Data overview and stock assessment for Pacific halibut (*Hippoglossus stenolepis*) at the end of 2025

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PURPOSE

To provide the Commission with a summary of the data, stock assessment at the end of 2025.

INTRODUCTION

In 2025 the International Pacific Halibut Commission (IPHC) undertook its annual coastwide stock assessment of Pacific halibut (*Hippoglossus stenolepis*). This stock assessment represents a full assessment, following updates conducted in 2023 and 2024. The most recent full stock assessment was completed in 2022 (IPHC-2023-SA01). The 2025 stock assessment revisited all data sources and structural choices; preliminary results (IPHC-2025-SRB026-07, IPHC-2025-SRB027-07) were provided for review at SRB026 (IPHC-2025-SRB026-R) and SRB027 (IPHC-2025-SRB027-R).

Starting with the final 2024 stock assessment data, models and results (Stewart and Hicks 2025b; Stewart and Webster 2025), the preliminary analysis provided a sequentially updated 'bridge' of the changes made through June 2025, including:

1) Extending the time series to include projected mortality based on limits adopted for 2025 (IPHC 2025c),
2) updating to the newest stock synthesis software version (3.30.23.1; Methot Jr 2024),
3) updating the time-series information for the Pacific Decadal Oscillation, used as a covariate to the stock-recruitment relationship,
4) retuning the constraint on the scale of male time-varying fishery selectivity (the sex-ratio of the commercial fishery) and extending this variability into the forecast,
5) improving the bootstrapping approach to pre-model calculations of maximum effective sample sizes to include ageing imprecision (Hulson and Williams 2024),
6) re-tuning the process and observation error components of these models to achieve internal consistency within each,
7) and updating the maturity ogive to reflect the recent histology-based estimates produced by the IPHC's Biological and Ecosystem Sciences Branch.

This document provides an overview of the data sources available for the 2025 Pacific halibut stock assessment including the population trends and distribution among IPHC Regulatory Areas based on the modelled IPHC fishery-independent setline survey (FISS), directed commercial fishery data, and results of the stock assessment. All standard data sources have been updated with new information available from 2025 for this analysis, which includes updates to data collected in previous years. In addition, improvements were made to the treatment of commercial CPUE information for the period 1981-2025, including adding additional records not

historically included, an updated hook-spacing relationship (Monnahan and Stewart 2018) and extensive error checking.

Overall, recent spawning biomass (SB) estimates are very similar to those estimated in last year's stock assessment. Year-classes estimated for 2012, 2016 and 2017 are both larger than those occurring from 2006-2011, but only average compared to those observed over the last 30 years. Stock distribution trends showed an increase in the proportion of the stock in Biological Region 3 and a decrease in Biological Region 2, although both values are within the range of those observed in recent years.

STOCK AND MANAGEMENT

The stock assessment reports the status of the Pacific halibut (*Hippoglossus stenolepis*) resource in the IPHC Convention Area. As in recent stock assessments, the resource is modelled as a single stock extending from northern California to the Aleutian Islands and Bering Sea, including all inside waters of the Strait of Georgia and Puget Sound, but excludes known extremities in the western Bering Sea within the Russian Exclusive Economic Zone (Figure 1).

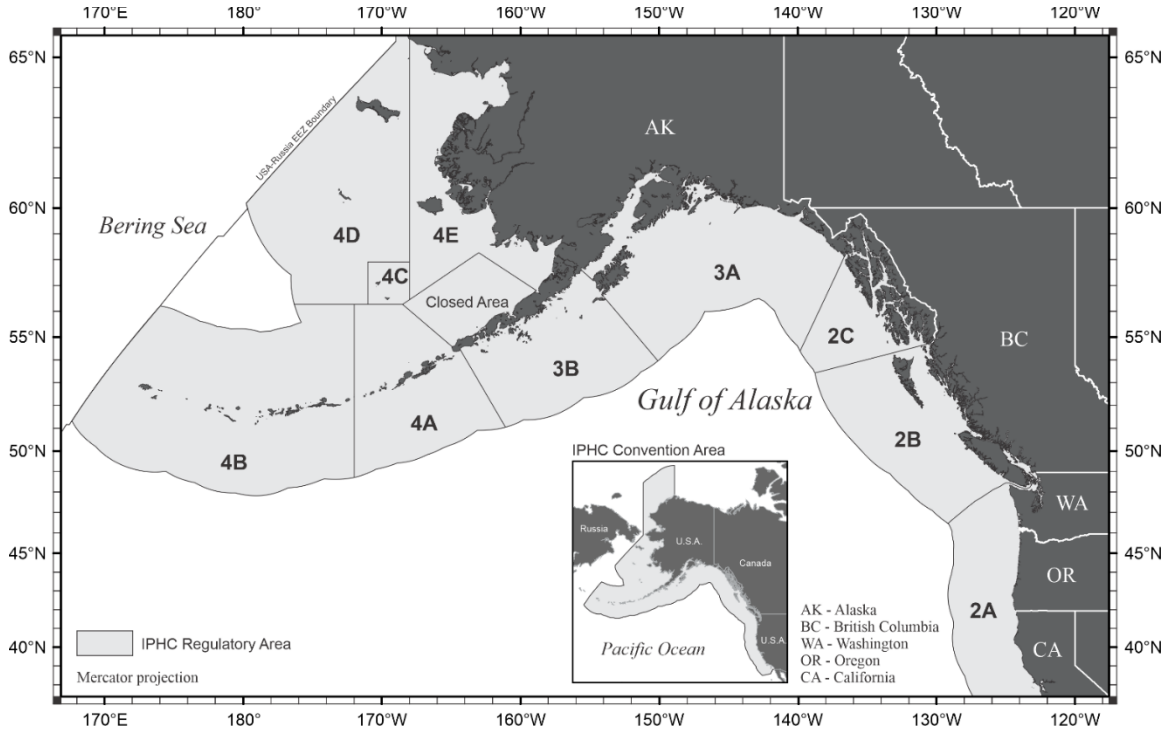

Figure 1. IPHC Convention Area (insert) and IPHC Regulatory Areas.

The Pacific halibut fishery has been managed by the IPHC since 1924. Catch limits for each of eight IPHC Regulatory Areas[1] are set each year by the Commission. The stock assessment provides a summary of recently collected data, and model estimates of stock size and trend. Short-term projections and the harvest decision table for 2026 are reported in a separate document (IPHC-2025-IM101-12 Rev_1).

[1] The IPHC recognizes sub-Areas 4C, 4D, 4E and the Closed Area for use in domestic catch agreements but manages the combined Area 4CDE.

DATA

Historical mortality

Known Pacific halibut mortality consists of directed commercial fishery landings and discard mortality (including research), recreational fisheries, subsistence, and discard mortality in fisheries targeting other species ('non-directed' fisheries where Pacific halibut retention is prohibited). Over the period 1888-2025, mortality from all sources has totaled 7.4 billion pounds (~3.4 million metric tons, t). Since 1926, the fishery has ranged annually from 29 to 100 million pounds (13,000-45,000 t) with an annual average of 62 million pounds (~28,000 t; Figure 2). Annual mortality was above this average from 1985 through 2010 and has averaged 34.6 million pounds (~15,700 t) from 2021-25, with 2025 representing the lowest mortality in the 100-year period.

2025 Fishery and IPHC FISS statistics

Data for stock assessment use are compiled by IPHC Regulatory Area, and then aggregated to four Biological Regions: Region 2 (Areas 2A, 2B, and 2C), Region 3 (Areas 3A, 3B), Region 4 (4A, 4CDE) and Region 4B; and then coastwide (Figure 1). The assessment data from both fishery-dependent and fishery-independent sources, as well as auxiliary biological information, are mostly spatially complete since the late-1990s. Primary sources of information for this assessment include mortality estimates from all sources (IPHC-2025-IM101-07_Rev_1), modelled indices of abundance (IPHC-2025-IM101-09 Rev_1) based on the IPHC's FISS (in numbers and weight) and other surveys, commercial Catch-Per-Unit-Effort (in weight), and biological summaries from both sources (length-, weight-, and age-composition data).

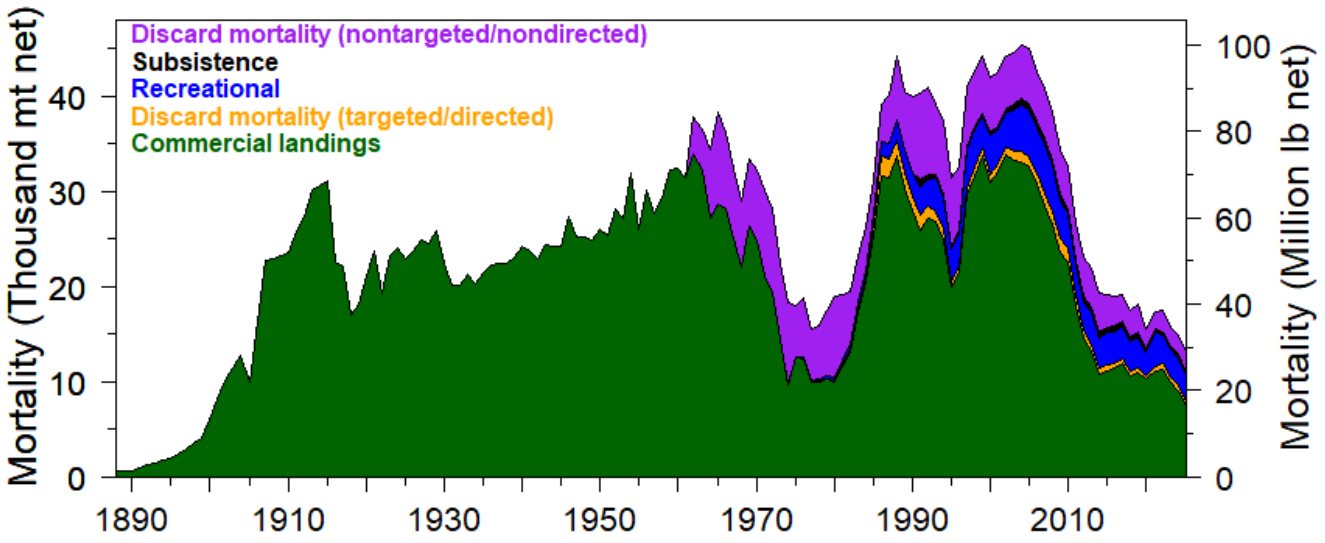

Figure 2. Summary of estimated historical mortality by source (colors), 1888-2025.

All data sources are reprocessed each year to include new information from the terminal year, as well as any additional information for or changes made to the entire time-series. For 2025 an extensive update to commercial fishery logbook records was conducted. This effort included:

- adding a revised hook-spacing relationship (Monnahan and Stewart 2018),
- improving the approach to logbooks with incomplete information on the distribution of retained catch, numbers of fish and gear deployed on each set of a trip,
- correction of errors identified in some of the historical records, and

- inclusion of previously unavailable records (particularly in IPHC Regulatory Area 2B) through 2024.

Routine updates of age-frequency observations and individual weights from the commercial fishery were also included. Directed commercial fishery sex-ratios at age from the 2024 fishery were calculated from genetic analysis of fin clip samples and made available for this assessment. Mortality estimates (including changes to the existing time-series where new estimates have become available) from all sources were extended to include 2025. Available information was finalized on 1 November 2025 in order to provide adequate time for analysis and modeling. As has been the case in all years, some data remain incomplete (commercial fishery logbook and age information) or include projections for the remainder of the year (mortality estimates for ongoing fisheries or for fisheries where final estimates are still pending).

Coastwide commercial Pacific halibut fishery landings (including research landings) in 2025 were approximately 16.7 million pounds (~7,600 t), down 16% from 2024[2]. Discard mortality in non-directed fisheries was estimated to be 4.6 million pounds in 2025 (~2,100 t)[3], up 6% from 2024 representing the highest estimate since 2019. The total recreational mortality (including estimates of discard mortality) was estimated to be 5.7 million pounds (~2,600 t) down 10% from 2024. Mortality from all sources decreased by 12% to an estimated 28.8 million pounds (~13,100 t) in 2025 based on preliminary information available for this assessment.

The 2025 modelled FISS results detailed an estimated coastwide aggregate Numbers-Per-Unit-Effort (NPUE) which decreased by 2% from 2024 to 2025, to slightly below the levels observed over the last 3 years and at a level similar to those observed in 2018-2020 (Figure 3). Biological Region 3 was unchanged from 2024, Biological Region 2 decreased by 16%, and Biological Region 4 increased by 7%. Biological Region 4B is estimated to have increased by 5%; however, only a small number of stations near the eastern boundary of this Region were sampled in 2025 and credible intervals reflect considerable uncertainty in recent years.

The modelled FISS results for the coastwide Weight-Per-Unit-Effort (WPUE) of legal (O32) Pacific halibut, the most comparable metric to observed commercial fishery catch rates, was unchanged from 2024 to 2025, remaining at the lowest levels observed since the early 1990s. Individual IPHC Regulatory Areas varied from an estimated 7% increase (Regulatory Area 3B) to an 11% decrease (Regulatory Areas 2B and 2C) in O32 WPUE (Figure 4).

[2] The mortality estimates reported in this document and used in the assessment analysis are those available on 1 November 2025; they include projections through the end of the fishing season.

[3] The IPHC receives preliminary estimates of the current year's non-directed commercial discard mortality from the NOAA-Fisheries National Marine Fisheries Service Alaska Regional Office, Northwest Fisheries Science Center, and Fisheries and Oceans Canada in late October (this year some of these estimates were provided in September). Where necessary, projections are added to approximate the total mortality from ongoing fisheries through the end of the calendar year. Further updates are anticipated in January 2026.

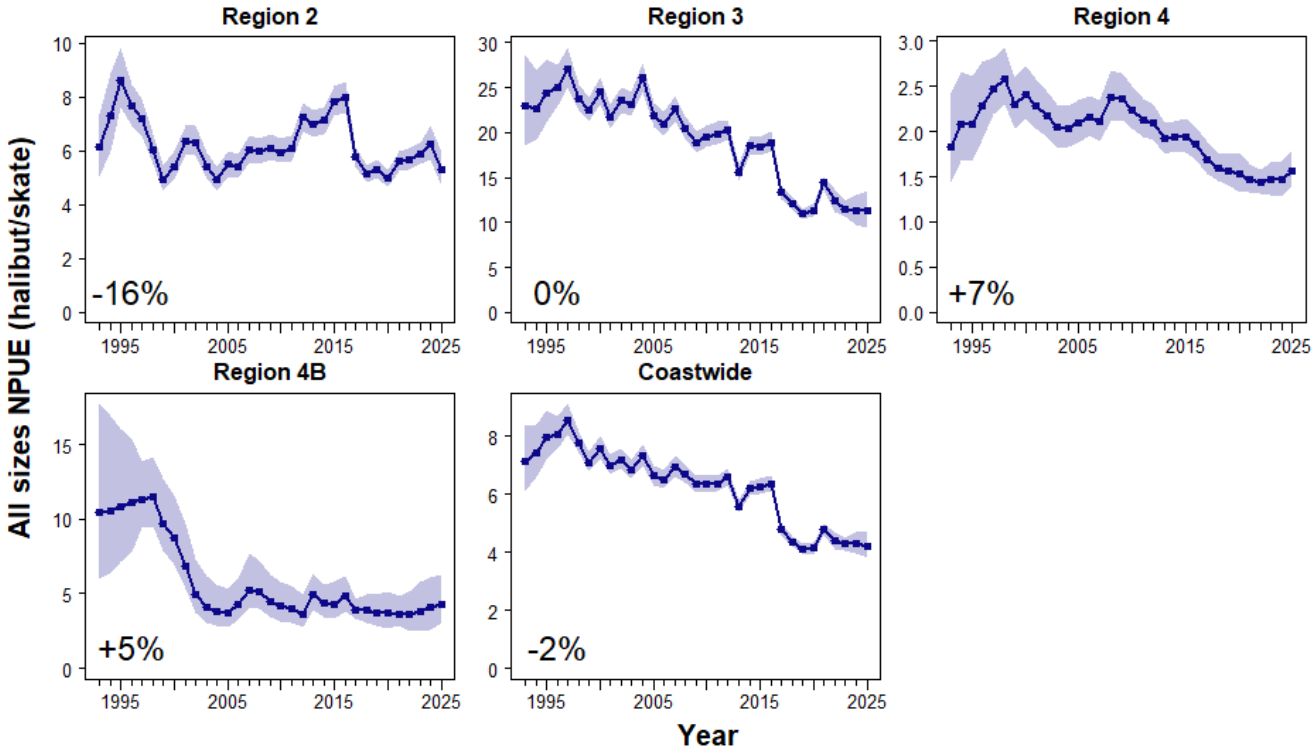

Figure 3. Trends in modelled FISS NPUE by Biological Region, 1993-2025. Percentages indicate the estimated change from 2024 to 2025. Shaded zones indicate 95% credible intervals.

Preliminary commercial fishery WPUE estimates from 2025 logbooks showed a 1% decrease from 2024 to 2025 at the coastwide level (Figure 5). Trends varied among IPHC Regulatory Areas, fisheries, and gears; however, all areas from 2A to 3B showed decreased CPUE in one or more index, with increases observed in Regions 4 and 4B. All time-series remain near the lowest commercial WPUE observed since the early 1990s. In previous years fishery WPUE has generally shown an additional decrease as additional logbooks were included (on average by around 7%); however, this was not the case in 2024.

Biological information (ages and lengths) from the commercial fishery landings showed that in 2025 the 2016 year-class (9 years old) was the largest coastwide contributor (in numbers) to the fish landed (15%). This is a shift to younger fish from the 2012 year-class (now 13 years old) that comprised the largest proportion of the 2024 landings. The 2005 year-class (now 20 years old) was the primary component in the commercial fishery until 2021 but comprised less than 3.3% of the commercial landings in 2025. The 2016 year-class has been the most numerous in the FISS catches for both 2024 and 2025. Individual size-at-age trends appear mixed through 2025 with previously observed increases for younger ages (<11) reversing in some cases but slight improvements in fish aged 12-16.

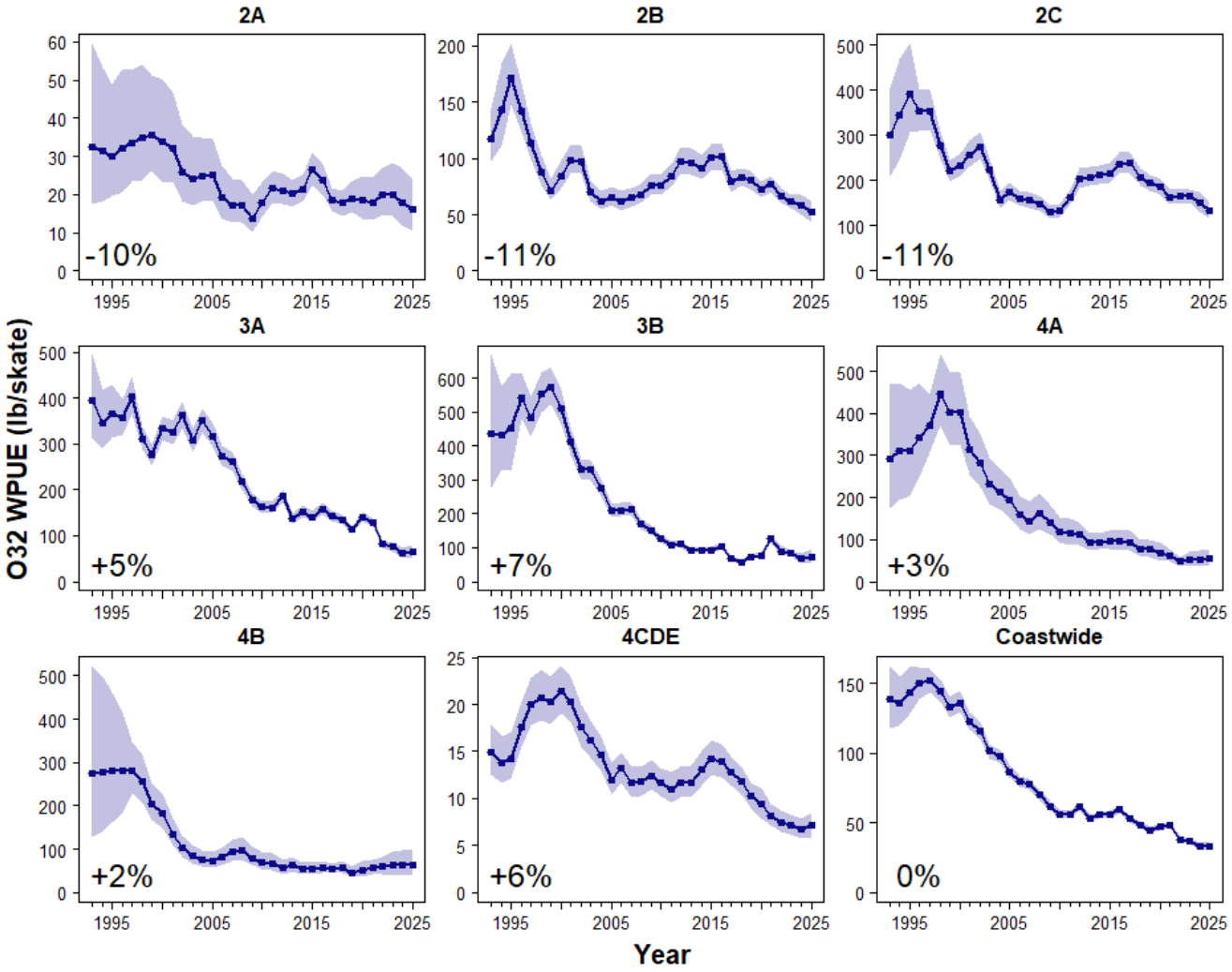

Figure 4. Trends in modelled FISS legal (O32) WPUE by IPHC Regulatory Area, 1993-2025. Percentages indicate the estimated change from 2024 to 2025. Shaded zones indicate 95% credible intervals.

Biological stock distribution

The population distribution (measured via the modelled FISS catch in weight of all Pacific halibut) showed a decrease in Biological Region 2 and increases in the other Regions in 2025 (Figure 6; recent years in Table 1). However, values for Regions 2 and 3 remain within the range observed over the last decade. Biological Region 4 increased to the highest proportion of the coastwide stock observed. For Biological Region 4B, the credible intervals for stock distribution are wide (5-10%) relative to its proportion of the stock. Survey data are insufficient to estimate stock distribution prior to 1993. It is therefore unknown how historical distributions may compare with recent observations.

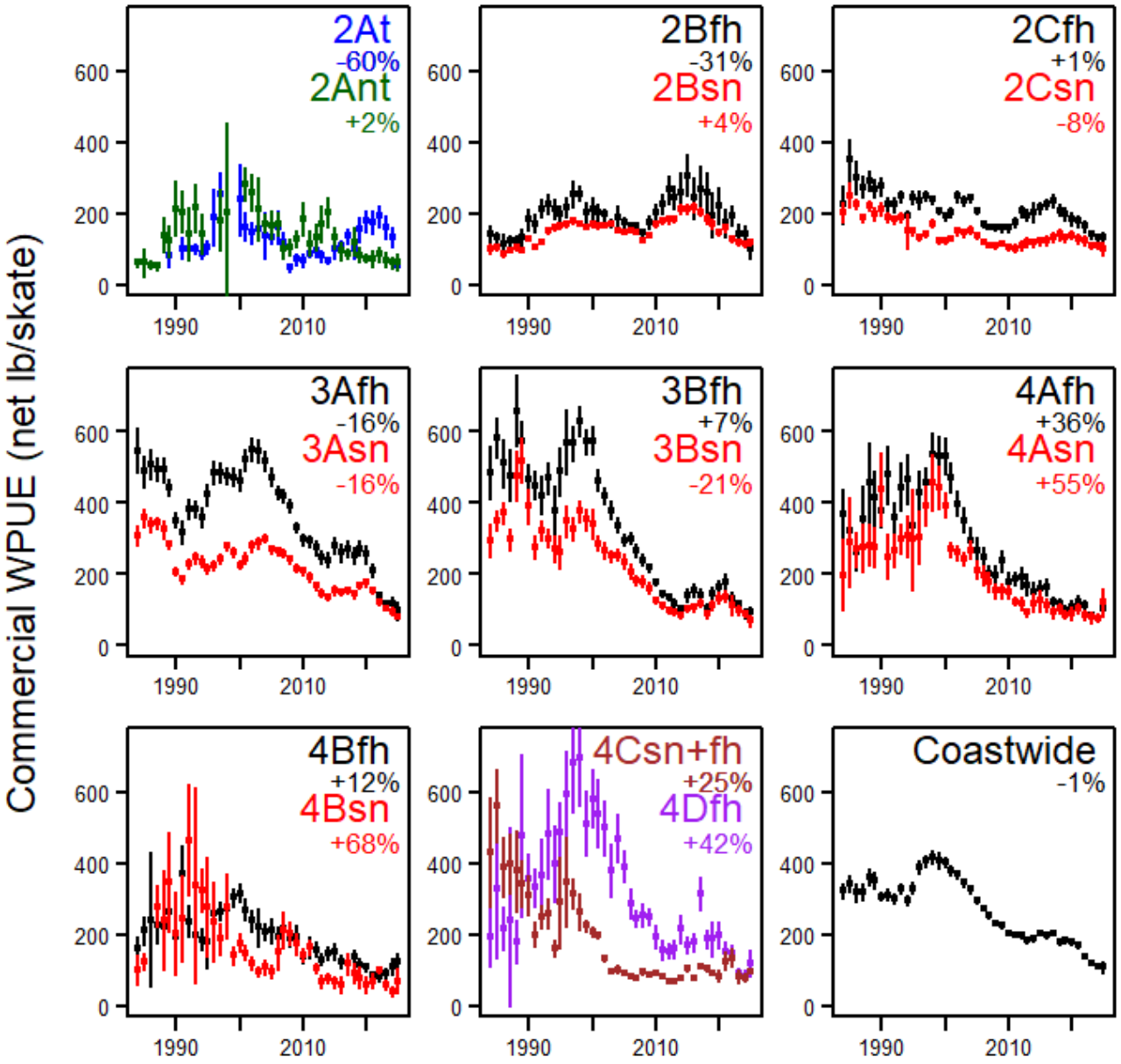

Figure 5. Trends in commercial fishery WPUE by IPHC Regulatory Area and fishery or gear, 1984-2025. The tribal fishery in 2A is denoted by "2At", non-tribal by "2Ant", fixed-hook catch rates by "fh" and snap-gear catch rates by "sn" for IPHC Regulatory Areas 2B-4D. Percentages indicate the change from 2024 to 2025 uncorrected for bias due to incomplete logbooks (see text above). Vertical lines indicate approximate 95% confidence intervals.

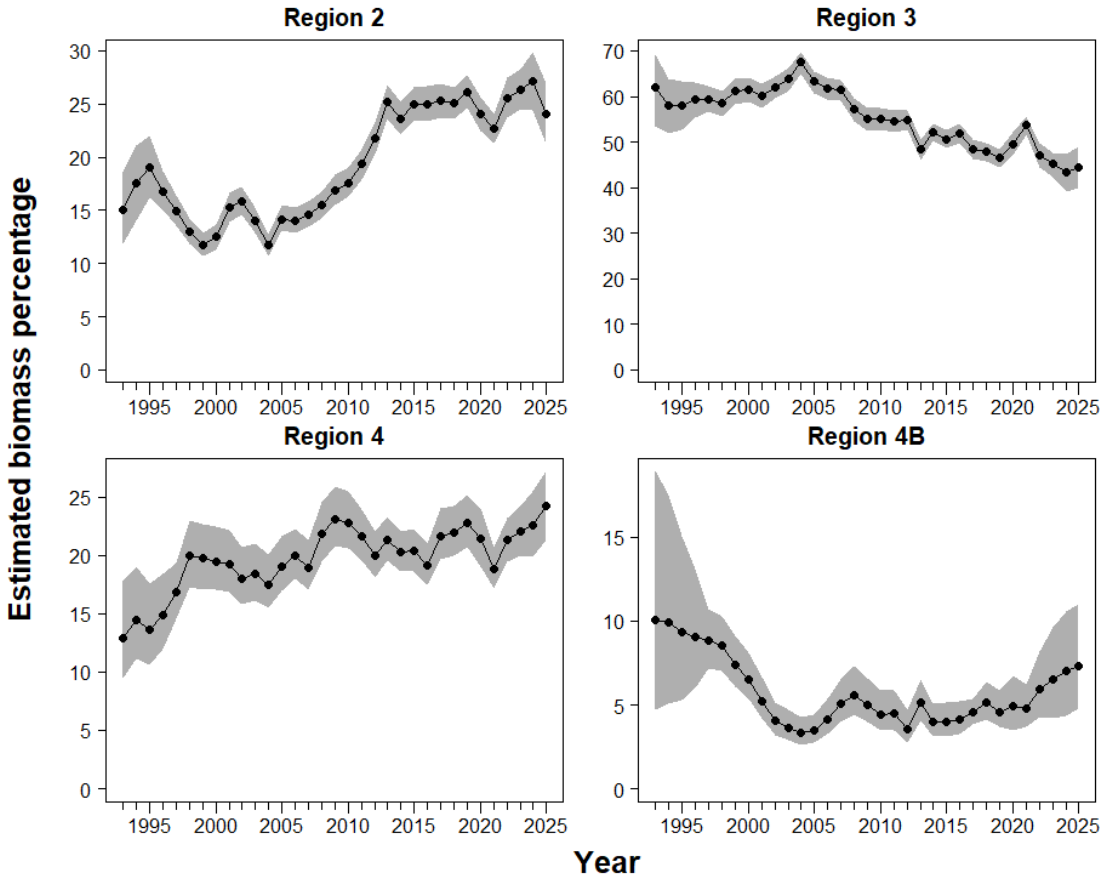

Figure 6. Estimated stock distribution (1993-2025) based on modelled survey catch weight per unit effort of all sizes of Pacific halibut. Shaded zones indicate 95% credible intervals.

Table 1. Recent stock distribution estimates by Biological Region based on modelling of all Pacific halibut captured by the FISS.

Year	Region 2 (2A, 2B, 2C)	Region 3 (3A, 3B)	Region 4 (4A, 4CDE)	Region 4B
2021	22.7%	53.7%	18.8%	4.8%
2022	25.6%	47.1%	21.3%	6.0%
2023	26.3%	45.1%	22.1%	6.5%
2024	27.1%	43.3%	22.5%	7.1%
2025	24.1%	44.4%	24.2%	7.3%

STOCK ASSESSMENT

This stock assessment continues to be implemented using the generalized Stock Synthesis software (Methot and Wetzel 2013). The analysis consists of an ensemble of four models: two long time-series models, reconstructing historical dynamics back to the beginning of the modern fisheries (1888), and two short time-series models incorporating data only from 1992 to the present, a time-period for which estimates of all sources of mortality and survey indices for all regions are available. For each time-series length, there are two models: one fitting to coastwide aggregate data, and one fitting to data disaggregated into the four Biological Regions. This combination of models includes uncertainty in the form of alternative hypotheses about several important axes of uncertainty including: natural mortality rates (estimated in three of the four

models), environmental effects on recruitment (estimated in the two long time-series models), selectivity, and other model parameters.

The results of this stock assessment are based on the approximate probability distributions derived from the ensemble of models, thereby incorporating the uncertainty within each model (parameter or estimation uncertainty) as well as the uncertainty among models (structural uncertainty). This uncertainty provides a basis for risk assessment and reduces the potential for abrupt changes in management quantities as improvements and additional data are added to individual models. The four models continue to be equally weighted. Within-model uncertainty was propagated through to the ensemble results via the maximum likelihood estimates and an asymptotic approximation to individual model variance estimates. Point estimates in this stock assessment correspond to median values from the ensemble with the simple probabilistic interpretation that there is an equal probability above or below the reported value.

This stock assessment represents a full assessment, following updates conducted in 2023 and 2024. The most recent full stock assessment was completed in 2022 (IPHC-2023-SA01). The 2025 stock assessment revisited all data sources and structural choices; preliminary results (IPHC-2025-SRB026-07, IPHC-2025-SRB027-07) were provided for review at SRB026 (IPHC-2025-SRB026-R) and SRB027 (IPHC-2025-SRB027-R).

BIOMASS, RECRUITMENT, AND FISHING INTENSITY TRENDS

The results of the 2025 stock assessment indicate that the Pacific halibut stock declined continuously from the late 1990s to around 2012 (Figure 7). That trend is estimated to have been largely a result of decreasing size-at-age, as well as lower recruitment than observed during the 1980s. The spawning biomass increased gradually to 2016 and then decreased to an estimated 153 million pounds (~69,500 t) in 2024. At the beginning of 2026 the spawning biomass is estimated to have increased slightly due to the continued maturation of the 2012 year-class and the onset of maturity of the 2016 year-class. The current spawning biomass estimate is 166 million pounds (75,300 t), with an approximate 95% credible interval ranging from 113 to 272 million pounds (~51,300-123,600 t; Figure 8). The recent spawning biomass estimates from the 2025 stock assessment are very consistent with those from the 2024 stock assessment, and below terminal assessment estimates for 2021 through 2024 (Figure 9).

The IPHC's interim management procedure uses a relative spawning biomass of 30% as a trigger, below which the reference fishing intensity is reduced. At a relative spawning biomass limit of 20%, directed fishing is halted due to the critically low biomass condition. This calculation is based on recent biological conditions currently influencing the stock and therefore measures only the effect of fishing on the spawning biomass, and not natural fluctuations due to recruitment variability and weight-at-age. The relative spawning biomass at the beginning of 2026 was estimated to be 38% (credible interval: 21-57%) slightly higher than the estimate for 2025 (36%). The probability that the stock is below the $SB_{30\%}$ level is estimated to be 28% at the beginning of 2026, with a 1% chance that the stock is below $SB_{20\%}$. The two long time-series models (coastwide and areas-as-fleets) show different results when comparing the current stock size to that estimated at the historical low in the 1970s. The AAF model estimates that recent stock sizes are well below those levels (50%), and the coastwide model above (113%). The relative differences among models reflect both the uncertainty in historical dynamics (there was very little data available from IPHC Regulatory Areas 4A-4CDE prior to the 1970s) as well as the

importance of spatial patterns in the data and population processes, for which all of the models represent only simple approximations.

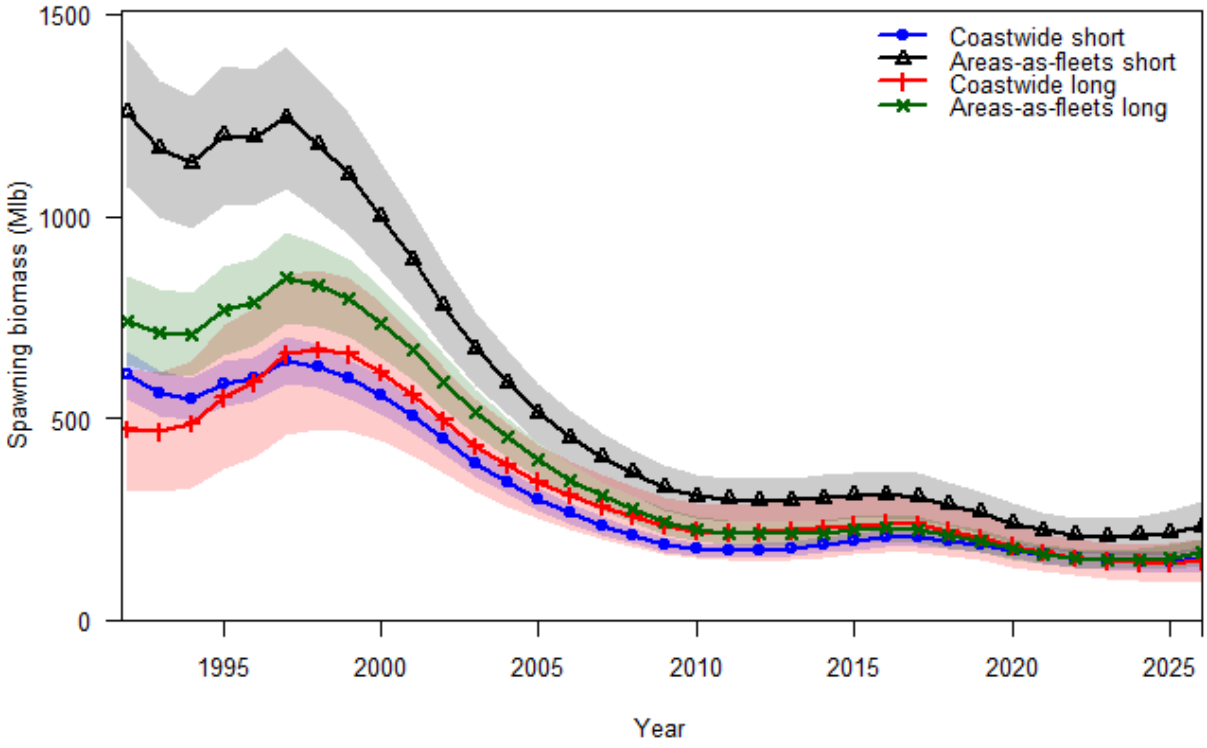

Figure 7. Estimated spawning biomass trends (1992-2026) based on the four individual models included in the 2025 stock assessment ensemble. Series indicate the maximum likelihood estimates; shaded intervals indicate approximate 95% credible intervals.

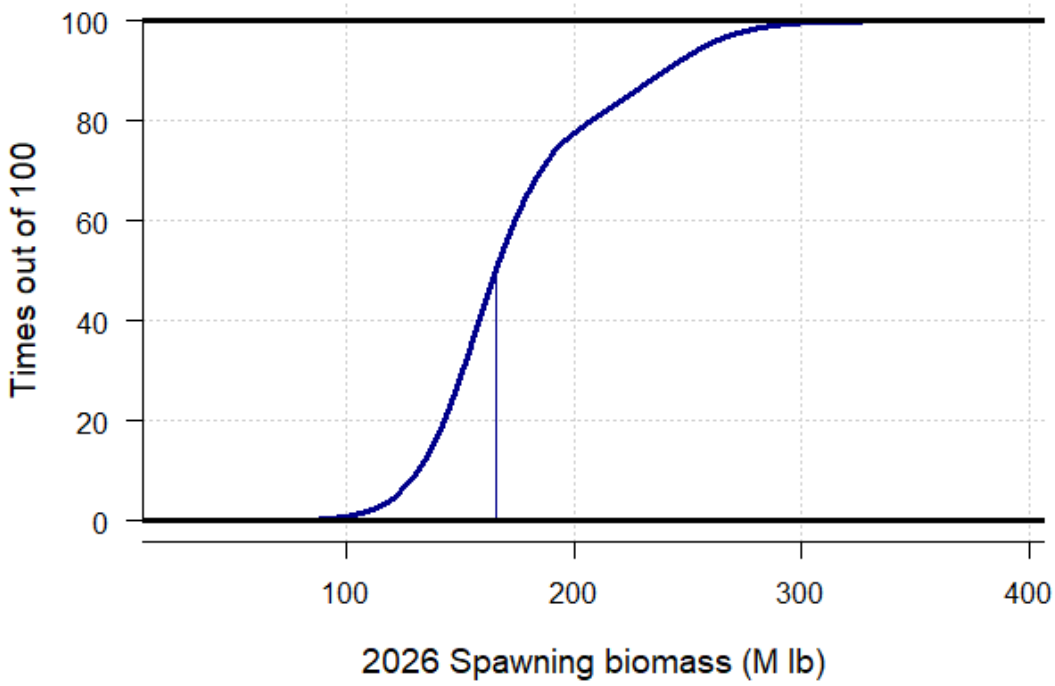

Figure 8. Cumulative distribution of the estimated spawning biomass at the beginning of 2026. Curve represents the estimated probability that the biomass is less than or equal to the value on the x-axis; vertical line represents the median (166 million pounds, ~75,300 t).

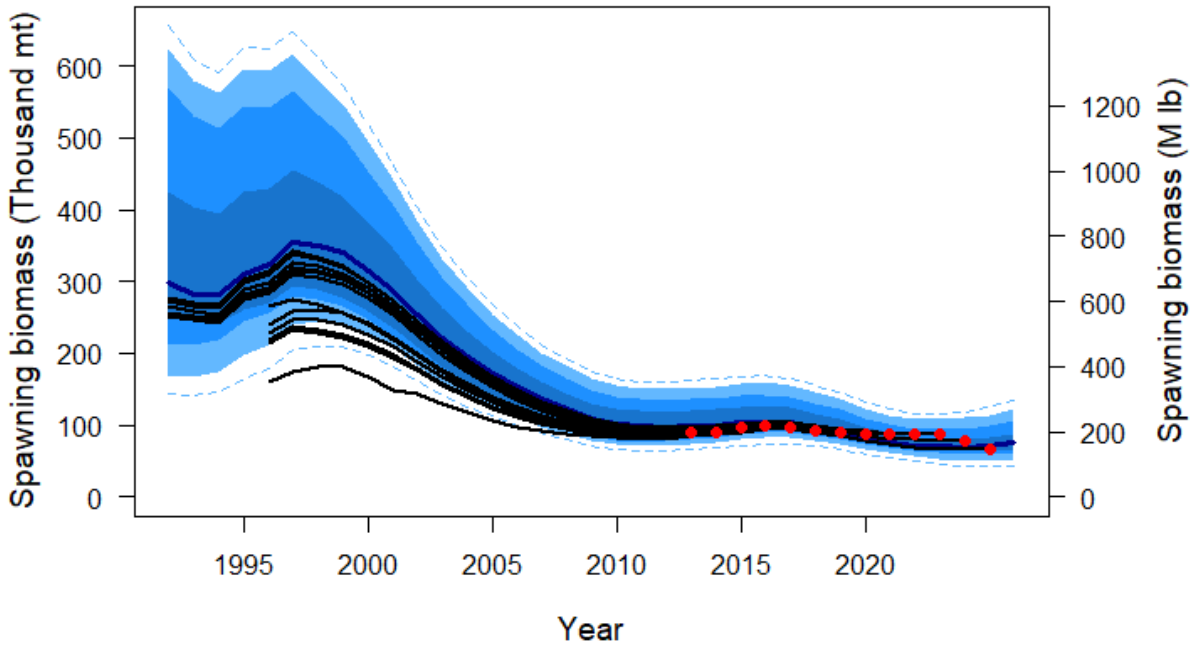

Figure 9. Retrospective comparison of female spawning biomass among recent IPHC stock assessments. Black lines indicate estimates from assessments conducted in 2012-2024 with the terminal estimate of the beginning of the year spawning biomass (2013-2025) shown as a red point. The shaded distribution denotes the 2025 ensemble including the terminal spawning biomass in 2026: the dark blue line indicates the median (or "50:50 line") with an equal probability of the estimate falling above or below that level; and colored bands moving away from the median indicate the intervals containing 50/100, 75/100, and 95/100 estimates; dashed lines indicating the 99/100 interval.

Average Pacific halibut recruitment is estimated to be higher (60 and 54% for the coastwide and AAF models respectively) during favorable Pacific Decadal Oscillation (PDO) regimes, a widely recognized indicator of ecosystem productivity in the north Pacific (primarily the Gulf of Alaska). This indicator was updated to a new PDO standardization with no loss of explanatory power for the 2025 stock assessment (IPHC-2025-SRB026-07). The updated regimes suggest a multi-decadal pattern with negative conditions from 1943 to 1976, positive conditions from 1977 through 1997 and negative conditions to the present (November 2025). Although strongly correlated with historical recruitments, it is unclear whether recent conditions are comparable to those observed in previous decades.

Pacific halibut recruitment estimates show the largest recent cohorts to have been born in 1999 and 2005 (Figure 10). Cohorts from 2006 through 2011 are estimated to be much smaller than those from 1999-2005, which has resulted in a decline in both the stock and fishery yield as these low recruitments moved through the spawning biomass. Based on age data through 2025, individual models in this assessment produced estimates of the 2012, 2016 and 2017 year-classes that were similar to the average level observed over 1994-2005. Of the fish comprising the 2016 year-class, 22% are estimated to be mature in 2025 based on the revised maturity ogive included in this year's stock assessment. The continued maturation of the 2016 and 2017 cohorts has a strong effect on short-term projections. There is little information on recruitments after 2016 in the data currently available.

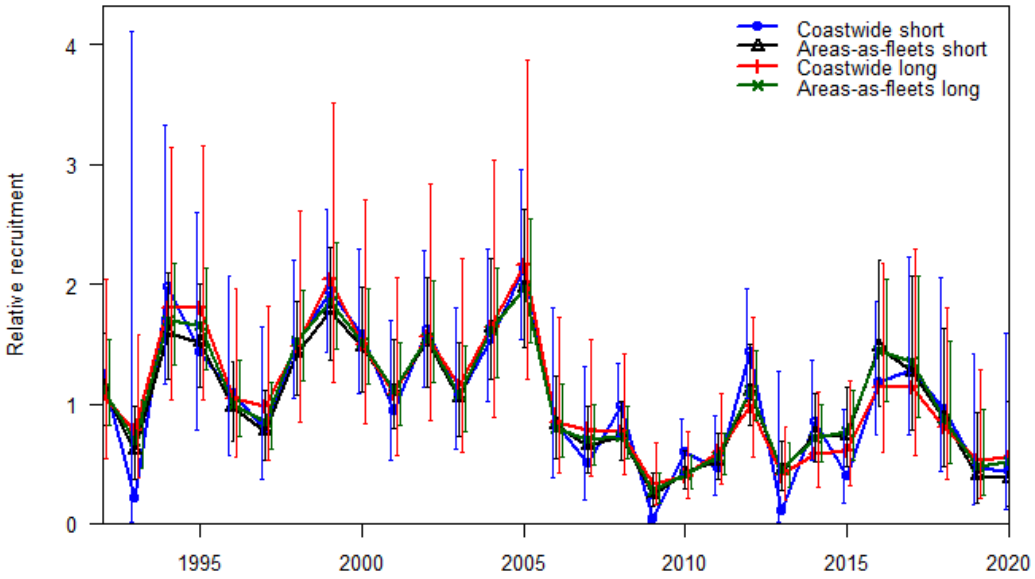

Figure 10. Estimated trends in age-0 relative recruitment (standardized to the mean for each model) from 1992-2020, based on the four individual models included in the 2025 stock assessment ensemble. Series indicate the maximum likelihood estimates; vertical lines indicate approximate 95% credible intervals.

The IPHC's interim management procedure specifies a reference level of fishing intensity of $F_{43\%}$ (SPR=43%); this equates to the level of fishing that would reduce the lifetime spawning output per recruit to 43% of the unfished level given current biology, fishery characteristics and demographics. The historical time-series of fishing intensity is estimated to have peaked in the period from 2004-2011 (Figure 11). From approximately 2014 to 2022 previous and current estimates have fluctuated around reference levels, after which the estimated fishing intensity has declined. The 2025 fishing intensity is estimated to be $F_{52\%}$ (credible interval: 38-70%; Table 2), below both the current and previous ($F_{46\%}$) reference levels and below both 2023 and 2024. Comparing the relative spawning biomass and fishing intensity over the recent historical period shows that the relative spawning biomass decreased as fishing intensity increased through 2010, then subsequently increased as fishing intensity was reduced (Figure 12).

MAJOR SOURCES OF UNCERTAINTY

This stock assessment includes uncertainty associated with estimation of model parameters, treatment of the data sources (e.g., short and long time-series), natural mortality (fixed vs. estimated), approach to spatial structure in the data, and other differences among the models included in the ensemble. Although this is an improvement over the use of a single assessment model, there are important sources of uncertainty that are not included.

The assessment utilized 8 years (2017-2024) of sex-ratio information from the directed commercial fishery landings. However, uncertainty in historical ratios remains unknown. Additional years of data are likely to further inform selectivity parameters and cumulatively reduce uncertainty in future stock size estimates. The treatment of spatial dynamics and movement rates among Biological Regions, which are represented via the coastwide and AAF approaches, has large implications for the current stock trend, as evidenced by the different results among the four models comprising the stock assessment ensemble. This assessment also does not include mortality, trends, or explicit demographic linkages in Russian waters,

although such linkages may be increasingly important as warming waters in the Bering Sea allow for potentially important exchange across the international border.

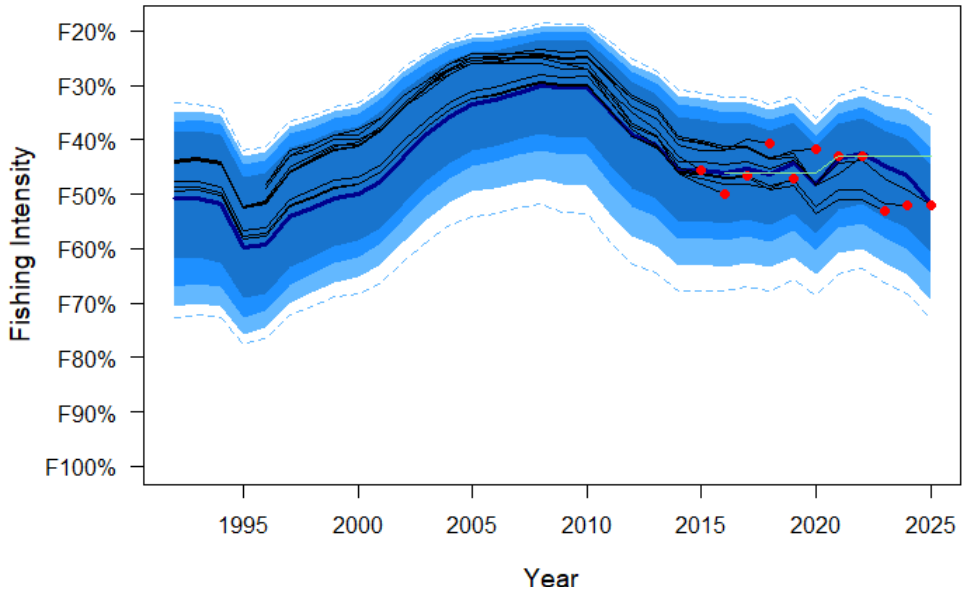

Figure 11. Retrospective comparison of fishing intensity (measured as $F_{xx\%}$, where xx% indicates the Spawning Potential Ratio (SPR) or the reduction in the lifetime reproductive output (due to fishing) among recent IPHC stock assessments. Black lines indicate estimates of fishing intensity from assessments conducted in 2014-2024 with the projection for the mortality limit adopted based on that assessment shown as a red point. The shaded distribution denotes the 2025 ensemble: the dark blue line indicates the median (or "50:50 line") with an equal probability of the estimate falling above or below that level; and colored bands moving away from the median indicate the intervals containing 50/100, 75/100, and 95/100 estimates; dashed lines indicating the 99/100 interval. The green line indicates the reference level of fishing intensity used by the Commission in each year it has been specified ($F_{46\%}$ during 2016-2020 and $F_{43\%}$ thereafter).

Additional important contributors to assessment uncertainty (and potential bias) include the lag in estimation of incoming recruitment between birth year and direct observation in the fishery and survey data (6-10 years). Like most stock assessments, there is no direct information on natural mortality, and increased uncertainty for some estimated components of the fishery mortality. Fishery mortality estimates are assumed to be accurate; therefore, uncertainty due to discard mortality estimation (observer sampling and representativeness), discard mortality rates, and any other documented mortality in either directed or non-directed fisheries (e.g., whale depredation) could create bias in this assessment. Although the maturity ogive was updated for this assessment, relative fecundity per unit body mass is currently under renewed investigation by the IPHC. The assessment uses the simple assumption that fecundity is proportional to spawning biomass and that Pacific halibut do not experience appreciable skip-spawning (physiologically mature fish which do not actually spawn due to environmental or other conditions). To the degree that maturity, fecundity or skip spawning may be temporally variable, the current approach could result in bias in the stock assessment trends and reference points. New information will continue to be incorporated as it becomes available; however, it may take years to better understand trends in these biological processes at the scale of the entire population. Projections beyond three years are avoided due to the lack of mechanistic

understanding of the factors influencing size-at-age and relative recruitment strength, the two most important factors in historical population trends along with fishing mortality.

The reduction in estimated commercial fishery catch-rates from the time the data sets for the stock assessment are closed until the data are relatively complete (sometime the following year) is a previously identified bias that produced strong effects on the 2023 and 2024 stock assessments. Concern over the potential for incomplete fishery CPUE to bias the assessment results led to the recommendation to 'down-weight' the terminal year via doubling the estimated variance in the index (IPHC-2017-SRB11-R). The precision of the fishery trend information interacts with the FISS information such that when the FISS design is sufficient to provide relatively precise trend estimates with little risk of bias (a 'base block' level; IPHC-2025-IM101-13 Rev_1) the assessment models rely more heavily on the survey. During periods when the two sources of information differ this can create an additional source of uncertainty not captured in the annual results.

Due to the many remaining uncertainties in Pacific halibut biology and population dynamics, a high degree of uncertainty in both stock scale and trend will continue to be an integral part of an annual management process. Results of the IPHC's ongoing Management Strategy Evaluation (MSE) process can inform the development of management procedures that are robust to estimation uncertainty via the stock assessment, and to a wide range of hypotheses describing population dynamics.

Table 2. Status summary of the Pacific halibut stock and fishery in the IPHC Convention Area at beginning of 2026.

Indicators	Values	Trends	Status
BIOLOGICAL			
SPR_{2025}: P(SPR<43%): P(SPR<limit):	52% (38-70%)[2] 19% LIMIT NOT SPECIFIED	FISHING INTENSITY REDUCED FROM 2024 TO 2025	**FISHING INTENSITY BELOW REFERENCE LEVEL**[3]
SB_{2026} (MLBS): SB_{2026}/SB_0: $P(SB_{2026}<SB_{30})$: $P(SB_{2026}<SB_{20})$:	166 (113–272) Mlbs 38% (21-57%) 28% 1%	SB INCREASED 7% FROM 2025 TO 2026	**NOT OVERFISHED**[4]
Biological stock distribution:	SEE TABLES AND FIGURES	REGION 3 INCREASED, REGION 2 DECREASED FROM 2024 TO 2025	**REGION 4 AT THE HIGHEST OBSERVED PROPORTION**
FISHERY CONTEXT			
Total mortality 2025: Percent retained 2025: Average mortality 2021-25:	28.80 Mlbs, 13,063 t[1] 81% 34.58 Mlbs, 15,687 t	MORTALITY DECREASED FROM 2024 TO 2025	**2025 WAS THE LOWEST MORTALITY IN 100 YEARS**

[1] Weights in this document are reported as 'net' weights, head and guts removed; this is approximately 75% of the round (wet) weight.
[2] Ranges denote approximate 95% credible intervals from the stock assessment ensemble.
[3] Status determined relative to the IPHC's interim reference Spawning Potential Ratio level of 43%.
[4] Status determined relative to the IPHC's interim management procedure biomass limit of $SB_{20\%}$.

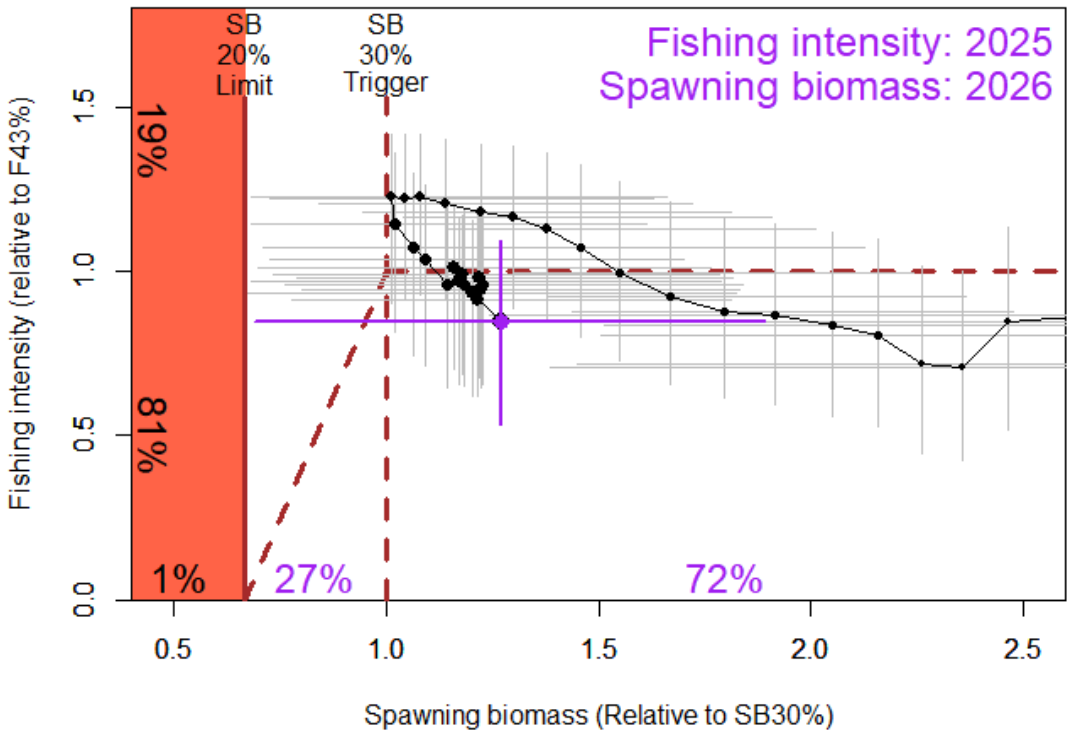

Figure 12. Phase plot showing the estimated time-series of spawning biomass (1993-2026) and fishing intensity (1992-2025) relative to the reference points specified in the IPHC's interim management procedure. Dashed lines indicate the current $F_{43\%}$ (horizontal) reference fishing intensity, with linear reduction below the $SB_{30\%}$ (vertical) trigger, the red area indicates relative spawning biomass levels below the $SB_{20\%}$ limit. Each year of the time series is denoted by a solid point (credible intervals by horizontal and vertical whiskers), with the relative fishing intensity in 2025 and spawning biomass at the beginning of 2026 shown as the largest point (purple). Percentages along the y-axis indicate the probability of being above and below $F_{43\%}$ in 2025; percentages on the x-axis the probabilities of being below $SB_{20\%}$, between $SB_{20\%}$ and $SB_{30\%}$ and above $SB_{30\%}$ at the beginning of 2026.

SUMMARY OF SCIENTIFIC ADVICE

Sources of mortality: In 2025, total Pacific halibut mortality due to fishing decreased to 28.80 million pounds (13,063 t), below the 5-year average of 34.58 million pounds (15,687 t), largely due to a 16%TCEY reduction from 2024 to 2025. Of that total mortality, 81% was retained and utilized across all fishery sectors (Table 2); this is lower than the percent utilized in 2021 to 2024 which ranged from 83% to 87%.

Fishing intensity: The 2025 fishing mortality corresponded to a point estimate of SPR = 52%; there is a 19% chance that fishing intensity exceeded the IPHC's current reference level of $F_{43\%}$ (Table 2). The Commission does not currently have a coastwide fishing intensity limit reference point, but the draft Harvest Strategy Policy includes an overfishing limit equal to the MSY-proxy of SPR=35%. There is a <1% chance that the 2025 fishing intensity exceeded $F_{35\%}$.

Stock status (spawning biomass): Current (beginning of 2026) female spawning biomass is estimated to be 166 million pounds (73,300 t), which corresponds to a 28% chance of being below the IPHC trigger reference point of $SB_{30\%}$, and a <1% chance of being below the IPHC

limit reference point of $SB_{20\%}$. The stock is estimated to have declined 34% from 2016 to 2024, then increased by 8% to the beginning of 2026. The relative spawning biomass (compared to the biomass projected to be present at the beginning of 2025 in the absence of any fishing) is currently estimated to be 38%, after reaching the lowest point in the recent time series (30%) in 2011. Therefore, the stock is considered to be '**not overfished**'.

Stock distribution: After increases in 2020-2021, the proportion of the coastwide stock represented by Biological Region 3 has increased in 2025 but remains near the lowest observed in the time-series, (Figure 6, Table 1). This trend occurs in tandem with a decrease in Biological Region 2. The proportion of the stock in both Biological Regions 4 and 4B has been increasing; however, little FISS sampling in Biological Region 4B in 2023-25 has resulted in increased uncertainty in both the trend and scale of the stock distribution in this Region.

Additional risks not included in this analysis: Directed commercial fishery catch rates coastwide, and in nearly all IPHC Regulatory Areas were at or near the lowest observed in the last 40 years. The absolute level of spawning biomass is also estimated to be near the lowest observed since the 1970s. The directed commercial fishery transitioned from the 2005 year-class to the 2012 year-class in 2022, and to the 2016 year-class in 2025. This shift from older to younger (and smaller fish) has contributed to observed reduced catch rates. The current spawning stock is heavily reliant on the 2012, 2016 and 2017 year-classes. Environmental conditions continue to be unpredictable, with important deviations from historical patterns in both oceanographic and biological processes observed across the stock range in the last decade.

RESEARCH PRIORITIES

Research priorities for the stock assessment and related analyses have been consolidated with those for the IPHC's MSE and the Biological Research program and are included in the IPHC's draft 5-year research plan.

OUTLOOK

Short-term projections and the harvest decision table for 2026-2028 are reported in a separate document (IPHC-2025-IM101-12 Rev_1).

ADDITIONAL INFORMATION

A more detailed description of the stock assessment (IPHC-2026-SA-01) and the data sources (IPHC-2026-SA-02), will be published directly to the stock assessment page on the IPHC's website. That page also includes all peer review documents and previous stock assessment documents. Further, the IPHC's website contains many interactive tools for both FISS and commercial fishery information, as well as historical data series providing detailed tables of data and other information.

RECOMMENDATION/S

That the Commission:

a) **NOTE** paper IPHC-2025-IM101-10 Rev_1 which provides a summary of the data and the results of the 2025 stock assessment.

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