

**Report on SRB-12 and SRB-13
IPHC Interim Meeting
27 Nov 2018**

Jim Ianelli

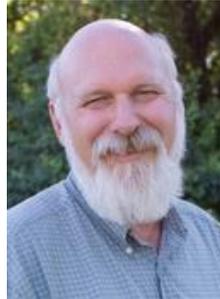
Alaska Fisheries Science Center

Science Review Board (SRB)

Met in June and September, ~3 days each



Sean
Cox



Kim
Scribner



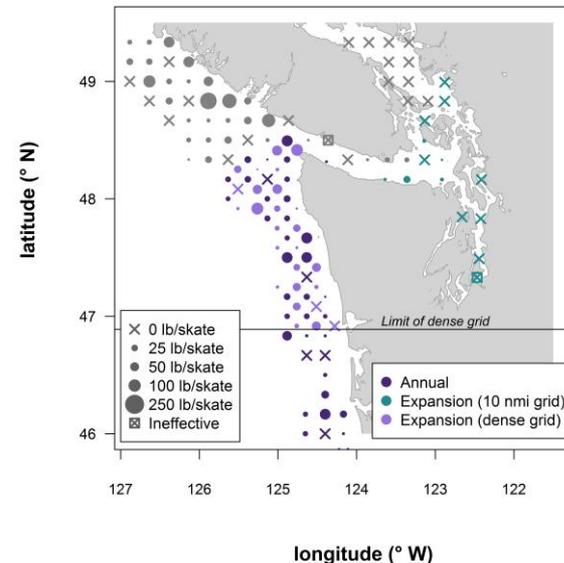
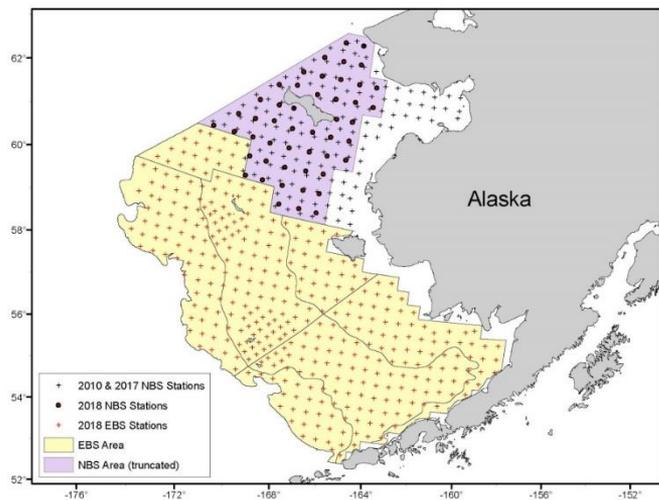
Marc
Mangel

SRB process

1. **OPENING OF THE SESSION**
2. **ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION**
3. **IPHC PROCESS**
 - 3.1. Update on the actions arising from the 12th Session of the SRB (SRB012) (D. Wilson)
 - 3.2. Outcomes of the 2018 IPhC Work Meeting (WM2018) (D. Wilson)
 - 3.3. SRB annual workflow (D. Wilson)
4. **IPHC FISHERY-INDEPENDENT SETLINE SURVEY (FISS)**
 - 4.1. Methods for spatial setline survey modelling – results to date for 2018 (R. Webster)
5. **PACIFIC HALIBUT STOCK ASSESSMENT: 2018**
 - 5.1. Data source development (I. Stewart)
 - 5.2. Modelling updates (I. Stewart)
6. **MANAGEMENT STRATEGY EVALUATION: UPDATE**
 - 6.1. Updates to MSE framework and closed-loop simulations (A. Hicks)
 - 6.2. MSE Simulation results (A. Hicks)
 - 6.3. Distribution procedures (A. Hicks)
7. **BIOLOGICAL AND ECOSYSTEM SCIENCE RESEARCH UPDATES**
 - 7.1. Biological research updates (J. Planas)
 - 7.2. Review of discussions on long-term research plans incorporating new research topics (J. Planas).
8. **REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 13TH SESSION OF THE IPHC SCIENTIFIC REVIEW BOARD (SRB013)**

Fishery independent setline survey

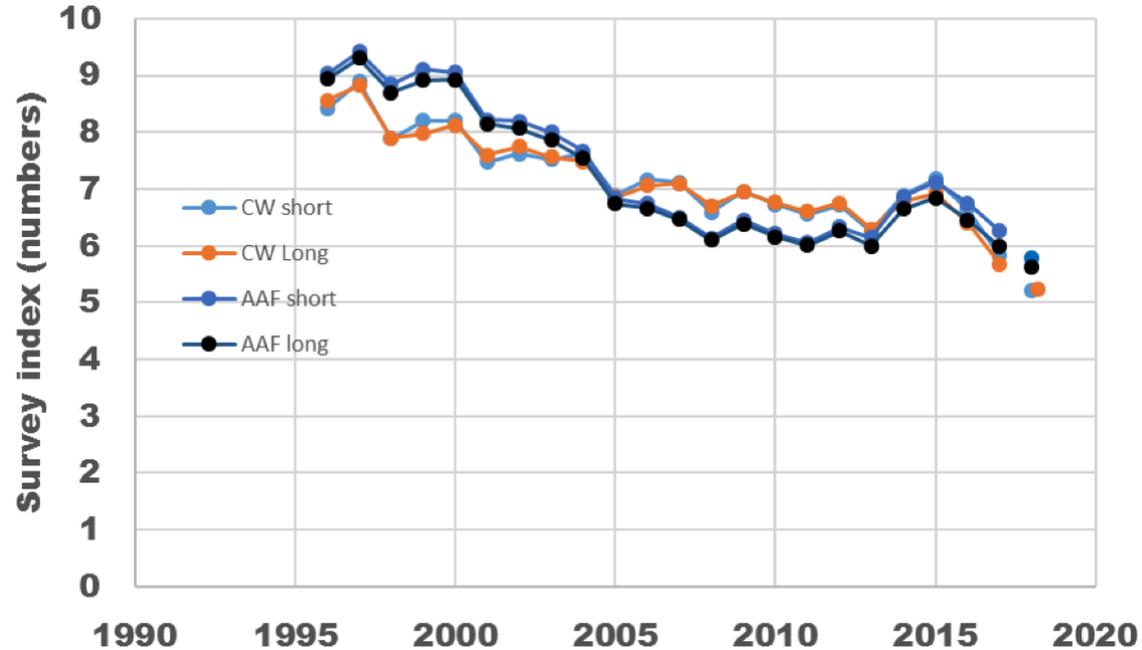
- SRB noted:
 - 6th review of space-time modeling (endorses)
 - Expanded stations helped reduce uncertainty
 - Cost-benefit on station density may be required
 - NBS data treated the same as EBS



Interim meeting, November 2018

Pacific halibut stock assessment: 2018

- 2018 routine update of model
- Full assessment planned for 2019
- SRB developed schedule



Pacific halibut stock assessment: 2018

21. **NOTING** that the Commission has asked the IPHC Secretariat to develop a paper for consideration at the 94th Session of the IPHC Interim Meeting, that outlines both the current IPHC peer review process and areas for potential improvement, the SRB **RECOMMENDED** the following:

- a) Pacific halibut stock assessment and peer review cycle, noting that the intention is for the SRB to undertake annual peer review of stock assessment updates, and a peer review of the full stock assessment, independent of the SRB, occurs once every three years, that would then feed into the SRB process ([Table 1](#)).

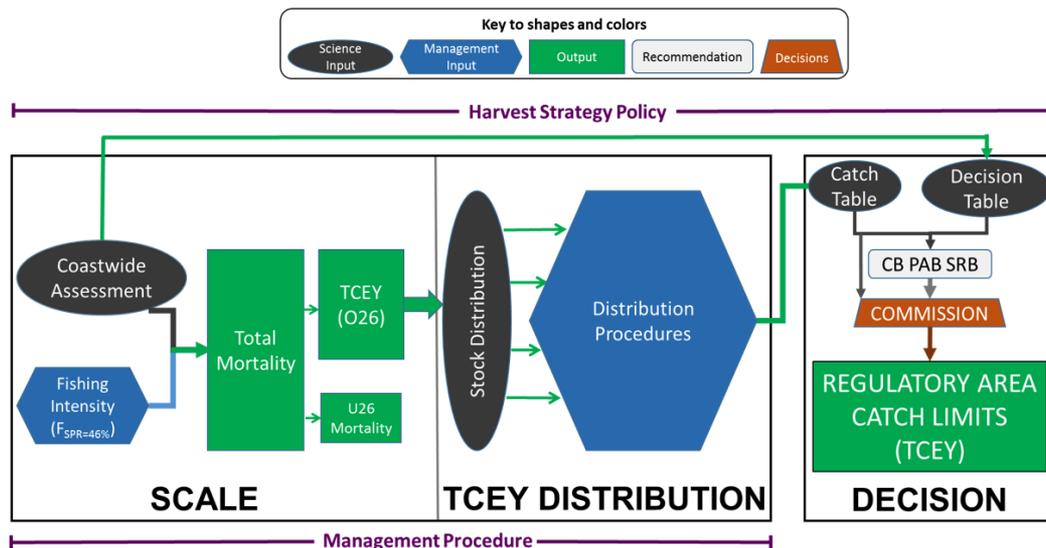
Table 1. IPHC stock assessment peer review timeline 2018-26.

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026
Stock assessment	Update	Full assessment	Update	Update	Full assessment	Update	Update	Full assessment	Update
Peer review	SRB	External & SRB	SRB	SRB	External & SRB	SRB	SRB	External & SRB	SRB

MSE

Program of Work

- January 2019: Recommendations on Scale
 - Coastwide fishing intensity (HCR)
- January 2021: Recommendations on Distribution (and Scale)



MSE

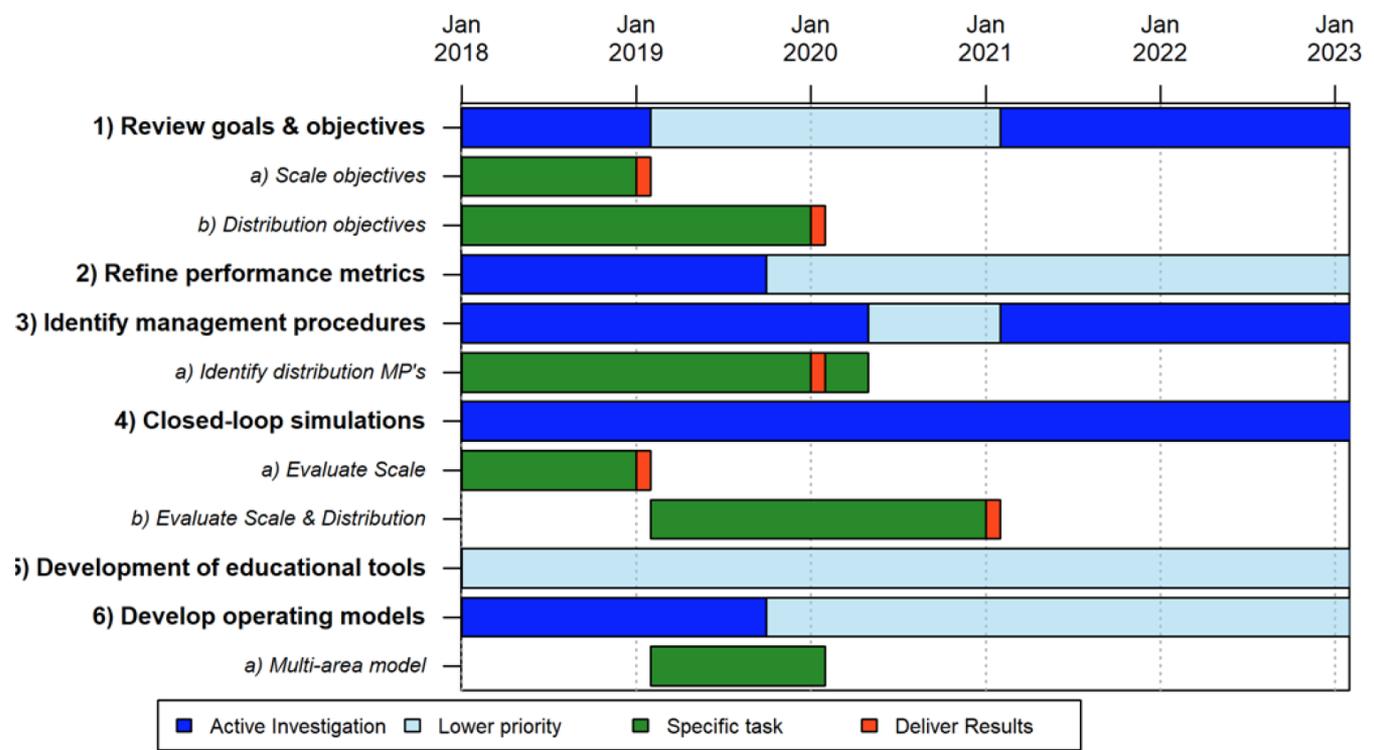


Fig. 1. Gantt chart for the IPHC MSE 5-year Program of Work. Tasks are listed as rows. Dark blue indicates when the major portion of the main tasks work will be done. Light blue indicates when preliminary or continuing work on the main tasks will be done. Dark green indicates when the work on specific sub-topics will be done. The orange colour shows when results will be presented at an Annual Meeting.

MSE

Management Strategy Evaluation: update

SRB013–Req.01 ([para. 26](#)) The SRB **REQUESTED** that the MSAB consider listing prioritized objectives used to guide the selection of a management procedure. These could include any combination of short, medium and long-term objectives provided Commission objectives be given highest priority. All performance metrics in the MSE must be computed from the operating model. See [paragraph 30](#) for further clarification.

- MSAB list prioritized objectives

Current Goals and Objectives (primary)

GENERAL OBJECTIVE	MEASURABLE OBJECTIVE	MEASURABLE OUTCOME	TIME-FRAME	TOLERANCE	PERFORMANCE METRIC
1.1. KEEP BIOMASS ABOVE A LIMIT TO AVOID CRITICAL STOCK SIZES Biomass Limit	Maintain a minimum female spawning stock biomass above a biomass limit reference point at least 90% of the time	SB < Spawning Biomass Limit (SB_{Lim}) SB_{Lim} =20% spawning biomass	Long-term	0.10	$P(SB < SB_{Lim})$
2.1 LIMIT CATCH VARIABILITY	Limit annual changes in the coastwide TCEY	Average Annual Variability (AAV) > 15%	Long-term	0.25	$P(AAV > 15\%)$
2.2 MAXIMIZE DIRECTED FISHING YIELD	Maintain TCEY above a minimum level coastwide	Coastwide TCEY < $TCEY_{min}$	Long-term Short-term	?? ??	$P(TCEY < TCEY_{min})$

MSE

Updates to MSE framework and closed-loop simulations

SRB013–Req.02 ([para. 29](#)) The SRB **REQUESTED** that in future iterations of the MSE, the IPHC Secretariat and MSAB consider:

- a) the use of estimation error in the proxy assessment method with coefficients of variation equal to 1.0; a correlation coefficient of autocorrelation equal to 0.2 represents one plausible scenario. A larger error and autocorrelation could be considered in robustness tests or as alternative scenarios;
 - b) a management procedure include a constraint of the TMq values to be consistent with the maximum change that has happened historically;
 - c) the current conditioned operating model be used to simulate a coast-wide survey index and that such data be used to consider an alternative survey-based management procedure (with a proxy assessment method that is more robust than the current SPR based control-rule and help with MSAB deliberations).
- **Fine tune simulations**
 - **Specify catch variability ~ history**
 - **Examine survey-based procedure**
-

MSE

RECOMMENDATIONS

MSE Simulation results

SRB013–Rec.02 ([para. 30](#)) The SRB **RECOMMENDED** a clear separation between the current stock assessment process and MSE process, so that it is understood:

- a) these two processes, including statistics and performance metrics, are distinct and not comparable;
- b) the purpose of the current ensemble stock assessment approach is to develop a decision table to assist the Commission in setting an annual TCEY. This TCEY setting process lacks specificity and how decisions are made is unclear. Furthermore, repeated application of this process is difficult to evaluate relative to Commission objectives;
- c) the purpose of the MSE is to compare alternative management procedures against Commission objectives over a wide range of plausible uncertainties within the operating model and management procedures. Therefore, these procedures by definition must be specific and repeatable.

Biological research

Integration of biological research, stock assessment and policy



Biological research		Stock assessment	Stock assessment MSE
Research areas	Research outcomes	Relevance for stock assessment	Inputs to stock assessment and MSE development
Reproduction	Sex ratio Spawning output Age at maturity	Spawning biomass scale and trend Stock productivity Recruitment variability	Sex ratio Maturity schedule Fecundity
Growth	Identification of growth patterns Environmental effects on growth Growth influence in size-at-age variation	Temporal and spatial variation in growth Yield calculations Effects of ecosystem conditions Effects of fishing	Predicted weight-at-age Mechanisms for changes in weight-at-age
Discard Survival	Bycatch survival estimates Discard mortality rate estimates	Scale and trend in mortality Scale and trend in productivity	Bycatch and discard mortality estimates Variability in bycatch and uncertainty in discard mortality estimates
Migration	Larval distribution Juvenile and adult migratory behavior and distribution	Geographical selectivity Stock distribution	Information for structural choices Recruitment indices Migration pathways and rates Timing of migration
Genetics and Genomics	Genetic structure of the population Sequencing of the Pacific halibut genome	Spatial dynamics Management units	Information for structural choices

Biological research

41. The SRB **REQUESTED** that specific research topics, analysis and results be addressed in depth at subsequent SRB meetings, and that at SRB014, a presentation focused on population genetics and migration as they relate to the stock assessment and MSE work be provided. For example, how does this work identify alternative hypotheses for movement and population structure that can be considered in the MSE process and the stock assessment.

Thanks!