

Atlantic States Marine Fisheries Commission
Sustainable and Cooperative Management of Atlantic Coastal Fisheries



Annual Report
2021

COMMISSIONERS

OUR 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.

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Annual Report 2021

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

Atlantic States Marine Fisheries Commission

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

ROBERT E. BEAL, Executive Director
TINA L. BERGER, Editor

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INTRODUCTION

The Atlantic States Marine Fisheries Commission (Commission) is pleased to present our *2021 Annual Report*. The report fulfills our obligation to inform Congress on the Commission's use of public funds, and provides stakeholders with an overview of activities and progress in carrying out our cooperative stewardship responsibilities for the marine, shell, and diadromous species under our care.

In the report, you will find a quick guide to stock status for the 27 species groups the Commission manages; a fisheries management section, focusing on species which had the most significant management or stock assessment activities in 2021; and sections highlighting major accomplishments in 2021 in the areas of fisheries science, habitat conservation, and fishery-dependent data collection and management. Please visit the Commission's website at www.asmfc.org for additional information on any of our programs or activities.

The Commission was formed 80 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 Commission's mission as stated in the Compact is to promote cooperative management of fisheries – marine, shell, and diadromous – of the Atlantic coast of the U.S. by the protection and enhancement of such fisheries, and by the avoidance of physical waste of the fisheries from any cause. 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 serves as a 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. 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.

The task of managing finite marine resources continues to grow more complex with the consideration of changing ocean conditions, competing ocean uses, predator/prey interactions, and marine mammal interactions, in addition to the more traditional considerations of stock maintenance, rebuilding, and allocation of fisheries resources. To support these activities at both the Commission and state level, the Commission had a 2021 fiscal year budget of \$17.5 million, which comes from a combination of state appropriations and federal grants, including the Atlantic Coastal Fisheries Cooperative Management Act.

In 2021 the Commission, through its own efforts and in coordination with the three East Coast Regional Fishery Management Councils, maintained sustainable



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fisheries for a number of rebuilt species such as Gulf of Maine/Georges Bank American lobster, Atlantic cobia, Atlantic menhaden, black sea bass, scup, Spanish mackerel, spiny dogfish, and summer flounder. Additionally, the Commission and the states implemented a coastwide quota based on ecological reference points for Atlantic menhaden; received positive stock status for all four tautog populations after years of effort to rebuild these stocks; and implemented measures to end overfishing for Atlantic herring (inshore Gulf of Maine), Atlantic striped bass, and bluefish.

For the first time in the management histories of Atlantic croaker and spot, the states implemented measures to reduce recreational and commercial harvest for both species in response to declining trends in abundance and harvest identified in the latest traffic light analyses. Based on the findings of the 2021 Stock Assessment Update, which indicates the Gulf of Maine northern shrimp population remains depleted, the Commission extended the moratorium on commercial and recreational fishing for northern shrimp through 2024. Working with the Mid-Atlantic Fishery Management Council, the Commission adopted new state commercial shares for black sea bass in response to changes in the distribution of the resource, approved a rebuilding plan and revised sector allocations for bluefish, and adopted new commercial/recreational allocations for summer flounder, scup, and black seas bass.

The Commission continued work on two addenda for American lobster, the first focuses on increasing the protection of spawning stock biomass for the Gulf of Maine/Georges Bank stock by triggering management changes if the stock declines to a specific level. The second focuses on electronic tracking requirements for federally-permitted vessels in the American lobster

and Jonah crab fisheries, with the goal of collecting high resolution spatial and temporal effort data which would significantly improve stock assessment data, identify areas where lobster fishing effort might present a risk to endangered North Atlantic right whales, and document the footprint of the fishery to help reduce spatial conflicts with other ocean uses like wind energy development and aquaculture. The Commission continued work on an amendment for striped bass in order to reflect current fishery needs and priorities given that stock status and our understanding of the resource and fishery has changed considerably since implementation of Amendment 6 in 2003. The Commission initiated an addendum for Atlantic menhaden to consider changes to commercial allocations, the episodic event set aside program, and the incidental catch and small-scale fisheries provision.

While these are positive steps forward, environmental factors, which are out of our control, continue to affect resource productivity and distribution. Given this, the Commission and its member states will remain vigilant in preventing overfishing to aid stock rebuilding and provide depleted stocks, which are impacted by changing environmental conditions, the best chance of recovery.

We remain grateful to Congress, the Administration, our Governors, and state legislators for their continued support of the Commission and its vision of *Sustainable and Cooperative Management of Atlantic Coastal Fisheries*. Many of our accomplishments would not have been possible without their trust and confidence. In addition, the technical support provided by NOAA Fisheries, U.S. Fish and Wildlife Service, and U.S. Geological Survey staff to the Commission and states is an invaluable component of our interstate fisheries management, science, and data collection activities.

REPORT FROM THE CHAIR



PAT KELIHER
Commissioner
Maine Department of
Marine Resources

As outgoing Commission Chair, I wanted to thank our Commissioners and proxies for the support you have given Spud Woodward and me over the past two years. It has certainly been a challenging time for the Commission, the states, our stakeholders and the world at large. With the exception of my first meeting as Chair in February 2020, we have been conducting all the Commission's business through virtual meetings. And, despite the drawbacks of not meeting in person, I continue to be impressed with the scope of work we have accomplished over that time.

These accomplishments include quick action by the states to end overfishing of Atlantic striped bass; implementation of ecological reference points to manage Atlantic menhaden; positive stock status for all four tautog populations after years of effort to rebuild these stocks; a new plan amendment for bluefish; and the completion of benchmark stock assessments for American lobster, American shad, Atlantic cobia and tautog. We have also had difficult but important discussions about reallocation that will continue into next year and beyond as we seek to respond to changes in species distribution along the coast.

Looking ahead, Spud and our new Vice-Chair Joseph Cimino will have a full plate of issues to address. These include a new plan amendment for Atlantic striped bass, as well as broader issues such as responding to climate change impacts to our managed stocks, and reallocation.

I know one of Spud's goals while Chair will be to strengthen the Commission's fundamental management principles – such as conservation equivalency, use of *de minimis* provisions, and our appeals process – to ensure management and regulatory stability.

I am so grateful for the individual and collective efforts of our Commissioners and proxies, our technical and industry advisors, and our regional and federal partners in advancing the sustainable management of Atlantic coast fisheries despite the challenges that the pandemic has placed upon us.

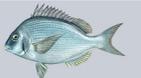
From a personal standpoint it is very humbling to be elected by my peers to oversee this Commission. I have a long history with the Commission from starting as an advisory panel member to serving as your Chair. I can honestly say that all of this time, while sometimes frustrating and even infuriating, has always been a privilege. For me that link is directly related to the fact that the Commission is a state's rights organization, and we should never, ever lose sight of that. Our individual state's rights create our greatest challenges as we balance sustainability with the needs of our respective states. Climate change and shifting stocks, without a doubt, will continue to clash with state needs. I urge you all, in the years ahead to stay committed to addressing these challenges. It will not be easy, but it must happen.

I remain committed to working with our new leadership and you all in the year(s) ahead to further our mission and shared goals. Thank you for all you do!

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QUICK GUIDE TO STOCK STATUS

SPECIES		OVERFISHED	OVERFISHING	ASSESSMENT & MANAGEMENT OVERVIEW
	American Eel	Depleted	Unknown	Stock status based on 2017 stock assessment update. Measures implemented in 2013/2014 to reduce fishing mortality and prevent expansion of the fishery. Benchmark assessment scheduled for 2022.
	Gulf of Maine/ Georges Bank (GOM/GBK)	Not Depleted	N	Stock status based on 2020 benchmark assessment; abundance and recruitment near record highs. Addendum initiated with the goal of increasing protection to the spawning stock.
	Southern New England (SNE)	Depleted	N	Stock status based on 2020 benchmark assessment; abundance and recruitment lowest on record.
	American Shad	Depleted	Unknown	Stock status based on 2020 benchmark assessment. Species depleted on coastwide basis, with recovery limited by restricted access to spawning habitat. Amendment 3 established 2013 moratorium unless river-specific sustainability can be documented.
	Atlantic Croaker	Unknown	Unknown	2020 TLA triggered management action for the Mid-Atlantic and South Atlantic regions; changes to recreational and commercial fishery regulations implemented.
	Atlantic Herring	Y	N	Stock status based on 2020 stock assessment update; total biomass, SSB, and recruitment remain at low levels. 2021-2023 quotas significantly reduced.
	Atlantic Menhaden	N	N	Rebuilt. Stock status based on 2020 assessment; use of ERPs approved by Board in August 2020. Single-species assessment update scheduled for 2022.
	Atlantic Striped Bass	Y	Y	Stock status based on 2018 benchmark assessment. Measures implemented in 2020 to achieve an 18% reduction in total removals and end overfishing. New plan amendment initiated, with adoption scheduled for 2022.
	Atlantic Sturgeon	Depleted	N	Stock status based on 2017 benchmark assessment; slow recovery has been occurring since 1998 and total mortality is sustainable. 40+ year moratorium implemented in 1998; listed in 2012 under the ESA.
	Black Drum	N	N	Stock status based on 2015 benchmark assessment; biomass declining slowly, though estimated to be well above that necessary to produce MSY. Possession and size limits implemented to prevent expansion of fishery. Benchmark assessment scheduled for 2022.
	Black Sea Bass	N	N	Stock status based on 2021 management track assessment; SSB estimated to be 2.2 times the biomass target. Management track assessment scheduled for 2023.
	Bluefish	Y	N	Stock status based on 2021 management track assessment; updated reference points indicate the stock is still overfished. Reduced commercial quota and more restrictive recreational measures were implemented in 2020 in response to stock status. Amendment 2 (2021) establishes 7-year rebuilding program. Research track assessment scheduled for 2022.
	Coastal Sharks	Varies by species & species complex		
	Cobia	N	N	Rebuilt. Stock status based on 2020 benchmark assessment.
	Horseshoe Crab	Unknown	Unknown	Stock status based on 2019 benchmark assessment; NE region and DE Bay stocks stable; NY region stock poor; and SE region stock good. Coastwide abundance has fluctuated, with many surveys decreasing after 1998 but increasing in recent years. Adaptive Resource Framework used since 2013 to set harvest levels for horseshoe crabs of DE Bay origin.
	Jonah Crab	Unknown	Unknown	First range-wide assessment scheduled for 2023; measures implemented to prevent the harvest of immature crabs and cap fishery to limit expansion.
	Northern Shrimp	Depleted	N	Stock status based on 2021 assessment update; abundance, biomass, SSB, and recruitment are at near time-series lows. Environmental conditions continue to be unfavorable to rebuilding. Fishing moratorium in place since 2014 to protect remaining spawning population.
	Northern Region	Unknown	N	Stock status based on 2018 benchmark assessment; SPR above target and threshold. Model simulations underway to support next benchmark stock assessment scheduled for late 2023/early 2024.
	Southern Region	Unknown	N	

SPECIES		OVERFISHED	OVERFISHING	ASSESSMENT & MANAGEMENT OVERVIEW
	River Herring	Depleted	Unknown	Stock status based on 2017 assessment update. Amendment 2 established 2012 moratorium unless river-specific sustainability can be documented.
	Scup	N	N	Rebuilt. Stock status based on 2021 management track assessment; SSB estimated to be two times its target. Next management track assessment is scheduled for 2023.
	Spanish Mackerel	N	N	Rebuilt. Stock based on 2012 assessment; benchmark assessment scheduled for 2023.
	Spiny Dogfish	N	N	Stock status based on 2018 assessment update; research and management track assessments scheduled for 2022.
	Spot	Unknown	Unknown	2020 TLA triggered management action for the Mid-Atlantic and South Atlantic regions; changes to recreational and commercial fishery regulations implemented.
	Spotted Seatrout	Unknown	Unknown	No range-wide assessment. Omnibus Amendment includes measures to protect spawning stock & establishes 12" minimum size limit.
	Summer Flounder	N	N	Stock status based on 2021 management track assessment. SSB increasing and at 86% of the biomass target. The next management track assessment is scheduled for 2023.
	Massachusetts - Rhode Island	N	N	Stock status based on 2021 assessment update, which found improvements in all regions.
	Long Island Sound	N	N	
	New Jersey - New York Bight	Y	N	
	Delaware - Maryland - Virginia	N	N	
	Weakfish	Depleted	N	Stock status based on 2019 assessment update. Species depleted since 2003; population experiencing high levels of natural mortality, preventing stock recovery. Since 2009, harvest limited to a one fish recreational creel limit and a 100 pound commercial bycatch limit.
	Gulf of Maine	Unknown	N	Stock status based on 2020 assessment update; abundance indices relatively flat over full time series with little change to size structure.
	Southern New England/ Mid-Atlantic	Y	N	Stock status based on 2020 assessment update; SSB at record lows despite sustained low levels of fishing mortality. Recruitment has declined sharply since 1980s and remains near time series low.

WHAT DOES A STATUS MEAN?

Unknown - There is no accepted stock assessment to estimate stock status.

Depleted - Reflects low levels of abundance though it is unclear whether fishing mortality is the primary cause for reduced stock size

Overfished - Occurs when stock biomass falls below the threshold established by the FMP, impacting the stock's reproductive capacity to replace fish removed through harvest, and that decline is driven primarily by fishing mortality.

Overfishing - Removing fish from a population at a rate that exceeds the threshold established in the FMP, impacting the stock's reproductive capacity to replace fish removed through harvest.

Benchmark stock assessment - A full analysis and review of stock condition, focusing on the consideration of new data sources and newer or improved assessment models. This assessment is generally conducted every 3-5 years and undergoes a formal peer review by a panel of independent scientists who evaluate whether the data and the methods used to produce the assessment are scientifically sound and appropriate for management use.

Stock assessment update - Incorporates data from the most recent years into a peer-reviewed assessment model to determine current stock status (abundance and overfishing levels)

Management track assessments - Are part of the Northeast Fisheries Science Center's (NEFSC) stock assessment process and provide routine, scheduled, and updated advice to directly inform management actions. Management track assessments ensure that stock status is updated on a regular and predictable basis.

Research track assessments - Are part of the NEFSC's stock assessment process and are complex scientific efforts that are designed to be carried out over several years. They can (1) focus on research topics or on one or more individual stocks, (2) evaluate an issue or new model that could apply to many stocks, and/or (3) consider extensive changes in data, model, or stock structure. Research assessments can provide the basis for future management assessments.

Table Acronyms

ERPs – ecological reference points **SPR** – spawning potential ratio
ESA – Endangered Species Act **SSB** – spawning stock biomass
MSY – maximum sustainable yield **TLA** – Traffic Light Analysis

SPECIES HIGHLIGHTS

Black Sea Bass

The Commission's Summer Flounder, Scup, and Black Sea Bass Management Board and the Mid-Atlantic Fishery Management Council (MAFMC) jointly approved several changes to the management program for black sea bass commercial fisheries. These changes include modifying the state allocations of the commercial black sea bass quota, adding the state allocations to MAFMC's Fishery Management Plan (FMP), and modifying the regulations for federal in-season closures. The Board adopted the new allocations through Addendum XXXIII to the Summer Flounder, Scup and Black Sea Bass FMP. These actions address significant changes in the distribution of black sea bass that have occurred since the original allocations were implemented under Amendment 13 in 2003 and also account for the historical dependence of the states on the black sea bass fishery.

Under the approved changes, Connecticut's baseline allocation increased from 1% to 3% of the coastwide quota to address its disproportionately low allocation compared to the increased availability of black sea bass in state waters. Additionally, New York's baseline allocation was increased from 7% to 8% to address the significant disparity between the state's allocation and the abundance of black sea bass in Long Island Sound. The Board and MAFMC committed to reevaluating the approved state allocation system within 5 years. The resulting state shares for 2022 are provided in the accompanying table.

The Board and MAFMC also agreed to add the state allocations to the MAFMC's FMP. As a result, future modifications to the allocations will require a

joint action of the Board and MAFMC. Additionally, they approved a change to the federal regulations such that the entire black sea bass commercial fishery will close in-season for all federally-permitted vessels and dealers once landings are projected to exceed the coastwide quota plus an additional buffer of up to 5%. The buffer aims to minimize negative economic impacts of coastwide closures on states that have not fully harvested their quotas. The Board and MAFMC considered, but did not adopt, changes to the regulations for paybacks of state quota overages; states will only be required to pay back overages of their state quota if the coastwide quota is exceeded.

Addendum XXXIII can be found at http://www.asmfmc.org/uploads/file/6189a478BSB_AddendumXXXIII_Revised_Aug_2021.pdf

Bluefish

The Commission and MAFMC jointly approved an amendment to the Bluefish FMP. Amendment 2 to the Interstate FMP for Bluefish addresses a number of issues, including updating the management program's goals and objectives, initiating a rebuilding plan, establishing new allocations between the commercial and recreational fisheries, and implementing new commercial state-by-state allocations. It also revises the process for quota transfers between the commercial and recreational fisheries and modifies how the management plan accounts for management uncertainty.

The Amendment was first initiated to consider revisions to the commercial and recreational fisheries allocations and the state-specific commercial

**2022 State Shares of Black Sea Bass
Commercial Quota under Addendum XXXIII**

State	New Baseline Allocations	Resulting 2022 Allocation*
ME	0.25%	0.40%
NH	0.25%	0.40%
MA	12.62%	15.44%
RI	10.68%	13.06%
CT	3.00%	3.67%
NY	8.00%	9.79%
NJ - N	9.71%	19.81%
NJ - S	9.71%	
DE	5.00%	4.09%
MD	10.68%	8.73%
VA	19.42%	15.88%
NC	10.68%	8.73%
Total	100%	100%

*These allocations represent the baseline quota plus the regional biomass distribution based on the results of the 2021 Operational Stock Assessment. These allocations will be updated if future assessments indicate a change to the biomass distribution.

allocations. After the 2019 operational stock assessment indicated the stock was overfished, the Commission's Bluefish Management Board and MAFMC incorporated the rebuilding plan into the Amendment.

To aid in stock recovery, the Amendment establishes a 7-year rebuilding plan to be achieved through a constant fishing mortality approach. The intent of this approach is to gradually increase the acceptable biological catch to allow ample time for the stock to rebuild. Ideally, this gradual approach will provide stability for the recreational and commercial fisheries. Rebuilding progress will be analyzed through management track stock assessments every two years.

The Amendment allocates 86% of the resource to the recreational fishery and 14% to the commercial fishery. The Amendment also revises state-by-state commercial allocations to better reflect the current distribution of the stock and the needs of the states' commercial fisheries. The Amendment provides a baseline quota of 0.1% to each state, and then allocates the rest of the commercial quota based on landings data from 2009 to 2018 (see accompanying table).

Recognizing that several states' quotas will be reduced during a time when the coastwide commercial quota



Revised State Allocation Percentages of the Bluefish Commercial Quota

State	Previous Allocations Under Amendment 1	Revised Allocations to be Phased in Over 7 Years
ME	0.67%	0.11%
NH	0.41%	0.22%
MA	6.72%	10.12%
RI	6.81%	9.61%
CT	1.27%	1.09%
NY	10.39%	19.76%
NJ	14.82%	13.85%
DE	1.88%	0.49%
MD	3.00%	1.92%
VA	11.88%	5.87%
NC	32.06%	32.03%
SC	0.04%	0.10%
GA	0.01%	0.10%
FL	10.06%	4.78%

Percentages based on 2009-2018 landings data with a minimum default allocation of 0.1%. Previous allocations are provided for comparison purposes.

is already at an historic low, the Amendment phases-in the allocation changes over 7 years in order to reduce short-term economic impacts to the affected commercial fishing industries. State allocations will be reviewed by the Commission and MAFMC within 5 years.

The Amendment also updates the transfer process to allow for quota transfers in either direction between the commercial and recreational fisheries. Previously, quota could only be transferred from the recreational fishery to the commercial fishery. The transfers will now be capped at 10% of the acceptable biological catch for a given year.

Finally, the Amendment modified the management uncertainty tool within the FMP to a fishery-specific approach. It allows the Board and MAFMC to apply a buffer to either fishery, in the form of a quota reduction, to account for management uncertainty when setting annual specifications. While this tool has not been used often, the modified approach allows managers to better target areas of uncertainty within one fishery without impacting the quota or harvest limit in the other fishery. Amendment 2 is available at http://www.asmf.org/uploads/file/61b39d5aBluefishAmendment2_Aug2021.pdf.

Summer Flounder, Scup and Black Sea Bass

The Commission's Summer Flounder, Scup, and Black Sea Bass Board and MAFMC approved changes to the commercial and recreational allocations of summer flounder, scup, and black sea bass. These changes are intended to better reflect the current understanding of the historic proportions of catch and landings from the commercial and recreational fisheries. The modified allocations, which are expected to be implemented in 2023, are provided in the accompanying table.

The current commercial and recreational allocations for all three species were set in the mid-1990s based on historical proportions of landings (for summer flounder and black sea bass) or catch (for scup) from each sector. The Amendment was initiated partly in response to recent changes in how recreational catch is estimated by the Marine Recreational Information Program (MRIP), which resulted in a revised time series of recreational data going back to the 1980s. This created a mismatch between the data that were used to set the allocations and the data currently used in management for setting catch limits. In addition, some changes have been made to commercial catch data since the allocations were established.

The Amendment revises recreational and commercial fisheries allocations using the original base years updated with new data. This approach allows for consideration of fishery characteristics in years prior to



influence by the commercial/recreational allocations, while also using the best scientific information available to understand the fisheries in those base years. For all three species, these changes result in a shift in allocation from the commercial to the recreational fishery. However, because the summer flounder and black sea bass fisheries will be transitioning from landings-based to catch-based allocations, the current and revised allocations for those species are not directly comparable.

The Amendment also allows adjustments to be made to future changes to commercial/recreational allocations, annual quota transfers, and other measures addressed in the Amendment through addenda/framework actions.

MAFMC will forward the Amendment to the National Marine Fisheries Service for review and rulemaking. The Commission's Business Session, which represents its 15 state members, will consider final approval of the Amendment, based on the Board's recommendations, at its Winter 2022 Meeting in late January. These changes are expected to take effect on January 1, 2023.

Current and Revised Commercial/Recreational Allocations for Summer Flounder, Scup and Black Sea Bass

	Current Allocations	Revised Allocations
Summer Flounder	60% Commercial; 40% Recreational Landings-based	55% Commercial; 45% Recreational Catch-based
Scup	78% Commercial; 22% Recreational Catch-based	65% Commercial; 35% Recreational Catch-based
Black Sea Bass	49% Commercial; 51% Recreational Landings-based	45% Commercial; 55% Recreational Catch-based

Note: Landings-based allocations are based on each sector's harvest only. Catch-based allocations are based on each sector's harvest plus dead discards.

Tautog

The Commission's Tautog Management Board reviewed the results of the 2021 Regional Stock Assessments Update, which found improvements in all regions. Stocks within the Long Island Sound (LIS) and Delaware/ Maryland/Virginia (DelMarVa) regions are not overfished, with improved stock status for both regions from the last assessment in 2017. For the LIS, New Jersey/New York Bight (NJ-NYB), and DelMarVa stocks, fishing mortality also decreased with none of the stocks experiencing overfishing; also an improvement from the previous assessment. In the Massachusetts and Rhode Island (MARI) region, stock status remains unchanged with the stock not overfished nor experiencing overfishing; spawning stock biomass increased from above the threshold in 2017 to above the target in 2020.

Each regional assessment used information through 2020, including calibrated recreational data from MRIP. Over 90% of the total harvest of tautog across all regions comes from the recreational fishery. In addition to regional indices of abundance from fishery-independent surveys, a catch per unit effort index was



developed using MRIP data for each region because tautog are not sampled well by standard fishery-independent surveys. The new MRIP estimates resulted in higher estimates of spawning stock biomass and recruitment in all regions, but had less of an impact on fishing mortality.

The regional assessments for MARI and LIS indicated strong year classes in recent years have contributed to increasing trends in spawning stock biomass. In the DelMarVa region, landings and fishing mortality have declined significantly since 2012, resulting in an increase in spawning stock biomass over the time period. While the NJ-NYB region remains overfished, the spawning stock biomass has been trending upward since the last assessment update.

Since no regions were experiencing overfishing and the spawning stock biomass was increasing in all regions, including the overfished NJ-NYB region, the Board did not make any management changes. A more detailed overview of the tautog regional stock assessment update is available at http://www.asmf.org/uploads/file/61705d532021TautogAssessmentOverview_Oct2021.pdf.

Tautog Stock Status and Reference Points by Region

Stock Region	Spawning Stock Biomass (in millions of pounds)			Fishing Mortality			Stock Status
	Target	Threshold	2020 Estimate	Target	Threshold	3-year Average	
MARI	10.09	7.57	14.90	0.28	0.49	0.23	Not overfished; overfishing not occurring
LIS	14.83	11.12	14.70	0.26	0.38	0.30	Not overfished; overfishing not occurring
NJ-NYB	14.45	10.78	10.54	0.19	0.30	0.26	Overfished; overfishing not occurring
DelMarVa	9.90	7.40	9.66	0.17	0.27	0.06	Not overfished; overfishing not occurring



FISHERIES SCIENCE TO SUPPORT MANAGEMENT

The Commission's scientific goals include the development of innovative scientific research and methodology, and enhancement of the states' stock assessment capabilities.

Management of sustainable fisheries relies on accurate and timely scientific advice. The Commission strives to produce sound, actionable science through a technically rigorous, 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. The Commission's scientific goals include the development of innovative scientific research and methodology, and enhancement of the states' stock assessment capabilities. Achieving the goals ensures sound science is available as the foundation for the Commission's evaluation of stock status and adaptive fisheries management actions.

STOCK ASSESSMENTS

Commission stock assessment teams completed multiple assessments in 2021, notably tautog and the horseshoe crab Adaptive Resource Management Framework. New data and innovative methods are also contributing to the evolution of several stock assessments initiated this year: red drum, black drum, American eel, Atlantic menhaden, striped bass, hammerhead sharks, Spanish mackerel, Jonah crab, spiny dogfish, black sea bass, and bluefish. The red drum assessment includes the Commission's first implementation of a simulation modeling approach. The Atlantic menhaden and Atlantic striped bass assessments will provide updated stock status information as significant fishery management decisions are considered in 2022.

RESEARCH INITIATIVES

The Commission worked on new fisheries research initiatives in 2021 to address high priority issues for the Atlantic states and their fisheries stakeholders. Information gathered from the initiatives improved the scientific basis for Commission stock assessments and is fundamental to advising fisheries managers on the health of fish and crustacean populations.

AMERICAN SHAD AND RIVER HERRING

Genetics and Bycatch

Directed fishing of three alosine species managed by the Commission – American shad, alewife, and blueback herring – has been greatly reduced from historical levels. Significant resources have been invested in restoring these once abundant anadromous species, with mixed results. Coastwide abundances of all three species are depleted relative to historical abundance. Fishing mortality occurs when alosine stocks mix during ocean migrations and are captured as bycatch in fisheries targeting other species. Estimation of total bycatch levels has improved in recent years. However, evaluation of bycatch mortality on individual river stocks along the coast is currently not possible due to the lack of information for assigning bycaught fish to their stock

of origin. Stocks may be disproportionately affected by bycatch mortality. For such stocks, population recovery is impeded, genetic diversity is reduced, and there is a greater risk of losing individual river populations.

Collecting genetic tissue samples was identified as a high priority for improving assessments of American shad and river herring stocks. However, the infrastructure to store and analyze genetic samples is limited among state fisheries agencies. The Commission collaborated with scientists at the U. S. Geological Survey (USGS) to develop a centralized genetic repository. State and federal resource agencies collect tissue samples from existing monitoring programs and send to USGS to be stored and processed. The samples are analyzed to improve our understanding of shad and river herring population structure along the coast and to assign bycatch in ocean fisheries to alosines' riverine stock of origin.



ADAPTIVE RESOURCE MANAGEMENT

Since 2013, the Commission has used the Adaptive Resource Management (ARM) Framework to manage horseshoe crabs of the Delaware Bay to account for the forage needs of migratory shorebirds as well as the needs of commercial bait fishermen and the biomedical industry. The ARM Framework incorporates both red knot shorebird and horseshoe crab abundance levels to set harvest levels for horseshoe crabs of Delaware Bay-origin. Since its implementation almost a decade ago, more data have been collected for both red knots and horseshoe crabs, population modeling has advanced, and the red knot was added to the U.S. List of Endangered and Threatened Wildlife as threatened in 2014. Therefore, the ARM Framework underwent a revision which was completed and peer reviewed in 2021.



The ARM Framework Revision represents an increase in the amount of data available for each species and an evolution of modeling techniques. Previous horseshoe crab and red knot population models were based on life history information taken from journal publications, most of which came from areas outside of Delaware Bay and at times from other species. The new population models are based on data collected in the management region

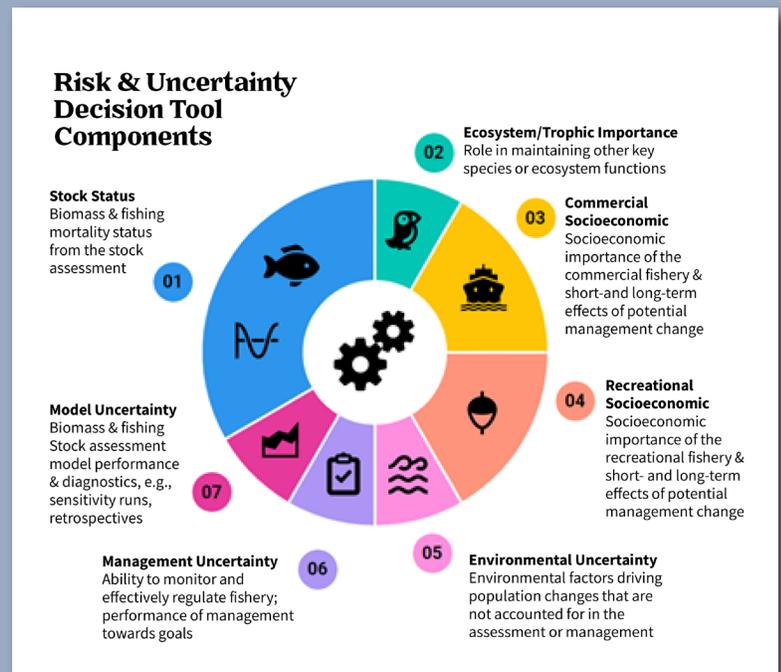
and incorporate more sources of mortality than the previous models. The revised Framework was approved for use by an independent scientific review panel and will be considered in January 2022 for use by the Horseshoe Crab Management Board. At that meeting, the Board may initiate a Draft Addendum to consider allowing use of the ARM Framework Revision in setting annual specifications for horseshoe crabs of Delaware Bay-origin. If approved, the draft addendum would be released for public comment before the Board takes final action.

RISK AND UNCERTAINTY

In recent years, the Commission has been developing a Risk and Uncertainty Policy to better account for the risk and uncertainty inherent to fisheries management decisions. Though the Commission has always taken such factors into account, risk and uncertainty considerations have been on an ad hoc basis, and varied among species. The new policy aims to improve transparency and make the process consistent across species, while still allowing for flexibility in fisheries management decisions.

As a part of the policy, the Commission's Risk and Uncertainty Work Group, in collaboration with species technical committees and the Committee on Economics and Social Sciences, developed the Risk and Uncertainty Decision Tool. The tool provides a structured method for arriving at a recommended risk level for fishery management decisions based on the Commission's priorities and characteristics of the stock and fishery.

The Decision Tool is composed of a set of scores for various factors related to risk and uncertainty in fisheries management. The score categories include: stock status, model uncertainty, management uncertainty, ecosystem/trophic importance, and socioeconomic considerations. Scores are provided by technical committees, with additional input opportunities from management boards and advisory panels. The Decision Tool scores are weighted based on importance to management board decision making. The tool combines the weighted scores to produce a recommended risk level for a stock that can then be used to develop management options.



In 2021, the Commission conducted a pilot case of the Risk and Uncertainty Policy process with the Tautog Management Board. The pilot built on previous work to produce an example Decision Tool for striped bass by taking the process a step further and involving more management board and committee input. Because of tautog's multi-region stock assessments and management regime, four regional Decision Tools were developed. The Tautog Management Board reviewed preliminary tautog Decision Tools at the 2021 Fall Meeting and will review additional analyses at the upcoming Winter 2022 Meeting.

Further refinement of the Risk and Uncertainty Policy and Decision Tool will take place in 2022 based on the results of the tautog pilot case. While the Commission will continue to improve and adapt the process, the preliminary policy and Decision Tool represent a significant step forward in formally accounting for risk and uncertainty in the Commission's management decisions. The new process provides a more consistent yet adaptable approach for determining the appropriate level of risk, allowing for more informed decision-making and transparency.

HABITAT PROTECTION, RESTORATION, AND ENHANCEMENT

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

ARTIFICIAL REEFS

The Commission released the *Update to the ASMFC's Profiles of State Artificial Reef Programs and Projects* in July 2021. The document provides a summary of each state's artificial reef program and highlights that occurred in recent years. Many Atlantic states have expanded their programs, deployed a variety of artificial reefs using best management practices for construction, materials, and siting, and have monitored sites for use – both by fishers and divers, as well as by marine life.

Artificial reefs have been used for centuries to enhance fishery resources and fishing opportunities by creating habitat for fish and invertebrate species using man-made materials. Reefs also provide underwater structures for SCUBA divers and facilitate reef-related research. Artificial reefs are typically constructed from dense materials, such as decommissioned ships and barges, concrete and steel demolition debris, and dredged rock. When properly constructed and strategically sited, artificial reefs can enhance fish habitat and total biomass, increase access to quality fishing grounds that benefit coastal economies, and provide managers with another option for the conservation and management of fishery resources.



The publication identifies over 330 artificial reefs spanning 11 Atlantic coast states. It also provides a brief history of each program, highlights specific projects, provides details on state funding, and includes maps of reef locations. In the past 30 years, artificial reef programs have implemented new technologies to designate sites, mapped existing materials, and evaluated established reef habitats. There are many examples of state programs collaborating with universities to study reef impacts as well as examples of partnerships across state agencies, with the federal

government, and with NGOs and private companies to secure reefing materials. *Update to the ASMFC's Profiles of State Artificial Reef Programs and Projects* is available at [ASMFC_Profiles_StateArtificialReefPrograms_Projects_July2021.pdf](#).



The Atlantic
Coastal
Cooperative
Statistics Program
(ACCSP)
was established
to standardize
and unify
fisheries-dependent
data collection
and management
along the
Atlantic coast.

DEPENDABLE AND TIMELY FISHERIES STATISTICS

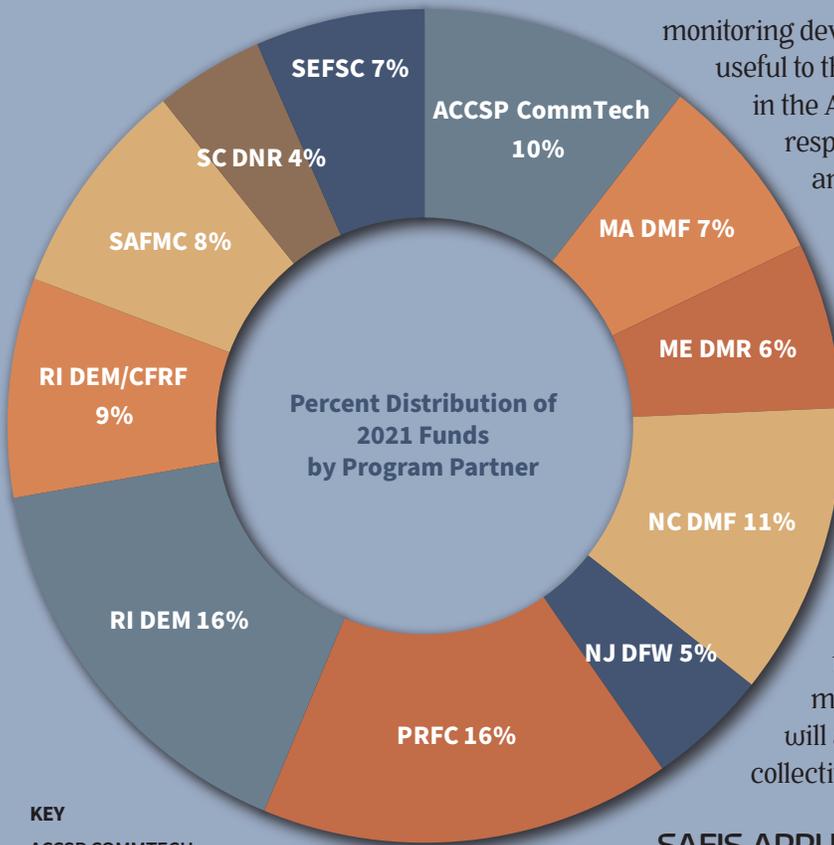
Effective management depends on quality fishery-dependent data (e.g., information collected from recreational and commercial fisheries, such as landings, effort, or discards) and fishery-independent data (e.g., information collected through monitoring programs and research surveys) to inform stock assessments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

The Atlantic Coastal Cooperative Statistics Program (ACCSP) was established to address these issues by standardizing and unifying fisheries-dependent data collection and management along the Atlantic coast. A cooperative state-federal partnership, ACCSP is composed of representatives from natural resource management agencies coastwide, including the Commission, the 3 Atlantic coast fishery management councils, the 15 Atlantic states, the Potomac River Fisheries Commission, the D.C. Fisheries and Wildlife Division, NOAA Fisheries, and the U.S. Fish & Wildlife Service.

In 2021, ACCSP collaborated with committee members and partner staff to advance the program's mission and support partners' needs. Major accomplishments include (1) funding projects at the state, regional, and federal levels to help partners complete projects that address the current goals and priorities of ACCSP; (2) building software that meets specific partner needs, reduces the burden on industry, and meets the reporting requirements of multiple jurisdictions in a single report; and (3) collecting, standardizing, and disseminating data in a timely fashion while maintaining the necessary levels of confidentiality.

Funded Projects

Each year, the ACCSP provides funding to its program partners to support improvements to data collection and management activities. In 2021, ACCSP awarded \$1.4 million to 14 projects along the Atlantic coast addressing issues such as electronic reporting, biological sampling, and economic efficiency; see figure on next page regarding the distribution of program funds. Staff frequently collaborate with partners to execute funded projects, such as how staff worked with the Massachusetts Department of Marine Fisheries and Rhode Island to link vessel-monitoring data with real-time electronically reported trip data submitted through eTRIPS/mobile. ACCSP staff developed a user interface that allows administrators to view and query vessel locations. This project aligns with a previously funded project piloting cellular vessel



monitoring devices and provided information that will be useful to the potential implementation of tracking devices in the American lobster and Jonah crab fleets in response to issues such as right whale interactions and wind farms.

For another project, ACCSP staff worked with the South Atlantic Fishery Management Council and North Carolina Division of Marine Fisheries to facilitate a series of workshops for stakeholders to provide input on the creation of SciFish. Part of the Standard Atlantic Fisheries Information System (SAFIS) suite, SciFish is a mobile application that focuses on the collection of citizen science data in response to growing interest in these data to supplement more traditional data collection for use in science and management. Standardization and centralization will allow data from multiple projects to be used collectively.

KEY

- ACCSP COMMTECH**
ACCSP Commercial Technical Committee
- MA DMF**
Massachusetts Division of Marine Fisheries
- ME DMR**
Maine Department of Marine Resources
- NC DMF**
North Carolina Division of Marine Fisheries
- NJ DFW**
New Jersey Division of Fish and Wildlife
- PRFC**
Potomac River Fisheries Commission
- RI DEM/CFRF**
Rhode Island Department of Environmental Management/Commercial Fisheries Research Foundation
- SAFMC**
South Atlantic Fishery Management Council
- SC DNR**
South Carolina Department of Natural Resources
- SEFSC**
Southeast Fisheries Science Center

SAFIS APPLICATIONS

ACCSP maintains commercial dealer reporting and commercial, for-hire, and recreational anglers catch reporting through SAFIS electronic applications. In 2021, SAFIS eTRIPS, which allows fishermen to create and submit trip reports via a mobile application or web browser, was redesigned with major improvements to central data processing and flexibility. A key highlight was the creation of the SAFIS Management System Switchboard, which streamlines electronic reporting by dynamically adjusting data collection forms based on partner regulations.

ACCSP staff worked across multiple NOAA Fisheries regional offices and the Division of Highly Migratory Species in support of the One Stop Reporting initiative to create one application, one report across several jurisdictions. The result of this collaboration is that eTRIPS is currently the only application that fulfills the reporting requirements for vessels with multiple federal permits. It is compliant with permit reporting requirements for federal commercial and for-hire permits in the Northeast, Southeast, and for highly migratory species.

Data Collection and Dissemination

ACCSP compiles Atlantic state and federal fisheries data sources in support of ongoing data needs and the annual *Fisheries of the United States* publication. In 2021, ACCSP doubled the number of coastwide data compilations and public refreshes in the Data Warehouse from 2 to 4. Due to COVID-19 impacts on partner staff and data processing, some partners were not able to meet the usual spring and fall deadlines. Without the addition of the 2 additional refreshes in summer

ACCSP staff worked across multiple NOAA Fisheries regional offices and the Division of Highly Migratory Species in support of the One Stop Reporting initiative to create one application, one report across several jurisdictions.

and late fall, science and management activities, including tracking of COVID-19 impacts on fisheries, would have been delayed due to lack of complete data. Also, ACCSP staff worked with state and federal partners to consolidate disparate fishing maps into a single coding system, which included more specific areas in the Gulf of Mexico, and display this as an interactive map on the ACCSP website. This allows for consistent and finer scale area reporting across jurisdictions and reduces the burden on the industry by providing a single system and an interactive tool.

ACCSP administers state conduct of 4 MRIP survey components on the Atlantic coast. 2021 included \$900,000 from the Modern Fish Act to improve the precision of harvest and discard estimates from Maine to Georgia, with an emphasis on species which are managed through annual catch limits. The additional funding resulted in a 28.5% average increase in the number of Access Point Intercept Survey (APAIS) site assignments across the shore, charter, and private/rental recreational fishing modes. Additionally, staff worked collaboratively with NOAA Fisheries, Atlantic state partners, and the Gulf States Marine Fisheries Commission to expand the Dockside Interceptor, created by ACCSP to electronically collect APAIS data, to include the Socio-economic Add-on Survey (SEAS). SEAS is conducted every 5 years, so 2022 will be the first time that these responses, which are in addition to the ongoing APAIS questions, will be recorded by field staff electronically.

For more information about ACCSP, visit <https://www.accsp.org/>.



FINANCIAL REPORT

The Commission's FY2022 budget is \$16.9 million. The base funding (\$733,444) is provided by the member states' annual 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 is received through federal cooperative agreements funded by line-item appropriations in the NOAA budget to implement the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA) and ACCSP, as well as provide oversight and management for state conduct of the Access Point Angler Intercept Survey, the survey component of the MRIP. 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, with the majority of the Commission's budget going directly to support the fisheries management, monitoring and science activities of the states.

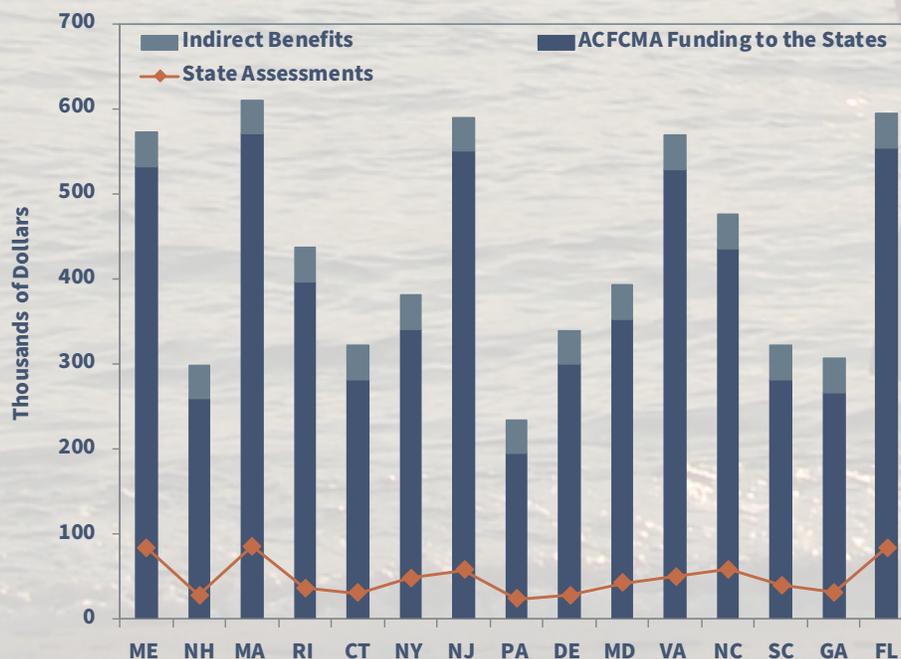
The U.S. Fish and Wildlife Service provides funding to the Commission through its Federal Aid in Sport Fish Restoration Program (Wallop/Breaux).

The following two pages provide a financial snapshot of the Commission's assets and expenses for the years ended June 30, 2021 and 2020.

2022 RETURN ON STATE INVESTMENTS TO THE COMMISSION

Source: FY22 ASMFC Assessments and FY21 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.



ATLANTIC STATES MARINE FISHERIES COMMISSION
CONDENSED STATEMENT OF FINANCIAL POSITION INFORMATION
FOR THE YEARS ENDED JUNE 30, 2021 AND 2020

ASSETS

	2021	2020
CURRENT ASSETS:		
Cash and cash equivalents	\$ 331,999	\$ 894,814
Grants and accounts receivable	3,266,668	2,085,093
Prepaid expenses	42,413	69,038
Total Current Assets	3,641,080	3,048,945
Investments	862,604	864,227
Property and Equipment, Net	3,045,489	3,164,701
TOTAL ASSETS	\$ 7,549,173	\$ 7,077,873

LIABILITIES AND NET ASSETS

CURRENT LIABILITIES:		
Accounts payable and accrued expenses	\$ 2,216,927	\$ 1,947,839
Deferred revenue and contract advances	303,578	253,380
Due to CARES Act recipients	27,074	—
Current maturities of long term debt	—	71,152
Total Current Liabilities	2,547,579	2,272,371
OTHER LIABILITIES:		
Obligation under interest rate swap	—	258
Total Other Liabilities	—	258
TOTAL LIABILITIES	2,547,579	2,272,629
NET ASSETS WITHOUT DONOR RESTRICTIONS	5,001,594	4,805,244
TOTAL LIABILITIES AND NET ASSETS	\$ 7,549,173	\$ 7,077,873

**ATLANTIC STATES MARINE FISHERIES COMMISSION
CONDENSED STATEMENT OF ACTIVITIES INFORMATION
FOR THE YEARS ENDED JUNE 30, 2021 AND 2020**

	2021	2020
REVENUE:		
Contract reimbursements	\$ 126,016,034	\$ 13,384,391
Contributions from member states	733,443	733,443
Other	(1,114)	33,925
Total Revenue	126,748,363	14,151,759
EXPENSES:		
CARES Act pass through	110,327,085	—
Salaries and fringe benefits	6,201,347	6,019,798
Subcontracts	9,103,889	6,728,520
Travel	177,641	776,934
Other	742,051	698,458
Total Expenses	126,552,013	14,223,710
OTHER INCOME (EXPENSES):		
Interest rate swap obligation adjustment	—	1,025
Total Other Income (Expenses)	—	1,025
CHANGE IN NET ASSETS	196,350	(70,926)
NET ASSETS, BEGINNING OF YEAR	4,805,244	4,876,170
NET ASSETS, END OF YEAR	\$ 5,001,594	\$ 4,805,244

STAFF & ACKNOWLEDGEMENTS

EXECUTIVE DIRECTORATE

Robert E. Beal, Executive Director
Deke Tompkins, Legislative Executive Assistant

ATLANTIC COASTAL COOPERATIVE

STATISTICS PROGRAM

Geoffrey White, Director
Julie Defilippi Simpson, Deputy Director
Marisa Powell, Program Assistant

DATA TEAM

Joe Myers, Senior Data Coordinator
Jennifer Ni, Data Analyst
Heather Power, Senior Data Coordinator
Mike Rinaldi, Data Team Lead

RECREATIONAL DATA TEAM

Alex DiJohnson, Recreational Data Team Lead
Sarah Hylton, Data Coordinator
Trevor Scheffel, Data Coordinator

SOFTWARE TEAM

Karen Holmes, Software Team Lead
Ed Martino, Ph.D., IT Manager and Programmer
Nico Mwai, Senior Developer – Fisheries Systems

COMMUNICATIONS

Tina L. Berger, Director
Maya Drzewicki, Fisheries Administrative Assistant

FINANCE AND ADMINISTRATION

Laura C. Leach, Director
Lisa B. Carty, Deputy Director of Administration
Lindsey Aubart, Cooperative Projects Coordinator
Cecilia Butler, Human Resources Administrator
Jayran Farzanegan, Accounting Manager
Lisa Hartman, Staff Assistant
Chris Jacobs, Facilities and Technology Administrator
Cynthia Robertson, Meetings Assistant

FISHERIES SCIENCE PROGRAM

Pat Campfield, Director
Kristen Anstead, Ph.D., Stock Assessment Scientist
Katie Drew, Ph.D., Stock Assessment Team Lead
Lisa Havel, Ph.D., ACFHP and Habitat Coordinator
Jeff Kipp, Senior Stock Assessment Scientist
Sarah Murray, Fisheries Science Coordinator

INTERSTATE FISHERIES MANAGEMENT PROGRAM

Toni Kerns, Director
Dustin Colson Leaning, Fishery Management Coordinator
Emilie Franke, Fishery Management Coordinator
Savannah Lewis, Fishery Management Coordinator
Kirby Rootes-Murdy, Senior Fishery Management Coordinator
Caitlin Starks, Fishery Management Coordinator

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

OUTSIDE AND INSIDE FRONT COVER AND THROUGHOUT REPORT
AS HEADER/FOOTER IMAGE

Waves at sunset © Chris Paparo @fishguyphotos

PAGE 3

Juvenile Atlantic striped bass captured as part of the Maryland Young-of-the-Year Survey © Stephen Badger, Maryland Department of Natural Resources

PAGE 8

Jessica Coakley and Paul Caruso with a bluefish © ASMFC

PAGE 9

Juvenile summer flounder captured as part of Maryland Coastal Bays Survey © ASMFC

PAGE 10

Top: Senior FMP Coordinator Kirby Rootes-Murdy with a tautog captured as part of the Rhode Island Department of Environmental Management Seasonal Trawl Survey © ASMFC

Bottom: Commercial catch of tautog © Wes Townsend

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Top: River herring from Town Brook, Massachusetts © Keith Ellenbogen

Bottom: Red knots and horseshoe crabs © Gregory Breese, U.S. Fish and Wildlife Service

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Risk and uncertainty graphic © Sarah Murray, ASMFC

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Blue striped grunt, French grunt, porkfish, schoolmaster, yellowtail snapper and other reef fish at the bow section of Joe's Tug located six miles south of Key West, FL at a depth of 65 feet © Keith Mille, Florida Fish and Wildlife Conservation Commission

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Scenes from MRIP APAIS interviews
Top: Fish being measured
© NOAA Communication and Education Team

Bottom: Anglers being interviewed
© North Carolina Division of Marine Fisheries

PAGE 18-20 (BACKGROUND)

Anglers on the beach © ASMFC



ATLANTIC STATES MARINE FISHERIES COMMISSION

1050 North Highland Street, Suite 200 A-N

Arlington, Virginia 22201

703.842.0740

www.asmfmc.org

