

Management Strategy Advisory Board - Summary Of Meeting

October 1st and 2nd, 2015

The MSAB met in Seattle at the IPHC office on October 1st and 2nd, 2015. This was the first MSAB meeting in which an agenda committee, co-chairs, and a contracted facilitator were used to develop the agenda and run the meeting.

Summary of Key Outcomes

- the group brainstormed the roles of MSAB members, IPHC staff, and stakeholder constituents (to be refined as needed), and the group discussed the relationship of the MSAB to the IPHC and other IPHC advisory bodies
- representatives of all non-directed fisheries with halibut bycatch (e.g., trawl and longline fisheries) need to be engaged given the substantial influence that bycatch mortality has on the directed Halibut fishery
- the MSAB recommends continuing to use the coastwide operating model for the purpose of the current Management Strategy Evaluation (MSE) process as the coastwide model is still informative with respect to some of the questions being examined by the MSAB but also as this model helps facilitate understanding the MSE process. IPHC staff will continue to develop a spatially explicit model given that many ecological, political, and management issues are specific to Halibut IPHC regulatory areas
- four management procedures were evaluated in a group exercise; MSAB members gained greater working capability with the IPHC MSE Tool, and a variety of lessons were learned in terms of the effectiveness of some management procedures with respect to meeting objectives for the fishery
- the group had a first chance to consider the notion of “fishery footprint” which is a measure of fishery impact on the spawning capital and can be used as an alternative way to understand the relative impacts of the directed and non-directed fisheries on the halibut stock
- a draft outreach strategy was reviewed and covering objectives of outreach, who the MSAB engages with, what content is shared out and what input is sought, what tools are used for outreach, and when outreach occurs
- several next steps were identified for co-chairs, the agenda committee, and IPHC staff with respect to documenting the MSE and MSAB’s terms of reference, a presentation at the IPHC Annual Meeting, development of a revised MSAB work plan, preparation for the next MSAB meeting in May 2016, and securing additional resources to support the MSAB in the MSE process
- future facilitation needs were discussed in a closed door session, and the MSAB agreed that the use of a facilitator but also co-chairs and the agenda committee helped make for a very successful meeting, and that upon further consideration the MSAB may hire a facilitator again

Summary of Actions

Number	Description
1.	Keith to make revisions to May 2015 meeting minutes by end of day October 1st regarding explicit reference to tribal fishers’ share and lack of involvement on the MSAB of non-directed (i.e., bycatch) fisheries. This action was completed October 1 st and updated minutes were posted on the MSAB website.
2.	Staff should conduct a structured comparison of the two modeling options (coastwide vs. spatially explicit) and present this, including development costs and the examples of the questions that can be examined with each model, back to the board by the next MSAB meeting.
3.	Martell to add explanatory notes to the presentation materials on “fishery footprints” including with regard to the hypothetical numbers used in the example in the presentation and then to distribute the materials. This action to be completed prior to the presentation materials being posted to the internet.
4.	Compass to develop an executive summary or like materials in the meeting summary.
5.	Keizer and Culver to present on MSAB progress and engage with Conference Board and PAG at the upcoming IPHC Annual Meeting.

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6.	Keizer and Culver to revise the terms of reference and submit to the MSAB for review by the next meeting. The terms of reference should describe roles and responsibilities, objectives, organizational linkages, key terminology, and decision rules.
7.	Co-chairs and agenda committee act as a technical working group and draft a work plan for the next 1-2 years in advance of the next MSAB meeting.
8.	IPHC staff to work on securing additional resources for technical staff to support the MSAB process (no firm deadline was identified; this action will take place through the IPHC budgetary process and may be fulfilled over several annual budget cycles).

Participation

Board Members Attending:

Bob Alverson (Commissioner)	Dan Hull	Scott Meyer
Rachel Baker	Jeff Kauffman	Per Odegaard
Michele Culver (Co-chair)	Adam Keizer (Co-chair)	Peggy Parker
Gregg Elwood	Jim Lane (via teleconference)	Chris Sporer
Robyn Forrest	Loh-Lee Low	John Woodruff
Bruce Gabrys	Scott Mazzone	

Visitors Attending:

Allan Hicks (Northwest Fisheries Science Center)
 Carey McGilliard (Alaska Fisheries Science Center)
 Catarina Wor (UBC)

IPHC Staff Attending:

Steve Keith
 Bruce Leaman
 Steve Martell
 Ian Stewart

Facilitators:

Chris Joseph (Compass Resource Management)
 David Angus (Compass Resource Management)

Absentees:

Shane Halverson
 Ryan Littleton
 Tom Marking
 Brad Mireau
 Paul Ryall (Commissioner)

Meeting Objectives

1. Ensure a common understanding among MSAB members of MSAB governance, roles and responsibilities of MSAB participants, the MSE process, and MSAB outreach activities, and reach agreement on how to go forward on these topics.
2. Ensure that MSAB members share a common understanding of meeting discussions and outcomes and have sufficient opportunity to contribute.
3. Establish working capability among MSAB members with the "Shiny tool" and associated models, and achieve measurable progress in the MSE for the Pacific Halibut fishery.
4. Provide time for the MSAB to discuss its needs for future facilitation services.

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Meeting Agenda

October 1

12:30-1:15pm	Introductions
1:15 – 1:45pm	MSE and MSAB process
1:45-2:30pm	Progress to date
2:30-2:45pm	Break (or when needed)
2:45-3:30pm	Coastwide vs. spatial operating models
3:30-5pm	Management Procedure Evaluation

October 2

8-8:15am	Recap of October 1
8:15-10am	Management Procedure Evaluation
10-10:15am	Break (or when needed)
10:15am-11:30am	Management Procedure Evaluation debrief
11:30-12:00pm	Possible management metrics
12-1pm	Lunch
1-2pm	Outreach
2-2:30pm	Next steps
2:30-2:45pm	Review meeting objectives
2:45-3:30pm	Future facilitation needs

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Key Points of Discussion

Housekeeping

- The MSAB noted deficiencies in the previous meeting's minutes. Keith agreed to revise by end of day and circulate (Action 1).

MSE Process and MSAB Roles

- Leaman provided a presentation on the MSE process and MSAB as it relates to IPHC decision-making and other bodies that advise the IPHC. The Conference Board, Scientific Review Board (SRB), Processor Advisory Group (PAG), and MSAB report directly to the IPHC. The MSAB communicates with all bodies but ultimately is an advisory board to the IPHC.
- The group discussed several issues with governance and information sharing, specifically:
 - that all MSAB documents are shared and 'public' among the different IPHC bodies;
 - that there has been some confusion about the MSAB's role alongside these other bodies; and
 - whether it would be appropriate for the MSAB to report directly to the IPHC community at the next IPHC Annual Meeting.
- The group brainstormed the roles of MSAB members, IPHC staff, and stakeholder constituents during and between MSAB meetings. The table below captures the results of this exercise. It was noted that these ideas should be discussed and refined over time.

People	Roles at MSAB Meetings	Roles Between MSAB Meetings
MSAB members	<ul style="list-style-type: none"> • develop objectives and evaluate management procedures • represent concerns of stakeholder constituents • groundtruth model assumptions, results, and other inputs and outputs in the MSE process 	<ul style="list-style-type: none"> • communicate and conduct outreach to stakeholder constituents • continue learning about topics relevant to the Pacific Halibut MSE
IPHC staff	<ul style="list-style-type: none"> • be a technical resource to the MSAB, including translating and helping to interpret technical information • establish boundaries to the MSE and with respect to staff capabilities to support the MSAB, and guide expectations of board members • help the MSAB ask good questions, and help focus discussion 	<ul style="list-style-type: none"> • complete technical work necessary to support the MSE • conduct outreach • train MSAB members
Stakeholder constituents	<ul style="list-style-type: none"> • be informed including listen to meeting webcast if desired 	<ul style="list-style-type: none"> • provide feedback on MSE outputs (in a structured way) • communicate proactively with MSAB members • learn about topics relevant to the Pacific Halibut MSE

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- The MSAB discussed the board's composition, the importance of an open and inclusive process, and the merits of expanded participation given that a large proportion of Halibut are caught as bycatch in trawl fisheries that are not directly managed by the IPHC, and these fisheries are not represented on the MSAB.
 - The group discussed how bycatch relates to MSAB governance. The absence of trawl fisheries representatives on the MSAB and the consequent a lack of knowledge and perspective about the practices of this fishery on the MSAB potentially creates a gap in the MSE process.
 - Staff noted that the current MSAB membership was designed to represent fisheries over which the IPHC has authority. Currently, changes in bycatch are considered as model scenarios rather than management procedures.
 - The MSAB discussed the importance of an inclusive process to develop buy-in and produce the best possible advice to the IPHC. The MSAB also discussed the difficulty in bringing new participants into the process given the relatively large size of the current MSAB (in terms of MSE processes) and the complexity of the material.
 - The MSAB recommends the current membership remain unchanged, and made several suggestions to itself and IPHC staff:
 - the effect of non-directed trawl fisheries on Pacific Halibut fishery management was very important, but the current process needs to build momentum and have something tangible to present before expanding participation (staff indicated that they will continue to consider the need to expand membership to, and involvement of, non-directed fisheries); and
 - non-directed fishery representatives could be invited to future MSE meetings as observers when topics related to managing bycatch are on the agenda.

Progress to Date

- Staff provided their perspective on the progress of the MSE process to date:
 - In Martell's view, the MSE process' overarching objective is to be a stakeholder-driven evaluation of management procedures. Martell felt that meetings are on pace with analogous MSE processes (e.g., that of the Canadian Sablefish fishery). Martell noted that the MSE process is affecting change by shaping the discussion, understanding, and engagement of stakeholders with the resource, e.g., size limit discussions that have occurred outside of MSAB meetings. Martell thought that the MSE's influence on the Halibut fishery will continue to grow, though more resources and time may be needed.
 - In Stewart's view, progress is not always apparent on the outside, but from a technical (i.e., modeling) perspective, considerable progress has been made. Stewart noted that the amount of technical input required of the staff has been taxing.
 - Leaman reiterated the importance of stakeholder ownership of the MSE, and that progress means greater involvement and driving of the process by non-staff MSAB members. Leaman expressed appreciation that the MSAB is starting to demonstrate such progress through governance changes like the establishment of co-chairs and an agenda committee.
- MSAB members provided their perspective on the progress of the MSE process to date. Key themes in members' responses (with much overlap among members) included:
 - frustration with the pace of the process, and the expectation that results would've been faster in coming;
 - the complexity of the process and that patience is required;
 - the high level of learning required among all involved;

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- how much has been accomplished given that the MSAB has had relatively little cumulative time together since 2013;
- appreciation of the effort that staff have put in;
- this MSE process is progressing well relative to other MSE processes;
- having identified candidate objectives for the fishery is a major accomplishment;
- that while MSE process itself is cutting edge there have been aspects of the process that haven't been cutting edge (such as how meetings have been run);
- the MSE process is succeeding at changing perspectives among participants;
- the need to temper expectations with what can be accomplished and when;
- a sense of urgency to improve the fishery given the state of the Halibut stock;
- appreciation for where the process has been going to date, and looking forward to seeing what the process can do in the future; and
- comfort among participants with the topics at hand and each other.

Coastwide vs. Spatially-explicit Operating Models

- Two operating model approaches (a coastwide vs. a spatially-explicit operating model) were discussed following preliminary comment from the MSAB and the SRB. Martell summarized recommendations received to date and sought comment from the MSAB.
- The MSAB discussed the spatial nature of the fishery (ecologically, politically, and in terms of existing management structures), and the time and effort required to develop a functioning spatially explicit operating model.
- At present a functioning coastwide model exists, and some work has already gone into developing a spatially-explicit model. The SRB has indicated that the MSAB should not pursue the spatially explicit model and should instead do what it can with the coastwide model, but the MSAB continues to see compelling reasons for developing the spatially-explicit model. Staff noted that the spatially-explicit model is needed to evaluate some of the management procedures proposed, but that a spatially-explicit model would also be associated with much greater uncertainty than the coastwide model because of the greater number of parameters involved, and thus the spatially-explicit model may introduce its own challenges.
- The MSAB discussed whether it should continue to use coastwide model while the spatially-explicit model gets developed, or whether it should stop using the coastwide model and wait for the spatially-explicit model to be fully developed.
- Staff explained that a large amount of effort is still required to develop a fully functioning spatially-explicit model, and that it might take three to five years with additional staff or contractors required to complete the model. Further, a spatially-explicit model would also require greater model literacy among users because of the model's greater complexity.
- It was also noted that much of the programming effort is required to develop a user interface, and that if a user interface was not needed then a spatially-explicit model could be developed much sooner.
- The MSAB recommends that staff present a structured comparison of the two modeling options at the next MSAB meeting (Action 2). Criteria could include resource cost and time to develop the models, how well the two models perform with respect to uncertainty, and capability with respect to dealing with the spatially-segregated dimensions to management of the fishery.
- The MSAB recommends that the MSE process should continue with the coastwide operating model and focus on examining management procedures that can be evaluated using the coastwide model. The MSAB suggested, pending the above noted evaluation by staff, that a spatially explicit model could be developed without the user interface.

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Management Procedure Evaluation

- After a refresher on the IPHC MSE Tool (formerly called the Shiny Tool) the MSAB was broken up into four groups for an evaluation workshop. Wor and Martell presented four example management procedures for evaluation. Martell, Stewart, and Wor moved around the room and helped each group use the tool and explore the consequences of the management procedures on spawning biomass, yield, wastage, and landed value.
- The following table presents the evaluation questions and key results and lessons of each group.

Group	Management Procedure	Key Results and Lessons
1	Reduce size limit to 30 inches (from 32 inches)	<ul style="list-style-type: none"> • Reduced wastage was the most notable change • Yield and spawning biomass increased, and fishing intensity, landed value, and cost of fishing decreased • The group also explored changes in landed value
2	Reduce size limit to 30 inches (from 32 inches), but also reduce selectivity to 28 - 38 inches (from 34 - 40 inches)	<ul style="list-style-type: none"> • Despite the reduced size limit, a decrease in selectivity increased wastage as the fishery now targeted smaller fish • Yield and spawning biomass didn't change very much, and landed value dependent on prices assumed • While a reduced size limit may appear to reduce wastage we must account for potential changes in selectivity to realize the benefits of a reduced size limit
3	Simulate a 17% reduction in the bycatch cap and the use of excluders by changing bycatch selectivity. Change ascending selectivity 50% and 95% to 15 and 30 inches, respectively, and descending selectivity 50% and 95% to 40 and 60 inches, respectively. Discard mortality rate (DMR) is set at 0.24.	<ul style="list-style-type: none"> • Wastage unchanged, but yield and landed value increased • Spawning biomass at maximum sustainable yield (MSY) decreased but the spawning potential ratio (SPR) of 30% increased (SPR is a measure for stock recruitment and as it is easy to calculate it is often used as a proxy for MSY) • As DMR is reduced a 'savings' is realized from the non-directed fisheries, and these savings are caught by the directed fishery.
4	Simulate a 17% reduction in the bycatch cap and the implementation of a deck sorting program to reduce DMR. Reduce bycatch on procedure B to 32 million pounds (17% reduction). Set DMR to 0.26 and 0.13 on procedure A and B, respectively, to simulate deck sorting program. Then, bring up procedure B bycatch mortality to PSC limit (set bycatch to 64 million pounds).	<ul style="list-style-type: none"> • Yield, waste, spawning biomass, and landed value all increased • There are unintended consequences in that non-directed harvesters would double bycatch due to lowered DMR, with consequent effects on fish that are caught and thrown back

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- Overarching lessons of the exercise with the tool:
 - reducing size limits resulted in variable results, depending on the assumptions about how the fleet selectivity might change in response – results ranged from increased yield and decreased wastage to increased wastage and lower yields – and this helped the group identify key variables and assumptions concerning them;
 - with bycatch controls there is an increase in the value of the directed fishery because there is a transfer of yield of O26 fish from the bycatch fisheries to the directed fisheries bycatch fishery to the directed fishery;
 - reducing bycatch limits can provide a substantial benefit to the directed fisheries but it is dependent on the size composition of the remaining bycatch;
 - the evaluation of management procedures needs to consider how harvesters will realistically respond to management procedures; and
 - the goal of the MSAB is to identify management procedures that best meet fishery objectives and are robust to uncertainties, including potential harvester responses.

Fishery Footprint (“Possible Management Metrics”)

- For this agenda item, Martell shared his emerging ideas on the ecological footprint of directed and non-directed fisheries. Key aspects to the problem include: (1) the amount and size composition of fish being caught by the directed fishery vs. bycatch caught by the non-directed trawl fishery, (2) the incentives that exist for the participants in these fisheries, and (3) the policy implications of thinking about the problem from an ‘ecological footprint’ perspective.
- The directed and non-directed fisheries share a resource but the multi-agency management structure does not manage total removals in a coordinated manner. At present, trawl bycatch is controlled and monitored by the National Marine Fisheries Service, US fisheries councils, and DFO. Aside from the effect of the bycatch on the resource itself, the directed fishery is affected because the harvest rate is applied to the stock biomass after this bycatch is accounted for. In essence, the directed fishery only exists if enough fish are left over.
- Martell explained that an alternative way forward is to have a cooperative agreement between the directed and non-directed fisheries that considers each fishery’s removals based on a common reference point and which engages both fisheries in conservation of Halibut.
- The fishery footprint concept revolves around demand on the stock, or more specifically, mortality per recruit. This concept differs from what is typically used – yield per recruit – which focuses on biomass. Due to variations in individual fishes’ weight and variations in selectivity among fisheries, exploitation rates can differ for identical total weight limits (e.g., with a limit of 1,000 pounds one fishery might kill double the number fish as another fishery).
- Martell’s conclusion is that the Halibut fishery may best be managed not by allocating biomass (i.e., pounds of fish, or yield per recruit) but instead by monitoring footprints (i.e., of a fishery’s mortality per recruit).
- Martell argued that allocating mortality per recruit would change incentives among non-directed fishery participants and would favour innovations that tend to maximize the yield per recruit. Martell identified two options to implement such a policy – (1) develop a harvest control rule for prohibited species catch (PSC) limits independent of the IPHC, or (2) develop a rule that explicitly defines the sharing of mortality among fisheries – but noted that regardless of how it is approached it will be challenging to negotiate the necessary allocation agreement between resource users.
- The group discussed how Martell’s ideas would look in practice, such as how quotas could increase for those vessels that can show reduced bycatch by total fish landed.

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- A number of members agreed that Martell's ideas had merit and should be explored further and discussed with the broader body of Halibut fishery stakeholders. The group requested that staff publish Martell's presentation materials on the MSAB website once explanatory notes are added to presentation slides to ensure that others not present at the meeting don't misunderstand the materials, including the hypothetical numbers used in the example in the presentation (Action 3).

Structuring Evaluations of Management Procedures

- Joseph (Compass) gave a brief presentation on how a group examining management options for the endangered Cultus Sockeye salmon fishery in B.C. undertook a structured evaluation of these options. Cultus Sockeye are an endangered salmon stock that spawns in Cultus Lake, which is a relatively short distance up the Fraser River near Vancouver. Stakeholders were brought together to collaboratively identify management actions that could be employed to address stock conservation and other objectives. The main steps followed by the group are described below:
 - The first step in the planning exercise entailed identifying objectives including stock conservation, cost of management actions, effects on the harvest, and jobs, and performance measures to compare management actions.
 - The second step was to identify possible management alternatives, which were suites of management actions. Alternatives that suited particular interests (e.g., conservation, or harvesting) were first identified as 'bookends,' and then alternatives that attempted to 'spread the pain' between interests were identified. The Cultus Sockeye planning group used a 'strategy table' to select actions for each alternative.
 - The third step entailed estimating the consequences of each alternative; consequences were estimated using a combination of fisheries models, expert judgement, and additional analysis by technical experts. Consequences for each alternative were assembled into a 'consequence table' to enable easy, side-by-side, comparisons of alternatives.
 - In the fourth step, the group made side-by-side comparisons of alternatives to identify redundancies (i.e., where alternatives performed similarly for a given performance measures such that the performance measure could be ignored) and dominated alternatives (i.e., alternatives that were worse than others and could thus be ignored going forward).
 - The final step entailed an iterative process of comparisons and refining management alternatives in which the group was able to identify optimal management alternatives that best met the group's objectives for the fishery.
- Reflecting on the Cultus Sockeye planning experience, Joseph suggested that the MSAB might pursue the following steps:
 - identify a range of management alternatives (i.e., suites of management procedures) to evaluate;
 - identify a single scenario for the first round of evaluation;
 - estimate the consequences of management alternatives using a combination of the IPHC MSE Tool, additional analysis using other methods and/or tools, and expert judgement;
 - assemble the results in a way that allows the MSAB to hone in on management alternatives that best meet the board's objectives for the fishery; and
 - repeat the process for other scenarios, all the while refining management alternatives.
- Insufficient time was available for the group to identify a specific structure for the IPHC MSE evaluation, but several participants noted that the process undertaken in the Cultus Sockeye example was very similar to that of the Pacific Halibut MSE process so far, and that it was helpful to see the evaluation

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table used in the example. MSAB members reiterated the need to develop a “score card” that can be used to assemble the results of a management procedure evaluation (i.e., a structured report of management metrics like spawning biomass and yield) and that demonstrates the trade-offs between procedures.

Outreach

- Angus (Compass) gave a presentation on MSAB outreach. The main topics covered included current outreach activities and Compass’ ideas for what the MSAB’s outreach program should be going forward.
- Compass researched the MSAB’s outreach to date by reviewing MSAB documents and the MSAB website, and by interviewing board members over the phone. For additional perspective, outreach activities of other organizations – including those involved in collaborative planning processes – were reviewed.
 - The MSAB’s outreach to date has included use of the website to post meeting and other MSE materials, occasional emailing to stakeholder constituents by board members, and informal conversations (“dock talk”).
 - Leaman noted that the IPHC does use social media, and gets good responses to it, but that the IPHC hasn’t specifically used social media with respect to the MSE process.
 - Target audiences to date have included the IPHC’s advisory groups (Conference Board, PAG, and SRB), the IPHC itself, and stakeholder constituents including fishery management bodies, harvesters, processors, First Nations and Tribal organizations, and recreational/sport fishers.
 - In interviews with Compass MSAB members indicated several challenges that the MSAB has experienced thus far in outreach including: difficulties describing what the MSE is and what the MSAB has been doing; confronting many peoples’ desire to have “an answer”; the mix of levels of technical expertise on the board and among constituents; and the relatively larger number of regulatory and stakeholder bodies in the US.
 - According to MSAB members, the objectives of outreach to date have been to communicate MSE progress to stakeholders on a consistent basis and gather feedback when needed, though the latter hasn’t been necessary to date.
 - MSAB members offered several suggestions for improving MSAB outreach including: distributing meeting minutes more quickly; targeted outreach activities; reporting on progress; and reference documents for the MSE process and tools.
 - A key lesson of other organizations’ outreach programs is that good outreach is a function of thoughtful strategy, knowledge of what content one wants to share and why, the right outreach tools, and attention to building relationships. To put it another way, the outreach strategy should be able to answer the five “Ws” – what, why, who, and when and where (or how).
- Angus presented Compass’ draft outreach strategy for comment to the group, including suggestions with respect to objectives, target audience, specific outreach tools, implementation, and next steps.
 - Suggested outreach objectives included: informing of MSE activities and progress in a timely and consistent manner; promoting understanding of the MSE process; seeking constituent input on important issues for further consideration by the MSAB; and engaging with stakeholders and being responsive to constituent feedback. The group accepted these objectives.
 - Angus explained that there are three main approaches to outreach – actively informing, passively informing, and gathering input – and that these approaches are chosen depending

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- upon the target audience for particular outreach activities and that different tools are applicable depending on the approach used.
- The MSAB discussed who exactly should be engaged in outreach.
 - The MSAB noted that regulatory bodies (e.g., DFO and US Councils) should be targeted both for active informing as well as input, and that engaging with regulatory bodies will be a means to reach not just regulators themselves but the stakeholders that are regulated by these bodies.
 - Non-directed fisheries need to be engaged on MSE progress because of the substantial role they play in the halibut fishery.
 - Some board members noted that input should be sought by all stakeholder groups, but discussion ensued about who exactly the MSAB should be contacting directly, and if it is appropriate for the MSAB to be contacting regulatory agencies itself or whether the MSAB should go through the IPHC or other existing channels. The MSAB and IPHC staff noted that the MSAB is an advisory group to the IPHC and that there are limits on whom the MSAB should be contacting directly.
 - Angus offered suggestions on what outreach tools should be used, including existing tools that the MSAB should continue to use with modifications to enhance their effectiveness (e.g., executive summaries of meeting minutes), additional tools that should be used (e.g., a manual for the MSE Tool), and additional tools that the MSAB might find useful (e.g., open house meetings). Three levels of outreach effort were presented – the status quo, moderate additional effort, and high additional effort. A number of board members felt that the MSAB should continue to use status quo outreach tools but complement these with some additional tools and activities.
 - The group noted that it might be most effective to gather input through existing structures, e.g., getting input from harvesters through the PAG, but noted that such organizations might filter individuals' input and that it might be better to go directly to the 'grassroots.'
 - An implementation plan for MSAB outreach was presented including the steps of: confirming suggested elements of the outreach strategy; preparing materials for outreach; and implementing the outreach tools. Compass committed to incorporating the board's feedback from the meeting into the outreach strategy and submitting a document describing the strategy in detail with the meeting minutes.
 - The MSAB recommended that two outreach items be undertaken:
 - Compass to develop an executive summary in its summary of this meeting to provide readers of meeting summaries a quick overview of meetings but also to act as a short document suitable for emailing or as the basis for informal discussions with stakeholders (Action 4)
 - MSAB co-chairs formally present on MSE progress at the Annual Meeting and engage with the Conference Board and PAG at the meeting on MSE progress to provide information on MSE progress and receive feedback (IPHC staff to provide technical assistance and Compass to provide administrative support) (Action 5)
 - One member noted that whatever outreach is conducted it was important that IPHC staff resources were not diverted from more important things such as model development. Further, the some noted that it might not be the right time to be doing outreach given that little had been achieved to date by the MSAB in terms of evaluating management procedures.

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Next Steps

- In response to discussions about the need for the MSAB to have a terms of reference (ToR) document that explains what the MSE and MSAB are and how they function, Keizer and Culver volunteered to revise the existing ToR document to better describe roles and responsibilities, objectives, organizational linkages, key terminology, decision rules, and any other important details for future reference by the MSAB or outsiders (Action 6). By the next meeting Keizer and Culver will submit the revised ToR to the MSAB for comment. Keizer noted that the document will make clear that the MSAB is an advisory board to the IPHC. Keizer and Culver also agreed to draft presentation slides (or to update those used by Leaman in his presentation on day 1 of the meeting) to help communicate how the MSAB interacts with the IPHC and IPHC advisory bodies.
- With regard to the next MSAB meeting the MSAB discussed:
 - how early May would be the best time for the next meeting because many members are out fishing in late May;
 - that extending MSAB meetings to a full two days would make better use of time given the considerable amount resources used to coordinate and travel to the meeting but some members feel that the meetings are already too long;
 - how it would be helpful for all involved if meetings ended with a review of the outlook for upcoming meetings in terms of upcoming steps and milestones;
 - how the agenda for the upcoming May meeting will be shaped by the Annual Meeting in January; and
 - whether the co-chairs and agenda committee act as a technical working group that would draft a work plan for the next 1-2 years
- The latter idea – that the co-chairs and agenda committee sketch out a plan and a rough agenda for the next few meetings – was agreed upon by the group (Action 7). This action is to be completed prior to the next MSAB meeting.
- Leaman noted that the IPHC will work to secure additional resources for technical staff; no deadline or specific staff were identified (Action 8). This action will be undertaken through the IPHC budgetary process and may be fulfilled over several annual budget cycles.

Future Facilitation Needs

- Leaman led a closed-door discussion (without Compass present) with the MSAB to determine whether facilitators would be useful for future meetings. Topics included value for the investment, reduction of staff burden, having an external perspective, and process outputs.
- There was general satisfaction with the facilitation but the coincident changes in governance to co-chairs and agenda committee were also noted as valuable assets to this meeting's function.
- The group agreed to review the minutes and outreach strategy produced by Compass and then decide on future facilitation.

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Acronyms

DFO	Fisheries and Oceans Canada
DMR	discard mortality rate
IPHC	International Pacific Halibut Commission
MSAB	Management Strategy Advisory Board
MSE	management strategy evaluation
MSY	maximum sustainable yield
PAG	Processors Advisory Group
PSC	prohibited species catch
SPR	spawning potential ratio
SRB	Scientific Review Board
ToR	terms of reference