

***Amendment 23 Review:
Groundfish Sector Monitoring Program
DRAFT Report Outline***

Groundfish Plan Development Team

June 5, 2026



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1. Introduction

Overview

Amendment 23 to the Northeast Multispecies Fishery Management Plan¹ (Amendment 23) revised the Groundfish Sector Monitoring Program to improve documentation of catch and accuracy of collected catch data while maintaining the existing goals and objectives of the program. It was the Council's intent that the catch reporting requirements should be fair and equitable for all commercial groundfish fishermen, while maximizing the value of collected catch data, and minimizing costs for the fishing industry and the National Marine Fisheries Service (NMFS).

The Council's rationale in Amendment 23 for increasing the at-sea monitoring (ASM) coverage target to 100 percent was to establish a baseline of accurate and precise catch information for the fishery, while balancing concerns from the industry about the costs of higher monitoring coverage levels.

In Amendment 23, the Council stated that 100-percent monitoring:

- Increases the accuracy of catch estimates and reduces the potential for bias more than all the other options considered;
- Was the only option that completely removes bias in catch estimates; and
- Scored the highest in terms of compliance and enforceability of the monitoring program.

In addition, the Council discussed that:

- More data is needed to improve the overall science and provide more information to support better management;
- Combining 100-percent monitoring with EM and removing management uncertainty buffers would minimize increased costs to industry; and
- Higher coverage for a limited time could improve cost-effectiveness of the current and future monitoring system by providing a baseline of accurate and precise catch information.

Amendment 23 included a requirement for the Council to review the Groundfish Sector Monitoring Program to evaluate whether the monitoring program is meeting the goals once data from 2 complete fishing years are available (and periodically after the initial review).

This report documents the development of the review metrics, compiles PDT review analyses, and provides relevant background information.

Goal of the Review

The goal of the review is to evaluate whether the Groundfish Sector Monitoring Program, defined at [50 CFR 648.85\(e\)\(1\)](#), is meeting the goal of improved accuracy of catch data, while maximizing value and minimizing costs of the program. The Council specified that the review

¹ See [Amendment 23 webpage](#)

should: use complete data from 2 fishing years (once the data are available) and periodically after the initial review, be flexible and general, and include establishing metrics and indicators of how well the monitoring program improved accuracy while maximizing value and minimizing costs.

In Amendment 23, the Council gave the following rationale for the Groundfish Sector Monitoring Program review:

Rationale: Periodic review of the monitoring coverage rates will allow for an evaluation of whether the monitoring program is meeting the goal of improved accuracy of catch data, while maximizing value and minimizing costs of the program through a future action. The Council identified this option as preferred to ensure the Council evaluates this program to be sure enhanced levels of monitoring data are working as intended and the increased costs to industry are providing expected benefits from improved accuracy and reduced potential for bias in catch data.

The Council discussed how the scope of the review would be different if 100-percent coverage levels were selected compared to lower coverage levels. The Council selected a coverage target of 100 percent in Amendment 23 and specified the review process would be more limited because there would be comprehensive monitoring. Amendment 23 noted that the review would likely include metrics such as discard estimate coefficients of variation (CV)² and a measure of how catch (discards and landings) changed following comprehensive monitoring.

However, the Council also selected a lower monitoring standard of 40-percent coverage in the event that federal funds are not available to reimburse industry costs for higher monitoring coverage, and Amendment 23 noted it would likely be necessary to include additional metrics in a review to ensure monitoring targets are being met and are effective. For example, the review process with lower monitoring standards would likely include analyses of whether: the program is operating in a way the Council intended, was catch accurately being measured, was there evidence of bias, were monitoring standards being met, etc. This review was expected to be completed by the Groundfish Plan Development Team (PDT) with substantial support by other relevant NMFS staff. Amendment 23 highlighted that the review process for monitoring coverage rates may result in an adjustment to the goals and objectives of the groundfish monitoring program.

Additionally, the Council established a review process for exclusions from the monitoring program to verify whether the intent of those exclusions (e.g., that the catch composition has little to no groundfish) is being met.

After receiving this report, should the Council determine that changes to the Groundfish Sector Monitoring Program are warranted, the Council could prioritize taking action to make those changes in a future year. Any action by the Council to change the program would include further analyses to inform the action.

² Discard estimate CVs were not selected as a metric for this review.

Goals and Objectives of the Groundfish Sector Monitoring Program

The primary goal of the Groundfish Sector Monitoring Program³ is to verify area fished, as well as catch and discards by species and gear type, in the most cost-effective means practicable. The following goals and objectives of groundfish monitoring programs are equally-weighted secondary goals that sector monitoring programs are to be designed to be consistent with:

- (i) Improve documentation of catch:
 - (A) Determine total catch and effort, for each sector and common pool, of target or regulated species and ocean pout; and
 - (B) Achieve coverage level sufficient to minimize effects of potential monitoring bias to the extent possible while maintaining as much flexibility as possible to enhance fleet viability.
- (ii) Reduce the cost of monitoring:
 - (A) Streamline data management and eliminate redundancy;
 - (B) Explore options for cost-sharing and deferment of cost to industry; and
 - (C) Recognize opportunity costs of insufficient monitoring.
- (iii) Incentivize reducing discards:
 - (A) Determine discard rate by smallest possible strata while maintaining cost-effectiveness; and
 - (B) Collect information by gear type to accurately calculate discard rates.
- (iv) Provide additional data streams for stock assessments:
 - (A) Reduce management and/or biological uncertainty; and
 - (B) Perform biological sampling if it may be used to enhance accuracy of mortality or recruitment calculations.
- (v) Enhance safety of monitoring program.
- (vi) Perform periodic review of monitoring program for effectiveness.

Description of the Groundfish Sector Monitoring Program

A sector must develop and implement an ASM and/or EM program that may be approved by NMFS as both sufficient to monitor catch, discards, and use of sector annual catch entitlements (ACE); and as consistent with the sector monitoring program goals and objectives⁴. The details of any ASM or EM program must be specified in the sector's operations plan and must meet the operational standards. Maximized retention electronic monitoring (MREM)⁵ and audit EM models were approved to be used in place of ASM. Other types of EM may be used in place of ASM if the technology is deemed sufficient by NMFS, but no additional EM programs have been approved as of 2026. The Regional Administrator approves or disapproves ASM/EM programs as part of a sector's operations plan.

³ See [50 CFR 648.11\(l\)\(1\)](#).

⁴ See [50 CFR 648.11\(l\)\(2\)](#).

⁵ NMFS suspended the MREM program beginning May 1, 2024.

2. *Methods and Data*

Review Metrics

The PDT initially generated a list of possible metrics and indicators for the Amendment 23 review, with additional input from the Groundfish Advisory Panel (GAP), Groundfish Committee (Committee), Council, and Scientific and Statistical Committee (SSC). Members of the Groundfish PDT then met in February and March 2025 to discuss continued development of metrics and indicators for the review of Amendment 23. In addition to the updated list of metrics⁶, the PDT also drafted a discussion document⁷, which provided background on the Amendment 23 review, described the review objectives, and organized the metrics into review questions and themes. The PDT then presented that work to the GAP and Committee at a joint meeting on March 21, 2025. At their meeting on March 21, 2025, the GAP and Committee provided the following guidance to the PDT:

- *Pare down and prioritize the Amendment 23 review metrics list, focusing primarily on review themes 2 and 3⁸, and focus on metrics that can be explicitly connected to A23*
- *Complete the Amendment 23 review by first half of 2026 to inform future funding decisions and management actions*

The Committee met again on June 10, 2025, and received a pared-down list of metrics from the PDT⁹. The Committee supported the PDT's recommendation for a pared-down list of metrics to evaluate Amendment 23 monitoring program effectiveness, focusing on metrics specific to program efficacy, data impacts, and fishery impacts. Further, the PDT proposed to focus on 20 metrics following the Committee's guidance to focus on metrics that could be explicitly linked to effects of the monitoring program and Amendment 23. The review metrics are organized into three themes.

⁶ See March 14, 2025, [list of possible metrics and indicators](#).

⁷ See March 14, 2025, [draft discussion document](#).

⁸ Review theme 2 was *Do higher monitoring coverage rates improve accuracy and reduce bias of catch data?* And review them 3 was *What the impacts of monitoring costs to fishery performance?*

⁹ See [PDT memorandum dated June 4, 2025](#), and [June 5, 2025, A23 Review Metrics List](#).

Table 1. Summary of metrics in the Amendment 23 monitoring program review, including a brief description and rationale. Grey-shaded cells indicate core metrics.

ID	Metric	Description	Rationale
<u>Review Theme 1: Program Reach</u>			
M19	Achieved coverage	Overall achieved coverage rates AND Achieved-to-Target ratio:	Mission critical
		• By coverage type	
		• By sector	
M20	ASM coverage targets	• What was the target each year?	Mission critical (related to M19)
		• Were targets constant throughout the year?	
		• If < 100%, what was the basis for setting the target?	
		• When was the target announced (e.g. the date)?	
M28	Waiver counts	By reason (grouped PTNS coverage outcome reason and standard categories)	May be directly attributed to A23
			Likely readily reported out
			Explanatory to M27
M29	Acceptance rates	Providers accepting selected trips for coverage	Explanatory to M27 (may be difficult to draw conclusions directly)
M31	Refusals		Likely readily reported out (FMO)
M32	Incidents	By broad category (i.e., safety, crew behavior, etc.)	
M33	PTNS notification compliance	Compare PTNS notification compliance over time compared notification compliance under the 100% coverage target – Has compliance increased?	
M34	PTNS cancellations		
M27	Coverage equitability	How is achieved coverage spread across the fleet?	Major Council concern
		• Between sectors	Similar / supplemental analytical lift to addressing M19
		• Within sector	

		Potentially consider other factors (e.g., individual vessel, trip type [day vs multiday], gear type, vessel size class, etc.)	
M38	Distribution of vessels	By program (ASM / audit model EM / MREM)	Explanatory to M27
		How many / what types of vessels select into each program (by vessel size class, gear type, port, etc.)	Difficult to meaningfully track reasons for opting in/out, but consider involving sectors in the review process directly instead
		How many / what types of vessels choose to leave each program?	
		How many / what types of vessels participate in 7130 exclusion (vessel size type, gear type, port, etc.)	
M39	EM video review rates	How is this operating under A23?	Likely readily available (low data lift)
<u>Review Theme 2: Data Impacts</u>			
M1	Observer bias	Compare monitored and un-monitored trips:	Mission critical
		Trip duration	
		Species and size composition of landed groundfish	Clarify: discard composition cannot be compared for unobserved trips (limited to comparing on observed trips pre- and post-A23)
		Species composition of discarded groundfish	
		Landed-to-discarded ratio by species	
M2	Biased vessels	Change in vessels with observer bias pre- / post-A23	Reframe: show A23 effects on biased vessels that <i>remain in the fleet post-A23</i> , rather than those that <i>left the fishery post-A23</i>
		Did the vessels landscape change after implementing high coverage?	

		Did vessels that showed observer bias remain in the fishery post-A23?	Vessels may have left the fishery for many reasons, which are difficult to track (see M38 rationale) and may not be related to A23
M3	Magnitude of observer bias	Determine magnitude of the bias	Mission critical
		Explore suggestions offered for pursuing two PDT analyses:	
		1) Methods to predict groundfish catch in the presence of an observer	
		2) Methods to evaluate groundfish catch ratios A23 analysis	
		Potential for simulation analysis using Quota Change Model	
M6	Discard estimates	By monitoring program (ASM, audit model EM, MREM/DSM, NEFOP)	Mission critical
		Compare:	
		Same boat using two different monitoring tools	
M10	Exclusion- observed discard catch estimates	7130 exclusion	Folded into this review
		ELM exclusion	Explicitly prescribed in A23
		Verify intent of exclusions (low groundfish catch)	
		For 7130 exclusion examine discard estimates – are there changes post-A23 with new exclusion	
M11	Management uncertainty buffers	Evaluate assumption of 100% coverage target when removing management uncertainty buffers	Mission critical
<u>Review Theme 3: Fishery Impacts</u>			
M12	Total monitoring costs	Summarize overall reimbursed industry sampling costs and agency shoreside administrative costs – How much have things cost for industry and shoreside? How much has the agency spent? How much has the industry been reimbursed?	Mission critical
M13	Industry monitoring costs	Compare monitoring costs before and after A23:	Mission critical
		Overall monitoring costs	Direct Council support

		Where possible, by categories (e.g., sea day rate, travel costs, training costs, meal reimbursement, equipment, operations costs, etc.)	
		Monitoring costs relative to operational costs	Explanatory to M2
M14	Cost efficiency	Cost comparison between EM-monitored trips (audit model and MREM) and human-at-sea monitored trips	Mission critical
		Update cost efficiency analysis and summarize agency costs relative to funding	

Sector Manager Feedback

As part of the development of review analyses, the PDT sought feedback from sector managers on preliminary analyses for select metrics. On May 11, 2026, the PDT sub-group presented preliminary analyses to sector managers covering the following review metrics: trends in fleet participation, catch composition, and revenue information. The PDT sub-group asked managers for feedback to help with refining the analyses and informing presentation of analyses and results.

Data Impacts

- M1 Observer Bias
- M2 Biased Vessels
- M3 Magnitude of Observer Bias
- M11 Management Uncertainty Buffers

Fishery Impacts

- M13 Industry Monitoring Costs

Program Reach

- M28 Waiver Counts
- M29 Acceptance Rates
- M31 Refusals
- M32 Incidents
- M33 Pre-Trip Notification System (PTNS) Compliance
- M34 PTNS Cancellations

Sector managers highlighted that the outcomes and data included in this report are as important to inform industry as they are to management, and had suggestions for the analyses presented and the contents of this report:

- Sector managers asked several questions regarding the analyses under the Data Impacts

theme. In response, analysts fine-tuned how analyses looked at effects by gear type, and included a plain language explanation of the analyses, the results, and interpretation of the results.

- Sector managers asked many questions regarding the metrics under the Program Reach theme. A sector manager recommended that evaluation of coverage equitability should also consider seasonality of monitoring coverage. In response to the suggestions, this report contains additional context around safety waivers and the vessels of concern (VOC) list; provides information regarding rates of PTNS compliance looking across the fleet of individual vessels, rather than across sectors; provides counts of vessels in analyses when possible without violating confidentiality; and provides information in tables, as well as figures, when possible.
- Sector managers expressed interest in having additional information on the Fishery Impacts theme, particularly regarding actual reimbursed costs, non-seaday costs (e.g., meals, travel), and cost information broken out across different components of the fishery (e.g., gear, vessel size), much of which is presented in this report. In response to their questions and suggestions, this report includes a plain language explanation of the analyses, the results, and interpretation of the results.

Criteria for Analyses

General section on the data sources and how basic terms like ‘trip,’ ‘exclusion trip,’ ‘bias,’ and ‘equitability’ are defined when used in this report and its supporting analyses.

Discards

Discussion of what discards are and how they are analyzed in terms of bias. Key points will include the difference between legal discards of fish below the minimum size and illegal discards of fish that are required to be retained under the current regulations. Include points about legal-sized unmarketable fish (LUMF).

3. PDT Analyses and Results

The PDT has identified three review questions (and themes) that explore multiple aspects of the groundfish monitoring program and evaluate how successful it is in achieving its goals. Analyses of the 20 metrics, and their results, are grouped by these three themes. Data Impacts looks at catch, bias, the exclusion of some trips from the ASM requirement, and the removal of management uncertainty buffers (MUB). Fishery Impacts looks at the costs of the program – overall, for NMFS, and for the industry. It also looks at potential changes to where fishing occurs and which ports are used to evaluate potential spatial observer bias. Program Reach looks at vessel participation in monitoring programs, EM review rates, ASM Coverage targets, achieved coverage, and details of how coverage was assigned and distributed to look at coverage equitability.

Data Impacts

The Data Impacts theme looks at catch, bias, the exclusion of some trips from the ASM requirement, and the removal of management uncertainty buffers (MUB). These were the most complex analyses.

Relevant Metrics

M1 Observer Bias

M2 Biased Vessels

M3 Magnitude of Observer Bias

M6 Discard Estimates

M10 Exclusion Catch Estimates

M11 Management Uncertainty Buffers (MUB)

M9 Catch Allocation by Statistical Area/Broad Stock Area (BSA) Reporting

The following sections may be reorganized by analysis.

Observer Bias

Biased Vessels

Magnitude of Observer Bias

Discard Estimates

Catch Estimates for Trips Excluded from the ASM Requirement

MUB Removal

Observer Bias

Catch Allocation by BSA and VMS

Catch Allocation by BSA and VMS

Data Impacts Overall Results

Fishery Impacts

The Fishery Impacts theme looks at the costs of the program – overall, for NMFS, and for the industry. It also looks at potential changes to where fishing occurs, and which ports are used, to evaluate potential spatial observer bias.

Relevant Metrics

M12 Total Monitoring Costs

M13 Industry Monitoring Costs

M14 Cost Efficiency

M18 Spatial Observer Bias

The following sections may be reorganized by analysis.

Total Monitoring Costs

Industry Monitoring Costs

Cost Efficiency

Spatial Observer Bias

Fishery Impacts Overall Results

Program Reach

The Program Reach theme looks at vessel participation in monitoring programs, EM review rates, ASM Coverage targets, achieved coverage, and details of how coverage was assigned and distributed to look at coverage equitability.

Relevant Metrics

M20 ASM Coverage Targets
M19 Achieved Coverage
M28 Waiver Counts
M29 Acceptance Rates
M31 Refusals
M32 Incidents
M33 PTNS Notification Compliance
M34 PTNS Cancellations
M27 Coverage Equitability
M28 Distribution of Vessels
M39 EM Video Review Rates

The following sections may be reorganized by analysis.

ASM Coverage Targets

Achieved Coverage

Achieved Coverage

Waiver Counts

Acceptance Rates

Refusals

Incidents

PTNS Notification Compliance

PTNS Cancellations

Coverage Equitability

Distribution of Vessels

EM Video Review Rates

Program Reach Overall Results

4. Summary of PDT Analyses

Summary including how the analyses relate to one another and whether results are meaningful beyond being statistically significant.

5. Conclusions

Across All Analyses

Overall Groundfish PDT Conclusions Based on Analyses

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6. *Additional Information*

Supplemental Information

This may contain appendices with formal papers for individual analyses.