

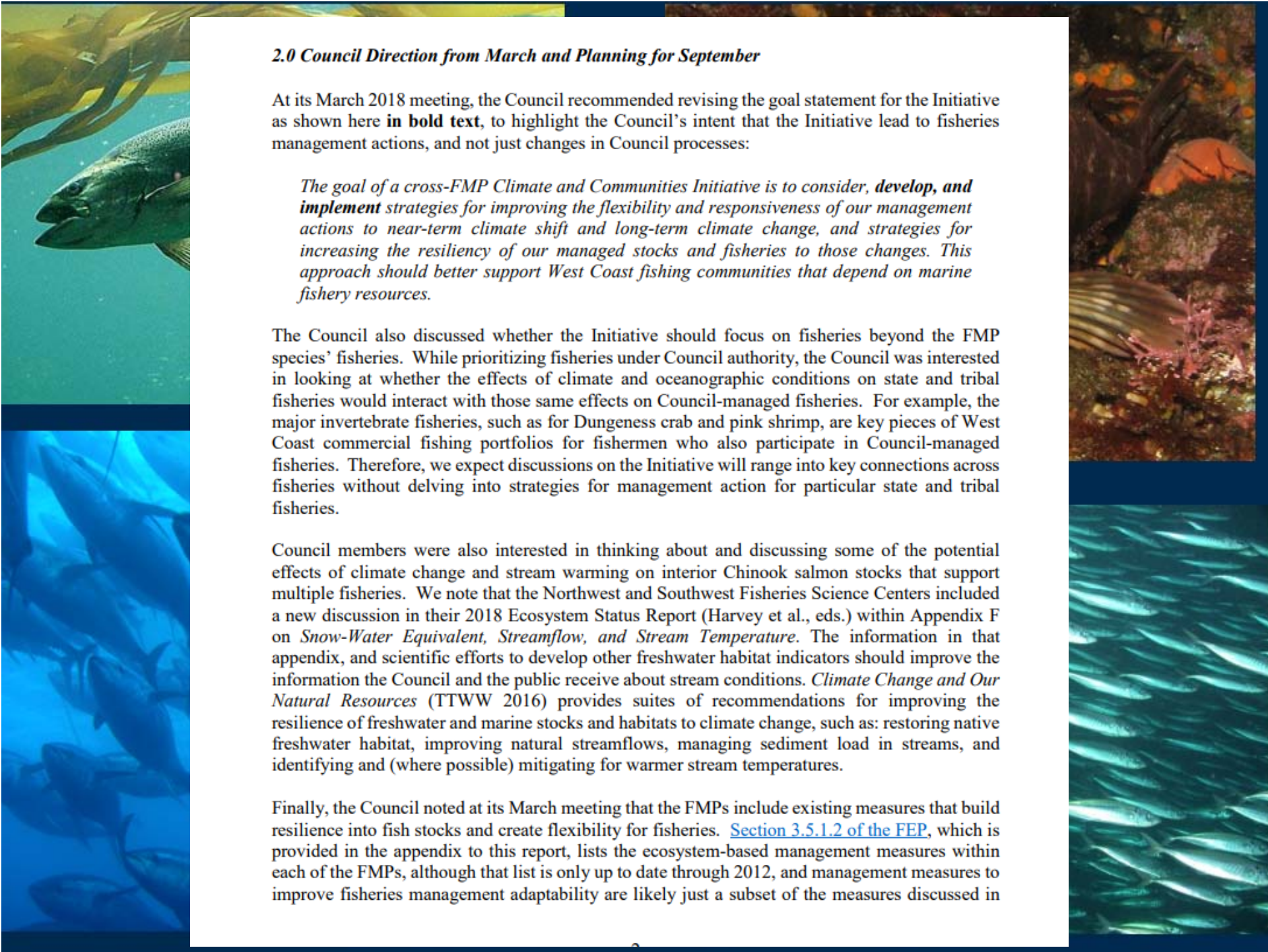


Ecosystem Workgroup Climate & Communities Initiative

September 2018
Agenda Item G.3.







2.0 Council Direction from March and Planning for September

At its March 2018 meeting, the Council recommended revising the goal statement for the Initiative as shown here **in bold text**, to highlight the Council's intent that the Initiative lead to fisheries management actions, and not just changes in Council processes:

*The goal of a cross-FMP Climate and Communities Initiative is to consider, **develop, and implement** strategies for improving the flexibility and responsiveness of our management actions to near-term climate shift and long-term climate change, and strategies for increasing the resiliency of our managed stocks and fisheries to those changes. This approach should better support West Coast fishing communities that depend on marine fishery resources.*

The Council also discussed whether the Initiative should focus on fisheries beyond the FMP species' fisheries. While prioritizing fisheries under Council authority, the Council was interested in looking at whether the effects of climate and oceanographic conditions on state and tribal fisheries would interact with those same effects on Council-managed fisheries. For example, the major invertebrate fisheries, such as for Dungeness crab and pink shrimp, are key pieces of West Coast commercial fishing portfolios for fishermen who also participate in Council-managed fisheries. Therefore, we expect discussions on the Initiative will range into key connections across fisheries without delving into strategies for management action for particular state and tribal fisheries.

Council members were also interested in thinking about and discussing some of the potential effects of climate change and stream warming on interior Chinook salmon stocks that support multiple fisheries. We note that the Northwest and Southwest Fisheries Science Centers included a new discussion in their 2018 Ecosystem Status Report (Harvey et al., eds.) within Appendix F on *Snow-Water Equivalent, Streamflow, and Stream Temperature*. The information in that appendix, and scientific efforts to develop other freshwater habitat indicators should improve the information the Council and the public receive about stream conditions. *Climate Change and Our Natural Resources* (TTWW 2016) provides suites of recommendations for improving the resilience of freshwater and marine stocks and habitats to climate change, such as: restoring native freshwater habitat, improving natural streamflows, managing sediment load in streams, and identifying and (where possible) mitigating for warmer stream temperatures.

Finally, the Council noted at its March meeting that the FMPs include existing measures that build resilience into fish stocks and create flexibility for fisheries. [Section 3.5.1.2 of the FEP](#), which is provided in the appendix to this report, lists the ecosystem-based management measures within each of the FMPs, although that list is only up to date through 2012, and management measures to improve fisheries management adaptability are likely just a subset of the measures discussed in

WHAT DO WE EXPECT TO HAPPEN IN THE CALIFORNIA ECOSYSTEMS

3.0 Initiative Activities to Date

Leading up to the Council's March 2018 discussion of the Initiative, the EWG had coordinated a [January-February webinar series](#) featuring scientists from the Northwest and Southwest Fisheries Science Centers discussing recent scientific information on the potential effects of climate variability and change on the CCE and West Coast fisheries. We also anticipate that the climate vulnerability assessments for CCE fish, the results of which were preliminarily [presented at the Council's September 2017 meeting](#), will be helpful to the Council in sorting out which species may be more or less vulnerable to the potential effects of climate variability and change. Also in 2017, EWG members and Council staff attended a workshop on ocean tipping points to train resource managers to understand and apply a suite of scientific tools and methods to support effective management decisions related to ecological regime shifts, fisheries collapse, and other types of dramatic ecological change in the ocean.

For the Council's April 2018 meeting, the EWG provided a [supplemental informational report](#) intended to help the Council consider issues and ideas for a May 2018 workshop, sponsored by The Nature Conservancy, on the Initiative. Members of the EWG and the larger Council family attended the workshop. Council staff have posted materials from the May workshop on the Council's [website for this initiative](#). We understand that The Nature Conservancy and The Fisheries Leadership & Sustainability Forum, which facilitated the May workshop, will be reporting on that workshop to the Council at this meeting.

The EWG met via webinar on May 22, 2018, primarily to develop its report to the June 2018 meeting on the Draft Research and Data Needs Document. In that [supplemental June EWG report](#), we not only provided comments on that draft Document, we also discussed the EWG's priorities for ecosystem science in support of the Initiative.

THE STATE OF THE ART FOR ECOLOGICAL REGIME SHIFTS AND LONG-TERM TRENDS



Samantha Siedlecki³
Benthic Center
CCE Center

and Long-term Time Frames | February 1, 2018

Participation
Response to
Change

NOAA

NOAA
FISHERIES
SERVICE

FSC



Distribution
Impacts



4.0 Initiative Discussion Questions for Council Family

In July 2018, we drafted questions on this Initiative for Council members, advisory body members, and the public. We intended these broad questions to help Council process participants think about concerns they might have for our fisheries under climate change, based on their past and current experiences, and what they might want out of the Initiative looking forward. We are expecting these questions to spur conversations, not to lead to immediate answers for Council action. Advisory bodies could share their initial thoughts about and answers to these questions in their September 2018 reports. Responses to these questions from Council advisory bodies and the public should be useful to Council discussions under this agenda item.

Posted on [this initiative's website](#) and distributed to Council advisory bodies via email, we asked:

1. How do you think the Council can best address or minimize risks associated with the effects of increased climate variability on marine species?
2. Addressing increased climate variability requires fisheries management that is flexible and adaptable to minimize impacts on the fisheries and associated communities.
 - a. What do you see as the biggest constraints to flexible and adaptable management that the Council/National Marine Fisheries Service (NMFS)/States could or should address?
 - b. How far out in time are you thinking when planning and making fishing business, fishery management, or fishery science decisions? A year? 3-5 years? Farther than 10 years?
 - c. Do you know whether your state, tribe, agency, or other organization is doing anything already to address concerns about the potential effects of climate variability? Anything you want to bring to the Council's attention?
3. Do you want more flexibility to switch between fisheries? Or, flexibility to change where you fish for the species you target?
4. Did you witness changing ocean, stream, or fishery conditions during our recent, 2014-2016, El Niño and Marine Heat Wave (Warm Blob) period? If you are a fisherman, did you have to react (fish differently?) than during previously large changes in ocean conditions?
5. Are there climate and fishery issues that are important for your state or tribe, but which are not usually discussed in the Council process? (If so, which fisheries and for which state/tribe?) How might they play a role in Council actions in the future?



CLIMATE CHANGE AND OUR NATURAL RESOURCES

A Report from the Treaty Tribes in
Western Washington



Treaty Tribes of Western Washington, 2016, *Climate Change and Our Natural Resources*, on marine essential fish habitat:

- consider protections for fish nursery grounds
- ask whether existing closed-area boundaries still apply to the species, stocks, and habitats they were intended to protect
- ask whether there may be West Coast marine habitat features that are particularly vulnerable to climate change





Using Scenarios to Explore Climate Change: A Handbook for Practitioners

6.0 Scenario Planning as a Possible Next Step

Morrison and Termini (2016) suggest that fisheries managers and stakeholders use scenario planning processes to explore their options for managing in the face of climate variability and change. Scenario planning is more fully described in a National Park Service publication, *Using Scenarios to Explore Climate Change: A Handbook for Practitioners* (2013).

Scenario planning can take many forms. One option might be for Council members, or an ad hoc group combining Council members, Council advisors, scientists, and stakeholders, to convene via workshops to discuss how the Council might react to a scientifically-based-but-imagined future scenario for one or more Council-managed fisheries. For example, such a group could consider how fisheries management might change under a scenario where, by 2030, yelloweye rockfish were to fully recover, and Chinook salmon returns to the Columbia River basin were to further decline. Alternately, the scenario planning might instead focus on ports or regional perspectives that include state, tribal, and Federal fisheries together.

September
2040:
Agenda Item
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Central Coast
Giant Squid
Invasion



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7.0 EWG Recommendations

As discussed in the Introduction to this report, the EWG anticipates that this Initiative will result in a suite of actions over varying timeframes, rather than a single large effort or document. Ideally, these actions could be phased in as they become ready for Council consideration. To develop those actions, the EWG recommends further and more specific discussions of how the Council might respond to potential changes in the CCE. To that end, the EWG recommends that the Council:

- Consider whether they have received adequate comments and suggestions from the discussion questions for this initiative. If not, send out these, or recommend other, framing questions for a longer and more deliberate public review process in preparation for further discussion at the March 2019 meeting.
- Consider whether the Council process is interested in or ready for climate change scenario planning and, if so, direct the EWG to scope the task and recommend categories of potential workshop participants and specific scenarios. The EWG could report back in March 2019 with a more detailed description of the activities that would occur under a scenario planning exercise and at least a rough schedule.
- Consider whether the Council needs briefings on the potential effects of climate variability and change on either interior salmonid stocks that contribute to Council-managed fisheries, or on non-federal ocean species and fisheries, or both. Or, consider whether the Council would like a briefing on climate impacts on fishing communities and their relevance to Council management, or actions being undertaken to mitigate those impacts. Make recommendations on the appropriate agencies or other entities to develop those briefings.
- If the Council is ready for more specific background information and action recommendations, provide some framing discussion for the EWG and other advisory bodies on the general topics or management areas that the Council would like to see addressed. For example, climate change planning measures could be built into EFH review and management processes, or into stock assessment development and review processes, or into fisheries licensing or license program review processes.
- Direct its management teams to work with the EWG to review and update an inventory of existing FMP measures that could be used to build resilience into fish stocks and create flexibility for fisheries.
- Consider supplementing EWG membership with scientific expertise to aid with the next steps in the Initiative.

Supplemental Report

Agenda Item G.3.b
Supplemental EWG Report 2
September 2018

ECOSYSTEM WORKGROUP REPORT ON CLIMATE AND COMMUNITIES INITIATIVE UPDATE

The Ecosystem Workgroup (EWG) submitted an [advance briefing book](#) report with its thoughts on the Climate and Communities Initiative and held further discussions on this issue at our September 6-7, 2018 meeting. We submitted our advance report well before the September meeting to solicit thoughtful consideration and comments from the Council family in time for our discussions at this meeting. In addition, the EWG discussions have had the benefit of considering the information provided from The Nature Conservancy Workshop report. The EWG continues to support our recommendations on this agenda item from our advance briefing book report.

After hearing feedback and having more discussion, our leading ideas for Council action on this agenda item are to: support scenario planning, diagnose fishery management plan (FMP) readiness for management measures that aid adaptation to a changing climate, and identify decision processes and associated analyses where climate information should be incorporated into fisheries management. To this end, the EWG suggests the Council consider:

- If the Council recommends proceeding with scenario planning, we would appreciate Council guidance on whether scenarios should focus on a fishery-specific case study, or an FMP-specific case study, or should scenarios more broadly consider all fisheries within some geographic region or port complex? Council guidance on a particular driver of change would also be helpful. For example, should draft scenarios focus on temperature change, pH change, sea level rise, etc.?
- In our advance briefing book report for this action, we suggested that the Council “Direct its management teams to work with the EWG to review and update an inventory of existing FMP measures that could be used to build resilience into fish stocks and create flexibility for fisheries.” We continue to support FMP-specific reviews for existing management measures that support fisheries management adaptation to a changing climate. The Nature Conservancy Workshop Report at Agenda Item G.3. Attachment 1 includes examples and ideas for potentially useful management measures ripe for review, such as: assessing permitting processes for their flexibility for moving between fisheries without losing the conservation benefits of those permit programs; looking for opportunities to ensure that new generations of fishing businesses have access to harvest; encourage fuel efficiency in fishing operations; and exploring community quotas. These and other ideas would be best initially evaluated through cooperative work between the EWG and the FMP-specific management teams.
- The Council may also want to assign the EWG and other Council advisory bodies to assess the Council’s analysis-framing documents, such as Council Operating Procedures or FMPs, for whether they support including climate information into the analyses that support Council decision-making.



Unless indicated on image, all images are courtesy of the National Oceanic and Atmospheric Administration, *except*:

Slide 2: Sonoma County, California Air Resources Board

Slide 3: Seven Sages of the Bamboo Grove (1800,) Kubo Shunman, U.S. Library of Congress

Slide 4: schooling jack mackerel, Adam Obaza; Unsorted pink shrimp haul, ODFW; Middle Fork of the Salmon River, IDFG

Slide 8: Horseshoeing hammer, Library of Congress; Staff Sgt. Nathan Burkhardt and F-35 tire and brake toolbox, Eglin Air Force base.

Slide 10: Galaxy background, NASA; Pacific Fishery Management Council foreground, PFMC

Slide 14: Fog over Klamath River, NPS