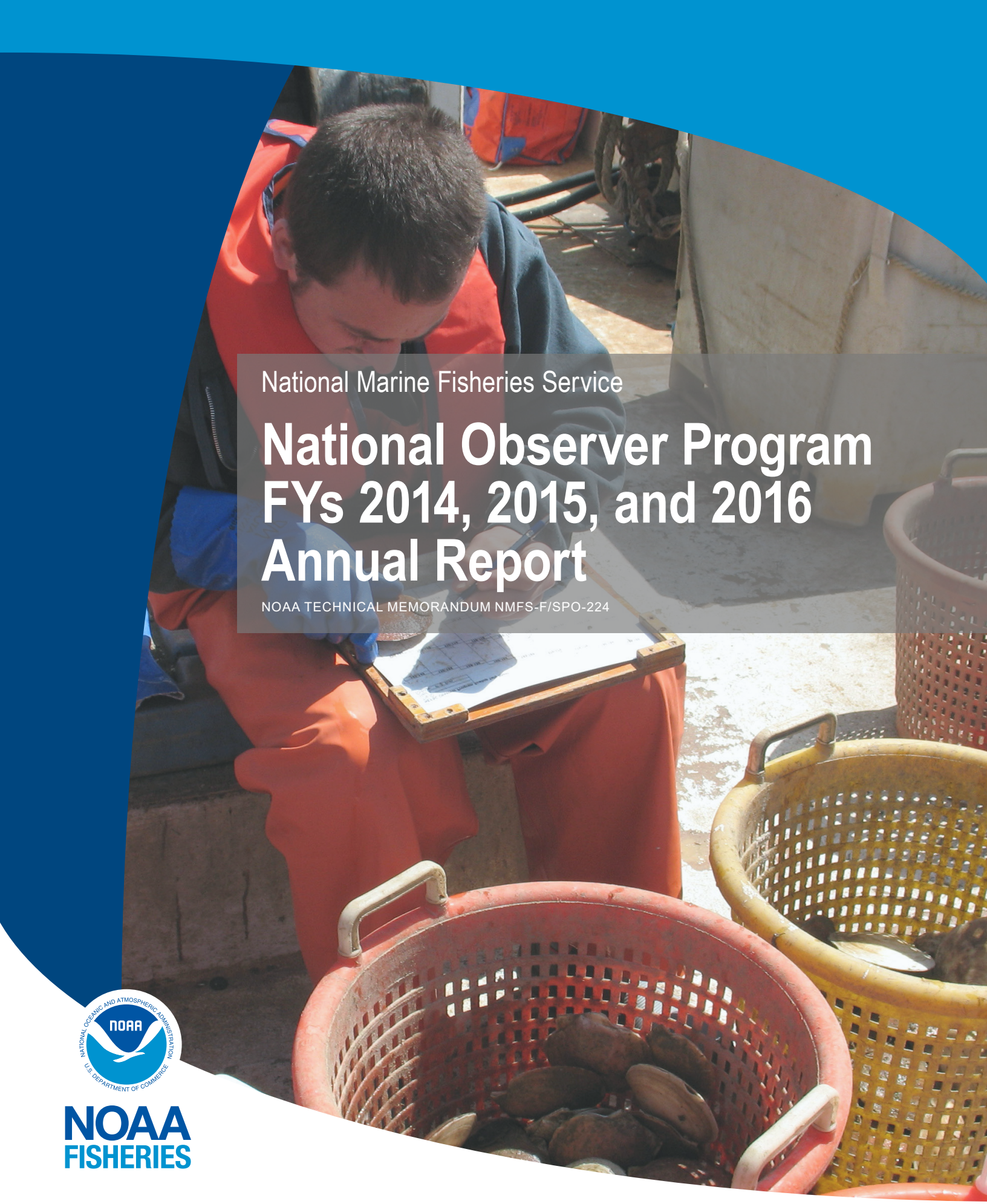

National Marine Fisheries Service

National Observer Program FYs 2014, 2015, and 2016 Annual Report

NOAA TECHNICAL MEMORANDUM NMFS-F/SPO-224

NOAA FISHERIES

National Observer Program
FYs 2014, 2015, and 2016 Annual Report

National Marine Fisheries Service

NOAA Technical Memorandum NMFS-F/SPO-224
December 2021

U.S. Department of Commerce
Gina M. Raimondo, Secretary

National Oceanic and Atmospheric Administration
Dr. Richard W. Spinrad, NOAA Administrator

National Marine Fisheries Service
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Silver Spring, MD 20910

Or online at:

http://spo.nmfs.noaa.gov/tech-memos

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NOAA Fisheries continually works to develop and institute world-class training and safety protocols for observers. Above, observers practice a safety drill in a lifeboat.

List of Acronyms

A80	Amendment 80
AAR	After Action Report
ACAP	Agreement on the Conservation of Albatrosses and Petrels
ACL	Annual Catch Limit
ADP	Annual Deployment Plan
AFA	American Fisheries Act
AFS	American Fisheries Society
AMR	Archipelago Marine Research, Ltd.
AS	American Samoa
ASM	At-Sea Monitoring
BiOp	Biological Opinion
BREP	Bycatch Reduction Engineering Program
BSAI	Bering Sea and Aleutian Islands
CDQ	Community Development Quota
CFR	Code of Federal Regulations
CPUE	Catch Per Unit Effort
CSP	Catch Share Program
DSCRTP	Deep-Sea Coral Research and Technology Program
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFL	Eye Fork Length
EFP	Exempted Fishing Permit
EM	Electronic Monitoring
ER	Electronic Reporting
ESA	Endangered Species Act
ET	Electronic Technologies
FFA	Forum Fisheries Agency
FIN	Fisheries Information Network
FIS	Fisheries Information System
FOIA	Freedom of Information Act
FSB	Fisheries Sampling Branch
FY	Fiscal Year
GARFO	Greater Atlantic Regional Fisheries Office
GOA	Gulf of Alaska
GOM	Gulf of Mexico
ICCAT	International Commission for the Conservation of Atlantic Tunas
IFQ	Individual Fishing Quota
IPHC	International Pacific Halibut Commission
JPA	Joint Project Agreement
LAP	Limited Access Privilege
LE	Limited Entry
LOA	Length Overall
MMPA	Marine Mammal Protection Act
MSA, MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSIT	Marine Safety Instructor Training
NBR	National Bycatch Report
NEFOP	Northeast Fisheries Observer Program
NEFSC	Northeast Fisheries Science Center
NFWF	National Fish and Wildlife Foundation
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
ODDS	Observer Declare and Deploy System
OPTECS	Observer Program Technology Enhanced Collection System
PFMC	Pacific Fisheries Management Council
PIFSC	Pacific Islands Fisheries Science Center
PIRO	Pacific Islands Regional Office
PIROP	Pacific Islands Regional Observer Program
PIROPS	Pacific Islands Region Observer Program System
POP	Pelagic Observer Program
PPA	Program, Project, and Activity
PSMFC	Pacific States Marine Fisheries Commissionl
PTNS	Pre-Trip Notification System
RACE	Resource Assessment and Conservation Engineering
ROK	Republic of Korea
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
SPTT	South Pacific Tuna Treaty
SWFSC	Southwest Fisheries Science Center
TAC	Total Allowable Catch
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
VAS	Vessel Account System
WCGOP	West Coast Groundfish Observer Program
WCPFC	Western and Central Pacific Fisheries Commission
WCR	West Coast Region

Executive Summary

The National Observer Program (NOP) in NOAA Fisheries' Office of Science and Technology supported 14 regional observer programs in fiscal years (FYs) 2014, 2015, and 2016. The NOP also supported the National Observer Program Advisory Team (NOPAT), which supported a successful international observer conference and provided input on observer safety issues, program performance metrics, budget developments, and other topics.

For FY 2014 (October 1, 2013-September 30, 2014), 934 observers provided 80,353 days of fishery observations. NOAA Fisheries, along with commercial fishing fleets in the Alaska, West Coast, and Greater Atlantic regions, invested $70.3 million to provide this coverage in 42 U.S. fisheries. Of this amount, congressionally appropriated funds provided $48.8 million, and the fishing industry provided $21.5 million.

For FY 2015 (October 1, 2014-September 30, 2015), 860 observers provided 79,996 days of fishery observations. NOAA Fisheries, along with commercial fishing fleets in the Alaska, West Coast, and Greater Atlantic regions, invested $72.3 million to provide this coverage in 53 U.S. fisheries. Of this amount, congressionally appropriated funds provided $48.8 million, and the fishing industry provided $23.5 million.

For FY 2016 (October 1, 2015-September 30, 2016), 987 observers provided 78,430 days of fishery observations. NOAA Fisheries, along with commercial fishing fleets in the Alaska, West Coast, and Greater Atlantic regions, invested $73.2 million to provide this coverage in 53 U.S. fisheries. Of this amount, congressionally appropriated funds provided $48.2 million, and the fishing industry provided $24.9 million.

In addition to providing fisheries-dependent data for stock assessments, quota monitoring, and many other critical activities, the regional observer programs achieved the following milestones:

- Alaska—Implementing a 2013 program restructuring that was designed to improve the statistical reliability of data, equitably distribute program costs, and implement coverage in previously unobserved fisheries. With the restructuring, Alaska observer coverage is no longer based on vessel length but rather places all vessels and processors in the groundfish and halibut fisheries off Alaska into one of two observer coverage categories, a full coverage category and a partial coverage category.
- West Coast (Northwest)— Observing eight fisheries, including the limited-entry sablefish fishery as well as state-managed and open-access fisheries such as California halibut trawl, nearshore rockfish, pink shrimp, and open access fixed gear fisheries.
- West Coast (Southwest)— Monitoring bycatch in a Deep Set Buoy Gear swordfish fishery operating under an exempted fishing permit.
- Pacific Islands—Implementing 100 percent observer coverage in the Hawaii shallow-set longline fishery and 20 percent coverage in the Hawaii deep-set longline fishery, as well as 20 percent coverage in the American Samoa longline fishery. The program also continued to process selected specimens for life history information.
- Northeast—Providing coverage for the Standardized Bycatch Reduction Methodology (SBRM)[1] stock assessments, and monitoring of discard rates to ensure annual catch limits (ACLs) are not exceeded. In addition, the program collects data on gear performance and characteristics, protected species interactions, and monitoring of experimental fisheries.
- Southeast—Achieving approximately 50 percent observer coverage in the Gulf of Mexico Enhanced Coverage campaign during the bluefin tuna spawning season; this coverage was expected to produce a coefficient of variation of approximately 20 percent for bluefin tuna discard estimates.

The NOP coordinated a variety of activities from 2014 to 2016 to support regional observer programs and make their data accessible, including:

- Organizing six in-person NOPAT meetings (fall and spring each year) to discuss observer program issues and ensure national consistency across regional programs.

[1] For additional details, see https://www.fisheries.noaa.gov/new-england-mid-atlantic/fisheries-observers/fisheries-sampling-northeast.

- Holding one in-person meeting of the NOPAT's Safety Advisory Committee (SAC) in FY 2015 (these meetings occur in alternate years), plus several meetings via conference call. The NOPAT added representatives from the Office of Law Enforcement and the U.S. Coast Guard to the SAC in FY 2015.
- Conducting outreach efforts to regional fishery management councils. NOP staff briefed the Council Coordination Committee in June 2015, February 2016, and May 2016. Staff members also met with Pacific Fishery Management Council staff in May 2015, and briefed the South Atlantic Fishery Management Council in September 2015 and the Gulf of Mexico Fishery Management Council in October 2015.
- Completing Update 2 of the National Bycatch Report in 2015. This update includes new bycatch estimates for fish, marine mammals, sea turtles, and seabirds in important federal commercial fisheries for 2011, 2012, and 2013.
- Awarding funds for internal agency recipients to advance electronic monitoring (EM) and electronic reporting (ER) through competitive requests for proposals.
- Sponsoring and hosting the 8th International Fisheries Observer and Monitoring Conference on August 29 to September 2, 2016, in San Diego. Approximately 250 participants from more than 40 countries attended, including 60 NOAA Fisheries staff. The conference promoted increased communication at an international level among observer program managers, observer contractors, fisheries scientists, enforcement agents, observers, fishermen, representatives of scientific and fishery management councils and commissions, non-governmental organizations, and the fishing industry.
- Convening several symposia and giving presentations to advance the science and management of observer programs at national and international conferences, including the 2015 Annual Meeting of the American Fisheries Society (Portland, Oregon) and the 7th World Fisheries Congress (May 2016, Busan, Korea).

The preceding milestones represent only a fraction of observer activities from 2014 to 2016, 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. Observers have monitored fishing activities on all U.S. coasts, collecting data for a range of conservation and management issues.

Fisheries observers are professionally trained biological technicians who collect data to support a wide range of conservation and management activities. During FYs 2014 to 2016, NOAA Fisheries administered observer programs in all management regions (Alaska, West Coast, Pacific Islands, Greater Atlantic, and Southeast).

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 Endangered Species Act (ESA). (For more information on these federal mandates, and U.S. observer program history in general, see Brooke, 2014.) The National Observer Program 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.

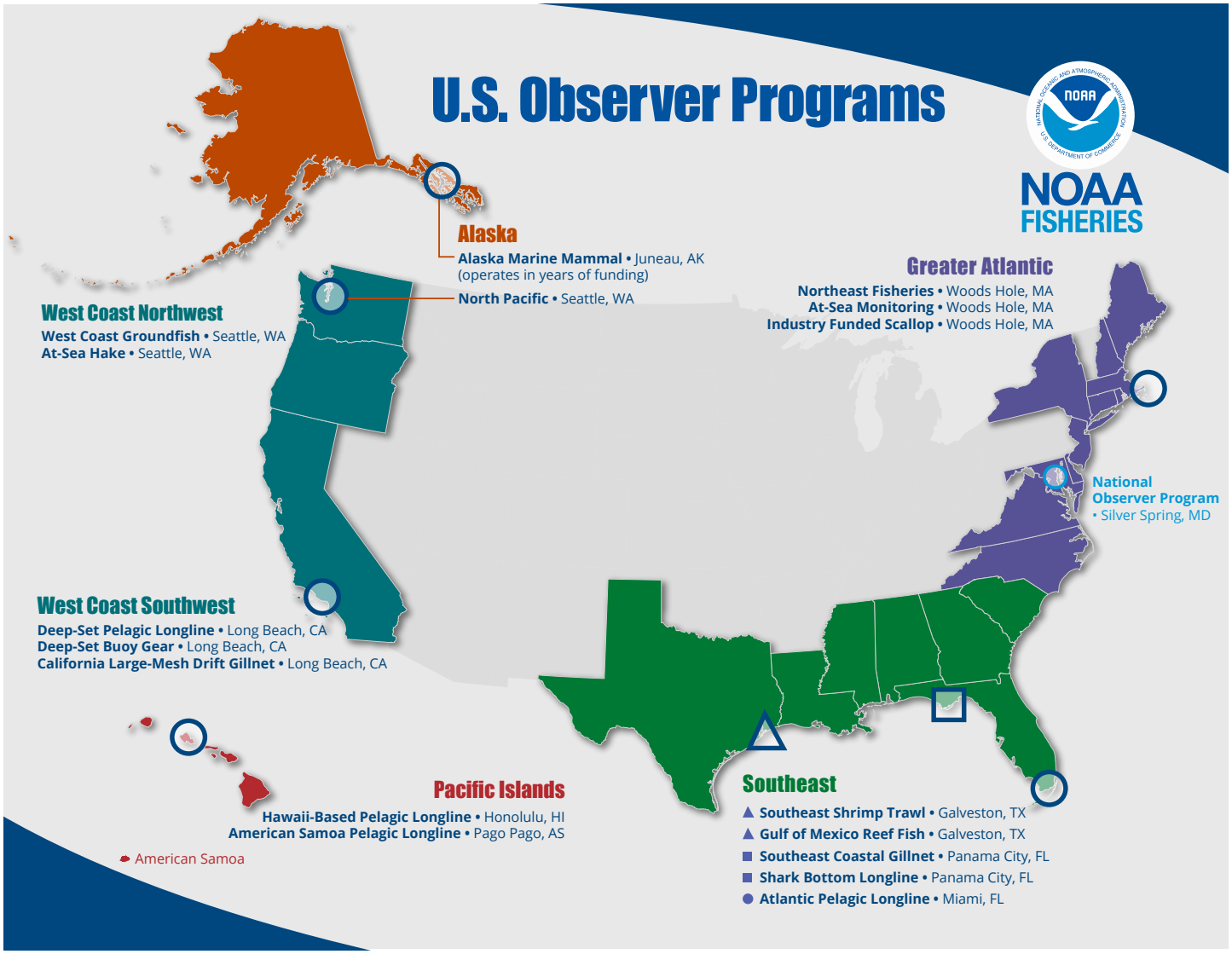

Figure 1: **Locations of regional and national observer programs.**

Under ESA regulations promulgated in 2007, NOAA Fisheries is authorized to place fishery observers aboard commercial and recreational vessels in state and federal fisheries operating in the territorial seas or EEZ where sea turtle interactions may occur. NOAA Fisheries annually identifies which fisheries are eligible for observer coverage under this requirement. The Annual Determination for 2014 was published in the Federal Register on December 23, 2013 (78 FR 77428); the Annual Determination for 2015 on March 19, 2015 (80 FR 143190; and the Annual Determination for 2016 on December 24, 2015 (80 FR 80323). See Section 3.3 for more information on these Annual Determinations.

1.1 Program Structure

Within the NOAA Fisheries Office of Science and Technology (ST), the NOP nationally coordinates 14 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 policy, standards for observer data quality, and training standards for observer and marine safety instructors.

During 2014 to 2016, the NOP had three permanent staff positions: program coordinator (Jane DiCosimo), bycatch expert (Lee Benaka), and safety expert (Dennis Hansford). In 2015, the NOP hosted Jeanette Davis, a Knauss Marine Policy Fellow, to co-edit the development of the U.S. National Bycatch Report (NBR) First Edition Update 2 (NMFS, 2016a). In 2016, the NOP hosted Knauss Marine Policy Fellow Yuntao Wang, who developed a report to identify observer retention incentives and disincentives (Wang and DiCosimo, 2019).

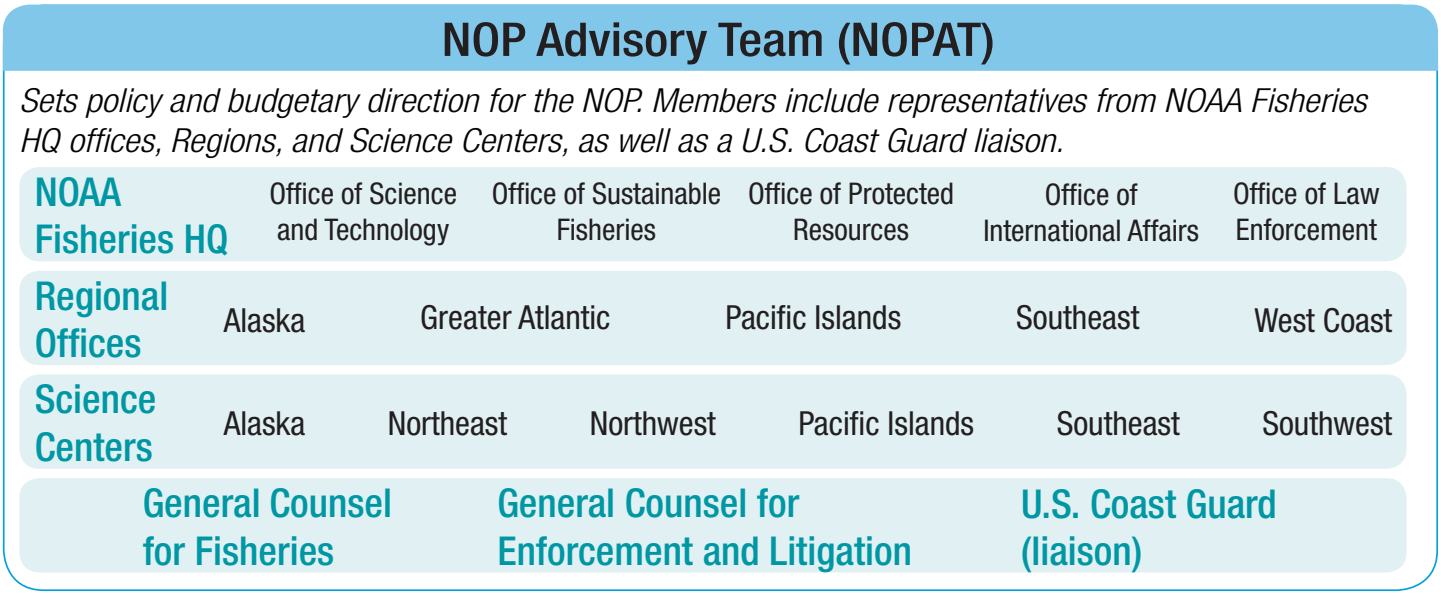

Figure 2: **Organizational structure of the NOP Advisory Team.**

The NOP also provides regional observer programs with a forum to increase collaboration and communication during biannual National Observer Program Advisory Team (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 (see 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.

Most observer-related costs are covered by NOAA Fisheries, but in some cases, the fishing industry contracts directly with private observer provider companies to obtain at-sea observer coverage. The full (100 percent) coverage fisheries managed by the Alaska 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 Science Center administers this program, contracts with an observer provider company, and receives the data for near real-time management of the groundfish fishery. These data are also made available to industry members. Industry funding also occurs in the West Coast Trawl Catch Share Program and the Atlantic Sea Scallop Fishery.

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, before observer data are used to help fulfill agency science and management objectives.

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 resources, 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 are used to project total catches for these species and to monitor the level of fishing activity so that the TAC is not exceeded.
- For each managed fishery or stock, 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 target species and/or protected species mortality and 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

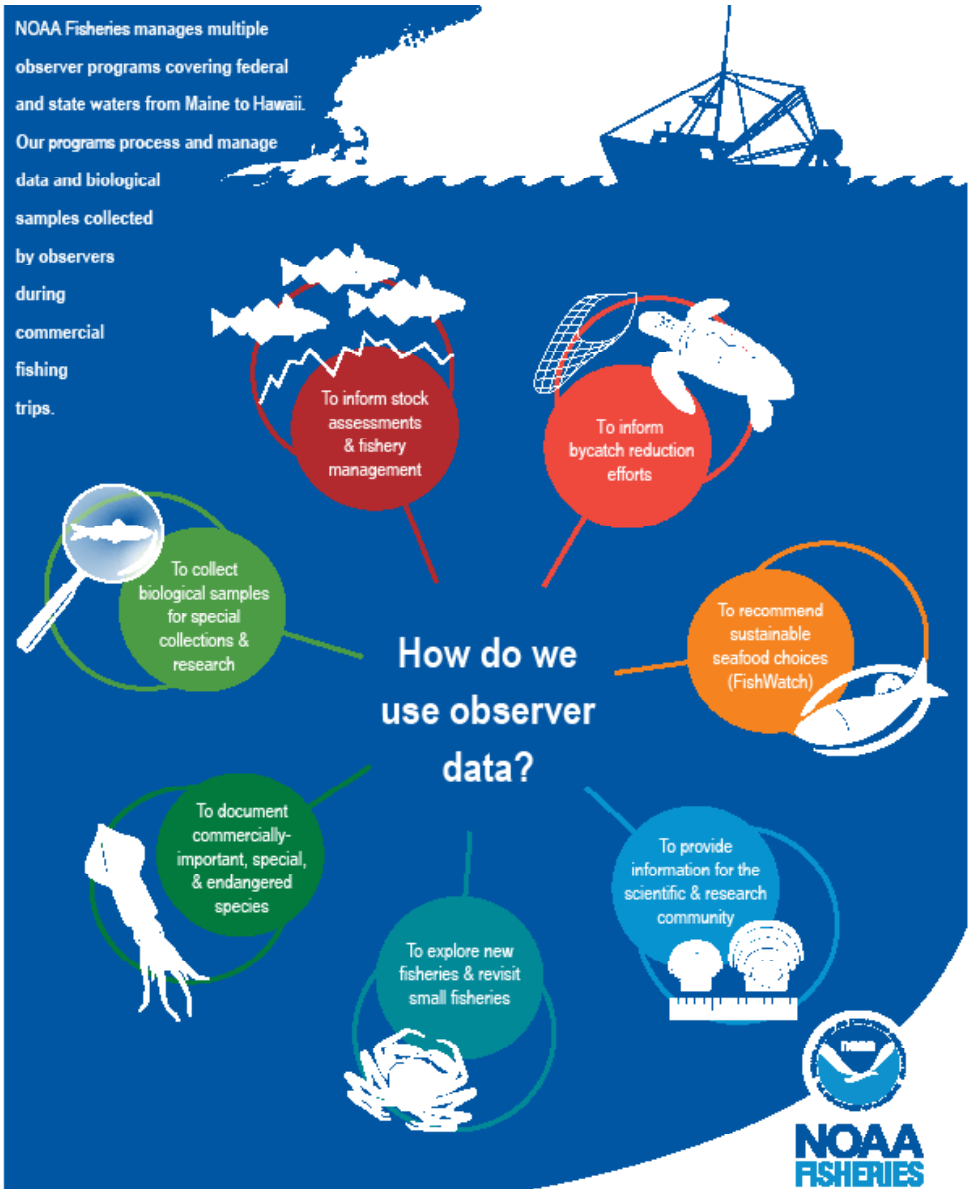

Figure 3: **Uses of observer data.**

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 serious injury and mortalities 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 are used by industry in innovative bycatch avoidance programs, such as salmon bycatch monitoring in Alaska.
- Observer data support NOAA Fisheries' series of National Bycatch Reports (e.g., NMFS, 2016a), which provide regular estimates of fish, marine mammal, sea turtle, and seabird bycatch for major U.S. fisheries.
- Under ESA Section 7 consultations, 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.

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 increased as available funding provided the means to develop observer programs for new or experimental fisheries while maintaining established monitoring programs (Figure 4).

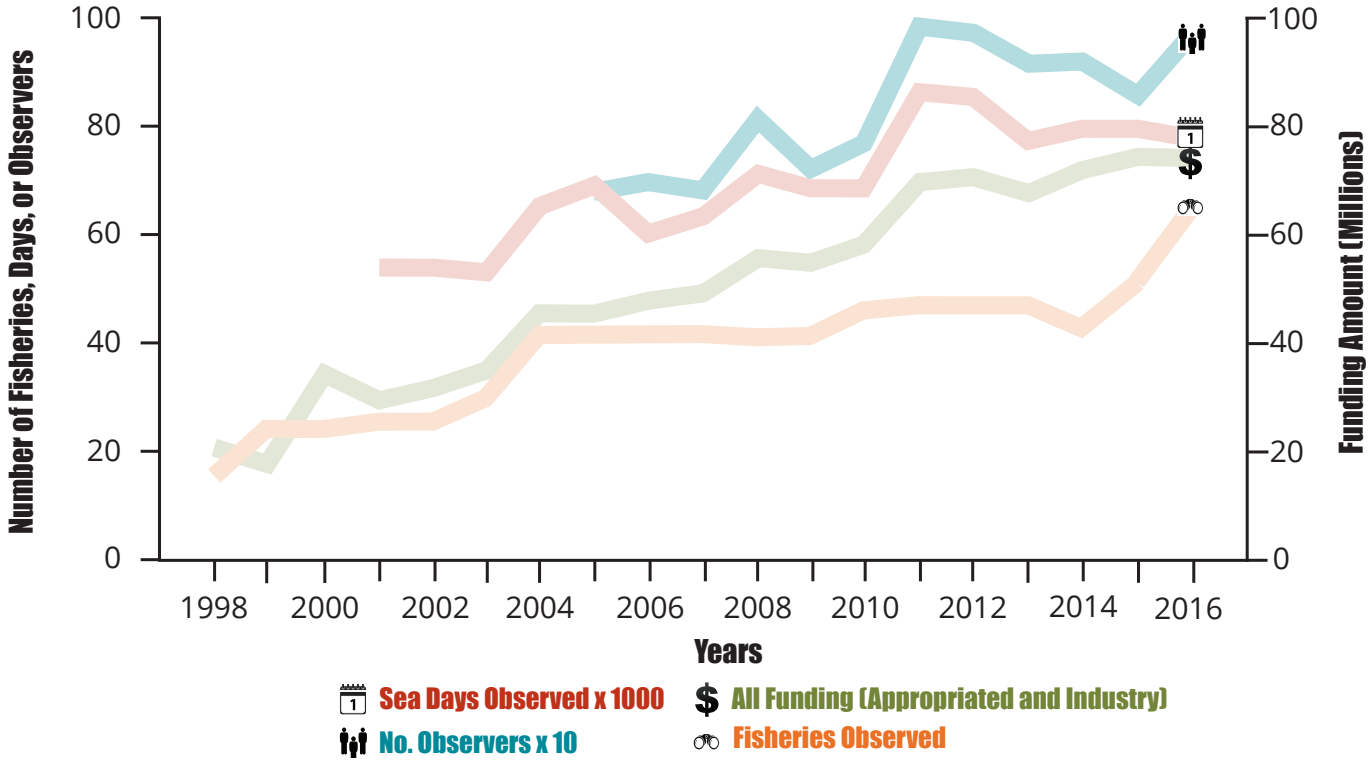

Figure 4: **U.S. observer program sea days observed, appropriated and industry funding (not adjusted for inflation), and number of observed fisheries and observers from 1998 to 2016.**

2. Budget Summary

Congressional funding for observer coverage and program infrastructure totaled $48.8 million in FY 2014, $48.8 million in FY 2015, and $48.2 million in FY 2016. In those three years, industry contributions totaled $21.5 million, $23.5 million, and $24.9 million, respectively, for a total of $70.3 million in FY 2014, $72.3 million in FY 2015, and $73.2 million in FY 2016. (See Tables 1, 2, and 3.)

Region	Appropriated	Industry	Total
Greater Atlantic	$15.1	$1.9	$17.0
Alaska	$7.0	$17.5	$24.5
Northwest	$5.7	$2.1	$7.8
Southwest	$1.1	$0	$1.1
Pacific Islands	$6.0	$0	$6.0
Southeast	$5.1	$0	$5.1
NOAA Fisheries Headquarters	$0.8	$0	$0.8
Non-Observer/Training budget lines	$8.0	$0	$8.0
Totals	**$48.8**	**$21.5**	**$70.3**

Table 1: **FY 2014 Observer Funding Summary (in millions).** *Appropriated amount shown reflects FY 2014 enacted funding. Non-Observer/Training budget lines include National Catch Share Program, Marine Mammal, and Fisheries Research and Management budget lines and are spread among multiple programs.*

Region	Appropriated	Industry	Total
Greater Atlantic	$14.8	$2.3	$17.1
Alaska	$7.2	$18.4	$25.6
Northwest	$5.9	$2.8	$8.7
Southwest	$1.1	$0	$1.1
Pacific Islands	$6.0	$0	$6.0
Southeast	$5.0	$0	$5.0
NOAA Fisheries Headquarters	$0.8	$0	$0.8
Non-Observer/Training budget lines	$8.0	$0	$8.0
Totals	**$48.8**	**$23.5**	**$72.3**

Table 2: **FY 2015 Observer Funding Summary (in millions).** *Appropriated amount shown reflects FY 2015 enacted funding. Non-Observer/Training budget lines include National Catch Share Program, Marine Mammal, Fisheries Research and Management, and Cost Recovery budget lines and are spread among multiple programs.*

Region	Appropriated	Industry	Total
Greater Atlantic	$14.8	$3.0	$17.8
Alaska	$6.9	$19.1	$26.0
Northwest	$5.7	$2.8	$8.5
Southwest	$1.1	$0	$1.1
Pacific Islands	$5.9	$0	$5.9
Southeast	$5.1	$0	$5.1
NOAA Fisheries Headquarters	$0.8	$0	$0.8
Non-Observer/Training Budget Lines	$7.9	$0	$7.9
Totals	**$48.2**	**$24.9**	**$73.2**

Table 3: **FY 2016 Observer Funding Summary (in millions).** *Appropriated amount shown reflects FY 2016 enacted funding. Non-Observer/Training budget lines include National Catch Share Program, Marine Mammal, and Fisheries Research and Management budget lines and are spread among multiple programs. Subtotals may not sum due to rounding.*

All funding sources enabled regional observer programs to provide coverage for 80,383 days at sea in 42 fisheries in 2014, 79,996 days in 53 fisheries in 2015[2], and 78,430 days in 64 fisheries in 2016. (The appendix provides a breakdown of funding and observer coverage levels by program on a year-to-year basis.) Industry funds were used to support observer coverage of fishing vessels in Alaska groundfish and Pacific halibut fisheries, the West Coast groundfish trawl rationalization program, and the Atlantic sea scallop fishery.

The majority of funding for observer programs comes from congressional appropriations. Congressional funding consisted of $40.7 million in both 2014 and 2015 and $40.3 million in 2016 from observer budget lines. Additionally, the observer program received $8 million in both 2014 and 2015 and $7.9 million in 2016 from other congressional budget lines supporting programs under the MSA, MMPA, and ESA.

Regional and NOP activities are funded through a number of dedicated congressional budget lines. (See Tables 1, 2, and 3.) Before 2012, the Reducing Bycatch budget line was divided between ST for observer activities and the Office of Sustainable Fisheries for bycatch technology research. Beginning in FY 2012, Congress directed NOAA Fisheries to make $2.5 million of the Reducing Bycatch line available for competitive grants to non-federal researchers working with U.S. fishermen on the development of improved fishing practices and innovative gear technologies. This decreased available Reducing Bycatch funds for observer programs to approximately $650,000 in FY 2014, FY 2015, and FY 2016, resulting in fewer observer sea days.

3. National Observer Program Activities

The NOAA Fisheries Office of Science and Technology is home to the NOP, and also provides support to the National Seabird Program (NSP). The following sections describe NOP and NSP activities in 2014, 2015, and 2016.

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. These activities are described below.

3.1.1 National Observer Program Advisory Team

The NOPAT met twice a year in 2014, 2015, and 2016. At these meetings, the NOPAT discussed various topics including the observer program budget, policies and standards, strategic planning, observer provider insurance requirements, safety and enforcement issues, performance metrics, and electronic technologies. In addition, NOPAT members planned a symposium for the 2015 American Fisheries Society (AFS) Annual Meeting entitled "Observer and Observer Program Contributions to Fishery Data Collection, Monitoring, and Safety."

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 Office of Law Enforcement, and the U.S. Coast Guard. The SAC provides recommendations to the NOPAT on safety and health issues and meets by phone before each NOPAT meeting and more frequently as needed. Committee members meet in person at least once every 2 years, coincident with a NOPAT meeting. The NOPAT adopted its Terms of Reference in 2016 and expanded its membership pool, allowing contractors with expertise in the technical issues being addressed by the committee to be named to the SAC by the NOPAT.

During FY 2014, 2015, and 2016, the SAC reviewed and revised the National Safety Training Standards Procedural Directive and submitted it for approval to the NOPAT. The changes included:

- Completing CPR/first aid training (when required) prior to initial deployment.

[2] The increased number of observed fisheries is due to a change in identification of "New England and Mid-Atlantic" fisheries into separate listings for New England fisheries and Mid-Atlantic fisheries to conform to SBRM requirements.

- Scheduling safety trainers' refresher training every three years rather than every two years.
- Allowing safety trainers to train across programs and regions.
- Identifying specific minimum topics to qualify as observer refresher training.
- Mandating completion of 24 hours of observer refresher safety training within a 3-year period.

An observer measures the weight of a specimen.

As part of revisions to the National Safety Training Standards Procedural Directive, regional observer safety trainers developed core curriculum topics in coordination with the NOPAT and the SAC to enhance risk awareness and safety skills of observers. In addition, the SAC established standards and requirements for minimum qualifications for NOAA Fisheries observer safety trainers, ongoing professional development and maintenance, and frequency of refresher safety training for active observer safety trainers. Committee members also developed checklists for trainers to follow when teaching skills that may pose a safety risk to students and trainers, and defined minimum safety equipment that observers must have before deployment on a fishing vessel. At the conclusion of FY 2016, the revised policy directive was undergoing internal review, and is subject to revision per the Observer Safety Program Review that was initiated in late FY 2016.

The SAC continued to review and recommend improvements to consistently finalize each program's emergency action plan and emergency notification plans. These plans are integral in effectively responding to an observer health and/or safety emergency. The SAC also initiated the process for developing After Action Reports (AAR). Observer programs are required to fill out accident/incident reports, but an AAR enhances the process by offering a debriefing of the positives, negatives, and lessons learned from an incident. These documents will benefit the programs internally, and non-personally identifiable information will be shared with the other programs as a learning tool. As of the end of FY 2016, the SAC was still determining the specific content of AARs, along with guidelines on reporting, including what would trigger required AARs and what timeline would be required.

The SAC facilitated Marine Safety Instructor Training (MSIT) in March 2014, May 2015, and August 2016. These training sessions bring together observer trainers from all regional observer programs to share safety training resources, current marine safety techniques and equipment, and improve teaching methods. They also provide a forum where national training standards for safety can be developed. The NOP contracted a review and evaluation of MSIT training in 2014 based on SAC and NOPAT recommendations. Findings of the review contributed to the development of specific refresher training for observer trainers as part of the revised policy directive on safety training standards.

SAC members participated in the 8th International Fisheries Observer and Monitoring Conference in San Diego, from August 29-September 2, 2016. In 2015, the SAC also worked to support sessions and symposia on observer safety at the American Fisheries Society annual meeting in Portland, Oregon, from August 16-20, 2015, in an effort to keep the focus on observer safety current during the time between International

Fisheries Observer and Monitoring Conferences, which are held every 2-4 years.

3.1.3 2016 Observer Safety Program Review

At the end of FY 2016, NOAA Fisheries launched a comprehensive review of all aspects of fishery observer and at-sea monitor safety and health. Led by a team of outside auditors, the review was designed to focus on seven key areas: safety reporting, communications, practices and policies, training, regulations, equipment, and international issues. NOAA Fisheries committed to work with national and regional observer programs, as well as fishery management councils, observer provider companies, observers, vessel owners, and other stakeholders to implement recommendations from the report, ensuring all observers have what they need to stay safe and healthy on land and at sea.

3.1.4 Bycatch Estimation

NOP staff support the National Bycatch Report (NBR) Steering Committee and coordinate the development and publication of the U.S. NBRs. The U.S. NBR First Edition, published in 2011, documented bycatch estimates using observer data and self-reported logbook data for all fisheries for which this information was available in 2005 (NMFS, 2011). NOAA Fisheries followed the First Edition with the NBR First Edition, Update 1 (NMFS, 2013). These reports would not be possible without the valuable bycatch data collected by observers in fisheries around the country.

Update 1 included several improvements, including a shorter time lag between the development and publication of bycatch estimates. Update 1 also increased the number of fish bycatch estimates from 480 in the First Edition to 573 in Update 1. The regions contributed notable improvements to Update 1 as well. For example, the Greater Atlantic provided fish bycatch estimates for 29 fisheries in Update 1, an increase from 25 fisheries in the First Edition. Alaska combined a large number of state fisheries to better reflect management and data collection systems, based on feedback from the Alaska Department of Fish and Game. The Pacific Islands added protected species bycatch estimates for the American Samoa-based longline fishery. The Southwest contributed fish bycatch estimates to Update 1; the First Edition provided no bycatch estimates for that region.

Update 1 also highlighted improvements in bycatch and protected species interactions in major U.S. fisheries. For example:

- The bycatch ratio (ratio of total fishery bycatch to total fishery catch) for the Gulf of Mexico shrimp trawl fishery was reduced from 0.76 in 2005 to 0.64 in 2010.
- Alaska longline fishery seabird bycatch was reduced from 6,353 birds in 2005 to 3,712 birds in 2010.

Following the publication of Update 1, the NOP and teams of regional experts began work on Update 2. Update 2, published in February 2016, included bycatch estimates for fish, marine mammals, sea turtles, and seabirds in federal commercial fisheries for 2011, 2012, and 2013. Update 2 highlighted several new improvements in bycatch estimation for the NBR, including the following:

- New bycatch estimates for the Pacific halibut longline fishery, and new marine mammal estimates for salmon fisheries in Alaska.
- Bycatch estimates for all fish and invertebrate species seen in observed West Coast fisheries; this information was not available for Update 1.
- Fish bycatch estimates for the American Samoa pelagic longline fishery, covering over 50 species and species groups; these estimates were not available for Update 1.

NOP staff also supported a variety of bycatch-related initiatives from FY 2014 through FY 2016, including the following:

- Development of the NOAA Fisheries National Bycatch Reduction Strategy.
- Development of a Standardized Bycatch Reporting Methodology Rule.
- Participation in an expert workshop on bycatch and discards sponsored by the Food and Agricultural Organization of the United Nations.
- Organization of an observer-focused symposium at the 145th Annual Meeting of the American Fisheries Society (AFS).
- Organization of a day-and-a-half symposium on release mortality estimation at the 146th Annual Meeting of the AFS.

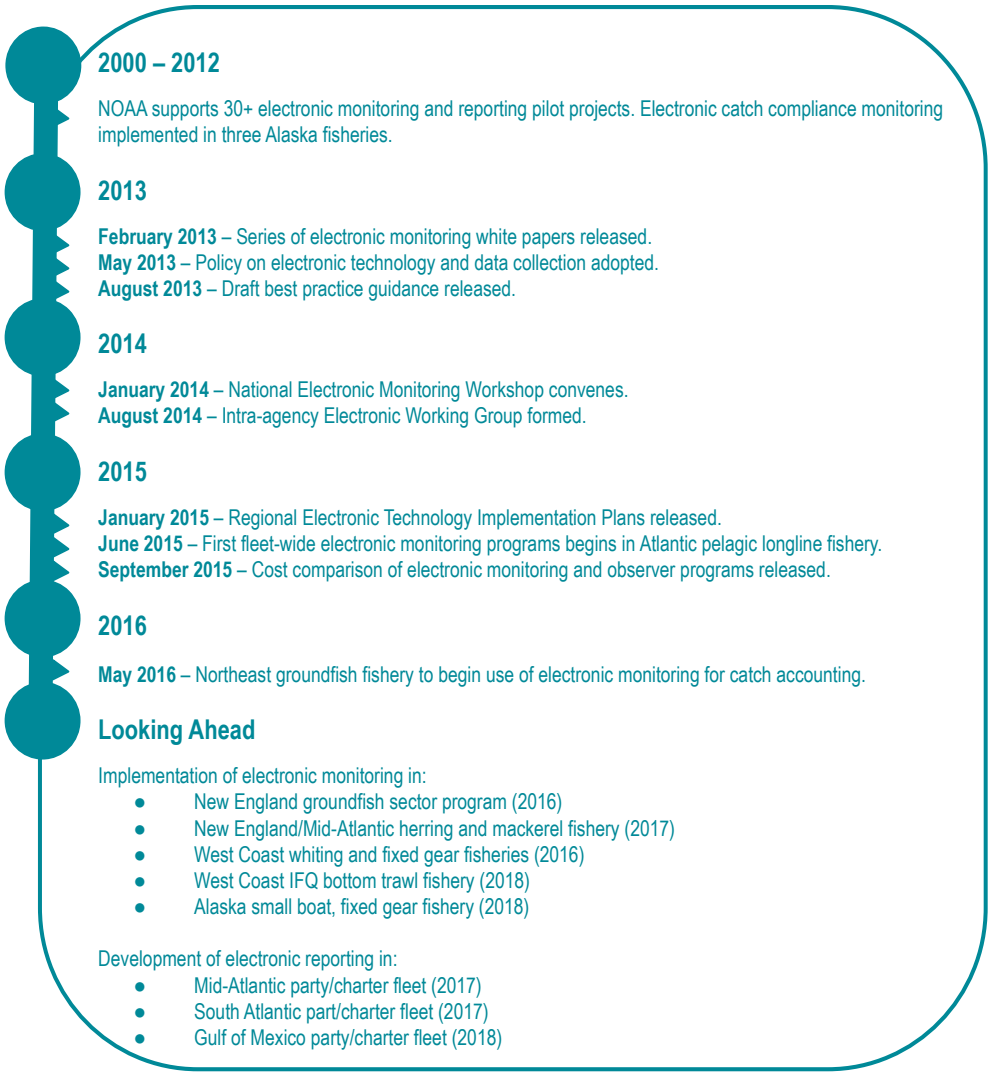

Figure 5: **Timeline of electronic monitoring and electronic reporting activities.**

- Organization of a bycatch session at the 2016 World Fisheries Congress.
- Publication of a NOAA Technical Memorandum on data gaps in fisheries release mortality estimation and a subsequent Action Plan for Fish Release Mortality Science.

3.1.4 Electronic Monitoring and Reporting

Electronic monitoring (EM) and electronic reporting (ER) became a major focus of NOP activities during FY 2014, continuing through FY 2016 (Figure 5). In FY 2014 and FY 2015, the NOP contributed approximately $900,000 to funds from ST's Fisheries Information Systems Program (FIS) and the Office of Sustainable Fisheries' Catch Share Program, under a combined FIS/NOP/CSP Request for Proposals for EM and ER. In FY 2016 Congress provided $7,046,000 to NOAA Fisheries to advance implementation of EM and ER, $3,000,000 of which was directed to the National Fish and Wildlife Foundation. NOP staff administered the remaining amount. Tables 4, 5, and 6 identify projects that were funded in FYs 2014, 2015, and 2016, respectively, from NOP funds or funds administered by the NOP.

3.1.5 Freedom of Information Act Requests

The NOP was subject to a number of Freedom of Information Act (FOIA) requests from the Center for Investigative Reporting, Public Employees for Environmental Responsibility, and Association of Professional Observers. The requests principally pertained to a missing observer in a foreign fishery in 2015, an observer fatality in a U.S. fishery in 2016, and the International Fisheries Observer and Monitoring Conference in 2016.

Project Name	NMFS Center/Region	Amount ($)
Northeast Observer Electronic Reporting System	Northeast Fisheries Science Center	$250,000
Pacific Islands Longline Observer Transition to Safety-Enhancing, Automated, Timeliness-Optimized and Accurate Information Reports (PILOT SEA TO AIR) project	Pacific Islands Regional Office	$142,380
Integration of GPS and Other Sensor Data with e-Logbooks	Alaska Fisheries Science Center	$337,793
Integration of Dockside Validation and At-Sea Observer Data Into a Relational Database for Verification of Headboat Electronic Logbooks	Southeast Fisheries Science Center	$83,000
Development of Multi-Modal Data Collection Options for Observer Programs	Southwest Fisheries Science Center	$91,963
Total Electronic Monitoring and Reporting Development and Implementation		**$905,136**

Table 4: **Electronic monitoring and reporting internal award recipients, FY 2014.**

Project Name	NMFS Center/Region	Amount ($)
Pre-implementation of EM/ER in the North Pacific	AFSC	$375,505
Image Data Collection	AFSC	$78,113
Operationalizing Electronic Monitoring in the West Coast Groundfish Catch Share Program-California Risk Pool Project	California Department of Fish and Wildlife; West Coast Regional Office	$174,180
Greater Atlantic Region Electronic Monitoring Implementation Project	Greater Atlantic Regional Fisheries Office	$500,000
Total Electronic Monitoring Technology Development		**$1,127,798**
Upgrading to an Electronic Reporting and Monitoring System in the CNMI: A Pilot Project	Commonwealth of the Northern Marianas Islands	$95,000
NWFSC Observer Program Technology Enhanced Collection System (OPTECS)	Northwest Fisheries Science Center	$200,158
Upgrade the Oregon Commercial Fishery Biological Data System	Oregon Department of Fish and Wildlife	$65,701
Data Transfer Application for Longline Monitoring Observer Program Database	SEFSC	$55,500
Pilot Study to Test Electronic Reporting Via Vessel Monitoring Systems in the Gulf of Mexico Headboat Fishery	Southeast Regional Office	$31,000
Highly Migratory Species Catch and Release Smartphone App and Webpage	SWFSC	$30,000
Washington Commercial Fisheries Database Redesign and Electronic Fish Ticket Expansion Phase II	Washington Department of Fish and Wildlife	$154,085
Testing Recreational Electronic Data Capture: Phase Two	WDFW	$120,600
Total Electronic Reporting Technology Development and Implementation		**$752,044**

Table 5: **Electronic monitoring and reporting internal award recipients, FY 2015.**

Regional observer programs also responded to FOIA requests that were specific to each region. For instance, the Northeast Fisheries Science Center received two FOIA requests from a non-profit corporation in FY 2016. One addressed the proposed end on December 31, 2015 of federal funding for the Northeast Multispecies Fishery's At-Sea Monitoring Program. The second requested documents related to the NEFSC's SBRM.

3.2 National Seabird Program

The National Observer Program continued to provide limited support to the National Seabird Program (NSP) for observer-program-related seabird projects in FY 2014, FY 2015, and FY 2016. Table 7 describes the projects funded, and their costs, for FY 2014, FY 2015, and FY 2016.

Project Name	NMFS Center/Region	Amount ($)
Greater Atlantic Region Electronic Monitoring Implementation Project for the Atlantic Herring and Mackerel Midwater Trawl Fisheries	NEFSC	$406,000
Electronic Technologies Reporting Sessions at 8th International Fisheries Observer and Monitoring Conference in August 2016	National Observer Program	$60,000
EM Pre-Implementation in Alaska Groundfish and IFQ Fisheries	AFSC	$782,000
Three-Year Plan for West Coast EM Implementation	NWFSC	$450,000
EM for Gulf of Mexico Offshore Shrimp Trawl Fisheries	SEFSC	$250,000
Expanding EM for the Hawaii-based Shallow-Set Longline Fishery	Pacific Islands Regional Office	$50,000
EM Implementation on Small Vessels of Hawaii-Based Bottomfish Fishery	PIRO	$40,000
NEFSC Herring Electronic Monitoring Project	NEFSC	$63,485
Fall 2016 Second National Electronic Monitoring Workshop	NOP	$75,000
EM Development for the Pacific Cod Pot Gear Fleet in 2017 in Alaska	AFSC	$537,000
Total Electronic Monitoring Technology Development		**$2,713,485**
Gulf of Mexico Inshore Shrimp Fishery Location Monitoring	SEFSC	$56,000
Database Server for Gulf of Mexico and S. Atlantic VMS/Permit Data Warehouse	SEFSC	$43,000
Automated Trip Definition for Gulf of Mexico VMS	SEFSC	$40,000
VMS and Dockside Sampling Optimization in the Gulf of Mexico	SEFSC	$46,000
Electronic Reporting System for Pacific Islands Commercial Fisheries	PIRO	$27,000
Electronic At-sea Data Entry for the West Coast Commercial Small-boat Fleet	NWFSC	$59,000
South Atlantic States Pilot Implementation: Charter Boat Electronic Data Collection	Atlantic Coastal Cooperative Statistics Program	$172,878
Electronic Trip-level Reporting for the Massachusetts For-Hire Sector	ACCSP	$90,000
Travel and Participation at May 2016 Electronic Technologies Working Group	NOP/Fisheries Information System	$12,637
Total Electronic Reporting Technology Development and Implementation		**$546,515**

Table 6: **Electronic monitoring and reporting internal award recipients, FY 2016.**

Project Name	Year	NMFS Center/Region	Amount ($)
Ongoing Seabird Identification Project	FY 2014	AFSC	$35,000
Analysis of Northern Gannet Bycatch	FY 2014	NEFSC	$31,944
Seabird Necropsy and Analysis Project	FY 2014	AFSC	$25,524
Collection of Seabird Data on California Current Cruise	FY 2014	SWFSC	$15,000
Improvement of Longline Fleet Seabird Bycatch Estimations	FY 2014	SEFSC	$10,000
Ongoing Seabird Identification and Necropsy Project	FY 2015	AFSC	$50,000
Collection of Seabird Data on California Current Cruise	FY 2015	SWFSC	$35,000
Improvement of Longline Fleet Seabird Bycatch Estimations	FY 2015	SEFSC	$15,000
Estimating Seabird Bycatch of the U.S. Atlantic HMS Fleet	FY 2016	SEFSC	$20,500
Seabird Training for Alaska Groundfish Observers	FY 2016	AFSC	$20,000
Pacific Seabird Bycatch Necropsy Program	FY 2016	AFSC	$20,000
Examination of Cassin's Auklet Mass Mortality Event	FY 2016	NWFSC	$14,594
Pacific Seabird Group Conference and NSP Meeting Support	FY 2016	SWFSC	$14,000
Streamer Line Distribution in Alaska	FY 2016	Alaska Regional Office	$7,500
Development of Video for Seabird Handling Techniques	FY 2016	PIRO	$3,500

Table 7: **National Seabird Program internal award recipients, FY 2014 through FY 2016.**

4. Alaska Program Activities

The North Pacific Groundfish and Halibut Observer Program (Observer Program) deployed 436 observers for a total of 42,044 sea days across the groundfish fisheries in Alaska, and an additional 2,134 days at shoreside processing plants bringing the total coverage days to 44,178 for FY 2014. In FY 2015, 418 observers were deployed for a total of 44,197 sea days across the groundfish fisheries in Alaska, and an additional 2,443 days at shoreside processing plants. In FY 2016, 469 observers were deployed for a total of 41,435 sea days, with an additional 2,271 at shoreside processing plants. Sea days were split between full coverage fisheries (greater than 100 percent coverage) and partial coverage fisheries (12 to 15 percent coverage). Full coverage fisheries were observed for 37,676 days at sea in 2014, 38,879 days at sea in 2015, and 36,758 days at sea in 2016. Partial coverage fisheries were observed for 4,368 days at sea in 2014, 5,318 days at sea in 2015, and 4,677 days at sea in 2016.

4.1 Restructured Program Implemented

In 2013, the Observer Program was restructured to reduce the potential for bias in observer data, authorize the collection of observer data in previously unobserved sectors, and assess a broad-based fee to more equitably distribute the costs of observer coverage. Restructuring also established an iterative process of reviewing and revising the program annually. In June of each year, NMFS provides an annual report to the North Pacific Fishery Management Council (NPFMC) on the previous year's Observer Program performance. Based on the analysis and recommendations in the report, a proposed Annual Deployment Plan (ADP) for the coming year is provided to the NPFMC in October. This process allows fishery managers to adapt and respond to management needs of North Pacific fisheries.

In addition, each year NOAA Fisheries releases an ADP that describes how NOAA Fisheries plans to deploy observers to vessels and processors in the partial observer coverage category in the upcoming year. The following year, the agency provides an Annual Report with descriptive information and scientifically evaluates the deployment of observers. The ADP and Annual Report process provide information to assess whether the objectives of the Observer Program have been met, and a process to make recommendations to improve implementation of the program to further these objectives.

4.2 North Pacific Groundfish and Halibut Observer Program

In May 2014, NOAA Fisheries provided its first Annual Report to the NPFMC on observer deployment under the restructured observer program. The report, North Pacific Groundfish and Halibut Observer Program 2013 Annual Report (NMFS, 2014a) assessed the degree to which the objectives of the observer program restructuring have been met and included recommendations to improve the program. Chapter 3 of the report, "Deployment Performance Review," was formalized as a separate NOAA Technical Memorandum (Faunce et al., 2014).

As part of the annual review process, a set of performance metrics was used to assess the efficiency and effectiveness of observer deployment into the partial coverage fisheries, which are divided into two strata: trip selection (vessels greater than 57.5 feet in length) and vessel selection (vessels 40 to 57.5 feet in length). There was a marked difference in the relative performance of the two deployment methods in 2013. In the vessel-selection stratum, coverage levels were less than expected during five of the six 2-month selection periods. Coverage shortages in vessel selection were due to a lack of a proper sampling frame and NOAA Fisheries granting conditional releases. In total, 52 percent of the vessels and 50 percent of the trips resulting from these vessels were not observed due to conditional releases from observer coverage. This high level of release from coverage coupled with a low sample size resulted in systematic spatial coverage issues. In contrast, the trip-selection stratum met the anticipated coverage goals throughout the year.

Based on the results presented in the Annual Report at the June 2014 NPFMC meeting, NOAA Fisheries recommended, and the NPFMC agreed, that NMFS should consider placing participants who were in the vessel-selection category in 2014 into the trip-selection category for 2015. This recommendation was further analyzed and formally proposed in the 2015 Draft ADP

(NMFS, 2014b) published in September 2014; the final ADP (NMFS, 2014c) was published December 2014. In addition, the draft ADP proposed maintaining coverage rates of 12 percent for vessels 40 to 57.5 feet in length, but increasing observer coverage from 16 to 24 percent for vessels greater than 57.5 feet. This was based on the NPFMC's June recommendation to consider higher coverage rates for all trawl vessels and fixed gear vessels greater than 57.5 feet in length. To improve the sampling efficiency within this stratum, the ADP also proposed limiting the conditional release policy for vessels 40 to 57.5 feet long only for life-raft capacity.

At its December 2014 meeting, the NPFMC unanimously approved the ADP with the caveat that if vessels in the small vessel trip selection stratum were selected randomly three trips in a row, then the third selected trip should be released from coverage. The proposed changes to observer coverage took effect January 1, 2015, and remained in effect for the calendar year.

In May 2015, NOAA Fisheries provided its second Annual Report to the NPFMC on observer deployment for calendar year 2014. The report, North Pacific Groundfish and Halibut Observer Program 2014 Annual Report (NMFS, 2015a), assessed the degree to which the objectives of the 2014 ADP were met and included recommendations to improve the program. Chapter 3 of the report, "Deployment Performance Review," was formalized as a separate NOAA Technical Memorandum (Faunce et al., 2015).

As part of the annual review process, the same set of performance metrics used in 2014 was used again to assess the efficiency and effectiveness of observer deployment in 2015. Among all fishing activity (full and partial coverage categories) in federal fisheries off Alaska, 5,883 trips (43 percent) and 417 vessels (32.8 percent) were observed. Evaluation of the deployment performance was conducted at the level of 11 different deployment strata[3], including the following:

- Full coverage: (1) full coverage in regulation and (2) voluntary full coverage.
- Trip selection (vessels greater than 57.5 feet in length): 1 stratum.
- Vessel selection (40 to 57.5 feet in length): 6 time periods.
- No selection: (1) vessels less than 40 feet long and those fishing with jig gear, and (2) vessel participating in EM research.

The anticipated deployment rates in the 2014 ADP were 12 percent of vessels for the vessel-selection pool and 16 percent for the trip-selection pool. The program met expected rates of coverage for the full-coverage regulatory and full-coverage voluntary strata, the trip-selection stratum, four of six periods within vessel selection, and the partial coverage no selection.

Observer coverage was higher than expected in two of the six periods within vessel selection. Vessels were selected for sampling based on whether they fished in 2013. This approach resulted in a discrepancy between the sampling list and the list of vessels that actually fished. In addition, the unpredictability in the number of vessels that would be granted conditional releases meant that NOAA Fisheries "oversampled" in some of the vessel selection periods. These problems were also highlighted in the 2013 Annual Report and were part of the rationale for moving all vessels to the trip-selection method in 2015.

NOAA Fisheries expanded the comparison of trip metrics between various categories of vessels relative to the analysis conducted in the 2013 Annual Report. In both the 2013 and 2014 Annual Reports, NOAA Fisheries compared trip duration (number of days), number of NOAA Fisheries areas visited during a trip, landed catch weight, species diversity (the number of different species in the landed catch), and the proportion of landed catch that was due to the predominant species in the catch (the "purity" of the catch). For 2014, NOAA Fisheries added comparisons of vessel length to the trip metrics and performed analyses using statistical testing methods instead of visually inspecting bar graphs of the data.

Based on the results presented in the 2014 Annual Report, at the June 2015 NPFMC meeting NOAA Fisheries recommended, and the NPFMC agreed, that the 2016 ADP should explore defining strata to deploy observers by gear (longline, pot, and trawl gear). This

[3] Note that these strata definitions were changed in the 2015 ADP. Vessels that were previously in the vessel-selection strata were moved into the small-vessel trip-selection strata, meaning that all partial coverage vessels were required to log trips in the Observer Declare and Deploy System.

recommendation was further analyzed and formally proposed in the 2016 ADP (NMFS, 2015b) and approved by the council in December 2015. The 2016 ADP pro-posed the following strata and coverage rates:

- Trawl trip-selection pool: This pool consists of all catcher vessels in the partial coverage category fishing trawl gear (28 percent coverage rate).
- Hook-and-line trip-selection pool: This pool consists of vessels in the partial coverage category that are greater than or equal to 40 feet in length overall (LOA) and are fishing hook-and-line gear (15 percent coverage rate).
- Pot trip-selection pool: This pool consists of vessels in the partial coverage category that are greater than or equal to 40 feet LOA and are fishing pot gear (15 percent coverage rate).

The "No selection pool" consisted of vessels that had no probability of carrying an observer on any trips for the 2016 fishing season and contained two categories:

- Catcher vessels less than 40 feet LOA, or vessels fishing with jig gear.
- Fixed-gear vessels that opted into the EM selection pool. For 2016, 58 fixed-gear vessels from 40 to 57.5 feet LOA participated in the EM selection pool and carried EM systems as described in the 2016 EM Pre-Implementation Plan. An additional three vessels greater than 57.5 feet volunteered to carry stereo camera equipment and were placed in the no selection pool.

In 2015, NOAA Fisheries recommended and the council approved no longer granting conditional releases or temporary exemptions (e.g., for insufficient bunk space or life-raft capacity) for vessels subject to observer coverage. Instead, NOAA Fisheries will mitigate the impact of human observation on vessels through the EM Pre-Implementation Plan by placing vessels into the EM selection pool with no requirement to carry an observer. Vessels that had received a conditional release or temporary exemption in previous years (i.e., 2013, 2014, and 2015) had an opportunity to opt in to the EM selection pool and were given priority to participate in the EM cooperative research.

Observer coverage under the first two years of the program fell under a two-year contract awarded to A.I.S., Inc. A second contract was awarded to A.I.S. in April 2015 for the next five years of the program. During the first two years of the program, the partial coverage costs in the North Pacific have been on par with partial coverage, government-contracted observer costs in other regions. Several factors that impact the costs in partial coverage, particularly when compared to costs in full coverage, are described in detail in the 2014 Annual Report (NMFS, 2015a).

In June 2016, NOAA Fisheries presented its third Annual Report to the NPFMC on observer deployment for calendar year 2015. The report, North Pacific Groundfish and Halibut Observer Program 2015 Annual Report (NMFS, 2016b), assessed the degree to which the objectives of the 2015 ADP (NMFS, 2014c) were met and included recommendations to improve the program. Chapter 3 of the report, "Deployment Performance Review," was formalized as a separate NOAA Technical Memorandum (Faunce et al., 2016).

4.3 Exempted Fishing Permit for Halibut Deck Sorting

In December 2015, NOAA Fisheries received an application from the Alaska Seafood Cooperative and co-applicants for an exempted fishing permit (EFP) to allow operators of non-pelagic trawl catcher/processors in the Bering Sea and Aleutian Islands to sort halibut on deck rather than weighing halibut on the flow scale in the factory. The purpose of the experiment was to continue to test methods that reduce halibut mortality in flatfish fisheries by reducing the amount of halibut handling and time out of water. According to the study design, three NOAA Fisheries-certified observers were deployed on each vessel to collect halibut lengths and viabilities on a subsample of deck-sorted halibut and species composition samples in the factory, and NOAA Fisheries was responsible for documenting and recording all deck-sorted halibut and estimating halibut discard mortality rates through the NOAA Fisheries Catch Accounting System.

4.4 Cost Recovery Fee Program Implementation

In 2016 NOAA Fisheries implemented a limited access privilege (LAP) cost recovery fee program for the American Fisheries Act (AFA), Aleutian Islands Pollock, and Amendment 80 programs. The proposed action also implemented a cost recovery fee program for the

Community Development Quota (CDQ) Program halibut and groundfish fisheries in the Bering Sea and Aleutian Islands (BSAI) management area. The Magnuson-Stevens Fishery Conservation and Management Act (MSA) authorizes and requires the collection of cost recovery fees for LAP programs and CDQ programs. MSA cost recovery fees may not exceed three percent of the ex-vessel value, and must recover costs associated with the management, data collection, and enforcement of these programs that are directly incurred by government agencies tasked with overseeing these fisheries.

4.5 Electronic Monitoring Cooperative Research in the North Pacific

In 2014, the NPFMC appointed a Fixed Gear Electronic Monitoring Workgroup so that the fishing industry, NOAA Fisheries, and EM service providers would have a forum to cooperatively and collaboratively design, test, and develop EM systems that are consistent with council goals and objectives. The overall goal of this cooperative research project is to assess the efficacy of EM (in combination with other tools) for catch accounting of retained and discarded catch, and to identify key decision points related to strategically operationalizing and integrating EM systems into the Observer Program for fixed gear vessels. The Cooperative Research Plan includes analytical and field work projects to address the following four elements:

- Deployment of EM Systems:
  - Operational testing with standard camera.
  - Self-reported data elements.
- Research and Development of EM Technologies:
  - Assess the feasibility of EM data to estimate catch by weight:
    - Pot gear, IFQ setline, International Pacific Halibut Commission (IPHC) survey.
  - Integration of sensor data with e-logbooks.
- Infrastructure to Support EM Implementation:
  - Application development to support EM data. integration into the observer database.
- Analyses to Support EM Implementation Decision Points.

Track 1 began in spring 2014 with deployment of EM systems on nine vessels in two home ports. The vessels were all longline vessels targeting sablefish and/or Pacific halibut. Forty-eight trips were monitored using systems from Archipelago Marine Research Ltd. (AMR) and Saltwater, Inc. before the end of June when host vessels transitioned to other fisheries. Video review was completed by the Pacific States Marine Fisheries Commission. Overall, the 2014 field work helped provide a better understanding of field operation requirements in an Alaskan setting. It also created a controlled setting for deployment of EM technology and enabled industry to gain familiarity with EM systems. Technicians were trained and EM systems were deployed on vessels as part of the field testing.

In 2015, NMFS and the EM Fixed Gear Workgroup continued to collaboratively design, test, and develop EM systems that were consistent with the council's goals and objectives to integrate EM into the observer program. Field work continued with the deployment of EM systems on 12 volunteer longline vessels targeting sablefish, Pacific cod, and/or Pacific halibut. Fifty-eight trips were monitored using systems from AMR before the end of June, when host vessels transitioned to other fisheries.

Also in 2015, a 2016 EM Pre-Implementation Plan was developed to assess the efficacy of using EM, in combination with other tools, for catch accounting of retained and discarded catch, and to identify key decision points related to operationalizing and integrating EM systems into the Observer Program for fixed gear vessels (Smith et al., 2017). As an interim phase, the council endorsed a target date of 2016 for taking the first steps towards operationalizing EM on small fixed gear vessels, especially for the vessels for which accommodating a human observer onboard is problematic. Information from the 2015 research projects was used to identify procedures for testing EM in an operational mode to estimate catch from a group of vessels in 2016.

In 2016, the development and testing of new and innovative electronic monitoring technologies continued with the deployment of stereo and chute camera systems on fixed gear and Amendment 80 vessels, as well as IPHC and Resource Assessment and Conservation Engineering (RACE) survey vessels. Considerable headway was made in testing hardware and developing the necessary applications to automate species identification and length estimation.

As described in the EM Pre-Implementation plan, the 2016 EM selection pool consisted of a few vessels 40 to 57.5 feet LOA where carrying a human observer is problematic, due to bunk space or life raft limitations,

and which opted in to the EM selection pool. Priority was given to vessels which had been previously granted temporary exceptions or conditional releases for life raft capacity or bunk space. As of January 1, 2016, 58 vessels had opted in to the EM selection pool. Looking ahead to 2017, the EM Workgroup plans to increase the pool to include 90 vessels, along with testing EM on up to 30 pot cod vessels.

4.6 Outreach

Outreach is a top priority for the North Pacific Groundfish and Halibut Observer Program. In 2014, outreach events were held in Seattle, Kodiak, Sitka, and Juneau. In addition, informational reports were given at each council meeting. Overall the program responded as designed, as NOAA Fisheries transitioned from federal funds to proceeds from industry fees. Alaska Regional Office staff also worked to develop the fee infrastructure within NOAA Fisheries and the Department of Treasury.

Outreach meetings continued in 2015 and 2016, focusing on general observer program questions and addressing the objectives of quality data collection and management. Outreach events were held in Anchorage, Homer, Sitka, Petersburg, and Kodiak, and at Marine Expo, Fishing Industry Professionals of Washington, the Fishermen's Safety Fair, and the Freezer Longline Coalition Meeting in Seattle. A WebEx demonstration and conference call on changes to the Observer Declare and Deploy System (ODDS) was held for processors and catcher vessels. The program also launched a new North Pacific Observer e-Newsletter. In addition, informational reports were given at each council meeting. Outreach efforts were a collaborative effort among the AFSC, Alaska Regional Office, Office of Law Enforcement, U.S. Coast Guard, and AIS Inc.

5. West Coast Program Activities

On October 1, 2014 (beginning of FY 2015) the Southwest Region and Northwest Region merged to become the West Coast Region. 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 (NWFSC) Observer Program are divided into two segments: 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. Northwest programs observed a total of 10,450 days in 2014, 9,758 days in 2015, and 11,208 days in 2016.

5.1.1 West Coast Trawl Catch Share Program

The West Coast Groundfish Trawl Catch Share program was implemented on January 11, 2011. Under the trawl rationalization program, the 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 fishermen. 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. Catch share sectors include vessels participating in the shore-based Individual Fishing Quota (IFQ) program (including hake and groundfish bottom trawl and fixed gear vessels); motherships and mothership catcher vessels participating in the at-sea hake fishery; and catcher-processors participating in the at-sea hake fishery.

A federal reimbursement program was implemented to assist with the transition from agency to industry funding for monitoring in the new catch share program. This reimbursement program began in 2011, and reimbursement rates were scaled down each year until they expired at the end of 2015. Although industry was

responsible for the costs of observers, catch monitors, and EM, agency funds were used to place observers on a portion of the non-whiting shoreside catch share vessels. These observers are placed on board to collect biological samples and scientific data on fish and protected species that are not available through the EM compliance program. This observer coverage amounted to 96 sea days in 2015, the first year of the operational EM program, and 218 sea days in 2016.

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. Non-catch share observers were deployed in the following fisheries: Limited Entry Sablefish Endorsed Fixed Gear; Limited Entry Non-Sablefish Endorsed Fixed Gear; Open Access Nearshore Fixed Gear (Oregon and California); Open Access Fixed Gear (Washington, Oregon, California); Open Access California Halibut Trawl (California); and Open Access Pink Shrimp Trawl (Washington, Oregon, and California).

After experiencing a downward trend in sea days from 2011 to 2013 due to reduced budgets, 2014 through 2016 saw an increase in sea days to 1,610, 2,397, and 2,385, respectively. The program continues to maintain coverage in all 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 Biological Opinion for West Coast Groundfish

An ESA Section 7 consultation Biological Opinion (BiOp) on the West Coast Groundfish Fishery Management Plan was issued in 2012. This BiOp addressed five West coast protected species: green sturgeon, eulachon, humpback whales, short-tailed albatross, and leatherback sea turtles. Elements of the BiOp included new requirements for observer data and specimen collection, sampling, reporting, and elements of observer training. The Northwest Observer Program has been instrumental in implementing the new measures and conservation recommendations and producing bycatch reports in 2015 and 2017 for these protected species as outlined in the BiOp.[4]

5.1.4 California Sea Cucumber and Ridgeback Prawn Trawl Fisheries Pilot Expansion

In 2016, the West Coast Groundfish Observer Program collaborated with the California Department of Fish and Wildlife on a pilot study to determine groundfish impacts on the California sea cucumber and ridgeback prawn trawl fisheries. Among other anticipated outcomes, the pilot study has reinforced strong state and federal ties in fishery-dependent monitoring.

5.1.5 Electronic Monitoring Exempted Fishing Permits (EFPs)

In 2015, NOAA's West Coast Region (WCR) in collaboration with the Pacific States Marine Fisheries Commission (PSMFC), Pacific Fishery Management Council (PFMC), NWFSC, and industry and other stakeholders implemented EM EFPs in the catch share fishery. These compliance-based EM EFPs demonstrated the feasibility of using EM for compliance monitoring on selected commercial fishing vessels as an alternative to human observers. Recognizing the importance of identifying and implementing ways to reduce costs associated with the program, the EM EFPs examined how an integrated EM program (cameras plus logbooks) could support catch accounting requirements in future regulations. Operation of these EFPs in 2015 and 2016 led to regulatory changes, allowing EM in the whiting and fixed-gear sectors of the IFQ program. EM systems were deployed on 32 vessels for a total of 1,847 sea days in 2015, and on 42 vessels for a total of 3,070 sea days in 2016.

5.1.6 Electronic Reporting

The West Coast Groundfish Observer Program continued to make improvements to their observer database, which contains catch and biological data. The program also improved processing functions in the Vessel Account System (VAS), used by fishermen to track catch share quota, in order to automate calculations made from raw observer data for reporting quota debits for discards. This approach reduced data errors tremendously, and continues the trend of increased timeliness and availability of data. Requiring that observers enter data at sea and upload when they disembark has further decreased reporting to the VAS, with average "days to enter" decreasing from 4.0 days prior to the implementation of the offline database, to

[4] https://www.fisheries.noaa.gov/west-coast/fisheries-observers/west-coast-fishery-observer-bycatch-and-mortality-reports

2.6 days by 2015. Other efforts to digitize data through trip scans have also been successful, giving debriefers access to raw trip data within hours of disembarkation and the ability to review and mark-up data submitted as PDFs.

The West Coast Groundfish Observer Program also developed software and testing hardware for their electronic back deck data collection system, Observer Program Technology Enhanced Collection System (OPTECS), and conducted field testing in the trawl fishery in the summer of 2016. This system is designed to be an electronic data capture system allowing observers to enter data directly into tablets while working on deck. This method reduces transcription errors, increases front-end data validation, and decreases data processing time. This project aims to increase the efficiency and accuracy of observer data collection.

5.2 Southwest

The observer program operated out of the West Coast Regional Office received the majority of its observer programs funds in FY 2014 ($958,169), FY 2015 ($864,825), and FY 2016 ($990,017) through the NOP budget line. From 2014–2016, the California Large-Mesh Drift Gillnet and the California Deep-Set Pelagic Longline fisheries were observed for 384 sea days by seven observers in 2014, 283 sea days by seven observers in 2015, and 295 sea days by seven observers in 2016. The Southwest Fisheries Science Center (SWFSC) uses observer data to estimate incidental take of marine mammals in preparation of the annual Stock Assessment Reports and to document the incidental take of sea turtles, seabirds, and target and non-target fish species. A summary of observer program reports is posted online.[5]

5.2.1 California Large-Mesh Drift Gillnet Fishery

In May 2013, the Southwest Region Protected Resources Division issued a BiOp on the drift gillnet fishery. The BiOp required NOAA Fisheries to reevaluate observer coverage levels in the fishery by May 2014 and initiate implementation of any changes to observer coverage by August 2014. To assist with preparation of the BiOp, NOAA Fisheries staff analyzed observer and logbook data to determine whether a data bias exists due to an observer effect on observed vessels. NOAA Fisheries found no significant difference between swordfish catch per unit effort (CPUE) during observed and unobserved trips, indicating that observed vessels do not change the way they fish when an observer is on board.

On September 4, 2013, NOAA Fisheries issued emergency regulations that covered the drift gillnet fishery through January 31, 2014. The regulations required 100 percent observer coverage of all fishing in waters deeper than 1,100 fathoms, vessel monitoring systems for all vessels, and a fishery closure if one sperm whale is observed killed or seriously injured. This emergency rule was in place during most of the fishing activity during FY 2014. However, the 100 percent coverage zone and cap on sperm whale take were not in place for the 2014–2015 season.

In 2015, the drift gillnet season had delayed effort because of the enactment of the Pacific Loggerhead Conservation Area in the beginning of the season, due to the declared El Niño. Total effort was comparable to prior years, but was more concentrated to the later part of the season. The PFMC recommended to NOAA Fisheries to implement take caps in the drift gillnet fishery for sperm, fin, and humpback whales; short finned pilot whales; offshore bottlenose dolphin; and leatherback, loggerhead, olive Ridley, and green sea turtles. The PFMC also recommended that the drift gillnet coverage increase to 100 percent monitoring through either observers or EM by the 2018/2019 season. As of the end of FY 2016, these two actions had not yet been implemented.

5.2.2 Exempted Fishing Permits (EFPs)

In 2016, a draft environmental assessment (EA) and beginning of ESA consultation for a Pelagic Longline EFP for both deep and shallow setting within the EEZ was put out for public comment. Three EFPs were also issued for Deep Set Buoy Gear vessels to target swordfish. The West Coast Regional Observer Program trained observers for these EFPs, and the applicants are paying observer providers directly. Several more EFPs for deep-set buoy gear are under consideration. Finally, a Drift Gillnet EFP for fishing in the Pacific Leatherback Conservation Area was recommended by the PFMC, but was not yet approved by NOAA Fisheries at the end of FY 2016.

[5] https://www.fisheries.noaa.gov/west-coast/fisheries-observers/west-coast-region-observer-program

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 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.

PIROP has been able to meet its targets despite a challenging fiscal situation. Observers in this program stay at sea for extended periods of time and travel long distances, making deployments expensive. The program maintains a core of 60 observers that cover the Hawaii-based longline vessels, and 5 observers that observe the American Samoa longline fleet. There are 15 staff in the program: 11 in the Hawaii office and 4 in the American Samoa office. In FY 2014, the program had deployed 50 observers for a total of 9,681 sea days across all three fisheries, compared to 60 observers deployed for 9,471 days in FY 2015, and 60 observers deployed for 8,591 days in FY 2016.

6.1 Shark Tagging

During the FY 2014 to FY 2016 time frame, observers began to work with staff from the Pacific Islands Fisheries Science Center (PIFSC) to conduct a satellite tagging study to identify the best practices that reduce mortality in discarded sharks and obtain estimates of the survival rates that will result from the practices. The effects of shark handling on post-release mortality or survival rates have never been quantified for commercial longline vessels during typical fishing operations.

In addition to identifying the effects of handling on release conditions, the efforts also ensured that the PIROP was in compliance with shark-specific conservation and management measures. As of October 2016, observers working on the project had deployed pop-up satellite archival tags on 18 blue sharks, 12 bigeye thresher sharks, and two oceanic white-tip sharks.

6.2 False Killer Whales

Another cooperative project aimed to evaluate where false killer whales are caught within a set and why. Because of the strong link between false killer whale depredation and incidental take, any long-term solution for bycatch reduction will likely also need to reduce depredation. Acoustic observations of false killer whales and vessel noise began in 2011 with funding from the Bycatch Reduction Engineering Program (BREP) for procurement of six acoustic recorders specifically designed for deployment in longline gear. The project refined the experimental design for a subset of the ongoing recorder deployments to allow tracking of individual false killer whales as they move through longline gear.

6.3 eReporting Initiative

In 2016, PIROP did a brief closed beta test to improve the quality of the eReporting system using best-in-class beta testing techniques. These include: detailed bug reporting by users, enter and exit surveys, suggestion forums, task assigning, and beta tester meetings/debriefings. Four observers were selected to participate in the "closed" test using Google Nexus 7 tablets. The satellite transmitter is embedded into a Pelican case and can be powered from an AC 110V or a DC 12–24V power source. The transmitter communicates via Bluetooth to the Android tablet, which allows the observer to fill out his/her electronic reports anywhere on the boat and guarantees a seamless transmission of data.

PIROP also undertook efforts to get "vessel buy-in," with a goal of updating the fleet ahead of time to minimize issues when observers connect new units to vessel power supply. By the end of FY 2016, more than 1,000 electronic reports were transmitted to the PIROP data system, and observers who participated in the beta testing were enthusiastic about the initiative. The next phases of testing, "open" beta testing, were planned to focus on readying eReporting for full implementation.

6.4 American Samoa Observer Program Field Office

The American Samoa (AS) Field Office monitors collect and review forms from U.S. purse seine vessels operating under the South Pacific Tuna Treaty (SPTT). During the past 5 years, the purse seine fleet has made

an average of 271 trips per year, and in 2014, a record 327 trips were made. For 2015 and 2016, a total of 99 purse seine vessels operated out of Pago Pago. In addition, the Pago Pago observer program office handles all data from purse seine vessels that operate out of Majuro (Marshall Islands), Pohnpei (Federated States of Micronesia), and Mexico. On average, more than 90 percent of the trips that offload in Pago are sampled, and more than 40,000 fish are measured annually (some years in excess of 90,000), according to a long-standing sampling protocol that has been deemed "central" to current stock assessments for Western and Central Pacific Ocean skipjack and yellowfin tuna (per the Secretariat of the Pacific Community Oceanic Fisheries Programme staff).

The new responsibilities included: coordinating and facilitating the implementation of U.S. obligations and requirements under the SPTT, including the placement of Forum Fisheries observers on board U.S. purse seine vessels licensed to fish under the SPTT; providing a point of contact for the collection of treaty-related data and other fishery data collection programs in AS; coordinating with the Forum Fisheries Agency (FFA), the South Pacific Communities, and NMFS on the development of fisheries data collection efforts; coordinating fisheries data collection activities with Pacific Island Parties to the SPTT; assisting the FFA and purse seine vessel management with their efforts to collect fishery data; coordinating observer placement, including travel and accommodation; and assisting with the boarding and departures of purse seine vessels.

6.5 Office Automation

The program continued to enhance its office automation initiative, known as Pacific Islands Region Observer Program System (PIROPS). Broadly speaking, this initiative replaced paper with electronic forms and upgrade the database infrastructure and integration with other data sources. This initiative aimed to enable the program to better track observer logistics, fleet correspondence, observer training status, enforcement documents, and the quality and disposition of observer data. Enhancements to this initiative occurred almost daily and include many report-generating tools. Once eReporting is implemented, PIROPS will be the platform for receiving the data sent by at-sea observers.

6.6 International Activities

The PIROP program manager and a staff member from the American Samoa observer program office participated in the 16th Regional Observer Coordinators Workshop on Honiara, Solomon Islands from February 8–12, 2016. Topics discussed included observer safety procedures. The NMFS Pacific Islands Regional Administrator offered the assistance of the Hawaii observer program in developing Emergency Action Plans for the Minimum Standards of the Regional Observer Program. In other international efforts, PIROP continued to offer assistance to Indonesia on its observer programs. PIROP also continued work with the Republic of Korea (ROK) under a Joint Project Agreement (JPA). Initial stages of development for an at-sea program for a domestic ROK demersal trawl fishery began in 2016.

6.7 Seabirds

PIROP worked with all regions, the U.S. Coast Guard (USCG), the U.S. Fish and Wildlife Service (USFWS), and groups including the Agreement on the Conservation of Albatrosses and Petrels (ACAP) on a number of seabird-related projects. This included providing data, maps, and other information for the annual seabird report, and participating in several research projects, some of which are ongoing, with published papers. PIROP also worked to update the National Plan of Action, and has worked with USFWS to reauthorize the incidental take and salvage of seabird/albatross permits.

PIROP has ramped up reporting and data collections surrounding albatross band recoveries. The program has made presentations and participated in poster displays at several conferences and to/with a range of groups, including ACAP, North Pacific Albatross Working Group, National Bycatch Report, Pacific Seabird Group, American Fisheries Society, Hawaii Conservation Conference, and the Western and Central Pacific Fisheries Commission (WCPFC) scientific advisory committee.

PIROP also participated in quarterly meetings of the National Seabird Program and was instrumental in establishing a main Hawaiian Islands and Northwestern Hawaiian Islands seabird group. PIROP has been providing data on interactions to aid with the management of seabird species, including such actions as foster care of chicks, and selection of candidates

for the establishment of new colonies. Additionally, PIROP helped to form a NOAA Fisheries/USFWS/ Japan Fisheries Pacific Seabird group, which meets bimonthly. PIROP also continued to salvage whole dead longline-caught albatross, coordinate with Alaska and Oikonos to have necropsies performed, and link the two data sets.

The program has also established an outside panel of seabird identification experts to assist with the identification confirmation of seabirds. As a result of much of PIROP's work, WCPFC decided to form a joint seabird bycatch working group to examine all fisheries-dependent and independent data to expand the understanding of factors which may influence seabird-fisheries interactions.

6.8 Other Data Collection

The PIFSC depends on the PIROP observers to collect biological samples for research supporting sustainable fisheries management. From FY 2014 to FY 2016, observers collected the following samples for the PIFSC:

- Opportunistic sampling of liver and gonads from bigeye tuna, yellowfin tuna, and swordfish.
- Opportunistic sampling of whole snake mackerel and lancetfish.
- Opportunistic collection of tissue samples or fin clips from blue sharks, shortfin mako sharks, and pelagic stingrays caught in the Hawaii and American Samoa longline fisheries.
- Fin clips from striped marlin caught in the Hawaii and American Samoa longline fisheries.
- Whole small marlin – less than 120 centimeters eye fork length (EFL) of any marlin species.
- Fin clips from black marlin or suspected black marlin.
- Heads and gonads of all wahoo.

7. Greater Atlantic Program Activities

The observer programs managed by the Fisheries Sampling Branch (FSB) include the Northeast Fisheries Observer Program (NEFOP) and the At-Sea Monitoring Program (ASM). In FY 2014, 12,538 sea days were completed. In FY 2015, a total of 11,249 sea days were observed, while in FY 2016, 12,603 sea days were observed. More than 60 fleets were observed in New England and the mid-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) fishery; lobster pot, ocean quahog, and surfclam dredge; mid-water paired and single trawl (herring, mackerel, and squid); and purse seine, shrimp trawl, and conch and crab pot. Fishery Management Plans adopted by the New England Fishery Management Council and the Mid-Atlantic Fishery Management Council include mandatory observer coverage requirements for several fisheries. The FSB provides observer coverage for the Standardized Bycatch Reduction Methodology (SBRM) for stock assessments, and at-sea monitoring for estimating discard rates to ensure annual catch limits are not exceeded. In addition, the FSB collects data on gear performance and characteristics, protected species interactions, and monitoring of experimental fisheries.

7.1 Northeast Multispecies Groundfish Monitoring

There are two types of coverage in the groundfish fishery: the NEFOP (with sea-day coverage dictated by SBRM); and the ASM coverage. For the 2014 groundfish fishing year (from May 1, 2014 to April 30, 2015), the FSB achieved a total of 4,174 ASM days and 1,658 NEFOP groundfish days (for a total of 5,832 groundfish sea days). The observer coverage rate for that fishing year was targeted at 26 percent, achieved through a combination of at-sea monitoring (18 percent) and NEFOP observer coverage (8 percent). The realized coverage level for that year was 26 percent.

In fishing year 2015 (from May 1, 2015 to April 30, 2016), FSB achieved a total of 2,360 ASM days and 1,625 NEFOP groundfish days (for a total of 3,985 groundfish sea days). For the 2015 groundfish fishing year the target coverage was 24 percent, achieved through a combination of at-sea monitoring (20 percent) and

NEFOP observer coverage (4 percent). The realized coverage level was 24 percent.

The full cost of NEFOP groundfish coverage is federally funded, as are the ASM infrastructure and data processing costs. The industry was scheduled to pay for the ASM monitoring costs in the sector-managed fishery beginning in 2012, but the transition was delayed due to remaining federal funds available through February 2016. Therefore, the ASM in fishing year 2014 (May 2014–April 2015) was fully federally funded. During the 2015 fishing year (May 2015–April 2016), the cost of the ASM sea-days transitioned to the industry on March 1, 2016, meaning 1,937 days were federally funded and 423 were industry funded.

During the 2016 fishing year, the full funding of the SBRM program led to a decision in June 2016 to use the remaining NE observer funds to partially fulfill the industry-funded ASM requirement. In July 2016, a grant was funded to reimburse the sectors for 85 percent of their costs from ASM providers through April 2017 and the Agency will then offset the 15 percent that the industry had paid for the remainder of the fishing year.

7.2 Bluefin Tuna Purse Seine Fishery

The U.S. bluefin tuna purse seine fishery in New England had been inactive for several years, with one vessel (of five permitted vessels) operating out of Fairhaven, MA in 2014 and 2015. Since the fleet was last active, the International Commission for the Conservation of Atlantic Tunas (ICCAT) had adopted a binding recommendation (General Issue Recommendation 2010-10)[6] for a minimum of 5 percent observer coverage of fishing effort in the tuna purse seine fishery. Observers are required to record and report total target catch and bycatch (including sharks, sea turtles, marine mammals, and seabirds); size composition; disposition status (i.e., retained, discarded dead, released alive); and the collection of biological samples for life history studies (e.g., gonads, otoliths, spines, scales). In addition, observers must record the area of catch by latitude and longitude; fishing effort information (e.g., number of sets, etc.); and date of each fishing operation (including, as appropriate, the start and stop times of the fishing activity). For years 2014 and 2015, the one active vessel operated under an EFP with a 100 percent observer coverage requirement. Observer coverage was provided by NEFOP for both years with five (three landed catch) and six (two landed catch) trips deploying, respectively. In FY 2015, the Atlantic Highly Migratory Species Management Division provided $25,000 in funding to NEFOP to assist with costs of coverage. There were no active vessels in 2016.

7.3 Electronic Monitoring System Study

Electronic monitoring technologies hold promise as data collection resources and could be used as monitoring tools by integrating the system with other data collection programs. The Northeast Fisheries Science Center (NEFSC) conducted a collaborative 4-year study (in 3 phases) from 2010 to 2014 with Archipelago Marine Research Ltd. and 13 participating commercial fishing vessels. The goal of the study was to investigate the utility of EM to monitor fisheries and manage catch entitlements in the Northeast Multispecies Fishery.

This study has promoted broader awareness of EM capabilities to inform implementation planning activities in consideration of developing EM standard applications and best practices. Through outreach meetings, presentations of findings, and simulation exercises, this project has brought operational experience to local fishermen, technicians, scientists, and regulators.

Phase I focused on building a foundation of data (detection, counting, species identification) specific to the needs of the Northeast Multispecies Fishery. Phase II focused on a series of dedicated experiments to improve methods for obtaining fish weight, with a known accuracy and precision, and to develop methods to increase species identification through catch handling practices. Results demonstrated there were efficiencies in weight estimation using standardized length/weight regressions and improvements in species identification among select species.

Phase III focused on developing and testing onboard methodologies (catch handling) to simulate an operational EM program. At-sea testing incorporated two EM models: (1) maximized retention of catch with EM monitoring for discard compliance; and (2) EM validation of allowed discard through vessel trip reports

[6] https://www.iccat.int/Documents/Recs/compendiopdf-e/2010-10-e.pdf

(discard audit). Incorporating techniques and information learned from previous work, each approach was tailored to meet specific program objectives. Expected results include identifying the necessary components to support an EM operational program and beneficial strategies for effective data collection.

Information collected in Phase III was summarized in a single report with three specific subsections. Report subsections consisted of: (1) a summary of data collected during Phase III; (2) an examination of the two EM models tested (retention and audit), including procedural and logistical consideration and documented efficiencies for each; and (3) a narrative of operational components necessary to support EM and associated cost drivers. EM-related information can be found on the Northeast Fisheries Science Center website.[7] To further support this work, NMFS is involved with the regional EM working group and is collaborating with Fisheries Management Councils, the industry, EM vendors, and other stakeholders to determine how to best incorporate EM into fisheries monitoring.

In 2015, the FSB continued to actively work as part of the EM Pre-Implementation Working Group to develop a program in the groundfish fishery and consider options for growing interest from the Atlantic herring and mackerel midwater trawl fisheries. Work to support EM in these fisheries included data integration, eVTR reporting, catch methodologies, performance standards for EM providers, database structure, and program management. The agency issued two reports in the summer of 2015 comparing the projected costs of two different operational EM programs (groundfish[8] and midwater trawl[9]) with the costs of more traditional observer/at-sea monitoring programs. These reports were a first step to incorporate costs into ongoing discussions regarding the most cost-effective ways to monitor fisheries.

In 2016, the Gulf of Maine Research Institute, the Maine Coast Community Sector, George's Bank Cod Fixed Gear Sector, The Nature Conservancy, and Ecotrust Canada collaborated to operationalize an EM program in the Northeast. The partnership researched the "audit" model where EM is used to validate captain-reported data on vessel trips reports in the multispecies fishery. In 2016, 12 vessels participated in this pre-implementation project. Greater Atlantic Regional Fisheries Office (GARFO) and NEFSC staff are also working with the partnership as they continue their project to address final issues needed to fully develop an EM model in 2017. Work also began to install EM equipment on willing mid-water herring and mackerel vessels to evaluate EM as a monitoring tool, primarily for slippage events. FSB worked with GARFO to solicit vessel participation and oversee the technical aspects of the contract.

NOAA Fisheries also worked to build the database infrastructure and processing tools for data collected from EM video footage, conducting comparative analysis to the existing catch monitoring systems, and addressing the final legal and logistical hurdles. Because EM would replace ASM for some vessels and/or sectors, NOAA Fisheries continues to evaluate how best to implement EM in each sector's operations plan and ensure that the plans are enforceable and adequate for reporting and monitoring sector allocations.

7.4 Standardized Bycatch Reporting Methodology (SBRM)

The SBRM Omnibus Amendment was implemented in February 2008. The amendment was later vacated by the U.S. District Court for the District of Columbia and remanded back to NOAA Fisheries in September 2011, due to a deficiency associated with the prioritization process, an element of the amendment. In December 2011, NOAA Fisheries removed the regulations implementing the SBRM. A revised SBRM Omnibus Amendment, referred to as the SBRM amendment, was approved in March 2015, and a final rule was implemented on July 30, 2015.

Under the new prioritization process in the 2015 SBRM, the amount of money available for the SBRM was the funding allocated to the Region under four specific historically appropriated observer funding lines. Of these, the funds made available by congressional appropriation through the Northeast Fisheries Observers funding line must be dedicated to fund the proposed SBRM. Amounts from three of the funding lines were allocated among the fisheries in the five

[7] https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/electronic-monitoring-northeast
[8] https://www.greateratlantic.fisheries.noaa.gov/stories/2015/september/em_cost_assessment_for_gar_multispecies_2015_06_10.pdf
[9] https://media.fisheries.noaa.gov/dam-migration/em_cost_assessment_for_gar_herring_20150904-v6.pdf

NMFS regions, including the Greater Atlantic Region, to meet national observer program needs. The total amount of the funds allocated for the Greater Atlantic Region from these three funding lines constituted the remainder of the available SBRM funds.

At the outset of 2016, there were not sufficient funds to fully meet the observer requirements contained in the proposed SBRM amendment, which meant that general funds could not be used to support any other programs, including groundfish sector at-sea monitoring and continued EM, development. In order to meet SBRM requirements, provide the data needed for stock assessment, and successfully complete all tasked days, the program supplemented coverage with an additional observer service provider. However, due to a variety of complex factors, the program was unable to meet its targeted SBRM sea-day schedule.

As 2016 progressed, a decline in sea-day need and a high amount of carry-over days from the previous SBRM year (when tasked days were not achievable), combined to allow full funding of all the observer requirements in the SBRM. Therefore, FY 2016 funds were allowed to be used in supporting groundfish sector at-sea monitoring.

In FY 2014, 6,087 sea days were completed under the SBRM sea-day schedule, and in FY 2015 there were 6,189 sea days completed. In FY 2016, 10,689 sea days were completed.

7.5 Industry-Funded Omnibus Amendment and Herring and Mackerel Monitoring

During 2014 to 2016, the Mid-Atlantic and New England Fishery Management Councils developed an omnibus amendment including alternatives that would modify all the fishery management plans managed by the Councils to allow for future industry-funded monitoring programs. The Industry-Funded Omnibus Agreement would support monitoring above and beyond coverage required through the SBRM, the Endangered Species Act, or the Marine Mammal Protection Act. It allows industry funding to be used in conjunction with federal funding to pay for additional monitoring to meet fishery-specific coverage targets, as opposed to mandatory monitoring coverage levels. This would allow the Councils to approve new industry-funded monitoring programs without committing to support coverage levels above appropriated funding or before funding is determined to be available. After public hearings and a public comment period in late 2016, the Councils voted to postpone final action pending results of the ongoing EM pilot project being conducted by NOAA Fisheries.

7.6 Updates to Training Curriculum

The NEFOP curriculum was updated to include deep-sea coral and sponge species identification. Since the pilot project, which was funded in 2012 by the NOAA Fisheries Deep-Sea Coral Research and Technology Program (DSCRTP), lesson plans, training aides, and a field guide of deep-sea coral and sponge identification have been incorporated in all base certification courses (At-Sea Monitoring Program, NEFOP, and Industry-Funded Scallop Program). Several actual samples and photographic observer submissions have been collected. An additional grant was awarded by DSCRTP in February 2016 to further investigate and report observer data. In 2016, the NEFOP also developed a shrimp trawl certification, along with reinstituting hagfish training.

8. Southeast Program Activities

The Southeast Fisheries Observer Program observed 5,256 sea days in FY 2014 and 5,038 sea days in FY 2015 with a total of 64 observers in each year. In FY 2016, 4,298 sea days were observed by 73 observers. A total of five fisheries were observed in 2014, with six fisheries observed in both 2015 and 2016.

8.1 Southeast Shrimp Trawl Observer Program

The Shrimp Observer Program maintained approximately 2 percent observer coverage in the offshore Gulf of Mexico penaeid and rock shrimp otter trawl fisheries. Mandatory coverage of the shrimp skimmer trawl fishery in the northern Gulf of Mexico also continued. Observers were placed on randomly selected, state-licensed skimmer vessels to document interactions with sea turtles. Similarly, coverage of state otter-trawl shrimp vessels increased to monitor mammal and sea turtle incidental takes. The number of sea turtle interactions by year have varied; however, these fluctuations were expected due to variations in weather, water temperature, animal abundance, and other unknown factors.

Additionally, through voluntary coverage, observers continue to collect data to evaluate turtle excluder devices aboard skimmer trawl vessels in Louisiana and North Carolina. Following the release of a new BiOp for the shrimp trawl fishery, an increase of observer coverage in monitoring for ESA-listed smalltooth sawfish interactions was mandated. In response, the Galveston and Panama City Programs initiated a Cooperative Research EM project to document any take of sawfish in the shrimp trawl fishery, beginning in 2014. Testing of the system was planned to continue in 2017, with two commercial shrimp vessels contracted. Finally, through Deepwater Horizon funding a Sea Turtle Early Restoration project was developed in 2016 for observer coverage, to be implemented in 2017.

8.2 Atlantic Pelagic Longline Observer Program

The Atlantic Pelagic Longline Observer Program (POP) targets 8-percent observer coverage of the Commercial Pelagic Longline fleet in 12 statistical areas throughout the Western Atlantic Ocean (Canada, along the U.S coast, the Gulf of Mexico, and throughout the Caribbean to Trinidad). Using a corps of 12 to 20 observers, the POP deployed observers on 152 trips in 2014, accounting for 1,251 observed sets/hauls over 1,861 sea days. Also during 2014, two experimental trips (17 sets, 27 sea days) were observed to gauge the effectiveness of weak hooks used in the Mid-Atlantic Bight. In 2015, the POP deployed observers on 161 trips, accounting for 1,144 observed sets/hauls over 1,610 days. In 2016, the POP deployed observers on 193 trips, accounting for 1,230 observed sets/hauls over 1,965 days.

The POP completed a database rewrite, with the new database linking many existing Southeast databases and including new ones to benefit both data acquisition progams and data users. The program also tested a tablet data acquisition application for both the Panama City and Miami observer programs.

8.3 Enhanced Bluefin Tuna Observer Coverage

The POP used available funding to achieve approximately 50 percent observer coverage in the Gulf of Mexico Enhanced Coverage campaign during the bluefin tuna spawning season (typically from February/March through June of each year). This coverage was expected to produce a coefficient of variation of approximately 20 percent for bluefin tuna discard estimates (see Beerkircher et al., 2009 for more information on this program). The enhanced coverage allowed NOAA Fisheries to continue collecting data regarding spatial and temporal patterns of bluefin tuna bycatch, biological samples from landed fish or dead discards, and satellite tagging of yellowfin tuna catch and bluefin tuna bycatch.

8.4 Gulf of Mexico Reef Fish Fishery Observer Program

This program conducted monitoring in the Gulf of Mexico Reef Fish Individual Transferable Quota fishery for use in stock assessments as well as quota monitoring. With a focus on sea turtle interactions, expanded observer coverage of the bottom longline and vertical line reef fish fishery provide for better estimates of discards for other species as well as better accounting of quotas for targeted species. Expanded biological

sampling for species of interest provide data for stock assessments, as observers are often the only source for reproductive samples of reef fish. In the reduction of National Catch Share funding during FY2016, expanded coverage was decreased. In FY 2016, the program entered into a cooperative effort for a project entitled "Reducing Bycatch and Optimizing Efficiency in the Gulf of Mexico Reef Fish Fishery, Phase I: Accurately Assessing the Bycatch Problem Using Electronic Monitoring in Cooperative Research."

8.5 Southeast Coastal Gillnet Observer Program

This program provided observer coverage of the Southeast Coastal Gillnet Fishery from North Carolina to Florida and in the Gulf of Mexico. In addition to standard coverage, the observer program expanded coverage for small gillnet vessels operating in state waters of Alabama, Mississippi, and Louisiana. The observers are deployed primarily to estimate the impact of this fishery on marine mammals and sea turtles, but they also gather valuable information on the state fishery and fishery bycatch. The program is supported by funding from the Office of Protected Resources. In addition, this program migrated its database structure from local data storage to Oracle-based, centrally located servers, to facilitate at-sea reporting of observer data and use in management.

8.6 Shark Bottom Longline Observer Program

The Shark Bottom Longline Observer Program continued to operate with a focus on monitoring catch and bycatch in the shark research and shark bottom longline fishery. Within the research fishery, experiments have been conducted using hook timers and time-depth-recorders to develop methods to reduce bycatch for dusky, scalloped hammerhead, and sandbar shark. The observer program also gathered data to improve length–weight conversions for the dominant bycatch species, which are necessary to improve bycatch estimates in the National Bycatch Report. The program continued to develop software for an at-sea electronic reporting tablet computer. Tablets were purchased in FY 2016, with the goal of ultimately expanding the technology to all longline fisheries in the Southeast. Reports from the Shark Bottom Longline Observer Program are posted on the NOAA Fisheries Panama City Laboratory webpage.[10]

[10] https://www.fisheries.noaa.gov/southeast/fisheries-observers/southeast-shark-bottom-longline-observer-program

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NMFS. 2014c. 2015 Annual Deployment Plan for Observers in the Groundfish and Halibut Fisheries off Alaska. National Oceanic and Atmospheric Administration, 709 West 9th Street. Juneau, Alaska 99802, 34 p. Available online at: https://www.fisheries.noaa.gov/resource/document/2015-annual-deployment-plan-observers-groundfish-and-halibut-fisheries-alaska

NMFS. 2015a. North Pacific Groundfish and Halibut Observer Program 2014 Annual Report. National Oceanic and Atmospheric Administration, 709 West 9th Street. Juneau, Alaska 99802, 101 p. Available online at: https://www.fisheries.noaa.gov/resource/document/north-pacific-groundfish-and-halibut-observer-program-2014-annual-report

NMFS. 2015b. 2016 Annual Deployment Plan for Observers in the Groundfish and Halibut Fisheries off Alaska. National Oceanic and Atmospheric Administration, 709 West 9th Street. Juneau, Alaska 99802, 38 p. Available online at: https://www.fisheries.noaa.gov/resource/document/2016-annual-deployment-plan-observers-groundfish-and-halibut-fisheries-alaska

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Appendix A:
NOAA Fisheries Observer Programs Funded in FY 2014, FY 2015, and FY 2016 by Region

Alaska - FY 2014

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 Groundfish Observer Program, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA 98115										
Program Manager: Jennifer Ferdinand, 206-526-4076, Jennifer.Ferdinand@noaa.gov (Martin Loefflad (retired) served as Program Manager in FY 2014.) Website: www.fisheries.noaa.gov/alaska/fisheries-observers/north-pacific-observer-program										
Bering Sea, Aleutian Islands (BSAI) Groundfish Trawl Cooperatives (AFA, A80), BSAI Voluntary Longline Pacific cod cooperative, Gulf of Alaska (GOA) Groundfish Trawl Rockfish Program (RP), and Catcher Processors	1,446 vessels (168 in 100% coverage) 71 shoreside plants	MSFCMA (50 CFR 679.50)	Various	Obs/Trn-North Pacific Marine Resource Observers/North Pacific Observer Program**	1973–present (Observer program); 1998–present (AFA); 2007–present (A80, CDQ); 2013–present (RP)	100%	100%	Defined by regulation	37,676*	376
				National Observer Program**						
				Industry Funding						
				Other Congressional Funding						
				Reducing Bycatch						
BSAI and GOA Groundfish Trawl, Longline and Pot Fisheries; U.S. Pacific Halibut Fishery			Year-round	National Observer Program**	2013–present	15% catcher vessels > 57.5 ft (trip selection); 11% catcher vessels 40–57.5 ft (vessel selection)	15% trip selection; 12% vessel selection	Defined by available funds and contracts with observer providers in Annual Deployment Plan	4,368	60
				Reducing Bycatch						
				Obs/Trn-North Pacific Marine Resource Observers/North Pacific Observer Program**						
				Other Congressional Funding						
				National Catch Share Program						
Southeast Alaska Drift Gillnet Fishery	480 permits	MMPA (50 CFR 229)	May–Oct	Marine Mammal Protection	0	0	0	0	0	0
Alaska Marine Mammal Observer Program, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA 98115										
Website: www.fisheries.noaa.gov/alaska/fisheries-observers/alaska-marine-mammal-observer-program										
TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $6,962,279										
TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $17,523,151										
TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $24,485,430										

*Actual sea days does not include 2,134 shoreside plant coverage days (some of which are also co-occur with sea days), bringing the total coverage days to 44,178.
**Portion of budget line used to support management activities.

Alaska - FY 2015

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 Groundfish Observer Program, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA 98115										
Program Manager: Jennifer Ferdinand, 206-526-4076, Jennifer.Ferdinand@noaa.gov (Martin Loefflad (retired) served as Program Manager in FY 2015.) Website: www.fisheries.noaa.gov/alaska/fisheries-observers/north-pacific-observer-program										
Bering Sea, Aleutian Islands (BSAI) Groundfish Trawl Cooperatives (AFA, A80), BSAI Voluntary Longline Pacific cod cooperative, Gulf of Alaska (GOA) Groundfish Trawl Rockfish Program (RP), and Catcher Processors	1,270 vessels (171 in 100% coverage) 71 shoreside plants	MSFCMA (50 CFR 679.50)	Various	Obs/Trn-North Pacific Marine Resource Observers/North Pacific Observer Program**	1973–present (Observer program); 1998–present (AFA); 2007–present (A80, CDQ); 2013–present (RP)	100%	100%	Defined by regulation	38,879*	323
				National Observer Program**						
				Industry Funding						
				Other Congressional Funding						
				Reducing Bycatch						
BSAI and GOA Groundfish Trawl, Longline and Pot Fisheries; U.S. Pacific Halibut Fishery			Year-round	National Observer Program**	2013–present	24% catcher vessels > 57.5 ft (trip selection); 12% catcher vessels 40–57.5 ft (vessel selection)	24% trip selection; 12% vessel selection	Defined by available funds and contracts with observer providers in Annual Deployment Plan	5,318	95
				Reducing Bycatch						
				Obs/Trn-North Pacific Marine Resource Observers/North Pacific Observer Program**						
				Other Congressional Funding						
				National Catch Share Program						
Southeast Alaska Drift Gillnet Fishery	480 permits	MMPA (50 CFR 229)	May–Oct	Marine Mammal Protection	0	0	0	0	0	0
Alaska Marine Mammal Observer Program, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA 98115										
Website: www.fisheries.noaa.gov/alaska/fisheries-observers/alaska-marine-mammal-observer-program										
TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $7,206,630										
TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $18,439,055										
TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $25,645,685										

*Actual sea days does not include 2,443 shoreside plant coverage days (some of which are also co-occur with sea days), bringing the total coverage days to 46,640.
**Portion of budget line used to support management activities.

Alaska - FY 2016

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 Groundfish Observer Program, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA 98115										
Program Manager: Jennifer Ferdinand, 206-526-4076, Jennifer.Ferdinand@noaa.gov (Chris Rilling (retired) served as Program Manager in FY 2016.) Website: www.fisheries.noaa.gov/alaska/fisheries-observers/north-pacific-observer-program										
Bering Sea, Aleutian Islands (BSAI) Groundfish Trawl Cooperatives (AFA, A80), BSAI Voluntary Longline Pacific cod cooperative, Gulf of Alaska (GOA) Groundfish Trawl Rockfish Program (RP), and Catcher Processors	1,270 vessels (171 in 100% coverage) 71 shoreside plants	MSFCMA (50 CFR 679.50)	Various	Obs/Trn-North Pacific Marine Resource Observers/North Pacific Observer Program**	1973–present (Observer program); 1998–present (AFA); 2007–present (A80, CDQ); 2013–present (RP)	100%	100%	Defined by regulation	36,758*	386
				National Observer Program**						
				Industry Funding						
				Other Congressional Funding						
				Reducing Bycatch						
BSAI and GOA Groundfish Trawl, Longline and Pot Fisheries; U.S. Pacific Halibut Fishery			Year-round	National Observer Program**	2013–present	28% trawl catcher vessels; 15% fixed gear catcher vessels 40–57.5 ft	28% trawl; 15% fixed gear	Defined by available funds and contracts with observer providers in Annual Deployment Plan	4,677	83
				Reducing Bycatch						
				Obs/Trn-North Pacific Marine Resource Observers/North Pacific Observer Program**						
				Other Congressional Funding						
				National Catch Share Program						
Southeast Alaska Drift Gillnet Fishery	480 permits	MMPA (50 CFR 229)	May–Oct	Marine Mammal Protection	0	0	0	0	0	0
Alaska Marine Mammal Observer Program, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA 98115										
Website: www.fisheries.noaa.gov/alaska/fisheries-observers/alaska-marine-mammal-observer-program										
TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $6,907,024										
TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $19,094,388										
TOTAL ALASKA REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $26,001,412										

*Actual sea days does not include 2,271 shoreside plant coverage days (some of which are also co-occur with sea days), bringing the total coverage days to 43,706.
**Portion of budget line used to support management activities.

West Coast - Northwest FY 2014

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, 206-302-2423, jon.mcveigh@noaa.gov; Website: www.fisheries.noaa.gov/west-coast/science-data/fisheries-observation-science-west-coast										
West Coast Trawl Catch Shares (Shoreside and at-sea fleets)	154	MSFCMA (50 CFR 660)	Shoreside: year-round; at-sea May–December	National Catch Share Program* West Coast Observers National Observer Program Industry Funding (For Observers and Catch Monitors)	Jan 2011 –present (Note: Includes historical fisheries LE Trawl 2001–2010 and At-Sea Hake 1975–2010.)	100%	100%	Defined by regulation (100% coverage, shore-side 1 observer; at-sea 2 observ-ers)	Shore-side: 6,458 At-Sea: 2,382	122
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	West Coast Observers National Observer Program Reducing Bycatch	2001–present	LE: 10–20% OA: <1–10%	LE: 15–25% OA: 1– 8%	LE: 800 OA: 700	LE: 451 OA: 1,159	27
TOTAL NORTHWEST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $5,654,187										
TOTAL NORTHWEST REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $2,136,725										
TOTAL NORTHWEST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $7,790,912										

*Approximately 52% of these funds was used to reimburse vessels for observer and catch monitor coverage. This number includes funds that came to the NW observer program as well as funds paid out as industry reimbursements for observer and catch monitor sea/plant days; also including funding used to administer the catch monitor program.

West Coast - Northwest FY 2015

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, 206-302-2423, jon.mcveigh@noaa.gov; Website: www.fisheries.noaa.gov/west-coast/science-data/fisheries-observation-science-west-coast										
West Coast Trawl Catch Shares (Shoreside and at-sea fleets)	154	MSFCMA (50 CFR 660)	Shoreside: year-round; at-sea May–December	National Catch Share Program*	Jan 2011 –present (Note: Includes historical fisheries LE Trawl 2001–2010 and At-Sea Hake 1975–2010.)	100%	100%	Defined by regulation (100% coverage, shore-side 1 observer; at-sea 2 observers)	Shore-side: 3,869 At-Sea: 1,645	102
				West Coast Observers						
				Industry Funding (For Observers and Catch Monitors)						
				National Observer Program						
				Cost Recovery						
Catch Share Using Electronic Monitoring				National Catch Share Program for Electronic Monitoring	EFP in FY 2015				EM: 1,847	# EM systems on vessels: 32
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	2001–present	LE: 10–20% OA: <1–10%	LE: 15–30% OA: 1– 8%	LE: 400 OA: 800	LE: 587 OA: 1,810	34
				West Coast Observers						
				Reducing Bycatch						
NOP/FIS Electronic Reporting RFP–OPTECS	N/A	NA	N/A	National Observer Program	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL NORTHWEST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $5,858,679										
TOTAL NORTHWEST REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $2,813,306										
TOTAL NORTHWEST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $8,671,985										

*Approximately 51% of these funds was used to reimburse vessels for observer and catch monitor coverage. This number includes funds that came to the NW observer program as well as funds paid out as industry reimbursements for observer and catch monitor sea/plant days; also including funding used to administer the catch monitor program.

West Coast - Northwest FY 2016

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, 206-302-2423, jon.mcveigh@noaa.gov; Website: www.fisheries.noaa.gov/west-coast/science-data/fisheries-observation-science-west-coast										
West Coast Trawl Catch Shares (Shoreside and at-sea fleets)	154	MSFCMA (50 CFR 660)	Shoreside: year-round; at-sea May–December	National Catch Share Program* West Coast Observers Industry Funding (For Observers and Catch Monitors) National Observer Program Cost Recovery	Jan 2011 –present (Note: Includes historical fisheries LE Trawl 2001–2010 and At-Sea Hake 1975–2010.)	100%	100%	Defined by regulation (100% coverage, shore-side 1 observer; at-sea 2 observers)	Shore-side: 3,482 At-Sea: 2,271	93
Catch Share Using Electronic Monitoring				National Catch Share Program for Electronic Monitoring	EFP in FY 2015				EM: 3,070	# EM systems on vessels: 42
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: 10–20% OA: <1–10%	LE: 15–30% OA: 1– 8%	LE: 400 OA: 800	LE: 596 OA: 1,789	40
NOP/FIS Electronic Reporting RFP–OPTECS	N/A	NA	N/A	National Observer Program	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL NORTHWEST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $5,732,283										
TOTAL NORTHWEST REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $2,799,826										
TOTAL NORTHWEST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $8,532,109										

*Approximately 51% of these funds was used to reimburse vessels for observer and catch monitor coverage. This number includes funds that came to the NW observer program as well as funds paid out as industry reimbursements for observer and catch monitor sea/plant days; also including funding used to administer the catch monitor program.

West Coast - Southwest FY 2014

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, 562-980-4033, Charles.villafana@noaa.gov Website: www.fisheries.noaa.gov/west-coast/fisheries-observers/west-coast-region-observer-program										
California Large-Mesh Drift Gillnet Fishery	20 vessels	MMPA (50 CFR 229), MSFCMA (50 CFR 660)	August–January	National Observer Program	1990–present	20%	37%	320	285	7
California Deep-Set Pelagic Longline Fishery	<3 vessels	MSFCMA (50 CFR 660)	Nov–May	Reducing Bycatch National Observer Program	2001–present	100%	100%	115	99	
SWC 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
TOTAL SOUTHWEST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $1,050,132										
TOTAL SOUTHWEST REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL SOUTHWEST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $1,050,132										

West Coast - Southwest FY 2015

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, 562-980-4033, Charles.villafana@noaa.gov Website: www.fisheries.noaa.gov/west-coast/fisheries-observers/west-coast-region-observer-program										
California Large-Mesh Drift Gillnet Fishery	17 vessels	MMPA (50 CFR 229), MSFCMA (50 CFR 660)	August–January	National Observer Program	1990–present	20%	21%	220	136	7
California Deep-Set Pelagic Longline Fishery	<3 vessels	MSFCMA (50 CFR 660)	Nov–May	National Observer Program	2001–present	100%	100%	200	147	
SWC Data Management and Bycatch Estimates	N/A	N/A	Year-round	National Observer Program Reducing Bycatch	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL SOUTHWEST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $1,132,767										
TOTAL SOUTHWEST REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL SOUTHWEST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $1,132,767										

West Coast - Southwest FY 2016

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, 562-980-4033, Charles.villafana@noaa.gov Website: www.fisheries.noaa.gov/west-coast/fisheries-observers/west-coast-region-observer-program										
California Large-Mesh Drift Gillnet Fishery	20 vessels	MMPA (50 CFR 229), MSFCMA (50 CFR 660)	August–January	National Observer Program	1990–present	20%	18.1%	200	190	7
California Deep-Set Pelagic Longline Fishery	<3 vessels	MSFCMA (50 CFR 660)	Nov–May	Reducing Bycatch National Observer Program	2001–present	100%	100%	105	105	
SWFSC 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
TOTAL SOUTHWEST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $1,082,860										
TOTAL SOUTHWEST REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL SOUTHWEST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $1,082,860										

Pacific Islands - FY 2014

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, 808-725-5100, dawn.golden@noaa.gov (John Kelly (retired) served as Program Manager in FY 2014.) Website: www.fisheries.noaa.gov/pacific-islands/pacific-islands-region-observer-program										
Hawaii Pelagic Longline Fishery	164 vessels with permits (112 active)	MSFCMA (50 CFR 665), MMPA (50 CFR 229)	Year-round	Obs/Trn-Hawaii Longline Observers	1994–present	20% tuna	20%	6,110	6,582	50
						100% swordfish	100%	2,970	2,394	
American Samoa Pelagic Longline Fishery	30	MSFCMA (50 CFR 665) in Jan 2005	Year-round	National Observer Program	2005–present	20%	20%	1,204	705	
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 (CONGRESSIONAL): $6,037,887										
TOTAL PACIFIC ISLANDS REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL PACIFIC ISLANDS REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $6,037,887										

Pacific Islands - FY 2015

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, 808-725-5100, dawn.golden@noaa.gov (John Kelly (retired) served as Program Manager in FY 2015.) 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	Obs/Trn-Hawaii Longline Observers; Other Congressional Funding	1994–present	20% tuna	20%	6,110	6,419	60
						100% swordfish	100%	2,970	2,307	
American Samoa Pelagic Longline Fishery	30	MSFCMA (50 CFR 665) in Jan 2005	Year-round	National Observer Program	2005–present	20%	20%	1,204	745	
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 (CONGRESSIONAL): $5,954,254										
TOTAL PACIFIC ISLANDS REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL PACIFIC ISLANDS REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $5,954,254										

Pacific Islands - FY 2016

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, 808-725-5100, dawn.golden@noaa.gov (John Kelly (retired) served as Program Manager in FY 2016.) 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	Obs/Trn-Hawaii Longline Observers; Other Congressional Funding	1994–present	20% tuna	20%	6,110	6,569	60
						100% swordfish	100%	2,970	1,436	
American Samoa Pelagic Longline Fishery	30	MSFCMA (50 CFR 665) in Jan 2005	Year-round	National Observer Program	2005–present	20%	20%	1,204	586	
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 (CONGRESSIONAL): $5,939,489										
TOTAL PACIFIC ISLANDS REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL PACIFIC ISLANDS REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $5,939,489										

Greater Atlantic - FY 2014

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, 508-495-2377, katherine.mcardle@noaa.gov (Amy Martins served as Program Manager in FY 2014.) Website: www.fisheries.noaa.gov/new-england-mid-atlantic/fisheries-observers/fisheries-monitoring-operations-northeast										
New England Multispecies Groundfish Sectors At-Sea Monitoring (ASM)	1,000 trawl vessels, 400 gillnet vessels, and 40 longline	MSFCMA (50 CFR 648); MMPA (50 CFR 229)	Year-round	National Observer Program	2010–present	30% coefficient of variation on bycatch species; 8% common pool; 26% for groundfish sectors (8% NEFOP + 18% ASM)	26%	Targets are set by SBRM (April through March), based on CV and adjusted for funding availabity and/or resource set-aside	4,174 (ASM)	176
				National Catch Share Program (ASM/ Electronic Monitoring)						
New England Multispecies Groundfish Sectors Standardized Bycatch Reporting Methodology Prioritized Fleets NEFOP Coverage				Northeast Fisheries Observer (NEFOP)	1990–present				1,658 (NEFOP)	
Standardized Bycatch Reporting Methodology prioritized fleets, and ASMFC NEFOP Coverage (non-groundfish)	>1,300 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	3,467	Included above
				Reducing Bycatch	2010–present		N/A	SBRM targets		
Protected Species NEFOP Coverage	>600 permits	MMPA (50 CFR 229	Year-round	Marine Mammal Observers	1994–present	30% coefficient of variation on critical marine mammal stocks	N/A	SBRM targets	472	Included above
Atlantic Sea Scallop Fishery (Dredge and Trawl; General Category and Access Area Permits; Open and Access Areas)	500 vessels	MSFCMA (50 CFR 648)	Year-round	Industry Funding	1999–present	5–20% by permit type/ area fished, determined by SBRM and amount of set-aside	N/A	2,703	2,767	52
				National Observer Program	1999–present					
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $15,071,311										
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $1,867,725										
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $16,939,036										

Greater Atlantic - FY 2015

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, 508-495-2377, katherine.mcardle@noaa.gov (Amy Martins served as Program Manager in FY 2015.) Website: www.fisheries.noaa.gov/new-england-mid-atlantic/fisheries-observers/fisheries-monitoring-operations-northeast										
New England Multispecies Groundfish Sectors At-Sea Monitoring (ASM)	1,000 trawl vessels, 400 gillnet vessels, and 40 longline	MSFCMA (50 CFR 648); MMPA (50 CFR 229)	Year-round	National Observer Program	2010–present	30% coefficient of variation on bycatch species; 8% common pool; 24% for groundfish sectors (4% NEFOP + 20% ASM)	24%	Targets are set by SBRM (April through March), based on CV and adjusted for funding availability and/or resource set-aside	2,360 (ASM) (1,937 federally funded; 423 industry-funded = ~$260,000)	125
				National Catch Share Program (ASM/ Electronic Monitoring)						
New England Multispecies Groundfish Sectors Standardized Bycatch Reporting Methodology prioritized fleets NEFOP Coverage				Northeast Fisheries Observer (NEFOP)	1990–present				1,625 (NEFOP)	
Standardized Bycatch Reporting Methodology prioritized fleets, and ASMFC NEFOP Coverage (non-groundfish)	>1,300 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	3,778	Included above
				Reducing Bycatch	2010–present		N/A	SBRM targets		
Protected Species NEFOP Coverage	>600 permits	MMPA (50 CFR 229	Year-round	Marine Mammal Observers	1994–present	30% coefficient of variation on critical marine mammal stocks	N/A	SBRM targets	500	Included above
Atlantic Sea Scallop Fishery (Dredge and Trawl; General Category and Access Area Permits; Open and Access Areas)	500 vessels	MSFCMA (50 CFR 648)	Year-round	Industry Funding	1999–present	5–20% by permit type/ area fished, determined by SBRM and amount of set-aside	N/A	2,512	2,986	50
				National Observer Program	1999–present					
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $14,831,906										
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $2,275,000										
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $17,106,906										

Greater Atlantic - FY 2016

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, 508-495-2377, katherine.mcardle@noaa.gov (Amy Martins served as Program Manager in FY 2016.) Website: www.fisheries.noaa.gov/new-england-mid-atlantic/fisheries-observers/fisheries-monitoring-operations-northeast										
New England Multispecies Groundfish Sectors At-Sea Monitoring (ASM)	1,000 trawl vessels, 400 gillnet vessels, and 40 longline	MSFCMA (50 CFR 648); MMPA (50 CFR 229)	Year-round	National Observer Program	2010–present	30% coefficient of variation on bycatch species; 4% common pool; 14% for groundfish sectors (4% NEFOP + 10% ASM)	15%	Targets are set by SBRM (April through March), based on CV and adjusted for funding availability and/or resource set-aside	1,830 (ASM) (990 federally funded; 840 industry-funded = ~$415,000)	85
				National Catch Share Program (ASM/ Electronic Monitoring)						
New England Multispecies Groundfish Sectors Standardized Bycatch Reporting Methodology prioritized fleets NEFOP Coverage				Northeast Fisheries Observer (NEFOP)	1990–present				760 (NEFOP)	
Standardized Bycatch Reporting Methodology prioritized fleets, and ASMFC NEFOP Coverage (non-groundfish)	>1,300 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	6,031	110
				Reducing Bycatch	2010–present		N/A	SBRM targets		
Protected Species NEFOP Coverage	>600 permits	MMPA (50 CFR 229	Year-round	Marine Mammal Observers	1994–present	30% coefficient of variation on critical marine mammal stocks	N/A	SBRM targets	219	Included above
Atlantic Sea Scallop Fishery (Dredge and Trawl; General Category and Access Area Permits; Open and Access Areas)	500 vessels	MSFCMA (50 CFR 648)	Year-round	Industry Funding	1999–present	10–20% by permit type/ area fished, determined by SBRM and amount of set-aside	N/A	2,739	3,763	50
				National Observer Program	1999–present					
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $14,826,387										
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $3,049,100										
TOTAL GREATER ATLANTIC REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $17,875,487										

Southeast and Caribbean FY 2014 (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
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%	2%	1,500 plus experimental	1,944	43
Atlantic Pelagic Longline Observer Program, Southeast Fisheries Science Center, 75 Virginia Beach Dr, Miami, FL 33149-1003 Program Manager (Acting): Larry Beerkircher, 786-489-0334, Lawrence.r.beerkircher@noaa.gov; Website: www.fisheries.noaa.gov/about/southeast-fisheries-science-center										
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 Other Congressional	1992–present	8% by vessel sets	~10%	1,268 sets	1,888	15
Southeast Shark Driftnet Observer Program & Shark Bottom Longline Observer Program Southeast Fisheries Science Center, Panama City Laboratory, 3500 Delwood Beach Rd, Panama City, FL 32408 Program Manager: Dr. John Carlson, 850-234-6541, john.carlson@noaa.gov, Website: 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	100% shark strike, 38% shark drift, 5% shark and teleost sink net	100% shark strike, 38% shark drift, 5% shark and teleost sink net	335	6
Atlantic and Gulf of Mexico Directed Large Coastal Shark Bottom Longline Fishery	Directed Shark Permits: 216 Indirect Shark Permits: 262 Exempted Reeffish 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; 4–6% non-sandbar shark fishery	100% sandbar shark research fishery; 4–6% non-sandbar shark fishery	Shark research fishery 118; non-research fishery 12 (total 130)	6

Southeast and Caribbean FY 2014 (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: Elizabeth Scott-Denton, 409-766-3507, elizabeth.scott-denton@noaa.gov; Website: www.fisheries.noaa.gov/about/southeast-fisheries-science-center										
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	2%	2%	526	513	43 (included in shrimp fishery)
Gulf of Mexico Reef Fish Fishery-Vertical Line Emphasis	Approx. 831 permitted USCG documented vessels	Mandatory	Year-round	National Catch Share Program	August 2011–present	4%	6%	308	446	43 (included in shrimp fishery)
Gulf of Mexico Purse Seine (Menhaden) Observer Program, Southeast Fisheries Science Center, Galveston Laboratory, 4700 Avenue U, Galveston, TX 77551										
Program Manager: Elizabeth Scott-Denton, 409-766-3507, elizabeth.scott-denton@noaa.gov; Website: www.fisheries.noaa.gov/about/southeast-fisheries-science-center										
Gulf of Mexico Menhaden Fishery	Approx. 41 permitted USCG documented vessels	MMPA (50 CFR 229)	April–November	Marine Mammals	2011	0%	0%	0	0	0
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $5,144,445										
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $5,144,445										

Southeast and Caribbean FY 2015 (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
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%	2%	1,500 plus experimental	1,803	43
Atlantic Pelagic Longline Observer Program, Southeast Fisheries Science Center, 75 Virginia Beach Dr, Miami, FL 33149-1003 Program Manager (Acting): Larry Beerkircher, 786-489-0334, Lawrence.r.beerkricher@noaa.gov; Website: www.fisheries.noaa.gov/about/southeast-fisheries-science-center										
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 Other Congressional	1992–present	8% by vessel sets	~10%	1,144 sets	1,610	15
Southeast Shark Driftnet Observer Program & Shark Bottom Longline Observer Program Southeast Fisheries Science Center, Panama City Laboratory, 3500 Delwood Beach Rd, Panama City, FL 32408 Program Manager: Dr. John Carlson, 850-234-6541, john.carlson@noaa.gov, Website: 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	100% shark strike, 38% shark drift, 5% shark and teleost sink net	100% shark strike, 38% shark drift, 5% shark and teleost sink net	335	6
Atlantic and Gulf of Mexico Directed Large Coastal Shark Bottom Longline Fishery	Directed Shark Permits: 216 Indirect Shark Permits: 262 Exempted Reeffish 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; 4–6% non-sandbar shark fishery	100% sandbar shark research fishery; 4–6% non-sandbar shark fishery; 8–10% reeffish longline	Shark research fishery 118; non-research fishery 12 (total 130)	6

Southeast and Caribbean FY 2015 (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: Elizabeth Scott-Denton, 409-766-3507, elizabeth.scott-denton@noaa.gov; Website: www.fisheries.noaa.gov/about/southeast-fisheries-science-center										
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	2%	2%	679	759	43 (included in shrimp fishery)
Gulf of Mexico Reef Fish Fishery-Vertical Line Emphasis	Approx. 831 permitted USCG documented vessels	Mandatory	Year-round	National Catch Share Program	August 2011–present	6%	5%	462	401	43 (included in shrimp fishery)
Gulf of Mexico Purse Seine (Menhaden) Observer Program, Southeast Fisheries Science Center, Galveston Laboratory, 4700 Avenue U, Galveston, TX 77551										
Program Manager: Elizabeth Scott-Denton, 409-766-3507, elizabeth.scott-denton@noaa.gov; Website: www.fisheries.noaa.gov/about/southeast-fisheries-science-center										
Gulf of Mexico Menhaden Fishery	Approx. 41 permitted USCG documented vessels	MMPA (50 CFR 229)	April–November	Marine Mammals	2011	0%	0%	0	0	0
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $4,969,274										
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $4,969,274										

Southeast and Caribbean FY 2016 (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
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%	~2%	~1,500	1,296	43
Atlantic Pelagic Longline Observer Program, Southeast Fisheries Science Center, 75 Virginia Beach Dr, Miami, FL 33149-1003 Program Manager (Acting): Larry Beerkircher, 786-489-0334, Lawrence.r.beerkricher@noaa.gov; Website: www.fisheries.noaa.gov/about/southeast-fisheries-science-center										
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 Other Congressional	1992–present	8% by vessel sets	~10%	1,287 sets	1,965	22
Southeast Shark Driftnet Observer Program & Shark Bottom Longline Observer Program Southeast Fisheries Science Center, Panama City Laboratory, 3500 Delwood Beach Rd, Panama City, FL 32408 Program Manager: Dr. John Carlson, 850-234-6541, john.carlson@noaa.gov, Website: 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	100% shark strike, 38% shark drift, 5% shark and teleost sink net	100% shark strike, 38% shark drift, 5% shark and teleost sink net	179	8
Atlantic and Gulf of Mexico Directed Large Coastal Shark Bottom Longline Fishery	Directed Shark Permits: 216 Indirect Shark Permits: 262 Exempted Reeffish 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; 4–6% non-sandbar shark fishery	100% sandbar shark research fishery; 4–6% non-sandbar shark fishery; 8–10% reeffish longline	211	8

Southeast and Caribbean FY 2016 (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: Elizabeth Scott-Denton, 409-766-3507, elizabeth.scott-denton@noaa.gov; Website: www.fisheries.noaa.gov/about/southeast-fisheries-science-center										
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%	~2%	~300	470	43 (included in shrimp fishery)
Gulf of Mexico Reef Fish Fishery-Vertical Line Emphasis	Approx. 831 permitted USCG documented vessels	Mandatory	Year-round	National Catch Share Program	August 2011–2016	~6%	~6%	~150	177	43 (included in shrimp fishery)
Gulf of Mexico Purse Seine (Menhaden) Observer Program, Southeast Fisheries Science Center, Galveston Laboratory, 4700 Avenue U, Galveston, TX 77551										
Program Manager: Elizabeth Scott-Denton, 409-766-3507, elizabeth.scott-denton@noaa.gov; Website: www.fisheries.noaa.gov/about/southeast-fisheries-science-center										
Gulf of Mexico Menhaden Fishery	Approx. 41 permitted USCG documented vessels	MMPA (50 CFR 229)	April–November	Marine Mammals	2011	0%	0%	0	0	0
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (CONGRESSIONAL): $5,052,936										
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (INDUSTRY): $0										
TOTAL SOUTHEAST REGION OBSERVER PROGRAM FUNDING (ALL SOURCES): $5,052,936										

Office of Science & Technology FY 2014

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
National Observer Program, Office of Science and Technology, 1315 East West Highway, Silver Spring, MD 20910										
Manager: Kenneth Keene, 301-427-8158, kenneth.keene@noaa.gov, Website: www.fisheries.noaa.gov/topic/fishery-observers										
Science and Technology	N/A	N/A	N/A	Reducing Bycatch	1999-present	N/A	N/A	N/A	N/A	N/A
Science and Technology	N/A	N/A	N/A	Atl Coast Observers	1999-present	N/A	N/A	N/A	N/A	N/A
Science and Technology	N/A	N/A	N/A	National Observer Program	1999-present	N/A	N/A	N/A	N/A	N/A
HQ Observers	N/A	N/A	N/A	HQ Observers	1999-present	N/A	N/A	N/A	N/A	N/A
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (CONGRESSIONAL): $794,841										
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (INDUSTRY): $0										
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (ALL SOURCES): $794,841										

Totals - All Observer Programs FY 2014

TOTAL OBSERVER PROGRAM FUNDING*: $40,715,082
TOTAL OTHER CONGRESSIONAL FUNDING: $8,046,395
TOTAL CONGRESSIONAL FUNDING: $48,761,477**
TOTAL INDUSTRY FUNDING: $21,527,601
TOTAL OBSERVER FUNDING—ALL FUNDING SOURCES: $70,289,078
ACTUAL NUMBER OF SEA DAYS OBSERVED*: 80,353**
NUMBER OF OBSERVERS**: 940**

*Includes Observer/Training PPA and Reducing Bycatch sub-PPA.
**Sum of Observer/Training PPA, Reducing Bycatch (sub-PPA), and other congressional funding (PPAs: National Catch Share Program, Marine Mammal, Fisheries Research and Management, and Recovery Cost).
***Includes days deployed for electronic monitoring; does not include programs that target permits, sets, or trips instead of sea days.
****Does not include deployments for electronic monitoring.

Office of Science & Technology FY 2015

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
National Observer Program, Office of Science and Technology, 1315 East West Highway, Silver Spring, MD 20910										
Manager: Kenneth Keene, 301-427-8158, kenneth.keene@noaa.gov, Website: www.fisheries.noaa.gov/topic/fishery-observers										
Science and Technology	N/A	N/A	N/A	Reducing Bycatch	1999-present	N/A	N/A	N/A	N/A	N/A
Science and Technology	N/A	N/A	N/A	Atl Coast Observers	1999-present	N/A	N/A	N/A	N/A	N/A
Science and Technology	N/A	N/A	N/A	National Observer Program	1999-present	N/A	N/A	N/A	N/A	N/A
HQ Observers	N/A	N/A	N/A	HQ Observers	1999-present	N/A	N/A	N/A	N/A	N/A
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (CONGRESSIONAL): $784,810										
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (INDUSTRY): $0										
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (ALL SOURCES): $784,810										

Totals - All Observer Programs FY 2015

TOTAL OBSERVER PROGRAM FUNDING*: $40,738,320
TOTAL OTHER CONGRESSIONAL FUNDING: $8,003,645
TOTAL CONGRESSIONAL FUNDING: $48,741,965**
TOTAL INDUSTRY FUNDING: $23,527,361
TOTAL OBSERVER FUNDING—ALL FUNDING SOURCES: $72,269,326
ACTUAL NUMBER OF SEA DAYS OBSERVED*: 79,996**
NUMBER OF OBSERVERS**: 866**

*Includes Observer/Training PPA and Reducing Bycatch sub-PPA.
**Sum of Observer/Training PPA, Reducing Bycatch (sub-PPA), and other congressional funding (PPAs: National Catch Share Program, Marine Mammal, Fisheries Research and Management, and Fisheries Information Networks (FINs)).
***Includes days deployed for electronic monitoring; does not include programs that target permits, sets, or trips instead of sea days.
****Does not include deployments for electronic monitoring.

Office of Science & Technology FY 2016

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
National Observer Program, Office of Science and Technology, 1315 East West Highway, Silver Spring, MD 20910										
Manager: Kenneth Keene, 301-427-8158, kenneth.keene@noaa.gov, Website: www.fisheries.noaa.gov/topic/fishery-observers										
Science and Technology	N/A	N/A	N/A	Reducing Bycatch	1999-present	N/A	N/A	N/A	N/A	N/A
Science and Technology	N/A	N/A	N/A	Atl Coast Observers	1999-present	N/A	N/A	N/A	N/A	N/A
Science and Technology	N/A	N/A	N/A	National Observer Program	1999-present	N/A	N/A	N/A	N/A	N/A
HQ Observers	N/A	N/A	N/A	HQ Observers	1999-present	N/A	N/A	N/A	N/A	N/A
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (CONGRESSIONAL): $782,846										
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (INDUSTRY): $0										
TOTAL SCIENCE AND TECHNOLOGY PROGRAM FUNDING (ALL SOURCES): $782,846										

Totals - All Observer Programs FY 2016

TOTAL OBSERVER PROGRAM FUNDING*: $40,323,465
TOTAL OTHER CONGRESSIONAL FUNDING: $7,889,453
TOTAL CONGRESSIONAL FUNDING: $48,212,918**
TOTAL INDUSTRY FUNDING: $24,943,314
TOTAL OBSERVER FUNDING—ALL FUNDING SOURCES: $73,156,232
ACTUAL NUMBER OF SEA DAYS OBSERVED*: 78,430**
NUMBER OF OBSERVERS**: 995**

*Includes Observer/Training PPA and Reducing Bycatch sub-PPA.
**Sum of Observer/Training PPA, Reducing Bycatch (sub-PPA), and other congressional funding (PPAs: National Catch Share Program, Marine Mammal, Fisheries Research and Management, and Fisheries Information Networks (FINs)).
***Includes days deployed for electronic monitoring; does not include programs that target permits, sets, or trips instead of sea days.
****Does not include deployments for electronic monitoring.

Appendix B: Fisheries Observed in FY 2014, FY 2015, and FY 2016

Fisheries Observed in FY 2014

Region	Fisheries With Adequate or Near Adequate Coverage	Fisheries With Pilot or Baseline Levels of Coverage
AK	Bering Sea/Aleutian Islands Groundfish Trawl	
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	Bering Sea/Aleutian Islands Halibut Longline	
AK	Gulf of Alaska Halibut Longline	
NE	New England Large Mesh Otter Trawl	New England and Mid-Atlantic Lobster/Crab Trap
NE	New England Small Mesh Otter Trawl	New England Herring Weirs (Fish Traps)
NE	New England Gillnet	Mid-Atlantic Pots
NE	Atlantic Sea Scallop Dredge (including groundfish closed areas)	New England and Mid-Atlantic Hydraulic Dredge (Surf Clams, Ocean Quahogs)
NE	Mid-Atlantic (and S. New England) Small Mesh Otter Trawl	Gulf of Maine Shrimp Trawl
NE	Mid-Atlantic Coastal Gillnet	New England Demersal Longline
NE	Mid-Atlantic Gillnet	
NE	Mid-Atlantic Scallop Dredge	
NE	Mid-Atlantic Longline (Tilefish)	
NE	New England and Mid-Atlantic Single and Pair Trawl	
NE	New England and Mid-Atlantic Purse Seine	
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	Atlantic, Gulf of Mexico, and Caribbean Pelagic Longline (Swordfish, Tuna, Sharks)	South Atlantic and Gulf of Mexico Directed Coastal Gillnet Fishery
SE	Atlantic and Gulf of Mexico Directed Large Coastal Shark Bottom Longline	South Atlantic and Gulf of Mexico Shrimp Otter Trawl (including rock shrimp)
SE		Gulf of Mexico Reef Fish Fishery
WCR	California Large-Mesh Drift Gillnet	
WCR	Deep-Set Pelagic Longline	
Total	**29**	**13**

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.*

Fisheries Observed in FY 2015

Region	Fisheries With Adequate or Near Adequate Coverage	Fisheries With Pilot or Baseline Levels of Coverage
AK	Bering Sea/Aleutian Islands Groundfish Trawl	
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	Bering Sea/Aleutian Islands Halibut Longline	
AK	Gulf of Alaska Halibut Longline	
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 (Surf Clams, Ocean Quahogs)
NE	Mid-Atlantic Large Mesh Otter Trawl	Mid-Atlantic Hydraulic Dredge (Surf Clams, 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	
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
WCR	California Large-Mesh Drift Gillnet	
WCR	Deep-Set Pelagic Longline	
Total	**38**	**15**

Fisheries Observed in FY 2016

Region	Fisheries With Adequate or Near Adequate Coverage	Fisheries With Pilot or Baseline Levels of Coverage
AK	Bering Sea/Aleutian Islands Groundfish Trawl	
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	Bering Sea/Aleutian Islands Halibut Longline	
AK	Gulf of Alaska Halibut Longline	
NE	New England Longline	Mid-Atlantic Handline
NE	Mid-Atlantic Longline	Mid-Atlantic General Category Access Area Scallop Trawl
NE	New England Handline	Mid-Atlantic Limited Access Open Area Scallop Trawl
NE	New England Large Mesh Otter Trawl (Includes Haddock Seperator)	New England Small Mesh Ruhle Trawl
NE	New England Small Mesh Otter Trawl	New England Large Mesh Ruhle Trawl
NE	Mid-Atlantic Large Mesh Otter Trawl	Mid-Atlantic and New England Shrimp Trawl
NE	Mid-Atlantic Small Mesh Otter Trawl	Mid-Atlantic and New England Floating Trap
NE	Mid-Atlantic General Category Open Area Scallop Trawl	New England Small Mesh Gillnet
NE	Mid-Atlantic Twin Otter Trawl	Mid-Atlantic Purse Seine
NE	Mid-Atlantic Gillnet (Small, Large, Extra Large, Sink/Anchor)	New England General Category Acess Area Scallop Dredge
NE	New England Gillnet (Large, Extra Large, Sink/Anchor)	Mid-Atlantic Danish Seine
NE	New England Purse Seine	Mid-Atlantic Paired and Single Mid-Water Trawl
NE	New England Access Area Paired and Single Mid-Water Trawl	New England Fish/Conch/Hagfish Pot/Trap
NE	New England Open Area Paired and Single Mid-Water Trawl	Mid-Atlantic Conch Pot/Trap
NE	Mid-Atlantic Limited Access & General Category, Access & Open Areas Scallop Dredge	Mid-Atlantic and New England Crab Pot
NE	New England Limited Access, Access & Open Areas Scallop Dredge	Mid-Atlantic and New England Beam Trawl
NE	New England General Category Open Area Scallop Dredge	Mid-Atlantic Dredge, Other
NE	Mid-Atlantic Fish Pot/Trap	Mid-Atlantic and New England Ocean Quahog/Surfclam Dredge
NE	Mid-Atlantic Lobster Pot/Trap	
NE	New England Lobster Pot/Trap	
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	Gulf of Mexico Reef Fish Fishery
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	South Atlantic and Gulf of Mexico Shrimp Otter Trawl (including rock shrimp)
WCR	California Large-Mesh Drift Gillnet	
WCR	Deep-Set Pelagic Longline	
Total	**39**	**25**

U.S. Secretary of Commerce
Gina M. Raimondo

NOAA Administrator
Dr. Richard W. Spinrad

Assistant Administrator for Fisheries
Janet Coit

December 2021

www.fisheries.noaa.gov

OFFICIAL BUSINESS

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