Summary Comment to Commissioners for the 2014 Annual Meeting: IPHC stock assessment data, modeling, and biomass apportionment for 2014

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Overview

We reviewed the final data, stock assessment output, and biomass apportionment calculation reports that will be presented to the Commissioners in early 2014.

We met via teleconference (except J. Ianelli who was present at IPHC office) with the IPHC Director and stock assessment staff from 9:00 – 10:45 AM on Friday 20 Dec 2013 to discuss the following reports:

1. Apportionment and regulatory area harvest calculations
2. Overview of data sources for the Pacific halibut stock assessment and related analyses
3. Assessment of the Pacific halibut stock at the end of 2013

In addition, we reviewed the decision tables used to represent harvest advice.

IPHC staff presented highlights of each report, including areas where specific actions were taken in response to the SRB's recent review of these activities (Cox et al. 2013). We commend IPHC staff for incorporating SRB recommendations into the 2013 assessment despite challenging timelines. The recommendations that were not included in this year's work are likely to be followed up by IPHC staff next year and beyond and we look forward to interacting with the staff as the work goes ahead.

As we noted in previous reports, presentations by IPHC staff were thoughtful of both scientific issues as well as the need to effectively communicate its advice and implications to Commissioners and stakeholders. Overall, we found that the analyses leading up to the 2014 decision-making process provide adequate foundation for

determining catch levels for Pacific halibut for 2014. We now provide some comments on each of the reports.

1. Apportionment and regulatory area harvest calculations

In August 2013, we met with IPHC staff to review the details of these procedures and found they were scientifically justified and similar to approaches used for other fisheries. One of the key clarifications from that meeting was that the term "**apportionment**" specifically means "**biomass apportionment**" – therefore, we recommend changing the title of this document to reflect the more specific definition.

2. Overview of data sources for the Pacific halibut stock assessment and related analyses

As we noted in the report from the October 2013 meeting, there are some outstanding issues with the data used in the halibut assessment. Two of the main ones are the sex ratio in commercial catches and bycatch. Although immediate solutions are not currently possible to either of these issues, the topics are adequately addressed in the 2013 stock assessment sensitivity analyses or designated as high-priority research or pilot sampling programs.

In the foreseeable future, bycatch issues will continue to represent a relatively serious challenge for stock assessment and decision-making. The ensemble modeling approach may help to smooth out the impacts of this uncertainty in the short-term as scenarios for bycatch (and other sources of uncertainty) could be included in future ensemble model sets. However, the implications for the harvest strategy will need to be more fully evaluated in management strategy simulations and the IPHC staff appears to be progressing well developing these.

3. Assessment of the Pacific halibut stock at the end of 2013

The stock assessment for 2013 was done using an ensemble modeling approach, in which three assessment models were used to compute harvest advice. The main advantage of the ensemble approach is that it reduces the sensitivity of harvest advice to particular assumptions made in the assessment. This year's ensemble included the following models:

1. IPHC 2012 – the stock assessment model used to provide advice in 2012, updated to include 2013 data;
2. Short-term – a new Stock Synthesis model using only 1998-2013 data;
3. Long-term – a new Stock Synthesis model using practically all the available data for halibut spanning the years 1888 – 2013.

Results show that the models provide slightly different interpretations of halibut stock dynamics, yet they are also reasonably consistent. **The advice provided in 2013 decision tables is derived from an equal weighting of the three models making up**

the ensemble. Future research may include additional models in the ensemble as well as different weightings.

Finally, we draw attention to Figure 10 of the stock assessment report (Stewart and Martell 2014), which shows the distribution of exploitable biomass, since this can help the Commissioners think about the consequences of their decisions in a slightly different manner. That is, about 40 million pounds of halibut could be removed coast-wide in 2014 (Fig. 9).

Thus, Figure 10 allows one to compute the probability that this removal will exceed a specified harvest rate. We encourage IPHC staff to include a calculation such as this one in future reports.

Reference

Cox, S.P., Ianelli, J., and Mangel, M. 2014. Reports of the IPHC Scientific Review Board, 2013. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2013: 217-238.

Stewart, I.J. and Martell, S. 2014. Assessment of the Pacific halibut stock at the end of 2103. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2013: 169-196.