

Northeast Multispecies Fishery Management Plan

DRAFT Amendment 23

Including a Draft Environmental Impact Statement,
And Initial Regulatory Flexibility Analysis

Draft for Committee Review

October 25, 2019

Prepared by the
New England Fishery Management Council
In consultation with the
Mid-Atlantic Fishery Management Council
National Marine Fisheries Service



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AMENDMENT 23 TO THE NORTHEAST MULTISPECIES FISHERY MANAGEMENT PLAN

Proposed Action: Propose improvements to the commercial groundfish monitoring program.

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Abstract: The New England Fishery Management Council, in consultation with NOAA's National Marine Fisheries Service, has prepared Amendment 23 to the Northeast Multispecies Fishery Management Plan, which includes a final environmental assessment that presents the range of alternatives to achieve the goals and objectives of the action. The proposed action focuses on improvements to the existing commercial groundfish monitoring program. The document describes the affected environment and valued ecosystem components and analyzes the impacts of the alternatives on both. It addresses the requirements of the National Environmental Policy Act, the Magnuson Stevens Fishery Conservation and Management Act, the Regulatory Flexibility Act, and other applicable laws.

1.0 EXECUTIVE SUMMARY

To be completed before DEIS published

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2.5 ACRONYMS

ABC	Acceptable Biological Catch
ACE	Annual Catch Entitlement
ACL	Annual Catch Limit
ALWTRP	Atlantic Large Whale Take Reduction Plan
AM	Accountability Measure
APA	Administrative Procedures Act
ASAP	Age-structured assessment program; assessment model
ASM	At-sea monitoring
ASMFC	Atlantic States Marine Fisheries Commission
B	Biomass
CAA	Catch at Age
CATT	Closed Area Technical Team- a team established by the Council to look at spatial based management on spawning fish
CAI	Closed Area I
CAII	Closed Area II
CC	Cape Cod
CEQ	Council on Environmental Quality
CPUE	Catch per unit of effort
CV	Coefficient of Variation
CZMA	Coastal Zone Management Act
DAH	Domestic Annual Harvest
DAM	Dynamic Area Management
DAP	Domestic Annual Processing
DAS	Days-at-sea
DEA	Data Envelopment Analysis
DFO	Department of Fisheries and Oceans (Canada)

DMF	Division of Marine Fisheries (Massachusetts)
DMR	Department of Marine Resources (Maine)
DSEIS	Draft Supplemental Environmental Impact Statement
DSM	Dockside monitoring
DWF	Distant-Water Fleets
E.O.	Executive Order
EA	Environmental Assessment
ECPA	East Coast Pelagic Association
ECTA	East Coast Tuna Association
EEZ	Exclusive economic zone
EFH	Essential fish habitat
EIS	Environmental Impact Statement
ELM	Extra-large mesh
EM	Electronic monitoring
ESA	Endangered Species Act
ETA	Elephant Trunk Area
F	Fishing mortality rate
FAAS	Flexible Area Action System
FEIS	Final Environmental Impact Statement
FMP	Fishery Management Plan
FSCS	Fisheries Scientific Computer System
FSEIS	Final Supplemental Environmental Impact Statement
FW	Framework
FY	Fishing year
GAMS	General Algebraic Modeling System
GARFO	Greater Atlantic Regional Fisheries Office
GB	Georges Bank
GEA	Gear Effects Evaluation
GIFA	Governing International Fisheries Agreement
GIS	Geographic Information System
GARFO	Greater Atlantic Regional Fisheries Office
GMRI	Gulf of Maine Research Institute
GOM	Gulf of Maine
GRT	Gross registered tons/tonnage
HAPC	Habitat area of particular concern
HCA	Habitat Closed Area
HPTRP	Harbor Porpoise Take Reduction Plan
I/O	Input/output
ICNAF	International Commission for the Northwest Atlantic Fisheries
IFQ	Individual fishing quota
IOY	Initial Optimal Yield
IRFA	Initial Regulatory Flexibility Analysis
ITQ	Individual transferable quota
IVR	Interactive voice response reporting system
IWC	International Whaling Commission
IWP	Internal Waters Processing
JVP	Joint Venture Processing
LISA	Local Indicator of Spatial Association
LOA	Letter of authorization

LPUE	Landings per unit of effort
LWTRP	Large Whale Take Reduction Plan
M	Natural Mortality Rate
MA	Mid-Atlantic
MA DMF	Massachusetts Division of Marine Fisheries
MAFAC	Marine Fisheries Advisory Committee
MAFMC	Mid-Atlantic Fishery Management Council
MARFIN	Marine Fisheries Initiative
ME DMR	Maine Department of Marine Resources
MEY	Maximum economic yield
MMC	Multispecies Monitoring Committee
MMPA	Marine Mammal Protection Act
MPA	Marine protected area
MRFSS	Marine Recreational Fishery Statistics Survey
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum sustainable yield
MWT	Midwater trawl; includes paired mid-water trawl when referring to fishing activity or vessels in this document
mt	Metric tons
NAO	North Atlantic Oscillation
NAPA	National Academy of Public Administration
NAS	National Academy of Sciences
NEFMC	New England Fishery Management Council
NEFOP	Northeast Fishery Observer Program
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NLCA	Nantucket Lightship closed area
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NS	National Standard
NSGs	National Standard Guidelines
NSTC	Northern Shrimp Technical Committee
NT	Net tonnage
NWA	Northwest Atlantic
OBDBS	Observer database system
OA2	Omnibus Essential Fish Habitat Amendment 2
OCS	Outer Continental Shelf
OFL	Overfishing Limit
OLE	Office for Law Enforcement (NMFS)
OY	Optimum yield
PBR	Potential Biological Removal
PDT	Plan Development Team
PRA	Paperwork Reduction Act
PREE	Preliminary Regulatory Economic Evaluation
PS/FG	Purse Seine/Fixed Gear
PSC	Potential Sector Contribution
QCM	Quota change model
RFA	Regulatory Flexibility Act

RFFA	Reasonably Foreseeable Future Action
RIR	Regulatory Impact Review
RMA	Regulated Mesh Area
RPA	Reasonable and Prudent Alternatives
SA	Statistical Area
SAFE	Stock Assessment and Fishery Evaluation
SAP	Special Access Program
SARC	Stock Assessment Review Committee
SASI	Swept Area Seabed Impact
SAV	Submerged Aquatic Vegetation
SAW	Stock Assessment Workshop
SBNMS	Stellwagen Bank National Marine Sanctuary
SCAA	Statistical catch-at-age assessment model
SEIS	Supplemental Environmental Impact Statement
SFA	Sustainable Fisheries Act
SFMA	Southern Fishery Management Area (monkfish)
SIA	Social Impact Assessment
SNE	Southern New England
SNE/MA	Southern New England-Mid-Atlantic
SSB	Spawning stock biomass
SSC	Scientific and Statistical Committee
TAC	Total allowable catch
TALFF	Total Allowable Level of Foreign Fishing
TC	Technical Committee
TED	Turtle excluder device
TEWG	Turtle Expert Working Group
TMGC	Trans-boundary Management Guidance Committee
TMS	Ten minute square
TRAC	Trans-boundary Resources Assessment Committee
TRT	Take Reduction Team
TSB	Total stock biomass
USAP	U.S. At-Sea Processing
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
VEC	Valued Ecosystem Component
VMS	Vessel monitoring system
VPA	Virtual population analysis
VTR	Vessel trip report
WGOM	Western Gulf of Maine
WO	Weigh-out
YPR	Yield per recruit

3.0 BACKGROUND AND PURPOSE

3.1 BACKGROUND

The Northeast Multispecies Fishery Management Plan (FMP) specifies the management measures for thirteen groundfish species (cod, haddock, yellowtail flounder, pollock, plaice, witch flounder, white hake, windowpane flounder, Atlantic halibut, winter flounder, redfish, ocean pout, and Atlantic wolffish) off the New England and Mid-Atlantic coasts. Some of these species are sub-divided into individual stocks that are attributed to different geographic areas. Commercial and recreational fishermen harvest these species. The FMP has been updated through a series of amendments and framework adjustments.

Amendment 16, which became effective on May 1, 2010, adopted a broad suite of management measures to achieve the fishing mortality targets necessary to rebuild overfished stocks and meet other requirements of the M-S Act. Amendment 16 greatly expanded the sector management program and adopted a process for setting Annual Catch Limits (ACLs) that requires catch levels to be set in biennial specifications packages. This action included a host of mortality reduction measures for “common pool” (i.e. non-sector) vessels and the recreational component of the fishery. A detailed discussion of the history of the FMP up to 2009 can be found in Amendment 16 (NEFMC 2009b).

Most relevant to this action, Amendment 16 also updated the requirements for sector and common pool monitoring programs. Following that action, Framework 48 specified the overall goals and objectives of the groundfish monitoring program (Section 3.3.2). Framework 55 clarified that the primary goal of the monitoring program is to verify area fished, catch, and discards by species and gear type; and should be done in the most cost effective means practicable. Framework 55 further clarified that all other goals and objectives of groundfish monitoring programs are considered equally-weighted secondary goals.

The final documents for all prior actions can be found on the internet at <http://www.nefmc.org>.

3.2 PURPOSE AND NEED

The need, or problem this action was developed to address is: the need to improve the reliability and accountability of catch reporting in the groundfish fishery to ensure there is precise and accurate catch estimates (landings and discards). Accurate catch data are necessary to ensure that catch limits are set at levels that prevent overfishing and to determine when catch limits are exceeded.

The purpose, or potential solutions considered in this action focus on measures that adjust the current monitoring program to improve catch accounting and accuracy. It is the Council’s intent that the catch reporting requirements are 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.

3.3 GOALS AND OBJECTIVES

3.3.1 Goals and Objectives of the Northeast Multispecies FMP

The goals and objectives of the Northeast Multispecies FMP remain as described in Amendment 13 and will continue to frame the long-term management of the resource and fishery.

3.3.1.1 Goals

1. Consistent with the National Standards and other required provisions of the Magnuson-Stevens Fishery Conservation and Management Act and other applicable law, manage the Northeast multispecies complex at sustainable levels.
2. Create a management system so that fleet capacity will be commensurate with resource status so as to achieve goals of economic efficiency and biological conservation and that encourages diversity within the fishery.
3. Maintain a directed commercial and recreational fishery for Northeast multispecies.
4. Minimize, to the extent practicable, adverse impacts on fishing communities and shoreside infrastructure.
5. Provide reasonable and regulated access to the groundfish species covered in this plan to all members of the public of the United States for seafood consumption and recreational purposes during the stock rebuilding period without compromising the Amendment 13 objectives or timetable. If necessary, management measures could be modified in the future to insure that the overall plan objectives are met.
6. To promote stewardship within the fishery.

3.3.1.2 Objectives

1. Achieve, on a continuing basis, optimum yield for the U.S. fishing industry.
2. Clarify the status determination criteria (biological reference points and control rules) for groundfish stocks so they are consistent with the National Standard guidelines and applicable law.
3. Adopt fishery management measures that constrain fishing mortality to levels that are compliant with the Sustainable Fisheries Act.
4. Implement rebuilding schedules for overfished stocks, and prevent overfishing.
5. Adopt measures as appropriate to support international transboundary management of resources.
6. Promote research and improve the collection of information to better understand groundfish population dynamics, biology and ecology, and to improve assessment procedures in cooperation with the industry.
7. To the extent possible, maintain a diverse groundfish fishery, including different gear types, vessel sizes, geographic locations, and levels of participation.
8. Develop biological, economic and social measures of success for the groundfish fishery and resource that insure accountability in achieving fishery management objectives.
9. Adopt measures consistent with the habitat provisions of the MSA, including identification of EFH and minimizing impacts on habitat to the extent practicable.
10. Identify and minimize bycatch, which include regulatory discards, to the extent practicable, and to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

3.3.2 Goals and objectives of groundfish monitoring program

Framework 48 to the Multispecies FMP specified the overall goals and objectives of the groundfish monitoring program. Framework 55 clarified that the primary goal is to verify area fished, catch, and discards by species and gear type; and should be done in the most cost effective means practicable. Framework 55 further clarified that all other goals and objectives of groundfish monitoring programs at §648.11(l) are considered equally-weighted secondary goals.

The goals and objectives of the groundfish monitoring program, are as follows:

Goal 1: Improve documentation of catch

Objectives:

- Determine total catch and effort, for each sector and common pool, of target or regulated species.
- 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.

Goal 2: Reduce cost of monitoring

Objectives:

- Streamline data management and eliminate redundancy.
- Explore options for cost-sharing and deferment of cost to industry.
- Recognize opportunity costs of insufficient monitoring.

Goal 3: Incentivize reducing discards

Objectives:

- Determine discard rate by smallest possible strata while maintaining cost-effectiveness.
- Collect information by gear type to accurately calculate discard rates.

Goal 4: Provide additional data streams for stock assessments

Objectives:

- Reduce management and/or biological uncertainty.
- Perform biological sampling if it may be used to enhance accuracy of mortality or recruitment calculations.

Goal 5: Enhance safety of monitoring program

Goal 6: Perform periodic review of monitoring program for effectiveness

3.3.3 Goals of Amendment 23 to the Northeast Multispecies FMP

This action would maintain the current goals and objectives of the groundfish monitoring program described above (Section 3.3.2), but consider measures to better address Goal #1: improve documentation of catch, described as improved catch accounting during the scoping process for this action.

3.4 PUBLIC SCOPING

3.4.1 Notice of Intent and Scoping Process

NMFS published a Notice of Intent (NOI) on February 17, 2017 to announce its intent to develop an amendment (later named Amendment 23) and prepare an Environmental Impact Statement (EIS) to analyze the impacts of the proposed management alternatives. The announcement stated that Amendment 23 would “consider changes to the groundfish monitoring and reporting system to ensure it is providing accurate catch information necessary to manage the fishery efficiently.” The scoping period extended from February 17, 2017 until April 3, 2017 and included six scoping hearings.

3.4.2 Scoping Comments

Comments were received from a variety of stakeholders, including nonprofit organizations, individual fishermen, fishing corporations, state agencies, and other interested citizens. Oral (n=25) and written (n=19) comments were received from individuals or organizations (duplicates removed). All written

comments and summaries of hearings, as well as a complete summary of scoping comments, are provided at www.nefmc.org. The majority of the oral and written comments indicated that the intent of Amendment 23 is very important.

3.4.2.1 Comments in Favor

Monitoring Program Improvements: The majority of comments supported improvements to the current groundfish monitoring program. Comments generally acknowledged that the current monitoring system is not adequate to ensure accountability and is expensive. Some comments recognized the current monitoring system as being inequitable for smaller vessels. The need for more flexibility in the monitoring system was expressed. Commenters wanted a monitoring system that better works to prevent overfishing and adhere to catch limits, and one that provides the information needed for stock assessments.

Comments in support of adjusting the groundfish monitoring program could be further divided into the following categories:

Flexibility - Numerous comments spoke to the concept “one size does not fit all” for monitoring – the idea that different segments of the fleet, specifically small boats versus large boats, operate differently and there should be flexibility and the option to tailor a monitoring program to these different operational needs. Interest in allowing sectors to design their own monitoring programs which would follow a universal set of standards for all programs was raised, as well as gear-specific coverage rates. A few commenters expressed interest in sector or vessel specific discard rates, and also suggested that vessels could take a higher ASM coverage rate in exchange for lower management uncertainty buffers.

Cost/Benefits – Several comments expressed concern that the industry cannot afford to pay for monitoring, particularly the small boat fleet. Many commenters from industry said they are okay with having monitoring as long as it is paid for by the government. Comments discussed a need to identify benefits of monitoring improvements and compare these to the expected costs. The tradeoff between costs of monitoring paid by the industry and the benefits to scientists, managers, and fishermen from improved accuracy of catch and discard reporting were acknowledged. Ideas for ways to offset monitoring costs were offered, including quota auctions, quota set asides, and subsidized upfront equipment costs for electronic monitoring (EM). It was suggested that EM is a cost-effective alternative to current monitoring systems; however, there were also concerns about the costs of EM, specifically video review and equipment installation.

Monitoring Coverage Levels – Several comments supported 100 percent monitoring for all commercial groundfish trips. Other comments suggested 100 percent coverage (whether EM or ASM) for particular circumstances, namely for high volume/high discards fisheries and for vessels fishing in multiple broad stock areas on the same trip. Comments spoke to the need to consider a wide range of at-sea monitoring coverage rates from 5 to 100 percent. A few comments suggested the goal of the groundfish monitoring program should be to meet SBRM standards, to achieve the 30 percent CV standard at fishery level rather than at the stock level. Other comments suggested re-examining the metric used for measuring monitoring coverage (eg. volume of catch instead of number of trips). As stated above, several commenters were interested in the idea that vessels could take a higher ASM coverage rate in exchange for lower management uncertainty buffers.

Electronic Monitoring - Comments were a mix of those in favor of and against electronic monitoring (EM). Comments in favor of EM described it as a valuable tool to be used as an alternative to human monitors, and as an opportunity to get fishermen’s data directly into the stock assessment process. It was suggested EM would increase accountability and encourage fairness among vessels. Most commenters said EM should be voluntary, not mandatory, and there should be incentives to encourage participation (example ideas included gear exemptions, additional quota, and closed area access). Comments against

EM raised concerns about the costs, logistics (for installation, sampling operation, etc.), and privacy concerns.

Dockside Monitoring - There were several commenters speaking against a dockside monitoring (DSM) program – these were primarily from individuals who had experience with the previous DSM program in the groundfish fishery, and they identified numerous problems with it. There was consistent agreement that if a dockside monitoring program were to be instated, that the problems with the previous DSM program should be acknowledged, and that the lessons learned be used to develop a DSM program that is more effective and efficient. Several comments expressed interest in having a DSM program used in conjunction with a maximized retention model for EM. One comment suggested DSM be used to monitor 100 percent of vessel landings.

Accuracy in Reporting – Comments expressed a need for improved accuracy of reporting. There were comments in favor of improving spatial resolution of catch reporting, in order to report catch location at a finer scale than broad statistical areas. Some comments suggested that requiring all reporting to be at a haul by haul level (which is currently only required for EM) would improve reporting accuracy. Concerns over “observer bias” were also raised, which recognized that there are strong economic incentives for fishermen to fish differently with an observer on board and that observer bias is an issue that may impact accurate catch accounting. These comments encouraged the exploration of alternative methodologies for setting ASM coverage rates that take into account “observer effects” to ensure accurate catch accounting. One comment suggested the observer effect may be due to annual catch limits that are out of scale with actual abundance.

Administration of the Monitoring Program – Comments offered suggestions for how to improve the administration of the at-sea monitoring program. A need was expressed for a deadline by which NMFS would be required to release the analysis for determining at-sea coverage monitoring requirements, which sectors need for business planning purposes. Other comments suggested a need to filter trips that are not targeting groundfish but are on days-at-sea (DAS) (e.g., monkfish, skates, dogfish) to reduce their priority for ASM selection. It was also suggested that a review of the Pre-Trip Notification System (PTNS), specifically reexamining the time to notify requirement, would improve program administration.

Streamline Reporting: Commenters were generally in favor of streamlining the reporting for landings data. Many were in favor of using electronic reporting for all reporting, and recommended having a single source for all data (i.e., dealer, vessel, observer) to reduce reporting redundancy. Several comments expressed a need for better accountability and timeliness by NMFS with dealer reporting and in following up with sectors on reporting issues.

3.4.2.2 Comments Opposed

Comments opposing this action generally wanted no additional monitoring requirements, and no industry-funded monitoring costs. Those opposed expressed concern that the industry cannot afford to pay for monitoring, particularly the small boat fleet, and could not afford additional monitoring. A few comments did not want any monitoring of the fishery, including what occurs under the current program. One commenter thought the ASM program should be voluntary.

3.4.2.3 Non-regulatory Approaches

The scoping comments included ideas for non-regulatory approaches that would meet the purpose and need of Amendment 23. For example, one comment supported the Council evaluating the use of public-private partnerships to help fund increased monitoring coverage. It was suggested that increasing the

value of well-documented catches in the market could be one way to help offset industry costs of monitoring. A need to increase enforcement of existing regulations to reduce the effect of observer bias was also suggested.

3.4.2.4 Other Comments

A few comments received were not directly related to the goals of this action. Some commenters expressed a frustration that the Council does not listen to the concerns of fishermen.

3.4.3 Response to Scoping Comments

Summaries of the scoping hearings and all written scoping comments were provided to all Council members and made publicly available. The Council reviewed scoping comments in June 2017. The Groundfish Committee (Committee) discussed issues raised during scoping at several of its meetings between 2017 and 2018. Some of the scoping comment themes were incorporated into the alternatives considered in this action and others were not, as described below.

3.4.3.1 Monitoring Program Improvements (*to be completed*)

Flexibility -

Cost/Benefits -

Monitoring Coverage Levels -

Electronic Monitoring -

Dockside Monitoring -

Accuracy in Reporting -

Streamline Landings Reporting -

3.5 DEFINITIONS OF KEY TERMS

The purpose of this glossary is to provide clear definitions to managers and the public on key terms commonly used in discussions of monitoring and used throughout the document.

Accuracy – The closeness of the estimated value of some quantity to the true value.

Bias - Systematic difference between the estimated value of some quantity and the true value being estimated.

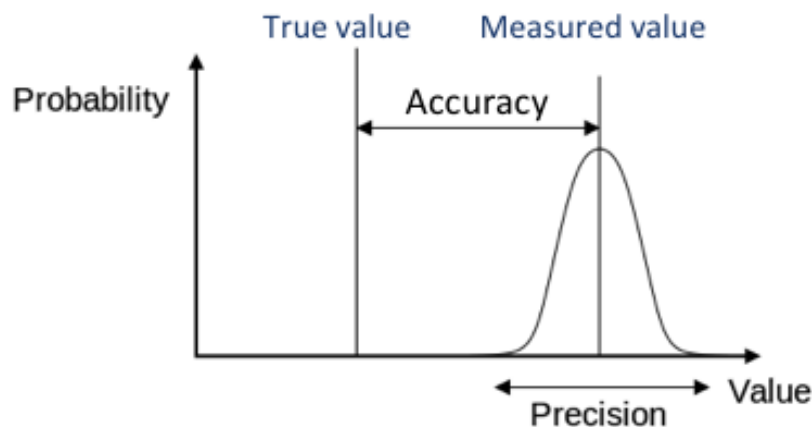
As described in the Standardized Bycatch Reporting Methodology (SBRM) Omnibus Amendment: the accuracy of the data from a sampling program rarely can be measured because the true value of the population feature being estimated is not known (which is why it is being estimated). While accuracy cannot be determined directly, an estimator can be tested for potential biases and precision with a simulated population where the truth is known. Sources of bias can be identified and reduced in the data collection program. Absent bias, precision supports accuracy; thus, bias and accuracy are used interchangeably, but bias is generally associated with the design of sampling program. Eliminating potential sources of bias improves the accuracy of the results.

Bias can be due to:

- 1) a statistical estimator that is not properly tuned, such that the expected value does not align with the true value
- 2) a sample that is not representative of the true population

In regard to SBRM, the ratio estimator used to estimate discards is an unbiased estimator of the true discard rate. Therefore, any bias in discard estimation is solely due to bias in the sampling program, such that observed trips are not representative of all trips due to various known and unknown factors.

If the degree of bias can be determined then the estimate can be adjusted for the bias to produce an estimate closer to the truth.



(Adapted from Wikipedia)

Bias in the Fishery Monitoring System:

Observer Bias: Also referred to as the ‘observer effect’. Fishing activities on observed trips systematically vary from fishing activities on unobserved trips. This may be intentional or unintentional. Differences in fishing activities on observed trips versus on unobserved trips may arise due to the following: the act of knowing one is being watched results in changes in behavior

(Hawthorne effect¹); fishermen strategically altering behavior to avoid affecting the rest of the sector; costs associated with slower fish processing and handling; or increased catch accountability (quota limits more constraining).

Selection Bias: Also referred to as a ‘deployment effect’. Occurs when the assignment of observers to vessels is non-random within sampling strata, resulting in a biased selection of trips across sampling strata. A *random* sampling design is one in which each sample has an equal probability of being chosen, so that a sample chosen randomly is meant to be an unbiased representation of the total population.

Discard estimation bias: When discards on observed trips are not representative of unobserved trips. Function of both observer and selection bias.

Self-reported data biases: Information from these sources may also contain errors or otherwise misrepresent information which contributes to bias. These errors may be intentional or unintentional. Examples include:

- VTRs: statistical areas fished
- Dealer reports: landings information
- VTRs: Kept catch for home consumption (not weighed out by a dealer)
- Learning curve bias: It takes time for captains to become familiar with electronic monitoring and electronic reporting, and for observers to become familiar with collecting and recording data.

Precision – (see above figure) How much estimates of the same quantity differ from each other across multiple samples, due both to sample variation and sample size.

Variability - Refers to the degree to which individual observations diverge from the mean and also how spread they are from one another (dispersion). The main measures used to assess the variability of data points in a sample are the range, mean, standard deviation, and variance.

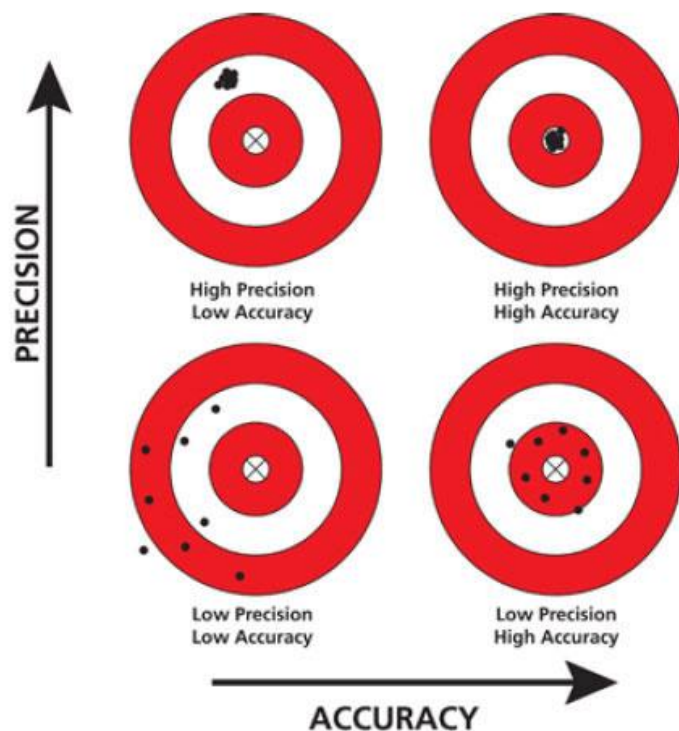
As defined in the SBRM Omnibus Amendment: Precision is a measure of how closely repeated samples will agree to one another (i.e., the variability of the samples). The precision of a sampling program can be measured because the data collected can be compared with one another using several basic statistical methods (to calculate the variance, standard error, standard deviation, etc.). Because we can compare the samples to one another, we can calculate the variability and, hence, get a measure of the precision of the observations. In a sampling program such as the at-sea observer program, the precision of the observations can be measured and controlled by calculating measures of variability and, if necessary, increasing the number of observations. Precision can also be increased through stratification (or changes to stratification), however, such changes may not be allowed through the mechanics of SBRM.

Coefficient of Variation – The ratio of the standard deviation to the mean. In other words, it is a measure of the extent of sample variation in relation to the mean of the population. It is useful for comparing the degree of variation from one data series to another, even if the means are drastically different from one another. In terms of an observer program, it is a standard measure of precision, calculated as the ratio of

¹ Hawthorne effect describes a phenomenon in psychology when subjects behave differently when observed, which may be a result of conscious and subconscious behavior changes.

the square root of the variance of the bycatch estimate (i.e., the standard error) to the bycatch estimate itself. The higher the CV, the larger the standard error is relative to the estimate. A lower CV reflects a smaller standard error relative to the estimate.²

30 percent Coefficient of Variation precision standard (CV30) - Specified in the SBRM Omnibus Amendment, this performance standard for SBRM was also adopted as the current requirement for determining at-sea monitoring coverage levels. Total monitoring coverage levels for the groundfish fishery must be set so that they result in achieving the CV30 or better precision of the total discards at the overall stock level for each groundfish stock. Additionally, the current method for determining total monitoring coverage levels for the groundfish fishery applies a step to filter out healthy stocks, so that coverage levels are not driven by these stocks. Healthy stocks are defined as those in a given fishing year that are not overfished, with overfishing not occurring, according to the most recent available stock assessment, and; that in the previous fishing year less than 75 percent of the sector sub-ACL was harvested with less than 10 percent of catch comprised of discards.



(from Wikipedia)

Reliability – The ability of the overall groundfish monitoring program to consistently provide an accurate estimate of total annual catch for each stock with a known level of precision. If estimates with similar accuracy and precision are achieved each year, year after year, they can be said to be reliable. In the context of a monitoring program, this refers to the consistency in quality of catch data, so that there is

² MAFMC/NEFMC. 2007. Northeast Region Standardized Bycatch Reporting Methodology: An omnibus amendment to the fishery management plans of the Mid-Atlantic and New England Regional Fishery Management Councils.

confidence that the monitoring program estimates each year can be used for catch accounting and stock assessment purposes. Reducing bias and improving accuracy in catch data increases reliability of the data.

Validity - The extent to which you are adequately measuring what you claim you are measuring. In the case of monitoring, validity could be in reference to the stock assessments and reliability could be in reference to the methods used to collect the data that goes into them. In other words, the sampling program could be said to produce reliable estimates, and if they are accurately representing the population they are providing for valid stock assessments.

Accountability – An obligation to be held responsible for one's actions.

In the case of a sector monitoring program, it is the concept of holding all sectors and their members to the same standards, such as matching catches with equivalent units of quota. An effective monitoring program is one designed so that each sector is confident that participants both within sectors and across all sectors are treated in a fair and equitable manner in terms of catch reporting requirements and ensuring catches do not exceed allocations. In the context of the groundfish fishery as a whole, it is being held accountable to the catch levels set by the measures of the management plan.

This includes responsibilities for vessels, sectors, and the agency. Vessels are responsible for complying with trip notification, assigned monitoring, and vessel reporting requirements. Sectors are responsible for contracting monitoring services as required and ensuring sector members comply with the vessel requirements, as well as sector-level monitoring and reporting requirements to manage allocations. NMFS is responsible for equally and effectively administering a reporting and monitoring program that considers the impacts of the costs of the groundfish monitoring program with the tradeoffs of benefits of this program.

Amendment 16 provides the following rationale that is related to accountability:

The only fishing mortality control for sectors is the hard TAC that, if caught, results in the sector vessels not being allowed to fish. Effective management of sectors requires that catch be accurately known. This is important not only for managers but also so that each sector is confident that all sectors are being held to the same standards. The provisions in this section are designed to ensure that landings are accurately monitored.

Monitoring System Tools/Components:

Dockside Monitoring (DSM): Dockside monitoring is the independent verification or collection of fishery landings data. This may take several forms including:

Dockside monitor: An independent party ensures that all landings are offloaded, sorted, and weighed correctly to ensure accurate catch accounting. An example of a DSM program that employs this form of DSM is the Canadian Department of Fisheries and Oceans (DFO) Maritimes Region DSM program.

Independent verification: Catch is sorted and weighed by an independent party to ensure accurate catch accounting. An example of a DSM program that employs this form of DSM is the Canadian DFO Pacific Region DSM program.

Monitoring at sea: Independent third-party records fishery data while at sea.

Northeast Fisheries Observer Program (NEFOP): The Northeast Fisheries Observer Program is administered over a range of commercial fisheries, including the groundfish, herring, squid, surf clam and ocean quahog, and lobster fisheries. NEFOP observers meet requirements of the Magnuson-Stevens Act and the SBRM Omnibus Amendment, the Marine Mammal Protection Act and the Endangered Species Act. The primary duty of observers is to record all kept and discarded catch, with discard information as the priority. Actual weights of catch should be collected whenever possible, with estimates or extrapolates of weights by sub-sampling as necessary. Other duties include collection of lengths of discards and kept catch of managed species, information on fishing gear, tow-by-tow information (location and time when fishing begins and ends), and detailed information on protected species interactions. Additionally, NEFOP observers collect biological samples from managed species and protected species.

At-Sea Monitoring (ASM): The At-Sea Monitoring program is a vessel monitoring program that is specific to groundfish sector monitoring. The primary duty of at-sea monitors is to record all kept and discarded catch, with discard information as the priority. Actual weights of catch should be collected whenever possible, with estimates or extrapolates of weights by sub-sampling as necessary. At-sea monitor duties are similar to those of NEFOP observers, with the exception that at-sea monitors do not collect biological samples and do not record the same level of detail on protected species interactions. Amendment 23 will consider changes to the ASM program.

Vessel Trip Report (VTR): Fishermen are required to fill out and submit self-reported trip reports for every trip, which provide information on when and where catch occurred. Information reported includes fishing location, time of fishing activity, gear characteristics, and estimates of catch and discards by species.

Vessel Monitoring System (VMS): Systems used to track and monitor the activities of fishing vessels.

Hailing notifications: Notifications sent prior to starting a trip (trip start hail) or at the end of a trip (trip end hail) which may include specific fishing information such as areas fished, gear type used, when and where the vessel will be landing, if the product is being trucked or where the fish is going.

Pre-Trip Notification System (PTNS): The system used to ensure groundfish vessels selected to carry observers are representative of fishing activities sufficient to meet precision requirements across sampling strata (CV30). PTNS requires fishing vessels to notify all trips at least 48 hours in advance, but no more than 10 days in advance.

Electronic Monitoring (EM): EM uses camera, sensors, and GPS on vessels to record a variety of information which may be very specific to the fishery and data needs including: vessel fishing location, fishing activity, catch, discards, and compliance with regulations.

Audit model: Where EM runs on 100% of trips and a subset of hauls or trips is reviewed to verify VTR-reported discards.

Census: Where EM runs on 100% of trips and 100% of hauls and trips are reviewed.

Maximized retention: Where EM runs on 100% of trips to verify retention of all groundfish species. For this approach, vessels would be required to land all groundfish, which would eliminate the need to monitor discards. Dockside monitoring would be used to sample all landed groundfish, which would now include fish that previously would have been sublegal.

Electronic Reporting (ER): Reporting electronically, with the goal of reducing paper and lag time.

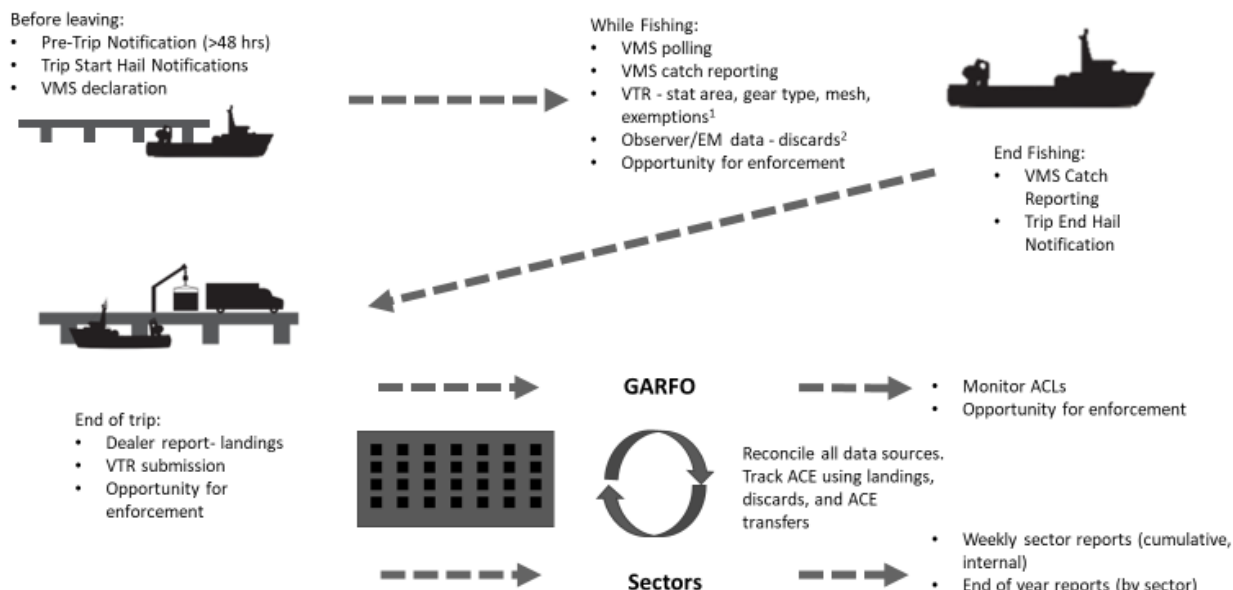
For example, eVTR, or electronic reporting of vessel trip reports. Currently eVTR is an option for vessel operators in the commercial groundfish fishery to choose to report by eVTR but is not a requirement. Additionally, dealers report electronically, and sector managers submit sector catch data electronically.

Enforcement: Enforcement agents from a variety of agencies including state fish and wildlife departments, NOAA Office of Law Enforcement, and U.S. Coast Guard may board and inspect vessels at sea or inspect landings for compliance with federal and state regulations. The purpose of enforcement activities is to inspect fishing operations for compliance with regulations and administer penalties if found in violation. This is distinct from the goals of monitoring systems, in which the purpose is to collect catch data for use in management and scientific processes. For example, the goal of the ASM program is to collect catch data for quota management, and while it may provide information useful to enforcement or encourage compliance, it is not designed as an enforcement tool. However, the previous dockside monitoring program was more enforcement focused as it did not collect or generate any additional data, and only acted to notify as to whether or not the reported data was falsified.

1: VTRs are used primarily in the current data system for catch monitoring by apportioning dealer reported landings and either observed or estimated discards by identifying changes in sampling strata (statistical areas, gear type, mesh size).

2: In addition to discard information, observers also collect information on protected species interactions and kept catch

New England Multispecies Data, Monitoring, & Enforcement System



Discards:

Catch that is not landed.

Economic discards: discards of undesirable or unprofitable species. Reasons for economic discarding include quota limitations, highgrading, unmarketable (spoiled, dead, or low quality). Depending on the quota system, economic discards may be limited to certain situations, or must still be covered with sufficient quota. The current sector regulations prohibit discarding of legal-size allocated fish, except for legal-size unmarketable fish (e.g., fish damaged by slime eels, seals, or gear).

Regulatory discards: Also known as mandatory or required discards. Discards that are required under the fishery management regulations, for example for prohibited species catches or for species that do not meet size requirements.

4.0 DRAFT ALTERNATIVES UNDER CONSIDERATION

4.1 COMMERCIAL GROUNDFISH MONITORING PROGRAM (SECTORS ONLY)

The following measures in this section apply only to the sector segment of the commercial groundfish fishery. The following sections describe options to adjust the groundfish monitoring program for sector vessels. If adopted, these options may replace existing monitoring and reporting requirements, or may be implemented in addition to existing programs to improve data collection (e.g., improved discard monitoring systems, dockside monitors for landings, etc.).

Sectors are responsible for developing and implementing a monitoring program, described in their operations plans, that satisfies NMFS and Council requirements for monitoring sector catch and discards (Amendment 13, Amendment 16, FW 45, FW 48, and FW 55). Sectors describe in their monitoring plans how they will achieve monitoring standards (Section 4.1.1) which are target coverage levels, through a selection of monitoring tools (Section 4.1.2).

Annual funding available to cover NMFS' cost responsibilities would likely vary and dictate realized coverage levels. The realized coverage in a given year would be determined by the amount of Federal funding available to cover NMFS cost responsibilities in a given year. NMFS may help offset industry cost responsibilities through reimbursement if Federal funding is available, but NMFS cannot be obligated to pay sampling costs in industry-funded sampling programs.

4.1.1 Sector Monitoring Standards (Coverage Levels)

Amendment 16 specified a coverage level standard for sectors and required industry-funded at-sea monitoring beginning in 2012. This requirement focused on the coefficient of variation (CV) of discard estimates, a measure of the precision of discard estimates, but also noted that other factors could be considered when determining coverage levels:

“For observer or at-sea monitor coverage, minimum coverage levels must meet the coefficient of variation in the Standardized Bycatch Reporting Methodology. The required levels of coverage will be set by NMFS based on information provided by the Northeast Fisheries Science Center (NEFSC) and may consider factors other than the SBRM CV standard when determining appropriate levels. Any electronic monitoring equipment or systems used to provide at-sea monitoring will be subject to the approval of NMFS through review and approval of the sector operations plan. Less than 100% electronic monitoring and at-sea observation will be required. In the event that a NMFS-sponsored observer and a third-party at-sea monitor are assigned to the same trip, only the NMFS observer must observe that trip.

Assumed discard rates will be applied to sectors unless an at-sea monitoring system (such as a sector's independent monitoring program, a federal monitoring program, or other program that NMFS determines is adequate) provides accurate information for use of actual discard rates.”

Framework 48 clarified that the CV standard is intended to apply to discard estimates at the overall stock level for all sectors combined. Currently, a system for fishery performance criteria is used in setting groundfish sector coverage levels (FW 55). Application of the CV standard is filtered consistent with existing goals for the monitoring program, such that stocks that meet the performance criteria are not drivers for the annual coverage level. More information on the fishery performance criteria can be found in Section 6.6.10.1.4.

Adequate coverage (combined NEFOP, ASM and EM) is required to generate accurate discard estimates with a known level of precision. All of the options below – including requirements for coverage adequate for the accuracy and precision of estimates - would be interpreted and applied consistent with the overarching goals and objectives of the sector monitoring program.

4.1.1.1 Sector Monitoring Standard Option 1: No Action

If Option 1/No Action is adopted, groundfish monitoring coverage level requirements would remain as defined in Amendment 16 and subsequent framework actions (FW 48 and FW 55). Currently, the target at-sea monitoring/electronic monitoring coverage level must meet the CV precision standard specified in the Standardized Bycatch Reporting Methodology (currently a 30 percent CV) for discard estimates at the stock level for all sectors and gears combined. Additionally, sector coverage levels are based on the most recent 3-year average of the total required coverage level (based on realized stock level CVs) necessary to reach the required CV for each stock, and are set using fishery performance criteria so that stocks that meet the performance criteria (not overfished, with overfishing not occurring according to the most recent available stock assessment, and that in the previous fishing year have less than 75 percent of the sector sub-ACL harvested, and less than 10 percent of catch comprised of discards) are not drivers for the annual coverage level. The minimum coverage level based on a CV standard is only appropriate for sector monitoring purposes if there is no evidence that behavior on observed and unobserved trips is different. If there is evidence that behavior is different, then a higher coverage level may be required to ensure the accuracy of discard estimates and to minimize the potential for bias in fisheries dependent information.

4.1.1.2 Sector Monitoring Standard Option 2: Fixed Total At-Sea Monitoring Coverage Level Based on a Percentage of Trips

A fixed total at-sea monitoring coverage level would be identified and would replace the current CV standard (including the performance criteria) for deploying human at-sea monitors (Section 4.1.1.1: Option 1/No Action). One of the following coverage levels - an annual target coverage level of all sector trips - would be selected by the Council in this action and applied to all future fishing years (unless changed in a subsequent action):

4.1.1.2.1 Sub-option 2A - 25 percent

4.1.1.2.2 Sub-option 2B - 50 percent

4.1.1.2.3 Sub-option 2C - 75 percent

4.1.1.2.4 Sub-option 2D - 100 percent

For whichever coverage rate is chosen, sectors would achieve the monitoring standard through the use of human at-sea monitors, or through the selected options for substitute sector monitoring tools in Section 4.1.2. The substitute options for sector monitoring tools are expected to achieve or exceed the monitoring standard. Each sector would be responsible for meeting the coverage rate at the sector level.

Total at-sea monitoring coverage is combined NEFOP and ASM. This measure would not change the trip

selection system or any aspect of the process for how trips are selected for coverage and deployed.³

Rationale: The goal is to achieve a monitoring coverage level that ensures precise and accurate catch (landings and discards) estimation and minimizes the potential for biases in the estimates. A fixed at-sea monitoring coverage level removes uncertainty about what the level of monitoring coverage will be each year.

4.1.1.3 Sector Monitoring Standard Option 3: Fixed Total At-Sea Monitoring Coverage Level Based on a Percentage of Catch

This option would consider an alternative method to using a precision standard for determining target coverage levels for human at-sea monitors. The current CV standard for determining the annual coverage level target focuses on precision of discard estimates. The options below would instead focus on ensuring accurate and precise estimation of total catch (landings and discards) through fixed levels of independent verification.

A coverage level of total catch to be independently verified would be identified and would replace the current CV standard (including the performance criteria) for deploying human at-sea monitors (Section 4.1.1.1: Option 1/No Action). One of the following coverage levels - an annual target coverage level of total catch to be independently verified - would be selected by the Council and applied to all future fishing years (unless changed in a subsequent action):

4.1.1.3.1 Sub-option 3A - 25 percent

4.1.1.3.2 Sub-option 3B - 50 percent

4.1.1.3.3 Sub-option 3C - 75 percent

4.1.1.3.4 Sub-option 3D - 100 percent

For whichever coverage level is chosen, sectors collectively would be required to meet the coverage level of total catch to be independently verified for each allocated groundfish stock, targeted at the total sector sub-ACL level. Independent verification of catch can be achieved through a combination of monitoring tools, including at-sea monitoring, dockside monitoring, or electronic monitoring. Sectors would describe in their monitoring plans how the selected target coverage level of total catch for each allocated groundfish stock, targeted at the total sector sub-ACL level, would be achieved through a combination of monitoring tools. The portion would be representative of all gear types, sectors, and seasons.

The required level of catch monitoring may be met by human at-sea monitors, or the options for substitute sector monitoring tools in Section 4.1.2. The substitute options for sector monitoring tools are expected to achieve or exceed the monitoring standard.

Total at-sea monitoring coverage is combined NEFOP and ASM.

Rationale: The goal is to achieve a monitoring coverage level that ensures precise and accurate catch (landings and discards) estimation and minimizes the potential for biases in the estimates. Specifically,

³ See Northeast Fisheries Science Center, Fisheries Sampling Branch website for more information: <https://www.nefsc.noaa.gov/fsb/notification.html>

the goal of this alternative is to ensure an accurate estimate of total catch, by requiring a greater percentage of total catch to be independently verified.

4.1.2 Sector Monitoring Tools (Options for meeting monitoring standards)

The Council could select more than one option in this section. Depending on what the Council selects, sectors would have the option to select one or more of the following options for monitoring tools to address monitoring standards, to be used as a substitute monitoring tool for human at-sea monitors. The intent of these alternatives is to create a suite of monitoring options that are considered to be equivalent in their ability to accurately monitor total catch. The substitute options for sector monitoring tools would be expected to achieve or exceed the monitoring standard selected in Section 4.1.1. Each sector would be given the flexibility to choose the monitoring option that best meets the needs of its members. Through their sector operations plans, sectors would develop monitoring plans that describe how the chosen substitute monitoring tools would achieve the selected monitoring standard.

The options below are monitoring tools that sectors could choose to fulfill the monitoring standard selected in Section 4.1.1, as a substitute to human at-sea monitors. This action does not propose any changes to SBRM, and these substitute monitoring tools could not be used to replace NEFOP observers.

4.1.2.1 Sector Monitoring Tools Option 1 (No Action)

Currently human at-sea monitors are the only tool available to the groundfish fishery to address monitoring standards. Additionally, NMFS has the authority to approve the use of electronic monitoring (EM) in place of at-sea monitors if the technology is deemed sufficient by NMFS for a specific trip based on gear type and area fished.

Rationale: Human at-sea monitors monitor catch to ensure precise and accurate catch (landings and discards) estimation.

4.1.2.2 Sector Monitoring Tools Option 2 – Electronic Monitoring in place of At-Sea Monitors

Amendment 16 specified that electronic monitoring (EM) may be used in place of actual observers or at-sea monitors if the technology is deemed sufficient by NMFS for a specific trip based on gear type and area fished.

This option would allow sectors to choose EM to monitor catch in place of at-sea monitors. EM would be run only on trips that are selected for coverage under the specified coverage rate.

NMFS would develop standards during implementation that address equipment requirements, video review standards, video storage requirements, and catch handling guidelines. Video review would be conducted by third-party providers. Cost allocation would follow the NOAA policy directive on cost allocation in electronic monitoring programs for Federally managed fisheries⁴

Vessel operators would be required to submit for review by NMFS an individual Vessel Monitoring Plan (VMP) that would document the installation of the EM system on the vessel and the vessel's specific

⁴ NMFS Procedure 04-115-02, Cost Allocation in Electronic Monitoring Programs for Federally Managed Fisheries, May 7, 2019: <https://www.fisheries.noaa.gov/national/laws-and-policies/science-and-technology-policy-directives>

plans and procedures for operations, catch handling, and maintenance. Vessels could not use EM unless NMFS approves the VMP for the vessel. The VMP would need to be carried on board the vessel to facilitate implementation and enforcement.

This option addresses monitoring at-sea and focuses on discard estimation.

Rationale: The goal is to provide sectors with tools to monitor catch that ensure precise and accurate catch (landings and discards) estimation and minimize the potential for biases in the estimates, and to provide sectors with more flexibility in monitoring.

4.1.2.3 Sector Monitoring Tools Option 3 – Audit Model Electronic Monitoring Option

This option would approve the use of an audit model electronic monitoring program in place of at-sea monitors, in which EM runs on 100 percent of trips and a subset of hauls or trips is reviewed to verify vessel trip report (VTR)-reported discards. For trips that meet the standards, VTR-reported discards would be used. Others trips would have discards calculated using available data. The video review rate would be selected by NMFS to ensure accurate VTR reporting, and could be further reduced in the future through evaluations of the data by NMFS, particularly for vessels that report accurately.

NMFS would develop standards during implementation that address equipment requirements, video review standards, video storage requirements, and catch handling guidelines. Video review would be conducted by third-party providers. Cost allocation would follow the NOAA policy directive on cost allocation in electronic monitoring programs for Federally managed fisheries⁵

Vessel operators would be required to submit for review by NMFS an individual Vessel Monitoring Plan (VMP) that would document the installation of the EM system on the vessel and the vessel's specific plans and procedures for operations, catch handling, and maintenance. Vessels could not use EM unless NMFS approves the VMP for the vessel. The VMP would need to be carried on board the vessel to facilitate implementation and enforcement.

This option addresses monitoring at-sea and focuses on discard estimation.

Rationale: The goal is to provide sectors with tools to monitor catch that ensure precise and accurate catch (landings and discards) estimation and minimize the potential for biases in the estimates, and to provide sectors with more flexibility in monitoring.

4.1.2.4 Sector Monitoring Tools Option 4 - Maximized Retention Electronic Monitoring Option

This option would approve the use of a maximized retention model with electronic monitoring for sectors to use in place of at-sea monitors, in which EM runs on 100 percent of trips and verifies that all allocated groundfish are landed, paired with dockside monitoring to sample catch. For this approach, vessels would be required to land all groundfish of all sizes, i.e. no discarding of non-prohibited fish, and so this would eliminate the need to monitor allocated groundfish discards, as these would now be retained and

⁵ NMFS Procedure 04-115-02, Cost Allocation in Electronic Monitoring Programs for Federally Managed Fisheries, May 7, 2019: <https://www.fisheries.noaa.gov/national/laws-and-policies/science-and-technology-policy-directives>

accounted for through dockside monitoring. Discards of prohibited groundfish stocks would still need to be monitored and accounted for.

To ensure compliance and full catch accountability, this option would include 100 percent dockside monitoring and 100 percent electronic monitoring of all trips. Similar to the audit model option, video review rates could be much lower than 100 percent when vessels are shown to be complying with relevant protocols.

NMFS would develop standards during implementation that address equipment requirements, video review standards, video storage requirements, and catch handling guidelines. Video review would be conducted by third-party providers. Cost allocation would follow the NOAA policy directive on cost allocation in electronic monitoring programs for Federally managed fisheries⁶

Vessel operators would be required to submit for review by NMFS an individual Vessel Monitoring Plan (VMP) that would document the installation of the EM system on the vessel and the vessel's specific plans and procedures for operations, catch handling, and maintenance. Vessels could not use EM unless NMFS approves the VMP for the vessel. The VMP would need to be carried on board the vessel to facilitate implementation and enforcement.

Rationale: The goal is to provide sectors with a tool to monitor catch that ensures precise and accurate catch (landings and discards) estimation while simultaneously reducing regulatory discards, and to provide sectors with more flexibility in monitoring.

4.1.3 Total Monitoring Coverage Level Timing

4.1.3.1 Coverage Level Timing Option 1: No Action

The timing for announcing the required total monitoring coverage has varied over time (see Table 55). Currently, NMFS publishes the total monitoring coverage level once the necessary analysis is completed. Typically, analysis to determine the at-sea monitoring (ASM) coverage level is available sooner than the Standardized Bycatch Reporting Methodology (SBRM) analysis used to determine the Northeast Fisheries Observer Program (NEFOP) coverage level.

Current regulations set December 1 as the deadline for sectors to submit preliminary rosters, but grant NMFS flexibility to set a different date. For example, in FY 2013, managers asked for a later date, and they agreed on March 29, 2013. Beginning in FY 2014, NMFS established a standard roster deadline of four weeks after potential sector contribution (PSC) letters are sent out, although in several years, there have been agreed-upon extensions. There have been several years throughout FY2010 to FY2019 in which the date sector rosters were due occurred before the date the total monitoring coverage rate was announced (see Table 55). This can complicate groundfish fishery participant's business planning as the decision of whether or not to participate in sectors for the upcoming fishing year may be influenced by the monitoring coverage rate for a given year.

Option 1/No Action would continue the current process of making the total monitoring coverage level available once the necessary analyses are completed.

⁶ Ibid

4.1.3.2 Coverage Level Timing Option 2: Knowing Total Monitoring Coverage Level at a Time Certain

This measure would consider a time certain for knowing the total monitoring coverage level as a target date of three weeks prior to the annual sector enrollment deadline set by NMFS. This option would apply to the current coefficient of variation (CV) method for determining total coverage levels under the No Action (Section 4.1.1.1 Option 1/No Action) and the option for a fixed total monitoring coverage level based on a percentage of catch (Section 4.1.1.3/Option 3). This option does not apply to the option for a fixed total monitoring coverage level based on a percentage of trips (Section 4.1.1.2/Option 2).

This measure identifies knowing the target monitoring coverage level at a specific date in advance of the start of the fishing year to facilitate business planning by permit holders and sectors. The feasibility of setting a fixed date is related to the method used for setting coverage rates and the desired timeliness of the underlying data used in the analysis.

Certain alternatives for determining target monitoring coverage levels may not require extensive analysis to determine target coverage levels for the upcoming fishing year. For example, alternatives for fixed target coverage levels would provide sectors a clear understanding of the target monitoring coverage level for upcoming years. However, alternatives that base the coverage rate on an analysis of past years' data, such as the current coefficient of variation (CV) method for determining total coverage levels (Section 4.1.1.1 Option 1/No Action), must trade off timeliness of the data available with completion of the analysis by the deadline. A desire to know the total monitoring coverage level at an earlier date will require the use of less recent data in order to complete the analysis by the earlier deadline.

Rationale: Knowing the target total monitoring coverage level at a specific date in advance of the start of the fishing year would provide flexibility to groundfish fishery participants by making the necessary information available for participants to decide whether to participate in sectors for the upcoming year, to finalize their business planning, and to negotiate with at-sea monitoring providers prior to the start of the upcoming fishing year.

4.1.4 Review Process for Sector Monitoring Coverage

4.1.4.1 Coverage Review Process Option 1: No Action

Under Option 1/No Action, the efficacy of sector monitoring coverage rates would not be reviewed on a prescribed basis. The groundfish monitoring program would continue to be reviewed as part of the goals and objectives of the groundfish sector monitoring program through Goal 6: Perform periodic review of monitoring program for effectiveness (see Section 3.3.2 for the complete list of goals and objectives of the groundfish monitoring program).

4.1.4.2 Coverage Review Process Option 2: Establish a Review Process for Monitoring Coverage Rates

This measure would establish a review process to evaluate the efficacy of sector monitoring coverage rates, to occur once two full fishing years of data is available. The review process would include establishing metrics and indicators of how well the monitoring program improved accuracy while maximizing value and minimizing costs. The review process will be further developed, including a determination of which party would be responsible for the review, when the Council selects its preferred alternative for the sector monitoring standards that set coverage levels (Section 4.1.1). Establishment of a

review process for monitoring coverage rates may result in an adjustment to the goals and objectives of the groundfish monitoring program (see Section 3.3.2).

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.

4.1.5 Addition to List of Framework Items – New Sector Monitoring Tools

Many management measures can be adjusted through a framework action. This alternative would add the following to the list of measures that can be adjusted in the future:

- Addition of new sector monitoring tools that meet or exceed the Council’s selected monitoring standard.

Rationale: The intent through Amendment 23 is to identify a range of monitoring tools that the Council would select and NMFS would approve for use by sectors to achieve the selected monitoring standard. Should new monitoring tools become available in the future, allowing these to be considered for use by sectors through a framework adjustment facilitates more efficient incorporation of new monitoring tools into the groundfish monitoring program.

4.2 COMMERCIAL GROUNDFISH MONITORING PROGRAM REVISIONS (SECTORS AND COMMON POOL)

The following measures in this section apply to both the sector and common pool segments of the commercial groundfish fishery.

4.2.1 Dockside Monitoring Program (Sectors and Common Pool)

4.2.1.1 Dockside Monitoring Option 1: No Action

There is currently no requirement for dockside monitoring for the groundfish fishery. However, any sector can choose to develop and implement a dockside monitoring program as part of its operations plan, through approval by NMFS. Amendment 16 established a dockside monitoring program in the groundfish fishery, in order to verify landings of a vessel at the time it is weighed by a dealer and to certify the landing weights are accurate as reported on the dealer report. The dockside monitoring requirement was later eliminated (FW 48). More information on the previous dockside monitoring program can be found in the Groundfish Plan Development Team Dockside Monitoring Discussion Paper (Appendix II).

Option 1/No Action would continue to maintain no requirement for dockside monitoring for the groundfish fishery, except as part of the maximized retention electronic monitoring option if that is selected. Sectors would continue to have the ability to develop and implement a dockside monitoring program as part of their operations plans.

4.2.1.2 Dockside Monitoring Option 2: Mandatory Dockside Monitoring Program for the Entire Commercial Groundfish Fishery (Sectors and Common Pool)

This measure would develop a mandatory dockside monitoring program for the commercial groundfish fishery (sectors and common pool) at 100 percent coverage of all trips.

The following measures would create a dockside monitoring (DSM) program for the groundfish fishery that would focus on monitoring landings by independently verifying that landed catch is weighed and accurately reported by dealers. The goal of the DSM program is to verify landings (species and weights) by providing an independent landings data stream that may be compared to dealer-reported landings in order to ensure accurate accounting of landings.

Rationale: The goal is to establish a dockside monitoring program that allows for independent verification of landings for the entire commercial groundfish fishery, which will ensure accurate reporting by dealers, ensure species are reported correctly, improve the fair market value for landed fish, and add unique value to current enforcement activities.

If Option 2 is selected, the Council would choose from the following sub-options under “Dockside Monitoring Program Structure and Design” to determine the responsibility of DSM program costs and how the DSM program will be structured, and to specify details of the DSM program.

4.2.2 Dockside Monitoring Program Structure and Design

4.2.2.1 Dockside Monitoring Program Funding Responsibility

Two different options for the responsibility of the costs of dockside monitoring, either as a dealer-funded program (Option A) or a vessel-funded program (Option B), are outlined below. For either option, dockside monitoring would follow cost sharing responsibilities for industry-funded monitoring programs, in which “industry would be responsible for costs directly attributable to the sampling portion of a monitoring program, and NMFS would be responsible for costs directly attributable to the administrative portion of the monitoring program...” If a fixed rate of coverage is required, then fishing effort would need to be reduced to match the level of monitoring that can be covered by available funding for shoreside costs. Alternatively, the program would have to address how the fishery would operate if NMFS is unable to fund its shoreside costs for coverage at the specified level (see Section 4.4.2.2). NMFS would develop standards for any dockside monitoring program whether it was a dealer responsibility or a vessel responsibility.

4.2.2.1.1 Dockside Monitoring Funding Responsibility Option A (Dealer Responsibility)

If this option is chosen, groundfish dealers (dealers receiving >1 pound of groundfish) would be responsible for the costs of dockside monitoring. Dealers would be required to implement an independent third-party dockside monitoring system for monitoring landings. The details of the dockside monitoring system must be provided in the dealer’s dockside monitoring plan. Each dealer would prepare a dockside monitoring plan that covers the specifics of how the required dockside monitoring program will be implemented at their location (e.g., site plan, safety plan) and how to ensure all landings of groundfish are monitored, that must be reviewed and approved annually by NMFS in order for the sealer to purchase groundfish.

Rationale: The goal of the dockside monitoring program is to verify landings (species and weights) by

providing an independent landings data stream that may be compared to dealer-reported landings in order to ensure accurate accounting of landings for the entire commercial groundfish fishery.

4.2.2.1.2 Dockside Monitoring Funding Responsibility Option B (Vessel Responsibility)

Under this option, vessels would be responsible for the costs of dockside monitoring. Each sectors would be required to develop and implement an independent third-party dockside monitoring system that is satisfactory to NMFS for monitoring landings. For common pool vessels, there would need to be detailed dockside monitoring program standards for these vessels to follow, as opposed to individual dockside monitoring plans for each common pool vessel.

Rationale: The goal of the dockside monitoring program is to verify landings (species and weights) by providing an independent landings data stream that may be compared to dealer-reported landings in order to ensure accurate accounting of landings for the entire commercial groundfish fishery.

4.2.2.2 Dockside Monitoring Program Administration

4.2.2.2.1 Dockside Monitoring Administration Option A - Individual contracts with dockside monitor providers

Individual dealers or vessels (depending on the option selected above) would be required to contract directly with third-party dockside monitor providers and provide a copy of the contract to NMFS to have their dockside monitoring plans approved. Vessels enrolled in sectors would be covered by a monitoring plan included in their sector's operations plans and the sector would contract directly with monitoring providers. Sectors would provide a copy of the contract to NMFS to have their dockside monitoring plans approved. Common pool vessels would need to contract directly with providers.

Rationale: The ability for dealers or sectors/vessels to directly contract with third-party dockside monitors provides increased flexibility. Sectors currently contract directly with third-party providers for at-sea monitors.

4.2.2.2.2 Dockside Monitoring Administration Option B – NMFS-administered dockside monitoring program

This measure would create a single dockside monitoring program for all dealers or sectors/vessels to use, contracting through an independent third-party dockside monitor provider. Unlike other regions, NMFS does not have authority to collect funds for monitoring. If this approach was pursued, NMFS would set up and administer the program, but dealers or sectors/vessels would be directly billed by the provider. Parties would not be required to directly contract.

Rationale: A single, NMFS-administered dockside monitoring program for all dealers or vessels would simplify program implementation compared to having individual dealer or sector/common vessel contracts with dockside monitor providers.

4.2.2.3 Reconciling Discrepancies between Dealer Reports and Dockside Monitor Reports

4.2.2.3.1 Reconciling Discrepancies between Reports Option A – Whichever record is higher is the official record

In the case of a discrepancy between dealer and dockside monitor report of vessel landings, this measure would allow for whichever record reports the higher value by species to be considered the official record. For trips not covered by a dockside monitor (if the option for a “spot check approach” for a subset of the fleet is selected), this measure would allow for a default to the dealer data as the official landings record for these trips. This measure includes recommendation of enforcement of the NOAA Office of Law Enforcement (OLE) penalty structure in place to incentivize accurate reporting of landings, such that if there is a discrepancy between the dealer and the dockside monitor report, for example, the dealer may face a penalty. These measures would include requirements for reporting in a format usable by existing data systems be a contract requirement for dockside monitor providers to meet, so that dockside monitoring data could be considered in place of dealer data.

Rationale: On the West Coast, both the dealer and the dockside monitor submit landings weights electronically to the Pacific States Marine Fisheries Commission (PSMFC). An attempt is made to reconcile any differences, but if they cannot be resolved, the higher value by species is used to be conservative. A similar model could be used to handle discrepancies between the dealer and dockside monitor report for the dockside monitoring program developed through this action. Should there be discrepancies between a dealer report and dockside monitor report that are unable to be reconciled, using whichever record with the higher value by species as the official landings record is an attempt to be conservative in landings estimates and may help to incentivize accurate reporting.

4.2.2.3.2 Reconciling Differences between Reports Option B – Dealer reports remain the official record, with comparison to dockside monitor reports

This measure would allow for the dealer report to still be the official record, both for trips covered by dockside monitoring and those not covered (if the option for a “spot check approach” for a subset of the fleet is selected). This measure includes recommendation of enforcement of the NOAA Office of Law Enforcement (OLE) penalty structure in place to incentivize accurate reporting of landings, such that if there is a discrepancy between the dealer and the dockside monitor report, for example, the dealer may face a penalty. These measures could include requirements for reporting in a format usable by existing data systems be a contract requirement for dockside monitor providers to meet, so that dockside monitoring data could be easily tracked and compared to dealer data.

Rationale: Maintaining dealer reports as the official landings record would make program implementation simpler as it would not require extensive changes to the current data management system. A penalty structure for discrepancies between the dealer and dockside monitor report may help to incentivize accurate reporting and would give the dockside monitor reports increased utility as an independent verification tool.

4.2.2.4 Options for Lower Coverage Levels in Small, Remote Ports and for Small Vessels with Low Landings (20% compared to 100%)

These measures would allow for lower levels of dockside monitoring in either small, remote ports or for small vessels with low landings. For instances in which landings are offloaded to a truck before weighout at a dealer, analysis will be done to determine whether the dockside monitor will monitor landings at the point of offload (e.g. offloads to a truck) or at the dealer where weighout occurs, because the goal of the DSM program is to ensure the accuracy of dealer reports.

The Council could choose one or both of these options.

4.2.2.4.1 Lower coverage levels (20%) for small, remote ports Option A – ports with total groundfish landings volumes in the 5th percentile of total annual landings

This option would allow for lower levels of dockside monitoring for smaller, less used ports to act as a “spot check.” Dockside monitors would be randomly assigned to these ports at a lower coverage level.

Ports with total annual groundfish landings volumes in the 5th percentile of total annual landings volume were determined to be small and remote and would receive lower “spot check” coverage. This means that ports which land approximately 5 to 10 percent of total groundfish pounds each year would be exempted from 100 percent coverage and would receive 20 percent coverage instead, as a spot check. Ports that land 90-95 percent of groundfish for 2012-2018 would receive 100 percent coverage. The ports that cover ~95 percent of landings are those in the top five – New Bedford, Gloucester, Boston, Scituate, and Portland. Dealers in these ports, or vessels landing in these ports, would receive 100 percent coverage. All other ports would be considered “small and/or remote” as characterized by lower landings volumes, and dealers in these ports, or vessels landing in these ports, would receive the lower coverage levels of 20 percent. This measure would include a periodic re-evaluation of what constitutes a “small port” based on landings volumes, to occur after two years of landings data is available and every three years after that.

This option would also include measures to incentivize accurate reporting of landings. For dealers located in small, remote ports that are subject to lower dockside monitoring coverage, their dockside monitoring coverage rate could increase if their dealer reports are not similar to the dockside monitor reports. For vessels landing in remote ports that are subject to lower dockside monitoring coverage, their dockside monitoring coverage rate could increase if their vessel hail-in reports are not similar to the dockside monitor reports. Comparisons could be done for each trip subject to coverage.

Rationale: There are operational challenges with conducting dockside monitoring in small remote ports where landings volumes may be low and infrequent, including logistical difficulties with timely notice to a provider that a dockside monitor is needed. Lower coverage levels for these remote ports may provide some relief from dockside monitoring coverage. Monitoring levels are assigned in proportion to the risk of potential catch misreporting (by volume). Increasing the coverage rate should dealer reports or vessel hail-in reports not be similar to the dockside monitor reports would help to incentivize accurate reporting of landings.

4.2.2.4.2 Lower coverage levels (20%) for small, remote ports Option B – vessels with total groundfish landings volumes in the 5th percentile of total annual landings

This option would allow for lower levels of dockside monitoring for smaller, low volume vessels to act as a “spot check.” Dockside monitors would be randomly assigned to these vessels at a lower coverage level.

Vessels with total annual groundfish landings volumes in the 5th percentile of total annual landings volume were determined to be low volume and would receive lower “spot check” coverage. This means that vessels which land approximately 5 to 10 percent of total groundfish pounds each year would be exempted from 100 percent coverage and receive 20 percent coverage instead, as a spot check. Vessels that land 90-95 percent of groundfish for 2012-2018 would receive 100 percent coverage. The vessels that cover ~95 percent of landings are those that landed 55,000lbs or more annually on average from 2012-2018. Vessels landings 55,000lbs or more annually, or dealers receiving offloads from vessels with annual landings volumes of 55,000lbs or more, would receive 100 percent coverage. Vessels with annual landings volumes of less than 55,000lbs, or dealers receiving offloads from vessels with annual landings volumes of less than 55,000lbs, would receive the lower coverage rate of 20 percent. This measure would include a periodic re-evaluation of what constitutes a “low volume vessel” based on landings volume, to occur after two years of landings data is available and every three years after that.

This option would also include measures to incentivize accurate reporting of landings. For low volume vessels that are subject to lower dockside monitoring coverage, their dockside monitoring coverage rate could increase if their vessel hail-in reports are not similar to the dockside monitor reports. For dealers receiving offloads from low volume vessels that are subject to lower dockside monitoring coverage, their dockside monitoring coverage rate could increase if their dealer reports are not similar to the dockside monitor reports. Comparisons could be done for each trip subject to coverage.

Rationale: There are operational challenges with conducting dockside monitoring for smaller vessels with low landings volumes, many of which may land in small, remote ports, including logistical difficulties with notifying a provider that a dockside monitor is needed with sufficient notice. Lower coverage levels for these small vessels with low landings may provide some relief from dockside monitoring coverage. Monitoring levels are assigned in proportion to the risk of potential catch misreporting (by volume). Increasing the coverage rate should dealer reports or vessel hail-in reports not be similar to the dockside monitor reports would help to incentivize accurate reporting of landings.

4.2.2.5 Options for Dockside Monitor Safety and Liability Associated with Fish Hold Inspections

4.2.2.5.1 Fish Hold Inspection Option A - Dockside monitor fish hold inspections required

This measure would require that monitors be allowed to access the fish hold of vessels directly to verify that all of the retained catch is offloaded and accounted for at the conclusion of an offload. This option would require that the dockside monitoring service provider is responsible for providing insurance liability associated with having monitors inspect the fish hold of the vessel, similar to how at-sea monitor and observer providers are responsible for providing insurance liability for at-sea observers on board vessels. Due to safety reasons, dockside monitors would only enter fish holds that have been emptied and therefore would be unlikely to have captured gases. This measure would also allow dockside monitors to forego a fish hold inspection due to safety concerns, and would require the dockside monitor to document the reason why a fish hold inspection could not be conducted.

Rationale: Fish hold inspections at the conclusion of an offload are an important component to dockside monitoring in order to ensure that all landings have been accounted for and independently verified. Requiring dockside monitor providers to carry insurance liability for dockside monitors inspecting fish holds may address liability concerns with having dockside monitors directly inspect fish holds (although there may be additional individual vessel insurance concerns). Specifying that dockside monitors only enter fish holds that have been emptied and allowing dockside monitors to forego a fish hold inspection due to safety concerns would address safety concerns.

4.2.2.5.2 Fish Hold Inspection Option B – Alternative methods for inspecting fish holds (cameras)

This measure would allow for the use of cameras to verify that all of the retained catch is offloaded and accounted for, as an alternative method to dockside monitors directly accessing fish holds for inspections. This option may be particularly well suited for use on vessels with EM systems.

Rationale: Fish hold inspections at the conclusion of an offload are an important component to dockside monitoring in order to ensure that all landings have been accounted for and independently verified, however, there are safety and liability concerns with having dockside monitors inspect fish holds. Alternatives to having dockside monitors directly inspect fish holds, such as the use of cameras, ensure that fish hold inspections still occur as part of dockside monitoring while mitigating safety and liability

concerns associated with dockside monitors inspecting fish holds.

4.2.2.5.3 Fish Hold Inspection C – No fish hold inspection required, captain signs affidavit

This option would not require inspections of fish holds at the conclusion of an offload as a part of dockside monitoring, and instead would require captains to sign an affidavit, subject to the penalties of perjury, certifying that all catch has been removed from the fish hold concluding the offload, or an estimate of retained catch.

Rationale: There are safety and liability concerns with having dockside monitors inspect fish holds. An alternative model to having dockside monitors inspect fish holds is to require captains to sign an affidavit, subject to the penalties of perjury, certifying that all catch has been removed from the fish hold concluding the offload, or an estimate of retained catch.

4.3 SECTOR REPORTING

The alternatives in this section will consider changes to the administration of the groundfish sector reporting system.

4.3.1 Sector Reporting Option 1 (No Action)

Sectors are required to report all landings and discards by sector vessels to NMFS on a weekly basis. Additionally, sectors are required to submit annual year-end reports (Amendment 13 and Amendment 16). Current regulations require that approved sectors must submit an annual year-end report to NMFS and the Council, within 60 days of the end of the fishing year, that summarizes the fishing activities of its members, including harvest levels of all species by sector vessels (landings and discards by gear type), enforcement actions, and other relevant information required to evaluate the performance of the sector. More information on sector reporting requirements and the NMFS year-end report guidance can be found in Section 6.6.10.1.

Option 1/No Action would continue to require sectors to report all landings and discards to NMFS on a weekly or daily basis, and would continue to require that sectors submit annual year-end reports to NMFS and the Council.

4.3.2 Sector Reporting Option 2 - Grant Regional Administrator the Authority to Streamline Sector Reporting Requirements

This measure would grant the Regional Administrator authority to revise the sector monitoring and reporting requirements currently prescribed in the regulations [648.87(b)(1)(v) and (vi)] to streamline the sector reporting process. For example, this could include eliminating the requirement for sectors to submit weekly and daily reports in lieu of the agency providing monitoring summaries for the sectors to use while continuing reconciliation to confirm accuracy.

In Amendment 16, the Council required sectors to report all landings and discards by sector vessels to NMFS on a weekly basis. At the time this was developed, the expectation was that sectors would use real-time information from their vessels to monitor catch. In practice, NMFS provides sector managers with a

weekly download of official trip data (dealer and VTR landings data, observer discard data, and calculated discard rates for unobserved trips), which most sectors use to update their sector accounting and then submit a weekly report to NMFS. Some sectors use data collected directly from vessels in their reports. Data reconciliation occurs regularly between the sectors and NMFS to improve monitoring accuracy by identifying and resolving any data errors in either the sector's or NMFS' information.

A more efficient process might be developed that would still involve timely monitoring and reconciliation of data sources between sectors and NMFS. If deemed sufficient by the Regional Administrator, an alternative to the process currently prescribed in the regulations may satisfy the need to:

- Summarize trips validated by dealer reports;
- Oversee the use of electronic monitoring equipment and review of associated data;
- Maintain a database of VTR, dealer, observer, and electronic monitoring reports;
- Determine all species landings by stock areas;
- Apply discard estimates to landings;
- Deduct catch from ACEs allocated to sectors; and
- Determine sector catch and ACE balances.

Additional changes to streamline sector reporting could include such items as⁷:

- Using NMFS reconciled data to determine when the trigger for sector daily catch reporting has been reached (required when 90 percent of any ACE has been caught), rather than using sector self-reported data. As described above, sector data is not any timelier and the reconciled data is more accurate, so using NMFS reconciled data would be more efficient and reliable than relying solely on sector reports.
- Modifying trip end hauls to accommodate catch reporting and to eliminate redundancy.

Rationale: Granting the Regional Administrator the authority to streamline the sector reporting process would help to reduce reporting redundancies, provide flexibility to sectors and sector managers, and improve timeliness of data processing.

4.4 FUNDING/OPERATIONAL PROVISIONS OF GROUND FISH MONITORING

The alternatives in this section consider provisions for when there are changes in federal funding of the groundfish monitoring program, including provisions for either an increase or decrease in funding.

4.4.1 Funding Provisions Option 1 (No Action)

Beginning in 2012, Amendment 16 required that the at-sea monitoring program would be industry funded. However, since then NMFS has had sufficient funding to be able to pay for all or some of industry's sampling costs of the groundfish at-sea monitoring program. Currently, NMFS is reimbursing industry for 100 percent of its at-sea monitoring costs through a grant with the ASMFC. It is anticipated that once these appropriated funds are used, sampling costs of at-sea monitoring would be fully paid for

⁷ These items were initially included in a letter from NMFS to the Council: "Bullard to NEFMC re sector reporting streamlining", dated August 14, 2013.

by industry, unless additional NMFS funds are available.

Option 1/No Action would continue to require industry to fund at-sea monitoring costs. Additionally, under Option 1/No Action, if a fixed rate of target monitoring coverage is required, then vessels would be required to reduce fishing effort to match the available level of monitoring that can be covered by available funding for NMFS' shoreside costs.

4.4.2 Funding Provisions Option 2 - Provisions for an Increase or Decrease in Funding for the Groundfish Monitoring Program

4.4.2.1 Funding Provisions Sub-Option 2A: Additional NMFS Funding for Increased Monitoring if Funds Available (Sectors Only)

This measure, if chosen, would allow for at-sea monitoring at higher coverage levels than the target coverage required (see Section 4.1.1), up to 100 percent, provided that NMFS has determined funding is available to cover the additional administrative costs to NMFS and sampling costs to industry in a given year. The higher monitoring coverage levels would be determined by the amount of available additional funding from NMFS in a given year, and would be announced once NMFS has determined the amount of additional funding available. Available funding in regard to this alternative refers to funds appropriated specifically for groundfish monitoring costs and not to the prioritization of funds described in the Industry Funded Monitoring (IFM) Omnibus Amendment. If this option is selected, but Federal funding is not available to increase the coverage beyond the target set in Section 4.1.1, then industry must meet the target coverage and pay for its monitoring costs. The No Action for industry-funded at-sea monitoring costs at the selected minimum target coverage level would remain in place in years in which additional funds to cover industry costs are not available.

Rationale: Monitoring coverage at 100 percent, or as close to 100 percent, increases the accuracy of catch estimates and reduces the potential for bias. Higher coverage levels, even for a limited time, may inform understanding of the magnitude of bias, and inform future actions on the value of higher monitoring coverage levels. Coverage of 100 percent of trips is the only way to completely remove bias. However, it may be impracticable for industry or NMFS to fund their portions of the costs associated with complete coverage, resulting in a lower coverage level. Higher levels of coverage require a substantial increase in costs, and given that industry is responsible for monitoring costs, would create an added burden to both industry and NMFS. However, increased monitoring supported by additional funding from NMFS for a limited term could improve cost-effectiveness of the current and future monitoring system by providing a baseline to evaluate bias. This evaluation could inform future monitoring program design to increase efficiency and reduce bias when coverage is at a level lower than 100 percent.

4.4.2.2 Funding Provisions Sub-Option 2B: Waivers from Monitoring Requirements Allowed (Sectors and Common Pool)

This measure would allow vessels to be issued waivers to exempt them from industry-funded monitoring requirements, for either a trip or the fishing year, if coverage was unavailable due to insufficient funding for NMFS shoreside costs for the specified target coverage level. This would include coverage for at-sea monitoring, electronic monitoring, and dockside monitoring. Selection of this option preserves the Council's intent for additional monitoring in the groundfish fishery, but would not prevent vessels from

participating in the groundfish fishery if monitoring coverage was not available.

Rationale: In the absence of waivers from monitoring requirements, vessels would be required to reduce fishing effort to match the available level of monitoring (i.e., the fleet would not fish if NMFS does not have funding for the program). Reducing fishing effort to match available monitoring may lack sufficient justification and may be inconsistent with National Standards. Additionally, years in which fishing effort is reduced to match available funds would not be representative of other years, and so statistical comparisons of effort and catch between years would be difficult.

4.5 MANAGEMENT UNCERTAINTY BUFFERS FOR THE COMMERCIAL GROUNDFISH FISHERY (SECTORS AND COMMON POOL)

The following measures in this section apply to both the sector and common pool segments of the commercial groundfish fishery. More than one option can be selected in this section.

4.5.1 Management Uncertainty Buffer Option 1 (No Action)

Option 1/No Action would maintain the management uncertainty buffers currently in place for the different sub-components of the commercial groundfish fishery ACL and for different groundfish stocks.

The current default adjustment for management uncertainty for groundfish stocks is 5 percent of the ABC. For stocks with less management uncertainty, the buffer is set at 3 percent of the ABC; for stocks with more uncertainty, the buffer is set at 7 percent of the ABC. Currently, the sector and common pool components of the groundfish fishery have identical management uncertainty buffers for each groundfish stock. Stocks without state waters catches have a lower management uncertainty buffer of 3 percent of the ABC; zero possession, discard-only stocks have a higher management uncertainty buffer of 7 percent of the ABC. The current management uncertainty buffers for groundfish stocks are provided in Table 1.

The process for evaluating management uncertainty buffers includes consideration of the following elements: 1) enforceability of management measures, 2) monitoring adequacy (including timeliness, completeness, and accuracy of monitoring data), 3) precision, 4) latent effort, and 5) other fishery catch.

Table 1 - Management uncertainty buffers (as a proportion of the ABC) for each groundfish stock.

Stock	Management Uncertainty Buffer
GB cod	0.05
GOM cod	0.05
GB haddock	0.05
GOM haddock	0.05
GB yellowtail flounder	0.03
SNE/MA yellowtail flounder	0.05
CC/GOM yellowtail flounder	0.05
American plaice	0.05
Witch flounder	0.05

GB winter flounder	0.03
GOM winter flounder	0.05
SNE/MA winter flounder	0.05
Redfish	0.05
White hake	0.05
Pollock	0.05
Northern windowpane flounder	0.07
Southern windowpane flounder	0.07
Ocean pout	0.07
Atlantic halibut	0.05
Atlantic wolffish	0.07

Rationale: Management uncertainty is the likelihood that management measures will result in a level of catch that is greater than the catch objective. It is related to the effectiveness of management measures (lower effectiveness of management measures results in greater management uncertainty, i.e., greater likelihood that measures will result in a catch that exceeds the catch level objective). An increase in the adjustment for management uncertainty may be warranted if there is a greater likelihood that management measures will result in a catch that exceeds the catch level objective. According to National Standard guidelines, adjustments to management uncertainty buffers should consider uncertainty in the ability of managers to constrain catch so the ACL is not exceeded, and uncertainty in quantifying the true catch amounts (i.e., estimation errors).

4.5.2 Management Uncertainty Buffer Option 3: Elimination of Management Uncertainty Buffer for Sector ACL with 100 Percent Monitoring of All Sector Trips

To select this sub-option, the Council must also select the option for 100 percent coverage in either Section 4.1.1.2 Option 2: Fixed Total At-Sea Monitoring Coverage Level Based on a Percentage of Trips, or Section 4.1.1.3 Option 3: Fixed Total Monitoring Coverage Level Based on a Percentage of Catch.

This measure would revise the management uncertainty buffer for the sector ACL for each allocated groundfish stock to be zero, if the option for 100 percent at-sea monitoring, whether as a fixed percentage of sector trips (Section 4.1.1.2 Option 2) or as a percentage of catch (Section 4.1.1.3 Option 3) is selected. Revised management uncertainty buffers would apply to sectors only. This measure would not apply to the common pool component of the fishery, or other sub-ACLs or sub-components for any stocks.

Rationale: Uncertainty of whether management measures will result in catch that stays below the catch objective depends in part on the adequacy of fishery monitoring data. If sectors were monitored at 100 percent at-sea monitoring coverage, this comprehensive catch accounting could help to ensure catch is constrained so the ACL is not exceeded, and would eliminate uncertainty in quantifying the true catch amounts, which could warrant the revision of the management uncertainty buffers for the sector ACL for all allocated groundfish stocks to be zero.

4.6 EXEMPTIONS FROM GROUNDFISH SECTOR AND COMMON POOL MONITORING REQUIREMENTS

The measures in the following section apply to both the sector and common pool segments of the commercial groundfish fishery.

4.6.1 Monitoring Exemption Option 1 (No Action)

Option 1/No Action would maintain the existing exemptions from groundfish monitoring program requirements. Sector vessels fishing exclusively with extra-large mesh (ELM) gillnets of 10 inches (25.4 cm) or greater on a sector trip fishing exclusively in the SNE/MA and Inshore GB Broad Stock Areas would continue to be exempt from the at-sea monitoring coverage requirement.

FW55 removed the at-sea monitoring coverage requirement for sector vessels fishing exclusively with extra-large mesh (ELM) gillnets of 10 inches (25.4 cm) or greater on a sector trip fishing exclusively in the Southern New England/Mid-Atlantic (SNE/MA) Broad Stock Area (BSA) and Inshore Georges Bank (GB) BSA (Figure 1). Vessels making an ELM declaration in the SNE/MA and/or Inshore GB Broad Stock Areas are not subject to at-sea monitoring coverage. The majority of catch on sector trips using ELM gear is of non-groundfish stocks, such as skates, monkfish, and dogfish, with minimal groundfish catch.

Sector vessels fishing on these non-ASM sector trips and fishing exclusively within the footprint and season of either the Nantucket Shoals Dogfish Exemption Area, the Eastern Area of the Cape Cod Spiny Dogfish Exemption Area, and SNE Dogfish Gillnet Fishery Exemption Area are exempt from the requirement to only use 10+ inch mesh on these excluded trips in order to target dogfish with 6.5 inch mesh on the same trip, and are thus also excluded from the at-sea monitoring coverage requirement. Groundfish catch is very low within the area and season of dogfish exempted fisheries. However, these exemptions are handled through sector operations plans.

Rationale: The majority of catch on sector trips using ELM gear is of non-groundfish stocks, such as skates, monkfish, and dogfish, while the ASM program was designed, primarily, to ensure that sectors do not exceed their sector allocation and to verify area fished, catch, discards by species, and gear type used. Groundfish catch is known to be very low within the area and season of dogfish exempted fisheries, and groundfish catch on these trips is counted against the sector's ACE

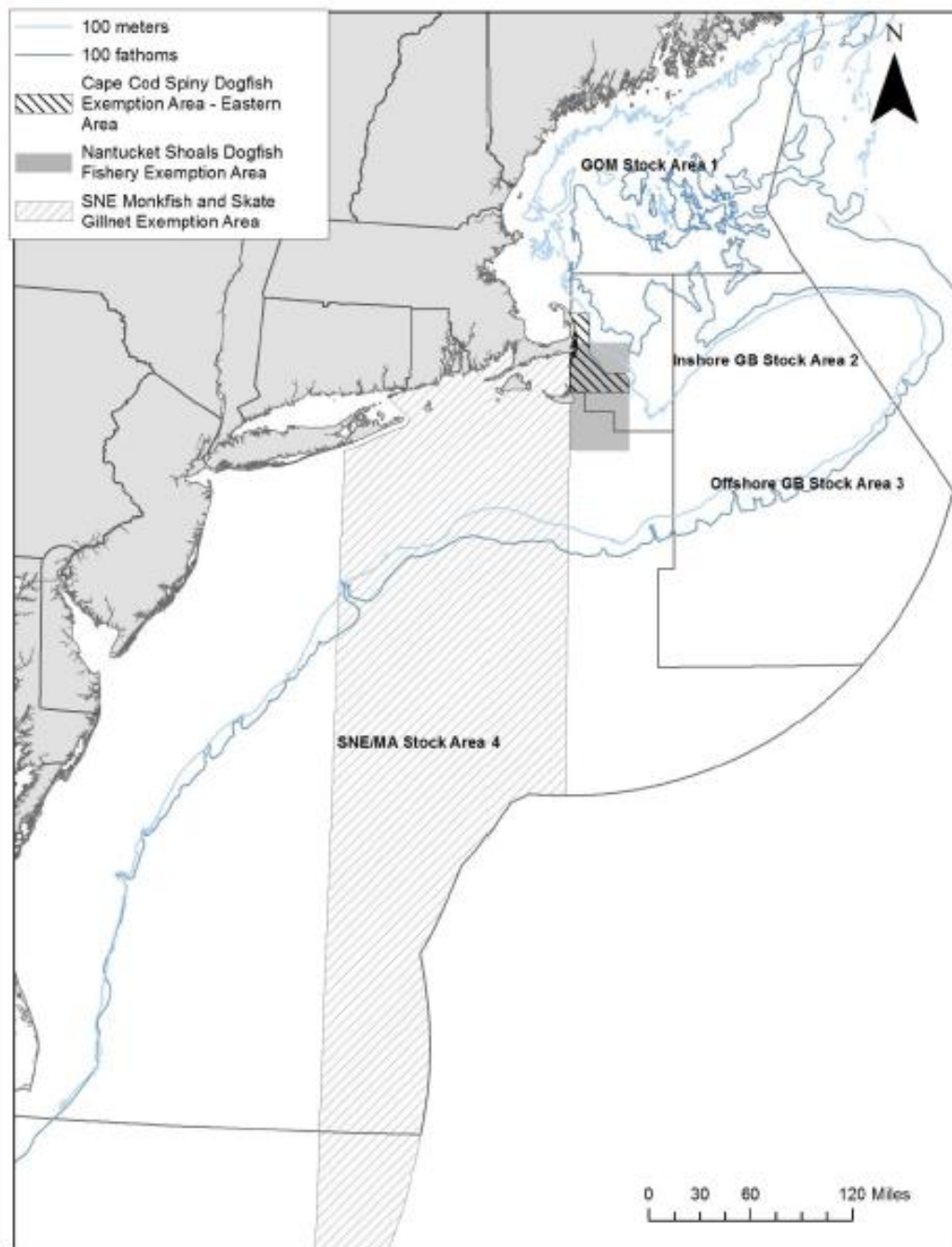


Figure 1 – Groundfish Broad Stock Areas (BSAs) – sector trips fishing exclusively with extra-large mesh (ELM) gillnets fishing exclusively in the SNE/MA and/or Inshore GB BSA are exempt from the at-sea monitoring coverage requirement.

4.6.2 Monitoring Exemption Option 2 - Exemption for Certain Vessels Based on Fishing Location

If Option 2 is selected, the existing exemptions described in the No Action would remain in place.

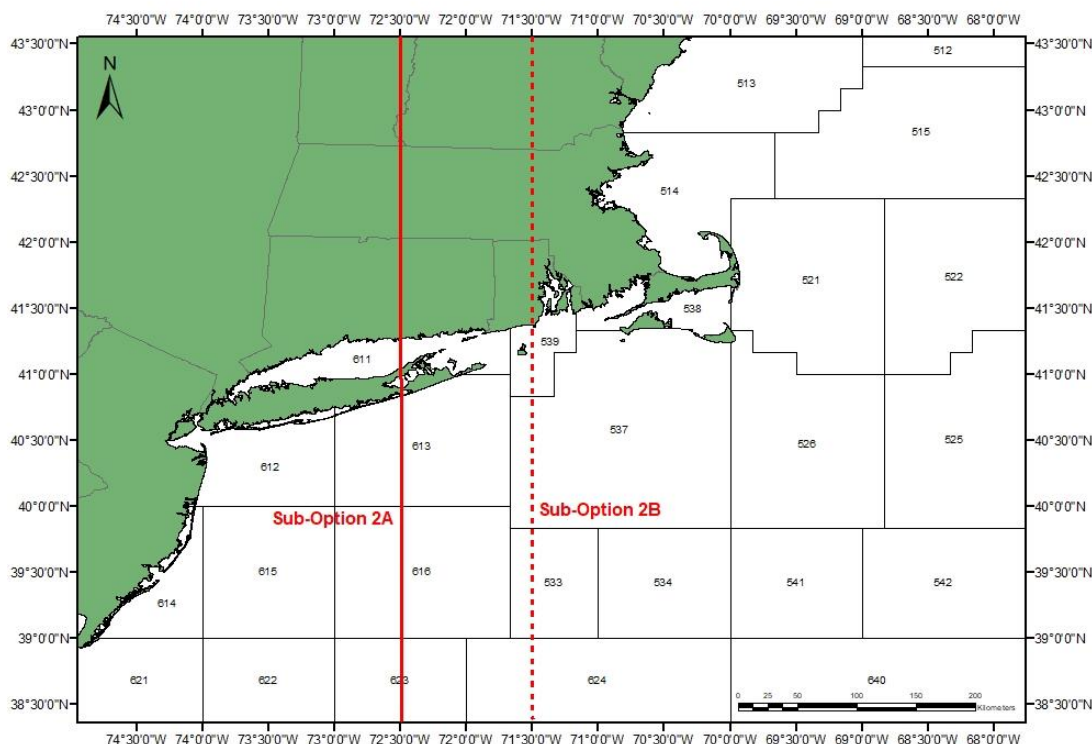


Figure 2 – 72 degrees 30 minutes west longitude boundary (Sub-Option 2A) and 71 degrees 30 minutes west longitude boundary (Sub-Option 2B).

4.6.2.1 Monitoring Exemption 2A - Exemption for Vessels Fishing Exclusively West of 72 Degrees 30 Minutes West Longitude

This alternative would exempt vessels fishing exclusively west of 72 degrees 30 minutes west longitude on a trip from at-sea monitoring and/or dockside monitoring (if implemented) (Figure 2 – solid line). VMS declaration and application of transit rules east of the line would be required.

Rationale: For vessels fishing exclusively west of 72 degrees 30 minutes west longitude, the catch

composition includes little to no groundfish species.

4.6.2.2 Monitoring Exemption 2B - Exemption for Vessels Fishing Exclusively West of 71 Degrees 30 Minutes West Longitude

This alternative would exempt vessels fishing exclusively west of 71 degrees 30 minutes west longitude on a trip from at-sea monitoring and/or dockside monitoring (if implemented) (Figure 2 – dashed line). VMS declaration and application of transit rules east of the line would be required.

Rationale: It is expected for vessels fishing exclusively west of 71 degrees 30 minutes west longitude, the catch composition includes little to no groundfish species.

4.6.3 Review of Exemptions Based on Catch Composition

This option, if selected, would establish a process for review of any exemptions (Monitoring Exemptions 2A and 2B) based on catch composition, should the Council select these exemptions. The review would occur after two years of fishing data is available and every three years after that.

Rationale: Periodic review of exemptions for vessels from monitoring requirements that are based on catch composition will help to verify if the intent of the exemptions (e.g. that the catch composition has little to no groundfish) is still being met.

5.0 CONSIDERED BUT REJECTED ALTERNATIVES

5.1 FISHERY PROGRAM ADMINISTRATION

5.1.1 Sector Administration Provisions

5.1.1.1 Funding for the Groundfish At-Sea Monitoring Program

5.1.1.1.1 Option 2: Additional Options for Industry-Funded Costs of Monitoring

Under Amendment 16, sectors must develop and fund their own monitoring programs. Sectors are still expected to bear the costs of the monitoring program changes adopted in Amendment 23.⁸

Funding source ideas

The costs of additional monitoring can be considerable. This action will consider regulatory changes that will help offset the cost of monitoring for sectors. Ideas to offset monitoring costs include:

- Quota auctions and quota set-asides, where a portion of the ACL for key stocks could be auctioned off annually to fund monitoring. This is done in some Fishery Management Plans (FMPs), where a portion of the quota is reserved as a set-aside and auctioned off annually to provide additional catch opportunity and a source of funding for management priorities like research. Section 208 of the Magnuson-Stevens Act (MSA) established a Fisheries Conservation and Management Fund, which may be funded through quota set-asides, appropriations, states or other public sources, and private or nonprofit organizations. This fund may be used to expand the use of electronic monitoring.

This measure will establish the necessary infrastructure for a quota auction.⁹

Rationale: Quota auctions may offset the cost of monitoring for sectors. This measure would consider regulatory changes to establish a quota auction.

Rationale for not including 5.1.1.1.1: After reviewing the work to date, the Groundfish Committee had concerns that an option to set up a quota auction or quota set-aside would further reduce available quota at a time while the groundfish fishery continues to operate under historically low annual catch limits. Therefore, the Committee did not recommend this action for further development.

⁸ The Council recently adopted the IFM Amendment. The IFM Amendment discusses that the existing groundfish monitoring program is excluded from the newly adopted IFM approach. The PDT is aware that there are provisions in the IFM Amendment that will need to be considered for determining how the adjusted groundfish monitoring program in Amendment 23 fits into the IFM approach, and plans to explore this concept further. At present, the PDT does not expect that the IFM approach would apply to the adjusted groundfish monitoring program.

⁹ The PDT is exploring potential limitations to setting up a quota auction for the groundfish sector program. One question is whether the Council can provide a quota auction system outside of Limited Access Privilege Programs (LAPPs). Additionally, even if it is determined the Council can establish a quota auction system for the groundfish sector program, the funds collected would go into the Limited Access System Administration Fund established by section 305(h)(5)(B) of the MSA and would be subject to annual appropriations.

5.2 GROUNDFISH MONITORING

5.2.1 Groundfish Sector and Common Pool Monitoring Program Revisions

5.2.1.1 Dockside Monitoring

5.2.1.1.1 Option 3: Dockside Monitoring as an Optional Program for Sectors

The following measures will consider changes to how landings are monitored in the groundfish fishery. The goal is to improve the reliability and accountability of landings.

This measure would develop an optional dockside monitoring (DSM) program for only the sector component of the groundfish fishery that sectors could choose to include in their sector operations plans. The goal of the optional DSM program is to verify landings (species and weights) by providing an independent landings data stream that may be compared to dealer-reported landings in order to ensure accurate accounting of landings.

Rationale: The goal is to establish an optional dockside monitoring program that allows for independent verification of landings for the sector component of the groundfish fishery, and to provide sectors with a tool that sectors could choose to include in their operations plans to monitor landings that ensures precise and accurate catch (landings and discards) estimation. Sectors currently have the ability to develop and implement a dockside monitoring program as part of their operations plans – this measure would establish the design and standards for an optional dockside monitoring program.

Rationale for not including 5.2.1.1.1: After reviewing the work to date, the Council noted that since sectors already have the ability to develop and implement a dockside monitoring program as part of their operations plans, that this alternative does not add anything new to the groundfish monitoring program. Therefore, the Council did not recommend this action for further development.

5.3 MANAGEMENT UNCERTAINTY BUFFERS FOR THE COMMERCIAL GROUNDIFSH FISHERY (SECTORS AND COMMON POOL)

5.3.1 Option 2: Revised Management Uncertainty Buffers for Allocated Groundfish Stocks

This measure would revise the management uncertainty buffer for all allocated groundfish stocks. Revised management uncertainty buffers would apply to both the sector and common pool sub-ACLs. This measure would not apply to other sub-ACLs or sub-components for any stocks.

This measure has three options for adjusting the management uncertainty buffer for each of the allocated groundfish stocks. The Council would select one of the following, to be applied to all allocated groundfish stocks:

Option A - Increase the management uncertainty buffer 2 times (multiplier of 2),

Option B - Increase the buffer 5 times (multiplier of 5), or

Option C - Increase 10 times (multiplier of 10)

For the above stocks, the range of potential increases in management uncertainty buffer would result in the following revised management uncertainty buffers:

Stock	Increase in Management Uncertainty Buffer	Revised Management Uncertainty Buffer
GB cod	2x	0.10
	5x	0.25
	10x	0.50
GOM cod	2x	0.10
	5x	0.25
	10x	0.50
GB haddock	2x	0.10
	5x	0.25
	10x	0.50
GOM haddock	2x	0.10
	5x	0.25
	10x	0.50
GB yellowtail flounder	2x	0.06
	5x	0.15
	10x	0.30
SNE/MA yellowtail flounder	2x	0.10
	5x	0.25
	10x	0.50
CC/GOM yellowtail flounder	2x	0.10
	5x	0.25
	10x	0.50
American plaice	2x	0.10
	5x	0.25
	10x	0.50
Witch flounder	2x	0.10

	5x	0.25
	10x	0.50
GB winter flounder	2x	0.06
	5x	0.15
	10x	0.30
GOM winter flounder	2x	0.10
	5x	0.25
	10x	0.50
SNE/MA winter flounder	2x	0.10
	5x	0.25
	10x	0.50
Redfish	2x	0.10
	5x	0.25
	10x	0.50
White hake	2x	0.10
	5x	0.25
	10x	0.50
Pollock	2x	0.10
	5x	0.25
	10x	0.50

This measure would also include periodic reevaluation of the management uncertainty buffers. This measure would not change the elements that may be considered when evaluating management uncertainty buffers.

Rationale: While evidence of observer bias may warrant increased monitoring coverage, it will come at an increased cost that may reduce the economic viability of portions of the commercial groundfish fleet. An alternative method to high levels of monitoring coverage could be to increase the management uncertainty buffers for each allocated stock, which would attempt to minimize the potential effect of that bias and account for potential undocumented catch. This alternative could be combined with increased monitoring coverage rates as a potentially cost-effective solution to account for inaccurate catch in monitoring.

Rationale for not including 5.3.1: After reviewing the work to date, the Council shared the concerns that the Groundfish PDT raised that increases in the management uncertainty buffer on a stock-by-stock basis are unlikely to be desirable substitutes for increases in monitoring coverage, and could have unintended consequences as further constraining ACLs by increasing buffers is unlikely to reduce levels of unreported catch or address bias and may actually lead to increased levels of unreported. The Council felt that this alternative would not meet the purpose and need of the amendment of improving accuracy of catch data. Therefore, the Council did not recommend this action for further development.