MEMORANDUM

TO: California Ocean Protection Council
FROM: Paige Berube, Program Manager
DATE: August 7, 2017
RE: Update on the Ocean Protection Council's Sustainable Fisheries Program

The goal of Ocean Protection Council's (OPC) Sustainable Fisheries program is to promote healthy marine ecosystems and sustainable marine fisheries in order to protect California's living coastal and ocean resources and the communities and economic activities that rely upon them. The OPC's Sustainable Fisheries Program achieves this goal through supporting innovative, science-based approaches that inform fisheries management and promoting efficient, effective and adaptive fisheries management and governance in California.

1. Supporting the Amendment to the Marine Life Management Act Master Plan for Fisheries

The California Department of Fish and Wildlife (CDFW) and partners are in the process of amending the Marine Life Management Act (MLMA) Master Plan for Fisheries, which is a planning document that guides management efforts on highest priority species and describes the specific tools and approaches to be applied in achieving the goals of the MLMA. The OPC is supporting various projects in the information gathering phase to develop tools and recommendations for consideration during the Master Plan Amendment phase including: developing an ecological risk assessment tool; developing guidance and recommendations for CDFW peer review processes related to fisheries management; and the development of socioeconomic guidance for fisheries management. Details on these projects are described below:

- **Ecological Risk Assessment.** In July 2015, OPC awarded $135,000 to the California Ocean Science Trust (OST) to conduct a productivity and susceptibility analysis[1] as well as an ecological risk assessment (ERA) and pilot project. OST worked with MRAG Americas to conduct a *Productivity and Susceptibility Analysis* for 45 selected fisheries. Additionally, OST is working with partners to develop an ERA tool that may help the State prioritize fisheries for fishery management plan (FMP) development, as well as

[1] A productivity and susceptibility analysis (PSA) is a method for assessing the potential vulnerability of a fished species or stock to fishing activities by comparing relative risk among assessed species. PSA assumes that the overall vulnerability of a fished species to impacts from fishing depends on productivity of a stock based on life history traits and the susceptibility of a stock to impacts from fishery-specific activities. For more details, please see this PSA 2-pager: http://www.oceansciencetrust.org/wp-content/uploads/2017/06/PSA-Overview-2pager.pdf

inform management actions for individual fisheries. An ecological risk assessment pilot project that tests the ecological risk assessment tool on five fisheries is underway now. Two stakeholder workshops were held in June and July 2017 to discuss the pilot project and explore the role that ERAs may have in prioritizing and informing the management of California fisheries. [2]

- **Scientific Peer Review.** In February 2016, OPC awarded up to $110,000 to the OST to conduct a streamlining analysis and make written recommendations regarding peer review processes that can be broadly applied to address California's current and future fishery management needs, with an emphasis on review of science supporting FMPs. In June 2017, OST finalized the report, *Scientific Peer Review: Guidance and Recommendations for the California Department of Fish and Wildlife*. This guidance document will be used to inform the peer review processes for the red abalone and Pacific herring FMPs that are currently in progress.
- **Socioeconomic information.** In October 2016, OPC awarded $45,000 to the University of California, Santa Cruz (UC Santa Cruz), to address the key questions and socioeconomic information needs that should be considered in managing California fisheries. Work is currently underway on this project, which will result in guidance on how to integrate socioeconomic information into the fishery management decision process.

Additionally, in July 2015, the OPC awarded a grant to OST for $100,000 to lead a climate change and fisheries assessment by the Ocean Protection Council's Science Advisory Team (OPC-SAT). In June 2017, the OPC-SAT released the *Readying California Fisheries for a Changing Climate* full report and summarized "in-brief" report; these reports evaluate four potential ecological scenarios and seven management strategies to consider when preparing for managing fisheries in a changing climate. The OPC is scoping potential next steps from the report, which may include how to prioritize the recommended management strategies.

All of these projects were specifically developed for consideration by CDFW to help inform the state's process to amend the MLMA Master Plan. Products from these projects will be submitted to CDFW for review and may be integrated, in full or in part, into a draft Master Plan Amendment. Additional information about the Master Plan amendment process is available at https://www.wildlife.ca.gov/Conservation/Marine/Master-Plan.

[2] For more information on the ecological risk assessment, visit: http://www.oceansciencetrust.org/projects/era/.

2. Status Update on the California Dungeness Crab Fishing Gear Working Group

In recent years, reports of whale entanglements off California have been higher than at any time since NOAA Fisheries started keeping records in 1982. A variety of factors may contribute to the increase in the number of reported entanglements, including changes in the distribution and abundance of whales, changes in fishing effort, and an increase in public awareness and reporting.[3] Although there are many unknown causes of entanglements, fishing gear from multiple fixed-gear fisheries have been identified as entangling whales, including the California Dungeness crab fishery. To gain a better understanding of this issue and develop solutions to reducing the risk of whale entanglements, the California Dungeness Crab Fishing Gear Working Group (Working Group) was convened. The CDFW, in partnership with the OPC and the National Marine Fisheries Service (NMFS), convened the Working Group in September 2015. The 21-member Working Group is a unique coalition of diverse stakeholders, including commercial and recreational Dungeness crab fishermen, environmental organization representatives, members of the whale entanglement response network, and state and federal agencies. Additionally, the group is supported by outside expertise including whale researchers, scientists, legislative staff, gear manufacturers, and others. The Working Group aims to provide guidance and recommendations to the California Dungeness crab fishing industry, the California Dungeness Crab Task Force, and the state of California – specifically the CDFW, the OPC, the Fish and Game Commission, and the Legislature – to reduce the risk of whale entanglements and identify measures to address the entanglement issue. The Working Group has united with the common goal of supporting thriving whale populations along the West Coast and a thriving and profitable California Dungeness crab fishery.[4]

In October 2016, the OPC awarded $200,000 to The Nature Conservancy (TNC) to support Working Group activities through December 2018, including the implementation of various collaborative projects. These projects were identified by the Working Group as priorities. Council funds are being leveraged by additional funding that TNC has secured to support the administration of the Working Group. Additional funding secured by Working Group advisors and in-kind contributions from Working Group participants to carry out projects and inform the Working Group's goals and priorities are also underway.

Since October 2016, the Working Group has been supporting the design and implementation of collaborative projects to collect new information to enhance our understanding of whale distribution and fishing dynamics, as well as test fishing gear modifications. Below is a summary

[3] NOAA. 2016 West Coast Entanglement Summary.
http://www.westcoast.fisheries.noaa.gov/mediacenter/WCR%202016%20Whale%20Entanglements_3-26-17_Final.pdf
[4] Dungeness Crab Fishing Gear Working Group Charter.
http://www.opc.ca.gov/webmaster/_media_library/2016/08/Whales_WorkingGroup_Charter_Updated_May2017.pdf

of ongoing collaborative projects:

- **Whale and crab fishing gear distribution surveys**: Vessel surveys took place in spring 2017 to document the distribution of whales and fishing gear. Surveys were coordinated in partnership with the Working Group, the National Marine Sanctuaries, Point Blue Conservation Science, and the Southwest Fisheries Science Center.
- **Whale distribution research**: Researchers from the UC Santa Cruz and the Southwest Fisheries Science Center are leading a project to: organize historical data, including existing ocean condition data, prey distribution patterns, and whale sightings; create maps of existing data relative to historical entanglement patterns; and evaluate capabilities to forecast whale distributions.
- **Fishing dynamics**: Fishing participants on the Working Group are working with CDFW and TNC to conduct a series of pilot projects on different types of data loggers, with a focus on Pelagic Data System's solar loggers[5] and TNC's eCatch – a fisheries logbook tool that can be used on a mobile device that allows fishermen to collect, map and share their fishing information[6] – to gain a more comprehensive understanding of fishing dynamics. An initial pilot was conducted in spring 2017 to begin testing the utility and function of the electronic reporting tools. A second phase of this pilot project will be implemented during the 2017-18 fishing season.
- **Gear modification testing**: A federally-funded Bycatch Reduction Engineering Program project is underway where scientists, in collaboration with fishermen, are evaluating the line profiles and load strengths of different types of fishing line, as well as the visual contrast of different line types/colors in the water column.

The Working Group continues to develop effective communications materials and conduct outreach to the Dungeness crab fleet, agencies and interested constituents. The Working Group has developed a Best Practices Guide to minimize the risk of whale entanglement, which includes a number of voluntary "best practices" focused on surface gear, such as improved buoy setup, reducing slack surface line, and limiting the number of trailer buoys. More than 2,250 copies of the Best Practices Guide were shared widely with fishing associations, local gear stores, fishing harbors, and by CDFW Enforcement, the US Coast Guard, and the California Recreational Fishing Survey surveyors, as well as online distribution via CDFW, port associations, and recreational fishing clubs. Additionally, the Working Group, in partnership with NMFS, California Whale Rescue, and TNC, are training commercial and recreational fishermen in whale entanglement response. Furthermore, the Working Group is developing a brief fact sheet which provides an overview on its work through August 2017.

[5] For more information on the solar logger, please visit: http://www.pelagicdata.com/#pds
[6] For more information on ecatch, please visit: https://ecatch.org/

The Working Group has met most recently in May 2017 and July 2017. Meeting summaries and additional information on Working Group activities may be accessed at the Working Group's webpage: http://www.opc.ca.gov/whale-entanglement-working-group/.