



INTERNATIONAL PACIFIC



HALIBUT COMMISSION

# **Mortality limits including U26 discard mortality in non-directed fisheries**

Agenda item 6.4

IPHC-2020-AM096-10

# Purpose

To provide the Commission with a set of options and a discussion of those options in response to:

*“AM095–Rec.04 (para. 66) The Commission **RECOMMENDED** evaluating and redefining TCEY to include the U26 component of discard mortalities, including bycatch, as steps towards more comprehensive and responsible management of the resource, in coordination with the IPHC Secretariat and Contracting Parties. The intent is that each Contracting Party to the Treaty would be responsible for counting its U26 mortalities against its collective TCEY. This change would be intended to take effect for TCEYs established at the 2020 Annual Meeting.”*



# Background

- Since 2012 all sizes and sources of mortality have been reported and accounted for in stock assessment and harvest strategy analyses
- In 2018, the Commission began setting mortality limits based on the TCEY
- The only mortality component not currently included in the TCEY is the U26 discard mortality in non-directed fisheries (bycatch)



# Why the U26 delineation?

- U26 Pacific halibut are highly mobile and much less likely to occur in the same IPHC Regulatory Area in the upcoming year in which mortality limits would apply (mortality effects distributed across the stock)
- The FISS captures almost exclusively O26 Pacific halibut. There is currently no reliable tool for describing the annual distribution of U26 across the entire convention area
- Mortality of U26 Pacific halibut has a differing effect on the Spawning Potential Ratio than O26 fish (they are not entirely exchangeable)



# Terms: FCEY and TCEY

- Contracting party Catch Sharing Agreements/Plans currently use both FCEY and TCEY for calculations/allocations
- It may be beneficial to retain these terms (and the calculation of these ‘intermediate’ quantities) as in recent mortality tables for procedural efficiency regardless of the treatment of U26 discard mortality in non-directed fisheries in mortality limit setting



# Options

As in the IPHC's interim management procedure and Management Strategy Evaluation process there are two considerations for setting mortality limits:

- 1) The scale of the limits at the coastwide level
- 2) The distribution of those limits among Biological Regions and IPHC Regulatory Areas

A range of options are provided for both scale and distribution.



# Options

All options require no change to the treatment of mortality in the stock assessment and harvest strategy calculations (all sizes and sources of mortality are already included)



# Options - scale

- 1) *Status quo* – no change to current setting of TCEYs. Alternative levels of U26 discard mortality in non-directed fisheries handled via alternative projection tables
- 2) Setting a total mortality limit (U26 and O26 combined). Could include variability ( $\leq 4\%$ ) in realized SPR.
- 3) Separate (TCEY + U26 NDF) or partitioned total (specified percentage of U26 discard mortality in NDF) limits.





# Options - distribution

- 1) *Status quo* – no change to current projection of U26 discard mortality in non-directed fisheries based on the most recent year's observations
- 2) Recent use – distributes U26 mortality limits based on a recent period.
- 3) Fixed proportions by IPHC Regulatory Area. Could be based on recent years or periods.
- 4) Negotiated – management-based limits. We currently have no scientific basis for informing the 'optimal' distribution of U26 discard mortality in non-directed fisheries. A formulaic basis would be required in order to structure projection tables.



# Example: 2019 mortality projection

## Detailed sector mortality information

	2A	2B	2C	3A	3B	4A	4B	4CDE	Total
<b>Commercial Discard Mortality</b>	<b>0.02</b>	<b>0.13</b>	<b>NA</b>	<b>NA</b>	<b>0.19</b>	<b>0.09</b>	<b>0.02</b>	<b>0.04</b>	<b>0.50</b>
<b>O26 Non-Directed Discard Mortality</b>	<b>0.13</b>	<b>0.27</b>	<b>0.03</b>	<b>1.28</b>	<b>0.36</b>	<b>0.18</b>	<b>0.22</b>	<b>1.87</b>	<b>4.33</b>
<b>Non CSP Recreational</b>	<b>NA</b>	<b>0.08</b>	<b>1.38</b>	<b>1.74</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>3.21</b>
<b>Subsistence</b>	<b>NA</b>	<b>0.41</b>	<b>0.44</b>	<b>0.22</b>	<b>0.01</b>	<b>0.01</b>	<b>0.00</b>	<b>0.06</b>	<b>1.14</b>
<b>Total non-FCEY</b>	<b>0.15</b>	<b>0.88</b>	<b>1.85</b>	<b>3.24</b>	<b>0.57</b>	<b>0.29</b>	<b>0.24</b>	<b>1.96</b>	<b>9.18</b>
<b>Commercial Discard Mortality</b>	<b>NA</b>	<b>NA</b>	<b>0.06</b>	<b>0.31</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>0.37</b>
<b>CSP Recreational</b>	<b>0.60</b>	<b>0.84</b>	<b>0.82</b>	<b>1.89</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>4.16</b>
<b>Subsistence</b>	<b>0.03</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>0.03</b>
<b>Commercial Landings</b>	<b>0.86</b>	<b>5.10</b>	<b>3.61</b>	<b>8.06</b>	<b>2.33</b>	<b>1.65</b>	<b>1.21</b>	<b>2.04</b>	<b>24.88</b>
<b>Total FCEY</b>	<b>1.50</b>	<b>5.95</b>	<b>4.49</b>	<b>10.26</b>	<b>2.33</b>	<b>1.65</b>	<b>1.21</b>	<b>2.04</b>	<b>29.43</b>
							<b>4C FCEY</b>	<b>0.91</b>	
							<b>4D FCEY</b>	<b>0.91</b>	
							<b>4E FCEY</b>	<b>0.22</b>	
<b>TCEY</b>	<b>1.65</b>	<b>6.83</b>	<b>6.34</b>	<b>13.50</b>	<b>2.90</b>	<b>1.94</b>	<b>1.45</b>	<b>4.00</b>	<b>38.61</b>
<b>U26 Non-Directed Discard Mortality</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.37</b>	<b>0.11</b>	<b>0.10</b>	<b>0.01</b>	<b>1.12</b>	<b>1.73</b>
<b>Total mortality</b>	<b>1.65</b>	<b>6.85</b>	<b>6.34</b>	<b>13.87</b>	<b>3.01</b>	<b>2.04</b>	<b>1.46</b>	<b>5.12</b>	<b>40.34</b>

2017

2018



# Example: total mortality limit (2), *status quo* U26 distribution (1)

## Detailed sector mortality information

	2A	2B	2C	3A	3B	4A	4B	4CDE	Total
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2017

2018



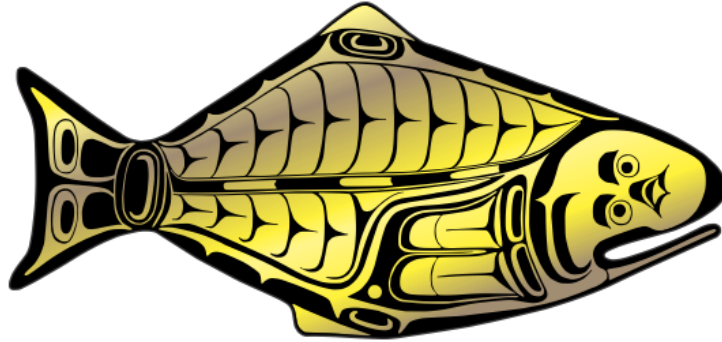
# Recommendations

That the Commission:

- **NOTE** paper IPHC-2020-AM096-10 which provides a summary of options for setting annual mortality limits.
- **REQUEST** that the IPHC MSE process:
  - continue to evaluate *status quo* management related to discard mortality for non-directed fisheries (bycatch) under the current program of work for delivery of full MSE results at AM097 in 2021, noting that this source of mortality is currently modelled as a fixed component of the total (with variability), **OR**
  - explicitly consider one or more of the options described here when evaluating management procedures.



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