For example, as harvest increases relative to the long-term mean, the proportion of green in a given year increases, and as harvest decreases, the amount of red in that year becomes more predominant. The TLA improves the management approach as it illustrates long-term trends in the stock and includes specific management recommendations in response to declines in the stock or fishery.

Similar to the benchmark assessment, the 2017 TLA showed conflicting trends, with a significant decrease in harvest in both the commercial and recreational sectors (as seen by the percent of red in recent years), and a slight increase in adult and juvenile abundance. Based on these conflicting trends in the TLA (theoretically, an increase in abundance should lead to an increase in harvest), the Board tasked the Technical Committee with evaluating current and additional abundance indices for potential adjustments to the TLA.

An estimated 8.3 million pounds of croaker were landed in 2016, with approximately 77% landed by the commercial sector and 23% harvested by recreational anglers. Virginia harvested the majority of croaker in both sectors.

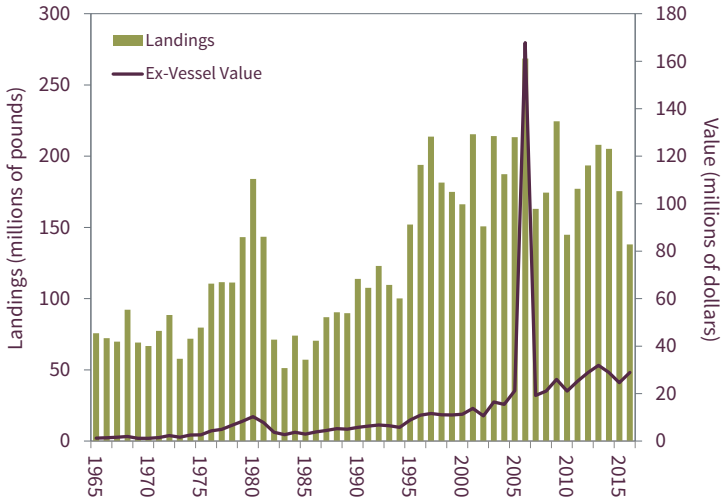
ATLANTIC HERRING

Atlantic herring are oceanic, plankton-feeding fish that occur in large schools and inhabit coastal and continental shelf waters from Labrador to Virginia. The commercial fishery supports bait and food fisheries, with a total domestic harvest of 138 million pounds valued at $28.9 million in 2016. As a baitfish, herring primarily support the American lobster fishery. The fishery is managed cooperatively by the Commission’s Atlantic Herring Section and the New England Fishery Management Council (NEFMC). Commission management extends from the shore out to three miles, while NEFMC oversees management in federal waters (3-200 miles from shore). Atlantic herring are not overfished and overfishing is not occurring.

Although the Atlantic herring stock complex is assessed as a whole, catch limits are allocated among four

Atlantic Herring Commercial Landings and Ex-Vessel Value

Source: ACCSP Data Warehouse, 2017



Timeline of Management Actions: FMP ('93); Amendment 1 ('99); Addendum I ('00); Addendum II ('02); Amendment 2 ('06); Addendum I ('09); Addendum II ('10); Addendum V; ('12); Addendum VI ('13); Amendment 3 ('16); Addendum I ('17)

management areas based on estimates of stock composition and relative biomass. NOAA Fisheries set the 2016 to 2018 annual catch limit (ACL) at 231 million pounds per year. The ACL was further divided into sub-ACLs by Atlantic herring management area as follows: Area 1A (inshore GOM) = 66.79 million pounds, Area 1B = 9.9 million pounds, Area 2 = 64.1 million pounds, and Area 3 = 90.16 million pounds. For the 2018 fishing season, as in previous years, Area 1A's sub-ACL will be distributed seasonally with 72.8% available from June 1 to September 30 (Trimester 2) and 27.2% available from October 1 to December 31 (Trimester 3). Directed fisheries within a management area will close when 92% of the sub-ACL has been harvested and the stock-wide fishery will close when 95% of the ACL is projected to be reached.

In 2017, the Atlantic Herring Section approved Addendum I, modifying management measures (such as days out, weekly landing limits, and at-sea carrier and transfer restrictions) to stabilize the rate of catch in Area 1A and distribute the seasonal quota throughout Trimester 2. These measures successfully extended the landings throughout all of Trimester 2.

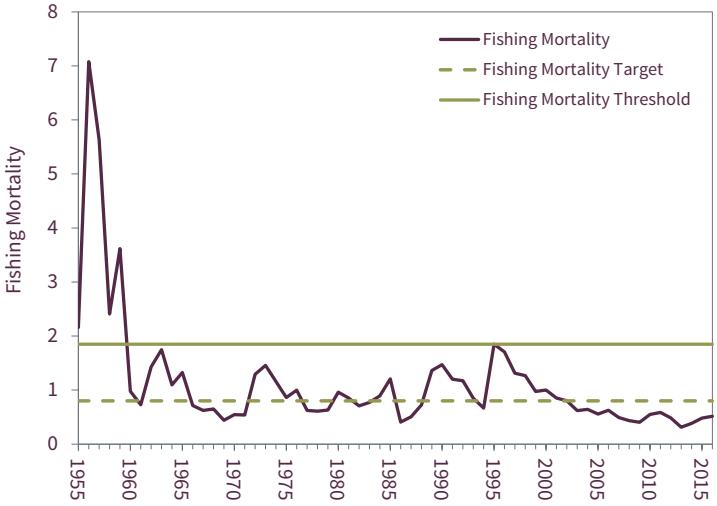
The Section also approved continued use of a forecast system to determine spawning closures in Area 1A. This system tracks reproductive maturity to align the timing of spawning area closures with the onset of spawning and is published real time on the spawning website at *www.massmarinefisheries.net/herring/.*

ATLANTIC MENHADEN

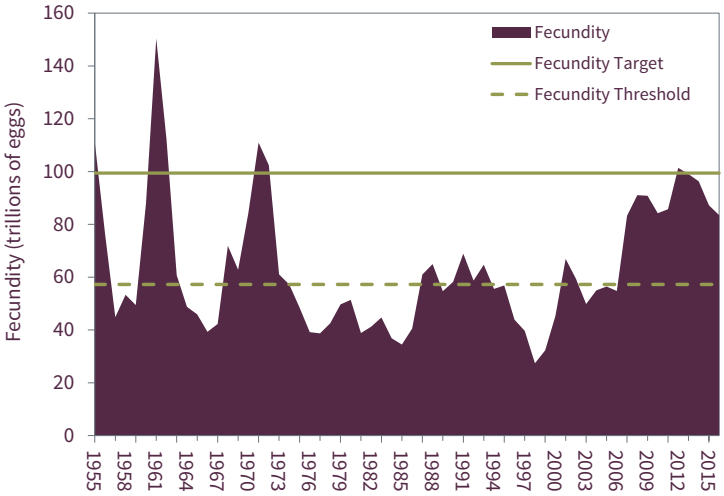
In 2017, the Atlantic Menhaden Management Board undertook several major management actions, including finalizing Amendment 3, reviewing the 2017 Stock Assessment Update, and setting the 2018 and 2019 total allowable catch (TAC). Total commercial landings in 2016, including reduction, bait, bycatch, and episodic event landings, were 180,466 mt. This represents a 4.5% underage of the 2016 coastwide TAC (200,000 mt) and a 3.9% decrease from landings in 2015.

Amendment 3 focuses on two primary issues: (1) the reference points used to determine the health of the stock; and (2) allocation of the TAC between jurisdictions. The Amendment maintains the current single-species reference points until review and adoption of the menhaden-specific ecological reference points (ERPs) as part of the 2019 benchmark stock assessment process. While the Board did not adopt interim reference points that provide guidance on how to generally manage forage fish in relation to their ecological role, the Board did highlight the development of menhaden-specific ERPs as a top priority in the coming years. In addition, Amendment 3 changes the distribution of the TAC by allocating a baseline quota of 0.5% to each jurisdiction, and then allocating the rest of the TAC based on historic landings between 2009 and 2011. This measure provides fishing opportunities to states that currently have little quota, while still recognizing historic landings in the fishery. Also through Amendment 3, the Board agreed to maintain the quota transfer

Atlantic Menhaden Fishing Mortality (Ages 2-4)
Source: ASMFC Atlantic Menhaden Stock Assessment Update, 2017



Atlantic Menhaden Fecundity
Source: ASMFC Atlantic Menhaden Stock Assessment Update, 2017



Timeline of Management Actions: FMP ('81); FMP revision ('92); Amendment 1 ('01); Addendum I ('04); Addendum II ('05); Addendum III ('06); Addendum IV ('09); Addendum V ('11); Amendment 2 ('12); Technical Addendum I ('13); Addendum I ('16); Amendment 3 ('17)

process, prohibit the rollover of unused quota, maintain the 6,000 pound trip limit for non-directed and small-scale gears following the closure of a directed fishery, and set aside 1% of the TAC for episodic events in New York through Maine. Finally, Amendment 3 reduces the Chesapeake Bay reduction fishery cap to 51,000 mt and prohibits the rollover of unused cap to the following fishing year.

Also in 2017, the Board reviewed the 2017 Stock Assessment Update, which indicated the menhaden resource remains healthy. The assessment concluded the stock is not overfished given the population fecundity (83,486 billion eggs) is well above the threshold (57,295 billion eggs). In addition, overfishing is not occurring, as fishing mortality (0.51) is well below the threshold (1.85) and target (0.80). Of particular interest in the assessment was the marked increase in the northern adult index, which reflects an increase in the abundance of age 2+ fish in the Mid-Atlantic and New England states. This change in abundance did result in a scaling of the reference points; however, the stock status did not change.

Finally, in November, the Board set the 2018 and 2019 TAC at 216,000 mt. In doing so, the Board agreed that, should menhaden-specific ERPs be available ahead of the 2019 fishing year, the Board can reconsider the TAC to follow the management advice of the species-specific ERPs.

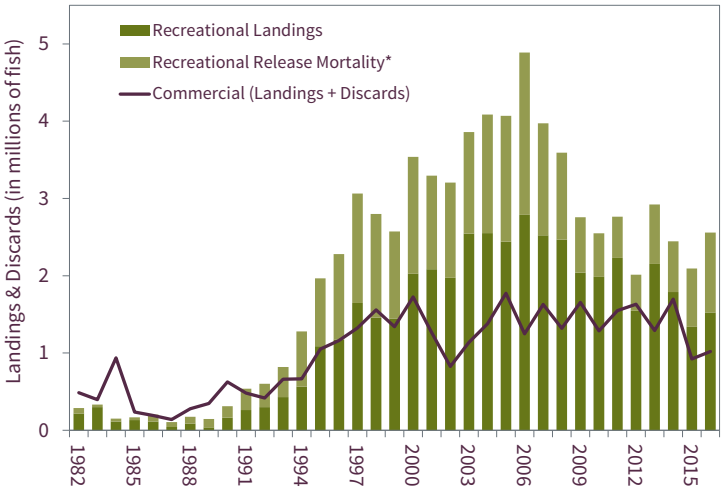
ATLANTIC STRIPED BASS

First implemented in 1981, the Atlantic Striped Bass FMP has a very complex history and continues to evolve based on the latest stock status and fishery performance information. In 2013, a benchmark assessment indicated spawning stock biomass (SSB) had declined below the target and was approaching the threshold level. Fishing mortality (F) was also estimated above the threshold, triggering management action and the implementation of Addendum IV, which established measures to reduce F on the coastwide population to a level at or below the F target (0.18) in order to stabilize SSB.

Based on the results of the 2016 stock assessment update, the implementation of Addendum IV successfully reduced F to a more sustainable level; total F in 2015 is estimated at 0.16, which is below both the threshold and target levels. However, even though the stock is not overfished, female SSB has continued to decline and, in 2015, was estimated at 129 million pounds, just above the SSB threshold of 127 million pounds. A benchmark stock assessment is currently underway and scheduled for peer review at the end of 2018.

Atlantic Striped Bass Commercial Landings and Discards & Recreational Landings and Release Mortality

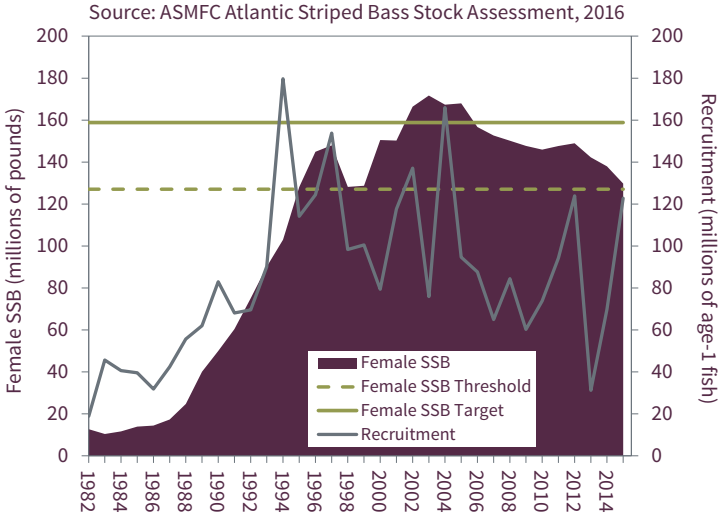
Source: ASMFC Atlantic Striped Bass Stock Assessment, 2016



*Recreational release mortality assumes that 9% of fish released alive die.

Atlantic Striped Bass Female Spawning Stock Biomass and Recruitment

Source: ASMFC Atlantic Striped Bass Stock Assessment, 2016



Timeline of Management Actions: Amendments 1 & 2 ('84); Amendment 3 ('85); Amendment 4 ('90); Amendment 5 ('95); Amendment 6 ('03); Addendum I ('07); Addendum II ('10); Addendum III ('12); Addendum IV ('14)

In 2017, the Atlantic Striped Bass Management Board initiated development of Draft Addendum V to consider relaxing commercial and recreational regulations coastwide. The Board's action responded to concerns raised by Chesapeake Bay stakeholders regarding continued economic hardship endured since the implementation of Addendum IV and information from the 2016 stock assessment update indicating that Addendum IV had successfully reduced F below the target. However, preliminary catch and landings information indicated harvest increased in 2016 without changing regulations. Accordingly, the Board chose to not advance the Draft Addendum for public comment due to concerns that changing the management program could result in F exceeding the target. Instead, the Board deferred making changes to the management program until the release of the results of the 2018 benchmark stock assessment.

Atlantic striped bass are arguably one of the most important finfish along the U.S. Atlantic coast. For centuries, this species has supported valuable commercial and recreational fisheries from Maine through North Carolina. Today, the Atlantic striped bass fishery is predominantly recreational, with the sector accounting for roughly 77% of total annual harvest by weight since 1990. In 2016, recreational harvest was estimated at 19.9 million pounds (1.52 million fish), which is a 7% increase by weight compared to 2015. Anglers continue to release the vast majority of striped bass they catch, approximately 83% on average annually since implementation of Amendment 6 in 2003. In 2016, anglers caught and released an estimated 11.5 million fish, a 37% increase relative to 2015 which is in part due to the emergence of the strong 2011 year class in the fishery (the strongest recruitment event since 2004).

The commercial sector has been managed via a quota system since 2003. Since then, commercial landings have averaged 6.53 million pounds (0.89 million fish) annually. However, the commercial quota was reduced via Addendum IV in 2015. Accordingly, 2015 and 2016 commercial landings were very similar and estimated at approximately 4.82 million pounds both years. Commercial landings are consistently dominated by Chesapeake Bay fisheries, which made up approximately 62% (3 million pounds) of total commercial landings in 2016.

ATLANTIC STURGEON

Reaching lengths of over 14 feet and living over 60 years, Atlantic sturgeon are one of the largest and longest-lived

anadromous fish in North America and can be found along the entire Atlantic coast from Labrador, Canada to the St. Johns River, Florida. While these primitive fish have been taken for food by humans for thousands of years, large scale commercial fisheries for this species did not exist until the mid-1800s. At that time, Atlantic sturgeon were among the top three species in weight of fish harvested commercially along the Atlantic coast, and considered second in value only to lobster. Available data suggest coastwide landings peaked in the late 1800s and declined precipitously to low levels in the early 20th century. Based on concerns of overfishing and bycatch mortality, the Commission instituted a coastwide moratorium in 1998.

In 2012, Atlantic sturgeon were listed as endangered under the Endangered Species Act (ESA). As part of the listing, NOAA Fisheries identified five distinct population segments (DPS) based on genetic analysis of Atlantic sturgeon in U.S. waters: Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic. In response to the 2012 ESA listing, the Atlantic Sturgeon Management Board initiated the development of a coastwide benchmark stock assessment to evaluate stock status, stock delineation, and bycatch; the last assessment was completed in 1998.

In 2017, the Board was presented the results of the Benchmark Stock Assessment and Peer Review Report, which indicated

Atlantic Sturgeon Coastwide and DPS-level Stock Status Based on Mortality Estimates (Z) and Biomass/Abundance Status Relative to Historic Levels and the Last Year of Available Indices Data Relative to the Start of the Coastwide Moratorium

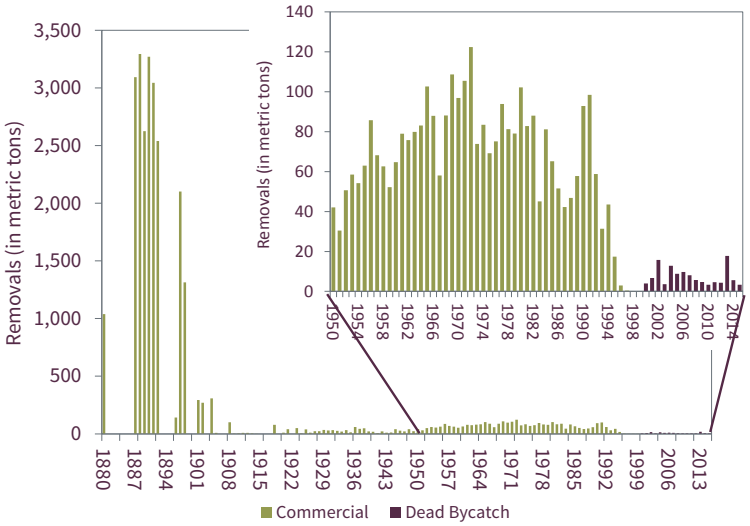
Source: ASMFC Atlantic Sturgeon Benchmark Stock Assessment, 2017

	Mortality Status	Biomass/Abundance Status	
Population	Probability that $Z > Z_{50\%EPR}$ 80%	Relative to Historical Levels	Average probability of terminal year of indices > 1998* value
Coastwide	7%	Depleted	95%
Gulf of Maine	74%	Depleted	51%
New York Bight	31%	Depleted	75%
Chesapeake Bay	30%	Depleted	36%
Carolina	75%	Depleted	67%
South Atlantic	40%	Depleted	Unknown (no suitable indices)

*For indices that started after 1998, the first year of the index was used as the reference value.

Coastwide Atlantic Sturgeon Commercial Landings and Dead Bycatch, 1880–2014

Source: ASMFC Atlantic Sturgeon Benchmark Stock Assessment, 2017



Inserted graph provides same information but for a more recent timeframe, 1950–2014.

Timeline of Management Actions: FMP ('90); Amendment 1 ('98); Addendum I ('01); Addendum II ('05); Addendum III ('06); Addendum IV ('12)

Atlantic sturgeon remain depleted coastwide and at the DPS level relative to historic abundance. However, on a coastwide basis, the population appears to be recovering slowly since implementation of a complete moratorium in 1998. Despite the fishing moratorium, the population still experiences mortality from several sources, but the assessment indicates that total mortality is sustainable. The "depleted" determination was used instead of "overfished" because of the many factors contributing to the low abundance of Atlantic sturgeon, including incidental fishing, habitat loss, ship strikes, and climate change. The Board approved the assessment for management use and discussed the need to support management actions that have contributed to the recovery seen to date (e.g., the moratorium, habitat restoration/protection, better bycatch monitoring) and continue to work on improving them (e.g., identifying bycatch and ship strike hotspots and ways to reduce those interactions).

NOAA Fisheries is in the process of conducting a review of the 2012 ESA listing and developing recovery targets. NOAA Fisheries will work closely with the Commission and the Technical Committee throughout both processes.

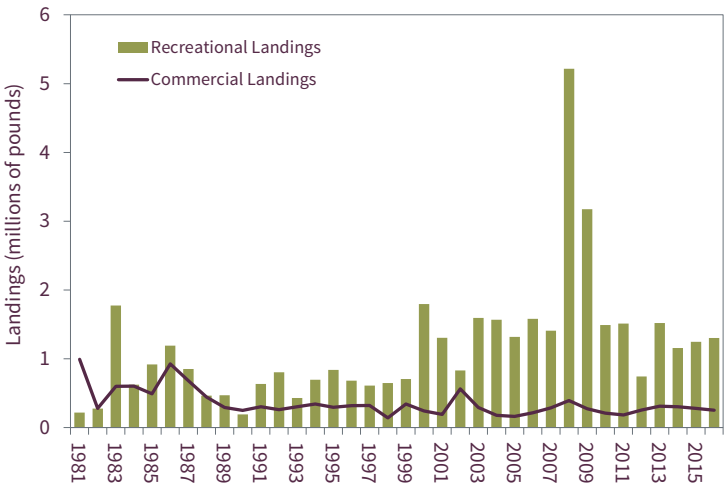
BLACK DRUM

With sizes reaching over 46 inches in length and 120 pounds in weight, black drum are drawing increasing interest from recreational anglers. While recreational landings in 2016 were similar to recent years at about 1.3 million pounds, landed fish constituted only 27% of all black drum caught by the fishery. The other 73% of recreationally caught fish were released alive, making 2016 the third highest year for releases in number of fish and second highest in percent released. Outside of a large peak in 2008, recreational and commercial landings have remained fairly stable since 2000, with recreational landings typically being 5-6 times those of commercial (by weight). The commercial fishery landed about 225,000 pounds in 2016. Florida and North Carolina fisheries comprised the majority of total (commercial and recreational) harvest and recreational live releases in 2016.

The Black Drum FMP, adopted in 2013, required all states set minimum size limits of 14" or greater by January 1, 2016. All states adopted this measure in 2015, likely contributing

Black Drum Commercial and Recreational Landings

Source: ACCSP Data Warehouse, 2017



Timeline of Management Actions: FMP ('13)

to the recent increase in number of released fish. State-specific maximum possession limits are also in place as required by the FMP. The 2015 benchmark stock assessment determined black drum are not overfished and not experiencing overfishing. Despite a decline in estimated biomass since 1900, the stock remains above the biomass that produces maximum sustainable yield (B_{MSY} = 47.26 million pounds).

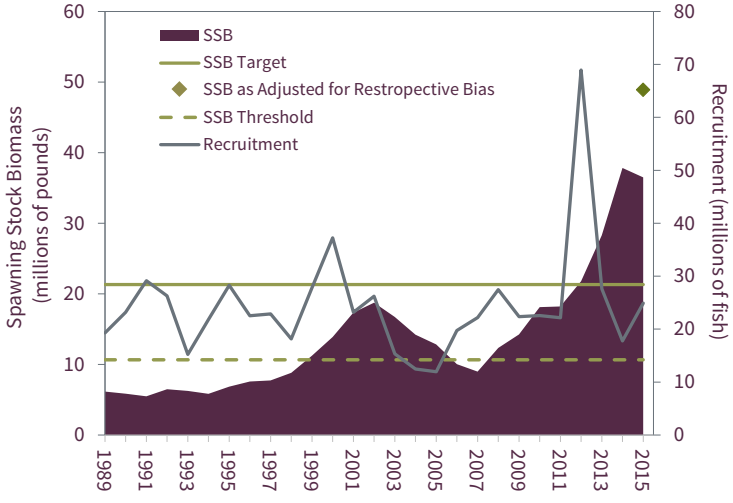
BLACK SEA BASS

Black sea bass is one of four species jointly managed by the Commission and MAFMC. A popular commercial and recreational species throughout Southern New England and the Mid-Atlantic, commercial pot, otter trawl, and handline fisheries landed 2.59 million pounds of black sea bass in 2016, while recreational anglers harvested 5.19 million pounds. The 2016 benchmark stock assessment found the stock is not overfished and overfishing is not occurring, with SSB approximately 230% above the target.

In 2017, based on the findings of the 2016 assessment, the Commission and MAFMC revised 2017 fishery specifications and set 2018 fishery specifications. 2017 recreational management measures remained status quo in federal waters. In state waters, the Board set the possession limit for Wave 6 (November/December 2017) at five fish from Rhode Island through New Jersey, while all other state measures remained unchanged from 2016.

The 2017 black sea bass recreational fishery continued to use ad-hoc regional and state-by-state management to mitigate potentially disproportionate impacts of coastwide measures on individual states. The 2016 regulations resulted in an estimated harvest of 5.19 million pounds, approximately 83% above the 2016 recreational harvest limit (RHL). In October 2017, the Board and MAFMC approved the opening of a recreational fishery in federal waters during February 2018. The Board also initiated Draft Addendum XXX to address alternative approaches for recreational management, which will be considered for approval by the Board in February 2018.

Black Sea Bass Spawning Stock Biomass and Recruitment
Source: 62nd Northeast Regional Stock Assessment Workshop
Black Sea Bass Assessment Summary Report for 2016

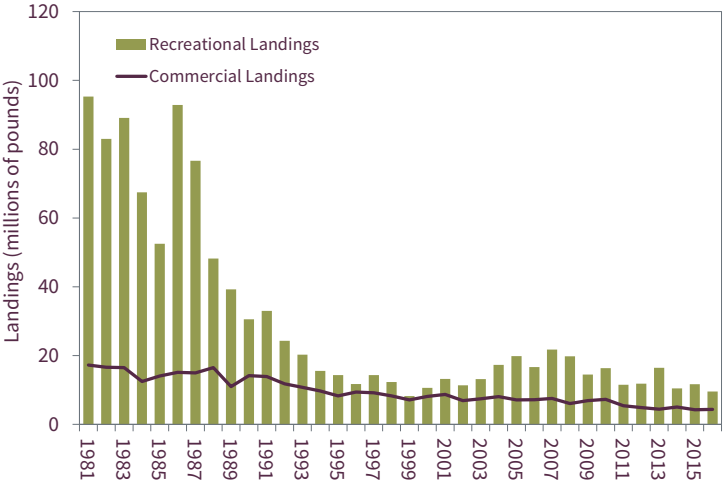


Timeline of Management Actions: FMP ('96); Amendment 10 ('97); Addendum IV ('01); Amendment 13 ('03); Addenda XII & XIII ('04); Addendum XVI ('05); Addendum XIX ('07); Addendum XX ('09); Addendum XXI ('11); Addendum XXII ('12); Addendum XXIII ('13); Addendum XXV ('14); Addendum XXVII ('16)

BLUEFISH

Bluefish are predominantly a recreational fishery, with recreational harvest accounting for approximately 80% of total removals in recent years. As bluefish migrate seasonally up and down the Atlantic coast, anglers from Maine to Florida target these voracious predators near inlets, shoals, and rips, where they come to feed on large schools of bait. Since reaching a low of 8.2 million pounds in 1999, recreational harvest has averaged approximately 15.9 million pounds annually. In 2016, anglers harvested 9.54 million pounds, representing a 31% decrease by weight, but less than a 1% increase by number from 2015. Commercial landings decreased from 16.5 million pounds in 1981 to 7.3 million pounds in 1999. Since a state-specific quota

Bluefish Commercial and Recreational Landings
Source: ACCSP Data Warehouse, 2017



Timeline of Management Actions: FMP ('89); Amendment 1 ('98); Addendum I ('12)

system was implemented in 2000, commercial landings have averaged around 6.45 million pounds annually. In 2016, commercial landings were 4.25 million pounds, the majority coming from North Carolina, New York, and New Jersey.

Through commercial quotas and recreational possession limits implemented via Amendment 1, the resource was declared restored in 2009, one year ahead of the 2010 rebuilding deadline. Results of the 2015 benchmark stock assessment indicate the resource continues to be in good condition – not overfished and not experiencing overfishing. SSB in 2014 was estimated at 191 million pounds, which is below the SSB target, but well above the threshold of 112 million pounds. Fishing mortality was estimated at 0.16, also below the threshold (0.19). A stock assessment update will be initiated in 2018.

The Commission and MAFMC made no changes to the 2018 specifications, which set a RHL of 11.58 million pounds and a commercial quota of 7.24 million pounds. In December 2017, MAFMC and the Commission initiated a new amendment to the Bluefish FMP to address allocation issues.

COASTAL SHARKS

Sharks are a vital part of ocean ecosystems all over the world. Considered a keystone species because they generally reside at the top of the food chain, sharks strongly impact other species either directly or indirectly. Removing or reducing shark populations in an area can create imbalance in the food chain and have far reaching negative impacts. Relative to other marine fish, sharks have a very low reproductive potential. The low reproductive rate is due to sharks' slow growth, late sexual maturity, one to two-year reproductive cycles, small number of offspring, and specific requirements for nursery areas in highly productive coastal or estuarine waters. These biological factors leave many shark species vulnerable to overfishing.

Forty species of Atlantic coastal sharks are managed cooperatively throughout their range by the Commission's Interstate FMP and NOAA Fisheries' 2006 Consolidated Highly Migratory Species (HMS) FMP for Atlantic Sharks. The Interstate FMP, approved in 2008 and fully implemented by the states in 2010, was developed to complement federal shark management and ensure consistency between state and federal management measures.

In 2017, the Board approved a fishery opening date of January 1, 2018 and a variable possession limit, which will start at 25 fish per vessel per trip for those species within the aggregated large coastal sharks (LCS) species group (silky, tiger, blacktip,

Coastal Sharks Stock Status Information by Species and Species Groups

Species or Complex Name	Stock Status Overfished	Overfishing	References/Comments
Pelagic			
Porbeagle	Yes	No	Porbeagle Stock Assessment, ICCAT Standing Committee on Research and Statistics Report (2009); Rebuilding ends in 2108 (HMS Am. 2)
Blue	No	No	ICCAT Standing Committee on Research and Statistics Report (2015)
Shortfin Mako	No	No	ICCAT Standing Committee on Research and Statistics Report (2012)
All other	Unknown	Unknown	
Aggregated Large Coastal Sharks (LCS)			
Atlantic Blacktip	Unknown	Unknown	SEDAR 11 (2006)
Aggregated Large Coastal Sharks Atlantic Region	Unknown	Unknown	SEDAR 11 (2006); difficult to assess as a species complex due to various life history characteristics/ lack of available
Non-Blacknose Small Coastal Sharks (SCS)			
Atlantic Sharpnose	No	No	SEDAR 34 (2013)
Bonnethead	Unknown	Unknown	SEDAR 34 (2013)
Finetooth	No	No	SEDAR 13 (2007)
Hammerhead			
Scalloped	Yes	Yes	SEFSC Scientific Review by Hayes et al. (2009)
Blacknose			
Blacknose	Yes	Yes	SEDAR 21 (2010); Rebuilding ends in 2043 (HMS Am. 5a)
Smoothhound			
Atlantic Smooth	No	No	SEDAR 39 (2015)
Research			
Sandbar	Yes	No	SEDAR 21 (2010)
Prohibited			
Dusky	Yes	Yes	SEDAR 21 (2016); Rebuilding ends in 2107 (HMS Am. 5b)
Basking		No	Campana (2008)
Night		No	Carlson et al (2008)
Sand Tiger		No	Carlson et al (2008)
White		No	Curtis et al (2014)
Bigeye Thresher		No	Young et al (2016)
All other prohibited	Unknown	Unknown	

spinner, bull, lemon, nurse) and the hammerhead species group (scalloped hammerhead, great hammerhead, smooth hammerhead) for 2018. Additionally, the retention limit for blacknose sharks for all permit holders in the Atlantic region south of 34°00′ N. lat. is 8 fish per vessel trip. The Commission will follow NOAA Fisheries for in-season changes to the possession limit.

Stock status is assessed by species complex or by species group for species without enough data for an individual assessment. In summary, 14 species have been assessed domestically, three species have been assessed internationally and 28 species have not yet been assessed. Most of the species that have been assessed and all of those that have not been assessed require a benchmark stock assessment due to new data, changing information on stocks and improved assessment methodologies.

The accompanying table outlines the stock status of each species or species group. In 2016, an update to the dusky shark stock assessment was completed; results indicate the stock remains overfished and overfishing is occurring. In response, NOAA Fisheries approved Amendment 5b to implement a range of federal management measures to achieve a 35% mortality reduction relative to 2015 levels, and rebuild the dusky shark stock by the year 2107.

Commercial LCS landings in 2016 were approximately 465,937 pounds dressed weight (dw), a 25% decrease from 2015, while landings of SCS species in 2016 were approximately 210,067 pounds dw, a 41% decrease from 2015. Total U.S. landings of Atlantic pelagic shark species were 239,655 pounds dw in 2016, an 11% increase from 2015, which is largely attributed to the increase in landings of thresher and shortfin mako sharks. 2016 was the first year that smoothhound landings came under management, with commercial landings estimated at 701,727 pounds dw.

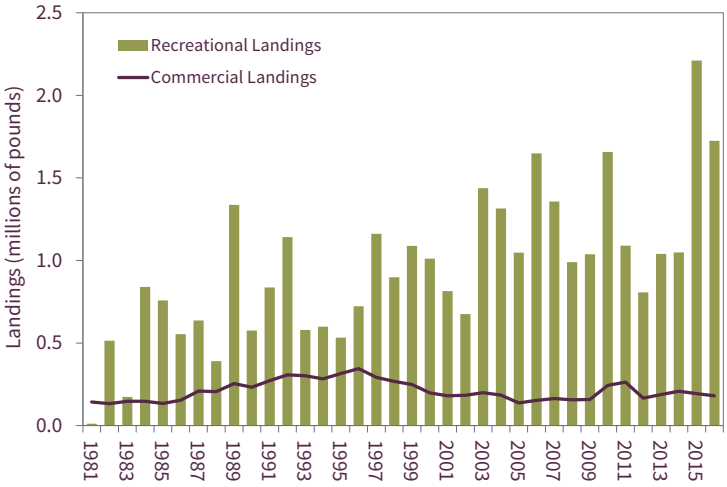
Not including smoothhound sharks, 70,000 sharks were harvested during the 2016 recreational fishing season in the Atlantic region, compared to 72,000 sharks in the 2015 season. The SCS complex largely dominated the recreational shark fishery. In 2016, approximately 55,650 sharks from the SCS complex were recreationally harvested, a 67% increase from 2015. Sharpnose sharks represented 84% of the 2016 SCS harvest. The LCS complex, including hammerheads, had 3,366 sharks harvested in 2016. The pelagic shark complex had 10,789 sharks harvested in 2016, a decrease of 69% from 2015. Approximately 22,073 smoothhound sharks were recreationally harvested in the Atlantic region.

COBIA

In 2017, the Commission approved the Interstate FMP for Atlantic Migratory Group (AMG) Cobia. Complementing many aspects of the South Atlantic Fishery Management Council's (SAFMC) cobia regulations for federal waters extending from New York through Georgia, the FMP was initiated in response to recent overages of the federal annual catch limit (ACL) for AMG cobia. Managing the recreational ACL on a coastwide basis has resulted in federal closures and significant overages in 2015 and 2016, disrupting fishing opportunities and jeopardizing the health of the stock.

Under the Interstate FMP, the recreational fishery will be managed with a one fish bag limit and a minimum size limit of 36" fork length (FL) or total length equivalent. Vessel limits will be determined once individual states set their seasonal restrictions, but may not exceed six fish per vessel. State-specific allocations of a coastwide recreational harvest limit that is equivalent to the federal AMG cobia recreational ACL of 620,000 pounds result in the following state-specific soft targets:

Cobia Commercial and Recreational Landings
Source: ACCSP Data Warehouse, 2017



Timeline of Management Actions: FMP ('17)

Virginia - 244,292 pounds; North Carolina - 236,316 pounds; South Carolina - 74,885 pounds; and Georgia - 58,311 pounds.

Recreational harvest of state-specific allocations will be evaluated over a three-year time period. If states exceed their soft harvest targets, states will be required to adjust management measures to achieve the soft harvest target in the subsequent three-year period.

The commercial fishery will maintain the current management measures as implemented through the SAFMC FMP and continue to be managed with a 33" FL minimum size limit and two fish limit per person, with a six fish maximum vessel limit. The federal ACL of 50,000 pounds is allocated to the entire commercial fishery from New York through Georgia. The commercial AMG cobia fishery will close once the ACL is projected to be reached.

The Interstate FMP provides the opportunity for states to declare *de minimis* status for their recreational fishery if landings constitute less than 1% of the recreational AMG cobia harvest.

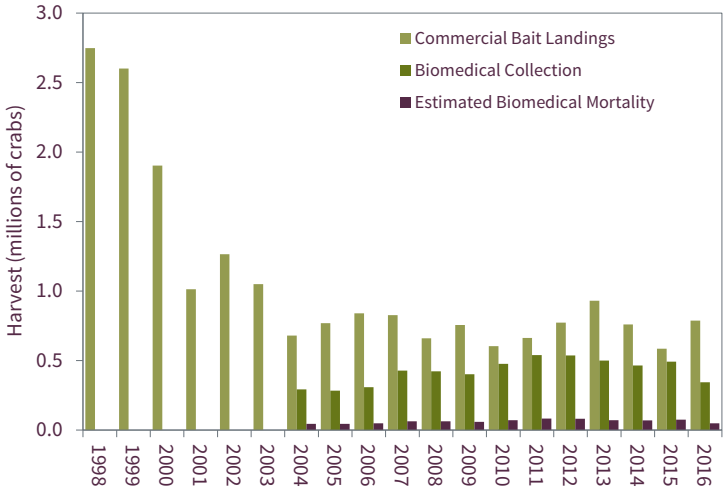
HORSESHOE CRAB

Horseshoe crabs are an ecologically important species that provides a variety of human and environmental services. Horseshoe crab blood is used by the biomedical industry to produce Limulus Amoebocyte Lysate, an important tool in the detection of contaminants in patients, drugs, and medical supplies. A chemical in the horseshoe crab tissue also makes it an ideal bait to catch conch and American eel. The Delaware Bay not only supports the largest spawning population of horseshoe crabs in the world, but is also the largest staging area for shorebirds in the Atlantic Flyway, with an estimated 425,000 to one million migratory shorebirds converging on the Delaware Bay each year to feed on horseshoe crab eggs and rebuild energy reserves prior to completing their northward migration.

With their eggs playing an important ecological role in the food web of migrating shorebirds, horseshoe crabs are the first Commission-managed species to incorporate ecosystem principles into its management program. To address this food web dynamic, the species is managed under the Adaptive Resource Management (ARM) Framework, which incorporates both shorebird and horseshoe crab abundance levels into the horseshoe crab specifications for the Delaware Bay states. Red knots, the shorebird that most relies on horseshoe crab eggs for food, were listed as threatened under the ESA in 2014. The ARM Framework was cited as one of the main reasons the species was not listed as endangered (due to adequate management in place). The ARM Framework's performance continues to be evaluated and improved by the Commission's ARM Subcommittee, with input from the Horseshoe Crab and Delaware Bay Ecosystem Technical Committees. The Mid-Atlantic Horseshoe Crab Benthic Trawl Survey has historically provided abundance data for use in the ARM Framework, although funding for this survey in recent years has been inconsistent. The 2016 survey showed increased numbers of male and female horseshoe crabs from 2011, the last year the survey was conducted. The survey was conducted in 2017 and will inform the setting of 2019 specifications. The Commission will continue working with state and federal partners to secure long-term funding for this important survey.

For the 2016-2018 fishing seasons, harvest in the Delaware Bay area was set at 500,000 male horseshoe crabs. Reported coastwide bait landings in 2016 remained well below the coastwide quota (1.59 million crabs) at approximately 787,000 crabs. Biomedical collections in 2016 were estimated at about 426,000 crabs, with some of those bled crabs sold in the bait fishery. Mortality observed during the collection and bleeding process is reported annually. Additionally, 15% of crabs that are bled are assumed to die due to this process. As required by the FMP, crabs collected by the biomedical industry that are not sold to the bait fishery are returned to the water from where they were harvested.

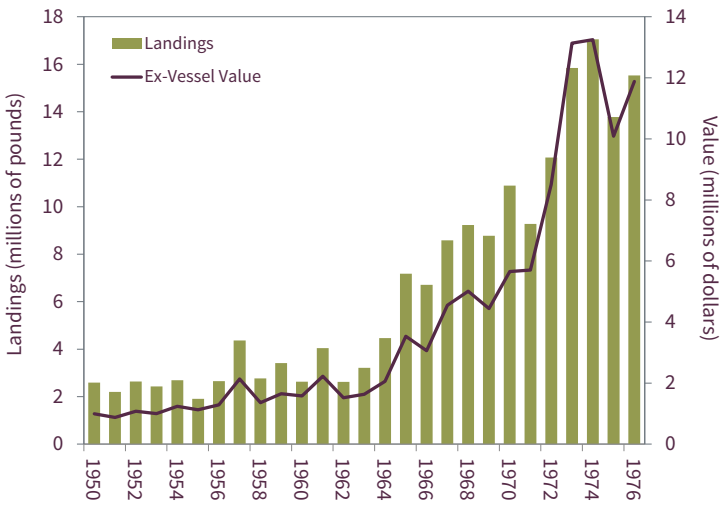
Horseshoe Crab Bait Landings and Biomedical Collection
ASMFC State Compliance Reports, 2017



Please note the following details regarding biomedical collection numbers:
* Biomedical collection numbers, which are annually reported to the Commission, include all horseshoe crabs brought to bleeding facilities except those that were harvested as bait and counted against state quotas.
* Most of the biomedical crabs collected are returned to the water after bleeding; a 15% mortality rate is estimated for all bled crabs.

Timeline of Management Actions: FMP ('98); Addendum I ('00); Addendum II ('01); Addendum III ('04); Addendum IV ('06); Addendum V ('08); Addendum VI ('10); Addendum VII ('12)

Jonah Crab Commercial Landings and Ex-Vessel Value
Source: ACCSP Data Warehouse, 2017



Timeline of Management Actions: FMP ('15); Addendum I ('16); Addendum II ('17)

A benchmark stock assessment is scheduled for completion late in 2018. This assessment will be the first to incorporate biomedical mortality data. It will also evaluate stock status or trends for each of the four regional horseshoe crab populations.

JONAH CRAB

The Jonah crab fishery continues to rapidly expand into a directed fishery, particularly in Massachusetts and Rhode Island. In 2016, 15.4 million pounds of Jonah crab were landed coastwide, representing $11.8 million in ex-vessel value. This represents a 477% increase in landings from 2000, when landings were 2.6 million and the species was primary caught as bycatch in the lobster fishery.

In 2017, the American Lobster Management Board took final action on Addendum II, which established a coastwide standard for claw harvest in the Jonah crab fishery. Specifically, the Addendum allows Jonah crab fishermen to detach and harvest claws at sea, with a required minimum claw length of 2.75" if the volume of claws landed is greater than five gallons. Claw landings less than five gallons do not have to meet the minimum claw length standard. The Addendum also provides a definition of bycatch, based on a percent composition of catch, in order to minimize the expansion of a small-scale fishery under the bycatch allowance. Also in 2017, the Board initiated Draft Addendum III to improve harvester reporting and biological data collection in the fishery. In conjunction with the lobster fishery, this addendum seeks to use the latest technology to expand the collection of effort data and increase the spatial resolution of harvester reporting. It is expected the Board will take final action on the Draft Addendum in February 2018.

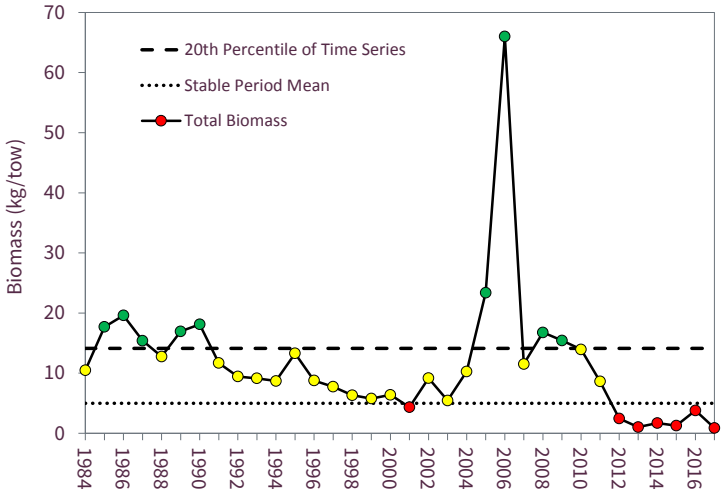
NORTHERN SHRIMP

Northern shrimp, also known as pink, cold-water, or Maine shrimp, are found in sub-arctic waters and have circumglobal distributions. In the U.S., GOM marks the southernmost extent of the species range. Although very important to the region, GOM northern shrimp fishery is much smaller in magnitude compared to other northern shrimp fisheries to the north and east (e.g., Canada, Greenland, Iceland and Western Europe).

The northern shrimp fishery has been under a moratorium since 2014. The Northern Shrimp Section considered several factors prior to closing the fishery: (1) northern shrimp abundance in the western GOM had declined steadily since 2006, (2) the 2012 and 2013 survey indices of total biomass and SSB were the lowest on record, (3) the stock experienced failed recruitment for three consecutive years prior to 2014 (2010–2012 year classes), and (4) long-term trends in environmental indices were not favorable for northern shrimp in the GOM. The annual stock

Total Biomass of Northern Shrimp from the Gulf of Maine Summer Shrimp Survey

Stock Status Report for Gulf of Maine Northern Shrimp, 2017



The graph represents the annual biomass index relative to the reference period (dotted line) and to the 20th percentile of the time series (dashed line). The reference period (1985-1994) is the time period during which the fishery experienced stable landings and value. Green dots are values that are equal to or above the stable period mean (SPM); red dots are values that are equal to or below the 20th percentile of the time series; yellow dots are values between the SPM and the 20th percentile.

Timeline of Management Actions: FMP ('86); Amendment 1 ('04); Amendment 2 ('11); Addendum I ('12); Amendment 3 ('17)

status report has continued to indicate poor trends in biomass, recruitment, and environmental indices, prompting the Section to extend the moratorium each year through 2018.

Since no models were accepted for management from the 2014 benchmark assessment, the Northern Shrimp Technical Committee currently utilizes an index-based approach to annually assess stock status of GOM northern shrimp. The approach categorizes annual values of each index as one of three colors (red, yellow, or green) to illustrate the state of the population, environmental conditions, and the fishery. Based on the results of the 2017 stock status update, the stock remains in a depleted condition. Total biomass, SSB, and harvestable biomass have remained at unprecedented lows for six consecutive years, and the stock has experienced failed or poor recruitment for seven consecutive years. The lowest recruitment on record was observed in 2013 and the second lowest was in 2017. Furthermore, long-term trends in environmental conditions have not been favorable for northern shrimp in GOM. Recruitment of northern shrimp is related to both SSB and ocean temperatures, with higher SSB and colder temperatures producing stronger recruitment events. However, ocean temperatures in GOM have continued to rise in the face of climate change, making conditions increasingly inhospitable for northern shrimp.

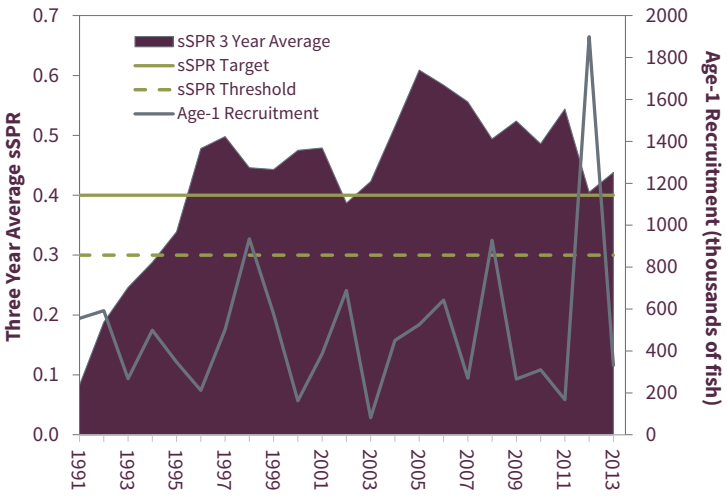
In 2017, the Commission approved Amendment 3 to the Interstate FMP for Northern Shrimp, which is designed to improve management of the northern shrimp resource in the event the fishery reopens. First and foremost, the Amendment refines the FMP objectives and provides the flexibility to use the best available information to define the status of the stock and set the TAC. The Amendment also implements a state-specific allocation program to better manage effort in the fishery; 80% of the annual TAC will be allocated to Maine, 10% to New Hampshire, and 10% to Massachusetts. States with a trap landings history will continue to operate under gear-specific allocations (i.e., 87% of the state-specific quota will be allocated to the trawl fishery, and 13% to the trap fishery). However, the Section initiated an addendum to explore measures that would allow states to modify allocation between gear types on an annual basis. The Section also has the discretion to roll over unused quota from New Hampshire and Massachusetts to Maine by a date determined during annual specifications.

Additionally, the Amendment strengthens catch and landings reporting requirements to ensure all harvested shrimp are being reported, and requires shrimp-directed trawl vessels to use size-sorting grates so that fewer small shrimp are caught. Other management changes include penalties if states exceed their quota, specification of a maximum fishing season length, and formalization of fishery-dependent monitoring requirements.

A winter sampling program has been conducted each year of the moratorium through the management program's research set-aside (RSA) provision. The primary goal of the program has been to continue the time series of biological data collected from GOM northern shrimp fishery catches during the

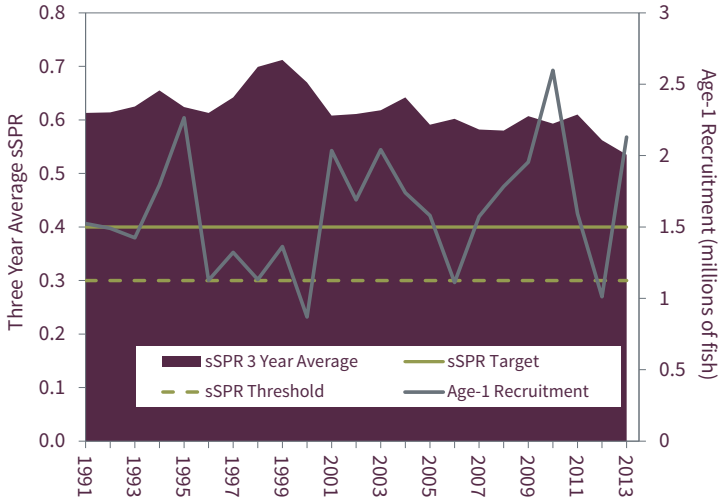
Red Drum Northern Stock Three Year Average Static Spawning Potential Ratio (sSPR) & Age-1 Recruitment

Source: ASMFC Red Drum Benchmark Stock Assessment, 2017



Red Drum Southern Stock Three Year Average Static Spawning Potential Ratio (sSPR) & Age-1 Recruitment

Source: ASMFC Red Drum Benchmark Stock Assessment, 2017



Timeline of Management Actions: FMP ('84); Amendment 1 ('91); Amendment 2 ('02); Addendum I ('13)

winter months — data which, in part, provides much needed information on the size and demographics of the shrimp population. For 2018, the Section approved an RSA of 13.3 mt; the states solicited participants in late December for initiation of the RSA in January.

RED DRUM

The 2017 Benchmark Stock Assessment and Peer Review Report indicate overfishing is not occurring for red drum for either the northern (New Jersey through North Carolina) or southern stocks (South Carolina through Florida). The assessment was unable to determine an overfished/not overfished status because population abundance could not be reliably estimated due to limited data for older fish (ages 4+) that are not typically harvested under the current fishery measures (slot-limits). The Board accepted the stock assessment and peer review report for management use, but no management action was taken since overfishing is not occurring.

Red drum is one of the most recreationally sought-after fish throughout the South Atlantic. Juveniles are most abundant in estuarine waters and inlets, while fish older than age four inhabit deeper waters. As a result, the fishery is primarily nearshore with small red drum targeted in shallow waters and large trophy fish targeted along the Mid- and South Atlantic barrier islands. The 2016 recreational landings of 2.1 million pounds was above the ten-year average of 1.8 million pounds. Florida anglers landed the largest share of recreational harvest in numbers (53%), followed by North Carolina (25%).

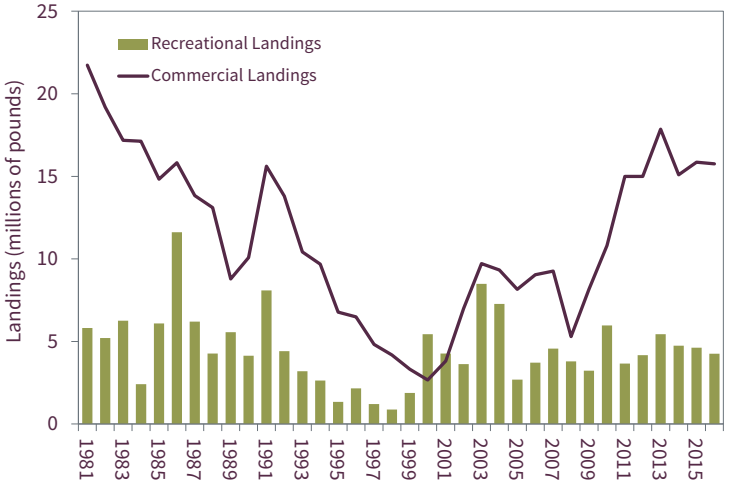
The commercial fishery is largely dominated by North Carolina, which was responsible for 98% of the approximately 79,000 pounds harvested by the commercial fishery in 2016. Commercial landings in 2016 continued a general downward trend since the 1980s and were lower than the most recent 10-year average of about 177,000 pounds.

SCUP

Scup have been highly pursued by commercial fishermen and recreational anglers from Southern New England through the Mid-Atlantic for over a century. Jointly managed by the

Scup Commercial and Recreational Landings

Source: ACCSP Data Warehouse, 2017



Timeline of Management Actions: Amendment 8 & Addendum I ('96); Amendment 12 ('98); Addendum III ('01); Addendum IV ('01); Addenda V & VII ('02); Addendum IX & X ('03); Addenda XI ('04); Addendum XIX ('07); Addendum XX ('09); Addendum XXIX ('17)

Commission and MAFMC since 1997 due to significant fishing effort in both state and federal waters, the scup stock is considered rebuilt and not experiencing overfishing. The 2017 scup stock assessment update estimates SSB at 396 million pounds, about two times the SSB target of 192 million pounds. Based on these findings, the Commission and MAFMC set the commercial quota at 23.98 million pounds and the RHL at 7.37 million pounds for the 2018 and 2019 fishing seasons. This represents an increase from 2015-2017 levels due to the continued large stock size and good condition of the resource.

The Scup FMP currently allocates 78% of the annual acceptable biological catch (ABC) to the commercial sector and 22% to the recreational sector. The commercial quota is further divided into trimesters, with the summer period allocated by state-specific quotas, and the two winter periods operating on a coastwide quota. In 2017, the Board approved an Addendum that shortens the length of the summer period and extends the length of the winter II period beginning in 2018 (MAFMC took the same action through a framework). The goal of the new trimester periods is to allow for better utilization of the commercial quota, which has been under-harvested since 2011.

In recent years, commercial landings have fluctuated from 17.9 million pounds in 2013 to a time series low of 2.7 million pounds in 2000. The commercial fishery landed 15.8 million pounds in 2016, with the majority of landings occurring in Rhode Island, New York, and New Jersey. Recreational landings declined steadily from 11.6 million pounds in 1986 to 0.9 million pounds in 1998, the lowest value in the time series. In 2016, recreational anglers harvested 4.26 million pounds, with the nearly all harvest occurring in Massachusetts, Rhode Island, Connecticut, New York, and New Jersey.

SHAD & RIVER HERRING

Shad and river herring are anadromous fish that spend the majority of their adult lives at sea, only returning to freshwater in the spring to spawn. Historically, shad and river herring spawned in virtually every river and tributary along the coast.

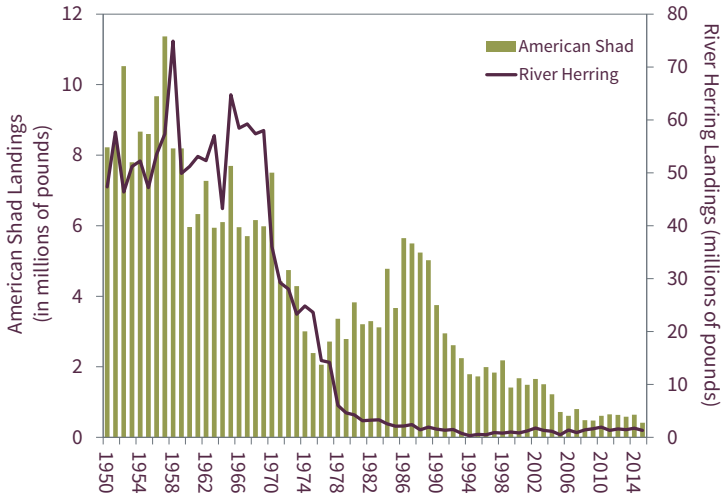
The 2017 stock assessment update found river herring remain depleted and at near historic lows on a coastwide basis. Of the 54 river herring stocks for which data were available, 16 experienced increasing abundance trends, two experienced decreasing abundance trends, eight experienced stable abundance, 10 experienced no discernible trends in abundance, and 18 did not have enough data to assess recent abundance trends (see accompanying table).

While status on a coastwide basis remains unchanged, there are some positive signs of improvement for some river systems, with increasing abundance trends for a number of rivers in the Mid-Atlantic throughout the New England region. While abundance in these river systems is still at low levels, dam removals and improvements to fish passage have had a positive impact on run returns. Since the completion of the 2012 assessment, NOAA Fisheries, in partnership with the Commission, has worked to provide state and local agencies with restoration project funding, leading to dam removals and fish passage improvement projects.

American shad stocks remain at all-time lows and do not appear to be recovering. The primary causes for the declines are a combination of excessive total mortality, habitat loss and degradation, barriers to migration, and habitat access. The next benchmark stock assessment is scheduled for completion in late 2019.

Shad and river herring continue to be managed through Amendments 2 and 3 to the Shad and River Herring FMP. Both Amendments require states and jurisdictions to close their shad and river herring fisheries unless they develop and implement sustainable fishery management plans (SFMPs).

American Shad and River Herring Commercial Landings
Source: ASMFC State Compliance Reports, 2017



Timeline of Management Actions: FMP ('85); Amendment 1 ('99); Technical Addendum I ('00); Addendum I ('02); Amendment 2 – River Herring ('09); Amendment 3 – American Shad ('10)

Abundance Trends of Select Alewife and Blueback Herring Stocks along the Atlantic Coast from the 2012 Benchmark Assessment and the 2017 Assessment Update

State	River	Benchmark Trends (2001-2010)	Updated Recent Trends (2006-2015)
NE U.S. Continental Shelf (NMFS Bottom Trawl)^		NA	Increasing[A,B]
ME	Androscoggin	Unknown[A]	Increasing[A]
	Kennebeck	Unknown[RH]	Increasing[RH]
	Sebasticook	Unknown[A]	Increasing[RH]
	Damariscotta	Stable[A]	Increasing[A]
	Union	Stable[A]	No Trend[A]
NH	Cocheco	Stable[A,B]	Increasing[A,B]
	Exeter	Unknown[A,B]	Stable[RH]
	Lamprey	Increasing[A]	Increasing[RH]
	Oyster	Stable[B]	Decreasing[RH]
	Taylor	Decreasing[B]	No Returns[RH]
	Winnicut	Unknown[A,B]	Unknown[A,B]
MA	Mattapoisett	Unknown[A]	Increasing[A]
	Monument	Unknown[A]	Increasing[A,B]
	Nemasket	Unknown[A]	Increasing[A]
	Parker	Unknown[A]	Stable[A]
	Stony Brook	Unknown[A]	Unknown[A]
RI	Buckeye	Unknown[A]	Increasing[A]
	Gilbert	Decreasing[A]	Stable[A]
	Nonquit	Decreasing[A]	Decrease[A]
CT	Bride Brook	Unknown[A]	Increasing[A]
	Connecticut	Decreasing[B]	Stable[B]
	Farmington	Unknown[A,B]	Unknown[A,B]
	Mianus	Unknown[A,B]	No Trend[A], Increasing[B]
	Mill Brook	Unknown[A]	No Trend[A]
	Naugatuck	Unknown[A,B]	Unknown[A,B]
	Shetucket	Unknown[A,B]	No Trend[A], Stable[B]
NY	Hudson	Stable[A,B]	Increasing[RH]
NJ, DE,PA	Delaware	Unknown[A,B]	No Trend[A,B]
MD, DE	Nanticoke	Decreasing[A,B]	Stable[A], No Trend[B]
VA, MD, DC	Potomac	Unknown[A,B]	Stable[A], Unknown[B]
VA	James	Unknown[A,B]	Unknown[A,B]
	Rappahannock	Unknown[A,B]	No Trend[A], Increasing[B]
	York	Unknown[A,B]	Unknown[A,B]
NC	Alligator	Unknown[A,B]	Unknown[A,B]
	Chowan	Stable[A,B]	No Trend[A], Stable[B]
	Scuppernog	Unknown[A,B]	Unknown[A,B]
SC	Santee-Cooper	Increasing[B]	No Trend[B]
FL	St. Johns River	NA	Unknown[B]

^NE shelf trends are from the spring, coastwide survey data which encounters river herring more frequently than the fall survey. A = Alewife only; B= Blueback herring only; A,B = Alewife and blueback herring by species; RH = alewife and blueback herring combined.

Plans must clearly demonstrate the state's or jurisdiction's shad and river herring fisheries will not diminish potential future stock reproduction and recruitment through the development of sustainability targets which must be monitored, achieved and maintained. As required by Amendments 2 and 3, SFMPs must be updated every five years. In 2017, the Board approved plan updates for Maine, New York, and South Carolina for river herring, and the Delaware River Basin, Connecticut, Potomac River Fisheries Commission, North Carolina, South Carolina, Georgia, and Florida for American shad. The states without approved SFMPs maintained closures of their shad and river herring fisheries in 2017. In 2016, approximately 239,067 pounds of American shad and 1.97 million pounds of river herring were landed in states with SFMPs.

SPANISH MACKEREL

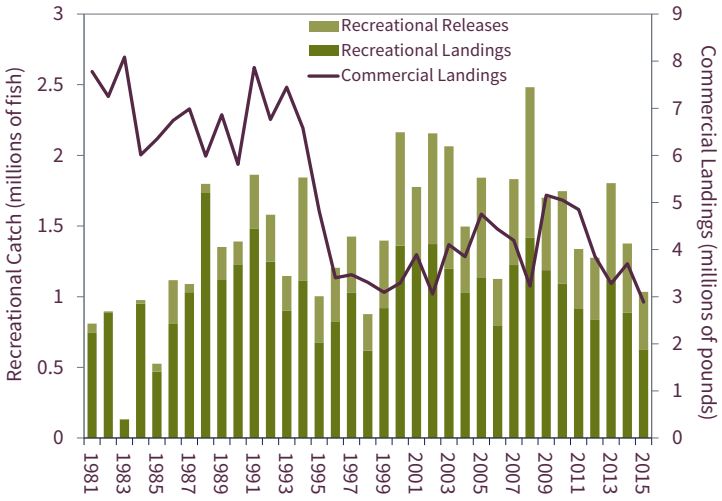
Cooperative management by the Commission and SAFMC has successfully rebuilt Spanish mackerel stocks after years of overfishing. The last benchmark stock assessment, conducted in 2012, indicates Spanish mackerel are not overfished and not experiencing overfishing.

Total 2016 landings were 4.2 million pounds, with commercial and recreational fisheries harvesting approximately 70% and 30% of the resource, respectively. Coastwide commercial landings have generally been below four million pounds since 1995. 2016 commercial landings are estimated at 3.1 million pounds. Over two-thirds of the landings occurred in Florida, with most of the remaining harvest occurring in North Carolina.

Recreational anglers harvested approximately 964,000 Spanish mackerel (1.1 million pounds) in 2016. Recreational harvest in pounds for 2016 nearly doubled that of 2015, but was still below the most recent 10-year average of 1.03 million fish (1.44 million pounds). North Carolina (44% of fish) and Florida (39%) accounted for the majority of the recreational harvest. The number of recreational releases has generally declined since the time series high of 1.1 million releases in 2008; approximately 415,000 fish (43% of recreationally caught fish) were released in 2016.

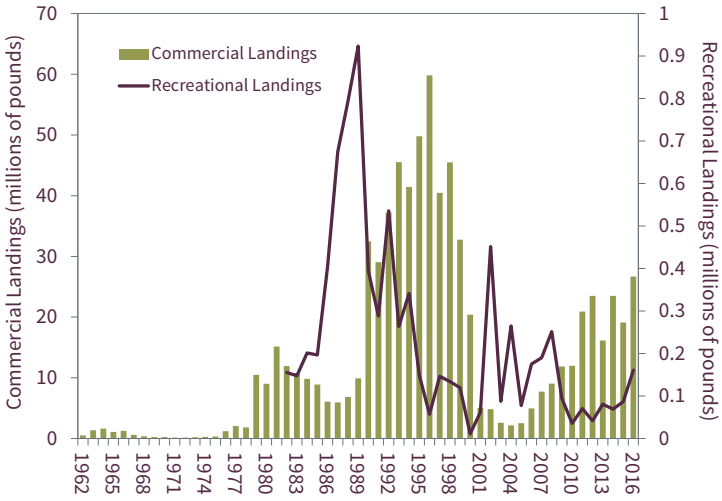
The provisions of Addendum I were maintained for the 2017 fishing season, allowing states to use a reduced minimum size of 11.5" in the commercial pound net fishery for the months of July through September. The measure is intended to reduce waste of shorter fish, which are discarded dead in the summer months, by converting them to landed fish that will be counted against the quota. North Carolina, the only state to implement the Addendum thus far, provides annual reports to the Board on Spanish mackerel catch in its pound net fishery.

Spanish Mackerel Commercial Landings and Recreational Catch
Source: ACCSP Data Warehouse, 2017



Timeline of Management Actions: FMP ('90); Omnibus Amendment ('11); Addendum I ('13)

Spiny Dogfish Commercial & Recreational Landings
Source: NMFS Fisheries Statistics Division, 2017



Timeline of Management Actions: Emergency Action ('00); FMP ('02); Addendum I ('05); Addendum II ('08); Addendum III ('11); Addendum IV ('12); Addendum V ('14)

SPINY DOGFISH

A member of the shark family, spiny dogfish gets its name from the sharp, venomous spines in front of each dorsal fin and from the species' habit of feeding in packs like dogs. In the Western North Atlantic, spiny dogfish are the abundant shark species and range from Labrador to Florida, but are most prevalent from Nova Scotia to Cape Hatteras, North Carolina. Along the U.S. Atlantic coast, its major migrations are north and south, and inshore and offshore seasonally in response to changes in water temperature.

The current market for spiny dogfish is limited due largely to a downshift in demand by international markets, which have been the primary market for U.S.-caught spiny dogfish. In response to the declining international market in recent years, spiny dogfish fishermen and processors are working to develop a domestic market by seeking and receiving Marine Stewardship Council certification for sustainability. Although a white and flakey product when cooked (similar to haddock or cod), marketing a shark species has been difficult, especially considering the global initiative to ban the trade of shark fins and keep sharks in the water.

Starting in 2000, the Commission developed complementary management measures to those implemented in federal waters due to significant fishing effort in state waters. The commercial fishery has underutilized the commercial quota each year since 2012 due to limited demand, not abundance (landings have been less than half of the commercial quota for the past three seasons). The commercial quota for the 2017 season (May 1, 2017 to April 30, 2018) is 39.1 million pounds and, although the landings trajectory has improved, the fishery will likely underutilize the quota again. The Spiny Dogfish Board approved a 38.2 million pound commercial quota for the 2018 fishing season.

The stock assessment model for spiny dogfish relies heavily on fishery-independent data collected from the Northeast Fisheries Science Center (NEFSC) Spring Bottom Trawl Survey to estimate biomass and other stock status information. In recent years, the estimated biomass has been updated annually based on the NEFSC trawl survey results. While the biomass estimate increased in 2016 relative to 2015, abundance estimates for both male and female spiny dogfish decreased in 2017. The stock is not overfished nor experiencing overfishing. The next benchmark stock assessment is tentatively scheduled for 2019.

SPOT

In 2017, the first coastwide benchmark stock assessment was completed for spot. The assessment used a stock synthesis model to estimate population parameters (e.g., stock status, natural mortality, discard rates, and mortality) and biological reference points. However, due to conflicting trends in abundance and harvest, as well as other uncertainties, this assessment was not recommended to be used for management advice.

In between stock assessments, a TLA is used to evaluate stock status (see TLA description under Atlantic croaker). Established under Addendum I, the TLA is a precautionary management framework which evaluates fishery trends and develops management actions. Similar to the benchmark assessment, the 2017 TLA showed conflicting trends, with a significant decrease in harvest in both the commercial and recreational sectors (as seen by the percent of red in recent years), and a slight increase in adult abundance. Based on these conflicting trends (theoretically, an increase in abundance should lead to an increase in harvest), the Board tasked the Technical Committee with evaluating current and additional abundance indices for potential adjustments to the TLA.

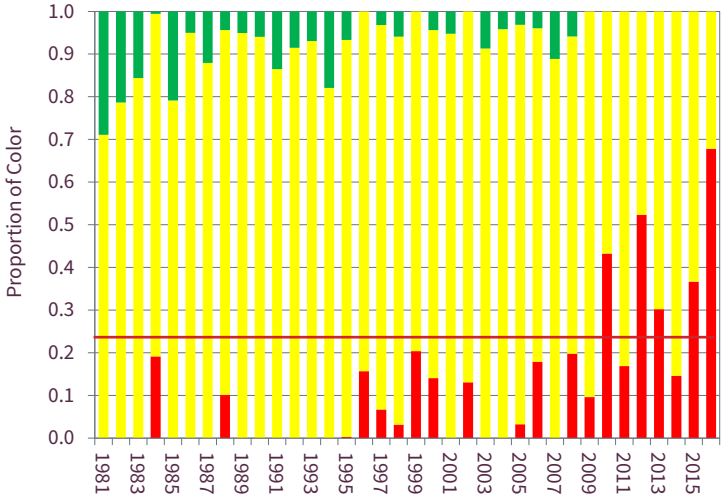
Total 2016 landings were 1.4 million pounds, with 46% harvested by the commercial sector and 54% by the recreational fishery. Total, commercial, and recreational harvests are all the lowest in their respective data series, which extend back to 1950 for the commercial fishery and to 1981 for the recreational fishery. Commercial harvest in 2016 was estimated at 649,000 pounds, a 1.52 million pound decrease from 2015. As in previous years, the majority of commercial harvest came from Virginia (44%) and North Carolina (36%), but commercial harvests for each of these major contributors decreased by 82% and 38%, respectively, from 2015 to 2016. Recreational harvest in 2016 was about 752,000 pounds, a 1.51 million pound decrease from 2015. Virginia had the greatest share of the recreational harvest at 242,657 pounds (32%).

SPOTTED SEATROUT

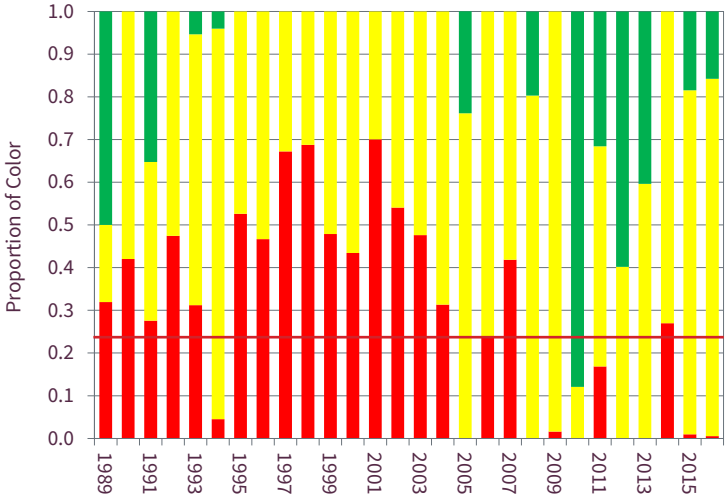
Spotted seatrout, a member of the drum family, is managed under the Commission's Omnibus Amendment for Spot, Spotted Seatrout and Spanish Mackerel, which includes recommended measures to protect the spawning stock, as well as a required coastwide minimum size of 12".

A coastwide stock assessment for spotted seatrout has not been conducted given the largely non-migratory nature of the species and the lack of data on migration where it does occur. Instead, states conduct their own age-structured analyses of local stocks. These regional assessments are important given that spotted seatrout are susceptible to inshore events such as winter freezes, excessive fresh water, hurricanes, and red tide conditions.

Traffic Light Analysis of Spot (Harvest Metric)
Solid Line represents 30% threshold



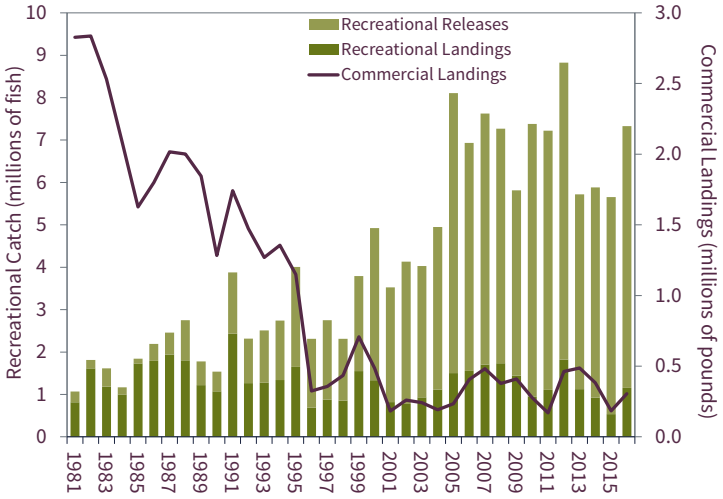
Traffic Light Analysis of Spot (Abundance Metric)
Solid Line represents 30% threshold



Management response is triggered when proportion of red exceeds the 30% threshold level for two consecutive years in both fishery characteristics (landings and fishery-independent survey indices).

Timeline of Management Actions: FMP ('87); Omnibus Amendment ('11); Addendum I ('14)

Spotted Seatrout Commercial Landings and Recreational Catch
Source: ACCSP Data Warehouse, 2017



Timeline of Management Action: FMP (‘84); Omnibus Amendment (‘11)

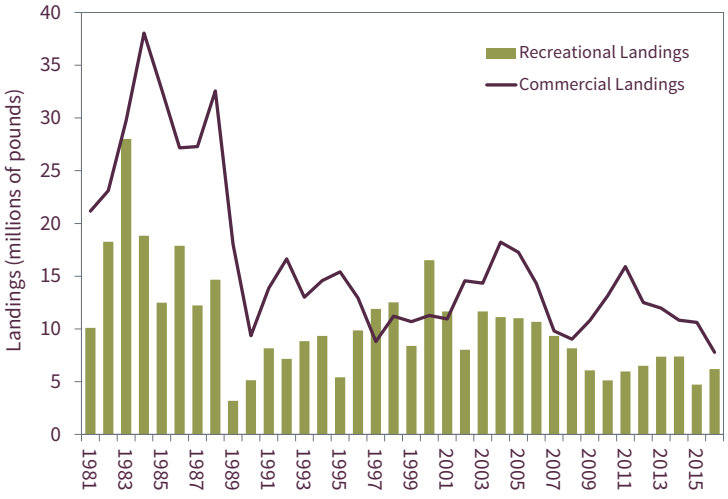
The spotted seatrout fishery is largely recreational, with declining commercial landings. Commercial landings have generally decreased since 1981, with 295,000 pounds of commercial harvest occurring in 2016. Recreational catch (harvest and releases) has markedly increased from 1981 (1.07 million fish) to 2016 (7.33 million fish). Recreational harvest has remained relatively stable throughout the time series, with 1.15 million fish (1.89 million pounds) harvested in 2016. Numbers and proportions of fish released alive have increased throughout the time series due to size and creel limits, as well as the encouragement of catch and release practices. In 2016, 85% of recreationally caught fish (7.33 million fish) were released.

SUMMER FLOUNDER

An important commercially and recreationally targeted species from Massachusetts to North Carolina, summer flounder have been jointly managed by the Commission and MAFMC for more than three decades.

The 2016 stock assessment update indicates the summer flounder stock is not overfished, but is experiencing overfishing. These results appear to be driven largely by below-average recruitment; the stock has experienced six years of below average year classes from

Summer Flounder Commercial and Recreational Landings
Source: ACCSP Data Warehouse, 2017



Timeline of Management Actions: FMP (‘82); Amendment 1 (‘91); Amendment 2 (‘92); Amendments 3-5 (‘93); Amendment 6 (‘94); Amendment 7 (‘95); Amendments 8 & 9 (‘96); Amendment 10 (‘97); Amendments 11 & 12 (‘98); Addenda III & IV (‘01); Amendment 13 (‘02): Addenda VIII, XIII & XV (‘04); Addenda XVII (‘05); Addendum XVIII (‘06); Addendum XIX (‘07); Addendum XXV (‘14); Addendum XXVI (‘15); Addendum XXVII (‘16); Addendum XXVII (‘17)

2010 to 2015. Additionally, indices of abundance from state and federal surveys have indicated declines in abundance ranging from nine to 97% from their most recent peaks (generally 2009 to 2012). Taking these findings and the 2016 landings into account, the Commission and MAFMC set an RHL of 4.42 million pounds and a commercial quota of 6.63 million pounds for the 2018 fishing season, a 17% increase from 2016 harvest limits. The change in harvest and landings limits reflects the increase in projected biomass from the last assessment update. The next benchmark stock assessment is scheduled for completion in 2018.

In 2017, the states continued to use the adaptive regional management approach for recreational fisheries through Addendum XXVII. Per the provisions of the Addendum, all states, with the exception of New Jersey, made uniform changes to their management measures to achieve the needed reduction in harvest for 2017. The Commission found New Jersey

Tautog Biological Reference Points and Stock Status by Region

Region	Fishing Mortality			Spawning Stock Biomass (mt)			MSY or SPR	Status
	Target	Threshold	3-Year Average	Target	Threshold	SSB_{2015}		
Massachusetts – Rhode Island	0.28	0.49	0.23	3,631	2,723	2,196	SPR	Not overfished, overfishing not occurring
Long Island Sound	0.28	0.49	0.51	2,865	2,148	1,603	MSY	Overfished, overfishing
New Jersey – New York Bight	0.20	0.34	0.54	3,154	2,351	1,809	MSY	Overfished, overfishing
Delaware – Maryland – Virginia	0.16	0.24	0.16	1,919	1,447	621	SPR	Overfished, overfishing not occurring

out of compliance for not implementing consistent measures as prescribed in Addendum XXVII. In July, the Secretary of Commerce Wilber Ross notified the Commission that he found the State of New Jersey to be in compliance. This is the first time since passage of the Atlantic Coastal Act in 1993 and the Atlantic Striped Bass Conservation Act in 1984 that the Secretary of Commerce failed to uphold a noncompliance recommendation by the Commission.

The Commission and MAFMC also continued work on the comprehensive summer flounder amendment. The Amendment was initiated to consider modifications to the current management program's goals, objectives, and management strategies. The Board and Council will continue development of the Draft Amendment in 2018.

Commercial landings peaked in 1984 at 38 million pounds. Over the last five years, landings have continued to decline, in part due to annual quota limits. From 2012-2014, landings exceeded the commercial coastwide quota. In 2016, landings decreased to 7.76 million pounds, approximately 96% of the quota. Recreational harvest from 2005 to present has also shown a steady decline, in part due to declines in the coastwide RHL. From 2009 through 2013, harvest was below the RHL. In 2016, the coastwide harvest increased to 6.42 million pounds, exceeding the RHL by 19%.

TAUTOG

In 2017, the Commission approved Amendment 1 to the Interstate FMP for Tautog. The Amendment institutes a fundamental change in tautog management by delineating the stock into four regions due to differences in biology and fishery characteristics. The Amendment also seeks to mitigate the illegal harvest of tautog through a commercial harvest tagging program. New regional management measures will be implemented by April 2018 and the tagging program will be implemented by January 2019.

Though tautog were formerly managed on a coastwide basis from Massachusetts through Virginia, tagging data suggest strong site fidelity across years with limited north-south movement and some seasonal inshore-offshore migrations. Based on this information, the 2015 benchmark stock assessment was conducted at a regional level, and a regional assessment was performed in 2016 to assess Long Island Sound and the New York-New Jersey Bight as distinct regions. Following these analyses, all regions in the four region management scenario (Massachusetts/Rhode Island, Long Island Sound, New Jersey/New York Bight, and Delaware/Maryland/Virginia) were updated with landings and abundance indices through 2015. The 2016 Stock Assessment Update indicated stocks in all regions, except Massachusetts/Rhode Island, were overfished and overfishing was occurring in Long Island Sound and the New York-New Jersey Bight.

The tautog fishery is dominated by the recreational sector; approximately 90% of the total harvest is recreational. Coastwide recreational harvest peaked in 1986 at over seven million fish, but has since declined to an average of 752,055 fish for 2014 to 2016. In 2016, recreational anglers harvested approximately 679,524 fish. Commercial harvest peaked in the late 1980s at 1.2 million pounds and declined to an average of 0.25 million pounds over the past five years. Commercial harvest in 2016 was 0.27 million pounds.

WEAKFISH

Weakfish have been one of the most important components of a mixed-stock fishery on the Atlantic coast since the 1800s. In the late 1990s, however, weakfish biomass began to decline, reaching an all-time low of just over one million pounds in 2010 (compared to 23 million pounds in 1997).

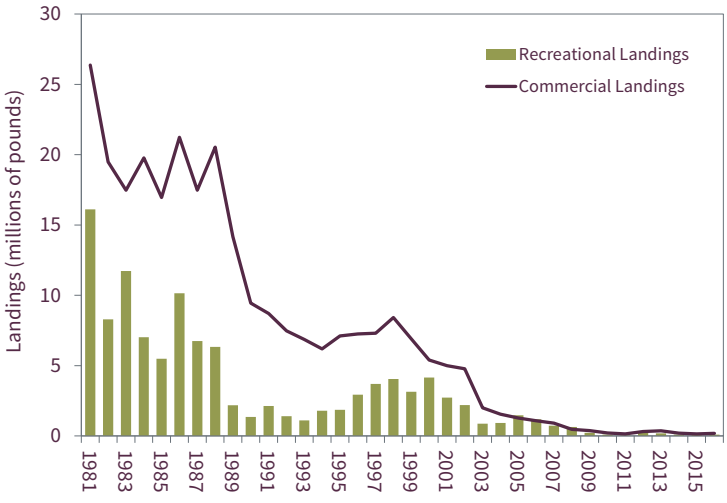
The 2016 Benchmark Stock Assessment and Peer Review Report determined the stock is depleted and overfishing is not occurring. Similar to the 2009 assessment, this assessment found an increase in natural mortality, rather than fishing mortality, was the source of the weakfish decline. Despite its continued depleted status, the stock showed an increase in biomass since 2009 (2014 biomass was 3.2 million pounds), following the implementation of a one fish recreational creel limit and a 100 pound commercial limit in 2010.

Total landings in the weakfish fishery have continued to decline, with 2016 landings estimated at 270,000 pounds, increasing from 258,000 pounds in 2015. At about 180,000 pounds, the commercial fishery accounted for 68% of the total 2016 landings, with North Carolina responsible for the largest share of this harvest at 43%. Recreational landings in 2016 were 89,704 pounds and recreational releases were estimated at 973,000 fish, a 12% decrease from 2015 (1.1 million fish).

WINTER FLOUNDER

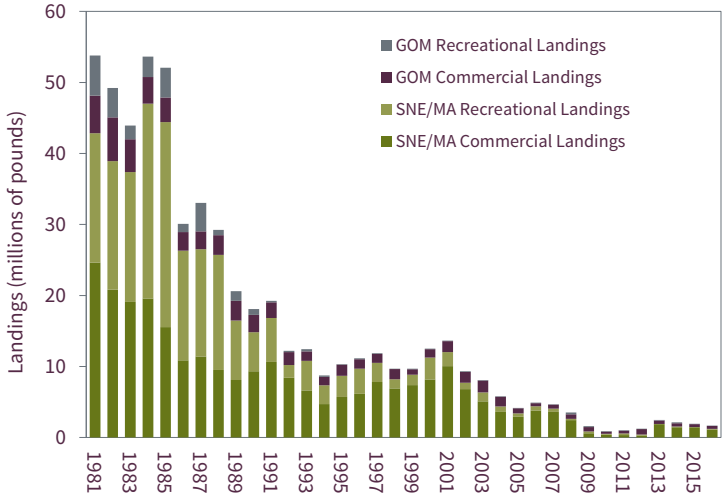
Winter flounder is a small-mouthed, right-eyed flounder distributed along the Atlantic coast. It is the thickest and meatiest of all the flatfishes, but smaller than the halibut common on the East Coast. Contrary to other flounders, winter flounder spawn in the winter months. The species is managed as three separate stocks: GOM, Southern New England/Mid-Atlantic (SNE/MA), and GBK. Winter flounder are managed by NEFMC in federal waters and by the Commission in state waters.

Weakfish Commercial and Recreational Landings
Source: ACCSP Data Warehouse, 2017



Timeline of Management Actions: FMP ('85); Amendment 1 ('91); Amendment 2 ('95); Amendment 3 ('96); Amendment 4 ('02); Addendum I ('05); Addenda II & III ('07); Addendum IV ('09)

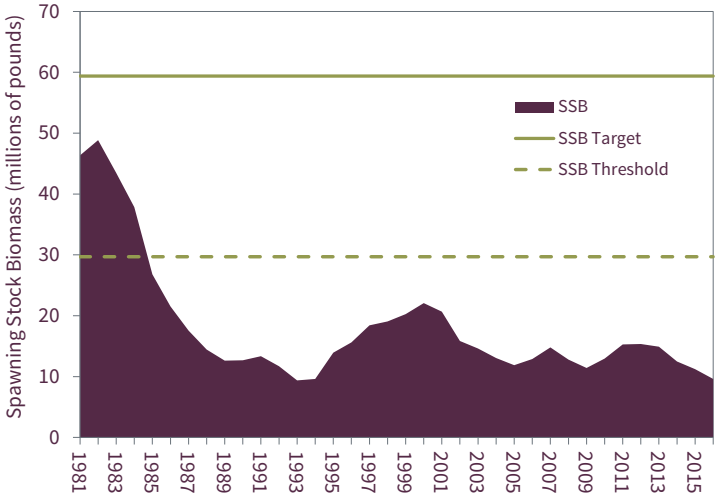
Winter Flounder Commercial and Recreational Landings by Stock Unit
NEFSC Operational Assessment of 19 Groundfish Stocks, 2017



Timeline of Management Actions: FMP & Addendum I ('92); Addendum II ('98); Amendment 1 ('05); Addendum I ('09); Addendum II ('12); Addendum III ('13)

Winter Flounder Southern New England/Mid-Atlantic Spawning Stock Biomass

NEFSC Operational Assessment of 19 Groundfish Stocks, 2017



Operational stock assessments were completed by the NEFSC in 2017 for winter flounder stocks. GOM stock biomass status is unknown and overfishing is not occurring. GOM winter flounder has relatively flat survey indices with little change in size structure over time. There have been large declines in commercial and recreational removals since the 1980s. However, this large decline over the time series does not appear to have resulted in a response in the stock.

SNE/MA stock is overfished, but overfishing is not occurring. There is an overall declining trend in SSB over the time series, with current estimates near the time series low (18% of the target). Estimates of fishing mortality have remained steady since 2012 and recruitment has steadily increased since an all-time low in 2013. Current recruitment estimates are above the ten-year average and are the highest since 2008. The stock is currently under a rebuilding plan with a deadline of 2023; however, this assessment suggests a low probability of meeting the rebuilding deadline.

The commercial fishery was once a highly productive industry with annual harvests of up to 40.3 million pounds. Since the early 1980s, landings have steadily declined. Total commercial landings for all stocks (GBK, GOM, and SNE/MA combined) dipped to 3.5 million pounds in 2010. Landings have risen since 2010 due to the doubling of quotas in 2011 and 2012 for the GOM stock, and the lifting of the SNE/MA moratorium in 2013 by NOAA Fisheries in federal waters. The states, however, have maintained a very restrictive commercial bycatch limit of 50 pounds or 38 fish per trip and a recreational bag limit of two fish in state waters for SNE/MA. Landings have only increased slightly; the total commercial landings for all stocks (GBK, GOM, SNE/MA combined) reached 2.56 million pounds in 2016, a 31% decrease from 2015. Specifically, 2016 commercial harvest in SNE and GOM was 1.14 million pounds and 414,540 pounds, respectively.

Recreational landings peaked in 1982 at 16.4 million pounds and have since maintained a declining trend. In 2016, recreational harvest in SNE and GOM was 72,765 pounds and 52,920 pounds, respectively.

Fisheries Science
TO SUPPORT MANAGEMENT

SUSTAINABLE FISHERIES MANAGEMENT relies on accurate and timely scientific advice. The Commission strives to produce sound, actionable science through a technically rigorous, independently peer-reviewed stock assessment process. Assessments are developed using a broad suite of fishery-independent surveys and fishery-dependent monitoring, as well as research products developed by a network of fisheries scientists at state, federal and academic institutions along the coast. The Commission's scientific goals include the development of innovative scientific research and methodology, and the enhancement of the states' stock assessment capabilities. Achieving the goals ensures that sound science is available as the foundation for the Commission's evaluation of stock status and adaptive fisheries management actions.

New Commission science initiatives include climate change investigations and characterization of uncertainty in stock assessments. In 2017, the Commission's scientific committees continued to work closely with NOAA Fisheries to develop and use tools to understand stock distribution and productivity impacts due to climate change. The committees also developed a risk and uncertainty framework that will be considered as a new policy to aid fishery managers with understanding uncertainty in assessment results and more fully considering management risk when making regulatory decisions.

Fishery-Independent Data Collection

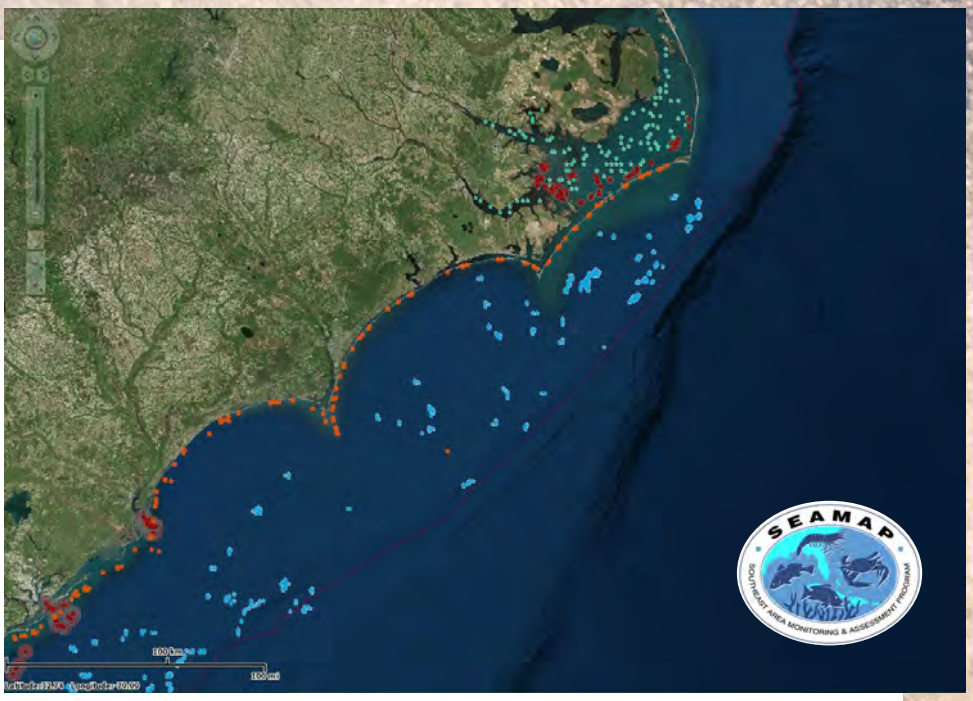
Fishery-independent surveys provide insight into the status of fish stocks without the biases inherent to commercial and recreational fisheries catch information. Data collection by numerous survey programs is a fundamental component of the Commission's stock assessment and fisheries management processes. The Commission coordinates two regional fishery-independent data collection programs on the Atlantic coast – the Southeast Area Monitoring and Assessment Program (SEAMAP) and the Northeast Area Monitoring and Assessment Program (NEAMAP).

SEAMAP

SEAMAP is a cooperative program among state and federal agencies, and universities to carry out the collection, management and dissemination of fishery-independent data in the South Atlantic. Since 1982, SEAMAP has conducted long-term standardized surveys that provide the scientific basis for fisheries and habitat management in the region. SEAMAP conducts surveys and disseminates data in close collaboration with NOAA Fisheries' Southeast Science Center and Regional Office.

In 2017, SEAMAP-South Atlantic surveys (trawl, longline, and trap) continued to collect data on the distribution and abundance of a variety of important commercial and recreational species from North Carolina to Florida (e.g., red drum, Spanish mackerel, snapper, grouper, shrimp). More than 300 stations from Cape Hatteras to Cape Canaveral were sampled by the SEAMAP-South Atlantic Coastal Trawl Survey. The Pamlico Sound Trawl Survey completed over 100 stations to monitor estuarine finfish and shrimp populations, while the Coastal Longline Surveys completed an estimated 650 sets with more than 1,200 red drum and 1,500 sharks caught. Many drum were sampled for genetic analysis, then tagged and released to study migration and survival rates. Data collected from all SEAMAP-South Atlantic surveys provide long-term population metrics such as abundance trends, feeding habits, and population age structure for use in state, interstate, and federal stock assessments of recreationally and commercially important fish and crustaceans.

The Program has a long track record of collecting data not just for scientific purposes, but for using the data to address real world questions in fisheries management. SEAMAP survey data are readily available online at *www.seamap.org*. Fisheries scientists, managers and the public can search the SEAMAP database to examine population trends, set annual fishing regulations, and evaluate management strategies for numerous commercial and recreational species that migrate between the states' coastal waters and estuaries. Additionally, SEAMAP-South Atlantic continues to support ocean bottom mapping and fish habitat surveys, which gather seabed mapping data for managers to use when considering the establishment of marine protected areas and other fish habitat conservation areas. Maps of SEAMAP and other South Atlantic fishery-independent data are available through an extensive geographic information system at *http://ocean.floridamarine.org/safmc_dashboard/.*



SEAMAP mapping tool image of survey sampling stations © SEAMAP-South Atlantic

NEAMAP

NEAMAP is a cooperative state/federal fishery-independent research and data collection program for coastal waters from Maine to North Carolina. Its mission is to carry out the collection and distribution of fishery-independent data obtained in the Northeast for use by state and federal fisheries management agencies, commercial and recreational fishermen, and researchers. Since 2007, the Mid-Atlantic Nearshore

Trawl Survey has completed spring and fall surveys, sampling inshore waters from Cape Hatteras, North Carolina northward to Martha's Vineyard, Massachusetts. In addition, NEAMAP includes the Massachusetts Inshore Trawl Survey and the Maine-New Hampshire Inshore Trawl Survey. Survey data are used to complement data from NOAA Fisheries' NEFSC Trawl Survey, which samples in deeper, offshore waters of the Mid-Atlantic and New England.

In 2017, the Mid-Atlantic Nearshore Trawl Survey conducted tows at 150 locations in depths ranging from three to 25 fathoms. A portion of the spring survey stations were not sampled due to a vessel fire and associated delay in starting the survey. To date, over seven million individual fish and invertebrates, representing over 175 different species, have been collected by the survey. The Maine-New Hampshire Inshore Trawl Survey, which has been in operation since 2000, conducted spring and fall surveys with over 200 tows in five regions along the Maine and New Hampshire coasts in depths ranging from five to 56 fathoms. The Massachusetts Inshore Trawl Survey, which has conducted spring and fall surveys since 1978, surveyed 200 stations in 2017 in five geographic regions at depths up to 180 feet.

Data collected by both the Maine/New Hampshire and Massachusetts Surveys included information on length, sex and maturity, age and food habits of dozens of fish and crustacean species, as well as ocean bottom temperatures. Data from all three surveys – catch numbers, and individual fish and invertebrate lengths, weights, ages and diets – are used in stock assessments and are vital to improving our ability to track annual changes in population sizes and demographics. For further information about NEAMAP and its partner surveys, please visit *www.neamap.net.*

Research Initiatives

The Commission worked on several fisheries research initiatives in 2017 to address high priority issues for the Atlantic states and their fisheries stakeholders. Information gathered from the initiatives improved the scientific basis for Commission stock assessments and is fundamental to advising fisheries managers on the health of fish and crustacean populations.

ATLANTIC STRIPED BASS

A long-term research question in the assessment and management of coastal striped bass is how to determine the rates of migration and residency for striped bass originating from major nursery areas in Chesapeake Bay, Delaware Bay, and the Hudson River. Atlantic striped bass are currently managed as a single coastwide stock because of the lack of data on age- and sex-specific migration from these primary nursery areas. An assessment model that captures the stock-specific population dynamics of the coastal population would provide better management advice and reduce the risk of overexploiting each stock.

In 2017, the Commission worked with state and university partners to track over 300 striped bass in the Chesapeake and Delaware Bays using acoustic tags. Scientists used acoustic receivers to detect tagged striped bass and other species to evaluate the migratory patterns and relative contributions of each individual estuary to the coastwide population. The Commission anticipates using acoustic tagging results when developing new stock-specific spatial assessment models for the next striped bass benchmark stock assessment in 2018.

ATLANTIC MENHADEN

Throughout 2017, the Atlantic Menhaden Management Board worked on an amendment to make changes to the current state-by-state allocation framework. To help inform allocation decisions, a socioeconomic analysis of the Atlantic menhaden fisheries, led by researchers at North Carolina Sea Grant and Appalachian State University, surveyed coastwide commercial fisheries, including bait and reduction sectors, and the fishing communities they support. Analyses of the socioeconomic data and study results were considered by the Atlantic Menhaden Board as it evaluated allocation options and took final action on Amendment 3 to the Interstate FMP for Atlantic Menhaden.

HORSESHOE CRAB

From 2002 to 2011, the Horseshoe Crab Trawl Survey, conducted by Virginia Tech University's Horseshoe Crab Research Center, was the only fishery-independent survey designed to sample horseshoe crab populations in Atlantic coastal waters. Survey data have been an

important component of the Commission's coastwide stock assessment and ARM Framework, which incorporates both horseshoe crab and shorebird abundances to set optimized horseshoe crab harvest levels for the Delaware Bay area. The ARM Framework was used to set specifications for the 2013 to 2017 fishing seasons.

Due to funding shortfalls, the Horseshoe Crab Trawl Survey was not conducted between 2013 and 2015. The temporary break in the survey and its data present challenges for use of the ARM Framework, which depends on the adult abundance indices derived from the Horseshoe Crab Trawl Survey. The Commission received short-term funding to conduct the Trawl Survey in 2016, 2017, and 2018. While the renewed funding is a positive development, the Commission will continue to seek long-term funding for the survey.

JONAH CRAB

The Jonah crab commercial fishery has undergone substantial growth in recent years. Historically, Jonah crab were considered bycatch in the New England lobster fishery. However, in the past 15 years, market demand has more than quadrupled, increasing targeted fishing pressure on Jonah crab. In areas where most of the U.S. Jonah crab fishery is conducted, no information exists on the movement patterns and size at maturity for male and female crab, key information for understanding crab population dynamics. The absence of maturity data prohibits estimation of the stock's spawning size and reproductive potential, limiting the Commission's ability to set biological reference points and conduct a stock assessment. A Jonah crab maturity study was initiated in 2015 and continued through 2017. Study results will improve our understanding of stock dynamics and more fully inform the newly established FMP.

NORTHERN SHRIMP

The 34th Gulf of Maine Northern Shrimp Trawl Survey was conducted in 2017 by the NEFSC in cooperation with the Northern Shrimp Technical Committee. A total of 84 stations were sampled in the offshore waters of GOM, with information on shrimp numbers, sizes, gender, and maturity collected to provide data for annual stock assessments and related analyses. The survey is a valuable tool for consistently evaluating the shrimp stock's condition. Results show shrimp abundance and biomass indices for 2012 to 2017 are the lowest on record of the 34-year time series, with 2017 being the lowest observed. A notable decline in shrimp sizes across life stages and genders has also been detected in recent survey years.

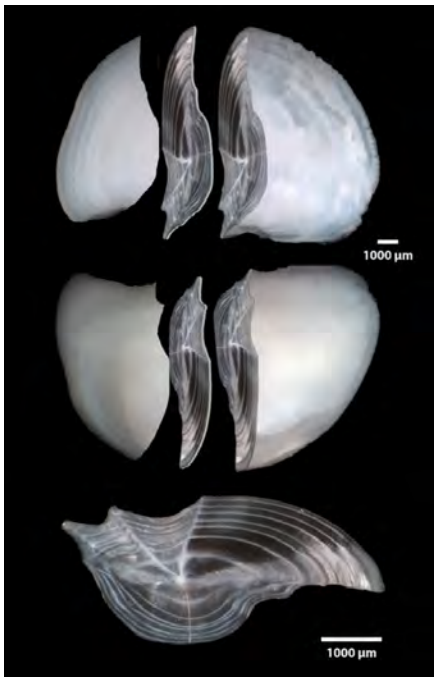
RED DRUM

The Commission identified the lack of information on adult red drum as a data gap limiting the stock assessment to characterizing fish of ages one to six only, before older drum migrate offshore and reach a maximum age of up to 60 years. With federal research funds, state scientists from North Carolina, South Carolina and Georgia conduct bottom long line surveys to provide a fishery-independent index of adult red drum abundance. Many red drum encountered in the survey are tagged to provide information on survival rates, migratory behavior and stock identification. Information is also collected on the presence of hatchery-origin fish in the offshore adult population, numbers of female

and male drum, and the maturity and age structure of the population. All of the information is critical for evaluating the status of the red drum population, including for use in the newest stock assessment, and for developing a successful red drum management program. Data on the distributions and abundances of several coastal shark species are also recorded in the long line surveys.

FISH AGEING

Fish age and growth information are key components of stock assessments that improve our understanding of species' population dynamics. With age samples being collected, processed, and read by scientists at several institutions every year, it is important to ensure all ageing labs follow consistent protocols. In 2017, the Commission facilitated fish ageing consistency and data sharing among different Atlantic coast laboratories through the development of standardized ageing protocols, the exchange of ageing samples, and a fish ageing workshop. Workshop results and ageing protocols can also be found on the Commission website at *www.asmfc.org/fisheries-science/research*. An American eel age sample exchange occurred in 2017. The Commission also continued a black drum age sample collection program among the Mid-Atlantic states to obtain more age data on larger, older fish in order to develop an age-structured stock assessment model.



Black drum sliced otolith © FL FWCC

CLIMATE CHANGE

Climate change can have significant impacts on the behavior and geographic distribution of fishery resources. With warming waters, the availability of habitat for fish stocks may change and species may shift their range to seek out more suitable conditions. With stocks that are on the move, there is a need to reassess current management plans and fishery allocations. However, it is important to first fully evaluate the environmental and regulatory drivers that control stock distributions before revising management strategies.

In anticipation of future climate impacts to fish and crustacean stocks, the Commission's Climate Change Workgroup, comprised of fishery managers and scientists, drafted policies on how to adaptively manage stocks impacted by climate change. Recommendations from the Workgroup included evaluations of climate-induced shifts in distribution and productivity for new stock assessments, such as upcoming benchmark assessments for summer flounder and northern shrimp. The Commission is also incorporating the latest science and analytical tools to evaluate climate impacts to fish habitat through its Habitat Program and ACFHP. The Commission will continue to track developing scientific tools and management issues related to climate and fisheries, including fish stock climate vulnerability tools developed by NOAA Fisheries (*www.st.nmfs.noaa.gov/ecosystems/climate/activities/assessing-vulnerability-of-fish-stocks*).

Ecosystem Models and Assessments

The Commission recognizes the importance of ecosystem interactions, such as predator-prey relationships, in understanding the population dynamics of fishery resources. The Commission's Ecological Reference Points (ERP) Workgroup, comprised of state, federal and university scientists, is responsible for evaluating relationships among species using multispecies predator-prey models. The Workgroup continues to develop multispecies models and ecosystem-based approaches that may be used to develop menhaden-specific ERPs. The ERPs would be based on the forage needs of menhaden's primary predators (e.g., striped bass, weakfish, bluefish). In 2017, the Workgroup evaluated new multispecies models to complement the results of the Atlantic menhaden single-species stock assessment.

Stock Assessment Peer Review

The Commission's species management boards rely on the scientific and technical information provided by independent peer reviews of stock assessments to evaluate stock status and develop fisheries regulations using the best available science. In 2017, three stock assessments – Atlantic sturgeon, croaker, and spot – were evaluated through the Commission's external peer review process. Each assessment was presented to species management boards to inform management decisions for the newly assessed stocks. The new sturgeon assessment is the first since 1998. In addition to informing Commission management, it will be considered by NOAA Fisheries in its next ESA Status Review of Atlantic sturgeon.

STOCK ASSESSMENT TRAINING

The Commission organizes stock assessment training courses to provide instruction to fisheries professionals on the most progressive analytical methods available for use in stock assessments. Courses are provided each year to meet the specific training needs identified as critical to supporting coastwide assessments and to provide managers with a better understanding of assessment results. The courses are designed to provide state scientists with hands-on experience in developing stock assessments, using fishery-independent and -dependent data in a variety of analytical methods and models. In 2017, the Commission held intermediate stock assessment training sessions, simulating the assessment workshops that occur during each assessment where scientists run and evaluate assessment models. The training prepared new state and federal scientists for future participation on stock assessment committees and in the process of vetting candidate models for use in assessments. An advanced stock assessment training course also was offered for senior state scientists to learn Stock Synthesis, a new modeling framework used in other regions of the U.S. that provides greater flexibility in how to model fish and crustacean populations.

Habitat Protection, Restoration, and Enhancement

The Commission recognizes protection, restoration, and enhancement of fish habitats are essential to promoting the sustainability of fisheries along the Atlantic coast. The Habitat Committee's charge is to identify, enhance, and cooperatively manage vital fish habitat for conservation, restoration, and protection, and to support cooperative management of fisheries activities. The Committee successfully performed this role through several activities in 2017.

The Habitat Committee released its annual issue of the *Habitat Hotline Atlantic*. The issue focused on submerged aquatic vegetation (SAV) as fish habitat, celebrating 20 years since the Commission released its SAV Policy in 1997. The Hotline featured articles about how the brown algae bloom is affecting SAV in Florida's Indian River Lagoon; the fish production value of marshes and SAV; and blue carbon. In addition, the issue included articles highlighting SAV projects along the coast; why Georgia and South Carolina do not have SAV; how temperature is affecting SAV in New York; and updates from ACFHP and state and federal marine fisheries agencies.

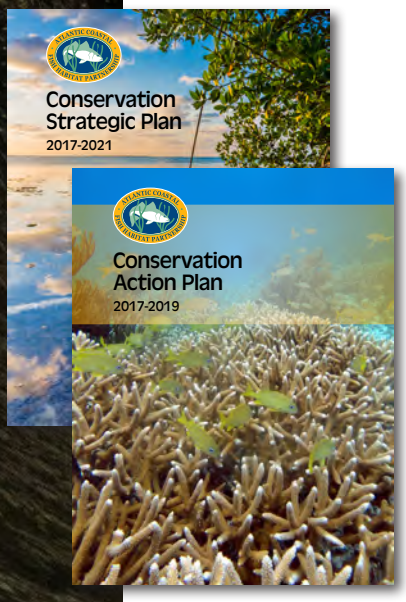
One of the Habitat Committee's roles is to provide the most up-to-date information on the habitat needs and ecosystem functions of Commission-managed species. As such, it continues to update individual species habitat factsheets as new information becomes available. In 2017, the Committee released the *Sciaenid Species Habitat Document*, which provides in-depth information on the habitat requirements for nine sciaenid

species, as well as habitat threats and research needs. The document can be found at: *http://www.asmfc.org/files/Habitat/HMS14_AtlanticSciaenidHabitats_Winter2017.pdf.* The Habitat Committee also produced a reference document for identifying gaps in state coastal regulatory planning actions and providing recommendations to address climate concerns in the future with regard to fish and fish habitat. This document is anticipated to be approved by the ISFMP Policy Board in February 2018.

Throughout 2017, the Habitat Committee worked on two documents – a Habitat Management Series document focusing on aquaculture and an update to the 1997 SAV Policy. Both documents are expected to be finalized in early 2018.

ATLANTIC COASTAL FISH HABITAT PARTNERSHIP

Beginning in 2006, the Commission contributed to the establishment and growth of ACFHP, an assembly of state, federal, tribal, and non-governmental groups whose mission is to conserve habitat for Atlantic coast diadromous, estuarine-dependent, and coastal fish species. The Partnership addresses habitat threats with a broad and coordinated approach, leveraging resources from many agencies, organizations, and corporations to make a difference for fish habitat. ACFHP operates under the purview of the National Fish Habitat Partnership (NFHP).



The Partnership spent the first half of the year finalizing their five-year Conservation Strategic Plan and complementary two-year Action Plan, both of which were released in July. These plans contain new conservation science and data, outreach and communication, and financial objectives and strategies based on sub-regional priority habitats and threats. Links to both documents can be found on the ACFHP website at *www.atlanticfishhabitat.org.*

On the Ground Projects

ACFHP partnered with USFWS to fund two new on-the-ground restoration projects in 2017. One project, which is located on the Sheepscot River in Maine, will remove both the Coopers Mills Dam and a section of the Head Tide Dam. This work is being led by the Atlantic Salmon Federation and will restore access to 71 river miles for federally-endangered Atlantic salmon and 11 other migratory fish species. The North Carolina Coastal Federation is leading the second project, which will restore oyster reefs and estuarine shoreline in Bogue Sound, North Carolina. The Federation will work with

volunteers to restore 300 linear feet of fish habitat, providing valuable nursery grounds for species such as black drum and red drum, as well as foraging areas for summer flounder and other species. For more information on this and other ACFHP-USFWS funded projects, please visit: *www.atlanticfishhabitat.org/projects/fundedprojects/.*

GIS Habitat Characterization

ACFHP continues to make progress on a NOAA-funded initiative to characterize fish habitat conservation areas through GIS mapping and analysis for the U.S. Southeast region from North Carolina to Florida. The resulting maps will help ACFHP identify where best to invest effort and future NFHP funds. Species of concern, data layers, and metrics have all been selected, and the analysis and mapping is expected to be completed in the early summer of 2018.

Black Sea Bass Habitat

ACFHP has been working with researchers from the University of Maryland Eastern Shore to improve our understanding of the relationship between black sea bass abundance and habitat characteristics in the Mid-Atlantic region. The work is funded by the MAFMC and is titled "Hab in the MAB: Characterizing Black Sea Bass Habitat in the Mid-Atlantic Bight." The study combines SCUBA, photography, videography, controlled angling and stable isotope analysis techniques to better understand the importance of habitat and prey community structure on black sea bass feeding ecology. The black sea bass habitat study has completed one and a half field seasons, and will continue through 2018.

Collaboration with Fish Habitat Partnerships

ACFHP continued the Whitewater to Bluewater project in 2017 with its Fish Habitat Partnership neighbors, the Southeast Aquatic Resources Partnership (SARP) and the Eastern Brook Trout Joint Venture *(www.easternbrooktrout.org/groups/whitewater-to-bluewater/).* Collectively, the three partnerships' geography includes 25 states from Texas to Florida to Maine. The initiative promotes a collaborative approach to protect and restore habitat from the headwaters of small streams to downstream estuaries and out to the continental shelf by implementing the shared goals of the three partnerships and the National Fish Habitat Action Plan.

Dependable & Timely
FISHERIES STATISTICS

Effective management depends on quality fishery-dependent data (e.g., information collected from recreational and commercial fisheries, such as landings, effort, or discards) and fishery-independent data (e.g., information collected through monitoring programs and research surveys) to inform stock assessments and fisheries management decisions. However, just as fisheries management responsibilities are divided among agencies, so too are fisheries data collection efforts. Thus, fisheries data collection programs vary in their temporal and spatial coverage, the data elements they collect and the methods employed, as well as in the codes used to enter and store the data.

Recognizing the need for consistency across Atlantic coast fishery-dependent data collection efforts, the 23 agencies responsible for fisheries management on the Atlantic coast established the Atlantic Coastal Cooperative Statistics Program (ACCSP). Using a committee-based approach, ACCSP works with its partners to increase data utility by:

- Developing and implementing coastwide data standards
- Providing electronic applications that improve partner data collection
- Integrating and sharing partner data via a coastwide repository
- Facilitating fisheries data access while protecting confidentiality
- Supporting further technological innovation

ACCSP
Good Data, Good Decisions

2017 marked the first year of ACCSP's transition from a standalone program to one under the Commission, following a decision made by both the ACCSP Coordinating Council and the Commission's Executive Committee in 2016. The move was intended to increase ACCSP's visibility among partners and stakeholders, encourage

greater participation by the states in the program's data collection and management efforts, and enhance coordination between fisheries data experts and the Commission staff.

Both programs are already reaping the benefits of the transition. ACCSP was able to co-locate two program workshops with Commission meetings this year, enhancing its visibility among Commissioners and helping to ensure both workshops were well attended by state and federal partners. Internally, the transition has helped foster greater collaboration between ACCSP data team members and other Commission staff. The data team led a data workshop for Commission staff in June to help them better understand ACCSP data and confidentiality, learn how to query data more effectively from the Data Warehouse, and submit custom data requests.

Improving Data Collection and Integration across Jurisdictions

COMMERCIAL FISHERIES

In 2003, using data standards developed through a committee process, ACCSP developed and deployed the Standard Atlantic Fisheries Information System (SAFIS) to enable online dealer reporting in Rhode Island. Over the past 14 years, SAFIS has evolved into a coastwide fishery-dependent data reporting system used by both dealers and fishermen. Today, the system houses live data collected via the three online and two mobile-based SAFIS applications. Refreshed nightly, these live data can be accessed by the Program Partners for use in quota monitoring and in-season management.

Now 14 years old, the SAFIS database requires modernization in order to keep pace with the needs of the Program Partners. Partners want better, more accurate data available in real-time, all while reducing the duplicative reporting burden on fishermen and dealers. ACCSP has been exploring ways to redesign the module-based system to meet these needs.

Integrated fisheries reporting (IFR), a method for reporting that utilizes a single unique trip identifier to link together components of a trip, may offer the solution. By linking together all reports from a given trip, IFR offers the opportunity to eliminate duplicative data collections, reduce reporting errors, and improve the timeliness and accuracy of data collected. Numerous efforts are already underway to implement IFR at state and federal levels, including the NOAA Fisheries Greater Atlantic Region's Fishery-dependent Data Visioning Project (FDDV).

In 2017, ACCSP brought together program partners for a Workshop to explore how IFR might be implemented in SAFIS. Partners agreed the FDDV's proposed Trip Management System (TMS), a concept for integrating reporting in the Greater Atlantic Region, was a logical starting point for the development of an integrated reporting solution capable of meeting all ACCSP partners' needs. The Program held its initial SAFIS redesign planning meeting in October. SAFIS redesign will be implemented in stages over the next several years.

RECREATIONAL FISHERIES

ACCSP is also continuing its work to improve recreational fisheries data collection. Since 2016, ACCSP has coordinated state conduct of the Access Point Angler Intercept Survey (APAIS), the dockside intercept component of NOAA Fisheries' Marine Recreational Information Program (MRIP), from Maine to Georgia. The cooperative approach among ACCSP, the Atlantic states, and MRIP is helping move the entire coast to a consistent recreational data collection design with unified catch and effort estimates across state and federal jurisdictions. It has helped foster collaborative efforts to identify and execute survey improvements to attain more angler intercepts.

WHAT IS TMS?

FOR A GIVEN TRIP, the reporting system will communicate with TMS to generate a unique Trip ID. However, before a unique Trip ID is generated, TMS is queried to identify if any matching trips have occurred with an already generated Trip ID, linking the reports in real time as they are created. Providing the capability for multiple systems to initiate generation of the unique Trip ID will enable a more functional and flexible reporting system.

In 2017, these improvements included: site register updates to reflect fishing pressures more accurately, modifications to draw procedures, and enhanced interviewer training. ACCSP also modified its assignment track application in response to state requests for useful reports of project metrics and productivity. These reports are available at any time for all data in the system to help the states summarize accomplishments, evaluate areas of success and improvement, and fine tune areas as necessary. The collaborative efforts appear to be paying off, as intercept productivity (the number of intercepts per assignment) was up nearly 8% through Wave 5 of 2017 in comparison to Wave 1 to Wave 5 of 2016. This increase is particularly noteworthy considering the 2017 APAIS included the quadrennial socioeconomic add-on survey (SEAS), which adds 17 questions to the survey. Response rates for the SEAS have also been high, with a coastal average of 70%.

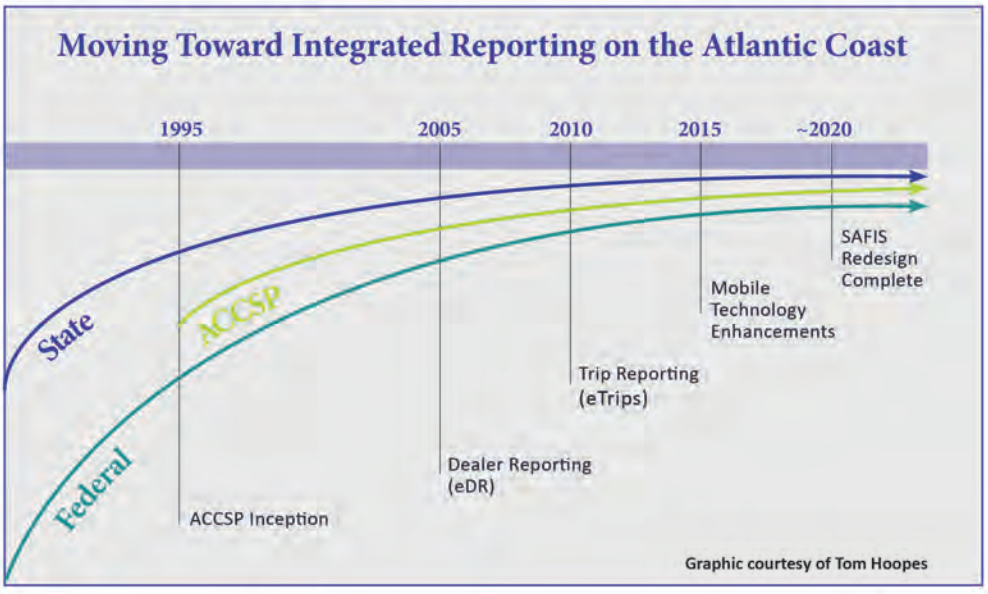
In addition to coordinating APAIS, ACCSP provided NOAA Fisheries with the first Atlantic Coast Recreational Implementation Plan, detailing the Atlantic coast's top six recreational data priorities for the next five years. NOAA Fisheries will use the plan to help guide its regional approach to recreational data improvement, allocating resources strategically to address the data needs of fishery scientists and managers in the Atlantic coast region.

The six priorities are:

1. Improve precision (PSE) of MRIP catch estimates
2. Comprehensive for-hire data collection and monitoring
2. Improved recreational fishery discard and release data (equal priority as above)
4. Biological sampling for recreational fisheries separate from MRIP APAIS
5. Improved spatial resolution and technical guidance for post-stratification of MRIP estimate
6. Improved timeliness of recreational catch and harvest estimates

Facilitating Data Access and Use

ACCSP also works to improve the utility of partner data by integrating and sharing data via a coastwide repository that facilitates data access while also protecting confidentiality. ACCSP's Data Warehouse hosts the most complete set of fishery-dependent data for the entire Atlantic coast. In addition to data fed directly from SAFIS, the Warehouse dataset incorporates an additional 35 data streams supplied by the Program Partners. Using an automated access system, appropriate standardized data can be queried online and used by fishery managers, stock assessment scientists, commercial and recreational fishermen, and the public.



API DEVELOPED TO USE SAFIS DATA IN TRACEABILITY EFFORTS

In 2017, ACCSP developed and published a Traceability Application Programming Interface (API) that enables dealer-authorized vendors to pull real-time, confidential dealer data from SAFIS for use in seafood traceability efforts.

The seafood industry has become increasingly concerned with tracking products throughout the distribution chain following several recent exposés on seafood fraud. By tracking a fish product throughout its distribution chain, vendors can verify information such as species, harvest date, port of landing, harvester, and area fished. Vendors are hoping that this verification will build consumer confidence in, and enhance the marketability of, their customers' seafood products.

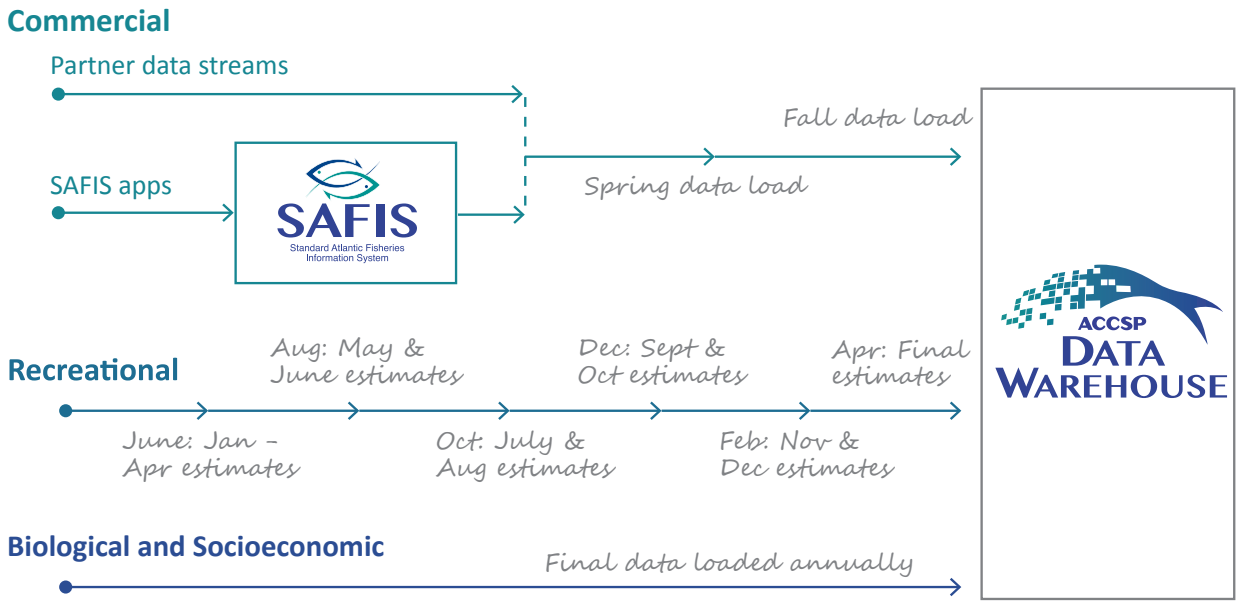
Mandatory dealer reports contain all of the data required for this verification, making them ideal resources for tracing seafood. As the warehouse for dealer reports on the Atlantic coast, ACCSP is in a position to facilitate traceability efforts when the owners of the data grant their consent for the data to be released. The API is used by remote applications (web-based or mobile) to communicate with the ACCSP backend database server; it does not supply a web-page interface.

CONTRIBUTION TO STOCK ASSESSMENTS AND PEER REVIEWS

ACCSP continues to compile Atlantic coast data for *Fisheries of the United States* and the online federal commercial data query system. The data are also used in many stock assessments and peer reviews. In 2017, ACCSP's data team participated in the following stock assessment, peer review, and data compilation processes: American eel, Atlantic croaker, Atlantic striped bass, bluefish, horseshoe crab, spiny dogfish, and spot (ASMFC); and South Atlantic vermilion snapper and black sea bass (SEDAR).

ENCOURAGING FURTHER INNOVATION

In addition to improving fisheries data collection and facilitating data access/use, ACCSP encourages further innovation in fishery-dependent data collection and management through its annual project funding process. Funding is awarded to program partners for projects that support collaboratively derived priorities. Informed by the recommendations of the Operations and Advisory Committees, the Coordinating Council makes final funding decisions each fall. In 2017, roughly $1.25 million was awarded to a wide variety of Partner projects.



Awards

During 2017, the Commission had the privilege of presenting awards to several deserving individuals who have directly contributed to furthering the Commission's vision of Sustainably Managing Atlantic Coastal Fisheries.

CAPTAIN DAVID H. HART AWARD

The Commission presented Paul J. Diodati, former Director of the Massachusetts Division of Marine Fisheries (MA DMF), the Captain David H. Hart Award, its highest annual award, at the Commission's 76th Annual Meeting in Norfolk, Virginia. For over four decades, Mr. Diodati has been a prominent figure in the marine fisheries management community throughout New England and along the Atlantic coast. While now retired, the impact of his accomplishments on Atlantic coast fisheries conservation and management will be felt for much longer.

Mr. Diodati's career in marine fisheries began at MA DMF in 1975 as a contracted sea sampler for northern shrimp. Over the years, he worked his way up through the ranks to Division Director, a position he served in for his final 15 years at DMF. In between, Mr. Diodati served as technical and policy advisor for striped bass and northern shrimp, Sportfish Program Director, and co-creator and co-Chair of the Massachusetts Marine Fisheries Institute. Understanding the need to address user conflicts before they begin, he was heavily involved in the development of the Massachusetts Ocean Management Plan and the Federal Ocean Management Plan. Mr. Diodati closed major data gaps by requiring comprehensive reporting from dealers in 2005 and all commercial harvesters in 2010. In 2009, he was instrumental in establishing the state's saltwater fishing license.

As Massachusetts' Administrative Commissioner since 2000, Mr. Diodati chaired numerous management boards, overseeing the development and implementation of interstate management plans for species such as striped bass, shad and river herring. From 2010 to 2013, he provided leadership to the Commission, serving as Vice-chair and Chair, and worked tirelessly to raise the Commission's profile both on Capitol Hill and within the Administration – ensuring the 15 Atlantic states were well equipped to tackle both current and emerging issues.

Mr. Diodati's outsized role at the Commission is not limited to his term as Chair. He also helped to improve coordination and sharing of information between the states and their federal partners. He had impeccable foresight, as evidenced by his role as a principal supporter of the ACCSP, a Program he would later Chair.

Mr. Diodati's lifetime has been marked by a commitment to science and sound management, and his efforts have been instrumental in improving fisheries programs both in Massachusetts and along the coast. But his legacy is more than scientific papers, surveys conducted, and recovered species — Mr. Diodati will be remembered for his extraordinary way with people. From recreational and commercial fishermen to his peers at the Commission and the New England Fishery Management Council, he was well known and trusted as a coalition builder and deal maker.

The Commission instituted the Award in 1991 to recognize individuals who have made outstanding efforts to improve Atlantic coast marine fisheries. The Hart Award is named for one of the Commission's longest serving members, who dedicated himself to the advancement and protection of marine fishery resources.

From left: Lieutenant Zane Batton, Dr. Amy Schueller, and Robert Glenn

Awards of Excellence

In 2017, the Commission presented Mr. Robert Glenn, Dr. Amy Schueller and Lieutenant Conservation Officer Zane Batten with its Annual Awards of Excellence for their outstanding contributions to science and law enforcement along the Atlantic coast.

SCIENTIFIC & TECHNICAL CONTRIBUTIONS

MR. ROBERT GLENN

Massachusetts Division of Marine Fisheries

Mr. Robert Glenn has dedicated his career to furthering our understanding of American lobster – its biology, environmental drivers and limitations, and how best to model and predict its stock condition. For more than two decades, Mr. Glenn has provided leadership on the Commission's American Lobster Technical Committee and Stock Assessment Subcommittee. Over this 20-year span, he contributed to a total of four lobster benchmark stock assessments and served as the lead scientist on two of those assessments. His considerable investment in our stock assessment process has helped to develop new and improved ways to analyze data and model population dynamics, as well as assess the effects of climate change on the lobster population. Mr. Glenn's analysis of spatial shifts in fishing effort in the Massachusetts fishery south of Cape Cod was among the earliest indicators of movement by female lobsters into cooler, deeper water. He found that movement of egg bearing female lobsters into more offshore waters could be expected to cause drastic changes in lobster larval recruitment patterns and collapse of the Buzzards Bay fishery. His

leadership, knowledge and insight on the Southern New England lobster resources were instrumental in bringing together all of the other information pertinent to fully document the region's lobster recruitment failure.

Underlying these accomplishments are Mr. Glenn's calm and supportive leadership, which fostered harmonious and productive working relationships between Technical Committee and Stock Assessment Subcommittee members, even as stock conditions in Southern New England deteriorated and controversies arose. He was also instrumental in enhancing relationships between the Commission, state agencies, the National Marine Fisheries Service, and Canadian and academic scientists and industry groups. Mr. Glenn has consistently performed in an exemplary manner, gracefully dealing with a contentious, complex and confounding species management program. Throughout it all, he has maintained a balanced view and approach to lobster management. His efforts and leadership have advanced our understanding of the American lobster resource and provided us with a solid scientific foundation to manage American lobster for years to come.

DR. AMY SCHUELLER
NOAA Fisheries Beaufort Laboratory

In only a short period of time, Dr. Amy Schueller, with NOAA Fisheries Beaufort Laboratory, has made notable contributions to Atlantic menhaden science and management. As the lead assessment scientist for the 2015 Atlantic menhaden benchmark stock assessment, Dr. Schueller took on the formidable task of assessing the high profile and controversial forage species. Through consideration of new and existing datasets and exploration of alternative model configurations, the 2015 assessment ushered in a new period of unprecedented support for menhaden science from industry, NGOs and the public. In addition to her participation on the Atlantic Menhaden Technical Committee, Stock Assessment Subcommittee and Biological Ecological Reference Points Workgroup, Dr. Schueller actively pursues research relevant to menhaden science and management. Some recent pursuits and publications include securing grant money in support of recovering old menhaden tagging data, dedicating time and effort in support of the Beaufort Lab's menhaden data collection program, conducting research on age-structured movement and mortality of Atlantic menhaden, as well as trends in relative abundance and early life survival.

In just five years, Dr. Schueller has greatly improved our understanding of Atlantic menhaden. Imagine how much more she will achieve and how much more the fisheries science and management process has to gain from her accomplishments.

LAW ENFORCEMENT CONTRIBUTIONS

LIEUTENANT CONSERVATION OFFICER ZANE BATTEN
New Jersey Division of Fish and Wildlife, Bureau of Law Enforcement

Lieutenant Conservation Officer Zane Batten has been with the New Jersey Division of Fish and Wildlife, Bureau of Law Enforcement for nearly 25 years. First as a volunteer Deputy Conservation Officer, next as a Lt. C.O. for the Special Investigations Unit, where he served for five years, and lastly as District supervisor. Lt. Batten is being recognized for his efforts on behalf of the Special Investigation Unit, where he worked on several cases of magnitude that resulted in both domestic and international charges. Two cases in particular exemplify Lt. Batten's perseverance, self-sacrifice and dedication to resource conservation.

In the first case, Lt. Batten was instrumental in identifying fishermen involved in the illegal commercialization of elvers. As he worked to document the activities of the fishermen, Lt. Batten was also able to gain the trust of a number of large buyers who were knowingly purchasing illegally harvested eels for export overseas. Spanning three years, the investigation uncovered a multi-million dollar black market in elvers and exposed the identities of numerous fishermen and buyers, from Florida to Maine, that were involved in the black market. The charging and prosecution of those involved is still pending.

During another case, Lt. Batten coordinated a joint investigation with the Pennsylvania Game Commission involving the illegal commercialization of striped bass from Delaware Bay. The investigation, which spanned two years, identified an organized ring of 8 commercial

From left: Chris Powell, ACFHP Vice Chair; Jeff Beal, FL FWCC; Kent Smith, ACFHP Chair; Lisa Havel, ACFHP Coordinator

fishermen illegally selling striped bass to a seafood store. Both criminal and civil charges were filed, with the maximum fine for all charges filed in excess of $3.4 million.

Named New Jersey's Conservation Officer of the Year in 2014, Lt. Batten is widely respected by his fellow officers and colleagues. His commitment to ensuring our fisheries management regulations are being upheld is notable and worth recognition.

ACFHP Melissa Laser Fish Habitat Conservation Award

ACFHP proudly presented Jeff Beal of the Florida Fish and Wildlife Conservation Commission its 2017 Melissa Laser Habitat Conservation Award for a career successfully restoring fish habitat throughout the Southeast and supporting the ACFHP mission. Specifically, Mr. Beal is directly responsible for the restoration of 400 acres of coastal marsh in Florida's Mosquito Lagoon, working with partners to secure federal grants in excess of $1 million for this effort, the success of which led to multiple millions in grant funding applied to estuarine habitat projects within Florida. Ever partnership minded, Mr. Beal completed the restoration of the Miller's Landing Oxbow on the St. Lucie River. Cut off from the main stem of the St. Lucie River North Fork for over 60 years, this system now provides accessible habitat for fish and wildlife using the river, including estuarine fish like snook and red drum. Not resting on these significant accomplishments, he has worked with Harbor Branch Oceanographic Institute partners to promote advanced genetic marker technology in order to assess stressors to the St. Lucie Reef system. The results of this effort have already influenced the management of freshwater delivery to the estuary from Lake Okeechobee, benefiting coastal fish communities. Mr. Beal is a dedicated aquatic habitat restoration practitioner, who targets and fulfills the Atlantic Coastal Fish Habitat Partnership's conservation goals, and finds innovative means to make beneficial fish habitat projects happen. He is an exceptional asset to Florida's fish habitat conservation program, as well as ACFHP's Science and Data Committee, and exemplifies the virtues of this award in all that he does.

The Melissa Laser Fish Habitat Conservation Award is bestowed upon individuals deemed to further the conservation, protection, restoration, and enhancement of habitat for native Atlantic coastal, estuarine-dependent, and diadromous fishes in a unique or extraordinary manner. The award was established in memory of Dr. Melissa Laser who passed away unexpectedly on April 27, 2010. Melissa was a biologist with the Maine Department of Marine Resources where she worked tirelessly to protect, improve, and restore aquatic ecosystems in Maine and along the entire Atlantic coast.

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FMP Coordinator

FinancialReport

The Commission was once again fortunate to receive adequate funding to conduct all fundamental programmatic activities and maintain current staffing. Of note, the Commission's total assets were nearly constant (less than a 2% increase) from FY 2016 to FY 2017. This maintenance of funding is necessary to support the core mission of the Commission. Following is a financial snapshot of the Commission for the years ended June 30, 2017 and 2016. Detailed financial statements audited by the firm Dixon Hughes Goodman LLP, are available from the Commission office.

Atlantic States Marine Fisheries Commission
Condensed Statement of Financial Position Information
For the Years Ended June 30, 2017 and 2016

ASSETS

	2017	2016
CURRENT ASSETS:		
Cash and cash equivalents	$ 1,019,597	$ 1,026,814
Grants and accounts receivable	2,260,197	1,988,092
Prepaid expenses	50,288	67,883
Total Current Assets	3,330,082	3,083,789
Investments	841,328	840,310
Property and Equipment, Net	3,558,567	3,678,756
TOTAL ASSETS	$ 7,729,977	$ 7,602,855

LIABILITIES AND NET ASSETS

CURRENT LIABILITIES:		
Accounts payable and accrued expenses	$ 1,562,887	$ 1,224,176
Deferred revenue and contract advances	819,821	1,320,052
Current maturities of long term debt	180,000	180,000
Total Current Liabilities	2,562,708	2,724,228
OTHER LIABILITIES:		
Long term debt	430,912	610,500
Obligation under interest rate swap	10,144	33,186
Total Other Liabilities	441,056	643,686
TOTAL LIABILITES	3,003,764	3,367,914
UNRESTRICTED NET ASSETS	4,726,213	4,234,941
TOTAL LIABILITIES AND NET ASSETS	$ 7,729,977	$ 7,602,855

Atlantic States Marine Fisheries Commission
Condensed Statement of Activities Information
For the Years Ended June 30, 2017 and 2016

	2017	2016
REVENUE:		
Contract reimbursements	$ 14,071,392	$ 11,840,706
Contributions from member states	665,257	665,257
Other	26,591	26,654
Total Revenue	14,763,240	12,532,617
EXPENSES:		
Salaries and fringe benefits	5,824,678	4,923,846
Subcontracts	6,171,518	3,709,840
Travel	1,323,386	1,168,812
Other	975,428	2,135,297
Total Expenses	14,295,010	11,937,793
OTHER INCOME (EXPENSES):		
Interest rate swap obligation adjustment	23,042	16,167
Gain (loss) on disposal of property	-	(2,254)
Total Other Income (Expenses)	23,042	13,913
CHANGE IN NET ASSETS	491,272	608,737
NET ASSETS, BEGINNING OF YEAR	4,234,941	3,626,204
NET ASSETS, END OF YEAR	$ 4,726,213	$ 4,234,941

Acknowledgments

We would like to thank the following people and agencies for the use of their photographs throughout this report.

Cover & Background for Pages 34-49
"Bunker Barrel," © 2017, Ryan Moore, *www.ryanmooreart.com*

Inside Cover
Rope wooden boat, istock photo image © Zuberka

Page 12
Glass eels © Chris Bowser, New York State Department of Environmental Conservation

Page 13
Cooked lobsters ready to eat © Maine Department of Marine Resources

Page 15
Atlantic herring captured as part of the GOM Northern Shrimp Survey © ASMFC

Page 16
ASMFC Senior FMP Coordinator Kirby Rootes-Murdy with an Atlantic striped bass captured as part of the SEAMAP Winter Cooperative Tagging Cruise © ASMFC

Page 17
Atlantic sturgeon being weighed and measured as part of the NEAMAP Mid-Atlantic Nearshore Trawl Survey © NEAMAP

Page 18
Juvenile black drum captured as part of the SEAMAP Winter Cooperative Tagging Cruise © ASMFC

Page 19
Scientist aboard the NEAMAP Mid-Atlantic Nearshore Trawl Survey with a dominant, male black sea bass as evidenced by the nuchal hump at the top of its head before its dorsal fin © NEAMAP

Page 20
Recreationally caught bluefish © John McMurray, *www.nyflyfishng.com*

Page 21 (top to bottom)
Sandbar shark sampled as part of the South Carolina Shark Longline Survey © South Carolina Department of Natural Resources

Recreationally caught cobia © Eszter Keresztes

Page 23 (left to right)
Jonah crab sampled as part of the GOM Northern Shrimp Survey © ASMFC

Three types of shrimp found in the Gulf of Maine: northern shrimp, *Pandalus borealis*, (top) and two species of striped shrimp (*P. montagui* and *Dichelopandalus leptocerus* bottom) © Cinamon Moffett, University of Maine

Page 24
Recreationally caught red drum © Captain Walter Bateman, *www.carolinaguide.com*

Page 26
MAFMC staff Jessica Coakley with a juvenile scup © ASMFC

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Spiny dogfish captured as part of the NEAMAP Mid-Atlantic Nearshore Trawl Survey © NEAMAP

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Recreationally caught spotted seatrout © Captain Walter Bateman, *www.carolinaguide.com*

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Recreationally caught summer flounder © John Chisolm, Massachusetts Division of Marine Fisheries

Page 31
Recreationally caught tautog © Chip Lynch, NOAA Fisheries

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Recreationally caught weakfish © John McMurray, *www.nyflyfishng.com*

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Juvenile winter flounder being measured © Connecticut Department of Energy and Environmental Protection

Page 35 (bottom)
Fish assemblage captured as part of the NEAMAP Mid-Atlantic Nearshore Trawl Survey © NEAMAP

Page 37 (top to bottom)
Horseshoe crabs being captured as part of the Virginia Tech Horseshoe Crab Trawl Survey © Virginia Tech Horseshoe Crab Research Center

Egg-bearing female Jonah crab © Derek Perry, Massachusetts Division of Marine Fisheries

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Submerged aquatic vegetation © NOAA Fisheries Chesapeake Bay Program

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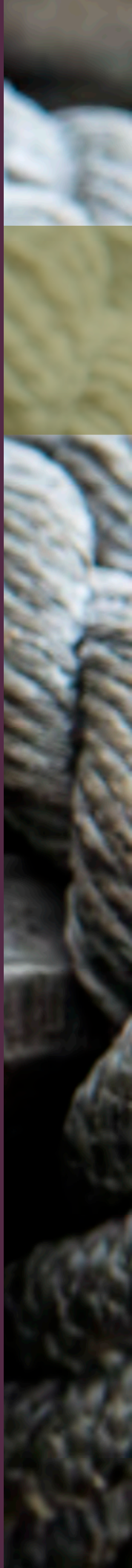
Coopers Mill Dam © Atlantic Salmon Federation

We have a long and illustrious track record of meeting formidable challenges head on through the ingenuity and tireless work of countless individuals and the enduring commitment of the states to work together for the greatest good of all the states, not the one or the few.

DOUG GROUT
Chair



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