



## North Pacific Fishery Management Council

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### Bering Sea FEP Climate Change Taskforce Meeting

March 1-2, 2023

Alaska Fisheries Science Center

Seattle WA

The Climate Change Task Force (CCTF) held their spring meeting over two days March 1-2, 2023 in person at the Alaska Fisheries Science Center and with hybrid access.

CCTF attendees (in person and online) included:

#### CCTF Members in attendance:

Diana Stram	NPFMC (co-chair)
Kirstin Holsman	AFSC REFM (co-chair)
Mike Levine	Ocean Conservancy
Todd Loomis	Ocean Peace LLC
Jason Gasper	NMFS RO
Brendan Raymond-Yakoubian	Sandhill Culture Craft
Lauren Divine	City of Saint Paul
Jeremy Sterling	AFSC MML
Scott Goodman	NRC INC
Steve Martell	SeaState

Members of the public participating online included the following: Steve Marx, Megan Williams

The eAgenda for the meeting is available at: <https://meetings.npfmc.org/Meeting/Details/2979>

The goal of the meeting was to:

1. Plan for the upcoming Climate Scenario workshop (likely early 2024) including identification of goals, objectives, scope, organization and format.
2. Review SSC comments on the Climate Readiness Synthesis
3. Briefly review topics that bubbled up during the SSC workshop including recent Collie et al. and Free et al. Harvest Control rule papers, the Residual Risk and Adaptation Database (RADD), and the SNAPP working group planning tool.
4. Discuss additional topics including future work plan for the CCTF and public engagement approaches going forward.

## Topic 1: Developing Climate Scenario Planning workshop

The CCTF spent part of day 1 and most of day 2 discussing the scope and goals for an upcoming Climate Scenarios workshop (See Appendix A). The CCTF reviewed the SSC comments and suggestions for the workshop beforehand and considered those during the discussions (see Appendix B: response to SSC comments). The task force identified the primary goal of the workshop to be “ *to synthesize and summarize the critical needs, resources, and process to develop and maintain a robust and inclusive decision making process to respond to climate change effects in the North Pacific*” (see attached Workshop summary scope and agenda). To achieve this the workshop will encourage participants to 1) think broadly about potential solutions and tools within the existing process (incremental) but also beyond existing approaches (transformational) and 2) identify “bigger picture” changes that could be effective to address large climate impacts and changes.

Desired outcomes and deliverables from the workshop were discussed and include information that would be synthesized in the final CCTF report and online resources such as 1) concrete advice on feasible and effective approaches to increase climate resilience for fishing communities and fisheries management/ Council process, 2) review of risks, barriers, traps, and responses to climate change and shocks ,3) Identification of barriers to adaptation that could be addressed across financial, social, policy realms, 4) Identification of the critical gaps in the information, tools, process to support effective response and robust planning including a list of ‘What is missing?’ and /What is not missing but not used? Why?’, and 5) a summary of a suite of non-prescriptive recommendations for making management more proactive and effective under climate change.

The team discussed the scope of the workshop and potential overarching themes (e.g., equitable adaptation, non-linear trends and tipping points, ‘thinking inside / outside of the box’, focus on planning not prediction, etc.). The CCTF also sketched out a multi-day agenda, identified tools that could be used to facilitate discussion and explore case studies, and began scoping methods for facilitation and scenario planning exercises. More details about these elements can be found in the attached workshop summary and draft agenda (Appendix A). Based on this the CCTF identified an approximate timeline for the workshop and pre-workshop planning:

- **March 2023- Sep 2023** Open comment period on Workshop Scope and Agenda
  - Also: increased public engagement around FEP Taskforce activities in general e.g. through Council Rural/Tribal Liaison, NMFS Tribal Liaison, NMFS Tribal Engagement Team, etc.
- **October 2023 CCTF meeting in Anchorage (just after Council meeting Oct 12);** Reporting back at the December council meeting); pre-workshop Engagement and public working meeting in Anchorage.
  - Review scope and direction full workshop
  - Summary public comment and our scope

- Additional engagement: Discussion, information gathering to help prep for the full workshop (e.g., finalize scenarios, finalize tool to use, draft graphics, finalize speakers, and pre- workshop materials)
- Public feedback : Feedback on what are the critical questions and needs?
- Finalize logistics and materials for the workshop
- **April 2024:** Full Scenarios Public workshop possible coordinated with (before or after) the April Council meeting timing (TBD as workshop listed for 3 days)

## **Topic 2: Review SSC comments on the Climate Readiness Synthesis**

The CCTF spent most of day 1 reviewing and discussing the SSC comments on the Climate Readiness Synthesis report as well as directions for the next iteration of the CRS (See Appendix B). The team identified that there was some confusion between between the Climate Readiness Synthesis (CRS) and the longer ***EBS Climate Change and Adaptation Report*** (CCAR; which will include measures to increase climate resilience as well as review of available information on the “effectiveness” of current management measures under climate change). The responses to these comments are appended to this CCTF report. The CCTF reiterated the main goal of Climate Readiness Synthesis was to evaluate the current status of climate readiness, i.e., what if any climate change information was implicitly or explicitly being used for decision making in the council process. This was to establish a baseline of climate readiness but it was not an evaluation of resilience or adaptation or management effectiveness. The CCTF did discuss that the team did use the evaluation and assessment of climate readiness to identify near-term feasible changes that could increase climate readiness but this is not an exhaustive exploration of potential actions. The team reiterated that it is envisioned that the CRS would be regularly updated to determine changes in the status of climate readiness but full exploration of feasibility and recommendations for improvement is beyond the scope of the CRS. The CCTF discussed and agreed that the full Climate Change and Adaptation Report (to follow the workshop in winter 2023/2024) is the desired deliverable and will provide a review of information about resilience and recommendations for how to increase climate readiness as well as review existing information about effectiveness and feasibility of various adaptation and climate-informed decision making tools and processes.

Towards this the CCTF continued to identify important sections for the full Climate Change and Adaptation Report (CCAR) including chapters:

- Resilience
- Adaptation
- Current Climate readiness (i.e., CRS)
- Climate Change key risks for EBS communities and fisheries
- Adaptation effectiveness & feasibility (incl table; review)
- Management effectiveness under Climate Change (based on avail info)
- Case studies from workshop
- Recommendations for next steps

The CCTF discussed that evaluation of the full scope of adaptation and management effectiveness is beyond the scope and charge of the CCTF but the CCTF can review existing

information and synthesize current state of knowledge on effectiveness and that the CCTF can recommend a process to do these evaluations. The CCTF also discussed that the SSC identified that the Council needs to be more nimble and responsive to climate change and that potentially a programmatic review through the lens of climate change might help identify how to make management more nimble and that the CCTF could provide a suite of suggestions for this (e.g., help ID specifically how to make each piece more nimble, proactive). For example, distributional shifts are not systematically reviewed (they come up opportunistically based on individual species and stock assessment authors) and regular review may help identify climate effects on catchability and access..

- Might look to review these through omnibus actions.
- Build review into Council process - have you built a process to review climate ready actions periodically (e.g., use a lens of climate change to programmatic reviews) - main recommendation.
  - Lens: suite of measures for the future - e.g., under large warming
    - Are area closures too static
    - Are there sidewalls / blockades that inhibit diversification
    - Who is better able to adapt
    - Non-specified reserve and flatfish flexibility, as a good example of what work, allow people to make informed gear changes on the fly
    - What are the management programs that allow us to be more flexible
  - What are impediments to change(process/policy):
    - Legal requirements
    - Economic and social incentives
    - Biological / distributional limits

## Public comment

In addition to public comment on the scope of the potential scenarios workshop the CCTF identified a few key next steps for the group including the need to 1) Outline the full Climate Change Risk and Adaptation Report 2) coordinate with the LKTK TF to ensure the workshop is inclusive of the LKTK TF, revised the CRS as needed and reiterate using the newest stock assessment SAFE report.

Public comments were also appreciated during the meeting and included:

- Support for the CRS report and appreciation for stepping through the comments in the meeting (open to the public).
- CRS Table 1.2 was highlighted as a good template for the council to consider and suggestions included further development of the table as a stand alone product informing the work going forward. That table could be used to ID scenarios.
- Towards the Scenarios Workshop, a suggestion was to consider non-linear trends, tipping points, thresholds, shocks, and to try to ID some of those that could be analyzed during the workshop.
- Metrics: Bering Sea FEP ecosystem goals and objectives
- PEIS process provides an opportunity to identify on-ramps

## **Appendix A: Climate Change Scenarios and Advice Workshop**

(Tentatively) To be held April 2024 (3 days)

Timeline:

April 2023 - Sept. 2023 : Open Comment Period

Oct 2023 - CCTF Workshop planning meeting and pre-workshop engagement

### **Goal**

The overarching objective of this workshop is to synthesize and summarize the critical needs, resources, and process to develop and maintain a robust and inclusive decision making process to respond to climate change effects in the North Pacific. Towards this, the workshop will be focused on regional management process and would like to invite attendees and participants to:

- Think broadly about potential solutions and tools within the existing process (incremental) but also beyond existing approaches (transformational) ,
- Identify the bigger picture changes that could be effective to address large climate impacts and changes.

### **Draft Agenda and Scope**

The workshop will use a combination of scenario planning exercises and case studies to explore effective planning and response to climate change through a three part discussion:

- Part 1: Understanding where we are now in terms of climate-readiness
- Part 2: Deep dive in to barriers to and solutions for effective response, planning, and preparation
- Part 3: Visioning and thinking “outside the box” to build a climate resilient management system from information to action

### **Themes to be explored**

- Approaches and tools available in hand (“thinking inside the box”) versus innovations and approaches that might need to be implemented (“thinking outside the box”)
- What approaches can address equity and sustainability in planning and adaptation?
- What information or tools are missing? What is not missing but not used and why?
- What approaches and information can address on-linear trends, tipping points, and sudden shocks to Alaskan marine ecological and social systems.

### **Outcomes and deliverables**

Outcomes and deliverables may include but are not limited to:

- Synthesis of concrete advice on how to make fishing communities and fisheries management and the Council process more climate resilient such as:
  - Tactical and strategic measures / actions, both near-term and long-term

- Feasible tools, incremental changes as well as larger/ long-term recommendations and potential innovations
- Feasibility and summary of basic actions to address key gaps
- Common barriers and solutions to those barriers
- Specific review and detailed information on the 1 or 2 case studies used during the workshop to identify climate-informed tools and approaches.
- Review of key risks, barriers, traps, and responses to climate change and shocks
- Identification of key barriers to adaptation that could be addressed across financial, social, policy realms
- Identification of the critical gaps in the information, tools, process to support effective response and robust planning (including a list of What is missing? & What is not missing but not used and why?)

## **Scenarios**

We will use a suite of illustrative future “what if” scenarios to help inform planning and response. The focus of future projections will be for planning rather than predict, i.e., they will provide the scope for potential future changes that may occur next year, ten years from now, 20 years from now. Discussions around these changes will help identify near term actions and a step-by-step approach and long-term investments in information, tools, and management innovations to increase resilience to climate shocks and change for different fisheries and marine dependent communities. Case studies will help anchor discussions for what if scenarios and provide concrete examples of gaps and needs as well as successes in weathering climate driven changes to Alaskan marine ecosystems and resources.

## Appendix B: CCTF responses to February 2023 SSC comments

### General

The CCTF would like to clarify that there are two separate reports:

1. Climate Readiness Synthesis (presented in February)
2. EBS Climate Change and Adaptation Report (To come in 2024)

There may have been some confusion between the Climate Readiness Synthesis and the longer **EBS Climate Change and Adaptation Report** (“**CCAR**”, sometimes called the ‘**CCTF Climate Report**’) which will include potential measures that could be implemented to increase climate resilience as well as review of available information on the “effectiveness” of current management measures under climate change. To clarify, the **Climate Readiness Report** (“**CRS**”) is a synoptic assessment of the current state of readiness and is intended to be conducted semi-regularly (e.g., bi-annually), in order to evaluate changes over time in the implementation of climate ready measures. The effectiveness of various measures will be reviewed as part of a larger synthesis of the effectiveness and feasibility of adaptation options for the Council to plan for and respond to climate change. That evaluation is part of the larger **EBS Climate Change and Adaptation Report** in development.

CCTF responses to the SSC comments are detailed below. We thank the SSC for their thoughtful review of the CRS and suggestions for it, the forthcoming **Climate Change and Adaptation Report**, and for the upcoming Climate Scenarios workshop.

### SSC Comments

Section 1:

*Another key aspect of this report was the thoughtful consideration given to defining key terminology. The SSC appreciated how the authors emphasized the socio-environmental linkages and highlighted the importance of considering fishing communities throughout the document, but the SSC highlights a lack of exploration of the resilience of fishing communities in the report.*

A discussion of the resilience of fishing communities in general and as a direct focus would be too large and complex an undertaking for this report. Nonetheless, the Taskforce recognizes that this is an important and management-relevant topic and hopes that it and related issues can be addressed more directly and in greater detail during the upcoming workshop. The topic was discussed somewhat ‘indirectly’ in the CRS report with regard to Indigenous communities as it pertains to the contribution of resilience tools to the climate resilience knowledge base. ***This could be supplemented in the Climate Change and Adaptation Report and/or in future CRS with some brief additional discussion along the same lines in the industry and agency knowledge base sections to round out the discussion and more broadly account for various kinds of fishing communities.***

*The SSC suggests the treatment of community resilience within the document could be enhanced by clarifying the scope and goals of the current document and next steps.*

The CCTF appreciates this suggestion and discussed that there may not be a singular definition of community resilience; however, the workshop can be used to collaboratively identify and review various definitions of resilience and critically evaluate alternative methods and metrics to measure and evaluate community resilience. In terms of the CRS, the clarification of scope and goals for this document are underway, and this comment will be addressed. The CCTF provided a snapshot of the type of analysis that could enhance the overall suite of tools the SSC and Council could draw from regarding climate readiness, including community resilience (i.e., ‘rapid scan’ and in-depth review/analysis of Council literature relevant to decision-making processes). This CRS is not intended to provide a deep dive into ‘community resilience’ as a metric or indicator, rather that will be included in the **Climate Change and Adaptation Report**. A full analysis of resilience is a significant undertaking and will require dedicated additional resources to complete, but it would provide much more information and context for Council consideration. For example, the SSC recommended that the CCTF expand the number of keyword terms and provide additional example terms (e.g. adapt, adaptation).

The SSC also recommended expanding the scope of documents analyzed in the CRS (e.g., ACEPO). Indeed, the CCTF has explored the possibility of expanding use of this methodology for other chapters (e.g., Council body meeting minutes, written testimony for Knowledge Base Section). Future versions of the CRS (envisioned to take place bi-annually) may include expansion to include additional terms and documents. Inclusion of this type of analysis could provide early indication and additional information for consideration, which is within the scope of the CCTF to review and provide recommendations rather than conduct primary analysis. Again, additional support would be necessary to undertake this analysis.

*The SSC supports this effort as an opportunity and a means to reassess management readiness over time, and suggests the “Opportunities for Improvement” row in Table 1-2 is a good starting point for identifying potential actions that can be formalized into specific recommendations (both near term and long-term).*

The CCTF appreciates this comment and notes that the suggestion is intended to be an outcome of the proposed workshop.

*The SSC suggests a useful outcome would be for CCTF to make recommendations on how the various items ranked in the management overview section and SAFE review could be altered to improve climate readiness*

This is intended to be a part of the **Climate Change and Adaptation Report** at the end of the CCTF (tentatively 2024).



Section 2:

*This section was ranked highest in terms of readiness based on an assessment of how climate change information was accounted for in stock assessments. The SSC discussed that while this section sought to quantify the presence of climate information and where it is placed, the approach taken of scanning SAFE documents for keywords may overestimate readiness.*

The CCTF aimed to standardize approaches across sections and emphasized in the introduction that the readiness levels are specific to each section and should be taken in the context of the scoring methodology from the tables at the start of each section. We found some documents where climate change impacts were discussed but did not include explicit advice in terms of climate change. The final ranking, based on our sub-group’s in-depth analysis, is that the SAFE reports overall are only “somewhat ready” to address climate change:

3 Somewhat ready	Some implicit climate change information included	Climate and ecological information is included in the assessment but climate change information is implicit only (not explicitly discussed) in the assessment model, text, or advice.
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We feel this scoring is consistent with our standardized review and methodology and is the place where the most climate change information is presently being addressed through EBM documents and context of the SAFE report and reflected in the EBM discussions by the SSC, Plan Teams, and Council.

This evaluation is based on two different analyses done as part of this section. **The primary method was an in depth analysis of climate change information throughout the SAFE documents and Council minutes which** included searching for various terms, and then reading the surrounding text of every occurrence of that key word, documenting the context of the term in the SAFE chapter, and providing a categorical ranking for the use of the keyword in that instance (see 2-2 for those standardized rankings). The results were recorded in a large spreadsheet database for future use and included each reviewer’s comments and interpretation. Following the in-depth review, the sub-team met multiple times to discuss and standardize the rankings and in some cases repeated the analysis to ensure consistency.

Following this in-depth review, which is time-consuming, the sub-team developed an approach to rapidly scan documents for keywords. This was compared to the in-depth review and methods from the in-depth review were used to write the code for the rapid scan. The rapid scan results are in the document in the form of the figure but the text of the section and the analysis are based on the in-depth review methodology. To clarify this, we moved the rapid scan methods to follow the in-depth review.

That said, we also reached out to individual assessment authors where available and believe future iterations of this analysis could potentially include author’s own rating of climate readiness (and why) and this may help identify future areas for development of climate-ready methodologies.

*It was also noted that the search terms for the document analysis chosen were very environment-specific, and other terms that we would associate with human-system resilience were not searched (although some are used and discussed in the document). **The SSC recommends the team consider including other terms (adapt, adaptation, portfolio, diversify, diversification, alternatives, dependency, cumulative impacts, projections) and that a broader review of documents could enhance the report (e.g., ACEPO).***

We reviewed the economic safe, Plan Team minutes, SSC minutes, and Council minutes ; however, the Annual Community Engagement and Participation Overview (ACEPO) 2021 report would be a good addition to future Climate Readiness Synthesis reports and/or the larger Climate Change and Adaptation Report efforts by bringing into the analysis community-level information, thus expanding our efforts to include the Economic Status of the Groundfish Fisheries Off Alaska. Additional search terms could be explored in future iterations of the analysis, however, the CCTF's 2022 Climate Readiness Rank would not likely change from "somewhat ready". A quick examination ACEPO report generally aligns with the conclusion that climate change information was largely not included in the reports examined. This type of analysis could be refined and expanded in the future, as suggested by the SSC, to monitor advances in climate readiness.

***The SSC recommends the team consider focusing climate change modifications in ESRs and ESPs on short-term responses to climate change effects for tactical management, while considering inclusion of a risk, vulnerability (and adaptation potential) table in the SAFE introductions for each FMP area (on-ramp 4.c)***

The CCTF considered the same challenge noted by the SSC: that overloading or mismatching information in any of the documents used for annual decision making would be problematic. Rather than prescribe an option for where information might best fit, the CCTF chose to review SAFE documents to evaluate how well the climate advice information, if it existed, was reflected in the assessment documents. We agree with the SSC about alignment of purposes for assessments, ESRs, ESPs or other efforts that may contain relevant climate information. We understood that this alignment (sharing of information) occurs during assessments reviews to an extent, which may not be fully reflected in existing documents. The further advice of specifically which information is best suited where, or what changes could be made was listed in the near term actions, but those recommendations are not intended to be prescriptive.

***The SSC appreciates and supports the continued exploration and goals of longer-term implementation (such as EBFM harvest targets based on long-term projections) as these have the potential to inform development of climate proactive solutions rather than being reactive.***

Thank you for your support and the CCTF agrees.

Section 3:

***Frequent, consistent, and comprehensive sampling is the most important tool in our climate-readiness toolbox.***

The CCTF agrees regarding the importance of frequent, consistent and comprehensive

sampling. In addition to sampling, which the CCTF believes is already strongly supported in this process, there is an urgent need for the CCTF to formulate, explore and bring potential new or strengthened tools into the process for further evaluation by the SSC and Council. Additional responsive or adaptable tools can be combined with existing tools to balance the increased need for information and demand on resources with targeted research and analysis to support effective and increasingly timely responses. Sampling and monitoring cannot replace proactive planning and policies to ensure equitable response. Information should be inclusive of multiple knowledge sources and the CCTF seeks to provide a range of possible tools for Council consideration in light of these aspects. This could be discussed in more detail in the larger Climate Change and Adaptation Report.

***The SSC commends the team on the excellent section detailing LK/TK/subsistence information and strategies and for casting a very broad net regarding the scope of information.***

***The SSC supports the future efforts identified by the team in this section, in particular***

- *Finalizing and implementing the LK/TK/S Taskforce protocol regarding incorporation of LK, TK, and subsistence information into the Council process.*
- *Scope development of Fishery Ecosystem Plans in other regions to address connectivity issues (e.g., Gulf of Alaska, Arctic), as discussed at the March 2022 meeting of the Ecosystem Committee.*

Thank you for your support and the CCTF agrees.

Next steps:

***SSC is strongly supportive of the next steps laid out that include specific and targeted evaluation of effectiveness through workshops and scenario testing.***

There were several specific recommendations from the SSC related to the proposed workshop(s):

*As we think about applying integrated models like ACLIM to understand medium and long term future states, it is important to reflect on how those models represent the types of shocks we are likely to see. Models necessarily average and smooth over longer periods, because they are relying on past data. However, experience with Pacific cod and crab show that the biggest challenges to resilience are not well described by draws from smooth distributions; they are severe infrequent events, tipping points and shocks. **The SSC recommends focusing on how to anticipate or respond to infrequent shocks or tipping points.** The SSC suggested it may be useful to systematically develop a catalog of types of shocks and how they may manifest for specific stocks.*

The CCTF agrees and plans to include this topic for discussion during the workshop.

*For scenario testing, the SSC notes that for many shocks we may not have hindcast examples of what may come in the future. To address this, it may be beneficial to simulate potential abrupt changes and model them with the tools we have on hand in order to evaluate the efficacy of a potentially climate-ready tool to meet goals (National Standards). This would clarify readiness by assessing if measures specifically aimed to be robust to long-term climate change can absorb climate shocks, and facilitate equitable and timely responses to novel conditions and challenges that are unprecedented or outside of historical ranges.*

*On a similar topic, it was noted that the report doesn't address process lessons learned, and how this relates to our policy process time and efforts. **The SSC suggests it may be helpful to conduct a quantitative assessment of council bodies' efforts and actions in the years preceding the GOA Pacific cod or EBS snow crab stock collapses to identify what we could have done (or not done) to increase our awareness of climate impacts taking place.** This evaluation would be useful in designing scenarios for consideration in scenario planning exercises, as well as providing more realistic expectations about what is achievable by a "climate-ready" management system.*

The CCTF will consider these suggestions. The workshop may focus on a few case-studies in order to evaluate a broad suite of important questions regarding planning and response to climate shocks and longer-term climate change impacts. That may include case-studies as thought exercises and consider the following questions: 1) what information was available and could shocks and impacts have been anticipated in terms of scope, timing, and impacts ahead of time; and 2) what information would have been needed to be able to plan and respond to such impacts, but was missing at the time of evaluation? These investigations may help to broadly characterize the type of tools and information needed to be ready for unforeseen events and climate impacts on management.

***The SSC recommends working towards more actionable outcomes that include focusing on building the capacity to adapt and respond to climate change and less on the idea of flexibility.** It is important to be proactive and create actionable outcomes for management, communities and science to consider. **Assembling a collection of case studies might help to identify what actions have or have not worked elsewhere when considering actions for our region.** Specific examples that were suggested included examining the decline in crab or Pacific cod stocks to better understand what management, policy, and data mechanisms are needed to create adaptability to similar shocks in the future and determine if we are ready for the next climate-related perturbation. A case study on Norton Sound Red King Crab (already recommended under agenda item C2) was suggested as potentially useful in this context. A resource that might prove helpful is *The Climate-Resilient Fisheries Planning Tool* ([ClimateResilientFisheries.net](https://ClimateResilientFisheries.net)) developed by the SNAPP Climate Resilience Fisheries working group.*

The CCTF agrees; please see the previous response.

*The SSC encourages the authors to think about taking advantage of data, processes, tools, and policy evaluations that relate to socioeconomics and are already available, but may not have been explicitly developed for climate change resilience. For example, there is a legacy of work on community well-being and sustained community participation, including work by the AFSC and work nationally on fishing community vulnerability that could be a useful indicator in this context or modified to suit the goals of assessing resilience and climate readiness.*

The CCTF agrees and will consider this suggestion.

*New data or new analysis of existing data could also support a deeper understanding of community resilience. The SSC supports showing how communities may or may not be changing and that is where both some quantitative measures and qualitative measures of resilience can be developed to be able to show how those changes are occurring. This could be important to think more in terms of tipping points and identifying where a community is steering toward a significant change.*

*The SSC recommends when developing the workshops to limit the exploration of knowledge bases to types of knowledge with a clear nexus with federal fisheries. This will also help focus the workshop on sources of knowledge, information and data that can support identifying sources of strategies for resilience of stocks and communities.*

*Finally, in the upcoming workshops, the SSC suggests identifying process guidance for the Council on how to accomplish complementary and simultaneous policy actions, or omnibus actions, as part of our climate ready toolbox.*

The CCTF aims to provide guidance on a process for systematic re-evaluation of climate change impacts on marine resources in the Bering Sea, including a periodic review of available and emergent climate-informed measures and tools, and an approach to use a lens of climate change to reviews of management measures. Please see CCTF meeting report.