SCIENTIFIC AND STATISTICAL COMMITTEE DRAFT REPORT for the NORTH PACIFIC FISHERIES MANAGEMENT COUNCIL

B-1 Plan Team Nominations

- The SSC reviewed the Plan Team nominations of Ben Daly (CPT) and Kirstin Holsman (BSAI GPT).

- The SSC finds both of these nominees to be well qualified, with appropriate expertise that will assist these Plan Teams. The SSC recommends that the Council approve these nominations.

C-6 IFQ Program Review

The SSC commends the analysts for being responsive to past SSC recommendations and comments.

Review identifies a dashboard of clear metrics for many of the stated objectives of the IFQ program and draws on peer reviewed literature for support.

The analysts have done an excellent job consolidating existing information and previous analyses.

C-6 IFQ Program Review

The SSC finds the analysis synthesizes the best available information to characterize whether the IFQ program may or may not be achieving each of its stated objectives.

C-6 IFQ Program Review

SSC is concerned that metrics of several key objectives of the IFQ program are not being adequately tracked.

While the document tracks the division of revenues between processors and vessels with wholesale and ex-vessel prices, this is not equivalent to tracking the extent to which fishery rents accrue to processors, vessel owners, crew, and quota owners. -who are directly involved in the fishery benefit from the IFQ program?

C-6 IFQ Program Review

SSC is concerned that metrics of several key objectives of the IFQ program are not being adequately tracked:

While the document clearly shows that the reduction in vessels had led to a reduction in crew jobs, the jobs that remain are much different: they are longer-term, more stable, and offer more total pay per job. - Understanding the crew and community effects of this change requires identifying whether work is being compensated at a higher or lower rate than pre-IFQ.

C-6 IFQ Program Review

SSC is concerned that metrics of several key objectives of the IFQ program are not being adequately tracked:

While the document describes changes in the timing and location of the processing sector, understanding the number and structure of processing jobs is critical to monitoring whether and how the fishery is supporting its communities.

The SCC recommends refining the indices to reflect the role of both fishing and specific fisheries within the context of culture and employment opportunities within each community.

C-6 IFQ Program Review

Recommendations

In the absence of available data, the SSC recommends leveraging local case studies to illustrate changes and contextualize the metrics used.

The SSC recommends that the analysts include graphics and maps that show the changes over time across the state so that the Council and the public can better understand the effects of this program.

C-6 IFQ Program Review

The SSC emphasizes that this review does not identify program impacts separate from other causes and trends. This review exemplifies the importance of such an analysis, as understanding the effects of the IFQ program requires supporting documentation that reflect changes in market conditions, other fisheries.

Within the context of newer requirements for program reviews, the SSC recommends taking action to insure these information gaps do not persist in ensuing five-year reviews. The SSC welcomes the invitation in the Council's June motion to "develop a proposal to establish a Social Science Plan Team and to outline the scope of its work."

C-7 Area 4 Halibut IFQ Leasing

The SSC commends the analyst for the thorough analysis and careful description of the different elements of the proposed action. Overall, the information provided in the analysis is very helpful for understanding the tradeoffs and the potential net benefits involved with the proposed action.

While most areas of the analysis are comprehensive and complete, some areas of the analysis are deficient in providing information for the Council on this issue.

The SSC therefore recommends that the RIR/IRFA be released for public review once the following items have been addressed:

C-7 Area 4 Halibut IFQ Leasing

- The analysis does not adequately capture the fishing opportunities of CDQ participants outside of the CDQ/IFQ halibut fisheries. In particular, the analysis would benefit from summarizing the fishing activities of CDQ vessels in years when they do not land CDQ halibut.

- As it stands, it is not possible to infer whether or not the alternative years in Option 4 are overly restrictive—i.e., could the cooling-off years choke off any potential leasing to CDQ, thereby negating the purpose of the proposed action? Summarizing the average and/or distribution of QS holder tenure is one possible option for providing some context for Option 4.

C-7 Area 4 Halibut IFQ Leasing

- The discussion regarding market effects seems to conflate two separate issues: 1) concerns regarding the owner-operated nature of the fleet, and 2) concerns regarding entry opportunities into the halibut QS market. These issues should be discussed separately and at greater length, with more emphasis on both the benefits and costs associated with potential market effects.

C-7 Area 4 Halibut IFQ Leasing

- The analysis would benefit from strengthening the case that the proposed action would actually provide additional harvesting opportunities to halibut CDQ vessels beyond the current capabilities of CDQ groups.
- In particular, it should include a discussion of whether current CDQ allocations are being harvested by resident vessels this program is intended to support. While this information may be included in Figures 7 and 8, it would be useful to separate IFQ utilization from CDQ utilization.

C-7 Area 4 Halibut IFQ Leasing

While leasing commercial halibut IFQ to CDQ groups has the potential to create additional harvesting opportunity for CDQ groups, it could also compromise the goal of having a predominantly owner-operated fleet. Thus, the Council will have to consider this tradeoff and the precedent it could set for future leasing opportunities in the halibut IFQ fishery.

D-1 BSAI Halibut Abundance-Based PSC

- At the request of the Council, the SSC reviewed a discussion paper lays out some options for developing indices and control rules as the basis for determining PSC limits.
- The SSC emphasizes, as noted by the analysts, **that indices of abundance can only be considered and evaluated in the context of a control rule.** It difficult to comment on the utility of specific abundance indices in the absence of an analysis to evaluate their performance in the context of meeting multiple, and sometime conflicting, objectives.
- Ensure stability in the PSC rates to avoid large year-to-year variations *versus* provide a responsive management at varying levels of halibut abundance

D-1 BSAI Halibut Abundance-Based PSC

- The SSC appreciates the analysis and discussion of a number of candidate indices that were presented in April and at this meeting. The discussion paper and public workshop held at the AFSC in September recommended an integrated abundance-based management (ABM) index. While the ABM index could be one potential candidate for setting PSC limits, the SSC pointed out some serious shortcomings of the ABM index and requests that a broader suite of options for candidate abundance indices and control rules be examined together in subsequent analyses, rather than restricting analyses to a single index like the ABM at this stage.

D-1 BSAI Halibut Abundance-Based PSC

- With respect to the ABM index, the SSC notes that combining three indices with different types information is not transparent in that the index is not easily interpreted and it is unclear how it would trade off multiple, potentially conflicting objectives.
- As pointed out in public testimony, the index would likely have been ineffective at constraining PSC during the recent period of decline in coastwide halibut biomass.
- The ABM index combines a coastwide abundance index of large halibut from the IPHC survey with trawl survey indices of smaller halibut caught in the EBS and GOA trawl surveys. The SSC notes that equally weighting the two trawl-based indices may implicitly put more weight on a halibut in the GOA because the majority of smaller halibut occur in the GOA.

D-1 BSAI Halibut Abundance-Based PSC

- The SSC suggests that ***different indices may need to be considered to meet different objectives, which could then be combined in a control rule or decision making framework t***hat allows the Council to evaluate the tradeoffs between protecting spawning stock biomass, constraining PSC, and providing opportunities for a directed fishery.
- The SSC encourages additional analyses on a survey- or model-based juvenile halibut index that can be evaluated under a chosen control rule for its effectiveness in protecting future spawning biomass. However, we realize that a suitable index of juvenile abundance may not be available at this time.
- We provide examples of an approach that is amenable to analyses with one of the proposed modeling options, is transparent and simple to implement, and can be used to evaluate trade-offs among competing objectives.

D-1 BSAI Halibut Abundance-Based PSC

- For example, control rules for setting PSC at different levels of the spawning biomass index and different levels of EBS trawl survey abundance can be combined into a simple two-dimensional decision table to set a PSC level. (Adding a third dimension may be necessary and would be straightforward).

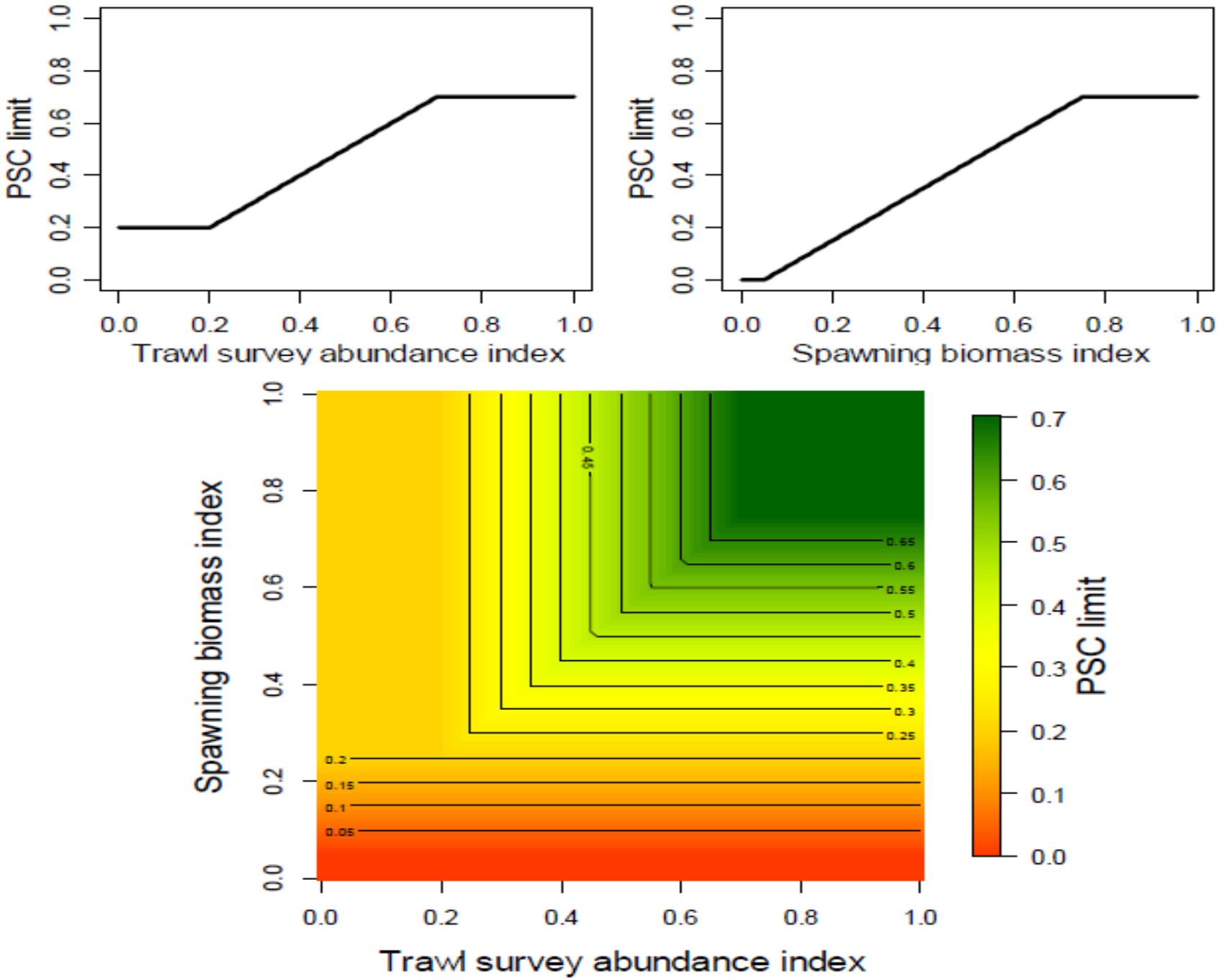
Example decision table to set PSC based on the level of two indices. PSC is set at the level of the index that is most constraining. For example, at low levels of spawning biomass, PSC is set at a low level regardless of the value of the trawl survey index.

		EBS exploitable biomass index		
		Low	*Medium*	*High*
Coastwise spawning biomass index	*High*	Low	Intermediate	High
	Medium	Low	Intermediate	Intermediate
	Low	Low	Low	Low

D-1 BSAI Halibut Abundance-Based PSC

It may be preferable to formulate continuous control rules like those presented in the discussion paper that would avoid abrupt changes in PSC. These control rules could similarly be combined in a 2- or 3-dimensional framework for setting PSC as illustrated below and represent a simple extension of the decision table.

This framework allows different control rules to address different objectives. For example, control rules that reflect allocation decisions would have a different shape, as determined by the Council, than a control rule to protect spawning biomass.


PSC limit
Trawl survey abundance index
Spawning biomass index
0.0
0.2
0.4
0.6
0.8
1.0
0.7
0.5
0.3
0.1
0.45
0.65
0.55
0.35
0.25
0.15
0.05

D-1 BSAI Halibut Abundance-Based PSC

The SSC is encouraged by the continuing development of the technical interaction model (AFSC) and the Management Strategy Evaluation model for halibut (IPHC), both of which provide suitable frameworks for evaluating the consequences of different bycatch control rules for the directed halibut fishery, for groundfish fisheries, and for the halibut stock.

D-3 EFH Descriptions

- The current information available for defining EFH for marine fish and crab stocks managed by the NPFMC is the product of a large group of analysts. The SSC commends this team for their progress to date.

- The SSC considered EFH mapping driven by environmental co-variates instead of catch distributions to ***be a major step forward*** and supported the use of species' distribution modeling for predicting their distributions.

- **The SSC agrees with the authors that existing definitions of the EFH for crab and groundfish should be amended to incorporate the results of new analytical methods.**

D-3 EFH Descriptions

When considering EFH definitions, the SSC does not recommend combining surfaces based on GAM and MaxEnt methods into a single EFH map.

If a single map is desired, the CPT recommended and the SSC agrees that MaxEnt methods should be applied to summer survey data to allow for the construction of an annual map based on seasonal output derived from common methodology. The SSC noted that when considering fishing effects on EFH, there may be value in considering ontogenetic or seasonal shifts in spatial distribution.

D-3 EFH Descriptions

- The GPTs noted that depictions of EFH are only as good as the data used to derive the maps. With this in mind, the SSC discussed the need for continued validation experiments to assess the predictive skill of the models beyond the out-of-sample statistical analyses that have already been performed.
- The SSC requests the inclusion of the methods used to define EFH in the body of the amendment package rather than in the appendices, and that the data used to derive the maps is clearly stated in the figure legends.

D-5 Fishing Effects Criteria

In April 2016, the SSC recommended the formation of a sub-committee to develop criteria for evaluating the impact of fishing effects on EFH. This sub-committee was formed with membership including SSC and Plan Team members as well as the leads for the EFH work-group and scientists from Alaska Pacific University.

The sub-committee met during the summer and developed a white paper describing impact assessment methods. This white paper was presented to the CPT and GPTs in September.

D-5 Fishing Effects Criteria

The proposed methods outline a hierarchical impact analysis framework that utilizes the availability of time varying estimates of fisheries effects.

This framework provides an evidence based impact assessment to assess the potential effects of fishing on EFH for crab and groundfish resources.

The goal of the framework is to assess whether there is a fishing effect on EFH that is more than minimal and produces significant and temporary impact(s) on the growth-to-maturity, spawning success, breeding success, and/or feeding success of species managed by the NPFMC.

D-5 Fishing Effects Criteria

The improved analytical products allow analysts to evaluate linkages between time trends in fishing effects on EFH and independently determined time trends in size-at-age, recruitment, spawning distributions and feeding distributions.

It will be important to develop a mechanistic tie between the effect on EFH and the impact on the fish.

D-5 Fishing Effects Criteria

The SSC discussed the white paper to provide guidance to questions posed by the sub-committee

1. Are the assessment cutoffs correct?

- The white paper proposes that analysts identify a core area for each species that represents the upper 50th percentile of predicted abundance or suitable habitat. The rationale for the 50th percentile cut-off was that analysts wanted to find a balance between an area that represented a high likelihood of the species being present and an area big enough to include adaptive movement options for the species.
- The SSC recognized that inclusion of a larger region would dampen the fishing effects and thus, if a threshold effect of habitat disturbance was not detected at the 50th percentile it was unlikely that it would be detected at the 95th percentile.
- the SSC requests that the ***sub-group examines the relationship between impacts assessed using the core area cut-offs of 50% and 95% for a sub-set of species with a range of distributional attributes.***

D-5 Fishing Effects Criteria

The SSC discussed the white paper to provide guidance to questions posed by the sub-committee

- The SSC discussed the merits of the proposed impact threshold of 10% of EFH being in the disturbed state. The SSC recognizes that the selection of the impact threshold is critical because if habitat reductions are below the threshold, then no further assessment would be needed. The SSC saw the merits of the 10% threshold but ***asks the sub-committee to examine the frequency that other cut-offs (say 5% and 20%) would be reached for the same sub-set of species for which the different core area definitions are assessed.***

D-5 Fishing Effects Criteria

The SSC discussed the white paper to provide guidance to questions posed by the sub-committee

2. Should assessments be based on regional boundaries for the stock/species?

- The SSC recommends that the ***authors use their best judgement on the boundaries*** for their impact assessment. The SSC ***did not support the concept of dropping the eastern Gulf of Alaska*** from the analysis simply because no trawling occurs in this region. The possible benefits of habitat protection realized by the trawl closures in the EGOA should be considered in the impacts assessment of mobile species.

D-5 Fishing Effects Criteria

The SSC discussed the white paper to provide guidance to questions posed by the sub-committee

3. Management response

- The SSC reviewed the proposed framework for pursuing next steps if an analyst identifies a potential fishing effect impact concern.
- The SSC ***agrees with the plan for the analyst to bring his or her concerns to the Plan Team(s) and SSC for review, comment, and evaluation***. The GPTs recognized that a process will need to be developed that addresses how to move forward if an adverse impact is indicated.
- The SSC noted that these next steps may include focused research projects to verify the proposed cause and effect relationships between habitat disturbance rates and stock demographics.

D-5 Fishing Effects Criteria

The SSC discussed the white paper to provide guidance to questions posed by the sub-committee

4. Comments on Fishing Effects model

- The SSC requests that the sub-committee ***include recovery rates in the next iteration*** of the EFH impacts review. The SSC recommends that the sub-committee ***include an additional biological feature category for long-lived corals/sponges*** and develop a white a paper describing the expected fishing effects to this group.