

HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT ON DRIFT GILLNET FISHERY HARDCAPS

At the June 2022 Pacific Fishery Management Council (Council) meeting, the Highly Migratory Species Management Team (HMSMT) discussed work to develop a bootstrap analysis of the 2021 range of alternatives (ROA) for hard caps. Currently, a complete methodology for Alternatives 1 and 2 is in place, with preliminary results provided in [HMSMT Report 1](#) in the advanced briefing book. The HMSMT has also brainstormed an approach for analyzing Alternative 3, although preliminary results and a description of the methodology are not available as of this meeting, in part reflecting the modeling complexity and resources required to analyze the potential conservation and economic impacts of these options. Besides finishing the R code needed to analyze Alternative 3, the HMSMT intends to extend the data to reflect additional drift gillnet (DGN) observer, logbook, and landings data over the 2014-2021 seasons.

This supplemental HMSMT report provides (1) Review of HMSMT Report 1, including corrections to and explanations of information; (2) Description of challenges affecting analysis of Alternative 3; (3) Proposed timeline to complete the work.

Review of HMSMT Report 1

After the submission of the HMSMT's Report 1 to the advanced briefing book, several issues were identified:

- The vertical axis labels in Figures 2, 4, and 6, which currently read "Percentage of Sets", should read "Percentage of Simulated Seasons."
- The width of the violin plots in Figures 1, 3, and 5 use a smoothing technique¹ to provide a stylized representation of the frequency of simulation outcomes on different ranges. The width should not be interpreted as providing the frequency of specific outcomes; for example, violin plots abutting the X axis (\$0) cannot be used to visually determine the frequency of seasons with \$0 ex-vessel revenue.
- The horizontal ranges of the bar plots in Figures 2, 4, and 6 may exceed caps levels in some simulated seasons, since the outcomes consider all takes, including unobserved.

Challenges Affecting Analysis of Alternative 3

The HMSMT discussed challenges affecting the completion of the analysis. The large number of options and suboptions under Alternative 3, the nuances of varying individual and fleet closure lengths, and multiple timelines for counting M/Is against caps make coding the options and suboptions under this alternative a challenging task.

Practicability of Alternative 3

The HMSMT discussed the practicability of the implementation of Alternative 3 options and suboptions.

¹ Kernel density estimation

Key issues are described below with HMSMT recommendations to address them.

- Individual vessel caps, either reached or exceeded, for multiple species and varying closure periods present unique modeling, implementation, and enforcement challenges. The typical notification process for implementing closures includes publishing a Federal Notice, accompanied by other means of outreach to fishery participants. However, reaching or exceeding individual vessel caps and resulting notification would be considered confidential; thus, public notice is not possible.
- For Alternatives C1 and C2, there is limited utility in implementing closures for exceeding vessel caps and reaching fleet-wide caps, as the same numbers of M/I of hard cap species would trigger these closures.
- There is a time-lag between a M/I at-sea (i.e., when the take occurs) and the notice of a closure (i.e., when the closure is imposed), which may occur 5-20 days after the vessel returns to port depending on the circumstances (e.g., species identification, method of promulgating a notice, etc.). This could result in a longer closure period when a shorter closure was intended for that time period. If the duration of the closure is based on when the take occurs, versus when the vessel closure is imposed, there could be cases where a vessel is closed for up to 30 days because the closure was imposed during the November-January period when a 14-day closure would nominally apply because the take occurred prior to November.
 - The HMSMT recommends vessel closure lengths be based on when the closure is applied rather than when the M/I event occurred.
- For Alternatives C1 and C2 in particular, it is possible that a fleet-wide cap could be reached late in the fishing season, when a complete closure may be impossible to implement before the fishery would otherwise be prohibited from operating in the U.S. Exclusive Economic Zone.
 - The HMSMT proposes that the closure period apply to the next fishing year (starting May 1) or season (starting August 15) as possible solutions.
- Alternative C.2 poses an added complication for different time periods of accounting for M/I towards individual vessel versus fleet-wide caps, which complicates tracking and monitoring both in the analysis of the ROA and within a fishing season.
 - The HMSMT recommends using the same start date, November 1, for counting all M/Is towards any caps within an alternative.

Timeline Considerations

The HMSMT understands that final action in November is necessary if the Council desires a hard caps action to be effective for the 2023-2024 DGN fishing season. It may be useful for the Scientific and Statistical Committee (SSC) to review the analysis of the ROA, once complete, before the Council adopts final action. The analytical complexities and other issues detailed above present significant workload challenges to inform the Council's selection of either a preliminary or final preferred alternative.

The HMSMT aims to complete an analysis of all alternatives in the existing ROA in time for presentation to the SSC in advance of the September 2022 Council meeting. Completing SSC review in September would allow more time to address feedback from the SSC and complete documentation to support final action at the November 2022 Council meeting. However, in anticipation of significant obstacles in completing this work prior to September, the HMSMT proposes prioritizing Alternative 3 sub-option C2 for analysis, which would likely be the least economically adverse of the sub-options. Paired with Alternative 2, and the fact that preliminary

analysis results suggest that conservation benefit would be similar across options, this would ensure that the Council's range of alternatives is addressed by the analysis. Additionally, completing an SSC review in November may be sufficient. The HMSMT will require a meeting this summer to discuss progress to complete these analyses and prepare materials for the September advanced briefing book and SSC review.

PFMC
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