Atlantic States Marine Fisheries Commission

Sustainably Managing Atlantic Coastal Fisheries

ANNUAL REPORT 2016

2016 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

1050 N. Highland Street, Suite 200 A-N
Arlington, Virginia 22201
703.842.0740

Robert E. Beal
Executive Director

Tina L. Berger
Editor

February 2017

Commonly Used 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
ACLs	Annual catch limits
ARM	Adaptive Resource Management
AMG	Atlantic migratory group
APAIS	Access Point Angler Intercept Survey
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
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
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
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
TLA	Traffic Light Analysis
USFWS	U.S. Fish and Wildlife Service
TEWG	Technical Expert Working Group

Table of Contents

Guiding Principles

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

Our Commissioners

Maine
Patrick C. Keliher
Sen. Brian Langley
Stephen R. Train

New Hampshire
Douglas E. Grout, Chair
Sen. David H. Watters
G. Ritchie White

Massachusetts
Dr. David Pierce
Rep. Sarah K. Peake
William A. Adler

Rhode Island
Janet L. Coit
Sen. Susan Sosnowski
David V.D. Borden

Connecticut
David G. Simpson
Rep. Craig A. Miner
Dr. Lance L. Stewart

New York
James J. Gilmore, Jr., Vice Chair
Sen. Philip M. Boyle
Emerson C. Hasbrouck

New Jersey
David Chanda
Asm. Sgt. Robert Andrzejczak
Thomas P. Fote

Pennsylvania
John A. Arway
Rep. Michael Vereb
Loren W. Lustig

Delaware
David E. Saveikis
Rep. William J. Carson
Roy W. Miller

Maryland
David Blazer
Del. Dana Stein
Rachel A. Dean

Virginia
John M.R. Bull
Sen. Richard H. Stuart
Catherine W. Davenport

North Carolina
Dr. Braxton Davis
Rep. Bob Steinburg
W. Douglas Brady

South Carolina
Robert H. Boyles, Jr.
Sen. Ronnie W. Cromer
Dr. Malcolm Rhodes

Georgia
A.G. "Spud" Woodward
Rep. Chad Nimmer
Nancy A. Addison

Florida
Jessica McCawley
Sen. Thad Altman
William R. Orndorf

Preface

The Atlantic States Marine Fisheries Commission (Commission) was formed 75 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.

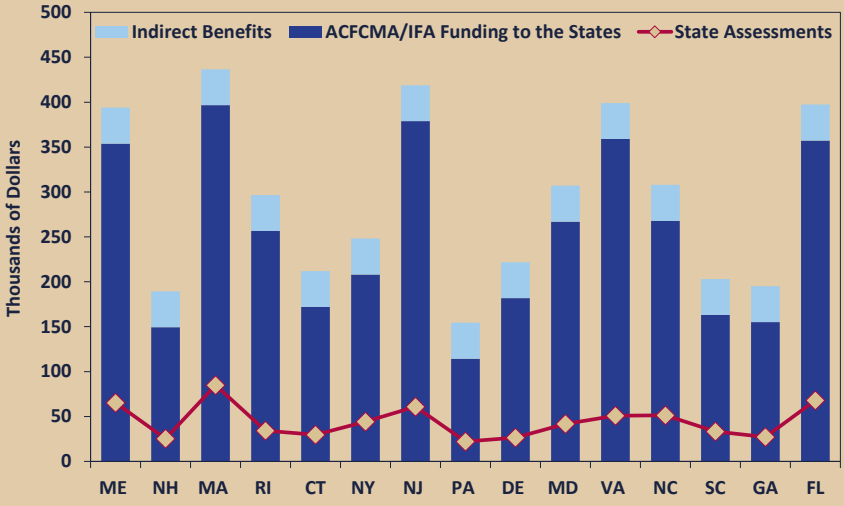
The Commission's current budget is $11.5 million. The base funding ($665,255) comes from the member states' appropriations, which are determined by the value of commercial fishing landings and saltwater recreational trips within each state. The bulk of the Commission's funding comes from a combination 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, the Commission was given responsibility for oversight and management for the state conduct of the Access Point Angler Intercept Survey. 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: FY17 ASMFC Assessments and FY16 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

On behalf of the Commission and the 15 Atlantic coastal states, I am pleased to present our 2016 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 fisheries under their care.

We remain grateful to the Administration, 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 is critically important to our interstate fisheries management program, science and data collection activities.

2016 marked the 75th anniversary of the Commission, providing our Commissioners with the opportunity to reflect on the achievements that result when 15 sovereign states come together with a common vision. Over the past three-quarters of a century, the Commission has evolved from a group of states that met annually to discuss common fishery issues to an organization that maintains obligatory management programs for 27 coastal species. Concomitantly, the Commission's staff and budget have also grown significantly to support dynamic interstate fisheries management, science, habitat and data collection programs.

At the Commission's 75th Annual Meeting, we brought together past, present and future Commission leaders to highlight our strengths and envision the future of interstate fisheries management. The common themes throughout this conversation were: people are the Commission's most valuable resource; climate change is going to impact nearly every facet of fisheries management; and partnerships will continue to be the foundation of the Commission's success. Partnerships between state and federal managers, law makers and stakeholders will need to be fostered to ensure sustainability of the valuable Atlantic marine resources for coming generations.

2016 was another busy year for the Commission's science and management programs. Annual fishery specifications were established for 11 species, assessments were conducted for 10 species, more than 50 public hearings were held to solicit stakeholder input on potential management changes, and multiple management documents were approved. The Report from our Chair on the next page identifies other notable actions regarding Southern New England American lobster, Atlantic menhaden and cobia.

ACCSP went through a number of significant changes. The Program now falls fully under the Commission's governance to better integrate data collection with fisheries management and assessment activities. This change will also increase the participation of our Commissioners in the continued evolution of the Program. The Marine Recreational Information Program's Access Point Angler Intercept Survey was conducted by the states through ACCSP for the first time in 2016. This transition has resulted in greater buy-in by the recreational anglers.

The Commission has continued to work closely with its sister Commissions in the Gulf of Mexico and Pacific to engage with our state and federal partners to reinforce the economic and social returns that come from investing in marine fisheries management and science. The overall investment is relatively modest; however, the returns are impressive. Commission-managed marine resources generate billions of dollars in economic activity annually and provide tens of thousands of jobs within our coastal communities. This three Commission alliance has shown to be an effective approach to unify the messages of 24 U.S. coastal states through one strong voice on national fisheries issues.

I continue to be amazed by the staff's devotion, energy and creativity to support healthy marine fisheries, and appreciate the commitment of Commissioners to our Vision, Sustainably Managing Atlantic Coastal Fisheries. It is always worth remembering the Legislative Commissioners and Governors' Appointees provide their time and expertise to the Commission without compensation. As noted earlier, it is the people that make the Commission.

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

Report from the Chair DOUGLAS GROUT

In 2016, the Commission celebrated its 75th Annual Meeting in Bar Harbor, Maine. The meeting provided ample opportunities to reflect back on our history, greatest achievements and the elements that have allowed us to remain successful and relevant since our first meeting in New York City in 1941. Fundamental to this success has been the shared recognition among the states that they can accomplish more working together than alone, our unique and fruitful relationship with our federal partners, and our commitment to prioritizing long-term sustainability over short-term benefits.

These attributes were clearly evidenced in 2016. Through our combined efforts, we approved a new Atlantic Herring Amendment, using the latest science to refine the way we manage spawning area closures. In response to the American lobster benchmark stock assessment, we initiated an addendum to address the depleted condition of the Southern New England stock and increased our monitoring of the Gulf of Maine stock in light of settlement decline in recent years. We continued to make progress on the development of a new Atlantic menhaden amendment, with a first-of-its-kind socioeconomic survey and steady progress on ecological-based reference points. We entered the realm of cobia management, beginning the development of an interstate fishery management plan to complement that of the South Atlantic Council. On the science front, we adopted the weakfish benchmark stock assessment and regional stock assessments for tautog. The latter assessment will form the basis of regional management for this important Southern New England and Mid-Atlantic species. We also devoted considerable resources to conducting benchmark stock assessments for red drum, spot, croaker and Atlantic sturgeon, all of which we fully expect to be finalized in 2017.

The Commission's Law Enforcement Committee improved and coordinated enforcement activities directed at illegal glass eel harvest, culminating in the conviction of seven individuals for trafficking more than $1.9 million worth of elvers. The Committee developed recommendations for a commercial tagging system for tautog. Additionally, it 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 enforcement and joint enforcement agreements activities.

ACCSP came under the governance of the Commission to allow for fuller integration of data collection, management and science activities. ACCSP also took over conduct of the Marine Recreational Information Program's Access Point Angler Intercept Survey for the Atlantic states. The transition of ACCSP from an independent program to one under the Commission's auspices occurred better than anyone could have hoped and is already showing positive results. Finally, ACCSP rolled out new tools to enhance opportunities for electronic reporting via eTrips/mobile, a tablet-based program for harvesters, and eDR, a swipe card system for dealers in Maine and Massachusetts.

There will be much to do in 2017 and beyond. With the addition of three new species in just three years, the number of Commission-managed species has risen to 27. We will need to find creative solutions to adapt to the impacts of climate change on our coastal environment and marine resources. This includes improving the resiliency of shorelines and coastal communities, addressing stock declines in response to increasingly warmer ocean temperatures and modifying allocation schemes in response to shifting species distributions. In addition to ecological factors, the Commission will be challenged by a new administration and will focus on ensuring the states have the fiscal and staff resources to effectively manage and monitor the resources entrusted to us by the public.

The Commission's founders could not have envisioned or even contemplated many of today's challenges, but with the foundation they laid we are in a position to take on any challenge, big or small. Although we face many obstacles, we will rely upon the Commission's strengths – chief among them partnerships, institutional knowledge and a deep bench of forward thinking individuals – to address whatever the future holds. The Commission has a long track record of meeting formidable challenges head-on through cooperation, ingenuity and hard work. As I enter my final year as Commission Chair, I am motivated by our past successes to meet 2017 head on and look forward to strengthening the legacy of the Atlantic States Marine Fisheries Commission.

Stock Status Overview

In 2016, 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, scup and spiny dogfish. The Commission initiated a new Cobia Fishery Management Plan (FMP), approved a new Atlantic Herring Amendment, updated management programs for five species (via addenda) and continued to work on three plan amendments in response to stock assessment information and changes in the fisheries. Two of the plan amendments will seek to improve resource sustainability for northern shrimp and tautog, while the other amendment will seek to improve management of Atlantic menhaden. The Commission and Mid-Atlantic Fishery Management Council also continued work on the development of plan amendments for summer flounder and black sea bass. 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 the allocation of fisheries resources.

The following section provides a summary of the status of species managed by the Commission and highlights management activities that occurred throughout 2016. For this summary, **overfishing** occurs when fish are removed from a population at a rate that exceeds the threshold established in the FMP, which over the long-term will lead to declines in the population. 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 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 level established by the FMP. A **rebuilt/sustainable** stock is one whose biomass is equal to or above the biomass level established by the FMP 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.

Some other terms used throughout this report are benchmark stock assessment, peer-reviewed stock assessment and stock assessment update. A **benchmark stock assessment** is a full analysis and review of the stock condition, focusing on the consideration of new data sources and newer or improved assessment models. This assessment is generally conducted every three to five years and undergoes a formal peer review by a panel of independent fisheries scientists who evaluate whether the data and methods used to produce the assessment are scientifically sound and appropriate for management use (peer-reviewed stock assessment). A **stock assessment update** incorporates data from the most recent years into the peer-reviewed assessment model to determine current stock status (abundance and overfishing level).

Quick Guide to Stock Status

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

STATUS/ TRENDS	SPECIES		OVERFISHED	OVERFISHING	REBUILDING STATUS & SCHEDULE
🡻		American Eel	Depleted	Unknown	Harvest restrictions adopted for glass, yellow, and silver eel fisheries in response to 2012 benchmark assessment
✓	American Lobster 	Gulf of Maine (GOM)/ Georges Bank (GBK)	Not Depleted	N	GOM/GBK stocks rebuilt Board approved 10% reduction in exploitation on the SNE stock in 2012 as well as trap reductions in Areas 2&3. Board initiated Addendum XXV to consider additional restrictions for SNE in response to 2015 benchmark assessment.
🡻		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	N	Overfished status unknown; however, biomass has been increasing & age structure has been expanding since late 1980s; benchmark assessment scheduled for completion in 2017
✓		Atlantic Herring	N	N	Rebuilt; 2015 stock assessment update indicated SSB is above the target and fishing mortality (F) is below the threshold
✓		Atlantic Menhaden	N	N	2017 total allowable catch (TAC) set at 200,000 mt, a 6.45% increase from 2016 TAC
✸		Atlantic Striped Bass	N	N	Rebuilt since 1995. Management action triggered in 2013; harvest reductions implemented in 2015. F estimated below target level in 2015, but female SSB continues to decline towards the threshold
?		Atlantic Sturgeon	Y	N	40+ year moratorium; to be rebuilt by ~2038; listed in 2012 under the ESA; benchmark assessment scheduled for 2017
✓		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 maximum sustainable yield
✸		Black Sea Bass	N	N	Benchmark assessment completed in 2016; stock status may change pending release of assessment results in 2017
✓		Bluefish	N	N	Biomass above threshold but below target
✸		Coastal Sharks	Varies by species and species complex		
✓		Cobia	N	N	FMP scheduled for approval in 2017; SEDAR research track assessment scheduled for 2019 and SEDAR 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	Spawning potential ratio (SPR) above target and threshold SPRs; benchmark assessment under review, scheduled for completion in 2017
		Southern Region	Unknown	N	SPR above threshold SPR; benchmark assessment under review, scheduled for completion in 2017
⬇		**River Herring**	Depleted	Unknown	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	Traffic light approach adopted to assess stock trends & initiate management response; benchmark assessment scheduled for completion in 2017
?		**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 declining since 2010 and F exceeded threshold by 26% in 2015
✸		**Tautog**	Y	Varies by region	Overfished on a coastwide basis and regionally based on 2016 assessment update; Board has initiated amendment to address regional stock units and reference points.
⬇		**Weakfish**	Depleted	N	6-year rebuilding period if spawning stock biomass < threshold level; Board approved further harvest restrictions in 2009
⬇	 **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 23% of SSB target based on 2015 assessment update; recruitment continues to decline

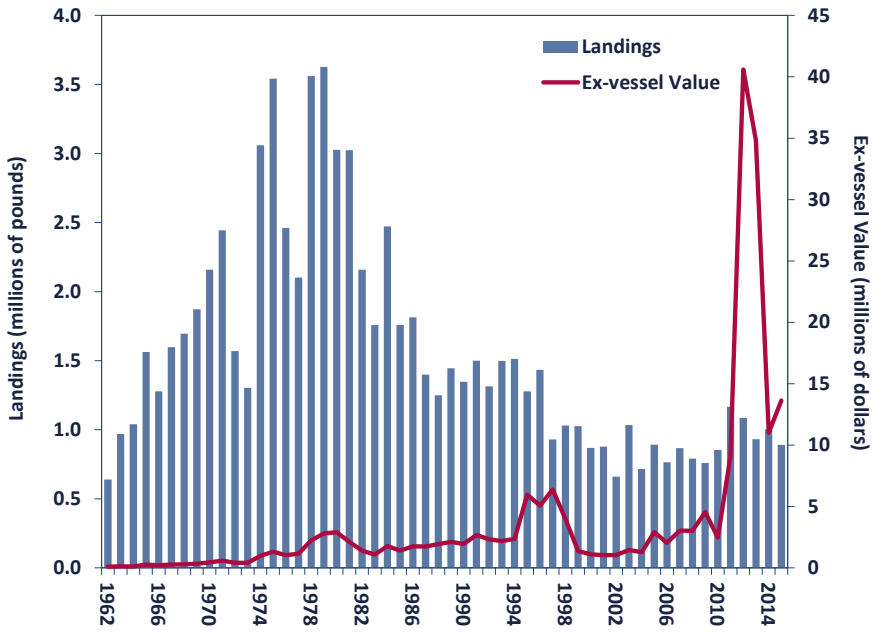
SPECIES HIGHLIGHTS

American Eel

From a biological perspective, American eel are a very mysterious species. Once thought to be a freshwater species, American eel are actually catadromous, migrating from rivers to the ocean to spawn – the only catadromous species found in North America. Since 2011, there has been a growing demand for glass eels (an early life stage of American eel) for aquaculture purposes, increasing landings and the price per pound of glass eels. This demand, coupled with scientific advice that American eel are depleted throughout their U.S. range, prompted the Commission to reduce mortality and increase conservation of American eel stocks across all life stages, as well as renew efforts to raise eels sustainably through aquaculture methods. These measures are included in Addenda III and IV to the FMP for American Eel, which were adopted in 2013 and 2014, respectively.

In 2016, Maine implemented its life cycle monitoring program as required by Addendum IV. However, due to administrative and gear issues, as well as drought conditions, sampling was incomplete. An improved program will be implemented in 2017. Also in 2016, the American Eel Management Board approved North Carolina's Aquaculture Plan, which allows up to 200 pounds of glass eels to be harvested for aquaculture purposes. While the initial program was not able to secure glass eels in early 2016, the Board approved a proposal to pilot the program again in 2017.

American Eel Commercial Landings and Ex-Vessel Value
Source: ACCSP Data Warehouse, 2016



*2015 values are preliminary

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

From the 1970s to the mid-1980s, American eel supported significant commercial fisheries, with landings ranging from 2.5 to 3.6 million pounds. Landings dropped to 1.6 million pounds in 1987 and have remained at low levels since then, ranging from 1.5 million to 700,000 pounds. State reported landings of yellow and silver eels in 2015 totaled approximately 884,000 pounds, 11% lower than 2014. In 2015, glass eel harvest from Maine and South Carolina totaled 5,441 pounds, a decrease from 2014. In 2015, total eel landings (glass, yellow, and silver eel combined) were valued at approximately $13.6 million.

In 2015, USFWS conducted a status review of American eel and found the U.S. population to be stable and not in need of protection under the Endangered Species Act (ESA). Nonetheless, for the species' long-term stability, the agency recommended continuing efforts to maintain healthy habitats, monitor harvest levels and improve river passage for migrating eels. In

2014, the International Union for the Conservation of Nature (IUCN) listed American eel as "Endangered" on its Red List. The IUCN assesses flora and fauna globally to determine their conservation status. While the IUCN list has no legal implications, it is an important metric that accounts for a variety of factors including habitat, threats, potential stresses, and research status. Given these findings and actions taken by the Commission and its member states, the Commission remains committed to closely monitoring American eel fisheries and the status of the resource, and making adjustments to the management program as necessary to ensure stock rebuilding.

American Lobster

The American lobster fishery continues to be a tale of two stocks, with record high abundance and recruitment in the Gulf of Maine/ Georges Bank (GOM/GBK) and record low abundance in Southern New England (SNE). In 2015, roughly 147 million pounds of lobster were landed coastwide, with 83% of landings occurring in Maine. The 2015 ex-vessel value was over $617 million, making American lobster one of the most valuable species harvested throughout New England.

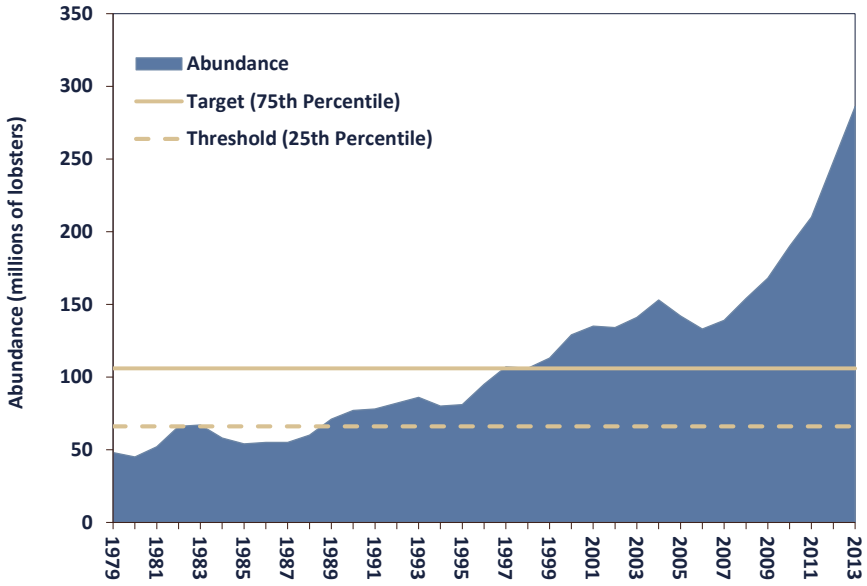
Results of the 2015 benchmark stock assessment show a mixed picture of stock status. While the GOM/GBK stock is experiencing record high landings and abundance, the SNE stock is experiencing recruitment failure, with pronounced population declines in the inshore portion of the stock. There are several contributors to the poor condition of the SNE stock, including increased natural mortality and continued fishing pressure. Climate change has had a marked impact on the SNE stock, as warming water temperatures have negatively impacted larval settlement and recruitment. In contrast, the GOM/GBK stock is currently experiencing optimal temperatures (12 to 18°C) which support high stock abundance.

In response to the stock assessment findings, the American Lobster Management Board initiated Draft Addendum XXV to Amendment 3 to the Interstate FMP. The goal of the addendum is to respond to the decline in abundance and recruitment of the SNE stock while preserving a functional portion of the lobster fishery in this area. The Draft Addendum considers a suite of management tools to achieve targeted increases in egg production, ranging from 0% to 60%. The Board is pursuing an increase in egg production so that, if environmental conditions become favorable in SNE, there will be enough eggs in the water

to produce a successful and impactful recruitment event. The Draft Addendum also seeks input on where the regulations should apply, as the offshore management area spans both the SNE and GOM/GBK stocks. The Board will consider approving the document for public comment in February 2017.

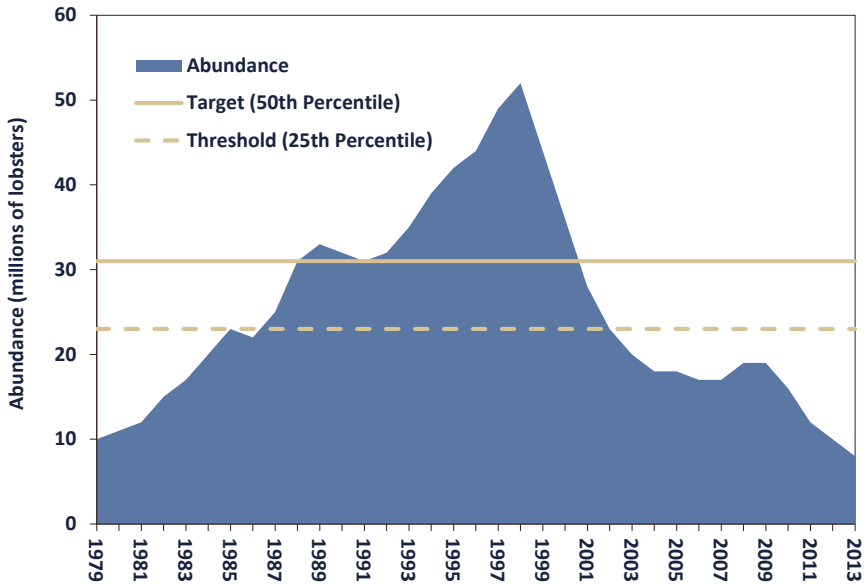
American Lobster Gulf of Maine/Georges Bank Abundance

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)

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



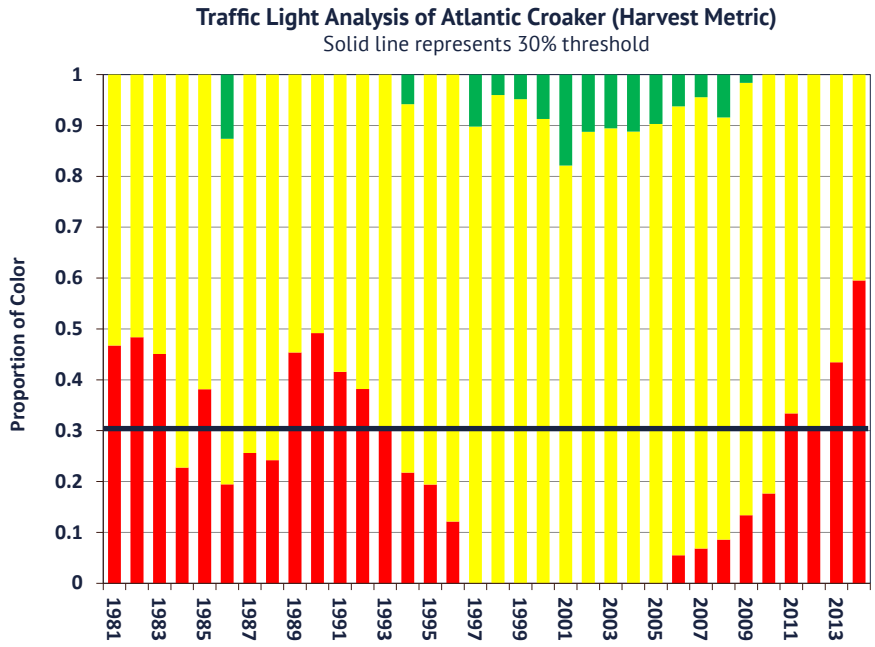
While the 2015 stock assessment found the GOM/GBK stock to be at record high abundance, the assessment did show declines in the settlement of young-of-year lobsters. This could be a sign of poor recruitment in the future. In order to better understand the changing stock conditions in the GOM/GBK, the Board charged the American Lobster Technical Committee with several tasks, including identifying changes in the distribution of egg-bearing females, evaluating a stock-recruitment relationship for the area and synthesizing current literature on stock connectivity between the GOM/GBK and Canada. The Technical Committee worked on these tasks throughout the fall of 2016; the results will be presented to the Board in February 2017.

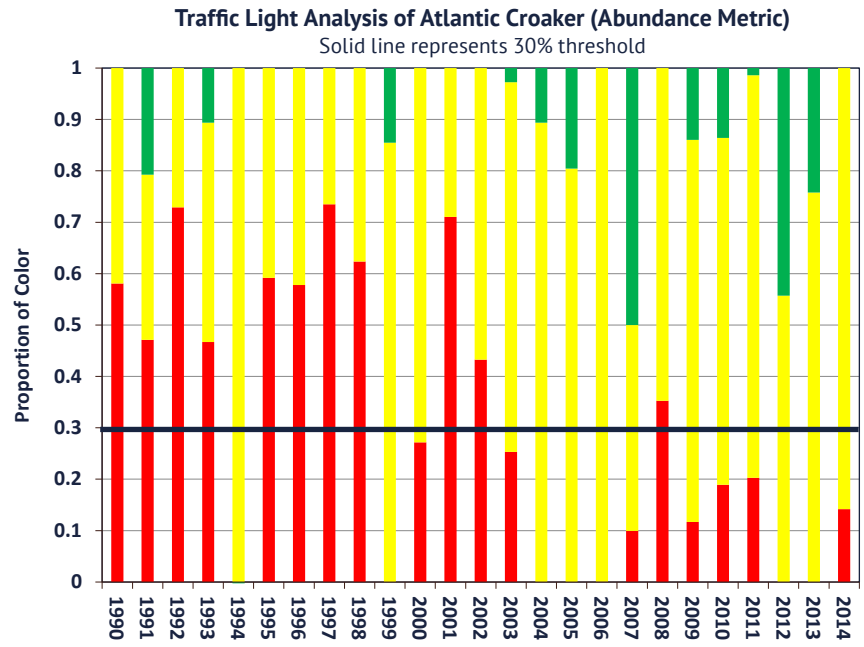
In 2016, the Board also convened a Lobster Reporting Work Group to discuss data deficiencies in the lobster fishery and recommend ways to address them. This issue was prompted by several management actions along the Atlantic coast, including the designation of a National Monument and the New England Fishery Management Council's (NEFMC) ongoing work on the Omnibus Deep-Sea Coral Amendment, which highlighted current harvester reporting is insufficient both in its spatial resolution and the number of fishermen required to report. As a result of its discussion, the Work Group made a series of recommendations to the Board, including the addition of several data components to current harvester reports, increased harvester reporting and the incorporation of vessel monitoring systems on all lobster vessels. The Board will consider initiating an addendum in February 2017 to address reporting in the lobster fishery holistically.

Atlantic Croaker

Atlantic croaker are a popular bottom-dwelling species, named for the croaking noises they make during mating rituals. The species is most abundant from the Chesapeake Bay to northern Florida and is sought by recreational anglers and commercial fishermen. Harvest (total, recreational and commercial) has been on the decline since 2003. An estimated 9.5 million pounds of croaker were landed in 2015, with approximately 73% landed by the commercial sector and 27% harvested by recreational anglers. Virginia harvested the majority of croaker in both sectors.

In 2016, a joint benchmark stock assessment was conducted for Atlantic croaker and spot. 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. The assessment is scheduled to be completed and peer reviewed in early 2017.





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

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

A traffic light analysis (TLA) is typically conducted each year for croaker to evaluate fishery trends and 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 condition of the fish population (abundance metric) or fishery (harvest metric). For example, as harvest or abundance increase relative to their long-term mean, the proportion of green in a given year increases and as harvest or abundance decrease, 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.

As management actions for croaker are already being evaluated through the ongoing assessment, a TLA was not conducted for 2016. The 2015 TLA showed a significant decrease in Atlantic croaker harvest in both the commercial and recreational sectors, as seen by the percent of red in recent years. Data from fishery-independent surveys also showed a slight decrease in the abundance of Atlantic croaker.

Atlantic Herring

Atlantic herring are an oceanic, plankton-feeding fish that occur in large schools and inhabit coastal and continental shelf waters from Labrador to Virginia. The fishery is managed cooperatively by the Commission through its Atlantic Herring Section and NEFMC. Commission management extends from the shore out to 3 miles, while NEFMC oversees management in federal waters (3-200 miles from shore). Commercially, Atlantic herring support bait and food fisheries, with a total domestic harvest of 175 million pounds valued at $24.6 million in 2015. As a baitfish, herring primarily supports the American lobster fishery.

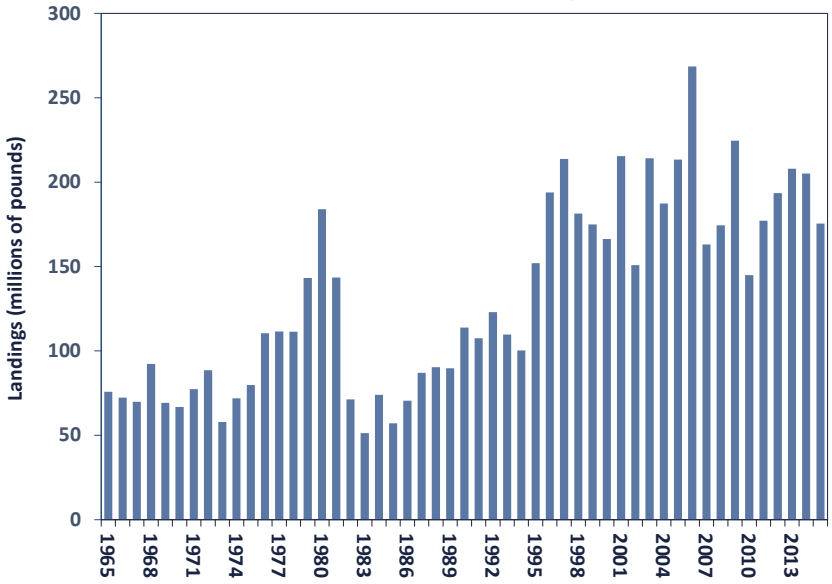
The 2015 stock assessment indicates Atlantic herring are not overfished and overfishing is not occurring. Spawning stock biomass (SSB) in 2014 is estimated at 1.3 billion pounds, well above the SSB threshold and target of 343 million pounds

and 686 million pounds, respectively. Current fishing mortality is estimated at 0.16, below the fishing mortality threshold of 0.24.

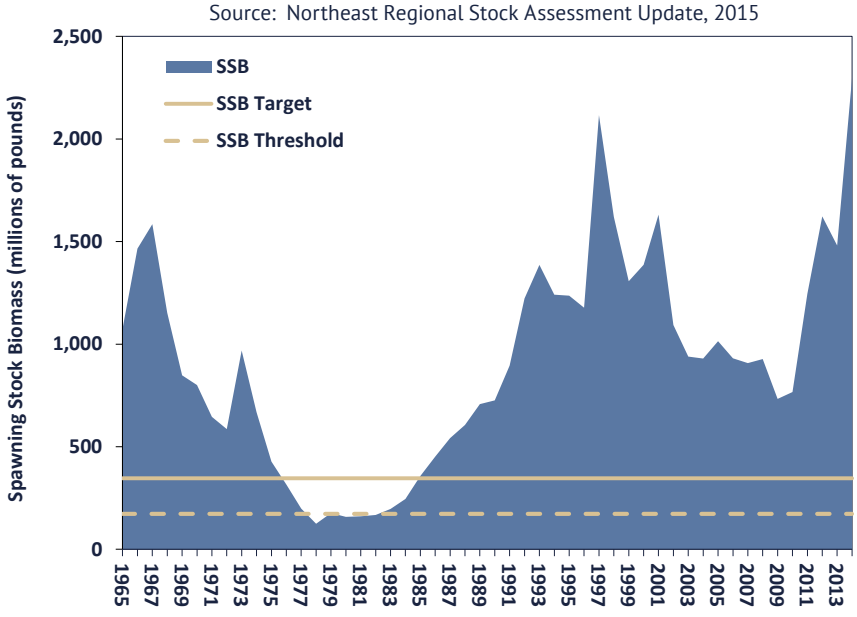
Although the Atlantic herring stock complex is assessed as a whole, catch limits are allocated among four management areas based on estimates of stock composition and relative biomass. NOAA Fisheries set the 2016 to 2018 annual catch limit (ACL) at 231 million pounds per year. The ACL was further subdivided into sub-ACLs by Atlantic herring management areas as follows: Area 1A = 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 2017 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 2016, the Atlantic Herring Section approved Amendment 3 to the Interstate FMP, modifying spawning regulations and implementing a fixed gear rollover provision. The Section also initiated Draft Addendum I to consider alternative landing day effort controls (landing days have been the primary measure used to control the rate of harvest for the inshore GOM fishery). During the past two fishing years, the Area 1A (inshore GOM) Trimester 2 fishery has harvested herring at a rate that, if left unrestricted, would have exceeded the seasonal quota in weeks, not months. Increased inshore effort is, in part, a reaction to decreased offshore (Area 3) catches of herring. The intent of the Draft Addendum is to consider modifying existing and creating new landing day effort controls that would be applied consistently by the states

Atlantic Herring Commercial Landings
Source: ACCSP Data Warehouse, 2016



Atlantic Herring Spawning Stock Biomass
Source: Northeast Regional Stock Assessment Update, 2015



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)

adjacent to Area 1A. The Section will consider approval of the Draft Addendum for public comment in February 2017.

In 2016, higher than expected landings in the latter half of June resulted in landing day restrictions in mid-July and mid-September. Maine's Department of Marine Resources applied additional measures to those vessels landing in Maine, which included a weekly landing limit, fishing day restrictions and transfer at-sea restrictions. On October 18, 2016, the Area 1A fishery was closed, having reached 92% of the management area's sub-ACL for the year.

Atlantic Menhaden

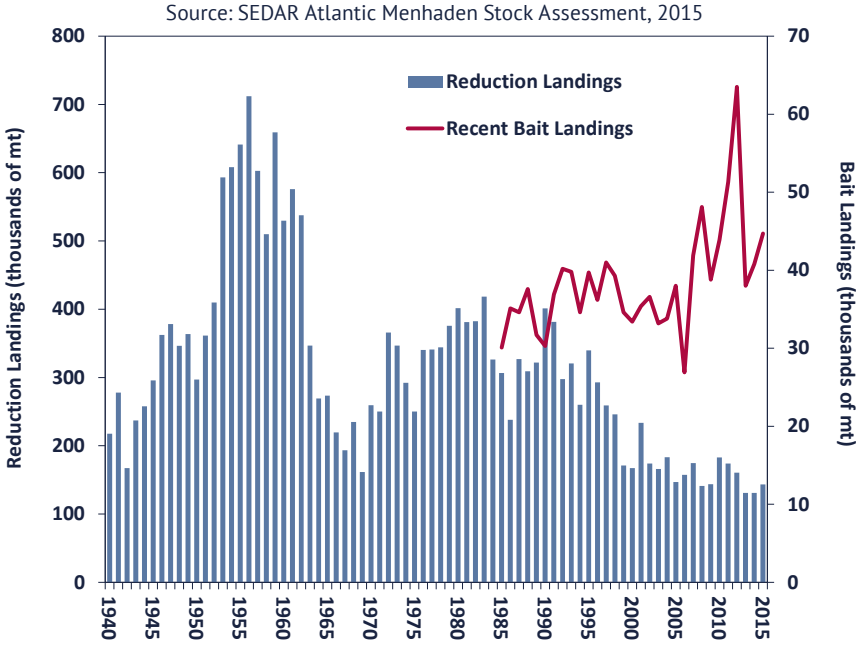
In 2016, the Atlantic Menhaden Management Board formally began development of Amendment 3 to the Atlantic Menhaden FMP. Draft Amendment 3 was initiated by the Board in 2015 to address several concerns in the fishery, including the adoption of ecological reference points (ERPs) and a new quota allocation scheme. In addition, the Draft Amendment will also consider a suite of fishery issues including quota rollovers, incidental catch and the episodic events set aside program.

As a first step in the process, the Board approved the Amendment 3 Public Information Document (PID) for public comment. The PID is a broad scoping document which seeks input from stakeholders and those interested in Atlantic menhaden about changes observed in the resource and potential management measures. The Board will review public comments on the PID in February 2017 and provide guidance on what management options to include in Amendment 3. Under the current timeline, the Board will consider final action on Draft Amendment 3 at the end of 2017.

As a part of Draft Amendment 3, the Biological ERP Work Group continued work on the development of menhaden-specific ERPs. The goal of these ERPs is to account for changes in the abundance of prey and predator species when setting overfished and overfishing thresholds for menhaden. Given these menhaden-specific ERPs will not be peer-reviewed until 2019, the Board may consider the adoption of interim ERPs or general guidelines for forage fish species in Amendment 3.

Also in conjunction with the Draft Amendment 3 process, the Board initiated a socioeconomic study on Atlantic menhaden commercial fisheries in March 2016. Currently, there is little socioeconomic data available on the menhaden fishery with which to assess the effects of changes in allocation or other management actions. As a result, the study, which is headed by Dr. John Whitehead of Appalachian State University and Dr. Jane Harrison from North Carolina Sea Grant, will characterize the

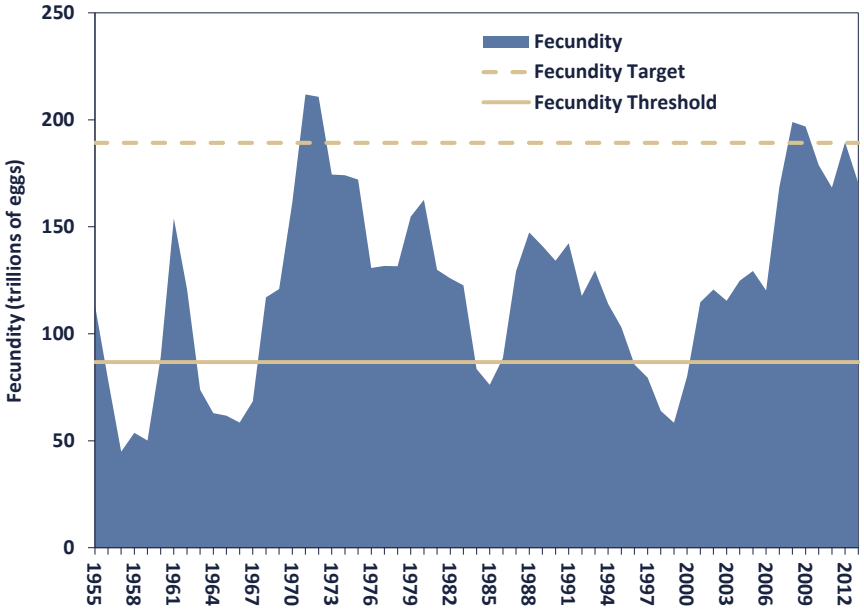
Atlantic Menhaden Commercial Reduction and Bait Landings
Source: SEDAR Atlantic Menhaden Stock Assessment, 2015



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)

Atlantic Menhaden Fecundity

Source: SEDAR Atlantic Menhaden Stock Assessment, 2015



coastwide commercial fisheries, including bait and reduction sectors and the communities they support. Throughout 2016, the study team engaged fishery participants along the coast through a series of in-person interviews and surveys. Results of the socioeconomic survey will be presented to the Board in February 2017 and will be incorporated into Draft Amendment 3.

In 2016, the Board approved a total allowable catch (TAC) for the 2017 fishing season of 200,000 metric tons (mt), a 6.45% increase from the 2016 TAC. According to stock projections run by the Technical Committee, this increase has a zero percent probability of resulting in overfishing. 2015 coastwide harvest, which includes the reduction and bait fisheries, as well as landings under the episodic event set aside program, was 186,248 mt, representing a 1% underage of the coastwide TAC. Additional bycatch landings of 2,687 mt accounted for approximately 1.4% of the coastwide landings, but do not count towards the TAC. Total landings (including bycatch) are estimated at 188,935 mt.

In response to concerns that the 6,000 pound per vessel bycatch allowance in Amendment 2 does not support cooperative fishing, the Board approved Addendum I. The Addendum modifies the bycatch provision by allowing two permitted fishermen working on the same vessel using stationary multispecies gears, to land up to 12,000 pounds of menhaden per trip per day. The practice of two permitted individuals working together on the same vessel primarily occurs in the Chesapeake Bay pound net fishery. This cooperative fishing allows fishermen to pool resources on fuel and crew.

Atlantic Striped Bass

Known throughout New England and the Mid-Atlantic as striper, rockfish, linesider, rollers, squidhound or simply as "bass," Atlantic striped bass is regularly referred to as America's greatest game fish on the U.S. Atlantic coast. High demand for this species among fishermen and consumers, coupled with the complexity of its seasonal distribution along the coast, make sustainable management of the Atlantic coast striped bass population complex and challenging.

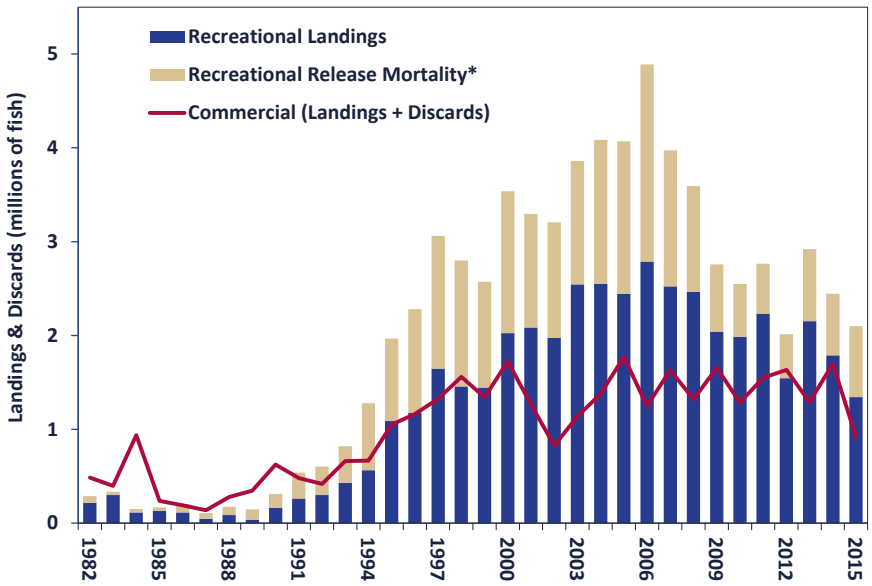
Atlantic striped bass SSB peaked in 2003 at nearly 172 million pounds, and has gradually declined towards the SSB threshold. Furthermore, in 2013 fishing mortality (F) was estimated to be above the F threshold (0.22) triggering management action. Consequently, the states and jurisdictions involved in the management of Atlantic striped bass (i.e., Maine through North Carolina, including Pennsylvania, the District of Columbia and the Potomac River Fisheries Commission) implemented Addendum IV prior to the 2015 season. The primary goal of the Addendum is to reduce F on the coastwide population to a level at or below the F target (0.18) in order to stabilize SSB. To achieve this, commercial quotas were cut and recreational bag limits were reduced from two fish to one. However, many state fisheries utilized the FMP's conservation equivalency process, resulting in a wide range of regulations across the coast.

Based on the results of the 2016 Atlantic striped bass 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 F threshold and target levels. However, even though the stock is not overfished, female SSB has continued to decline and in 2015 is estimated at 129 million pounds, just above the SSB threshold of 127 million pounds. Addendum IV continues to set the coastwide regulatory program for Atlantic striped bass (i.e., commercial quotas and recreational bag and size limits).

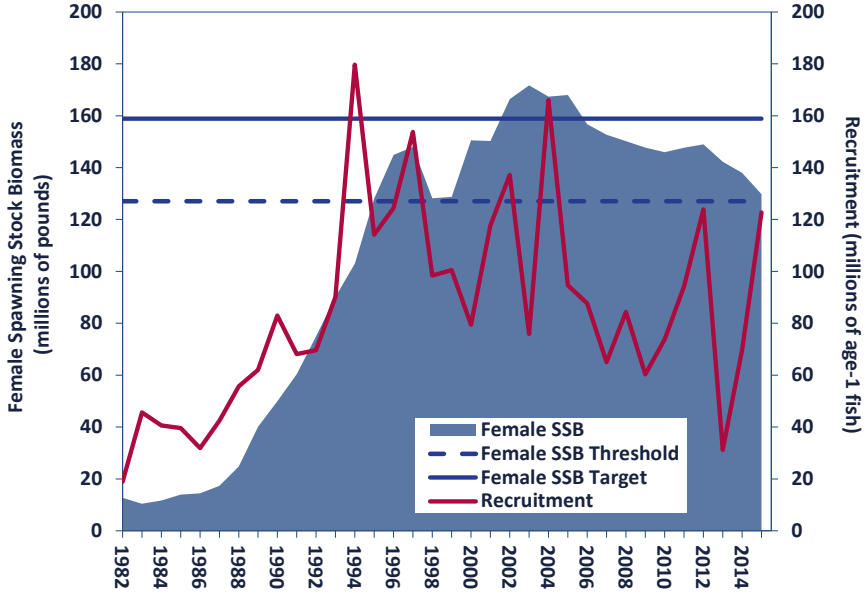
Addendum IV also established one set of F reference points for the coastal migratory population in all management areas, excluding the Albemarle Sound/Roanoke River (A/R) stock (Addendum IV defers management of this stock to North Carolina using stock-specific biological reference points). In reality, the coastal migratory population is comprised of multiple stocks (i.e., the Chesapeake Bay, the Hudson River, and the Delaware Bay stocks), each with unique biological characteristics, and dynamic contributions to the coastal migratory population. While the new reference points include the effects of area-specific harvest of smaller fish on the coastwide SSB, they do not incorporate data on the sex ratio that exists in different areas where target fisheries occur (e.g., data suggests that the Chesapeake Bay harvest is comprised of a greater proportion of males than females). Therefore, the Board is limited in its ability to maximize striped bass fishing opportunities for all stakeholders (while ensuring the sustainability of the resource) until stock assessment data and modeling approaches produce reliable stock-specific sex-based reference points for management use. The next benchmark assessment, which will attempt to address these concerns, is already 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 Update, 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 Update, 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)

From 2007 to 2014, recreational landings have averaged just over 25 million pounds annually. In 2015, recreational anglers harvested an estimated 18.2 million pounds, which can be attributed to implementation of more restrictive regulations via Addendum IV. Of those coastwide recreational landings, Maryland landed the largest percent in numbers of fish (30%), followed by New Jersey (21%), New York (20%), Massachusetts (13%) and Virginia (7%). Maine, New Hampshire, Rhode Island, Connecticut and Delaware accounted for the

remaining harvest (9%). Anglers continue to release the vast majority of striped bass they catch; 73 to 90% since implementation of Amendment 6 in 2003. The number of released fish peaked in 2006 at 23.3 million fish. Total numbers of releases have declined since then, averaging 8.7 million fish annually since 2007. An estimated 8.4 million fish were caught and released in 2015.

Coastwide commercial landings rose from about 700,000 pounds in 1990 to 3.4 million pounds in 1995. Under Amendment 5, striped bass harvest grew from 3.4 million pounds in 1995 to 6 million pounds in 2002. Since the passage of Amendment 6, commercial harvest has been managed through a quota system, with landings averaging just shy of 7 million pounds annually from 2003 to 2014. In 2015, the commercial quota was reduced through the implementation of Addendum IV. Commercial landings are consistently dominated by Chesapeake Bay fisheries, which made up approximately 64% (3.1 million pounds) of the total commercial landings in 2015 (4.8 million pounds). Other primary contributors to coastwide commercial landings in 2015 include Massachusetts (18%) and New York (11%). In 2015, commercial harvest in the A/R management area was estimated at 113,475 pounds and recreational harvest estimated at 126,970 pounds.

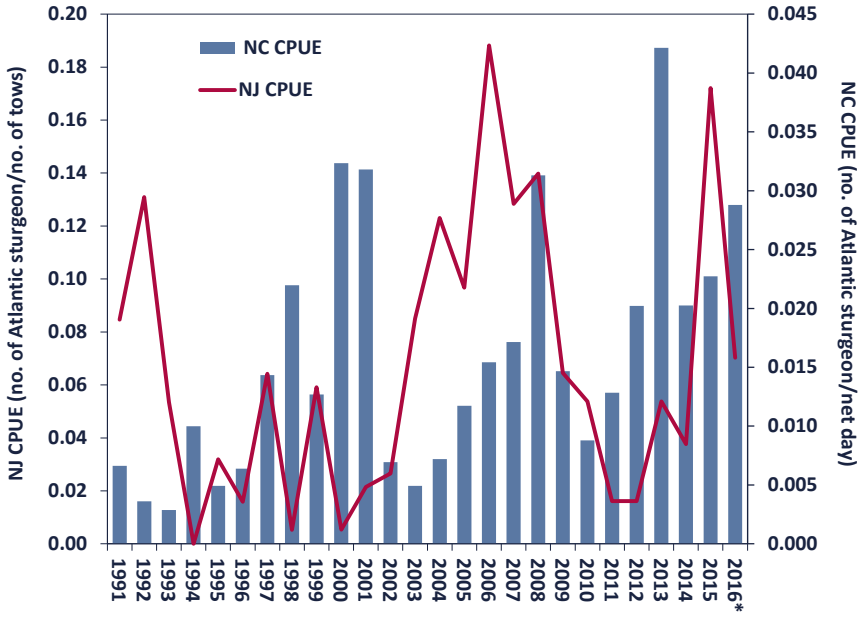
Atlantic Sturgeon

Atlantic sturgeon are a prehistoric fish species dating back to the Cretaceous Period over 120 million years ago. Found along the entire Atlantic coast from Florida to Labrador, Canada, they are an anadromous species that utilize a wide range of habitats throughout their lifetime. Adult sturgeon undergo extensive coastal migrations which take them from the ocean into coastal estuaries and rivers to spawn every two to five years. Reaching lengths of over 14 feet and living over 60 years, Atlantic sturgeon are one of the largest and longest lived fish species in North America. Typically, sturgeon in the southern part of the species range mature faster and grow larger than those in the northern part of the range. Females reach sexual maturity between the ages of 7 and 30, and males between the ages of 5 and 24. These life history characteristics, coupled with excessive overfishing from the late 1800s to the mid-1900s, impediments to fish passage and extensive degradation of habitat, have challenged species' rebuilding efforts.

The last benchmark stock assessment, conducted in 1998, found the resource to be overfished coastwide. Specifically, the assessment concluded that all systems held significantly less

Atantic Sturgeon Fishery-independent Catch Per Unit of Effort (CPUE) in New Jersey's Coastal Waters and North Carolina's Albermarle Sound

Source: NJ Division of Fish and Wildlife and NC Division of Marine Fisheries, 2016



* 2016 data are preliminary

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

sturgeon than they did in the late 1800s and early 1900s. To protect and rebuild this ancient species, the Commission took drastic action and implemented a 40-year coastwide moratorium on harvest in 1998. Additionally, states have invested considerable resources to increase understanding of sturgeon biology and life history.

Still, very little is known about Atlantic sturgeon's stock status because reliable data are difficult to obtain; many river systems have few fish and particular stretches of rivers that are known to support sturgeon are often not easily sampled. However, several states have been conducting long-term monitoring of Atlantic sturgeon through fishery-independent surveys. Data from two of these surveys are provided in the accompanying graphs and provide a snapshot of local conditions. North Carolina has surveyed for Atlantic sturgeon in the Albemarle Sound since 1991. One hundred and three sturgeon were caught in 2016, the fifth highest in the time series (the highest was in 2013 with 140 sturgeon caught). Additionally, catch per unit effort (CPUE) has remained above the long term average (0.015) since 2012 and increased to 0.029 in 2016. New Jersey has conducted trawl surveys in their coastal waters since 1989. 2016 survey results were about average for the time series; 13 sturgeon caught with a CPUE of 0.07. However, in 2015, the survey caught 32 Atlantic sturgeon which is the third highest in the time series (the highest was in 2006 with 35 sturgeon caught).

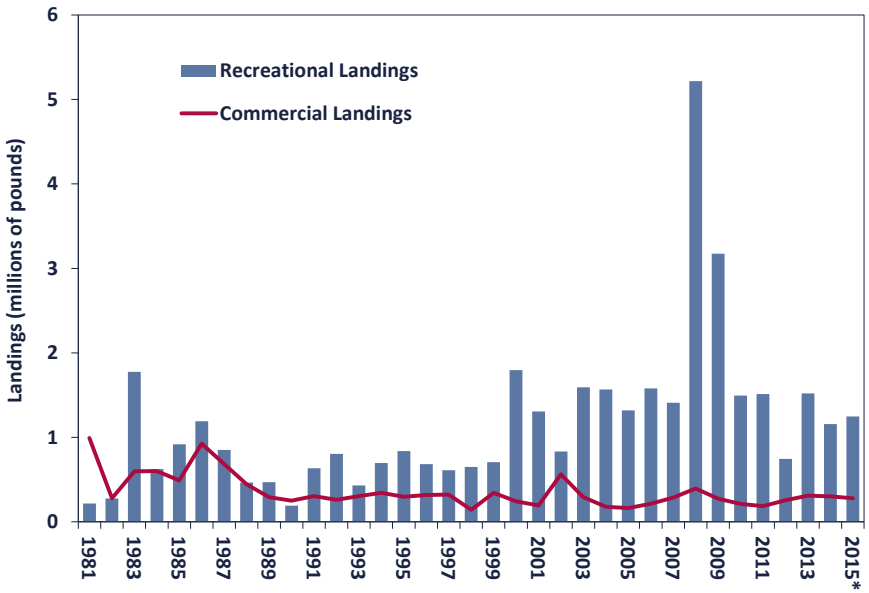
The coastwide Atlantic sturgeon population is made up of five distinct population segments (DPSs): (1) GOM, (2) New York Bight, (3) Chesapeake Bay, (4) Carolina and (5) South Atlantic. In 2012, following several status reviews, NOAA Fisheries declared the GOM DPS as threatened and the remaining DPSs as endangered under the ESA. The status review determined the most significant threats to all of the DPSs are bycatch mortality, poor water quality, lack of adequate state and federal regulatory mechanisms and dredging activities. Additional stressors include habitat impediments and ship strikes. In 2013, NOAA Fisheries published an Interim Final Rule for the threatened GOM DPS which essentially provides the same protection as an endangered listing. In 2016, NOAA Fisheries published a proposed rule to designate Atlantic sturgeon critical habitat, i.e., specific areas that are considered essential to the conservation of the species, in each of the DPSs. The Commission and many of the states submitted comment on the proposed rules to NOAA in 2016. The final rule is expected to be published in May 2017.

In response to the 2012 ESA listing, the Atlantic Sturgeon Management Board initiated the development of a coastwide benchmark stock assessment for Atlantic sturgeon to evaluate stock status, stock delineation and bycatch. Data, including bycatch, survey, tagging and genetic data, have been collected from dozens of state and federal agencies and academic programs along the coast. Considering that neither an assessment update nor a benchmark assessment for Atlantic sturgeon have been conducted since 1998, the Stock Assessment Subcommittee (SAS) is exploring a number of modeling approaches, including a custom-built acoustic tagging model that will be applied at the coastwide, DPS and river-system levels depending on available data. The SAS made considerable progress towards model development at the July 2016 stock assessment workshop. At the workshop, the SAS also decided to extend the terminal year of the assessment through 2015. The SAS will conduct a second assessment workshop in February 2017 to rigorously evaluate modeling results, ensure appropriate use of the data in the models and determine stock status where possible. The benchmark assessment is on schedule for completion in late 2017.

Black Drum

With sizes reaching over 46 inches in length and 120 pounds in weight, black drum are drawing increasing interest from recreational anglers. Recreational catch in 2015 was the largest on record at over 1.25 million pounds. Nearly 90% of these fish were released alive, both the largest number and proportion of live releases on record. Florida

Black Drum Commercial & Recreational Landings
Source: ACCSP Data Warehouse and NMFS Fisheries Statistics Division, 2016



* 2015 data are preliminary

and North Carolina fisheries had the greatest number of live releases in 2015. Following a peak in 2008 and subsequent decline, recreational and commercial landings have remained fairly stable from 2011 to 2015, with recreational landings being about five times those of commercial (by weight). Florida and North Carolina fisheries comprised the majority of the 1.2 million pound recreational harvest in 2015.

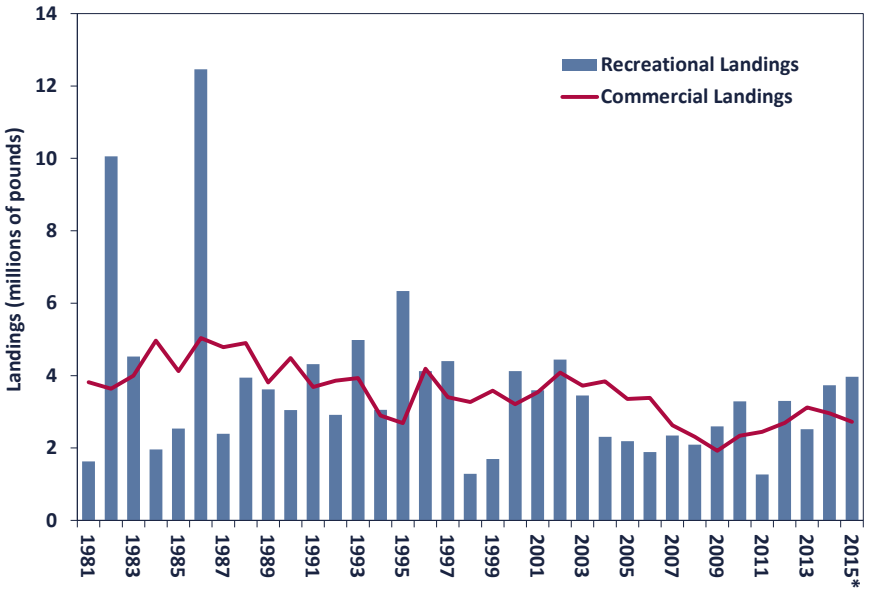
Historically, commercial landings declined from the 1960s through the 1990s, reaching a low of 41,000 pounds in 1990. Commercial landings increased in the late 1990s and 2000s, peaking at about 533,000 pounds in 2002. More recent commercial landings have been fairly stable, averaging 193,000 pounds from 2011 to 2015. The commercial fishery landed about 186,000 pounds in 2015. The majority of commercial landings in 2015 came from Virginia, North Carolina, and Florida.

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 to the increased 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

The Commission and the Mid-Atlantic Fishery Management Council (MAFMC) jointly manage the black sea bass stock north of Cape Hatteras, North Carolina. The unique life history characteristics of the species (e.g., it is a protogynous hermaphrodite, which means it changes sex from female to male) has contributed to uncertainty about the size of the stock. The response of this species, as well as other hermaphroditic species, to exploitation is not fully understood; therefore, management of the fishery has been conservative in recent years.

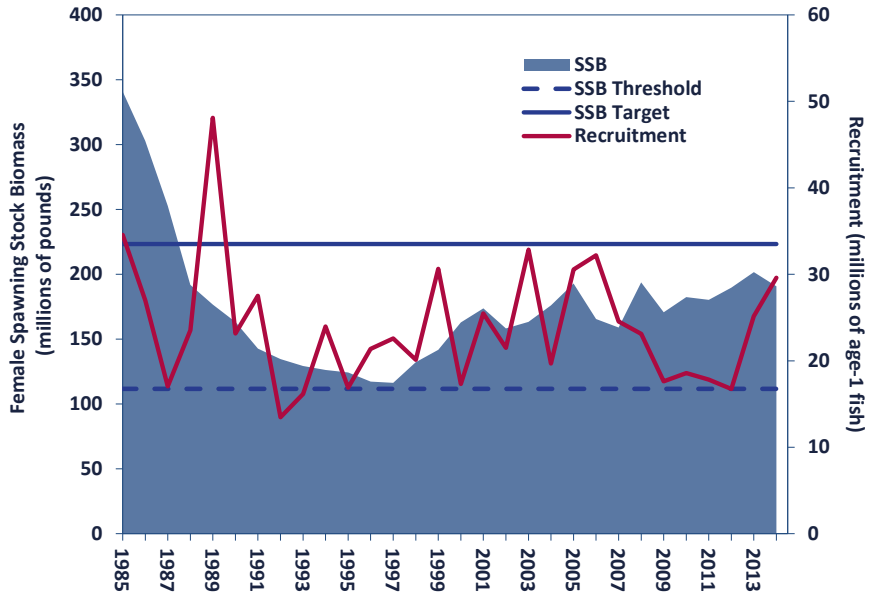
Black Sea Bass Commercial & Recreational Landings
Source: ACCSP Data Warehouse and NMFS Fisheries Statistics Division, 2016



* 2015 data are preliminary

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 Spawning Stock Biomass and Recruitment
Source: Northeast Regional Stock Assessment Workshop, 2015



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

In December 2016, a new benchmark stock assessment was completed and peer-reviewed. The new stock assessment sought to address the unique life history challenges of modeling the species' abundance, as well as provide managers with a more robust estimate of the population. The results of the stock assessment will be made available in early 2017. The Commission and MAFMC will consider possible management responses to the new assessment in February 2017.

The FMP divides a total allowable landings between the recreational fishery (51%) and the commercial fishery (49%). The 2016 black sea bass recreational fishery continued to be managed under regional and state-by-state approaches in order to mitigate potential disproportionate impacts to individual states that coastwide measures may cause. The 2015 regulations resulted in a harvest of 3.96 million pounds, approximately 1.63 million pounds over the 2015 recreational harvest limit (RHL). In 2016, the Board extended the current ad hoc regional management for recreational fisheries into 2017.

After peaking at 22 million pounds in 1952, commercial landings markedly decreased in the 1960s and have since ranged from 1.3 to 4.4 million pounds. In 1998, a quota system was incorporated into the management program and state-by-state commercial shares were introduced in 2003. Since 1998, landings have ranged from 2.86 to 3.53 million pounds, with 2015 landings estimated at 2.27 million pounds. The principal gears used in the fishery are pots, otter trawl and handline.

Bluefish

The Bluefish FMP was adopted by the Commission and MAFMC in October 1989, and is the first FMP developed jointly by an interstate commission and a regional fishery management council. Amendment 1 to the FMP was approved in 1998 and implemented in 2000. At that time, the stock was considered overfished (i.e., biomass was below the threshold level). However, in 2009, through strict commercial quotas and recreational possession limits implemented via Amendment 1, the resource was declared restored 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 is estimated at 191 million pounds, which is below the target but well above the threshold of 112 million pounds. Fishing mortality is estimated at 0.16, which is similarly below the threshold (0.19).

The Commission and MAFMC meet jointly, typically in August, to review fishery specifications and formalize commercial and recreational catch limits, and other management measures. 2016 was the first year of a three-year specification cycle, with the Commission and MAFMC approving a final 2016 commercial quota of 4.88 million pounds and a RHL of 11.58 million pounds. The Commission and Council did not make any changes to the 2017 and 2018 specifications, although they may change following the release of 2016 and 2017 final harvest estimates.

Since reaching a low of 8.2 million pounds in 1999, recreational harvest has averaged approximately 15.9 million pounds annually. In 2015, anglers harvested a total of 11.7 million pounds of bluefish, a 10% increase from 2014. Landings from the commercial fishery have been consistently lower than the recreational harvest. Commercial landings decreased from 16.5 million pounds in 1981 to 7.3 million pounds in 1999. Beginning in 2000, the commercial fishery has been regulated by a quota (allocated through state-specific shares), and has since averaged around 6.6 million pounds annually. In 2015, landings were 4.3 million pounds, nearly 60% of which were harvested in New York, New Jersey, and North Carolina.

Coastal Sharks Stock Status Information by Species and Species Group

Species or Complex Name	Stock Status		References/Comments
	Overfished	Overfishing	
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 data
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
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
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	

Coastal Sharks

Sharks belong to the class Chondrichthyes (cartilaginous fish) that also includes rays, skates and deepwater chimaeras (ratfishes). 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, a small number of young per brood and specific requirements for nursery areas, which are found in highly productive coastal or estuarine waters where abundant small fish and crustaceans provide food for the growing pups. 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 Atlantic Coastal Sharks FMP and NOAA Fisheries' 2006 Consolidated Highly

Migratory Species (HMS) FMP for Atlantic Sharks. The Interstate FMP establishes management measures for recreational and commercial shark fisheries in state waters. The 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 2016, the Board approved a fishery opening date of January 1, 2017 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, spinner, bull, lemon, nurse) and the hammerhead species group (scalloped hammerhead, great hammerhead, smooth hammerhead sharks) for 2017. 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 2015, the smoothhound shark complex was assessed; results indicate the two distinct stocks within the complex (smooth dogfish and Florida smoothhound) are not overfished and overfishing is not occurring.

Amendment 9 to the HMS FMP brought smoothhound sharks (which in the Atlantic means smooth dogfish) under federal management effective March 15, 2016. Since this action initiates a commercial quota, the Commission implemented the allocation of smooth dogfish state shares as described in Addendum II of the FMP.

Commercial LCS landings in 2015 were approximately 620,028 pounds dressed weight (dw), a 6% increase from 2014, while landings of SCS species in 2015 were approximately 353,130 pounds dw, a 24% increase from 2014. Total U.S. landings of Atlantic pelagic species of sharks were 215,297 pounds dw in 2015, a 40% decrease from 2014, which is largely attributed to decreased landings of blue shark as well as thresher, porbeagle and shortfin mako.

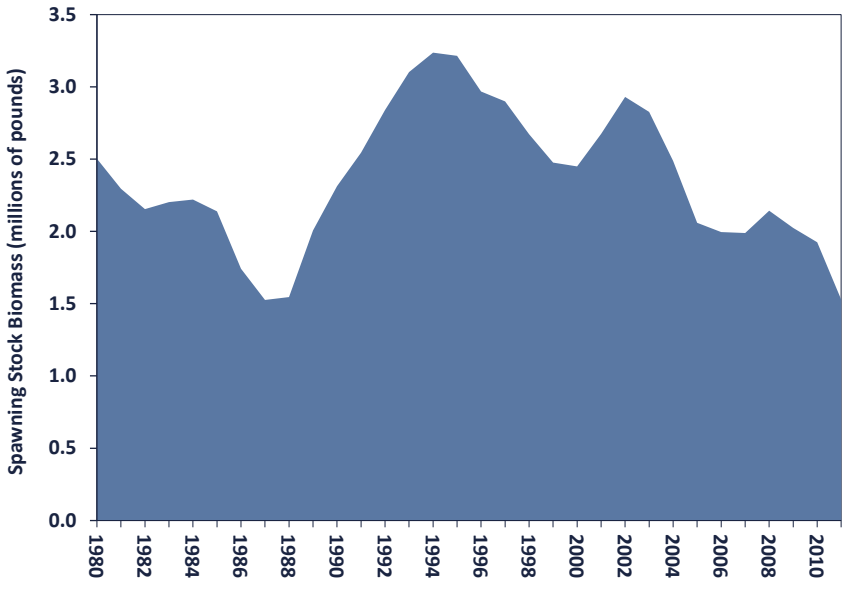
Approximately 38,000 sharks were harvested during the 2015 recreational fishing season in the Atlantic region, compared to approximately 102,000 sharks in the 2014 season.

The SCS complex largely dominates the recreational shark fishery. In 2015, approximately 32,000 fish from the SCS complex were recreationally harvested, a 65% decrease from 2014. Sharpnose sharks represent 87% of the 2015 SCS harvest. The LCS complex, including hammerheads, had 6,498 fish harvested in 2015.

Cobia

A fast growing, moderately lived (14 years) species, cobia are found off the U.S. Gulf, South Atlantic and Mid-Atlantic coasts. Two stocks of cobia have been identified for separate management: the Atlantic migratory group (AMG), which ranges from New York to north of the Georgia/Florida border, and the Gulf of Mexico migratory group, which occurs south of the Georgia/Florida border and throughout the Gulf of Mexico. While the 2012 benchmark stock assessment indicated AMG cobia were not overfished and overfishing was not occurring, the assessment also showed a decline in SSB since a peak in 2002.

Cobia Atlantic Migratory Group Spawning Stock Biomass
Source: SouthEast Data, Assessment and Review 28, 2013



Cobia are predominantly a recreational fishery. Annual recreational harvests of AMG cobia have been erratic since 2005, ranging from 352,000 pounds to 1.6 million pounds. In 2015, recreational anglers landed approximately 1.6 million pounds of AMG cobia, while commercial fishermen harvested about 83,000 pounds.

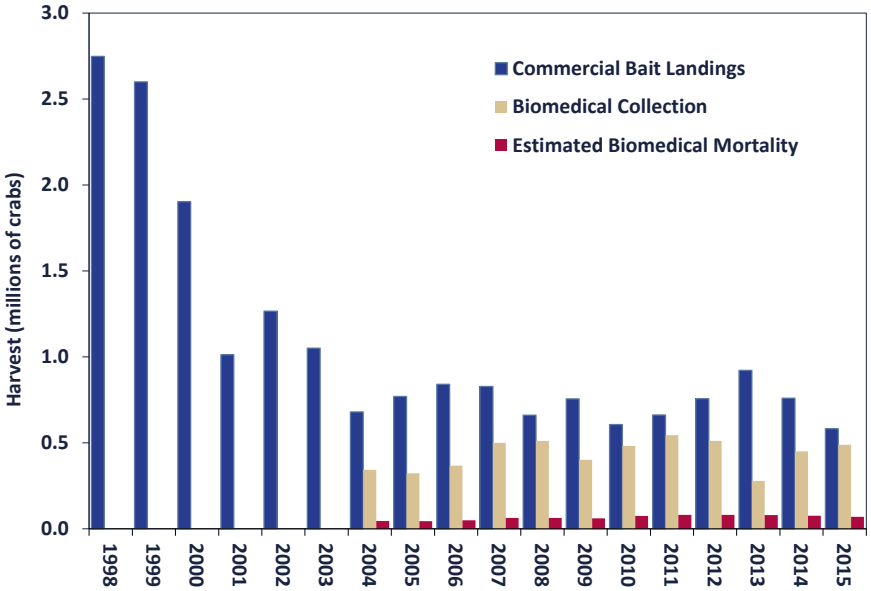
Historically managed jointly by the Gulf of Mexico Fishery Management Council (GMFMC) and South Atlantic Fishery Management Council (SAFMC), this species is currently under consideration for complementary management in Atlantic state waters by the Commission. The current federal FMP consists of a minimum length restriction, possession limit and annual catch limit. In 2016, the Commission released a PID, the first step in the development of an FMP, to solicit information on several issues facing interstate management of cobia. Development of the FMP will continue throughout 2017, with final approval anticipated for late 2017 or early 2018.

Horseshoe Crab

Horseshoe crab are an ecologically important species that provide 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, it 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

Horseshoe Crab Bait Landings and Biomedical Collection
ASMFC State Compliance Reports, 2016



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)

migrating shorebirds, horseshoe crab 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 survey was conducted in 2016 and will inform the ARM Framework in setting management specifications for 2018. The Commission will continue working with state and federal partners to secure long-term funding for this important survey.

For the 2016 and 2017 fishing seasons, harvest in the Delaware Bay area was limited to 500,000 male horseshoe crabs. Reported coastwide bait landings in 2015 remained well below the coastwide quota at 583,208 crabs. Biomedical harvest in 2015 was estimated at 559,903 crabs, with some of those bled crabs sold to the bait fishery and 15% of the remainder assumed to die as part of the harvesting and post-bleeding release process. As required by the FMP, bled crabs that are not sold to the bait fishery are returned to the water from where they were harvested.

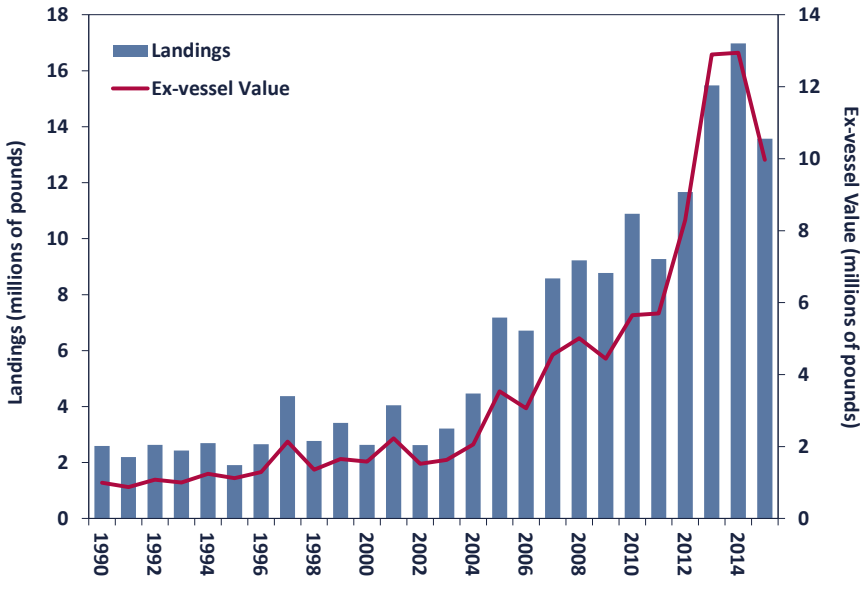
Jonah Crab

While once considered bycatch in the lobster fishery, Jonah crab are now part of a rapidly expanding directed fishery. Since the early 2000s, landings have increased by 650%, with over 17 million pounds landed in 2014. Landings in 2015 were slightly lower at 13.6 million pounds. The rapid increase in landings can be attributed to a number of factors, including a decrease in the abundance of SNE lobsters, causing fishermen to supplement their income with Jonah crab, and an increase in the price of other crab (such as Dungeness), creating a substitute market for Jonah crab.

Following approval of the first Interstate FMP for Jonah crab in 2015, the American Lobster Management Board continued to address issues concerning bycatch and participation in the claw fishery. In 2016, the Board approved Addendum I which establishes a bycatch limit of 1,000 crab/trip for non-trap gear, such as otter trawls and gillnets. This represents an increase from the original bycatch limit of 200 crab per day/500 crab per trip in order to accommodate several bycatch trips which were above the limit. The Addendum also expanded the bycatch limit to include non-lobster trap gears, such as fish pots and whelk pots, in order to prevent the proliferation of landings and traps by these gears. Overall, the intent of the Addendum is to cap incidental landings of Jonah crab across all non-lobster gear types with a uniform bycatch allowance.

In 2016, the Board also initiated Draft Addendum II to consider establishing a coastwide standard for claw landings in the Jonah crab fishery. The FMP currently specifies the fishery be strictly whole crab except for those individuals who

Jonah Crab Landings and Ex-vessel Value
Source: ACCSP Data Warehouse, 2016



* 2015 values are preliminary

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

can prove a history of claw landings in New Jersey through Virginia before the control date. However, following approval of the FMP, claw fishermen from New York and Maine were identified and these fishermen are only allowed to land whole crabs. Given concerns regarding the equity of the current claw provision, as well as potential challenges in implementing the current regulation in federal waters, the Board initiated Draft Addendum II to consider modifications to the claw provision for Jonah crab. Draft Addendum II will also consider establishing a definition of bycatch in the Jonah crab fishery. While the intent of the bycatch limits prescribed in Addendum I is to accommodate incidental catch, no definition of bycatch is provided. As a result, fishermen harvesting Jonah crab under the bycatch limit may 'direct' on Jonah crab by landing 1,000 crabs per trip and nothing else. In order to prevent the creation and expansion of a small-scale fishery and to reflect the original intention of the bycatch limit, Draft Addendum II considers establishing a bycatch definition based on a percent composition of catch. It is expected the Board will take final action on Draft Addendum II in February 2017.

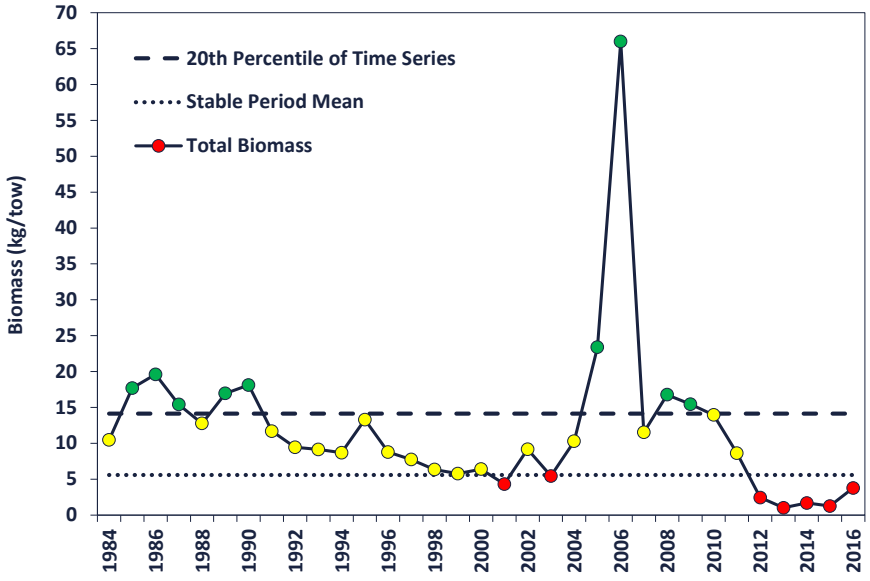
Northern Shrimp

Once a small but important GOM fishery, the northern shrimp fishery has been under a moratorium since 2014. The resource is considered collapsed. Abundance and biomass indices for 2012 to 2016 are the lowest on record for the 33-year time series. The stock has experienced failed or poor recruitment for five consecutive years, including the three smallest year classes on record. The population appears to be comprised almost entirely of the 2013 and 2015 year classes. The 2013 year class, which was well below the long-term average recruit abundance, is responsible for the small increase in SSB observed in 2016 and is expected to spawn again in 2017 and 2018. Recruitment of the 2015 year class was also well below average, but was the highest observed since 2011. Furthermore, recruitment of northern shrimp is also related to ocean temperatures, with higher SSB and colder temperatures producing stronger recruitment. Unfortunately, ocean temperatures in the western GOM shrimp habitat have reached unprecedented highs in the past several years. While 2014 and 2015 temperatures were cooler, long-term trends suggest that temperatures will continue rising as a result of climate change. Given the poor prospects for a 2017 commercial season, the need to conserve SSB to help compensate for what may continue to be an unfavorable environment, and to build on the conservation gains from the current moratorium, the Northern Shrimp Section (Section) extended the moratorium on commercial fishing to the 2017 season.

A winter sampling program has been conducted in each year of the

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

Stock Status Report for Gulf of Maine Northern Shrimp, 2016



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)

moratorium through the FMP's research set-aside (RSA) provision. The goal of the program is to continue the time series of biological data collected from GOM northern shrimp fishery catches during the moratorium; specifically, the size and stage structure of the shrimp, and the timing of the egg hatch. For 2017, the Section approved a 53 mt RSA quota, striking a balance between providing limited fishing opportunities to the industry, while collecting valuable data to allow for the continued monitoring of the northern shrimp resource. The RSA program will include the participation of ten trawl vessels and five trap vessels. Participants will make eight trips, a 2-kg sample will be collected from each tow (trawlers) or trip (trappers) and participants will be allowed to sell the rest of their catch (within the trip limit) to offset the cost of fishing. Qualified participants will be selected by a lottery system.

While the northern shrimp fishery is currently under a moratorium due to its depleted stock condition, the Section is moving forward on the development of Draft Amendment 3 to explore options to manage the fishery when and if the fishery reopens. Options include state-by-state allocations and seasonal- and area-based management measures to better manage effort in the fishery and the mandatory use of size sorting grate systems to minimize harvest of small shrimp to protect the stock. The Draft Amendment will also explore additional reporting measures to ensure all harvested shrimp are being reported. The Section will meet in 2017 to consider approval of Draft Amendment 3 for public comment.

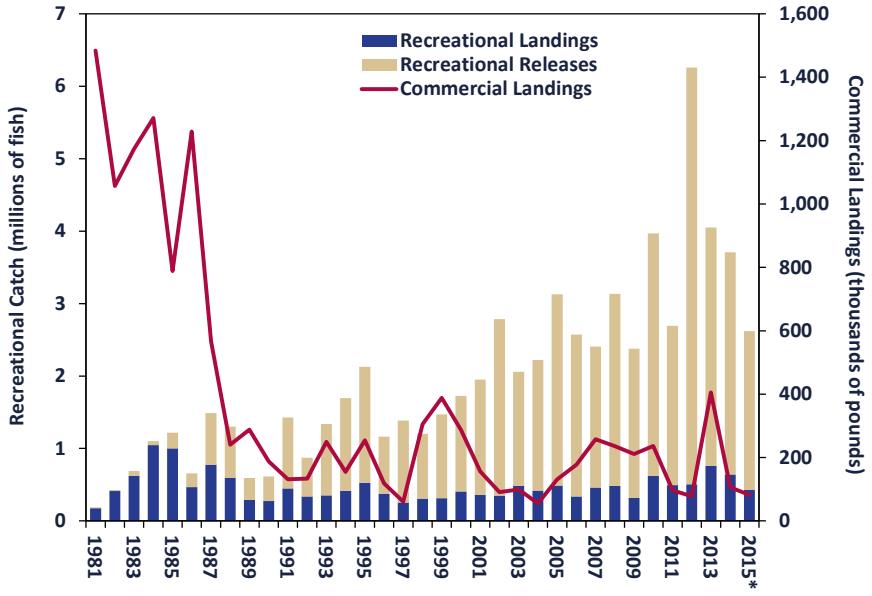
Red Drum

Red drum are 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 2015 recreational landings of 1.47 million pounds was below the ten year average of 1.7 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 99% of

Red Drum Commercial Landings and Recreational Catch

Source: ACCSP Data Warehouse and NMFS Fisheries Statistics Division, 2016



* 2015 values are preliminary

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

commercial harvest in 2015. Commercial landings have declined since the 1980s. In 2015, coastwide commercial landings were roughly 141,836 pounds, an increase of 39,000 pounds from 2014 but less than the most recent 10-year average of 192,303 pounds.

During 2016, the Red Drum SAS completed a stock assessment update for red drum that is currently in review. Assessment analyses were completed earlier in the year using a stock synthesis model (SS3). However, after further review and discussion of the difficulties of applying SS3 to a species with limited adult abundance and mortality information, the SAS decided to use an age-structured model as the base model for the assessment. The assessment will be available for consideration by the South Atlantic Management Board in early 2017.

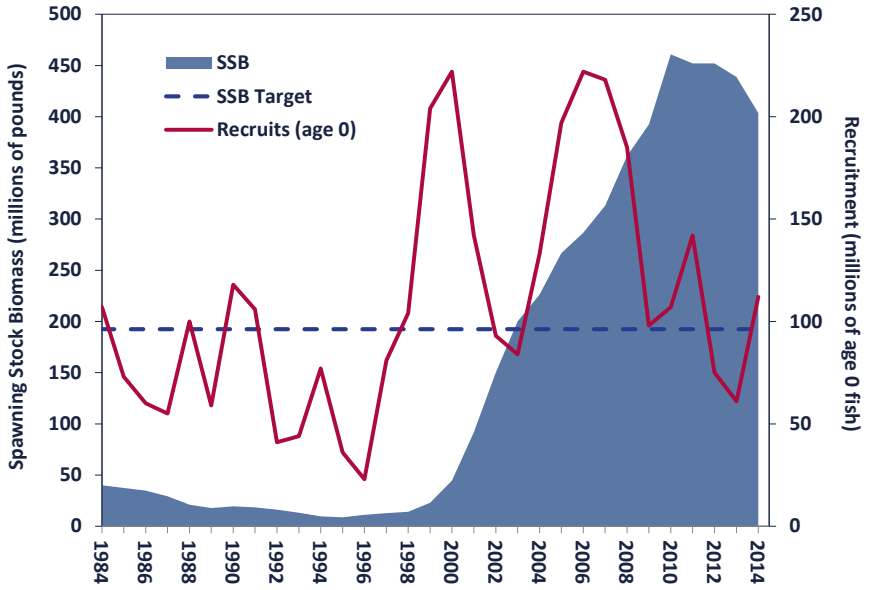
Red drum are managed through Amendment 2 to the Interstate FMP. The Amendment requires states to implement recreational creel and size limits to achieve the fishing mortality target, including a maximum size limit of 27". It also requires states to maintain their existing commercial regulations. A harvest moratorium and Presidential Executive Order enacted in 2007 prevents any harvest or sale of red drum from federal waters.

Scup

For decades, scup have been eagerly pursued by commercial, recreational and subsistence fishermen throughout SNE and the Mid-Atlantic, largely due to their fine flavor and avid pursuit of baited hooks. Scup, which are jointly managed by the Commission and MAFMC, are considered rebuilt and not experiencing overfishing. The 2015 scup benchmark stock assessment estimates SSB at 403 million pounds, about two times the SSB target of 192 million pounds. Using these findings and 2015 landings, the Commission and MAFMC set the commercial quota at 18.38 million pounds and the RHL at 5.5 million pounds for the 2017 fishery. This represents a decrease from 2015 and 2016 levels due to a slight decrease in stock size.

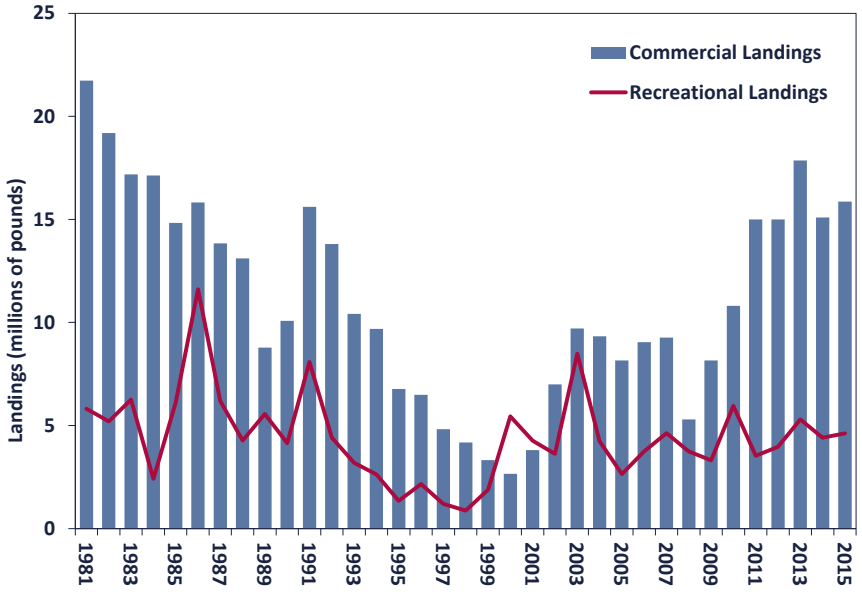
The scup resource is currently allocated 78% to the commercial sector and 22% to the recreational sector. The commercial quota is further divided into trimesters, with the summer period allocated by state-specific quotas while the two winter periods operate on a coastwide quota. In recent years, landings

Scup Spawning Stock Biomass and Recruitment
Source: Northeast Regional Stock Assessment Workshop, 2015



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

Scup Commercial and Recreational Landings
Sources: ACCSP Data Warehouse and ASMFC State Compliance Reports, 2016



have fluctuated from 17.8 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 2015. For the past several years, Rhode Island and New Jersey have harvested the largest share of the commercial landings. Scup are primarily caught in otter trawls but are also caught using floating fish traps and hand lines. 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 2015, recreational anglers harvested 4.6 million pounds, with the majority of harvest occurring in Massachusetts, New York, Rhode Island, and Connecticut.

In December 2016, the Board and MAFMC initiated an addendum to revisit the current commercial quota trimester start and end dates, specifically regarding the summer period. A Draft Addendum will be released for public comment in 2017.

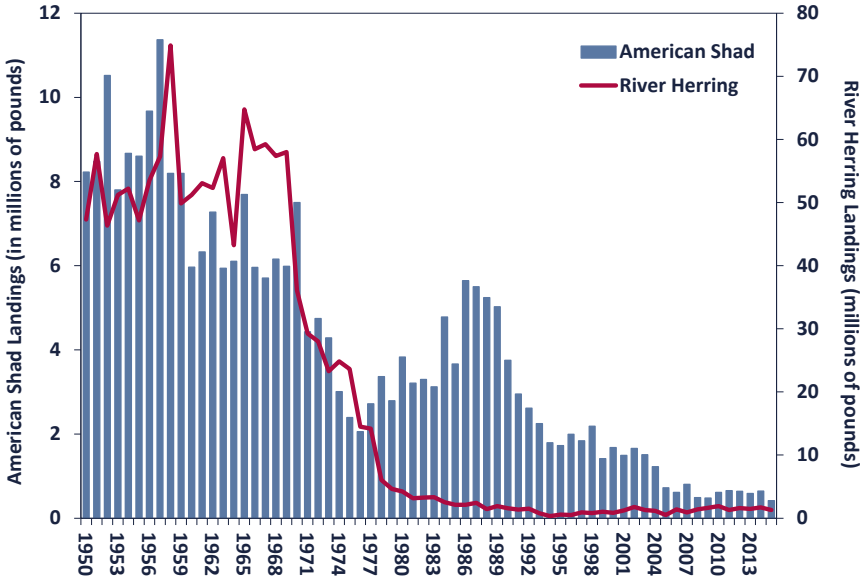
Shad & River Herring

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). Plans must clearly demonstrate the state's or jurisdiction's shad and river herring fisheries will not diminish the potential future stock reproduction and recruitment through the development of sustainability targets which must be monitored, achieved and maintained.

For American shad, the following states/jurisdictions are operating under approved SFMPs: Connecticut, the Delaware River Basin Fish and Wildlife Management Cooperative (representing New York, New Jersey, Delaware, and Pennsylvania), the Potomac River Fisheries Commission, North Carolina, South Carolina, Georgia and Florida. The remaining states with no SFMPs maintained closures of their shad fisheries in 2016.

In 2016, approved River Herring SFMPs remained in effect for the states of Maine, New Hampshire, Massachusetts, New York, North Carolina and South Carolina. The remaining states and jurisdictions closed their commercial and recreational fisheries starting in 2012.

American Shad & River Herring Commercial Landings
Source: ACCSP Data Warehouse, 2016



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

In 2015, approximately 414,921 pounds of American shad and 1.3 million pounds of river herring were landed in states with SFMPs.

American shad stocks are currently 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, and migration and habitat access impediments. Although improvements have been seen in a few stocks, many remain severely depressed compared to historic levels. A stock assessment update will be conducted in 2018.

The 2012 benchmark stock assessment found of the 52 stocks of alewife and blueback herring for which data were available for use in the assessment, 23 were depleted relative to historic levels, one stock was increasing, and the status of 28 stocks could not be determined because the time-series of available data was too short. Estimates of abundance and fishing mortality could not be developed because of the lack of adequate data. The depleted determination was used instead of overfished because of the many factors that have contributed to the declining abundance of river herring, which include not just directed and incidental fishing, but also habitat loss, barriers to migration, predation, and climate change. In 2016, the Commission initiated a stock assessment update for river herring, with the analysis scheduled for completion in late 2017.

The Commission continues to collaborate with NEFMC and MAFMC to address the bycatch of shad and river herring in federal fisheries. The 2016 to 2018 catch cap for shad and river herring is 796,005 pounds. The Commission also continues to work with the River Herring Technical Expert Working Group, which seeks to increase public awareness about alewife (*Alosa pseudoharengus*) and blueback herring (*A. aestivalis*) and foster cooperative research and conservation efforts to restore river herring along the Atlantic coast.

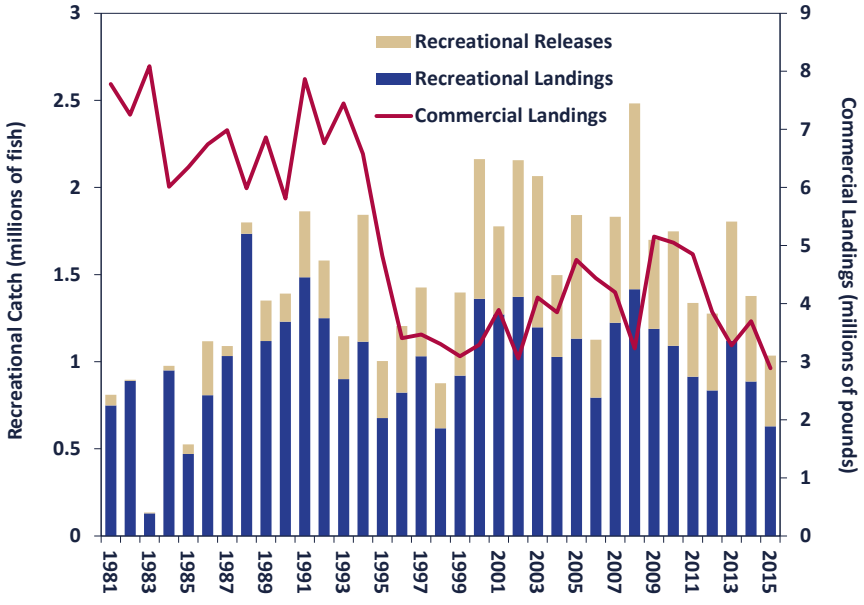
Spanish Mackerel

Spanish mackerel are an important recreational and commercial fishery in South Atlantic waters. Cooperative management by the Commission and SAFMC has successfully rebuilt Spanish mackerel stocks after years of overfishing. The latest benchmark stock assessment, conducted in 2012, indicates Spanish mackerel are not overfished and not experiencing overfishing.

Total 2015 landings were 3 million pounds, with commercial and recreational fisheries harvesting approximately 70% and 30% of the resource, respectively. Coastwide commercial landings have been

Spanish Mackerel Commercial Landings and Recreational Catch

Source: ACCSP Data Warehouse and NMFS Fisheries Statistics Division, 2016



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

consistently below 4 million pounds since 1995, with the exception of 2010 and 2011 when commercial landings increased to over 4.3 million pounds. 2015 commercial landings are estimated at 2.32 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 628,000 Spanish mackerel (695,000 pounds) in 2015. Recreational harvests have been in decline from 2010 to 2015. Historical numbers of recreationally-harvested fish appear to show a cyclical trend, with low harvests in the early to mid-1980s and mid- to late 1990s, interspersed with higher harvests. As seen in previous years, North Carolina accounted for the majority of the recreational harvest (62% of fish). South Carolina caught 21% of recreationally-harvested fish in 2015, despite catching an average proportion of only 7% over the previous 10 years. The number of recreational releases has declined since 2013, with 406,535 releases in 2015. However, the proportion of recreational catch released in 2015 (65%) was the highest on record.

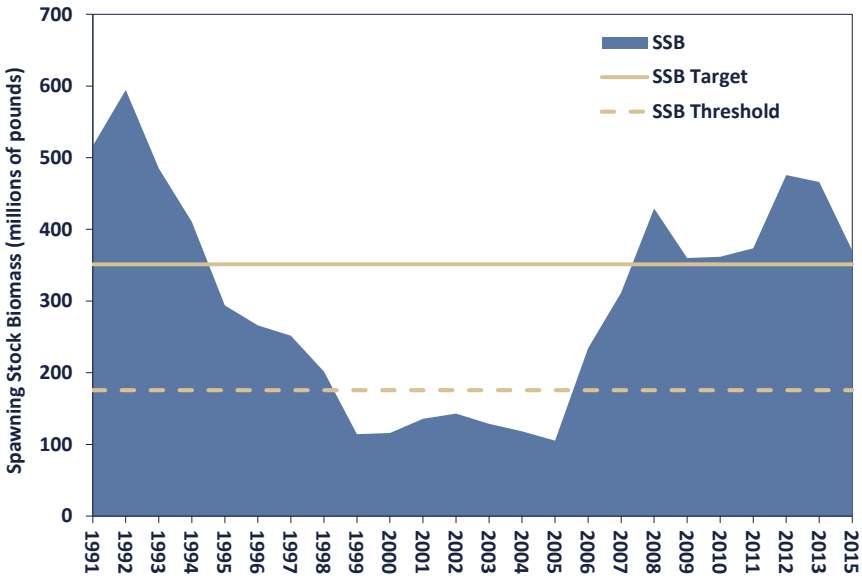
The provisions of Addendum I were maintained for the 2016 fishing season, allowing states to use a reduced minimum size of 11.5" in the commercial pound net fishery for the months of July through September. The measure is intended to reduce waste of shorter fish, which are discarded dead in the summer 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.

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. Averaging a mere 2 to 3 feet in length, these small coastal sharks have circumglobal distributions (i.e., populations are found in temperate zones throughout the world). In the Western North Atlantic, it is the most abundant shark species and ranges from Labrador to Florida but is most prevalent from Nova Scotia to Cape Hatteras, North Carolina. On the U.S. Atlantic coast, its major migrations are north and south, and inshore and offshore seasonally in response to changes in water temperature. Juvenile spiny dogfish school by size until sexually mature, then they aggregate by both size and sex.

The market for spiny dogfish is limited, although not due to abundance or availability (the resource has been rebuilt since 2008) but because of a downshift in demand by international markets, which have been the primary market for U.S.

Spiny Dogfish Spawning Stock Biomass (SSB) (>=80 cm)
Source: NEFSC Update on the Status of Spiny Dogfish in 2015 and Projected Harvests at the FMSY Proxy and PSTAR of 40%



Note: 2014 data unavailable due to incomplete survey.

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

caught spiny dogfish. In response to the declining international market, spiny dogfish fishermen and processors are working to create a domestic market. Although a white and flakey product when cooked (similar to haddock or cod), marketing a shark species with the name "dogfish" is no easy task, especially considering the global initiative to ban the trade of shark fins and keep sharks in the water. The names rock salmon, flake and huss have been used in some markets, both domestic and abroad, to make the fish more appealing to customers.

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. Unfortunately in 2015, the survey vessel was unable to sample essential areas in the Mid-Atlantic region due to mechanical problems. As a result, the 2015 assessment update could not produce reliable estimates of stock size for 2014. In late 2015, at the direction of MAFMC and its Science and Statistical Committee, NEFSC examined alternative methods to smooth out the effects of the missing 2014 survey data. Based on this work, the latest stock status information indicates spiny dogfish are not overfished and overfishing is not occurring. In 2015, female SSB was estimated at 371 million pounds, which is above the SSB threshold and target (176 and 351 million pounds, respectively), and fishing mortality on exploitable females was estimated at 0.21 which is below the target level (0.24).

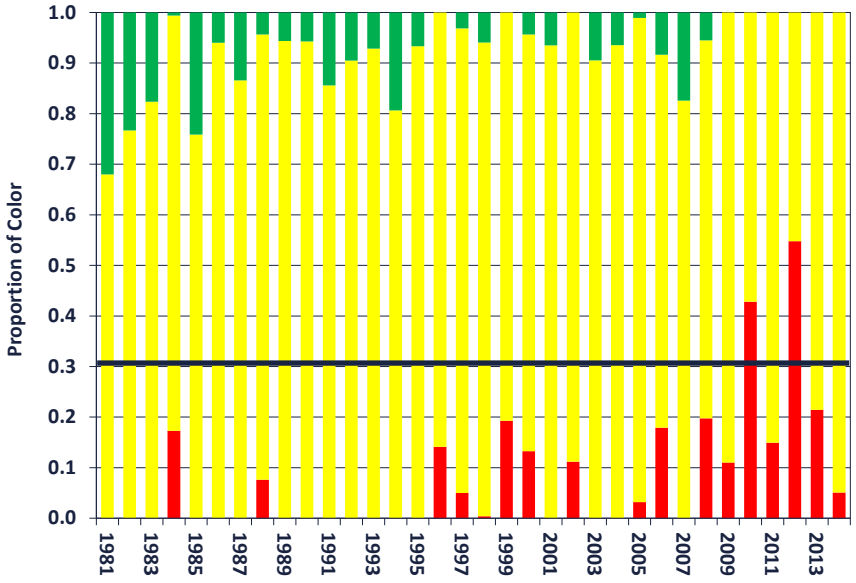
The Commission and MAFMC have jointly managed spiny dogfish since 2000. The spiny dogfish fishing season is from May 1 through April 30. The commercial fishery has underutilized the commercial quota each year since 2012 (landings have been less than half of the commercial quota for the last three seasons). The commercial quota for the 2016 season (May 1, 2016 to April 30, 2017) is 40.4 million pounds, and although the landings trajectory has improved, the fishery will likely underutilize the quota again. The Spiny Dogfish Board approved a 39.1 million pound commercial quota for the 2017 fishing season.

Spot

Throughout 2016, work continued on the preparation of the first coastwide benchmark stock assessment for spot. The stock assessment seeks to estimate population parameters (e.g., stock status, natural mortality, discard rates and mortality) and biological reference points. The assessment is scheduled to undergo review in early 2017.

Traffic Light Analysis of Spot Commercial and Recreational Harvest (Harvest Metric)

Solid line represents 30% threshold

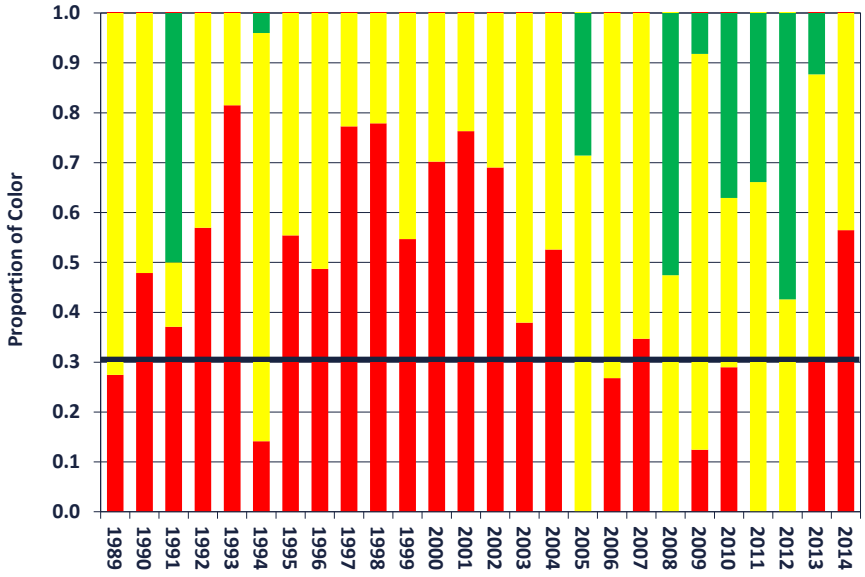


Management response is triggered when proportion of red exceeds the 30% threshold level for two consecutive years in both fishery characteristics (landings and fishery-independent survey indices).

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

Traffic Light Analysis of Spot Fishery-independent Survey Indices (Abundance Metric)

Solid line represents 30% threshold



In between stock assessments, a TLA is used to evaluate stock status. Established under Addendum I, the TLA is a precautionary management framework which evaluates fishery trends and develops management actions. The name comes from assigning a color (red, yellow, or green) to categorize relative levels of indicators which reflect the condition of the fish population (abundance metric) or fishery (harvest metric). For example, as harvest or abundance increase relative to their long-term mean, the proportion of green in a given year increases and as harvest or abundance decrease, 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.

As an assessment is ongoing, a TLA was not conducted for spot in 2016. The 2015 TLA showed a significant decrease in spot harvest in both the commercial and recreational sectors. Data from fishery-independent surveys also showed a decrease in the abundance of spot coastwide. Management measures were not triggered in 2015 since the abundance index was just below the management threshold. However, the TLA does show a declining trend in the fishery which warrants close monitoring in the future.

Total 2015 landings were 4.43 million pounds, with 49% harvested by the commercial sector and 51% by the recreational fishery. Commercial harvest in 2015 was estimated at 2.16 million pounds, a 3 million pound decrease from 2014. Small spot are a major component of the bycatch in haul seine and pound net fisheries in the Chesapeake Bay and North Carolina, as well as a significant part of the bycatch of the South Atlantic shrimp trawl fishery. For the past three decades, recreational harvest along the Atlantic coast has varied between 1.7 and 6.9 million pounds. In 2015, recreational harvest was 2.27 million pounds.

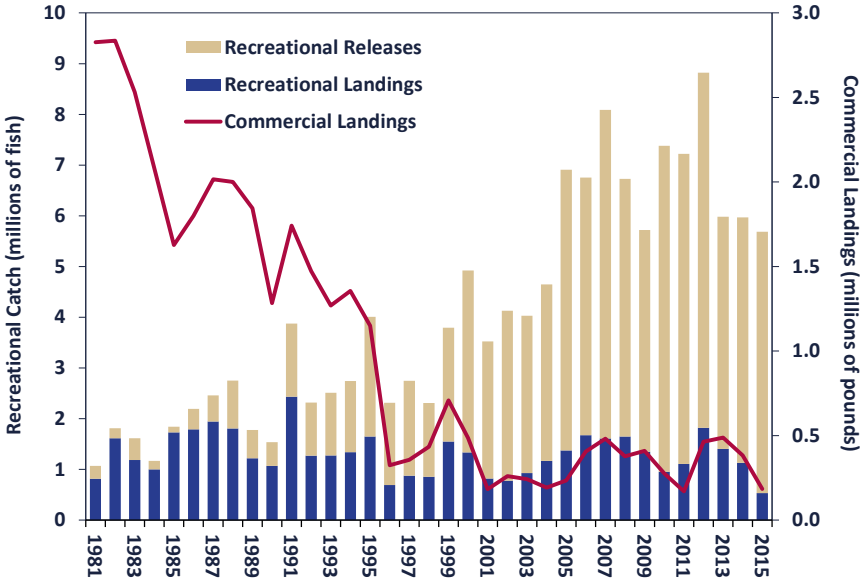
Spotted Seatrout

Spotted seatrout, a member of the drum family, are 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.

The spotted seatrout fishery is largely recreational, with declining commercial landings. Commercial

Spotted Seatrout Commercial Landings and Recreational Catch
Source: ACCSP Data Warehouse and NMFS Fisheries Statistics Division, 2016



Timeline of Management Actions: FMP ('84); Amendment 1 ('91); Omnibus Amendment ('11)

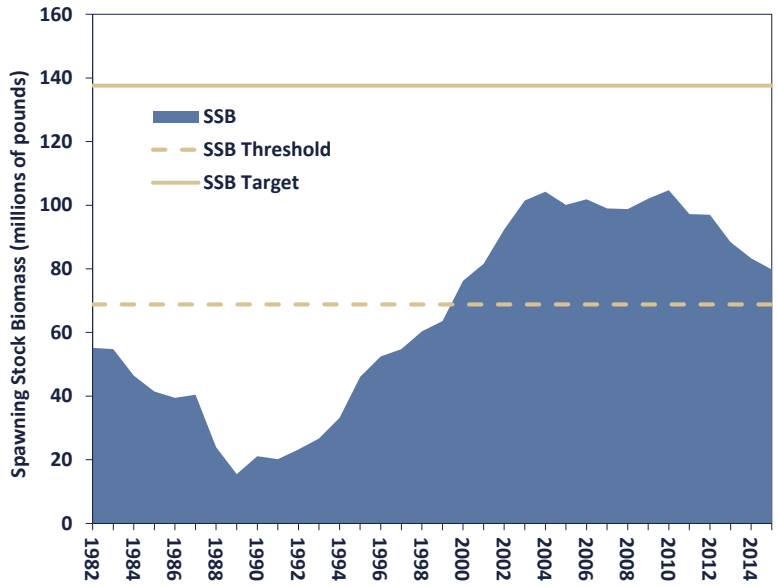
landings have generally decreased since 1981, with 176,000 pounds of commercial harvest occurring in 2015. Recreational catch (harvest and releases) have markedly increased from 1981 (1.1 million fish) to 2015 (5.7 million fish). Recreational catches from 2013 to 2015 have declined relative to the time series peak of 8.8 million fish caught in 2012. Recreational harvest has remained relatively stable throughout the time series, with 534,000 fish (830,000 pounds) harvested in 2015. 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 2015, 91% of recreationally-caught fish (5.2 million fish) were released, the highest proportion of catch released throughout the time series.

Summer Flounder

Summer flounder are one of the most sought-after commercial and recreational fish along the Atlantic coast and 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. SSB is estimated at 79.8 million pounds, 58% of the biomass target and 16% above the threshold. Fishing mortality exceeded its threshold by 26% (i.e., the level beyond which overfishing is occurring). These results appear to be driven largely by below-average recruitment; the stock has experienced six years of below average year classes from 2010 to 2015. Additionally, indices of abundance from state and federal surveys have indicated declines in abundance ranging from 9 to 97% from their most recent peaks (generally 2009 to 2012). The 2016 assessment update estimated biomass has been trending down since 2010. Taking these findings and the 2015 landings into account, the Commission and MAFMC established an RHL of 3.77 million pounds and a commercial quota of 5.66 million pounds for the 2017 fishing season, a 30% decrease from 2016 harvest limits.

In 2016, the states continued to use the adaptive regional management

Summer Flounder Spawning Stock Biomass
Source: Northeast Fisheries Science Center Stock Assessment Update, 2016



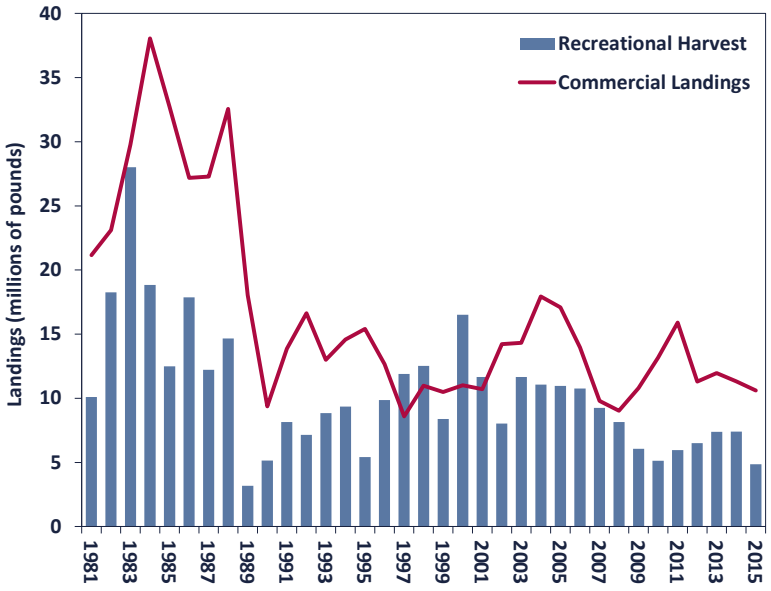
Timeline of Management Actions: FMP ('82); Amendment 1 ('91); Amendment 2 ('92); Amendments 3-5 ('93); Amendment 6 ('94); Amendment 7 ('95); Amendments 8 & 9 ('96); Amendment 10 ('97); Amendments 11 & 12 ('98); Addenda III & IV ('01); Amendment 13 ('02): Addenda VIII, XIII & XV ('04); Addenda XVII ('05);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

approach for the summer flounder recreational fisheries, with the intent of providing more equity in harvest opportunities along the coast. In 2016, the regional alignment changed slightly, allowing for different management measures within the Delaware Bay, which decreased the difference in measures relative to New Jersey and Delaware. In December 2016, the Board approved Draft Addendum XXVIII for public comment to extend the use of the adaptive regional management for the 2017 recreational fishery. The Board will consider approval of the Addendum in February 2017.

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 for summer flounder. The Board and Council will continue development of the Draft Amendment in 2017.

Since 1981, both commercial and recreational landings have undergone significant fluctuations. Commercial landings peaked at 38 million pounds in 1984 before declining to a low of 9.4 million pounds in 1990. Landings showed an increasing trend through 1995, but have varied without trend through 2010. For the past six years, commercial landings have been above 10 million pounds, with 2015 landings at 10.6 million pounds. Otter trawl is the principal commercial gear. After reaching a low of 3.2 million pounds in 1989, recreational landings increased to 11.9 million pounds in 1997 and 16.5 million pounds in 2000. Since 2009, landings have averaged approximately 5 million pounds per year, with 4.7 million pounds landed in 2015.

Summer Flounder Commercial Landings & Recreational Harvest
Source: NMFS Fisheries Statistics Division, 2016



Tautog

While tautog have been 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. In the northern part of their range, adult tautog move from offshore wintering grounds in the spring to nearshore spawning and feeding areas, where they remain until late fall when the reverse migration occurs as water temperatures drop. Populations in the southern region may undergo shorter distance seasonal migrations, while in the southern-most part of the range they may not undergo seasonal migrations at all.

Based on this information, the 2014 benchmark stock assessment was conducted at a regional level, using life history information, tagging data, fishery characteristics and data availability considerations to split the coastwide population into three regions (Massachusetts/Rhode Island, Connecticut – New Jersey, Delaware/Maryland/Virginia). Each region was assessed independently using the statistical catch-at-age model. All three regions were found to be overfished, with overfishing occurring in the northern region.

In 2016, two new regional stocks were assessed and peer-reviewed. While the three-region approach of the 2014 benchmark stock assessment was still applicable, there was interest in assessing and managing Long

Island Sound as a discrete area. This regional assessment analyzes two additional regions (Long Island Sound and New Jersey/New York Bight) to comprise a four-region management scenario. The two regions were found to be overfished and experiencing overfishing. Following this analysis, 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 index data through 2015. Short-term projections to determine the level of harvest required to have a 50% and 70% probability of achieving the fishing mortality target for each region, as well as the probability of being at or above the SSB threshold, by 2020 were also conducted.

With the four-region approach fully vetted through the Commission's stock assessment process, the Tautog Board initiated development of Draft Amendment 1 to consider the use of regional management areas and evaluate the illegal harvest of undersized and unreported tautog, which has become an increasingly pervasive issue. Draft Amendment 1 development is underway with an expected 2018 implementation date.

While tautog are targeted by both commercial and recreational fisheries, approximately 90% of the total harvest is recreational. Total removals have declined in all regions across the coast. Coastwide recreational harvest peaked in 1986 at over 7 million fish but has since declined to an average of 708,136 fish for 2013 to 2015. In 2015, recreational anglers harvested approximately 545,282 fish. The proportion of harvest from each region has fluctuated somewhat over the years, with the Delaware/Maryland/Virginia proportion declining in recent years and the Long Island Sound proportion growing. From 2013 to 2015, Massachusetts/Rhode Island accounted for 27% of coastwide removals, Long Island Sound accounted for 35%, New Jersey/New York Bight accounted for 32% and Delaware/Maryland/Virginia accounted for 5%. Commercial harvest peaked in the late 1980s at 1.2 million pounds and declined to an average of 0.27 million pounds in 2013 to 2015. Commercial harvest in 2015 was 0.26 million pounds.

Tautog Stock Status by Region When Compared to Proposed Reference Points
Source: ASMFC Stock Assessment Update, 2016

Stock Region	MSY or SPR	SSB Target (mt)	SSB Threshold (mt)	SSB 2015 (mt)	Stock Status
Massachusetts – Rhode Island	MSY	3,631	2,723	2,196	Overfished
	SPR	2,684	2,004	2,196	Stock Not Overfished
Long Island Sound	MSY	2,865	2,148	1,603	Overfished
	SPR	2,980	2,238	1,603	Overfished
New Jersey – New York Bight	MSY	3,154	2,351	1,809	Overfished
Delaware – Maryland – Virginia	SPR	1,919	1,447	621	Overfished
Coastwide	MSY	14,944	11,208	6,014	Overfished
	SPR	9,448	7,091	6,014	Overfished

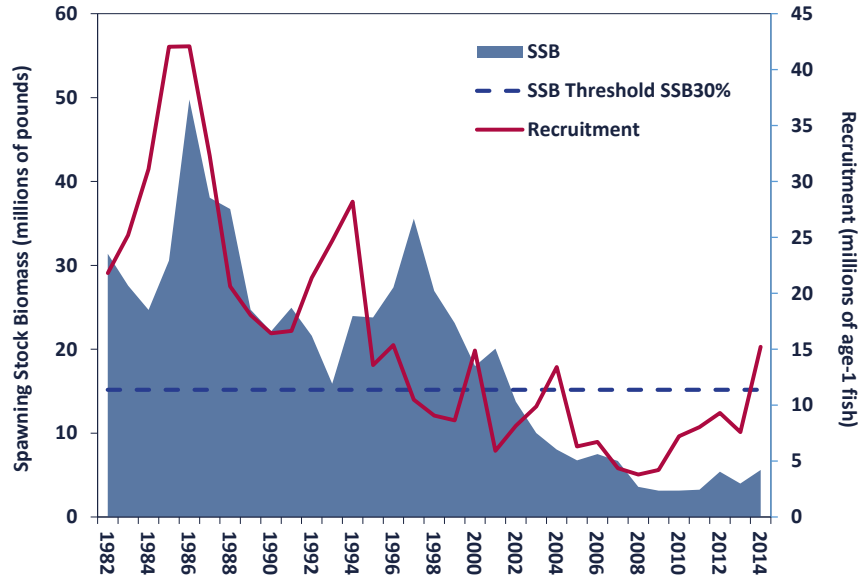
Stock Region	MSY or SPR	Fishing Mortality Target	Fishing Mortality Threshold	3-year Average (2013-15)	Stock Status
Massachusetts – Rhode Island	MSY	0.14	0.28	0.23	Overfishing Not Occurring
	SPR	0.28	0.49	0.23	Overfishing Not Occurring
Long Island Sound	MSY	0.28	0.49	0.51	Overfishing
	SPR	0.27	0.46	0.51	Overfishing
New Jersey – New York Bight	MSY	0.20	0.34	0.54	Overfishing
Delaware – Maryland – Virginia	SPR	0.16	0.24	0.16	Overfishing Not Occurring
Coastwide	MSY	0.17	0.24	0.38	Overfishing
	SPR	0.25	0.43	0.38	Overfishing Not Occurring

Weakfish

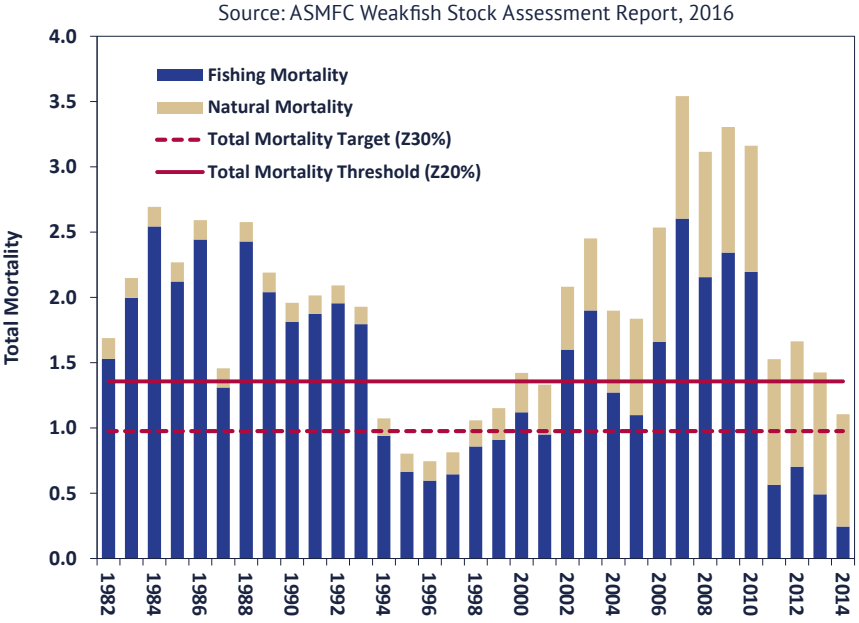
Weakfish have been one of the most important components of a mixed-stock fishery on the Atlantic coast since the 1800s. In the late 1990s, however, weakfish biomass began to decline, reaching an all-time low of just over 1 million pounds in 2010 (compared to 23 million pounds in 1997).

In 2016, a benchmark stock assessment and peer-review

Weakfish Spawning Stock Biomass and Recuitment
Source: ASMFC Weakfish Stock Assessment Report, 2016



Contributions of Fishing and Natural Mortality to Weakfish Total Mortality
Source: ASMFC Weakfish Stock Assessment Report, 2016



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)

was conducted for weakfish. This assessment determined the stock is depleted and overfishing is not occurring. Similar to the 2009 assessment, the 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 2015 landings estimated at 257,349 pounds, decreasing from 273,660 pounds in 2014. At 141,433 pounds, the commercial fishery accounted for 55% of the total 2015 landings, with North Carolina accounting for the largest share of this harvest at 57%. Recreational landings in 2015 were 115,916 pounds and recreational releases were estimated at 1.1 million fish, almost double the number of releases in 2014 (553,766 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.

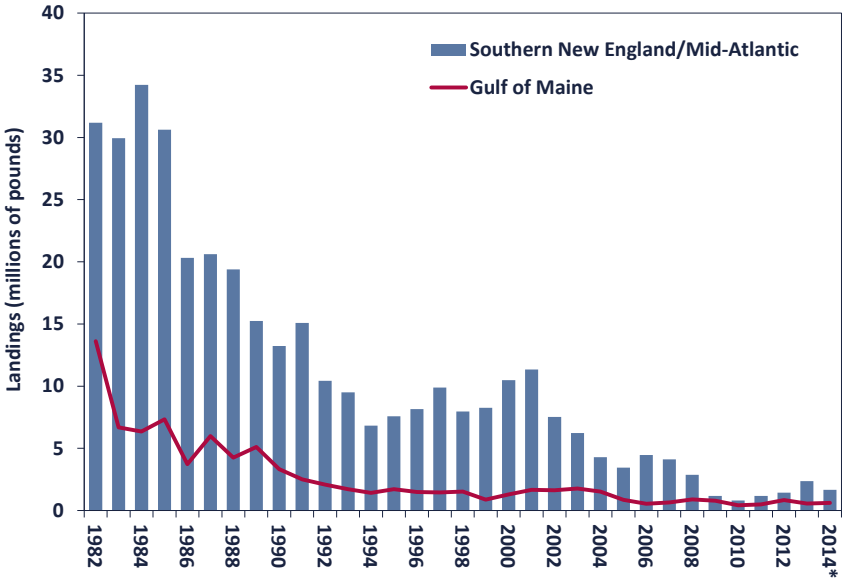
Winter flounder are managed by NEFMC in federal waters and the Commission in state waters. Information from the 2015 stock assessment indicates the SNE/MA stock is overfished and biomass estimates are at 23% of the target.

While there have been some modest increases over the last decade, the SNE/MA stock has remained at approximately a quarter of the target since the early 2000s. Since 1981, recruitment has been declining. The 2013 value is the lowest in the time series, at approximately 4% of the estimated recruitment in 1981 (the highest in the time series). While the 2014 SNE/MA recruitment estimate increased slightly, the overall stock productivity continues to decline. The GOM stock does not have a recruitment estimate due to modeling restrictions. Overfishing is not occurring. The primary concern for the GOM and SNE/MA stocks is that the stocks are not responding to lower exploitation rates.

The winter flounder 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 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 of SNE/MA. Landings have only increased slightly; the total commercial landings for all stocks (GBK, GOM, SNE/MA combined) reached 3.7 million pounds in 2015.

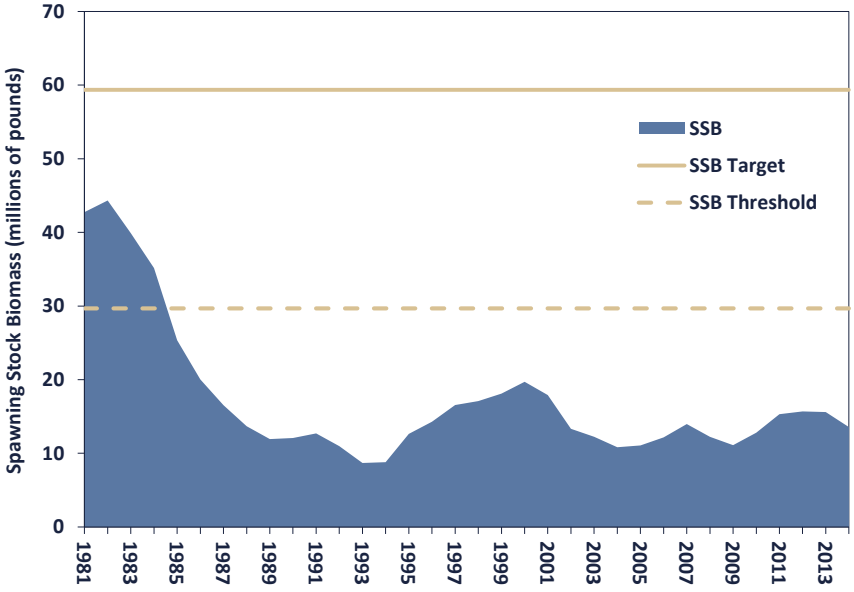
Recreational landings peaked in 1982 at 16.4 million pounds and have since maintained a declining trend. In 2015, 88,223 pounds of winter flounder were harvested.

Winter Flounder Commercial Landings by Stock Unit
Northeast Fisheries Science Center, 2015



* Landings are shown through 2014 since stock-specific landings can only be obtained through a benchmark stock assessment, with the last one occurring in 2015.

Southern New England/Mid-Atlantic Winter Flounder Spawning Stock Biomass
Source: Groundfish Assessment Review Meeting Update, 2015



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

Fisheries Science to Support Management

SUSTAINABLE MANAGEMENT of fisheries relies on accurate and timely scientific advice. The Commission strives to produce sound, actionable science through a technically rigorous, independently peer-reviewed stock assessment process. Assessments are developed using a broad suite of fishery-independent surveys and fishery-dependent monitoring, as well as research products developed by a 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 2016, 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 drafted into policy in 2017 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 monitoring provides insight into the status of fish stocks without the biases inherent to commercial and recreational fisheries catch information. Data collected through monitoring programs are a fundamental component of the Commission's stock assessment and fisheries management processes. The Commission coordinates two Atlantic coast fishery-independent data collection programs – 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 facilitate the collection, management and dissemination of fishery-independent data in the South Atlantic. Since 1982, SEAMAP has conducted long-term standardized surveys that have become the backbone of fisheries and habitat management. SEAMAP conducts surveys and disseminates data in close collaboration with NOAA Fisheries' Southeast Regional Office and Science Center.

In 2016, 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, striped bass). 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. 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 interstate, state and federal stock assessments of recreationally and commercially important fish stocks.

SEAMAP survey data are readily available online at *www.seamap.org*. Fisheries scientists, managers and the public can search the SEAMAP database to examine annual population trends, set fishing regulations and evaluate management strategies for numerous commercial and recreational fish species that migrate between the states' coastal waters and estuaries. Additionally, SEAMAP-South Atlantic continued 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 expanding geographic information system *http://ocean.floridamarine.org/safmc_dashboard/*.

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 facilitate 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. The intent of NEAMAP is to coordinate and standardize survey procedures and improve data quality and accessibility. The program became operational in 2006 and was developed to respond to the lack of adequate survey coverage and coordination in the coastal waters of the Mid-Atlantic and New England. Its primary tool to fill the gap in coverage has been the Mid-Atlantic Nearshore Trawl Survey. The Survey has completed spring and fall surveys from 2007 to present, sampling inshore waters from Cape Hatteras, North Carolina northward to Martha's Vineyard, Massachusetts. NEAMAP also 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 2016, the Mid-Atlantic Nearshore Trawl Survey conducted tows at 150 locations in depths ranging from three to 25 fathoms. To date, over 7 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 five geographic regions at depths up to 180 feet in 2016.

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 age structures. For further information about NEAMAP and its partner surveys, please visit *www.neamap.net*.

Research Initiatives

The Commission conducted several fisheries research initiatives in 2016 to address high priority issues for the Atlantic states and their stakeholders.

Information gathered from these initiatives provides the scientific basis for Commission stock assessments and is fundamental to advising fisheries managers on the health of fish and shellfish populations.

Atlantic Striped Bass

A long-term priority question in the assessment and management of coastal striped bass is 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 2016, a new project was initiated by the Commission to put acoustic tags in over 300 striped bass in the Chesapeake and Delaware Bays. Project scientists also deployed acoustic receivers for detecting tagged striped bass and other species in order to evaluate the migratory patterns and relative contributions of each stock to the coastal population. The Commission anticipates using acoustic tagging study results that measure each estuary's contributions when developing new stock-specific spatial assessment models for the next striped bass benchmark stock assessment in 2018.

Atlantic Menhaden

The Atlantic Menhaden Management Board moved forward with development of an amendment that will consider changes to the current state-by-state allocation scheme and establish ecological reference points. To help inform allocation decisions, the Commission initiated a socioeconomic analysis of the Atlantic menhaden fishery. The study, led by researchers at North Carolina Sea Grant and Appalachian State University, is intended to characterize the coastwide commercial fisheries, including bait and reduction sectors and the fishing communities they support. Interviews and surveys of fishermen and dealers in seven states (NC, VA, MD, NJ, NY, RI, ME) were initiated in the spring of 2016. Analysis of socioeconomic data will be completed in early 2017. The results are expected to assist fishery managers, industry and stakeholders as they contemplate difficult allocation decisions.

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 abundance levels, to set optimized horseshoe crab harvest levels for the Delaware Bay area. The ARM Framework was used to set specifications for the 2013 to 2016 fishing seasons.

Due to funding shortfalls, the Horseshoe Crab Trawl Survey has not been conducted since 2012. 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 data. The Commission received a one-time funding appropriation to conduct the Trawl Survey in 2016. While the renewed funding is a positive development, the Commission will continue to seek long-term funding for the survey in 2017 and beyond.

Jonah Crab

Jonah crab commercial fishing on the Atlantic coast has undergone substantial growth in recent years. Historically, Jonah crab was considered bycatch in the New England lobster fishery. However, over 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 size at maturity for male and female crab, key information toward understanding Jonah crab population dynamics. The absence of maturity data prohibits estimation of the stock's spawning stock 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 in 2016. Study results will improve our understanding of stock dynamics and more fully inform the newly established FMP.

Northern Shrimp

The 33rd Gulf of Maine Northern Shrimp Trawl Survey was conducted in 2016 by the NEFSC in cooperation with the Commission's Northern Shrimp Technical Committee. A total of 84 stations were sampled in the offshore waters of the Gulf, 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 sharp declines in shrimp abundance and biomass from 2008 to 2015, the lowest levels ever recorded in the survey's history, with a small increase in 2016 survey catches. A notable decline in shrimp sizes across life stages and genders has also been detected in recent survey years.

Red Drum

The Commission identified red drum as a priority species in need of additional research because the status of the adult portion of the population is not well known. The lack of information on adult red drum limits the stock assessment to characterizing only age 1 to 6 fish before they 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, as well as sex ratios, maturity and age structure of the population. All of the information is critical for evaluating the status of the red drum population, including use in the newest stock assessment, and developing a successful red drum management program. Data on coastal shark distributions and abundances are also recorded in the long line surveys.

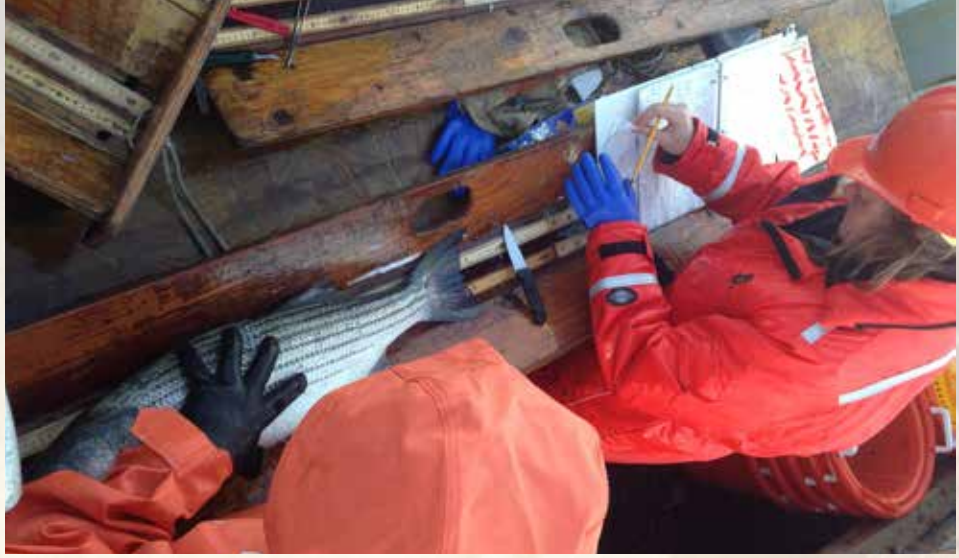
Fish Ageing

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 2016, 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 and workshop are planned for 2017. The Commission also initiated in 2016 a new black drum age sample collection program among the Mid-Atlantic states to obtain more age data on larger, older individuals in order to develop an age-based stock assessment model.

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 created a work group comprised of Commissioners and scientists charged with crafting new policies on how to adaptively manage fish and invertebrate stocks that are being impacted by climate change. An initial recommendation of the work group was to add evaluations of climate-induced distribution shifts to new stock assessments. Examples in 2016 included new assessments for black sea bass and weakfish. Similar evaluations



are planned for 2017 assessments of spot, croaker 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 the Atlantic Coastal Fish Habitat Partnership (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).*

Cooperative Tagging

Tag and recapture data are valuable inputs to the stock assessments of several Commission-managed species, including Atlantic striped bass, red drum, Atlantic sturgeon, weakfish, spiny dogfish and coastal sharks. The Interstate Tagging Committee (ITC) seeks to improve the quality and utility of fish tagging data through the development and promotion of protocols for effective tagging programs. ITC maintains a Cooperative Tagging Website and Registry, providing information on coastwide tagging programs. Anglers can search the database by fish species, tag type, and tag color in order to identify recovered tags. Recent ITC activities include certification of state fisheries agencies' tagging programs in Massachusetts, Virginia, and South Carolina and development of online tagging videos to guide anglers on proper tagging techniques. The cooperative tagging website can be found at *www.fishtag.info.*

Since the early 1980s, the Commission has been a partner to the Cooperative Winter Tagging Program led by USFWS. The Program organizes annual field tagging of Atlantic striped bass, Atlantic sturgeon, spiny dogfish, and other species that aggregate each winter in the coastal waters off Maryland, Virginia, and North Carolina. In 2016, trawling was conducted aboard a research vessel to catch, tag and release over 100 striped bass and other target species. To supplement the trawl sampling, scientists and captains aboard recreational charter vessels caught, tagged and released 670 striped bass. Information from recaptured fish with tags provides scientists with data to better understand fish survival and growth, habitat preferences, seasonal movements and migrations, and stock boundaries.

Ecosystem Models and Assessments

The Commission recognizes the importance of ecological interactions, such as predator-prey relationships, in understanding the population dynamics of fishery resources. The Commission's ERP Work Group, comprised of state, federal and university scientists, is responsible for evaluating relationships among species via a suite of multispecies analytical approaches that utilize predator-prey models. The Work Group continues to develop multispecies models and ecosystem-based approaches that may be used to develop ERPs for Atlantic menhaden. The reference points would be based on the forage needs of menhaden's primary predators (e.g., Atlantic striped bass, weakfish, bluefish). In 2016, the Work Group developed and reviewed new multispecies models to complement the results of Atlantic menhaden single-species stock assessments.

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 2016, three stock assessments were evaluated through various peer review processes. The black sea bass assessment review was conducted through the Northeast Regional Stock Assessment Review Committee. The dusky shark stock assessment was evaluated through the SouthEast Data and Assessment Review (SEDAR) process. The weakfish stock assessment was reviewed through the Commission's external peer review process. Each assessment was presented to fisheries management boards to inform management decisions for the newly assessed stocks.

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 2016, the Commission held an intermediate stock assessment training course simulating the data workshop step that occurs at the outset of each assessment. The training prepared state and federal scientists for future participation on Commission stock assessment committees and the process of submitting and vetting data for use in assessments.

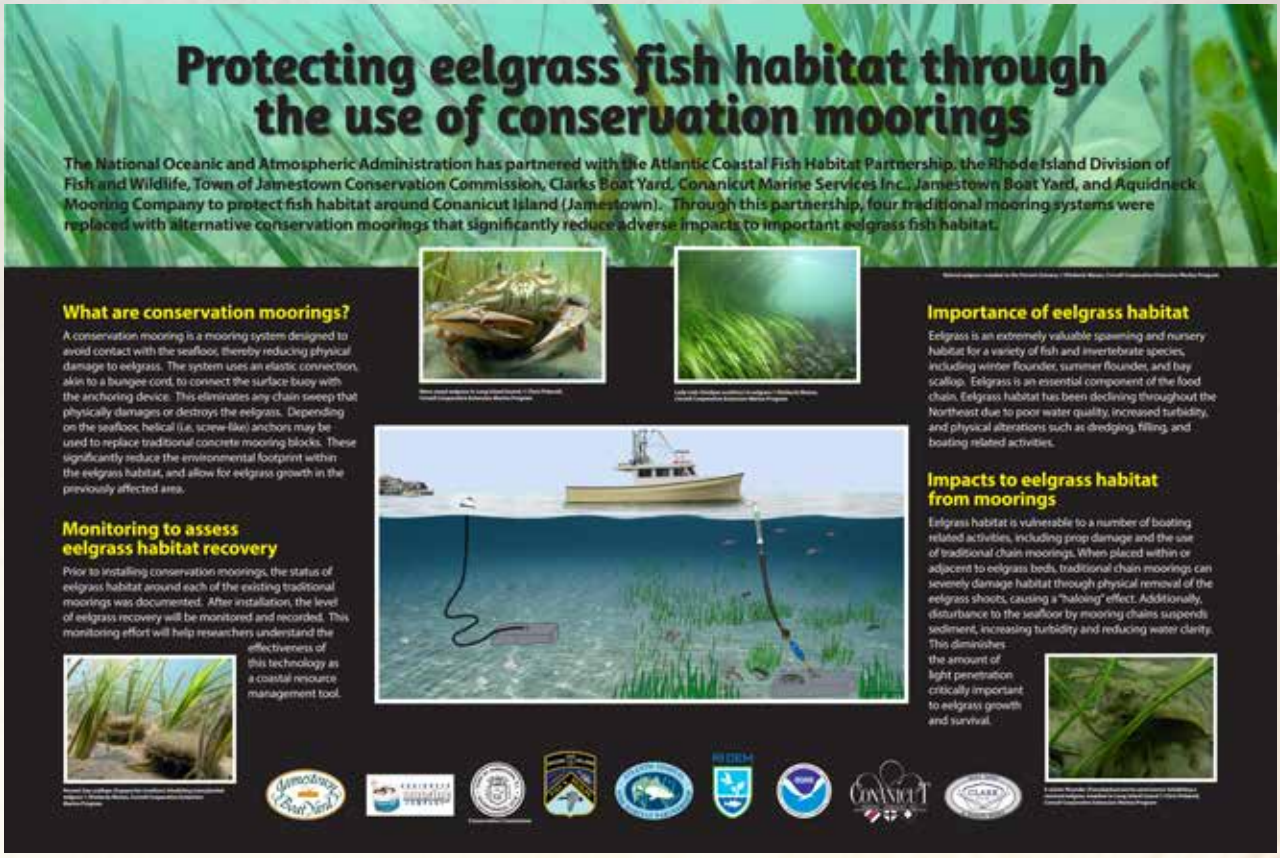
Habitat Protection, Restoration, and Enhancement

The Commission recognizes that 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 2016.

The Habitat Committee released its annual issue of the *Habitat Hotline Atlantic*. The issue focused on the water column as fish habitat. It featured articles about the unique aqueous environment, the critical refuge and nursery habitat shallow water provides and the European Union's perspective on defining productive pelagic habitat. The 2016 issue also included articles about tagging Commission-managed species and great white sharks, as well as updates from ACFHP and state and federal marine fisheries agencies.

The Habitat Committee is tasked with providing the most up-to-date information on the habitat needs and ecosystem functions of Commission-managed species, and continues to update habitat sections of the Commission FMPs. In 2016, the Committee worked on updates to the habitat sections for upcoming plan amendments for northern shrimp and tautog. In addition, the Committee completed the sciaenid species habitat document to be used in developing new FMP habitat sections for Commission-managed sciaenid species, such as Atlantic croaker, red and black drum, and weakfish. The document will be available in early 2017.

In June, the Commission co-hosted a National Artificial Reef Workshop with NOAA Fisheries. The two-day workshop featured invited speakers, panel discussions and breakout sessions, bringing together artificial reefs experts from state and federal agencies, the commercial and recreational fishing community, academia and NGOs. The meeting summary can be found at: *http://www.nmfs.noaa.gov/sfa/management/recreational/documents/natl-artificial-reef-workshop-june2016.pdf.*



The Habitat Committee has two documents in development – a new Habitat Management Series document focusing on aquaculture and a reference document regarding state-specific coastal regulatory planning in response to climate change. Both documents are expected to be finalized in 2017.

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.

Dam Removal

ACFHP has partnered with USFWS for the seventh consecutive year to fund one new on-the-ground restoration project in 2016. The project will improve riverine fish habitat through the removal of the Bradford Dam, located on the Pawcatuck River in Westerly, Rhode Island. The work is being led by The Nature Conservancy-Rhode Island, in coordination with USFWS, Rhode Island Department of Environmental Management and the U.S. Army Corps of Engineers. The dam removal will restore access to 32 miles of spawning and nursery habitat, benefitting species such as shad, river herring and American eel. For more information on this and other ACFHP-USFWS funded projects, please visit: *www.atlanticfishhabitat.org/projects/fundedprojects/.*

Conservation Mooring

The Partnership has completed its conservation mooring project this year, installing four seagrass-friendly moorings in Jamestown, Rhode Island. Conservation moorings use a buoyant bungee-like cord to minimize contact with the seafloor. This eliminates "chain sweeping" and subsequent damage to submerged aquatic vegetation that occurs around traditional mooring systems. Pre-mapping and monitoring prior to installation, and post-installation monitoring allows scientists to quantify the recovery of seagrass habitat. Project results were presented at the 2016 Restore America's Estuaries Conference in New Orleans, Louisiana. A standing interpretive sign has been installed near the moorings to inform the public about the benefits of conservation moorings and submerged aquatic vegetation protection.

Black Sea Bass Habitat

ACFHP initiated a research project on offshore black sea bass habitat in the Mid-Atlantic through a grant from MAFMC. The project, led by scientists at the University of Maryland Eastern Shore, 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 is a two-year project set to conclude in 2018.

In 2016, significant progress was made in the development of a Decision Support Tool to Assess Aquatic Habitats and Threats in North Atlantic Watersheds and Estuaries. ACFHP and its partners worked with Downstream Strategies, LLC to compile and analyze the threats to inland, estuarine and coastal aquatic species across the Northeast Atlantic. The data were used to model habitat and species distributions, which yield two products: distribution maps and a multi-criteria decision support tool for resource managers when planning habitat restoration projects. The work was funded by the North Atlantic Landscape Conservation Cooperative. To view the tool, please visit *www.fishhabitattool.org.*

ACFHP continued the Whitewater to Bluewater project in 2016 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. ACFHP and SARP also collaborated on submitting a joint oyster and salt marsh restoration proposal to NOAA's Coastal Resiliency Program. The three partnerships have continued to work on a fish passage barrier removal factsheet to assist conservation groups and agencies in developing outreach products to enhance public understanding and support for fish passage projects.

After years of collaboration and analysis, ACFHP published the results of the Species-Habitat Matrix in the journal *BioScience*. The article titled "The Importance of Benthic Habitats for Coastal Fisheries," presents an evaluation of the relative importance of coastal, estuarine, and freshwater habitat types as living space during the major life stages of over 100 fish species. The study evaluated the importance of benthic habitats as a space for shelter, feeding and breeding by coastal fish and invertebrates in the four ACFHP subregions. The results can be used to evaluate trade-offs and develop habitat-management strategies. ACFHP is currently working to create a web-based tool to allow fisheries and habitat managers, scientists and grassroots organizations to use data in the Species-Habitat Matrix.

Dependable and Timely Fishery-Dependent Statistics

Effective management depends on quality fishery-dependent (e.g., information collected from recreational and commercial fisheries such as landings, effort, discards) and fishery-independent (e.g., information collected through monitoring programs and research surveys) data 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. Prior to the establishment of the Atlantic Coastal Cooperative Statistics Program (ACCSP), fisheries data collection programs varied in their temporal and spatial coverage, the data elements they collected and the methods employed, as well as in the codes used to enter and store the data. This heterogeneity greatly complicated aggregation of datasets, making it difficult for scientists and managers to conduct regional analyses and identify fisheries trends.

Recognizing the need for consistency among Atlantic coast fisheries-dependent data collection efforts, the 23 agencies responsible for Atlantic coast fisheries management established ACCSP. Using a committee-based approach, ACCSP works with its partners to improve fishery-dependent data collection by standardizing data collection, processing, and dissemination on the Atlantic coast. ACCSP aims to be responsive to the partners' needs, finding flexible solutions to shared fisheries data collection challenges.

Improving Data Collection

Collecting fisheries data via paper trip and dealer reports is expensive and time-consuming. Additionally, paper-based reports suffer from legibility issues and are prone to errors. In 2003, using data standards developed by the committee process, ACCSP developed and deployed the Standard Atlantic Fisheries Information System (SAFIS), initially used for online dealer reporting. Over the past decade, SAFIS has evolved into a large multi-agency fishery-dependent data collection tool. SAFIS is currently deployed as a series of modules that collect dealer landings and vessel trip reports via online and tablet-based systems.

Apart from dramatically improved data quality and timeliness, the most notable advantage of SAFIS is it provides the ability to access and use data in near real-time. SAFIS managers within each state can access electronic data the next day, enabling them to respond in a timelier manner. Monitoring fisheries in near real-time helps managers to react quickly to changes and adjust management measures accordingly. This helps to manage quota more effectively, preventing overages and premature closures, thus providing more consistent fishing opportunities for fishermen and better overall management.

SAFIS continues to grow. In 2016, following a final rule published by NOAA Fisheries, HMS bluefin tuna catch cards were integrated into SAFIS online dealer reporting. Dealers who had previously been required to submit a separate report to HMS may now submit a single report for all species through SAFIS.

Also in 2016, the NOAA Fisheries Greater Atlantic Regional Fisheries Office authorized ACCSP's SAFIS eTrips/Mobile application for the purpose of federal electronic vessel trip report (eVTR) submission in the Greater Atlantic Region (Maine through North Carolina), meaning harvesters may now submit electronic trip reports using a portable device.

ACCSP continues to modify SAFIS in response to partner needs, working to ensure data entry systems are flexible and user friendly. ACCSP recently initiated its SAFIS visioning project, an effort to redesign the system to integrate dealer, vessel, dockside sampling and at-sea observations data collection seamlessly. The ultimate goal is for the system to use a universal trip identifier to link together the different datasets associated with one fishing trip in order to reduce the potential for duplicate data entries and increase transparency by making the data traceable. ACCSP is working closely with its partners to ensure the redesign will satisfy program partners' needs and will integrate with ongoing efforts in both federal regions covered by the Program.

ACCSP also became directly involved in improving recreational data collection along the Atlantic coast. In 2016, ACCSP coordinated the successful transition to state conduct of the Access Point Angler Intercept Survey, the dockside intercept component of the Marine Recreational Information Program (MRIP), from Maine to Georgia. Throughout the transition, ACCSP worked with each state partner as well as NOAA Fisheries to adjust assignment sample allocations by month and mode, both to reflect recreational fishing activity more closely and to optimize project staffing. An added benefit of the states assuming conduct of APAIS has been greater buy-in and engagement by the states' angling communities.

The first year of the Atlantic states conduct was deemed a success by all 13 participating states, NOAA Fisheries and ACCSP. All states were able to accomplish sampling targets and ACCSP met the MRIP data delivery timelines set throughout the year.

Streamlining Fisheries Data Integration and Dissemination

ACCSP also works to improve the usability of data by providing fisheries data processing and dissemination tools to its program partners. In addition to data fed to the Data Warehouse directly from SAFIS, ACCSP receives and processes 35 different datasets, standardizing, reviewing and integrating them into a single consolidated dataset in the Data Warehouse.

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. ACCSP continues to compile Atlantic coast data for *Fisheries of the United States* and the online federal commercial data query system.

The data are used in many SEDAR assessment and peer reviews. Over the past two years, ACCSP has contributed data to SEDAR 53 (red grouper), SEDAR 44 (red drum), SEDAR updates for gray triggerfish and red snapper and the SEDAR Procedural Workshop 7 Data Best Practices. During the same two-year time period, ACCSP also provided data for the Commission's bluefish, black sea bass and spot/croaker data workshops and the bluefish data update.

In 2016, ACCSP released a new version of its Data Warehouse, featuring a more intuitive user interface and several video tutorials to orient new users. The new application was designed to meet the needs of both public and highly detailed confidential data users. Public users have access to non-confidential landings data, recreational catch and effort data collected under MRIP, and a "Fast Facts!" section that provides quick, interesting "top ten" data summaries.

Confidential data users and state data managers can use the Data Warehouse to create custom reports of the most recent landings and fishermen trip data. Data from the tool can be used to easily create graphs and figures within the application, and then downloaded for use in reports. Data managers can use the tool to calculate the most recent species quota estimates and monitor reporting compliance for state dealers and fishermen.

Supporting Innovation

In addition to improving fisheries data collection and streamlining data processing and dissemination, the ACCSP supports 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 2016, roughly $1.3M was awarded to a wide variety of Partner projects.

2016 saw the successful implementation of a technology resulting from one successful ACCSP project: harvester swipe cards. ACCSP worked with program partners, Maine Department of Marine Resources and Massachusetts Division of Marine Fisheries, to design and pilot swipe cards for the purposes of harvester identification and permit tracking. Maine and Massachusetts both successfully implemented versions of the harvester swipe card this year, and the technology is available for all ACCSP partners to integrate if they desire. The projects selected to receive ACCSP funding in fiscal year 2017 will be announced early next spring.

Annual Awards

During 2016, 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

Current and Past Hart Award Recipients – Front row (left to right): Pat Augustine, Bill Goldsborough, Bob Mahood, Susan Shipman and Pres Pate; Middle row (left to right): ASMFC Chair Doug Grout, Jack Dunnigan, Harry Mears and Jack Travelstead; Back row (left to right): ASMFC Executive Director Bob Beal, Rob Winkel, Ritchie White and Gordon Colvin

The Commission presented William "Bill" Goldsborough of the Chesapeake Bay Foundation the Captain David H. Hart Award, its highest annual award, at the Commission's 75th Annual Meeting in Bar Harbor, Maine. Bill is the first person to receive all three Commission awards, having previously received an Annual Award of Excellence for Management & Policy Contributions and ACFHP's Melissa Laser Fish Habitat Conservation Award.

Throughout his 30 years on the front lines of fisheries management and conservation, Bill has remained a thoughtful and persistent voice of reason in his commitment to science-based decision making. A senior scientist for the Chesapeake Bay Foundation since 1988, Bill has provided an independent, conservation-oriented voice to fisheries discussions. Bill joined the Commission in 1995 after having served as a member of the Commission's Atlantic Coastal Fisheries Cooperative Management Act Transition Team. From 1995 through 2004 and from 2007 to 2016 he was Maryland's Governor Appointee.

During his career, Bill made significant contributions to the protection and recovery of several key Chesapeake Bay fishery species. He played a central role in striped bass recovery, beginning with the implementation of the Maryland moratorium in 1985 and continuing through to the reopening the fishery in 1990, having achieved consensus among diverse stakeholders to move towards a conservation-based approach to striped bass management. He also led a public blue crab conservation campaign that resulted in a broad commitment to cap effort in the fishery and led to the adoption of bay-wide fishery management plans under the Chesapeake Bay Agreement.

A passionate advocate for aquatic habitat, Bill made habitat protection and restoration a topic of critical and common concern among fishermen. Regionally, he brought together a diverse group of commercial and recreational fishermen to adopt codes for protecting the Chesapeake Bay. Coastwide, he left an indelible mark on the Commission's Habitat Program as one of the earliest members of the Habitat Committee and its longest serving Chair, having served in that position for 10 years. Thanks to his leadership and participation, the Committee has developed habitat sections for many of the Commission's FMPs and released numerous publications – all of which have elevated our understanding that healthy aquatic habitats are the foundation of abundant fisheries. As a Steering Committee member, Bill also played an important role in the development and launching of the ACFHP.

Perhaps one of Bill's most notable and lasting endeavors is his commitment to ecological fisheries management, which the Atlantic Menhaden Board is now pursuing through Amendment 3. In 2005 and 2006, he was instrumental in developing the Chesapeake Bay reduction cap for menhaden and prompting a five-year Chesapeake

Bay population research program. Throughout the oftentimes contentious deliberations, Bill's was the calm voice reminding us to stay the course.

His contributions and composure in the face of challenging decision-making negotiations undoubtedly spring from his concurrent participation in other fisheries management fora, including his work with the EPA Chesapeake Bay Program where he serves on the Sustainable Fisheries Goal Implementation Team, and his tenures as a member of the Chesapeake Bay Program's Fishery Management Workgroup (1987-2001), Aquatic Reef Habitat Workgroup (1993-2000), Fish Passage Workgroup (1987-2000) and the FMP Review Taskforce (1993). From 1996 through 2003, he was a member of NOAA's Bi-State Blue Crab Advisory Committee. For eight years (2002-2010), he was the NGO representative on NOAA's Chesapeake Bay Fisheries Steering Committee.

These are only some of the highlights in the remarkable career of an exceptional ecologist who has found ways to bridge gaps between stakeholders and the environment while deftly negotiating the terrain between what could be ideal and what is humanly possible.

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.

AAE Recipients from left: Special Agent Todd Smith, Peter Burns, Mike Cahall, Cheri Patterson, Allison Murphy, Deputy Chief Kurt Blanchard, Jason McNamee and Chip Lynch

Management & Policy Contributions

American Lobster Trap Tag Team
Mike Cahall, **Nicholas Mwai** and **Karen Holmes** of the Atlantic Coastal Cooperative Statistics Program (ACCSP); **Peter Burns**, **Chip Lynch**, **Allison Murphy**, **Julie Mackey** and **Ted Hawes** with NOAA Fisheries; **Cheri Patterson** and **Renee Zobel** with NH Fish and Game; **Tom Hoopes**, **Story Reed** and **Kerry Allard** with MA Division of Marine Fisheries; **Scott Olszewski**, **Daniel Costa** and **John Lake** with RI Division of Fish and Wildlife; **Mark Alexander** and **Colleen Giannini** with CT Dept. on Energy and Environmental Protection; and **Kim McKown** with NY State Dept. of Environmental Conservation

The American Lobster Trap Tag Team is a group of 19 state and federal fishery and data managers and ACCSP staff responsible for the creation of the first of its kind cooperative permitting and trap allocation tracking database for American lobster. As a result of this ground breaking state/federal partnership, state and federal American lobster permits and associated trap tags can be managed in a coordinated way for the first time. This is not an easy accomplishment given the complexities of American lobster management, which restricts the number of traps fished in its various Lobster Conservation Management Areas but allows the transfer of trap allocations among permit holders. The task of creating a multi-jurisdictional program among the states and NOAA Fisheries was challenging because of the differences between their permitting approaches. States typically issue permits in the name of the permit holder, while NOAA Fisheries issues permits by the name of the vessel. In order to be efficient for administrators, business friendly for fishermen and achieve the goals of the lobster management plan, the transfer program had to seamlessly dovetail the differing rules and policies of the states and NOAA Fisheries. Further, the transfer database had to address issues such as matching state and federal permits that could be in different names; fixing differences in data fields across jurisdictions; and reconciling problems associated with a single fisherman having multiple corporations with permits. The database became fully operational in late 2015 and provides the Commission, ACCSP and associated partners a central database to manage and track trap tag transfers and allocations between commercial lobstermen across jurisdictions, while improving effort data essential for making informed management decisions.

Scientific & Technical Contributions

Jason McNamee
Rhode Island Department of Environmental Management

Jason McNamee is being recognized for his unparalleled technical abilities, exceptional leadership and unwavering energy. For over a decade, Mr. McNamee has served as a contributing member and in a leadership position on numerous Commission species technical committees, stock assessment subcommittees and science advisory committees. He consistently provides thoughtful and unbiased insight into committee discussions and regularly volunteers for additional work to achieve the committee objectives, using his technical abilities and analytical skills to address challenging issues. In addition, he has a superlative ability to disengage from the political aspects of fisheries management to focus on technical and biological issues to ensure the well-being of our fisheries resources. He is an effective leader, able to find compromise in almost every situation, as well as a skilled communicator at all audience levels.

Mr. McNamee has played a key role, as either committee chair or lead assessment scientist, on a number of benchmark stock assessments including the 2013 summer flounder assessment, the 2015 tautog assessment, and the upcoming black sea bass assessment. Notably, he led the Tautog Stock Assessment Subcommittee in developing an assessment that incorporated regional structure to address management board concerns. Further, he helped develop and implement a novel model approach to provide another method to assess this data-poor stock and further corroborate assessment results. As Chair of the Atlantic Menhaden Technical Committee, Mr. McNamee has taken a leadership role in working towards the development of ERPS, offering innovative ways of incorporating ecosystem function into the stock assessment process.

In addition to his abilities and commitment to sound fisheries management, Mr. McNamee is an outstanding colleague, who is enthusiastic about his work, thoughtful and articulate in his speaking, considerate of others' viewpoints and able to maintain a calm demeanor even under the most adversarial conditions. Highly regarded by committee members, Commission staff, and Commissioners, Mr. McNamee is an enormous asset to the Commission process and science-based fisheries management in general.

Law Enforcement Contributions

Deputy Chief Kurt Blanchard
Rhode Island Department of Environmental Management

For more than 20 years, Deputy Chief Kurt Blanchard has been an outstanding member of the Rhode Island Department of Environmental Management's Environmental Police as well as an active member and past chair of the Commission's Law Enforcement Committee. Throughout his two decades of involvement, Deputy Chief Blanchard has provided leadership and insight on issues involving American lobster, Atlantic striped bass, American eel, tautog and safe harbor concerns. His institutional knowledge of the Law Enforcement Committee and the Commission has been invaluable, making him the go-to person on marine fisheries matters. Deputy Chief Blanchard has been an avid proponent for consistent and easily understood and enforced management measures. He brings to every discussion the importance of balancing commercial, recreational, and resource concerns.

Deputy Chief Blanchard serves as an important member of a working group charged with providing feedback to NOAA's Office of Law Enforcement related to joint enforcement agreements between that agency and the states. Having served in that capacity since the working group's inception, he has been invaluable in elevating the states' role in enforcing federally managed fisheries. His intimate knowledge of marine affairs and related communities has been an integral part in designing a reasonable and effective approach to protecting natural resources and the people that rely on them.

Committed to ensuring that the next generation of environmental police are given the necessary tools and education to succeed in conservation leadership, Deputy Chief Blanchard also serves as a steering committee member and executive advisor to the National Conservation Law Enforcement Leadership Academy. In this capacity, he has provided guidance on curriculum, scheduling, candidate selection, instructor evaluation and budget management.

Deputy Chief Blanchard is being recognized for his outstanding leadership in conservation law enforcement at the state, regional, and national levels, and for his passion and dedication to protecting marine fisheries resources.

Special Agent Todd Smith

NOAA Office of Law Enforcement

Since 2010, Special Agent Todd Smith has worked tirelessly to reveal significant quantities of summer flounder were being taken illegally under the cover of quota acquired through the Mid-Atlantic RSA Program. Through his investigation, Special Agent Smith identified 12 persons and entities exploiting the RSA Program for personal gain, uncovering nearly 600,000 pounds of unreported summer flounder, worth an estimated $1.2 million. Special Agent Smith highlighted the RSA Program's vulnerability to abuse through under-reporting and non-reporting of catch, ultimately resulting in the Program's suspension in 2015.

Special Agent Smith served 120 subpoenas which produced 12,500 documents and identified four vessels that sold unreported summer flounder to four federally permitted dealers. He managed the execution of seven simultaneous search warrants, the largest number ever executed in one day in the history of NOAA's Northeast Region, which resulted in further proof that eight individuals and four corporate entities continued to conceal illegal landings of summer flounder caught under the guise of the Program.

To date, Special Agent Smith's dedication and perseverance has resulted in charging nine defendants with 24 felonies. All nine have pleaded guilty. So far, seven sentences have been rendered totaling 16 months of prison time, $1.2 million in fines, and $550,000 in restitution. Furthermore, Special Agent Smith has shared his investigative experiences with NOAA Fisheries to aid in its efforts to formulate regulatory changes to the RSA Program. Special Agent Todd Smith's achievements are notable and all our Atlantic fisheries are better off thanks to his hard work.

ACFHP Melissa Laser Fish Habitat Conservation Award

"In protecting fish habitat in Mattawoman Creek, Bonnie and Jim have displayed tenacity, energy, intelligence, and superior organizational skills... and provide a glowing example of how to achieve significant success through positive influence on local decision-making processes."

Bonnie Bick and Jim Long of the Mattawoman Watershed Society were presented the 2016 Melissa Laser Habitat Conservation Award by ACFHP for their tireless work protecting one of the most important fish breeding grounds in the Chesapeake Bay watershed: Mattawoman Creek. Mattawoman Creek is used by Atlantic striped bass, American and hickory shad, alewife and blueback herring for spawning and nursery habitat. It is one of the more productive and high quality tributaries to the Bay and is also facing significant development pressure. Their efforts not only helped to preserve a watershed threatened with conversion to other uses in this southern Maryland stream system, but also played an important role in maintaining the ecological resiliency of the watershed.

One of their greatest achievements has been the recent resource-friendly comprehensive growth plan adopted by Charles County. Among other things, the plan recognizes the role of conserving Mattawoman Creek's watershed for anadromous fish. This comprehensive, ground-breaking growth plan provides a blueprint for future growth, both in Maryland and along the coast, while also addressing the needs of fish and wildlife in the area. Through their diligent voluntary efforts, Bonnie and Jim greatly aided the Department of Natural Resources

From Left: ACFHP Steering Committee member Dr. Wilson Laney, Award recipient Jim Long, Mrs. and Mr. Laser, Award recipient Bonnie Bick, and Maine Commissioner Patrick Keliher

by collecting data that otherwise would not exist. In turn, they used the science generated by these data to defend their beloved watershed.

In presenting the award, Dr. Wilson Laney, ACFHP Steering Committee member and previous award recipient, stated, "In protecting fish habitat in Mattawoman Creek, Bonnie and Jim have displayed tenacity, energy, intelligence, and superior organizational skills. Managing inland fish habitat is challenging because these watersheds are under the jurisdiction of local, not state or federal, governments with which the natural resources management community often do not have sufficient collaboration. Bonnie and Jim provide a glowing example of how to achieve significant success through positive influence on local decision-making processes."

In addition to the comprehensive growth plan, their accomplishments include protecting more than 1,000 acres along Mattawoman Creek, stopping the proposed Cross County Connector Extension across the watershed's headwaters in Charles County and encouraging replacement of the road project with a proposed bike path. Further, they promoted a 10% impervious surface cap within the watershed and served as enthusiastic citizen scientists collecting the critical fish spawning and habitat data necessary to support their efforts. They also attend and testify at countless development hearings.

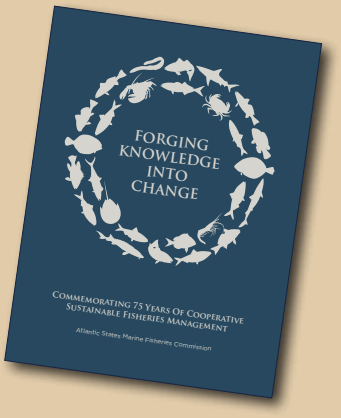
The Melissa Laser Fish Habitat Conservation Award is bestowed upon individuals deemed to further the conservation, protection, restoration, and enhancement of habitat for native Atlantic coastal, estuarine-dependent, and diadromous fishes in a unique or extraordinary manner. The award was established in memory of Dr. Melissa Laser who passed away unexpectedly on April 27, 2010. Dr. Wilson Laney, ACFHP Steering Committee member and previous award recipient, and Patrick Keliher, the Commission's Annual Meeting host and Melissa's former boss, presented the award. Melissa's family were in attendance to share in the celebration as well.

Forging Knowledge Into Change

Cooperation among 15 sovereign states and commonwealths is seldom simple, in fact this endeavor is often elusive and difficult to define. The pursuit of interstate cooperation has been the primary objective of the Atlantic States Marine Fisheries Commission for the past 75 years. In 2016, with great pride and excitement, the Commission published *Forging Knowledge into Change*, a detailed history of three-quarters of a century of interstate cooperative management of the Atlantic seaboard's shared marine resources.

In 1991, the Commission published the first edition of *Forging Knowledge into Change* which recounted the Commission's first 50 years. Since then, the Commission has matured and advanced to become the primary management authority for 27 migratory marine, shell and diadromous fisheries under the Atlantic Coastal Act. The Commission, its staff and budget have grown many fold resulting in robust interstate fisheries management, science, habitat and data collection programs. The authors of the Compact would be amazed to see the complexity, professionalism and scope of the contemporary Commission.

The publication will become available as an e-book in early 2017 on the Commission's website at *www.asmfc.org*.



Financial Report

The Commission was once again fortunate to receive adequate funding to conduct all fundamental programmatic activities and maintain current staffing. Of note, 2016 was the first year the Commission received funding from NOAA Fisheries for the state conduct of the Access Point Angler Intercept Survey. The launch and first year of the state conduct of the survey was successful. Following is a financial snapshot of the Commission for the years ended June 30, 2016 and 2015. Detailed financial statements audited by the firm Burdette Smith & Bish LLC, are available from the Commission office.

Atlantic States Marine Fisheries Commission
Condensed Statement of Financial Position Information
For the Years Ended June 30, 2016 and 2015

ASSETS

	2016	2015
CURRENT ASSETS:		
Cash and cash equivalents	$ 1,026,814	$ 326,126
Grants and accounts receivable	1,989,092	1,390,510
Prepaid expenses	67,883	42,400
Total Current Assets	3,083,789	1,759,036
Investments	840,310	539,446
Property and Equipment, Net	3,678,756	3,766,596
TOTAL ASSETS	$ 7,602,855	$ 6,065,078

LIABILITIES AND NET ASSETS

CURRENT LIABILITIES:		
Accounts payable and accrued expenses	$ 1,224,176	$ 1,079,965
Deferred revenue and contract advances	1,320,052	337,466
Current maturities of long term debt	180,000	180,636
Total Current Liabilities	2,724,228	1,598,067
OTHER LIABILITIES:		
Long term debt	610,500	791,454
Obligation under interest rate swap	33,186	49,353
Total Other Liabilities	643,686	840,807
TOTAL LIABILITES	3,367,914	2,438,874
UNRESTRICTED NET ASSETS	4,234,941	3,626,204
TOTAL LIABILITIES AND NET ASSETS	$ 7,602,855	$ 6,065,078

Atlantic States Marine Fisheries Commission

Condensed Statement of Activities Information

For the Years Ended June 30, 2016 and 2015

	2016	2015
REVENUE:		
Contract reimbursements	$ 11,840,706	$ 8,845,489
Contributions from member states	665,257	665,241
Other	26,654	27,548
Total Revenue	12,532,617	9,538,278
EXPENSES:		
Salaries and fringe benefits	4,820,439	3,695,869
Subcontracts	3,709,840	2,663,955
Travel	1,168,812	986,842
Other	2,238,702	1,799,238
Total Expenses	11,937,793	9,145,904
OTHER INCOME (EXPENSES):		
Interest rate swap obligation adjustment	16,167	20,687
Gain (loss) on disposal of property	(2,254)	0
Total Other Income (Expenses)	13,913	20,687
CHANGE IN NET ASSETS	608,737	413,061
NET ASSETS, BEGINNING OF YEAR	3,626,204	3,213,143
NET ASSETS, END OF YEAR	$ 4,234,941	$ 3,626,204

ASMFC Staff by Program Area

Executive Directorate and Communications

Atlantic Coastal Cooperative Statistics Program

Executive Directorate

Robert Beal
Executive Director

Deke Tompkins
Legislative Executive Assistant

Communications

Tina L. Berger
Director

Amy Hirrlinger
Fisheries Specialist I

Atlantic Coastal Cooperative Statistics Program (ACCSP)

Mike Cahall
Director

Alexandra Schwaab
Outreach Coordinator

Elizabeth Wyatt
Program Coordinator

Julie Defilippi Simpson
Data Team Leader

Heather Konell
Fisheries Data Coordinator

Joe Myers
Senior Fisheries Data Coordinator

Jennifer Ni
Information Systems Specialist

Karen Holmes
Software Team Leader

Nico Mwai
Fisheries Programmer

Ed Martino, ph.d.
IT Manager and Programmer

Geoffrey White
Recreational Program Manager

Alex DiJohnson
Recreational Data Coordinator

Sarah Rains
Recreational Data Analyst

Coleby Wilt
Recreational Data Coordinator

Finance and Administration

Fisheries Science Program

Interstate Fisheries Management Program

Finance and Administration

Laura C. Leach
Director

Cecilia Butler
Human Resources Administrator

Rachel Collins
Human Resources Manager

Jayran Farzanegan
Accounting Manager

Lisa Hartman
Staff Assistant

Ed Martino, ph.d.
IT Manager and Programmer

Cynthia Robertson
Meetings Assistant

Fisheries Science Program

Pat Campfield
Director

Kristen Anstead, ph.d.
Stock Assessment Scientist

Katie Drew, ph.d
Senior Stock Assessment Scientist

Lisa Havel, ph.d
Atlantic Coastal Fish Habitat Partnership and Habitat Coordinator

Jeff Kipp
Senior Stock Assessment Scientist

Shanna Madsen
Fisheries Science Coordinator

Interstate Fisheries Management Program

Toni Kerns
Director

Max Appelman
Fishery Management Plan Coordinator

Ashton Harp
Fishery Management Plan Coordinator

Kirby Rootes-Murdy
Senior Fishery Management Plan Coordinator

Mike Schmidtke
Fishery Management Plan Coordinator

Megan Ware
Fishery Management Plan Coordinator

Acknowledgements

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

Cover
- Bar Harbor, Maine © Laura Leach, ASMFC

Title page
- vintage background © istockphoto/trifonov_Evgeniy

Pages 9-40; 42-54
- blue rippled ocean © istockphoto/alexzaitsev

Page 12
- A yellow eel being measured © New Jersey Division of Fish and Wildlife

Page 13
- Toni Kerns, ISFMP Director, with a lobster caught on the GOM Northern Shrimp Survey © ASMFC

Page 14
- Commercial fishing for Atlantic croaker © Steve Doctor, Maryland Department of Natural Resources

Page 16
- Atlantic herring being sampled as part of the GOM Northern Shrimp Survey © Ashton Harp, ASMFC

Page 17
- Atlantic menhaden captured as part of Maryland's Estuarine Fish Community Sampling Study © Frank Marenghi, Maryland Department of Natural Resources

Page 18
- Recreational caught Atlantic striped bass © John McMurray, *www.nyflyfishing.com*

Page 20 *(from left to right)*
- Atlantic sturgeon © SEAMAP Winter Cooperative Tagging Cruise and New York State Department of Environmental Protection

Page 21
- Father and daughter with large black drum © Delaware Department of Natural Resources and Environmental Control

Page 23
- Top left: Commercial brailing for black sea bass © Massachusetts Division of Marine Fisheries
- Bottom right: Recreationally caught bluefish © John McMurray, *www.nyflyfishng.com*

Page 24
- Blue shark © Karin Leonard, Marine Photobank

Page 26 *(from left to right)*
- Recreationally caught cobia © Rosemary White
- Horseshoe Crab Beach Survey © Jennifer Pyle, New Jersey Division of Fish and Wildlife

Pages 28 & 29
- Jonah crab and northern shrimp sampled as part of the GOM Northern Shrimp Survey © Ashton Harp, ASMFC

Page 30 *(from left to right)*
- Red drum © Florida Fish and Wildlife Conservation Commission
- Scup being measured as part of research survey © John Chisolm, Massachusetts Division of Marine Fisheries

Page 32 *(from top to bottom)*
- Alewife and blueback herring © Mike Waine, NOAA Fisheries
- Recreationally caught Spanish mackerel © Captain Walter Bateman, *www.carolinaguide.com*

Page 33
- Juvenile spiny dogfish captured as part of the SEAMAP Winter Cooperative Tagging Cruise © ASMFC

Page 34
- Two young anglers with a recreationally caught spot © Virginia Marine Resources Commission

Page 35
- Recreationally caught spotted seatrout © Captain Walter Bateman, *www.carolinaguide.com*

Page 37
- Recreationally caught summer flounder © Open Boat Laura Lee

Page 38
- Young angler with a tautog © Massachusetts Division of Marine Fisheries

Page 39 *(from top to bottom)*
- Recreationally caught weakfish © John McMurray, *www.nyflyfishng.com*
- Juvenile weakfish being sampled as part of research survey © Maryland Department of Natural Resources

Page 41
- Sampling being conducted on the SEAMAP Winter Cooperative Tagging Cruise © ASMFC

Page 42 *(from top to bottom)*
- Tiger shark sampled as part of the South Carolina Shark Longline Survey © South Carolina Department of Natural Resources
- Fish being sorted for data collection © NEAMAP

Page 43
- Atlantic menhaden being transferred from purse seine vessel to a carrier vessel to be landed in port © Rhode Island Department of Environmental

Page 44
- Northern shrimp sampled as part of the GOM Northern Shrimp Survey © ASMFC
- Atlantic croaker otolith (ear bone) with annuli (or rings) which are used to estimate fish age © ASMFC

Page 45
- Atlantic striped bass being tagged as part of the SEAMAP Winter Cooperative Tagging Cruise © ASMFC

Page 46 *(from top to bottom)*
- State scientists attending ASMFC Stock Training Workshop © ASMFC
- Oriskany artificial reef © Keith Mille, Florida Fish and Wildlife Conservation Commission

Page 47
- Conservation mooring signage © ASMFC

Page 48
- Oysters create a living shoreline © Partnership for the Delaware Estuary

Page 49
- Recreational anglers being surveyed as part of MRIP's APAIS © NOAA Fisheries

The last decade was indeed a time of successes and challenges, growth and expansion. Through it all, the states proved once again that they could accomplish more acting as one than as separate entities. May their commitment to one another stay as strong in the decades ahead.

--Forging Knowledge into Change

1050 North Highland Street • Suite 200 A-N • Arlington, Virginia 22201
703.842.0740 www.asmfc.org