



Calculation of the abundance-based management (ABM) index for the IPHC fishery-independent setline survey (FISS)

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PURPOSE

This document provides instructions on how to calculate the abundance-based management (ABM) index for the IPHC fishery-independent setline survey (FISS) from annual IPHC published data products.

BACKGROUND

Abundance-based management (ABM) of the Pacific halibut Prohibited Species Catch (PSC) limit is a method to be used by the North Pacific Fishery Management Council (NPFMC) to set the Pacific halibut PSC for the Amendment 80 trawl fleet in the Bering Sea/Aleutian Islands (BSAI). A two-dimensional look-up table, dependent on the Eastern Bering Sea (EBS) trawl survey index and the IPHC FISS¹ index, is used. Breakpoints for these two survey indices define categories from which the PSC limit is determined (**Table 1**). The EBS trawl survey index is categorized as low or high, and the IPHC FISS index is categorized into very low, low, medium, and high categories.

This document describes how to calculate the ABM index for the IPHC FISS from results available on the IPHC website. It is important to note that the entire time-series for the FISS index is updated annually by fitting a space-time model to the data from 1993 onwards. Thus, past values of the index will be revised each year, although typically changes from past estimates will be small.

CALCULATING THE ABM INDEX FOR THE IPHC FISS

The FISS index is available on the IPHC Space-Time Explorer² webpage and is updated in November before the IPHC Interim Meeting (IM). The ABM index can be calculated following these steps.

- Step 1:** Use the “Official Outputs” tab of the [IPHC Space-Time Explorer](#). Occasionally the Explorer is slow to load and the web browser may need to be refreshed.
- Step 2:** Select IPHC Regulatory Areas 4A, 4CDE, and 4B by checking the corresponding boxes. These areas are shown geographically in **Figure 1** of this document.
- Step 3:** Select “All Sizes WPUE” from the “Select variable” drop-down menu. This will produce a time-series figure and table on the screen.

¹ <https://iphc.int/management/science-and-research/fishery-independent-setline-survey-fiss>

² http://iphc-shiny2.westus.cloudapp.azure.com:3838/IPHC_ShinyApps/SpaceTimeExplorer/

Step 4: From the Table, take the “mean” value and multiply that by 258.55, which is the total bottom area between 0 and 400 fathoms for these three IPHC Regulatory Areas in units of thousand square nautical miles.

The mean value is the weighted mean WPUE (pounds per skate) using the bottom areas as weights.

$$WPUE_y = \frac{\sum_{i \in \{4A, 4B, 4CDE\}} WPUE_{i,y} * A_i}{\sum_{i \in \{4A, 4B, 4CDE\}} A_i} \tag{1}$$

The denominator of **Equation 1** is 258.55, which may be subject to future revision as bathymetry data are updated. Therefore, the numerator of **Equation 1** is the ABM index for the IPHC FISS.

Table 1. Two-dimension lookup table for determination of Pacific halibut PSC limits in the Bering Sea and Aleutian Islands.

		EBS shelf trawl survey index (t)	
		Low < 150,000	High ≥ 150,000
IPHC setline survey index in Area 4ABCDE (WPUE)	High ≥ 11,000	1,745 mt (current limit)	1,745 mt (current limit)
	Medium 8,000 – 10,999	1,396 mt (20% below current)	1,571 mt (10% below current)
	Low 6,000-7,999	1,309 mt (25% below current)	1,396 mt (20% below current)
	Very Low < 6,000	1,134 mt (35% below current)	1,134 mt (35% below current)

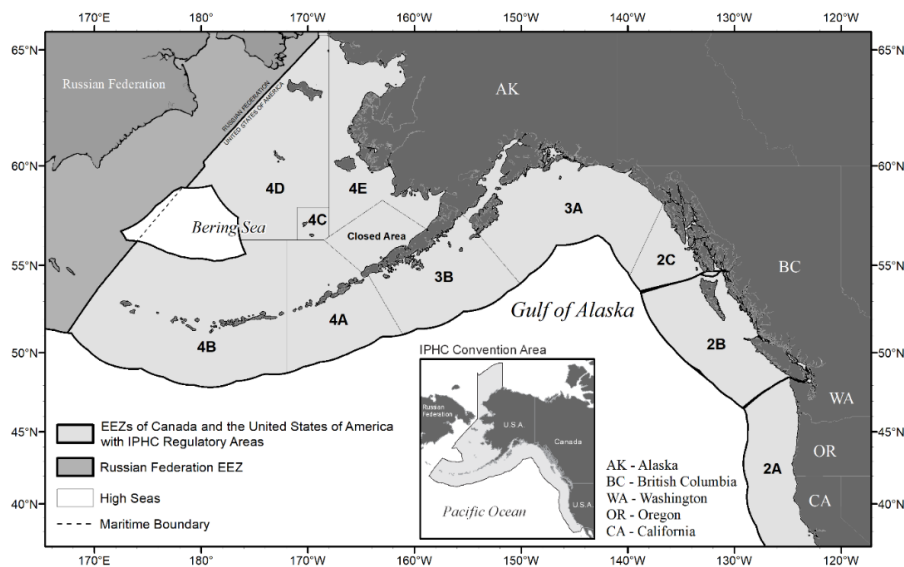


Figure 1. IPHC Convention Area (inset) and IPHC Regulatory Areas.