



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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25 September 2023

MEMORANDUM FOR: Jonathan M. Kurland
Regional Administrator

FROM: Robert Foy, Ph.D.
Director, Alaska Fisheries Science Center

SUBJECT: Request for Trawl Survey Halibut Data

December 9, 2022, NMFS published a proposed rule ([87 FR 75570](#)) to implement Amendment 123 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area (BSAI FMP). NMFS approved Amendment 123 to the BSAI FMP on March 7, 2023 and expects to publish a final rule in time to implement the new PSC limits for the 2024 fishing season. The final rule implementing Amendment 123 will establish a new annual process that links the Amendment 80 sector PSC limit to indices of halibut abundance. NMFS proposed Table 58 to Part 679 that specifies a halibut PSC limit for each of several specified halibut abundance ranges, or index states, derived from the annual International Pacific Halibut Commission's (IPHC's) Fishery Independent Setline Survey (FISS) for IPHC's management area 4ABCDE, referred to as the IPHC Index, and Alaska Fisheries Science Center's (AFSC's) Eastern Bering Sea (EBS) shelf trawl survey, referred to as the NMFS EBS Index. The IPHC index is a relative index of Pacific halibut biomass for all sizes of fish expressed as WPUE in areas 4A, 4B and 4CDE. The NMFS EBS Index is a relative index of Pacific halibut biomass for all sizes of fish expressed as weight in metric tonnes (mt) in the EBS. Each year, in Table 58 to Part 679, the intersection of the most recent abundance indices provided by the IPHC and AFSC will be used to establish the annual halibut PSC limit for the Amendment 80 sector. The proposed rule specified a process by which the AFSC would provide the NMFS EBS index of halibut abundance estimates to the NMFS Regional Administrator and the North Pacific Fishery Management Council (Council) by October 1 each year to provide the opportunity for review by the Council and the public, prior to the annual harvest specifications process.

The EBS shelf trawl survey is a stratified systematic survey conducted using standardized gear and methodology since 1982, and has sampled the same 376 survey stations annually since 1987. A standard sample is an 83-112 Eastern trawl towed at 3 knots for 30 minutes. Unless retained for biological sampling by the International Pacific Halibut Commission (IPHC), Pacific halibut are measured to fork length upon capture, then immediately returned to the sea in an effort to reduce mortality. The weights of all Pacific halibut are then estimated using the length-weight regression parameters specified for area 4CDE ($\alpha = 5.925 \times 10^{-6}$, $\beta =$



3.161) in IPHC Bulletin IPHC-2023-AM099-INF04. Area swept (ha) is computed for each haul as the linear distance towed, multiplied by the mean net width (Alverson and Pereyra, 1969; Lauth and Kotwicki, 2014). Halibut CPUE for each haul is calculated as the total halibut weight, estimated by the regression, divided by the area swept. Mean catch per unit effort (CPUE) is calculated in kilograms per hectare (100 hectares (ha) = 1 km²) for each stratum (Alverson and Pereyra, 1969; Lauth and Kotwicki, 2014). A biomass estimate is calculated for each stratum by multiplying the stratum mean CPUE by the stratum area. Stratum estimates are then summed to create a biomass estimate for the total survey area (see Markowitz et al. 2023, for example).

Methods and analyses used to establish the NMFS EBS estimate of halibut abundance are described in Section 1.6.1 of the Final Environmental Impact Statement prepared for Amendment 1231.

The 2023 Eastern Bering Sea shelf trawl survey index estimate of halibut abundance is 170,238 mt and is above the threshold level of 150,000 mt in the high abundance state.

Although survey gear, methodology, and coverage has been standardized for the EBS survey since 1987, there have been two recent updates to data calculations that will influence the 2023 and future biomass calculations relative to previous iterations. In 2022, stratum area calculations were adjusted to reflect fine-tuning of spatial shapefiles, which resulted in a slight increase in the calculated area for the overall survey (492,897 km² to 492,989 km²), and a 0.01% increase in overall biomass estimates for the time series. In 2023, length-weight parameters used in the regression for halibut weight calculations were updated to reflect new guidance from the IPHC (see above). While we are making no attempt to recalculate historical biomass estimates at this time, we estimate that the new parameters have increased the 2023 biomass estimate approximately 3%. The updated stratum areas and length-weight parameters will be used in future years as well, and until further notice.

cc: David Witherell, Executive Director
Bill Tweit, Interim-Chair

¹ <https://www.fisheries.noaa.gov/resource/document/final-environmental-impact-statement-bering-sea-and-aleutian-islands-bsai-halibut>