

**C-5 Bering Sea Halibut PSC**Review of Deck Sorting EFP

John Gauvin (Alaska Seafood Cooperative, AKSC) gave a presentation supporting an application for an exempted fishing permit (EFP). The goal of this EFP is to evaluate the effectiveness and feasibility of reducing mortality of halibut bycatch in the Amendment 80 sector in 2015. The proposed study builds on several previous projects undertaken in 2009 and 2012. This EFP would allow operators of non-pelagic trawl catcher/processor vessels to sort halibut on deck rather than routing halibut over the flow scale and below deck. No public testimony was given on this topic.

The objectives stated in the EFP include:

- 1) Assess the benefits of deck sorting in terms of savings of halibut mortality under an arrangement that deck sorting is available as an optional catch handling procedure provided EFP participants meet all the requirements to use deck sorting.
- 2) Evaluate the usage of deck sorting in terms of frequency of tows where deck sorting is used relative to the existing catch handling procedures and the percentage of participants' total halibut catch that is sorted on deck.
- 3) Evaluate the utility of deck sorting as an option in the context of the rules and constraints of the EFP.
- 4) Provide a final report from the EFP that succinctly evaluates the outcomes in terms of performance indices for how often participants sorted halibut on deck, what portion of the overall halibut catch was sorted on deck, average mortality rates of halibut sorted on deck, and other indicators of performance of interest to NMFS, NPFMC, and the IPHC.

To accomplish the study objectives, specific regulatory exemptions from current Amendment 80 catch handling procedures were requested. These include:

- 1) Catch handling regulations currently prohibit catch sorting or removal on deck, prior to observer sampling (50 CFR 679.93(c)(1)). Additionally, these regulations require all catch to be weighed on a NMFS-approved scale. During the EFP, catch estimates and viability assessments of halibut will occur principally on deck (and in the processing area for any halibut missed on deck) according to the methodology described below. These activities would normally occur at the observer work station below deck.
- 2) Regulations at 50 CFR 679.93(c)(5) prohibit catch from remaining on deck without an observer present. Because halibut will be handled on deck, exemption from this regulation is necessary.
- 3) Regulations at 50 CFR 679.7(g)(2) prohibit sorting catch prior to observer sampling. Because sampling will occur on deck, a regulatory exemption will be needed.

To accomplish the study objectives no additional halibut quota is requested as part of this EFP application, and all groundfish catch will accrue against Amendment 80 target species and non-allocated catch allowances.

The deck sorting methods used in this EFP are identical to those used in the 2012 EFP. The SSC (Dec 2011) determined the previous EFP to be a “very well designed project with the potential for important results regarding methods to reduce halibut bycatch on Amendment 80 vessels.” The substantive change in the proposed EFP is the expansion of deck sorting to “any vessel under the authority of an Amendment 80 permit owned by a member company of the AKSC.” Further, deck sorting on these vessels will be optional.

**The SSC recommends approval of the EFP and commends Mr. Gauvin and the AKSC for the continued work to establish methods to reduce halibut discard mortality.**

#### Initial draft analysis to reduce halibut PSC limits

The SSC received a presentation of the Pacific halibut PSC Mortality Limit Draft EA/RIR/IRFA by Diana Evans (NPFMC) and Marcus Hartley (Northern Economic Inc.). Public comment was provided by Gerry Merrigan (Freezer Longline Coalition), Jon Warrenchuk (Oceana), Heather McCarty (CBSFA) and Mateo Pez (City of St. Paul), Simian Swetzof, Jr. (Tribal Council of St. Paul), Linda Benhken (ALFA), and Mark Fina (US Seafoods).

The SSC acknowledges and commends the efforts of the analytical team, tasked with preparation of this EA/RIR/IRFA package. The initial draft represents an impressive compilation (and an elaborate presentation) of recent empirical information, documenting the commercial activity of a highly varied and diverse suite of participants in the BSAI groundfish and halibut fisheries.

The proposed Council action would reduce the Pacific halibut Prohibited Species Catch Mortality Limits, as they apply to each of the major gear/target/operational-modes, incrementally, over a 10 percent to 35 percent reduction range. The draft presents a thorough descriptive characterization of the development and evolution of the BSAI halibut PSC management process, providing context to compare and contrast these alternative reduction limits.

The predicted economic implications of each competing PSC reduction threshold, for each gear/target/operational-mode, were computed using an “Iterative Multi-year Simulation Model” (IMS Model) developed by the analysts. The net impacts of PSC limit reductions over a 10-year period are modeled as: i) the forgone gross revenues from reduced groundfish harvests due to binding PSC limits in the BSAI commercial groundfish fisheries; and ii) the increased gross revenues from a higher Fishery Constant Exploitation Yield (FCEY) in the IPHC Management Area 4 commercial halibut fishery due to decreased PSC mortality in the commercial groundfish fisheries. To account for unknown fishery conditions in future years, the analysts randomly draw from a pool of historical (2008-2013) month-, area- and target-specific PSC mortality and groundfish harvest data, and calculate what groundfish revenues, PSC mortality, and directed halibut fishery revenues would have been over a 10-year period under the status quo and all alternatives under consideration by the Council. This process is repeated

10,000 times using new draws from the pool of data, generating a distribution of 10-year impacts to both the groundfish fisheries and the directed halibut fishery.

The IMS model is an improvement over previous Council analyses of PSC mortality, which use the highly simplified “revenues-at-risk” approach. However, **the SSC identified four critical deficiencies in the initial review (below) that severely limit the use of the model for application within the context of the proposed action. The predicted outcomes from the model are therefore difficult to interpret and could be seriously misleading.**

- *No consideration of U26 halibut mortality:* While the IMS model considers the impacts of PSC limit reductions over a 10-year period, it is not truly a dynamic model in the sense that the savings in U26 halibut from reduced PSC mortality are not accounted for in future years. In general, there is uncertainty and confusion surrounding the way in which U26 halibut PSC mortality impacts are accounted (or unaccounted) for in the annual TCEY and FCEY process in the IPHC. Current savings in U26 halibut mortality are likely to have important implications for the exploitable halibut biomass in future years, thereby influencing the future benefits accruing to commercial halibut fisheries and the future difficulties of avoiding halibut PSC in the groundfish fisheries under fixed PSC limits. The impact of U26 halibut mortality savings is therefore an important aspect that is not considered in the analysis.
- *No consideration of behavioral changes:* The IMS model assumes that PSC halibut mortality reductions in the groundfish fishery can only be achieved by reducing groundfish harvests and gross revenues. By using groundfish harvest and halibut mortality data from 2008-2013, the analysis assumes that the PSC mortality rates will be the same after PSC limit reductions are implemented. The industry has made significant operational adjustments to reduce PSC mortality rates in recent years, and are likely to continue to do so, especially if PSC limits are reduced. If industry can change its behavior to reduce PSC mortality without a reduction in groundfish harvests (although perhaps at a higher cost), the model conclusions overestimate the potential costs of PSC mortality reduction accruing to the groundfish fishery. This aspect of behavioral change must be considered in the analysis.
- *Inadequate consideration of socioeconomic impacts:* The analysis only considers the direct effect of PSC limit reductions on the gross revenues of the groundfish and commercial halibut fisheries. It does not adequately consider the indirect effects of reducing halibut PSC limits on the people, industries, and communities that depend on the impacted fisheries. It largely neglects non-commercial values in Area 4, such as subsistence and cultural contributions. The inadequate treatment of socioeconomic and cultural issues was made even more apparent during public testimony and submitted public comments in which dependencies on the directed fishery and a projected set of threats to communities were presented. Analyses of these human dimensions and community impacts are essential to meet National Standard 8. This is symptomatic of a more general lack of integrated frameworks and analyses that jointly consider biological, economic, and social dimensions of fisheries management.
- *Lack of clarity in model assumptions:* It is necessary to make assumptions to predict the impacts of a policy measure in a complicated setting; however, it is important that the assumptions are clearly and explicitly laid out in a way that facilitates the understanding of how the model works and the implications of the assumptions. The present draft is seriously deficient in this respect.

While some assumptions may have little influence on the outcome of the model, other assumptions may be very influential. Sensitivity tests should therefore be conducted to explore the range of possible outcomes under different assumptions. Evaluating the IMS model under Scenarios A and B is an example of a specification test in the analysis, and demonstrates that the IMS model outcomes can change significantly when assumptions are altered. When quantitative sensitivity tests are not feasible, the analyst should provide a qualitative assessment of how the model outcomes might change under different assumptions.

Other considerations influencing the SSC recommendation are summarized below:

- While the analysis does not address the dynamic responses of the different fish resources and the various affected fishing sectors, the document does an adequate job of describing short-term 1-2 year implications of reductions of PSC for the commercial groundfish and halibut fisheries.
- The document acknowledges that the halibut population has exhibited large changes in spatial distribution, growth, and abundance. All three of these factors influence the PSC mortality rate in groundfish fisheries and the probability that PSC limits would constrain groundfish fisheries. This review of past conditions indicates that the current model doesn't address a realistic range of possible stock conditions that could occur in the future.
- The analysis provided by Leaman et al. provides useful information on the relationship between PSC halibut mortality and halibut abundance; however, it does not formalize the various factors influencing the probability of halibut PSC in the BSAI groundfish fisheries. The SSC requests an attempt to measure the probability of PSC, as a function of the expected spatial distribution of the halibut resource, the abundance of the resource, the size distribution of the resource, the spatial overlap of the groundfish fisheries and halibut, quota and effort levels for the groundfish sectors, and fleet-specific DMR. The paper by Leaman et al. does indicate that linear models suggest halibut abundance explains ~34% of the variance of PSC in the groundfish fishery, which suggests that accounting for future impacts on the exploitable halibut biomass in the analysis is important.
- If time permitted, a much more ambitious modeling effort could be conducted. This effort would expand the AFSC's multi-species technical interaction modeling platform to include halibut population dynamics, and the dynamic factors influencing the probability of PSC noted immediately above. This modeling framework would allow the Council to evaluate the implications of PSC limits under plausible scenarios for past and future status of groundfish and halibut. The dynamic modeling approach would address the U26 issue noted earlier in the SSCs recommendation.

A chronic deficiency in the draft pertains to the "unspecified" units associated with reported economic value and revenue estimates. It appears that all reported economic value, revenue, and receipts estimates are "gross" measure since there is no consideration of costs in the analysis. The document fails to correctly attribute these economic estimates, inviting erroneous interpretations about potential net economic effects of the action alternatives.

When the RIR treats “regional economic impacts” (e.g., Sec.5.5.3.3), care must be exercised to clearly distinguish between estimated changes in economic activity (within a given location, region, etc.), and economic benefits and costs. The distinction is critical, but inadequately made in the draft.

Estimates of present value (PV) allow direct comparisons of monetized values, accruing at differing points in time. PV estimates are not comprehensive or exhaustive in content. Specifically, non-market benefits and costs, for example, are not readily amendable to PV comparison. Further, explicit policy objectives, distributional preferences, and social welfare weightings, which often influence policy interpretation of impact assessments, are not captured in PV measures. These limitations on PV estimate interpretation must to be articulated in this presentation.