



2026-28 FISS designs

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PURPOSE

To provide the Research Advisory Board with design options under consideration by the Commission for the 2026 Fishery-Independent Setline Survey (FISS) together with potential designs for 2027-28.

BACKGROUND

The IPHC's Fishery-Independent Setline Survey (FISS) provides data used to compute indices of Pacific halibut density for use in monitoring stock trends, estimating stock distribution, and as an important input in the stock assessment. Stock distribution estimates are based on the annual mean weight per unit effort (WPUE) for each IPHC Regulatory Area, computed as the average of WPUE of all Pacific halibut and for O32 (greater than or equal to 32" or 81.3cm in length) Pacific halibut estimated at each station in an area. Mean numbers per unit effort (NPUE) is used to index the trend in Pacific halibut density for use in the stock assessment models. Annual FISS designs are developed by selecting a subset of stations for sampling from the full 1890-station FISS footprint ([Figure 1](#)).

In recent years, the FISS has been implemented using reduced designs due to increasing costs and reduced catches of Pacific halibut, resulting in some stations, particularly in western areas, not having been sampled for five or more years ([Figure 2](#)). Such sampling gaps result in reduced precision and increased potential for bias in estimates of density indices and stock distribution.

At the Commission Work Meeting (September 2025), Commissioners were presented with:

- The Base Block design for 2026-28, a design based on rotating blocks of stations that provides full coverage of core IPHC Regulatory Areas (2B, 2C, 3A and 3B) over a two to three-year period, and prioritizes sampling elsewhere based on maintaining precise estimates with low bias
- A Reduced Loss design for 2026, which samples FISS charter regions that together maintain a projected financial loss of close to US\$0.5 million
- A series of 2026 designs intermediate to the Base Block and Reduced Loss design, giving Commissioners the ability to assess the costs and benefits of modular changes to either design

Prior to the 2025 Work Meeting, it was confirmed that The Commission has secured a voluntary contribution of US\$513,000 from the United States government to subsidize the FISS:

- \$265,000 to fund the IPHC Regulatory Area 4B survey
- \$163,000 to fund one charter region in IPHC Regulatory Area 3B
- \$85,000 to partially fund the survey in IPHC Regulatory Area 4A

This contribution, together with revised cost projections for 2026, allowed Secretariate staff to expand the Reduced Loss design to create the Supplemented Reduced Loss design. This design will be presented to the Commission for review at the upcoming Interim Meeting (IM101, December 2 2025).

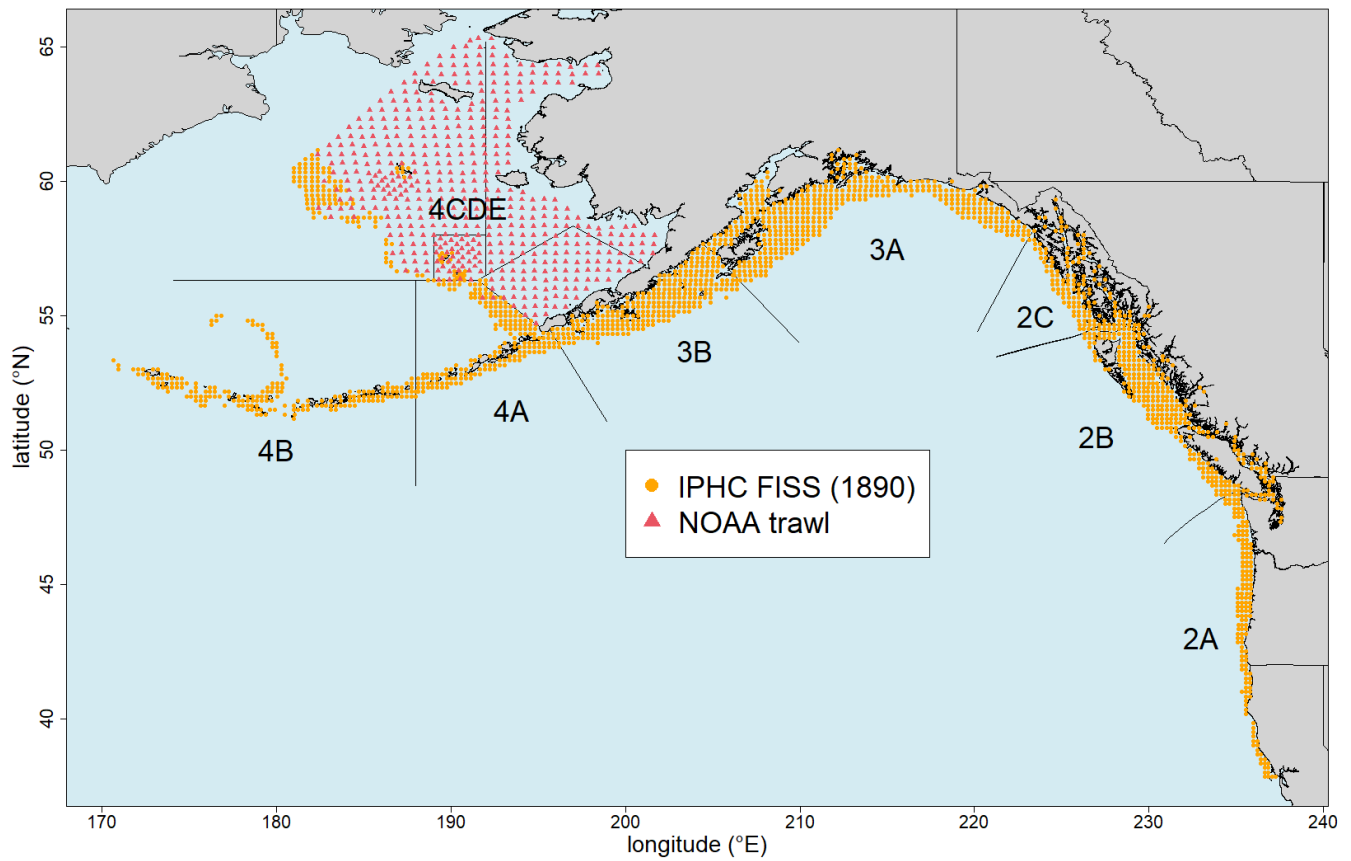


Figure 1. Map of the full 1890 station FISS design, with orange circles representing stations available for inclusion in annual sampling designs. Red triangles represent the locations NOAA trawl stations used to provide complementary data for Bering Sea modelling (not all are sampled each year).

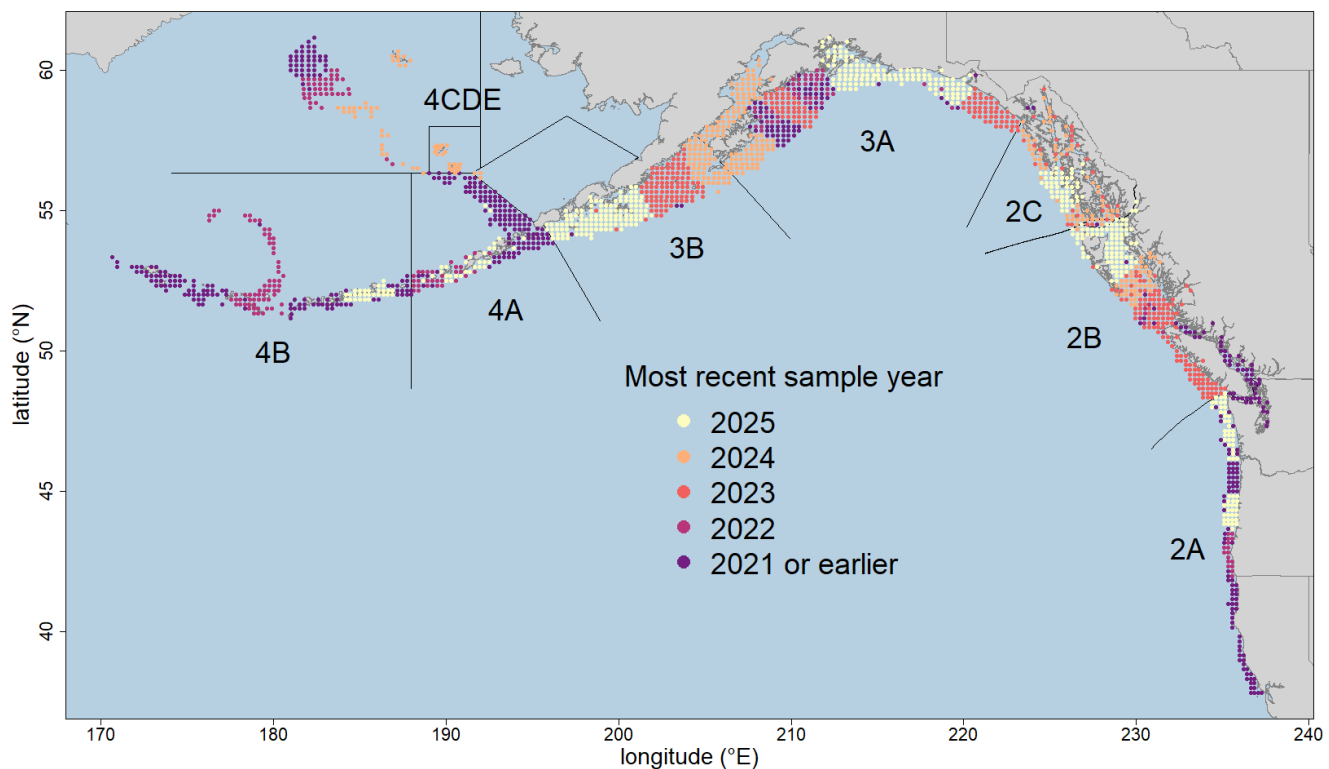


Figure 2. Map showing the most recent sample year of each station on the FISS grid.

FISS DESIGN OBJECTIVES ([TABLE 1](#))

Primary objective: *To sample Pacific halibut for stock assessment and stock distribution estimation.*

The primary purpose of the annual FISS is to sample Pacific halibut to provide data for the stock assessment (abundance indices, biological data) and estimates of stock distribution for use in management. The priority of the current rationalized FISS is therefore to maintain or enhance data quality (precision and bias) by establishing baseline sampling requirements in terms of station count, station distribution and skates per station.

Secondary objective: *Cost effectiveness.*

The FISS is intended to be cost-effective without compromising the scientific integrity of the design. Any implemented design must consider logistics and cost together with scientific integrity.

Tertiary objective: *Minimize removals and assist others where feasible on a cost-recovery basis.*

Consideration is also given to the total expected FISS removals (impact on the stock), data collection assistance for other agencies, and emerging IPHC informational needs.

Table 1 Prioritized FISS objectives and corresponding design layers.

Priority	Objective	Design Layer
Primary	Sample Pacific halibut for stock assessment and stock distribution estimation	Minimum sampling requirements in terms of: • Station distribution • Station count • Skates per station
Secondary	Cost effectiveness without compromising the scientific integrity of the FISS design.	Balance operational feasibility/logistics, cost/revenue, and scientific needs. Includes an aspirational target reserve of US\$2,000,000
Tertiary	Minimize removals, assist others where feasible on a cost-recovery basis, address specific Commission informational needs.	Removals: minimize impact on the stock while meeting primary priority Assist: assist others to collect data on a cost-recovery basis IPHC policies: ad-hoc decisions of the Commission regarding the FISS design

POTENTIAL DESIGNS FOR 2026-28

BASE BLOCK DESIGN

At AM101, Secretariat staff presented the Base Block design for 2025 and subsequent years based a rotational block design ([IPHC-2025-AM101-14](#)). This design implements sampling of complete FISS charter regions (subsets of stations generally sampled by a single vessel via multiple trips) in each area rather than randomly selected stations as was previously done in the core of the stock. Sampled charter regions are rotated over two or three years depending on area. Block designs are potentially more efficient from an operational perspective than a randomized design, as they involve less running time between stations, possibly leading to cost reductions on a per station basis.

The Base Block designs shown in [Figures 3 to 5](#) for 2026-28 were revised from the designs presented to Commissioners at AM101 to account for the Commission-approved 2025 design. In particular, charter regions not selected in IPHC Regulatory Areas 3A and 3B in 2025 were prioritized for sampling in 2026.

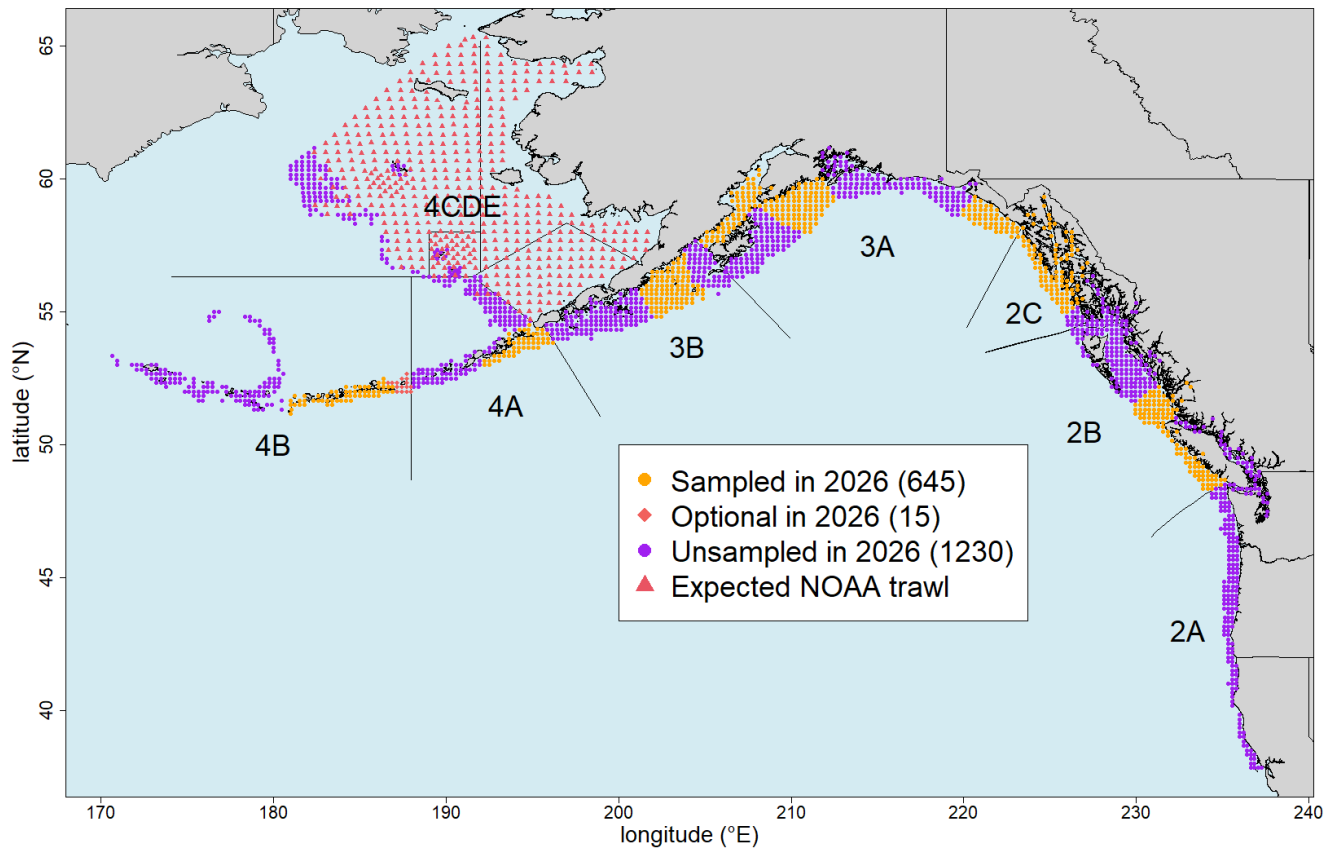


Figure 3. Base Block design for 2026 (orange circles). Design is based on fishing 2-4 complete blocks of stations (charter regions) in the core areas (2B, 2C, 3A and 3B) and previously implemented subareas elsewhere. Fifteen stations in IPHC Area 4B have proved challenging to fish successfully in recent years and are considered optional for 2026 to help attract charter bids.

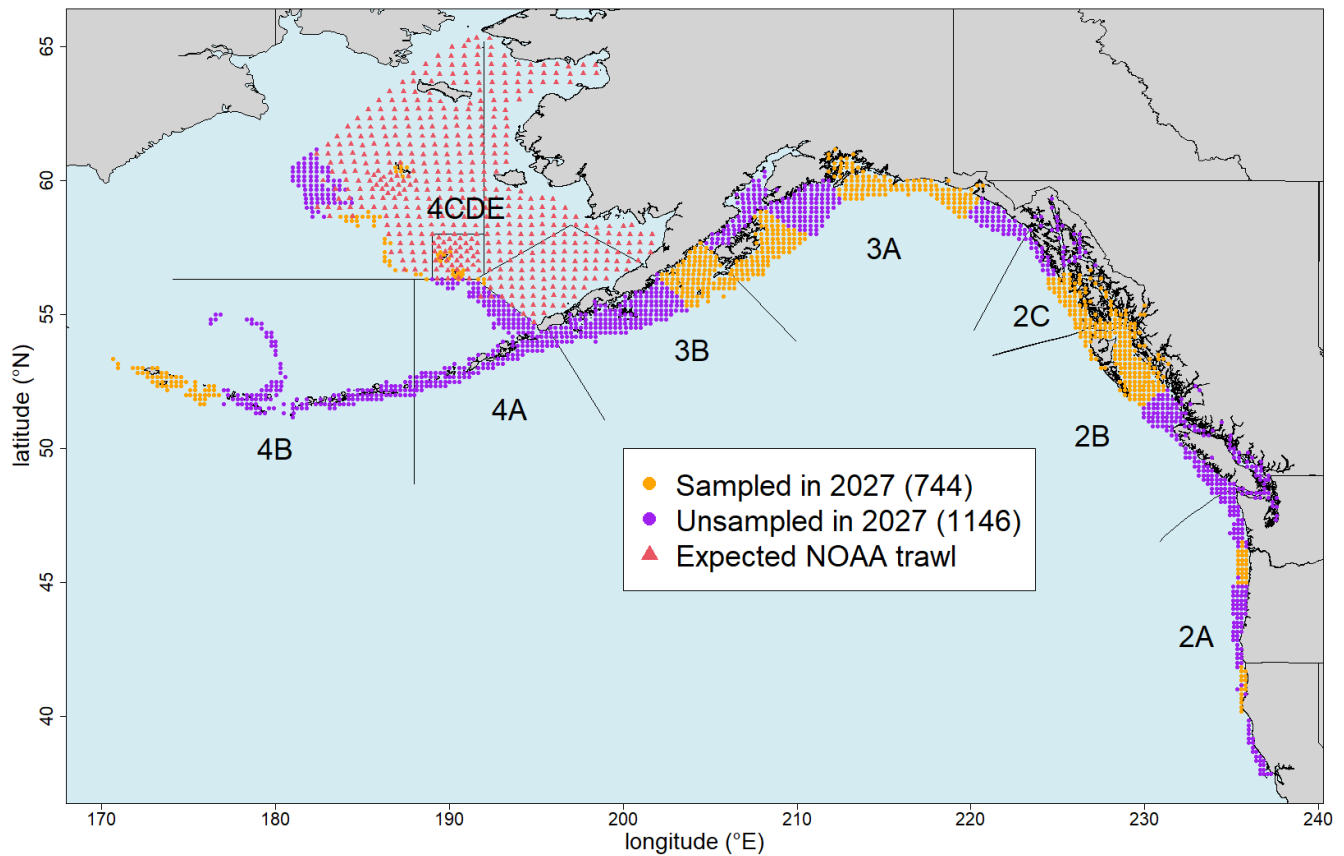


Figure 4. Base Block design for 2027 (orange circles) – indicative only. Design is based on fishing 2-4 complete blocks of stations (charter regions) in the core areas (2B, 2C, 3A and 3B) and previously implemented subareas elsewhere.

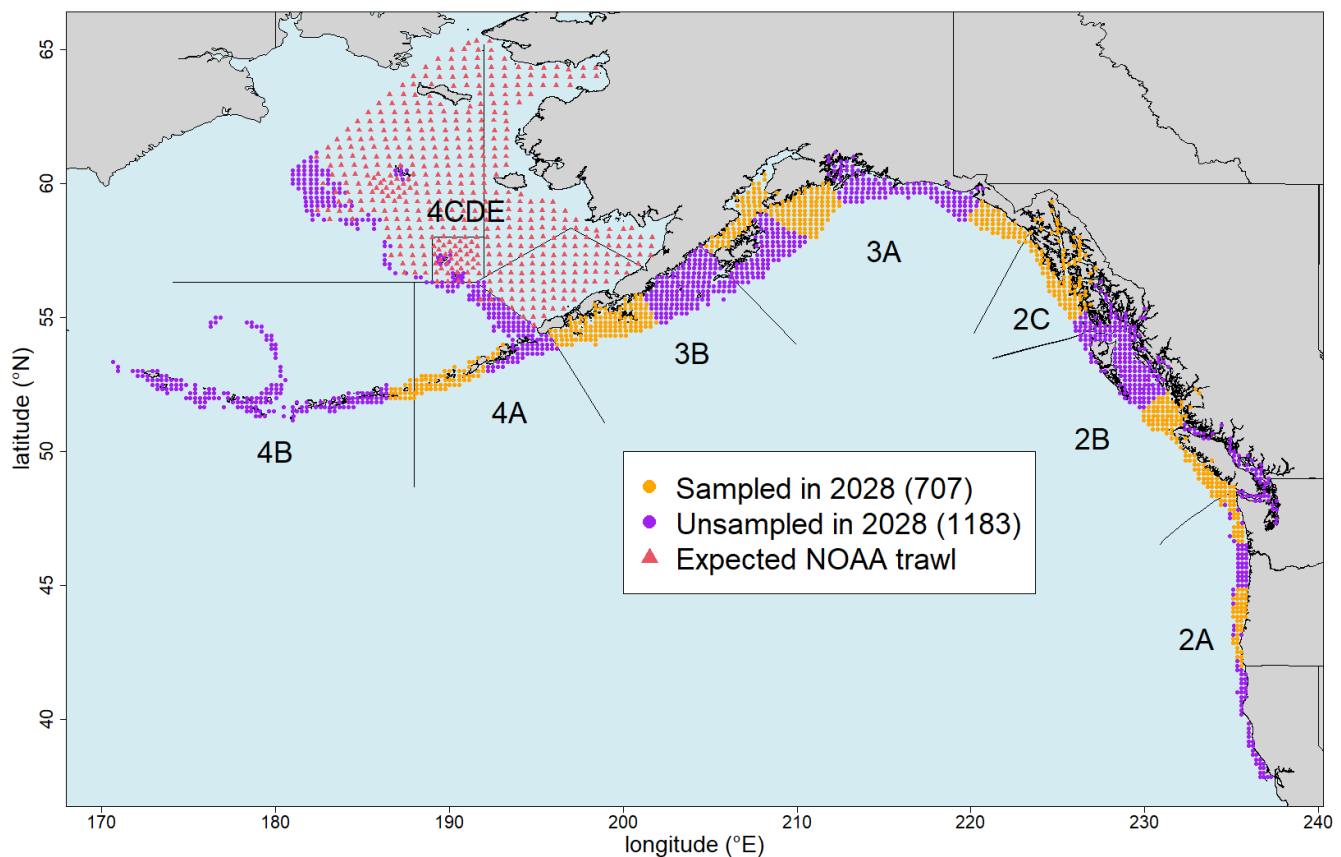


Figure 5. Base Block design for 2028 (orange circles) – indicative only. Design is based on fishing 2-4 complete blocks of stations (charter regions) in the core areas (2B, 2C, 3A and 3B) and previously implemented subareas elsewhere.

SUPPLEMENTED REDUCED LOSS DESIGN

The Base Block design is projected to result in a substantial operating loss (see below) and would require supplementary funding to be viable. As an alternative, the Secretariat staff developed a preliminary design that would result in a net operating loss of approximately \$500,000 ([IPHC-2025-SRB027-09](#)). The voluntary contribution of US\$513,000 from the United States, together with a revision of cost projections, allowed this design to be expanded to include additional charter regions in IPHC Regulatory Areas 2B, 2C, 3A and 3B, resulting in the Supplemented Reduced Loss design (SRL, [Figure 6](#)).

COST PROJECTIONS

Projected costs of the 2026 Base Block and SRL designs were based on the following:

- Designs are optimized for numbers of skates, with 4, 6 or 8 skate-sets used, depending on projected catch rates and bait costs.
- Pacific halibut price will decline by 10% from 2025 values
- Pacific halibut landings will decline by 5% from 2025 values

- The price of chum salmon bait increases to US\$2.50 per pound from \$1.65 per pound in 2025.

Given these values, it is projected that implementation of the **Base Block design** will result in a net operating loss of **US\$1.155 million**, while the **Supplemented Reduced Loss design** will lose **US\$502,000**.

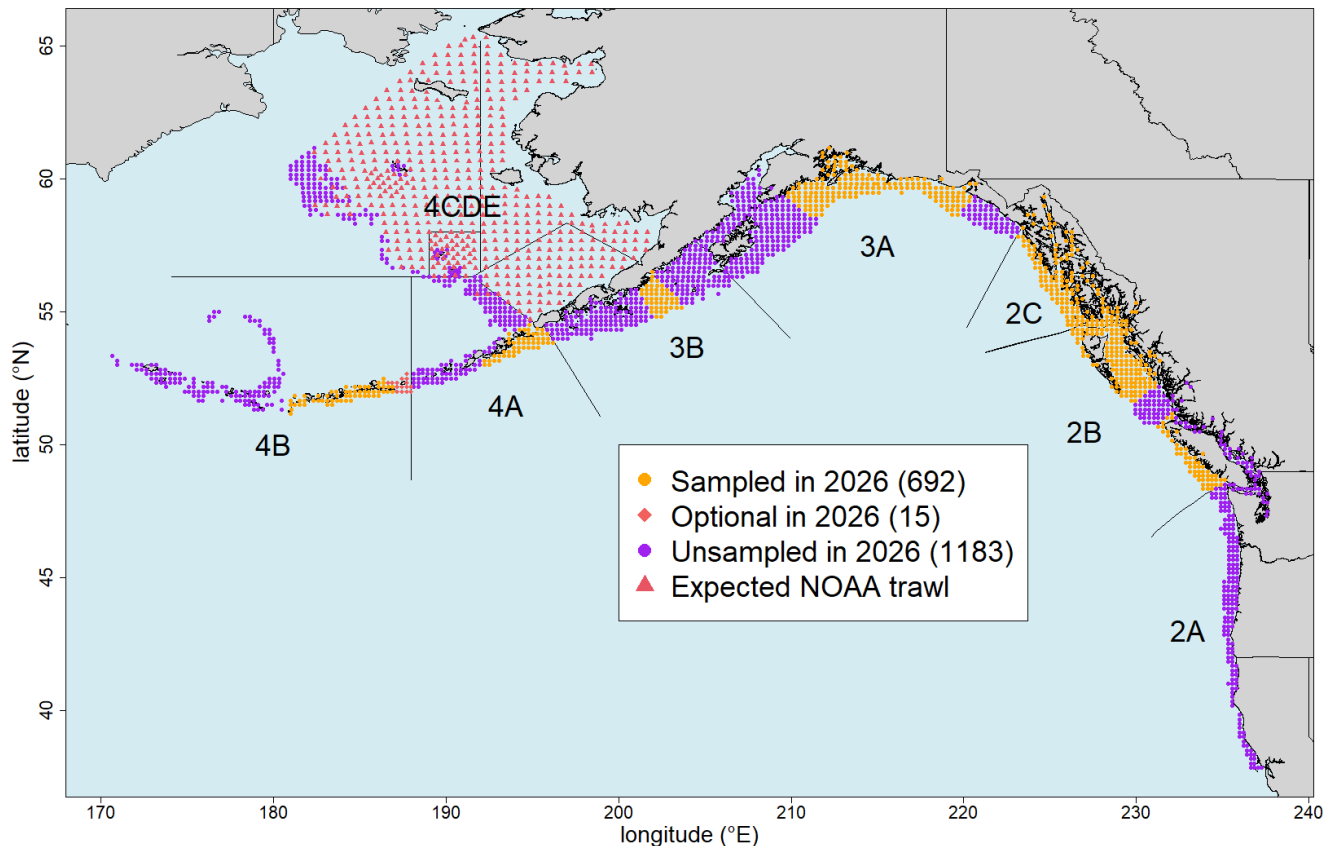


Figure 6. Supplemented Reduced Loss design for 2026 that includes the most cost-effective charter regions in Biological Region 3, projected revenue-positive charter regions in Biological Region 2, and stations in IPHC Regulatory Areas 2A, 4A and 4B covered by supplementary funding. Fifteen stations in IPHC Area 4B have proved challenging to fish successfully in recent years and are considered optional for 2026 to help attract charter bids.

DISCUSSION

If adopted, the SRL design would include FISS sampling in all IPhC Biological Regions, and some sampling in all IPhC Regulatory Areas except 4CDE (expected to be sampled by NOAA trawl) and 2A. The SRL design differs from the Base Block design as follows:

- Replaces one revenue-negative charter region in IPhC Regulatory Area 2B with two regions projected to be revenue-positive
- Adds one revenue-positive region to IPhC Regulatory Area 2C
- Replaces three high-cost regions in IPhC Regulatory Area 3A with two regions that ensure projected overall losses are maintained close to US\$0.5 million
- Has one fewer charter region in IPhC Regulatory Area 3B

While the reduced spatial coverage in IPhC Biological Region 3 relative to the Base Block design increases the chance of bias in estimates for that region, the SRL represents a substantial improvement in coverage over the implemented 2025 design. The overall design includes a similar number of stations to the Base Block design and complements the 2025 design by including seven charter regions not fished this year (two each in 2B and 2C, one each in 3A and 3B, and one in 4A). Compared with 2024 and 2025, this will result in more representative biological data, more precise indices of abundance and stock distribution, and an assessment model that is less reliant on commercial data.

We note that water column profiler information from the FISS in IPhC Regulatory Area 2A shows evidence for hypoxia in some parts of that area. However, initial analysis shows dissolved oxygen levels in most of the sampled habitat to be high enough to support Pacific halibut.

RECOMMENDATION

That the Research Advisory Board **NOTE** paper IPhC-2025-RAB026-08, that provides potential FISS designs for 2026-2028.

REFERENCES

- IPHC 2025. Report of the 101st Session of the IPhC Annual Meeting (AM101) IPhC-2025-AM101-R. 52 p.
- Webster, R. A., Stewart, I., Ualesi, K., Jack, T. and Wilson, D. 2025. 2026-28 FISS design evaluation and modelling updates. IPhC-2025-SRB027-09. p 31.