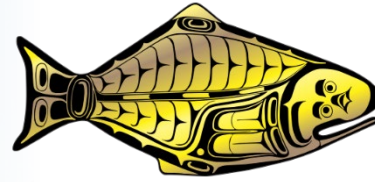


INTERNATIONAL PACIFIC



HALIBUT COMMISSION

2023-25 FISS design evaluation

Agenda item: 5.2.2
IPHC-2022-RAB023-07
(R. Webster)

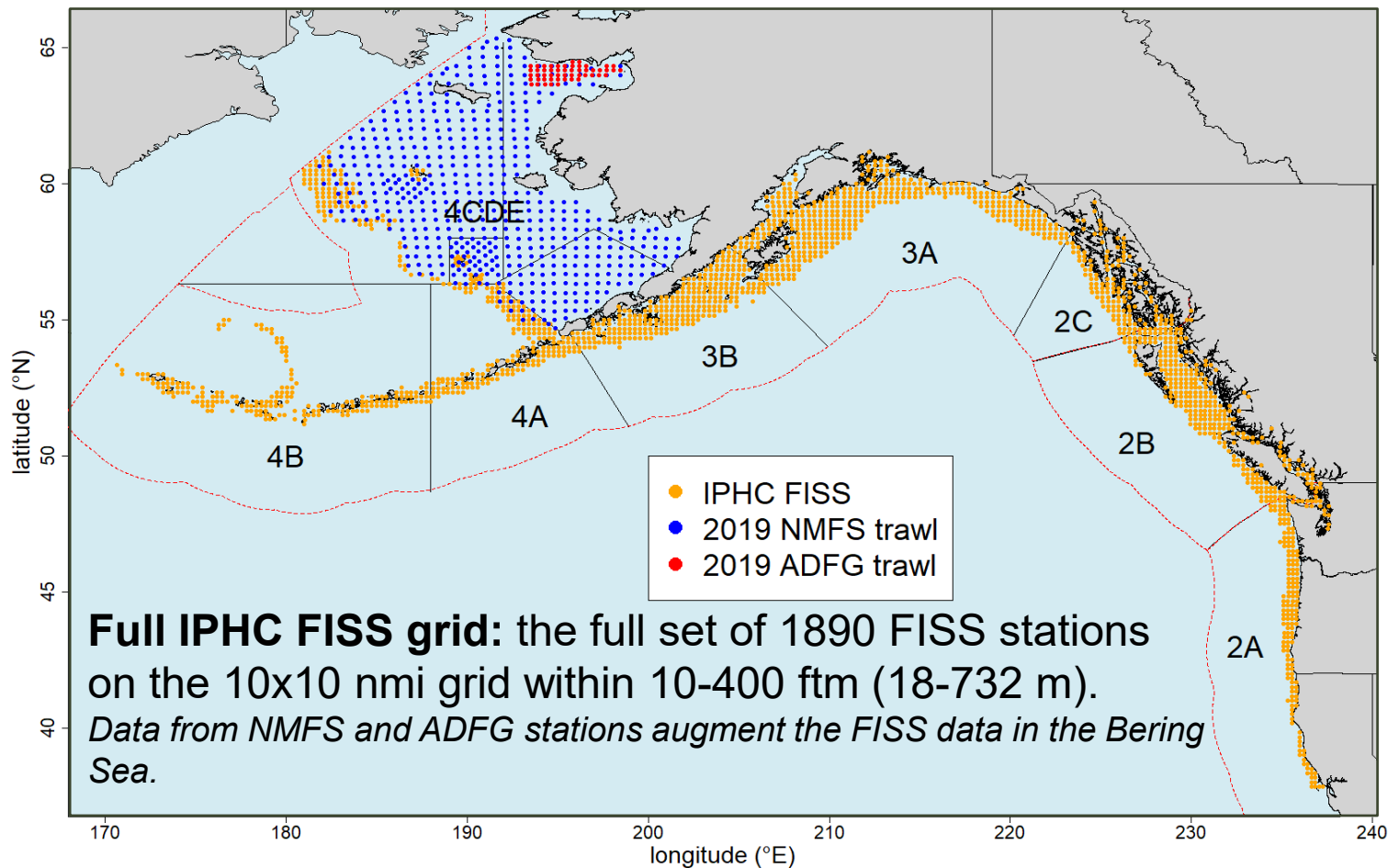


IPHC FISS

- Our most important source of data on Pacific halibut
- Provides data for estimating weight and numbers per unit effort (WPUE and NPUE) indices of density and abundance of Pacific halibut
 - Used to estimate stock trends
 - Used to estimate stock distribution
 - Important input in the IPHC stock assessment
- Provides biological data for use in the stock assessment



Full FISS grid

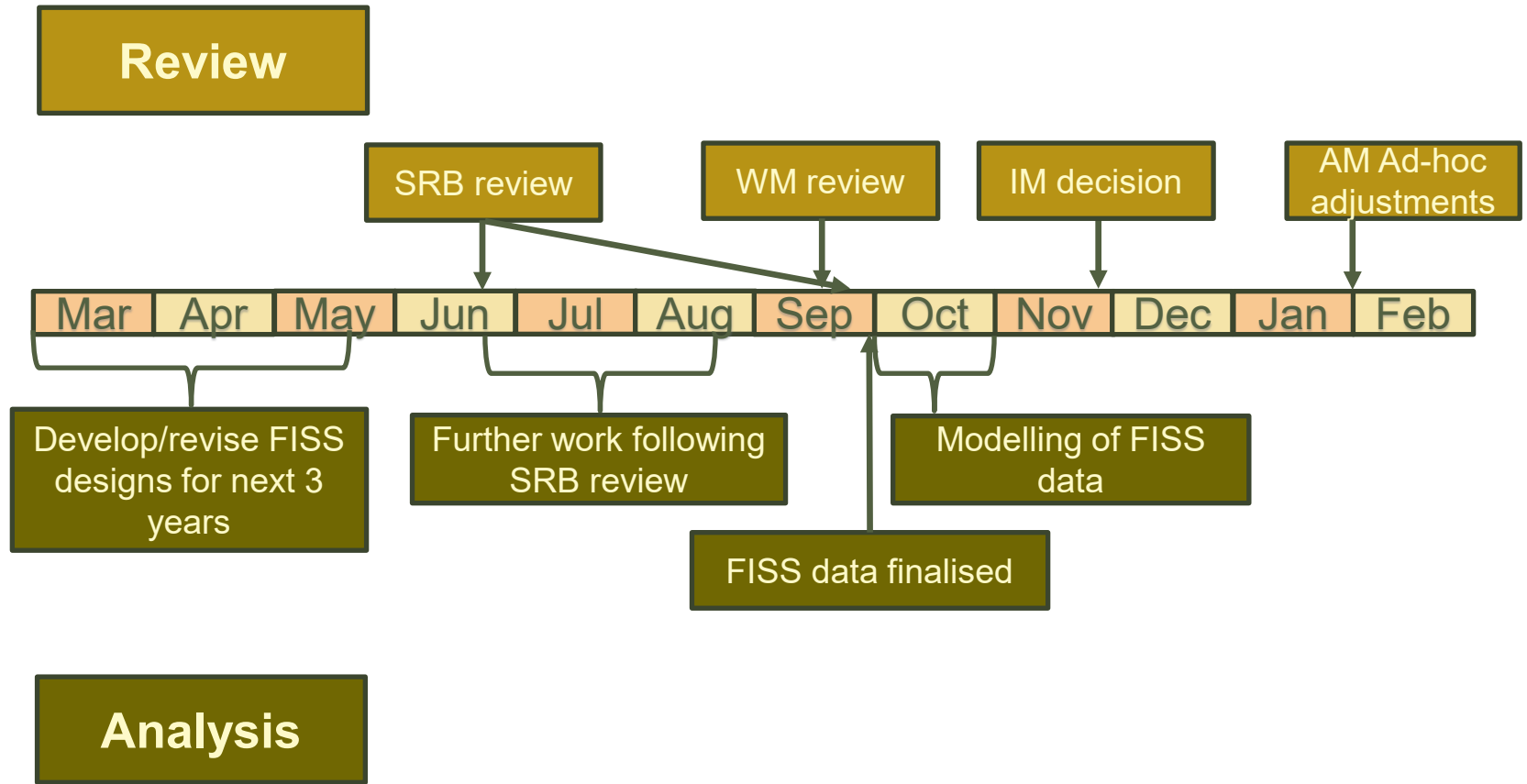


FISS objectives and design layers

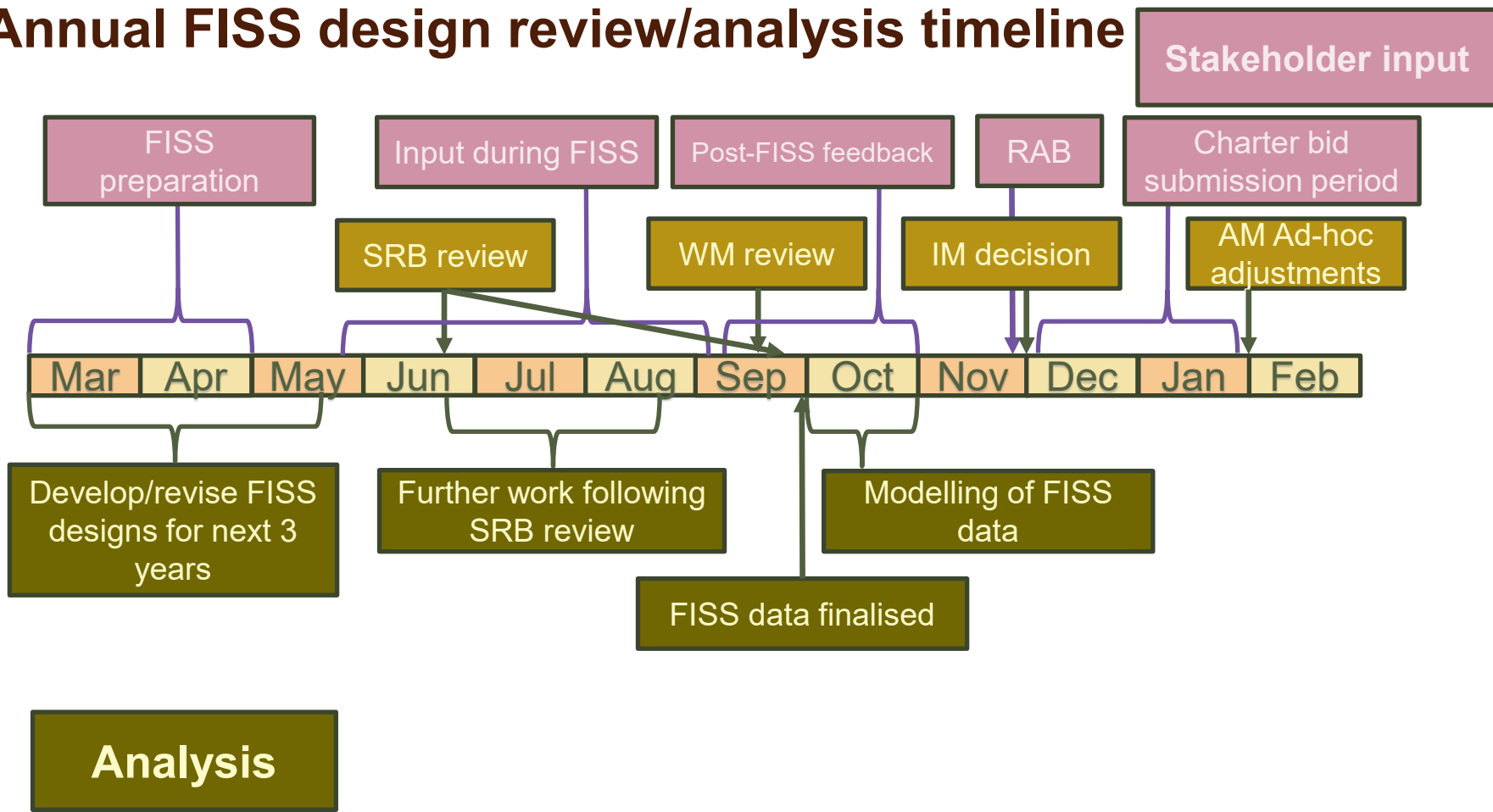
Priority	Objective	Design Layer
Primary	Sample <u>Pacific halibut</u> for stock assessment and stock distribution estimation	Minimum sampling requirements in terms of: <ul style="list-style-type: none">• Station distribution• Station count• Skates per station
Secondary	Long term <u>revenue neutrality</u>	Logistics and cost: operational feasibility and cost/revenue neutrality
Tertiary	<u>Minimize removals</u> , and <u>assist others where feasible</u> 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



Annual FISS design review/analysis timeline



Annual FISS design review/analysis timeline

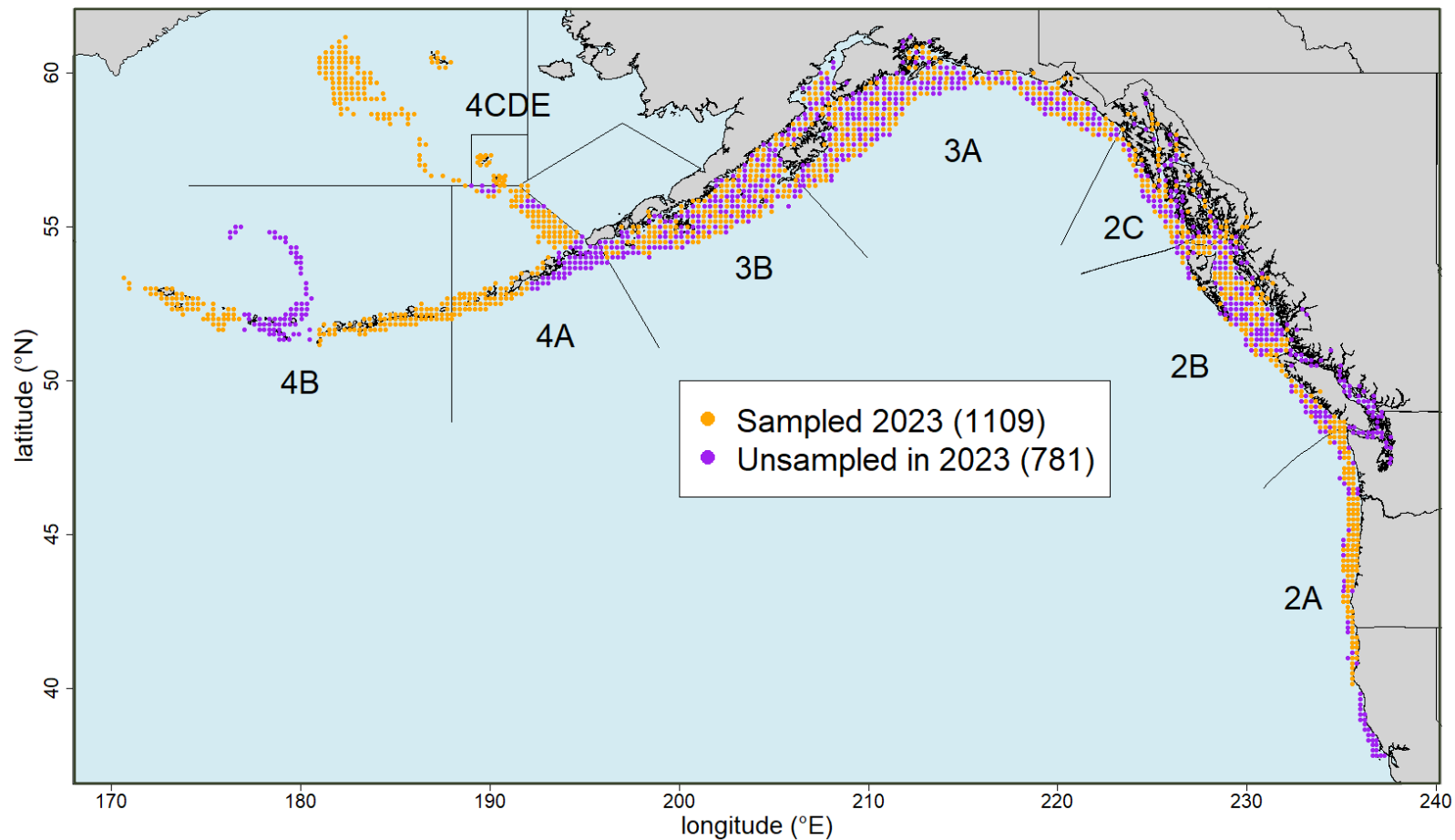


Proposed FISS designs for 2023-25

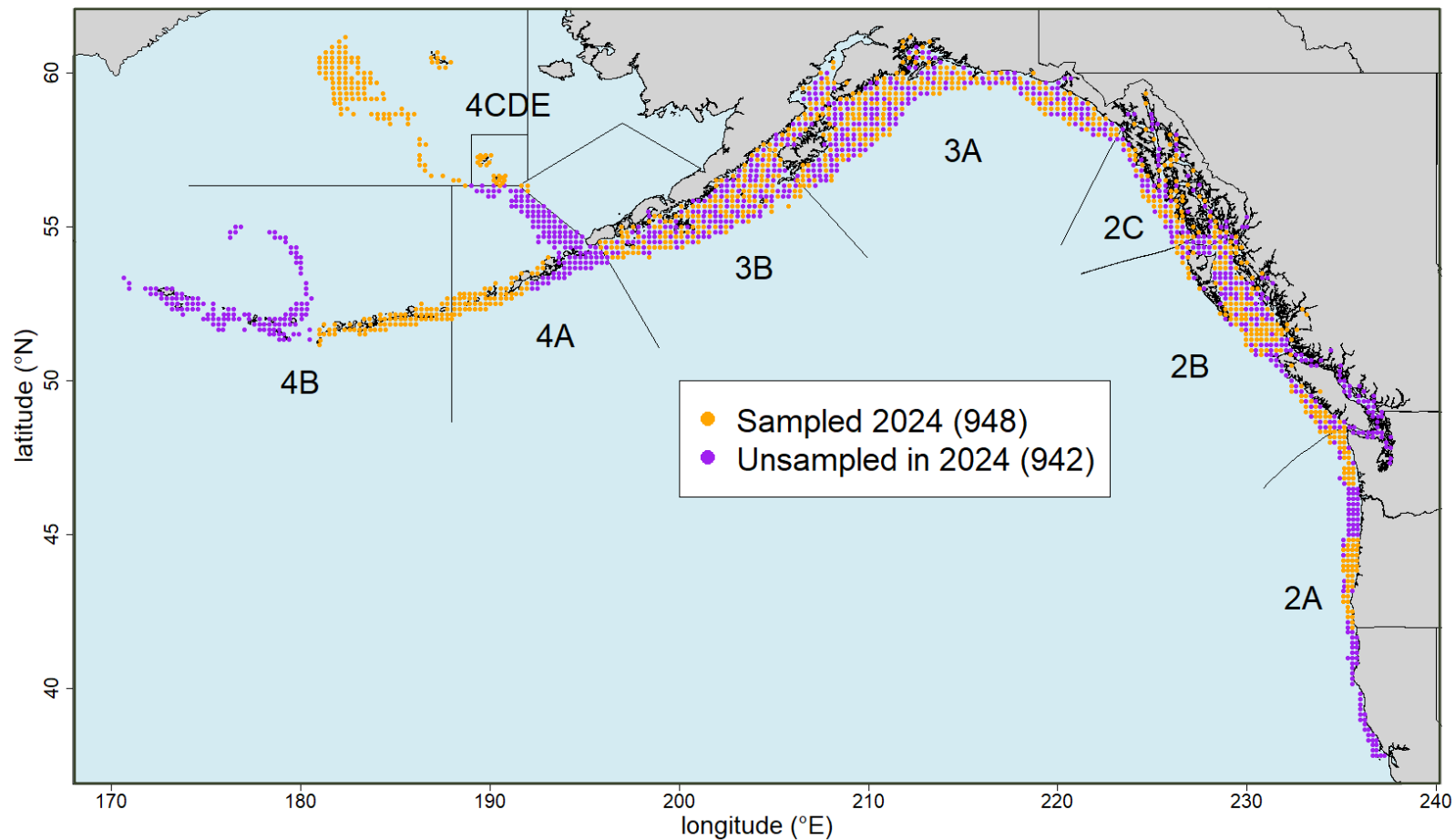
- The proposed designs use efficient subarea sampling in IPHC Regulatory Areas 2A, 4A and 4B, but incorporate a randomized design in IPHC Regulatory Areas 2B, 2C, 3A and 3B
- We have continued to propose sampling all standard FISS stations in IPHC Regulatory Area 4CDE
 - A highly dynamic area with apparently northward-shifting distribution, and uncertainty regarding connectivity with populations near to and within in Russian waters
 - We note that complete sampling did not take place in 2021 (north only) and in 2022, only the southern portion has been sampled
 - We also note the following recommendation from SRB019:
SRB019–Rec.02 ([para. 14](#)) **NOTING** the presentation of three alternative 2022 sampling designs ([Figs. 1, 2, and 3](#)) that optimize the SRB018-endorsed proposed 2022 design for cost, thereby meeting the goals of long-term revenue neutrality (Secondary Objective), without compromising the scientific goals of the FISS (Primary Objective), the SRB **RECOMMENDED** that the Secretariat prioritize 2022 sampling designs that include IPHC Regulatory Area 4CDE despite the relatively low contribution of this area to overall biomass and variance. This region is an important area to monitor for future range shifts and biological samples collected here are likely to be important for understanding the biology of Pacific halibut at their leading range edge.



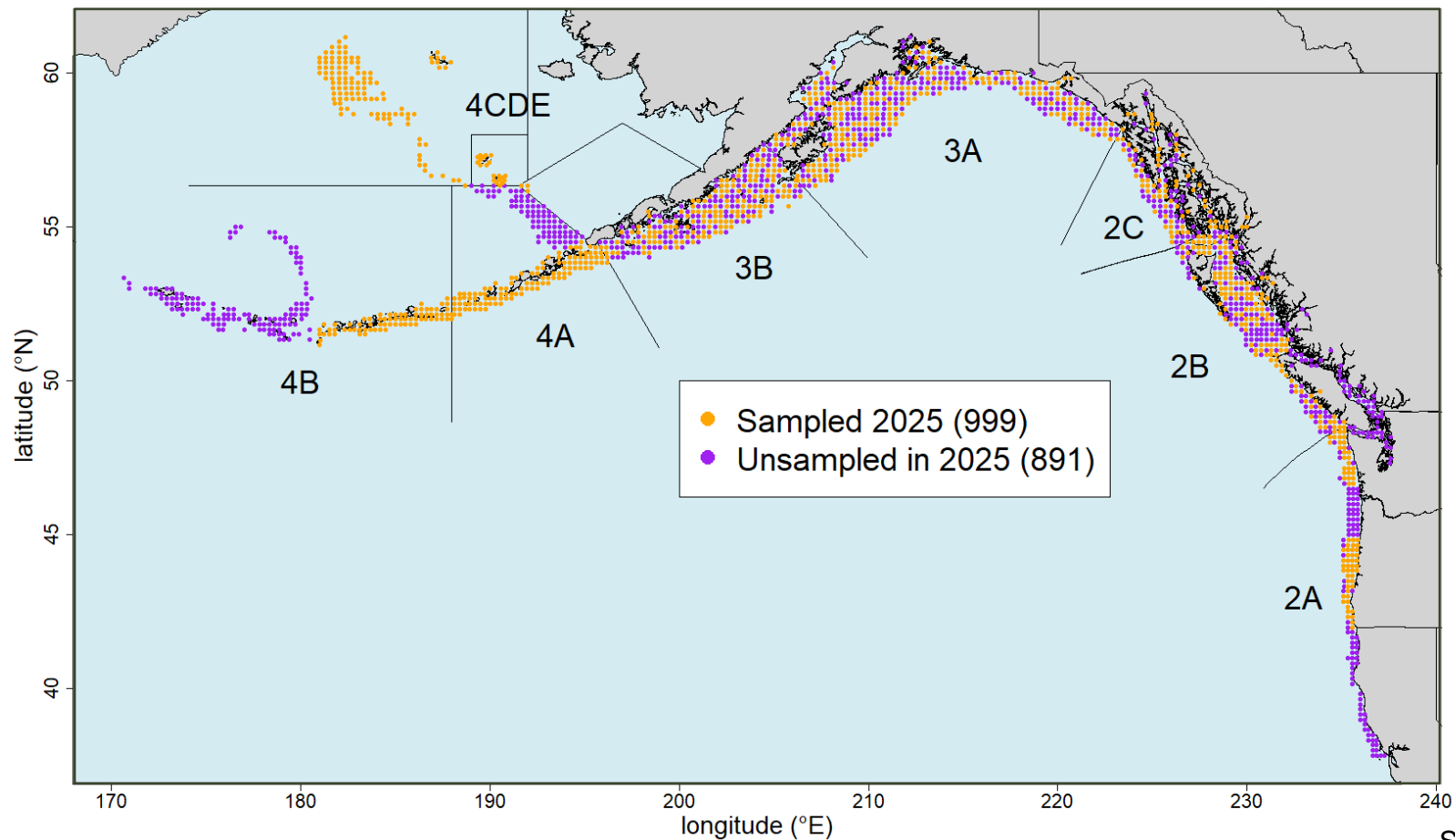
Proposed 2023 FISS design



Proposed 2024 FISS design



Proposed 2025 FISS design



Changes from preliminary 2023-24 proposals

- The 2023-24 designs have been revised from 2021 proposals:
 - In IPHC Regulatory Area 2A, we added the moderate density waters of southern Washington/northern Oregon and northern California (2023 only)
 - Previously not proposed before 2025
 - In IPHC Regulatory Area 4B, we added the western subarea (2023 only)
 - Previously proposed for 2022 but lacked a suitable charter bid



Scientific Review Board endorsement

- Scientific evaluations of the proposed designs were presented at SRB020 and again at SRB021:
 - Designs are expected to result in estimates that meet data quality needs in terms of variance and bias

At SRB020:

IPHC-2022-SRB020-R: (para. 12) *“The SRB ENDORSED the final 2023 FISS design as presented in Fig. 2, and provisionally ENDORSED the 2024-25 designs (Figs. 3 and 4), recognizing that these will be reviewed again at subsequent SRB meetings.”*

At SRB021:

IPHC-2022-SRB021-R: (para. 19) *“The SRB ENDORSED the proposed 2023 FISS design as presented in Fig. 2, and provisionally ENDORSED the 2024-25 designs (Figs. 3 and 4), while also recognising that the 2023 design will need to be further optimised to ensure other Commission objectives are met, including but not limited to maintaining long-term revenue neutrality.”*



Consideration of cost

- The proposed FISS designs for 2023-25 incorporate some consideration of cost
 - Logistically efficient subarea designs are proposed in lower-density IPHC Regulatory Areas.
- The goal here was to provide statistically efficient and logistically feasible designs for consideration by the Commission
- The FISS is funded by sales of captured fish and is intended to have long-term revenue neutrality, meaning that any design must also be evaluated in terms of the following factors:
 - Expected catch of Pacific halibut
 - Expected Pacific halibut sale price
 - Charter vessel costs, including relative costs per skate and per station
 - Bait costs
 - IPHC Secretariat costs



Consideration of cost

- Balancing these factors will almost certainly result in modifications to the design proposals:
 - e.g., increase sampling effort in high-density regions and decrease effort in low density regions
- Optimized designs accounting for cost are to be presented to Commissioners at the Interim and Annual Meetings



Cost-optimized designs for 2023

- The Commission is considering a sequence of potential cost-optimized designs:
 - Designs are optimized by increasing stations and skates in core areas (2B, 2C, 3A and 3B) and reducing FISS station coverage elsewhere to varying degrees
 - Designs at or close to revenue neutral feature up to 8 skates/set in core areas, no FISS sampling in 4CDE (NMFS trawl sampling still provides coverage) and reduced or no sampling in 2A, 4A and/or 4B.



RAB input

- Initial designs are proposed based on scientific objectives and subsequently optimized to meet secondary and tertiary objectives.
- However, there is the potential for flexibility in FISS implementation.
- In use or being considered by IPHC:
 - When adding stations to meet revenue neutrality objective, exclude harder-to-fish deep stations (and shallow stations)
 - Prioritize order in which stations are fished
 - Reduce the number of skates fished in low-density/expensive regions
 - Allowing snap gear on charter vessels
 - Improve sales choices regarding price accepted for bycatch species



RAB input

- Other options for discussion:
 - Multi-year bids
 - Dual-vessel bids
 - Sharing stations between vessels to optimize tidal windows
 - Adding stations back into the design to improve operational efficiency
 - e.g. when a station is isolated, add adjacent station(s) that were not part of the original design



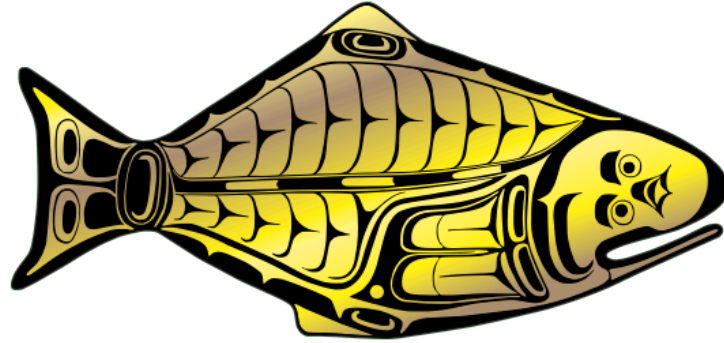
Recommendation

That the Research Advisory Board:

NOTE paper IPHC-2022-RAB023-07 that presents the FISS design proposals for 2023-25 together with an evaluation of the proposed designs and provide feedback to Commissioners on practical considerations for implementing the FISS in 2023.



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