National Marine Fisheries Service

National Observer Program FY 2020 Annual Report

NOAA TECHNICAL MEMORANDUM NMFS-F/SPO-234

NOAA FISHERIES

National Observer Program
FY 2020 Annual Report

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National Marine Fisheries Service

NOAA Technical Memorandum NMFS-F/SPO-234

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Cover photo: An observer examines fishing nets on the deck of a vessel at sea.
Photo credit: Northeast Fisheries Science Center

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Photo: West Coast Groundfish Observer Program

NOAA Fisheries continually works to develop and institute world-class training and safety protocols for observers. Above, observers conduct a safety drill in immersion suits during a training session.

List of Acronyms

A80	Amendment 80
AA	Assistant Administrator
ACL	Annual Catch Limit
AD	Annual Determination
ADP	Annual Deployment Plan
AFA	American Fisheries Act
A-SHOP	At-Sea Hake Observer Program
ASM	At-Sea Monitoring
ATCA	Atlantic Tunas Convention Act
BRD	Bycatch Reduction Devices
BSAI	Bering Sea and Aleutian Islands
CDQ	Community Development Quota
CFR	Code of Federal Regulations
DGN	Drift Gillnet
DWH	Deepwater Horizon
EEZ	Exclusive Economic Zone
EFP	Exempted Fishing Permit
EM	Electronic Monitoring
EO	Executive Order
ESA	Endangered Species Act
ET	Electronic Technologies
FFA	Forum Fisheries Agency
FMA	Fisheries Monitoring and Analysis Division
FMOB	Fisheries Monitoring Operations Branch
FMP	Fishery Management Plan
FSB	Fisheries Sampling Branch
GOA	Gulf of Alaska
GOM	Gulf of Mexico
HMS	Atlantic Highly Migratory Species Division
IFQ	Individual Fishing Quota
LE	Limited Entry
LOF	List of Fisheries
MARPOL	International Convention for the Prevention of Pollution from Ships
MMPA	Marine Mammal Protection Act
MSA, MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NARA	National Archives and Record Administration
NBR	National Bycatch Report
NEFOP	Northeast Fisheries Observer Program
NEFSC	Northeast Fisheries Science Center
NFWF	National Fish and Wildlife Foundation
NGOM	Northern Gulf of Maine
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOP	National Observer Program
NOPAT	National Observer Program Advisory Team
NPFMC	North Pacific Fishery Management Council
NSP	National Seabird Program
NWFSC	Northwest Fisheries Science Center
OA	Open Access
OLE	Office of Law Enforcement
OMB	Office of Management and Budget
OPR	Office of Protected Resources
PIFSC	Pacific Islands Fisheries Science Center
PIRO	Pacific Islands Regional Office
PIROP	Pacific Islands Regional Observer Program
PPA	Program, Project, and Activity
PSMFC	Pacific States Marine Fisheries Commission
RP	Groundfish Trawl Rockfish Program
SA	Southeastern Atlantic
SAC	Safety Advisory Committee
SBLOP	Shark Bottom Longline Observer Program
SBRM	Standardized Bycatch Reduction Methodology
SEFSC	Southeast Fisheries Science Center
ST	Office of Science and Technology
SWFSC	Southwest Fisheries Science Center
TAC	Total Allowable Catch
TRT	Take Reduction Team
WCGOP	West Coast Groundfish Observer Program

Executive Summary

For FY 2020 (October 1, 2019-September 30, 2020), 750 observers provided 56,768 days of fishery observations. NOAA Fisheries, along with commercial fishing fleets in the Alaska, West Coast, and Greater Atlantic regions, invested $79.8 million to provide this coverage in 54 U.S. fisheries. Of this amount, congressionally appropriated funds provided $54.0 million, and fishing industry expenditures related to monitoring totaled $25.8 million.

Despite the challenges presented by the global COVID-19 pandemic, the National Observer Program (NOP), in NOAA Fisheries' Office of Science and Technology, supported 14 regional observer programs in FY 2020. The NOP, along with the National Observer Program Advisory Team (NOPAT), supported the deployment of observers in major U.S. fisheries and provide coordination and guidance regarding program performance metrics, budgets, and other important topics pertinent to enacting monitoring programs nationwide.

During 2020, the regional observer programs achieved the following:

- Alaska—Completely reengineered observer logistic processes including observer training classes, briefing and debriefing protocols, extensions to observer deployment, and modifications to sampling protocols to minimize observers from vessels interacting with staff in processing plants in order to enable successful observer deployment during the COVID-19 pandemic in the majority of fisheries.
- Northwest—Developed a 1:1 deployment approach for observers and catch monitors, so that observers and catch monitors would only be deployed to the same vessel or plant, and successfully conducted observer debriefings via videoconference.
- West Coast—Deployed EM systems on 46 groundfish vessels for a total of 3,877 sea days in 2020, and began field testing of a tablet-based data collection application for the Deep-Set Buoy Gear fishery.
- Pacific Islands—Modified observer program logistical processes, including observer training classes and briefing and debriefing protocols, to enable successful observer deployment during the COVID-19 pandemic in the Hawaii longline fisheries.
- Greater Atlantic—Implemented a hybrid training program for over 30 students, informed by a hybrid training program created for Alaska observers; Greater Atlantic trainers shipped resources including tablets, cameras, manuals, guides, and training binders to each trainee's remote location, and eliminated the standard training cruise for students, which was replaced by a port trip.
- Southeast—Conducted preliminary electronic monitoring (EM) testing on commercial shrimp trawl vessels; this testing found that cameras performed well in capturing video, which could lead to new, innovative systems that could automate volume estimation for catch and species identification.

The preceding milestones represent only a fraction of observer activities in 2020, which are detailed elsewhere in this report. None of these achievements would be possible without the hard-working and talented fishery observers who work under challenging conditions to help NOAA Fisheries fulfill its mission to ensure sustainable fisheries.

1. Introduction

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) deploys fishery observers to collect high-quality catch and bycatch data from U.S. commercial fishing and processing vessels, as well as from some shoreside processing plants. NOAA Fisheries has been using observers to collect fisheries data in the U.S. exclusive economic zone (EEZ) and high seas since 1972 (Brooke 2014). Observers, trained biological technicians who collect data to support a wide range of conservation and management activities, have monitored fishing activities on all U.S. coasts, collecting data for a range of conservation and management issues.

The COVID-19 pandemic in 2020 affected the commercial fishing industry in many ways, including infections, changes in market conditions and supply channels, and changes in seafood consumption, especially in restaurants. For example, on March 17, 2020, the states of California, Oregon, Washington, and Alaska ordered the closure of all restaurants (Benaka and Thunberg 2021). The Centers for Disease Control and Prevention classified commercial fishing as an essential activity, so fishing continued throughout 2020. Observer deployments continued as well in 2020, especially for fisheries with mandatory observer coverage, which include fisheries having target percent coverage of 100 percent in Appendix A. Observer deployment, despite its substantial logistical and safety demands, allowed NOAA Fisheries to collect at-sea data at a time when most fisheries surveys were cancelled due to challenges in staffing and supplying such cruises.

NOAA Fisheries regional offices and science centers administer the various programs (Figure 1). Each observer program is authorized by one or more of the following federal authorities: the Magnuson-Stevens Fisheries Conservation and Management Act (MSA), the Marine Mammal Protection Act (MMPA), and the

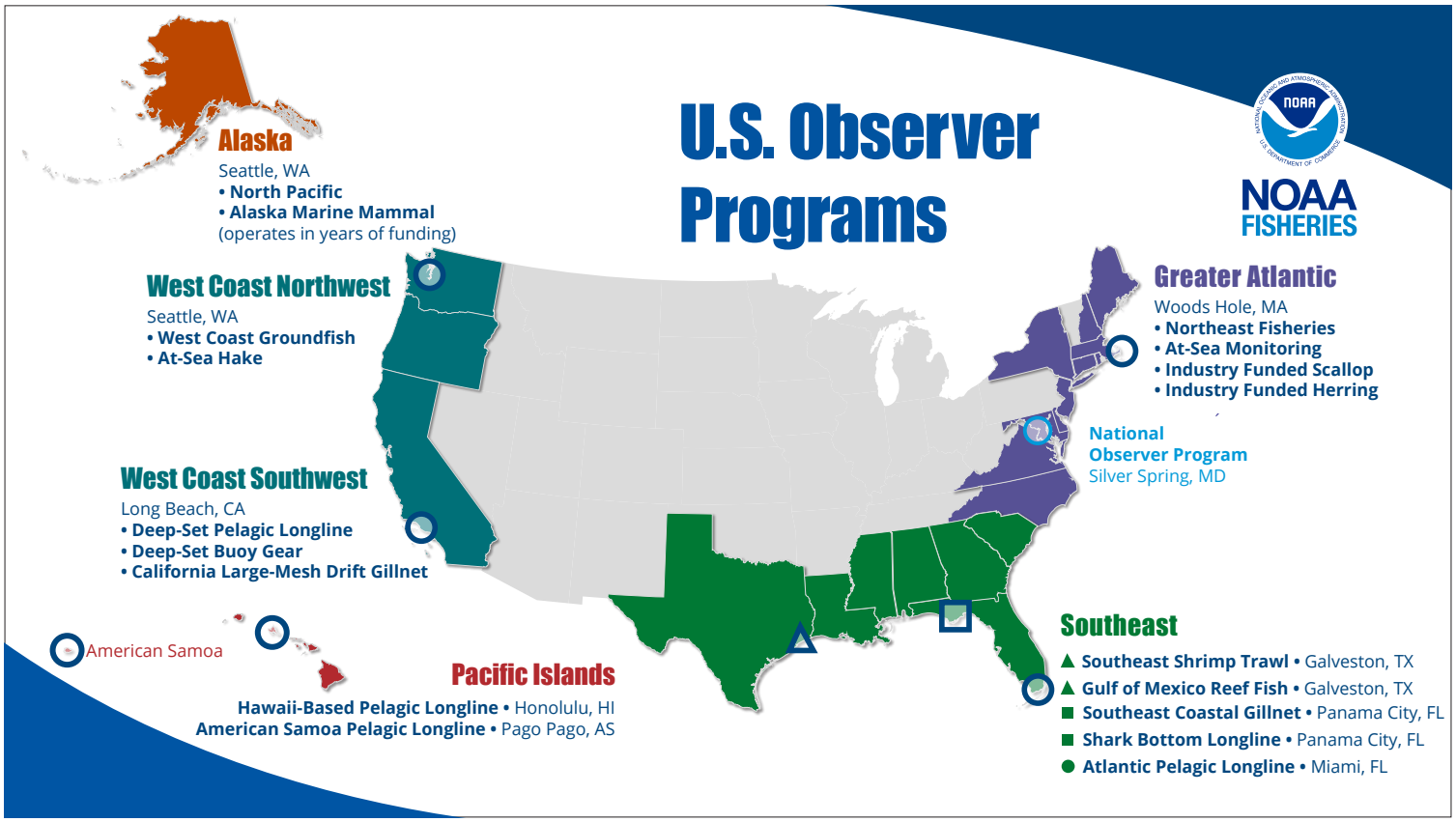

Figure 1: **Locations of regional and national observer programs.**

Endangered Species Act (ESA). The National Observer Program (NOP) supports observer programs and increases their effectiveness in meeting the overall goals of NOAA Fisheries through improvements in data collection, observer training, and integration of observer data with other research.

1.1 Program Structure

Within the NOAA Fisheries Office of Science and Technology (ST), the NOP nationally coordinates up to 18 observer programs in five regions. In addition to national program administration, budget development, and planning, the NOP works with regional observer programs to develop national policies such as standards for observer data quality, training standards for observer and marine safety instructors, and national minimum eligibility standards for marine fisheries observers.

The NOP has four permanent staff positions: program coordinator (Ken Keene), electronic technologies coordinator (Brett Alger), bycatch expert (Lee Benaka), and safety expert (Dennis Hansford). In 2020, the NOP hosted Andrea Chan, a Knauss Marine Policy Fellow, for a one-year term to, among other things, support the National Observer Program Advisory Team (NOPAT) and analyze data related to the U.S. National Bycatch Report's (NBR) Tier Classification System. In addition, Brett Alger hosted Knauss Marine Policy Fellow Lauren Bonatakis.

The NOP also provides regional observer programs with a forum to increase collaboration and communication during biannual NOPAT meetings. Representatives from all regional fisheries science centers and regional offices, as well as many NOAA Fisheries Headquarters offices with observer expertise, participate on the NOPAT (Figure 2).

Regional observer programs are responsible for their day-to-day operations, including providing administrative services, responding to data requests from a range of users, and working closely with third-party contracting companies that provide observers and address logistics and operational issues. Program scientists determine the appropriate sampling protocols and necessary observer coverage levels for each fishery. In general, regional programs work with observer provider companies to recruit, train, and deploy observers.

The FY 2020 budget included funds to pay for most regional observer program costs for the fisheries currently observed. NOAA Fisheries has authority to require that industry fund observer coverage. Thus, in some cases, the fishing industry pays for the costs of observer coverage by contracting directly with private observer provider companies to obtain the required coverage. The full (100 percent) coverage fisheries managed by the North Pacific Observer Program, for example, are funded primarily by the fishing industry, which pays observer salaries, travel costs, and insurance. Onshore infrastructure costs are covered by NOAA Fisheries. The partial coverage fleet in Alaska is paid by an ex-vessel fee determined by the North Pacific Fishery Management Council and implemented in federal regulations. NOAA Fisheries' Alaska Fisheries

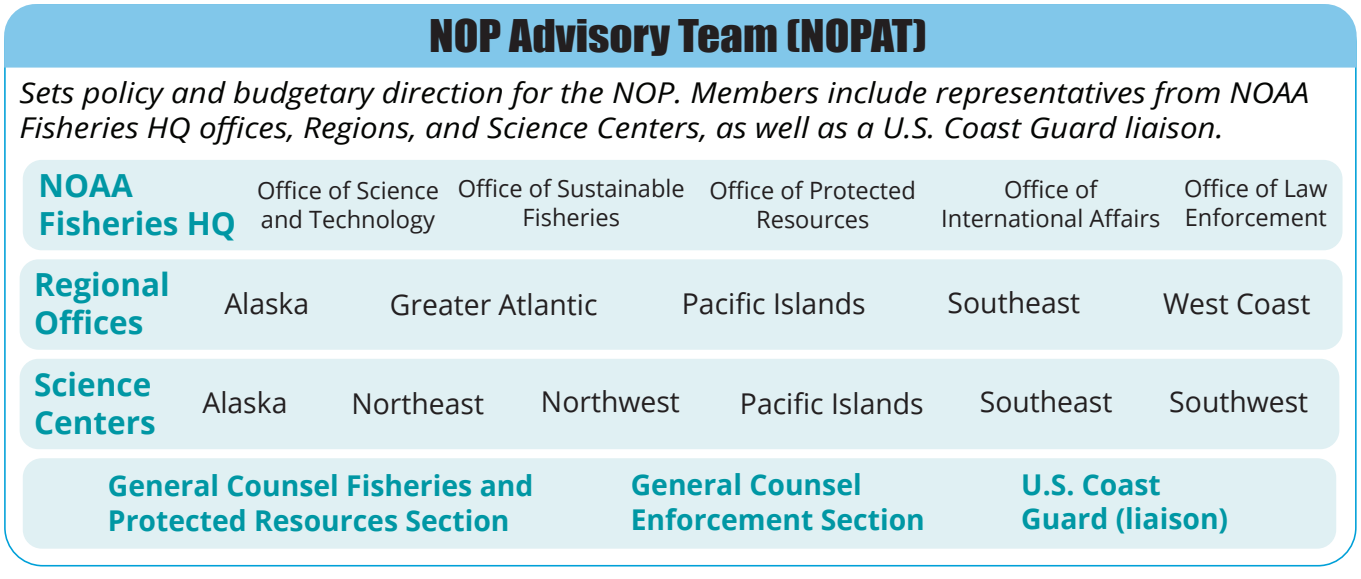

Figure 2: **Organizational structure of the NOP Advisory Team.**

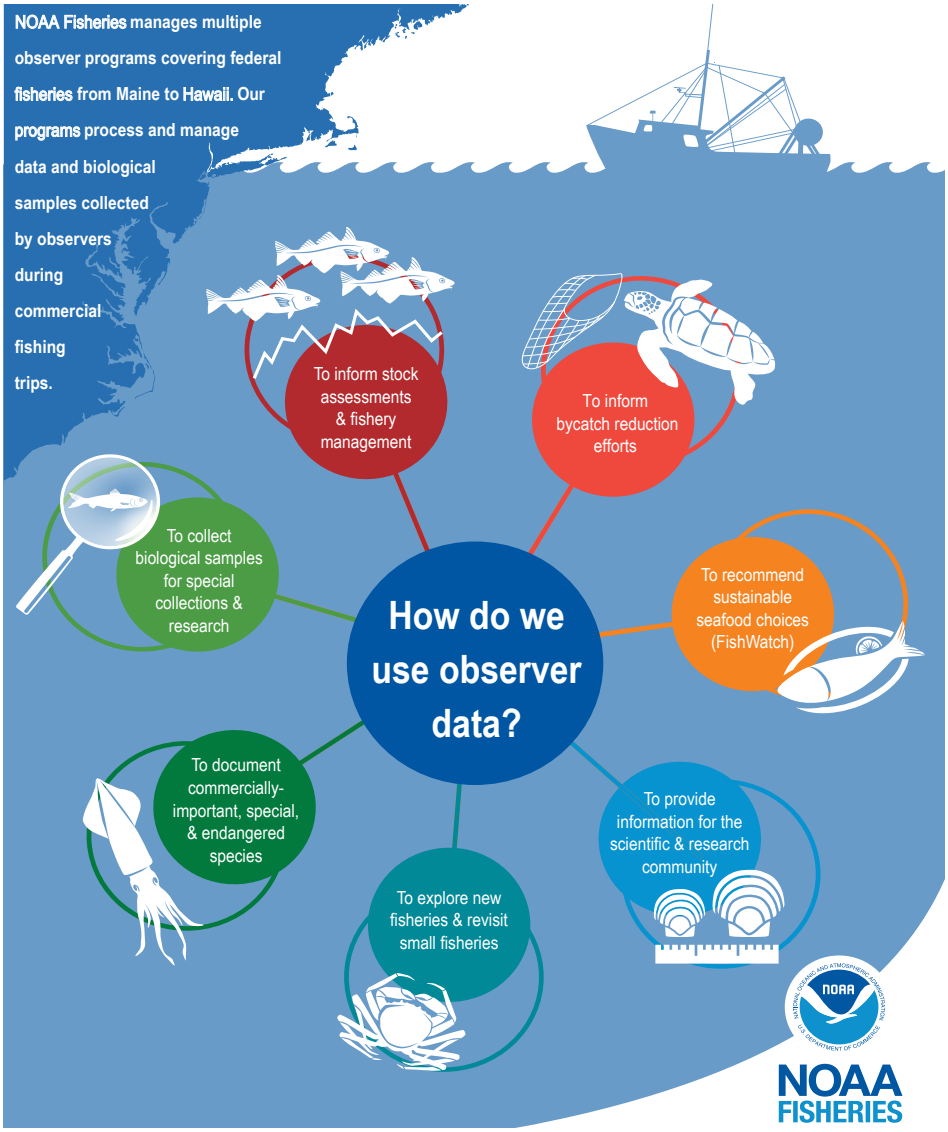

Figure 3: **Uses of observer data.**

Science Center administers this program, contracts with an observer provider company, and receives the data for near real-time management of the groundfish fishery. Industry funding also supports the West Coast Trawl Catch Share Program and the Atlantic Sea Scallop and Herring Fisheries.

Regardless of an observer program's funding structure, NOAA Fisheries provides all observers with training in sampling techniques and species identification, data collection, fishing and safety regulations, and at-sea survival skills. NOAA Fisheries is responsible for ensuring data quality through what is known as debriefing. This quality-control process involves data and sampling process review, as well as discussions with the observers themselves to resolve any possible questions about data collected.

1.2 Use of Observer Data in Fisheries Management

The information compiled by observer programs supports the management of fisheries and conservation of fish stocks, protected species, and ecosystems throughout the United States (Figure 3). Observer data are also increasingly relied on to monitor compliance with fisheries regulations. Information collected by fisheries observers is used for a wide range of assessment and monitoring purposes, including the following examples:

- In some fisheries, the amount of a specific fish species that can be caught is specified by a total allowable catch (TAC) level. Observer data may be used to project total catches for these species and to

monitor the level of fishing activity so that the TAC is not exceeded.

- For many managed fisheries and stocks, the MSA requires development of an annual catch limit (ACL) that is set below the overfishing level to ensure that overfishing will not occur. Setting an ACL for a stock requires scientific data on catch and bycatch, which has resulted in increased observer days at sea across the country.
- Catch share programs rely on observer data to monitor catch, landings, and discards. In many cases these fisheries require enhanced observer coverage to document vessel-specific or sector-level quotas. Managers and fishermen rely on observer data to ensure that vessels and sectors do not exceed the authorized quota of target or discard species.
- For many fisheries, estimates of the rates of fishing mortality and/or protected species interaction based on observer data are used for monitoring fishery performance and developing stock assessments. Biological samples collected by observers are also essential inputs to stock assessments (e.g., genetic data are used for species or stock identification purposes).
- For stocks that are overfished and in a rebuilding plan, such as Atlantic cod, preseason target catch numbers are provided to the management team. When the fishing season ends, observer data are evaluated to determine total mortality and correspondingly adjust the next season's targets.
- The MMPA requires that levels of fishery-related mortality and serious injury of marine mammals be monitored by observers and reported in annual marine mammal stock assessment reports. These data are also used to appropriately classify commercial fisheries according to their levels of incidental mortality and serious injury of marine mammals in the annual MMPA List of Fisheries (16 U.S.C. 1387).
- Observer data support NOAA Fisheries' series of National Bycatch Reports (e.g., Benaka et al. 2019), which provide regular estimates of fish, marine mammal, sea turtle, and seabird bycatch for major U.S. fisheries.
- Under ESA Section 7 biological opinions, observer programs may be required or recommended to ensure that anticipated take levels of threatened or endangered species (e.g., sea turtles and Atlantic sturgeon) are not exceeded in federal fisheries.

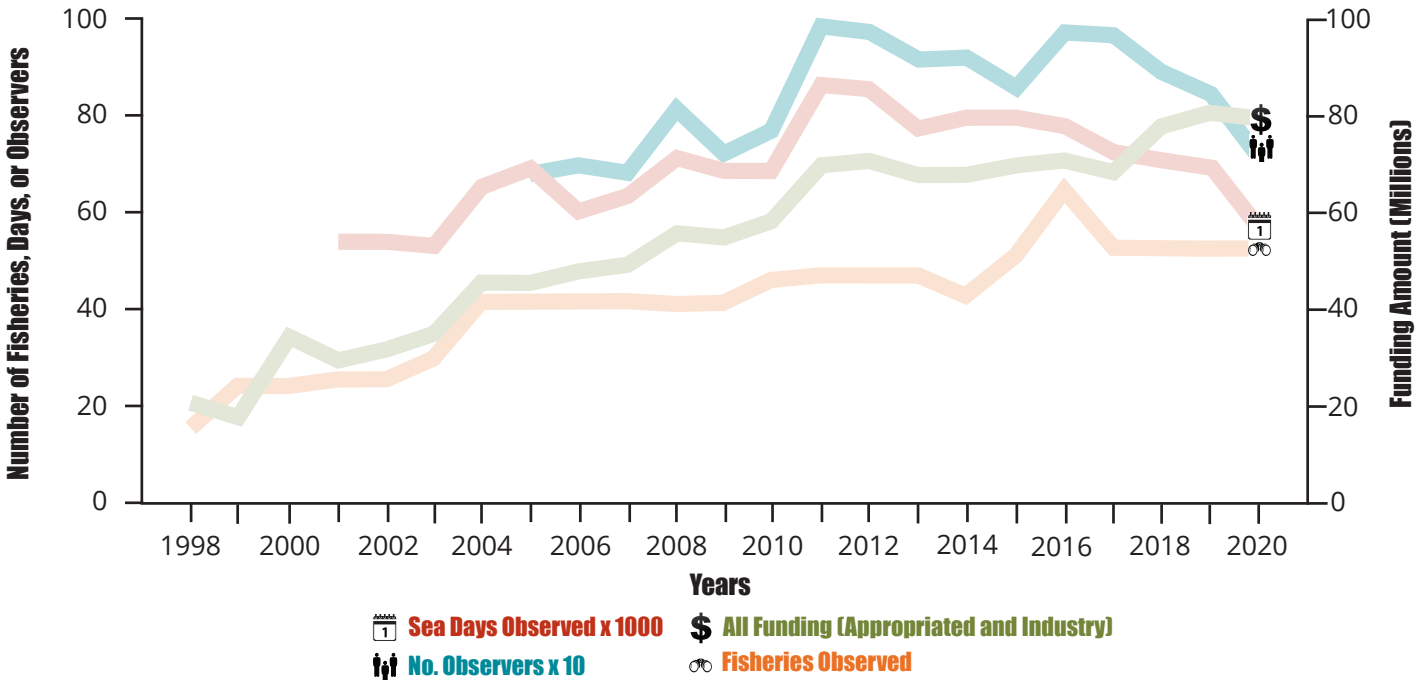

Figure 4: **U.S. observer program sea days observed, appropriated and industry funding (not adjusted for inflation), and number of observed fisheries and observers from 1998 to 2020.**

1.3 Funding History for Observer Programs

The NOP was formed in 1999 to improve regional and national coordination among the observer programs. Before 1999, the majority of funding for regional observer programs was provided through indirect sources such as congressional allocations supporting fisheries management and protected species conservation and recovery, or were funded by industry. Industry funding has increased over time as mandatory coverage requirements have increased.

In 1999, the first congressional funds were directly appropriated to specific regional observer program budgets or Program, Project, and Activity (PPA) lines, and the NOP was established to coordinate observer program activities. The number of observed fisheries has gradually increased as available funding provided the means to develop observer programs for new or experimental fisheries while maintaining established monitoring programs (Figure 4). However, numbers of observers and sea days decreased due to waivers of observer coverage requirements described in Section 3.1.3. Expenditures remained steady due to the increased expenses of providing hybrid training to observers and paying for additional COVID-19 safety measures, including quarantine of observers before and after deployments.

2. Budget Summary

For FY 2020 (October 1, 2019-September 30, 2020), 750 observers provided 56,768 days of fishery observations. NOAA Fisheries, along with commercial fishing fleets in the Alaska, West Coast, and Greater Atlantic regions, invested $79.8 million to provide this coverage in 54 U.S. fisheries. Of this amount, congressionally appropriated funds provided $54.0 million, and fishing industry expenditures related to monitoring totaled $25.8 million. (Table 1.)

The tables in Appendix A provide regional details on numbers of observers, sea days covered, observer coverage targets, and expenditures for observer coverage. Appendix B lists the 54 fisheries covered in FY 2020. Industry expenditures supported observer coverage of fishing vessels in North Pacific and West Coast groundfish fisheries as well as Greater Atlantic scallop and herring fisheries. (For more information regarding industry expenditures related to monitoring of West Coast fisheries, see Steiner et al. 2021, as well as the NOAA Fisheries Northwest Fisheries Science Center's FISHEyE economic data visualization tool.[1])

As described in Section 1.1, observer programs are administered by NOAA Fisheries Regional Offices and Science Centers around the country. Observer coverage levels are determined in collaboration with stakeholders and are influenced by available funding, the number of active participants in the fishery, fishing conditions, fishery quotas, management needs, and program goals. Sections 4 through 8 of this report summarize the FY 2020 achievements of NOAA Fisheries regional observer programs.

Region	Appropriated	Industry	Total
Alaska	$8.0	$20.2	$28.2
Greater Atlantic	$23.5	$1.9	$25.4
Pacific Islands	$7.7	$0	$7.7
Southeast	$5.5	$0	$5.5
West Coast	$8.6	$3.7	$12.3
NOAA Fisheries Headquarters	$0.7	$0	$0.7
Totals	**$54.0**	**$25.8**	**$79.8**

Table 1: **FY 2020 Observer Funding Summary (in millions).** *Appropriated amount shown includes funds allocated to regions from FY 2020 enacted funding.*

[1] https://dataexplorer.northwestscience.fisheries.noaa.gov/fisheye/PerformanceMetrics/

3. National Observer Program Activities

Several NOAA Fisheries Headquarters offices play important roles in observer programs. These offices include the Office of Science and Technology, which is home to the NOP, as well as the Office of Protected Resources (OPR), the Office of Law Enforcement (OLE), and the Office of Sustainable Fisheries, which houses the Atlantic Highly Migratory Species Management Division (HMS). The following sections describe NOP, OPR, and OLE activities in 2020. Section 8 of this report describes HMS-related activities for 2020.

3.1 National Observer Program

In addition to coordinating policy and budget issues among the regional observer programs, the NOP facilitated and coordinated several activities that were national in scope in 2020. These activities are described below.

3.1.1 National Observer Program Advisory Team

The NOPAT met twice virtually in 2020, in April and October. At these meetings, the NOPAT discussed various topics including the observer program budget, policies and standards including the Classification of Observers under the Fair Labor Standards Act[2], safety and enforcement issues, performance metrics, and electronic technologies. In addition, NOPAT members planned a symposium for the virtual 2020 American Fisheries Society Annual Meeting entitled "Fishery-Dependent Observing and Monitoring."

3.1.2 Safety Advisory Committee

The NOPAT has a Safety Advisory Committee (SAC) that comprises safety representatives from each regional observer program, the NOAA Fisheries OLE, and the U.S. Coast Guard. The SAC provides recommendations to the NOPAT on observer safety and health issues. Committee members meet over the phone regularly to develop procedures and recommendations for observer deployments during the COVID-19 pandemic. These recommendations included not deploying observers on vessels where a crew member or passenger was diagnosed with COVID-19, and not deploying observers diagnosed with COVID-19. The SAC also provided guidance for observer safety training in a hybrid environment. In addition, the SAC finalized safety fact sheets covering topics such as marine electrical and fire safety and safe boarding of fishing vessels. Finally, the SAC planned a virtual marine safety instructor training session to bring safety trainers from all regional observer programs together to discuss best practices for safety techniques and other safety training topics.

3.1.3 COVID-19 Policy Support

The NOP conducted monthly calls with regional observer program managers to discuss COVID-19 challenges. NOP staff members and NOPAT members also provided support to NOAA Fisheries national and regional leadership regarding observer coverage waiver policies. NOAA Fisheries released several coverage policy statements in 2020, including the following:

- March 23, 2020—Temporary waiver of monitoring requirements in the North Carolina Division of Marine Fisheries' Permits No. 16230 and No. 18102 to incidentally take threatened and endangered sea turtles and Atlantic sturgeon in gillnet fisheries operating in internal North Carolina waters.
- March 24, 2020—Emergency action (85 FR 17285) to waive observer coverage on a case-by-case basis[3], which allowed waiver of coverage if:
  - Local, state, or national governments, or private companies or organizations that deploy observers pursuant to NOAA Fisheries regulations, restrict travel or otherwise issue COVID–19-related social control guidance, or requirement(s) addressing COVID–19-related concerns, such that it is inconsistent with the requirement(s) or not recommended to place an observer(s); or
  - No qualified observer(s) are available for placement due to health, safety, or training issues related to COVID–19.
- June 26, 2020—Notice of Alaska observer requirements for partial coverage fleets.[4]

[2] https://media.fisheries.noaa.gov/dam-migration/30-126.pdf
[3] https://www.fisheries.noaa.gov/action/noaa-fisheries-issues-emergency-action-waive-observer-coverage-case-case-basis
[4] IB 20-45: Notice of Alaska Observer Requirements for Partial Coverage Fleets Effective June 28, 2020 | NOAA Fisheries

- July 1, 2020—Extension of temporary waiver of observer and at-sea monitoring requirements for all Greater Atlantic Region fisheries.
- July 30, 2020—Announcement of national-level observer waiver criteria (see below) and expiration of temporary waiver of observer and at-sea monitoring requirements for all Greater Atlantic Region fisheries[5]:
  - Coverage may be waived if observers or at-sea monitors are not available for deployment, or
  - Coverage may be waived if observer providers cannot meet the safety protocols imposed by a state on commercial fishing crew or by the vessel or vessel company on its crew.
- September 21, 2020—Extension of temporary rule (emergency action) providing NOAA Fisheries with authority to continue to waive observer coverage requirements through March 26, 2021 (85 FR 59199).

3.1.4 Observer Safety Program Review

At the end of FY 2016, NOAA Fisheries initiated an independent audit of current observer-related policies and protocols. The resulting Observer Program Safety Review Report found national and regional observer safety programs in the United States to be robust, mature, and effective.[6] The report also provided 118 recommendations across seven relevant observer safety categories:

- Safety reporting.
- Communications.
- Practices and policies.
- Training.
- Regulations.
- Equipment.
- International observers.

As of FY 2020, NOAA Fisheries had classified 56 of the 118 recommendations as "complete/operational" and 41 additional recommendations as "under review and development." During FY 2020, the NOP published a status updates regarding Observer Safety Program Review recommendations on its website.[7]

3.1.5 Observer Program and Provider Insurance Rulemaking

During FY 2020, the NOP supported development of a NOAA Fisheries proposed rule to establish a uniform, nationally consistent minimum insurance standard that would apply in regional regulatory programs that authorize an observer provider to deploy a person in any mandatory or voluntary observer program and that specify responsibilities of authorized providers. This rule initially would affect regional observer programs in Alaska, the Northwest, and the Greater Atlantic. As part of this process, the Office of Management and Budget (OMB) requested further information in August 2020 regarding the draft proposed rule. The OMB had designated this action as significant for purposes of Executive Order (EO) 12866 on regulatory planning and review, and the draft proposed rule had been a subject of interagency review under that EO since March 2020. NOAA Fisheries, with support from the NOP, responded to the OMB requests as of October 2020. However, following the 2020 presidential election, the rulemaking process began again under the new administration.

3.1.6 Electronic Technologies

Electronic technologies (ET), including electronic monitoring (EM) and reporting, continued to be a major focus for NOAA Fisheries and its observer programs during FY 2020. NOAA Fisheries transmitted a final procedural directive on third-party video storage and retention to the Regional Fishery Management Councils in April 2020. As part of this guidance, NOAA Fisheries recommended that programs retain EM data for at least 12-months once a fishery is closed for the season and the catch monitoring processes are completed.

On June 21, 2020, NOAA Fisheries published a request for records disposition authority (records schedule) from the National Archives and Records Administration (NARA) for EM data that are created or received by NOAA Fisheries and subject to the Federal Records Act. NARA publishes notices in the *Federal Register* for records schedules in which agencies

[5] https://www.fisheries.noaa.gov/leadership-message/noaa-fisheries-identifies-national-level-observer-waiver-criteria-will-begin
[6] The 2018 report is available at https://www.fisheries.noaa.gov/resource/document/observer-safety-program-review-report
[7] https://www.fisheries.noaa.gov/resource/document/status-recommendations-observer-safety-program-review

Photo: West Coast Groundfish Observer Program

An observer takes measurements of a starry flounder *Platichthys stellatus.*

propose to dispose of records they no longer need to conduct agency business. Under the proposed schedule, raw EM imagery and data could be destroyed five years after creation or receipt of video, but longer retention would be authorized if required for use by NOAA Fisheries. Any summary data (e.g., compliance reports, catch and effort information) that may be generated in the review and initial analysis process would be transferred to the appropriate system or database and used for program objectives, such as stock assessments, quota monitoring, or compliance with fishery regulations. This proposal was designed to ensure that NOAA Fisheries will have a record of the underlying raw EM imagery and data for five years to carry out conservation and management activities.

NOAA Fisheries partnered with the New England Fishery Management Council to host a National EM Workshop in November 2019 and partnered with the Pacific States Marine Fisheries Commission to host a National EM Workshop in February 2020. Both workshops provided a platform for different regions and fisheries to present updates on their program successes and challenges, and for all participants to discuss the development and implementation of EM programs. The NOP posted a final report for the workshops, as well as workshop materials, on a NOAA Fisheries website.[8]

NOAA Fisheries supported several internal EM projects in Alaska, the Southeast, the Pacific Islands, and the Northeast for a total of over $2.1 million in FY 2020. These projects focused on, among other things, developing EM programs in the Gulf of Mexico shrimp and menhaden fisheries, refining catch handling practices to optimize EM in the Pacific Islands pelagic longline fisheries, and administering EM and portside sampling in the Atlantic herring fishery.

In addition, NOAA Fisheries partnered with the National Fish and Wildlife Foundation (NFWF) and other foundations in 2020 to support the Electronic Monitoring and Reporting Grant Program, which awarded $4.1 million for 16 projects in numerous fisheries including:

- New England groundfish
- Washington Dungeness crab
- Massachusetts recreational Atlantic Bluefin tuna
- Alaska fixed gear
- Gulf of Mexico for-hire reef fish
- Gulf of Maine scallop
- Alaska Pollock pelagic trawl

The NFWF webpage has additional information about these projects.[9]

3.2 National Seabird Program

The National Observer Program continued to support NOAA Fisheries' National Seabird Program (NSP) in FY 2020 through limited financial support to the NSP

[8] https://www.fisheries.noaa.gov/national/fisheries-observers/national-electronic-monitoring-workshops-report-videos

[9] https://www.nfwf.org/media-center/press-releases/nfwf-announces-41-million-awards-electronic-monitoring-and-reporting-grant-program

NMFS Center/Region	Project Name	Amount
West Coast Regional Office	Follow-Up Collaborative Workshop on Minimizing Seabird Bycatch in Groundfish Trawl Fisheries	$4,500
Alaska Regional Office	Streamer Line Distribution in Alaska Longline Fisheries	$5,000
Alaska Fisheries Science Center	Seabird Training for Alaska Groundfish Observers	$10,000
Alaska Fisheries Science Center	Pacific Seabird Bycatch Necropsy Program	$30,000
Alaska Fisheries Science Center	Reporting on 25+ Years of Seabird Monitoring and Mitigation	$10,000
Northwest Fisheries Science Center	Developing International Collaborations to Reduce Seabird Bycatch in U.S. and Global Trawl Fisheries during ACAP's Seabird Bycatch Working Group Meeting	$5,000
Southeast Fisheries Science Center	Simulation of Pelagic Longline Fishing Effort and Seabird Bycatch Hotspots off the U.S. Eastern Seaboard to Explore Modification of Fleet Effort Deployment to Reduce Seabird Bycatch	$15,000
Southwest Fisheries Science Center	Pink-Footed Shearwater Incidental Bycatch Outreach to Fishermen	$600
Total		**$80,100**

Table 2: **National Seabird Program internal award recipients, FY 2020.**

for observer-program-related seabird projects. (Table 2.) Staff members from the NOP also worked with the NSP to begin to implement the NSP five-year strategic plan (Ballance et al. 2019).[10] In particular, NOP staff members began to work with the NSP to develop standardized protocols for collecting seabird bycatch data and to establish protocols for reporting data from bycaught seabirds with leg bands.

3.3 Office of Protected Resources

The Office of Protected Resources (OPR) undertakes a variety of activities to support observer programs and fishery-dependent monitoring efforts. In addition to the March 2020 temporary waiver of monitoring requirements in North Carolina described in Section 3.1.3, the OPR conducted a variety of ESA- and MMPA-related rule-making efforts in 2020.

In September 2020, OPR published the 2021 Annual Determination (AD) (85 FR 60963) to implement sea turtle observer requirements under the ESA. The Federal Register notice provided notification that NOAA Fisheries would not identify additional fisheries to observe on the 2021 AD. Through the AD, NOAA Fisheries identifies U.S. fisheries operating in the Atlantic Ocean, Gulf of Mexico, and Pacific Ocean that will be required to take observers upon NOAA Fisheries' request. The purpose of observing identified fisheries is to learn more about sea turtle bycatch in a given fishery, evaluate measures to prevent or reduce sea turtle bycatch, and implement the prohibition against sea turtle takes. Fisheries identified on the 2018 and 2020 ADs (see Table 3) remain on the AD for a 5-year period and are required to carry observers upon NOAA Fisheries' request until December 31, 2022, and September 29, 2025, respectively.

Fishery	Years Eligible to Carry Observers
Trawl Fisheries	
Southeastern U.S. Atlantic, Gulf of Mexico shrimp trawl	2020-2025
Gulf of Mexico mixed species fish trawl	2020-2025
Gillnet Fisheries	
Chesapeake Bay inshore gillnet	2020-2025
Long Island inshore gillnet	2020-2025
Mid-Atlantic gillnet	2018-2022
Pound Net/Weir/Seine Fisheries	
Gulf of Mexico menhaden purse seine	2018-2022

Table 3: **Fisheries listed in the 2021 Annual Determination.**

[10] https://spo.nmfs.noaa.gov/content/tech-memo/national-seabird-program-five-year-strategic-plan-2020-2024

In September 2020, OPR published the proposed List of Fisheries (LOF) for 2021 (85 FR 59258), as required by the MMPA. NOAA Fisheries must classify each commercial fishery on the LOF into one of three categories under the MMPA based on the level of mortality and serious injury that occurs incidental to each fishery, with Category I representing the most serious level and Category III representing the least serious level. The September 2020 notice proposed to reclassify the Alaska Bering Sea, Aleutian Islands Pacific cod pot fishery from a Category III to a Category II fishery based on an observed entanglement of a Western North Pacific humpback whale in 2017. The proposed 2021 LOF also made a number of changes to the species/stocks injured/killed and updated the number of participants in many fisheries.

OPR supported activities of several TRTs in 2020, including obtaining input on observer coverage to better inform take reduction efforts. In response to recommendations by the Atlantic Large Whale TRT, NOAA Fisheries developed a proposed rule in 2020 to amend the Atlantic Large Whale Take Reduction Plan to reduce the incidental mortality and serious injury of whales in the northeast commercial lobster and crab trap/pot fisheries (85 FR 86878). In addition, NOAA Fisheries developed a proposed rule in 2020 to amend the regulations implementing the Atlantic Pelagic Longline Take Reduction Plan to reduce mortalities and serious injuries of short-finned pilot whales incidental to the Atlantic pelagic longline fishery.

In addition, OPR developed a proposed rule to implement guidelines for non-lethally deterring marine mammals from damaging fishing gear and catch. This rule was published in August 2020 (85 FR 53763) and included prohibitions on certain deterrent methods that NOAA Fisheries had determined, using the best available scientific information, would have a significant adverse effect on marine mammals.

3.4 Office of Law Enforcement

Consistent with COVID-19 restrictions, NOAA Fisheries Office of Law Enforcement (OLE) representatives provided training remotely to new observers in Alaska, the Northeast, the Southeast, and on the West Coast. The OLE Northeast Division Liaison worked with the Fisheries Sampling Branch (FSB) at NOAA Fisheries' Northeast Fisheries Science Center to prepare for the August 2020 resumption of observer coverage after a five-month hiatus, including working with the observer program to troubleshoot coverage refusals related to COVID-19. OLE continues to prioritize investigation of observer harassment allegations.

Photo: Northeast Fisheries Science Center

An observer records data on scallops.

4. Alaska Program Activities

The North Pacific Observer Program (Observer Program) deployed 373 observers for a total of 41,130 sea days across the groundfish fisheries in Alaska. The following sections describe programmatic activities for the Observer Program in 2020.

In response to COVID-19, the Observer Program completely reengineered observer logistic processes including observer training classes, briefing and debriefing protocols, extensions to observer deployment, and modifications to sampling protocols to minimize observers from vessels interacting with staff in processing plants. These efforts enabled successful observer deployment in the majority of fisheries. NOAA Fisheries only released one full-coverage trip (<0.1 percent of all trips) from its observer requirement due to COVID-19. Similarly, monitoring rates for full and partial coverage EM fisheries were not substantially impacted by the response to COVID-19.

For partial-coverage fisheries that were monitored by observers, changes to deployment created three distinct time periods. In the first time period, (pre-COVID) the agency achieved its intended sampling rates for all three partial coverage strata. In the second time period (March – late June), there was no statistical expectation of coverage, due to the waivers being issued. In the third time period (late June – December), observers deployed out of specific ports; intended sampling rates were achieved in the trawl stratum, but were less than expected in the hook-and-line and pot strata.

Despite all of the challenges of 2020, the Observer Program was able to safely continue the majority observer program operations off Alaska. 373 observers were trained, briefed, and deployed to vessels and processing facilities operating in the Bering Sea and Aleutian Islands and Gulf of Alaska groundfish and halibut fisheries. Overall, for all federal fisheries off Alaska, 4,072 trips (44.8 percent) and 375 vessels (38.2 percent) were monitored by either an observer or EM system in 2020. For more information about Observer Program adaptations and achievements during the COVID-19 pandemic, see AFSC and ARO 2021.

4.1 North Pacific Observer Program

The Fisheries Monitoring and Analysis (FMA) Division of the Alaska Fisheries Science Center administers four monitoring programs in the federal groundfish and halibut fisheries off Alaska:

- Full-Coverage North Pacific Observer Program
- Partial-Coverage North Pacific Observer Program
- Fixed-Gear Electronic Monitoring Observer Program
- Electronic Monitoring Innovation Project

In June of each year, NOAA Fisheries provides an annual report to the North Pacific Fishery Management Council (NPFMC) on the previous year's Observer Program deployment performance. Based on the analysis and recommendations in the report, a proposed Annual Deployment Plan (ADP) for the coming year is provided to the council in October. This process allows fishery managers to adapt and respond to management needs of North Pacific fisheries.

NOAA Fisheries staff from the FMA Division and the Alaska Regional Office released its draft 2021 ADP (NMFS 2020) for the Partial-Coverage Observer Program in September 2020 and presented it to the NPFMC and its associated committees and advisory bodies in October 2020. Similar to its approach in the latter half of 2019, the FMA proposed using a port-based approach to deploy observers in its partial coverage program.

4.2 Regulatory Updates

On March 9, 2020, NOAA Fisheries published a proposed rule (85 FR 13618) to adjust the North Pacific Observer Fee from 1.25 percent to 1.65 percent of the ex-vessel value of landings subject to the fee. NOAA Fisheries published a final rule to implement this fee change on July 10, 2020 (85 FR 41424).

Under an emergency rule signed on March 24, 2020 (85 FR 17285), NOAA Fisheries temporarily waived the requirement for vessels in the Partial Coverage Category to carry a fishery observer from March

27 through April 19, 2020. On April 18, 2020, NMFS announced a limited extension of the temporary waiver of observer requirements[11], which narrowed the scope and reinitiated deployment of observers on trips departing from the port of Kodiak, Alaska (the majority of Gulf of Alaska trawl fisheries occurred out of Kodiak during this timeframe).

On June 26, 2020, NOAA Fisheries expanded observer deployment in the partial coverage category to include 13 additional ports and further reduce the scope of waivers issued. The largest component of the Alaskan groundfish fisheries, vessels, and processors in the full coverage category (including catcher processors and participants in limited access privilege programs), were not issued waivers in 2020. Additionally, requirements for deployment of EM was not waived for trawl catcher vessels fishing under the trawl EM exempted fishing permit, and only a few trips were released from coverage under the fixed gear EM portion of the partial coverage category for circumstances when an EM service technician was unable to travel.

4.3 Safety and Training

Due to the COVID-19 pandemic, FMA altered its safety training standards for both trainees and experienced observers. The FMA developed an innovative hybrid remote/in-person observer training course to maintain the majority of our in person safety. The FMA also made the following changes to its in-water exercises: dropped the requirement for trainees to demonstrate the "huddle" position; modified the "chain swim" position to use floating dummies; and required trainees to board a life raft unassisted. For experienced observers, safety briefings became remote, so no-hands on safety practices occurred with FMA staff. Observers were still encouraged to participate in hands-on drills aboard vessels. The cold-water safety refresher for all experienced observers was delayed at least until 2022.

4.4 Observer Recruitment and Retention

During the pandemic, the FMA made broad use of regulatory waiver authority within its own regulations to extend deployments beyond limits (e.g., 90-day deployment limit; 90 days on an individual vessel in a 365-day period) to retain observers and maintain coverage. Permitted observer provider companies reported good success in recruiting high-quality new observers in 2020.

4.5 Electronic Monitoring

The FMA was active on multiple EM fronts in 2020, including in the Fixed-Gear EM Program, which deployed EM systems on both longline and pot (trap) vessels. Through this program EM was offered as an option for up to 167 fixed gear hook-and-line and pot vessels. Video collected from vessels participating in the EM program was sent to Pacific States Marine Fisheries Commission (PSMFC) for review. Data were then transferred from PSMFC to NOAA Fisheries and incorporated into the Catch Accounting System for catch estimation to support in-season management of the fisheries.

The FMA continued its EM Innovation Project, which focuses on machine learning and intelligent monitoring systems to improve the timeliness and utility of EM data. This research is supported through the competitive request for proposal process funded by Fisheries Information System Program and the NOP.

The NPFMC re-prioritized its EM objectives to shift the focus from fixed-gear to trawl vessels. Two groups that serve on the NPFMC's EM Committee received funding from NFWF to test EM protocols to monitor and quantify discard events, coupled with more robust shoreside sampling. These same groups submitted an Exempted Fishing Permit (EFP) request. NOAA Fisheries issued the EFP on January 6, 2020[12], which authorized evaluation of the potential use of EM as a monitoring tool for compliance with fishery management regulations for the pollock pelagic trawl catcher vessels in the Bering Sea and Gulf of Alaska. The results of this EFP could provide valuable operational and cost information in evaluating future implementation of such a program. The permit holders and the agency provided an update to the NPFMC's EM Committee in September 2020.

[11] https://www.fisheries.noaa.gov/bulletin/ib-20-33-limited-extension-emergency-waiver-alaska-observer-requirements-authorized
[12] https://media.fisheries.noaa.gov/dam-migration/efp-trawl-em-2020-permitpdf.pdf

5. West Coast Program Activities

On October 1, 2014 (beginning of FY 2015) the Southwest Regional Office and Northwest Regional Office merged to become the West Coast Regional Office. However, for the purposes of this report, program reporting is still organized into the two subregions in Sections 5.1 and 5.2.

5.1 Northwest

The activities of the Northwest Fisheries Science Center's (NWFSC) Fisheries Observation Science Program (FOS) is comprised of the At-Sea Hake Observer Program (A-SHOP) and the West Coast Groundfish Observer Program (WCGOP). Generally, FOS programs can be divided into two components: Catch Shares, which is industry funded, and Non-Catch Shares, which uses federally funded observers. Catch share fisheries consist of the following fleets: bottom trawl; mid-water non-hake; fixed gear; at-sea hake (including catcher processors, motherships, and mothership catcher processors); and shoreside hake. Non-catch share fisheries consist of the limited-entry sablefish fixed gear; open-access fixed gear; directed 2A Pacific halibut derby fixed gear; Washington, Oregon, and California pink shrimp trawl; Oregon and California nearshore fixed gear; California halibut trawl; California ridgeback prawn trawl; and California sea cucumber trawl fisheries. The WCGOP and A-SHOP deployed 155 observers for a total of 4,519 days in 2020.

On April 15, 2020, the NOAA Fisheries West Coast Regional Administrator issued a public notice waiving all observer coverage requirements through April 30th for all West Coast fisheries.[13] The 14-day waiver was issued to allow for observers and shoreside catch monitors to participate in a 14-day self-isolation period. At the end of this period, observers were deployed to vessels and processing plants at a 1:1 ratio, meaning an observer or catch monitor only deployed to the same vessel or plant. If an observer needed to switch vessels or plants, the observer would participate in another 14-day isolation period. This approach was taken to help address industry concerns that observers covering multiple vessels posed an increased risk to crews, and to help mitigate the risk of spreading the COVID-19. As of September 10, 2020, the WCGOP had issued waivers for approximately 300 fishing trips, which was about twice the typical number of waivers issued.

5.1.1 West Coast Trawl Catch Share Program

The West Coast Groundfish Trawl Catch Share program was implemented January 11, 2011. Under the trawl rationalization program, the portion of total allowable catch for the fishery is divided into individual quota shares that are allocated to permit owners. Quota shares can be leased or sold, and both landed and discarded catch count against quota pounds for fishers. Individual accountability is a core component of this catch share program, and all trips and landings are monitored. At-sea observers or EM are used to account for discarded catch at-sea, and catch monitors work shoreside to verify and monitor all landings. The WCGOP provided 3,440 sea days of coverage for these sectors in 2020.

5.1.2 West Coast Non-Catch Share Fisheries

Federal funds paid 100 percent of the cost of observer coverage in the non-catch share fisheries. The WCGOP provided 1,079 sea days of coverage in 2020 for these sectors. Although many of these sectors may be lower volume or do not target groundfish, they all interact with groundfish species and protected species and are an important component for accounting total mortality of groundfish species and stocks.

5.1.3 Safety and Training

The COVID-19 pandemic inspired the WCGOP to conduct observer debriefings via videoconference, which was received favorably by some observers who appreciated more frequent virtual face-to-face access with WCGOP staff. The WCGOP conducted three training sessions in 2020, one of which was conventional and one of which finished virtually due to COVID-19. The third training session was hybrid, with two weeks of virtual training and one week of in-person training. In addition, the WCGOP conducted four training briefings in 2020, one of which was virtual. The A-SHOP conducted four virtual trainings sessions in 2020.

5.1.4 Electronic Monitoring

In June 2019, NOAA Fisheries issued a final rule (84 FR 31146) to implement an EM program for two

[13] https://www.fisheries.noaa.gov/bulletin/notice-waiver-observer-and-catch-monitor-coverage-requirements

sectors of the limited entry trawl fishery, consistent with the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Pacific Coast Groundfish FMP. The action allowed catcher vessels in the Pacific whiting fishery and fixed gear vessels in the shorebased Individual Fishing Quota (IFQ) fishery to use EM in place of observers to meet the requirements of the Trawl Rationalization Program for 100 percent at-sea observer coverage. This action was necessary to increase operational flexibility and reduce monitoring costs for vessels in the trawl fishery by providing an alternative to observers. EM systems were deployed on 46 vessels for a total of 3,915 sea days in 2019.

5.2 Southwest

The West Coast Regional Observer Program (WCROP) deployed 9 observers for a total of 485 sea days in 2020. NOAA Fisheries' Southwest Fisheries Science Center (SWFSC) uses observer data to estimate incidental take of marine mammals in preparation for the annual Stock Assessment Reports and to document the incidental take of sea turtles, seabirds, and target and non-target fish species. The WCROP posts catch summaries informed by observer data online.[14]

5.2.1 Drift Gillnet

On February 2, 2020, NOAA Fisheries published regulations (85 FR 7246) under the authority of Section 303(b) of the MSA to implement an immediate closure of the California/Oregon drift gillnet (DGN) fishery for swordfish and thresher shark (14 inch (36 cm) minimum mesh size) if a hard cap (i.e., limit) on mortality/injury is met or exceeded for certain protected species during a rolling two-year period. The length of the closure will be dependent on when the hard cap is reached. The implementation of hard caps was intended to manage the fishery under the MSA to protect certain non-target species. The publication of this final rule was necessary to comply with a court order issued January 8, 2020. WCROP observers were expected to communicate immediately to their observer provider company as well as to the WCROP if any interactions occur with hard cap species. The WCROP also conducted an observer bias analysis of DGN coverage that compared DGN fishing effort to DGN observer coverage with no significant differences in fishing behavior identified.

5.2.2 Exempted Fishing Permits and Longline

The Pacific Fishery Management Council (PFMC) supported six exempted fishing permit (EFP) fisheries in 2020. Four of these EFPs covered standard and linked buoy gear vessels. The observer coverage target for these four EFPs was 100 percent for a vessel's first three days of fishing and then 10 percent thereafter. Another EFP covered nighttime buoy gear fishing by two vessels with an initial coverage target of 100 percent. The sixth EFP covered boats using deep-set shortline (as opposed to longline) fishing gear.

In 2020, three deep-set longline vessels operated under the FMP for U.S. West Coast Fisheries for Highly Migratory Species. The observer coverage rate for these vessels was 23.5 percent.

5.2.3 Electronic Reporting

In 2020, the WCROP began field testing of a tablet-based data collection application for the Deep-Set Buoy Gear fishery. The application, called the Onboard Record Collection Application, was developed with the Pacific States Marine Fisheries Commission (PSMFC). After field testing the WCROP will add modules for Drift Gillnet, Set Gillnet and potentially Longline and Purse Seine fisheries. In addition, the WCROP received funding to purchase radio frequency identification tags to better track deployed buoy gear.

The WCROP also continued a partnership with several NOAA Fisheries Regional Offices and Science Centers, as well as the States of California and Oregon, to effectively coordinate and integrate data for highly migratory species off the West Coast and Pacific Islands. This work is described in more detail in Section 6.2.

5.2.4 Safety and Training

The WCROP continues to provide safety training for staff members from the NOAA Fisheries Southwest Fisheries Science Center's Antarctic Research Division. The WCROP supported the purchase of personal locator beacons and satellite communications devices observers on large purse seine vessels in Inter-American Tropical Tuna Commission fisheries. The WCROP also conducted hybrid training in September 2020, with two in-person training days covering in-water skills and a dock tour.

[14] http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program_info/data_summ_report_sw_observer_fish.html

6. Pacific Islands Program Activities

The Pacific Islands Regional Observer Program (PIROP) supports observer coverage in three fisheries with the following observer coverage targets: 20 percent observer coverage (partial coverage) in the Hawaii pelagic longline deep-set tuna and American Samoa pelagic longline fisheries, and 100 percent coverage in the Hawaii pelagic longline shallow-set swordfish fishery. Although these high coverage targets require substantial resources to support observers who may stay at sea for extended periods of time and travel long distances, the PIROP has traditionally been able to mieet its targets. However, due to COVID-19 travel restrictions to American Samoa, the American Samoa pelagic longline fishery was not able to meet its coverage target for 2020. In 2020, the PIROP deployed 59 observers for a total of 5,159 sea days across all three fisheries. Like the WCGOP, the PIROP used a 1:1 observer deployment plan to maximize safety of observers and captains and crew.

The PIROP arranges for observer placement, logistics, and gear and data forms for both the Western and Central Pacific Fisheries Commission and Inter-American Tropical Tuna Commission Convention Areas. The Program is the primary point of contact for U.S. vessels on reporting requirements, concerns, and Treaty updates, even for the vessels that land in foreign ports. The PIROP also assists the Pacific Community[15] with collection of biological samples and tuna tagging.

During the pandemic, PIROP staff members in American Samoa have played an integral role in providing support for the Forum Fisheries Agency (FFA) observer program. Because of travel restrictions due to the pandemic, FFA observers disembarked from purse seine vessels in American Samoa and were required to wait for repatriation to their home countries for extended periods of time. PIROP staff members coordinated everything from lodging and stipends, to transporting the observers to medical appointments and helping to coordinate their travel back to their home ports. All observers had been repatriated to their home countries as of the end of FY 2020.

6.1 Regulatory Updates

NOAA Fisheries' Pacific Islands Regional Office (PIRO) implemented new business rules on March 20, 2020 for observer placement during the COVID-19 pandemic. Using these business rules, the PIRO waived 44 of 284 trips that would have been observed in the partial coverage deep-set fishery since March 20, 2022. The PIRO issued almost all of these waivers during the first six weeks of the pandemic, before observer provider safety protocols were in place. By the end of FY 2020, the partial coverage fishery came close to meeting its target coverage of 20 percent. The PIRO did not issue any waivers for the Hawaii pelagic longline shallow-set swordfish fishery. Due to the ending of flights to American Samoa which was still in effect as of the end of FY 2020, the PIRO continued to waive trips as there were no observers in American Samoa. However, the PIROP was able to observe one trip with a federal PIROP debriefer.

On September 17, 2020, NOAA Fisheries published a final rule to revise measures that govern interactions between the Hawaii shallow-set pelagic longline fishery and sea turtles. This rule lowers the annual fleet interaction limit ("hard cap") for leatherback sea turtles from 26 to 16 and removes the annual fleet hard cap for North Pacific loggerhead turtles. This rule also creates individual trip interaction limits of two leatherback and five North Pacific loggerhead turtle interactions, with accountability measures for reaching a limit. PIROP observer coverage is critical to monitor compliance with these measures.

6.2 Data and Electronic Reporting

In 2019, the PIROP transitioned its Oracle-based observer database housed at the NOAA Fisheries Pacific Islands Fisheries Science Center (PIFSC) to a Microsoft structured query language, or SQL, database housed at the PIRO. Since January 2020, PIROP data have been entered directly into the PIRO database. The PIROP began to focus on its data request procedures and data collection protocols in 2020.

[15] https://www.spc.int/

During the pandemic, observers were not able to enter their data directly because they could not access government computers. Instead, PIROP debriefers entered all data, and debriefing interviews and data clarifications were conducted over the phone or via video conference.

In 2020, the PIROP partnered with the NOAA Fisheries West Coast Region to develop the next iteration of the observer e-Reporting project. This project was a joint effort among the WCROP, the PIROP, and the Pacific Fisheries Information Network (PacFIN) to develop electronic reporting (ER) for highly migratory species (HMS) fisheries observers (e.g., drift gillnet, setnet, deep-set buoy, and longline). Because the WCROP and PIROP overlap in jurisdiction and responsibility to monitor and report on HMS fisheries in the Pacific, this project combined lessons learned from previous projects from the West Coast and Pacific Islands Regions to develop and implement ER into a single cross-regional ER system that will benefit both programs. The WCROP and PacFIN developed the Onboard Record Collection Application (ORCA) to collect data at-sea on rugged mobile devices in extreme marine environments. With this project, ORCA will be used by the WCROP and PIROP fishery observers to collect and enter data and aid in the consolidation of redundant data management efforts.

6.3 Safety and Training

The PIROP conducted one virtual refresher training class in 2020. PIROP instructors monitored some of the traditionally hands-on safety training activities via a phone app. Students were able to successfully demonstrate the correct donning of a personal floatation device and immersion suit, as well as demonstrate how to make a mayday radio call.

The PIROP has a robust process for detecting and generating reports of observed violations of the International Convention for the Prevention of Pollution from Ships (MARPOL). The PIROP reported one MARPOL violation in FY 2020. A U.S. Coast Guard representative supports MARPOL compliance and reporting training, and the PIROP provides observers with a MARPOL placard as part of their compliance monitoring materials.

7. Greater Atlantic Program Activities

The Fisheries Monitoring Operations Branch (FMOB) at NOAA Fisheries' Northeast Fisheries Science Center (NEFSC) oversees observer programs in the Greater Atlantic Region. The FMOB coordinates three different observer programs. The Northeast Fisheries Observer Program (NEFOP) is the longest-standing program and provided 1,194 observer days in 2020. The Industry-Funded Scallop (IFS) Observer Program provided 942 observer days in 2020. The At-Sea Monitoring (ASM) Program for groundfish provides supplemental monitoring for groundfish sector catch accounting; its deployments totaled 1,668 observer days. Overall, these three programs deployed 100 unique observers in 2020.

The FMOB observes more than 60 fleets in the Greater Atlantic (Maine through North Carolina), including the New England multispecies groundfish, monkfish, dogfish, and skates (trawl, gillnet, hook, and pot gear); Atlantic sea scallop (dredge and trawl); lobster pot, ocean quahog, and surf clam dredge; mid-water paired and single trawl (herring, mackerel, and squid); and purse seine, shrimp trawl, and conch and crab pot fisheries.

Greater Atlantic fisheries experience less than 100 percent observer coverage, and individual fishing vessels may have coverage ranging from 5 percent to 50 percent in a given year. The FMOB has established a variety of means to select vessels for observer deployments, and these means vary by fishery. A pre-trip notification system selects vessels in the groundfish fishery, a phone call-in system selects vessels in herring and mackerel fisheries, and an interactive voice recording call-in system selects vessels in the scallop fishery. The FMOB tries to meet an assortment of observer coverage targets each year. The FMOB meets or exceeds some targets, but other targets can be challenging due to several factors including fishing vessel non-compliance, complex coverage exemptions, and observer retention challenges.

However, the COVID-19 pandemic created an unusual coverage year in the Greater Atlantic Region. The NOAA

Fisheries Greater Atlantic Regional Office and NEFSC waived observer and at-sea monitoring requirements for all Greater Atlantic Region fisheries from March 21, 2020, through June 30, 2020. The agency issued four 2-week extensions after the initial waiver period of March 21 through April 4, 2020, followed by a 4-week extension of the waiver period through June 30. The FSB devoted considerable time and energy to prepare for planned resumption of observer deployments on July 1, 2020.

However, on July 1, 2020, the Greater Atlantic Regional Fisheries Office Regional Administrator asked that the NOAA Fisheries Assistant Administrator (AA) for Fisheries concur with a decision to extend the temporary waiver of observer and at-sea monitoring requirements for all Greater Atlantic Region fisheries. The AA concurred with the request. This request was made because the availability of observers remained compromised because of the need to comply with continued state and local health and safety requirements and guidelines. Additionally, as states have begun to reopen in the summer of 2020, increasing COVID-19 cases nationally resulted in new travel restrictions being implemented in the Northeast and Mid-Atlantic (e.g., a 14-day quarantine period when entering some states), and in some cases, states paused reopening plans due to the changing situation with the pandemic. Due to these COVID-19 challenges and restrictions, recruiting obstacles for the observer providers, training constraints, and low retention of experienced observers, sea day accomplishments for the 2020 were lower than in previous years.

7.1 Regulatory Updates

In March 2020, the New England Fishery Management Council (NEFMC), in consultation with the Mid-Atlantic Fishery Management Council and NOAA Fisheries, released the Northeast Multispecies Fishery Management Plan (FMP) Draft Amendment 23, including a Draft Environmental Impact Statement (DEIS). The DEIS included several preferred alternatives that had direct implications for the FSB, including the following:

- Commercial groundfish monitoring program revisions (sectors only): Sets the standard at a fixed total ASM coverage level, based on a percentage of trips, at 100 percent coverage; allows additional sector monitoring tools, in addition to human ASM, including the audit model with EM and maximized retention with EM combined with dockside monitoring; and establishes a review process to evaluate the monitoring coverage rate.
- Commercial groundfish monitoring program revisions (sectors and common pool): No action would maintain the status quo, no mandatory dockside monitoring program for sectors and the common pool.
- Funding/operation provisions of groundfish monitoring (sectors and common pool): Allows for waivers from monitoring requirements for sectors and common pool under certain conditions.
- Remove commercial groundfish monitoring requirements for certain vessels under certain conditions: Removes monitoring program requirement for vessels fishing exclusively west of 71 degrees 30 minutes west longitude from at-sea and dockside monitoring coverage requirements, and establishes a review process for vessel to be removed from commercial groundfish monitoring program requirements.

The above-mentioned 100 percent coverage was a target for the first four fishing years following the effective date of Amendment 23 to establish a baseline of accurate and precise catch information for the fishery and thereafter until a subsequent Council action modifies coverage levels. This coverage selected is a target coverage rate, with the understanding that waivers may need to be granted in limited circumstances and for good cause only. Target coverage rates would be subject to available agency funding and Congressional appropriation. In year three following the effective date of Amendment 23, a review of the target coverage rate would commence. NOAA Fisheries has created a website that features additional information regarding Amendment 23.[16]

In July 2020, the NEFMC, in consultation with NOAA Fisheries, released the Atlantic Sea Scallop FMP Draft Amendment 21, including a DEIS. This DEIS, among other things, included a preferred alternative that would expand the observer call-in requirement to all scallop vessels operating in the Northern Gulf of Maine (NGOM) Management Area, which would support

[16] https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/northeast-groundfish-monitoring-program

observer coverage in the NGOM management area. NOAA Fisheries has created a website that features additional information regarding Amendment 21.[17]

7.2 Training and Safety

The FMOB implemented a hybrid training program for over 30 students at the end of August 2020. The FMOB conducted training remotely and on-site. Trainers shipped resources including tablets, cameras, manuals, guides, and training binders to each trainee's remote location. The FMOB required students to have certain technologies for the remote sessions, including a computer, work station, and reliable internet service. Training was structured as follows:

- On-Boarding Session: A three-to-four-day remote session covering topics such as security and establishment of email accounts.
- Base Training: A nine-day session that consisted of assessment quizzes, homework, and group breakout sessions that covered topics contained in all initial trainings that could be taught remotely.
- Tracks Remote Session: Students split into groups remotely for an additional three days of training into either a NEFOP or IFS track.
- On-Site Training: Students trained on-site in two groups in order to accommodate approved risk assessment protocols for COVID-19.

This hybrid training approach eliminated the standard training cruise for students, which was replaced by a port trip.

The FMOB also developed and conducted a four-day, fully remote training for high-volume herring NEFOP observers. In addition, the FMOB worked in 2020 to develop an approach to provide hybrid training for at-sea monitors.

7.3 Electronic Monitoring

The NEFSC designed a new database and Application Programming Interface (API) to facilitate the use of EM for additional purposes such as stock assessments. The API was designed to be dynamic, capable of accommodating multiple fisheries and programs, and aligns with NEFSC data modernization initiatives. The API was designed using open source software, allowing for the API's schema and rules to be readily understood by software developers and fishery biologists, which should remove barriers for new software providers to compete for EM work in the Northeast.

The FMOB prepared for the 2021 management change that will allow groundfish sectors to use an audit-model EM program as a replacement for at-sea monitoring on a voluntary basis. The maximized retention EM model for groundfish sectors continued to operate under an EFP in 2020. The above-mentioned Amendment 23 approved both the audit-model and maximized retention model as optional tools to meet monitoring requirements. This may advance the adoption of EM because it removes the current disparity between human and EM coverage levels.

In 2020, NOAA Fisheries collected images from its biannual bottom trawl survey to continue to build the agency's fish image library. The image library will serve as a training tool for EM machine learning applications that could result in EM data analysis efficiencies and lower program costs for the industry. From this work, the agency will determine whether this technology can estimate fish size and identify fish species to the level needed by managers and scientists. The goal of this project is to develop an algorithm that could be used in open source software products to annotate EM footage. This technology would increase the accuracy of catch reporting while expanding the use of EM to monitor fisheries.

7.4 Staffing and Observer Retention

During 2020, the NEFSC's Fishery Monitoring and Research Division reorganized itself into four branches:

- Cooperative Research.
- Training and Data Quality.
- Fisheries Monitoring Operations.
- Data Information Systems.

In FY 2020, 82 observers left the NEFOP, and 68 observers joined the program, for an 11 percent overall decrease in observers. The FMOB identified the following challenges for observer recruitment in FY 2020:

[17] https://www.fisheries.noaa.gov/action/amendment-21-atlantic-sea-scallop-fishery-management-plan

- Uncertainty around training dates: Providers experienced difficulty in recruiting trainees when training dates changed in order to create new hybrid trainings to accommodate social distancing and safety concerns. The uncertainty of the training dates has also posed new challenges for the providers when communicating with new hires about schedules and what to expect.
- Providers did not actively recruit observers while the blanket observer waiver was in effect from March to April 2020.
- Providers were unable to travel to college job fairs to recruit new observers due to COVID-19, or conduct in-person interviews, which had been the preferred interview format.

8. Southeast Program Activities

The Southeast Fisheries Observer Program (Observer Program) observed 1,671 sea days in 2020, with a total of 54 observers. The program observed six fisheries in 2020:

- Shrimp trawl, with observer program based in Galveston, Texas.
- Pelagic longline, with observer program based in Miami, Florida.
- Gulf of Mexico reef fish, with observer program based in Galveston.
- Shark bottom longline, with observer program based in Panama City, Florida.
- Southeast gillnet, with observer program based in Panama City.
- South Atlantic reef fish, with observer program based in Panama City.

The COVID-19 pandemic resulted in lower-than-usual coverage rates for all of these fisheries, with the exception of the Atlantic highly migratory species (HMS) shark research fishery, which is covered by the above-mentioned shark bottom longline program and which has a regulatory requirement for 100 percent observer coverage. Observer coverage waivers in the Southeast began on April 6, 2020, and applied only to human observer coverage and not to EM. The waiver decision was based on shelter-in-place requirements, travel restrictions, and distancing requirements at the national, state, and/or local levels. Southeast observers maintained their health insurance and benefits during their furlough. Deployments for all of the above-listed observer programs resumed on August 1, 2020.

8.1 Southeast Shrimp Trawl Observer Program

The Shrimp Observer Program maintained an approximately two percent observer coverage goal for the Gulf of Mexico federal penaeid and rock shrimp otter trawl fisheries, although actual coverage was 1.5 percent due to COVID-19 restrictions. Program staff published a characterization of the fisheries using observer data in 2020 (Scott-Denton et al. 2020). The Shrimp Observer Program provided bycatch data that are critical the Gulf of Mexico Fishery Management Council (GMFMC) and NOAA Fisheries stock assessment scientists. These data provide information on directed target species and discarded bycatch that also includes undersize target species. These data are a key component in the GMFMC's red snapper rebuilding plan by providing accurate estimates of juvenile red snapper mortality taken in shrimp fishery, as well as other species of interest including protected species.

8.2 Pelagic Longline Observer Program

In addition to mandated eight percent coverage through all statistical areas, the Pelagic Observer Program completed a Gulf of Mexico enhanced coverage program in 2020. During 2020, the NOAA Fisheries HMS Management Division developed draft Amendment 12 to the 2006 Consolidated Atlantic HMS FMP. Amendment 12 was developed to, among other things, respond to a 2017 NOAA Fisheries rulemaking on standardized bycatch reporting methodology (SBRM). Draft Amendment 12 identified its SBRM for the Pelagic Longline Fishery to be a combination of mandatory logbook reporting, mandatory observer

coverage, mandatory EM, and the use of mandatory vessel monitoring systems. NOAA Fisheries has created a website that features additional information regarding Amendment 12.[18]

8.3 Reef Fish and Coastal Gillnet Observer Programs

The Gulf of Mexico Reef Fish Observer Program based out of Galveston, Texas, provided less than one percent coverage for the Gulf of Mexico reef fish fleet in 2020. This coverage was less than in previous years due to COVID-19 and other factors, which resulted in less biological sampling (e.g., collection of gonads and otoliths) for species of interest. Developments in this fishery related to EM are described in Section 8.6. In addition, the observer program based out of Panama City, Florida, continued to deploy a limited number of observers on commercial vessels targeting reef fish species in the U.S. South Atlantic vertical line fishery in 2020. The Southeast Gillnet Observer Program continues to cover anchored (sink and stab), strike, or drift gillnet fishing, regardless of target, by vessels that fish year-round from Florida to North Carolina and the Gulf of Mexico.

8.4 Shark Bottom Longline Observer Program

The Shark Bottom Longline Observer Program (SBLOP) based out of Panama City has conducted observations of the shark-directed bottom longline fishery in the Atlantic Ocean and Gulf of Mexico since 2005. Currently about 219 U.S. fishermen are permitted to target sharks in the Atlantic Ocean and Gulf of Mexico, and an additional 264 fishermen are permitted to land sharks incidentally. Amendments to the Consolidated Atlantic Highly Migratory Species Fishery Management Plan implemented a shark research fishery, which allows NMFS to select a limited number of commercial shark vessels on an annual basis to collect life history and catch data for future stock assessments (NMFS 2006). Specifically, only commercial shark fishermen participating in the research fishery are allowed to land sandbar sharks, *Carcharhinus plumbeus*, and must carry an observer on 100 percent of all trips (compared to a target coverage level of five to ten percent outside the research fishery). Outside the research fishery, fishermen are permitted to land other large coastal sharks (e.g., blacktip shark, *Carcharhinus limbatus*, and bull shark, *Carcharhinus leucas*).

8.5 Deepwater Horizon Observer-Related Activities

The Pelagic Longline Observer Program also deployed observers for the fourth year of a Deepwater Horizon (DWH) settlement-funded alternative gear experimental fishing project designed to test alternative gear in the Gulf of Mexico, where vessels used a combination of green stick, buoy, and deep-drop rod and reel gear as opposed to pelagic longline gear.

Also in 2020, the Observer Program continued to participate in discussions related to development of a DWH restoration project that would create an observer program for the Gulf of Mexico menhaden purse seine fishery. The program also participated in discussions in 2020 regarding another DWH project that would develop, evaluate, and certify new bycatch reduction devices (BRDs) and BRD combinations for use in U.S. and Mexican Gulf of Mexico shrimp trawl fisheries. For more information about these DWH projects, see the Open Ocean Restoration Area website.[19] In addition, the Observer Program received DWH funding for 300 supplemental observer sea days in the Gulf of Mexico shrimp trawl fishery to obtain targeted sea turtle information needs.

8.6 Electronic Monitoring

The Shrimp Observer Program conducted preliminary EM testing contracted commercial shrimp trawl vessels in 2020, finding that cameras performed well in capturing video for more than 109 hauls. Through further testing, EM reviewers documented catch of a loggerhead sea turtle, guitarfish, angel shark, black tip shark, red snapper, mutton snapper, rock shrimp, toadfish, filefish, and spiny lobsters. Given these results, the Shrimp Observer Program feels that new, innovative systems will be able to automate volume estimation for catch and species identification. NOAA Fisheries provided funding to the Shrimp Observer Program to further examine and enhance machine learning and EM use in the shrimp fishery via the following activities:

[18] https://www.fisheries.noaa.gov/action/amendment-12-2006-consolidated-hms-fishery-management-plan-msa-guidelines-and-national
[19] https://www.gulfspillrestoration.noaa.gov/restoration-areas/open-ocean

- Providing outreach to the shrimp industry to describe the project and the benefits of video monitoring
- Deploying seven EM systems on seven vessels over a twelve-month period
- Determining/establishing the most appropriate monitoring/sensor system and methods that best meet sampling objectives
- Annotating imagery previously collected and those collected in this study
- Using these annotations to retrain NOAA Fisheries' Alaska Fisheries Science Center image analysis machine learning algorithms that estimate volume of catch and discard species identification for the Southeastern shrimp fishery

Observer program managers were among the coauthors of a 2020 paper that reported on the testing of EM in Southeast commercial shrimp trawl vessels (Moncrief-Cox et al. 2020). Pair-wise comparisons of EM video to data collected by on-board observers for animals >1.0 kg in size led the authors to conclude that EM would be an effective tool for detecting protected resources and larger fauna interactions in the shrimp trawl fishery.

In 2020, the NOAA Fisheries HMS Management Division continued to maintain an EM program for Atlantic HMS pelagic longline vessels. The HMS Management Division issued several waivers in 2020 due to COVID-19 travel restrictions and the inability of EM service technicians to conduct installations and repairs.

In addition, Gulf of Mexico reef fish observers worked with Mote Marine Laboratory (Sarasota, Florida) to collect data aboard reef fish vessels equipped with EM to allow for pair-wise comparisons between human observer data and EM data. The Mote Marine Laboratory website features a full description of this project.[20]

The Panama City Shark Bottom Longline Observer Program's tablet application design was completed in 2020. The application was developed to include a chronological data entry format, with several validation and auto-fill solutions put in place. Other integrations include a digital notepad, photo re-naming and storage, barcode scanning, and encrypted file compression abilities. The protected data can be sent to observer program coordinators via wi-fi, where they can review and debrief the trip with the observer quickly. The next phase of the project will expands the application to the gillnet and vertical line gears covered by Panama City Observer Program.

8.7 Safety and Training

The Pelagic Longline Observer Program completed a four-day safety refresher training class in February 2020 for five observers. In July 2020, the observer programs in Galveston hosted a three-week new observer training session, with two weeks of virtual training and one week of on-site training.

[20] https://mote.org/research/program/center-for-fisheries-electronic-monitoring-at-mote-cfemm

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Appendix A:
NOAA Fisheries Observer Programs Funded in FY 2020 by Region

Alaska

Fisheries Observed	Fleet Size	Authority to Place Observers	Season of Operation	Funding Source	Program Duration	Target Coverage	Actual Coverage	Target Sea Days	Actual Sea Days*	Number of Observers
North Pacific Observer Program, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA 98115										
Program Manager: Jennifer Ferdinand, Jennifer.Ferdinand@noaa.gov, website: www.fisheries.noaa.gov/alaska/fisheries-observers/north-pacific-observer-program										
Bering Sea, Bering Sea and Aleutian Islands (BSAI) Groundfish Trawl Catcher Vessel - Voluntary Full Coverage Category; BSAI and Gulf of Alaska (GOA) Catcher Processors (C/P) (See Note); American Fishery Act (AFA) - Pollock Motherships (MS) and C/P; Community Development Quota (CDQ) - Pollock MS and C/P; CDQ - Groundfish Catcher Vessels (See Note); Central GOA Rockfish Catcher Vessels; Bering Sea Pollock Inshore Processors	1,418 vessels (164 in 100% coverage) 11 shoreside plants	MSFCMA (50 CFR 679.50)	Various	Obs/Trn-North Pacific Marine Resource Observers/ North Pacific Observer Program[1] National Observer Program[1] Reducing Bycatch Other Industry Funding	1973–present (Observer program); 1998–present (AFA); 2007–present (A80, CDQ); 2013–present (RP)	100%	99.7%	Defined by regulation	39,153	373
BSAI and GOA Groundfish and Pacific Halibut Fishery Partial Coverage Category: 3 Gear Based Strata; Electronic Monitoring (EM) Stratum; Trawl EM Exempted Fishing Permit (EFP); and EM Innovation Stratum			Year-round	Obs/Trn-North Pacific Marine Resource Observers/ North Pacific Observer Program[1] National Observer Program[1] Reducing Bycatch Other Industry Funding	2013–present	Trawl Gear Stratum: 20%; Hook and Line Stratum: 15%; Pot Gear Stratum: 15%; EM Stratum: 30%; Trawl EM EFP: 100% at-sea EM; plus: 30% shoreside monitoring in GOA or 100% shoreside monitoring in BSAI	Trawl Gear Stratum: Jan. 1 - Mar. 25: 22.4% Mar. 26 - Jun. 30: N/A Jul. 1 - Dec. 31: 16.1% Hook and Line Stratum: Jan. 1 - Mar. 25: 13.4% Mar. 26 - Jun. 30: N/A Jul. 1 - Dec. 31: 10.2% Pot Gear Stratum: Jan. 1 - Mar. 25: 15.5% Mar. 26 - Jun. 30: N/A Jul. 1 - Dec. 31: 8.5% EM Stratum: Hook & Line: 30.0% Pot: 30.9% Trawl EM EFP: 32.1% shoreside monitoring in the GOA	Defined by available funds and contracts with observer providers in Annual Deployment Plan (ADP). In 2020, deviations were made from the ADP due to COVID-19	1,977 including COVID-19 observer quarantine days)	

*Actual sea days does not include 2,425 shoreside plant coverage days (some of which are also co-occur with sea-days), bringing the total coverage days to 41,064
[1]Portion of budget line used to support management activities.

TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $8,040,533

TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $20,262,844

TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $28,303,197

West Coast (page 1 of 2)

Fisheries Observed	Fleet Size	Authority to Place Observers	Season of Operation	Funding Source	Program Duration	Target Coverage	Actual Coverage	Target Sea Days	Actual Sea Days	Number of Observers
West Coast Region Observer Program, West Coast Regional Office, 501 West Ocean Blvd, Long Beach, CA 90802-4213										
Program Manager: Charles Villafana, Charles.villafana@noaa.gov Website: www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program_info/observer_program_sw_fish.html										
California Large-Mesh Drift Gillnet Fishery	12 vessels	MMPA (50 CFR 229), MSFCMA (50 CFR 660)	August–January, May	National Observer Program	1990–present	20%	19.4%	50	35	9
Deep Set Buoy Gear Exempted Fishing Permit (EFP)	29 vessels	MSFCMA (50 CFR 660)	June–December	National Observer Program	2017–present	100%/30%/10%	20.9%	300	250	
Linked Deep Set Buoy Gear EFP	5 vessels	MSFCMA (50 CFR 660)	June–December	National Observer Program	2018–present	100%, 10%	100%	3	3	
California Set Gillnet Fishery	20 vessels	MMPA (50 CFR 229), ESA	January–December	National Observer Program	2007, 2010–2013, 2017–2018	0%	0%	0	0	
California Deep-Set Pelagic Longline Fishery	3 vessels	MSFCMA (50 CFR 660)	January–December	Reducing Bycatch National Observer Program	2001–present	20%	23.5%	200	197	
PSMFC Data Management and Bycatch Estimates	N/A	N/A	Year-round	National Observer Program	N/A	N/A	N/A	N/A	N/A	N/A

West Coast (page 2 of 2)

Fisheries Observed	Fleet Size	Authority to Place Observers	Season of Operation	Funding Source	Program Duration	Target Coverage	Actual Coverage	Target Sea Days	Actual Sea Days	Number of Observers
West Coast Groundfish Observer Program (WCGOP), Northwest Fisheries Science Center, 2725 Montlake Blvd East, Seattle, WA 98112-2097										
Program Manager: Jon McVeigh, jon.mcveigh@noaa.gov, website: www.nwfsc.noaa.gov/research/divisions/fram/observation/index.cfm										
West Coast Trawl Catch Shares (Shoreside and at-sea fleets)	154	MSFCMA (50 CFR 660) EM administered under an Exempted Fishing Permit in FY 2020	Shoreside: year-round; at-sea May–December	National Catch Share Program West Coast Observers Industry Funding National Observer Program Cost Recovery	Jan 2011 –present (Note: Includes historical fisheries LE Trawl 2001– 2010 and At-Sea Hake 1975–2010.)	100%	At-Sea: 100% Shoreside: 91-100% across gear types EM: 100% monitoring by EM systems, 8% scientific observer coverage	Defined by regulation (100% coverage, shoreside 1 observer; at-sea 2 observers) or EM	Shoreside: 1,775 At-Sea: 1,665 Shoreside offloads monitored: 2,253	111
Catch Share Using Electronic Monitoring									EM: 3,877	# Vessels Used EM: 46
West Coast Groundfish Non-Catch Share Fisheries (Limited Entry Fixed Gear, Open Access fisheries including state-managed fisheries)	LE: 190 longline, 33 trap permits; OA: approx 1,000	MSFCMA (50 CFR 660)	Year-round	National Observer Program West Coast Observers Reducing Bycatch	2001–present	LE: 40% OA: 1–10%	LE: 30% OA: 2–14%	Target coverage rate based on % of landings observed, not sea days	LE: 329 OA: 750	44
TOTAL WEST COAST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $8,571,074 ($1,356,452 of which funds the West Coast Region Observer Program (previous page)										
TOTAL WEST COAST OBSERVER PROGRAM FUNDING (INDUSTRY): $3,683,433*										
TOTAL WEST COAST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $12,254,507										

* This amount includes industry observer, shoreside catch monitor, and electronic monitoring costs. Catch monitor costs can be charged to the vessel or the processor and include coverage for electronic monitoring trips. For more information regarding industry expenditures related to monitoring of West Coast fisheries, see Steiner et al. 2021, as well as the NOAA Fisheries Northwest Fisheries Science Center's FISHEyE economic data visualization tool (https://dataexplorer.northwestscience.fisheries.noaa.gov/fisheye/PerformanceMetrics/).

Pacific Islands

Fisheries Observed	Fleet Size	Authority to Place Observers	Season of Operation	Funding Source	Program Duration	Target Coverage	Actual Coverage	Target Sea Days	Actual Sea Days	Number of Observers
Hawaii Fisheries Observer Program, Pacific Islands Regional Office, IRC, 1845 Wasp Blvd., Bldg. 176, Honolulu, HI, 96818										
Program Manager: Dawn Golden, dawn.golden@noaa.gov, website: www.fisheries.noaa.gov/pacific-islands/pacific-islands-region-observer-program										
Hawaii Pelagic Longline Fishery	164 vessels with permits (125 active)	MSFCMA (50 CFR 665), MMPA (50 CFR 229)	Year-round	Observers & Training–Hawaii Longline Observers, Reducing Bycatch, Hawaiian Sea Turtles, Fisheries Management, Fisheries Statistics	1994–present	20% tuna	15.25%	N/A	5,211	59
						100% swordfish	100%	N/A	899	
American Samoa Pelagic Longline Fishery	30	MSFCMA (50 CFR 665) in Jan 2005	Year-round	National Observer Program	2005–present	20%	2.08%	N/A	49	
Program Support for the Western and Central Pacific Fisheries Commission	N/A	N/A	Year-round	Reducing Bycatch	2008	N/A	N/A	N/A	N/A	N/A
Support for PIRO Observer Data Dissemination/ Access Activities	N/A	N/A	Year-round	National Observer Program	2007–present	N/A	N/A	N/A	N/A	N/A
TOTAL PACIFIC ISLANDS REGION OBSERVER PROGRAM FUNDING (APPROPRIATED): $7,674,562										
TOTAL PACIFIC ISLANDS REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL PACIFIC ISLANDS REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $7,674,562										

Greater Atlantic

Fisheries Observed	Fleet Size	Authority to Place Observers	Season of Operation	Funding Source	Program Duration	Target Coverage	Actual Coverage	Target Sea Days	Actual Sea Days	Number of Observers
Northeast Fisheries Observer Program (NEFOP), Northeast Fisheries Science Center, 166 Water Street, Woods Hole, MA 02543-1097										
Program Manager: Katherine McArdle, katherine.mcardle@noaa.gov, website: www.nefsc.noaa.gov/femad/fsb										
New England Multispecies Groundfish Sectors At-Sea Monitoring (ASM)	1,700 active permits	MSFCMA (50 CFR 648); MMPA (50 CFR 229)	Year-round	National Observer Program	2010–present	40% NEFOP and ASM combined coverage May 1-April 30 (as set by the Regional Administrator). This process differs from previous years that have used a 30% coefficient of variation.	11.6%	Targets for NEFOP groundfish days are set by SBRM (April through March), based on coefficient of variation and adjusted for funding availability and/or resource set-aside	1,668 (ASM)	60 (ASM)
				National Catch Share Program (ASM/ Electronic Monitoring)						
New England Multispecies Groundfish Sectors Standardized Bycatch Reporting Methodology (SBRM) prioritized fleets NEFOP Coverage				Northeast Fisheries Observer (NEFOP)	1990–present				504 (NEFOP)	29 (NEFOP)
SBRM prioritized fleets (non-groundfish)	1,900 active permits	MMPA (50 CFR 229); MSFCMA (50 CFR 648)	Year-round	Atlantic Coast Observers	2001–present	30% coefficient of variation on bycatch species (SBRM)	N/A	SBRM targets	650	39
				Reducing Bycatch	2010–present		N/A	SBRM targets		
Protected Species NEFOP Coverage	150 active vessels	MMPA (50 CFR 229	Year-round	Marine Mammal Observers	1994–present	30% coefficient of variation on critical marine mammal stocks	N/A	385	40	39
Atlantic Sea Scallop Fishery (Dredge and Trawl; General Category and Access Area Permits; Open and Access Areas)	500 active vessels	MSFCMA (50 CFR 648)	Year-round	Industry Funding	1999–present	3.5–10% by permit type/area fished, determined by SBRM and amount of set-aside	1.7%	Industry Funded Scallop target: 1,890 sea days, which include 1,323 SBRM days	942	36
				National Observer Program	1999–present					
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $23,466,632										
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $1,868,300										
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $25,334,932										

Southeast and Caribbean (page 1 of 2)

Fisheries Observed	Fleet Size	Authority to Place Observers	Season of Operation	Funding Source	Program Duration	Target Coverage	Actual Coverage	Target Sea Days	Actual Sea Days	Number of Observers
Southeast Shrimp Fishery Observer Program, Southeast Fisheries Science Center, Galveston Laboratory, 4700 Avenue U, Galveston, TX 77551										
Program Manager: Scott Leach, scott.leach@noaa.gov Website: www.fisheries.noaa.gov/southeast/fisheries-observers/gulf-mexico-reef-fish-and-shrimp-observer-program										
Southeastern Atlantic and Gulf of Mexico Shrimp Otter Trawl Fisheries (Including Rock Shrimp) Skimmer Trawl	Approx. 1,467 (GOM) and 534 (SA) USCG federally permitted vessels, unknown number of state vessels, ~106 rock shrimp vessels	Voluntary through July 2007; Mandatory–July 2007 MSFCMA (50 CFR 622)	Year-round	Obs/Trn-South Atlantic and Gulf Shrimp Observers Obs/Tm-Atlantic Coast Observers	1992–present	~2%	1.5%	1,500 + Special Projects	879	35 (also deployed in reef fish fishery)
Atlantic Pelagic Longline Observer Program, Southeast Fisheries Science Center, 75 Virginia Beach Dr, Miami, FL 33149-1003										
Program Manager: Scott Leach, scott.leach@noaa.gov, website: www.fisheries.noaa.gov/southeast/fisheries-observers/southeast-pelagic-observer-program										
Atlantic, Gulf of Mexico, Caribbean Pelagic Longline Fishery	~70–80 active vessels	MSFCMA (50 CFR 635); MMPA (50 CFR 229); ATCA	Year-round	Obs/Trn-Atlantic Coast Observers Obs/Trn-East Coast Observers Deepwater Horizon Early Restoration	1992–present	8% by vessel sets	9%	458	532	10
Southeast Gillnet and Shark Bottom Longline Observer Program Southeast Fisheries Science Center, Panama City Laboratory, 3500 Delwood Beach Rd, Panama City, FL 32408										
Program Manager: Scott Leach, scott.leach@noaa.gov, websites: www.fisheries.noaa.gov/southeast/fisheries-observers/southeast-gillnet-observer-program www.fisheries.noaa.gov/southeast/fisheries-observers/southeast-shark-bottom-longline-observer-program										
Southeast Shark and Coastal Teleost Gillnet Fishery	Directed Shark Permits: 216 Indirect Shark Permits: 262	MMPA (50 CFR 229); MSFCMA (50 CFR 635)	Year-round	Obs/Trn-Atlantic Coast Observers	1998–present	100% shark strike, 38% shark drift, 5% shark and teleost sink net	No fishing in shark strike or shark drift-net fisheries, 44 field days in shark and teleost sink net	100% shark strike, 38% shark drift, 5% shark and teleost sink net	36	9
South Atlantic Reeffish Fishery	450 vessels	MSFCMA (50 CFR 635)	Year-round	ACCSP, MARFIN, National Observer Program	2014, 2017–2018	1%	<1%	1%	23	9
Atlantic and Gulf of Mexico Directed Large Coastal Shark Bottom Longline Fishery	Directed Shark Permits: 216 Indirect Shark Permits: 262 Reef Fish Longline Exemption Permits: 65	MSFCMA (50 CFR 635)	Year-round (open until quota is filled)	National Observer Program	1994–present	100% shark research fishery; 4–6% non-sandbar shark fishery	100% shark research fishery; 5–10% non-shark fishery	100% sandbar shark research fishery; 4–6% non-sandbar shark fishery; 8–10% reef fish longline	66 shark research, 6 shark bottom longline, 14 mixed reef fish/shark	9

Southeast and Caribbean (page 2 of 2)

Fisheries Observed	Fleet Size	Authority to Place Observers	Season of Operation	Funding Source	Program Duration	Target Coverage	Actual Coverage	Target Sea Days	Actual Sea Days	Number of Observers
Gulf of Mexico Reef Fish Fishery Observer Program, Southeast Fisheries Science Center, Galveston Laboratory, 4700 Avenue U, Galveston, TX 77551										
Program Manager: Scott Leach, scott.leach@noaa.gov Website: www.fisheries.noaa.gov/southeast/fisheries-observers/gulf-mexico-reef-fish-and-shrimp-observer-program										
Gulf of Mexico Reef Fish Fishery–All Gear Types	Approx. 831 permitted USCG documented vessels	Mandatory	Year-round	Reducing Bycatch National Observer Program	2006–present	~1%	<1%	257	115	35 (also deployed in shrimp fishery)
Gulf of Mexico Reef Fish Fishery-Longline Emphasis (Expanded Coverage)	Approx. 831 permitted USCG documented vessels	Mandatory	Year-round	Catch Shares	August 2011–2017	0%	0%	0	0	0
Gulf of Mexico Purse Seine (Menhaden) Observer Program, Southeast Fisheries Science Center, Galveston Laboratory, 4700 Avenue U, Galveston, TX 77551										
Program Manager: Scott Leach, scott.leach@noaa.gov										
Gulf of Mexico Menhaden Fishery	Approx. 41 permitted USCG documented vessels	MMPA (50 CFR 229)	April–November	Other Congressional Funding	2011	0%	0%	0	0	0
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $5,527,051										
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $5,527,051										

Office of Science & Technology

Fisheries Observed	Funding Source	Program Duration	Program Description
Science and Technology	Reducing Bycatch	1999–present	National Seabird Program support for observer program-related projects.
	Atl Coast Observers		National Seabird Program support for observer program-related projects.
	National Observer Program		Program staff salary and travel, and support for the Safety Advisory Committee, Knauss Marine Policy Fellow, International Fishery Observer and Monitoring Conference, and communications contract.
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (CONGRESSIONAL): $708,476			
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (INDUSTRY): $0			
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (ALL SOURCES): $708,476			

Totals - All Observer Programs

OBSERVER PROGRAM FUNDING (CONGRESSIONAL)*: $53,988,148
OBSERVER PROGRAM FUNDING (INDUSTRY): $25,814,577
OBSERVER PROGRAM FUNDING (ALL SOURCES): $79,802,725
ACTUAL NUMBER OF SEA DAYS OBSERVED: 56,768**
NUMBER OF OBSERVERS*: 750**
*Appropriated funds include $49.1M from the Observers and Training PPA, and $4.9M from other PPAs, including Catch Shares, Fisheries Management, Fisheries Statistics, Hawaiian Sea Turtles, and Marine Mammal Protection. A portion of these funds are used for management activities for observers. **Includes days deployed for electronic monitoring and at-sea monitoring; does not include Alaska shoreside plant coverage days or programs that target permits, sets, or trips instead of sea days. ***Does not include deployments for electronic monitoring.

Appendix B: Fisheries Observed in FY 2020

Region	Fisheries With Adequate or Near Adequate Coverage	Fisheries With Pilot or Baseline Levels of Coverage
AK	Bering Sea/Aleutian Islands Groundfish Trawl	Salmon Gillnet, Setnet, and Driftnet: Southeast Alaska drift gillnet 6, 7a, and 8; Yakutat salmon setnet; Kodiak salmon gillnet; Cook Inlet salmon driftnet and setnet
AK	Bering Sea/Aleutian Islands Groundfish Longline	
AK	Bering Sea/Aleutian Islands Groundfish Pot	
AK	Gulf of Alaska Groundfish Trawl	
AK	Gulf of Alaska Groundfish Longline	
AK	Gulf of Alaska Groundfish Pot	
AK	Limited Access Privilege Program Halibut Fixed Gear	
NE	New England Large Mesh Otter Trawl (includes Ruhle and Haddock Separator Trawl)	Gulf of Maine Shrimp Trawl
NE	New England Small Mesh Otter Trawl	New England Hydraulic Dredge (Surfclams, Ocean Quahogs)
NE	Mid-Atlantic Large Mesh Otter Trawl	Mid-Atlantic Hydraulic Dredge (Surfclams, Ocean Quahogs)
NE	Mid-Atlantic Small Mesh Otter Trawl	Mid-Atlantic Longline
NE	New England Twin Otter Trawl	Mid-Atlantic Purse Seine
NE	Mid-Atlantic Twin Otter Trawl	Mid-Atlantic Fish/Conch Pot/Trap
NE	Atlantic Sea Scallop Dredge	Mid-Atlantic Lobster/Crab Pot/Trap
NE	Mid-Atlantic Scallop Dredge	New England Weirs (Includes Floating Trap)
NE	Mid-Atlantic Scallop Trawl	
NE	New England Gillnet (Small, Large, Extra Large; Sink/Drift)	
NE	Mid-Atlantic Gillnet (Small, Large, Extra Large; Sink/Drift)	
NE	New England Longline	
NE	Mid-Atlantic Handline	
NE	New England Handline	
NE	New England Purse Seine	
NE	New England Paired and Single Mid-Water Trawl	
NE	Mid-Atlantic Paired and Single Mid-Water Trawl	
NE	New England Fish/Conch Pot/Trap	
NE	New England Lobster/Crab Pot/Trap	

(continued on page 34)

Region	Fisheries With Adequate or Near Adequate Coverage	Fisheries With Pilot or Baseline Levels of Coverage
NW	West Coast Groundfish Bottom Trawl Catch Shares	West Coast Groundfish Nearshore Fisheries
NW	West Coast Groundfish Limited Entry Fixed Gear	California, Oregon, and Washington Pink Shrimp Fisheries
NW	West Coast Mid-Water Trawl for Whiting (Hake), At-Sea Processing	California Halibut Trawl Fishery
NW	West Coast Mid-Water Trawl for Whiting (Hake), Shoreside Processing	West Coast Open Access Fixed Gear Fisheries
PI	American Samoa Pelagic Longline Tuna	
PI	Hawaii-Based Pelagic Longline (Swordfish, Tuna)	
SE	South Atlantic and Gulf of Mexico Directed Coastal Gillnet Fishery	South Atlantic and Gulf of Mexico Shrimp Otter Trawl (including rock shrimp)
SE	Atlantic, Gulf of Mexico, and Caribbean Pelagic Longline (Swordfish, Tuna, Sharks)	South Atlantic Reef Fish Fishery
SE	Atlantic and Gulf of Mexico Directed Large Coastal Shark Bottom Longline	Gulf of Mexico Reef Fish Fishery
WC	California Large-Mesh Drift Gillnet	
WC	Deep-Set Pelagic Longline	
WC	Deep-Set Buoy Gear Exempted Fishing Permits	
Total	**38**	**16**

Definition of adequate or near-adequate levels of observer coverage: *Observer programs that have adequate or near-adequate levels of observer coverage have observer programs that are either "mature or developing" as defined in the 2004 NMFS report Evaluating Bycatch: A National Approach to Standardized Bycatch Monitoring Programs. The definition of a developing program is one in which an established stratification design has been implemented and alternative allocation schemes are being evaluated to optimize sample allocations by strata to achieve the recommended goals of precision of catch, bycatch and discard estimates for the major species of concern. The definition of a mature program is one in which an optimal sampling scheme has been implemented. A mature program is flexible enough to achieve the recommended goals of precision of catch, bycatch and discard estimates for the major species of concern considering changes in the fishery over time.*

U.S. Secretary of Commerce
Gina M. Raimondo

NOAA Administrator
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