

ADDENDUM

FOOD WEB SAMPLING WORK PLAN GREATER LOS ANGELES AND LONG BEACH HARBOR WATERS

Prepared for

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SHINER SURFPERCH COLLECTION PROCESS UPDATE

The selection process used to determine the most appropriate prey fish for total maximum daily load (TMDL) monitoring and bioaccumulation model development initially involved the following considerations:

- The prey fish selected should be a species that is a prey item or a representative prey item of white croaker (*Genyonemus lineatus*) and the sport fish selected for monitoring.
- The prey fish selected should have a fish consumption advisory (OEHHA 2009) or elevated concentrations of polychlorinated biphenyls (PCBs) and dichlorodiphenyltrichloroethanes (DDTs).
- The prey fish selected should be abundant in the Los Angeles/Long Beach Harbor. The size of abundant prey fish should also be considered.

Based on these considerations, shiner surfperch (*Cymatogaster aggregata*) was selected as the prey fish for the monitoring program; previous studies demonstrated that shiner surfperch were representative prey species (CDFG 2001, 2002; Allen 1990; CDFW 2013), on the OEHHA fish consumption advisory (OEHHA 2009), and abundant throughout the Los Angeles/Long Beach Harbor (SAIC 2010).

However, the Ports of Long Beach and Los Angeles' (Ports') Biological Baseline Study (2013) preliminary data recently became partially available and these data demonstrate a lack of abundance of shiner surfperch throughout the harbor. Consequently, this addendum provides an alternative plan for collecting prey fish as part of the Food Web Sampling Program developed for the Ports.

The Food Web Sampling Workplan specifies using station coordinates as a guide for fish collection efforts. Specifically, the guidelines allow for some flexibility in selecting the most appropriate fish collection area within each waterbody targeted for fish collection to improve the chances for success of the fish monitoring program. This plan should be retained; however, the following additional steps should be implemented when few or no shiner surfperch are available in a fish collection area.

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- In addition to collecting shiner surfperch by otter trawl or other methods, the following additional species should be retained for potential analyses: white surfperch (*Phanerodon furcatus*), topsmelt (*Atherinops affinis*), and Northern anchovy (*Engraulis mordax*).
 - Specifically, all shiner surfperch, white surfperch, topsmelt, and northern anchovies captured within each waterbody should be retained and frozen until the field program is completed; with one limitation. A maximum of 10 of each fish species (if each fish is approximately 60 grams) or 10 species specific composites, of approximately 60 grams per composite, should be retained.
 - Fish should be stored at -20 degrees Celsius (°C) until consultation with the Ports at the conclusion of the field program, or immediately thereafter due to holding time requirements for some analytes.
 - The Ports will determine the appropriate analysis plan based on the relative abundance, sizes, and masses of collected fish.

CALIFORNIA HALIBUT COLLECTION PROCESS UPDATE

The selection process used to determine the most appropriate sport fish for TMDL monitoring and bioaccumulation model development initially involved the following considerations:

- The sport fish selected should be a species that is caught in the harbor and consumed based on the Southern California Coastal Water Research Project (SCCWRP) and MBC Applied Environmental Sciences regional fish consumption survey (SCCWRP and MBC 1994).
- The sport fish selected should have a fish consumption advisory (OEHHA 2009) or have elevated concentrations of PCBs and DDTs.
- The sport fish selected should be abundant in the Los Angeles/Long Beach Harbor.
- For purposes of understanding their movement and sediment exposure, the sport fish selected should be taggable using passive tracking devices.

Based on these considerations, California halibut (*Paralichthys californicus*) was selected as the representative sport fish for the monitoring program. The SCCWRP and MBC (1994) fish consumption survey demonstrated that this species was caught and consumed by anglers

in the Los Angeles/Long Beach Harbor. Additionally, this species is on the OEHHA fish consumption advisory list (OEHHA 2009), abundant throughout the harbor (MEC 2002; SAIC 2010), and is currently being tracked by California State University, Long Beach (CSULB) using acoustic telemetry.

The Ports' Biological Baseline Study (2013) preliminary data recently became partially available and indicates that while California halibut are present throughout the harbor, their presence may vary by season and location. Consequently, this addendum provides an alternative plan for the collecting sport fish as part of the Food Web Sampling Program developed for the Ports.

The Food Web Sampling Work Plan specifies using station coordinates as a guide for fish collection efforts. Specifically, the guidelines allow for some flexibility in selecting the most appropriate fish collection area within each waterbody targeted for fish collection to improve the chances for success of the fish monitoring program. This plan should be retained; however, in the event that California halibut cannot be successfully captured from the target waterbodies, the following additional steps should be implemented only when every effort has been made to capture California halibut and few or no California halibut are available.

- In addition to collecting California halibut by otter trawl or other methods, the following additional species should be retained for potential analyses: California lizardfish (*Synodus lucioceps*) and barred sand bass (*Paralabrax nebulifer*). These species have been selected as alternative sport fish for California halibut because they also meet the considerations listed above, with one exception. California lizardfish are not on the OEHHA consumption advisory list, and given that PCB and DDT data not available for this species, it is not known if the concentrations of these contaminants are elevated in this species. However, given its abundance noted in the 2013 Biological Baseline survey, the similarity in consumed prey, and feeding mode compared with California halibut, this species suitable surrogate.
- Specifically, up to 10 California lizardfish and/or 10 barred sand bass captured within fish collection areas with few or no California halibut should be retained and frozen until the field program is completed; with one limitation. A maximum of 10 of each fish species (if estimate of fillet is approximately 60 grams per fish) or 10 species

specific fillet composites, of approximately 60 grams per composite, should be retained.

- Fish should be stored at -20°C until consultation with the Ports at the conclusion of the field program, or immediately thereafter due to holding time requirements for some analytes.
- The Ports will determine the appropriate analysis plan based on the relative abundance, sizes, and masses of collected fish.

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