

Meeting Date and Location

The 8th session of the MSAB was held in Seattle at the IPhC office on October 26th and 27th, 2016.

Participation

Board Members Attending:

Bob Alverson (Commissioner)	Dan Hull	Per Odegaard
Rachel Baker	Adam Keizer (Co-chair)	Peggy Parker
Michele Culver (Co-chair)	Tom Marking	Chris Sporer
Robyn Forrest	Scott Mazzone	John Woodruff
Bruce Gabrys	Scott Meyer	

IPHC Staff Attending:

Allan Hicks
Steve Keith
David Wilson
Josep Planas
Jamie Goen
Ed Henry

Visitors Attending / Observers:

Carey McGilliard (NMFS/AFSC)
Linda Behnken (Commissioner)

Board Member Absentees:

Gregg Elwood
Shane Halverson
Jeff Kauffman
Ryan Littleton
Jim Lane
Brad Mireau
Paul Ryall (Commissioner)

Facilitator:

Chris Joseph (Swift Creek Consulting)

Meeting Objectives

1. Maintain progress with respect to work plan and actions identified in previous meeting.
2. Become familiar with and discuss abundance based management as a potential management procedure or scenario for the MSE process.
3. Address Commission requests of the MSAB, and get prepared to report back to Commission at upcoming Commission meetings.
4. Become familiar with SRB comments on MSAB progress and take action where desired.

Summary of Actions

Number	Description
1.	Adam Keizer, with support of steering committee, will complete edits to the Terms of Reference regarding term limits and consensus in time for adoption at the Interim Meeting. The first draft will be provided to steering committee by November 4 th . The final draft will be completed by steering committee by November 11 th .
2.	Staff will propose changes to the MSAB Terms of Reference to standardize with IPHC rules of procedure at the Interim Meeting for adoption at the Annual Meeting in January 2017.
3.	Allan Hicks will define the term 'scenario' and include it in the list of definitions in the workplan by November 4 th .
4.	Allan Hicks will write up his qualitative evaluation of current harvest policy as a RARA chapter. The RARA chapter will be published in time for the Annual Meeting.
5.	Staff (Allan Hicks) will develop materials by the Interim Meeting to describe SPR for the purpose of supporting MSAB members' communication with their constituents.
6.	Michele Culver will revise goals, objectives and intent document and send to steering committee by November 4 th . Steering committee will make adjustments as needed and publish on Sharepoint by November 11 th .
7.	Adam Keizer and Michele Culver will gather guidance from Commissioners on MSAB presentations for Interim and Annual Meetings.

Summary of Decisions

Number	Description
1.	MSAB accepted the revised workplan.
2.	MSAB accepted staff's presentation and forthcoming RARA chapter as an initial evaluation of the current harvest policy.
3.	MSAB requested staff to use social media to announce release of meeting summaries.
4.	MSAB supported hiring a programmer and bringing in a consultant to support the MSE, pending budget constraints.

Summary of Recommendations

Number	Description
1.	<p>Recommendation to Commissioners for upcoming the Interim and Annual Meetings, with regards to the current harvest policy:</p> <p><i>The MSAB was tasked by Commissioners with reviewing the current harvest policy ("Halibut Commission Completes 2016 Annual Meeting" at http://iphc.int/news-releases/447-nr20160208.html). The MSAB reviewed the current harvest policy and found that the current harvest policy is unresponsive to under 26" (U26) mortality, and selectivity curves used to define exploitable biomass (EBio) are outdated. The forthcoming 2016 RARA will include a chapter describing the results of this review in greater detail. The MSAB recommends to the Commission that alternative harvest policy approaches that address these shortcomings and take into account all sizes of fish be evaluated. One approach that should be evaluated is a Spawning Potential Ratio (SPR) based harvest policy.</i></p>

Meeting Agenda

October 26, 2016

9-10am	Opening of the Meeting
10-10:15am	Spatial Model Complexity
10:15am-12pm	Management Procedures <ul style="list-style-type: none">- Current and Realized Harvest Policy- Abundance-based management of halibut bycatch in the Bering-Sea/Aleutian Islands
12-1pm	Lunch
1-4:30pm	Management Procedures (continued)

October 27, 2016

9-10am	Recap and Follow-on Discussions from Day One
10-11:30am	Goals and Objectives and Their Intent, and Performance Metrics
11:30am-12pm	IPHC Social Media and MSAB Outreach
12-1pm	Lunch
1-1:30pm	MSE Support and Resources <ul style="list-style-type: none">- IPHC Staffing- DFO Collaboration Opportunities
1:30-1:45pm	Feedback from SRB
1:45-2:30pm	Preparation for Upcoming IPHC Interim and Annual Meetings
2:30-4:30pm	Next Steps and Report of the Session

Key Points of Discussion

Opening of the Meeting

- Action items from May 2016 meeting were reviewed, and several new action items and a decision arose in response:
 - Adam Keizer reported that Action 1 from May 2016 (regarding edits to the MSAB Terms of Reference (ToR) and publishing on Sharepoint) was complete. The group discussed particularities of the MSAB ToR, such as meeting reports, and Dave Wilson explained the need to standardize the MSAB's ToR, as other advisory bodies' ToRs, with the IPHC's Rules of Procedure.
 - Keizer and Michele Culver reported that Action 2 from May 2016 (regarding guidance from Commission on a definition of the fishery and MSAB membership) was complete. Commissioners provided Keizer and Culver with relevant feedback in the September Commissioner meeting (see below in this section).
 - Culver reported that Action 3 from May 2016 (regarding drafting descriptions of the intent behind MSAB goals and objectives and publishing this material on Sharepoint) was complete and that this topic would be discussed later in the meeting.
 - Steve Keith reported that Action 4 from May 2016 (regarding re-sending the Sharepoint link to MSAB members) was complete.
 - Allan Hicks reported that Action 5 from May 2016 (regarding revising the MSAB workplan and publishing on Sharepoint) was complete. Hicks explained various changes made, including new descriptive material, renaming and redefining of some tasks, and the addition of definitions of key terms. The group discussed the importance of standardization of key terminology to facilitate group understanding and communication. Hicks explained that the workplan is a useful guide to his modeling work, but that the plan should be adapted as new information, opportunities, and challenges arise.
 - Hicks explained that Action 6 from May 2016 (regarding reviewing the current and realized harvest policies) was complete and that this topic would be the basis for much of the day's meeting.
 - Peggy Parker and Chris Sporer reported that Action 7 from May 2016 (regarding revision of the outreach plan and its publishing on Sharepoint) was complete.
 - Keith explained that Action 8 from May 2016 (regarding revisions to the MSAB website) had been started and is ongoing.

- Chris Joseph explained that Keith had completed Action 9 from May 2016 (regarding setting a date for this October 2016 meeting).
 - The MSAB formally approved the October 2016 meeting minutes. The group discussed that, in concert with new standards being implemented across the IPHC and its advisory bodies as directed by Wilson, MSAB meeting documentation would transition to a shorter timeline than has occurred in the past.
 - Keizer gave a summary of his and Culver’s engagement with IPHC Commissioners at the September Commissioner working meeting as representatives of the MSAB. At that meeting, Keizer and Culver reviewed MSAB progress and outputs since the last annual meeting, explained MSE, and presented upcoming work for the MSAB. In the course of that meeting, the Commissioners:
 - clarified that MSAB should focus on evaluation of management strategies for the directed fishery but also that the MSE should incorporate mortalities that also occurs as bycatch;
 - explained that MSAB participation should allow for external interested persons to engage and provide expertise;
 - indicated that there should be staggered term limits (4 year, renewable) for MSAB members; and
 - gave provisional support to the MSAB’s ToR (with formal promulgation to occur at next official Commission meeting). In discussing the outcomes and discussions that took place at the September meeting, the group raised the topic of consensus-based decision-making in MSAB meetings, and Wilson indicated that he would provide guidance on this topic in the near future.
 - Wilson reiterated and further explained the need for standardization and formalization of MSAB documentation and ToR with the IPHC Rules of Procedure and other IPHC advisory boards. Such standardization and formalization is expected to clarify communications both within the IPHC and with wider audiences, as well as provide greater consistency for staff support and Commission decision-making. Wilson acknowledged that this process will take time.
- ***Action 1: Adam Keizer, with support of steering committee, will complete edits to the Terms of Reference regarding term limits and consensus in time for adoption at the Interim Meeting. The first draft will be provided to steering committee by November 4th. The final draft will be completed by steering committee by November 11th.***
- ***Action 2: Staff will propose changes to the MSAB Terms of Reference to standardize with IPHC rules of procedure at the Interim Meeting for adoption at the Annual Meeting in January 2017.***

- ***Decision 1: MSAB accepted the revised workplan.***
- ***Action 3: Allan Hicks will define the term 'scenario' and include it in the list of definitions in the workplan by November 4th.***

Spatial Model Complexity

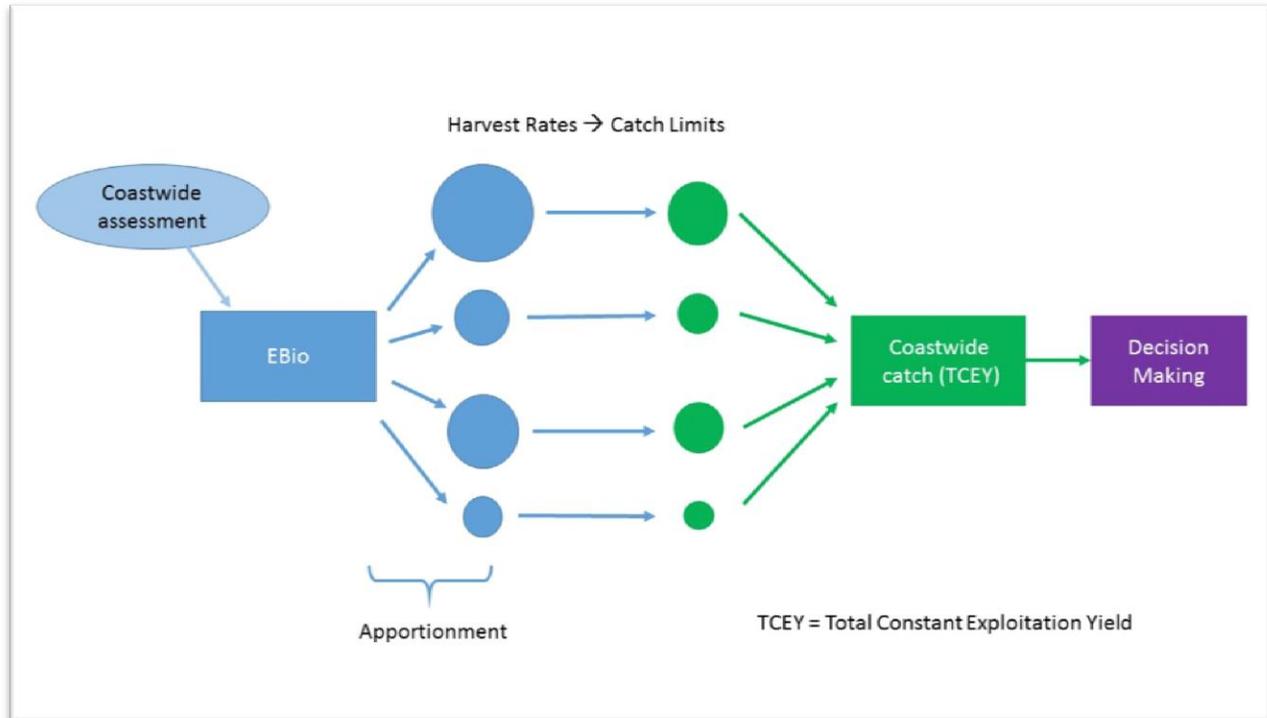
- Hicks provided an update on his progress on task 4 from the workplan, which is to identify the strengths and weaknesses of single-area coastwide and multiple-area coastwide operating models from an MSE perspective. Hicks explained that 'single vs. multiple-area' terminology is more accurate than 'coastwide vs. spatial' terminology used by the MSAB in previous discussions of this topic.
- Hicks noted that single-area models are beneficial in that they can inform assessment of the performance of coastwide harvest policies and risks to the stock and fishery as a whole, and that they can be used to screen management procedures. Hicks noted that single-area models cannot inform assessment of risks, stock dynamics, and management performance at the resolution of regulatory areas (or other geographic disaggregations).
- Hicks explained that the complexity of models is a function of:
 - the questions that models are designed to answer,
 - the nature of the fishery being modeled (such as its population dynamics),
 - the level of uncertainty being dealt with and managed for,
 - how much time is available to develop the models, and
 - constraints imposed by available staff and computer resources.
- Hicks explained his modeling plans through May of 2017. Hicks explained that his deliverables for task 4 will be further description of what it will take to develop the two model types and an evaluation of the two alternatives.
- The group discussed:
 - the rationale for existing regulatory areas, that these areas will remain fixed for the foreseeable future, but that staff have already explored how existing regulatory areas could be consolidated for data tracking and MSE modeling purposes. For example:
 - areas 2A, 2B, and 2C can be combined to be area 2;
 - areas 3A and 3B can be combined to be area 3;
 - areas 4A, 4C, 4D, and 4E can be combined to area 4; and
 - area 4B can be kept separate;
 - that a single-area model can inform an evaluation of the current harvest policy (a task posed to the MSAB by Commissioners), but that a multiple-area model will likely be necessary to address questions that are likely to arise in the course of the MSE;

- that stock assessment models differ from MSE operating models in that the former need to be very exacting because they guide annual decision making – a critical concern of stakeholders – whereas the latter need to cover a broader range of hypotheses as they are being used to explore alternative harvest policies over a long period of time; and
- that more complex models, while potentially being more applicable to more complex questions, take longer to develop and require more data (and thus model complexity should be chosen mindfully).

Management Procedures

- In response to Task 5 in the workplan (regarding identifying management procedures, including characterizing the current harvest policy and what actually occurs in practice, i.e., the 'realized harvest policy'), Hicks provided a detailed review of the current and realized harvest policy.
- Key results from the review of the current harvest policy were that:
 - management has been evolving since the original 1923 convention and has entailed a mix of both coast-wide and area-specific policy instruments;
 - management is complicated by multiple jurisdictions, conflicting objectives, and ecological interactions throughout the coast;
 - bycatch first became a substantial source of mortality in the 1960s when other major groundfish fisheries began, and various policy instruments have been implemented to try to manage it;
 - catch limits are determined through a complex process of synthesizing data and scientific and stakeholder input;
 - the scaling of the current harvest policy revolves around an estimate of exploitable biomass, or EBio, which is then combined with apportionment estimates to determine catch limits for the different regulatory areas, as shown in the following figure;
 - despite its central role in determining catch limits, EBio is problematic because:
 - the concept has been adapted since it was developed to fit within existing policy frameworks (i.e., area harvest rates);
 - the concept is not transparent and well-understood by stakeholders;
 - EBio relies on selectivity curves, which are now outdated and not representative of the assessment results;

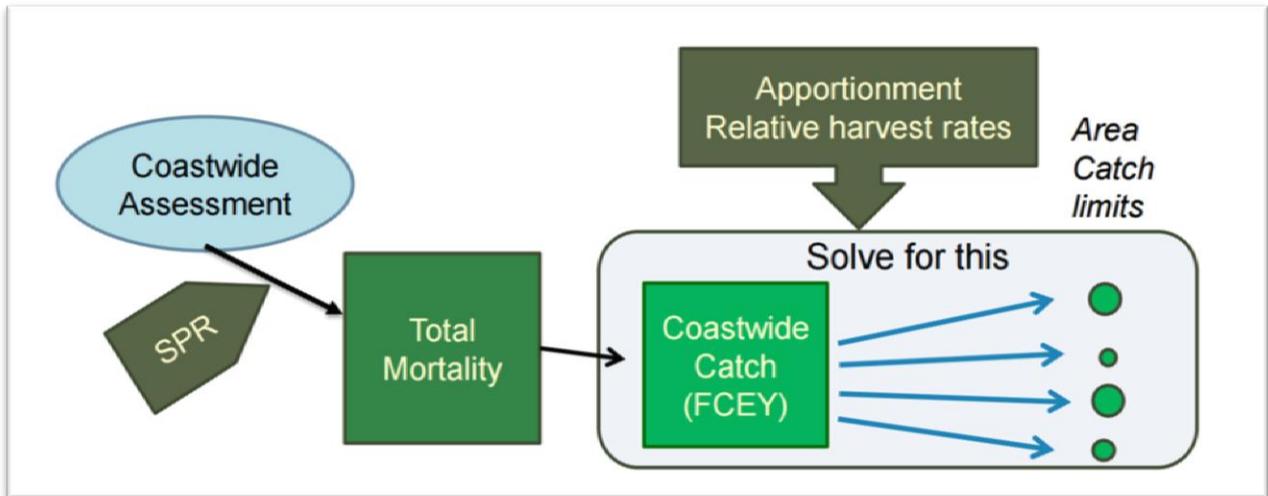
- the application of the concept is not supportive of the complex management issues that the Commission (and the MSAB) are currently addressing; and



- EBio is only needed in the current approach, i.e., using the current harvest policy, and thus could be avoided through other management approaches;
 - all sources of mortality are not accounted for in the harvest policy: the mortality of U26 (under 26") fish could change without any difference to the harvest policy results in the current year, resulting in an overall fishing intensity (on all sizes in the population) that is unlikely to match what is desired.
- Key results from the review of actual decision making since 2014, i.e., the 'realized' harvest policy as dictated by Commission decision-making, included:
 - the "blue line" is a reference point reflecting the current harvest policy's objectives for the fishery that Commissioners have tended to rely upon when making catch limit decisions;
 - the blue line is not risk-free, i.e., catch limits that match the blue line still have risks associated with them;
 - Commissioners have adopted catch limits that exceed the blue line and thus have more risk;

- the risk tolerance relative to the blue line has been similar for the last three years; and
 - such decision-making is not indicative of mismanagement but instead is indicative of desired departures from the current harvest policy;
- Hicks provided a review of abundance-based management (ABM) in the Bering Sea and Aleutian Islands (BSAI). Key elements of this presentation and associated discussions included:
 - sound stock management requires management of all ages and sizes of fish, given that mortality anywhere in a population affect the stock available for harvesting;
 - the NPFMC has begun exploring ABM as a way to manage prohibited species catch (PSC) limits of halibut in the BSAI;
 - Commissioners expressed interest in the MSAB exploring the utility of ABM with respect to managing the effect of bycatch on the directed fishery;
 - as the MSAB's broader mandate is to identify management strategies (and thus a harvest policy) that are robust to bycatch, the MSAB considered whether to:
 - treat different levels of bycatch as scenarios in the MSE (given that doing so is consistent with the MSAB's focus on the directed fishery and IPHC and NPFMC authorities for halibut); or
 - consider ABM a management procedure and evaluate it once a multiple-area operating model has been developed;
 - investigating the ABM approach within the IPHC framework (i.e., MSAB) as a management procedure may create political tensions between the IPHC and NPFMC revolving around each organization's authority with respect to managing halibut bycatch;
- Hicks presented a possible improvement to the current harvest policy to address some of the more important issues. The key discussion points included:
 - the IPHC has a history of including more and more of the stock in its analyses over time, i.e., younger and younger fish, and so it might be the logical next step to consider all ages and sizes of fish;
 - a Spawning Potential Ratio (SPR)-based approach could be used to calculate catch limits, thus eliminating EBio and accounting for all mortality (OZero, i.e., over zero fish);
 - the SPR-based approach can easily be mapped to the current harvest policy (i.e., no change to the blue line in 2017) as shown in the following figure;

- SPR is the basis for decision-making in many other fisheries in the region; and
- the SPR-based approach to accounting for total mortality could be easily examined by the MSAB in the MSE, with results ready by end of 2017.



- In concluding this session in the meeting, Hicks raised several questions (in italics below) regarding bycatch that Commissioners raised at the September 2016 Commissioner’s Work Meeting. The MSAB discussed each and developed the following responses.
 - *What are the goals of the directed fishery in relation to ABM/PSC limits?* In accordance with the IPHC convention, the IPHC’s primary charge is conservation, and the IPHC’s goal is to optimize yield for the directed fishery. In light of this, the MSAB has an overarching goal to minimize bycatch mortality, but the MSAB acknowledges that more discussion is needed on this topic to explore the meaning of this goal. Such discussion could take place in 2017.
 - *How do prohibited species catch (PSC) limits affect the directed fishery?* MSAB is unable to quantify the effects of bycatch in general, and PSC limits in particular, on the conservation of the stock and the directed fishery at this time. However, the MSAB is in the process of building its modeling capacity, and the MSAB anticipates being able to address this question in 2017 or 2018 at the earliest.
 - *What analysis can/will be done to address this issue?* The MSAB anticipates addressing bycatch in general, and ABM/PSC limits, as a scenario in the MSE process.

- ***Action 4: Allan Hicks will write up his qualitative evaluation of current harvest policy as a RARA chapter. The RARA chapter will be published in time for the Annual Meeting.***
- ***Decision 2: MSAB accepted staff's presentation and forthcoming RARA chapter as an initial evaluation of the current harvest policy.***
- ***Action 5: Staff (Allan Hicks) will develop materials by the Interim Meeting to describe SPR for the purpose of supporting MSAB members' communication with their constituents.***
- ***Recommendation 1: Recommendation to Commissioners for upcoming the Interim and Annual Meetings, with regards to the current harvest policy: The MSAB was tasked by Commissioners with reviewing the current harvest policy ("Halibut Commission Completes 2016 Annual Meeting" at <http://iphc.int/news-releases/447-nr20160208.html>). The MSAB reviewed the current harvest policy and found that the current harvest policy is unresponsive to under 26" (U26) mortality, and selectivity curves used to define exploitable biomass (EBio) are outdated. The forthcoming 2016 RARA will include a chapter describing the results of this review in greater detail. The MSAB recommends to the Commission that alternative harvest policy approaches that address these shortcomings and take into account all sizes of fish be evaluated. One approach that should be evaluated is a Spawning Potential Ratio (SPR) based harvest policy.***

Goals and Objectives and Their Intent, and Performance Metrics

- Culver presented a document that she had developed on the intent underlying the goals and objectives that the MSAB had previously developed to direct the MSE. The document had previously distributed to MSAB members and published on Sharepoint prior to this meeting.
- The group discussed Culver's interpretation of the intent underlying the goals and objectives, and identified several edits to refine and improve the document. Edits included separating out goals for minimizing wastage and minimizing bycatch, and adding in a footnote regarding governance of bycatch.
- The group discussed a number of the goals and objectives, and whether the goals and objectives themselves needed refinement. The group noted that it might be best to explore refining of goals and objectives in the next MSAB meeting (May 2017).
- Hicks provided a short presentation focused on measureable objectives and performance metrics associated with the goals identified by the MSAB. Hicks noted that some goals had spatial dimensions that require a multiple-area model to test. Hicks confirmed that he had sufficient direction at this point to continue developing the operating model to be used in the MSE, but that additional

guidance from the MSAB will be needed in the future with respect to the spatial nature (if any) of some of the objectives that the MSAB has identified.

- ***Action 6: Michele Culver will revise goals, objectives and intent document and send to steering committee by November 4th. Steering committee will make adjustments as needed and publish on Sharepoint by November 11th.***

IPHC Social Media and MSAB Outreach

- The IPHC's social media staff person, Ed Henry, gave a brief presentation on the IPHC's current usage of Facebook and Twitter and how these tools might be taken advantage of by the MSAB. Key points included:
 - social media tools like Facebook and Twitter don't replace the IPHC's (and MSAB's) website, but enhance the capacity of the IPHC and MSAB to reach their intended audiences; and
 - the IPHC staff can support the MSAB by working with the MSAB to create posts on IPHC's social media accounts in accordance with IPHC's social media policies.
 - Parker and Sporer then confirmed with the group that the MSAB outreach plan is complete, but in a brief discussion it was discovered that MSAB members are currently not conducting any outreach beyond personal engagement with their constituents.
- ***Decision 3: MSAB requested staff to use social media to announce release of meeting summaries.***

MSE Support and Resources

- Robyn Forrest of DFO gave a brief presentation on reorganization within DFO. Forrest explained that DFO staff are involved in several MSEs, and that it might be beneficial for the MSAB to engage with these staff. In particular, the herring MSE may have the greatest similarity with the Pacific halibut MSE, and thus may be a great opportunity for mutual learning and support.
- Wilson led a brief discussion about IPHC resourcing of the MSAB and the Pacific halibut MSE. Wilson indicated that the IPHC had resources to bring another programmer on board, but also suggested that it might be useful to have external support from outside the region, given the breadth of MSE experience in other jurisdictions and how helpful such support had been in other MSEs. External support could be in the form of a short-term contract. The MSAB was receptive to such assistance, but not if it meant a loss of existing resources and

not if it would detract from available time in MSAB meetings to address critical tasks.

- ***Decision 4: MSAB supported hiring a programmer and bringing in a consultant to support the MSE, pending budget constraints.***

Feedback from Science Review Board (SRB)

- Hicks gave a brief presentation on additional feedback of the SRB, i.e., aside from that already covered in other discussions at this meeting:
 - the MSAB and SRB meeting schedule is complimentary;
 - the MSAB is making good progress;
 - there is a good opportunity for synergy between the MSE and other IPHC work, and it is good that the MSAB is engaging and collaborating with other management and academic organizations;
 - model development should not focus on perfection but on getting an operating model that is functional for what the MSAB needs;
 - EBio is outdated, and harvest policy should be changed; and
 - SPR, as well as other bases of harvest policy, should be explored.

Preparation for Upcoming IPHC Interim and Annual Meetings

- The group discussed what the co-chairs (Keizer and Culver) should present at the upcoming Commission meetings. The group noted that different topics should be presented at the Interim Meeting compared to the Annual Meeting, and that topics should include:
 - what the MSAB wants and needs guidance on;
 - what stakeholders want to know; and
 - what Commissioners want to know.
- The group noted that it needs further guidance on exactly what Commissioners want from it with respect to such things as deliverables and timeframes in the workplan. The MSAB would also appreciate knowing if Commissioners have any feedback regarding MSAB responses to tasks put to the MSAB by Commissioners.
- The group concluded that stakeholders want:
 - confidence in the science supporting IPHC decision-making;
 - to be treated fairly;
 - the fishery to improve (and stakeholders measure this by how much they're allowed to catch); and
 - to understand how the MSE will help in these regards.
- The group understood that Commissioners will want:

- responses to tasks put forward to the MSAB; and
- a refresher on the MSAB's workplan, and an update on MSE progress (both in terms of specific tasks but also the bigger picture of what the MSAB is trying to do).
- The group also noted that the upcoming meetings are a good opportunity for engagement with stakeholders and the PAG and Conference Board.
- ***Action 7: Adam Keizer and Michele Culver will gather guidance from Commissioners on MSAB presentations for Interim and Annual Meetings.***

Next Steps and Report of the Session

- The group agreed that the next meetings should occur in the second week of May and the third week of October. Many in the group expressed support of the two-day meeting format.
- Documentation and finalization of actions, decisions, and recommendations resulted in the content presented here in these meeting minutes. Wilson requested that the two-page meeting summary be completed and finalized within two weeks of the meeting, i.e., by November 11th, and the facilitator and steering committee agreed to this timeline.
- MSAB members' reflections on this meeting included:
 - satisfaction with the group's enthusiasm, level of understanding, and efforts;
 - appreciation for staff's comprehensive and detailed presentation of the current and realized harvest policy;
 - a feeling by many that this meeting and the previous have been the best that the MSAB has ever had;
 - a request to see presentation slides ahead of upcoming meetings in order to prepare better for the content that will be covered; and
 - appreciation for the co-chairs' ability to synthesize key points being made in the meeting.

Acronyms

ABM	Abundance-based management
BSAI	Bering Sea/Aleutian Islands
DFO	Fisheries and Oceans Canada
EBio	Exploitable Biomass
FCEY	Fishery constant exploitation yield
IPHC	International Pacific Halibut Commission
MSAB	Management Strategy Advisory Board
MSE	Management strategy evaluation
NPFMC	North Pacific Fishery Management Council
OZero	Over zero inches
PAG	Processors Advisory Group
PSC	Prohibited species catch
RARA	Report of Assessment and Research Activities
SPR	Spawning Potential Ratio
SRB	Scientific Review Board
ToR	Terms of reference