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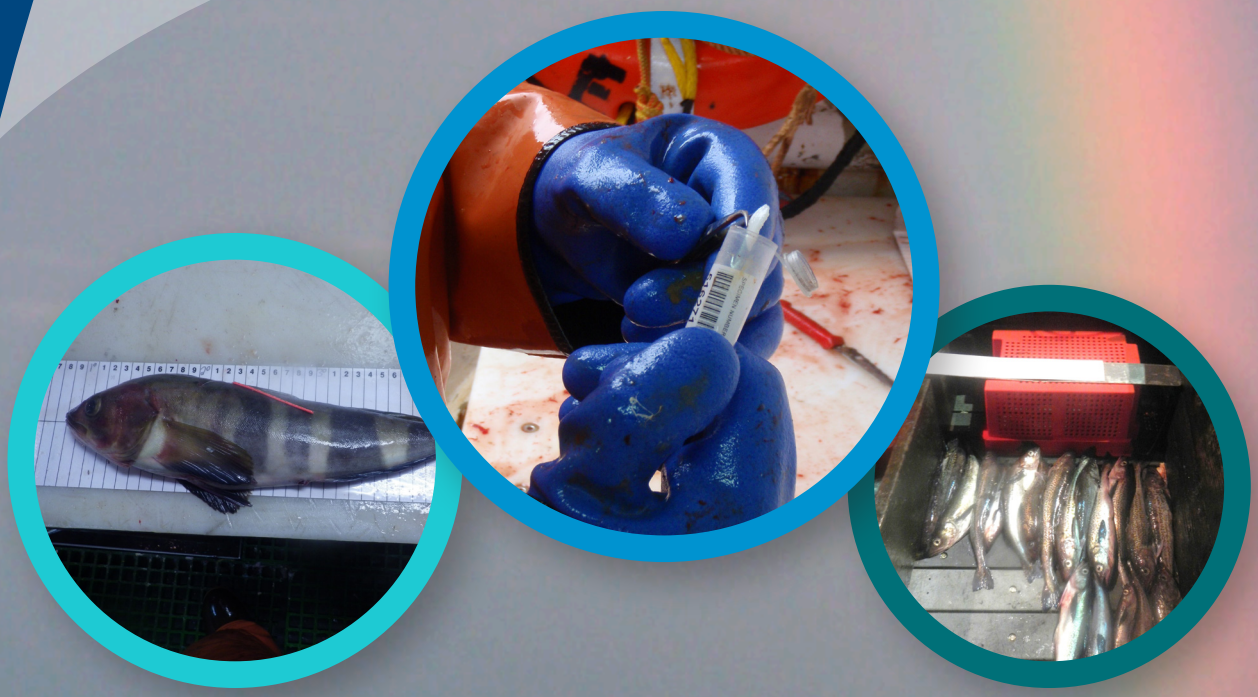

North Pacific Observer Program 2024 Annual Report

July 2025

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North Pacific Observer Program
2024 Annual Report

Fisheries Monitoring and Analysis Division

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Executive Summary

This Annual Report provides information, analysis, and recommendations based on the deployment of observers and Electronic Monitoring (EM) systems by the North Pacific Observer Program (Observer Program) in the halibut and groundfish fisheries off Alaska during 2024.

Section 313 of the Magnuson-Stevens Act (16 U.S.C. 1862) authorizes the North Pacific Fishery Management Council (Council), in consultation with National Marine Fisheries Service (NMFS), to prepare a fishery research plan for the purpose of stationing observers and EM systems to collect data necessary for the conservation, management, and scientific understanding of the commercial groundfish and Pacific halibut fisheries of the Bering Sea and Aleutian Islands (BSAI) and Gulf of Alaska (GOA) management areas. Observers and EM systems collect fishery-dependent information used to estimate total catch and interactions with protected species. Managers use these data to manage groundfish and prohibited species catch within established limits and to document and reduce fishery interactions with protected resources. Scientists use fishery-dependent data to assess fish stocks, to provide scientific information for fisheries and ecosystem research and fishing fleet behavior, to assess marine mammal interactions with fishing gear, and to assess fishing interactions with habitat.

The Observer Program is the Nation's largest observer program and covers vessels in both partial coverage and full coverage. In the full coverage component of the program, every trip is monitored by 1 or 2 observers and the vast majority of groundfish harvest is covered by this portion of the program. Each year, the Annual Deployment Plan (ADP) describes the science-driven method for deployment of observers and EM systems on vessels in the partial coverage component of the program (50 CFR 679.51(a)). The ADP specifies the scientific deployment design for the partial coverage fisheries and the selection rate—the portion of trips that are sampled by observers and EM. The following year, the agency provides an Annual Report with descriptive information and scientific evaluation of the deployment of observers and EM. The ADP and Annual Report process provides information to assess whether the objectives of the Observer Program have been met and a process to make recommendations to improve implementation of the program to further these objectives.

Program summary

- Overall, for all federal fisheries off Alaska, 3,863 trips (43.9%) and 421 vessels (48.4% of total) were monitored by either an observer or EM system in 2024.

- During the 2024 fishing year, approximately 304 individual observers were trained, briefed, and equipped for deployment to vessels and processing facilities operating in the BSAI and GOA groundfish and halibut fisheries. Of these, 99 new observers were trained and 205 were prior observers who attended a briefing of some type in 2024.

- In 2024, observers collected data on board 281 fixed gear and trawl vessels and at 11 processing facilities for a total of 29,665 observer days (26,918 full coverage days on vessels and in plants; and 2,737 partial coverage days on vessels and in plants)[1].

- BSAI and GOA combined, 91.2% of pelagic trawl catch was on trips in the full coverage category and 8.8% was on trips in partial coverage. All partial coverage trips were in the GOA and 34% of their catch was monitored. This percentage is higher if compliance monitoring for maximized retention requirements on trawl EM trips is included.

- BSAI and GOA combined, 95.6% of non-pelagic trawl catch was on trips in full coverage category and 4.4% was on trips in partial coverage. Partial coverage trips occurred in both the BSAI and GOA with 79.1 and 16.4% of their catch monitored, respectively.

- NMFS approved 177 vessels in the 2024 fixed-gear EM selection pool. Of these, 96 of those vessels were randomly selected to turn on their EM system. In 2024 there were a total of 248 selected and reviewed trips (183 longline trips and 65 pot trips). A total of 296 fixed gear trips were selected from ODDS. A temporary 33% reduction to review staff, which coincided with fixed gear trips that occurred at the end of the year, resulting in 48 trips that were not reviewed by the end of the year. NMFS prioritized the 2025 review to eliminate any backlog and support the new regulatory Trawl EM Program. This issue is not expected to occur in 2025, as selection rates are lower in 2025.

- In 2024, fishing continued under an Exempted Fishing Permit (EFP) to evaluate the efficacy of EM and shoreside observers for pollock catcher vessels using pelagic trawl gear in both the Bering Sea and Gulf of Alaska. The goal for EM is compliance monitoring of maximized retention. Catch accounting for the vessel's catch and bycatch is done via eLandings reports and shoreside plant observers. There were 104 participating vessels in 2024 from both the partial and full coverage categories.

- In the fifth year of the trawl EM EFP, there continued to be a considerable amount of effort allocated to coordination and collaboration between FMA, AKRO, Office of Law Enforcement, Alaska Groundfish Data Bank, United Catcher Boats, Aleutian East Borough (AEB), the Pacific States Marine Fisheries Commission, EM service providers (Archipelago Marine Research, Saltwater, Inc.) and observer providers (A.I.S., Inc.; Alaskan Observers, Inc.; Saltwater, Inc.). The agency continues to find outreach to be a valuable way to share information with industry, to answer their questions, and to get their input on areas of concern and potential solutions.

[1] Note that observer days are calculated differently from invoiced days. Observer days represent any amount of time an observer is on a vessel as part of their deployment which may be inclusive of non-fishing and standby days.

- NMFS provided outreach and presentations to review specific changes to the Observer Declare and Deploy System (ODDS). These were provided to the Council, the PCFMAC, the Aleutians East Borough annual meeting, and Kodiak trawl fleet meeting. Feedback received indicated these meetings were helpful and informative and clarified the removal of trip cancellations and flexibility between strata.

- FMA staff also participated in various meetings focused on industry engagement, including: the AEB annual meeting, the Freezer Longline Coalition annual meeting, the Kodiak trawl fleet meetings, and meetings with the Amendment 80 sector.

Fees and Budget

- The total invoiced amount for full coverage observer services in 2024 was $10,908,834, for 26,953 invoiced days, resulting in an average cost per observer day in the full coverage category of $405.

- The expenditures for observer deployment in 2024 in the partial coverage category was $3,809,373 for 2,325 invoiced days, resulting in an average cost per observer sea day in the partial coverage category of $1,638. The average cost per observer sea day is a combination of a daily rate, which is paid for the number of days the observer is on a vessel or at a shoreside processing plant, and reimbursable travel costs.

- Fee billing statements for 2024 were mailed to 102 processors and registered buyers for a total of $3,496,312 in observer fees. The breakdown in contribution to the 2024 observer fees by species was: 39% Pacific halibut, 31% sablefish, 12% Pacific cod, 18% pollock, and 1% all other groundfish species.

- The EM fixed gear review was completed for all hard drives received by PSMFC prior to January 1, 2025. For 2024, the preliminary costs for the fixed-gear EM program were not available at the time of publication.

Deployment Performance Review

A review of the deployment of observers and EM in 2024 relative to the intended sampling plan and goals of the Observer Program is provided in Chapter 3. A set of performance metrics was used to assess the efficiency and effectiveness of observer deployment, with emphasis on the partial coverage category. These metrics provide a method to evaluate the quality of data being collected under the restructured Observer Program.

Did We Meet Anticipated Deployment Goals?

Effort Predictions

Based on simulations of annual fishing effort from the final 2024 ADP, NMFS expected to deploy at-sea observers for 2,732 days in the partial coverage category in 2024. The actual number of at-sea observer deployment days purchased in 2024 was 2,324.5, which was 14.9% less than predicted (Fig. 3-1).

Observer Declare and Deploy System (ODDS) Performance

The ODDS facilitates the random selection of fishing trips for monitoring within the partial coverage strata. Users of the system are given flexibility to accommodate their fishing operations; up to three trips may be logged in advance of fishing and trips can be canceled to accommodate changing plans.

Logged trips can be either closed (marked as complete) or canceled. Of the 4,059 total trips logged, 840 were initially selected for coverage, of which 133 were canceled: 17 by ODDS (2.0%) and 116 by users (13.8%). The user cancellation rate for selected trips among strata ranged from 1.6% for EM FIXED GEAR BSAI to 24.0% for OB TRW BSAI in 2024 (Table 3-2).

- If a trip is selected for observer coverage and canceled, then the vessel's next logged trip is automatically selected for coverage. The "inherited" trips preserve the number of selected trips in the year, however they can cause a delay of selected trips during the year and result in temporal bias. The relative percentage of selected trips that inherited their final selected-status due to a previous cancellation ranged from 1.6% in the EM FIXED BSAI stratum to 13.1% in the OB FIXED GOA stratum. Within the same gear-type, cancellation rates and the proportion of inherited trips were much larger for strata that used observers for at-sea monitoring than those that used EM (Table 3-3).

Evaluation of At-sea Deployment

There were 10 deployment strata evaluated in 2024 (Section 3.3.3). A summary of the number of vessels and trips in each strata and realized coverage rates in 2024 are as follows:

Coverage category	Strata	Total vessels	Total trips	Monitored trips	Expected coverage rate	Realized coverage rate	Met expectations? *
Full coverage	*Full*	104	1,110	1,109	100.00	99.91	No - lower than expected **
	EM TRW BSAI (EFP)[f]	65	1,725	1,725	100.00	100.00	Yes
Partial coverage	*OB FIXED BSAI*	45	288	137	43.97	47.57	Yes
	OB FIXED GOA	292	1,938	241	13.17	12.44	Yes
	OB TRW BSAI	3	25	20	72.28	80.00	Yes
	OB TRW GOA	46	387	85	20.58	21.96	Yes
	EM FIXED BSAI	8	69	34	74.29	49.28	No - lower than expected
	EM FIXED GOA	118	996	224	24.20	22.49	Yes
	EM TRW GOA (EFP)[f]	47	806	288	33.33	35.73	Yes
No selection	*Zero Coverage*	290	1,453	0	0.00	0.00	Yes

*The expectation for full and zero coverage strata are that coverage rates are exactly 100% and 0%, respectively. The expectation for partial coverage strata is that selection rates are within the 95% confidence intervals of realized deployment rates.

** One full coverage trip was unmonitored (Hook-and-line CDQ vessel >46 ft LOA targeting Pacific cod). See Appendix C for more details.

⊞ *EM TRW* is monitored at the delivery instead of the trip level

Dockside Monitoring

The sampling design used for dockside monitoring in 2024 remained unchanged from 2023. All vessels participating in the BSAI pollock trawl fisheries are in the full coverage category and dedicated plant observers monitor all deliveries to account for salmon bycatch. In the GOA, all pollock trawl catcher vessels are in the OB TRW stratum unless they are participating in the EM Exempted Fishing Permit (EFP), in which case they are 100% monitored by EM at-sea. For randomly selected OB TRW and EM EFP pollock trips in the GOA, observers monitor the delivery at the shoreside processors to obtain counts of salmon caught as bycatch and to obtain tissue samples for stock of origin determination using genetic techniques. When an observed trawl vessel in the GOA delivers its pollock catch to a tender vessel, the observer is unable to monitor the delivery and collect additional tissue samples shoreside. However, the trip would be monitored and sampled at sea, without any subsequent offload monitoring. When an EM trawl vessel in the GOA delivers its pollock to an EM tender vessel, the entire tender offload can be sampled at the final processing facility, and tissue samples for genetic information can be collected.

A total of 2,121 pollock deliveries were monitored by observers for salmon in 2024. Of those, 1,775 occurred in ports in the Bering Sea and 346 occurred in ports in the Gulf of Alaska (Tables 3-6 and 3-7).

Was the Coverage Representative?

Temporal Patterns

At the end of 2024 the number of observed trips was outside of this expected range in one of the seven monitored partial coverage strata: *EM FIXED BSAI* (expected rate = 74.29%, realized rate = 49.28%; Table 3-5 and Fig. 3-5).

Spatial Representativeness

Spatial biases in the distribution of coverage were not apparent in five of the seven monitored partial coverage strata. Most strata had at least a few spatial cells where the fishing effort was either over- or under-represented, but no clear spatial patterns were apparent to indicate biases. In both the OB FIXED BSAI and the EM FIXED BSAI strata, the fishing effort in the eastern Aleutians was not as well-represented by the sampled trips (Fig. 3-6). The video review of the EM FIXED BSAI stratum contributed to this issue because video review was completed for trips taken early in the year, but, because of a staffing issue at PSMFC, review of trips later in the year was not completed.

Spatial-Temporal Patterns

Proximity indices, as described in the 2024 Final ADP (NMFS 2023b), were calculated for each stratum to evaluate whether coverage met expectations. The proximity index quantifies the spatiotemporal extent of monitoring coverage and identifies any gaps in monitoring. The proximity index was defined as the proportion of sample units in a stratum that were either monitored or near a monitored sample unit in space or time. Because the proximity index incorporates both space and time, results will differ from indications of spatial or temporal bias individually. The proximity index is meant to be an overall indication of whether monitoring data were collected where and when fishing occurred.

The spatiotemporal distribution of monitoring met expectations in all strata with only one exception (Fig. 3-7). Six out of seven strata achieved proximity indices of at least 0.92 indicating good spatiotemporal overlap of monitored trips and deliveries with unmonitored trips and deliveries. In other words, in most strata, over 92% of trips were either monitored or within 200 km and 1 week of a monitored trip. However, the EM FIXED BSAI stratum only achieved a proximity index of 0.64, much lower than expected indicating gaps in coverage. As mentioned previously, a temporary shortage in reviewer capacity resulted in reduced review for the EM FIXED strata and this impacted the EM FIXED BSAI stratum disproportionately as it contained relatively few trips and disproportionately affected pot gear trips, resulting in data gaps for pot gear EM trips in the BSAI from mid-March to November.

Trip Metrics

Monitored trips in the OB FIXED GOA stratum were 10.4% (0.6 days) shorter in duration and were on vessels 4.9% (2.8 ft) longer than unmonitored trips. Monitored trips in the EM FIXED BSAI stratum were on vessels 16.2% (14.0 ft) shorter than unmonitored trips. Monitored trips in the EM FIXED GOA stratum landed 24.3% (0.9 species) more species than unmonitored trips.

Compliance and Enforcement

The Office of Law Enforcement, Alaska Division (AKD), works closely with the U.S. Coast Guard (USCG), Alaska Wildlife Troopers (AWT), industry, Observer Program, and observer providers to address incidents that affect observers and observer work environments, safety, and sampling.

FMA and OLE collaborated to improve the electronic database used for observer statements that was deployed on July 19, 2023. In the new database, each regulation has been given a more informative category and subcategory that describes the potential crime. Occurrences are now reported at the appropriate “occurrence unit(s)” for each potential violation (deployment, trips, hauls, offloads, samples, deployment days, and/or observer-reported marine mammal interactions). These occurrence units were modeled to conform with the observer deployment and sampling data hierarchy and this improvement was fully implemented for all statements in 2024.

Notable findings from 2024 data summaries include:

- The safety and security of observers continues to be OLE's highest priority. The greatest rates of sexual harassment while low (0.52 % of days) was 8× greater on partial coverage CV trips than for CP/MS (the next highest rate).

- The 2024 Annual A-Season Observer Operation took place in Dutch Harbor. The operation focused on investigations involving sexual assault/sexual harassment of observers, hostile work environment, general health and safety of observers, interference/sample biasing, and failure to abide by catcher operational requirements.

- The greatest rate among OLE high priority categories was in the Observer Sampling Station" subcategory of the "Gear/Equipment Requirements" category. Nearly 2% percent of all observer-reported trips and nearly 1% of observer deployment days had a potential violation reported.

- The highest rate for all other statements was in the "Operational Requirements" category where nearly 12.9 % of offloads had reports of "CMCP" subcategory potential violations (Fig. 5-3). High rates were also reported in the "Marine Mammal" subcategory (3.6 %), offloads (3.4 %) in the "General Reporting Requirements" subcategory, and hauls (2.3 %) in the "false reporting" subcategory.

- Of the cases that resulted from statements written in 2024, four were written warnings, 16 were summary settlements, and 10 were forwarded for prosecution.

- In 2024 there were six adjudicated cases.

NMFS Recommendations

NMFS recommends the following for the 2026 Annual Deployment Plan:

Deployment Design:

- NMFS recommends the continued use of the Proximity allocation method for the partial coverage strata (with the exception of trawl EM) in 2026. Doing so will provide consistency in deployment and allow NMFS to collect data under the same deployment design to better enable a Center for Independent Experts (CIE) review.

- For the Trawl EM stratum in the BSAI, all offloads from Trawl EM trips are to be sampled for salmon, halibut, and biological data, In the GOA, NMFS recommends maintaining the sampling rate where all EM deliveries are monitored for salmon and halibut PSC and 33% are sampled by shoreside fishery observers for biological data. The agency will continue to monitor the complete sorting and accounting of salmon, with specific attention in the Western GOA during the B Season and likely develop additional mechanisms, such as CMCP modifications, for ensuring accuracy of salmon accounting

in 2026. NMFS recommends maintaining the stratification used in the 2024 ADP for use in the 2026 Annual Deployment Plan. As in 2024 and 2025, the stratification definition would be based on monitoring method (Observer, EM Fixed Gear, EM Trawl), Fishery Management Plan (BSAI, GOA), and gear type that combines hook-and-line and pot gear (Fixed, Trawl). The 8 recommended partial coverage strata for 2026 are as follows:

- Observed fixed gear trips in the GOA (*OB FIXED GOA*)
- Observed fixed gear trips in the BSAI (*OB FIXED BSAI*)
- Observed trawl gear trips in the GOA (*OB TRW GOA*)
- Observed trawl gear trips in the BSAI (*OB TRW BSAI*)
- EM fixed gear trips in the GOA (*EM FIXED GOA*)
- EM fixed gear trips in the BSAI (*EM FIXED BSAI*)
- EM trawl gear deliveries in the GOA (*EM TRW GOA*)
- Fixed-gear vessels less than 40 ft LOA and vessels fishing with handline, jig, troll and dinglebar troll gear (*Zero coverage)*

EM Video Review:

- NMFS should continue to collaborate with the PSMFC to monitor video review progress and enable a review strategy that will result in EM video review times that result in the most useful information for the most number of trips for a given cost.
- To maximize data utility, NMFS, in collaboration with PSMFC, will continue to develop specific prioritization rules that can be used to allocate review effort to the fisheries, gear types, times and areas that are the most dependent on EM data for management needs.

Fixed-gear EM:

- Maintain an EM selection pool composed of up to 178 fixed gear vessels, which would maintain the size of the EM pool from 2025. NMFS recommends prioritizing placement in the EM selection pool based on vessel size, fishing effort, minimizing data gaps, and cost efficiency.
- If a vessel operator had repeated problems with EM system reliability or video quality or has failed to comply with the requirements in their Vessel Monitoring Plan, NMFS may disapprove a Vessel Monitoring Plan and the vessel may be removed from the EM pool.

EM Development:

- NMFS will continue to collaborate with industry partners on EM development and cost efficiency projects. NMFS will work with Council's monitoring committees (FMAC and PCMAC) to coordinate on EM development priorities and potential grant proposals to National Fish and Wildlife Foundation.

1. Introduction

This annual report provides information, analysis, and recommendations based on deployment of observers and Electronic Monitoring (EM) systems in the federal North Pacific commercial groundfish and Pacific halibut fisheries off Alaska during 2024. Section 313 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1862) authorizes the North Pacific Fishery Management Council (Council), in consultation with National Marine Fisheries Service (NMFS), to prepare a fishery research plan. NMFS implemented the Council's fisheries research plan through the North Pacific Observer Program (Observer Program). The Observer Program provides the regulatory framework for stationing observers and EM systems to collect data necessary for the conservation, management, and scientific understanding of the commercial groundfish and Pacific halibut fisheries of the Bering Sea and Aleutian Islands (BSAI) and Gulf of Alaska (GOA) management areas.

The Observer Program is the Nation's largest observer program and is responsible for monitoring a fleet of nearly a thousand vessels that fish a combination of hook-and-line, pot, and trawl gear across the U.S. Exclusive Economic Zone in Alaska (EEZ) area of roughly 3.77 M km^2. Data collection through the Observer Program provides a reliable and verifiable method for NMFS to gain fishery discard and biological information on fish, and data concerning seabird and marine mammal interactions with fisheries. These data contribute to the best available scientific information used to manage the fisheries in the North Pacific and meet data collection mandates of the Magnuson-Stevens Act, Marine Mammal Protection Act, and Endangered Species Act. Observers and EM systems provide fishery-dependent information that is used to estimate total catch and interactions with protected species. Managers use these data to manage groundfish and prohibited species catch within established limits and to document and reduce fishery interactions with protected species. Much of this information is expeditiously available (e.g., daily or at the end of a trip, depending on the type of vessel) to ensure effective management. Scientists also use fishery-dependent data to assess fish stocks, evaluate marine mammal interactions with fishing gear, characterize fishing impacts on habitat, and provide data for fisheries and ecosystem research and fishing fleet behavior.

All vessels and processors that participate in federally managed or parallel groundfish and halibut fisheries off Alaska (except catcher vessels delivering unsorted codends to a mothership) are assigned to one of two categories: 1) the full observer coverage category (full coverage), or 2) the partial observer coverage category (partial coverage). Vessels and processors in the full coverage category have at least one observer present during all fishing or processing activity. Vessels and processors in the partial coverage category are assigned observer or EM coverage according to the scientific sampling plan described in the Annual Deployment Plan (ADP) developed by NMFS in consultation with the Council. Since 2013, observers have been deployed in the partial coverage category using established random sampling methods to collect data on a statistically reliable sample of fishing vessels in the partial coverage category. Some vessels and processors may be in full coverage for some trips and partial coverage for other trips, depending on the observer coverage requirements for specific fisheries.

Observer coverage in the full coverage category is industry-funded through a pay-as-you-go system whereby fishing vessels procure observer services through NMFS-permitted observer service providers. Observer coverage in the partial coverage category is funded through a system of fees collected under authority of Section 313 of the Magnuson-Stevens Act. The fee is based on the ex-vessel value of groundfish and Pacific halibut and is assessed on landings by vessels not included in the full coverage category. The system of fees fairly and equitably distributes the cost of observer coverage among all vessels and processors in the partial coverage category and is independent of the level of coverage each vessel incurs under the Annual Deployment Plan.

The current structure of the Observer Program, including the definition of full and partial coverage, random deployment methods, and the fee system has been in place since 2013 when the Observer Program was restructured and changes were implemented under Amendment 86 to the Fishery Management Plan (FMP) for Groundfish of the BSAI Management Area and Amendment 76 to the FMP for Groundfish of the GOA (Amendments 86/76)[2]. Since 2013, a series of regulatory and Fishery Management Plan (FMP) amendments have been implemented to amend the Council's fisheries research plan and make specific modifications to observer coverage requirements under the Observer Program. Past Annual Reports have more complete information on these amendments and regulatory changes, and here we identify those which took effect 2024 and were published in 2024 (to be implemented in 2025).

- On August 8, 2023, NMFS published a final rule to implement the Pacific Cod Trawl Cooperative (PCTC) program (88 FR 57009). The PCTC program is a limited access privilege program (LAPP) for the harvest of Pacific cod in the BSAI trawl catcher vessel sector, and allocates harvest quota to qualifying groundfish LLP license holders and qualifying processors. Under this program, catcher vessels participating in the PCTC fishery are in the full coverage component of the observer program.
- On November 9, 2023, NMFS published a final rule to modify monitoring requirements for catcher/processors using pot gear in the BSAI (88 FR 77228). This rule was effective December 11, 2023. This action improved observer data collection by requiring participants to carry a Level 2 observer and comply with pre-cruise meeting notifications, and by requiring certification and testing standards for participants choosing any of a suite of voluntary monitoring options.
- On July 29, 2024, NMFS published a final rule to implement amendment 126 to the BSAI FMP and amendment 114 to the GOA FMP (89 FR 60796). This final rule implements an EM program for pelagic trawl pollock catcher vessels and tender vessels delivering to shoreside processors and stationary floating processors in the Bering Sea, Aleutian Islands, and GOA beginning on January 1, 2025. As part of this regulatory package, there were modifications to observer provider regulatory responsibilities at

[2] The final rule for Amendments 86/76 was published in the Federal Register on November 21, 2012 (77 FR 70062).

§ 679.52. Fax was removed as a form of electronic communication, frequency of updating observer logistics information to the observer program was changed, and clarifying language was added in regards to observer providers requirements to enforce their behavior and conduct policies. This change helped improve observer safety, timely observer deployment information, and data flow for real-time fisheries management.

- On August 16, 2024, NMFS published a final rule to implement amendment 113 to the GOA FMP (89 FR 66638). This final rule modifies specific provisions of the Central GOA Rockfish Program to change the season start date, remove the catcher vessel cooperative quota cap, and revise the processing and harvesting caps. These changes took effect on September 16, 2024.

1.1. Monitoring Coverage Categories and Coverage Levels

1.1.1. Full Coverage

Vessels and processors in the full observer coverage category must comply with observer coverage requirements at all times when fish are harvested or processed. Specific requirements are defined in regulation at 50 CFR § 679.51(a)(2). The full coverage category includes the following:

- Catcher/processors (with limited exceptions).
- Motherships.
- Catcher vessels that are participating in programs that have transferable prohibited species catch (PSC) allocations as part of a catch share program.
- Catcher vessels that are using trawl gear and have requested placement in the full coverage category for all fishing activity in the BSAI for one year.
- Inshore processors receiving or processing Bering Sea pollock.

Independent estimates of catch, at-sea discards, and PSC -- among other data -- are collected aboard all catcher/processors and motherships in the full observer coverage category. Requiring at least one observer on every catcher/processor means that at-sea discards and PSC estimates are not based on self-reported data or extrapolated observer data from other vessels. Catcher vessels participating in programs with transferable PSC allocations as part of a catch share program also are included in the full coverage category. These programs include Bering Sea pollock (both American Fisheries Act and Community Development Quota [CDQ] programs), the groundfish CDQ fisheries (CDQ fisheries other than Pacific halibut and fixed gear sablefish; only vessels greater than 46 ft. LOA), and the Central GOA Rockfish Program.

Independent observer data are important under these catch share programs because quota share recipients are prohibited from exceeding any allocation, including, in many cases, transferable PSC allocations. Allocations of exclusive harvest privileges can create increased incentive to misreport as compared to open-access or limited-access fisheries. Transferable PSC allocations

also present challenges for accurate accounting because these species are not retained for sale and they represent a potentially costly limitation on the full harvest of the target species. To enforce a prohibition against exceeding a transferable target species or PSC allocation, NMFS must demonstrate that the quota holder had catch amounts that exceeded the allocation. Supporting a quota overage case for target species or PSC that could be discarded at sea from an unobserved vessel requires NMFS to rely on either industry reports or estimated catch based on discard rates from other similar observed vessels. These indirect data sources create additional challenges to NMFS in an enforcement action. In addition, the smaller the pool from which to draw similar observed vessels and trips, the more difficult it is to construct representative at-sea discard and PSC rates for individual unobserved vessels.

Inshore processors receiving deliveries of Bering Sea pollock are in the full coverage category because of the need to monitor and count salmon under transferable PSC allocations.

1.1.2. Partial Coverage

The partial coverage category (50 CFR 679.51(a)) in the Pacific halibut and groundfish fisheries off Alaska includes the following:

- Catcher vessels designated on a Federal Fisheries Permit when directed fishing for groundfish in federally managed or parallel fisheries, except those in the full coverage category.
- Catcher vessels when fishing for halibut individual fishing quota (IFQ) or sablefish IFQ (there are no PSC limits for these fisheries).
- Catcher vessels when fishing for halibut CDQ, fixed-gear sablefish CDQ, or groundfish CDQ using pot or jig gear; or catcher vessels less than or equal to 46 ft. LOA using hook-and-line gear fishing for groundfish.
- Catcher/processors that meet criteria that allows assignment to the partial coverage category.
- Shoreside or stationary floating processors, except those in the full coverage category.

Each year, NMFS prepares an Annual Deployment Plan (ADP) that describes the science-driven method for deployment of observers and EM systems to support statistically reliable data collection in the partial coverage category. Table 1-1 summarizes the partial observer coverage sampling strata that have been implemented through the ADP process since 2013.

1.2. Annual Planning and Reporting Process

Amendments 86/76 established an annual process of 1) developing an Annual Deployment Plan (ADP) that describes plans and goals for observer and EM systems deployment in the partial coverage category in the upcoming year, and 2) preparing an annual report providing information and evaluating performance in the prior year.

The ADP describes how observer coverage and EM systems will be assigned to vessels and processors in the partial observer coverage category in the upcoming year. NMFS develops each ADP in consultation with the Council after reviewing an evaluation of deployment performance for the previous year. NMFS and the Council created the ADP process to provide flexibility in the deployment of observers and EM to gather reliable data for estimation of catch in the groundfish and halibut fisheries off Alaska. The ADP process ensures that the best available information is used to evaluate deployment, including scientific review and Council input, to annually determine deployment methods.

In general, the timing of the ADP process enables the Council and its Advisory Panel and Scientific and Statistical Committee to review the analysis used to prepare the draft ADP as well as Plan Teams and Fishery Monitoring Committees recommendations and any input from the public in September and October of each year. In December, NMFS completed the ADP for the upcoming year by determining the final deployment design and computing the selection rates using a refined estimate of the total budget and expected fishing effort. NMFS also evaluates whether the Environmental Assessment (EA) prepared for Observer Program Restructuring (NPFMC and NMFS 2011) needs to be supplemented for the ADP. In 2014, NMFS prepared a Supplementary Information Report explaining why the EA did not need to be supplemented. In 2015, NMFS prepared a Supplemental Environmental Assessment (NMFS 2015) in response to a Court Order to consider whether the restructured Observer Program would yield reliable, high-quality data given likely variations in costs and revenues.

The annual report provides descriptive information, analysis, and recommendations based on observer deployment in the previous year. An important component of the annual report is to evaluate deployment performance including statistical evaluation of the deployment of observers and EM in the previous year. The purpose of the deployment performance review is to evaluate whether observer and EM deployment and monitoring goals detailed in regulation and the ADP were achieved and to identify recommendations for future observer and EM deployment to promote the collection of data necessary to conserve and manage the groundfish and halibut fisheries. The annual report is an important source of information in developing the proposed ADP for the next year and informing potential regulatory changes to the Observer Program. NMFS presents the annual report to the Council (including the Council's Monitoring Committees, Advisory Panel, and Scientific and Statistical Committee) and to the public in June of each year. The Council may recommend adjustments to observer deployment to prioritize data collection based on conservation and management needs. The Council and public provide input to NMFS on the annual report and ADP. This input may be factored into the evaluation of the partial coverage sampling design, the next annual report, or other reports or analyses for the Council.

1.3. Summary of the 2024 Annual Deployment Plan

1.3.1. Draft 2024 ADP and Partial Coverage Cost Efficiencies Analysis

In October 2023, NMFS presented the draft 2024 ADP (NMFS 2023a) that provided an evaluation of alternative, scientifically robust, cost-effective sampling plans. The analysis was a result of multiple years' work and was initiated based on input from the Council that its highest priority moving forward was to improve cost efficiency in the partial coverage component of the program. The Council requested work focused on ways to improve cost efficiencies and to integrate changes into the observer program, including incorporating regulatory changes required by the Pacific Cod Trawl Cooperative (PCTC) and the incorporation of Trawl EM.

The overarching goal of the ADP is a fishery monitoring design that balances statistically rigorous data collection with minimizing the impacts on fishing operations while maximizing the amount of sampling conducted under a given budget. The total budget available for the partial coverage program is determined by the fee percentage and the resulting revenue from the fees that are collected. As such, the analysis in the draft 2024 ADP focused on the cost per unit of monitoring as opposed to dynamic total annual cost of the program and the intent is to collect the best and most data for a given budget.

The evaluation in draft 2024 ADP, included several stratification methods (ways to divide the sample population of trips into groups, or strata) and allocation approaches (how much to sample in each stratum) and provided recommendations for the appropriate sampling plan for deployment in 2024 and beyond, that meets NMFS's data collection mandates. The analysis evaluated the trade-offs between different monitoring designs, including:

- Relative per unit cost efficiency of each design.
- Statistical efficiency of each design.
- Relative impact on data quality (e.g., timeliness, ability detect rare events).
- Relative scalability of each design.

The Council reviewed the draft 2024 ADP and associated Plan Team and PCFMAC recommendations. Based on input from its advisory bodies and the public, the Council provided recommendations for the final 2024 ADP. Between October and November, NMFS incorporated input, to the extent possible, finalized the 2024 budget, and estimated the anticipated fishing effort in order to develop the final ADP.

1.3.2. Final 2024 ADP

In November 2023, NMFS released the final 2024 ADP (NMFS 2023b) that created a stratification definition based on monitoring method (Observer, EM Fixed Gear, EM Trawl) and Fishery Management Plan (FMP) area (BSAI, GOA), and gear that combines hook-and-line and pot gear (Fixed, Trawl).

The final ADP implemented the Proximity allocation method to deploy observers and EM (NMFS, 2023b). The Proximity allocation method is designed to spread sampled trips throughout the fisheries to increase the proportion of trips that are sampled or near a sampled neighbor and to be consistent between strata within a specified budget, while also protecting against small sample sizes within a stratum. As such, the Proximity allocation method is precautionary with respect to obtaining data from all types of fishing activity (decreasing data gaps) while protecting against high variance associated with low sample sizes. This allocation method was applied to all sampled strata (i.e., does not apply to zero selection stratum) except the trawl EM category.

The trawl EM category was composed of all trips fished under an Exempted Fishing Permit (EFP) to evaluate the efficacy of EM on pollock catcher vessels using pelagic trawl gear in the Bering Sea and Gulf of Alaska. The goal for the trawl EM program is compliance monitoring of maximized retention to ensure that shoreside observers have access to complete, unsorted trip-level catch to account for PSC catch and to sample for biological data collection. Catch accounting for the vessel's catch and bycatch was done via eLandings reports and shoreside plant observers. For the Trawl EM strata in the GOA, in 2024, NMFS implemented a sampling rate of EM deliveries by shoreside fishery observers of 33%. In the BSAI, NMFS implemented full coverage sampling so that all offloads from Trawl EM trips could be sampled for salmon, halibut, and biological data.

There were 10 sampling strata implemented in 2024 (Table 1-1). Selection rates (rounded to the nearest whole number) were:

- **Observer Trip Selection**
    - Fixed-gear BSAI - 44%
    - Fixed-gear GOA - 13%
    - Trawl BSAI - 72%
    - Trawl GOA - 21%
- **Fixed-Gear EM trip selection**
    - Fixed-gear EM GOA - 24%
    - Fixed-gear EM BSAI - 74%
- **Trawl EM**
    - Trawl EM GOA - 33% shoreside monitoring, plus 100% EM coverage at-sea
    - Trawl EM BSAI - 100% shoreside monitoring, plus 100% EM coverage at-sea
- **Zero Coverage - 0%**
- **Observer full coverage - 100%**

Table 1-1-- Sampling strata and selection pools in the partial coverage category from 2013 to the present. The partial coverage selection rates set through the Annual Deployment Plan are noted and the realized coverage rates evaluated in each Annual Report are noted in parentheses. PreIm = Pre- implementation, prior to a fully regulated program; CP = catcher/processor vessel; CV = catcher vessel; GOA= Gulf of Alaska; BSAI = Bering Sea and Aleutian Islands; H&L = hook-and-line gear; LOA = vessel length overall.

<table>
<tr><th rowspan="2">Year</th><th colspan="5">Observer Trip Selection</th><th colspan="2">Fixed-Gear EM trip selection pool</th><th colspan="2">Trawl EM</th><th>Observer vessel selection pool</th><th colspan="2">No selection pool</th></tr>
<tr><th colspan="4">Trip-selection across all ports</th><th>Port-based Trip Selection*</th><th colspan="2">EM required on randomly selected</th><th colspan="2"></th><th></th><th colspan="2">Observer coverage not required</th></tr>
<tr><td>2025</td><td>Fixed-gear BSAI: 20%</td><td>Fixed-gear GOA: 6%</td><td>Trawl BSAI: 40%</td><td>Trawl GOA: 15%</td><td rowspan="4">n/a</td><td>Fixed-gear EM GOA: 11%</td><td>Fixed-gear EM BSAI: 48%</td><td colspan="2">GOA and BSAI:
100% shoreside monitoring + 100% at- sea EM</td><td rowspan="5">n/a</td><td colspan="2" rowspan="3">Vessels <40’ LOA and Jig gear</td></tr>
<tr><td>2024</td><td>Fixed-gear BSAI: 44% (48%)</td><td>Fixed-gear GOA: 13% (12%)</td><td>Trawl BSAI: 72% (80%)</td><td>Trawl GOA: 21% (22%)</td><td>Fixed-gear EM GOA: 24% (23%)</td><td>Fixed-gear EM BSAI: 74% (49%)</td><td rowspan="3">GOA: 33% shoreside monitoring + 100% at-sea EM</td><td rowspan="3">BSAI: 100% shoreside monitoring + 100% at-sea EM</td></tr>
<tr><td>2023</td><td colspan="2">Trawl: 22.7% (32.3)</td><td colspan="2">H&L: 17.9% (19.4)</td><td>Pot: 17.1% (17.8)</td><td colspan="2" rowspan="4">Fixed gear (H&L and Pot) EM: 30%</td></tr>
<tr><td>2022</td><td colspan="2">Trawl: 29.7%
(29)</td><td colspan="2">H&L: 19% (14.6)</td><td>Pot: 17.5%
(18.1)</td><td colspan="2" rowspan="3">Vessels <40’ LOA and Jig</td><td rowspan="3">EM Innovation</td></tr>
<tr><td rowspan="3">2021</td><td colspan="5">Sep. 1 - Dec. 31:
Trawl: 21% (28.2) H&L: 18% (17.2) Pot: 18% (20.5)</td><td>Deployment in all ports</td></tr>
<tr><td colspan="5">Jan. 1 - Aug. 31: Limited waivers due to COVID-19</td><td>Deployment in 13 ports</td></tr>
<tr><td colspan="5">Mar. 26 - Jun. 30: Waivers issued due to</td><td>Deployment</td></tr>
</table>

<table>
<tr><th rowspan="2">Year</th><th colspan="6">Observer Trip Selection</th><th colspan="2" rowspan="2">Fixed-Gear EM trip selection pool
EM required on randomly selected</th><th colspan="2" rowspan="2">Trawl EM</th><th rowspan="2">Observer vessel selection pool</th><th colspan="2" rowspan="2">No selection pool
Observer coverage not required</th></tr>
<tr><th colspan="5">Trip-selection across all ports
Observer coverage required on all randomly selected trips</th><th>Port-based Trip Selection*</th></tr>
<tr><td rowspan="3">2020</td><td colspan="5">COVID-19</td><td>in 13 ports</td><td rowspan="4" colspan="2"></td><td rowspan="3"></td><td rowspan="4"></td><td rowspan="4">gear</td><td rowspan="4">Research
2-4 vessels</td></tr>
<tr><td colspan="5">Mar. 26 - Jun. 30: Waivers issued due to COVID-19</td><td>Deployment in Kodiak only</td></tr>
<tr><td colspan="5">Jan. 1 – Mar. 25:
Trawl: 20% (22.4) H&L: 15% (13.4) Pot: 15% (15.5)</td><td>Deployment in all ports</td></tr>
<tr><td>2019</td><td>Trawl: 24% (25.2)</td><td>Trawl Tender: 27% (35.7)</td><td>H&L: 18% (17.6)</td><td>Pot: 15% (14.0)</td><td>Tender Pot: 16% (29.5)</td><td rowspan="4">n/a</td><td rowspan="3">n/a</td></tr>
<tr><td>2018</td><td>Trawl: 20% (20.3)</td><td>Trawl Tender: 17% (35.0)</td><td>H&L: 17% (15.5)</td><td>Pot: 16% (15.5)</td><td>Tender Pot: 17% (29.0)</td><td>H&L EM: 30%</td><td>Pot EM PreIm: 30% (not used in catch accounting)</td><td>Vessels <40’ LOA and Jig gear</td><td>EM Innovation Research
2-4 vessels</td></tr>
<tr><td>2017</td><td>Trawl: 18% (20.7)</td><td>Trawl Tender: 14% (18.8)</td><td>H&L: 11% (12.0)</td><td>H&L Tender: 25% (0)</td><td>Pot: 4% (7.7)</td><td>Pot Tender : 4% (5.3)</td><td colspan="2">n/a</td><td>n/a</td><td>EM PreIm
60 vessels</td></tr>
<tr><td>2016</td><td colspan="2">Trawl: 28% (28.0)</td><td colspan="2">H&L: 15% (15.0)</td><td colspan="2">Pot: 15% (14.7)</td><td colspan="2">n/a</td><td>EM PreIm
12 vessels</td></tr>
<tr><td>2015</td><td colspan="3">Large Vessel: 24% (23.4)</td><td colspan="3">Small Vessel: 12% (11.2)</td><td colspan="2"></td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><th rowspan="2">Year</th><th colspan="3">Observer Trip Selection</th><th rowspan="2">Fixed-Gear EM trip selection pool
EM required on randomly selected</th><th rowspan="2">Trawl EM</th><th rowspan="2">Observer vessel selection pool</th><th colspan="2" rowspan="2">No selection pool
Observer coverage not required</th></tr>
<tr><th colspan="2">Trip-selection across all ports
Observer coverage required on all randomly selected trips</th><th>Port-based Trip Selection*</th></tr>
<tr><td></td><td>Trawl CVs, Small CPs, H&L/Pot CVs ≥ 57.5’</td><td>H&L/Pot CVs >40’ and <57.5’</td><td>n/a</td><td></td><td></td><td>n/a</td><td colspan="2"></td></tr>
<tr><td>2014</td><td colspan="3">All Trawl CVs and H&L/Pot vessels ≥ 57.5’ LOA: 16% (15.1)</td><td></td><td></td><td>H&L/Pot CVs >40’ and <57.5’: 12% (15.6)</td><td></td><td>Voluntary EM</td></tr>
<tr><td>2013</td><td colspan="3">All Trawl CVs and H&L/Pot vessels ≥ 57.5’ LOA: 14.5% (14.8)</td><td></td><td></td><td>H&L/Pot CVs >40’ and <57.5’: 11% (10.6)</td><td colspan="2">Vessels <40’ LOA and Jig gear</td></tr>
</table>

*Observer coverage on randomly selected trips in specific ports. This protocol was implemented in response to the COVID-19 pandemic when travel and lodging conditions in specific ports allowed observers to meet and maintain applicable health mandates for deployment into the commercial fisheries.

2. Fees and Budget

2.1. Budget for Partial Coverage Category in 2024

Section 313(d) of the Magnuson-Stevens Act authorizes the creation of the North Pacific Fishery Observer Fund ("Observer Fund") within the U.S. Treasury. This was the eleventh year that fees were collected from the partial coverage fleet. The following section provides information on the amount of fees that accrued on landings made in 2024 that are anticipated to be collected in 2025, as well as the amount of fees collected in 2023 that were obligated to the partial coverage contract to pay for sea days in 2024.

Fee billing statements for 2024 were mailed to 102 processors and registered buyers in January 2025. A total of $3,496,312 in observer fees were billed. At the time of this publication, four processors or registered buyers had not yet paid observer fees totaling $767. To collect delinquent fees, 14 30-day notices were mailed in March and 5 60-day notices were mailed in April. Additional notices will be mailed as needed. Processors submitting late fee payments were charged a one-time administrative fee of $25 plus interest on the observer fees with each notice.

The sequestration of funds initiated under the 2011 Budget Control Act continues to affect the Observer Fund. Each year, the Observer Fund is subject to sequestration, meaning a percentage of the fee revenue is held in the Fund. NMFS tracks sequestered funds and has typically received the previous years sequestered funds, although this did not occur in 2023. NMFS continues to track these expected funds allocations and will continue to work with the U.S. Department of Treasury to receive these.

Table 2-1 describes the amounts from the Observer Fund used to support the observer deployment contract in each fishing year. Revenue from the Observer Fund is also used to support the partial coverage fixed-gear Electronic Monitoring (EM) program consistent with the NMFS Policy Directive on Cost Allocation in Electronic Monitoring Programs. In 2025, the Observer Fund will also be used to support the regulated partial coverage trawl EM program.

2.2. Summary of Fees Collected in 2024

Observer coverage for the partial coverage category is funded through a system of fees based on the ex-vessel value of groundfish and Pacific halibut, with potential supplements from federal appropriations. The observer fee is assessed on landings accruing against a federal total allowable catch (TAC) for groundfish or a commercial halibut quota made by vessels that are subject to federal regulations and not included in the full coverage category. Therefore, a fee is only assessed on landings of groundfish from vessels designated on a Federal Fisheries Permit or from vessels landing IFQ or CDQ halibut or IFQ sablefish. Within the subset of vessels subject to the observer fee, only landings accruing against the federal TAC are included in the fee assessment.[3]

The observer fee equal to 1.65% of the ex-vessel value is assessed on the landings of groundfish and halibut subject to the fee.[4] Ex-vessel value is determined by multiplying the standard price for groundfish by the round weight equivalent for each species, gear, and port combination, and the standard price for halibut by the headed and gutted weight equivalent. The standard ex-vessel

prices used for 2024 fee assessments were published in the *Federal Register* on December 27, 2023 (88 FR 89375).[5] Table 2-2, Table 2-3, and Table 2-4 summarize the observer fees that accrued for 2024. Fees are $882,854 lower than the amount assessed in 2023. The decrease in fees is reflected for halibut, sablefish, and Pacific cod landings. While the drop may result from lower standard prices or lower catch, or a combination of the two, some of the decrease in the Bering Sea/Aleutian Islands is from implementation of the Pacific Cod Trawl Cooperative program, which is in the full coverage category and whose landings are not subject to observer fees. Table 2-5 also summarizes fees by area, but differentiates the type of monitoring the vessel was subject to and which selection pool or strata the vessel was in when the fees accrued. In 2024, trips with at-sea observers contributed $2,017,466 (57.7%) to the fees; those with electronic monitoring $1,225,329 (35.0%), and trips with no monitoring $253,515 (7.3%). The proportion of fees paid by trips with at-sea observers is a decrease from 2023 (67.1%) and is an increase for trips with electronic monitoring (25.7% in 2023).

2.3. Cost

2.3.1. Program Structure

The Fisheries Monitoring and Analysis Division (FMA) at the Alaska Fisheries Science Center (AFSC) oversees the Observer Program and is responsible for a suite of activities that support the overall observer data collection in the groundfish and halibut fisheries in Alaska, inclusive of EM programs which supplement or are used in lieu of observer coverage. FMA has staff located in Seattle, Washington, and in Anchorage, Kodiak and Dutch Harbor, Alaska. The AFSC allocates a budget to FMA each fiscal year to support these activities. FMA staff are responsible for training, briefing, debriefing, and oversight of observers who collect catch data on board fishing vessels and at shoreside processing plants. FMA is also responsible for quality control/quality assurance of observer data and EM, conducting research and development of fishery monitoring technologies, and providing a host of fishery-dependent data products and services.

[3] A table with additional information about which landings are and are not subject to the observer fee is in NMFS regulations at 679.55(c) (CFR 679.55 Observer Fees) and shown on page 2 of an informational bulletin available online at: Observer Fee Collection

[4] Final Rule: Fee Adjustment to 1.65% (85 FR 41424, July 10, 2020). Available online at: 85 FR 41424

[5] Available online at: 88 FR 89375

The FMA Division is organized into a Directorate and five programs: Observer Training and Curriculum Development; Debriefing and Data Quality Control; Information and Monitoring Technologies; and Analytical Services; and Field and Operations Management

Observer Training and Curriculum Development ensures that observers are properly trained and equipped for their deployments. Observers are trained to follow FMA's established data collection procedures while deployed on commercial fishing vessels or stationed at processing facilities. Training materials are updated annually in response to changes in regulations and data needs for fishery management, stock assessment, and ecosystem-based fishery modeling efforts. Training methods are routinely updated to best convey the complex topics and concepts to the observer workforce. Program staff also manage FMA's extensive sampling gear inventory to ensure a sufficient supply for observers throughout the year at all FMA office locations and develop inventory control systems and policies to maintain safety equipment, provide sampling equipment readiness, and monitor equipment losses.

Debriefing and Quality Control assures observers are provided support throughout their deployment and that FMA's established data collection procedures were properly followed during observer deployments. Staff members assist at-sea observers through communications (referred to as in-season advising) through secure software for answering questions, correcting data errors, and ensuring safety concerns are addressed. Data quality control activities, both in-season and post-deployment include data entry, data validation, and observer support, as well as industry, interagency, and interdivisional support. Staff members install and maintain the custom software (ATLAS) which is used to transmit observer information and data, ensure observers are trained on the use and configuration of software, and provide near real-time data quality control and guidance for observers using these systems. In addition, they document and evaluate each observer's data collection methodologies through interviews, electronic vessel surveys, and written descriptions submitted by the observer. Staff conduct data quality control checks on data collected by fishery observers by verifying the accuracy of recorded data, identifying errors, and ensuring observers make the necessary corrections.

Information and Monitoring Technologies develops custom software that supports the recording of fishing effort, location, species composition and biological data collected by fishery observers from North Pacific commercial fisheries. This software enables the transmission, validation, and loading of those data, the editing and reporting of current and vetted data sets; observer logistics and contract management; and the recording of bird and marine mammal data collections for both internal and external use. Staff also support the ingestion of EM data into FMA's data structure and develop data quality control measures within these databases. In collaboration with FMA analysts, staff working under this activity developed and continue to support ODDS which allows vessel owners to register, edit, and close fishing trips. This application was developed with independent modules for FMA management, the partial coverage observer services provider - including the ODDS call center, EM service providers, and each vessel owner.

Analytical Services collaborates with scientists throughout the AFSC to ensure that observer data meet the needs of stock assessment and ecosystem-based fishery modeling efforts. In addition, analysts perform independent research aimed at identifying bias and variances associated with fishery-dependent sampling. Analysts work closely with the Alaska Regional Office and Council staff to ensure that FMA provides relevant, high-quality information for fisheries management and in support of requests from the Council and other stakeholders.

Field and Operations Management runs field stations in Anchorage, Dutch Harbor, and Kodiak to provide support to observers and industry members in-season. Staff strategically stationed in these locations provide a wide variety of assistance in the field including pre-cruise meetings for industry and observers, complete mid-cruise reviews for observers; and refresh observer safety and sampling supplies. The Operations Management Program also oversees the partial coverage deployment and funding to ensure the infrastructure and contracts are in place to meet the observer deployment requirements of BSAI Amendment 86 and GOA Amendment 76. FMA staff provide oversight of the fishery observer services provider contract, serving as the primary point of contact for the contract provider and FMA. The contract provider and FMA staff coordinate with industry, schedule vessel inspections as needed, and participate in decision-making for partial coverage vessels that are selected for coverage but request a release from the requirement.

EM was formed as a unique activity within FMA under Field and Operations Management starting in 2013 and has continued to dedicate staff time to the development and integration of electronic technologies in Alaska fisheries. More information about the EM innovation results is provided in section 3.4.

Division Directorate staff emphasize coordinating and prioritizing resources across programs and activities, as well as managing links between the programs and overall costs. In addition, overall management and supervision of staff, budget, and contracting is required to ensure resources are appropriately allocated and staff understand their responsibilities and priorities. Staff provide advice to support policy development, decision-making, and regulatory and program development by NMFS and the Council. They also provide guidance and advice on policy issues, monitoring programs, and related topics at the regional, national, and international level.

Program Field Offices

The Anchorage Field Office ensures FMA's established data collection procedures were properly followed during observer deployments to commercial fishing vessels and processing facilities as well as provides observers with support in the field during their deployment. Staff assist at-sea observers through in-season advising and mid-cruise debriefings. In addition, they document and evaluate each observer's data collection methodologies through interviews, electronic vessel surveys, and written descriptions submitted by observers, as well as conduct data quality control checks to verify data accuracy by identifying errors and ensuring the observer makes the necessary corrections. Staff maintain an inventory of complete sampling and safety gear sets for observers redeploying directly from the Anchorage office.

The Kodiak Field Office provides support to observers primarily assigned to vessels in the GOA. Support includes conducting pre-cruise briefings with vessel representatives and observers prior to the observer's first trip onboard, conducting mid-cruise debriefings with observers to address any safety concerns on their vessels, reviewing their data collection methodology and recorded data, providing in situ problem resolution, and issuing sampling and safety equipment. In. addition, staff receive, track, and ship biological samples that are collected by observers in support of resource management, scientific research, and observer training. Staff also serve as the primary FMA contact for observed vessels and processing facilities in the GOA and therefore played a key role in coordinating on the GOA portion of the pelagic trawl EM exempted fishing permit beginning in 2020 and continuing through 2024.

The Dutch Harbor Field Office provides support primarily to observers assigned to vessels in the Bering Sea and Aleutian Islands. Support includes conducting pre-cruise briefings with vessel representatives and observers prior to the observer's first trip onboard, conducting mid-cruise debriefings with observers to address any safety concerns on their vessels, reviewing data collection methodology and recorded data, providing in situ problem resolutions, and issuing sampling and safety equipment. In addition, staff conduct observer sample station and scale inspections on board commercial fishing vessels to ensure the sample stations meet the standards required in federal regulations. Staff also serve as the primary FMA contact for observed vessels and processing facilities in the Bering Sea and Aleutian Islands and have supported the BSAI portion of the pelagic trawl EM EFP beginning in 2020 and continuing through 2024.

2.3.2. Contract Costs for Partial Coverage

NOAA's Acquisition and Grants Office (AGO) secures and administers contracts for NMFS. FMA staff participate in contracting by initiating requirements documents, providing funding, and participating in the contract review and award process through formal source evaluation boards. The processes for federal contracts follow the Federal Acquisition Regulations (FAR) and Commerce Acquisition Regulations (CAR). NMFS receives legal guidance on the FAR and CAR through NOAA contract attorneys and AGO staff.

After NOAA awards a contract, FMA staff participate by assigning a Contracting Officer Representative (COR) to the contract. The COR provides direct technical oversight of the contract by monitoring contract performance, identifying and resolving operational issues, and reviewing and approving invoices. While FMA is directly involved in day-to-day contract management through its assigned COR, NOAA retains full authority over the contract through their appointed Contract Officer (CO). The NOAA CO can modify, extend, cancel, and award contracts.

Contracts for observer services are awarded through a competitive process, allowing any company that provides these services to bid. The observer coverage for the first 2 years (2013 and 2014) of the program was procured through a 2-year contract awarded to AIS, Inc. A second contract was awarded for the subsequent 5 years of the program to AIS, Inc., in April 2015. A third contract was awarded for the subsequent five years of the program to AIS, Inc., in July of 2019. In 2024, a fourth contract was competed and subsequently awarded for up to 5 years of the program to AIS, Inc., in September 2024.

Table 2-1 provides a summary of funds expended and observer days used since 2017. Note that past Annual Reports used funds obligated instead of funds expended to calculate an average sea day cost. An obligation of funds is a legal liability to disburse funds upon receiving the service – in this case the provision of observer coverage. Obligations of funds therefore reflect the potential quantities of service, not the cost of the realized service. Expenditures are the disbursement of funds and are directly related to the service.

In 2024, the average cost per observer sea day in the partial coverage category was $1,638 (based on the cost of $3,809,373 for 2325 observer days). The average cost per observer sea day is a combination of a daily rate, which is paid for the number of days the observer is on a vessel or at a shoreside processing plant, and reimbursable travel costs. Note that travel costs have increased over the years, and the contractor does not have control over these costs. Travel costs are reimbursed as actuals (e.g., transportation) and government established per diem rates (e.g., lodging, meals, and incidental expenses). The contractor also needs to recoup their total costs and profit through the daily sea day rate, which includes costs for days the observers are not on a boat. These days include training, travel, deployment in the field but not on a boat, and debriefing.

The average annual cost per sea day in partial coverage has ranged between $895 and $1,638 since 2014 (Table 2-6). Much of this variation is associated with the total number of sea days used, as the cost of "optional" sea days are less expensive than "guaranteed" sea days under the federal contract. Additionally, there is variation from year-to-year in travel costs which, for Alaska, tend to be higher per trip than other regions of the country.

2.3.3. Costs for Full Coverage

The costs associated with the full coverage category are paid by the commercial fishing industry directly to certified observer providers. This cost structure is sometimes referred to as "pay as you go." The services carried out by observer providers include paying observers, deploying observers to vessels and shoreside processors, recruiting, training and debriefing. There are currently three active certified full-coverage providers in Alaska: Alaskan Observers, Inc. (AOI); Saltwater, Inc. (SWI); and AIS, Inc.

Since 2011, certified observer providers have been required to submit to NMFS copies of all of their invoices for observer coverage. The regulations require the submission of the following:

- vessel or processor name.
- dates of observer coverage.
- information about any dates billed that are not observer coverage days.
- rate charged for observer coverage in dollars per day (the daily rate).
- total amount charged (number of days multiplied by daily rate).
- the amount charged for air transportation.
- the amount charged for any other observer expenses with each cost category separated and identified.

The invoice data were used to calculate the average cost of observer coverage in the full coverage category for 2024. The observer invoice data are confidential under section 402(b)(1) of the Magnuson-Stevens Act. Therefore, summarized information may be provided in this report only when the cost data used in the summary statistic derives from invoices submitted by at least three observer providers. This confidentiality requirement limits the detail of the average cost data that may be reported to the public, as noted below.

Table 2-7 lists total billed vessels/plants, total billed observer coverage days, total costs, and average costs in the full coverage sector for each year 2014-2024.

In 2024:

- 114 vessels and processing facilities were billed for observer coverage in the full coverage. While this represents a slight (2.7%) increase from the 111 that were billed in 2023, it is down 36% from the time-series high of 179 in 2016, and overall this maintains the recent trend that began in 2020, wherein there has been a sharp decrease in the number of vessels carrying full coverage observers. (Note that full coverage EM EFP costs are not reported to NMFS and therefore are not included in invoiced amounts.)
- The total invoiced amount for full coverage observer services in 2024 was $10,908,834, down 7.1% from the 2023 total of $11,741,838 and down 27% from the time-series high of 14,980,340 in 2015; continuing the decreasing trend that began in 2020.
- The total number of observer days represented by these invoices was 26,953[6], a 7.4% decrease from the 29,095 that were billed in 2023 and down 33% from the time-series high of 39,963 in 2015. This continues the overall trend of reduced full observer deployment coverage days that began in 2020.

The continued decrease in billed vessels and the decreases in billed observer coverage days and total costs are in part due to continued expanded participation in the Electronic Monitoring (EM) Exempted Fishing Permit (EFP) by American Fisheries Act pollock catcher vessels in the BSAI. These full-coverage vessels were exempted from carrying an observer during the EFP. While additional observers were deployed to processors that participated in the EM EFP to collect prohibited species and biological data from observer-exempted vessels participating in the trawl EM EFP, the number of vessels that were exempted from carrying an observer greatly outnumbered these additional observers deployed to processing plants.

Thus, the overall costs of observer coverage in full coverage trawl catcher vessel fleets have been greatly reduced by participation in trawl EM. Since 2019 (the year before the trawl EM EFP was implemented in 2020), there has been a 33% decrease in the number of billed vessels and plants, a 26% decrease in the number of billed full coverage days, a 23% decrease in total base costs, a 14% decrease in total incidental costs, and a 22% decrease in fully-loaded costs to the fleet.

[6] This value differs from the total full coverage deployment days calculated by FMA of 26,918 days (see Chapter 4) in part because FMA's method of counting total deployment days for that chapter is computed for the "manual year" (or "fishing year"), which is the timeframe a given observer sampling manual protocol is valid. Manual year 2024 spanned from 27 November 2023 to 22 November 2024. Whereas, full coverage invoice data are produced for the actual calendar year. In addition, occasionally some non-fishing days and non-delivery days are recorded as deployment days by FMA but may not have been invoiced by the Provider.

While some of these costs to vessels have been transferred to the processing plants, the number of observers required to collect biological data at processing plants from EM-registered vessels is fewer than the number of observers required at sea, and costs of providing observers to plants tend to be less than the costs associated with providing observers to catcher vessels[7]. However, it should be noted that observer sampling of pollock deliveries at shoreside processors is not equal to at-sea sampling on vessels in terms of the data outputs that are available to scientists and managers. A detailed description of these differences is outside the scope of this report.

The pollock EM EFP has become a regulated program for 2025 and these cost trends in full coverage are expected to continue into the future.

The average "fully-loaded" cost per day of observer coverage in the full coverage category in 2024 was $405, up 0.2% from 2023 when it was $404, and 5.2% higher than the time-series mean of $385. This 'fully-loaded' average combines invoiced amounts for the daily rate per observer day ("daily cost") plus all other costs for transportation and other expenses ("incidental costs"). The overall average percentage of incidental costs per day to the total cost per day across all gear types and sectors was 11%[8] , flat from 2023, and slightly above the time-series mean of 9.7%.

Previous annual reports have shown figures and data summarizing the average costs to fishing vessels and processing facilities for full coverage observers by vessel type and gear type. In 2024 most full coverage fishery sectors were provided observers by fewer than three observer provider companies and therefore those cost breakdowns have been removed from this report to meet confidentiality requirements. However, two full coverage sectors were covered by at least three companies (non-pelagic trawl CVs and pelagic trawl CVs) and those cost-breakdowns are shown in Table 2-8, along with a summary of the billed days only in each of the other fishery sectors.

More information about the comparison of costs per observer day for full and partial coverage is described in Section 2.4.3.

2.3.4. Costs for Electronic Monitoring

NMFS implemented EM for the purposes of catch estimation on fixed gear vessels 40-57 ft in length. EM costs are dependent on the number of vessels participating in the EM program, the number of systems that need to be purchased and/or replaced on an annual or recurrent basis, deployment rates, field support services, video review, and other factors. The costs of EM includes ongoing costs (EM Service Provider Fees and Overhead; Equipment Maintenance and Upkeep; Data Transmission; Video Review and Storage) and one-time costs (Equipment Purchases and Installation). These costs for the 2024 EM fixed gear program were unavailable at the time of publication.

[7] A detailed cost comparison of full coverage plant vs. full coverage vessel invoices is not provided in this report due to confidentiality restrictions - fewer than three observer provider companies provided observers to shoreside processors in 2024.

[8] Calculated as total incidental costs divided by the total cost of coverage.

2.4. Cost Savings and Efficiencies

2.4.1. Partial Coverage

The current observer service provider contract was awarded on 1 October 2024. The rates that NMFS currently pays the observer services contractor were established through a competitive bidding process. This contract has several components designed to improve efficiency and reduce costs. For example, the new contract requires an hourly rate of 1/24 the fixed price daily rate will be paid for each partial observed sea day completed by the Contractor. A partially observed sea day is one in which the vessel leaves port on or after 00:30 AM or returns to port before 11:30 PM. The contractor is responsible for submitting departure and landing times rounded to the nearest hour, meaning that times ending with minutes 01-29 should be rounded down and times ending with minutes 30-59 should be rounded up.

Similar to the last contract, NMFS included the provision for observers to participate in NMFS fishery-independent surveys using funds made available through AFSC. This allows AIS, Inc., to provide additional work to their employees during the summer season when observer opportunities as part of the ADP are more limited. This provides their employees continuity in employment, additional experience, and may help to reduce employee turnover, thereby increasing overall efficiency. NMFS benefits from trained observers with sea experience to help to conduct their survey fieldwork.

The current observer services contract base year expires 30 September 2025 and has option years available through 30 September 2029.

2.4.2. Full Coverage

The majority of full coverage business is conducted by two of the three NMFS-permitted observer providers. NMFS has implemented regulations that govern the terms of observer deployment (e.g., limiting deployment duration, setting minimum qualifications, requiring specific experience for observers assigned to certain deployments, etc.). Efficiencies could potentially be gained by increasing competition, reducing constraints, or increasing efficiency of activities supported by NMFS.

2.4.3 Full Versus Partial Coverage Costs

There are several factors that impact how comparable the average observer coverage costs per day are between in the partial coverage category and the full coverage category.

- The partial coverage contract is a federal contract between NMFS and the observer provider company, whereas the full coverage observer providers do not operate under a federal contract. Instead, full coverage observer providers are permitted by NMFS and contract observer services directly with vessels and processing plants.
- Federal contracts are subject to Federal Acquisition Regulations, Fair Labor Standards Act, and Service Contract Act requirements, and applicable Department of Labor Wage Rate Determination which establish, among other things, minimum wage and benefits for

observers, including overtime. Some of these same regulations and requirements may also apply to full coverage observer providers depending on the size of the companies.

    - The Service Contract Act (SCA) is applicable to all federally contracted positions, and the Department of Labor sets minimum wages, overtime pay requirements, and fringe benefits including health insurance, paid sick leave, paid vacation, and holiday pay. Some of these same benefits may not be provided under the pay-as-you-go model, where a day-rate pay scale is more frequently used than hourly rates plus benefits. The SCA wage determinations are periodically updated, with the last increase on 30 June 2023. The partial coverage contract holder does not have control over these wage and benefit requirements.

- All travel costs and expenses incurred in partial coverage are reimbursed in accordance with the Government's Travel Regulations. These include specified per diem rates which are paid regardless of actual expenses. Full coverage providers have more flexibility as to how they invoice travel expenses, and can use non-invoiced travel options such as having observers ride a vessel to Alaska and/or be carried aboard a chartered flight paid for by a fishing vessel company.

- The costs associated with the partial coverage component are a daily fee NMFS pays for each sea day, and a reimbursable cost for travel as defined in the NOAA contract. Because NMFS only pays for sea days, the daily rate charged to NMFS must factor in an estimate for the contractor's fixed costs for unobserved days. Note that in 2020-2024, "sea days" include observer days at shoreside processing plants in support of the EM-EFP. Increasing the proportion of time spent at sea or at plants would increase the efficiency of the overall program since it would lower fixed costs to the contractor and allow for a newly negotiated lower daily rate charged to NMFS. Higher coverage rates equate to greater efficiency and lower costs per day, while lower coverage costs equate to lower efficiency and greater costs per day.

- Observers in the partial coverage category are typically deployed out of many small, remote port locations which increases travel and lodging costs. Travel costs are also increased due to the short time frame in which partial coverage observers are required, due to the 72-hour time frame in which partial coverage vessels log trips. This is markedly different from full coverage vessels which may have longer lead time for sailing schedules and operate from fewer ports.

- Observers in the partial coverage category are often only deployed on a vessel for one trip which is significantly shorter (1 to 5 days) than the typical vessel deployment for full coverage observers (60 to 90 days), requiring more travel between vessels.

- Partial coverage by its very nature is less efficient on a cost per unit basis compared to full coverage. This is because partial coverage samples the fleet, such that partial coverage informs NMFS on the entirety of the fleet, whereas full coverage informs NMFS on the harvest aboard that vessel. Partial coverage requires a random selection model to ensure statistically reliable data and predicting where observers will be

deployed and in what amount is difficult with random selection procedures. The risk and uncertainty regarding the number of observed days is borne solely by the partial coverage observer provider and increases costs on a per unit (daily rate) basis.

Despite the inherent differences between the full and partial coverage categories, NMFS is frequently requested to compare these costs. When doing this, the most salient comparison of costs is a "fully loaded" daily rate, which is calculated as the total funds expended divided by the number of observed days.

The fully loaded rate for each year of the partial coverage contract is shown in Table 2-6. For example, in 2024, the fully loaded rate was $3,809,373 ÷ 2,325 days = $1,638 per day. This calculation is appropriate for partial coverage since most trips in this category have a similar duration ranging between 1 and 5 days.

The average daily observer rate (variable costs only) for full coverage was approximately $405 per day (Table 2-7). Compared to a partial coverage observer that may be deployed onto multiple vessels for one to five days at a time, an observer deployed onto a full coverage vessel typically boards once and may stay on that vessel for months (up to 90 days). Assuming the costs of paying an observer for a day and maintaining an observer provider infrastructure are constant, the incidental costs are likely to be dominated by travel and temporary housing. These incidental costs as a proportion of the total cost for an observer deployment will decline with increased deployment duration. Therefore, the fully loaded rate of an observer day will also decline with an increase in the number of invoiced days for a given vessel in a given month. We can illustrate this phenomenon using the full coverage invoice database maintained by FMA (Fig. 2-1). The per-day base rate for observer coverage per permitted provider is known. Therefore, this value multiplied by the total number of invoiced days yields the total base invoice cost. Since the total invoice amounts are known, a subtraction of the total base invoice from the total invoice amount will either yield a zero, or a positive value. Only those invoices that included travel costs and therefore "fully loaded" and were considered further. The fully loaded invoice value was divided by the number of days on the invoice, yielding a fully loaded daily rate for each invoice. The fully loaded rate as a function of the total number of observed days in the invoice (Fig. 2-1) does in fact decline as expected: for the first 3 days, the median fully-loaded daily cost is near or more than double the overall average fully-loaded daily costs as presented in Table 2-7. The average fully-loaded full coverage daily costs as presented in Table 2-7 are therefore dominated by long deployments which as previously noted are the norm in full coverage and greatly reduce overall costs.

Additionally, full coverage observer costs have not kept up with recent inflation rates. We can illustrate this by comparing the "expected" costs per day - calculated by applying the average inflation rate for each year[9] to the 2014 daily costs as the baseline - to the "actual" costs per day (Fig. 2.2). While the actual "incidental" costs in full coverage have generally followed the expected inflation-adjusted value (with the exception of 2020 when travel and between-vessel lodging costs were intentionally minimized due to vessel fidelity strategies during the COVID-19

[9] Inflation rate source: U.S. Bureau of Labor Statistics (https://www.bls.gov/cpi/data.htm).

pandemic), the actual "base" (daily) costs have increased much more slowly through the time-series, with relatively small increases even during the recent strong inflation years of 2021-2023. Fluctuations in incidental costs such as flights and hotels tend to be outside of an observer provider's control and will naturally increase with inflation, whereas the base costs are more within the providers' control since they reflect the rate they charge each vessel/plant for an observer day. In contrast, partial coverage daily costs - which as previously noted are subject to periodic Service Contract Act wage determination updates - have increased along with inflation. This factor must be taken into account when comparing full coverage and partial coverage costs over time.

2.5. Response to Council and SSC Comments

2023 Annual Report, June 2024

Future annual reports should include the cost and number of full coverage observer days in the executive summary.

- *Cost and day summaries of full coverage days were added to the executive summary.*

Table 2-1-- Summary of the fees and federal funding for partial coverage observer sea days from 2013 to 2024.

Calendar year	Funding category	Observer fees received	Funds sequestered	Prior year sequester funds received	Funds obligated to contract	Observer sea days at start of the year	Observer sea days purchased during year	Total observer sea days used during year
2013	Fees					4,535	1,913	3,533
	Federal Funds				$1,885,166			
2014	Fees	$4,251,452	($306,105)		$3,044,606	2,915	4,368	4,573
	Federal Funds				$1,892,808			
2015	Fees	$3,451,478	($251,958)	$306,105	$3,058,036	2,710	5,330	5,318
	Federal Funds				$2,700,000			
2016	Fees	$3,775,522	($256,735)	$251,958	$5,144,983	2,722	5,277	4,749
	Federal Funds				$390,800			
2017	Fees	$3,592,750	($247,900)	$256,735	$3,542,196	3,322	5,285	2,591
	Federal Funds				$1,398,531			
2018	Fees	$3,799,560	($250,771)	$247,900	$2,396,040	5,858	2,350	3,207
	Federal Funds				$0			
2019	Fees	$3,244,801	($201,178)	$250,771	$997,845	5,001	4,600	3,316
	Federal Funds				$412,307			
2020	Fees	$2,894,448	($170,772)	$201,178	$4,990,546	2,266	5,784	1,977[10]
	Federal Funds				$1,905,169			

[10] Includes sea days, shoreside processing plant days, and quarantine days.

2021	Fees Federal Funds	$3,043,516	($140,267)	$170,798	$1,841,346 $814,654	3,680[11]	Confidential	3,193
2022	Fees Federal Funds	$3,073,779	(178,802)	$ 0[12]	$1,484,481 $905,000	1,014	Confidential	2,968
2023	Fees Federal Funds	$3,728,622	($225,378)	$ 0[12]	$3,024,427 $810,973	2528	Confidential	3126
2024	Fees Federal Funds	$3,993,888	Not available	$ 0[12]	$4,410,367 $0	2062	Confidential	2,325

[11] For 2021, NMFS modified the contract to move funds from sea days to travel. This modification reduced available sea days for the start of the fishing year.

[12] Prior year sequestered funds were not yet made available at the time of this report. NMFS continues to track the status of these funds

Table 2-2-- Observer fees[13] in 2024 by gear, vessel size category, and species or species group for all areas combined.

Gear	Vessel Length Category	Halibut	Sablefish	Pacific Cod	Pollock	All Other Species	Total All Species
Hook and Line	<40	$216,056	$4,916	$7,541	$1	$386	$228,901
	40 - 57.5	$546,805	$115,864	$20,966	$3	$3,792	$687,431
	>57.5	$591,390	$79,434	$2,474	$0	$2,986	$676,283
	Gear Subtotal	$1,354,251	$200,215	$30,981	$4	$7,165	$1,592,615
Jig	<40	$680	$1	$85	$0	$3	$769
	40 - 57.5	$1,309	$0	$1,346	$0	$154	$2,809
	Gear Subtotal	$1,989	$1	$1,431	$0	$157	$3,577
Pot	<40	$0	$19,193	$414	$0	$2	$19,609
	40 - 57.5	$148	$278,333	$9,032	$0	$786	$288,300
	>57.5	$1,317	$585,082	$249,229	$0	$2,632	$838,261
	Gear Subtotal	$1,465	$882,608	$258,675	$0	$3,421	$1,146,169
Trawl	>57.5	$0	$1,334	$112,941	$614,606	$25,069	$753,950
	Gear Subtotal	$0	$1,334	$112,941	$614,606	$25,069	$753,950
Total All Gear		**$1,357,705**	**$1,084,157**	**$404,028**	**$614,610**	**$35,811**	**$3,496,312**
Percent by Species		**39%**	**31%**	**12%**	**18%**	**1%**	**100%**

Rounding error sometimes results in slight differences in row and column totals.

[13] The unpaid portion of the observer fees are included. Administrative fees and interest charged for late fee payments are not included

Table 2-3-- Observer fee[14] in 2024 by gear, vessel size category, and species or species group in the Gulf of Alaska.[15]

Gear	Vessel Length Category	Halibut	Sablefish	Pacific Cod	Pollock	All Other Species	Total All Species
Hook and Line	<40	$195,348	$4,816	$7,541	$1	$386	$208,092
	40 - 57.5	$499,437	$113,056	$20,964	$3	$3,743	$637,203
	>57.5	$502,066	$76,613	$2,413	$0	$2,965	$584,057
	Gear Subtotal	$1,196,851	$194,484	$30,918	$4	$7,095	$1,429,352
Jig	<40	$680	$1	$85	$0	$3	$769
	40 - 57.5	$1,309	$0	$1,346	$0	$154	$2,809
	Gear Subtotal	$1,989	$1	$1,431	$0	$157	$3,577
Pot	<40	$0	$13,522	$414	$0	$2	$13,938
	40 - 57.5	$147	$257,244	$3,349	$0	$179	$260,919
	>57.5	$623	$542,187	$80,286	$0	$835	$623,932
	Gear Subtotal	$771	$812,953	$84,049	$0	$1,017	$898,789
Trawl	>57.5	$0	$1,315	$93,126	$614,198	$25,069	$733,708
	Gear Subtotal	$0	$1,315	$93,126	$614,198	$25,069	$733,708
Total All Gear		**$1,199,610**	**$1,008,753**	**$209,524**	**$614,202**	**$33,337**	**$3,065,426**
Percent by Species		**39%**	**33%**	**7%**	**20%**	**1%**	**100%**

Rounding error sometimes results in slight differences in row and column totals.

[14] The unpaid portion of the observer fees are included. Administrative fees and interest charged for late fee payment are not included.

[15] The Gulf of Alaska includes Pacific halibut regulatory areas 2C, 3A, and 3B; and sablefish regulatory areas Western GOA, Central GOA, West Yakutat, and Southeast Outside

Table 2-4-- Observer fees[16] in 2024 by gear, vessel size category, and species or species group in the Bering Sea/Aleutian Islands.[17]

Gear	Vessel Length Category	Halibut	Sablefish	Pacific Cod	Pollock	All Other Species	Total All Species
Hook and Line	<40	$20,708	$101	$0	$0	$0	$20,809
	40 - 57.5	$47,368	$2,808	$2	$0	$49	$50,228
	>57.5	$89,324	$2,821	$61	$0	$21	$92,227
	Gear Subtotal	$157,400	$5,730	$63	$0	$70	$163,263
Pot	<40	$0	$5,671	$0	$0	$0	$5,671
	40 - 57.5	$1	$21,090	$5,683	$0	$607	$27,380
	>57.5	$694	$42,895	$168,943	$0	$1,797	$214,329
	Gear Subtotal	$695	$69,655	$174,626	$0	$2,404	$247,380
Trawl	>57.5	$0	$19	$19,815	$408	$0	$20,243
	Gear Subtotal	$0	$19	$19,815	$408	$0	$20,243
Total All Gear		**$158,095**	**$75,405**	**$194,504**	**$408**	**$2,474**	**$430,886**
Percent by Species		**37%**	**17%**	**45%**	**<1%**	**1%**	**100%**

Rounding error sometimes results in slight differences in row and column totals.

[16] The unpaid portion of the observer fees are included. Administrative fees and interest charged for late fee payment are not included.

[17] The Bering Sea/Aleutian Islands includes Pacific halibut regulatory areas 4A, 4B, 4C, and 4D; and sablefish regulatory areas Bering Sea and Aleutian Islands

Table 2-5-- Observer Fees[18] in 2024 by monitoring type, strata or selection pool, and area.[19]

Monitoring	Strata/Selection Pool	GOA	BSAI*	All Areas*
At-Sea Observers	Fixed Gear	$1,441,524	$314,279	$1,775,803
	Trawl	$241,420	$20,243	$261,663
	Observer Trip Selection	$1,682,944	$334,522	$2,017,466
Electronic Monitoring	Fixed Gear EM	$663,158	$69,884	$733,042
	Trawl EM	$492,288	$0**	$492,288
	EM Subtotal	$1,155,445	$69,884	$1,225,329
No Monitoring	No Selection	$227,036	$26,479	$253,515
All Monitoring	**All Partial Coverage**	**$3,065,426**	**$430,885**	**$3,496,310**

* Observer fees (< $2) accidentally charged on a full coverage trip have been excluded from this summary.

** Under the Trawl EM Exempted Fishing Permit in the full coverage fisheries in the BSAI, vessels and shoreside processors were not subject to the partial coverage observer fee. They were responsible for purchasing their EM equipment and paid for video review using direct Industry funds and National Fish and Wildlife (NFWF) grants. Beginning with the regulated program in 2025, an EM review fee will be assessed in the full coverage trawl EM fisheries.

[18] The unpaid portion of observer fees are included. Administrative fees and interest charged for late fee payments are not included.

[19] The Gulf of Alaska includes Pacific halibut regulatory areas 2C, 3A, and 3B; and sablefish regulatory areas Western GOA, Central GOA, West Yakutat, and Southeast Outside. The Bering Sea/Aleutian Islands includes Pacific halibut regulatory areas 4A, 4B, 4C, and 4D; and sablefish regulatory areas Bering Sea and Aleutian Islands.

Table 2-6-- Average annual observer partial coverage sea day costs from 2014 to 2024.

Year	Funds expended	Number of observer sea days realized	Average sea day cost
2014	$4,937,414	4,573	$1,080
2015	$5,758,268	5,318	$1,083
2016	$4,186,303	4,677	$ 895
2017	$3,146,111	2,749	$1,144
2018	$4,425,144	3,207	$1,380
2019	$4,342,098	3,316	$1,309
2020	$2,729,486	1,977	$1,381
2021	$4,448,612	3,193	$1,393
2022	$4,428,624	2,968	$1,492
2023	$4,801,704	3,126	$1,536
2024	$3,809,373	2,325	$1,638

Table 2-7-- Annual observer full coverage costs, 2014 to 2024.

	Fleet-wide Sum Totals					Averages Per Coverage Day		
Year	**Billed vessels and plants**	**Billed Full Coverage Days**	**Base daily costs**	**Incidental costs**	**Fully loaded costs**	**Base daily costs**	**Incidental costs**	**Fully loaded costs**
2014	177	39,066	$13,028,325	$1,450,220	$14,478,545	$333	$37	$371
2015	177	39,963	$13,623,614	$1,335,407	$14,980,340	$341	$33	$375
2016	179	38,536	$13,242,003	$1,518,717	$14,760,720	$344	$39	$383
2017	171	37,620	$12,972,358	$1,435,974	$14,408,332	$345	$38	$383
2018	167	36,695	$12,674,251	$1,356,088	$14,030,339	$345	$37	$382
2019	170	36,376	$12,666,376	$1,337,931	$14,004,293	$348	$37	$385
2020	154	39,039	$13,639,974	$984,471	$14,624,445	$349	$25	$375
2021	130	32,565	$11,202,430	$1,102,590	$12,305,020	$344	$34	$378
2022	121	29,069	$10,121,828	$1,347,477	$11,469,305	$348	$46	$395
2023	111	29,095	$10,458,708	$1,283,130	$11,741,838	$359	$44	$404
2024	114	26,953	$9,753,922	$1,154,812	$10,908,834	$362	$43	$405

Table 2-8-- Mean billed observer days, base daily rate, fully-loaded daily rate (including incidental costs), and percent incidental costs per vessel or plant with mean standard error (SE) in each gear and vessel type in the full coverage category in 2024. *Note that costs are only shown for the two trawl catcher vessel (CV) sectors as the Catcher-Processor/Mothership (CP/MS) and PLANT sectors were only covered by two provider companies and therefore do not meet the minimum confidentiality requirements.

Vessel Type	*Gear Type*	*Days (#)*		*Base Daily Rate ($)*		*Fully-Loaded Daily Rate ($)*		*Incidental costs (%)*	
		Mean	*SE*	*Mean*	*SE*	*Mean*	*SE*	*Mean*	*SE*
CP/MS	**Hook-and-Line**	276	19.3						
	Non-Pelagic Trawl	498	31.8						
	Pelagic Trawl	266	31.0						
	Pot	81	57.8						
CV	**Non-Pelagic Trawl**	19	2.2	$403	8.7	$481	8.7	15.7%	1.6
	Pelagic Trawl	24	7.3	$429	14.7	$464	11.2	7.8%	1.4
PLANT	**Shoreside Processor**	312	66.4						

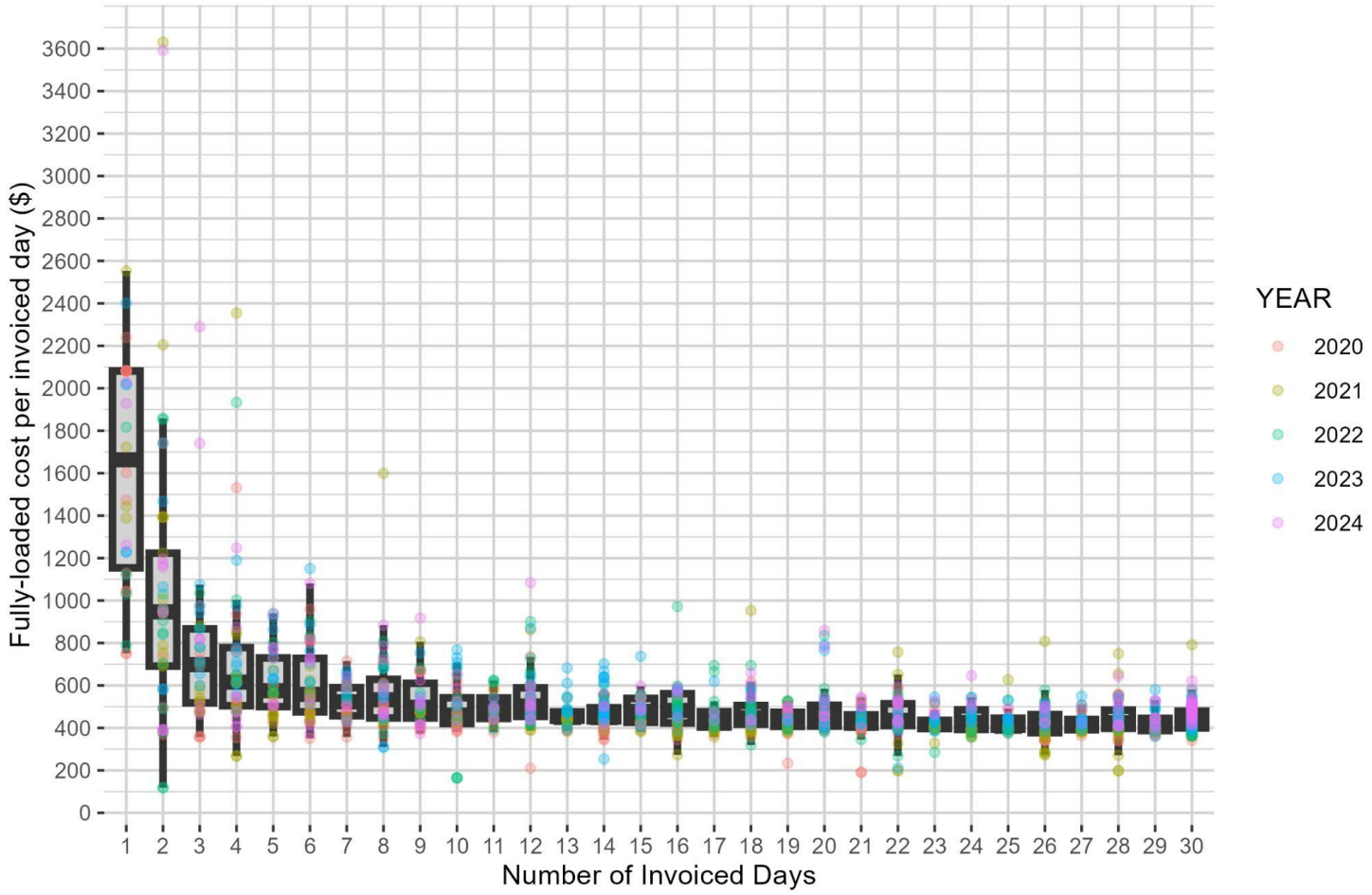

Figure 2-1--Relationship between the fully loaded cost per invoiced day for full observer coverage as a function of the number of days invoiced, which is a proxy for the duration of the deployment. The fully-loaded cost per day is calculated as the invoice total divided by the number of days on the invoice. Includes all vessel/gear types.

Figure 2-2 -- Actual and inflation-adjusted-expected costs per observer day in full and partial coverage, 2014-2024. Actual values are from Tables 2.6 (partial coverage) and 2.8 (full coverage). Expected values are calculated by applying the annual inflation rate each year using 2014 as the baseline. Inflation rate source: U.S. Bureau of Labor Statistics (https://www.bls.gov/cpi/data.htm).

3. Deployment Performance Review

3.1. Introduction

The goal of the Observer Program is to achieve a random deployment of observers and electronic monitoring (EM) into Federal fisheries off Alaska to collect representative data used to estimate catch and bycatch, assess stock status, collect fishery-dependent biological information used in population and ecosystem modeling efforts, and make salmon bycatch stock-of-origin determinations, among other objectives. This chapter contains a review of the deployment of observers and EM in 2024 relative to the intended sampling plan and goals of the final 2024 Annual Deployment Plan (ADP; NMFS 2023b). Consistent with its purpose, this chapter focuses on the randomization of observer and EM deployments into primary sampling units (PSUs) and how departures from a random sample affect data quality. This review identifies where possible biases exist and provides recommendations for further evaluation, including potential improvements to the observer deployment process that should be considered during the development of the 2026 ADP.

This review is performed by staff from the Fisheries Monitoring and Analysis/Analytical Services Program (FMA) of the Alaska Fisheries Science Center (AFSC) and the Sustainable Fisheries Division/Catch Analysis and Data Quality Branch of the Alaska Regional Office (AKRO). Catch and monitoring data from the 2024 calendar year as of 23 April 2025 were used in analyses.

In the past, the Fisheries Monitoring and Science Committee (FMSC) has reviewed the analyses in this chapter and provided recommendations. Their feedback and insights have helped ensure that the analyses in this Chapter remain both scientifically robust and guided by data. However, the Committee was not convened this year due to uncertainty in budgets and staffing, regular communication with AFSC stock assessment staff who sit on the FMSC, and a plan to host a Center of Independent Experts (CIE) review of the ADP process in the second quarter of 2026.

3.1.1. The Sampling Design of the Observer Program

Since 2013, the Observer Program has used a stratified hierarchical sampling design with randomization at all levels (Cahalan and Faunce 2020). Stratification increases the efficiency of sampling by observers and helps address some logistical issues associated with deployment. By grouping similar fishing activities into strata and sampling those strata appropriately, sampling efficiency increases and the estimated variance decreases relative to unstratified sampling. Sampling strata are defined in the ADP and are designed such that each unit of deployment (e.g., trip) is assigned to only one stratum.

Randomization helps ensure that the data collected from a sample will be representative of the entire fishing fleet (observed and monitored trips are equivalent to unobserved and unmonitored

trips within a stratum). In each stratum, observers or EM are deployed randomly to either: (1) vessels for a predetermined period of time (termed 'vessel-selection') or (2) to individual fishing trips or shoreside deliveries of catch (termed 'trip-selection'). In both cases, this initial deployment to the fishery is the first level of the sampling hierarchy and defines the PSU (either vessel-periods or individual trips). The list of all PSUs in a stratum defines the sampling frame and should equate to the population of interest for that sampling stratum (e.g., all trips taken by trawl vessels fishing in the U.S. Exclusive Economic Zone in Alaska). If the sampling frame does not contain all elements of the stratum, the resulting information may be biased. The magnitude and direction of the bias will depend on how different the fishing activities in the sample frame are from actual fishing activity.

Although this chapter evaluates whether monitoring goals were met, we include a brief summary of the full sampling hierarchy here for context. For each observed trip, if all hauls cannot be sampled for logistical reasons, hauls are randomly selected to be sampled. This is the next level in the hierarchy; the secondary sampling units are defined as hauls within a trip. Randomization of haul selection is designed to allow observers time to record and transmit data, attend to other non-sampling responsibilities, and time to sleep and eat. Randomization of haul selection also gives EM video reviewers the ability to optimize the amount of video that can be reviewed from each trip. Haul selection is determined using the random sampling tables and random break tables provided by NMFS. For each haul, regardless of monitoring status, fishing location and effort (e.g., number of hooks) are recorded, while marine mammal and seabird interactions are primarily recorded on hauls randomly selected for monitoring. The ability of EM to capture marine mammal and seabird interactions is less than that of observers due to the fixed location in which EM equipment is installed. Sampling at the haul level does not occur in strata where the PSU is the delivery.

Samples of catch are the third level of the sampling hierarchy. For the randomly selected hauls, a random sample of the catch is collected (at-sea observers) or selected for video review (fixed-gear EM) and data from those samples are used to determine the species composition and amount of discarded catch. In strata where the PSU is the delivery, samples are only used to determine the species composition. While observers are trained to collect multiple large samples of catch, the number and size of samples taken from each haul or delivery will depend on the vessel/plant configuration, fishing/plant operations, and diversity of catch. The size of EM samples is largely determined by the number of video reviewers available relative to the amount of video to be reviewed.

At the fourth level of the sampling hierarchy, a predetermined number of individual fish of predetermined species are randomly selected from the species composition sample and measured. Lastly, at the fifth sampling level, a random selection of fish is used to collect otoliths, reproductive maturity assessments, stomach contents, genetic tissues, and other biological specimens. The number and species of fish selected for measurement and biological specimen

collection is specified each year by the AFSC's stock assessment scientists. Sampling rates for genetic tissue collection by observers (e.g., 1 in 10 Chinook salmon [*Oncorhynchus tshawytscha*] caught as bycatch) are set each year by the AFSC's Auke Bay Laboratories. Sampling at the fourth and fifth levels of the sampling hierarchy does not occur with EM on fixed-gear vessels.

3.1.2. The 2024 Annual Deployment Plan

Although this chapter is focused on the partial coverage component of the fleet, the majority of the catch taken from the Federal waters off Alaska are completely monitored (100%) at the level of the trip or delivery. Vessels and processors in the full observer coverage category must comply with observer coverage requirements at all times when fish are harvested or processed. Specific requirements are defined in regulation at *50 CFR § 679.51(a)(2)*. The full coverage category includes the following:

- Catcher/processors (with limited exceptions).
- Motherships.
- Catcher vessels participating in programs that have transferable PSC allocations as part of a catch share program.
- Catcher vessels using trawl gear that have requested placement in the full coverage category for all fishing activity in the BSAI for one year.
- Inshore processors receiving or processing Bering Sea pollock.

The deployment design for the partial coverage component of the program involves three elements: (1) the selection method to accomplish random sampling; (2) division of the population of partial coverage trips/deliveries into selection strata; and (3) the allocation of deployment among strata.

In 2024, at-sea observers and EM were to be deployed in the partial coverage component using the trip-selection model in all ports throughout Alaska. Trip-selection refers to the method of selecting fishing trips as the sampling unit. Selection of trips was facilitated by the Observer Declare and Deploy System (ODDS) into which vessel operators and owners log their trips and are notified if the trip was selected for coverage.

In 2024, NMFS implemented changes to both the stratification definitions and the allocation strategy (NMFS 2023b). In previous years, strata were defined by the monitoring method (at-sea observer, EM, or none) and the gear type (either hook-and-line, pot, or trawl). The new strata definitions combined hook-and-line and/or pot gear trips together into a single fixed-gear type. Additionally, strata were further defined by the Fisheries Management Plan (FMP) the vessel intended to predominantly fish in — either the Bering Sea and Aleutian Islands (BSAI) or the Gulf of Alaska (GOA). The proximity allocation algorithm was utilized to determine the sampling rates of the partial coverage strata to reduce data gaps and impacts caused by small sample sizes. As an exception, trips by vessels participating in the walleye pollock (*Gadus*

chalcogrammus, hereafter "pollock") Trawl EM Exempted Fishing Permit (EFP) program were not included in the allocation algorithm due to external funding sources for monitoring and its status as an experimental fishery.

Vessels that join the Fixed-gear EM program may log trips in the fixed-gear EM strata. Initiated by the Council in 2018, vessels that join the fixed-gear EM program use EM equipment to capture location and video information followed by human review for species identifications and counts. Weights for catch estimation are supplied from other sources.

The Trawl EM EFP began in 2020, completed in 2024, and applied to trawl catcher vessels fishing with pelagic gear targeting pollock in both the BSAI and GOA. Vessels participating in this EFP used EM equipment to monitor for compliance of maximized retention of catch at sea and shoreside monitoring by observers during the delivery of catch. Vessels were able to opt-out of the EFP on a trip-by-trip basis and instead log trips in the at-sea observer strata. Trawl EM became a regulated monitoring program in 2025. Note that unlike other strata that use the trip as the PSU, the Trawl EM EFP strata instead define the PSU as the shoreside delivery, as that is where the observer applies their sampling design.

The deployment strata for 2024 (with abbreviation and coverage rate rounded to whole number) were defined as:

- Trips by vessels in the full coverage category, but not participating in the Trawl EM EFP (*Full coverage*- 100%).
- Shoreside deliveries by trawl vessels listed under the Trawl EM EFP (using pelagic trawl gear to target pollock) monitored 100% at-sea by EM systems, monitored shoreside by observers, and fishing in the Bering Sea and Aleutian Islands (*EM TRW BSAI [EFP]* - 100% shoreside).
- Trips by fixed-gear vessels (using hook-and-line and/or pot gear) greater than or equal to 40 ft length overall (LOA) monitored with at-sea observers predominantly fishing in the Bering Sea and Aleutian Islands (*OB FIXED BSAI* - 44%).
- Trips by fixed-gear vessels greater than or equal to 40 ft LOA monitored with at-sea observers predominantly fishing in the Gulf of Alaska (*OB FIXED GOA* - 13%).
- Trips by trawl vessels not participating in the Trawl EM EFP monitored with at-sea observers predominantly fishing in the Bering Sea and Aleutian Islands (*OB TRW BSAI* - 72%).
- Trips by trawl vessels not participating in the Trawl EM EFP monitored with at-sea observers predominantly fishing in the Gulf of Alaska (*OB TRW GOA* - 21%).

- Trips by fixed-gear vessels listed under the Fixed-gear EM program monitored at-sea by EM systems and predominantly fishing in the Bering Sea and Aleutian Islands (*EM FIXED BSAI* - 74%).
- Trips by fixed-gear vessels listed under the Fixed-gear EM program monitored at-sea by EM systems and predominantly fishing in the Gulf of Alaska (*EM FIXED GOA* - 24%).
- Shoreside deliveries by trawl vessels listed under the Trawl EM EFP (using pelagic trawl gear to target pollock) monitored 100% at-sea by EM systems, monitored shoreside by observers, and fishing in the Gulf of Alaska (*EM TRW GOA [EFP]* - 33% shoreside).
- Fixed-gear vessels less than 40 ft LOA and vessels fishing with handline, jig, troll and dinglebar troll gear (*Zero coverage* - 0%).

More information on the sampling design used by observers and the relationship between the sample design and catch estimation can be found in Cahalan and Faunce (2020) and the 2024 Observer Sampling Manual (AFSC 2023). Bycatch estimates of Chinook salmon in the GOA are estimated using methods described in Cahalan et al. (2014). In the event that a delivery cannot be monitored (e.g., the case in a tendered delivery from a trip in an *OBS* strata or a non-pollock delivery), then estimation of salmon bycatch comes by applying salmon bycatch rates from monitored trips to landed catch. Estimates of stock of origin from salmon bycatch are produced by the AFSC's Auke Bay Laboratories.

3.1.3. Performance Review Objectives

The following items from the 2024 ADP have been identified as objectives for evaluation in this report:

1. Deploy for the planned number of sea days specified in the 2024 ADP: This objective will be considered to be met if the actual number of sea days expended falls within the range of values from simulated sampling.
2. Deploy at the coverage rates specified in the 2024 ADP: For full and zero coverage, either the rate was equal to 100% or 0%, respectively. For strata under partial selection, coverage selection rates are expected to be within a 95% confidence interval computed from the realized coverage rates (under the assumption of a binomial distribution for observed trips).
3. Collect tissue samples from Chinook and chum (*Oncorhynchus keta*) salmon as specified in the 2024 Observer Sampling Manual to support the goal of collecting genetic samples from salmon caught as bycatch in groundfish fisheries to identify stock of origin: The sampling protocol established in the 2014 ADP (NMFS 2013, Faunce 2015) was used in 2024. Under this protocol, observers on vessels delivering to shoreside processors in the GOA pollock trawl fishery monitor the delivery to enumerate salmon bycatch and obtain

tissues for genetic analysis. For trips in the *OB TRW GOA* stratum that are delivered to tender vessels and trips outside of the pollock fishery, observers obtain salmon counts and tissue samples from all salmon found within at-sea samples of the total catch. For the Trawl EM EFP, 100% of deliveries are monitored in the BSAI and 33.33% of deliveries in the GOA, including those from tenders.

4. Randomize deployment of observers into the partial coverage category of fishing activities: Evaluation of this objective is focused on the randomization of observer and EM deployments into PSUs, and how departures from a random sample affect data quality.

3.1.4. Observer Deployment Performance Metrics

Performance metrics have been developed to assess whether the trip-selection process (through the implementation of the final 2024 ADP) provides a representative sample of fishing trips in the North Pacific in 2024. These metrics reflect four mechanisms that can impact the quality of the data: (1) sample frame discrepancies, (2) non-response, (3) differences in trip characteristics, and (4) sample size.

The performance metrics used in this evaluation are as follows:

1. Deployment rates for each stratum: This is the basic level of evaluation for comparing targeted and achieved sampling rates, where sampling strata are partitions of the entire population about which we want to make inferences (e.g., generate estimates of catch). Specifically, this section assesses the following:

    1.1. Sample rates and number of samples relative to intended values.

    1.2. Quantification of under- and over-coverage rates (sample frame discrepancies). Over-coverage of a population occurs when the sample frame includes elements that are not part of the target population. When these elements are included in the random sample, effort (i.e., time, cost) is expended needlessly. Under-coverage results from having a sample frame that does not include a portion of the target population which can lead to biased sampling if that portion of the population differs from the population included in the sample frame.

    1.3. Non-response rates. Non-response occurs when randomly selected elements (trips or vessels) are not actually sampled. If these trips or vessels have different fishing behavior (e.g., catch, areas fished) than the rest of the population, the data collected will not represent the entire fleet (non-response bias).

2. Representativeness of the sample: Randomized sampling is a method used to ensure that the results of sampling reflect the underlying population. Departures from randomization can lead to non-representative data and hence potential bias in estimates of the parameters of interest. A randomized sample design is expected to achieve a rate of monitored events that is similar across both space and time. Representativeness of the sample was divided into four separate components:

    2.1. Temporal representativeness. Plots of expected and actual monitoring rates over time, highlighting periods when these two rates deviate from each other are indicative of periods with differential realized sample rates (and potential temporal bias).

    2.2. Spatial representativeness. Maps provide a visual depiction of the spatial distribution of monitoring coverage relative to effort in each partial coverage stratum, highlighting areas where more or fewer trips were monitored than expected.

    2.3. Spatiotemporal distribution of coverage. The proportions of sample units monitored or nearby in time and space to monitored trips (the proximity indices) are compared to distributions of simulated outcomes to determine whether the realized coverage was distributed evenly in both time and space and whether the achieved coverage met the expectations of the selection rates prescribed by the final ADP.

    2.4. Representativeness of trip characteristics. Consistency of trip characteristics for monitored and unmonitored portions of the stratum. These metrics are based, in part, on the availability of data for both monitored and unmonitored fishing activities; for example, data that are reported for all trips on landing reports.

Although these metrics can identify places where observed results differ from expectations, it is ultimately a subjective decision as to whether or not these differences are substantial enough to have management implications. This holds true even for tests that have associated *p*-values.

3.2. Changes to This Report from Last Year

As mentioned previously, the strata definitions and allocation methods employed in 2024 differed from previous years. However, the evaluations performed in this chapter are largely unchanged, except as noted below.

- Review timeliness for the *EM FIXED* strata is calculated in addition to data timeliness to account for a NMFS database coding error that lengthened the duration between review and data availability.
- Monitoring rates for the *EM TRW (EFP)* strata are now performed at the level of the delivery, instead of at the level of the trip, as this more accurately represents how these strata are monitored. Trips that delivered their catch to tenders are also now accounted for and summarized as these deliveries are subject to monitoring by observers at shoreside processors.
- Table 3-1 now includes the predicted and actual number of partial coverage trips to assess whether inaccuracies in the predicted fishing effort explains differences in predicted and actual monitored days.
- Summary tables for ODDS (Tables 3-2 and 3-3) are included to help characterize the extent to which monitored trips are randomly selected.
- The analysis of spatial patterns were modified to better characterize whether different regions were over- or under-represented in the random samples rather than the number of observed/reviewed trips in spatial cells.

3.3. Evaluation of Deployment in 2024

The deployment of monitoring into the 2024 Federal fisheries off Alaska is primarily evaluated at the level of the sampling stratum because each stratum is defined by a different sampling rate or by a different monitoring method (e.g., at-sea observers vs. EM). The ODDS is used to determine the strata of logged trips and randomly selects trips for monitoring at the rates prescribed by the final 2024 ADP. Combined with predictions of fishing effort and monitoring costs, the ADP aims to maximize monitoring within budgetary constraints. However, the monitoring expenditures and number of monitored trips in each stratum that are actually realized may differ from the ADP's projections as a result of discrepancies between the expected and realized fishing effort in each stratum and/or the random nature of ODDS. This section compares the final ADP's expectations with the realized outcomes.

3.3.1. Evaluating Effort Predictions

Each year, NMFS sets an annual budget in the final ADP for the deployment of partial coverage at-sea observers in terms of cost and observer days. The partial coverage budget for 2024 was set at $5,819,000, approximately $4.575 M and 2,732 days for at-sea observers and $1.244 M and 1,562 days for the Fixed-gear EM program.

In 2024, FMA paid for 2,324.5 at-sea observer days, which was 14.9% lower than the budgeted value and in the 0.04th percentile of the simulated outcomes in the final 2024 ADP (Fig. 3-1, top

panel). However, the total number of fishing trips in the observed strata was only 2.7% lower than predicted, indicating that the lower-than-expected number of observed days was not due to fishing effort that was lower than anticipated (Table 3-1). Unsurprisingly, with fewer days observed than expected, the expenditures for partial coverage at-sea observers were also under budget by 16.7% (Fig. 3-1, bottom panel). The average cost of a partial coverage observer day in 2024 was only 2.1% less than the cost that was estimated in the final 2024 ADP.

In the *EM FIXED* strata, fishing effort by number of trips was 4.7% higher than anticipated, but the number of sea days reviewed was 13.8% lower than predicted due to temporary staffing shortage of EM video reviewers at PSMFC.

3.3.2. Performance of the Observer Declare and Deploy System in Trip-Selection

The ODDS facilitates the random selection for monitoring in strata and fishers are required to log anticipated fishing trips. The ODDS generates a random number according to the programmed rates from the ADP and assigns each logged trip to either 'selected to be monitored' (selected) or 'not selected to be monitored' (not selected) categories. The ODDS is not used to select which deliveries are to be monitored by shoreside observers for the *EM TRW GOA (EFP)* stratum which is excluded from the following summaries. In addition, trips that requested monitoring to fulfill monitoring requirements when fishing CDQ/IFQ in multiple reporting areas were excluded from this analysis as such trips are not subject to random sampling by ODDS.

Logged trips have different dispositions. When initially logged, trips are considered pending, and subsequently have two dispositions: closed or canceled. A trip can be closed by (1) selecting landing reports from a menu or (2) manually entering the end of trip information for observed trips. The vessel operator may change the dates of a logged trip regardless of selection status prior to, or in lieu of, cancellation. However, trips that have not been closed at the end of the calendar year are automatically canceled by ODDS ('canceled by system') to prevent 2024 ODDS trips from affecting the deployment rates set for the 2025 ADP year. Trips that were selected to be monitored by ODDS that are subsequently canceled trigger the next newly-logged trip (for at-sea observers) or next logged trip (for fixed-gear EM) to automatically inherit the selected status. These trips are termed inherited trips. Note that beginning in 2025, vessel operators in the observed strata are no longer able to cancel logged trips.

The number of trips logged in ODDS in 2024 and their dispositions is summarized in Table 3-2. Of the 4,059 total trips logged, 840 were randomly selected and 80 inherited monitoring from a previously canceled selected trip. In total, 416 (10.2%) were canceled: 208 by ODDS (5.1%) and 208 by users (5.1%). Note that the user cancellation rates between the not selected, randomly selected, and inherited trips differed greatly between strata. The randomly selected trips in the *OB FIXED GOA* stratum were cancelled by users at a rate 5.1× higher than trips that were not selected by ODDS for monitoring.

The number of completed trips that were randomly selected for monitoring or from inherited monitoring, as well as the number of trips that were waived, are summarized in Table 3-3. It is notable that 13.1% of monitored trips in the *OB FIXED GOA* stratum and 11.5% of monitored trips in the *OB TRW GOA* stratum were inherited. This is in contrast to the *EM FIXED* strata where fewer than 3% of monitored trips were inherited. The monitoring inheritance system is necessary to compensate for trip cancellations to achieve the monitoring rates prescribed by the final ADP. However, the monitoring program was designed with the intention of employing a randomized sampling design, and trips with inherited monitoring are not selected randomly.

The extent to which trip-selections are changed from the time they are entered can be determined by comparing the rate of trip monitoring expected from (1) random selection of all logged trips (initial random selection) and (2) random selection of remaining trips after cancellations, inherits, and waivers. The proportion of trips selected to be monitored in either case should fall within what would be expected because each trip is either selected or not selected (binomial distribution). The rates obtained in the initial selection process by ODDS were within expected ranges for all strata (Table 3-4). Moreover, all strata achieved final rates within the expected ranges after waivers. It is worth noting that the *OB FIXED BSAI* stratum had an elevated initial selection rate by ODDS and a high number of trips with inherited monitoring. The *OB FIXED GOA* stratum had a large number of cancellations that was counteracted by a large number of trips with inherited monitoring. A time series of ODDS initial selection rates and final realized rates is presented in Figure 3-2.

3.3.3. Evaluation of Coverage Rates

This section compares the coverage rates achieved against the expected coverage rates. Data used in this evaluation are stored within the Catch Accounting System (CAS; managed by the AKRO), the Observer Program database (NORPAC; managed by the AFSC), and eLandings (under joint management by the Alaska Department of Fish and Game, the International Pacific Halibut Commission, and NMFS). Separate rate evaluations are conducted depending on whether the unit of observer deployment was at-sea fishing trips or dockside deliveries of pollock.

Here, trips in the *EM FIXED* strata are considered successfully monitored if at least some video was reviewed. The rationale for defining monitored trips this way is that it is most similar to the way in which trips in other strata are considered observed (i.e., irrespective of whether or not haul information or usable species composition data were collected). Deliveries in the *EM TRW (EFP)* strata were considered successfully monitored if an observer was able to collect salmon information from a delivery.

In combination across all strata, coverage levels, and fishery monitoring tools, 3,863 trips/deliveries (43.9%) and 421 vessels (48.4%) were successfully monitored among all fishing

in the Federal fisheries off Alaska in 2024 (Table 3-5). This compares to a total of 3,780 trips/deliveries (43.7%) and 463 vessels (50.2%) monitored in 2023 (AFSC and AKRO 2024a).

In 2024, the Observer Program had 10 different deployment strata to evaluate (Table 3-5). There were two *Full coverage* strata; vessels that were required to have full coverage (e.g., AFA vessels and most catcher/processors) and BSAI trawl catcher vessels that opted into full coverage (i.e., *EM TRW BSAI [EFP]* under regulations *50 CFR 679.51(a)(4)*). There were eight partial coverage strata: four observed strata and three EM strata, all defined by FMP and gear designation, and one *Zero coverage* stratum that included jig vessels and vessels under 40 ft LOA that are not monitored.

Evaluations for the full coverage category and zero-selection pool are straightforward — either the coverage achieved was equal to 100% or 0%, respectively, or it was not. The program achieved 99.91% coverage in its *Full coverage* stratum (Table 3-5). One trip was not monitored in the *Full coverage* stratum due to challenges with full coverage requirements (see Appendix C). The program achieved compliance with the *Zero coverage* stratum (Table 3-5).

For the partial coverage strata, under the assumption that the deployment was randomized, a 95% confidence interval computed from the realized coverage rates (assuming a binomial distribution for monitored trips) will contain the actual deployment rate 95% of the time. If expected coverage levels were within the 95% confidence intervals, then we conclude that realized coverage rates did not deviate from expected coverage rates. Trips in the *EM FIXED* strata were considered covered only if the catch data from monitored trips were reviewed by the Pacific States Marine Fisheries Commission (PSMFC).

Coverage rates were consistent with expected values in six of the seven partial coverage strata that are subject to monitoring, indicating that the deployment of monitoring as intended by the final 2024 ADP was largely successful. Coverage rates were lower than expected in the *EM FIXED BSAI* stratum (Table 3-5) due to a temporary understaffing of EM video reviewers.

The coverage rates calculated in this report are based on trips with monitoring information available to analysts in CAS at the time of writing. Data timeliness is the duration between the completion of a trip or delivery and when the data is available to analysts in CAS and is generally very rapid for observed trips. However, data timeliness for EM, and by extension the coverage rate is, in part, based on when data from PSMC is provided to CAS. In 2024 for *EM FIXED BSAI*, the median data timeliness was 36 days and the mean time was 60 days (Fig. 3-3). In 2024 for *EM FIXED GOA*, the median data timeliness was 234 days and the mean time was 229 days (Fig. 3-3).

Data timeliness values for the 2024 *EM FIXED* strata cannot be directly compared to data timeliness values for these strata in prior years, in part because 2024 was the first year in which the *EM FIXED BSAI* and *EM FIXED GOA* strata were used (in contrast to the *EM HAL* and *EM*

POT strata used in prior years). More importantly, data timeliness values for these strata in 2024 should not be compared to prior years because, in the process of compiling this report, we discovered that fixed-gear EM data were missing from CAS. Upon further investigation, we identified and, subsequently fixed, a coding error that prevented those data from being transferred from the AFSC to CAS. Therefore, we have included Figure 3-4, which shows review timeliness for the *EM FIXED* strata. Review timeliness differs from data timeliness in that it describes the time between a trip ending and data being reviewed by PSMFC staff (in contrast to data timeliness, which describes the time between a trip ending and data being available to CAS). In prior years, review timeliness and data timeliness were approximately equal. However, the coding error discovered in the process of compiling this report resulted in a delay between when the trip was reviewed by PSMFC staff and when it appeared in CAS. Thus, review timeliness for these strata is a much better metric than data timeliness. Median and mean review timeliness for *EM FIXED BSAI* was 33 days and 58 days, respectively (Fig. 3-4). Median and mean review timeliness for *EM FIXED GOA* was 26 days and 40 days, respectively. Although the difference between data timeliness and review timeliness was not that large for *EM FIXED BSAI*, most fixed-gear EM trips take place in the *EM FIXED GOA* stratum. Staff at AFSC have remedied the coding error, so we do not expect a similar delay for fixed-gear EM data in 2025.

Although review timeliness for the *EM FIXED* strata cannot be directly compared to data timeliness for these strata in prior years, the terms are similar enough that some conclusions can be made. Review timeliness for these strata in 2024 appears to be much better than data timeliness was in prior years. We attribute this result to the fact that in 2024, NMFS directed PSMFC to prioritize the review of current-year fixed-gear EM trips rather than attempting to finish review of the prior year before beginning on the current year. PSMFC has carried this prioritization forward into 2025, and, with the resolution of the coding error identified in the process of compiling this report, we expect data timeliness for the *EM FIXED* strata to be better in 2025 than it was in 2024.

Note that there are several reasons why the total number of trips and the final monitoring rates presented in this section differ with what was presented earlier within ODDS. As previously mentioned, trips fishing CDQ/IFQ in multiple NMFS areas are required to be monitored and are not randomly selected, thus they were excluded from the evaluation. Additionally, there is no robust link between the ODDS database and eLandings, therefore, trips in ODDS cannot be linked directly to realized landings in eLandings, which inform the trip identification numbers created by CAS. The FMSC has recommended in past reports that this linkage be established. Moreover, ODDS trips are sometimes not logged as required (see Chapter 5, Table 5-3) and records are not created in ODDS after-the-fact. Finally, if *EM FIXED* strata trips are monitored but not reviewed, discrepancies in the realized selection rates and coverage rates will occur.

Coverage Rates for Dockside Monitoring

For this analysis, pollock deliveries in the *OB TRW* strata were defined as any delivery where the predominant species was pollock in eLandings, catch was processed at a shoreside plant, and the management program was AFA (for the BSAI) or Open Access (for the GOA). Pollock deliveries in the *EM TRW (EFP)* strata were defined as any delivery where the vessel was fishing under the Trawl EM EFP, including deliveries to a tender vessel that subsequently offloaded at a shoreside plant. In 2024, 100% of full coverage pollock deliveries were monitored for salmon in both strata, meeting expectations (Table 3-6, Table 3-7).

Evaluations of the partial coverage category for dockside monitoring are not as straightforward as for full or zero coverage. As a matter of policy, no tender deliveries were monitored in the *OB TRW* strata and these deliveries are not included in this chapter. However, tender deliveries in the *EM TRW (EFP)* strata were monitored and are included in reporting. While it may seem intuitive that the expected coverage rate for non-tendered deliveries within the *OB TRW GOA* strata should be equal to the programmed trip selection rate of 20.58%, this assumption is not necessarily true because observers are not deployed specifically into the pollock fishery, but into the entire trawl fishery, and the relationship between the number of deliveries and trips is not expected to be constant, especially when measured across ports. Therefore, we present the dockside monitoring rates for non-tendered *OB TRW GOA* pollock deliveries but make no comparison to the expected deployment rates (Table 3-6). For *EM TRW GOA (EFP)* deliveries, we present dockside monitoring rates for both tendered and non-tendered pollock deliveries which can be compared to expected monitoring rates for shoreside deliveries in the *EM TRW GOA (EFP)* stratum (Table 3-7). In 2024, 35.73% of *EM TRW GOA (EFP)* deliveries were monitored for salmon, meeting expectations.

3.4. Sample Quality

3.4.1. Temporal Patterns in Trip-Selection

The cumulative number of fishing trips in each stratum was multiplied by the stratum-specific selection rate to obtain the expected number of observed trips. Under the assumption that there is no temporal bias in observer coverage, 2.5% of values should be larger than the upper 95% confidence limit and 2.5% should be smaller than the lower limit. At the end of 2024 the number of observed trips was outside of this expected range in one of the seven monitored partial coverage strata: *EM FIXED BSAI* (expected rate = 74.29%, realized rate = 49.28%; Table 3-5 and Fig. 3-5). The *EM FIXED BSAI* stratum was below the expected range for a brief period in July and then for the remainder of the year beginning in August because of a temporary staffing shortage of EM video reviewers at PSMFC. Coverage rates were within their expected ranges for 100% of the year for most other strata, with the exception of *OB FIXED GOA* and *EM FIXED GOA* which were very briefly above the expected range early in the year.

3.4.2. Spatial Patterns in Trip-Selection

Under a random selection of trips and deliveries the spatiotemporal distribution of monitoring in a stratum should reflect the spatiotemporal distribution of all trips in the stratum. The evaluation methods here are adapted from the proximity index described in the 2024 Draft ADP (NMFS 2023a). The proximity index was defined as the proportion of sample units in a stratum that were either monitored or near a monitored sample unit in space and time. By considering sample units that were neither monitored nor neighboring a monitored sample unit as a gap in monitoring, the proximity index quantifies the spatiotemporal extent of monitoring coverage for each stratum, and these results are provided in section 3.4.3. However, the spatiotemporal extent of monitoring can also be summarized spatially within a stratum to indicate whether there were spatial patterns in the distribution of the achieved coverage. The method described below applies to both analyses.

To calculate the proximity index, sample units were placed into spatiotemporal boxes defined by 200-km hexagonal spatial cells (cells) and 1-week time periods. Sample units were allowed to span multiple spatiotemporal boxes and gear types and contribute equally to each box (e.g., a trip that crosses three boxes is counted as 0.33 trips in each box). Sample units were identified as monitored or unmonitored using actual or simulated outcomes. Boxes that either contained a monitored sample unit or were immediately adjacent to a box with a monitored sample unit in both space and time were identified. The number of sample units either inside or adjacent to sample boxes were then summed. Simulations of random sampling were repeated 10,000 times each using the programmed selection rates and realized monitoring rates. The spatial analyses quantified the proportion of sample units in each spatial cell that were either monitored or adjacent to a monitored sample unit, whereas the spatiotemporal analyses calculated this total across the entire stratum (i.e., the proximity index).

Under a random selection of trips and deliveries the spatial distribution of monitored trips should reflect the spatial distribution of all trips. To evaluate whether the actual spatial distribution of monitoring matched what would be expected given the coverage rates that were actually achieved, for each cell, the proportion of sampling iterations that were more extreme than the actual value was calculated to indicate the likelihood of the achieved outcome. By mapping out these deviations, regions where either more or less coverage was achieved than expected are identified.

Spatial biases in the distribution of coverage were not apparent in five of the seven monitored partial coverage strata. Most strata had at least a few spatial cells where the fishing effort was either over- or under-represented by the samples, but no clear spatial patterns were apparent to indicate biases. However, spatial biases were apparent in the *OB FIXED BSAI* and the *EM FIXED BSAI* strata. In both strata, the fishing effort in the eastern Aleutians was not as well-represented by the sampled trips as would be expected from random sampling (Fig. 3-6). Temporal bias in the video review of the *EM FIXED BSAI* stratum contributed to the spatial bias.

3.4.3. Spatiotemporal Distribution of Monitoring Coverage

In the 2024 ADP, the proximity allocation algorithm calculated the expected proximity indices of each stratum as a weighting factor to determine the sample rates necessary to reduce spatiotemporal data gaps. To summarize whether the achieved spatiotemporal extent of monitoring coverage in each stratum met expectations, the proximity indices achieved by monitoring were compared to those derived from sampling simulations. The methods for this analysis were described in the previous section, 3.4.2. Again, the proximity index was calculated as the sum of the sample units that were either monitored or neighboring monitored sample units divided by the total number of sample units in the stratum. Distributions of proximity indices were generated by simulating sampling at both the selection rates programmed into ODDS as well as the coverage rates actually achieved. The proportions of sampling iterations that were more extreme than the actual values were calculated to indicate the likelihood of the achieved outcome. Comparisons versus simulations using the rates programmed into ODDS inform whether the spatiotemporal extent of monitoring met the expectations planned by the final 2024 ADP. Comparisons versus the simulations using the actual coverage rates inform whether there were temporal and/or spatial biases in the distribution of the achieved coverage (Fig. 3-7) for the final 2024 ADP (NMFS 2023b).

The spatiotemporal distributions of monitoring coverage met expectations in all strata with only one exception (Fig. 3-7). Six out of seven strata achieved proximity indices of at least 0.92 indicating good spatiotemporal overlap of monitored trips and deliveries with unmonitored trips and deliveries. In other words, in most strata, over 92% of trips were either monitored or within 200 km and 1 week of a monitored trip. However, the *EM FIXED BSAI* stratum only achieved a proximity index of 0.64, much lower than the ranges expected by the selection rates set by the final 2024 ADP and programmed in ODDS (blue distributions) and still lower than expectations given the lower realized coverage rates (green distributions) indicating spatiotemporal gaps in coverage. As mentioned previously, a temporary shortage in reviewer capacity resulted in reduced review for the *EM FIXED* strata and this impacted the *EM FIXED BSAI* stratum disproportionately as it contained relatively few trips. Further investigation also indicated that in these strata, the lack of reviewed trips disproportionately affected pot gear trips, resulting in data gaps for pot gear EM trips in the BSAI from mid-March to November. The proximity indices of the *OB TRW BSAI* and *EM TRW GOA (EFP)* strata were 1.0 and 0.999, respectively, indicating complete spatiotemporal overlap.

3.4.4. Trip Metrics

This section analyzes whether monitored trips are similar to unmonitored trips using a permutation test (a.k.a., randomization test). This test evaluates the question “How likely is the difference we found if these two groups have the same distribution (in the metric we are comparing)?” Permutation tests compare the actual difference found between two groups to the

distribution of many differences derived by randomizing the labels defining the two groups (e.g., monitored and unmonitored). Difference values in the permutation test were calculated by subtracting the mean metric value for the 'No' condition from the mean metric value for the 'Yes' condition. For example, the difference between vessel lengths in a permutation test for a monitoring effect would be the mean value for unmonitored trips subtracted from the mean value for all monitored trips. By randomizing group assignments, the combined distribution of randomized differences represents the sampling distribution under the null hypothesis that the two groups are equal. In this report, 1,000 randomized trials were run for the permutation test. The *p*-value from the test is calculated as the number of randomized trials with greater absolute differences than the actual difference divided by the number of randomized trials. Similar to the other statistical tests used in this report, low *p*-values indicate unlikely events under the hypothesis of equality and are therefore considered evidence against that hypothesis. However, unlike other statistical tests used in this report, a Bonferroni adjustment has been applied to the significance threshold of 0.05 by dividing it by the number of metrics being tested. This results in an adjusted significance threshold of 0.05 / 6 = 0.00833. The *p*-values are then compared to the adjusted significance threshold. In an attempt to improve clarity, five values are calculated in the test: (1) the difference between groups, (2) the mean difference between groups from randomized trials, (3) #1 expressed as a percentage of the mean value of the metric being tested, (4) #2 expressed as a percentage of the mean value of the metric being tested, and (5) the *p*-value of the test; however, only values (1), (3), and (5) are presented.

Six trip metrics were examined in the permutation test. These metrics were as follows: the number of NMFS Areas visited in a trip, trip duration (days), the weight of the landed catch (t), the vessel length (ft), the number of species in the landed catch, and the proportion (0 to 1) of the total catch that is made up of the most predominant species (pMax). The metric 'vessel length' is used to help interpret the results from 'weight of landed catch' because fishing power is positively correlated to vessel length. Specifically, differences in weight and length are interpreted as a failure to achieve a random sample of vessels of different sizes, whereas differences in weight only lend more evidence that there was a monitoring effect. The number of species within the landed portion of the catch is a measure of species richness. Our pMax metric follows the concepts behind Hill's diversity number N_1 that depicts the number of abundant species (Hill 1973) and is a measure of how "pure" catch is because a value of one would indicate that only the predominant (and presumed desirable) species was landed.

Were Monitored Trips Similar to Unmonitored Trips?

The sample sizes available and the results of permutation tests are presented in Table 3-8. A visual depiction of individual results of this permutation test is given in Figure 3-8 for illustration purposes. Monitored trips in the *OB FIXED GOA* stratum were 10.4% (0.6 days) shorter in duration and were on vessels 4.9% (2.8 ft) longer than unmonitored trips. Monitored trips in the *EM FIXED BSAI* stratum were on vessels 16.2% (14.0 ft) shorter than unmonitored trips.

Monitored trips in the *EM FIXED GOA* stratum landed 24.3% (0.9 species) more species than unmonitored trips. While not directly comparable, the previously used hook-and-line observer and EM strata showed similar patterns in 2023, with shorter trips in the observer stratum and more species landed in the EM stratum during monitored trips (AFSC and AKRO 2024a).

3.5. Response to Council and SSC Comments

The Council offered the following comments in response to the presentations of the draft 2025 ADP (October 2024) and 2023 Annual Report (June 2024):

2025 Draft ADP, October 2024

Change to the fishing trip cancellation policy in ODDS such that a person must edit (and not cancel) a trip selected for observer coverage to reduce temporal bias. NMFS should provide significant outreach to the fleet prior to 2025 to convey these changes.

- *The NMFS updated ODDS at the start of the 2025 fishing year that removed vessel user cancellations from the at-sea observer strata and improved the editing capabilities of logged trips. This change is expected to significantly reduce temporal biases in coverage and non-random monitoring by ensuring trips are monitored in the order that they are selected, and will be evaluated in the 2025 Annual Report. Trip logging in the EM strata was left unchanged. Several outreach events were conducted prior to the 2025 fishing year (See section 4.5 above).*

The Council also reiterates its support for agency efforts to revise the zero selection pool (currently < 40' fixed-gear catcher vessels and jig gear) for cost efficiency purposes to potentially include fixed-gear catcher vessels with 1–2 annual trips and/or low annual quota/volume.

The Council supports the agency pursuing steps to remove EM systems from vessels that have not fished for multiple years (e.g., 3, 4, or 5 years).

- *Of the 177 vessels in the fixed-gear EM strata in 2024, 120 vessels (67.8%) completed at least one trip and 96 vessels (54.2%) were selected for at least one monitored trip. The 2026 ADP will re-evaluate the zero-selection pool and take into consideration the costs and benefits of fixed-gear EM vessels that fish few trips.*

2023 Annual Report, June 2024

Continue to provide a summary of issues highlighted in the previous year's annual report and how they were addressed. The 2023 annual report was informative regarding issues previously identified including EM image quality and EM video review timeliness.

- *NMFS will continue to provide updates to issues highlighted by the council during presentations of the Annual Deployment Plans and Annual Reports. In this report, information on EM video review timeliness is provided above in Section 3.3.3, Figures 3- 3 and 3-4. In addition, aspects of both topics are also addressed below in Section 4.4, Table 4-5 and Figures 4-1 through 4-4.*

2024 Draft ADP, October 2023

Improve EM video review times:

- NMFS collaborated with PSMFC to establish a video review selection rate and review strategy to improve EM video review times to result in the most useful information for the most number of trips for a given cost.
- NMFS worked with the Partial Coverage Fishery Monitoring Advisory Committee to develop prioritization rules that can be used to allocate review effort to the fisheries, gear types, times, and areas most dependent on EM data.
- NMFS conducted an assessment of any management impacts of delayed/missing fixed- gear EM data.
    - *Fixed gear EM review times significantly improved in 2024 (Fig. 3-4) in comparison to 2023. New review prioritization guidelines were instituted in 2024. Due to a temporary decrease in review capacity during 2024, not all hard drives were reviewed before the 2025 fishing year began. Efforts to assess the impacts of delayed/missing EM data are ongoing.*

Table 3-1-- Comparison between predicted and actual fishing effort (by number of catcher vessel trips, *N*) and monitored days at sea (*d*) for the partial coverage strata in 2024. Predicted values come from Table B-3 of the 2024 Annual Deployment Plan.

	Total trips (*N*)				**Monitored/reviewed days (*d*)**			
Strata	**Predicted**	**Actual**	**Difference**	**Percent**	**Predicted**	**Actual**	**Difference**	**Percent**
OB FIXED BSAI	279	288	9	3.2	873	806.5	-67	-7.7
OB FIXED GOA	2,001	1,938	-63	-3.1	1,510	1,231.5	-278	-18.4
OB TRW BSAI	30	25	-5	-16.7	65	50.0	-15	-23.6
OB TRW GOA	400	387	-13	-3.2	283	243.0	-40	-14.1
At-sea observer total	2,710	2,638	-72	-2.7	2,732	2,331.0	-401	-14.7
EM FIXED BSAI	58	69	11	19.0	330	194.0	-136	-41.1
EM FIXED GOA	959	996	37	3.9	1,233	1,153.0	-80	-6.5
EM fixed-gear total	1,017	1,065	48	4.7	1,562	1,347.0	-215	-13.8
EM TRW GOA (EFP)	722	690	-32	-4.4	731	738.0	7	0.9
Total	4,449	4,393	-56	-1.3	5,025	4,416.0	-609	-12.1

Table 3-2-- Trip cancellation rates in the Observer Declare and Deploy System (ODDS) for 2024. Trips were either not selected, randomly selected ("Random"), or inherited selection ("Inherited") from a previously canceled selected trip. A trip is canceled by the system if the user did not identify whether fishing had occurred by the end of the year. "Paper" indicates that a trip was logged when ODDS was not available.

Strata	Selection outcomes	Logged (*a*)	Canceled by system (*b*)	Trips remaining (*c* = *a* - *b*)	Canceled by user (*d*)	Paper	% user cancellation (*d*/*c* × 100)
OB FIXED BSAI	Not selected	169	8	161	19	0	11.8
	Random	156	0	156	21	0	13.5
	Inherited	17	0	17	8	0	47.1
OB FIXED GOA	Not selected	1,813	141	1,672	77	0	4.6
	Random	261	0	261	61	0	23.4
	Inherited	36	0	36	5	0	13.9
OB TRW BSAI	Not selected	7	0	7	2	0	28.6
	Random	25	0	25	6	0	24.0
	Inherited	1	0	1	0	0	0.0
OB TRW GOA	Not selected	365	16	349	49	0	14.0
	Random	91	0	91	14	0	15.4
	Inherited	12	0	12	2	0	16.7
EM FIXED BSAI	Not selected	28	1	27	0	0	0.0
	Random	65	1	64	1	0	1.6
	Inherited	1	0	1	0	0	0.0
EM FIXED GOA	Not selected	757	25	732	34	0	4.6
	Random	242	16	226	13	0	5.8
	Inherited	13	0	13	6	0	46.2
Total	Not selected	3,139	191	2,948	181	0	6.1
	Random	840	17	823	116	0	14.1
	Inherited	80	0	80	21	0	26.2

Table 3-3. -- Number of completed trips in each trip-selection stratum in 2024, including counts of trips that were selected for monitoring randomly or via inheritance from previously canceled selected trips. The count and relative impact of selected trips that had monitoring waived is also shown ("% reduction of selected trips due to waivers").

Strata	Total completed trips	Selection type	Selected trips	Waived trips	Total final selected	% selected from inherits	% reduction of selected trips due to waivers
OB FIXED BSAI	286	Random	135	3	141	6.4	2.1
		Inherit	9	0			
OB FIXED GOA	1,826	Random	200	1	229	13.1	0.9
		Inherit	31	1			
OB TRW BSAI	25	Random	19	0	20	5.0	0.0
		Inherit	1	0			
OB TRW GOA	387	Random	77	0	87	11.5	0.0
		Inherit	10	0			
EM FIXED BSAI	91	Random	63	0	64	1.6	0.0
		Inherit	1	0			
EM FIXED GOA	918	Random	213	0	219	2.7	0.5
		Inherit	7	1			
Total	3,533		766	6	760	7.8	0.8

Table 3-3-- Number of logged trips in each partial coverage stratum in 2024 that were selected using the initial random number generator ("Initial random selection") and those that remained after user manipulation ("After cancellations"). The relative impact of inherits and waivers in trip-selection are also shown ("With inherits", "After waivers").

Strata	Trip disposition	Selected trips	Total trips	Actual (%)	Programmed (%)	*p*-value
OB FIXED BSAI	Initial random selection, *a*	156	325	48.00	43.97	0.147
	After cancellations, *b* (*a* - *b*)	135	286	47.20	43.97	0.284
	With inherits, *c* (*a* - *b* + *c*)	144	286	50.35	43.97	0.032*
	After waivers, *d* (*a* - *b* + *c* - *d*)	141	286	49.30	43.97	0.074
OB FIXED GOA	Initial random selection, *a*	261	2,074	12.58	13.17	0.455
	After cancellations, *b* (*a* - *b*)	200	1,826	10.95	13.17	0.005*
	With inherits, *c* (*a* - *b* + *c*)	231	1,826	12.65	13.17	0.533
	After waivers, *d* (*a* - *b* + *c* - *d*)	229	1,826	12.54	13.17	0.447
OB TRW BSAI	Initial random selection, *a*	25	32	78.12	72.28	0.557
	After cancellations, *b* (*a* - *b*)	19	25	76.00	72.28	0.825
	With inherits, *c* (*a* - *b* + *c*)	20	25	80.00	72.28	0.505
	After waivers, *d* (*a* - *b* + *c* - *d*)	20	25	80.00	72.28	0.505
OB TRW GOA	Initial random selection, *a*	91	456	19.96	20.58	0.772
	After cancellations, *b* (*a* - *b*)	77	387	19.90	20.58	0.801
	With inherits, *c* (*a* - *b* + *c*)	87	387	22.48	20.58	0.346
	After waivers, *d* (*a* - *b* + *c* - *d*)	87	387	22.48	20.58	0.346
EM FIXED BSAI	Initial random selection, *a*	65	93	69.89	74.29	0.343
	After cancellations, *b* (*a* - *b*)	63	91	69.23	74.29	0.281

	With inherits, *c* (*a* - *b* + *c*)	64	91	70.33	74.29	0.401
	After waivers, *d* (*a* - *b* + *c* - *d*)	64	91	70.33	74.29	0.401
EM FIXED GOA	Initial random selection, *a*	242	999	24.22	24.20	1.000
	After cancellations, *b* (*a* - *b*)	213	918	23.20	24.20	0.512
	With inherits, *c* (*a* - *b* + *c*)	220	918	23.97	24.20	0.908
	After waivers, *d* (*a* - *b* + *c* - *d*)	219	918	23.86	24.20	0.847

Table 3-4 -- Number of total vessels (*V*), monitored vessels (*v*), total trips/deliveries (*N*), and monitored trips/deliveries (*n*) for each stratum in 2024. The coverage and 95% confidence interval columns are expressed as percentages of the total number of trips taken/deliveries made within each stratum.* indicates where *N* and *n* represent deliveries.

Coverage							**95% confidence interval**		
Strata	***V***	***v***	***N***	***n***	**Expected**	**Realized**	**Lower limit**	**Upper limit**	**Realized meets expected?**
Full coverage									
Full	104	103	1,110	1,109	100.00	99.91			No - lower than expected
*EM TRW BSAI (EFP)**	65	65	1,725	1,725	100.00	100.00			Yes
Full coverage total	143	142	2,835	2,834		99.96			
Partial coverage									
OB FIXED BSAI	45	36	288	137	43.97	47.57	41.68	53.51	Yes
OB FIXED GOA	292	144	1,938	241	13.17	12.44	11.00	13.99	Yes
OB TRW BSAI	3	3	25	20	72.28	80.00	59.30	93.17	Yes
OB TRW GOA	46	21	387	85	20.58	21.96	17.94	26.42	Yes
EM FIXED BSAI	8	6	69	34	74.29	49.28	37.02	61.59	No - lower than expected
EM FIXED GOA	118	93	996	224	24.20	22.49	19.93	25.21	Yes
*EM TRW GOA (EFP)**	47	47	806	288	33.33	35.73	32.42	39.15	Yes
Partial coverage total	477	311	4,509	1,029		22.82			
Zero coverage									
Zero coverage	290	0	1,453	0	0.00	0.00			Yes
Total	870	421	8,797	3,863		43.91% trips/deliveries; 48.39% vessels			

Table 3-5 -- The number of shoreside pollock deliveries made by catcher vessels in the *OB TRW* strata during 2024, separated by port and coverage category. Trips that made a delivery to a tender have been excluded. Observed deliveries denote deliveries that were monitored shoreside for salmon.

FMP	Coverage category	Port	Total deliveries (*N*)	Observed deliveries (*n*)	% observed
BSAI	Full	Akutan	14	14	100.00
		Dutch Harbor	36	36	100.00
BSAI total			50	50	100.00
GOA	Partial	Akutan	19	4	21.05
		Kodiak	232	54	23.28
		Sand Point	1	0	0.00
GOA total			252	58	23.02

Table 3-6-- The number of pollock deliveries made by catcher vessels in the *EM TRW (EFP)* strata during 2024, separated by coverage category and port. Observed deliveries denote deliveries that were monitored shoreside for salmon. Tender and non-tender denote whether or not a catcher vessel delivered its catch to a tender.

FMP	Coverage category	Port	Total deliveries (*N*)	Observed deliveries (*n*)	% observed
BSAI	Full	Akutan	680	680	100.00
		Dutch Harbor	1,045	1,045	100.00
BSAI total			1,725	1,725	100.00
GOA	Partial (non-tender)	Akutan	61	19	31.15
		Dutch Harbor	18	7	38.89
		False Pass	3	1	33.33
		Kodiak	541	199	36.78
		Sand Point	58	19	32.76
GOA (non-tender) total			681	245	35.98
GOA	Partial (tender)	Akutan	113	39	34.51
		False Pass	12	4	33.33
GOA (tender) total			125	43	34.40
GOA total			806	288	35.73

Table 3-7 -- Results of permutation tests between monitored and unmonitored trips in the 2024 trip-selection strata. OD: Observed difference (monitored - unmonitored). Observed and unobserved columns are in units of trips (or shoreside deliveries for the *EM TRW GOA [EFP]* stratum). Statistically significant results (Bonferroni correction applied) are in bold.

Strata	Observed?		Metric	NMFS areas	Days fished	Vessel length (ft)	Species		Landed catch (t)
	Yes	No					landed	pMax	
			OD	0.019	-0.467	0.580	0.104	0.001	1.956
OB FIXED BSAI	137	151	OD (%)	1.598	-7.985	0.808	5.160	0.084	5.672
			p-value	0.798	0.247	0.837	0.508	0.943	0.630
			OD	0.032	**-0.564**	**2.759**	0.238	0.002	0.255
OB FIXED GOA	241	1,697	OD (%)	3.056	**-10.368**	**4.947**	7.797	0.225	2.492
			p-value	0.066	**< 0.001***	**0.001***	0.078	0.755	0.826
			OD	0.400	-0.250	-4.800	0.150	-0.018	-0.664
OB TRW BSAI	20	5	OD (%)	28.571	-8.333	-4.938	3.571	-1.842	-1.196
			p-value	0.098	0.703	0.592	0.843	0.290	0.968
			OD	-0.006	-0.223	0.399	-0.242	0.011	4.686
OB TRW GOA	85	302	OD (%)	-0.562	-7.856	0.475	-3.670	1.236	4.495
			p-value	1.000	0.082	0.813	0.538	0.529	0.359
			OD	0.063	0.677	**-14.044**	0.552	-0.005	5.382
EM FIXED BSAI	34	35	OD (%)	5.515	13.469	**-16.233**	19.921	-0.531	10.094
			p-value	0.593	0.403	**0.002***	0.235	0.875	0.585
			OD	-0.015	-0.053	-2.006	**0.854**	-0.021	-0.194
EM FIXED GOA	224	772	OD (%)	-1.413	-1.028	-3.736	**24.208**	-2.274	-1.995
			p-value	0.481	0.772	0.075	**< 0.001***	0.035	0.829
			OD	-0.004	0.002	0.828	-0.079	0.003	3.281
EM TRW GOA (EFP)	288	518	OD (%)	-0.416	0.068	1.015	-1.136	0.305	2.753
			p-value	0.809	1.000	0.513	0.766	0.333	0.246

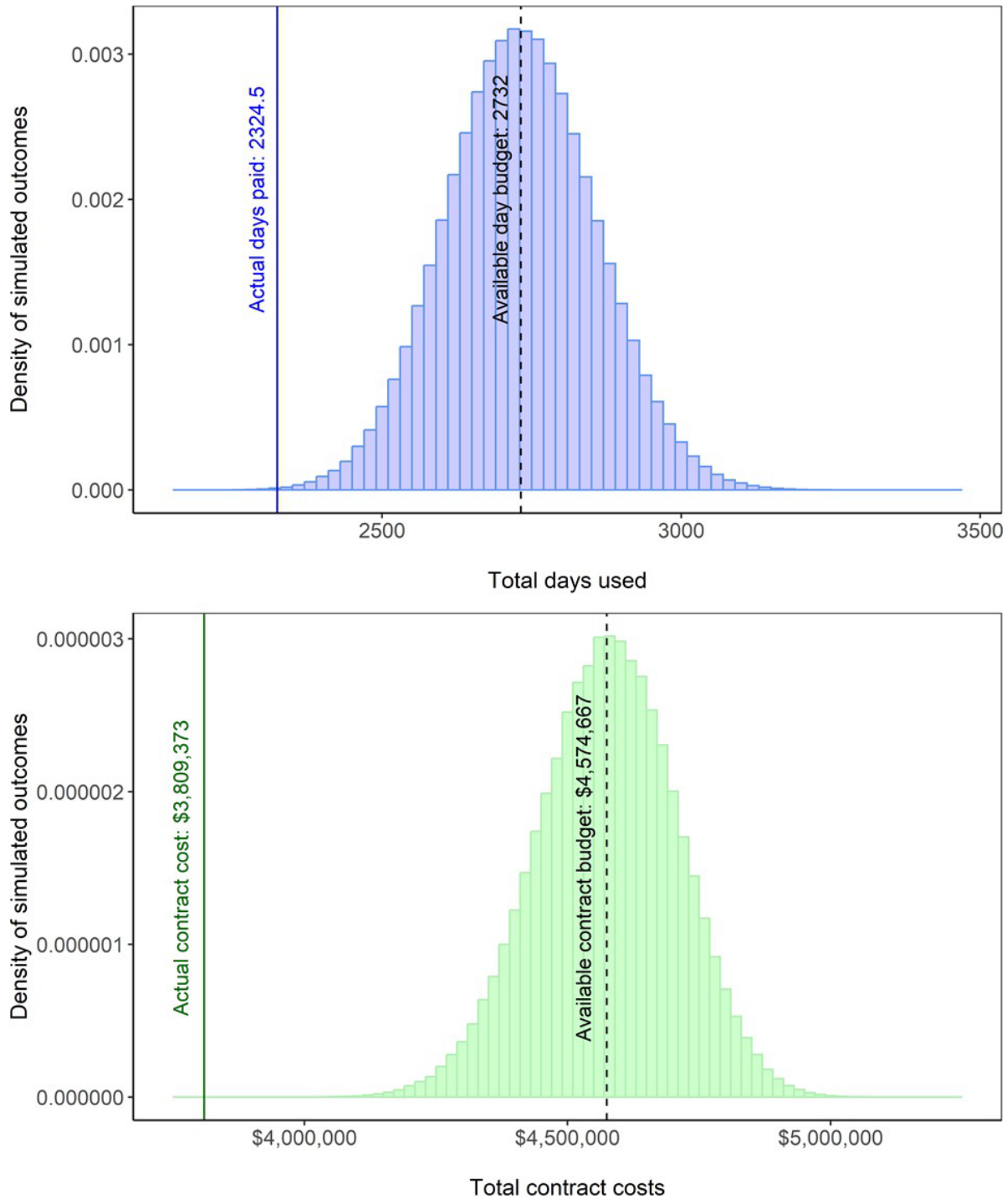

Figure 3-1-- Total number of observer sea days purchased (top panel) and total cost of observing those sea days (bottom panel). Vertical bars signify the range of potential outcomes predicted by the 2024 Annual Deployment Plan. Dashed lines signify expected outcomes. Solid lines signify what actually occurred in 2024.

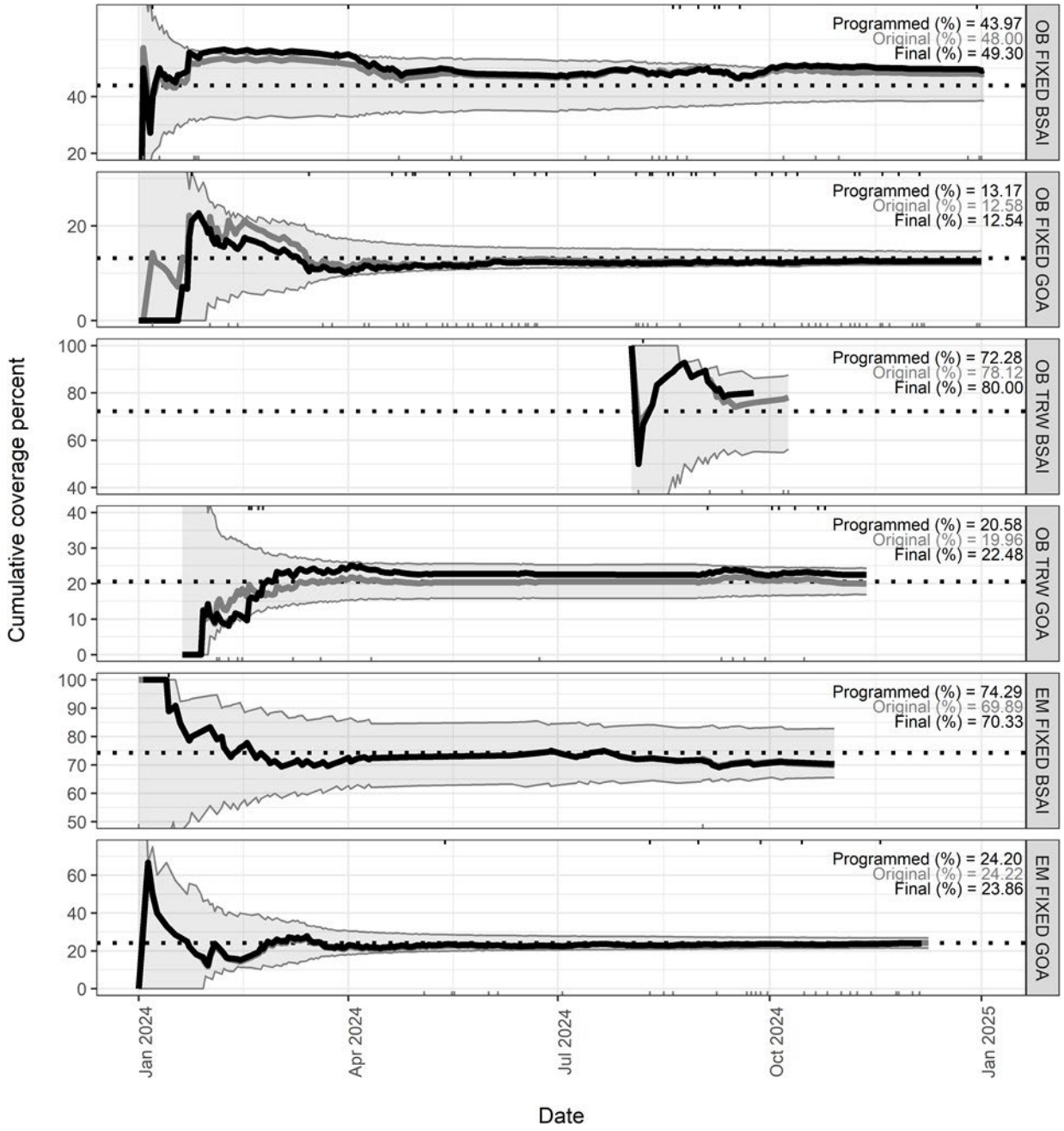

Figure 3-2-- Rate of selected trips logged into the Observer Declare and Deploy System (ODDS) during 2024 organized by original date entered for all trips (gray line and gray text), and final date considering only non-canceled trips (black line and black text). The programmed selection rate is depicted as the dotted line. Gray shaded areas denote the range of coverage rates corresponding to the 95% confidence intervals expected from the binomial distribution. Vertical tick marks on the x-axis depict dates when selected trips were canceled (gray, on the bottom) and when inherited trips were monitored (black, on the top).

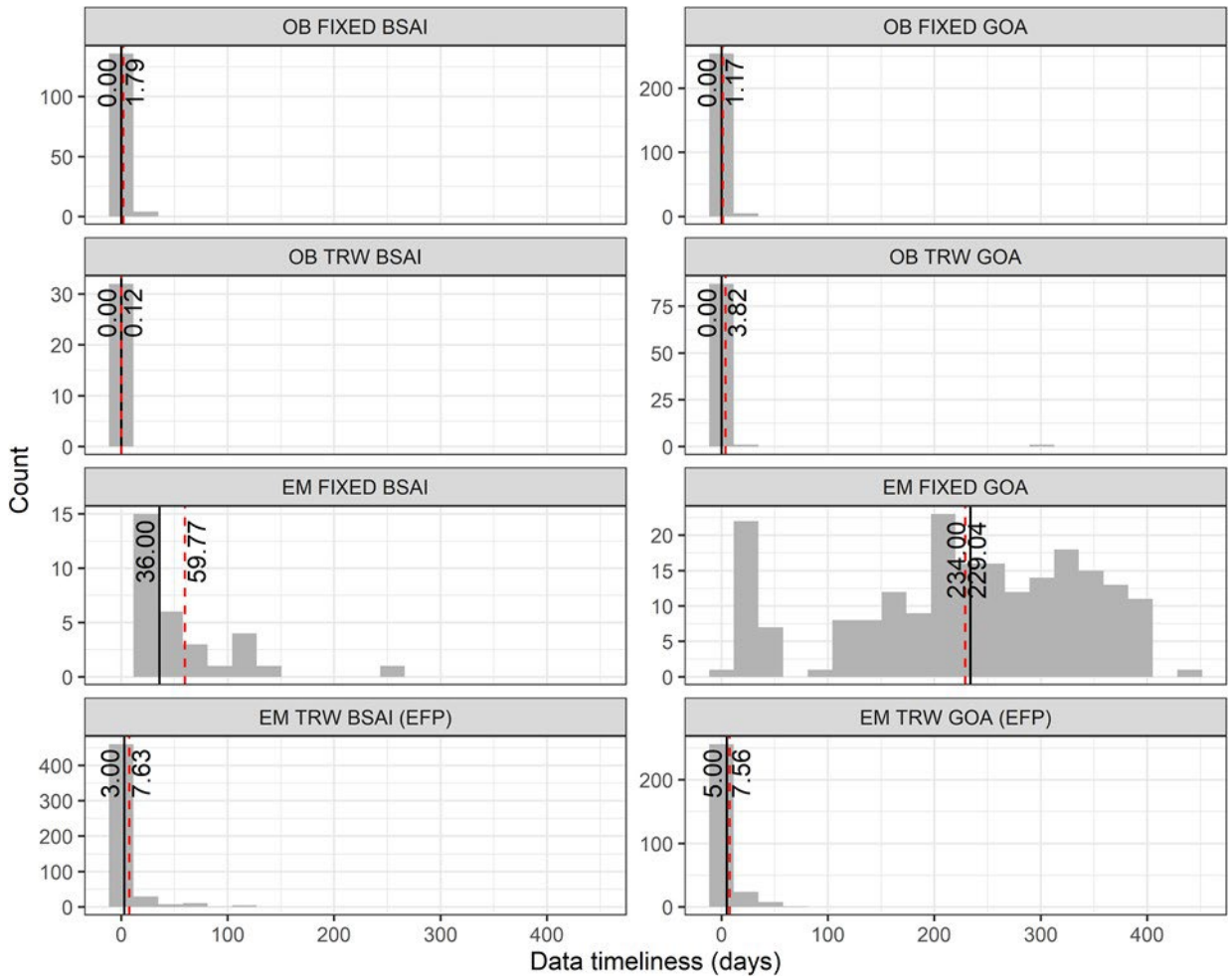

Figure 3-3-- Distributions of data timeliness (the time between a trip or delivery ending and those monitoring data being available for catch accounting) by stratum. Solid black lines and annotations to the left show median data timeliness. Dashed red lines and annotations to the right show mean data timeliness.

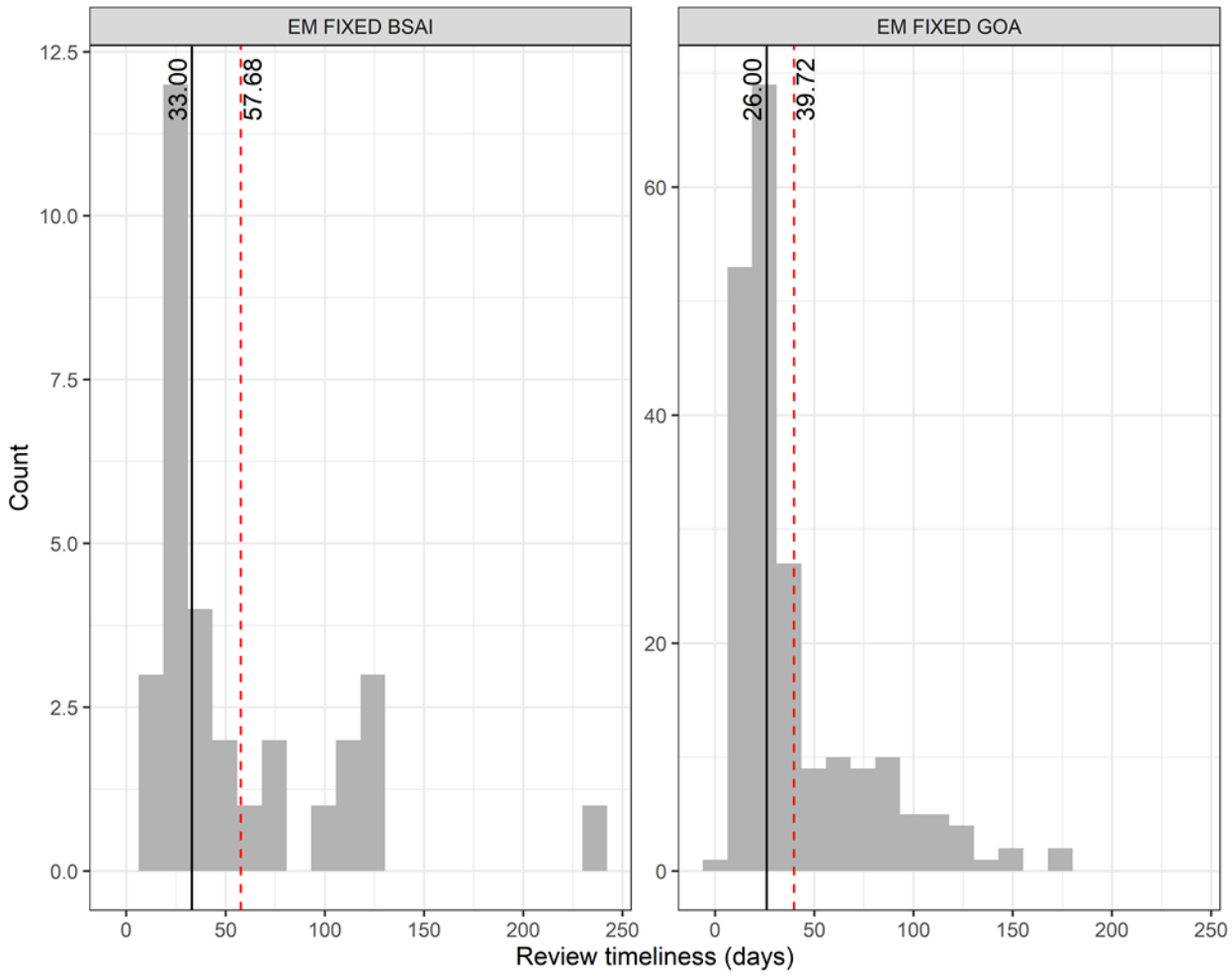

Figure 3-4-- Distributions of review timeliness (the time between a trip or delivery ending and those trips being reviewed) by stratum. Solid black lines and annotations to the left show median review timeliness. Dashed red lines and annotations to the right show mean review timeliness.

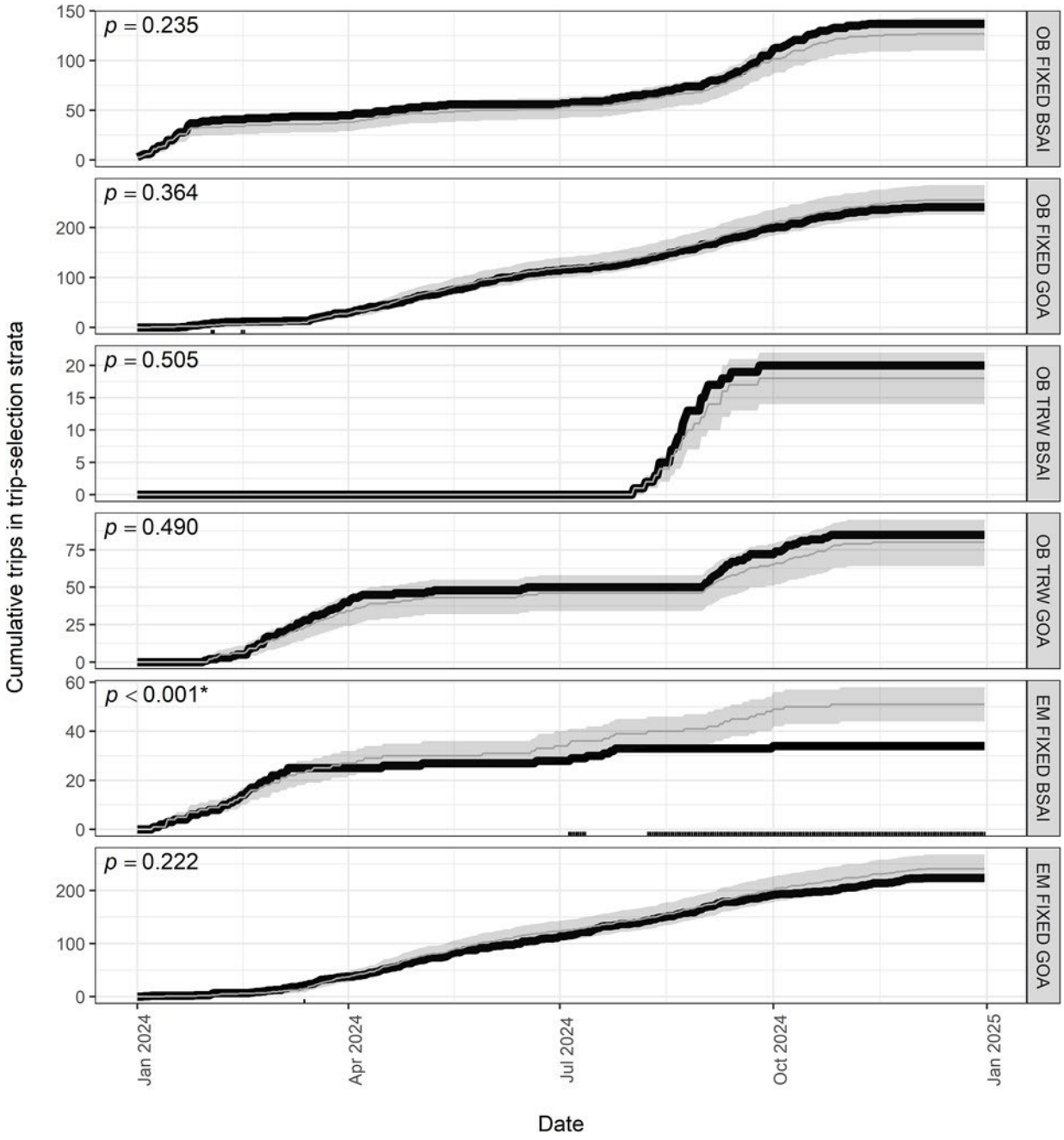

Figure 3-5-- Cumulative number of trips monitored during 2024 (black line) compared to the expected range of observed trips (shaded ribbon) given fishing effort and sampling rates. Dates where the monitored number of trips is outside of expected (less or more than the range) are depicted as tick marks on the x- axis. Test results (using a binomial distribution) determining if the observed rate was sampled at the selection rate are denoted as *p*-values.

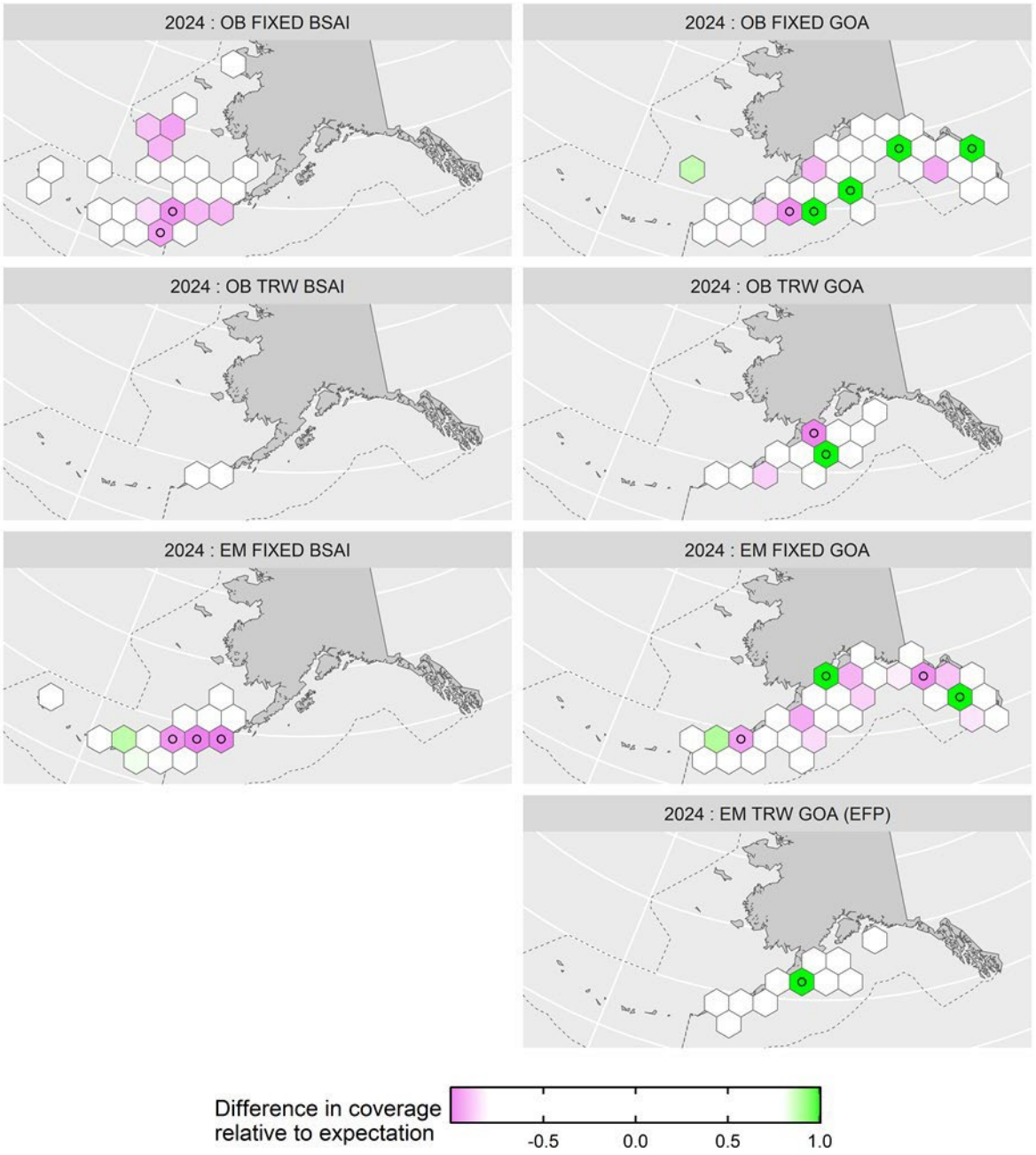

Figure 3-6 -- Spatial patterns of the distribution of monitoring in partial coverage strata in 2024 relative to the distribution created from 10,000 simulations of random sampling at each stratum's realized monitoring rate. Each hexagonal spatial cell is 200 km wide. The degree of monitoring in each cell was quantified as the proportion of trips that were monitored or neighboring a monitored trip in both space and time. Cells where the degree of monitoring was more extreme than 90% of simulated outcomes are filled violet (less) or green (more), and those cells with a more extreme outcome than 97.5% of simulated outcomes are additionally marked with a circle.

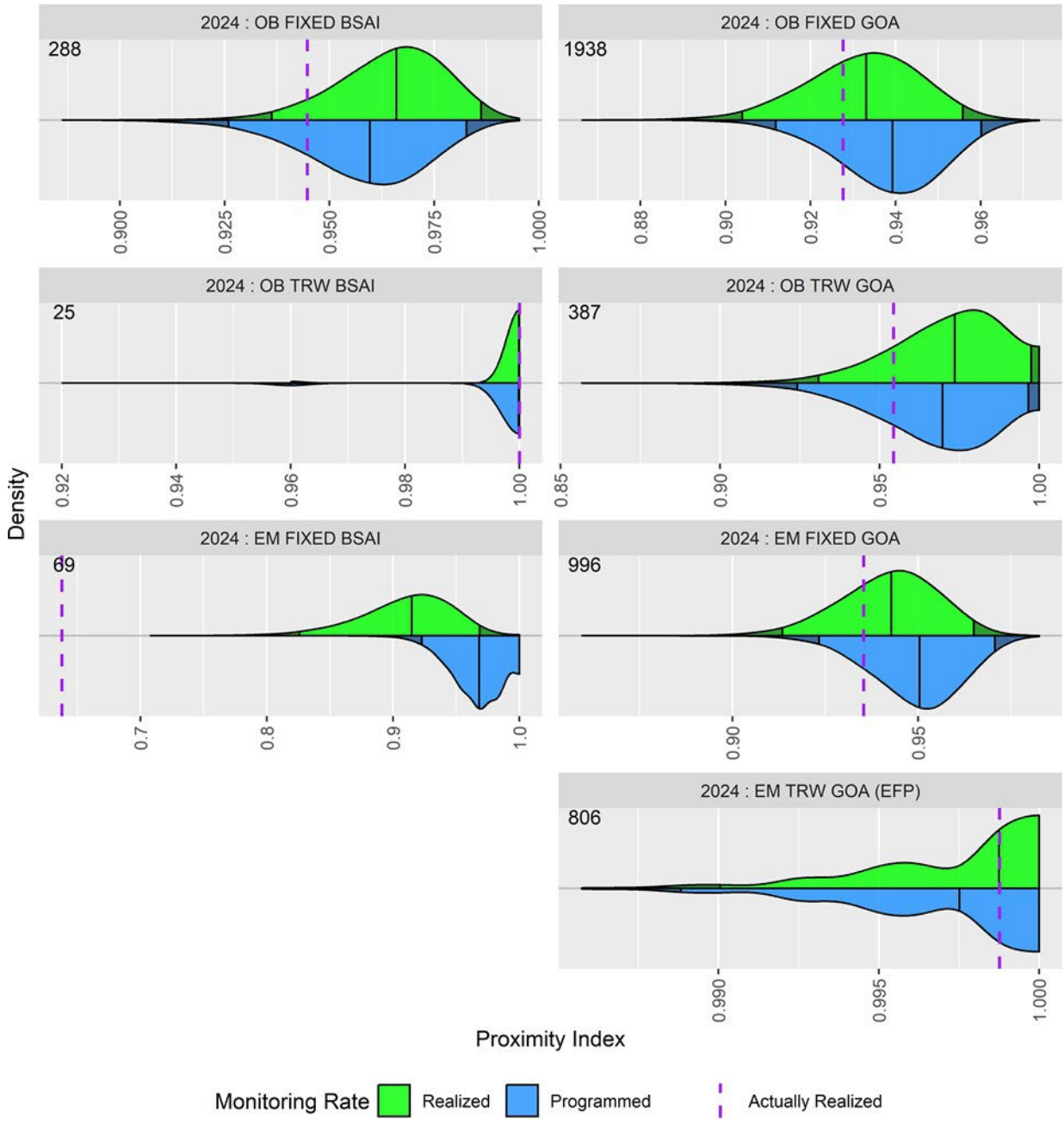

Figure 3-7-- Stratum-level proximity indices in partial coverage strata in 2024. The purple vertical dashed line represents actual proximity indices. The distributions show the proximity values obtained from 10,000 simulations of random sampling, where the upper (green) distribution sampled using the realized monitoring rate and the lower (blue) distribution used the programmed monitoring rate. The 2.5% tails of the distributions are shaded darker to represent unlikely outcomes. The number of sample units in each stratum is displayed in the upper-left of each facet. Note the varying scales of the x-axes between facets.

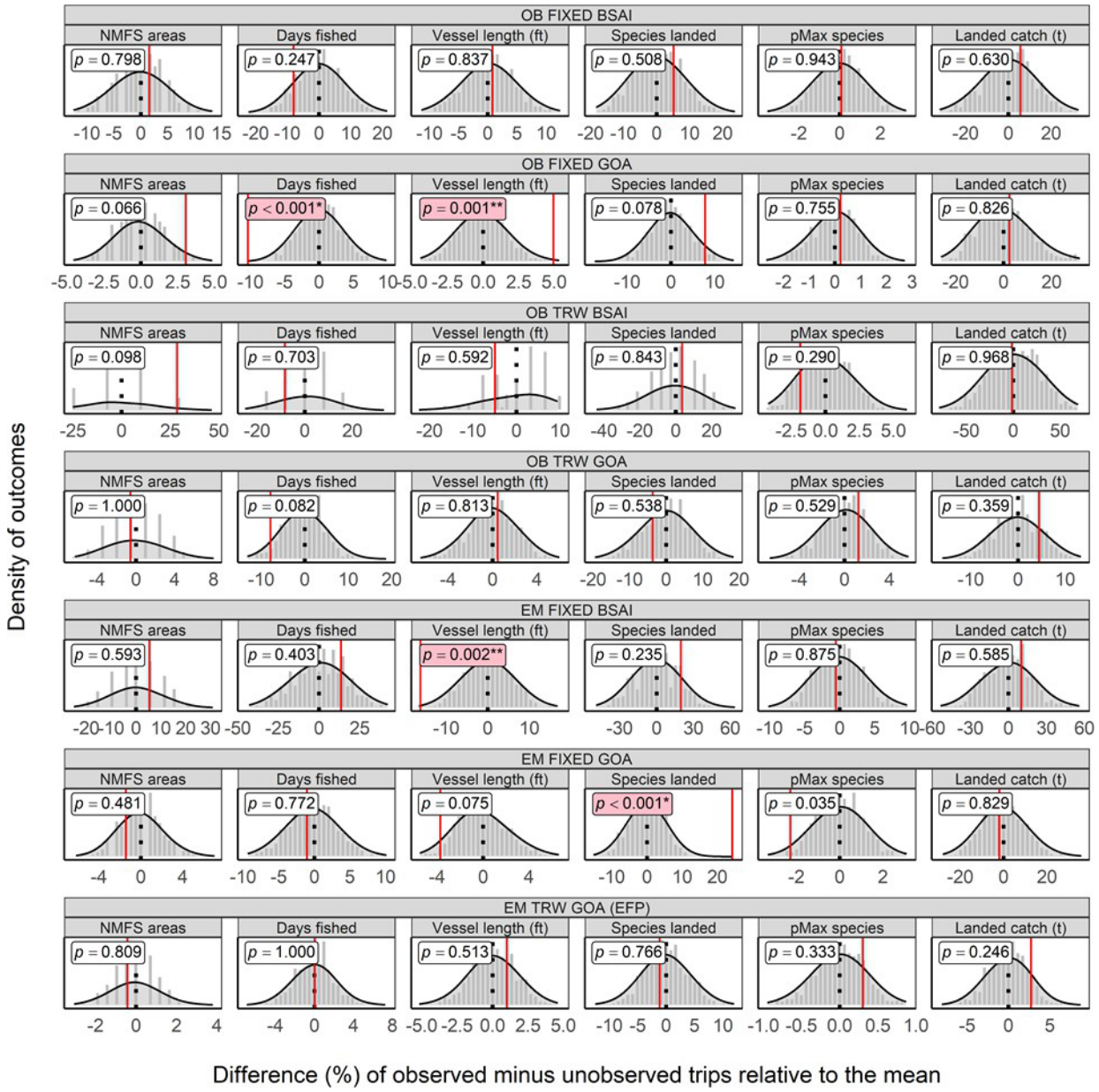

Figure 3-8-- Results from permutation tests depicting percent differences between monitored and unmonitored trips by strata in the partial coverage category. Gray bars depict the distribution of differences between monitored and unmonitored trips when the assignment of monitoring status has been randomized (this represents the sampling distribution under the null hypothesis that monitored and unmonitored trips are the same). The vertical red solid line denotes the actual difference between monitored and unmonitored trips. Values on the x-axis have been scaled to reflect the relative (%) differences in each metric. The *p*-value for each test is denoted in the upper left corner. Low *p*-values (shaded pink) are reason to reject the null hypothesis and conclude that there is an observer effect.

4. Descriptive Information

4.1. Observer Training and Debriefing

In 2024, observers collected data on board 281 fixed gear and trawl vessels and at 11 processing facilities for a total of 29,655 observer days (26,918 full coverage days on vessels and at shoreside processors; and 2,737 partial coverage days on vessels).[20]

During the 2024 fishing year, approximately 304 individual observers were trained, briefed, and equipped for deployment to vessels and processing facilities operating in the BSAI and GOA groundfish and halibut fisheries. The Observer Program continues to use a hybrid of virtual and in-person environments to train and brief observers. All trainings requiring hands-on interactive activities that benefit from in-person interactions such as the 3-week, fixed-gear lead level two, and annual briefings were conducted in-person, while the Fish and Crab ID and 1-day briefings were conducted within a hybrid asynchronous environment.

New observer candidates must complete a 3-week training class with 120 hours of scheduled class time and additional training by FMA staff as necessary. The FMA Division conducted training for 99 new observers for 2024 deployments in addition to the 205 prior observers who attended a briefing of some type (Table 4-6). Portions of FMA's 3-week observer training class were attended by observer providers, FMA staff, NOAA Fisheries Office of Law Enforcement and General Counsel, and NOAA Workplace Violence Prevention and Response staff.

During their first two deployments, observers must complete a mid-cruise debriefing while in the field. During the mid-cruise debriefing, the observer and FMA staff assess data collection methods and quality, troubleshoot challenges, and discuss future vessel assignments. After successfully completing two contracts, mid-cruise debriefings are only required on an individual basis if recommended by FMA staff.

Historically, mid-cruise debriefings could be completed in-person, over the phone, electronically, by fax, or by a combination of methods. In 2024, the majority of all mid-cruises were performed in-person, with a total of 3 mid-cruise debriefings in Anchorage, 143 in Dutch Harbor, 7 in Kodiak, and 29 in Seattle. Mid-cruise debriefings require extensive coordination and communication between field staff, observers, observer providers, and industry members to ensure the observers receive the valuable feedback the mid-cruise debriefings provided.

[20] Note that observer days are calculated differently from invoiced days. FMA's method of counting total deployment days is computed for the "manual year" (or "fishing year"), which is the time frame a given observer sampling manual protocol is in use for a fishing year. Manual year 2024 spanned from November 27, 2023 to November 22, 2024. In addition, observer days represent any amount of time an observer is on a vessel as part of their deployment which may be inclusive of non-fishing and standby days. Whereas, full coverage invoice data are produced for the actual calendar year. Number of observer training classes and number of observers trained/briefed is also for manual year 2024 (November 27, 2023 to November 22, 2024).

In-person support received by observers from the FMA field offices in Dutch, Kodiak and Anchorage is further increased by the ability to communicate with FMA inseason advisors while at sea. Inseason advisors ensure quality data are collected, and allows observers to inform NMFS of safety concerns or health issues that arise while the observer is deployed. In 2024, FMA inseason advisors addressed a total of 10,020 messages sent by observers. This process ensures high-quality data are used to manage and support Alaska's vital seafood economy.

Observers must go through the debriefing process after each deployment, where FMA staff members assess the data collection methods utilized by the observers. Once these data have undergone a thorough quality control check, the data are then finalized by the FMA staff member. In 2024, a total of 473 debriefings were completed either in-person or remotely by 18 FMA staff located in the Seattle and Anchorage offices.

After the debriefing is completed, the performance of the observer is assessed by the FMA staff member. This assessment determines whether observers must attend a 1-day briefing prior to their next deployment. In some cases, a focused training (FCT) and/or a fish and crab identification training are necessary. In rare cases, an observer that demonstrates major deficiencies may be required to retake the full 3-week training to ensure the data collection and species identification methods are fully understood.

Regardless of the required training resulting from their most recent debriefing, all returning observers must attend an annual briefing class prior to their first deployment of each calendar year. These briefings provide observers with annual reminders about safe practices while aboard vessels or while stationed at shoreside processors. Updates to assigned responsibilities for the upcoming fishing year may relate to programmatic changes, sampling methodologies, OLE training, seabird data collection, and USCG safety discussions. Observers are required to demonstrate their continued proficiency and understanding of assigned duties by passing the annual briefing exam, a seabird identification test, and additional in-class activities. In addition to these updates, the curriculum was updated in 2024 to focus on the pollock trawl EM EFP, new requirements associated with sampling aboard Pacific Cod Trawl Cooperative vessels, changes to special research project data collections, industry updates, pot escapement opening measurements and descriptions, new stomach collection protocols, and general reminders.

To support the success of observers, observer providers requested specialized briefings for observers deploying to shoreside processors participating in the pollock trawl EM EFP.

FMA Training team members also provided training related to marine safety, back care while lifting heavy objects, and marine mammal identification to AFSC staff going to sea. As part of the Marine Instructor Safety Training (MSIT) cross-training requirement, several FMA training team members assisted the At-Sea Hake Observer Program through the Northwest Fisheries Science Center (NWFSC) with their annual safety trainings for their program and FMA hosted trainers from the Southeast Fisheries Science Center and the NWFSC.

4.2. Number of Trips and Vessels by FMP Area, Strata, Gear, and Vessel Length

In Chapter 3, Table 3-5 provides trip or delivery and vessel counts based on coverage type and strata. The Council has previously requested a summary of trip and vessel counts based on criteria that are not, or are no longer, considered when deploying observers on trips (e.g., vessel length). Table 4-1 and Table 4-2 summarize the number of vessels, total trips or deliveries, and monitored trips or deliveries by FMP area, strata, gear type, and vessel length category within the full and partial coverage categories. Monitored indicates trips with an observer, EM fixed gear trips if at least some video was reviewed, or trawl EM deliveries where biological samples and census counts of salmon and Pacific halibut PSC were collected at shoreside processors. All trawl EM category trips are required to have cameras on for 100% of their trips for compliance monitoring (not shown in Tables 4-1 or 4-2). Table 4-1 summarizes trips or deliveries in the Bering Sea/Aleutian Islands (BSAI) and Table 4-2 summarizes trips or deliveries in the Gulf of Alaska (GOA). Both tables contain BSAI and GOA observer and EM fixed-gear trip selection strata, however. Vessel owners or captains declare in ODDS where they intend to harvest the majority of catch on the trip, which determines the FMP area of the strata, but they may fish in both FMP areas.

Vessels and trips may be counted more than once in a vessel length category in Tables 4-1 and 4-2 if a vessel is in more than one stratum, fishes in more than one FMP area, or utilizes more than one gear type on a trip or within the year. The table rows titled “BSAI Subtotal”, “GOA Subtotal”, and “Total Unique” include the number of unique vessels and unique trips or deliveries in each vessel length category where each vessel, trip, or delivery is counted only once, in each of the FMP areas or overall, respectively.

4.3. Total Catch and Discards and Amount of Catch Monitored

The ADP does not assign observers or EM coverage by fisheries as the fishery cannot be defined before fishing occurs. Instead, observers or EM are deployed on trips and vessels across all fisheries. However, there has been interest in comparing observer and EM coverage across resulting fisheries, so this section includes summaries of monitored and total catch by area, gear type, and sector. The total catch of groundfish and halibut (retained and discarded) for 2024 was summarized from the NMFS Catch Accounting System (CAS) in Tables 4-3 and 4-4. These tables allow for comparisons of the metric of catch weight derived from CAS. Catch estimation methods are described in detail in Cahalan et al. (2014).

The proportion of catch weight monitored for a subset of fishing activity (i.e., a fishery) should not *a priori* be expected to equal the deployment rates specified in the ADP (i.e., proportion of trips selected for observer or EM coverage). If there are differences in fishing characteristics between subsets of fishing activity, specifically differences in catch weights or discard rates per trip, those differences will be reflected in the relative proportions of catch monitored. For example, within the partial coverage trawl stratum, trips in the pollock fishery will have very

different total catch weights and discard characteristics than trips in flatfish fisheries. In addition, there are several other factors that will contribute to the apparent inconsistencies between proportion of catch monitored, the proportion of trips monitored, and the deployment rate specified in the ADP. These include the actual number of trips selected (sample size), variability in deployment due to random chance, the ratio of number of trips in each of the fisheries, and lack of independence between the coverage rates within a sampling stratum.[21]

In Tables 4-3 and 4-4, "Mon" indicates monitored catch that occurred on trips where an observer was present, on EM fixed gear trips for which some video was reviewed, or on EM trawl deliveries where biological samples and census counts of salmon or Pacific halibut PSC were observed at the shoreside processors. The EM trawl trips are also required to have cameras turned on for 100% of their trips for compliance monitoring of maximized retention requirements, but this monitoring strategy is not used to define monitored catch in Tables 4-3 and 4.4. In Table 4-3 and Table 4-4, "Total" represents estimates of all catches from all trips regardless of whether it was monitored. The rows titled "Ret" indicate retained catch that was offloaded (minus dockside discard). The rows titled "Disc" are estimates of at-sea discards.

All catch and discard information, including halibut, summarized in these tables are in round weight metric tons. If species were landed in a condition other than round weight, then standard product recovery rates (PRRs) were used to obtain round weight. Halibut that were landed in ice and slime were additionally corrected for ice and slime using a standard 2% correction.

In Table 4-3 the catch of full coverage catcher vessels participating in the Central Gulf of Alaska Rockfish program is distinguished from the catch of catcher vessels in partial coverage. With the implementation of the Pacific Cod Trawl Cooperative (PCTC) program in 2024, Table 4-4 has been modified to differentiate the catch of catcher vessels in full coverage from those in partial coverage. The full coverage catcher vessels fishing non-pelagic trawl gear participated in PCTC and those fishing pelagic trawl gear participated in the American Fisheries Act (AFA) pollock fishery. These tables can be used to compare the proportion of catch that occurred in full coverage or the partial coverage categories or the proportion of catch that was monitored for trips in partial coverage. For example, in the:

- BSAI and GOA combined, 91.2% of pelagic trawl catch was on trips in the full coverage category and 8.8% was on trips in partial coverage. All partial coverage trips were in the GOA and 34% of their catch was monitored. This percentage is higher if compliance monitoring for maximized retention requirements on trawl EM trips is considered;
- BSAI and GOA combined, 95.6% of non-pelagic trawl catch was on trips in full coverage category and 4.4% was on trips in partial coverage. Partial coverage trips occurred in both the BSAI and GOA with 79.1 and 16.4% of their catch monitored, respectively.

[21] More trips monitored in one subpopulation (fishery) equates to fewer monitored trips in the other subpopulations because all the trips across the different subpopulations must add to the total number of trips selected.

Additional retained and discarded catch information, broken down by species for the Gulf of Alaska (GOA) and Bering Sea/Aleutian Islands (BSAI), are available online for 2024 as well as prior years.[22]

4.4. Electronic Monitoring Video Review

This section provides metrics of the EM video review, including information on reliability and image quality. EM footage collected in 2024 from vessels participating in the fixed-gear EM program was sent to the Pacific States Marine Fisheries Commission (PSMFC) for review and incorporated into the CAS for catch estimation to support in-season management of the fisheries and for use in fishing mortality estimates in stock assessments. Video collected from pollock trawl vessels participating in the EM Exempted Fishing Permit was sent to either PSMFC or Saltwater, Inc., for review for compliance purposes with discard limitations and logbook report verification.

4.4.1. EM Data from Fixed-Gear Vessels

The fixed gear EM program includes vessels that fish with longline (hook-and-line) and/or pot gear (traditional/single or slinky), which are indicated separately on the VMP to differentiate the catch handling protocols. NMFS approved 177 vessels in the fixed gear EM selection pool for 2024, with 96 of those vessels being selected to turn their system on for one or more fishing trips.

The total number of trips per gear type varies on an annual basis. A total of 296 fixed gear trips were selected to turn on cameras for the trips by ODDS. A total of 248 of those trips' hard drives were reviewed, 65 of which were pot gear and 183 were longline gear. NMFS prioritized the 2025 review to eliminate any backlog and support the new regulatory Trawl EM Program. A total of 48 selected trips were not reviewed by the end of the year due to the backlog of 2023 data and a temporary 33% reduction to review staff. This issue is not expected to occur in 2025.

The total number of EM selected hauls increased from 1,668 reviewed hauls in 2023 up to 4,724 hauls in 2024. As noted in Section 4.4.2, increased effort with this gear type directly impacts review times due to the complexity. EM review staff are trained by PSMFC staff in conjunction with NPOP staff to record species to the lowest identifiable taxonomic level or grouping.

Video Review Rates

EM selection rates vary by fishing gear type and the area fished as specified in Section 1.3.2 Table 1-1.

[22] Available online at: Monitored Catch Tables.

EM Problems and Issues

EM review staff log problems that are encountered during EM review, logging them in the EM Service Provider / Observer Declare and Deploy System (EMSP ODDS application) and PSMFC database. Automated emails are sent in response to each logged issue, which alert the vessel and provide instructions on potential solutions to the issue. The EM hardware service provider then contacts the vessel to assist with resolving the issue remotely or, if necessary, with an on-site visit. Issues may result in the limited ability to log trips, including a 72-hour waiting period if required for repair. It may also be necessary for OLE to contact the vessel or take enforcement action depending on the nature, severity, or frequency of the reported issue.

EM review staff look for issues relating to the completeness of video and sensor data, overall image quality and visibility, system functionality (including GPS, monitors, continuous power, hydraulic sensors), insufficient lighting, insufficient storage, and deployment of streamer lines. EM review staff also ensure camera views and catch handling information are consistent with the NMFS-approved VMP.

The total number of logged issues for fixed gear EM trips have trended downwards over the last few years (Table 4-5). In 2024 there were 114 issues noted by EM reviewers, compared to 154 in 2023. This decrease in total issues is a deliberate process of continued outreach by agency staff paired with open communication and hard work by all participants. Each year, VMPs must be approved by NMFS staff prior to any fishing activity. This provides an additional opportunity for outreach in combination with the automated emails and communication with the EM hardware service provider. Vessels are encouraged to contact NMFS staff as needed to clarify logged issues and to assist with compliance. The EM hardware service provider also directly contacts the vessel for all logged issues where the automated notification is not sufficient. Additionally, OLE provides outreach and education to the fleet as warranted which allows vessels to ask questions directly to enforcement officers.

4.4.2. EM Issues Specific to Pot Vessels

Vessels utilizing pot gear, either traditional rigid or slinky, present unique challenges for EM review staff. Crab are unable to be identified to the species level by EM review staff, and must be assigned a group code such as “King Crab unidentified” or “Tanner Crab unidentified”. Estimates for crab species ratios are calculated using at-sea observer data. There is potential for bias of EM review data in situations where organisms are too numerous, and catch handling is insufficient, for staff to fully enumerate, resulting in them skipping review of that pot. EM review staff resume their standard sample frame once they are able to count all organisms in a given pot.

For vessels that use single pot gear, EM review staff consider each individual pot to be its own haul and reviews every third haul (pot). If a vessel uses longline, slinky, or string pots (strung together), all pots are considered to be a single haul and all pots within each haul are reviewed. Review of these pots is more time consuming than single pot gear. The speed of review for pot

gear tends to be 1:1, where one hour of catch handling could be reviewed in just under one hour, assuming review was not slowed down by any of the following:

- Large amounts of bycatch (May be fishery- or gear-dependent).
- Expanded use of longline, slinky, or string pots across fleetwide.
- Participants new to the EM program that are inexperienced with EM program requirements.
- Catch handling that is not consistent with the VMP, which impacts data quality.

4.4.3. Trawl EM EFP

An Exempted Fishing Permit (EFP) was issued in January 2020 to evaluate the efficacy of electronic monitoring systems and shoreside observers for pollock catcher vessels (CVs) using pelagic trawl gear in the Bering Sea (BS) and Gulf of Alaska (GOA). The objectives of the trawl EM EFP are: (1) improve salmon accounting; (2) reduce monitoring costs; and (3) improve the quality of monitoring data. The EM systems onboard trawl vessels ensure compliance monitoring objectives are met while providing a chain of custody for prohibited species catch (PSC). Catch accounting for the vessel's catch and bycatch is achieved via eLandings reports and observers at the shoreside processors. There were 41 participating catcher vessels in 2020, 71 vessels in 2021, 80 vessels in 2022, 85 vessels in 2023, and 104 in 2024. Of the 104 unique total vessels in 2024, 50 unique vessels participated in the BS, 35 unique vessels participated in the GOA, and 19 unique vessels participated in both the BS and GOA. For 2025, all BSAI vessels and all but two GOA vessels opted into the trawl EM category.

See Section 3.1 for specifics on monitoring and shoreside observer coverage for participating vessels in the EFP. At the October 2022 meeting, the NPFMC took final action to implement the trawl EM program. In January 2023, the EFP was extended through 2024, and the proposed rule for the trawl EM category (89 FR 7660) published on February 5, 2024. The final rule for the trawl EM category was published on July 29, 2024 (89 FR 60796),

PSMFC and Saltwater Inc. have conducted the video review during the EFP. Table 4-7 provides a summary of video review data for the trawl EM EFP program for 2024. Alterations in program protocols changed review priorities for 2024 to emphasize data sets from 2025 for priority review over data sets from 2024. This reprioritization is necessary to provide timely feedback to allow vessels the opportunity to improve their performance in the program for 2025. As of March 19, 2025, PSMFC has completed 55.4% of trawl datasets from 2024. PSMFC has prioritized review of all trips for vessels new to the trawl EM program for 2024 and the first 2024 trips for returning trawl EM vessels.

4.4.4. Improving EM Data Review Timeliness and Data Quality

An additional full-time reviewer was added to the review team in 2024, bringing the total to three full-time review staff for the AK fixed-gear EM program and two full-time review

staff for the trawl EM category, to further improve review times. The hiring process was delayed for several months in 2024 due to funding issues. Alterations in program protocols changed review priorities for 2024 to emphasize 2024 data review for the first trip of the year (to give immediate feedback), followed by review of 2024 non-first trip data, and finally review to complete and remaining data from 2023. This change allowed the prioritization of data that could be used to impact inseason management, as data remaining from previous years would not directly impact the fisheries in the current fishing year.

NMFS and OLE are using the information from the logged issues and data quality impacts to find ways to work with the industry to improve EM data. Some of these activities were started in 2020 and will continue in the future, such as:

- Notice of Improvement - Vessels that frequently experience issues that impact data review, such as inability to review video data or loss of data, fail to meet management needs. If a vessel is not meeting management needs, they are provided a Notice of Improvement, which notifies the vessel that performance issues were flagged during EM review. If a vessel does not improve their performance, they could be removed from the EM program.
- Technical Improvements - Altering the EM system configuration to improve camera views and communicating with vessel personnel to maintain camera views and clarity (e.g., wiping and cleaning camera lenses, removing obstructions) to reduce the percentage of hauls with reduced image quality.
- Cost-Efficiency Improvements - Focus EM eligibility on vessels with more fishing effort in the fixed gear EM program. Vessels that have a limited number of trips tend to have a higher rate of issues that are not addressed, and the same issues can persist to the next year. There is potential to shift EM systems to vessels with greater amounts of fishing activity, which would improve the cost efficiency of the EM system. An EM system on a vessel that fishes once per year costs approximately the same to maintain as an EM system on a vessel fishing on a weekly basis.
- Outreach and Education - Continue to increase outreach for vessels with new gear types (longline/slinky/string pots) to increase compliance with the VMP to ensure management needs are met.

4.5. Outreach

Regular communication is a standard component of our operations between the AFSC, AKR, OLE, the NPFMC, and industry constituents; this section highlights noteworthy situations with elevated communications.

In the fifth year of the EFP for EM in the Bering Sea and Gulf of Alaska pollock fisheries for catcher vessels using pelagic trawl gear, there continued to be a considerable amount of effort allocated to coordination and collaboration between the FMA, AKRO, OLE, Alaska Groundfish Data Bank, United Catcher Boats, Aleutian East Borough (AEB), the Pacific

States Marine Fisheries Commission, Archipelago Marine Research, and observer providers. Bi-monthly meetings were held with all entities to discuss issues or complications that occurred providing input to inform the regulatory development process. In addition to the bi-monthly meetings, there were observer pre-cruises and shoreside processor tours with industry members, AKR staff, and FMA staff. These tours focused on observer needs for sampling, what access they will need, elements that will make their jobs easier/more possible, and what features would be required for the CMCPs. Additionally, all observers deployed to a shoreside processor participating in the Trawl EM EFP were interviewed at the time of their debriefing to gather additional, direct accounts of the observer's experience. This project has continued to require extensive staff time and effort to oversee the communication with observers, observer data collections, data management, and flow of data processing. The trawl EM category became a regulated program in 2025 and more extensive details for this project are outlined in the Trawl EM section of this document (section 4.3.4).

To support the transition to the regulated Trawl EM program, multiple outreach opportunities were provided to the general public and industry using a variety of platforms. In the fall, AKR organized several meetings for shoreside processors to meet with Agency personnel to review the changes and expectations regarding CMCPs, observer sampling, and flow of communication. Public meetings were held in Kodiak, AK, and virtually online to provide the opportunity for the public to ask questions about the proposed rule in February and March of 2024.

The agency also provided outreach and presentations to review specific changes to the Observer Declare and Deploy System (ODDS). These were provided to both the Council and PCFMAC. Feedback received indicated these meetings were helpful and informative and clarified the removal of trip cancellations and flexibility between strata.

In September 2024, the International Council for Exploration of the Sea (ICES) was held in Newcastle, United Kingdom. Representatives from AKRO were able to attend this conference and present on the implementation of the trawl EM category. This was a unique conference, affording an incredible opportunity for staff to network, foster collaboration, and connect with fishery professionals on an international stage.

In November 2024, FMA and the West Coast Region hosted visiting scientists from the Ministry of Oceans and Fisheries of the Republic of Korea who are working on incorporating EM into their fisheries. As the Alaska Fisheries Science Center, the Alaska Regional Office, the Northwest Fisheries Science Center, and the West Coast Region are leaders in electronic monitoring technologies and regulatory implementation, we were requested to engage with the Korean delegation. The primary purpose was to discuss Electronic Monitoring operations and technologies, U.S. fisheries Governance, Fisheries monitoring, control and surveillance strategies, and Observer Programs in general.

Staff have participated in assorted meetings focused on industry engagement: the AEB annual meeting, the Freezer Longline Coalition annual meeting, and the Kodiak Trawl fleet meetings.

Engagement with our industry constituents proves to be valuable and necessary for NMFS staff and the fishing communities.

Observer providers are integral in the contribution to the management of successful observer deployments in the Alaska fisheries. On an annual basis, FMA meets with the observer providers one to two times per year. The June 2024 summer meeting focused on FMA staffing updates, OLE matters, Workplace Violence Prevention and Response's role in supporting observers, recruitment and retention of observers, anticipated regulatory changes to provider responsibilities, and changing fishery dynamics in Alaska and its impacts to provider and industry needs. The Fall meeting's focus was directed on the 2025 training operations (registration updates, observer attendance expectations, cold water immersion training), gear policies and practices for A-season, provider regulations update, OLE outreach letters to providers and observers, the transition to the trawl EM regulatory program, and observer recruitment and retention. These meetings are beneficial to keep lines of communication open, discuss solutions to the challenges, and supporting providers to provide continuous and safe observer coverage to Alaska fishing fleets.

In 2024, the NOAA Fisheries project, *Seabird Conservation Through Fishery-Based Data: The NOAA Fisheries-Oikonos Seabird Bycatch Project,* was awarded the 2023 Presidential Migratory Bird Federal Stewardship Award, by the Council for the Conservation of Migratory Birds. This project focused on the incidental catches of migratory birds in the Northeastern Pacific Ocean. The fisheries observers collected incidental seabird takes which allowed researchers to collect data on age, sex ratios, stomach contents, and DNA from seabirds incidentally taken in the U.S. commercial fisheries. This was a one of a kind project which revealed new information about genetics, behavior, ecology and even plastic ingestion and contaminant levels. These data would not have been possible without the exceptional work of the fisheries observers.

4.6. Response to Council and SSC Comments

2023 Annual Report, June 2024

Continue efforts to attempt to include data on the amount of catch monitored by electronic monitoring (EM) similarly to data on observed catch.

- *NMFS has provided this information in Tables 4-1 through 4-4.*

Continue to provide a summary of issues highlighted in the previous year's annual report and how they were addressed. The 2023 annual report was informative regarding issues previously identified including EM image quality and EM video review timeliness.

- *NMFS will continue to provide updates to issues highlighted by the council during presentations of the Annual Deployment Plans and Annual Reports. In this report, information on EM video review timeliness issues is provided above in Section 3.3.3, Figures 3-3 and 3-4. Information on both topics is also presented in Section 4.4 above, as well as below in Table 4-5 and Figures 4-1 through 4-4.*

Table 4-1-- Number of vessels (V), total trips/deliveries (N), monitored trips/deliveries (n)[1], and percent of trips/deliveries monitored (%) in 2024 in the BSAI by strata, gear type (hook and line (HAL), non-pelagic trawl (NPT), pelagic trawl (PTR), pot, and jig), and vessel length category (based on length overall, in feet) for the full and partial coverage categories.

			Vessel length category											
			<40'				40-57.4'				≥57.5'			
Area	Strata	Gear	V	N	n	%	V	N	n	%	V	N	n	%
BSAI	Full	HAL					1	1	0	0	18	203	203	100
	Full	NPT									48	513	513	100
	Full	POT									4	8	8	100
	Full	PTR									20	214	214	100
	EM TRW EFP (Full)[2]	PTR									65	1,725	1,725	100
	EM Fixed-gear BSAI	HAL					2	10	4	40	4	6	5	83.3
	EM Fixed-gear BSAI	POT					1	1	1	100	4	52	24	46.2
	EM Fixed-gear GOA	HAL					1	1	0	0	2	3	2	66.7
	Observer Fixed-gear BSAI	HAL					12	30	9	30	13	37	19	51.4
	Observer Fixed-gear BSAI	POT					8	53	24	45.3	23	181	91	50.3
	Observer Fixed-gear GOA	HAL					3	4	1	25	3	3	2	66.7
	Observer Fixed-gear GOA	POT									1	1	0	0
	Observer Trawl BSAI	NPT									3	25	20	80
	Zero	HAL	24	250	0	0								
	Zero	POT	2	9	0	0								
	BSAI Subtotal		24	258	0	0	16	91	35	38.5	165	2,965	2,822	95.2

[1] Monitored reflect either trips with an observer, EM fixed gear trips for which some video was reviewed, or EM trawl deliveries where observers sampled shoreside to collect biological samples and census counts of salmon and halibut PSC. EM trawl trips also require 100% at-sea video monitoring for compliance with maximized retention requirements, but that monitoring is not reflected in this table.

[2] For the EM trawl stratum, shoreside sampling occurs at the delivery level, so the values in the table for N, n, and % reflect deliveries rather than trips.

Table 4-2-- Number of vessels (V), total trips/deliveries (N), monitored trips/deliveries (n)[1], and percent of trips/deliveries monitored (%) in 2024 in the GOA and overall, by strata, gear type (hook and line (HAL), non-pelagic trawl (NPT), pelagic trawl (PTR), pot, and jig), and vessel length category (based on length overall, in feet) for the full and partial coverage categories.

			Vessel length category											
			<40'				40-57.4'				≥57.5'			
Area	Strata	Gear	V	N	n	%	V	N	n	%	V	N	n	%
	Full	HAL									6	10	10	100
	Full	NPT									22	85	85	100
	Full	POT									1	7	7	100
	Full	PTR									16	101	101	100
	EM Fixed-gear BSAI	HAL					1	1	0	0.0	1	1	1	100
	EM Fixed-gear BSAI	POT									1	1	1	100
	EM Fixed-gear GOA	HAL					80	555	145	26.1	35	204	43	21.1
	EM Fixed-gear GOA	POT					26	176	32	18.2	20	152	25	16.4
	EM TRW EFP (Partial)[2]	PTR									47	806	288	35.7
GOA	Observer Fixed-gear BSAI	HAL					5	6	2	33.3	3	4	2	50
	Observer Fixed-gear BSAI	POT									1	1	1	50
	Observer Fixed-gear GOA	HAL					163	840	80	9.5	92	446	61	13.7
	Observer Fixed-gear GOA	POT					50	289	36	12.5	80	525	75	14.3
	Observer Trawl GOA	NPT									45	169	32	18.9
	Observer Trawl GOA	PTR									22	236	59	25
	Zero	HAL	254	1,128	0	0.0								
	Zero	JIG	11	21	0	0.0	7	20	0	0.0				
	Zero	POT	5	29	0	0.0								
	GOA Subtotal		262	1,177	0	0.0	261	1,765	273	15.5	212	2,577	753	29.2
Total Unique[3]			283	1,433	0	0.0	265	1,844	305	16.5	325	5,520	3,558	64.5

[1] Monitored reflect either trips with an observer, EM fixed gear trips for which some video was reviewed, or EM trawl deliveries where observers sampled shoreside to collect biological samples and census counts of salmon and halibut PSC. EM trawl trips also require 100% at-sea video monitoring for compliance with maximized retention requirements, but that monitoring is not reflected in this table.

[2] For the EM trawl stratum, shoreside sampling occurs at the delivery level, so the values in the table for N, n, and % reflect deliveries rather than trips.

[3] The sum of total unique vessels in the three vessel length categories is three greater than is seen in Table 3-5. This is due to fishing vessels changing their length on file with NMFS mid-year and making landings under different lengths and vessel length categories.

Table 4-3– Monitored catch[1] (Mon; in metric tons), total catch, and percent monitored (%) of groundfish and halibut retained (Ret) and discarded (Disc) in the groundfish and halibut fisheries in 2024 in the Gulf of Alaska. Empty cells indicate that no catch occurred.

		Catcher/Processor			Catcher vessel: Partial			Catcher vessel: Rockfish program			Gear total		
Gear	**Catch**	**Mon.**	**Total**	**%**	**Mon.**	**Total**	**%**	**Mon.**	**Total**	**%**	**Mon.**	**Total**	**%**
Hook and Line	**Ret**	2,183	2,327	**94%**	1,882	13,701	**14%**				4,065	16,028	**25%**
	Disc	599	633	**95%**	1,676	11,565	**14%**				2,274	12,198	**19%**
Jig	**Ret**				0	98	**0%**				0	98	**0%**
	Disc												
Non-Pelagic Trawl	**Ret**	29,368	29,368	**100%**	2,638	14,782	**18%**	2,732	2,732	**100%**	34,738	46,882	**74%**
	Disc	3,084	3,084	**100%**	249	2,800	**9%**	513	513	**100%**	3,846	6,397	**60%**
Pot	**Ret**	295	402	**73%**	2,819	17,717	**16%**				3,115	18,119	**17%**
	Disc	9	10	**91%**	37	222	**17%**				46	232	**20%**
Pelagic Trawl	**Ret**	1,798	1,798	**100%**	41,611	122,048	**34%**	9,976	9,976	**100%**	53,386	133,823	**40%**
	Disc	147	147	**100%**	299	1,133	**26%**	212	212	**100%**	658	1,492	**44%**

[1] Monitored reflects either trips with an observer, EM fixed gear trips for which some video was reviewed, or EM trawl deliveries where observers sampled shoreside. EM trawl trips also require 100% at-sea video monitoring for compliance with maximized retention requirements, but that monitoring is not reflected in this table.

Table 4-4– Monitored catch* (Mon; in metric tons), total catch, and percent monitored (%) of groundfish and halibut retained (Ret) and discarded (Disc) in the groundfish and halibut fisheries in 2024 in the Bering Sea/Aleutian Islands. Empty cells indicate that no catch occurred.

		Catcher/Processor			Mothership			Catcher vessel: Partial			Catcher vessel: Full			Gear total		
Gear	**Catch**	**Mon**	**Total**	**%**	**Mon**	**Total**	**%**	**Mon**	**Total**	**%**	**Mon**	**Total**	**%**	**Mon**	**Total**	**%**
Hook and Line	**Ret**	85,581	85,581	100				426	936	46				86,007	86,517	99
	Disc	17,183	17,183	100				348	691	50				17,532	17,874	98
Jig	**Ret**															
	Disc															
Non-Pelagic Trawl	**Ret**	320,264	320,264	100	14,526	14,526	100	1,097	1,374	80	16,963	16,963	100	352,849	353,127	100
	Disc	26,933	26,933	100	1,166	1,166	100	131	178	73	676	676	100	28,905	28,953	100
Pot	**Ret**	748	748	100				6,523	13,344	49				7,271	14,092	52
	Disc	9	9	100				77	170	46				86	178	48
Pelagic Trawl	**Ret**	585,779	585,779	100	112,964	112,964	100				567,969	567,969	100	1,266,712	1,266,712	100
	Disc	1,238	1,238	100	57	57	100				669	669	100	1,964	1,964	100

* Monitored reflects either trips with an observer, EM fixed gear trips for which some video was reviewed, or EM trawl deliveries where observers sampled shoreside. EM trawl trips also require 100% at-sea video monitoring for compliance with maximized retention requirements, but that monitoring is not reflected in this table.

Table 4-5-- Issues types, the number reported to NMFS, and the number reported per 100 reviewed trips in each gear type in 2024. ***Denotes a 'High' priority issue type - these must be resolved before a new trip can be logged in ODDS.***

Problem Type	Longline		Pot	
	N issues reported	**Issues per 100 reviewed trips**	**N issues reported**	**Issues per 100 reviewed trips**
Camera Inactive	1	1.18	2	1.67
Camera Lens Dirty	31	18.24	2	1.67
Camera out of focus	9	5.29	2	1.67
Camera Reposition Required	11	6.47	0	0
Camera view Obstructed	0	0	2	1.67
Catch handling inconsistent with VMP	19	11.18	24	20
Complete Logbook not submitted	13	7.65	3	2.5
Continuous Power*	1	0.59	0	0
Crew catch handling goes beyond camera time duration	4	2.35	0	0
Deck / Discard Camera*	0	0	1	0.83
Drive contains more trips than allowed under VMP	1	0.59	0	0
Drive does not contain the ODDS selected trip	2	1.18	1	0.83
GPS*	0	0	8	6.67
Hard Drive Data is Incomplete	5	2.94	0	0
Hard Drive not submitted per VMP	3	1.76	1	0.83
Hauling camera not activated before haul started	3	1.76	0	0
Hydraulic Sensor	8	4.71	1	0.83
Insufficient Lighting*	1	0.59	0	0
Intermittent camera gaps	6	3.53	2	1.67
Other System Problem	5	2.94	1	0.83
Poor image quality	0	0	2	1.67
Prohib mishandling/Careful release issues	14	8.24	6	5
Rotation and Hydraulic Sensor Problem*	1	0.59	0	0
Seabirds not presented to camera	5	2.94	0	0

Streamer Line Camera	2	1.18	1	0.83
Streamers lines not used- note in comment if bad weather	25	14.71	0	0
System not activated prior to beginning trip	3	1.76	2	1.67
All Issues	***174***	***102.35***	***62***	***51.67***

Table 4-6-- Number of observer training classes and number of observers trained/briefed from 27 November 2023 to 22 November 2024.

Training classes	**Number of classes**	**Number of observers trained/briefed**
3-week training	7	107
Annual briefing	21	201
Focused briefing	4	5
1-day briefing	37	213
Lead Level 2	7	30
Cold Water Training	0	0
Fish and Crab ID Training	25	146
Total	**101**	**702**

Table 4-7-- Video review information for the trawl EM program for 2024 as reported by the video review entities. Note that in 2024, Pacific States Marine Fisheries Commission did not conduct video review for GOA tenders and Saltwater Inc. did not conduct video review for BS CVs. CV trips for the purposes of trawl EM video review end at the delivery of catch to a tender vessel or shoreside processor. There are no partial deliveries in the trawl EM program. Data from 2024 was deprioritized and is being reviewed as time allows once 2025 data are complete.

Pacific States Marine Fisheries Commission	**BS CV**	**GOA CV**	**GOA tender**
Trips not yet reviewed (as of 03/19/2025)	902	131	N/A
Trips reviewed	816	465	N/A
Hauls reviewed	2143	873	N/A
Unique vessels reviewed	64	30	N/A
Of reviewed trips, video was incomplete	92	44	N/A
Of reviewed trips, EM review was affected by incomplete video	55	22	N/A

Saltwater Inc.	**BS CV**	**GOA CV**	**GOA tender**
Trips not yet reviewed (as of April 3, 2023)	0	0	0
Trips reviewed	0	405	111
Hauls reviewed	0	688	289
Unique vessels reviewed	0	0	5
Of reviewed trips, video was incomplete	0	56	21
Of reviewed trips, EM review was affected by incomplete video	0	42	9

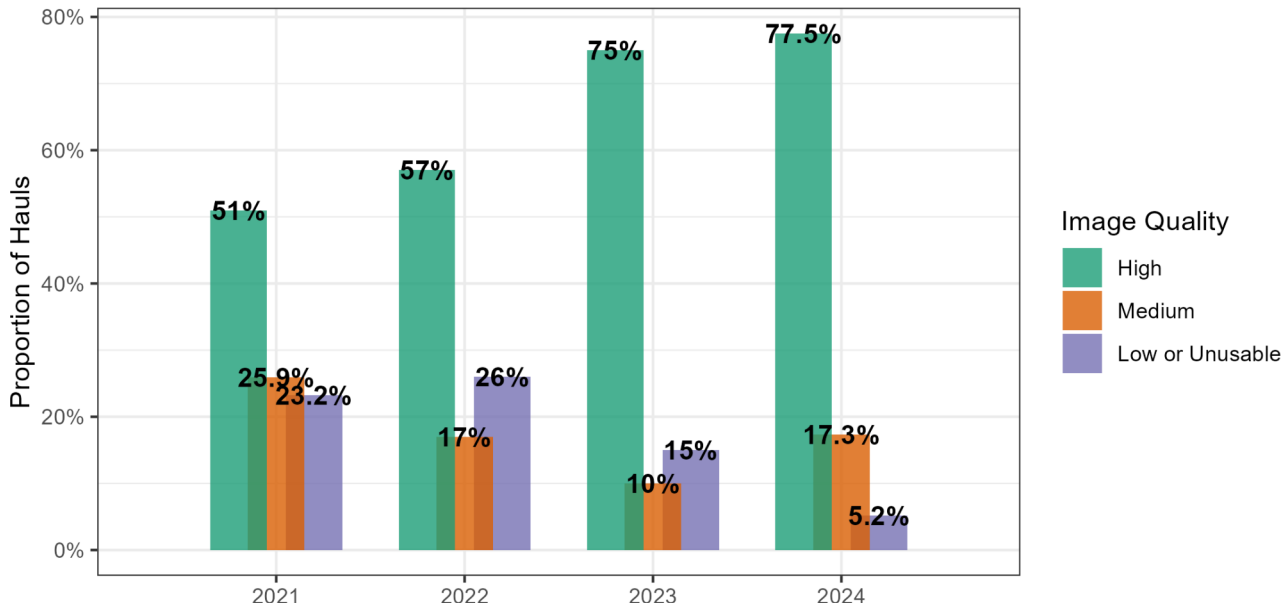

Figure 4-1-- Image quality of EM video for reviewed hauls 2021-2024, as reported to NMFS by PSMFC reviewers. The video quality of each haul is assessed as either high, medium, low, or unusable. Overall image quality continued the improving trend in 2024.

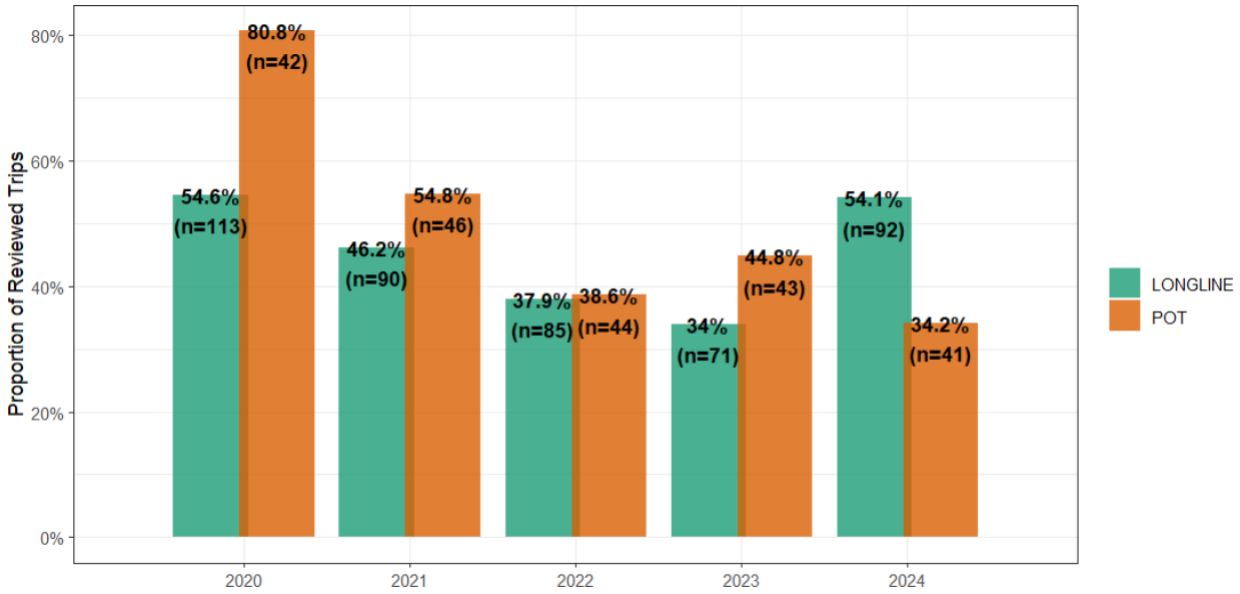

Figure 4-2-- Proportion of trips with at least one issue reported by PSMFC video reviewers, 2020-2024, as reported to NMFS by PSMFC reviewers.

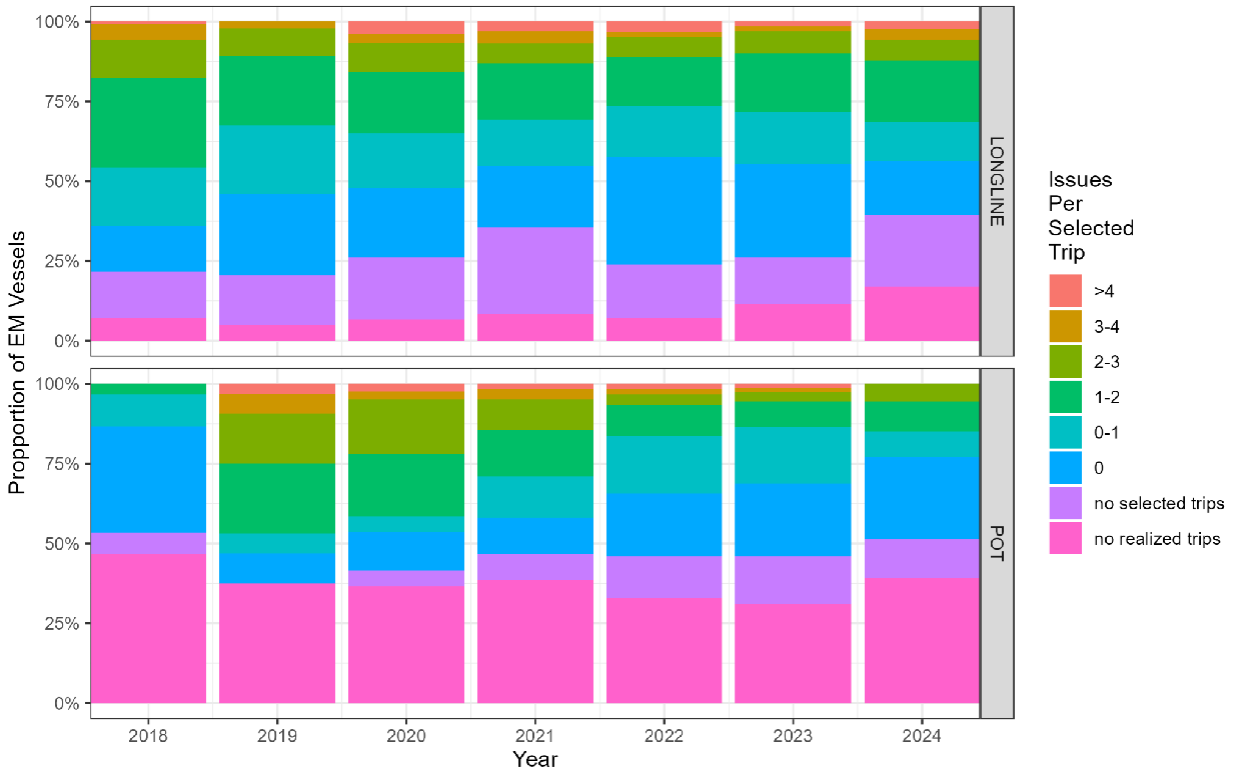

Figure 4-3-- Proportion of fixed gear (pot and longline) vessels in each bin of EM system logged issues per selected trip. 2018-2022 showed a general trend of a decreasing proportion of vessels with multiple issues per selected trip, and an increasing proportion of vessels with 0-1 issues per selected trip. This trend continued 2023-2024 for POT vessels. LONGLINE vessels have reversed this trend 2023-2024 and now show greater proportions of vessels with more issues. The proportion of vessels with no realized trips or no selected trips in 2024 remained high for both gear types.

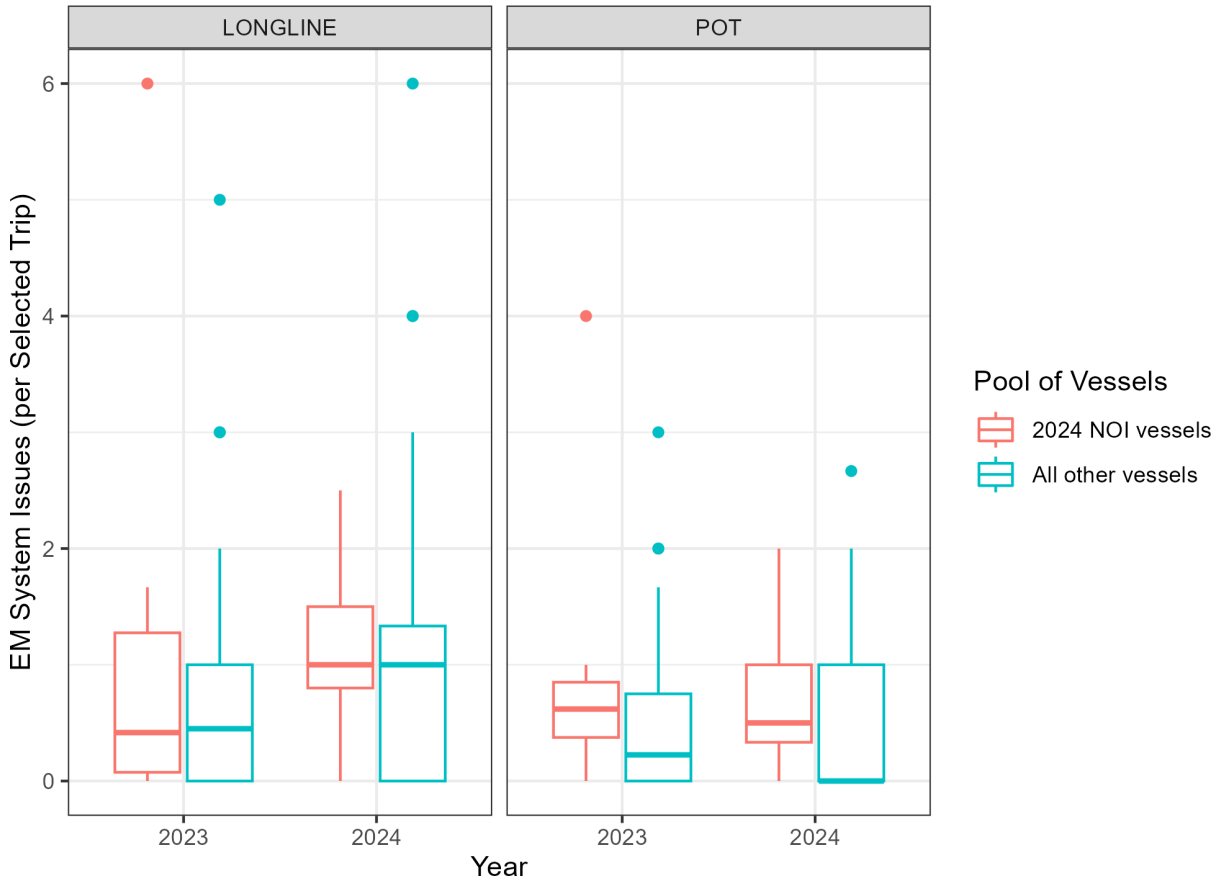

Figure 4-4-- EM system issues per selected trip for 2024 Notice of Improvement Pool (NOI) vessels and all other vessels. NOI letters were sent out for 2024 based in part on issue rates from 2023. LONGLINE vessels in the NOI pool had more issues per selected trip in 2024 than they did in 2023. POT vessels in the NOI pool had similar issues per selected trip in 2024 as they did in 2023.

5. Compliance and Enforcement

This chapter provides a review of the collaborative efforts between NOAA's Office of Law Enforcement Alaska Division (OLE), the Fisheries Monitoring and Analysis Division of the Alaska Fisheries Science Center (FMA), the fishing industry, and other partners in 2024. It is concerned with reports of potential and prosecuted law violations associated with fishing under federal jurisdiction in the Alaska Exclusive Economic Zone.

5.1 Background

5.1.1 Reporting process

The two primary report types that this chapter describes are 1) ODDS-related issue reports and 2) observer reports of potential violations. ODDS-related issues are identified and tracked by FMA staff using information available in both ODDS and eLandings. These issues are reported to OLE as they occur. Observer reports of potential violations are reported in the form of statements. These statements are completed during an observer's debriefing, which is a data review and methods validation process that completes the observer's cruise. Accurately reporting any suspected violations that occurred during an observer's cruise has been a required component of an observer's data collection since 1990. Additionally, observers are trained in compliance monitoring prior to being deployed into the commercial fisheries off Alaska. Completed statements have been stored by FMA in an electronic database since 1999 (hereafter "statements database"). Process improvements led to the redesign of the statements database which was implemented in July 2023 (AFSC and AKRO 2024b, section 5.3).

Each potential violation that an observer witnesses and documents may have multiple occurrences. In the redesigned statements system, occurrences are reported at the appropriate "occurrence unit(s)" for each potential violation. These occurrence units were modeled to conform with the observer deployment and sampling data hierarchy and this improvement was fully implemented for all statements in 2024. When writing statements in the redesigned system observers select the data "unit(s)" where each potential violation occurred based on their own deployment information. This provides specific references to the actual events where a potential violation occurred during an observer's assignment on a vessel or at a processing plant. For example, a statement written for the action of "failure to notify" the observer prior to bringing fish on board may be recorded for each haul during a 3-day period the observer was on a partial coverage vessel. In this case the observer would report the specific haul numbers from their haul data in the statement and each haul is an occurrence with the unit of "haul".

Regulations are assigned to a broad category and more detailed subcategory that describe the nature of the potential violation. Therefore, we placed observer statements into these categories and subcategories to provide summaries of potential violations reported by observers in statements. Some statement categories are broad in definition and may therefore have multiple unit types. For example, the category→subcategory "Interference With Duties→Sampling

Interference" may be recorded for deployment days, hauls, samples, or offloads, depending on where the sampling interference occurred within the observer's deployment.

The OLE works closely with the FMA and observer providers to address incidents that affect observer safety, sampling, and work environments. The electronic format of observer statements allows for efficient transfer of information to the appropriate authorities (OLE and the U.S. Coast Guard [USCG]). Every statement received by the OLE is first evaluated and prioritized. Then, OLE Officers and Agents investigate the most flagrant complaints to identify if violations have occurred and to determine the appropriate level of response. Some investigations become "cases" that are pursued further by the OLE. Observer statement data are also utilized by the OLE to track compliance trends and make subsequent adjustments to training, outreach, and operations.

A detailed description of the enforcement partners in Alaska and their respective roles — including the OLE, the USCG, and the Alaska Wildlife Troopers (AWT) — can be found in the 2021 version of this report (AFSC and AKRO 2022, Section 4.2).

A review of the type, frequency, magnitude, and drivers of observer-derived statements of potential violations with maritime law during 1999–2020 has been completed and provides a historical account of these data in the North Pacific (Faunce et al. 2023).

5.1.2 Partnerships

In addition to working with FMA, OLE also works with NOAA Workplace Violence Prevention and Response (WVPR), the Alaska Wildlife Troopers (AWT), and the U. S. Coast Guard (USCG) to ensure observers are able to complete their duties in a safe environment free from assault, harassment, interference, or any behavior that may negatively impact them or the data they collect. If an observer reports sexual assault and/or sexual harassment (SASH), assault, or any other form of harassment, the observer is offered contact information for the WVPR regional coordinator who will put them in conduct with local victim advocacy services. WVPR also assists observers in managing conflicts that may not yet rise to the level of a crime so as to come to a resolution before an issue escalates. AWT works collaboratively with OLE under a Joint Enforcement Agreement. In 2024, OLE conducted six at-sea patrols with the AWT. AWT also assisted OLE agents and officers during dockside boardings, interviews, and operations. In areas where an OLE agent or officer is not readily available, AWT may respond. The AWT have larger patrol vessels and routinely visit ports where no OLE persons are stationed such as King Cove, Akutan, and Adak. FMA forwards statements written by observers directly to USCG for investigation. OLE works collaboratively with USCG during cutter patrols and also will forward information to USCG. In 2024, OLE deployed on three patrols on USCG cutters. OLE also briefs USCG on OLE mission priorities, such as the protection of observers, SASH, and Catcher Processor Operational Requirements.

5.1.3 Observer Training

During the 2024 calendar year, OLE participated in seven 3-week initial observer training sessions. The OLE portion of the training is split into two main portions, the first focusing on identifying, documenting, and reporting suspected violations relevant to the conservation of marine resources and their environment. The observer trainees are encouraged to speak with vessel management if they identify a potential violation, to build a collaborative relationship between themselves and the fishing industry, and to resolve behavior that may negatively impact the fisheries. The second portion of the training focuses on observer safety and ensuring a safe work environment for observers, free from any form of harassment. WVPR and an attorney from the Office of General Council also participated during the training. The training includes activities where the observer trainees use their knowledge and their communication and conflict resolution skills to work through different scenarios based on past observers' deployments.

OLE participated in 20 annual observer training sessions. The OLE portion of the training focuses on providing observers an understanding of the trends in violations from previous years and how OLE addressed those violations. It also serves as a reminder for emerging trends, new regulations, and OLE's current focus. Observers also test their knowledge and their communication and conflict resolution skills by engaging in scenarios involving potential violations.

5.1.4 In-Season Support for Observers and Self-Reports from Industry

In addition to notifying vessel management, observers are encouraged to communicate with FMA staff, WVPR, OLE, and their observer provider to provide early notification of potential violations. This enables the observer to be provided additional support if the need arises. Early communication of potential violations is desired so the industry has the opportunity to come into voluntary compliance. In 2024, OLE received dozens of self-reports from industry detailing potential violations brought to their attention by one of their observers or self-identified. In many of the self-reports, the observers and vessel management worked collaboratively to address the issue, preventing it from escalating to a more serious matter.

5.2 2024 Updates

5.2.1 Year-to-Year Comparisons

As mentioned above the observer statements database overhaul was rolled out in July 2023. Therefore 2024 was the first *full* year of statements reported in the new system. Year-to-year comparisons are not possible in this report because as described in the 2023 report the data between the two systems are not comparable in a meaningful way.

5.2.2 Contractor Responsibilities

In 2024, there were updates made to the observer contractor regulations which govern an observer provider's responsibilities. The most significant change involves the requirement for observer providers to enforce their conduct and behavior policy. The previous iteration of the regulation only required the observer provider to develop, maintain, and implement the policy. OLE received numerous complaints over the years from the fishing industry that observers were using drugs or alcohol, or were engaging in sexual relations with crew members, but the observer providers didn't take action to address the behavior. Outreach letters were sent to the observer providers alerting them the regulatory changes. Observers were also given an outreach letter reminding them of their responsibilities as observers.

5.3 Data Analysis

5.3.1 Data Preparation and Summaries

The observer statements database was used to obtain statements from potential law violations that occurred during 2024. When an observer statement is generated, they are asked about the nature of the violation (the regulation) and the units (deployment, trips, hauls, offloads, samples, deployment days, and/or observer-reported marine mammal interactions) that were affected by this potential violation. A statement may reference multiple regulations and thus contain multiple units and unit types. Because regulations are assigned to a broad category and more detailed subcategory that describe the nature of the potential violation, categories and subcategories represent a logical way to provide summaries of potential violations reported by observers in statements. Summaries were excluded to protect the identity of individual observers or vessels when there were fewer than three observer vessel/plant assignments available.

The sum total of each observer unit was calculated for the year (Table 5-1) and then again for "factors" that allow for a more detailed analysis of when and where potential violations occurred within the fleet. The factors associated with each unit here were "coverage type" (full or partial); "vessel type" (CP/MS, CV, or PLANT); and "FMP Area" (GOA or BSAI), although the factors "gear type", (Hook-and-Line, Non-Pelagic Trawl, Pelagic Trawl, and Pot or Trap) and "Management Program Code" (A80, AFA, CDQ, IFQ, OA, PCTC, RPP, SMO, SMPC, SMS, TEST) are also available.

5.3.2 Occurrence Rates

Occurrence rates for each statement category/subcategory were calculated as the percentage of the total units reported in the observer fishery and/or deployment data that were selected as occurrences in observer statements. The number of statements, occurrences, and occurrence units reported by observers for each statement category in 2024 is presented in Table 5-1. These values by themselves are likely biased to reflect the nature of potential violations that occur on fishing activities with the most monitoring. The number of units monitored by observers and the percentage of those selected in statements as potential violation occurrences are presented in Table 5-2. This table provides the relative number of sample units affected by potential

violations with regulations. Half of observed vessels and nearly all observed dockside processing plants were reported for potential violations. Nineteen percent of all monitored offloads were associated with a potential violation while less than half a percent of samples were associated with a potential violation (Table 5-2).

Visualization of resulting rates for OLE high-priority statement categories are presented in Figure 5-1. The greatest rate was in the Observer Sampling Station" subcategory of the "Gear/Equipment Requirements" category. Statements in this subcategory can have a unit of "days" or "trips" because observer sampling station regulatory requirements may be required daily (as in the case of daily scale tests) or for each trip (as in the case of sampling station layout requirements). In 2024, 1.98 % of all observer-reported trips and 0.77 % of observer deployment days had a potential violation reported in this statement group. Higher rates were also reported in the "Observer Safety and Work Environment" category in the "Food and Accommodations", "Safety", and "Hostile Work Environment" subcategories, where 1.68%, 1.59%, and 1.47% (respectively) of observer deployment days were reported with a potential violation.

The very high rate of the Observer Sampling Station category was decomposed into different factors and combined with the subcategories of observer sexual harassment and sexual assault (SASH). The SASH subcategories will always be highlighted in this and future reports because victimization rates can be widely underreported (e.g., Jeroue et al. 2024). Figure 5-2 illustrates that the Observer Sampling Station subcategory of potential violations experienced by observers occurred in the full-coverage CP/MS BSAI sector trips. Notably, the rates of sexual harassment while low (0.52 % of days) was 8× greater on partial coverage CV trips than for CP/MS (the next highest rate).

The highest rate for all other statement categories/subcategories was in the "Operational Requirements" category where nearly 13% (12.87 %) of observer-reported offloads had reports of "CMCP" subcategory potential violations (Figure 5-3). High rates were also reported in the "Marine Mammal" subcategory (3.55 % of records), offloads (3.44 %) in the "General Reporting Requirements" subcategory, and hauls (2.29 %) in the "false reporting" subcategory.

The very high rate in the "CMCP" subcategory category could not be separated into factors because it was recorded at the rate of the offload. The calculations of rates for offloads by factors was confounded by the fact that observers only sample some offloads in the GOA, and this artificially reduced the violation rate in the GOA relative to the BSAI. Future iterations of this report will correct for the counting of all offloads in the rate calculation denominator and amend it to only count the number of monitored offloads. Other unit types did not have this problem.

Potential violations in the recording of anticipated and completed trips on ODDS was reported to the OLE on 58 occasions (Table 5-3). Nearly equal number of trips reported an incorrect FMP area or failed to log a trip. This represents a very small fraction (1.42 %) of the 4,059 trips logged in 2024 (Table 3-2).

5.4 Trends in Reports of Potential Violations

In past years, between year trends in potential violations has been presented. This comparison is not included this year because 2024 is the first full year of data collected under a new database architecture, and resulting rates are not comparable to prior years. Comparisons between years will be resumed in next year's report.

5.5 Ongoing Investigations and Enforcement Concerns

5.5.1 Ongoing Investigations

OLE continues to investigate 154 of the statements that were submitted in 2024. These statements span over all statement category types. Forty-seven of these statements still under investigation involve Observer Safety and Work Environment. Table 5-4 details the investigative status of statements received in 2024.

5.5.2 Enforcement Concerns

There were 114 statements in the Observer Safety and Work Environment category in 2024. The safety and security of observers continues to be OLE's highest priority. OLE continues to emphasize a safe work environment for observers that is free from any form of harassment through training of observers and the fishing industry, thorough investigations, and holding offenders accountable. Sexual harassment and sexual assault of observers as reported on the CP/MS, CV, and Plant sectors in the BSAI, and in Plants in the GOA. The highest rate of sexual harassment was in the partial coverage CV sector in the BSAI at 0.52%. It is important to acknowledge that even one occurrence is unacceptable.

5.6 Enforcement Operations

5.6.1 Annual A-Season Observer Operation

The 2024 Annual A-Season Observer Operation took place in Dutch Harbor. OLE worked with WVPR, FMA, and AWT to make the operation successful. The operation focused on investigations involving sexual assault/sexual harassment of observers, hostile work environment, general health and safety of observers, interference/sample biasing, and failure to abide by catcher operational requirements. During the operation, approximately 25 vessels were boarded in furtherance of ongoing high-priority investigations. WVPR had discussions with vessel management about safe work environments for observers. Approximately 60 interviews were conducted by OLE during the operation.

5.7 Outreach and Compliance Assistance

5.7.1 Outreach

Prior to the start of the 2024 fishing year, OLE held several individual outreach meetings with various vessel companies. OLE also provided multiple Ensuring a Safe Work Environment for

Observers training sessions. These meetings and sessions were completely voluntary and highly encouraged.

5.7.2 Compliance Assistance

In 2024, there were 47 statements submitted that resulted in compliance assistance provided rather than the issuance of a formal enforcement action. Compliance assistance was found to be acceptable due to several mitigating factors such as single isolated incidents with no priors, self-identification of the potential violations and immediate steps to resolve, and collaborative efforts to immediately resolve the issues when notified by an observer.

5.8 Enforcement Actions

5.8.1 Written Warnings

There were four cases generated from six individual observer statements submitted in 2024 that resulted in the issuance of a Written Warning. Half of the statements involved violations relating to Observer Safety and Work Environment.

5.8.2 Summary Settlements

There were 16 cases generated from 28 individual observer statements submitted in 2024 that resulted in the issuance of a Summary Settlement. Ten of these statements involved some form of failure to adhere to operational requirements, and the next most frequently violated category involved prohibited species.

5.8.3 Cases Forwarded for Prosecution

There were 10 cases generated from 27 individual observer statements submitted in 2024, forwarded for prosecution. Three cases were declined for prosecution and seven are still being considered for prosecution. Out of the 27 statements that were included in cases forwarded for prosecution, 9 of them involved Observer Safety and Work Environment, as this a high-priority for OLE.

5.8.4 Cases adjudicated in 2024

AK2303146; C/P *North Star* – Factory Forman Juvy Bongcawil was charged under the Magnuson-Stevens Act with harassing a fisheries observer by conduct that had sexual connotations or otherwise creating an intimidating, hostile, or offensive environment. An $18,000 NOVA was issued, and the case settled for $16,200.

AK2300242; F/V *Farrar Sea* – Owner RLB Vessel, LLC and Operator James Carl Wilson were charged jointly and severally under the Magnuson-Stevens Act with failing to log four fishing trips in the Observer Deploy and Declare System. A $5,750 NOVA was issued, and the case settled for $5,175.

AK2104142; F/V *Pacific Star* – Owner Pac Star Inc. and Operator John P. McCarthy were charged jointly and severally under the Magnuson-Stevens Act for interfering with the sampling procedure employed by an observer by discarding catch before sampling. A $3,000 NOVA was issued and the case was settled for $2,700.

AK2201367; C/P *Arica* – Male Assistant Cook Jordan St. Martin-Reyes was charged under the Magnuson-Stevens Act with harassing and sexually harassing two female observers on board a vessel. A $19,000 NOVA was issued and the case was settled for $4,000.

AK2202348; C/P *Northern Eagle* – Owners American Seafoods Company, LLC and Northern Eagle, LLC were charged jointly and severally under the Magnuson-Stevens Act with failing to ensure no salmon of any species passed the observer collection point. A $15,000 NOVA was issued and the case was settled for $13,500.

AK2105310; F/V *US Intrepid* – Crewman Zedrick Moli (aka Zedrick Allen) was charged under the Magnuson-Stevens Act with harassing and sexually harassing a female fisheries observer. An $18,000 NOVA was issued. The NOVA became a final administrative decision due to default.

Table 5-1--Number of statements, occurrences, and occurrence units reported by observers for each statement category in 2024.

Category	Statements (#)	Regs Selected (#)	Occurrences (#)	Occurrence Units
Safety-USCG: Marine Casualty	144	1	276	Days
Observer Safety and Work Environment	114	11	1,567	Days, Trips, Hauls
Prohibited Species/Marine Mammals/Seabirds	82	23	562	Hauls, Marine Mammal Interactions, Offloads, Trips
Permits/Documents/ Record Keeping and Reporting	68	15	1,771	Days, Hauls, Offloads
Interference with Duties	63	13	771	Offloads, Hauls, Days, Samples
MARPOL/Oil Spill	56	2	66	Trips, Days
Operational Requirements	47	17	939	Days, Hauls, Offloads, Trips, Samples
Gear/Equipment Requirements	34	22	358	Days, Trips, Hauls, Offloads
Sustainable Fisheries	26	6	486	Hauls, Days
Safety-USCG: Fail to Conduct Drills and/or Safety Orientation	24	2	360	Days
Contractor Requirements	12	8	26	Days, Deployments
Safety-USCG: Equipment	6	4	23	Days
All Categories	**676**	**124**	**7,205**	Days, Hauls, Offloads, Trips, Deployments, Marine Mammal Interactions, Samples

Table 5-2 --The unit type, or occurrence unit, monitored by observers and reported on statements of potential violations for 2024. A statement can contain multiple unit types and multiple occurrences for a single unit (for example, numerous samples in a haul or numerous hauls in a day). The column "Total Units" is the total number of units that were monitored by observers. "Selected in statements" refers to the number of units that were present in observer statements. The value selected in statements reflected as a percentage of the total units is represented in the last column. For example, nearly one in five (19.2%) of observer monitored offloads were included in at least one statement. Vessels and plants are not used as occurrence units but are provided here for additional information: observers deployed to 281 vessels and 11 plants in 2024 (see chapter 4). 143 of those vessels (~51%) and 10 of those plants (91%) were named in at least one observer statement in 2024.

Occurrence Unit	Total Units (#)	Selected in Statements (#)	Selected (%)
Samples	109,428	432	0.4
Hauls	36,667	2,416	6.6
Days	29,954	3,368	11.2
Offloads	4,103	786	19.2
Trips	2,733	180	6.6
Deployments	494	12	2.4
Marine Mammal Interactions*	282	11	3.9
Vessels	281	143	50.9
Plants	11	10	90.9

*Marine Mammal Interactions are reported by observers regardless of whether a potential violation occurred or not.

Table 5-3-- Potential trip-logging and ODDS violations reported to the OLE in 2024.

Ending Port	Canceled Trip Fished	Incorrect FMP Area	No Logged Trip	Cases (#)
Kodiak		5	11	11
Dutch		10	2	8
Akutan	1	6	2	7
Sand Point	2	3		5
Sitka		1	4	5
Seward		1	3	1
Homer		2	1	2
Petersburg			2	2
False Pass			1	1
Hoonah			1	1
Total	**3**	**28**	**27**	**43**

Table 5-4-- Statements received by OLE in 2024 (excludes USCG statements) and their current investigative status as of April 29, 2024.

STATEMENT CATEGORIES	Referred to Another Agency	Investigation Continues	Compliance Assistance	Written Warning	Summary Settlement	Forwarded for Prosecution	Declined for Prosecution	Lack of Evidence	Lack of Resources	No Violations	Grand Total
Contractor Requirements		6		2					1	2	**11**
Gear/Equipment Requirements	2	9	5		3	3		1	7	8	**38**
Interference with Duties	3	22	11		3	2		4	6	12	**63**
Observer Safety and Work Environment	19	47	4	3	2	8	1	4	4	23	**115**
Operational Requirements	1	16	7		10	5			2	7	**48**
Permits/Documents/ Record Keeping and Reporting	4	22	10	1	2	1		1	8	20	**69**
Prohibited Species/Marine Mammals/Seabirds	6	24	8		7	4	2	5	10	16	**82**
Sustainable Fisheries		8	2		1	1		2	1	11	**26**
TOTAL	**35**	**154**	**47**	**6**	**28**	**24**	**3**	**17**	**39**	**99**	**452**

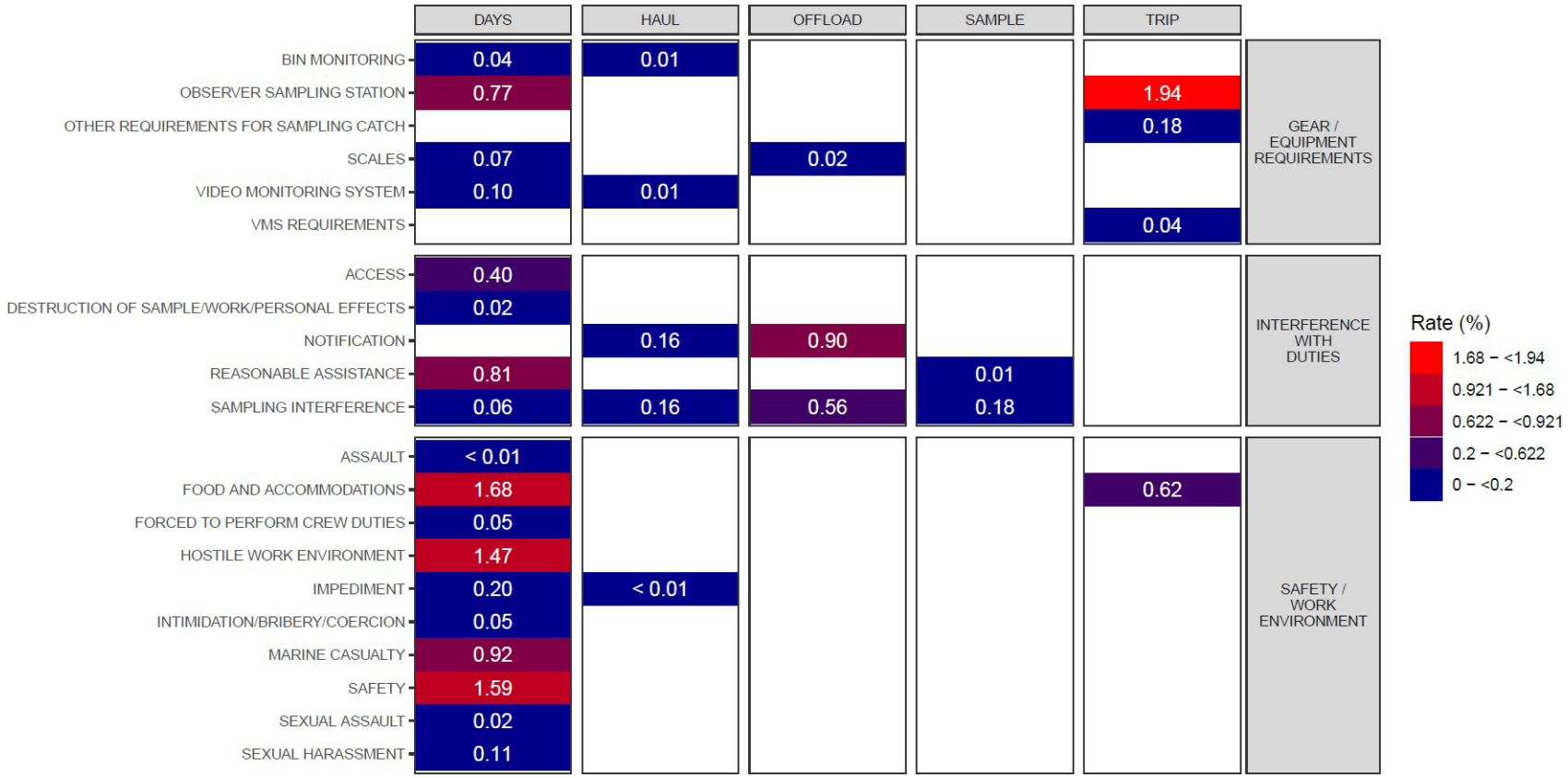

Figure 5-1-- Occurrence rate of OLE high-priority statement subcategories (rows) in their reported occurrence units (columns). Subcategories (on the left) are grouped by their parent categories (on the right).

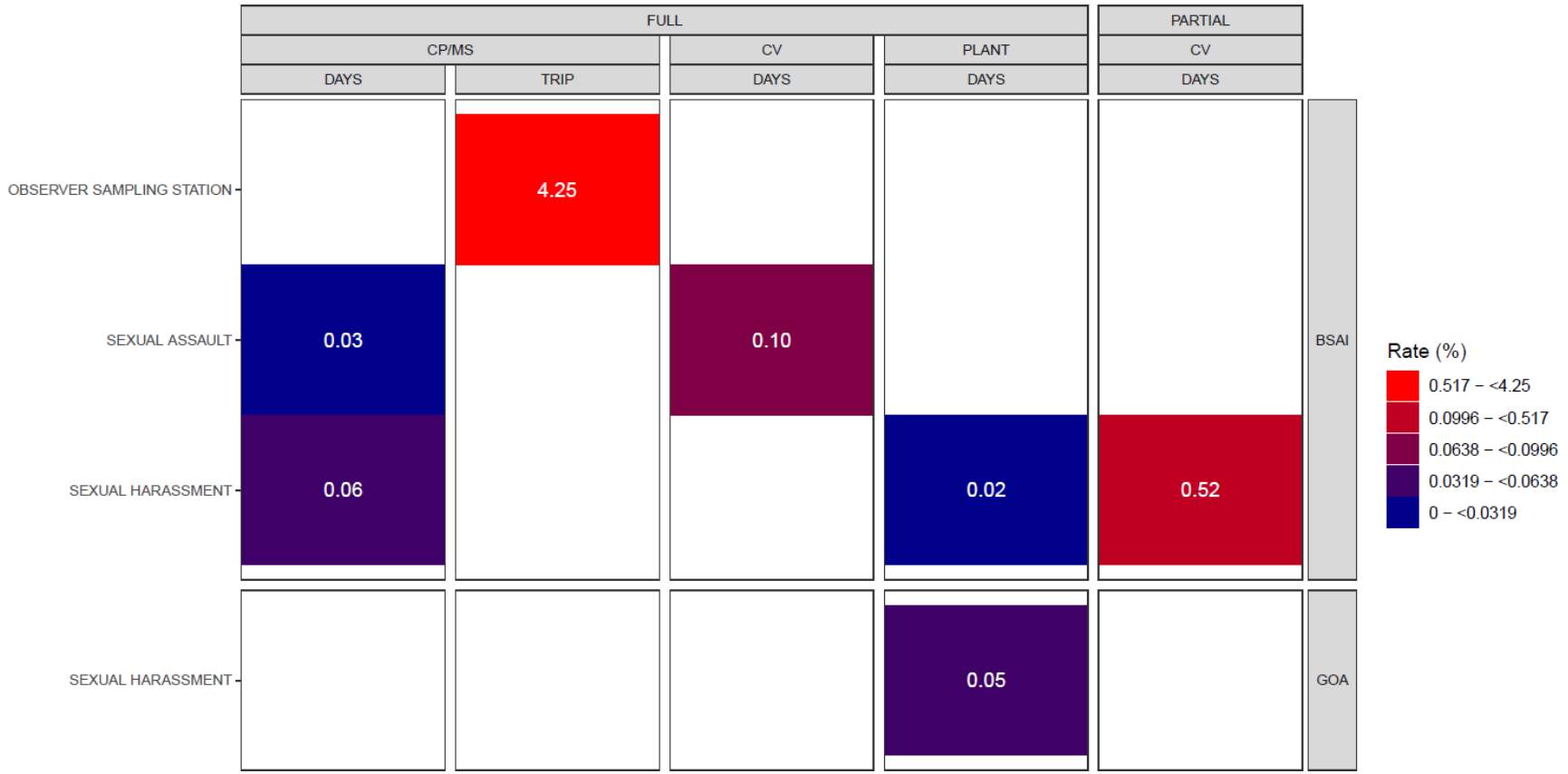

Figure 5-2-- Occurrence rates by FMP (rows, right), and coverage type, vessel type, and unit type (columns) for the highest-rate subcategory of all the OLE high- priority statement subcategories ("Observer Sampling Station") in Figure 5.1 and the OLE priority statement categories of sexual assault and sexual harassment.

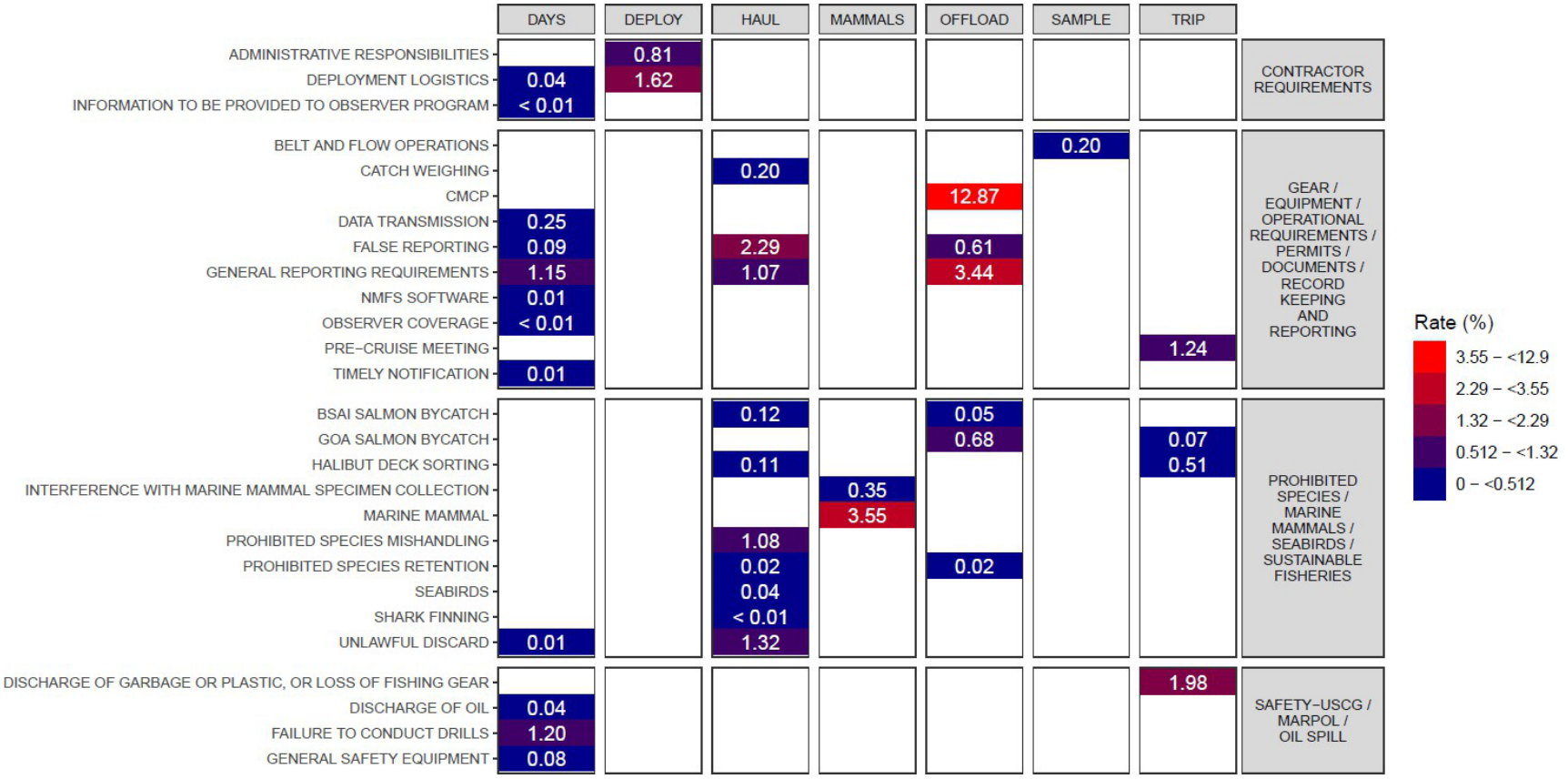

Figure 5-3-- Occurrence rate of other statement subcategories (rows) in their reported occurrence units (columns). Subcategories (on the left) are grouped by their parent categories (on the right).

6. NMFS Recommendations

NMFS recommends the following for the 2026 Annual Deployment Plan:

6.1 Deployment Design

- NMFS recommends the continued use of the Proximity allocation method for the partial coverage strata (with the exception of trawl EM) in 2026. Doing so will provide consistency in deployment and allow NMFS to collect data under the same deployment design to better enable a Center for Independent Experts (CIE) review.

- For the Trawl EM stratum in the BSAI, all offloads from Trawl EM trips are to be sampled for salmon, halibut, and biological data, In the GOA, NMFS recommends maintaining the sampling rate where all EM deliveries are monitored for salmon and halibut PSC and 33% are sampled by shoreside fishery observers for biological data. The agency will continue to monitor the complete sorting and accounting of salmon, with specific attention in the Western GOA during the B Season and likely develop additional mechanisms, such as CMCP modifications, for ensuring accuracy of salmon accounting in 2026. NMFS recommends maintaining the stratification used in the final 2025 ADP for use in the 2026 Annual Deployment Plan. As in 2024 and 2025, the stratification definition would be based on monitoring method (Observer, EM Fixed Gear, EM Trawl), Fishery Management Plan (BSAI, GOA), and gear type that combines hook-and-line and pot gear (Fixed, Trawl). The 8 recommended partial coverage strata for 2026 are:

    - Observed fixed gear trips in the GOA (*OB FIXED GOA*)
    - Observed fixed gear trips in the BSAI (*OB FIXED BSAI*)
    - Observed trawl gear trips in the GOA (*OB TRW GOA*)
    - Observed trawl gear trips in the BSAI (*OB TRW BSAI*)
    - EM fixed gear trips in the GOA (*EM FIXED GOA*)
    - EM fixed gear trips in the BSAI (*EM FIXED BSAI*)
    - EM trawl gear deliveries in the GOA (*EM TRW GOA*)
    - Fixed-gear vessels less than 40 ft LOA and vessels fishing with handline, jig, troll and dinglebar troll gear (*Zero coverage)*

6.2 EM Video Review

- NMFS should continue to collaborate with the PSMFC to monitor video review progress and enable a review strategy that will result in EM video review times that result in the most useful information for the most number of trips for a given cost.

- To maximize data utility, NMFS, in collaboration with PSMFC, will continue to develop specific prioritization rules that can be used to allocate review effort to the fisheries, gear types, times and areas that are the most dependent on EM data for management needs.

6.3 Fixed-gear EM

- Maintain an EM selection pool composed of up to 178 fixed gear vessels, which would maintain the size of the EM pool from 2025. NMFS recommends prioritizing placement in the EM selection pool based on vessel size, fishing effort, minimizing data gaps, and cost efficiency.

- If a vessel operator had repeated problems with EM system reliability or video quality or has failed to comply with the requirements in their Vessel Monitoring Plan, NMFS may disapprove a Vessel Monitoring Plan and the vessel may be removed from the EM pool.

6.4 EM Development

- NMFS will continue to collaborate with industry partners on EM development and cost efficiency projects. NMFS will work with Council's monitoring committees (FMAC and PCMAC) to coordinate on EM development priorities and potential grant proposals to National Fish and Wildlife Foundation.

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Appendix A– Preview: Detection of observer effects from catch

Introduction

Addressing observer effects, wherein the act of observation has influence on the phenomenon being observed, is of great importance to science because its presence indicates that the results from data collected from observation (the sample) are biased and cannot be used to infer the properties of unobserved nature (the population).

Within the context of fisheries monitoring, monitoring status can be defined by the presence / absence of an onboard monitoring system such as electronic cameras (EM) or a human observer at the level of the primary sampling unit (PSUs - trips or vessels). In fleets without full coverage, the monitored portion of PSUs represent a sample of the population of fishing by the fleet. Therefore, the presence of an observer effect means that the data from monitored trips are not representative of the entire fleet, and this bias can have broad implications to catch accounting and stock assessments used to manage fisheries.

Despite the widespread use of fisheries monitoring programs, the inherent problem of bias due to observer effects, and numerous studies published over nearly two decades to document and address this problem, there exists no broadly accepted methodology to identify observer effects in fishery monitoring programs. While creative approaches towards controlling for observer effects and ensuring representativeness have been published, to date analyses have been limited to a single or multiple tests using univariate response variables that include direct measures of abundance (e.g., biomass) and indirect measures of species composition.

Chapter 3 of this report uses permutation tests to evaluate differences between observed and unobserved trips in landed catch, vessel size, trip duration, number of areas fished, the relative proportion of catch accounted for by the most abundant species, and the number of species. The permutation test offers an attractive alternative to parametric t-tests because it gives a simple way to compute the sampling distribution for any test statistic under the null hypothesis that the samples derive from the same population. However, the multiple tests performed can make it difficult to explain why some tests find differences but others do not. In addition, the metrics tested in Chapter 3 do not directly address the question that most of the public want to know - that is, how different is the *catch* between monitored and unmonitored trips.

Analysts of the Fisheries Monitoring and Analysis Division (AFSC) have developed a model-based method to test for observer effects in the catch of multiple species from the partial coverage fleet. The method tests different multivariate generalized linear models (MvGLM) with permutation to evaluate the similarity of species abundances from landed catch between trips that were monitored with EM or observers and those that were not. Landed catch is the target metric because discarded catch for unmonitored trips represent estimates derived from the catch accounting system of the AKRO and it is inappropriate to model data derived from another model. Because the method employs a MvGLM to detect observer effects, it is abbreviated for convenience as MOE (Multivariate Observer Effects), and the model as *mvglm_obs*.

Methods

The MOE framework employs several steps to arrive at a single statistical test value (p) as to whether or not an observer effect has occurred, and is therefore easy to interpret. The p-value is the likelihood that the result obtained from the data can be considered due to random chance, and is testing against the null hypothesis that there is no difference between the species compositions and abundances of monitored trips and unmonitored trips. In other words, the lack of an observer effect (the desired outcome) indicates that the catch of multiple species from monitored and monitored trips can be considered as belonging to the same population and are interchangeable.

Trip-level information from the partial coverage fleet from 2024 was categorized and calculated. Labels for each trip were created for the deployment strata defined by the ADP, whether or not the trip was monitored (Y or N), and assigned a fishery - defined by the combination of fishery management plan area (GOA or BSAI), trip target code (predominant species caught), and whether or not the trip was tendered (Y or N). The trip duration was calculated from the start and end of the trip in days. Trip duration was not always available, for example where trips may include data from catcher vessels acting as catcher processors. In these, cases trip durations are erroneously calculated as one day because this is the way that data are processed by the catch accounting system. In these cases, the average trip durations from catcher vessel trips belonging to the same fishery were used instead.

MOE was performed for each stratum similar to the way that current permutation tests were performed in Chapter 3. The first step of the methodology was to identify the fisheries that had enough trips to include in the analysis. Given sampling with replacement, five trips yielded just over 3,000 unique combinations, while six trips yielded over 46,000. For this reason, any fishery with less than five monitored or unmonitored trips were excluded from analyses.

The second step in the MOE framework was to identify species for inclusion in the model. Some species were simply too rare, and their inclusion only served to add noise. Determining which species to include in models was challenging. The frequency of occurrence among trips and log transformed total biomass were calculated for each species within each stratum. A linear regression model and a segmented linear regression model were run on these data for each stratum. The segmented linear regression model identified a breakpoint (frequency, or number of trips the species occurred in) at which the relationship between frequency and log biomass changes among species. The choice of log transformation of biomass and untransformed frequencies exacerbated any differences in the relationship between these variables for the segmented model. Consequently, very rare species with large total biomass (sleeper sharks) were often below the breakpoint and thus excluded from the analysis.

The results of the F-test, segmented model breakpoint, and total frequency were used to identify species to include in the tests for observer effects. If the model chosen in the F-test was the linear model, or if the breakpoint from the segmented model when chosen was less than six, the value of the breakpoint was updated to equal the greater of 1% of the total frequency of occurrence or six. Species were then removed from consideration for analysis of observer effects if their

frequency of occurrence was less than the revised breakpoint for the stratum, and would always be greater than six.

The third step of the MOE framework was to identify the modelling distribution of the response variable. The biomass of each species among all trips is prone to a large number of zeros (missing values) and continuous positive values (e.g., weight of fish caught when there is a catch). The Tweedie distribution (a member of the exponential dispersion family) can model a compound Poisson-Gamma process, which makes it ideal for this kind of zero-inflated, right-skewed continuous data. The Tweedie distribution has a dispersion parameter that needs to be estimated for the data to be modelled. This was accomplished through maximum likelihood estimation using values of 1.5 to 1.9, by 0.01 with the model formulation "Biomass ~ Species + fishery + days fished + fishery:days fished + observed" using the r package *tweedie* (Dunn, 2022). Note that the factor "Species" was in this model.

The fourth step was to perform generalized multivariate models using the Tweedie distribution with the proper dispersion parameter for the observer effect. This was accomplished by running two *mvglm_obs* models; one full model, and one reduced model. In both models, the response was a matrix of rows belonging to trips, and columns belonging to each species, where each value was the biomass. The full model was in the form "Biomass ~ fishery + days fished + fishery:days fished + observed" (note that the factor "Species" was missing because it was contained in the multivariate response Biomass), while the reduced model was identical to the full model but with the factor "observed" removed (the null hypothesis case). Models were performed using the R software package "*mvabund*" and a modified version of the function *manyany* (Wang et al. 2022)[23]. For each species, both the full and reduced generalized linear model were fit and a likelihood ratio (L-R) value for each fit was obtained. These were then summed across species to generate a total L-R value for each model. The difference between the L-R values between the full and reduced models was the test statistic. This value cannot be used to infer the magnitude of the difference however, because we do not know the difference values expected under the null hypothesis. However, the difference values that would be expected under the null hypothesis were generated by simulation. This was accomplished by randomly permuting the rows (constrained within a fishery) and performing the full and reduced models on the new data and calculating the test statistic. By performing this process many times (10,000 is preferred), the significance of the test statistic (p) from the actual data was then derived from the number of test statistics from randomized data that were equal or greater than the value derived from the actual data. In this way, the significance of the test was identical to the permutation tests performed in Chapter 3. Furthermore, the test statistics were calculated for each species, so within a stratum with a low p-value, the species that also had low p-value test statistics were identified. Simply put, the *mvglm_obs* models result in one p-value for each stratum, and low p-

[23] The original *manyany* function was modified to allow for rare cases where the model failed to converge. This can happen when the random permutations result in missing cases due to the way that the Tweedie distribution is applied to the residuals.

value strata (i.e., observer effect found) were further investigated to identify the species that were most responsible for the observer effects.

What we know from trials using 2024 catch data

The modeling approach to investigating observer effects holds promise. In a comparison of alternative methods to test for observer effects, a similar mixed modeling approach used by Faunce and Barbeaux (2011) was not confounded by deployment effects, was relatively robust to changing coverage rates, and was the only test to identify an effect in the New England groundfish fishery (Duarte and Cadrin 2024). However, the same study by Duarte and Cadrin (2024) found that the method was not reliable for detecting small bias.

The *mvglm_obs* offers substantial advantages over past methods to detect observer effects. By specifying the family and linkage in the model, the mean and variance relationship of the data is preserved and there is no need to transform the data. The MvGLM takes into account correlation between species, which is not possible using standard generalized linear modelling tools. Consequently, there is greater power to detect patterns when analyzing all species simultaneously than when looking for a pattern separately in each species. Jupke and Shafer (2020) found that among different ecological tools to evaluate community and environmental variables, MvGLM performed best for false positive rates (incorrectly detecting an observer effect when there was not one present) and showed the best performance when all community types are considered. The false negative rate was also low and all false negatives occurred in communities with the smallest sample size. While MvGLM is still susceptible to low power at low sample sizes, it has been shown to outperform other resampling techniques such as PERMANOVA (Wharton et al. 2012). The methods used in the MOE framework to remove low effort fisheries and identify rare species serve to further reduce the potential negative effects of small numbers of observations on already relatively robust model power.

R software code has been developed for use with the data from Chapter 3 to perform fishery and species vetting, identify the dispersion parameter for the Tweedie distributions, perform full and reduced *mvglm_obs* models, and compute the value of the test statistic using permutation. Because there can be numerous fisheries within a stratum or only one, model formulations have been automated to remove the interaction term where necessary.

Several challenges remain in the development of MOE. Nearly half of the Alaska fisheries that exist within a stratum in 2024 do not have more than five monitored and unmonitored trips within them and were excluded from the analysis. Therefore, the MOE framework is only useful in testing the most common fisheries of the partial coverage fleet, although there appear to be few practical ways to deal with low fishing effort. The resampling procedure in the *mvabund* package is extremely slow and thus with 10,000 iterations a time constraint is imposed on the analyst and computing hardware. Currently, a dedicated virtual machine took 9 hours to complete 1,000 permutations. About 5,000 iterations appears to be the current practical maximum for this analysis.

FMA plans to include this analysis in Chapter 3 of the 2025 Annual Report. For that report, the code will be updated to speed up permutations through parallel processing and visualizations of the results will be developed.

Appendix B– Chapter 5 special topics

This appendix provides additional details to support the text in Chapter 5 of this report.

Definitions

A **Violation** of maritime law occurs when an individual or entity (such as a vessel or processor) commits an act that is prohibited by NMFS or USCG regulations.

A **Complaint** is a report of a potential violation. Complaints can be reported to enforcement at any time. Observers, the FMA, industry, or members of the community can report complaints. When a complaint is reported by an observer, it is typically documented in a "statement".

A **Statement** is the documentation of potential violations by an observer to the FMA, typically during debriefing. Multiple statement headings can categorize potential violations. A single statement may report one or multiple occurrences of the same potential violation, or it may report occurrences of different violation types falling under the same category.

An **Occurrence** is a specific instance of a potential violation within a statement. A statement may consist of one or many occurrences.

An **Assignment**, or observer assignment, is a unit of measure for analysis of some statement types represented by a combination of an observer and a unique vessel or plant.

A **Cruise** is used to define the deployment period for an observer. A cruise deployment period can last up to 90 days (not including debriefing) and may contain many individual vessel/plant assignments, but is generally limited to four assignments unless an additional-boat waiver has been requested by the provider and approved by NMFS.

A **Unit** is the time and/or spatial level at which an occurrence of the potential violation was observed (Table 5.2). A unit can be a "deployment day", "trip", "haul", or "offload", depending on the potential violation type. Units are a component of data collection added in the OLE database in 2024.

An **Incident** consists of one or more statements that, after review by the OLE, are deemed to contain a potential violation. Not all statements result in incidents: for example, some incidents contain no violation and many are recorded for information purposes only. The OLE logs enforcement responses as incidents into an electronic case management database. An incident that is forwarded for further examination is referred to as an "investigation". Multiple statements may be investigated under a single incident number, however not all incidents are forwarded for investigation.

An **Investigation** is an inquiry conducted by the OLE to determine if a violation has occurred.

A **Case** is the conclusion of an investigation that may result in enforcement action. An Adjudicated case is a legal case that has been formally decided or resolved by a judge or a court.

An **Enforcement Action** is the outcome of a case that holds the violator accountable. Levels of enforcement action include Compliance Assistance, Written Warning, Summary Settlement (monetary penalty), Notice of Violation and Assessment by the NOAA General Counsel Enforcement Section, or criminal prosecution.

Workplace Violence Prevention and Response (WVPR) is a program within NOAA that provides education and training, victim support, reporting mechanisms for NOAA employees, affiliates, and visitors.

The **Alaska Wildlife Troopers** (AWT) are a division within the Alaska State Troopers that focuses on protecting Alaska's natural resources through the enforcement of wildlife statutes and regulations.

How colors are assigned to potential violation rates

Chapter 5 of this report is focused on the absolute and relative amount of potential violations with maritime law by the fishing industry reported by fisheries observers. While absolute values are reported in tables, the relative amounts are reported as rates in Figures. Rates for each figure are depicted as colored 2-dimensional panel "heat maps" where warmer colors denote larger values than cooler colors.

The assignment of colors to values in a heat map varies based on decisions made by the data analyst and the data values. Chapter 5 uses categorical color scaling that assigns a single color to a range of data values rather than a continuous color scale that assigns a different color to each value of the data. This decision was made because in Chapter 5 the desire is to depict values of roughly "high", "medium" and "low" values.

The use of categorical color scales requires decisions on what range of values to assign to each color, and how many color categories to include in the final figure. Rather than leave such decisions to data analysts that can cause variation and lead to potential human bias and error, Chapter 5 uses an automated algorithm for this purpose.

The color assignment algorithm uses analyst-defined colors for the lowest and highest categories, along with the desired maximum number of colors in the final visualization. This maximum was set to five, corresponding to intuitive categories: "very high," "high," "medium," "low," and "very low." The algorithm assigns numerical data values to color categories using Jenks natural breaks classification. The Jenks method iteratively places values into groups, calculating the variance within each class (which it seeks to minimize) and between the classes (which it seeks to maximize), repeating the process until the optimal grouping is determined (Jenks and Caspall, 1971). This method, implemented in the *classInt* R package by Bivand (2024), is commonly used in cartography, making it particularly suitable for heat maps by effectively highlighting natural data patterns. Jenks classification does not necessarily produce equal numerical intervals or equal counts of values per class; rather, it focuses on grouping data according to natural breaks. Consequently, some classes may contain only a single value. Additionally, when the data contain between two and five unique values, the algorithm bypasses Jenks optimization entirely, assigning each value directly to its own class.

By employing an automated algorithm to assign colors to classes according to the data, each figure in Chapter 5 is created using the same logic, analyst subjectivity is bypassed, and Figures depict potential violation rates in 2-5 colors, with the warmest representing the largest value.

How missing unit data are handled

A key feature of the redesigned observer statements system is the "occurrence unit". Observers have reported the "number of occurrences" in statements since at least 2001 but in the redesigned system those occurrences have units. Observers select the units from their fishery (e.g., "hauls" or "offloads") and/or deployment data (e.g., "deployments" or "days") where the potential violations occurred. There are occasions when the observer is unable to enter the unit. This can occur when:

- The observer did not fully document the situation when it occurred and is unable to remember exactly which units to select when writing the statement. In this case the observer is instructed not to "guess".
- The days on which the issue occurred are not part of the days that an observer was assigned to a vessel or plant. Since the observer's assignments are used to populate available units to choose from, in this case the units are not available to the observer when writing the statement.
- The fishery data where the issue occurred were deleted during the debriefing process. Data deletion occurs in debriefing for a myriad of reasons but is especially problematic for statement data linkages when the data were deleted due to sample biasing that warrants a statement. In this case the units are not available in the list for selection.

Whatever the reason, when units cannot be reported the observer instead enters a "unit issue" in which they write some text describing when and where the issue occurred. Because statement categories/subcategories are broad and may contain references to several different regulatory requirements, a statement may contain units for a particular potential violation type within the statement category but not for another potential violation type within the category. In 2024 there were 17 statements (~2.5%) that had some or all units missing (totals from columns 2 and 3 in Table B-1).

Missing units presents a challenge when quantifying occurrences by units. Simply removing them from the dataset is undesirable - especially given that some units are missing because they were deleted due to bias that is being reported in statements!

In an effort to ameliorate the potential negative effects of missing units, we imputed units into the 17 statements missing them in 2024 using the following method:

- The "unit issue" text, as well as the text of the statement, were scrutinized in detail for all statements that were missing units.
- Missing units were added to the dataset for cases where they could be clearly identified from this process (7 statements).
- The mean number of units for statements in the same category/subcategory was calculated and used as the number of units with the unit type that is used for that statement category/subcategory for all remaining cases (10 statements).

Table B-1-- The absolute and relative number of statement categories that were missing unit types in 2024.

Category	Statements with all units (#)	Statements with no units (#)	Statements with some but not all units (#)	Statements Missing units (%)
Prohibited Species/Marine Mammals/Seabirds	78	3	1	4.9
Permits/Documents/Record Keeping and Reporting	65	1	2	4.4
Safety-USCG: Fail to Conduct Drills and/or Safety Orientation	23	1	0	4.2
Observer Safety and Work Environment	110	2	2	3.5
Interference with Duties	61	1	1	3.2
Gear/Equipment Requirements	33	1	0	2.9
Operational Requirements	46	1	0	2.1
Safety-USCG: Marine Casualty	143	1	0	0.7
Contractor Requirements	12	0	0	0.0
MARPOL/Oil Spill	56	0	0	0.0
Safety-USCG: Equipment	6	0	0	0.0
Sustainable Fisheries	26	0	0	0.0
All Categories	**659**	**11**	**6**	**2.5**

Appendix C - CDQ Pacific cod small boat fishery observer coverage requirements

In 2016, NMFS published a final rule (81 FR 26738, 4 May 2016) that revised observer coverage requirements for vessels fishing under the Community Development Quota (CDQ) program to provide an opportunity for residents of CDQ communities to use the CDQ groundfish allocations to create local small-scale commercial fisheries. The goal of the regulatory change was to support increased participation in the groundfish CDQ fisheries, primarily Pacific cod, for small catcher vessels using hook-and-line gear. Specifically, the final rule moved catcher vessels less than or equal to 46 ft Length Overall (LOA) when using hook-and-line gear and groundfish fishing out of full coverage and into the partial coverage category. If a vessel retains more Pacific cod than halibut during a trip, the trip is considered a CDQ groundfish trip. The goal was to enable small boat CDQ fishermen to retain Pacific cod when participating in the halibut CDQ fisheries. Under the regulations, if a vessel is less than 46 ft LOA and groundfish fishing then it is in partial coverage and if the vessel is greater than 46 ft LOA and groundfish fishing, it is in full coverage (Table C-1).

In 4 of the past 8 years, one or more vessels greater than 46 ft LOA have participated in the CDQ halibut fishery and on specific trips they have caught more Pacific cod than halibut and therefore met the definition of groundfish fishing and were in the full coverage category. The problem is that the vessels did not know ahead of time that they were going to catch more Pacific cod than halibut and therefore logged trips in ODDS as if the trip was partial coverage. They did not comply with their full observer coverage requirement and NMFS did not achieve the expected 100% coverage rates in full coverage (see Table 3-1; and AFSC and AKRO 2024; 2021a; 2021b). In addition, the issue has created small observer fee billing inconsistencies.

Each year that this problem has occurred, NMFS has done outreach with the appropriate CDQ group to let operators of vessels greater than 46 ft LOA know that if they catch more Pacific cod than halibut, they are in a full coverage trip. Additionally, in 2024, NMFS modified ODDS to remind operators of vessels greater than 46 ft LOA with a history of fishing for CDQ groundfish to alert them they are in full coverage when groundfish fishing. However, different boats participate in the fishery each year and the problem continues to persist.

When the Council developed this program, it considered the fleet participation in the CDQ halibut fishery when it set the vessel length for partial coverage at 46 ft LOA. The analysis noted that the vast majority of halibut CDQ was prosecuted by fleets of catcher vessels less than or equal to 46 ft LOA. From 2009 through 2013, the fishery was prosecuted by a fleet with an average of 95% of vessels not exceeding 46 ft LOA, and an average of 91% of vessels not exceeding 32 ft (NMFS 2016). NMFS has not evaluated whether this participation has shifted, but the fact that vessels greater than 46 ft LOA are mistakenly ending up in partial coverage does indicate that larger vessels now participate in the fishery. Although the issue impacts a limited number of vessels and trips, the Council could re-consider its goals for the small-scale Pacific cod CDQ fishery and potentially relieve additional catcher vessels from the requirement for full coverage by setting the vessel size limit for partial observer coverage to

something greater than 46 ft LOA. For example, under Amendment 125 to the BSAI FMP, the Council chose a vessel length of 55 ft LOA when developing a small vessel provision for the Pacific cod jig sector.

Table C-1-- Observer coverage requirements for catcher vessels fishing with hook-and-line gear under the CDQ Program.

	Vessel less than or equal to 46 ft LOA	Vessel greater than 46 ft LOA
CDQ halibut	Partial Coverage	Partial Coverage
CDQ groundfish (i.e., the majority of the catch was groundfish)	Partial Coverage	Full Coverage

U.S. Secretary of Commerce
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Under Secretary of Commerce for
Oceans and Atmosphere
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