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## Evaluation of commercial fishery size limits in 2020: outline of proposed analyses

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### PURPOSE

To provide Commissioners with an overview of proposed analyses to evaluate commercial fishery size limits in response to the discussion and request from AM096:

AM096 ([para. 157](#)):

*“The Commission **NOTED** the stakeholder questions regarding the current minimum size limit applied to the directed commercial Pacific halibut fishery. In light of the newly available sex-ratio information from the directed commercial fishery, the Commission identified the need for a better understanding of the effects of the minimum size limit on available fishery yield and potential changes from previous analyses. Further, investigation of the use of a maximum size limit has also been a topic on ongoing discussion.”*

AM096–Req.08 ([para. 158](#)):

*“The Commission **REQUESTED** that the IPHC Secretariat prepare an updated discussion of the costs and benefits of removing or adjusting the current minimum size limit and/or adding a maximum size limit. This analysis would be presented during the 2020 Work Meeting and IM096.”*

### BACKGROUND/INTRODUCTION

The IPHC Secretariat most recently evaluated the commercial fishery minimum size limit in 2018 ([IPHC-2018-AM094-14](#)). That analysis found that approximately a 4% larger commercial fishery yield could be achieved at the same level of fishing intensity if the minimum size limit was removed, and that the result was relatively insensitive to shifts in fishery selectivity (Stewart and Hicks 2018). However, approximately 25% of the projected commercial landings in the absence of a minimum size limit would comprise Pacific halibut less than 32” (81.3 cm). Considerable discussion of potential low prices for these smaller fish led to concern that the fishery as a whole could lose value, even at a slightly higher biological yield. That analysis found no compelling evidence that the current minimum size limit was providing a ‘recruitment refuge’, or protection of the spawning biomass given slow growth, late maturity, and considerable fishery mortality on juvenile female Pacific halibut.

Improved estimates of the sex-ratio of the commercial landings, interest in the potential utility of a maximum size limit, as well as other considerations have led to a renewed interest in evaluation of commercial fishery size limits for 2020.

### PROPOSED ANALYSIS FOR 2020

The basic approach taken in 2018 relied on the stock assessment models as a tool to simultaneously evaluate the effects of shifting sex-ratio, age composition of the catch (landings plus discards), and allocation among sectors and Biological Regions on the available yield under a reduced or no minimum size limit. For 2020 a similar approach is proposed to provide estimates of:

- Change in yield and discard mortality without a commercial minimum size limit given data available through 2019 (including commercial sex-ratios).
- Change in yield, discard mortality, and age-composition of the spawning biomass under several alternative maximum size limits for the commercial fishery.

In addition, the analysis will include a discussion that includes the following topics:

- Potential benefits of removing the minimum size limit:
  - Reduced discard mortality
  - Improved fishery efficiency (higher landed CPUE; reduced operating costs)
  - Improved information due to full retention of all catch
- Potential benefits of introducing a maximum size limit:
  - Increased abundance of older age-classes in the female spawning biomass
- Potential concerns due to removing the minimum size limit:
  - Low observer coverage (U.S. waters) and low (U.S. waters) or no (Canadian waters) biological sampling of the discarded catch
  - Potential shift in fishery selectivity toward younger fish
  - Unknown price for fish less than the current minimum size limit, and thus unknown effect on the economic value of the fishery
- Potential concerns of introducing a maximum size limit:
  - Increased discard mortality
  - Decreased fishery efficiency

An additional extension that can be provided relative to the 2018 analysis is an evaluation of the price for Pacific halibut less than the current minimum size limit, by IPHC Regulatory Area, that would be projected to generate the equal or reduced value to the fisheries given changes in yield. Sublegal Pacific halibut landed and sold during the 2020 FISS may provide the first direct information on the price for these fish for comparison with analysis results.

#### **EVALUATION OF RESULTS**

This analysis will be provided for initial evaluation at the 2020 IPHC Work Meeting (WM2020), 16-17 September 2020.

#### **REFERENCES**

IPHC. 2020. Report of the 96<sup>th</sup> Session of the IPHC Annual Meeting (AM096). Anchorage, Alaska, USA, 3-7 February 2020. IPHC-2020-AM096-R. 51 p.

Stewart, I., and Hicks, A. 2018. Evaluation of the IPHC's 32" minimum size limit. IPHC-2018-AM094-14. 44 p.