

## GROUND FISH MANAGEMENT TEAM REPORT ON THE CLIMATE AND COMMUNITIES INITIATIVE UPDATE

Members of the Groundfish Management Team (GMT) participated in the Climate Science Initiative (CSI) webinar on October 23, the Ecosystem Work Group (EWG) webinar on October 25, and reviewed the CSI report in the briefing book. We thank the CSI for the thought and work that went into their report.

The GMT agrees with the EWG's recommendation ([Agenda Item H.1.a, Supplemental EWG Report 1](#)) to invite one or more speakers with expertise in the scenario planning process to provide a presentation or training on the topic to help the Council and advisory bodies better understand what scenario planning is and how it works.

### **Timeline**

The GMT appreciates the efforts of the CSI in developing a draft timeline; however, we believe that the timeline outlined may be overly optimistic and ambitious. While the time period between the November and March Council meetings may seem like a long time, in reality it would likely be less than six weeks of work time due to holidays and personal time off. The GMT will also be responsible for completing analyses needed for the advanced briefing book that is due on February 5. That leaves little time for coordination of discussions between the EWG and other advisory bodies and developing any needed reports. That being said, the GMT is already working on coordinating with the EWG on scheduling a joint discussion during the GMT's January work session (January 14-19 at the Council office in Portland).

### **Scenarios**

The GMT believes that some of the work we did on the yelloweye rockfish rebuilding in Appendix B for the 2019-20 biennial harvest specifications ([Agenda Item E.4, Attachment 5, June 2018](#)) could be a starting place for a scenario from the Groundfish Fishery Management Plan (FMP). In that report, we started the discussion about potential changes to yelloweye rockfish distribution in response to climate change, and what it might mean for fisheries and associated communities. Hence, evaluating how yelloweye rockfish are impacted by climate change is a potential focal issue for this exercise.

### **Scenario Planning**

Additionally, some members of the GMT reviewed the scientific literature on scenario planning and oceanographic changes that are predicted to occur in the California Current Large Marine Ecosystem (CCLME) under climate change and provides the following thoughts on issues that could be explored in the scenario planning exercise. If the EWG chooses to utilize a particular fish (e.g., yelloweye rockfish) as a case study, they should consider how two critical parameters affecting species demographics could change under climate change: distribution and productivity. These two parameters will ultimately control population sizes in various sectors throughout the CCLME. Focusing on these could help narrow the list of potentially examined factors.

The GMT was impressed by predictions from the emerging literature on future oceanographic conditions in the CCLME. Although a simple expectation is that water temperature will increase uniformly globally in upcoming decades, thus influencing a suite of physical factors (e.g., deoxygenation, acidification), models suggest that the CCLME may respond in a more complicated manner. Most importantly, equatorward, upwelling-favorable winds are predicted to increase in poleward regions of the CCLME in spring, and a recent review indicated that upwelling has increased in recent decades in the CCLME and other eastern boundary currents worldwide. Augmented upwelling could actually result in cooler water near the coast in the central and northern parts of the CCLME. Although moderate upwelling is linked to optimal rockfish production, extremely high upwelling can be detrimental for many species as it can lead to increased acidification, deoxygenation, and offshore transport to locations that are suboptimal for larval survival. Given the importance of upwelling to ecosystem dynamics in the CCLME, a potential issue to explore in the scenario planning study could be: How do focal species (e.g., yelloweye rockfish) and dependent communities respond to 1) no change, 2) moderate increase, and 3) considerable intensification in upwelling?

The example presented above is intended to just be food for thought and help spur conversation. The GMT is not advocating for or against the pursuit of this potential scenario, nor are we saying that the EWG should delve in detail into these issues at this time. We anticipate continuing to work with the EWG, CSI, and others on the development of the scenario planning process.

PFMC  
11/04/18