

North Pacific Fishery Management Council's Bering Sea Fishery Ecosystem Plan Team

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AFSC, Seattle, WA

REPORT

Team members:

Kerim Aydin (chair)	Jo Mellish
Mike Dalton	Heather Renner
Ben Daly	Ebett Siddon
Diana Evans (co-chair)	Phyllis Stabeno
Brandee Gerke	Ian Stewart
Brad Harris	Stephani Zador

Absent: Tony Fischbach, Jim Ianelli

Others participating: Kirstin Holsman (AFSC-ecosystem group), Steve MacLean (NPFMC), Steve Marx (Pew), Ivonne Ortiz (AFSC-ecosystem group), Rebecca Reuter (AFSC-communications group), Tom Van Pelt (JISAO)

Synopsis

- The Team discussed the following:
 - FEP and BS ecosystem goals and objectives – revisions suggested or contemplated
 - Process for action modules, and initial list, with two suggested additions
 - Ideas for a public involvement plan, with varying avenues depending on the audience
- Action items:
 - Workproducts to begin building the draft FEP have been tasked to individual team members (see last page of this report).
 - Diana and Kerim will discuss Team's clarifications, plan forward with the Ecosystem Committee on January 31st.
- Next FEP team meeting tentatively planned during the week of April 24th, in Homer, AK.

The meeting began with introductions, and the Team voted for Kerim Aydin to become chair, and Diana Evans to become co-chair. Diana noted that the Council is still looking to appoint a social scientist to the FEP team, which will hopefully occur in the next few weeks.

Overview of the FEP task

Kerim provided background on the NOAA Ecosystem-Based Fishery Management Plan Roadmap, and the recent Lenfest report on "Building Effective Fishery Ecosystem Plans" and the Diana provided an overview of the Council discussion paper from December 2015, on the basis of which the Council initiated the development of a Bering Sea FEP. As the Team digested the Council's task for developing the FEP, there were several points of clarification about how to move forward. For example, there was discussion about how to build an FEP that both results in action but is not action-forcing (highlighting the need to work closely with the Ecosystem Committee and the Council process as we develop the FEP). There was also discussion about how quantitative the FEP should be, with the response that initially it may be more process-oriented, but this will change as we begin to identify and develop action modules. The Council is intended as the primary user of the FEP, however there is also a broader audience.

Defining objectives and metrics for success

Stephani Zador led a discussion of the need to link metrics to the FEP's objectives so that we can clearly identify whether we are achieving our goals. What are we trying to accomplish, and how can we tell whether we have succeeded? In the Lenfest report, the only two steps that aren't being met for Alaska groundfish are to prioritize objectives and to evaluate the question "did we make it".

The Team discussed the goals for the Bering Sea ecosystem and the objectives for a BS FEP which are included in the discussion paper. The Team notes that there is duplication within the 6 ecosystem goals listed in chapter 6, and overlap between them and the Council's vision statement, which should be the primary starting point. It was also noted that there may be an opportunity to include the tactical objectives from the Council's groundfish management approach. **The Team plans to consider the goals in Chapter 6, and suggest clarifications in a future exchange.** The Team sees value in linking the action modules to the ecosystem goals as well as the objectives for the FEP, and will consider that as part of reevaluating Chapter 6.

The Team reviewed the objectives for the FEP that are listed in Chapter 7 of the FEP, and made the following revisions. Note, there was a discussion that using the term 'coupled socio-ecological system' more clearly emphasizes that humans are a part of the ecosystem. The Team recommends that the FEP include a section on terms in the FEP.

- Synthesize and update current scientific understanding and ongoing monitoring of Bering Sea coupled human-natural ecosystem processes and status, including fisheries and subsistence use, to inform fishery management and identify areas that need further work for our understanding of coupled socio-ecological ecosystem processes.

Related action modules: EBFM gap analysis module, new research tracking module; also synthesis of BS ecosystem in core FEP

- Create and implement a cohesive plan for Bering Sea EBFM, including developing an operational definition of EBFM, ~~providing a mechanism for incorporating new sources of ecosystem information into Council processes,~~ and defining the Council's management process to improve understanding by the broader public.

Related action modules: EBFM gap analysis module; also outreach plan in core FEP

- Establish a process ~~for addressing change under novel or intensified stressors, including opportunities~~ to use coupled socio-ecological ecosystem information to inform decisions for adaptive management, to:
 - address change under novel or intensified stressors.
 - understand and consider tradeoffs among ecological, social, and economic factors of fishery harvest, and
 - ~~to~~ consider subsistence needs and traditional knowledge.

Related action modules: climate change module, subsistence module

- Review and evaluate the direct, indirect and cumulative effects of fishery management actions on the Bering Sea ecosystem (~~shelf, slope and canyons~~) to provide a baseline for evaluation of future council actions.

Related action modules: new habitat effects indicators module

Metrics for success

The Team began discussing different metrics for tracking uptake of FEP concepts and action modules, and will continue to do so. There was a discussion about how to track EBFM actions that are already underway, and which are being initiated as a result of the core FEP or action modules, and how to distinguish among them. The EBFM gap analysis module will be helpful in that regard, by mapping out the Council's current EBFM implementation.

The Team also discussed what feedback mechanisms are available for bringing information into the Council process. **The Team will develop a list of different onramps for integrating actions into the Council process** – for example, through an FMP amendment for a management action, input to stock assessment authors, an indicator in the Ecosystem Considerations chapter, etc. The discussion should include what the pathway is, how it can be accessed, and the timing required for input to be effective. The Team noted that this type of list could be very helpful not just for FEP tracking, but also to researchers submitting proposals to NOAA and NPRB, who are also required to consider the management utility of the research they are proposing.

It was noted that while the FEP is intended to inform the Council, the FEP metrics should more broadly measure change or uptake by stakeholders or other agencies as well. Also, it is important to track the discussion of FEP products even when it doesn't lead to a change in outcome, rather than only tracking when the FEP results in a change in action. A couple of examples that came up in the discussion were to look at the SSC minutes, or the Council discussion, on harvest specification or other actions, and track whether and when the discussion included reference to environmental variables, or uncertainty as part of the decision rationale. Another suggestion was to identify when an NRPB RFP references the modules or information needs prioritized in the FEP. Metrics could be tracked annually in a report, or at every meeting in a manner similar to the Groundfish Workplan tracking of the groundfish management objectives.

Process for identifying, tasking, reviewing action modules

The discussion paper only identifies a preliminary process for identifying action modules, primarily emphasizing the importance of thinking through how the outcome of the action module will result in management action. The Team discussed what it means for the Council to prioritize an action module, if there is no associated funding to support that module. There was discussion about the possibility of formalizing an agreement with NPRB to better communicate and highlight research priorities associated with the action modules; Jo-Ann Mellish will investigate and report back on possibilities, including logistical aspects such as providing input to the NPRB RFP process and facilitating access to NPRB-funded research products.

The Team discussed the possibility of having an annual Council agenda item for the FEP, for example at the April meeting. This would be an opportunity to discuss the FEP, progress with action modules and how to incorporate outcomes, and re-prioritize or task action modules as appropriate. The BS FEP team could have an annual meeting earlier in the year in preparation for the April Council meeting to review and make recommendations. The April timing would work well with the NPRB process, and fit in with the Council's identification of research priorities.

Any project that is addressing an FEP action module should be required to have a regular interface with the FEP Team, if it is not being directly led by a Team member. **The Team discussed whether there should be a formal 'call for action modules' for the FEP, and recommends tabling the idea for a year or two until the FEP is developed and the initial list of action modules is begun.** Once the EBFM gap analysis is complete, there will likely be an opportunity to consider a process for soliciting additional action modules to address gaps.

The Team agrees with the questions that should be written up for each prospective action module, but notes that the current question 3 includes two separate elements: how the module will inform the Council process, and how it will be integrated with it. These should be divided into two separate questions, as the question of how to integrate the module is the hardest to answer and should not be overlooked. Additionally, the question that identifies estimates of staff time and resources to address the module should, when appropriate, separately consider development and maintenance phases.

The Team also noted that at present, the distinction between some elements of the core FEP and action modules is not necessarily consistent. For example, the development of a synthesis of the Bering Sea ecosystem could be considered as an action module (a discrete task, with an objective) although it is included as a core component of the FEP, and the evaluation of the Council's current baseline for incorporating EBFM, which is an action module, will become a core component of the FEP once it is completed.

Action modules – initial list

Diana Evans, Kerim Aydin, Kirstin Holsman, and Steve MacLean each gave a brief overview of the four example action modules that are included in the Council discussion paper. **The Team has also suggested two additional action modules to include in the initial list in the draft FEP.**

1. EBFM gap analysis

Diana described the module as it is outlined in the discussion paper, with its two components: a) identifying the ways in which the Council process incorporates EBFM; and b) defining EBFM best practices, and identifying gaps and opportunities for improving either the decisionmaking process or data needs for better applying EBFM. The Team discussed the first part of the module in detail, as a necessary precursor to identifying action modules. Through “concept-mapping” the Council process, this module would illustrate how the process incorporates EBFM. Some specific examples that were highlighted during the discussion include the practice of presenting the Ecosystem Assessment every year as a prelude to setting harvest specifications; explaining how the annual assessment of stocks is adaptive to climate or temperature change; and describing how SSC deliberations on the harvest specifications process take into account, for example, BS and AI ecosystem differences in subarea allocations. The Team also discussed the value of identifying, as part of this module, some of the key data sources that underpin the Council's EBFM process, for example the surveys. **The evaluation of how the Council process currently incorporates EBFM is a fundamental task that will be incorporated into the core FEP, and guide the identification and prioritization of next steps.**

During the second phase of this module, the comparison of the Council's current process with best practice for EBFM can identify gaps or opportunities. The Team noted that these can be both improvements to the process or data needs. For example, if the Council decides to do stock prioritization for assessments, there may be FEP considerations that should have input into assessment frequency.

2. Series of conceptual models for the Bering Sea ecosystem

Kerim gave an overview of how conceptual models could be developed for the Bering Sea, and briefed the Team about ongoing work by post-doc Jonathan Reum and Kirstin Holsman. The Team discussed that the big picture conceptual model should really be part of the synthesis of the ecosystem chapter, but that this action module might drill down on what are key nodes for a detailed expansion of the conceptual model around a key species or area. There are opportunities for public involvement in the identification of focal nodes, in groundtruthing the drivers and pressures affecting those nodes, and also using the output as an outreach tool. The models can be used in conjunction with a qualitative network model (QNM), and

used as a scoping tool for seeing the impacts of perturbation and policy tradeoffs. Kirstin is conducting a workshop at the 2017 Alaska Marine Science Symposium, to develop a qualitative network model for blue king crab, which can be an example for the FEP.

3. Climate change effects

Kirstin briefed the Team about the Alaska Climate Integrated Modeling Project, which is an ongoing project linking ROMS climate predictions and NPZ model data into 11 climate prediction scenarios and a coupled socio-ecological systems that models 5 fisheries and the human component. Kirstin identified that the goal of the climate module is to identify fish and human communities that might win or lose under changing environmental conditions, and the ACLIM project will be able to help the Council identify management strategies that build resilience among those communities. She provided some specific examples of actionable advice that might result from the project, and relative time frames, such as changes in seasons or closure areas, choosing different tiers in the overfishing definitions, changes to control rules, survey locations, and/or assessment frequency.

4. Protocol for subsistence information

Steve MacLean provided an overview of the subsistence module, which would formalize a process for addressing subsistence information in management analyses. This is an example of a module where expertise is needed from outside groups, such as Kawerak, or Pew, and where a public involvement plan will be needed. It was noted that there may be some need to manage expectations with respect to this action module. The intended result would be to develop a process for subsistence information to be addressed and considered early in the management decision process, but with the understanding that subsistence needs will still be balanced in Council decision-making with other considerations. A paper has just been published in Marine Policy that provides some recommendations for considering traditional knowledge, that may be an informative starting point for the development of this action module.

5. New: Habitat effects indicator module

The Team recommends that a new action module be included in the initial list of modules in the draft FEP, that uses the habitat effects model to develop one or many habitat indicators. The intent would be to identify Council interest in monitoring specific habitat needs based on previous actions (for example, the canyons study), and to apply the habitat model to meet those specific needs. The module would leverage the model's development through the EFH process, but would extend its application to habitat assessment other than EFH.

The Team recommends this module as a first step towards tackling more quantitative modules, that address ecosystem objectives by developing indicators with thresholds at which the Council may evaluate the need for action.

6. New: Research tracking module

The Team also recommends an additional process module, to develop a process to be able to better track how information from the FEP and action modules is used in the Council process. The utility of this module would be to provide accountability that funded research is achieving its purported ends. There is a broad application to all funding agencies when clear connections can be made between ongoing research and a management outcome. It is also useful to give researchers a clearer sense of what is and isn't likely to result in uptake by management.

In this module, the task would be to use the list of onramps to the Council process identified in the FEP to look at NPRB final projects and their research proposals, projects funded by the NOAA Integrated Ecosystem Assessment (IEA) Program, and any other project funded to achieve stated management goals, and assess how can we track and capture whether Bering Sea research projects met their stated intentions

of providing a useful outcome for management, and how those lessons can be applied to FEP projects in future, particularly FEP action modules.

Discussed but not moved forward

The Team also discussed the possibility of an action module that inventoried Bering Sea data, and mapped it in a spatial temporal data framework. The inventory would look at what data we have, and its spatial or temporal resolution. The mapping would allow the Council to see where there is a lot of data, and where there is less, and would be a decision support tool so that the Council understands the limitations of the data on which they are basing decisions. The Team saw benefit in the idea, especially on an interactive website, but was concerned about potential overlap with ongoing work by AOOS, and also about the workload that could be involved in this kind of project. The Team noted that there is some basic data inventorying that could be included in the EBFM gap analysis evaluation, and that this may be a project to revisit at a later date.

Synthesis of the Bering Sea ecosystem

The core FEP outline includes a chapter that synthesizes information about the Bering Sea ecosystem. The Team discussed different ways to accomplish this in a way that would not duplicate existing references but be useful for the Council. **The Team recommends that the synthesis chapter include a series of graphics or diagrams, supported by text as appropriate, that illustrate natural and human ecosystem processes.** These graphics can identify source material for the reader to get a more in-depth understanding; they should also identify, as appropriate, how processes or impacts can or cannot be affected by management action (by the Council, or also by other agencies with jurisdiction), and if/how we are monitoring these processes. The Team identified a series of diagrams or graphics that may be useful, which are identified in the tasking list at the end of this report.

Outreach / public involvement plan

Steve MacLean began the discussion of developing an outreach or public involvement plan for the FEP, and noted that each action module will have a different public involvement plan associated with it. The Team noted that there will likely be different outreach needs during the development of the core FEP versus during the action modules. Rebecca Reuter (AFSC communications office) noted that an interactive website does not necessarily mean that information is accessible, particularly in rural Alaska, and that the Team should consider social media opportunities. She also recommended thinking about the audience(s) for the FEP, and the timing for outreach/ public involvement for different audiences. As the project develops, there should also be a consistent message articulating what does the FEP do, and how does it help. The discussion paper prepared for the Council identifies several ways in which the FEP can provide added value, which is a starting point. The Team noted that the FEP demonstrates EBFM in action, and that we should identify ways in which EBFM leads to a different outcome than fishery management, for example that increasing the amount of information we have improves our ability to predict what might be happening.

The Team developed the following strategic objective for outreach and public involvement:

Objective: To engage stakeholders and the public in the process of implementing EBFM through the Bering Sea FEP so that the BS FEP is informed by the broadest realm of perspectives and to increase public connection with the Bering Sea marine ecosystem.

Audiences

Council, Council family (including industry, NGO stakeholders that normally attend/follow meetings), Bering Sea community residents, public at large that is interested in sustainable fisheries and food security (including in WA), agency people (NMFS and other agencies)

Avenues for outreach and public involvement

- FEP Team meetings are public
- public testimony opportunities through regular updates to the Ecosystem Committee
- Council process
- external expertise on action module teams
- targeted roll-out of the FEP between draft and final (Oct 2016 and April 2017)
- look for regional meetings to access BS communities
- interactive website
- use/expand Ecosystem Cttee email distribution list
- social media opportunities (not necessarily directly from Council, but NMFS also has platforms)
- internal NMFS emails/brown bag

Next steps

Scheduling

The Team laid out the following timeline for developing the FEP:

January 31, 2017	Kerim, Diana update Ecosystem Committee on progress
April	FEP update at April Council meeting, in conjunction with Lenfest report?
week of April 24 th (T)	Next FEP team meeting, in Homer, AK at USFWS Islands and Oceans center
July-Aug - tentative	Team meeting? Teleconference?
early/mid-August	Internal draft for Team review
early/mid-September	Distribute Draft FEP to Council
October	Council reviews Draft FEP, provides feedback
Oct-Jan	Team meeting to address Council, public feedback on FEP?
April 2018 (T)	Council review/approval of Final FEP

Tasking

The Team agreed to the following individual tasking. Except where noted, Team members will bring draft workproducts to the next FEP team meeting.

Core FEP chapter	Description	Tasking	Timing
General	2 page FEP flyer and ppt slides	Diana and Kerim, will circulate to Team for edits	next week
Chapters 1-4	Review and update (including updates to Figure 3)	Diana	April
Chapter 5 - Synthesis of ecosystem - Diagrams or graphics supported by text - Include references to more info - Identify where we have indicators/ monitoring? - Identify which are impacts we can control - Identify management actions that relate to the impact	Overview conceptual model – eg, adapt PFMC as strawman	Kerim will circulate first draft	next week
	Stressor diagrams – effects of fishing, effects of shipping, etc. – develop list	Kerim/Tony	draft prior to April meeting
	QNM models – identify nodes to select	Team	Discuss/start in April, use existing examples (blue king crab)
	Jurisdictional/FMPs diagram	Diana	draft April
	Econ graphics – harvester, processor, market	Mike	April
	Subsistence graphic	Social scientist TBD	April
	Non-fishing uses/ activity graphic	Heather/Tony	April
Oceanographic/ recruitment processes	Phyllis/Ebett	April	
Chapter 6 – BS ecosystem goals	Revise FEP goals – vision statement, ch 6, PSEIS objectives	Chairs will lead email discussion	finalize by March
Chapter 8 - Action modules	Process: Describe process for action modules interacting w funding agencies – NPRB, other	Ben, Jo, Diana	outline/draft for April
	Process: List of onramps to Council process	Ian/Jim	April
	Edits to existing example modules	Owners of modules	by March
	New: write up research tracking module	Jo/Diana	April
	New: write up habitat effects indicators module	Brad	April
Chapter 9 - Public involvement plan	List of audiences, strategies	Chairs to meet with experts	by March
Chapter 10 – feedback mechanisms	Describe process for Council feedback/recurrence – eg metrics for success, annual report to Council, website?	Stephani	outline/draft by April
EBFM Gap analysis module	a) Concept map of existing Council EBFM process, b) identify EBFM best practices and Council's EBFM definition, c) gap analysis of Council process to best practices	Diana, Brandee, Stephani	outline/draft by April