GROUNDFISH MANAGEMENT TEAM REPORT ON THE FISHERY ECOSYSTEM PLAN FIVE-YEAR REVIEW

The Groundfish Management Team (GMT) received a briefing from Ms. Yvonne deReynier (National Marine Fisheries Service [NMFS]) during our September 3, 2019 webinar, and reviewed the materials in the briefing book. The GMT focused our review on the Vision for the California Current Ecosystem (CCE) alternatives and the Goals and Objectives presented in Agenda Item E.1.a, EWG Report, September 2019 (EWG Report), and offers the following comments.

The GMT recommends moving the alternative Vision Statements and the July 2019 Goals and Objectives as described in the EWG report forward for public review. The GMT provides some additional thoughts below, for informational purposes.

On page 6 of the EWG Report, the EWG lays out four potential Vision Statements (Item 1.1) for ecosystem work in the CCE. Of the statements presented, the GMT prefers Alternative D as it highlights that support needs to be provided to ensure that marine monitoring can inform and help develop ecosystem science. Alternative D also aligns well with the current goals and objectives of the Pacific Fishery Management Council (Council), such as implementing precautionary harvest policies and encouraging civic engagement, while also emphasizing the need to consider the CCE more holistically, including understanding the role of fisheries in the broader ecosystem and incorporating the importance of cultural practices.

Below, we provide additional information on a few specific objectives. These topics are not necessarily more important than any others, but the expertise of the GMT allows us to provide additional information as background and context for the Council as we move forward with ecosystem science.

On page 9, the GMT agrees with Objective 2a that seeks to map energy flows throughout the trophic food chain. We wish to point out that monitoring energy transfer at the base of the food web is crucial for understanding recruitment fluctuation and adult population dynamics. Modern technologies, such as genetic barcoding, allow us to sequence DNA directly from seawater (i.e., environmental DNA) and determine the bacterial, phytoplankton, and zooplankton assemblage compositions. Larval fish are feeding and being preyed upon by species at this microscopic level, and the presence of, for example, a particular species of dinoflagellate may have a great impact on whether recruitment is high or low the following year.

On page 10, Objective 4a states the need to characterize species' habitat and to determine if the habitat distribution is changing and thus affecting the distribution of the species. The GMT wishes to emphasize that it is important not only to evaluate adult habitats but also the environmental conditions that provide suitable habitat for larvae and juveniles. The habitat conditions that many species experience early in life dictate population fluctuations of adults.

These objectives will come to the forefront again as new research by the Southwest Fisheries Science Center (SWFSC) begins, which will seek to enhance ecosystem science in the CCE. This research speaks to several points in the EWG Report. One research plan, "Food Habits" will bring

together and put into a database all available diet data for predators (e.g., seabirds, mammals), groundfishes (e.g., hake, rockfish), coastal pelagics, and salmon. The data will then be analyzed to determine the impact of varying environmental conditions and management strategies on energy transfer and population implications on communities within the CCE. The other research project, "Integrating ecosystem indicators into decision rules to support ecosystem based fisheries management in the California Current" seeks to help the Council make management decisions based on ecosystem monitoring. As stated on page 1, item 2.3, of the EWG Report, the Council receives an annual report detailing changes throughout the CCE. The goal of the SWFSC research will be to determine ways to develop mechanisms by which the Council can translate the results of ecosystem monitoring into actual management decisions. As these research projects develop, the SWFSC and GMT will continue to work with the EWG and Council to develop products that help optimally manage the CCE.

PFMC
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