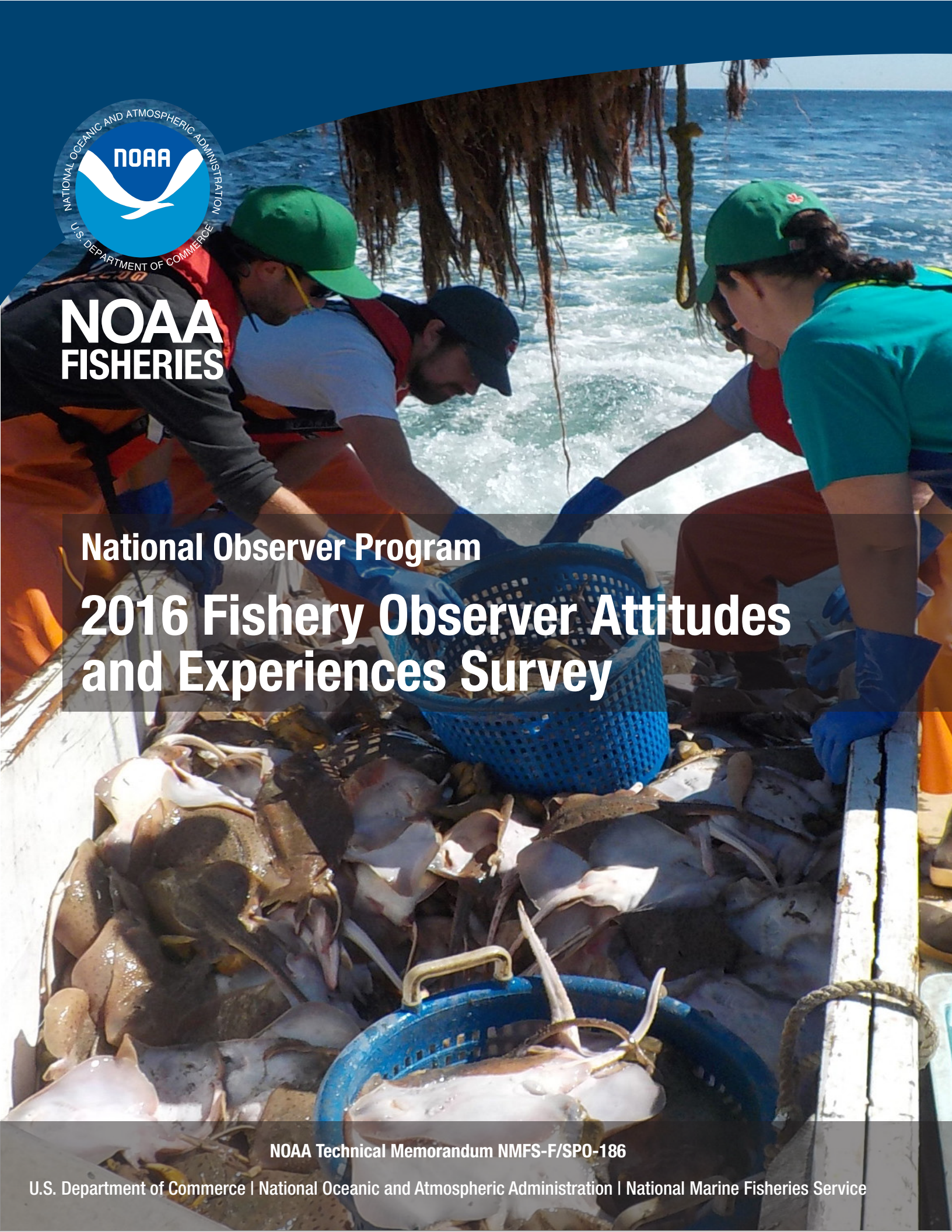

NOAA FISHERIES

National Observer Program

2016 Fishery Observer Attitudes and Experiences Survey

NOAA Technical Memorandum NMFS-F/SPO-186

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

National Observer Program 2016 Fishery Observer Attitudes and Experiences Survey

Yuntao Wang and Jane DiCosimo

NOAA Technical Memorandum NMFS-F/SPO-186
MAY 2019

U.S. Department of Commerce
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National Oceanic and Atmospheric Administration
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performing the nonexclusive duties and functions of Under Secretary and NOAA Administrator

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Or online at:
http://spo.nmfs.noaa.gov/tech-memos

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Acknowledgements

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We also want to thank our colleagues at NOAA Fisheries headquarters. Lee Benaka, Liz Chilton, and Dennis Hansford from National Observer Program offered great help in designing the project and survey and in completing the report, while 2018 Knauss Fellow Noelle Olsen's insight and assistance in the development of the report and associated charts were greatly appreciated. Sarah Brabson was tremendously helpful with Paperwork Reduction Act requirements. Rita Curtis, Kristy Wallmo, Tom Sminkey, and Amy Bowman from the NOAA Fisheries Office of Science and Technology offered great survey design suggestions. We gratefully acknowledge support from our colleagues at NOAA Fisheries regional offices, headquarters offices, science centers, and the National Observer Program Advisory Team, including Drew Kitts, Chris Rilling, Gwynne Schnaittacher, Amy Martins, Jon McVeigh, Charles Villafana, John Kelly, Elizabeth Scott Denton, Carolyn Doherty, Richard Kupfer, Alex Perry, Patricia Clay, John Henderschedt, Sally Bibb, Brian Mason, Ryan Shama, and Ben Riedesel.

We appreciate the generous help we received from observer provider companies in distributing this survey, which helped ensure timely responses. We also look forward to their future help in improving the work experience of observers based on survey results.

We appreciate the current and former observers who participated in a survey pretest and provided great input to make the survey a success: Jason Gedamke, Brendan Newell, Alicia Miller, Stacey Miller, Stewart DesMeules, Courtney Smith, Vanessa Fleming, Dennis Jaszka, Brad Laird, and Thomas Meninno. We thank Liz Mitchell, Association of Professional Observers, for publicizing the survey. Lastly, we gratefully acknowledge the 553 current and past observers who responded to the survey. The report would not be possible without their responses, and without the overall contributions of the talented and hard-working observers who provide NOAA Fisheries with the data required to sustainably manage our nation's fisheries.

Executive Summary

NOAA Fisheries contracts with or certifies private observer provider companies to recruit, hire, and deploy professionally trained biological technicians as observers in 14 regional observer programs that cover up to 53 fisheries on all U.S. coasts.[1] As the eyes and ears on the water, observers provide catch and bycatch information that is used in stock assessments and is essential for sustainable fisheries management. They are the only independent data collection source for some types of at-sea information. Observers are essential to help test innovation in fishing gear, such as bycatch reduction devices. In order to fulfill their duties, observers undergo medical screening prior to rigorous training programs to be able to quickly identify species and collect reliable scientific data. They have been an integral part of NOAA Fisheries science and management for decades, and their work and the data they collect are critical to the agency's ability to execute its mission. Because observers are employed by the private sector, the agency will continue to work with its observer provider partners to ensure safe and suitable working conditions and to facilitate the collection of high-quality data.

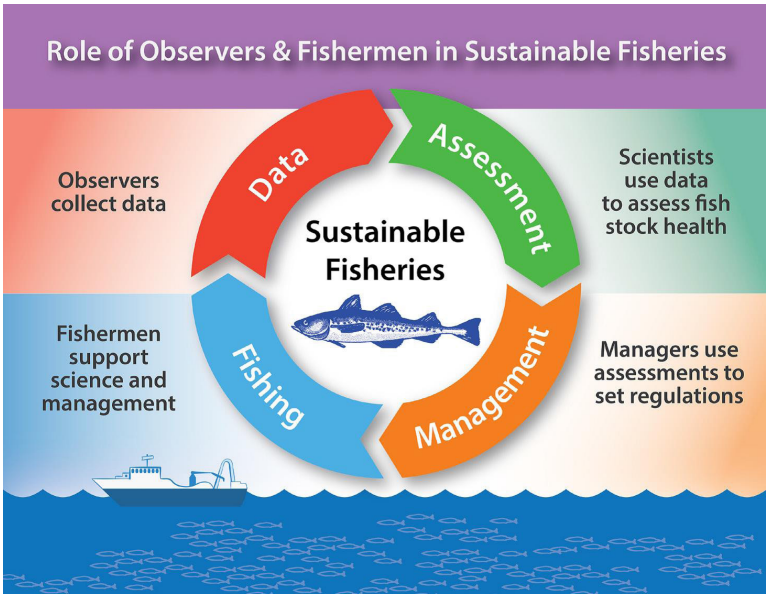

Figure 1.1. *The role of observers and fishermen in sustainable fisheries.*

Maintaining a strong observer workforce now and in the future is a priority for NOAA Fisheries. The agency has been aware of anecdotal reports that factors such as intense working conditions (such as severe weather), concerns regarding data quality, training costs, shortage of available observers, and safety and harassment may lead to loss of highly qualified biologists from the profession.

Because the technical skills observers possess take time to hone and are essential to good data collection, retaining knowledgeable and hardworking observers is important to NOAA Fisheries. It is widely recognized that an observer's job requires field skills and scientific knowledge that may require many deployments before gaining proficiency. In an effort to improve retention, a nationwide observer survey on attitudes and experiences was conducted in 2016. NOAA Fisheries will use information from the survey to improve the national and regional observer programs to retain highly qualified, trained scientists and to support observers in their career development, in partnership with their employers.

Since the first observers were placed on foreign commercial vessels in 1971, NOAA Fisheries and observer provider companies have trained and deployed as many as ten thousand scientists in dozens of commercial fisheries. Lack of information on observer retention has limited the ability of regional observer programs to effectively recruit observers and evaluate observers' behavioral responses to changes in regulations, recruitment, and observing conditions.

This report summarizes the results of 553 current and former observers who responded to an anonymous online survey conducted by NOAA Fisheries in 2016. The survey collected information on the attitudes and experiences of fishery observers, and how those may impact their decision to stay in or leave the profession. A link to the online survey was distributed to former and current observers through a variety of outreach efforts. Survey respondents were categorized by region and fishery type into one of 23 strata, which are described in detail in the Survey Methodology section. The survey collected the following types of data: demographics, education and work history, pre-employment motivation, observer experience, job satisfaction, job difficulties, career plans, safety (including harassment) incidents, experience in international fisheries, opinions about electronic monitoring, and questions focused on regional issues.

The survey asked several questions of observers on harassment and safety incidents, though the questions did

[1] For a detailed description of observer programs, see the FY 2013 National Observer Program Annual Report, https://spo.nmfs.noaa.gov/sites/default/files/TMSPO178web.pdf

Observer Attitudes and Experiences: 2016 Survey Snapshot

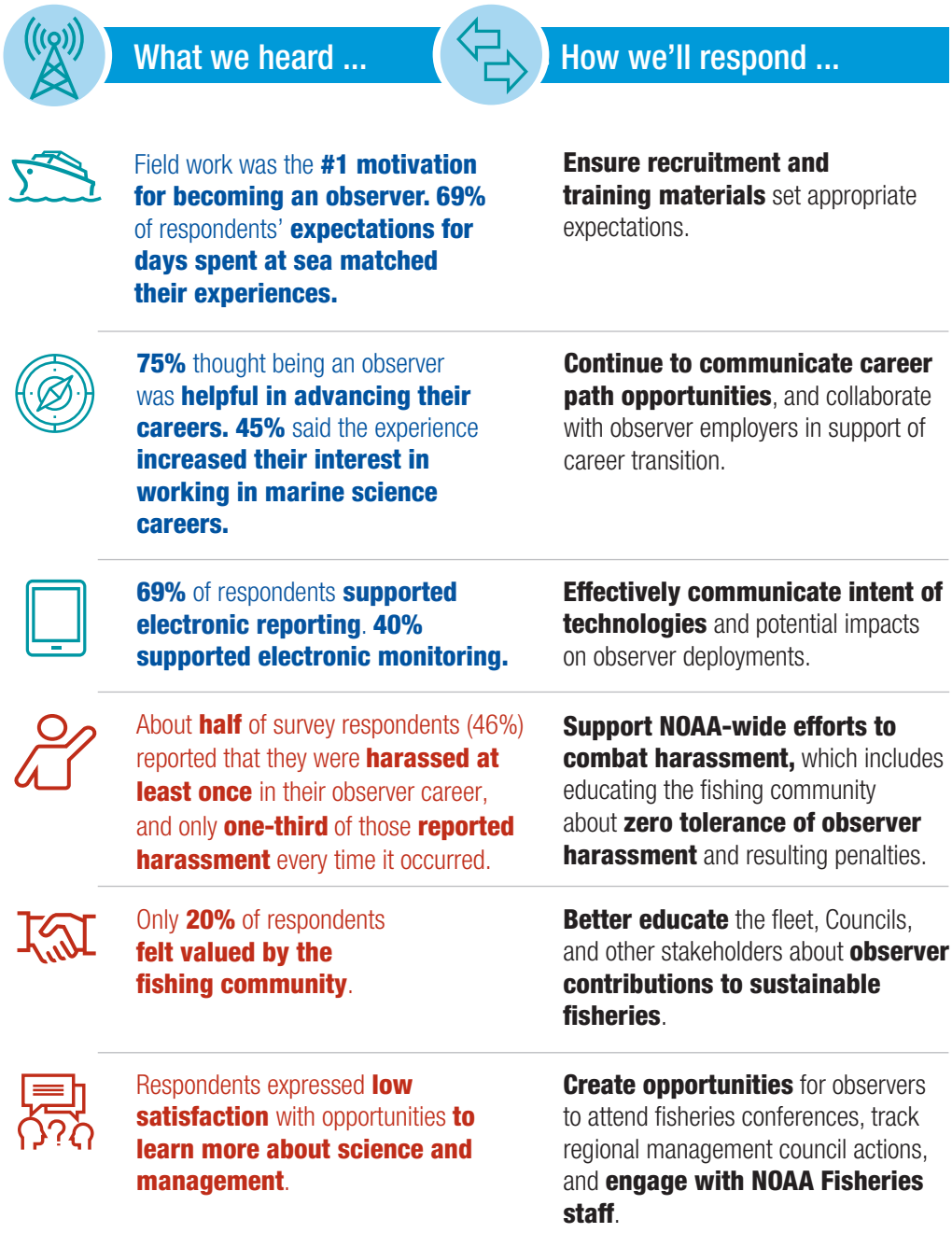

Figure 1.2. *Summary of key findings from survey and planned responses from NOAA Fisheries.*

not specify types of harassment. While the survey was not designed to address harassment issues, it is important to note that the findings will help to inform broader efforts by NOAA Fisheries to deter harassment, enhance observer safety and security, and improve reporting when incidents do occur. Overall, survey results provided needed clarity on factors that contribute to observer retention (see Figure 1.2) and will ensure that NOAA Fisheries has the necessary information it needs to support robust observer programs and ensure observer safety and health.

1. Introduction

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) contracts with third-party providers to deploy scientists trained as observers to collect information on catch, bycatch, fishing effort, biological characteristics, interactions with protected species, and socioeconomic information from U.S. commercial fishing and processing vessels. Observer data supports NOAA Fisheries' conservation and management goals, strengthens and improves fishery management decision-making, and satisfies legal mandates.[2]

Observers are often the only independent data collection source for NOAA Fisheries to collect at-sea data from commercial fishing vessels and processors, which are crucial in fishery management. Observer programs began to collect data on a voluntary basis in 1971; the first mandatory program started in 1974 for U.S purse seiners. Observers first deployed on foreign fishing vessels operating off the northwest and Alaskan coasts of the U.S. under the North Pacific Foreign Fishery observer Program in 1973. Observers worked as direct federal employees until 1996.

Today, five regional programs (Greater Atlantic, Southeast, Alaska, West Coast, and Pacific Islands) (Figure 1.3) comprise 14 specific observer programs that cover up to 53 fisheries and contract with one or more of ten private companies[3] certified to recruit and deploy observers. In Alaska, only vessels and processors in the partial coverage category obtain observers through third-party contractors, under a unique fee collection program authorized by Congress. Vessels and processors in the Alaska full coverage category contract directly with third-party observer provider companies to obtain observers. NOAA Fisheries pays the infrastructure (onshore) costs of all Alaskan observer programs, while the commercial fishing fleet pays either none or all of the at-sea costs of individual fishery observer programs. See Brooke (2014) for more on the history of U.S. observer programs.

Currently, though there are high turnover rates for observers in most regions, regional observer program staff have reported that current recruitment techniques generate an adequate number of applicants for fulfilling current observer needs. However, this situation could change in the future, leading to a potential shortage of observers in certain programs. Additionally, government contracts with third-party observer providers include performance standards for retaining experienced observers.

Unpublished results from survey data by the Northeast Fisheries Science Center, presented at the 2007 International Fisheries Observing and Monitoring Conference (IFOMC), suggest that the performance of observers is impacted by their experience. A positive correlation (Chelton and Davis, 1982) has also been found between data quality and observer experience (number of days at sea). Improving the retention of qualified and experienced observers may lead to a reduced need for training and a correlated cost savings, along with improved data quality (Williams et al. 2006). Experienced observers also help to ease the transition for new observers, benefiting the observers along with the vessel captain and crew.

To better understand the observer population and factors influencing their retention, the National Observer Program (NOP) conducted an online survey of past and present fishery observers in 2016 to identify and respond to the incentives and disincentives of observers to continue in the field and to identify their subsequent career choices. Results are summarized in this report. The survey data will be considered by NOAA Fisheries in efforts to improve observer recruitment and retention by regional fishery observer programs through an accurate understanding of the motivations of observers, and will aid in the evaluation of current observer provider contract requirements.

The potential respondent universe consisted of all former and current observers that have been an observer in U.S. fisheries. Current observers were defined as holding a validated contract and serving as an observer on a U.S. commercial fishing vessel during 2016. Former observers were defined as serving as an observer on a U.S. commercial fishing vessel but under a contract that ended before 2016. For instance, there were 902 current observers with validated contact information in 2016. An unknown number of former observers without any validated contact information also were potential respondents. The universe of former observers may be as many as 8,000, but is ultimately unknown.[4]

This report summarizes 553 responses to the NOAA Fishery Observer Attitudes and Experiences Survey (Appendix 1) received between August 2016 and December 2016; aggregated responses are provided in Appendix 2. The report identifies factors that first drew scientists to the observer

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[2] Magnuson-Stevens Fishery Conservation and Management Act, Regulatory Flexibility Act, Endangered Species Act, National Environmental Policy Act, Marine Mammal Protection Act, and Executive Order 12866.

[3] https://www.fisheries.noaa.gov/national/fisheries-observers/observer-employers

[4] Observers are employed by private companies and their employee records are not shared with the U.S. government.

Figure 1.3. *U.S. fishery observer programs by region and fishery.*

profession and factors that led them to leave it. National and regional observer program managers, as well as national and regional NOAA Fisheries leadership and its regional fishery management council partners, will consider the information collected in the survey.

The observer attitudes and experiences survey is one of three principal activities that constitute NOAA Fisheries' Observer Safety Program. The second initiative is working with NOAA General Counsel to develop national regulations to address specific observer insurance coverage needs while deployed and working on land, following a workshop conducted in 2016.[5] In May 2018, NOAA Fisheries released the third component of the initiative, an independent review of observer safety and health in each of its regional and national programs. This comprehensive review by outside auditors, which included findings on insurance and on attitudes and experiences influencing observer retention and attrition, is intended to ensure ongoing observer safety and professional work environments. NOAA Fisheries is working with the national and regional observer programs, as well as observer provider companies, to implement recommendations from that report, ensuring all observers have the tools they need to stay safe and healthy on board.

2. Survey Methodology

There were 974 observers in 2015 and 902 in 2016. The response rate for current observers was projected to be approximately 60%. Because of an unknown number of former observers, the universe of possible participants was not available, but an estimated 500 former observers may have received the survey, with an expected response rate of approximately 40%. Approximately 785 surveys were expected to be returned; 553 were received by December 31, 2016.

Data were collected via a voluntary, online survey administered through SurveyMonkey, with data transferred automatically into a database for analysis. The online survey allowed respondents to skip questions that did not apply to them, so the total number of responses to each question varied. The survey was pretested by ten former observers who had since become members of the NOAA Fisheries staff. The feedback obtained from pretesting was not included in the database for analysis. The survey also offered an opportunity for observers to indicate their willingness to be contacted for follow-up phone interviews. The interview

[5] https://spo.nmfs.noaa.gov/sites/default/files/TMSPO176final.pdf

would allow observers to expand on their opinions and comments and provide examples of issues of concern.

The survey period allowed a one-time data collection to develop a comprehensive understanding of observers' attitudes toward their observer program(s). Numerous efforts were made to contact observers to increase the responses, in order to make meaningful and statistically sound inferences about the population. Studies have shown that implementing multiple modes of contact could improve response rate and reduce non-response errors in mail surveys (Dillman et al. 1974, 2008; Heberlin and Baumgartner, 1978). Because no single list of observers exists, NOAA Fisheries made every effort to distribute the survey link as widely as possible. The survey was released online on August 20, 2016 via an e-mail message to all NOAA Fisheries staff. Observer provider company contacts also were requested to distribute the survey link to their past and present observers. A link to the survey also was posted on social media. Presentations to interested regional fishery management councils and their staffs also included a request to publicize the survey link through their newsletters to observers active in their fisheries. Two presentations and a poster during the 8th International Fisheries Observer and Monitoring Conference (IFOMC) described the survey and provided the link. Other efforts were made via observer professional associations, social networks, direct communication among observers, and word-of-mouth.

The survey consisted of six sections. The first section (questions 1-4), "Facts about observer," collected data to identify demographic information, including the gender, age group, and education level of the respondent. This information was important to classify perceptions of observers with gender, age, and education subcategories. The comparison between initial education and most recent educational degree was intended to identify observers who pursued a higher degree, and whether the experience as an observer was helpful for their subsequent career.

Section two (questions 5 -12), "Background of observing experience," collected data to identify the start/end time of the observing period, sea days, region and program type, motivation, and initial time span intended to work as observer. All observers were grouped into one of five regional categories: (1) Greater Atlantic, (2) Southeast, (3) West Coast, (4) Pacific Islands, and (5) Alaska. Regional fishery types also were identified. Because of the large variation of fisheries in each region, no general subcategory was used here. For the Greater Atlantic, observers were divided into observers in the Northeast Fisheries Observer Program (NEFOP), industry funded scallop observers, and at-sea monitors. For Alaska, observers were divided into groundfish and halibut full coverage and partial coverage. For the West Coast, there were four subcategories: groundfish non catch-share, groundfish catch-share, California gillnet fisheries, and California longline fishery. For the Pacific Islands, observers were divided into Hawaii pelagic longline and Samoa longline fisheries, but because the respondents who had experience in the Samoa longline fisheries had all worked for a longer period in the Hawaii pelagic longline fisheries, the responses were all counted toward the Hawaii fishery. For the Southeast, there were five types: pelagic longline, shark bottom longline, gillnets, reef fish, and shrimp trawl.

Because former observers were also included in the survey and some programs changed or were eliminated over time, the subcategory "Not listed above" was identified for each region. This method of stratification resulted in 23 strata including total populations for current observer and unknown populations for former observers. Answers to these questions described fundamental information about the working history of observers by regional observer program.

Section three (questions 13-26), "Working condition and satisfaction level," identified basic working conditions, the level of satisfaction by observers in certain aspects of the observer experience, and their experience regarding harassment during deployment. These aspects, based on complaints that had been reported anecdotally over the history of the observer program, were further divided into three subcategories: observer program, provider company, and captain/crew. Answers to these questions were intended to aid the observer programs and companies in addressing observer dissatisfaction.

Section four (questions 27-32), "Recognition as an observer and attitude for future," investigated the observer's current job, motivations for remaining or leaving their observer positions, the role of observer experience in their career paths, and their attitudes toward using electronic monitoring (EM) and electronic reporting (ER) systems as tools for observing.

Section five (questions 33-49), "International and regional questions," investigated observer experiences in international fisheries and observer programs in three regional fisheries that requested inclusion of survey questions that addressed regional topics. For international fisheries, questions were designed to gauge how many observers have experience working on foreign fisheries and through which international organization the observer was deployed. Questions also gauged their preferences between foreign and U.S. fisheries for certain aspects.

Additional questions were contributed by three regional programs. For Alaska observers, questions gauged the satisfaction for longline lead level 2 (LL2) versus non-

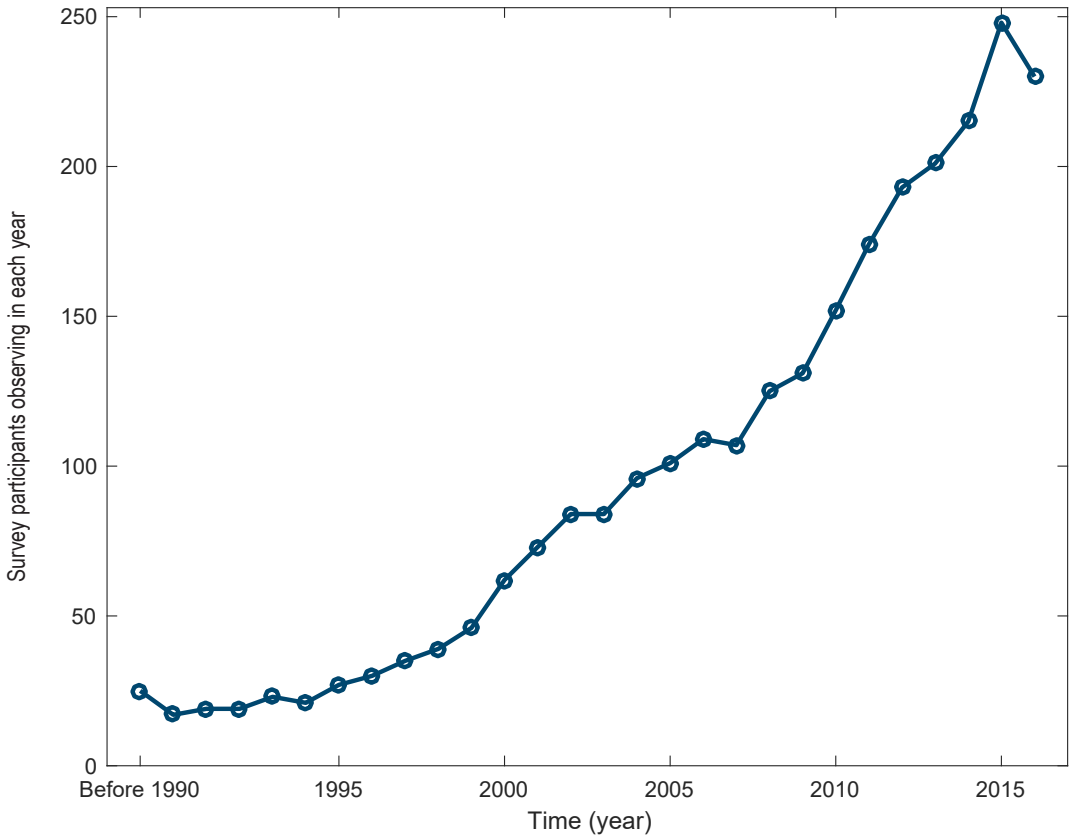
LL2 observers due to the lack of recruitment to the LL2 certification level, which is mandatory in some groundfish fisheries. For Greater Atlantic observers, questions addressed differences between "observers," who collect data and biological samples on commercial fishing trips, and "at-sea monitors," who collect data to estimate total discards from groundfish vessels in the Greater Atlantic. For West Coast observers, satisfaction of observers between catch-share fisheries and non-catch-share fisheries were surveyed.

Section six (questions 50-52), "Comments and follow-up interview," collected contact information of observers who expressed an interest in sharing details about their experience or giving additional comments. A separate link was provided so that their information could not be linked to their survey responses. A self-selected sample of 145 respondents was contacted by NOP to share additional comments and detail.

The on-line survey of past and present observers was approved by the U.S. Office of Management and Budget on August 8, 2016. As of December 31, 2016, NOAA Fisheries received 553 survey responses, which were used to generate this report. "Spikes" in daily responses correlate to specific outreach efforts facilitated by the NOP. For example, there were 38 responses received around August 28 during the 8th IFOMC. Fifty-five observers responded on September 7, following an e-mail message from Eileen Sobeck, then-Assistant Administrator for NOAA Fisheries. Sixty-nine responses were received during the week of October 23 to 29, 2016, following a meeting of the NOP Advisory Team (NOPAT).

The survey was designed exclusively for U.S. fishery observers. Eighteen responses from foreign observers were excluded. The NOP estimates that the total number of current and former U.S. observers is approximately 8,000, so it is important to evaluate how representative the survey was relative to the entire observer community. There was a clear pattern (Figure 2.1) showing that more respondents are current observers (due to the difficulty in contacting past observers), such that survey results may be more accurate for recent observers. Of observers working in 2016, 228 responded to the survey, representing about 25% of current observers.

Figure 2.1. *Survey participants observing in each year.*



3. Survey Responses and Discussion

3.1 Observer Demographics and Background

The Food and Agriculture Organization (FAO) of the United Nations[6,7] has classified the fishing industry as a male-dominated field, with males comprising more than 80% of total employment. While a similar representation may be expected for fishery observers, the ratio of survey respondents showed greater representation of females employed in the observer field (60% male v. 40% female) (Figure 3.1.1). Regional observer program managers confirmed that this result was consistent with their current records.

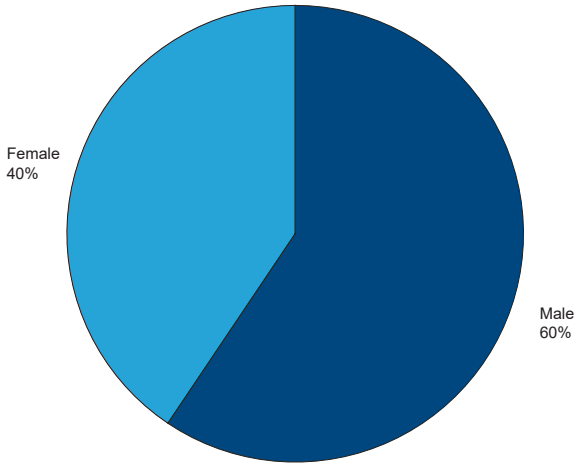
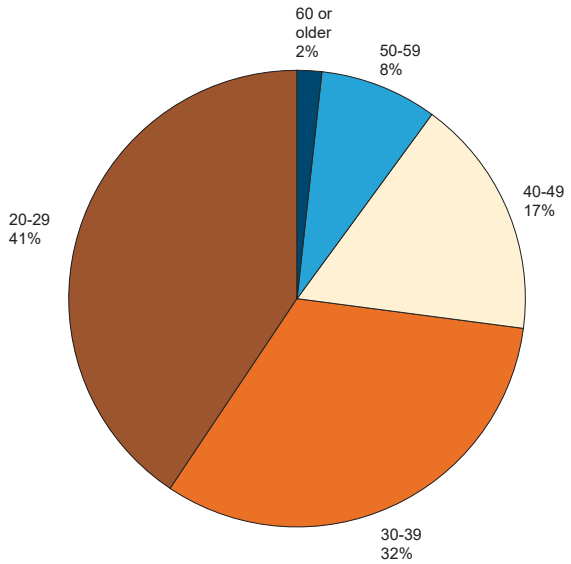


Figure 3.1.1. *Survey respondent gender ratio.*

Figure 3.1.2 shows the age of respondents when they responded to the survey. Age was a factor influencing the retention of observers. The most common age range for survey respondents at the time they took the survey was between 20 and 29 years old (40%), followed by those aged 30 to 39 (32%), 40 to 49 (17%), 50 to 59 (8%), and older than 60 (2%).

Survey responses indicated that fewer people work as observers with increasing age, with fewer observers represented in older age groups for current observers when compared to all respondents. Additionally, the ratio of male respondents to female respondents increased as age did (Figure 3.1.3), which could imply a higher retention rate for male observers or point to fewer older females entering the profession. The tendency of a higher retention rate for male respondents was significant at a 95% confidence level using a linear regression.

Figure 3.1.2. *Survey respondent age at time of survey.*



Observer skills and knowledge vary slightly by the type of deployment (e.g., by region, vessel type, fishing gear used), but include:

- Species identification.
- Biological specimen data collection.
- Proper protected species handling.
- Ability to tread water and/or swim in an immersion suit and to right and board a life raft.
- Ability to manage motion- and sea-sickness.
- Ability to work long and irregular hours.
- Aptitude for maintaining diplomacy, professionalism, and interpersonal relations in a challenging environment.

To ensure that observers have the necessary skills for quality scientific data collection, NOAA Fisheries has instituted educational requirements for observers in most regional observer programs. Requirements for observer candidates include: a bachelor's degree in one of the natural sciences (including the equivalent of at least 30 semester hours in biological sciences) and at least one undergraduate course in math or statistics.

Certain regional programs have less restrictive requirements than those for at-sea observers. For instance, requirements to qualify as an at-sea monitor in the Greater Atlantic include a high school diploma, at least one class in math or statistics, and experience with computers. West Coast shoreside catch monitors must have a high school diploma and either 1) at least two years of study from an accredited college with a major study in natural resource management, natural sciences, earth sciences, natural resource anthropology,

6 http://www.fao.org/3/a-i6623e.pdf

7 http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/labor10a-eng.htm

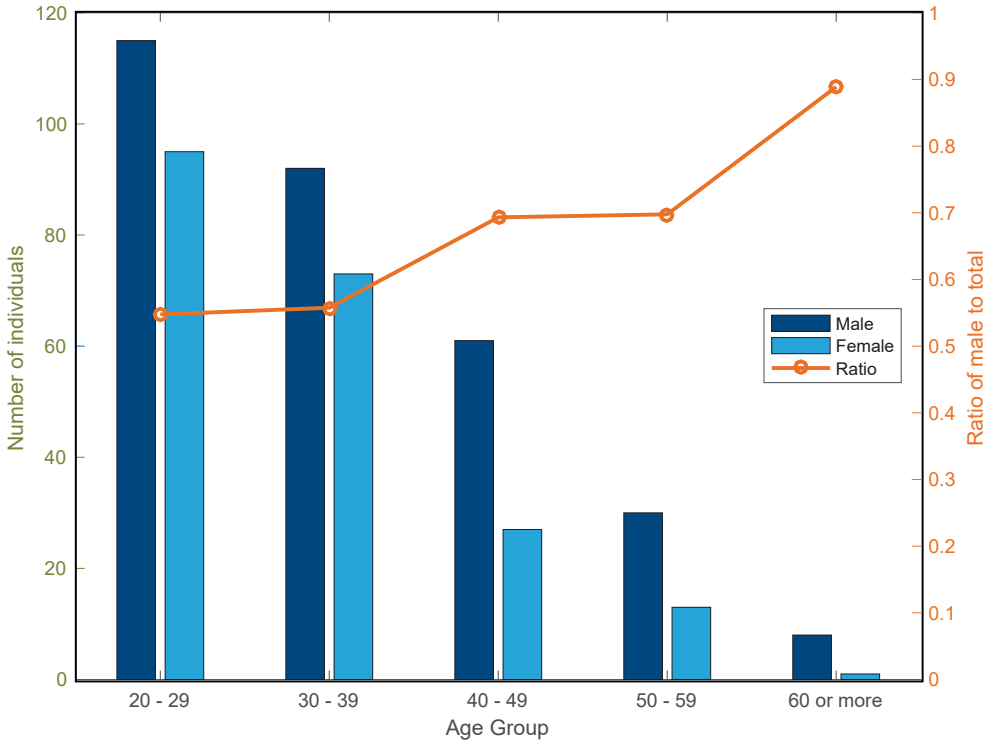


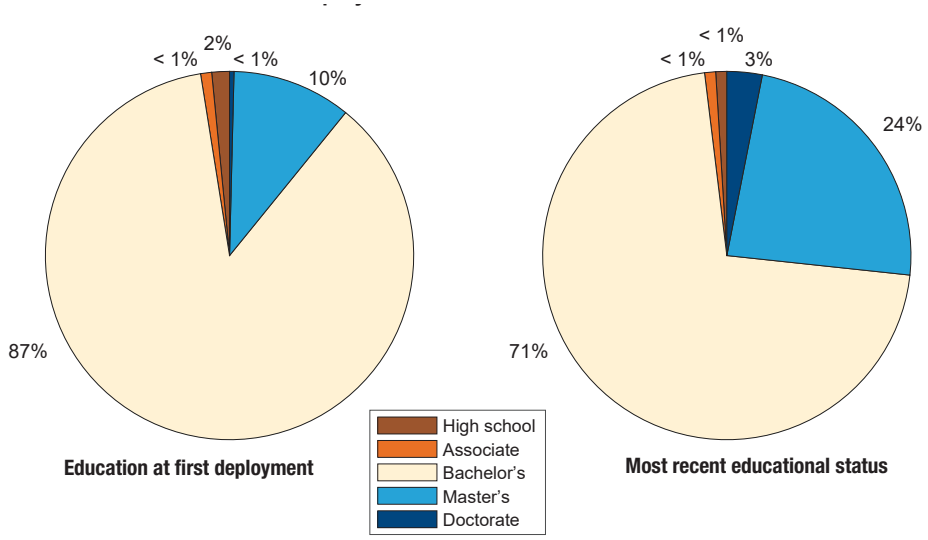
Figure 3.1.3. *Survey respondent gender ratio versus age groups.*

within a recreational area or natural resource site.

In 2001, Alu Like, Inc., a Hawaii-based, non-profit, charitable organization that specializes in providing employment, training, and workforce development programs to Native Hawaiians, was approved to recruit and train U.S. and U.S.-affiliated Pacific Islanders and Native Hawaiians to work as observers in the Pacific Islands. This program provides training to Native Hawaiians and Pacific Islanders so that they can be certified as trained observers and hired by observer contract providers. Candidates must first successfully complete a 10-day Marine Options Program which is offered thorough the University of Hawaii, and then must complete the NMFS three-week observer training course. Upon successful completion, the candidate is certified by NOAA Fisheries as a longline and bottomfish observer and is eligible to apply for an observer position with the observer contract provider. The Alaska observer program is considering a similar program for interested Alaska Natives.

law enforcement/police science, criminal justice, public administration, behavioral sciences, environmental sociology, or other closely related subjects pertinent to the management and protection of natural resources; or 2) one year of specialized experience performing duties which involved communicating effectively and obtaining cooperation, identifying and reporting problems or apparent violations of regulations concerning the use of protected or public land areas, and carrying out policies and procedures

Figure 3.1.4. *Educational level comparison at first deployment and most recent status.*



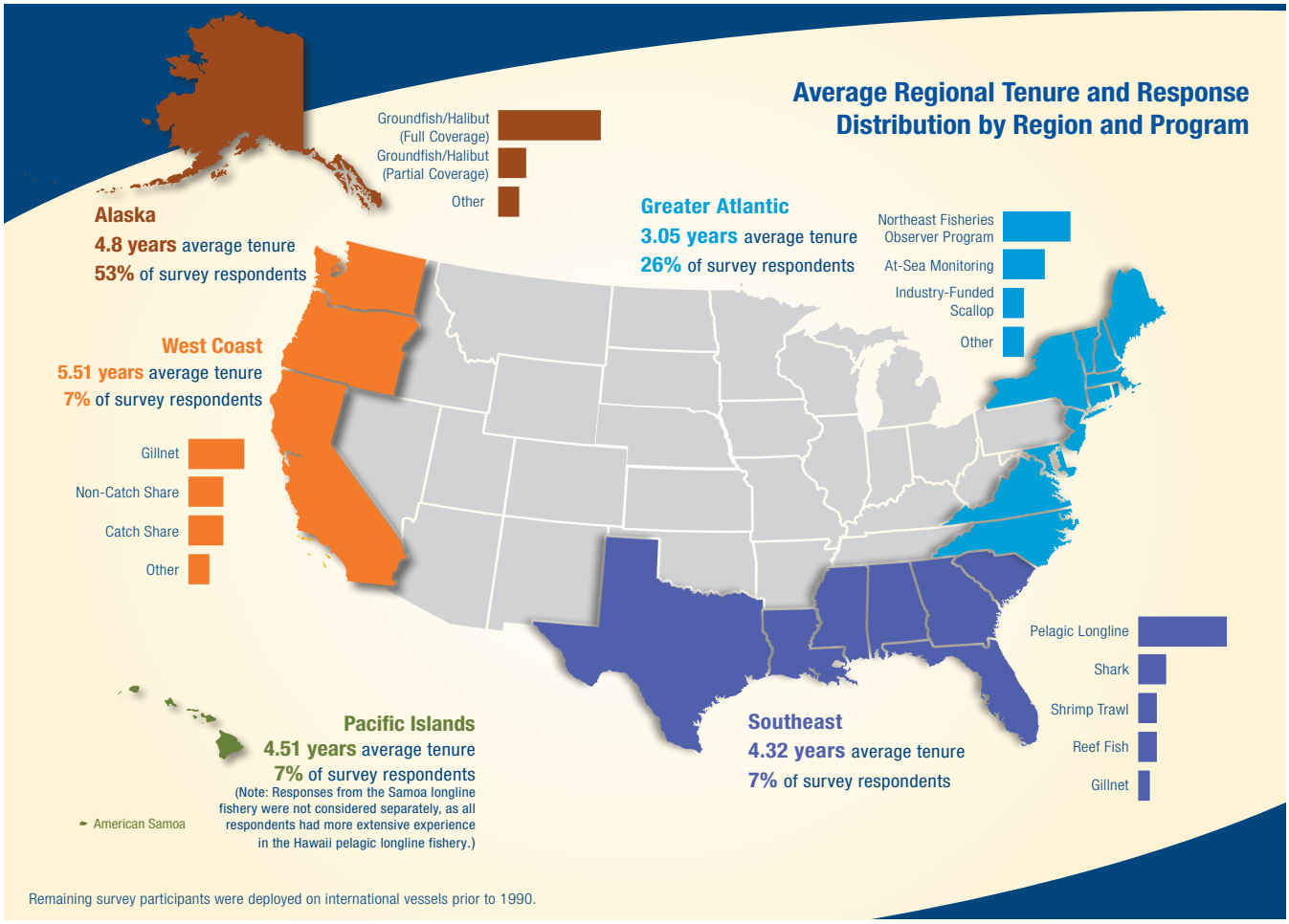


Figure 3.1.5. *Average regional tenure and response distribution by region and program.*

Most respondents started observing with a bachelor's degree (87%) or graduate degree (10%) (Figure 3.1.4). Approximately 16% of respondents with a bachelor's degree had since obtained a graduate degree by the time of the survey. This trend was evident for both females and males.

Overall, regional representation in the survey was commensurate with their distribution among the number of active observers in 2016. For instance, more than half of the respondents reported working in the Alaska Observer Program (Figure 3.1.5), while 469 of 902 observers (or 52%) in 2016 were from the Alaska region. Observers in the Greater Atlantic Region, with the second highest number of observers (22%) in 2016, provided 26% of survey responses. The other three regions each provided about 7% of responses. The remaining observers who selected "other" were deployed on international vessels prior to 1990.

Figure 3.1.5 also includes the ratio of respondents by individual program within each region. Because the ratio of respondents from each program was relatively consistent with the ratio of observers in each program, the individual programs were also well represented in the survey. Because all respondents in the Pacific Islands Region had experience in the Hawaii pelagic longline fishery, the other regional program (Samoa longline fishery) was not considered separately. Finally, figure 3.1.5 identifies the average length of observer tenure in individual observer programs in each region. There was large variance among the average number of years that observers worked in different regions. The region with longest average observer tenure was the West Coast region with 5.5 years; the shortest was the Greater Atlantic Region with an average observer tenure of three years.

3.2 Job Satisfaction

The survey measured the job satisfaction level of respondents. It identified four categories that could impact observer satisfaction: NOAA Fisheries staff, provider company, captain/crew, and monthly deployment. Questions in each category were asked to gauge the satisfaction levels of respondents. The responses "Very dissatisfied," "Dissatisfied," "Neutral," "Satisfied" and "Very satisfied" were quantified as 1 to 5. Higher scores represent greater satisfaction.

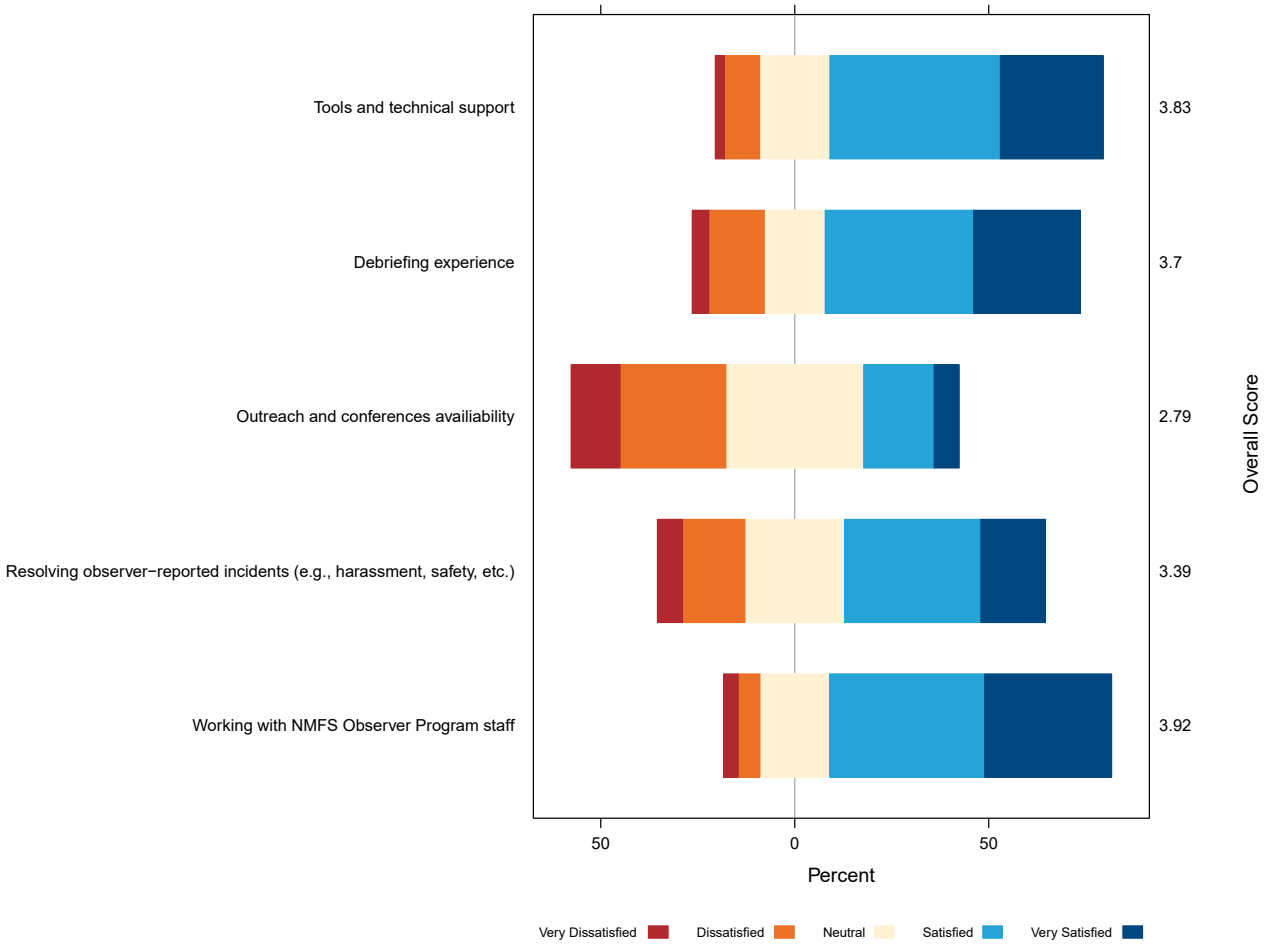


Figure 3.2.1. *Respondent satisfaction with NOAA Fisheries staff.*

3.2.1 Satisfaction with NOAA Fisheries Staff

Five questions gauged respondent satisfaction levels toward NOAA Fisheries staff.[8] The distribution of responses (Figure 3.2.1) showed respondents were mostly satisfied with "Working with NMFS Observer Program" with an average score of 3.92. Respondents also were satisfied with "Tools and technical support" and "Debriefing experience" with scores of 3.83 and 3.7, respectively. "Resolving observer-reported incidents" was scored at 3.39. The lowest score was 2.79 for "Outreach and conference availability."

Some respondents commented they thought they would have more opportunities to learn about how observer data was used, but such outreach efforts and interaction with scientists and managers generally were not provided by NOAA Fisheries, nor did the agency provide opportunities for observers to attend fishery management conferences. A few respondents replied that they felt they had no voice, and others commented that they felt that they may lose their contracts and potentially their observer career if they voiced their complaints. Several commenters reported that some debriefers were less respectful of observers' hard work or not willing to help observers learn how to improve their data quality. Some respondents, who reported asking specific questions on how to improve their data quality, were told to "refer to your manual." Some respondents reported to their debriefers that the gear and tools they had been provided were not accurate or were less than effective for the tough field environment in which they worked.

3.2.2 Satisfaction with Provider Companies

Ten categories gauged respondent satisfaction toward their provider company employers (Figure 3.2.2). Highest satisfaction was given for "Emergency response," with an average score of 3.72. "General support" and "Technical support" averaged a score of more than 3.6. "Types of contracts available," "Advance notice of upcoming trip," "Resolving observer-reported incidents," "Advance notice

[8] This was intended to be interpreted as NOAA Fisheries staff in the respondents' regional observer program.

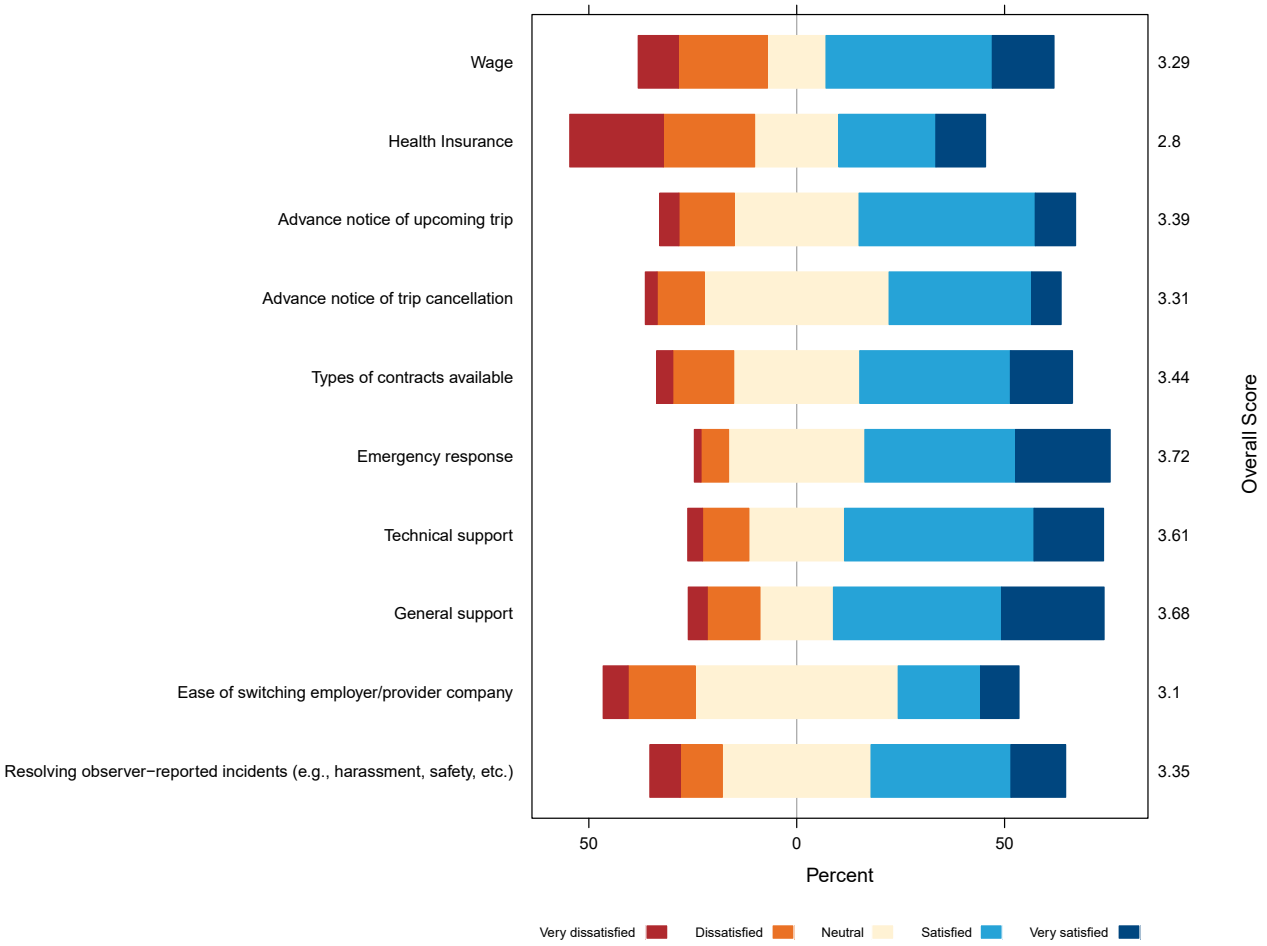


Figure 3.2.2. *Respondent satisfaction with provider companies.*

of trip cancellation" and "Wage" scored between 3.29 and 3.44. Some respondents commented that many of their trips had been delayed; at-sea monitors reported cancellation rates exceeding 50%. "Ease of switching employer/provider company" scored 3.1, which was slightly more than the satisfaction threshold of 3 or greater. The lowest satisfaction of the four categories surveyed was with provider companies; comments indicated that respondents felt their efforts were not adequately recognized by their employers.

"Health insurance" received an average score of 2.8, which was slightly less than the satisfaction threshold. A significant percentage of respondents reported that they were "Very dissatisfied" with health insurance. Comments reflected that co-pays were high for health insurance and that dental and vision insurance were not always offered.

Wage was the most commented-on observer satisfaction issue. Typical comments included: while the rate was reasonable, they were paid the lowest wages on the vessel; the wage did not adequately compensate them for the difficult and hazardous work conditions; the hourly rate was less desirable compared with the daily rate; issues with delayed and incorrect payments; and uncertainty whether their contracts would be renewed (both short- and long-term). Additionally, some respondents stated the pay rate did not account for experience and/or length of deployment. In regions where differential pay rates were tied to observer experience, some respondents reported that provider companies assigned more sea-days to newer observers to reduce costs, leaving more experienced survey respondents with fewer deployments.

3.2.3 Satisfaction with Captains and/or Crew

Six topics gauged observer satisfaction level toward captains and/or crew (Figure 3.2.3). The scores ranged from 3.44 to 3.84. Highest satisfaction was reported for "Cooperation with data collection activities," following by "Physical interactions," "Safety," "Verbal interaction," "Setting up deployment details," and "Condition of accommodations." The overall respondent satisfaction level was highest toward captains and/or crew, compared with NOAA Fisheries staff and provider companies.

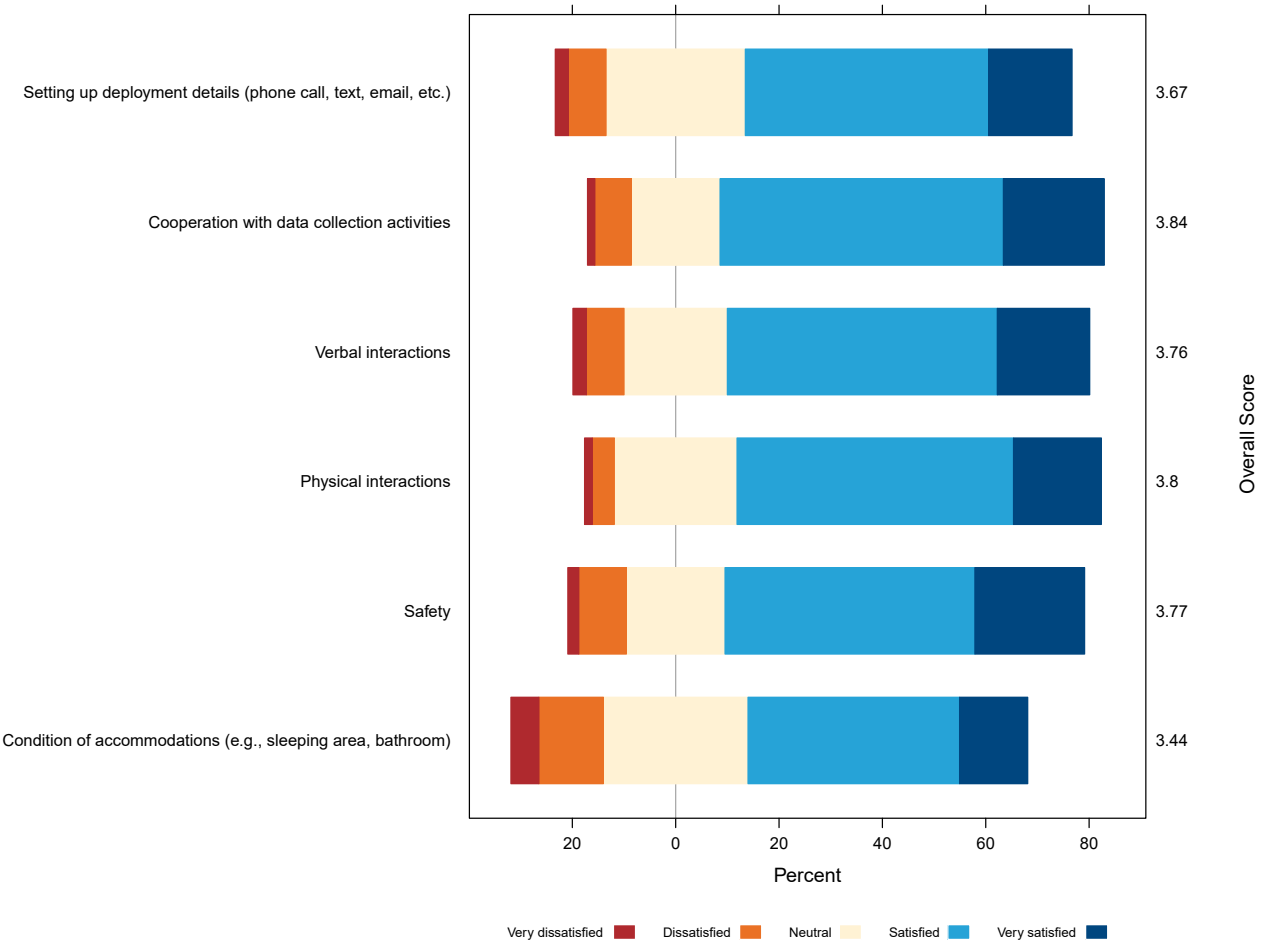


Figure 3.2.3. *Respondent satisfaction with captains and/or crew.*

Comments noted a large difference among vessels and regions; some respondents were highly satisfied while others were very dissatisfied. Generally, positive comments were associated with their interactions with captain/crew. The attitude of observers may strongly relate to the attitude of captain/crew directed toward the observers.

Many comments addressed vessel safety, e.g., ventilation systems and vessel maintenance. Some respondents reported a lack of bunk space for the observer on some vessels. One respondent reported a need to prove observer professionalism to the captain/crew each time a deployment occurred on a new vessel. Another respondent suggested allowing observers to choose the vessel upon which observers would be deployed in order to favor or avoid certain vessels or captain/crews; however, this is not allowed so as to avoid bias. Bed bugs (and cockroaches) were reported as a frequent concern, while cabin temperature and language barriers were a concern reported by one respondent. Another respondent complained about the use of drugs or alcohol at sea by crew.

3.2.4 Observer Tenure, Days Spent Deployed, and Satisfaction with Time Spent Deployed Per Month

The length of respondent observer tenure varied from less than one year (perhaps only a single deployment) to more than 15 years; most respondents had worked between 270 and 900 sea days. The majority of respondents worked between one and eight years. Previous studies have posited that more experienced observers collect higher quality data. Often, experienced observers learn not only how to improve data collection, but also become informed about the management regimes in place for the fisheries in which they observe, giving them the opportunity to foster better communication with captains and crew. For observers, knowledge learned as an observer could be applicable or informative in their subsequent career when switching to another field.

An examination of monthly deployments show that 29% of observers work more than 25 days per month, 18% work between 21 and 25 days, 14% work between 15 and 20 days, 28% work between 11 and 15 days, 8% work between 6 and

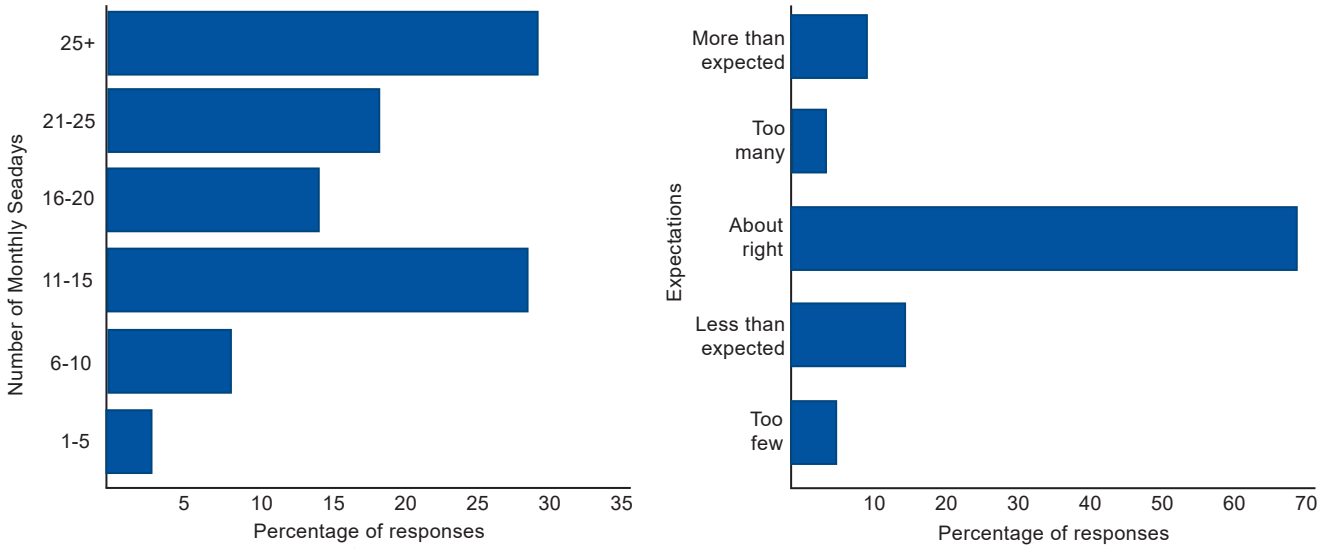


Figure 3.2.4. *Monthly sea days and how those compared to expectations.*

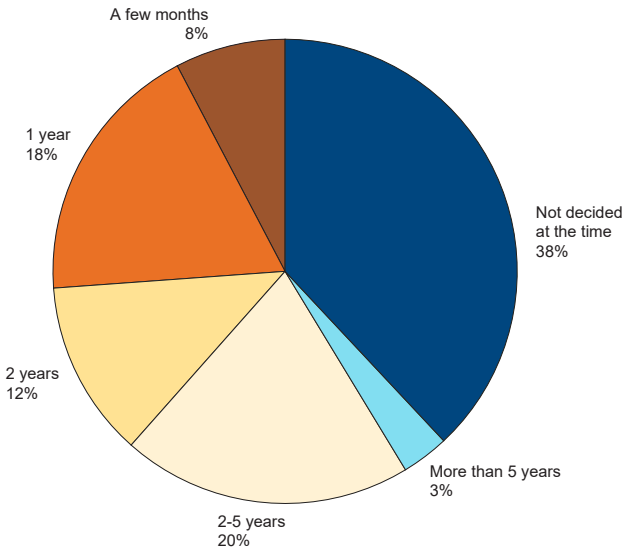
10 days and 3% work fewer than 5 days. While 69% were satisfied with their deployments, 19% found their sea days to be too few or less than expected and 12% found them too many or more than expected (Figure 3.2.4).

Deployments vary seasonally with fisheries openings, so some observers may feel they have too many deployments in summer, and not enough deployments in winter. Being continuously deployed for a long period was less desirable for most respondents. Also, different programs have other deployment opportunities available. Some providers also deployed employees as protected species observers[9] to monitor dredge transportation and disposal onboard tugs, towing scows, and hopper dredges when fisheries deployments were scarce. Some respondents noted lengthy wait times for debriefing and deployment. More respondents commented that they would like to have more deployments than those who wanted fewer deployments. This was especially true for at-sea monitors and observers in regions where many trips were cancelled due to weather. Some respondents commented that they might be getting too few deployments because of an over-supply of observers.

3.3 Observing as a Career

Observers face numerous challenges, such as distance from home, lack of social communication, dangerous working environment, and an unstable work schedule, to name a few. The turnover rate of observers is high and very few respondents reported working more than eight years (see Section 3.2.4). Many observers entered the field as temporary employment and did not expect to work as an observer for more than five years (Figure 3.3.1). However, comparison between observer tenure and initial expectation showed a substantial number of respondents who worked longer than they had expected, with about 36% working longer than expected, 20% working less than expected, and the remainder meeting their tenure expectation.

Figure 3.3.1. *Initial expectations for length of tenure as an observer.*



[9] For more information on protected species observers, also known as endangered species observers or marine mammal observers, see: https://repository.library.noaa.gov/view/noaa/15851.

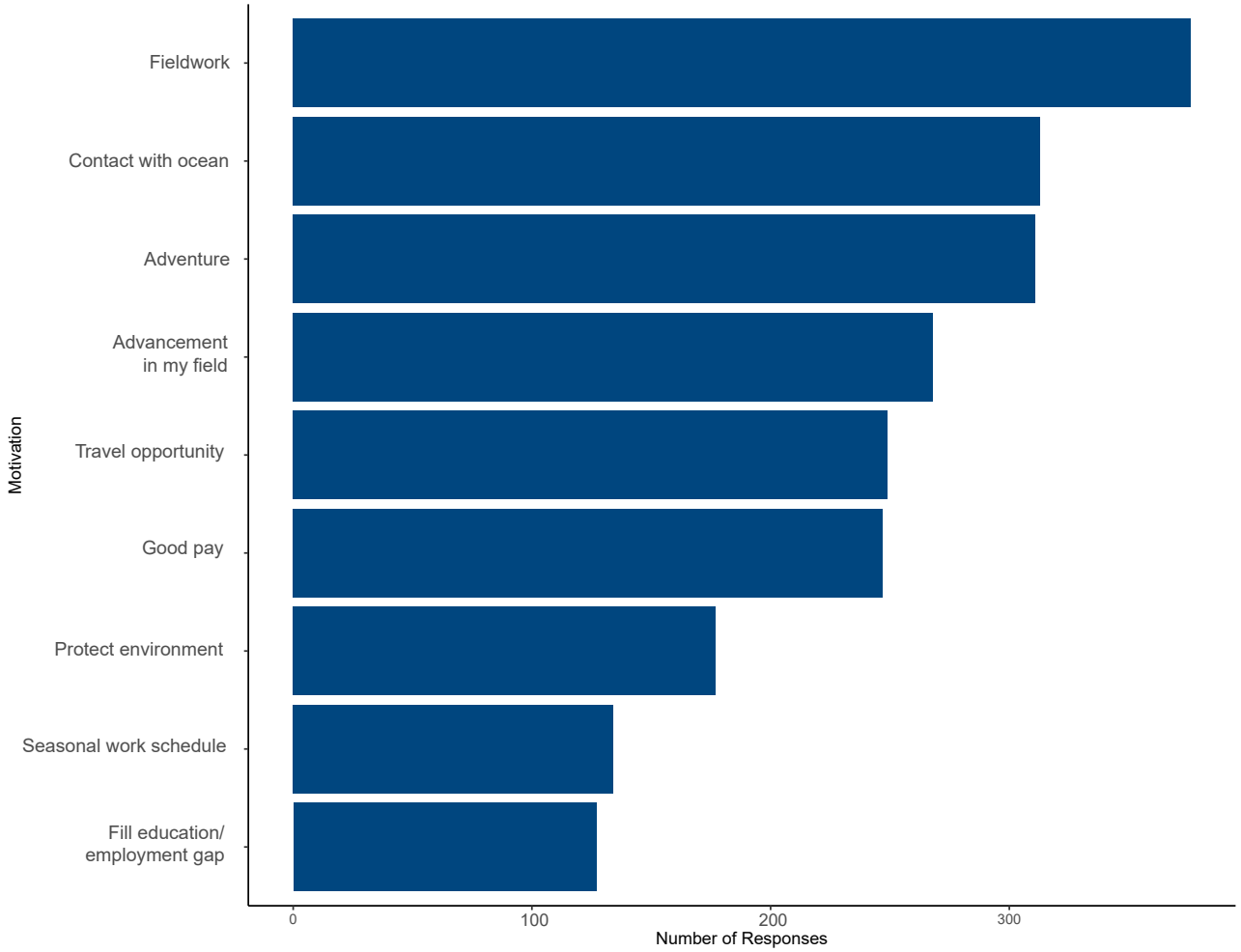


Figure 3.3.2. *Motivations to work as an observer.*

Observers had different reasons to join a program and nine survey options were provided to gauge their initial motivations (Figure 3.3.2). Obtaining field work experience was chosen by most observers with a response rate of 17%. "Contact with ocean" and "Adventure" had a response rate of about 14%. Following that, about 12% chose "Advancement in my field," "Travel opportunity," and "Good pay." Motivation for 8% of observers was to protect the environment. About 6% of observers were motivated by the "Seasonal work schedule" and "Fill an educational/ employment gap," respectively.

Many observers commented that employment opportunities were limited for students or graduates with marine biology or similar majors. Being an observer was one of the few available jobs in the field that paid well and provided field experience to further their career goals in fisheries management. Some observers said they just wanted to have a paid trip to Alaska. There is a prevailing view of fisheries observing as a transient profession. One study (MRAG Americas, 2000) investigated the high turnover rate of observers at the North Pacific Groundfish Observer Program. They found observers are paid full wages only if they are deployed, partially paid during training, briefing and debriefing, and not paid for vacations nor offered incentives to return to the profession following an absence. Observers consider the job as transient because of the hectic pace for working.

Although many respondents work as observers for a few years or less, their experiences were expected to be an asset for their subsequent careers. Except for those who were current observers, the highest number of respondents were working as NMFS staff or contractors (Figure 3.3.3). Others were working at observer provider companies or at state agencies. Note that the survey was more likely to reach those in state or federal employment than those who left the field of fisheries management entirely. Almost half of respondents indicated that they were more interested in a marine-related field after working as observers and almost three quarters found their experience working as observers was helpful for advancing their subsequent career (Figure 3.3.4). Most respondents valued their experience as field biologists and commented that few employers appreciated

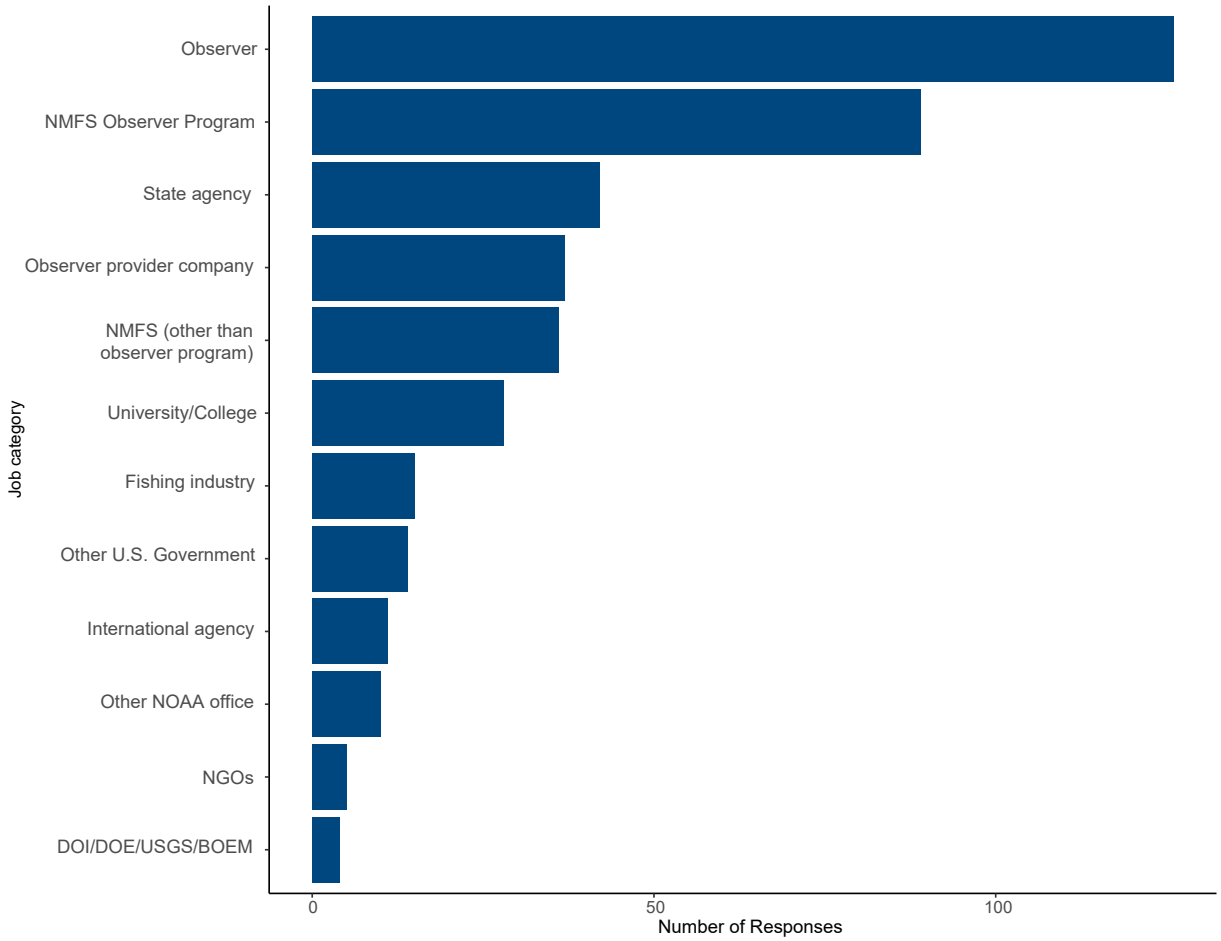


Figure 3.3.3. *Current job category. DOI/DOE/USGS/BOEM = Department of Interior/Department of Energy/U.S. Geological Survey/Bureau of Ocean Energy Management, NGOs = non-governmental organization.*

the difficulties associated with observing. Some noted that career advancement was highly limited because many job postings usually require higher level of educational level or management/analytical experience.

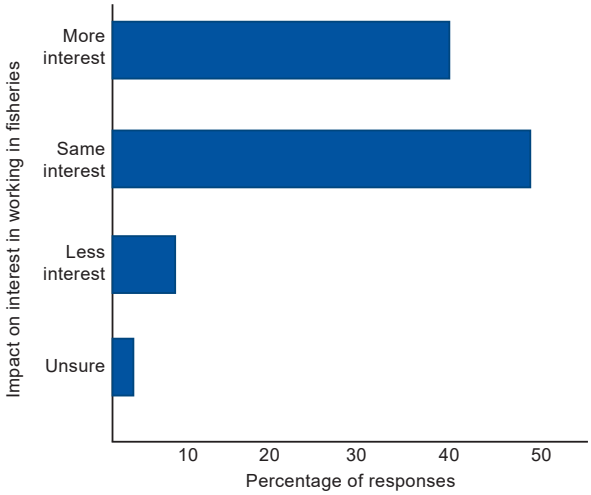
Despite outreach efforts by NOAA Fisheries administrators, managers, and scientists, respondents perceived that their contributions were typically underestimated and less recognized by the fishery community (Figure 3.3.5).

3.4 Harassment and Incident Reporting

The observer survey asked several questions of observers about harassment and safety incidents. In response, 46% of respondents indicated that they experienced harassment at least once during their entire tenure as observers. Of those, 33% said they reported harassment every time it occurred, 40% said they sometimes reported harassment, and the remaining 27% never reported it (Figure 3.4.1). Respondents likely had different definitions of and tolerances for harassment, which were not captured in the survey. This survey also did not specify what type of harassment observers may have experienced or reported during their careers. Incidents reported in this survey could include anything from a glare, to interfering with a workstation, to physical or sexual assault.

Follow-up questions were asked about the respondent's reporting experience and the handling of incidents. Most respondents reported that they would report the harassment to the observer program or their employer (Figure 3.4.2). However, most respondents reported dissatisfaction or were neutral regarding the handling of their report(s), and 58% of respondents reported that they had not been informed of the resolution of their report(s). Many respondents commented that they expected some incidents as a normal aspect of observing and did not expect thorough follow-up.

For those respondents who chose not to report, a follow-up question was posed. For 37% of those respondents, the



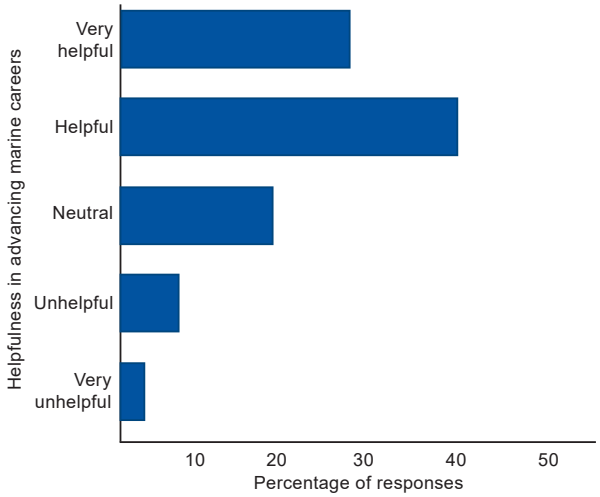


Figure 3.3.4. *Importance of observer experience for career path.*

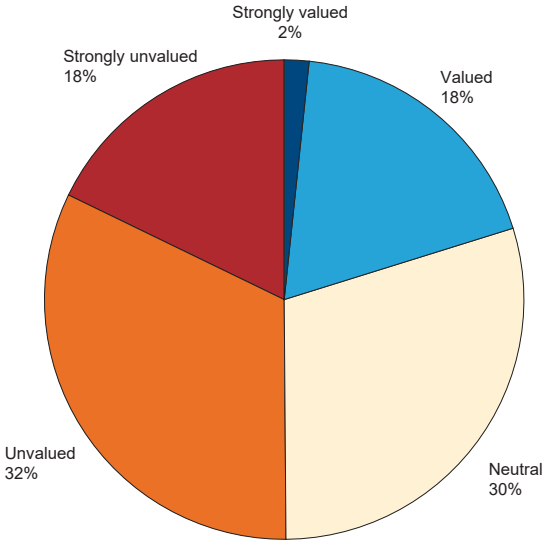
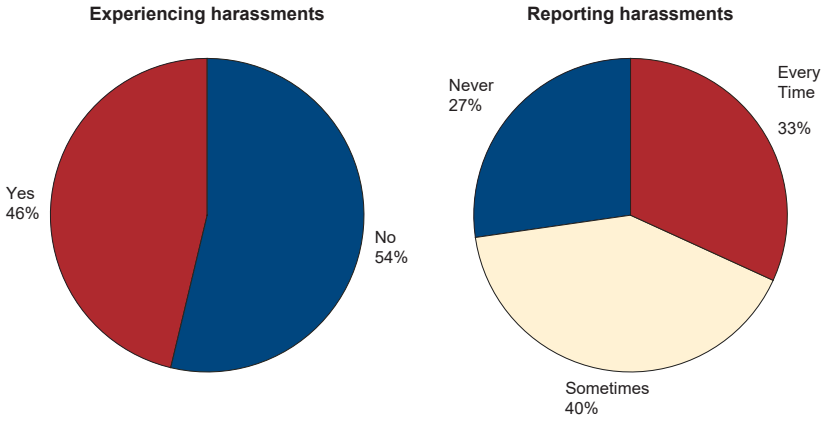


Figure 3.3.5. *Respondent perception of recognition of observer contributions by fishery community.*

situation was resolved at sea (Figure 3.4.3). For 18% of respondents, they did not think that the observer program or their employer would take action. Another 18% treated the incidents as experiences they would prefer to leave in the past, while 15% responded that the incident seemed not as negative after the deployment ended. The remaining 12% worried about their work reputation and decided not to report.

Some respondents mentioned that most of time they handled situations on their own, since they felt that some observer program staff would not take their reports seriously. They reported that if the incident was serious and correctly handled, it could result in firing a captain or crew, or payment of a fine; but repercussions against the observer could occur, whether the observer was assigned future trips on the same vessel, or if the observer found it difficult to obtain future deployments in general. Respondents reported fewer deployment opportunities if vessels were prevented from fishing because of a reported incident. These situations can pose a dilemma for observers in whether they should report incidents. Some respondents commented that they

Figure 3.4.1. *Prevalence of harassment incidents and reporting.*



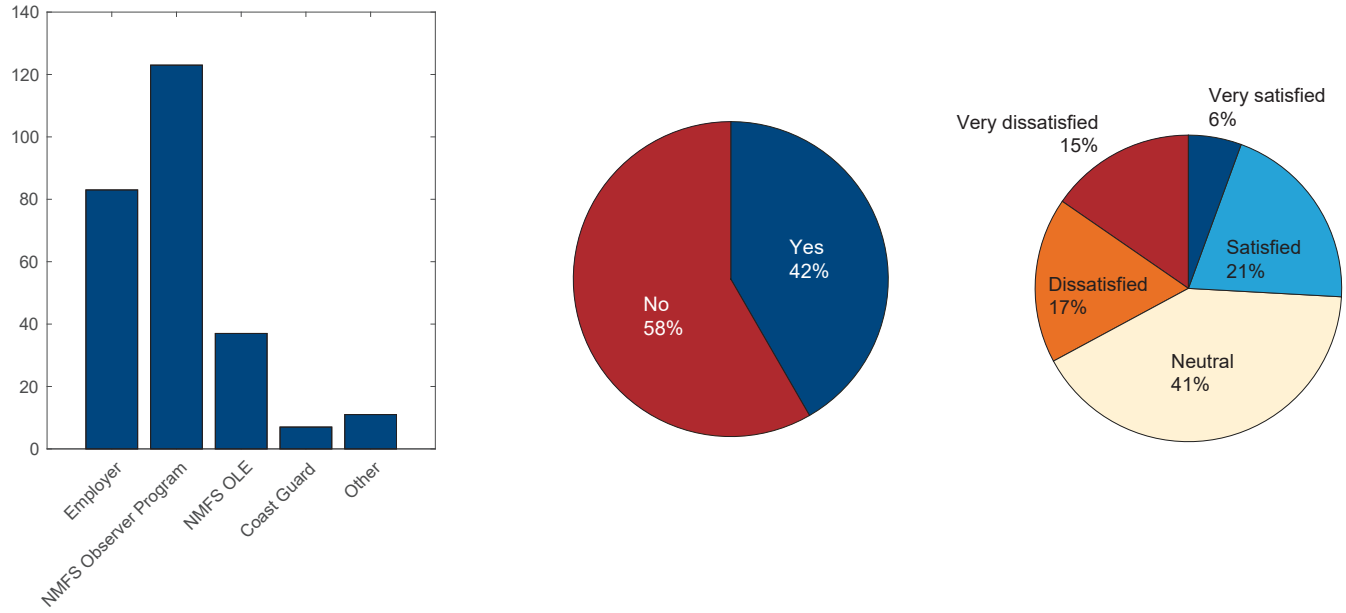


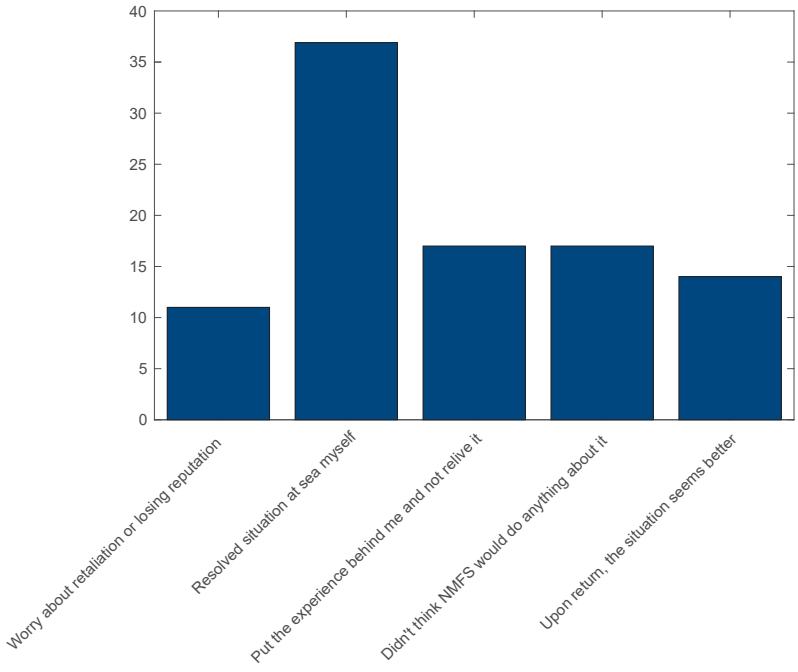
Figure 3.4.2. *Where incidents were reported, whether an outcome was communicated to the observer, and satisfaction level with reporting process.*

only informally mentioned incidents to their supervisors, if the vessel was not putting observers in danger. On the other hand, respondents reported they were satisfied without filing a report in situations where the captain respected observers and quickly resolved the issue.

3.5 International Observing Experience

The survey also gauged observer experience in international fisheries. Only 6% of respondents (25 total) reported observing in an international fishery, with six working in the Inter-American Tropical Tuna Commission (IATTC), two in the International Pacific Halibut Commission (IPHC), three in the North Pacific Fisheries Commission (NPFC), one in the Western and Central Pacific Fisheries Commission (WCPFC), and the remainder responding "other." Eighteen respondents had worked on commercial vessels, five had experience on transshipment vessels, and four responded "other."

Figure 3.4.3. *Reasons for not reporting harassment.*



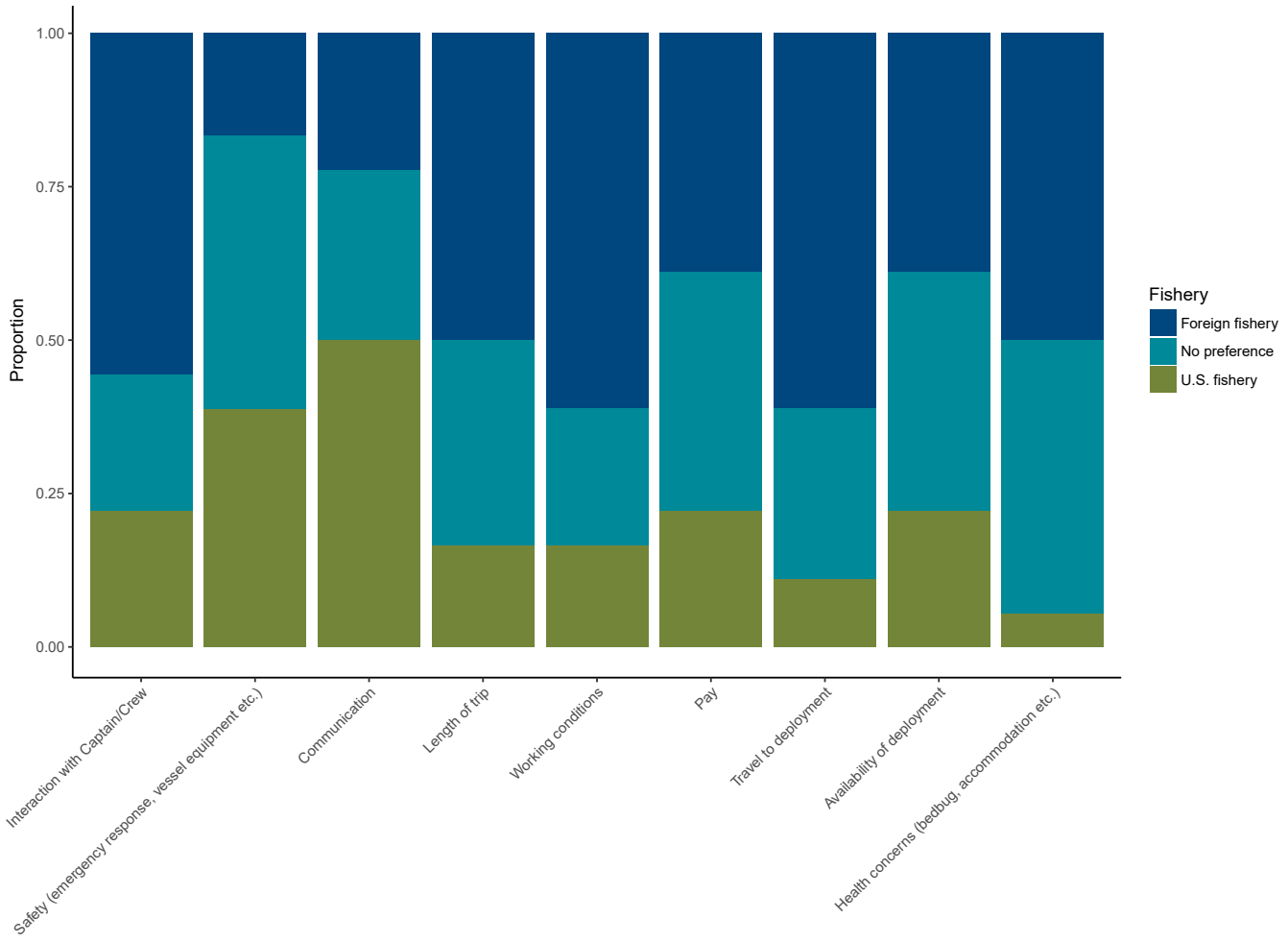


Figure 3.5.1. *Respondent preferences between U.S. and foreign fisheries.*

Respondents with experience in foreign fisheries were asked whether they preferred working in U.S. or foreign fisheries in terms of nine factors (Figure 3.5.1). Foreign fisheries were selected as better experience for "Working conditions," "Interaction with captain/crew," "Travel to deployment," "Length of trip," "Health concerns," "Pay," and "Availability of deployment." "Safety" and "Communication" were the only categories for which respondents preferred U.S. fisheries.[10]

Respondents who did not work in foreign fisheries were asked their reason(s) for not working in those fisheries (Figure 3.5.2). Most responded that the deployment opportunity was not available. The second and third reasons were "Safety concerns" and "Far away from home." Following those, "Worries about communication," "Length of trip," and "Low pay" were also selected. Some said they didn't need to consider or had never considered observing internationally.

3.6 Regional Questions

During the preparation of the survey, some regional observer program managers requested inclusion of specific issues important to their program. Three sections follow that were designed for the Alaska, Greater Atlantic, and West Coast regional observer programs.

3.6.1 Alaska Region

The satisfaction levels for six categories of gear types and a variety of deployments were asked in the survey (Figure 3.6.1). Highest satisfaction was reported for "General catcher vessel (CV)," "Trawl Catch-Processor (CP)," and "Longline CV," with average score exceeding 3.9. The other gear types of "Fixed gear CP," "Pot vessel," and "Longline CP" had lower scores, but still exceeded a score of 3.4. Respondents also expressed

[10] The Observer Safety Program Report [https://www.fisheries.noaa.gov/resource/document/observer-safety-program-review-report] provides more details on observer safety issues.

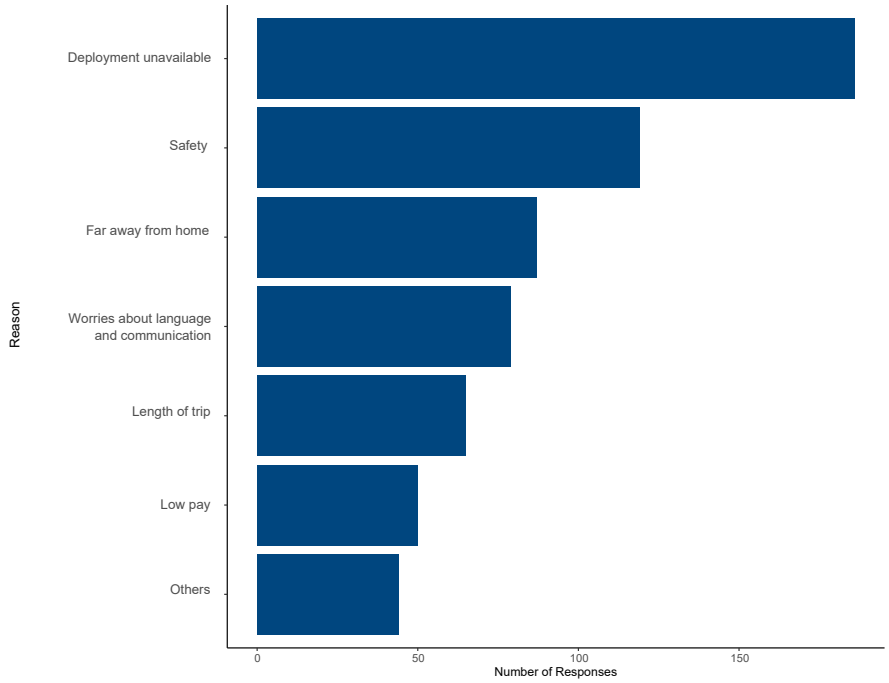


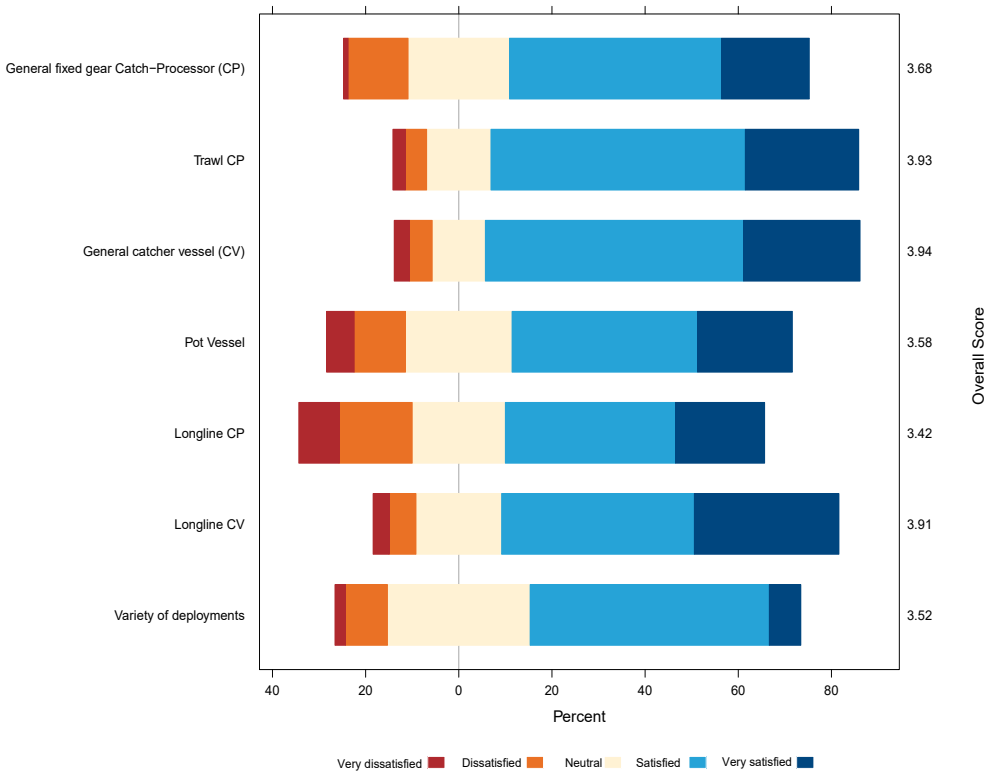
Figure 3.5.2. *Reasons for not participating in the international fishery.*

satisfaction with the variety of deployments with a score of 3.52. The comments received and corresponding reports of satisfaction varied according to the fishery in which they observed. Some respondents preferred long contracts for more stable jobs, while others preferred short contracts to have more flexibility.

The Alaska Observer Program has different certification levels of observers; however, not enough observers have been certified as fixed gear lead level 2 (LL2) observer to meet demand. From the survey, 43% of respondents have fixed gear LL2 certification (Figure 3.6.2). Follow-up questions gauged the interest of non-LL2 respondents in pursuing LL2 certification and the satisfaction of respondents who already had LL2 certification. The results show most non-LL2 respondents were not interested in pursuing LL2 certification (average score was 2.1), while LL2 respondents were usually satisfied with their certification (average score was 3.2).

A set of questions was asked of individuals, both with or without LL2 certification, to determine the reasons for a lack of LL2 observers (Figure 3.6.3). "Low salary" was chosen by most respondents without LL2 certifications; others responded "I am unsure" and "Too much work."

Figure 3.6.1. *Satisfaction levels for different deployment types, Alaska Region.*



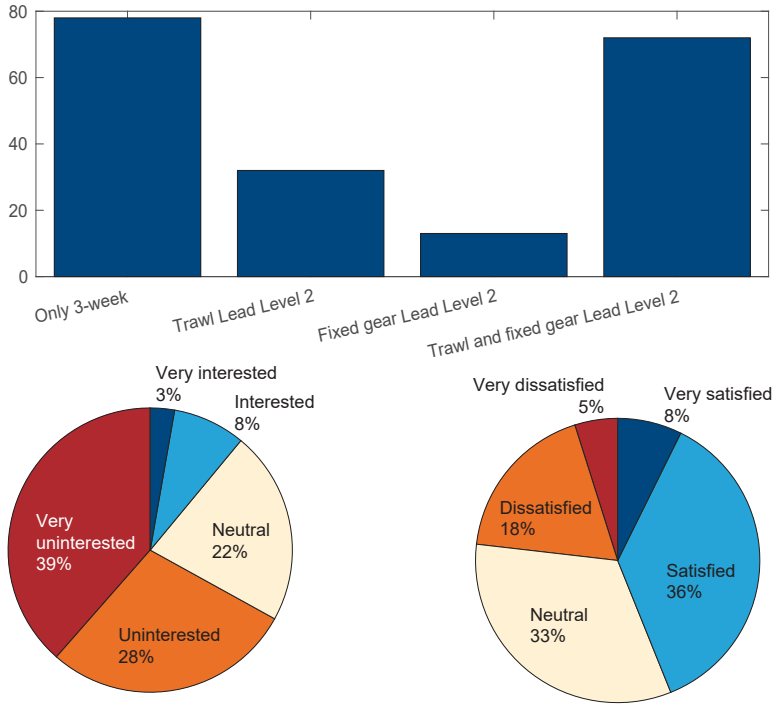


Figure 3.6.2. *Respondent certification type in North Pacific (top), interest in LL2 certification (lower left), and satisfaction among current LL2-certified observers (lower right).*

Some had exited the field of observing. Many commented about sea sickness. "Deployments are not flexible," "Too much responsibility," and "Hard to fulfill the fixed gear requirement" were also chosen by more than ten observers.

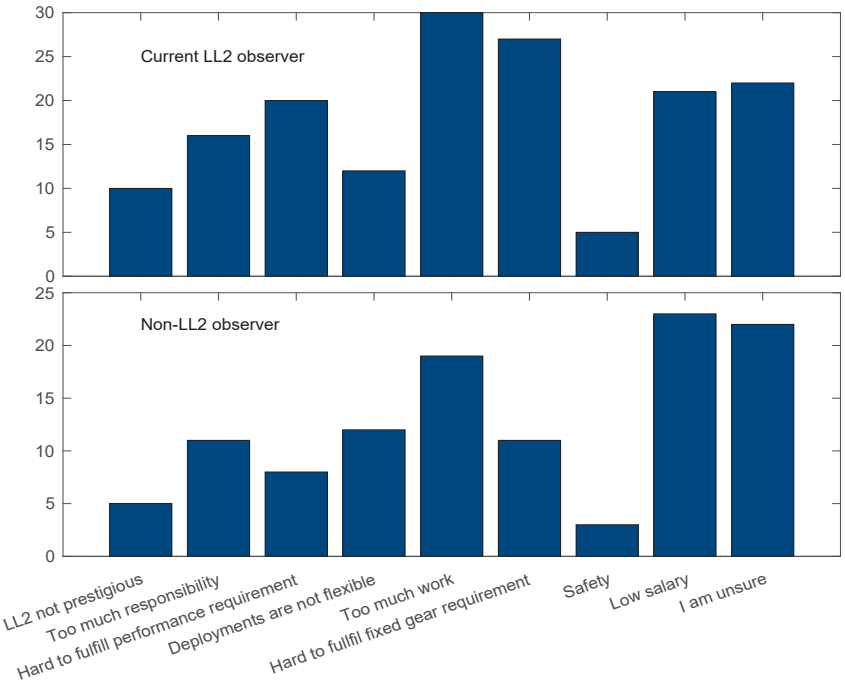
A few respondents mentioned that the duty requirements for LL2 observers were much more demanding than those for non-LL2 observers, with insufficient compensation for the extra work.

Those already certified as LL2 observers reported a different perspective; "Too much work" and "Hard to fulfill fixed gear requirement" were their top answers, and "Hard to fulfill performance requirement" was selected as one of the top six answers. Few LL2 respondents reported "Deployments are not flexible" as a major issue after acquiring the certification. Many comments indicated that the work required of LL2 observers is very intense. They also indicated that even if they did not seek out LL2 assignments, they continued to be assigned to the longline fishery because of the lack of LL2 observers, and they could not easily refuse the deployments because they would be placed at the bottom of the list for future deployments.

3.6.2 Greater Atlantic Region

The satisfaction level of respondents in the Greater Atlantic Region was asked for each of three types of observers (Figure 3.6.4). The industry-funded scallop program had the fewest respondents, but had the highest overall satisfaction level, with a score of 4.12. None reported

Figure 3.6.3. *Reasons leading to a lack of LL2-certified observers, from respondents with and respondents without the certification.*



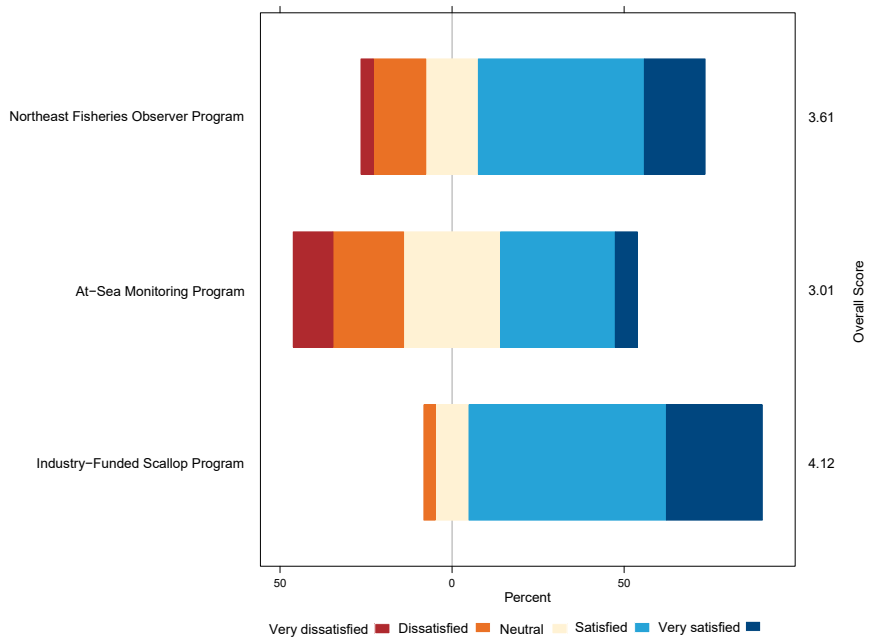


Figure 3.6.4. *Satisfaction levels for different deployment types, Greater Atlantic Region.*

those who had experience using ER commented that tablets, scales and other electronics have had a positive impact in improving data accuracy and reporting capabilities. For instance, the built-in Bluetooth technology for transferring data from scale to tablet significantly reduced data processing time and increased accuracy. Some respondents recommended a non-electronic backup system to reduce the threat of losing data when electronics fail, while others stated that producing both paper and electronic data was redundant. Some respondents pointed to some disadvantages of using ER, including, for example, the difficulty in calibrating equipment, water damage to electronics, applications that were not always user-friendly, and electronic scales that were often too big and/or heavy to carry onto small boats.

that they were "Very dissatisfied." The number of Northeast Fishery Observer Program respondents was the largest and had the next-highest reported satisfaction level, at 3.61. The lowest satisfaction was identified by at-sea monitors, with an average score of 3.01, which indicated a neutral attitude. At-sea monitors also reported the highest levels of "dissatisfied" or "very dissatisfied."

3.6.3 West Coast Region

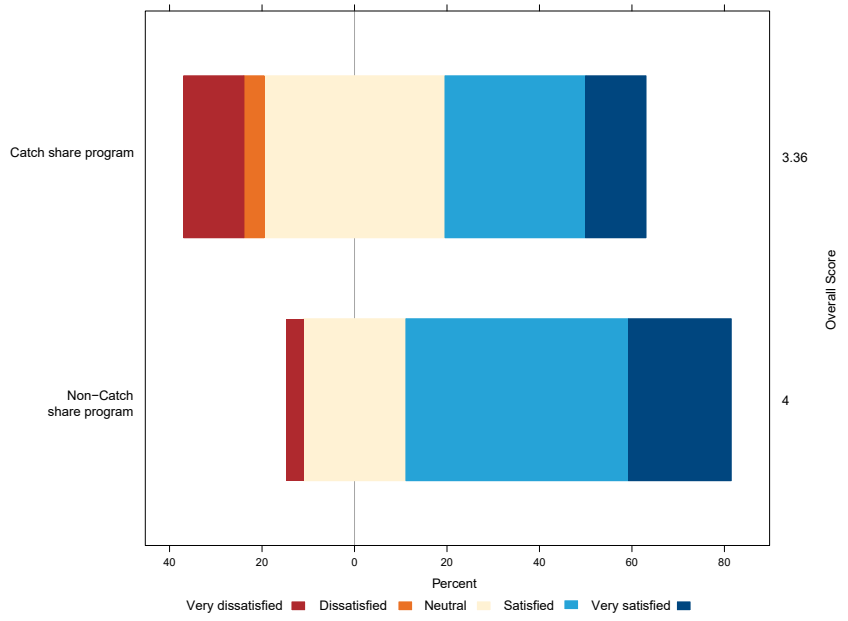
Satisfaction levels were asked for each of two observer programs in the West Coast Region (Figure 3.6.5). There were more survey respondents working in the non-catch share program, with an average satisfaction score of 4. No respondents selected either "Dissatisfied" or "Very dissatisfied." The satisfaction level was lower for the catch-share program, with an average score of 3.36; 10% responded "Very dissatisfied."

3.7 Usage of Electronic Technology

The usage of electronic reporting (ER) systems has been incorporated into observer data collections in most regions. Respondents strongly supported using ER (Figure 3.7). While many respondents stated their programs, either currently or in the past, were not using ER, most of

NOAA Fisheries has implemented five electronic monitoring (EM) systems over the past decade; four programs were implemented in Alaska groundfish fisheries and one in the Atlantic Highly Migratory Species bluefin tuna fishery for bycatch monitoring. An EM program will be deployed in the partial coverage category of the North Pacific Observer Program in 2018, in the West Coast whiting mid-water trawl and fixed gear fisheries in 2018, and in the non-whiting mid-water trawl and bottom trawl fisheries in 2019. Additional

Figure 3.6.5. *Satisfaction levels for different deployment types, West Coast Region.*



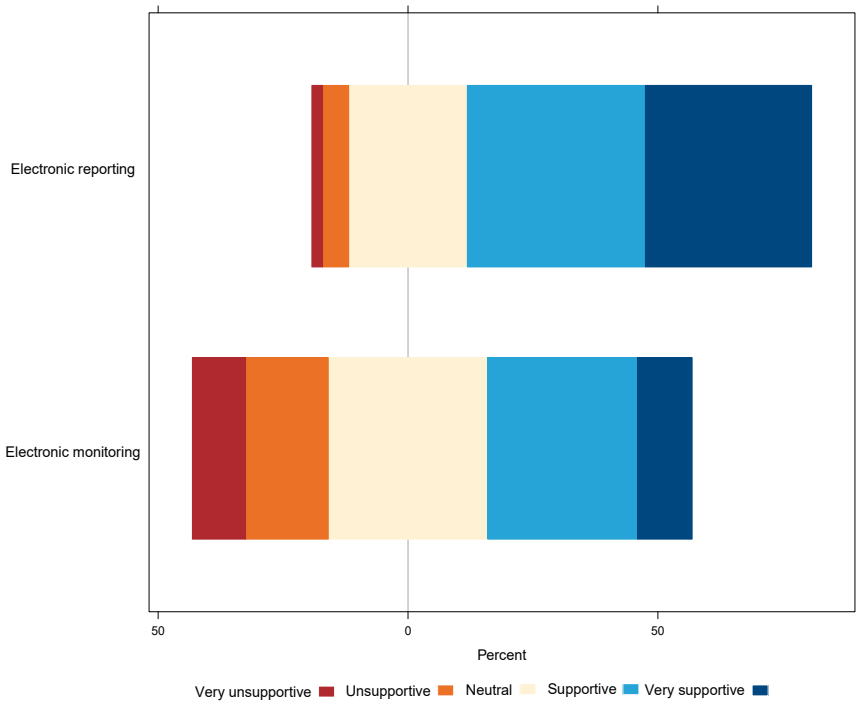


Figure 3.7. *Attitude toward ER and EM technologies.*

3.8 Follow-up Interviews and General Comments

Contact information was provided by 145 respondents for follow-up interviews. Each of them was contacted through e-mail, if provided, to ask for their comments or thoughts regarding the observer program(s) in which they observed. Their comments have been merged with the general comment section in the survey. Most of them stated they were satisfied with their observer jobs and provided positive feedback to the program. Figure 3.8 shows the key words from their comments.

Most comments provided addressed pay, especially for those who had been observing during the transition for most programs from sea-day rate to hourly rate. Some respondents reported that their monthly paychecks were significantly reduced as a result of the change.

EM programs are under development in the Northeast, Southwest, and Pacific Islands.

Respondents reported a positive attitude toward EM, although less so than reported for ER. Respondents generally agreed that EM could improve coverage, especially for boats too small to accommodate an observer safely. They expressed concerns that EM may replace observers in some fisheries, and argued that EM cannot make judgments nor apply solutions to evolving problems in a timely manner, and cannot collect biological samples.

The second most common comment addressed the usage of observer data. Some respondents do not know how observer data is used. They expect their contributions would be used to improve fisheries management and protect the environment, but they lack an understanding of how or if this has occurred.

Third, some commenters felt that debriefings and

Figure 3.8. *Word cloud based on words mentioned at least 30 times in general comments and interviews.*

interactions with debriefers were not encouraging, and were even uncomfortable. Debriefers were looking for high-quality data, but respondents felt it could sometimes be challenging to record observer data to the satisfaction of the debriefer(s) because of the tough working environment onboard commercial fishing vessels.

4. Summary

The survey is an important effort to understand why fishery observers choose the profession, and factors that could influence their decisions to either remain in or eventually leave the profession. The 553 respondents to the survey included current observers (at the time of the survey) and former observers who were often still involved in fisheries science and management. Therefore, the experiences of those who had left the observer profession and those that left the marine science field entirely were less likely to be captured. In addition, since it was an opt-in survey and not a random sample survey, the results—while informative—cannot be statistically applied to all observers.

Respondents identified a number of professional reasons for becoming an observer, including obtaining field work experience, career development or advancement, and protecting the environment. Some reasons could be perceived as personal, including "contact with ocean," "adventure," and travel opportunities. Still others cited the pay, seasonal work schedule, and ability to fill educational or employment gaps as the key reason(s) for becoming an observer.

Observers need a variety of scientific and technical skills to be successful, although specific educational requirements vary among regional observer programs. Eighty-seven percent of respondents had a bachelor's degree when first starting as an observer, along with another 10% who had already obtained a master's degree. Of those respondents who began with a bachelor's degree, 16% subsequently earned a master's degree. Nearly 75% of respondents noted that their experiences as an observer had been or would be helpful in advancing their subsequent career.

Respondents reported an average tenure ranging from just over three years in the Greater Atlantic to 5.5 years in the West Coast region. The survey also indicated that observers tend to start their career at a younger age, with many leaving the profession as they grow older. The largest share of respondents (40%) were between 20 and 29 years old, followed by those aged 30 to 39 (33%), with continuing declines for older observers. The survey also found a statistically significant higher proportion of male observers as respondents aged.

In measuring observer satisfaction, the survey asked respondents about their interactions with NOAA Fisheries staff, provider companies, and captains/crew, along with their satisfaction regarding time spent deployed. Overall, satisfaction for these overarching categories tended to fall between neutral to satisfied. Key areas of dissatisfaction included the lack of outreach and professional conference attendance opportunity provided by NOAA Fisheries, inadequacy of health insurance offered by provider companies, and the conditions of accommodation on the vessels. Respondents generally were satisfied with the number of days spent deployed during a month, with 69% responding that their sea days were what they had expected, but another 19% responded that the deployments were less than expected or too few, while 12% reported more than expected or too many deployments.

Several anecdotal factors could contribute to high turnover within the profession, including the unpredictable work schedule, potential distance from and lack of communication with home, and a demanding work environment. Almost all respondents indicated that they expected to spend five years or less as an observer, although a majority reported that their tenure had either matched or exceeded their initial expectation.

Respondents also addressed harassment and safety incidents and their experiences in reporting such incidents. Nearly half (46%) of respondents reported experiencing harassment during a deployment, with 33% reporting an incident every time they experienced harassment, 40% reporting some of the harassment incidents they experienced, and 27% never reporting when they experienced an incident. The varying definitions of and tolerances for harassment among respondents were not examined in the survey.

The survey also explored reasons for becoming an observer in international fisheries, which applied to only 6% of respondents. It also posed regionally specific questions regarding satisfaction among individual programs and fishery certifications (such as an ongoing need for observers with fixed gear lead level 2 certification in the Alaska observer program). Finally, the survey provided a field for respondents to provide additional comments, which most often addressed pay, particularly the negative effect that a recent transition from a sea day rate to hourly rates had upon overall income levels.

5. Next Steps

Ensuring the safety and health of observers and at-sea monitors is a top concern for NOAA Fisheries. The observer attitudes and experiences survey has provided valuable insight at the national and regional levels into observer

demographics, attitudes, and perspectives on a range of topics related to their profession.

In the future, the results from this observer attitudes and experiences survey, along with other regional surveys will serve as key data sources for the national and regional observer programs. The improved understanding of the motivations and perceptions of current and former observers enables a more complete evaluation of responses to changes in regulations, recruitment, and observing conditions, along with adjustments that could decrease turnover. In turn, an improved rate of observer retention may lead to a decrease in training costs and continued high quality of the data collected by observer programs.

In response to some of the issues raised by the survey responses, the NOP will work with regional programs to continue efforts to bolster timely, accurate communications to observers and stakeholders, including sharing best outreach practices across regions. For stakeholders, this will include efforts to better educate the fleet, Councils, and others on the contribution that observers make to fisheries management, in response to the finding that only 20% of respondents thought their contributions to fisheries were "valued" or "strongly valued" by the larger fishing community.

In communicating with observers, this includes making sure recruitment and training materials set appropriate expectations for observers on anticipated sea days, living and working conditions at sea, and career opportunities available after working as an observer. Additionally, in response to dissatisfaction with opportunities to learn more about how observer data is used in science and management, NOAA Fisheries will explore options to more effectively engage with and educate observers, including conference attendance opportunities and expansion of training curriculum.

Looking at ER and EM specifically and the absence of a full embrace of electronic technologies, the NOP will also work to better communicate the intents and realistic impacts of projects—namely, that ER is intended to make reporting more timely and efficient, and EM is unable to replace observer coverage in all circumstances.

As part of an agency-wide commitment to addressing the harassment reported by respondents in this survey, the NOAA Office of Law Enforcement is conducting an anonymous North Pacific Observer Safety and Security Survey in 2018. This regional survey will help determine the kinds of issues observers in the Alaska fisheries faced during 2016 and 2017, and how those issues may have affected them and their work environment, as well as what might have prevented observers from coming forward to disclose what they experienced. Harassment of observers is illegal and offenses are prosecuted by NOAA. The results from the North Pacific survey may be used to create similar surveys for other regional programs in the future to learn how the agency can enhance observer safety and security and improve reporting when incidents do occur.

At an agency level, NOAA confirmed its commitment to providing a workplace free from sexual assault and sexual harassment by publishing NOAA Administrative Order 202-1106 in February 2018.[11] This Administrative Order provided guidance to managers, supervisors, employees, contractor employees, and affiliates on sexual assault and sexual harassment. It established processes to encourage employees[12] to come forward when such incidents occur, defined the resources available to those involved, and instituted a sexual assault and sexual harassment prevention program within NOAA. The NOP will work to ensure that NOAA's policy is fully implemented in observer programs.

The observer attitudes and experiences survey also identified respondents' concerns regarding insurance coverage (see section 3.2.2, "Satisfaction with provider companies"). Adequately insuring observers for injury claims during deployment both on land and at sea, and addressing associated lost wages, has been a concern of NOAA Fisheries since the inception of observer programs in the 1970s. In 2016 the NOP held a public workshop to review federal regulations that specify observer provider insurance requirements and receive comments on whether they are appropriate (Patterson et al. 2017). The workshop also identified gaps in observer provider insurance requirements to ensure that U.S. fishery observers are adequately covered for compensation due to injury and/or illness while performing all aspects of their jobs, whether on land or at sea. The NOP and NOAA General Counsel are developing national regulations to address specific observer insurance coverage needs while deployed and working on land.

Finally, as part of NOAA's ongoing effort to assess and evaluate our health and safety procedures, NOAA Fisheries contracted a thorough review of current observer policies and procedures in 2016. The review was specifically precipitated by the 2015 and 2016 losses of two NOAA Fisheries-trained observers (one in a domestic fishery and one in an international fishery), and a foreign observer on a U.S.-flagged fishing vessel in the Western Pacific.[13] Two of these incidents were health-related, while the cause of

[11] http://www.corporateservices.noaa.gov/ames/administrative_orders/chapter_202/202-1106_SASH.pdf

[12] For the purpose of this order, observers will be considered "contractor employees."

[13] These losses are considered to be highly unusual; despite the hazardous nature of commercial fisheries, there had been only six work-related fatalities of U.S. citizen observers in more than 40 years of deployments prior to these incidents.

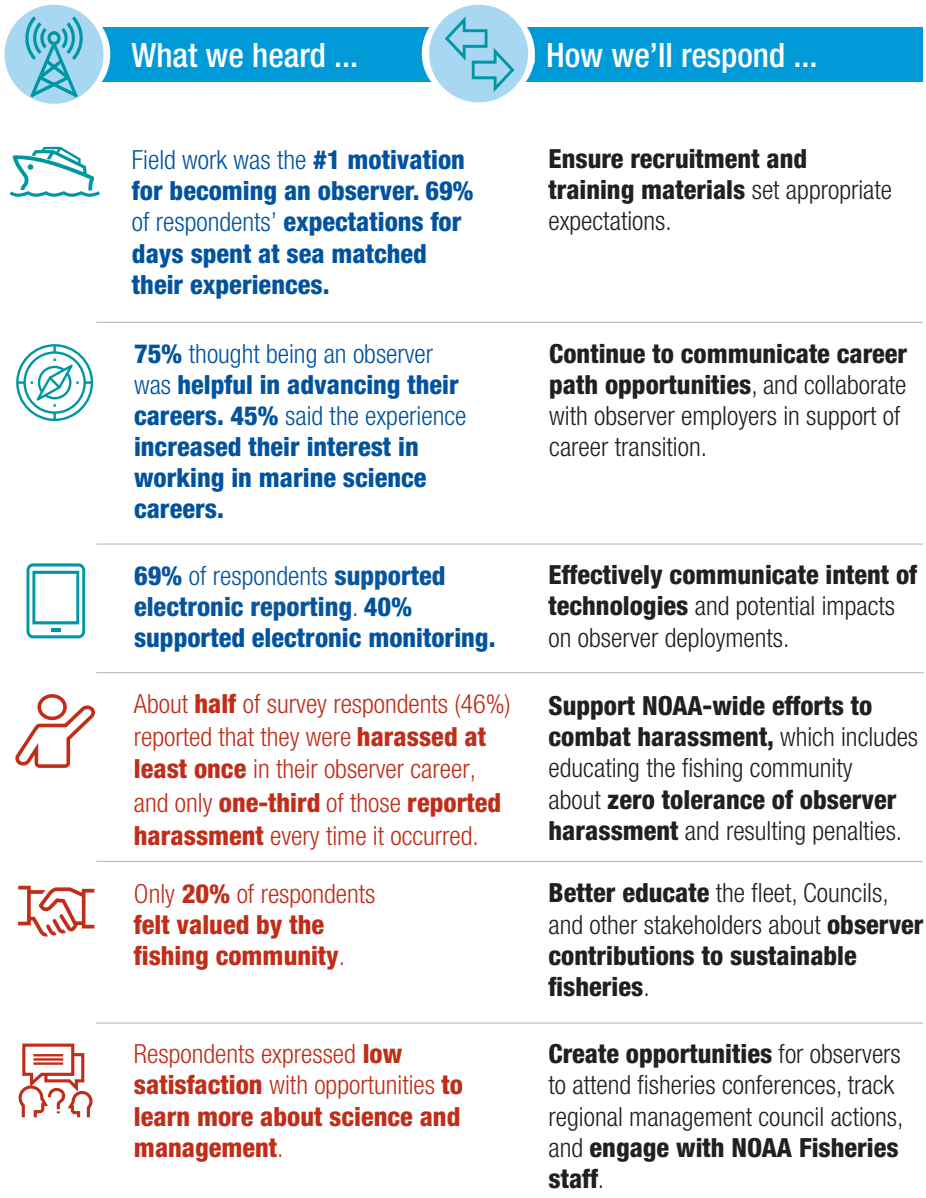


Figure 3.9. *Summary of key findings from survey and planned responses from NOAA Fisheries.*

the third has yet to be determined. The review[14] found that "none of the losses were considered to have stemmed from systemic shortcomings in the U.S. domestic observer safety programs" and generally found the agency's national and regional observer safety programs for domestic fisheries to be robust, mature, and effective. However, the review team did identify "a number of gaps and inconsistencies, as well as best practices, which formed the basis for the findings and recommendations" in the report.

NOAA Fisheries closely monitors observer safety and health. After the agency initiated an observer program safety review

[14] https://www.fisheries.noaa.gov/resource/document/observer-safety-program-review-report

in 2016[15], the independent report was received in early 2018.[16] The Observer Safety Program Review provided 118 recommendations (95 domestic and 23 international) that focus on seven areas related to safety and health including safety-focused reporting; communications; practices and policies; training; regulations; equipment; and international observers. Some recommendations may be challenging to implement due to legal, regulatory, and jurisdictional limitations, and could require legislative fixes, new authorities for NOAA, collaborative efforts across agencies, or increased resources for regional observer programs. However, many recommendations are already in place or in progress; for instance, in February 2018, NMFS Procedure 04-110-01 revised observer safety training standards.[17]

Moving forward, the agency will develop an action plan based on the report's recommendations, and will make regular progress reports to track implementation of recommendations. The reports will be made publicly available online every six months, following the biannual meetings of the National Observer Program Advisory Team.

One of the most significant steps NOAA will take as a result of the external safety program review is to develop a comprehensive list of Observer Safety Standards by incorporating many of the external recommendations with current observer safety policies. Additional safety measures will be further integrated into observer training, equipment, pre-deployment vessel tours, at-sea reporting, debriefing, and reviews.

These and other changes and improvements will help ensure consistent guidance throughout the regional programs, and demonstrate NOAA Fisheries' continued commitment to the health and safety of fisheries observers.

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15 https://www.fisheries.noaa.gov/leadership-message/observer-safety-our-priority; https://www.fisheries.noaa.gov/feature-story/noaa-launches-observer-safety-program-review

16 https://www.fisheries.noaa.gov/resource/document/observer-safety-program-review-report

17 https://www.fisheries.noaa.gov/national/laws-and-policies/science-and-technology-policy-directives

Appendix 1:

Observer Attitudes and Experiences Survey

OMB Control No: 0648-0740
Expires: 8-31-19

United State Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
National Observer Program
1315 East West Hwy, Silver Spring, MD 20910

This survey is designed to investigate factors that contribute to observer retention. The collection of information in turn will improve regional observer programs. The survey is voluntary, but by completing it, you will help us understand how national and regional observer policies and practices affect your experience and provide you with an opportunity to affect the programs in areas where you work. Please respond to this survey if you are a current or former observer in a U.S. fishery.

Your responses will be anonymous. We estimate it will take approximately 20 minutes to respond to the survey. Please take the survey once. Thank you for your cooperation.

Please indicate if you have observed in a U.S. fishery? ☐ Yes (Start the survey) ☐No (End the survey)

1. What is your gender?

☐Male ☐Female

2. What is your age (years)?

☐Less than 20 ☐20 29 ☐30 39 ☐40 49 ☐50 59 ☐60 or More

3. What level of education did you have when you became an observer?

☐High school or less ☐Associate's degree ☐Bachelor's degree
☐Master's degree ☐Doctorate or higher

4. What is the highest level of education you have completed?

☐High school or less ☐Associate's degree ☐Bachelor's degree
☐Master's degree ☐Doctorate or higher

5. When did you first become an observer? Year _____
6. Please specify the month, if 2015 or later _____
7. When did you stop being an observer? ☐Currently active or Year _____
8. Please specify the month, if 2015 or later _____
9. How many sea days have you observed in total?

☐Less than 10 ☐10 30 ☐31 90 ☐91 270 ☐271 900 ☐More than 900

10. Please indicate each period of continuous work, where observing was your primary form of employment? (Please limit your responses to the 5 most recent periods)

Region	*Program Type*	*Start/ Leave*	*Region*	*Program Type*	*Start/ Leave*
North Pacific	Groundfish and halibut (full coverage)		**Northeast**	NEFOP observer	
	Groundfish and halibut (partial coverage)			At sea monitor	
	Not listed above			Both NMFS and ASM	
West Coast	Groundfish non catch share			Industry funded scallop	
	Groundfish catch share			Not listed above	
	California gillnet fisheries		**Southeast**	Pelagic longline	
	California longline fishery			Shark bottom longline	
	Not listed above			Gillnets	
Pacific Islands	Hawaii pelagic longline			Reef fish	
	Samoa longline fisheries			Shrimp trawl	
	Not listed above			Not listed above	

11. How long did you intend to work as an observer when you first decided to become an observer?

☐A few months ☐One year ☐Two years

☐Between two and five years ☐More than five years ☐Not decided at that time

12. Why did you want to become an observer? (Choose all that apply)

☐Contact with the ocean ☐Seasonal work schedule ☐Fill an education/employment gap

☐Protect environment ☐Good pay ☐Travel opportunity ☐Field work

☐Adventure ☐Advancement in my field ☐Other: _____

For question 13 to 20, please respond based on your most recent experience as an observer

13. What type of contract did you have with your employer during your most recent observer experience?

☐Trip based ☐Less than 3 months ☐3 to 6 months ☐7 to 11 months ☐ Yearly or longer ☐No contract ☐Other: _____

14. How many sea days do/did you work during a typical month?

☐1 5 ☐6 10 ☐11 15 ☐16 20 ☐21 25 ☐More than 25

15. Please indicate your level of satisfaction concerning the number of sea days you worked.

☐Too many days ☐More than expected ☐About right ☐Less than expected ☐Too few days

16. How often are/were trips cancelled?

☐Never ☐less than 5% ☐6% 20% ☐21% 50% ☐51% 80% ☐More than 80%

17. How far in advance are/were you usually notified before being deployed on a trip?

☐Less than 6 hours ☐6 12 hours ☐12 24 hours ☐24 48 hours ☐48 72 hours ☐ 72 hours or longer

18. How satisfied are you with each of the following aspects of the observer program?

	Type	*Very dissatisfied*	*Dissatisfied*	*Neutral*	*Satisfied*	*Very satisfied*	*Not applicable*
(1)	Tools and technical support	☐	☐	☐	☐	☐	☐
(2)	Debriefing	☐	☐	☐	☐	☐	☐
(3)	Outreach and conferences	☐	☐	☐	☐	☐	☐
(4)	Resolving observer reported incidents (e.g. harassment, safety)	☐	☐	☐	☐	☐	☐
(5)	Dealing with staff from NMFS/ Observer Program office	☐	☐	☐	☐	☐	☐

19. How satisfied are you with each of the following aspects of your employer/provider company?

	Type	*Very dissatisfied*	*Dissatisfied*	*Neutral*	*Satisfied*	*Very satisfied*	*Not applicable*
(1)	Wage	☐	☐	☐	☐	☐	☐
(2)	Health insurance	☐	☐	☐	☐	☐	☐
(3)	Advance notice of upcoming trip	☐	☐	☐	☐	☐	☐
(4)	Advance notice of trip cancellation	☐	☐	☐	☐	☐	☐
(5)	Types of contracts available	☐	☐	☐	☐	☐	☐
(6)	Emergency response	☐	☐	☐	☐	☐	☐
(7)	Technical support	☐	☐	☐	☐	☐	☐
(8)	General support	☐	☐	☐	☐	☐	☐
(9)	Ease of switching employer/provider company	☐	☐	☐	☐	☐	☐
(10)	Resolving observer reported incidents (e.g. harassment, safety)	☐	☐	☐	☐	☐	☐

20. How satisfied are you with each of the following aspects of captain/crew that you have worked with?

	Type	*Very dissatisfied*	*Dissatisfied*	*Neutral*	*Satisfied*	*Very satisfied*	*Not applicable*
(1)	Setting up deployment details (e.g., phone call, text, email)	☐	☐	☐	☐	☐	☐
(2)	Cooperation with data collection activities	☐	☐	☐	☐	☐	☐
(3)	Verbal interactions	☐	☐	☐	☐	☐	☐
(4)	Physical interactions	☐	☐	☐	☐	☐	☐
(5)	Safety	☐	☐	☐	☐	☐	☐
(6)	Condition of accommodations (e.g., sleeping area, bathroom)	☐	☐	☐	☐	☐	☐

For question 21 to 32, please respond based on your entire experience as an observer

21. Have you experienced harassment during your deployment?

☐Yes (If yes, continue to Q22) ☐No (If no, continue to Q27)

22. Did you report the incident(s) of harassment?

☐Yes (If yes, continue to Q23 - 25) ☐No (If no, continue to Q26)

23. Who did you directly report the incident to? (Please mark all that apply)

☐Employer ☐NMFS Observer Program ☐NMFS OLE ☐Coast Guard ☐Other

24. Were you kept informed until there was a resolution to your report?

☐Yes ☐No

25. How satisfied are you with the handling of your report?

☐Very dissatisfied ☐Dissatisfied ☐Neutral ☐Satisfied ☐Very satisfied

26. Why didn't you report the incident? (Please mark all that apply)

☐Worried about retaliation or damage to my professional reputation ☐Resolved situation at sea myself

☐Just wanted to put the experience behind me and not relive it ☐Didn't think NMFS would do anything about it

☐Upon return, the situation didn't seem as bad as I had originally thought ☐Other: _____

27. What is your current job?

☐Fishing industry ☐Observer ☐Observer provider company ☐NMFS (observer program)

☐NMFS (other than observer program) ☐NOAA NOS ☐Other NOAA office ☐DOI ☐

DOE ☐USGS ☐BOEM ☐State agency ☐Other U.S. Government

☐NGOs ☐International agency ☐University/College ☐Others: _____

28. How interested are you in continuing to work in a marine related field, after having worked as an observer?

☐Less ☐Same ☐More ☐Not sure

29. Do you think being an observer is helpful for advancing a career in marine related field?

☐Very useless ☐Useless ☐Neutral ☐Helpful ☐Very helpful

30. Do you think fishery community value the contribution of observers?

☐Strongly unvalued ☐Unvalued ☐Neutral ☐Valued ☐Strongly valued

31. What is your attitude towards the use of technology for data collection? (e.g., use of tablets, laptops, electronic scales)

☐Very unsupportive ☐Unsupportive ☐Neutral ☐Supportive ☐Very supportive

32. What is your attitude towards the use of electronic monitoring? (e.g., the use of camera, computer vision)

☐Very unsupportive ☐Unsupportive ☐Neutral ☐Supportive ☐Very supportive

International / Regional Questions (North Pacific, Northeast, West coast)

33. Were you ever deployed in a foreign fishery?

☐Yes (If yes, continue to Q34 –36) ☐No (If no, continue to Q37)

34. What organization(s) have you worked with? (Please mark all that apply)

☐IATTC – Inter-American Tropical Tuna Commission ☐IOTC – Indian Ocean Tuna Commission

☐ICCAT – International Commission for the Conservation of Atlantic Tunas ☐SPTT – South Pacific Tuna Treaty

☐NPFC – North Pacific Fisheries Commission ☐FFA – Pacific Islands Forum Fisheries Agency

☐WCPFC – Western/Central Pacific Fisheries Commission ☐IPHC – International Pacific Halibut Commission

☐CCAMLR – Convention for Conservation of Antarctic Marine Living Resources ☐Other: _____

35. What kind of vessel(s) did you work with? (Please mark all that apply)

☐Commercial fishing vessel ☐Transshipment vessel ☐Other: _____

36. For each of the following categories as it relates to your experience in an international fishery, please indicate whether you prefer working in a foreign or U.S. fishery.

Preference	*Foreign*	*U.S.*	*No*	*Not applicable*
Interaction with Captain/Crew				
Safety (emergency response, vessel equipment etc.)				
Communication				
Length of trip				
Working conditions				
Pay				
Travel to deployment				
Availability of deployment				
Health concerns (bedbug, accommodation etc.)				

37. What are the major reasons you didn't observe in a foreign fishery? (Check all that apply)

☐Deployment unavailable ☐Safety ☐Worries about language and communication

☐Low pay ☐Length of trip ☐Far away from home ☐Others: _____

38. Were you an observer in the North Pacific region after 1999?

☐Yes (If yes, continue to Q39-41) ☐No (If no, continue to Q42)

39. How satisfied are you with each type of deployments you participate in?

	Type	*Very dissatisfied*	*Dissatisfied*	*Neutral*	*Satisfied*	*Very satisfied*	*Not applicable*
(1)	Fixed gear Catch-Processor (CP)	☐	☐	☐	☐	☐	☐
(2)	Mothership	☐	☐	☐	☐	☐	☐
(3)	Trawl CP	☐	☐	☐	☐	☐	☐
(4)	Trawl non-CP	☐	☐	☐	☐	☐	☐
(5)	Processor	☐	☐	☐	☐	☐	☐
(6)	Catcher vessel (CV)	☐	☐	☐	☐	☐	☐
(7)	Pot vessel	☐	☐	☐	☐	☐	☐
(8)	Longline CP	☐	☐	☐	☐	☐	☐
(9)	Longline CV	☐	☐	☐	☐	☐	☐

40. How satisfied are/were you with the variety of deployment opportunities?

☐Very dissatisfied ☐Dissatisfied ☐Neutral ☐Satisfied ☐Very satisfied

41. Please indicate your most recent certification level in the North Pacific observer program.

☐3-week certification (If checked, continue to Q42 – 43) ☐Lead Level 2 (If checked, continue to Q44 – 45)

☐Not applicable (If checked, continue to Q46)

42. Please indicate your interest for pursuing a higher level of observer certification.

☐Very uninterested ☐Uninterested ☐Neutral ☐Interested ☐Very interested

43. Why do you think there may be a shortage of Lead level 2 observers? (Please mark all that apply)

☐Lead level 2 is not prestigious ☐Too much responsibility ☐Difficult to fulfill performance requirement

☐Deployments are not flexible ☐Too much work ☐Few opportunities to fulfill fixed gear requirement

☐Safety ☐Low salary ☐I am unsure ☐Others: _____

44. Please indicate your level of satisfaction with being a Lead Level 2 observer

☐Very dissatisfied ☐Dissatisfied ☐Neutral ☐Satisfied ☐Very satisfied

45. Why do you think there may be a shortage of Lead level 2 observers? (Please mark all that apply)

☐Lead level 2 is not prestigious ☐Too much responsibility ☐Difficult to fulfill performance requirement

☐Deployments are not flexible ☐Too much work ☐Few opportunities to fulfill fixed gear requirement

☐Safety ☐Low salary ☐I am unsure ☐Others: _____

46. Did you observe in the Northeast Region after 2000?

☐Yes (If yes, continue to Q47) ☐No (If no, continue to Q48)

47. How satisfied are you with each type of deployments that you have participated in?

	Type	*Very dissatisfied*	*Dissatisfied*	*Neutral*	*Satisfied*	*Very satisfied*	*Not applicable*
(1)	Northeast Fishery observer Program (NEFOP)	☐	☐	☐	☐	☐	☐
(2)	At-Sea Monitoring Program	☐	☐	☐	☐	☐	☐
(3)	Industry-Funded Scallop Program	☐	☐	☐	☐	☐	☐

48. Did you observe in the West Coast Region after 2011?

☐Yes (If yes, continue to Q49) ☐No (If no, continue to Q50)

49. How satisfied are you with each type of deployments you participate in?

	Type	*Very dissatisfied*	*Dissatisfied*	*Neutral*	*Satisfied*	*Very satisfied*	*Not applicable*
(1)	Catch-share Program	☐	☐	☐	☐	☐	☐
(2)	Non-catch-share Program	☐	☐	☐	☐	☐	☐

50. If you have any comments, suggestions or statements for the National Observer Program, please write them in the following space. All information in this survey should be anonymous.

51. Are you interested in sharing or giving additional comments to your observing experience with National Observer Program by a follow-up interview?

☐Yes (If yes, continue to Q52 in a separate link to provide contact information) ☐No (If no, end of the survey)

*52. Please leave your name and email or phone number in the following space. Your contact information will be not linked with your response to the survey. You may be contacted by National Observer Program by the method you provided.

_____

We greatly appreciate your efforts and contributions to the management and conservation of marine resources. Safe travels. Thank you!

Public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments or any other suggestions for this burden to Dr. Yuntao Wang and Jane DiCosimo, NOAA NMFS, 1315 East-West Hwy., Silver Spring, MD 20910.

This is a voluntary survey, and responses are anonymous as required by section 402(b) of the Magnuson Stevens Act and NOAA Administrative Order 216-100, Confidentiality of Fisheries Statistics, and will not be released for public use except without identification as to its source. Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

Appendix 2: Aggregate Survey Responses

Please indicate if you have observed in a U.S. fishery?		
Answer Options	**Response Percent**	**Response Count**
Yes	95.7%	529
No	4.3%	24
	answered question	**553**

What is your gender?		
Answer Options	**Response Percent**	**Response Count**
Male	59.4%	306
Female	40.6%	209
	answered question	**515**

What is your age (years)?		
Answer Options	**Response Percent**	**Response Count**
Less than 20	0.0%	0
20 - 29	40.6%	210
30 - 39	32.3%	167
40 - 49	17.0%	88
50 - 59	8.3%	43
60 or more	1.7%	9
	answered question	**517**

What level of education did you have when you became an observer?		
Answer Options	**Response Percent**	**Response Count**
High school or less	1.6%	8
Associate's degree	1.0%	5
Bachelor's degree	86.6%	447
Master's degree	10.5%	54
Doctorate's degree	0.4%	2
	answered question	**516**

What is the highest level of education you have completed?		
Answer Options	**Response Percent**	**Response Count**
High school or less	1.0%	5
Associate's degree	1.0%	5
Bachelor's degree	71.4%	369
Master's degree	23.6%	122
Doctorate's degree	3.1%	16
	answered question	**517**

When did you stop being an observer? (End of last deployment)		
Answer Options	**Response Percent**	**Response Count**
Currently active	36.9%	192
2016	7.3%	38
2015	9.8%	51
2014	4.2%	22
2013	5.6%	29
2012	5.0%	26
2011	3.1%	16
2010	3.7%	19
2009	2.3%	12
2008	2.5%	13
2007	1.7%	9
2006	2.7%	14
2005	1.9%	10
2004	1.5%	8
2003	1.0%	5
2002	1.5%	8
2001	1.2%	6
2000	1.0%	5
1999	0.8%	4
1998	0.6%	3
1997	0.6%	3
1996	0.4%	2
1995	0.6%	3
1994	0.0%	0
1993	0.8%	4
1992	0.2%	1
1991	0.2%	1
1990	0.6%	3
Before 1990	2.5%	13
	answered question	**520**

Please specify the month you left the program?		
Answer Options	**Response Percent**	**Response Count**
Not sure	5.8%	5
Jan	3.5%	3
Feb	4.7%	4
Mar	5.8%	5
Apr	18.6%	16
May	9.3%	8
Jun	8.1%	7
Jul	4.7%	4
Aug	11.6%	10
Sep	11.6%	10
Oct	7.0%	6
Nov	4.7%	4
Dec	4.7%	4
	answered question	86

How many sea days have you observed in total?		
Answer Options	**Response Percent**	**Response Count**
Less than 10	1.3%	6
10 - 30	2.0%	9
31 - 90	11.4%	52
91 - 270	26.3%	120
271 - 900	37.5%	171
More than 900	17.5%	80
Not sure (please specify as below)	3.9%	18
	answered question	456

How long did you intend to work as an observer when you first decided to become an observer?		
Answer Options	**Response Percent**	**Response Count**
A few months	7.7%	35
One year	18.5%	84
Two years	12.3%	56
Between two and five years	20.2%	92
More than five years	3.3%	15
Not decided at that time	38.0%	173
	answered question	455

Why did you want to become an observer? (Choose all that apply)		
Answer Options	**Response Percent**	**Response Count**
Contact with ocean	68.8%	313
Seasonal work schedule	29.5%	134
Fill on education/employment gap	27.9%	127
Protect environment	38.9%	177
Good pay	54.3%	247
Travel opportunity	54.7%	249
Field work	82.6%	376
Adventure	68.4%	311
Advancement in my field	58.9%	268
Other (please specify below as comment)	9.0%	41
Comment		62
	answered question	455

What type of contract did you have with your employer during your most recent observer experience?		
Answer Options	**Response Percent**	**Response Count**
Trip based	13.2%	60
Less than 3 months	25.6%	116
3 to 6 months	20.3%	92
7 to 11 months	2.4%	11
Yearly or longer	21.4%	97
No contract	15.5%	70
Other (please specify below as comment)	5.1%	23
Comment		60
	answered question	453

How many sea days do/did you work during a typical month?		
Answer Options	**Response Percent**	**Response Count**
1 - 5	2.9%	13
6 - 10	8.5%	38
11 - 15	28.3%	127
16 - 20	13.8%	62
21 - 25	18.0%	81
More than 25	28.5%	128
Comment		57
	answered question	449

Please indicate your level of satisfaction concerning the number of sea days.

Answer Options	Too many days	More than expected	About right	Less than expected	Too few days	Rating Average	Response Count
	18	37	309	64	21	3.07	449
					answered question		449

How often are/were trips cancelled?

Answer Options	Never	Less than 5%	6% - 20%	21% - 50%	51% - 80%	More than 80%	Rating Average	Response Count
	142	143	116	35	12	0	2.18	448
						answered question		448

How far in advance are/were you usually notified before being deployed on a trip?

Answer Options	Less than 6 hours	6 - 12 hours	12 - 24 hours	24 - 48 hours	48 - 72 hours	72 hours or longer	Rating Average	Response Count
	34	61	155	115	41	38	3.41	444
						answered question		444

How satisfied are you with each of the following aspects of the NMFS observer program?

Answer Options	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Not applicable	Response Count
Tools and technical support	10	39	78	189	114	3	433
Debriefing experience	18	61	67	163	117	7	433
Outreach and conferences availability	47	102	133	68	24	57	431
Resolving observer-reported incidents (e.g., harassment, safety, etc.)	24	60	96	131	62	60	433
Working with NMFS Observer Program staff	16	24	77	171	140	5	433
Comment							65
						answered question	433

How satisfied are you with each of the following aspects of your employer/provider company?

Answer Options	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Not applicable	Response Count
Wage	41	91	60	170	63	2	427
Health insurance	81	79	73	84	43	63	423
Advance notice of upcoming trip	19	55	124	175	40	14	427
Advance notice of trip cancellation	10	40	157	121	25	74	427
Types of contracts available	15	57	118	141	58	37	426
Emergency response	5	21	104	115	72	110	427
Technical support	14	44	91	180	66	32	427
General support	19	53	74	169	103	7	425
Ease of switching employer/provider company	13	35	106	43	20	208	425
Resolving observer-reported incidents (e.g., harassment, safety, etc.)	24	33	117	110	43	100	427
Comment							60
						answered question	428

How satisfied are you with each of the following aspects of captain/crew that you have worked with?							
Answer Options	**Very dissatisfied**	**Dissatisfied**	**Neutral**	**Satisfied**	**Very satisfied**	**Not applicable**	**Response Count**
Setting up deployment details (phone call, text, email, etc.)	10	29	107	187	64	30	427
Cooperation with data collection activities	6	30	73	233	83	2	427
Verbal interactions	11	31	85	222	76	1	426
Physical interactions	6	17	95	214	68	26	426
Safety	9	39	81	205	90	2	426
Condition of accommodations (e.g., sleeping area, bathroom)	23	53	119	174	56	2	427
Comment							79
						answered question	**427**

Have you experienced harassment during your deployment?		
Answer Options	**Response Percent**	**Response Count**
Yes	46.3%	198
No	53.7%	230
	answered question	**428**

Did you report the incident(s) of harassment?		
Answer Options	**Response Percent**	**Response Count**
Reported every time	33.0%	67
Reported sometime	39.9%	81
Never reported	27.1%	55
	answered question	**203**

Who did you directly report the incident to? (Please mark all that apply)		
Answer Options	**Response Percent**	**Response Count**
Employer	57.5%	84
NMFS Observer Program	85.6%	125
NMFS OLE	25.3%	37
Coast Guard	4.8%	7
Other	7.5%	11
	answered question	**146**

Were you kept informed until there was a resolution to your report?		
Answer Options	**Response Percent**	**Response Count**
Yes	41.8%	61
No	58.2%	85
	answered question	**146**

How satisfied are you with the handling of your report?		
Answer Options	**Response Percent**	**Response Count**
Very dissatisfied	15.2%	22
Dissatisfied	17.2%	25
Neutral	41.4%	60
Satisfied	20.7%	30
Very satisfied	5.5%	8
Comment		43
	answered question	**145**

Why didn't you report the incident? (Please mark all that apply)		
Answer Options	**Response Percent**	**Response Count**
Worried about retaliation or damage to my professional reputation	20.0%	11
Resolved situation at sea myself	65.5%	36
Just wanted to put the experience behind me and not relive it	30.9%	17
Didn't think NMFS would do anything about it	30.9%	17
Upon return, the situation didn't seem as bad as I had originally thought	25.5%	14
Other (please specify below as comment)	18.2%	10
Comment		13
	answered question	**55**

Where do you currently work?		
Answer Options	**Response Percent**	**Response Count**
Fishing industry	3.6%	15
Observer	30.0%	126
Observer provider company	8.8%	37
NMFS Observer Program	21.2%	89
NMFS (other than observer program)	8.6%	36
Other NOAA office	2.4%	10
DOI / DOE / USGS / BOEM	1.0%	4
State agency	10.0%	42
Other U.S. Government	3.3%	14
NGOs	1.2%	5
International agency	2.6%	11
University/College	6.7%	28
Other (please specify below as comment)	16.7%	70
Comment		95
	answered question	**420**

After working as an observer, how interested are you in continuing to work in a marine related field?						
Answer Options	**Less interested**	**Same**	**More interested**	**Not sure**	**Rating Average**	**Response Count**
	39	168	205	11	2.44	423
				answered question		**423**

Do you think being an observer is helpful for advancing a career in marine related field?							
Answer Options	**Very unhelpful**	**Unhelpful**	**Neutral**	**Helpful**	**Very helpful**	**Rating Average**	**Response Count**
	14	35	83	170	119	3.82	421
Comment (for questions 19 and 20)							75
					answered question		**421**

How do you feel fishery communities value the contribution of observers?

Answer Options	Strongly unvalued	Unvalued	Neutral	Valued	Strongly valued	Rating Average	Response Count
	75	136	125	78	7	2.54	421
					answered question		**421**

What is your attitude towards the use of technology for data collection? (e.g., use of tablets, laptops, electronic scales)

Answer Options	Very unsupportive	Unsupportive	Neutral	Supportive	Very supportive	Rating Average	Response Count
	9	22	100	150	140	3.93	421
Comment							78
					answered question		**421**

What is your attitude towards the use of electronic monitoring? (e.g., the use of camera, computer vision)

Answer Options	Very unsupportive	Unsupportive	Neutral	Supportive	Very supportive	Rating Average	Response Count
	45	70	135	127	46	3.14	423
Comment							100
					answered question		**423**

Were you ever deployed in a foreign fishery?

Answer Options	Response Percent	Response Count
Yes	5.9%	25
No	94.1%	400
	answered question	**425**

What organization(s) have you worked with? (Please mark all that apply)

Answer Options	Response Percent	Response Count
IATTC - Inter-American Tropical Tuna Commission	25.0%	6
IOTC - Indian Ocean Tuna Commission	0.0%	0
ICCAT - International Commission for the Conservation of Atlantic Tunas	0.0%	0
SPTT - South Pacific Tuna Treaty	0.0%	0
NPFC - North Pacific Fisheries Commission	12.5%	3
FFA - Pacific Islands Forum Fisheries Agency	0.0%	0
WCPFC - Western and Central Pacific Fisheries Commission	4.2%	1
IPHC - International Pacific Halibut Commission	8.3%	2
CCAMLR - Convention for Conservation of Antarctic Marine Living Resources	0.0%	0
Other (please specify)	62.5%	15
	answered question	24

What kind of vessel(s) did you work with? (Please mark all that apply)

Answer Options	Response Percent	Response Count
Commercial fishing vessel	72.0%	18
Transshipment vessel	20.0%	5
Other (please specify)	16.0%	4
	answered question	25

For each of the following categories as it relates to your experience with international fishery, please indicate whether you prefer working in a foreign or U.S. fishery.

Answer Options	Foreign fishery	U.S. fishery	No preference	Not applicable	Response Count
Interaction with Captain/Crew	12	4	4	3	23
Safety (emergency response, vessel equipment etc.)	3	8	9	3	23
Communication	5	10	5	3	23
Length of trip	10	4	6	3	23
Working conditions	13	3	4	3	23
Pay	7	5	7	4	23
Travel to deployment	11	3	6	3	23
Availability of deployment	7	4	7	5	23
Health concerns (bedbug, accommodation etc.)	10	1	9	3	23
			answered question		23

What are the major reasons you didn't observe in a foreign fishery? (Check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Deployment unavailable	47.7%	186
Safety	30.5%	119
Worries about language and communication	20.3%	79
Low pay	12.8%	50
Length of trip	16.7%	65
Far away from home	22.3%	87
Others	11.3%	44
Comments	21.5%	84
	answered question	**390**

Were you an observer in the North Pacific Region after 1999?		
Answer Options	**Response Percent**	**Response Count**
Yes	53.3%	226
No	46.7%	198
	answered question	**424**

How satisfied are you with each type of deployments you participate in?							
Answer Options	**Very dissatisfied**	**Dissatisfied**	**Neutral**	**Satisfied**	**Very satisfied**	**Not applicable**	**Response Count**
General fixed gear Catch-Processor (CP)	1	13	22	46	19	110	211
Trawl CP	4	7	21	83	37	65	217
General catcher vessel (CV)	6	9	21	102	46	31	215
Pot vessel	7	13	27	47	24	97	215
Longline CP	10	18	23	42	22	96	211
Longline CV	3	5	16	36	27	122	209
Other (please specify)							21
					answered question		**221**

How satisfied are/were you with the variety of deployment opportunities?							
Answer Options	**Very dissatisfied**	**Dissatisfied**	**Neutral**	**Satisfied**	**Very satisfied**	**Rating Average**	**Response Count**
	5	20	68	114	15	3.51	222
Comment							17
					answered question		**222**

Please indicate your most recent certification level in the North Pacific observer program.		
Answer Options	**Response Percent**	**Response Count**
3-week certification ONLY	35.4%	79
3-week certification and Trawl Lead Level 2	14.3%	32
3-week certification and Fixed gear Lead Level 2	5.8%	13
3-week certification, Trawl and Fixed gear Lead Level 2	32.3%	72
Not applicable	12.1%	27
	answered question	**223**

Please indicate your interest for pursuing a fixed gear Lead Level 2 deployment endorsement.							
Answer Options	**Very uninterested**	**Uninterested**	**Neutral**	**Interested**	**Very interested**	**Rating Average**	**Response Count**
	42	31	24	9	3	2.08	109
					answered question		**109**

Please indicate if any of the following prevent you from obtaining a fixed gear Lead Level 2 endorsement? (Please mark all that apply)		
Answer Options	**Response Percent**	**Response Count**
Lead level 2 is not prestigious	5.3%	5
Too much responsibility	11.6%	11
Difficult to fulfill performance requirement	8.4%	8
Deployments are not flexible	12.6%	12
Too much work	20.0%	19
Few opportunities to fulfill fixed gear requirement	11.6%	11
Safety	3.2%	3
Low salary	24.2%	23
I am unsure	23.2%	22
Others	49.5%	47
	answered question	**95**

Please indicate your level of satisfaction with being a Fixed gear Lead Level 2 observer							
Answer Options	**Very dissatisfied**	**Dissatisfied**	**Neutral**	**Satisfied**	**Very satisfied**	**Rating Average**	**Response Count**
	4	15	27	30	7	3.25	83
					answered question		**83**

In your opinion, if any of the following prevent observers with 3-week certification from obtaining a fixed gear Lead Level 2 endorsement? (Please mark all that apply)		
Answer Options	**Response Percent**	**Response Count**
Lead level 2 is not prestigious	12.7%	10
Too much responsibility	20.3%	16
Difficult to fulfill performance requirement	25.3%	20
Deployments are not flexible	15.2%	12
Too much work	38.0%	30
Few opportunities to fulfill fixed gear requirement	34.2%	27
Safety	6.3%	5
Low salary	26.6%	21
I am unsure	27.8%	22
Others	21.5%	17
	answered question	**79**

Did you observe in the Northeast Region after 2000?		
Answer Options	**Response Percent**	**Response Count**
Yes	29.3%	122
No	70.7%	294
	answered question	**416**

How satisfied are you with each type of deployments that you have participated in?							
Answer Options	**Very dissatisfied**	**Dissatisfied**	**Neutral**	**Satisfied**	**Very satisfied**	**Not applicable**	**Response Count**
Northeast Fishery observer Program (NEFOP)	0	10	6	29	9	26	80
At-Sea Monitoring Program	5	13	14	17	2	31	82
Industry-Funded Scallop Program	0	1	3	26	11	37	78
					answered question		**82**

Did you observe in the West Coast Region after 2011?		
Answer Options	**Response Percent**	**Response Count**
Yes	10.1%	42
No	89.9%	374
	answered question	**416**

How satisfied are you with each type of deployments you participate in?							
Answer Options	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Not applicable	Response Count
Catch-share Program	3	1	9	7	3	16	39
Non catch-share Program	1	0	6	13	6	16	42
					answered question		43

Please use the space below to share any additional comments or suggestions you have for the NMFS National Observer Program. As a reminder, the survey is anonymous. We hope you will provide your open and candid response.	
Answer Options	Response Count
	224
answered question	224

Are you interested in sharing or giving additional comments to regarding your observing experience with National Observer Program by participating in a follow-up interview?		
Answer Options	Response Percent	Response Count
Yes	49.1%	200
No	50.9%	207
	answered question	407