Halibut ABM Webinar Questions and Answers:

Note that this document provides a summary of questions and answers from the Halibut ABM webinar held on September 20, 2019 at the AFSC and available online through AdobeConnect. The agenda for that meeting and general objectives are attached as well as a list of attendees (in person and online). This summary is not intended to reflect any stakeholder comments made during the meeting but rather provide a summary of discussions related to questions of clarification per the stated purpose of the webinar.

Questions and answers have been grouped into two broad groupings:

1. Alternatives, performance metrics and general questions and;
2. Modeling and analytical assumptions

Alternatives, Performance metrics and general questions:

1. Clarify why each base case (2-1 and 3-1) were chosen and how the elements were picked for inclusion.
   a. The base cases were intended to reflect similar elements and options across the two alternatives. These were then used to show the impact of changing one element at a time across the base cases to show the impact of a single element. To the extent possible the base cases were also structured to reflect similarity with features submitted by stakeholders in the other alternatives.
2. Why did the analysts assume that the alternatives should be primary by gear type to the index?
   a. This was based upon the workgroup's understanding of direction from the SSC and Council over multiple rounds of meetings from 2017 to 2019.
3. How would you compare two alternatives with different starting points on the same graph? It's hard to understand where you are relative to the index when it is shown on a relative scale.
   a. We could redraw the illustration of the Alternative 2 sub-alternatives with the actual biomass index values. It would be more difficult to show index values on an axis for Alternative 3 because it involves two indices. We did indicate where present day indices fall (i.e. 1.0 on the scale).
4. Will 3.3b be redone to standardize to 2018 to match how 3.3a_update was done?
   a. Given how little the difference is for 3.3a update we will not re-run 3.3b prior to the October meeting. We will wait to run additional alternatives and modifications after the Council meeting. However, we will post comparative results on the Council website with 3.3a_update included. If any of the resulting conclusions change these will be noted.
5. Is there under-accounting for CDQ PSC limit apportionment if it is calculated only from the trawl gear index?
   a. The CDQ limit will vary with trawl abundance unless the Council requests otherwise. It is possible that if there are different trends (setline versus trawl) in which the trawl index decreased and the setline index increased then the portion of the CDQ limit which is prosecuted by fixed gear could be disproportionately impacted.
6. Are the alternatives shown in Figure 6-3 that arrive at lower PSC limits driven by lower floors?
   a. It is a combination of multiple elements that can make a PSC limit low versus high at different points in time.

7. What is driving the alternatives where PSC limits are higher in 2025 and 2035 than they currently are?
    a. Starting points are very influential.
    b. The indices are rising over time throughout this particular simulation, particularly the trawl index.
8. Are the analysts drawing conclusions about which alternatives have certain shortcomings relative to Council objectives? Are you concluding anything about the efficacy of the alternatives that are on the table?
    a. The performance metrics section is designed to help with evaluating to what extent alternatives meet Council objectives.
9. How will relative proportions between fixed and trawl PSC limits be maintained if they are based upon different indices?
    a. The proportions will not stay fixed; they will most likely diverge after implementation.
10. What does it mean that the 'index to abundance' performance metric is 'bad' for trawl for Alternatives 2.4 and 3.3a? How does correlation of PSC to a certain index tell us that? What about aspects of the halibut abundance that are not reflected in the bottom trawl survey (i.e. O26)?
    a. We used these correlations as a proxy for performance metrics. We may need to consider different metrics to get at this objective.
    b. We also showed the correlation of PSC related to the actual biomass and spawning biomass in the operating model
11. What does the 'flexibility' performance metric mean?
    a. The focus is to not unnecessarily constrain the groundfish fishery, especially when halibut abundance is high.
12. What if you recognize that the survey does not necessarily reflect the fishery and thus you are making an implicit assumption that the trawl survey is indicating something about usage?
    a. The index and the PSC limit are not so tightly linked if the control rule prevents the PSC limit from increasing further with abundance (i.e. ceiling).
    a. For now, PSC usage to limit ratio is constant so that the model can demonstrate the behavior of each alternative without the confounding effect of a non-constant usage scenario. A usage to limit ratio that varies over PSC limits or at different index values creates additional complexities. Section 5.2.4.1 contains information on the other usage assumption that was considered but not included in model results.
13. Do you want feedback on Council decision points and performance metrics today or at Council meeting?
    a. Council meeting.
14. If a stakeholder wanted to tweak an alternative and have it run through the model, how much work is that and is it possible?
    a. Those suggestions should be provided in public comment to the Council in Homer.
15. What are the "simplifying assumptions" made in the SIA that lead to treating CPs and stationary floating processors differently?
    a. This explanation will be provided at the Council meeting in presentation of the SIA which was not presented in the webinar.

Modeling and analytical assumptions:

2. Is a 20-year simulation sufficient?

      a.   This depends upon the objective of the simulation. We were trying to capture changes in PSC limits and halibut directed catch across alternatives. A longer simulation may be used to capture something such as a conservation concern to indicate changes in Coastwide SSB. However, we found that SSB is very similar across the selected alternatives. We selected 20 years to cover short- and medium-term impacts across alternatives. A longer simulation could be considered in the future if desirable.

3.   How does the model capture O26:U26 dynamics? If it doesn't include a direct calculation on U26 and how it affects harvest rates then how can it reflect the TCEY-setting process?

      a.   The model includes all ages of fish (and therefore, implicitly, all lengths of fish). A mean relationship between length and age that was provided by the IPHC was used to determine the age of 26 inch fish (which is age 7). Fish over age 7 are considered O26 within the model, and this information is used to determine the amount of PSC in the BSAI (or bycatch outside of the BSAI) that is O26. The previous year's O26 PSC in the BSAI (or O26 bycatch outside of the BSAI) is subtracted from the area-specific TCEY to determine the directed halibut fishery's catch limits by area in each year.

      b.   The model is not intending to provide the IPHC assessment, but rather to reflect the historical relationship between estimates of SSB and total mortality (which is highly correlated with TCEY in the years for which TCEY is available). This should reflect the combined outcome of the assessment and how IPHC Commissioners set the TCEY given the assessment and other factors.

      c.   The model does not include an SPR-based harvest policy, which is typically provided by the IPHC scientists as non-binding guidance to IPHC decision-makers each year. An SPR-based harvest policy would calculate a TCEY in each year using a particular fishing intensity, selectivity by fleet, and information on numbers of fish at each age. Therefore, under an SPR-based harvest policy, the TCEY would be influenced by the age- (and therefore length-) distribution of fish in the population in that year. In other words, a larger-than average proportion of U26 (under age 7) fish in the population in a particular year could lead to a different TCEY in that year than for a population with a particularly small proportion of U26 (under age 7) fish in the population in that year. This effect is not currently being modeled.

4.   When you subtract PSC from TCEY to set the directed fishery limits in Area 4 are you using realized PSC from last year or projected PSC from this year?

      a.   Realized PSC from last year.

5.   Can the model capture SSB changes if they are going to occur? Will the model indicate if something is going to happen to the stock?

      a.   The model includes all halibut including the older halibut that comprise SSB. The model can be used to compare which alternatives lead to the highest and lowest SSB values, relative to one another, and whether the alternatives affect SSB differently from one another. The model should not be interpreted as a prediction of future SSB – the IPHC stock assessment and decision table should be used for that task.

6.   What about other scenarios besides simply the scenario of declining SSB during the model validation stage?

      a.   For model validation we are only interested in modeling the past to show that we are capturing the population dynamics of the stock.

7.   How will alternatives look against each other in a scenario of increasing or flat SSB?

      a.   We have not yet simulated this but could do a different forward projection under different SSB scenarios.

8. How does the model incorporate the 30:20 control rule in setting halibut TCEY?
    a. The plot of historical estimates of SSB versus total mortality is the basis of the control rule used in the model, where the model uses its simulated assessed SSB to determine the TCEY in each year. It models management decisions specifying the coastwide TCEY based upon how decisions have been made in the past. The 30:20 control rule was not modeled and has never been invoked by the IPHC.

9. If the primary data source for the BSAI recruitment estimate is the EBS shelf trawl survey, have you also analyzed the GOA trawl survey to get a relative relationship between the two areas?
    a. The other area encompasses the GOA, BC, and the US West Coast, so we did not do this comparison for this exercise. We have published a paper on this topic looking at the EBS shelf survey and GOA survey using spatio-temporal modeling methods to attempt to compare small halibut across the two regions, but there is still a lot of uncertainty about relative numbers by region. Ray Webster is doing something similar based on ages rather than lengths. These analyses on the GOA data are largely outside the scope of this analysis because looking at the GOA survey may not be capturing what is going on in the rest of the "other" area.

10. Since age at length has been a confounding factor with halibut why can't the model use length?
    a. The model has the ability to let weight-at-age fluctuate over time, but the forward simulations currently use static weight-at-age, fixed at 2018 weight-at-age values. Using static weight-at-age in the forward simulation model also allows us to use a static relationship for length-at-age when conversions are needed to approximate halibut at length. A scenario using fluctuating weight-at-age over time is something that could be used to look at the impacts over a longer time frame than was simulated here.

11. Are you using the same weight-at-age in both the BSAI and the "other" area?
    a. Yes

12. Can you use prior year fishery data to define the selectivity instead of survey data?
    a. There isn't an assessment model that is appropriate for fitting the BSAI trawl PSC selectivity. There has been some effort to fit trawl selectivity at the IPHC. However, any chosen trawl PSC selectivity will still be an approximation. A possibility may be to run sensitivity analyses with shifted trawl PSC selectivity curves. Estimating selectivity from fishery data may require a reliable spatial assessment model, which is not possible at this time.

13. Is Figure 6-8 showing the correlation between the PSC limit or PSC use?
    a. Due to our analytical assumptions (i.e., the ratio of usage to limit doesn't change), the correlations would be the same.

14. What other usage assumption was considered?
    a. Section 5.2.4.1 contains information on the other usage assumption considered.

15. The SSC asked for alternative models (i.e., such as one that includes age-dependent mortality), do we need to go through this entire model validation process to add this?
    a. Yes, it would be a good idea to simply check to see if the halibut dynamics can still mimic those of the past when age-dependent natural mortality is modeled and historical catches are applied.

16. Are the indices (in terms of their usability) subject to analysis at this point? Are we stuck with these indices even though Carey showed us that we had trouble fitting the BSAI trawl survey to historical data? Was that difficulty showing that the index isn't reflective of what it is supposed to be reflecting?

a. We didn't alter the EBS shelf bottom trawl survey, we altered our assumptions in the model about recruitment in the BSAI. Initially, the model validation exercise showed that the model was able to mimic coastwide halibut population dynamics and the setline survey index adequately but couldn't adequately mimic the EBS shelf bottom trawl survey. We had been making the assumption that the relative recruitment trend in the BSAI followed the coastwide recruitment trend in these historical years. This appeared to be a poor assumption. Therefore, we investigated the relative trend in historical recruitment in the BSAI by developing a BSAI halibut "sub-model" assessment which estimated yearly historical recruitment specific to the BSAI and used the results of this investigation to specify historical recruitment in the BSAI, while also maintaining the historical coastwide recruitment pattern estimated by the IPHC assessment (specifically the coastwide long assessment model). After making this refinement to our model of historical halibut population dynamics, the model was able to adequately mimic both the EBS shelf bottom trawl survey and the setline survey. The model validation exercise indicated that sometimes more recruitment comes from BSAI and sometimes more recruitment comes from the other areas. In forward simulations, we account for yearly recruitment variability by introducing random fluctuations in recruitment into the model coastwide and, in addition, we introduce random variation in the proportion of recruitment that occurs in the BSAI. We simulate 500 sets of random fluctuations and therefore run 500 realizations of the model.

Agenda BSAI Halibut Abundance-based Management (ABM) PSC limits analysis webinar
September 20, 2019
9am-1pm
Traynor Room, AFSC Seattle WA
Online listening access at: https://npfmc.adobeconnect.com/abm

The intent of the webinar is to provide an overview of some key aspects of the Halibut ABM analysis and for analysts to be available to answer questions of clarification. This is not intended to be a forum for public comment but rather a way to help stakeholders understand the analysis prior to the Council meeting. Questions may be posed online through the agenda comment feature as well as in person in the room. The moderator will pause the presentation at appropriate times to allow analysts to field relevant questions before moving on to other sections. A report of the questions and answers will be compiled by Council staff following the meeting and made available on the Council's agenda platform prior to the October Council meeting.

1. Administration (Moderator Council ED Witherell)
    a. Welcome and introductions
    b. Overview of format for webinar: Focus is on presentation of analysis and clarifying questions from the public
        i. questions will be from adobe connect and within room participants
    c. Documentation to be produced following webinar
2. Big picture overview of document and focus questions and actions for Council in October
3. Description of Alternatives and sub-alternative set analyzed
    a. Elements of each alternatives (Council defined elements)
    b. Three main concepts alternatives
    c. Descriptions and illustrations of alternatives
4. Overview of Pacific Halibut model and simulations
    a. What we modeled and key concepts
    b. Interpreting the results
    c. Critical challenges (e.g., Bottom Trawl Survey and Setline Survey show different trends, as historically they have)
    d. Caveats
    e. Performance metrics
5. Impacts of Alternatives
6. Questions for clarification from additional sections of analysis

Participants (in person at AFSC): Steve Martell, Karla Bush, Robert Alverson, Chad See, Keith Bruton, Matt Robinson, Ruth Christianson, J. Baine Etherton, Landry Price, Chris Woodley, Linda Behnken, Annika Saltman, Jim Johnson, Heather McCarty, Peggy Parker, Jeff Kauffman, Mateo Paz-Soldan, Mark Fina

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