2025 and 2026-29 FISS designs

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PURPOSE

To provide the Commission with the information requested, including the optional long-term FISS design, 2025 interim design options, potential external funding sources, as well as an examination of potential biases that may result from non-optimal designs. In addition, for the Commission to agree to a FISS design for 2025, and tentatively for 2026-28.

BACKGROUND

At the Work Meeting in September 2024, the Commission provided the following directive to the IPHC Secretariat regarding the IPHC's Fishery-Independent Setline Survey (FISS):

> *"**NOTING** the three (3) Fishery-Independent Setline Survey (FISS) block design options described in paper IPHC-2024-WM2024-10 (base, core and reduced core), and modular add-on options, the Commission **DIRECTED** the Secretariat to provide a new paper for the FISS design that contains the following elements (by 30 September 2024):*
>
> *a. A section that depicts the optimal five-year rotational FISS design and its associated costs and revenue;*
>
> *b. A section that proposes a fiscally viable FISS design option for 2025, that contains both likely funding options (Fish sales, IPHC Reserve, Contracting Party supplementary funding), as well as potential ad-hoc supplementary funding, and associated modular add-ons (prioritized), while highlighting potential bias that would result from each;*
>
> *c. Potential other sources of funding to complement existing/known funding options, that will be further explored;*
>
> *d. An explanation of the potential bias that may result from the designs described above."*

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 81.3 cm 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).

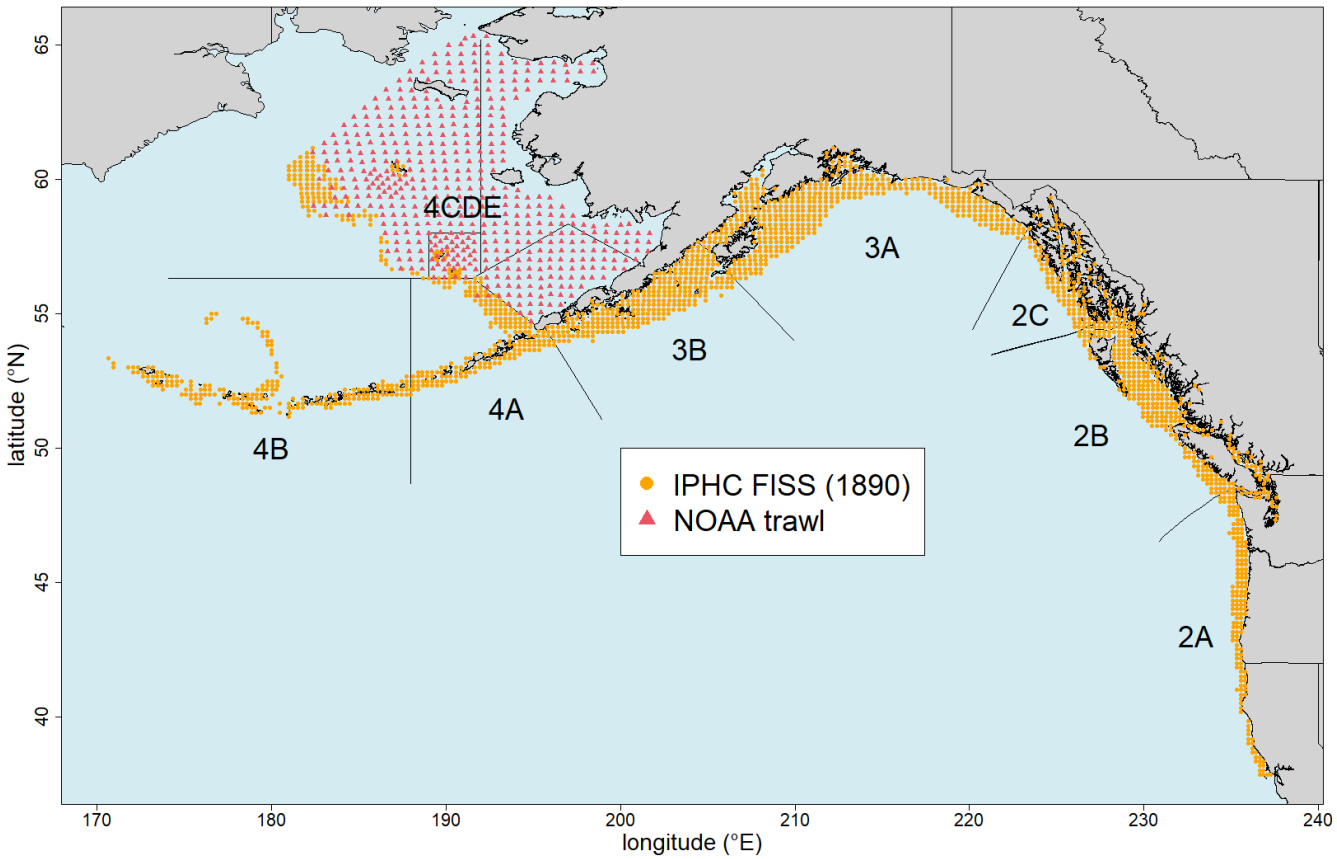

Figure 1. Map of the full 1890 station FISS design, with orange circles representing stations available for inclusion in annual sampling designs. Red triangles represent the locations NOAA trawl stations used to provide complementary data for Bering Sea modelling (not all are sampled each year).

At the Work Meeting (2024), the Commission was presented with three sets of FISS designs for 2025-29 based on rotating blocks of stations (the Base Block and Core Block designs) and on a reduced design based on the implemented 2024 FISS design (the Reduced Core design). These sets of designs are intended to represent FISS coverage achievable under different levels of available supplementary funding. This paper provides a more focused set of alternative design options for 2025: a fiscally viable design that includes sampling in all IPHC Biological for lowest projected cost; modular options that better address scientific needs but at greater cost; and the Base Block design.

FISS DESIGN OBJECTIVES (Table 1) – current Commission decision

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 the IPHC's management procedure. The priority of the current rationalised 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: *Long-term revenue neutrality.*

The FISS is intended to have long-term revenue neutrality, and therefore any implemented design must consider both logistical and cost considerations.

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 IPHC policies.

Table 1 Prioritization of 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	Long term revenue neutrality	Logistics and cost: operational feasibility and cost/revenue neutrality
Tertiary	Minimize removals and assist others where feasible on a cost-recovery basis.	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

PART A: THE OPTIMAL FIVE-YEAR ROTATIONAL FISS DESIGN (AND ITS ASSOCIATED COSTS AND REVENUE)

Base Block design

The **Base Block design** when undertaken on an annual basis ensures that all charter regions in the core areas are sampled over a three-year period, while prioritizing coverage in other areas based on minimising the potential for bias and maintaining CVs below 25% for each IPHC Regulatory Area. The **Base Block design** also includes some sampling in all IPHC Biological Regions in each year, ensuring that both trend and biological data from across the spatial range of Pacific halibut in Convention waters are available to the stock assessment and for stock distribution estimation. From the perspective of meeting the Primary Objective of the FISS (Table 1), the **Base Block design** can be considered the optimal rotational design.

Using samples generated from the fitted 2023 space-time models as simulated data for 2024-27, we projected the coefficient of variation (CV, a relative measure of precision) for mean O32 WPUE for each year of the design by IPHC Regulatory Area and Biological Region. As CVs are generally greater in the terminal year of the time series and that year is the most relevant for informing management, the CV values in Table 2 are for the final year of the modelled time series. For example, the values for 2026 were found by fitting the model to the data for 1993-2026 (with simulated data used for 2024-26).

Table 2. Projected coefficients of variation (CVs, %) for mean O32 WPUE for the FISS **Base Block design**, terminal year of time series, and IPHC Regulatory Area or Biological Region.

Regulatory Area	**Base Block**		
	2025	2026	2027
2A	17	22	23
2B	8	10	7
2C	6	6	6
3A	9	7	7
3B	13	12	15
4A	19	13	20
4B	15	20	18
4CDE	8	8	8
Biological Region			
Region 2	5	6	5
Region 3	7	7	8
Region 4	8	7	9
Region 4B	15	20	18
Coastwide	4	4	4

With uncertainty in future designs, it is expected that by 2027 implemented designs will vary significantly from those in the Base Block design and the other designs (Core Block and Reduced Core) presented at WM2024. Nevertheless, to compare potential levels of uncertainty five years from now under designs with similar sampling coverage, we also projected CVs for IPHC Regulatory Areas 2A, 3B and 4B for 2029. The Base Block design would lead to CVs of 21%, 14% and 14% for 2A, 3B and 4B respectively in 2029.

Projected terminal year CVs for the Base Block design for 2025-27 are all 25% or less for all IPHC Regulatory Areas. In the core areas (2B, 2C, 3A and 3B), CVs are at 15% or less (Table 2). All Biological Region CVs except Region 4B are below 10% while the coastwide CV is projected to be 4% in all years. The Base Block design is therefore projected to maintain precise estimates of indices of Pacific halibut density and abundance across the range of the stock, and to provide a strong basis for estimating trends, demographics, and the distribution of the stock. At the same time, the rotating nature of the sampled blocks means that almost all FISS stations are sampled within a 5-year period (2-3 years within the core areas) resulting in low risk of missing important stock trends and therefore a low risk of large bias in estimates of trend and stock distribution. The consistent nature of the sampling design means that CVs will be maintained at comparable values beyond 2027.

For context, average research survey CVs[1] have been estimated to be approximately ~20%; however, this value includes both estimated observation and process error (based on lack of fit in the stock assessments), and so is larger than the survey-only observation CVs projected in this report (Francis et al. 2003). In NOAA Fisheries trawl survey results in the Bering Sea (roughly analogous to one Biological Region for Pacific halibut), commercially important species showed a range of average annual model-based CVs, including: Pacific cod (5%), Walleye pollock (7%), Northern rock sole (6%), and yellowfin sole (5%) over 1982-2019 (DeFilippo et al. 2023). These values are comparable to the projected 5-9% CVs for IPHC Biological Regions that would be expected from the **Base Block design** (with the exception of Biological Region 4B), but lower than corresponding values for the Core Block and Reduced Core designs.

The **Base Block design** shown in Figures 2 to 6 for 2025-29 were presented to the Commission at IM099 as potential designs for 2024-28, although the **Base Block design** was not considered for adoption for 2024 due to high projected costs and low catch rates. These block designs

[1] Based on a meta-analysis of 18 trawl survey x species combinations.

ensure that all charter regions in the core areas are sampled over a three-year period, while prioritizing coverage in other areas based on minimising the potential for bias and maintaining CVs below 25% for each IPHC Regulatory Area. The **Base Block design** also include some sampling in all IPHC Biological Regions in each year, ensuring that data from across the spatial range of Pacific halibut are available to the stock assessment and for stock distribution estimation. We note that paragraph 72 of the AM100 report (IPHC-2024-AM100-R) states:

> *The Commission NOTED that the use of the base block design (Figures 7 to 11 of paper IPHC-2024-AM100-13) will be the focus of future planning and annual FISS proposals from the Secretariat.*

***Base Block design - Costs and Revenue:* – 2025 Base Block Design: Figure 2**

Key numbers

2025	$	Notes
Total Projected Cost	US$3,829,000	**Base HQ costs:** US$606,000 (incurred even if no FISS is conducted) **Vessel bids**: $1,525,000 **Field staff:** $459,000 **Bait estimate**: $356,000
Total Projected Revenue*	US$$1,771,000	US$1,692,000 from Pacific halibut sales US$79,000 from byproduct sales
Net	**-US$2,058,000**	**Not fiscally possible without a large influx of supplementary funds.**

*Assumptions:

1) no bid inflation for 2025 (compared to 2024);
2) 5% decline in landings from observed 2024 rates;
3) no change in average price.

Due to the rotational nature of the Base Block design overall costs and revenue are likely to be generally comparable year-to-year. However, especially for large designs, the sensitivity to small fluctuations in price and catch rates is high. For example, a +/-10% change in price and landings beyond what is projected for 2025 could result in net profit/loss of US$1,546,000 to US$2,302,000. This type of uncertainty cannot be reduced and will compound over a longer time horizon, making projections of cost beyond the upcoming year of limited value.

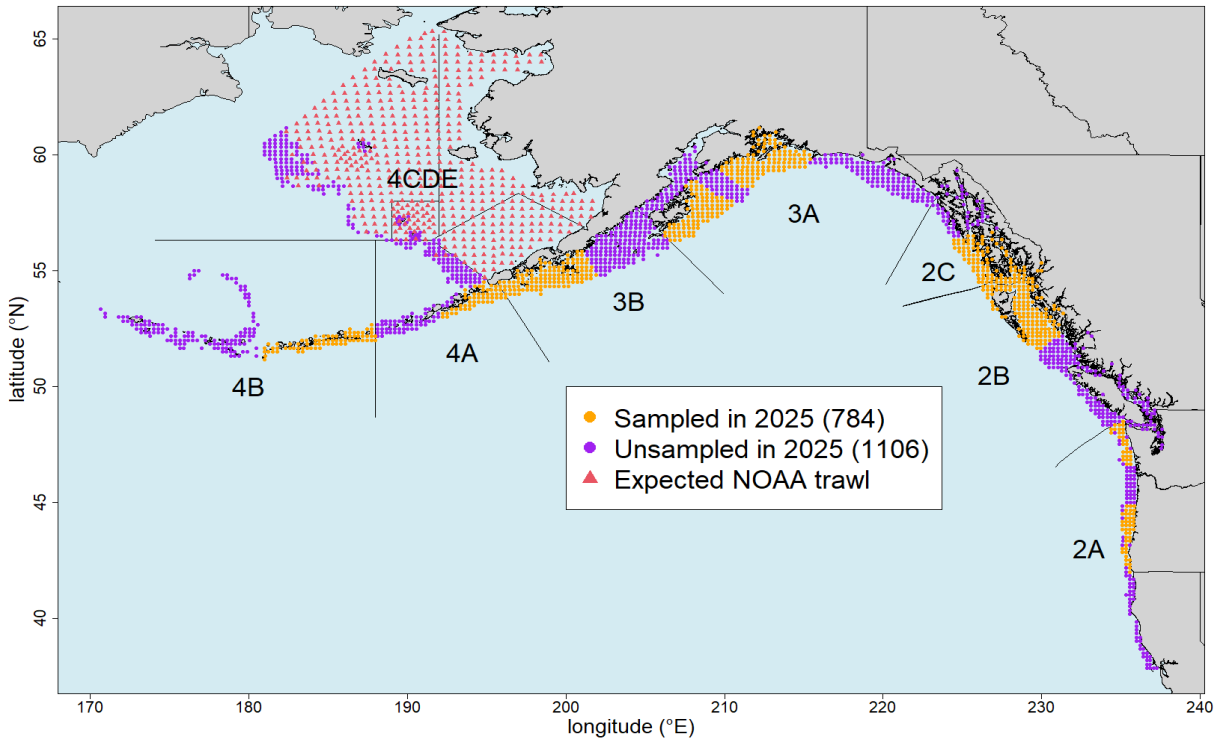

Figure 2. Base Block design for 2025 (orange circles). Design is based on fishing 2-4 complete blocks of stations (charter regions) in the core areas (2B, 2C, 3A and 3B) and previously implemented subareas elsewhere.

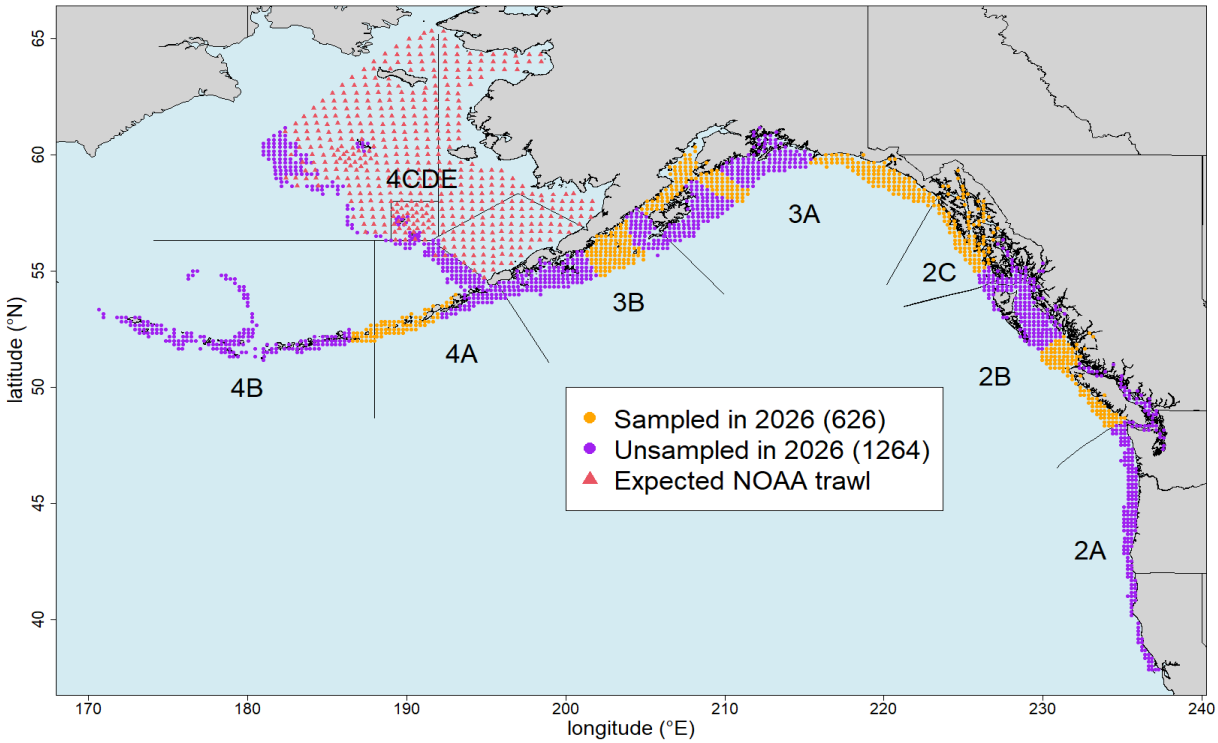

Figure 3. Base Block design for 2026 (orange circles) – indicative only. Design is based on fishing 2-4 complete blocks of stations (charter regions) in the core areas (2B, 2C, 3A and 3B) and previously implemented subareas elsewhere.

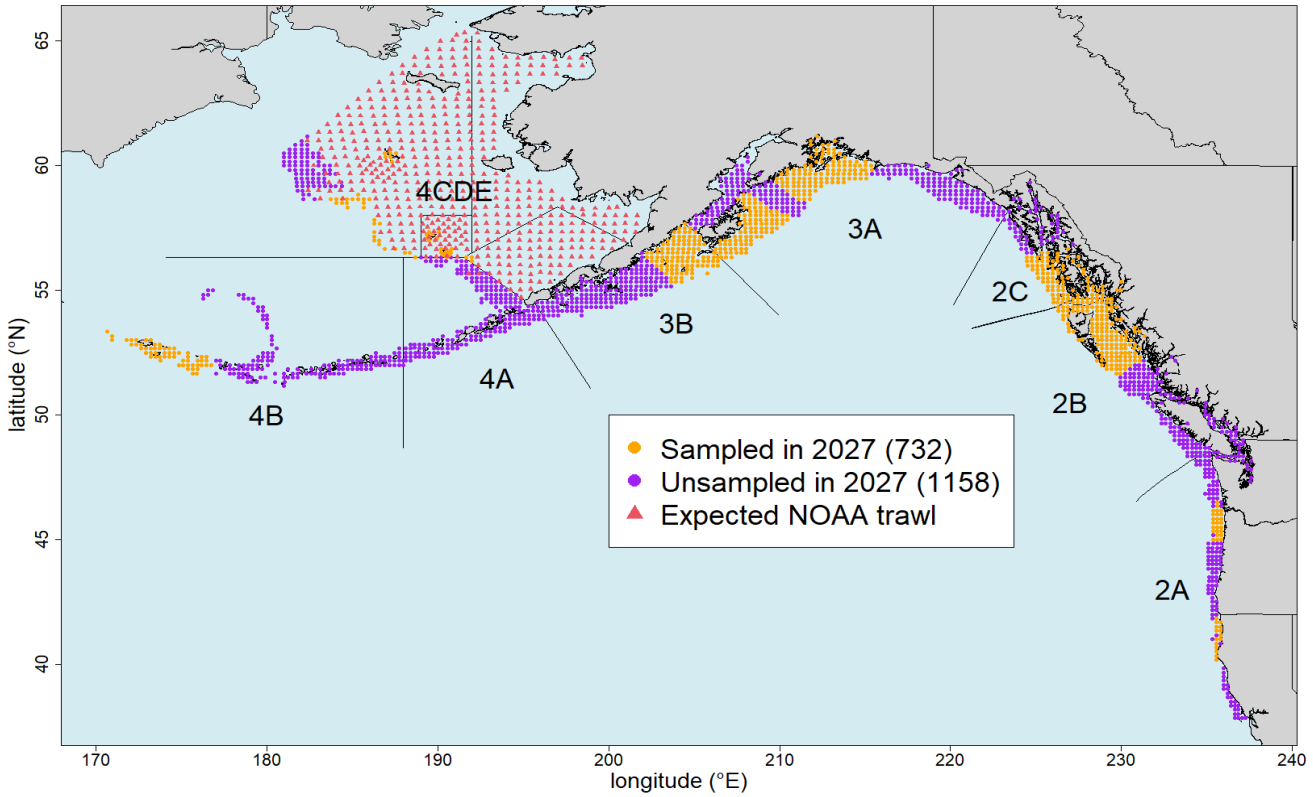

Figure 4. Base Block design for 2027 (orange circles) – indicative only. Design is based on fishing 2-4 complete blocks of stations (charter regions) in the core areas (2B, 2C, 3A and 3B) and previously implemented subareas elsewhere.

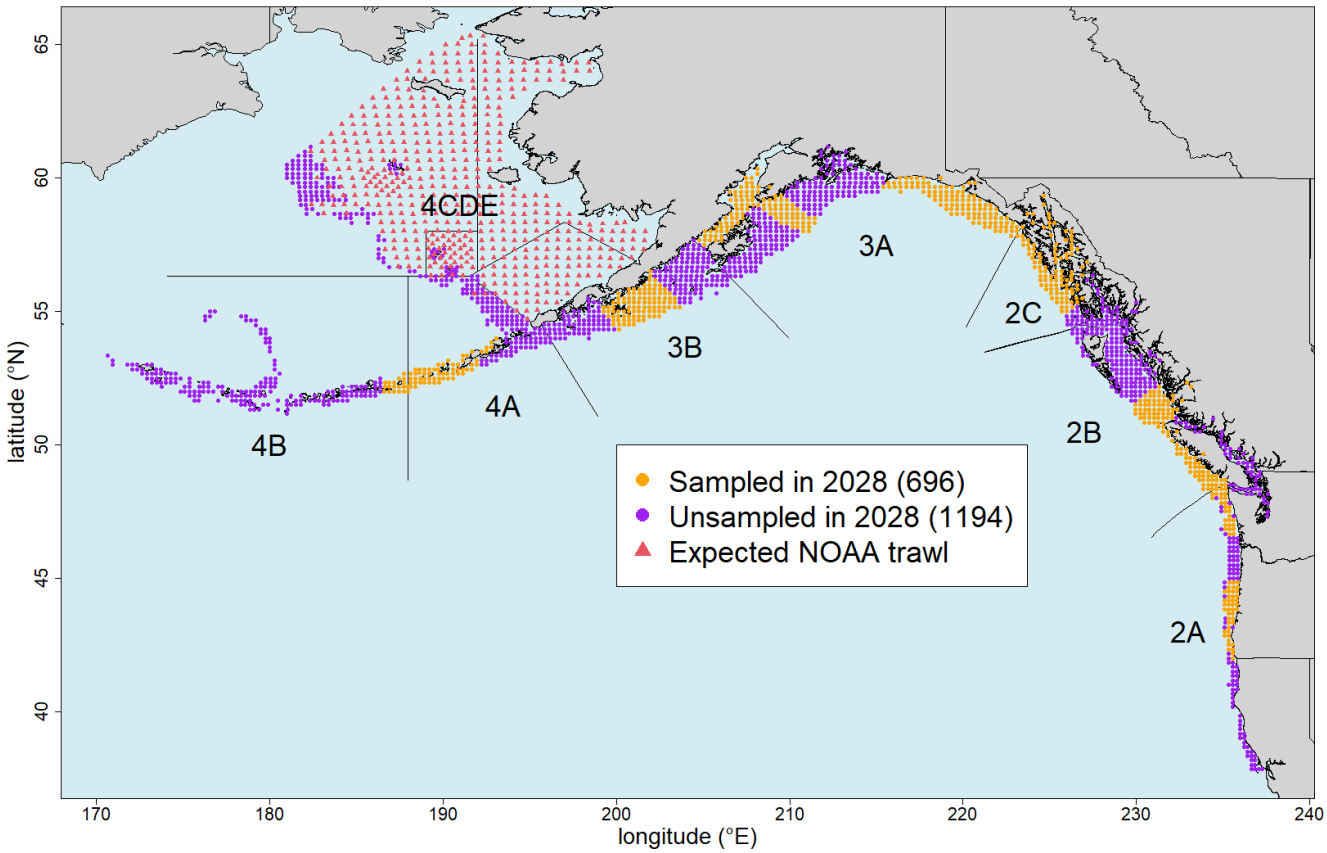

Figure 5. Base Block design for 2028 (orange circles) – indicative only. Design is based on fishing 2-4 complete blocks of stations (charter regions) in the core areas (2B, 2C, 3A and 3B) and previously implemented subareas elsewhere.

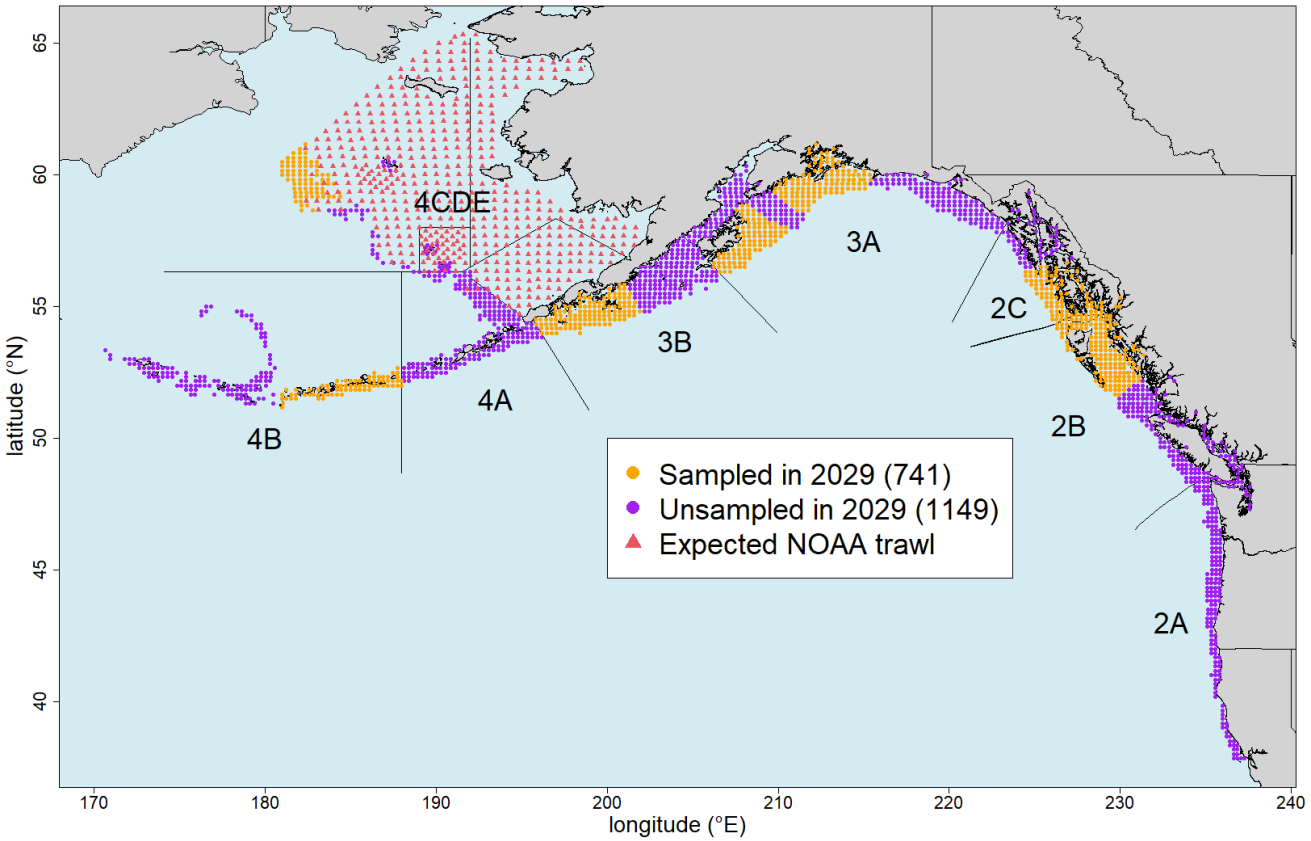

Figure 6. Base Block design for 2029 (orange circles) – indicative only. Design is based on fishing 2-4 complete blocks of stations (charter regions) in the core areas (2B, 2C, 3A and 3B) and previously implemented subareas elsewhere.

PART B: A FISCALLY VIABLE FISS DESIGN OPTION FOR 2025 (CONTAINS BOTH LIKELY FUNDING OPTIONS (FISH SALES, IPHC RESERVE, CONTRACTING PARTY SUPPLEMENTARY FUNDING), AS WELL AS POTENTIAL AD-HOC SUPPLEMENTARY FUNDING, AND ASSOCIATED MODULAR ADD-ONS (PRIORITIZED), WHILE HIGHLIGHTING POTENTIAL BIAS THAT WOULD RESULT FROM EACH)

Preliminary 2024 FISS data suggest continued declines in average catch rates in most IPHC Regulatory Areas, resulting in small projected losses for even the lowest cost 2025 designs. Our starting point is therefore not a revenue-neutral design, but one that maintains sampling in all IPHC Biological Regions in order to provide basic data for the IPHC stock assessment, while aiming to limit the financial loss.

Only two charter regions, one each in IPHC Regulatory Areas 2B and 2C, are projected to be revenue-positive in 2025. In addition, supplementary funding has been made available for sampling 60 stations in each of IPHC Regulatory Areas 4A/4B and IPHC Regulatory Area 2A (these two sets of 60 stations are each considered to be a single charter region when projecting costs). To ensure sampling in all Biological Regions, the most cost-effective charter regions in each of IPHC Regulatory Areas 3A and 3B are also included to creating a fiscally viable design that also meets basic data needs (Figure 7).

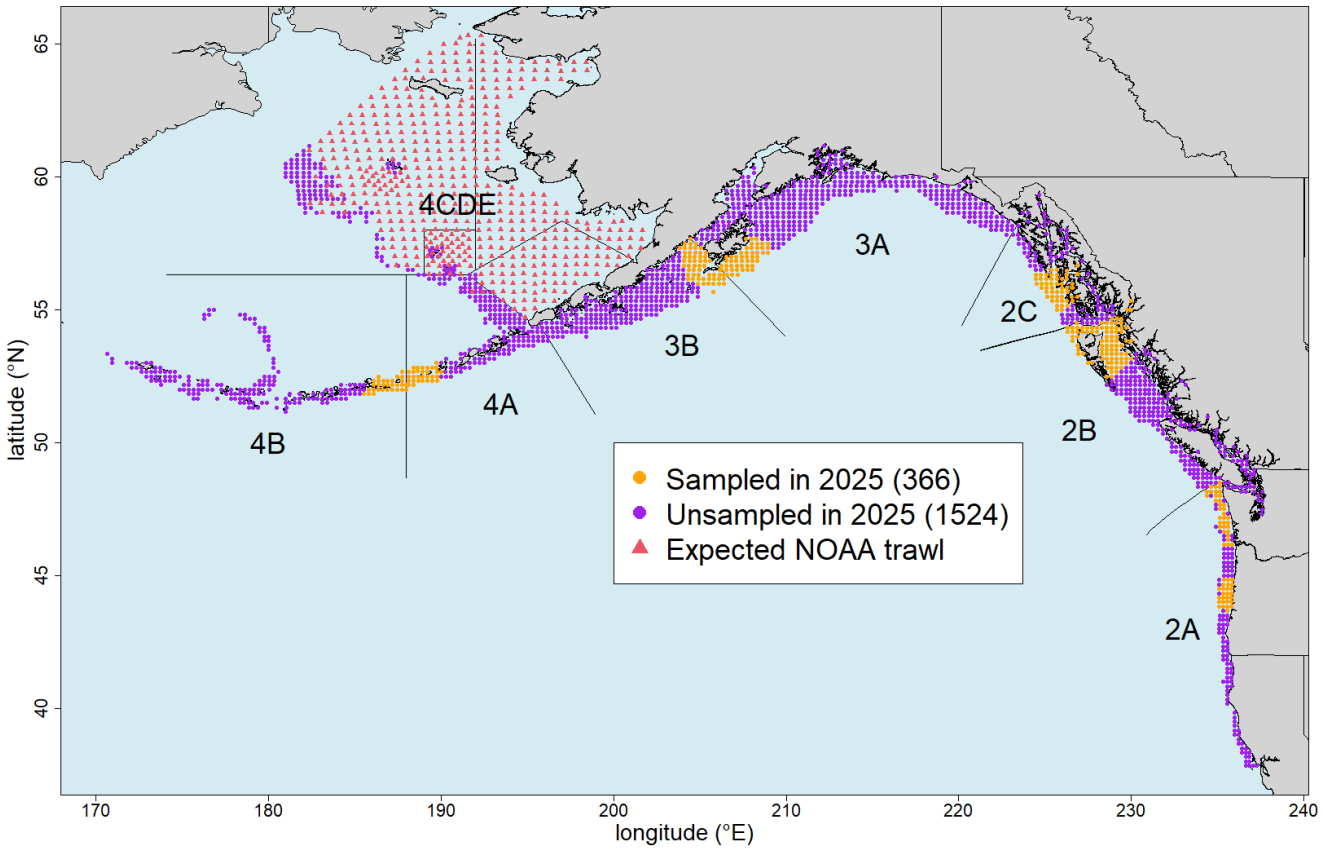

Figure 7. A fiscally viable FISS design for 2025 (Option 1, Table 3) that includes the two most cost-effective charter regions in Biological Region 3, as well as projected revenue-positive charter regions in Biological Region 2, and stations in IPHC Regulatory Areas 2A and 4A/4B covered by supplementary funding.

A fiscally viable FISS design option for 2025: Figure 7 - Costs and Revenue:

Key numbers

2025	$	Notes
Total Projected Cost	US$2,102,000	**Base HQ costs:** US$606,000 (incurred even if no FISS is conducted) **Vessel bids:** $691,000 **Field staff:** $197,000 **Bait estimate:** $179,000
Total Projected Revenue*	US$1,141,000	US$1,098,000 from Pacific halibut sales US$43,000 from byproduct sales
Supplementary Funding (known)	US$387,000	USA Supplementary Funding (Received) - for sampling in 2A and 4A/4B.
Net	**-US$574,000**	**To be covered by any additional supplementary funding received in-year, and the IPHC Fund 50 (Reserve).**

*Assumptions:

1) no bid inflation for 2025 (compared to 2024);
2) 5% decline in landings from observed 2024 rates;
3) no change in average price.

RECOMMENDATION: The IPHC Secretariat recommends moving forward with the 2025 FISS design option described above (Figure 7), with the assumption that additional supplementary funding will become available in early 2025, and any remaining deficit will be covered by the IPHC Reserve Fund (50 – Reserve). Should additional supplementary funding not become available, we are comfortable covering the full amount of the deficit from the Reserve Fund for one (1) year.

Modified design options (to the 'fiscally viable FISS design option for 2025)

While the design in Figure 7 meets basic data needs in terms of collecting samples from all Biological Regions, alternative designs that increase spatial coverage of the FISS over the short term would reduce the potential for bias by sampling charter regions not sampled in 2024. Option 1 (Table 3, Figure 7) includes the Albatross (3A) and Trinity (3B) charter regions due to their lower relative cost, but these regions were also sampled in 2024. Overall estimates for Region 3 would be improved if different charter regions could be sampled in 2025 (just as the Base Block design rotates sampled regions over time to minimize potential for bias).

At WM2024, a series of modular options was presented that could be added to a base design that minimised loss. Two of these are now covered by supplementary funding (2A, 4A/4B), but the remaining modular options in IPHC Regulatory Areas 3A and 3B are not included in Design 1 due to higher costs. However, these charter regions were prioritised in the modular options because they were not sampled in 2024 and therefore sampling them would have a greater positive impact on precision and bias than the lower-cost regions included in Option 1. We present them here as two separate options (Option 2 sampling 3B and Option 3 sampling 3A; Figures 8 and 9) in Table 3. Pairing adjacent charter regions in a design in this way makes them more likely to attract bidders who can bid on two regions without additional running costs due to travel between regions.

Costs are higher for Options 2 and 3 (Table 3), but there is potential to reduce costs by subsampling stations within these regions. For example, if 50% of stations were fished in the 3A or 3B charter regions, we project total net revenue to be −US$607,000 for Option 2 and −US$610,000 for Option 3. Actual losses may be higher than these projections due to increased running time leading to higher bids when lower proportions of stations are sampled. Note that random subsampling within a charter region at a rate of 50% or more will have a relatively small effect on CVs and no effect on bias as extensive spatial coverage is maintained within each charter region.

Table 3. Comparison of preliminary design alternative costs for the 2025 FISS; see text for additional details on each design. Net revenue does not include cost of SeaCat water column profile, which would add approximately US$10,000 per charter region (will be moved to general operation/research expenses moving forward).

Option	Design	IPHC Regulatory Areas sampled (charter regions)	Net revenue
0	No FISS	-	($606,000)
1 Fig. 7	A fiscally viable FISS design option for 2025 (sampling in all Biological Regions)	2A(1), 2B (1), 2C (1), 3A(1), 3B(1), 4A/4B(1)	($575,000)
2 Fig. 8	Replace Albatross (3A) and Trinity (3B) in Option 1 with Yakutat and Prince William Sound (3A)	2A(1), 2B (1), 2C (1), **3A(2)**, 4A/4B(1)	($710,000)
3 Fig. 9	Replace Albatross (3A) and Trinity (3B) in Option 1 with Sanak and Shumagin (3B)	2A(1), 2B (1), 2C (1), **3B(2)**, 4A/4B(1)	($715,000)

The results presented for preliminary 2025 FISS design projections include continued increased costs and decreased catch rates.

RECOMMENDATION: The IPHC Secretariat does **not** recommended moving forward with Options 2 and/or 3 (Table 3) unless substantial supplementary funding becomes available before the end of November 2024. Substantial funding coming in after 30 November 2024 would not provide us with sufficient lead-in time to procure large quantities of bait, and secure FISS charter vessels.

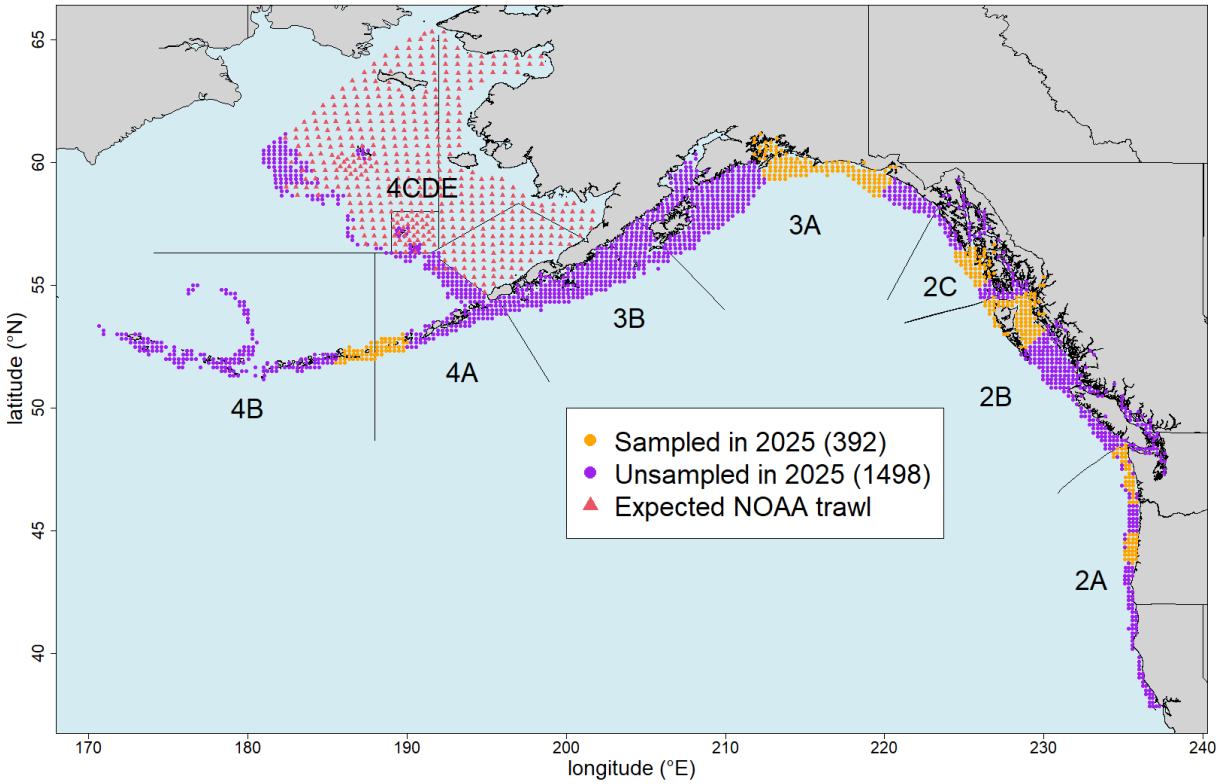

Figure 8. Option 2 (Table 3) that includes the two high-priority charter regions in Biological Region 3 (IPHC Regulatory Area 3A), as well as projected revenue-positive charter regions in Biological Region 2, and stations in IPHC Regulatory Areas 2A and 4A/4B covered by supplementary funding.

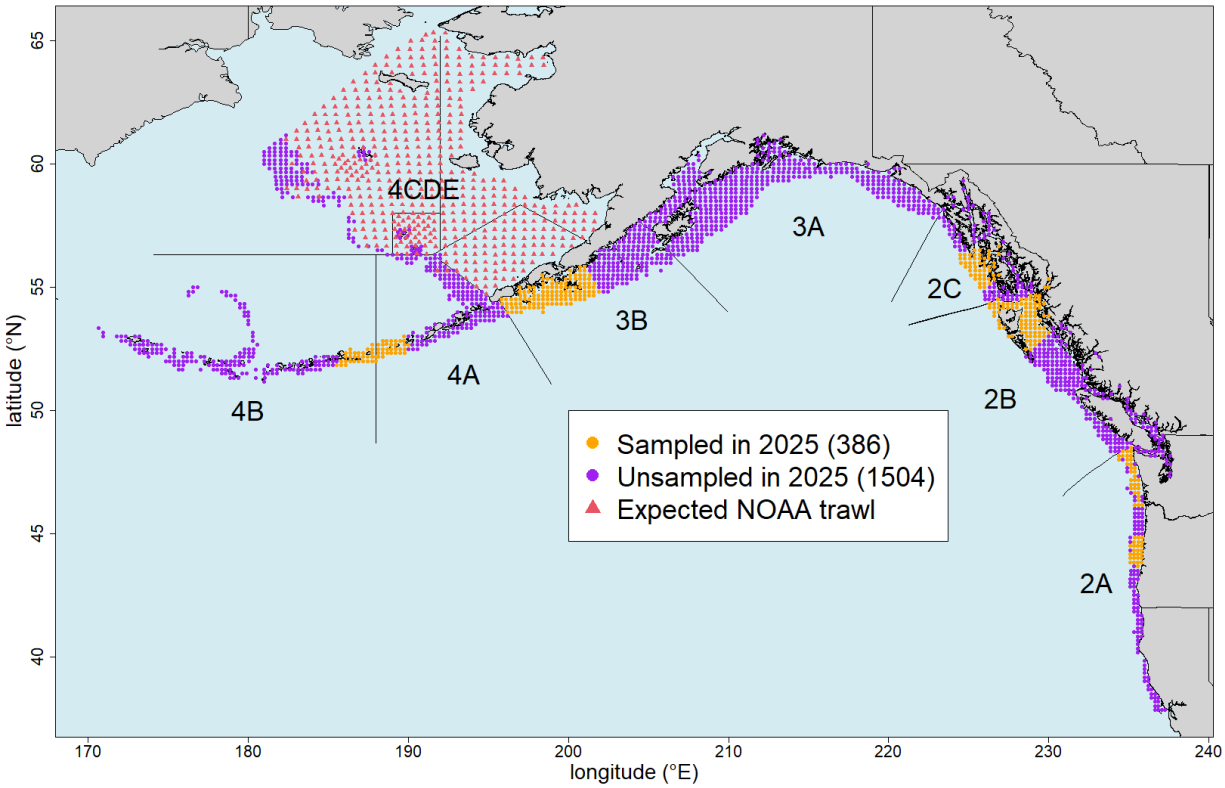

Figure 9. Option 3 (Table 3) that includes the two high-priority charter regions in Biological Region 3 (IPHC Regulatory Area 3B), as well as projected revenue-positive charter regions in Biological Region 2, and stations in IPHC Regulatory Areas 2A and 4A/4B covered by supplementary funding.

PART C. POTENTIAL OTHER SOURCES OF FUNDING TO COMPLEMENT EXISTING/KNOWN FUNDING OPTIONS, THAT WILL BE FURTHER EXPLORED;

The following is a non-exhaustive list of potential supplementary funding for the 2025 FISS and potentially for future years. More nuanced options will be explored over the coming months.

1) Supplementary funding from Contracting Party governments:
    a. Over the course of FY2023 and FY2024, the Secretariat has received direct payments from both governments to supplement the annual FISS (Canada: **US$125,000** and USA: **US$114,000**).
    b. For FY2025, the USA has provided **US$387,000** for the FISS (received).
    c. The Secretariat and both delegations will continue seeking supplementary funds in this form, in the short-term.
2) Large scale Contracting Party contributions:
    a. The Secretariat has several calls out for substantial contributions from both governments, in excess of **US$2.5 million** (Ref: **Appendix I**; and FISS Brochure – **Appendix II).**
    b. An ongoing engagement plan has been developed in conjunction with the Chairperson and Vice-Chairperson for this purpose.
3) Adjustments to core Contracting Party annual contributions (Annual IPHC budget):
    a. The Secretariat is currently exploring options to incorporate a budget line for the FISS that is incorporated directly into the IPHC annual budgeting process. This would involve either an additional amount for the FISS each year, or a re-appropriation of funds within existing budget lines and budget trends. E.g. **US$50,000** to **US$200,000**.
    b. The first year this could apply to would be FY2026, noting the FY2025 budget contributions have already been paid by Canada, and the USA appropriations have been finalised.
4) Industry direct contributions:
    a. Throughout the course of 2023 and 2024, the Secretariat has received informal indications that some industry groups may be willing to offer direct funding for FISS activities in their areas of interest. There are both pros and cons of utilising industry funding direct from the industry source, that we would need to work through before taking this approach, such as conflicts of interest, and needing to change our internal regulations that currently prohibit such an approach.

PART D. AN EXPLANATION OF THE POTENTIAL BIAS THAT MAY RESULT FROM THE DESIGNS DESCRIBED ABOVE.

Indices of Pacific halibut density can change by large amounts over short periods, with annual changes of 15% or more regularly observed at the level of Biological Region (Figure 10) and Regulatory Area (Figure 11). Over a three-year period, large changes in indices of density are the norm (Figures 12 and 13), including at the coastwide level. Lack of sampling or low spatial coverage in an area or region means such changes are fully or largely unobserved, leading to biased estimates of indices, stock trends, and stock distribution. The greater the unobserved change, the greater the bias. Designs such as that implemented in 2024 and Option 1 (Figure 7) therefore have high potential for bias in area, regional and coastwide estimates, particularly as 2025 would be the second or third year with reduced coverage for much of the stock. Options 2 and 3 would lead to somewhat lower bias in Biological Region 3 due to coverage complementing that of the 2024 FISS.

The risk of bias in all designs in Table 3 is lowest in Biological Region 2, which has had good spatial coverage over 2022-24. The planned sampling in the highest density habitat in IPHC Regulatory 2A means that bias risk in 2025 will be low throughout this region. While some sampling in Biological Regions 3, 4 and 4B mitigates the bias potential, persistent large coverage gaps means that 80% of habitat covered by the full FISS design will be unsampled next year and the risk of not observing the large changes that often occur in much of the stock is high.

Including the habitat covered by the NOAA trawl survey in the Bering Sea, implementation of Option 1 (Figure 7) or something similar would mean either FISS or trawl sampling would have covered about 60% of habitat in each of 2024 and 2025. Based on this level of sampling coverage and observed levels of change shown in Figures 10 to 13, we would expect coastwide indices of abundance to have bias of up to +/-15% following the 2025 FISS. However, bias could be much higher in Biological Regions 3 and 4B, which would have had lower levels of sampling than the coast as a whole for two or more years following completion of the 2025 FISS.

Recently completed simulation analyses explored the effect on stock assessment results of a cumulative bias in the FISS index of 15% over the upcoming period from 2025-2027 (IPHC-2024-SRB025-06). If the true FISS trend were going down by 15%, but due to a reduced design the FISS index was estimated to be flat over this same period, the estimates of spawning biomass, fishing intensity (SPR) and probability of stock decline in 2028 at the same harvest level would be biased. The simulation results indicated that this bias correspond to a 2-3% overestimate of spawning biomass, a 1% overestimate of SPR (underestimate of fishing intensity) and a 9% underestimate of the probability of stock decline in 2028. Based on recent harvest decision tables, to account for a 9% underestimate of the probability of stock decline the coastwide TCEY would need to be reduced by approximately 4 million pounds, equating to approximately US$24 million in landed catch. Thus, under significantly reduced FISS designs accounting for potential bias in management decisions could have a significant impact on short-term fishery yields and revenue. While the true degree of bias would be unknown (at least until the next comprehensive FISS design was completed), this level of bias (15%) is possible in the reduced designs evaluated here.

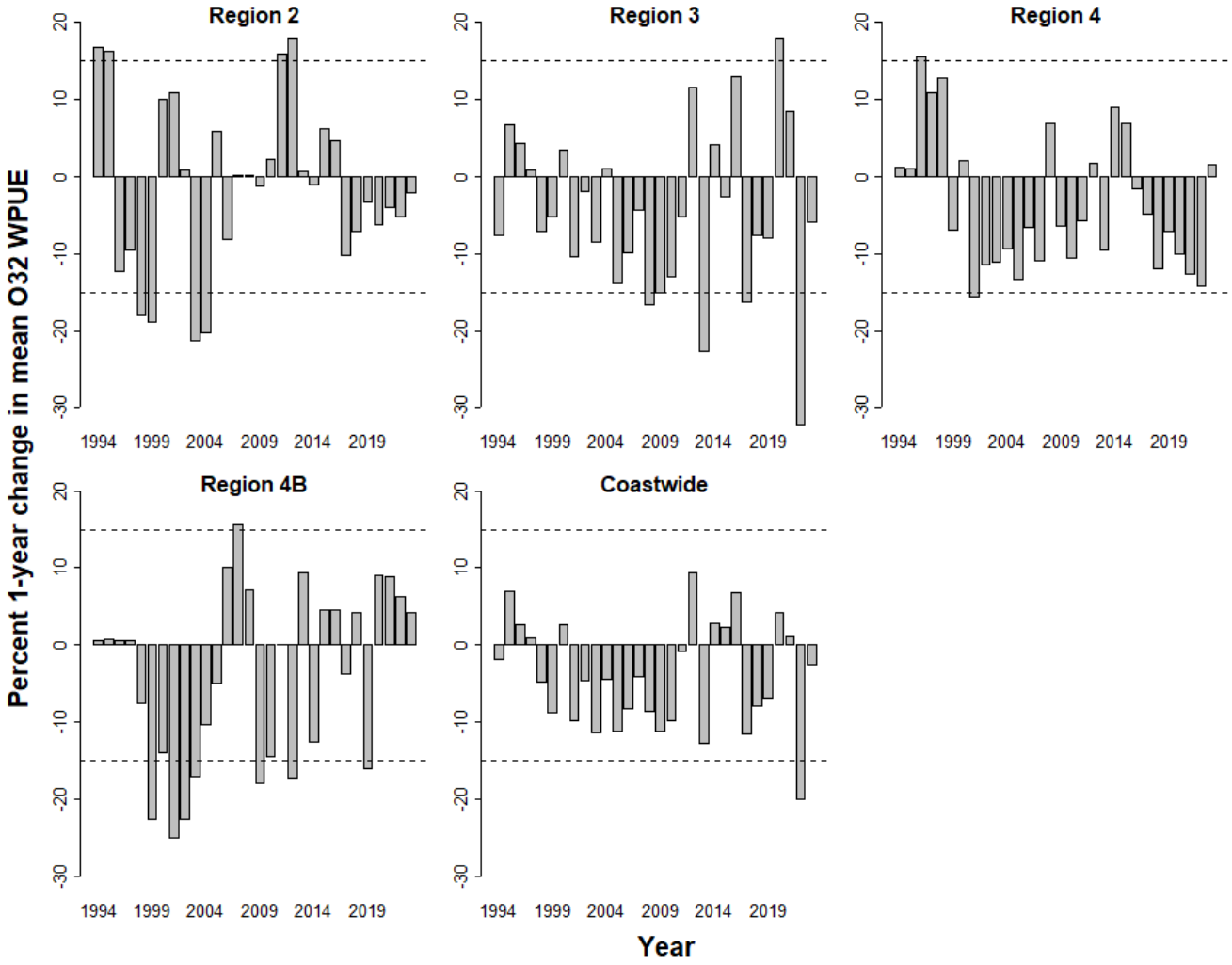

Figure 10. Estimated 1-year changes in mean O32 WPUE by IPHC Biological Region. Dashed lines mark changes of +/-15%.

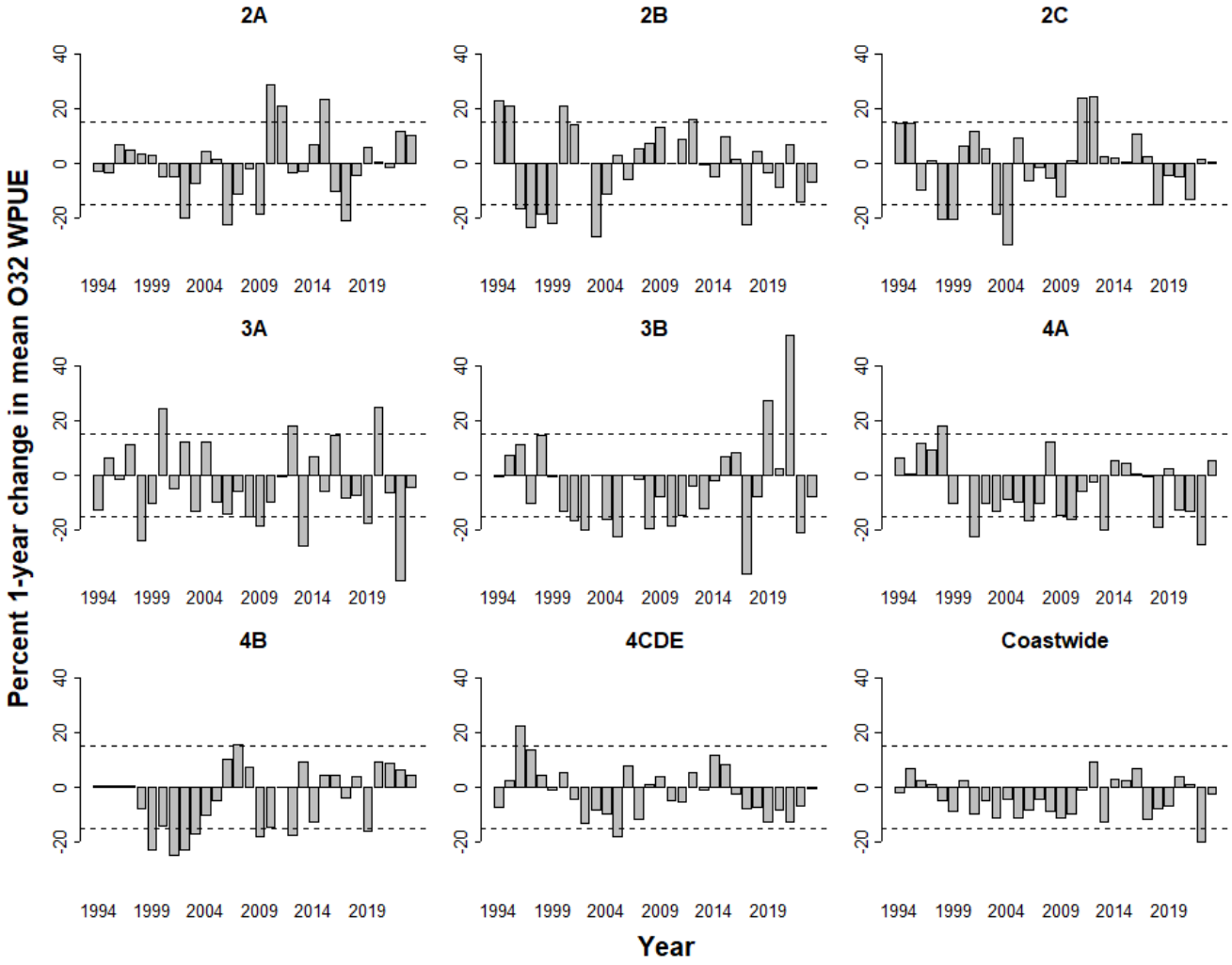

Figure 11. Estimated 1-year changes in mean O32 WPUE by IPHC Regulatory Area. Dashed lines mark changes of +/-15%.

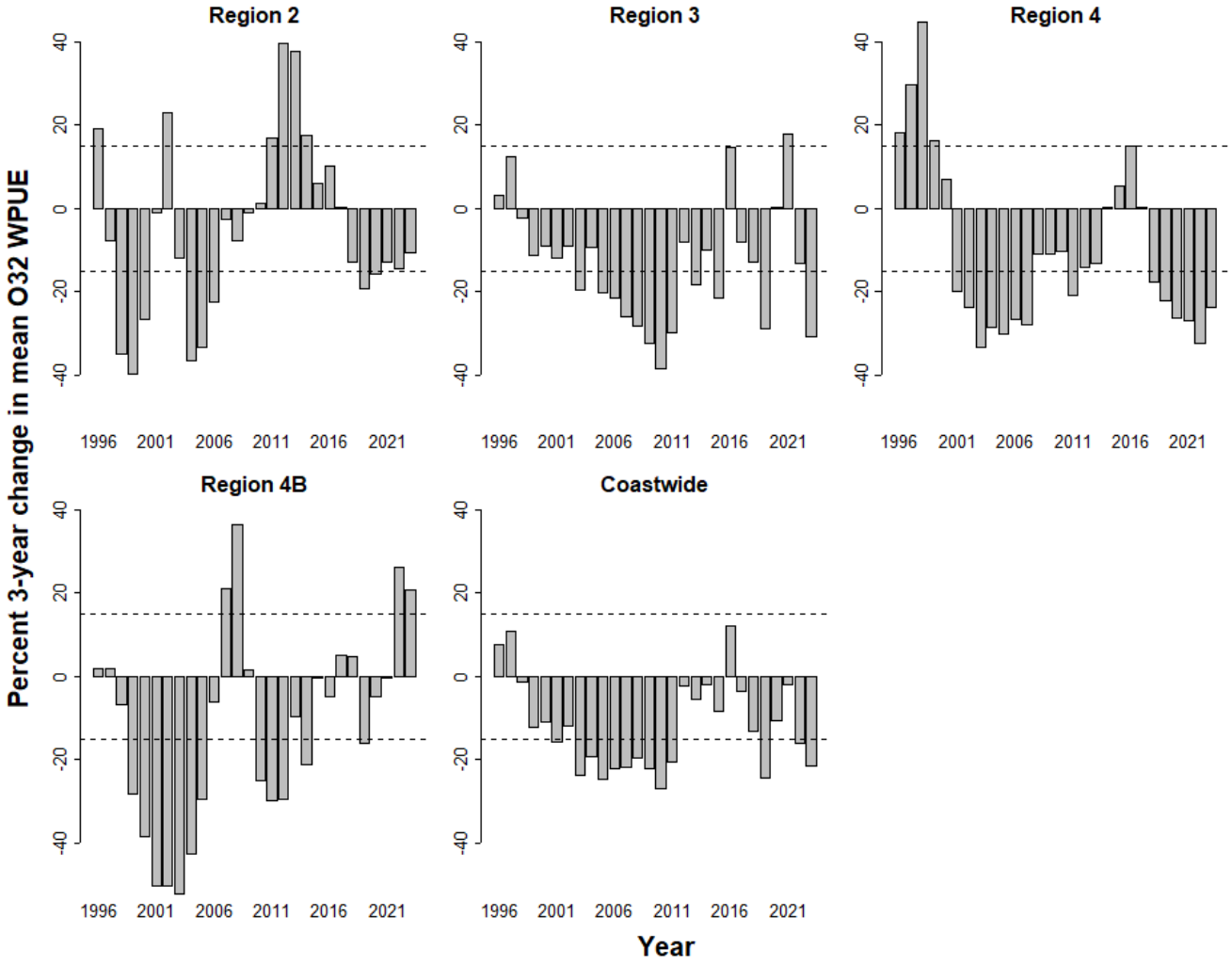

Figure 12. Estimated 3-year changes in mean O32 WPUE by IPHC Biological Region. Dashed lines mark changes of +/-15%.

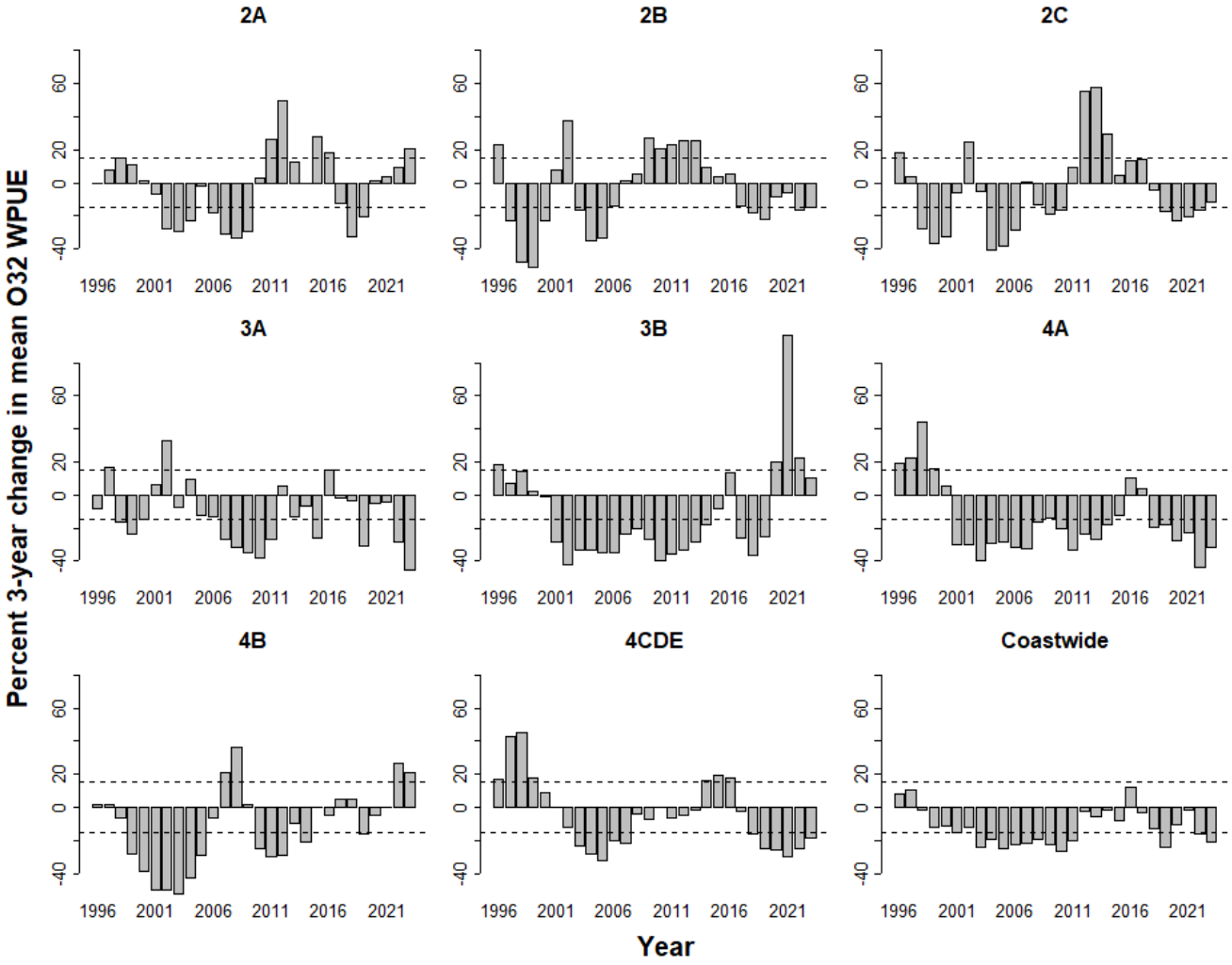

Figure 13. Estimated 3-year changes in mean O32 WPUE by IPHC Regulatory Area. Dashed lines mark changes of +/-15%.

RECOMMENDATION

That the Commission:

1) **NOTE** paper IPHC-2024-SS014-03 that provides the Commission with the information requested, including the optional long-term FISS design, 2025 interim design options, potential external funding sources, as well as an examination of potential biases that may result from non-optimal designs.
2) **RECOMMEND** the 2025 FISS design option described in (Figure 7), with the assumption that additional supplementary funding will become available in early 2025, and any remaining deficit will be covered by the IPHC Reserve Fund (50 – Reserve). Should additional supplementary funding not become available, the full amount of the deficit shall be drawn from the Reserve Fund for 2025.

REFERENCES

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APPENDIX I

COMMISSIONERS:
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SEATTLE, WA
NEIL DAVIS
VANCOUVER, BC
PETER DeGREEF
NORTH SAANICH, BC
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PAUL RYALL
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INTERNATIONAL PACIFIC HALIBUT COMMISSION

ESTABLISHED BY A CONVENTION BETWEEN CANADA

AND THE UNITED STATES OF AMERICA

EXECUTIVE DIRECTOR
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EL2023604
19 December 2023

To whom it may concern:

The International Pacific Halibut Commission (IPHC) is an international organization established by a Convention between Canada and the United States of America. The IPHC is jointly funded by the two Contracting Parties though annual contributions. The overall objective of the IPHC is to develop the stocks of Pacific halibut in the Convention waters to those levels which will permit the optimum yield from the fishery and to maintain the stocks at those levels. The IPHC is experiencing serious budgetary challenges that threaten our ability to manage the resource as intended, and therefore is seeking additional funding from the Contracting Parties to ensure we can carry out our mandate.

Most of the budgetary concerns relate to the annual Pacific halibut setline survey, known as the Fishery-Independent Setline Survey, or FISS. The FISS is conducted by chartered commercial longline vessels. The IPHC has operated the FISS with a goal of long-term revenue neutrality, with the proceeds from fish sales covering the annual costs, as permitted under the Convention. That was an effective approach in the past, recognizing that costs and revenues are variable and in some years the revenues would exceed costs and, in some years, vice versa. The IPHC maintains a "FISS reserve" fund to bank any surplus revenues and pay for overages in years when that is needed. Unfortunately, over the last three fiscal years, costs have gone up substantially (fuel, labor, bait, vessel contracting costs, etc.) and revenues have gone down (declining Pacific halibut abundance, lower fish prices for the landed catch, the State of Alaska requiring 50% of the revenue from FISS bycatch caught in Alaska waters, etc.). The FISS reserve is now depleted, and it is not affordable to cover all of the areas that need to be surveyed because, unlike commercial fishermen, a survey needs to fish in areas with low abundance where it is not cost effective. The IPHC has instituted a number of cost saving measures and ways to increase revenues, but as noted in the report from its recent Interim Meeting on 1 December 2023, "*The Commission AGREED that supplementary funding is likely needed to sustain the FISS moving forward and AGREED to explore options for funding, e.g. from Contracting Parties or external partners.*"

Thus, the IPHC has identified the following needs for immediate supplementary funding:

1) **US$1,500,000** annually to subsidize the FISS to ensure robust sampling in all IPHC Regulatory Areas.
2) **US$100,000-500,000** annually for a contribution to the FISS Reserve Fund, which is meant to address contingencies and build the FISS reserve back to a prudent level. The reserve currently has a negative balance and the Commissioners have set a target of maintaining a US$2,000,000 balance to ensure IPHC can cover cost fluctuations and the FISS does not need to be curtailed in years when costs are especially high and/or revenues are especially low. This amount would be increased or decreased based on Commission annual review and fund rebuilding.

3) **US$430,000** for an ~10% inflationary adjustment to the US$4.3M annual USA contribution to the IPHC General Fund (for non-FISS costs of IPHC), reflecting that the USA made no inflationary adjustments to its contributions from 2020-2022.
4) **US$93,000** for an ~10% inflationary adjustment to the US$927K annual Canadian contribution to the IPHC General Fund (for non-FISS costs of IPHC), reflecting that Canada made no inflationary adjustments to its contributions from 2020-2022.

Total immediate need = **US$2,123,000** - **US$2,523,000** annual increase.

Please feel free to contact me with any questions about the above information.

Sincerely,

David T. Wilson

David T. Wilson, Ph.D.
Executive Director