

HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT ON CLIMATE AND COMMUNITIES INITIATIVE UPDATE

The Highly Migratory Species Management Team (HMSMT) reviewed the recommendations in Section 7.0 of the Ecosystem Working Group (EWG) report. The HMSMT supports these measures as they pertain to HMS management. Given the complexity of the issues involved, a longer and more deliberative public review process may be needed to prepare for discussion at the March 2019 meeting. Some options include:

- exploring scenario planning as a next step to identify climate risks to Council-managed fisheries,
- providing guidance on areas for future discussion the Council would like the HMSMT to address, including guidance on review and updating the inventory of HMS Fishery Management Plan (FMP) measures identified in the EWG report, and
- considering whether to supplement EWG membership with appropriate science expertise.

The HMSMT notes that identifying proactive strategies to mitigate climate change effects may represent an intractable task, given the observed magnitude and speed of changes occurring in the California Current. Unfortunately, reactive solutions may have to be relied upon, given the great uncertainties associated with climate change.

After a discussion of the EWG webinar held in August 2018, the HMSMT addressed the Climate and Communities Initiative Discussion Questions outlined in the EWG's webinar materials and developed preliminary responses to some of the questions posed in the webinar, which are provided below:

1. *How do you think the Council can best address or minimize risks associated with the effects of increased climate variability on marine species?*

The HMSMT discussed scenario planning as a possible means to identify specific potential climate-related risks to marine species and predict the related effects of such risks on Council managed fisheries and related fishing communities under different possible future climatic states, as discussed in the EWG Report. Any specific climate-related risks that are identified may warrant future monitoring of the related climate conditions and their attendant effects on fisheries. Scenario planning might also be used to develop contingency plans for future climate risk mitigation, or to create a range of alternatives for management strategy evaluation.

The HMSMT further discussed whether risks posed by future climate variability might create a rationale for increased slack between current fishing mortality and overfished / overfishing limits, in order to provide flexibility in the face of changing availability. For example, for fishermen who prosecute a portfolio of different fisheries, an uncertainty buffer in the stocks of Council-managed fisheries could insure against increased risk of future climate-related management measures or closures which limit allowable effort in specific fisheries.

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/NMFS/States could or should address?*

The HMSMT identified inadequate scientific information available to identify appropriate action to address climate impacts and lack of political consensus to support adaptive management of climate impacts as possible constraints.

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?*

If the timing and nature of climate impacts are uncertain, a contingency-planning and preparedness approach may work better than costly current investment to mitigate impacts which may never be realized. A monitoring program coupled with publicly discussed contingency plans to anticipate and address climate impacts could be used to provide readiness to respond to climate impacts should they arise.

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?*

In their report, the EWG identified several efforts by the states and tribes to address concerns from potential effects of climate variability. In addition, the Future Seas project (September 2018 Informational Report 5) aims to identify potential climate impacts on California current futures, including the albacore, swordfish and sardine fisheries. Several similar projects are currently underway within NOAA to identify climate impacts on Council managed fisheries.

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?*

The albacore distribution appears to have shifted to the Pacific Northwest, likely in part due to warming waters in Southern California. Additionally, presence of warmer-water species, such as hammerhead sharks, wahoo, tropical seabirds, pelagic red crabs, false killer whales, and whale sharks, have been observed off Southern and Central California. Distribution of other species, such as Pacific bluefin tuna, opah, wahoo, and others have also shifted north and/or remained in areas off of California for longer than they have historically. A comprehensive review of faunal changes related to warming ocean conditions in the California Current can be found in Cavole et al. (2016).

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?*

Possible climate-related impacts on the HMS fisheries may be of interest to discuss, as climate-driven movement could drive changes in access to stocks. In case the albacore distribution substantially shifted north of the Canadian boundary, overall west coast U.S. fishing opportunity could be affected. The swordfish fishery might be impacted by climate-driven movements in protected species populations. For instance, there is evidence that swordfish habitat overlap with the loggerhead turtle population distribution substantially increases during periods of warm water.

References

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PFMC
09/08/18