



FLC BSAI Halibut ABM Proposal

Key points

Alternative 4: Decision Table (11 X 11)¹

Indices: NMFS BTS EBS trawl survey and IPHC Area 4ABCDE setline survey

Timeframe: 1998-2018

Standardized to the mean (1.0 = 1998-2018 average)

Starting point = 594 mt (mid-point between floor and ceiling)
Ceiling = 833 mt (2015 PSC limit)
Floor = 355 mt (50% of 2016 PSC limit)
PSC limit = Varies no more than 15% per year. PSC limit to be calculated annually.

Index value to be rounded to the nearest tenth (up or down).

Index value is “greater than or equal to” (= >) at each axis point (example: >= 1.0).

If one index has a value greater than 1.5, continue to use the 1.5 column or row for that index.

If both indices are greater than 1.5, then the PSC limit is at the ceiling.

If one index has a value less than 0.5, continue to use the 0.5 column or row for that index.

If both indices are less than 0.5, then the PSC limit is at the floor.

Table 1:

Vertical axis = EBS BTS survey index standardized to 1.0;

Horizontal axis = IPHC survey index standardized to 1.0

| | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1.5 | 594 | 618 | 642 | 666 | 690 | 713 | 737 | 761 | 785 | 809 | 833 |
| 1.4 | 570 | 594 | 618 | 642 | 666 | 690 | 713 | 737 | 761 | 785 | 809 |
| 1.3 | 546 | 570 | 594 | 618 | 642 | 666 | 690 | 713 | 737 | 761 | 785 |
| 1.2 | 522 | 546 | 570 | 594 | 618 | 642 | 666 | 690 | 713 | 737 | 761 |
| 1.1 | 498 | 522 | 546 | 570 | 594 | 618 | 642 | 666 | 690 | 713 | 737 |
| 1 | 474 | 498 | 522 | 546 | 570 | 594 | 618 | 642 | 666 | 690 | 713 |
| 0.9 | 451 | 474 | 498 | 522 | 546 | 570 | 594 | 618 | 642 | 666 | 690 |
| 0.8 | 433 | 451 | 474 | 498 | 522 | 546 | 570 | 594 | 618 | 642 | 666 |
| 0.7 | 403 | 433 | 451 | 474 | 498 | 522 | 546 | 570 | 594 | 618 | 642 |
| 0.6 | 379 | 403 | 433 | 451 | 474 | 498 | 522 | 546 | 570 | 594 | 618 |
| 0.5 | 355 | 379 | 403 | 433 | 451 | 474 | 498 | 522 | 546 | 570 | 594 |
| | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 |

IPHC setline survey index (1.0 = 1998-2018 average)

¹ Council motion allows for 3X3, 5X5, 7X7, and 10X10 decision tables. With the start point in the middle (and forming the diagonal), odd numbered tables seem to work best. We request the Committee and Council to consider changing the only even numbered table (10X10) to 11X11.



Rationale for FLC Proposal

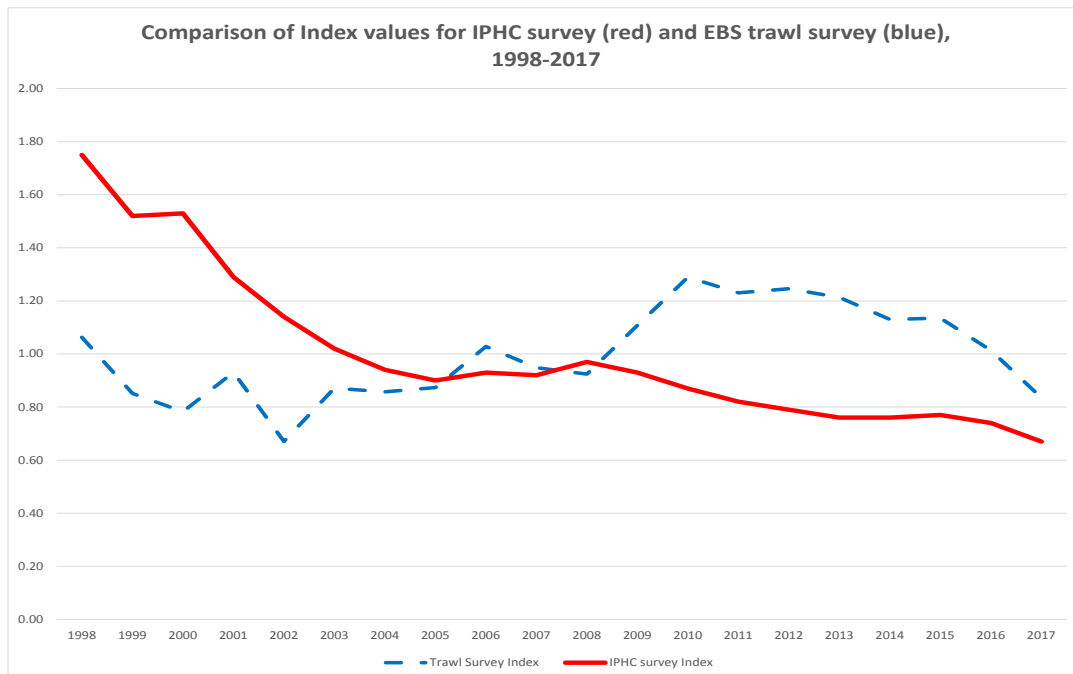
Selection of Alt 4 (decision table using both indices equally weighted): The BSAI hook-and-line sector average size composition of halibut (U26/O26) is between the size composition found in the NMFS EBS trawl survey and the IPHC setline survey (2008-2016 data below). Neither survey alone correlates well with BSAI H&L halibut PSC use over the entire time period (1998-2018). Both surveys are necessary to capture the biomass (both U26 and O26) of halibut that is potentially vulnerable to bycatch in the H&L groundfish fishery.

| Survey/Sector | % U26 | % O26 | % O32 |
|---------------------------|------------|------------|------------|
| EBS shelf survey | 80% | 20% | 6% |
| IPHC Area 4 survey | 10% | 89% | 55% |
| H&L groundfish | 57% | 43% | 10% |

Decision to standardize indices in the decision table to the mean (where 1.0 = average of 1998-2018):

The intent of the decision table standardized to the mean is to determine what might be a reasonable PSC limit at an average halibut biomass level (1.0) with subsequent adjustments to the PSC limit as halibut biomass increases or decreases (as measured by the two different surveys).

Both surveys measure halibut biomass but each represents a different size compositions within the halibut biomass. Each survey does not always reflect the same relative biomass level in a given year nor trends the same as the other survey (below). A single year alone may not be representative of the halibut biomass which can be measured differently by both surveys. In order to determine what represents an average biomass arising from two different surveys, it seems reasonable to use the historic record (1998-2018) and standardize both surveys to the mean of the time period.





Selection of ceiling: The ceiling is the 2015 PSC limit of 833 mt and is within the range of the Council motion of October 2018.² This PSC ceiling is potentially constraining as the PSC limit was reached in 2000 and 2001 (and would have been exceeded in 1994-1997, years which were under a higher PSC cap level for BSAI H&L gear). When the halibut biomass is comprised of larger halibut (example: IPHC survey index values 1998-2002), the weight of the average halibut increases. The extrapolation of a larger size halibut in bycatch (without any increase in the number of halibut encountered) would increase PSC use upward.

Selection of floor: The floor is 355 mt which is 50% of the 2016 PSC limit (710 mt) and within the range of the Council motion of October 2018. The 2016 PSC limit was a 15% reduction from the 2016 PSC limit. The floor is 43% of the 2015 limit.

Selection of the starting point: The starting point is the PSC limit when both surveys are at 1.0 (middle point of the table). The starting point is 594 mt which represents the mid-point between the floor (355 mt) and the ceiling (833 mt) and is within the range of the Council motion of October 2018. A starting point of a PSC ceiling of 594 mt (at 1.0) is -16% from the current PSC limit and 29% from the 2015 limit.

Selection of 15% as the annual rate of change limit: The selection of 15% is within the range (mid-point) of the options in the Council motion of October 2018. This selection is to minimize undue disruption that could occur from a drastic change in one year in one or more surveys (either from biomass change or a survey anomaly), and to smooth out the PSC limit decrease or increase over time. This element could be applied to limit the amount of change between current PSC limits and the implementation of the action.

Responsiveness to Council objectives

- 1.) Halibut PSC limits should be indexed to halibut abundance:** BSAI H&L PSC limit is indexed to halibut biomass as estimated by both the NMFS EBS shelf trawl survey and the IPHC Area 4 setline survey.
- 2.) Halibut spawning stock biomass should be protected especially at lower levels of abundance.** This proposal protects spawning biomass to the extent practicable. The 2018 halibut spawning stock biomass is estimated coastwide by the IPHC at 205 M lbs (or 93,002 mt). Under this proposal, the H&L BSAI PSC limit is reduced as halibut biomass declines. The BSAI H&L halibut PSC use in 2018 was 120 mt (or 0.129% of the magnitude of the coastwide spawning biomass).
- 3.) There should be flexibility provided to avoid unnecessarily constraining the groundfish fishery particularly when halibut abundance is high.** The selection of the ceiling at the 2015 limit alleviates some of that concern (though historic PSC use has previously exceeded this value six times).
- 4.) Provide for directed halibut fishing operations in the Bering Sea.** The CP H&L fleet has been steadily reducing halibut PSC use from 1994 to 2018 as well as improving handling and reducing DMR. These efforts in bycatch reduction have increased the allowable catch limit for the

² Element 1 (starting point), Element 2 (ceiling), and Element 3 (floor) apply to Alternatives 2-4. However, the numerical values in Elements 1-3 refer to all gear bycatch (not sector-specific). This proposal is for Alternative 4 for the H&L sector only and we assume the numerical values for Elements 1-3 would be specific to the H&L sector. Elements 4 & 5 do not apply to Alternative 4.



directed halibut fishery. The CP H&L sector will continue these efforts in its halibut bycatch monitoring program through Sea State.

In 2018, the CP H&L groundfish sector was 5.78% of total BSAI halibut bycatch mortality; 2.67% of total halibut removals in the BSAI; and 0.66% of total halibut removals in Alaska (all areas). A retrospective examination of historic PSC use and PSC limits derived from Table 1 would have resulted in PSC limits being reached (and constraining) in six of nineteen years (1998-2017).

- 5.) Provide for some stability in PSC limits on an inter-annual basis.** The use of an 11X11 table allows for smaller increments of change in the annual PSC limit. A limit on the annual change of PSC limit to 15% in one year would minimize undue disruption to the H&L groundfish fishery that could occur from a drastic change in one year in one or more surveys (either from biomass change or a survey anomaly), and to smooth out the PSC limit decrease or increase over time. This element could be applied to limit the amount of change between current PSC limits and the implementation of the action.