

C-4 Halibut Total Mortality

A presentation on halibut total mortality was given by Ian Stewart (IPHC). Public testimony was provided by Gerry Merrigan (Freezer Longline Association) and Simeon Swetzof, Jr. (City of St. Paul and Tribal Government of St. Paul).

The IPHC document describes the transition from the current exploitable biomass-based approach to a total mortality approach where all sources of removals of halibut of all sizes are explicitly quantified and accounted for as components of fishing mortality. Spawning Potential Ratio (SPR) is introduced in the document as the method for integrating over all sources and sizes of mortality of halibut to determine the level of fishing intensity. This allows for immediate and explicit accounting of small under-26 inch halibut (U26) in the calculations of harvest projections for directed fisheries across all halibut regulatory areas. This is not achievable under the current accounting system.

The SSC greatly appreciates the opportunity to review the document and have a back-and-forth dialog with Dr. Stewart during his presentation. The SSC notes that it is readily apparent from the document that this method of accounting for all mortalities and assessing of fishing intensity promotes:

- transparency in accounting for and listing of each source of mortality that contributes to the overall fishing intensity,
- clear and consistent assessments of tradeoffs between sources of mortality ranging from the directed commercial fishery to sport and subsistence fisheries to halibut PSC in groundfish fisheries,
- accountability for each fishery in sustaining yields into the future, and
- improved management of the directed fishery against the backdrop of mortality that occurs in other fisheries.

The SSC support the IPHC using the total mortality approach. This approach is essentially the same approach used by the NPFMC to assess and manage fisheries under its jurisdiction. However, the SSC also notes that there will be challenges to implementing this approach, specifically with questions that will arise with:

- how the stock assessment and biological sampling is conducted
- how the stock is modeled to assess status and project fishery yields
- how, and with what lag, changes in mortality of very young fish will affect harvest rates of older fish subject to the directed fishery
- how management advice is provided to all stakeholders and fisheries that impact the halibut stock

With greater transparency comes greater scrutiny of data sources and inputs to stock assessment models, as well as the assumptions made in constructing these models. Moreover, the relative uncertainty of data inputs will likely become much more important in these stock assessment models.

The SSC also had the following comments and suggestions on specific aspects of the IPHC document:

- The document spoke to specific discrepancies between discard and mortality accounting of the two agencies (IPHC and NMFS). These discrepancies should be resolved so that all stakeholders have trust in the discard mortality information that is used to inform the stock assessment for Pacific halibut.

- Although SPR is an oft used concept in the management of fisheries in the North Pacific, the underpinnings of the calculation of this ratio are not readily understood by stakeholders. We suggest that future versions of the document include a worked example of the method of calculating SPR that includes all the sources of information that are utilized in the calculations.
- During questioning of Dr. Stewart, several additional slides were provided that showed the effect on prescribed fishing intensity of implementing a total mortality approach in past years in comparison with the current approach. These graphics were very helpful in illustrating the potential changes that a total mortality approach might portend, and should continue to be included in any future versions of the document.
- The explanation in the document of current uncertainties in data inputs, especially for the accounting of U26 mortalities was excellent. The SSC hopes that research to resolve some of these uncertainties will be forthcoming and that relative uncertainties can be assessed to guide future research.
- A graph of the long term time series of biomass, O26 mortality, and total mortality would have been helpful for providing context to the current situation for the halibut fishery.
- A presentation of selectivity curves by area and a time trajectory of weight at age for smaller halibut also would have been helpful.
- We note that potential U26 savings due to decreases in halibut PSC would benefit directed fisheries in a broad area, and that the benefits are much less than 1-to-1 in the area where PSC would be reduced.
- Although IPHC can implement this approach without approval from the Council, use of SPR and total mortality accounting implicitly accommodates decision-making that will likely occur between management entities (NPFMC and IPHC).