

SSC Sub-Panel

Peer Review Report for the Groundfish PDT Analyses of Groundfish Monitoring

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Peer Review Panel Chair

Council meeting
June 12, 2019



New England
Fishery Management Council

Overview

- Presentation will cover SSC sub-panel held April 24 - 25, 2019
- Will cover peer review panel comments on each of the four analyses
- Will conclude with the peer review recommendations on TOR 8



Terms of Reference

- For each of the Plan Development Team's four analytic methods, please address the questions below:
 2. Are the methods adequately described and based on sound analytic techniques and statistical principles?
 3. Are important uncertainties in the data and the analyses (possibly including the effects of year to year variations in fishing practices) identified, and are the impacts of these uncertainties on the analyses adequately described?



Terms of Reference

- For each of the PDT four analytic methods, please address the questions below:
 4. Are the analyses conducted at the appropriate temporal and spatial scale such that the existence of regional or seasonal differences in monitoring performance can be identified?
 5. What are the strengths and weaknesses of the methods? Are there constraints that would hinder the use of the catch monitoring analyses?



Terms of Reference

- For each of the PDT four analytic methods, please address the questions below:
 6. Are the conclusions of the PDT supported by the analyses?
 7. Are there recommendations for improving the analyses, or for additional research or data collection that can help address improving groundfish monitoring?
 8. Are the data, methods, and analytic tools sufficient for the Council to identify and analyze monitoring alternatives for the NE Multispecies FMP Amendment 23 management action?



Peer Review Team

- Dr. Dan Holland - NOAA, Northwest Fisheries Science Center
- Dr. Lisa Kerr - Gulf of Maine Research Institute
- Dr. Jason McNamee (chair) - Rhode Island DEM, Division of Marine Fisheries
- Dr. Hiro Uchida - University of Rhode Island



Analysis I - Methods to explore discard incentives of groundfish stocks

- Summary
 - Model of incentives to discard catch of groundfish stocks based on estimated economic incentives to retain or discard catch
 - Done at the trip level, subtracts benefits of from the cost of retaining catch to estimate incentive to discard
 - There are positive discard incentives for a proportion of trips for some species/stocks (cod and yellowtail in certain years)



Analysis I - Methods to explore discard incentives of groundfish stocks

- Summary
 - Reason to believe that the estimated discard incentives are conservative; even when estimated incentive is not above zero, may still be incentives to discard
 - Analysis is not able to estimate the frequency of trips or magnitude of catch that may be subject to positive discard incentives and thus cannot quantify the magnitude of the problem; however provides an indicator of where discarding may have been incentivized



Analysis I - Methods to explore discard incentives of groundfish stocks

- Comment on PDT Conclusions
 - The review panel felt the analysis met TORs and the conclusions of the PDT are reasonable, capture most key conclusions/caveats/limitations
 - Panel and PDT noted a positive discard incentive may indicate biased landings data, but don't state that it proves the existence of discards
 - Both groups note the analysis cannot quantify proportion of trips where discards occurred or the amount of discards



Analysis 2 - Methods to evaluate observer effects in the groundfish fishery

- Summary
 - Demonstrates that vessels in groundfish fishery alter their behavior in response to observers
 - Looked at eight measures that cover a broad range of impacts that are relevant for observer-related fisheries management policy
 - Found statistically significant differences in many (but not all) measures between non-observed and observed fishing trips of the same vessels, suggesting that fishers alter their fishing behavior when an observer is onboard



Analysis 2 - Methods to evaluate observer effects in the groundfish fishery

- Comment on PDT Conclusions
 - The review panel felt the analysis met TORs and the conclusions of the PDT are reasonable, capture most key conclusions/caveats/limitations
 - Reviewers felt the analysis would be strengthened by standardizing the measures



Analysis 3 - Methods to predict groundfish catch in the presence of observer bias

- Summary
 - This method modeled expected cod catch while accounting for typical effort attributes and spatial and temporal covariance in catch
 - Creates a predictive model, which was used to predict total cod catch (kept + discarded) on observed trips, then used to predict catch for unobserved trips
 - Predictions compared to the summed predictions across a fishing season to the catch estimates for sectors reported by NMFS



Analysis 3 - Methods to predict groundfish catch in the presence of observer bias

- Summary
 - The method did a fair job of predicting catch for the observed trips, and also indicated discrepancies for the prediction of unobserved catch relative to the catch as reported by NMFS
 - Suggests a potential for unreported catch on the unobserved trips if it is assumed that observed trips can adequately represent unobserved trips with regard to “pre-catch” behavior



Analysis 3 - Methods to predict groundfish catch in the presence of observer bias

- Summary
 - Method is likely conservative because it is not proven that “pre-catch” behavior is similar between trips that are observed and unobserved
 - The approach showed promise for informing the Council quantitatively in their deliberations on Amendment 23 with some additional refinement and testing



Analysis 3 - Methods to predict groundfish catch in the presence of observer bias

- Comment on PDT Conclusions
 - The review panel felt the analysis met TORs and the conclusions of the PDT are reasonable, capture most key conclusions/caveats/limitations
 - The pollock analysis was done to show robustness of the method; with a more species-specific model, the power of this method for use on other species should improve



Analysis 4 - Methods to evaluate groundfish catch ratios

- Summary
 - The study compared ratios of stock-specific landings to effort and total kept catch on observed and unobserved trips to determine whether there is evidence of an observer effect
 - Hypothesis was that if constraining stocks lead to illegal discards, should be evident in differences in the stock-specific ratios of landings to effort and total kept catch between observed and unobserved trips



Analysis 4 - Methods to evaluate groundfish catch ratios

- Summary
 - Assumption is that differences are due to the observer effect, not due to deployment effect
 - Landings ratios were characterized at an aggregate level by gear type and broad stock area over an annual time step for both observed and unobserved trips
 - The parsimony of this approach was appreciated, but more refinement was needed before it could be used by managers



Analysis 4 - Methods to evaluate groundfish catch ratios

- Comment on PDT Conclusions
 - The review panel felt the analysis met TORs and the conclusions of the PDT are reasonable, capture most key conclusions/caveats/limitations
 - Without statistical testing of differences it is challenging to draw robust conclusions in its current form
 - Helpful in identifying the problem, supports other analyses, but challenging to use this in characterizing the magnitude of the problem

TOR 8

- This TOR was comprehensive across all methods and provides a good overarching summary of the review
- Each of the methods has strengths and weakness, but together the set of studies provide substantial support to conclude that there are differences both in discarding behavior and in fishing behavior between observed and unobserved trips



TOR 8

- The analyses suggest that discard estimates from observed trips should not be used to estimate discards from unobserved trips, or at minimum not without some adjustments
- This also suggests it is not appropriate to determine observer coverage levels by considering the CV from observed trips
- Direction of impact of the effect appears to vary by species/stock



TOR 8

- The analyses do not quantify the magnitude of the issue but analysis 3 (*methods to predict groundfish catch in the presence of observer bias*) and analysis 4 (*methods to evaluate groundfish catch ratios*) could be used in this way with some additional refinement and testing



TOR 8

- Pathways for the Council to use this information:
 - if the percentage of the ACL that is discarded on unobserved trips is not large (e.g. less than 10%) then it might be feasible to use analysis 3 to estimate discards on unobserved trips and use this to determine an appropriate buffer between the ABC and ACL to account for management uncertainty



TOR 8

- Pathways for the Council to use this information:
 - if discards are a large proportion of the ACL, then the approach just mentioned is unlikely to be successful
 - rather than attempting to estimate the discards, analysis 1 (*methods to explore discard incentives of groundfish stocks*) suggests that there may be a need for increased monitoring and enforcement or increased penalties to deter illegal discarding



Conclusion

- In conclusion, the reviewers note that unaccounted mortality from the fishery is one of several contributors to issues in our understanding of groundfish populations
- Resolving to better understand this potential bias will be a step forward in improving our understanding of groundfish populations and will contribute to improved accounting of fishery mortality in our management process

