



## New England Fishery Management Council

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### MEMORANDUM

**DATE:** March 22, 2023  
**TO:** Scientific and Statistical Committee  
**FROM:** Groundfish Plan Development Team  
**CC:** Groundfish Committee  
**SUBJECT:** **Possible Amendment 23 review metrics and indicators under development**

The PDT has generated an initial list of possible metrics and indicators for the Amendment 23 (A23) review, with additional input from the Groundfish Advisory Panel, Groundfish Committee, and Council. The PDT is now refining the list and will test some of the metrics and indicators with data available. As part of the further development of the review metrics, the Council requests technical feedback from the Scientific and Statistical Committee (SSC) on the possible metrics and indicators under development by the PDT.

#### ***A23 Background***

A23 implemented changes to the commercial groundfish fishery's monitoring and reporting system to ensure it is providing accurate catch information necessary to manage the fishery effectively. The A23 measures adjusted the existing industry-funded sector monitoring program to improve the accuracy of collected catch data (landings and discards) and catch accounting. On April 12, 2022, NMFS approved Amendment 23, including all measures adopted by the Council. The final rule (effective December 15, 2022, and January 9, 2023) implemented the approved measures in A23.

The measures implemented under A23 include:

- Replace the current process for calculating an annual at-sea monitoring (ASM) coverage target with a fixed monitoring coverage target as a percentage of trips (up to 100 percent and a minimum of 40 percent), dependent on Federal funding;
- Approve additional electronic monitoring (EM) technologies as an alternative to human at-sea monitors (audit model EM and maximized retention EM);
- Exclude from the monitoring requirement all trips in geographic areas with expected low groundfish catch (trips fishing exclusively west of 71 degrees 30 minutes west longitude);
- Require periodic evaluation of the monitoring program and exclusions from the monitoring requirement;
- Remove the management uncertainty buffer from the portion of the acceptable biological catch (ABC) allocated to the sector catch share, if warranted, when the monitoring coverage target is 100 percent; and

- Grant authority to the Greater Atlantic Regional Administrator to revise sector reporting requirements to streamline reporting for the industry.

***A23 Review Process for Monitoring Coverage Targets***

A23 includes a review process to evaluate the effectiveness of the increased ASM coverage targets implemented under A23. The review process is intended to be flexible and somewhat general, but it includes establishing metrics and indicators of how well the monitoring program has improved accuracy while maximizing value and minimizing costs to industry and the National Marine Fisheries Service. The intent of the review process is to evaluate whether the revised groundfish sector monitoring program, and particularly the increased ASM coverage target, is meeting the Council’s goal of improved accuracy of catch data while maximizing the value of the data collected and minimizing the costs of the monitoring program. The review will evaluate the monitoring program using available data. The review is to occur once two full fishing years of data is available (in Year 3 following implementation of A23) and periodically thereafter. A23 measures were implemented on December 15, 2022, and January 9, 2023. Therefore, the first full year under A23 will be fishing year (FY) 2023 (which begins on May 1). Data collected for FY2022 will likely be used to test the metrics under development.

The Council is currently developing the review process metrics. Results of the review will support a potential future Council action to refine the groundfish sector monitoring program or revise the ASM coverage target.

The table below lists meetings where discussion on development of A23 review metrics has occurred or is planned. The Council anticipates additional opportunities for input, including from the public, to further develop and refine the metrics and indicators prior to the review.

<b>2022</b>	
MAY 18	Groundfish PDT
JUN 2	Groundfish Advisory Panel
JUN 14	Groundfish Committee
<b>JUN 29</b>	<b>Council</b>
OCT 6	Groundfish PDT
<b>2023</b>	
JAN 11	Groundfish PDT
JAN 19	Groundfish Committee
<b>JAN 25</b>	<b>Council</b>
MAR 21	Groundfish PDT
MAR 29	SSC
APR 7	Groundfish Advisory Panel
APR 13	Groundfish Committee
<b>APR 19</b>	<b>Council</b>

### ***List of Possible A23 Review Metrics and Indicators***

Summarized below are the possible A23 review metrics and indicators developed by the PDT, with input from the Groundfish Advisory Panel, Groundfish Committee, and Council. Metrics and indicators have been organized into broad categories where possible. An initial prioritization by the PDT is indicated within each broad category of metric/indicator (displayed in order of priority). The summary includes the purpose for each metric/indicator and notes from the PDT where applicable.

Possible A23 review metrics and indicators

Realized coverage compared to target coverage (explore factors/reasons, comparison between monitoring tools (ASM, EM))	<b>Metric/Indicator</b>	<b>Purpose</b>	<b>Notes</b>
	Achieved coverage <ul style="list-style-type: none"> <li>by coverage type</li> <li>by sector</li> </ul>	Compare coverage targets with achieved coverage rates to evaluate if meeting monitoring program goals.	Achieved coverage by coverage type is the #1 metric to get at how the program is functioning. Other metrics in this section would address reasons for achieved coverage relative to target coverage. Coverage by sector important to address goals of equity/fairness in catch reporting requirements and representativeness of catch data, related to catch accuracy.
	Waiver counts by reason (grouped PTNS coverage outcome reason and standard categories)	Explore what factors (observer availability, port, changes in monitoring choice mid-year, etc.) influenced achieved coverage.	Keep this high level to see if waivers are by sector, provider, etc.
	Acceptance rates		
	Percent observed sailed trips compared with selected sailed trips		
	Canceled notifications		
	Coverage equitability <ul style="list-style-type: none"> <li>between sectors</li> <li>within sector</li> <li>consider by individual vessel, trip type (day vs multiday), gear type, vessel size class</li> </ul>		Looking at sectors individually is important to understand if particular sector operations are inhibiting increased accuracy and will not add a significant amount of additional work.
	Percent trips, seadays, catch observed		
	Coverage relative to effort throughout the fishing year		
	Distribution of vessels by program (ASM/audit model EM/MREM) <ul style="list-style-type: none"> <li>What types of vessels select into ASM vs audit model EM vs MREM (by vessel size class, gear type, port, etc.)</li> </ul>	May impact pool of trips available for analysis of certain factors and require disaggregation when conducting analysis.	Concerns about low MREM participation in operational program (<3 vessels), will impact ability to do analysis for this monitoring program. If <3 could point to low participation as indicator of effectiveness of program.

	<ul style="list-style-type: none"> <li>• What reasons do vessels cite when leaving each EM program?</li> </ul>				
	Distribution of vessels by exclusion (7130 and ELM gillnet)				
Monitoring bias/catch accuracy (re-run PDT monitoring analyses, species composition correlations)	<p>Re-run PDT monitoring analyses: evaluate evidence of bias in catch reporting between monitored and un-monitored trips, including:</p> <ul style="list-style-type: none"> <li>• trip duration</li> <li>• species composition and size composition of landed groundfish</li> <li>• species composition and weight of discarded groundfish</li> <li>• ratio of landed to discarded fish by species</li> </ul>	Determine if Council's intent with 100% coverage (or close to it) of reducing bias in catch estimates is realized. When the coverage target is set lower than 100%, evaluate if the monitoring targets are being met and are effective.	Observer bias work depends on realized coverage levels, if close to 100% may not be possible or may need to modify analyses as the pool of unobserved trips becomes smaller or operational changes that occurred post A23 implementation instead. Is it possible for years with low coverage and high coverage to pool observed trips between years? Also dependent on how many vessels opt into EM vs. ASM.		
	Examine if those vessels that showed observer bias in the PDT work remain in the fishery post A23				
	<p>Quantify magnitude of bias</p> <ul style="list-style-type: none"> <li>• Pursue the suggestions offered by the A23 SSC Sub-Panel Peer Review on ways the following two analysis could be further pursued to understand the magnitude of the observer bias question: (1) Methods to Predict Groundfish Catch in the presence of an observer (2) Methods to evaluate groundfish catch ratios A23 analysis</li> </ul>				
	Compare discard estimates by monitoring program (ASM, audit model EM, MREM/DSM, NEFOP)			Evaluate if these tools are equivalent in achieving goals of monitoring program.	Comparing discards across EM/VTR/Observer may be possible since audit model vessels are no longer required to do EM handling when an observer is on board. Removed this from the list.
	Correlations between stocks and species caught on trips			Related to bias and illegal discarding, examine whether there are changes from	

	<ul style="list-style-type: none"> <li>• Compare to previous correlations conducted within trips between different stocks and species,</li> <li>• Examine potential for changes in size distribution</li> </ul>	pre-A23 as expected. Determine the value of higher monitoring for costs.	
	<p>Evaluate how EM may improve accuracy of data</p> <ul style="list-style-type: none"> <li>• Look at secondary review of video reviewer</li> <li>• Use EM to evaluate vessel-reported catch</li> </ul>	Evaluate if the program is improving the accuracy of catch data.	
	<p>Sampling strategy</p> <ul style="list-style-type: none"> <li>• How often observers observe on the same vessel and any impacts of that in terms of sampling strategy and recorded catch</li> <li>• How does observer experience impact sampling strategy and recorded catch</li> </ul>	Explore factors that may influence accuracy of catch data.	
	<p>Statistical area/broad stock area reporting</p> <ul style="list-style-type: none"> <li>• Evaluate whether improvements in accuracy post A23</li> </ul>	Evaluate if the program is improving the accuracy of catch data.	
Monitoring costs (industry sampling costs and NMFS shoreside administrative costs)	Total monitoring costs - summarize overall industry sampling costs and agency shoreside administrative costs	Understand costs of the monitoring program to evaluate Council's intent of improving catch accuracy while maximizing value of the monitoring program while minimizing costs.	
	Cost comparison between EM-monitored trips (audit model and MREM) and human at-sea monitored trips	Evaluate how different aspects of the program maximize value and minimize cost.	Overall costs appear to be rising due to the current federal reimbursement. Savings from EM are not currently materializing.
	<p>Compare cost of monitoring before and after A23</p> <ul style="list-style-type: none"> <li>• Broken down by sea day rate, travel costs, training costs, meal reimbursement, equipment, operations costs, etc., where</li> </ul>	Understand costs of the monitoring program to evaluate Council's intent of improving catch accuracy, maximizing value of the monitoring program while minimizing costs.	Sea day rates different across contracts and providers, may need to pick 1 or 2 across range for a definition. Currently challenging to understand cost categories because of how individual.

	possible		contracts are set up, will need to explore further and work through. Reporting out top line costs is possible now. Will inflation be taken into account?
	Update cost efficiency analysis and summarize agency costs relative to funding	Evaluate if the program is maximizing value and minimizing costs.	
Fishery performance (catch, effort, quota leasing prices, fishing costs)	Catch/effort pre/post A23 <ul style="list-style-type: none"> <li>• Total catch</li> <li>• Discards and kept catch</li> <li>• Number of trips</li> <li>• Trip length</li> <li>• Trips in other fisheries</li> <li>• Seasonality of trip types (potentially distinguishing NMS v monk/mults combo trips)</li> <li>• Gears used (by VTR gear code)</li> <li>• Use of exclusions</li> </ul>	Characterize what's going on in the fishery (in terms of catch and effort), understand the extent to which monitoring is impacting fishery performance.	Even though these do not directly measure the accuracy of the catch data, these may be indicative of a change seen with higher coverage that would tell something to the Council about the benefits of the program. In other words, if none of these things changed, wouldn't know for sure but could raise the question whether higher coverage is worth it. However, difficult to know if changes could be fully attributed to increased monitoring (market considerations, etc.).
	Quota leasing prices <ul style="list-style-type: none"> <li>• Are there price changes with higher monitoring coverage</li> <li>• Look at whether quotas become more binding under higher coverage</li> </ul>	Track if increased monitoring (and presumably decreased opportunities for illegal behavior) is affecting ex-vessel and ACE lease markets.	
	Fishing costs pre/post A23 <ul style="list-style-type: none"> <li>• Operational costs, including actual cost of monitoring</li> </ul>	Evaluate if the program is maximizing value and minimizing costs.	
	Spatial distribution of the fleet pre/post A23 <ul style="list-style-type: none"> <li>• Are there changes with higher coverage and new exemption?</li> <li>• Are there differences between sail port and land port, areas fished?</li> </ul>	Evaluate if there is evidence of bias.	

Observer program administration/social indicators (PTNS compliance, refusals, safety issues)	Refusals	Track trends to understand whether there are changes with higher coverage. Understand whether there are specific segments of the fleet responsible for refusals or other incidents, as this affects whether coverage is uniform across the fishery.	Many of these are routinely pulled and reported by the observer program already.
	Incidents by broad category		
	PTNS notification compliance		
	PTNS cancellations		
	Observer comment cards	Measure non-monetary components of program success.	
	Observer recruitment success		
	Observer retention		
	Observer average seaday accomplishments		
	Observer safety incidents – by category		
	Catch estimation method – any changes in how observers sampled the hauls? (e.g., Was it more difficult to get actual weights? Do we see increased usage of other catch estimation methods?)	Could influence accuracy of catch data.	
Large-mesh specific groundfish Social Indicators	Provide an “indication” of which ports might bear the most significant social burdens from increased costs to industry.	Large-mesh specific indicator data is currently available up to 2021, but more recent data could become available in the intervening weeks/months.	
Crew survey – crew demographics	Provide an approximation of how demographic characteristics among commercial crews have changed over time, particularly among groundfish vessel crews, which could be an indicator of how A23 may have affected these vulnerable fishing community members.	Unsure of relevance and if conclusions that demographic changes are a result of increased monitoring. Can look into any comments regarding why individuals are leaving the EM program. Data already available for 2012 and 2018/19 and the third wave will launch in April 2023. Assuming sufficient sample, Wave 3 could provide for pre-post A23 comparisons to be made.	
Anecdotal fishermen feedback <ul style="list-style-type: none"> <li>Consider tracking public comments related to the impacts of higher observer coverage and if fishermen are saying if it seems to</li> </ul>	Evaluate if there is evidence of bias.		

	be making a difference one way or another, the impacts to on-the-boat activities, etc.		
ASM coverage targets	<p>ASM coverage targets</p> <ul style="list-style-type: none"> <li>• What was the target each year?</li> <li>• Were targets constant all year?</li> <li>• What was the basis for setting the target if &lt;100%?</li> </ul>	A23 revised the process for setting coverage targets. Evaluate whether the new process is successful. What were the effects? Are changes to the process necessary or recommended?	Many assumed the coverage target would be 100% for at least 2 years because of pre-existing funding to pay for industry's costs. This overlooked the increased agency costs and the role the Federal budget for agency costs would play in setting coverage targets.
EM video review rates	<p>Audit Model Video Review Rates MREM Model Video Review Rates</p> <p>Evaluate EM video review rates including considering:</p> <ul style="list-style-type: none"> <li>• Should all vessels have the same review rate?</li> <li>• Should each vessel individually be placed in review rate group (e.g., low performance, moderate performance, high performance)?</li> <li>• Should each vessel have a unique review rate based on its performance?</li> <li>• How frequently should rates change (annually, seasonally, quarterly)?</li> <li>• What do different review rates mean for cost and data accuracy?</li> </ul>	Evaluate how EM video review rates are set, as these impact effectiveness of the EM programs including data accuracy and cost components.	<p>Audit: Rather than review all video from EM trips, some trips are reviewed and others are not. In the audit model, this is used to evaluate the accuracy of eVTR-reported discards and to create an adjustment factor used to convert eVTR discards for catch accounting.</p> <p>MREM: Video review is conducted to confirm compliance with discarding provisions.</p>
Monitoring exclusions	7130 exclusion - compare observed discard estimates Pre/Post A23	Evaluate if there is evidence of bias.	
Other	<p>Efficacy of the Dockside Monitoring Program required in the MREM program</p> <ul style="list-style-type: none"> <li>• Purpose of the program (size composition and weights of sub-legal fish, validating dealer weights, hold inspection)</li> <li>• Cost of the program (including staff time to develop and support)</li> </ul>	Evaluate effectiveness of this monitoring tool in meeting program goals.	Concerns about low participation and impacts on analyses.

	<ul style="list-style-type: none"> <li>• Use of information collected</li> </ul>		
	<p>Size distribution of kept catch on MREM trips</p> <ul style="list-style-type: none"> <li>• changes in targeting or converting discards to landings.</li> <li>• ex-vessel price changes</li> <li>• Examine mortality rate assumptions</li> </ul>		Concerns about low participation and impacts on analysis.
	<p>Removal of management uncertainty buffers with 100% coverage target</p> <ul style="list-style-type: none"> <li>• Evaluate assumption of 100% coverage removing management uncertainty</li> </ul>	Evaluate the Council's intent that high coverage eliminates management uncertainty.	Won't apply if coverage target less than 100%.