Appendix B

Bodega Bay Harbor Federal Navigation Channel

Fiscal Year 2017 Maintenance Dredging

Draft Essential Fish Habitat Assessment

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404-4731

JUL 0 5 2017

Refer to NMFS No: WCR-2017-7090

Richard M. Bottoms, Ph.D.
Regulatory Branch Chief
U.S. Department of the Army
San Francisco District, Corps of Engineers
1455 Market Street
San Francisco, California 94103-1398

Re: Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Bodega Harbor Maintenance Dredging Project.

Dear Dr. Bottoms:

On April 17, 2017, NOAA's National Marine Fisheries Service (NMFS) received your request for a written concurrence that U.S. Army Corps of Engineers (Corps) proposed maintenance dredging of the Bodega Harbor under the statutory authority of Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 (§10) of the Rivers and Harbors Act is not likely to adversely affect (NLAA) species listed as threatened or endangered or critical habitats designated under the Endangered Species Act (ESA). This response to your request was prepared by NMFS pursuant to section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation.

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The concurrence letter will be available through NMFS' Public Consultation

Tracking System [https://pcts.nmfs.noaa.gov/pcts-web/homepage.pcts]. A complete record of this consultation is on file at NMFS North-Central Coast Office in Santa Rosa, California.

Proposed Action and Action Area

The proposed action is to dredge the federal navigation channels in Bodega Bay Harbor, transport dredged material to dredged material placement sites, and dispose of the material. The maintenance dredging cycle of the federal channels in Bodega Harbor is approximately every 12 years. The last dredging episode was in 2004 when approximately 112,000 cubic yards of sediment was dredged from the federal channels. Approximately 110,000 cubic yards of sediment will be dredged from the federal navigation channels to the authorized depth of 12 feet MLLW, plus 2 feet of overdepth. The federal Bodega Harbor shallow-draft navigation channels are 20,220 feet long, 100 feet wide with the entrance channel extending approximately 1,600 feet into Bodega Bay. Dredging of the Bodega Harbor Federal Channels is scheduled to occur sometime between July and November 2017 and to last for up to 60 calendar days.

The action area also includes the transportation of dredged material from Bodega Harbor to the San Francisco Deep Ocean Disposal Site (SF-DODS) and SF-8 dredged material placement sites. Dredging will be conducted with the use of a clamshell environmental bucket. The clamshell will have a minimum capacity of 10 cubic yards. The environmental bucket is proposed to reduce turbidity that may affect water quality adjacent to the channel. The environmental bucket reduces turbidity because it is sealed at the top, thus preventing dredged material from spilling out and over the sides when the bucket is raised through the water column.

USACE proposes to conduct eelgrass surveys before and after dredging per the requirements of the California Eelgrass Mitigation Policy and Implementing Guidelines (NOAA Fisheries 2014). To the extent practicable, USACE will avoid areas of eelgrass. Areas where eelgrass cannot be avoided will be clearly identified in pre-dredge surveys. To the extent practicable, the USACE will remove and transplant eelgrass that would otherwise be removed during dredging. Post-dredge surveys will identify areas where eelgrass was directly removed.

The action area includes the Bodega Bay Harbor and areas approximately one-quarter mile outside of the bay. Bodega Bay Harbor is a migratory area for CCC steelhead, with the closest critical habitat streams are Estero Americano (5.0 kilometers (km) away) and Salmon Creek (8.6 km away). CCC steelhead and CCC coho salmon are not known to spawn in Bodega Harbor or Cheney Gulch, the main tributary to Bodega Harbor.

Historically, these species may have utilized Cheney Gulch, though due to the lack of suitable habitat within Bodega Harbor and Cheney Gulch, the potential for occurrence is expected to be low. However, juveniles and adults may stray into the harbor on occasion. Adult salmon can occasionally be found near the outlet to a small freshwater pond at the northwest end of the harbor but are not known to spawn there (NMFS 2015).

There are no interrelated or interdependent activities associated with the proposed action.

Action Agency's Effects Determination

The Corps has determined the potential impacts resulting from the Bodega Harbor dredging is not likely to adversely affect federally listed species, or designated critical habitat. This determination was made for Central California Coast (CCC) coho salmon (O. kisutch), Central California Coast steelhead (Oncorhynchus mykiss), and the Southern Distinct Population

Segment (DPS) of North American green sturgeon (Acipensor medirostris). The Corps NLAA determination is based on past section 7s for this action, minimization and avoidance measures that have been used in the recent past, and proposing a work window that is likely to avoid any contact with salmonids.

Available information indicates that ESA listed species of the following Evolutionarily Significant Unit (ESU) or Distinct Population Segment (DPS) and designated critical habitat may occur within the project site:

Central California Coast (CCC) steelhead DPS (Oncorhynchus mykiss)
Threatened (January 5, 2006; 71 FR 834)
Critical habitat (September 5, 2005; 70 FR 52488)

Central California Coast (CCC) coho salmon ESU (O. kisutch)
Endangered (70 FR 37160; June 28, 2005)
Critical habitat (May 5, 1999; 64 FR 24049)

Southern DPS of North American green sturgeon (Acipenser medirostris)
Threatened (April 7, 2006; 71 FR 17757)
Critical habitat, proposed (September 8, 2008; 73 FR 52084)

Regarding EFH, the Corps has determined that the proposed action would have minimal adverse impacts on EFH and Federally managed fisheries in California waters. The species management

plans that apply in California are the Coastal Pelagic Species Fisheries Management Plan (FMP), Pacific Coast Groundfish FMP and Pacific Salmon FMP. This determination is based on the fact that dredging activities will occur adjacent to eelgrass beds. Tidal mudflats and eelgrass beds occur in the Bodega Bay Harbor area. Under EFH, eelgrass is considered Habitat Areas of Particular Concern (HAPC). Eelgrass grows in large beds in soft-bottomed bays from about mean low tide to six feet below. Eelgrass is ecologically important, providing food for many species, structure for diverse habitat, and nursery sites for many commercially and recreationally important aquatic species. In the project area, eelgrass occurs along the edge of the proposed channel dredging and likely cannot be avoided entirely.

Consultation History

The Corps requested concurrence with their ESA and EFH determinations by letter dated June 17, 2017. During pre-consultation on June 17, 2016, the Corps provided a brief overview of the proposed action and requesting an official species list. On July 7, 2016, NMFS provided a species list through email. On July 19, 2016, the Corps provided NMFS with an analysis of the potential effects of the proposed action on threatened and endangered species, critical habitat, and EFH in the project area. The analysis concluded that the proposed action is not likely to adversely affect ESA-protected species or adversely modify critical habitat; but, additional EFH analysis should be conducted. On July 28, 2016, NMFS responded that informal consultation would be appropriate for ESA species, critical habitat and EFH.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is not likely to adversely affect listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

Potential impacts to listed species include direct effects of entrainment and indirect effects to benthic habitat and water quality from dredging. The Corps has worked with the NMFS to

propose the dredging during a work window that avoids all life stages of salmonids. The work window of July to November will ensure that in-water work will not occur during the upstream migration season of adult salmonids, and will avoid the outmigration of salmonid smolts. NMFS has determined there is a low probability that juvenile steelhead will be rearing in the action area during proposed dredging. NMFS makes this determination because there is limited presence of salmonids in the Bodega Bay Harbor during late summer and fall. We base this on past information showing that no salmonids are known to utilize this area during the summer and fall months. Due to their limited occurrence in the project's action area, and the low risk of entrainment associated with dredging equipment proposed to be used, it is also unlikely that salmonids will be entrained, or adversely affected by the dredging actions.

With respect to the southern DPS of North American green sturgeon, most spawn in the upper reaches of the Sacramento River, and exhibit an extensive marine existence, traveling as far north along the Pacific west coast as Alaska. These fish return from the ocean every few years in the late winter to spawn, and generally show fidelity to their upper Sacramento River spawning sites, but are known to inhabit bays and estuaries such as the Bodega Bay Harbor (Corps 2017). As with salmonids, it is unlikely that green sturgeon will encounter the dredging equipment due to the low likelihood of being in the action area. Based on limited information, the presence of green sturgeon in the action area is unlikely during the proposed dredging (Adams et al. 2002). Therefore, NMFS has determined that it is unlikely that green sturgeon will be entrained during the proposed action. Regarding potential impacts to water quality in the Bodega Bay, minimal effects are anticipated by this project. Increased turbidity generated while pulling the bucket through the water column will be minimized with an environmental bucket. Sediments suspended in the water column could be carried with the current away from the dredge site, thus generating a turbidity plume in the area of dredging. These turbidity plumes are generally short-term, localized and as

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Under the MSA, this consultation is intended to promote the protection, conservation and enhancement of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10), and "adverse effect" means any impact which reduces either the quality or quantity of EFH (50 CFR 600.910(a)). Adverse effects may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

NMFS has evaluated the proposed project for potential adverse effects to EFH pursuant to Section 305(b)(2) of the MSA and anticipates the proposed dredging of sediments from the Bodega Bay Harbor will result in temporary degradation and/or loss of EFH through removal/burial of benthic prey species, increased turbidity/suspended sediments within the action area, and potential disturbance to eelgrass Habitat Areas of Particular Concern (HAPC). HAPC are described in the regulations as subsets of EFH that are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under MSA; however, federal projects with potential adverse impacts to HAPC are more carefully scrutinized during the consultation process.

Dredging is expected to remove prey items from the benthos, reducing the value of the dredged area as a foraging area for FMP species (Newell et al. 1998). Based on rates of community recovery listed in the scientific literature, NMFS expects the benthic community in the project area to recover within several months to a few years (Oliver et al. 1977; Watling et al. 2001). Water column turbidity associated with dredging reduces the amount of light available for photosynthesis and consequently affects the eelgrass growth and overall plant health (Zimmerman et al. 1991). Additionally, fish may suffer reduced feeding ability (Benfield and Minello 1996) and be prone to fish gill injury (Nightingale and Simenstad 2001) if exposed to excessive high levels of turbidity.

The Corps proposes to use an environmental dredge clamshell bucket, for this project. As such, the increases in turbidity are expected to be minor and to dissipate relatively quickly with tidal exchange. Thus adverse effects to eelgrass growth or fish feeding should be minimal. Any eelgrass detected in pre-project surveys within the dredge footprint of the proposed action will be avoided. The Corps proposes to avoid eelgrass to extent possible and to provide a 5 meter buffer to avoid eelgrass shoots associated with vegetated areas. Providing a buffer for existing eelgrass is expected to reduce the potential for adverse effects to this species. Pre and post eelgrass survey information collected for the proposed project will determine if mitigation will be necessary. In the event that post project mitigation is needed, the Corps has proposed to work with resource agencies and follow mitigation guidance in the NOAA Fisheries 2014 *California Eelgrass Mitigation Policy and Implementing Guidelines.*

Based on this analysis, NMFS has determined the proposed action would adversely affect EFH for various life stages of fish species managed under the Pacific Groundfish FMP, Coastal Pelagics FMP, or Pacific Coast Salmon FMP; however, the proposed action includes adequate measures to avoid, minimize, mitigate, or otherwise offset the adverse effects to EFH.

Therefore, NMFS has no practical EFH conservation recommendations to provide to avoid or reduce the magnitude of these effects. The Corps must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH. This concludes the MSA portion of this consultation.

Please direct questions regarding this letter to Thomas Daugherty, North-Central Coast Office, North Coast Branch, at (707) 468-4057 or tom.daugherty@noaa.gov.

Sincerely,

Barry A. Thom
Regional Administrator

cc: Dr. Mark Wiechmann, Corps
bcc: CHRON File (pdf)
Division- File copy

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Bodega Bay Harbor

2017 Operations and Maintenance Dredging
Draft Essential Fish Habitat Assessment

April 2017

U.S. Army Corps of Engineers

San Francisco District

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1.0 Introduction

The United States Corps of Engineers, San Francisco District, proposes to dredge the federal navigation channels in Bodega Harbor, California. Pursuant to 50 CFR 600.920(e) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) we submit this EFH assessment and request requesting abbreviated consultation in accordance with 50 CFR 600.920(h) MSA section.

2.0 Consultation History

On June 17, 2016, our staff emailed your agency providing a brief overview of the proposed action and requesting an official species list. On July 7, 2016, NOAA Fisheries provided a species list. On July 19, 2016, we provided your staff with a summary analysis of the potential effects of the proposed action and EFH in the project area. The analysis concluded that the proposed action may affect EFH and an EFH analysis should be conducted. On July 28, 2016, NOAA Fisheries responded that the proposed project may result in adverse effects to EFH, particularly eelgrass. The email exchange is provided as Appendix A.

3.0 Project Location and the Federal Navigation Channels

Bodega Bay is a natural coastal bay located in southwestern Sonoma County, approximately 58 miles north of the Golden Gate entrance to San Francisco Bay and 20 miles west-southwest of Santa Rosa. The crescent-shaped bay is bound by Bodega Head and Bodega Harbor to the north and Tomales Bluff and Tomales Bay to the south. Bodega Harbor, immediately north of and separated from Bodega Bay by Doran Spit, is a smaller lagoon inlet with a small boat harbor serving commercial fishing and recreation for the town of Bodega Bay, as well as a United States Coast Guard search and rescue base. Bodega Harbor is the only harbor of refuge for light-draft vessels between San Francisco and Noyo Harbor.

The federal Bodega Bay Harbor navigation channel is located predominately within Bodega Harbor, with the entrance channel extending approximately 1,600 feet into Bodega Bay. The federal Bodega Bay Harbor shallow-draft navigation channel is approximately 18,302 feet long, 100 feet wide, maintained to a depth of 12 feet mean lower low water (MLLW), with up to 2 feet of overdepth. The channel includes three 300-foot-wide turning basins, one just north of Campbell Cove at the end of the entrance channel, one at the most northern portion of the channel near the town of Bodega Bay, and one at the end of the federal channel. Figure 1 provides a detailed schematic of the Bodega Bay federal navigation channel and proposed placement sites. Figure 1 also includes the historic upland placement sites; however, these sites no longer accept dredged material.

Bodega Harbor is a small, shallow embayment with limited freshwater input. The average depth of the harbor is less than 2.5 feet MLLW in areas outside the 12-foot MLLW navigation channel. If the

channel were not present, the harbor would likely have a very gently sloping, uniform bottom gradient due to the natural effect of tides, winds, and sedimentation. Johnson Gulch in the northwest portion of the harbor and Cheney Gulch in the southwest provide intermittent freshwater input to the harbor. The inflow from the gulches, along with runoff, ocean input, and other natural sedimentation process supply sediment to Bodega Harbor. The sediment slowly shoals in the federal navigation channel thereby affecting safe navigation. Because of the rather limited sediment supply, Bodega Bay Harbor federal navigation channel is on an 11-year dredging cycle. Since the channel was constructed in 1943, it has been maintenance dredged only six times. The last dredging episode was in 2004, when approximately 112,000 cubic yards was dredged from the federal channel and the adjacent Coast Guard Station channel and placed at SF-DODS.

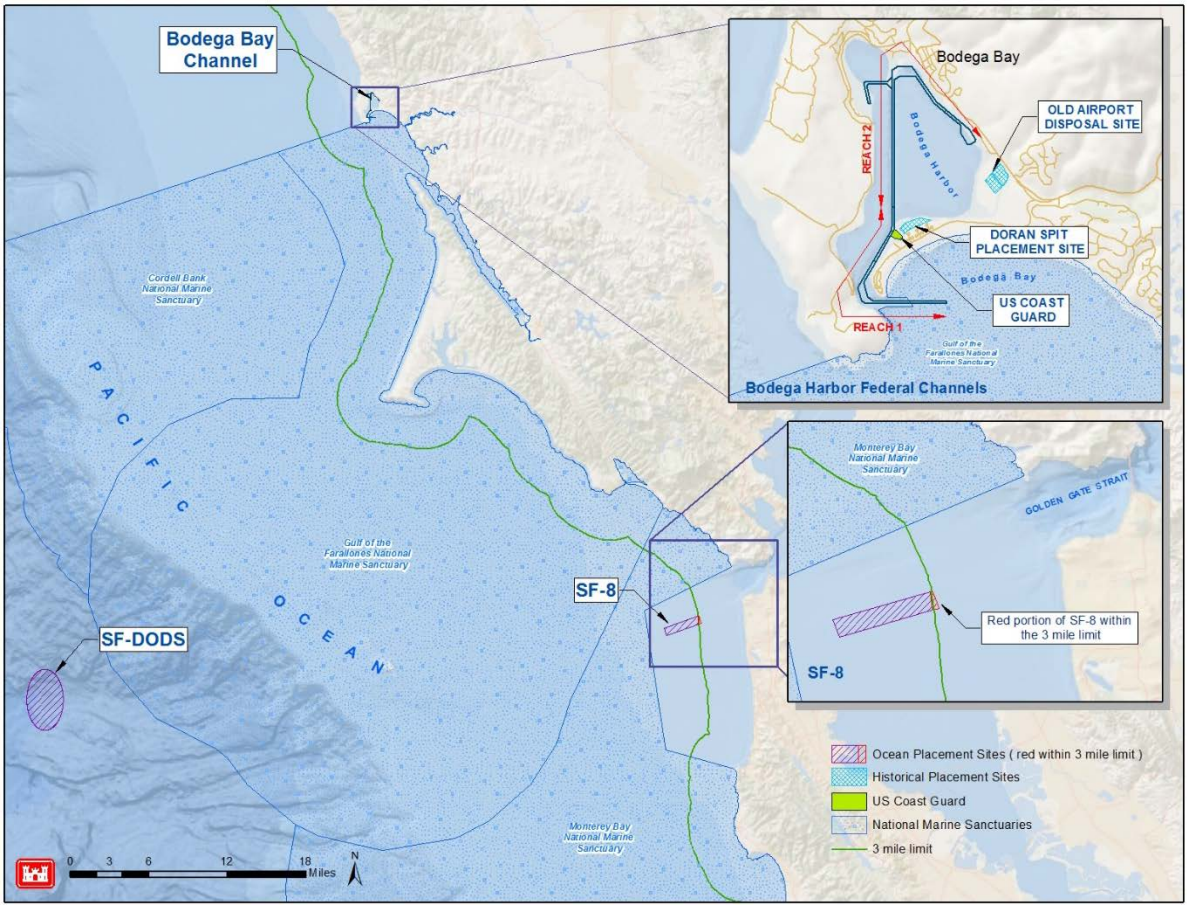

Figure 1. Bodega Bay Harbor federal navigation channel and proposed ocean dredged material placement sites (SF-DODS and SF-8)

4.0 Project Description

The proposed action is to dredge the federal navigation channels in Bodega Bay Harbor, transport dredged material to dredged material placement sites, and dispose of the material. The maintenance dredging cycle of the federal channels in Bodega Harbor is approximately every 12 years. The last dredging episode was in 2004 when approximately 112,000 cubic yards of sediment was dredged from the federal channels and the adjacent USCG search and rescue base and placed at SF-DODS and SF-8. The proposed dredging cycle is to occur between July and November, 2017.

For the proposed 2017 maintenance dredging, the main federal navigation channel is divided into four reaches (Figure 2):

- Reach 1 – Station 0+00 to 70+00
- Reach 2 – Station 70+00 to 132+00
- Reach 3 – Station 132+00 to 183+02
- Spud Point Marina Channel – 0+00 to 19+95

The Spud Point Marina channel is considered separate from the main channel reaches. Reach 1 includes the Entrance Channel, with predominantly medium to very coarse sandy material, while Reaches 2 and 3, and Spud Point Marina Channel consist of fine sand and silty muds. Dredging may be limited based on the availability of funds.

The latest hydrosurvey (January 28 – 29, 2017) indicates that approximately 110,000 cubic yards (including allowable overdepth) of sandy/silty material needs to be dredged from the federal channels to maintain the authorized depth. Shoaled areas will be dredged to a depth of 12 feet MLLW, with up to 2 feet of allowable overdepth (for a maximum depth of 14 feet MLLW). Overdepth is authorized to accommodate for the imprecision that is inherent in mechanical dredging.

Dredging the federal channels will be conducted by clamshell with an environmental bucket. The clamshell will have a minimum capacity of 10 cubic yards. The environmental bucket is proposed to reduce turbidity that may affect eelgrass adjacent to the channel. The environmental bucket reduces turbidity because it is sealed at the top, thus preventing dredged material from spilling out and over the sides when the bucket is raised through the water column.

Dredged material will be placed in shallow barges (scows) for transport to the San Francisco Deep Ocean Disposal Site (SF-DODS) or the San Francisco Channel Bar Disposal Site (SF-8) dredged material disposal sites (Figure 1). Scows will be loaded to no more than 80 percent capacity because of the shallow depths of Bodega Harbor and the requirements for transporting dredged material through the Gulf of the Farallones National Marine Sanctuary. Transporting dredged material to the ocean disposal sites may require double-handling the dredged sediment; i.e., moving sediment from smaller scows to larger scows for transport.

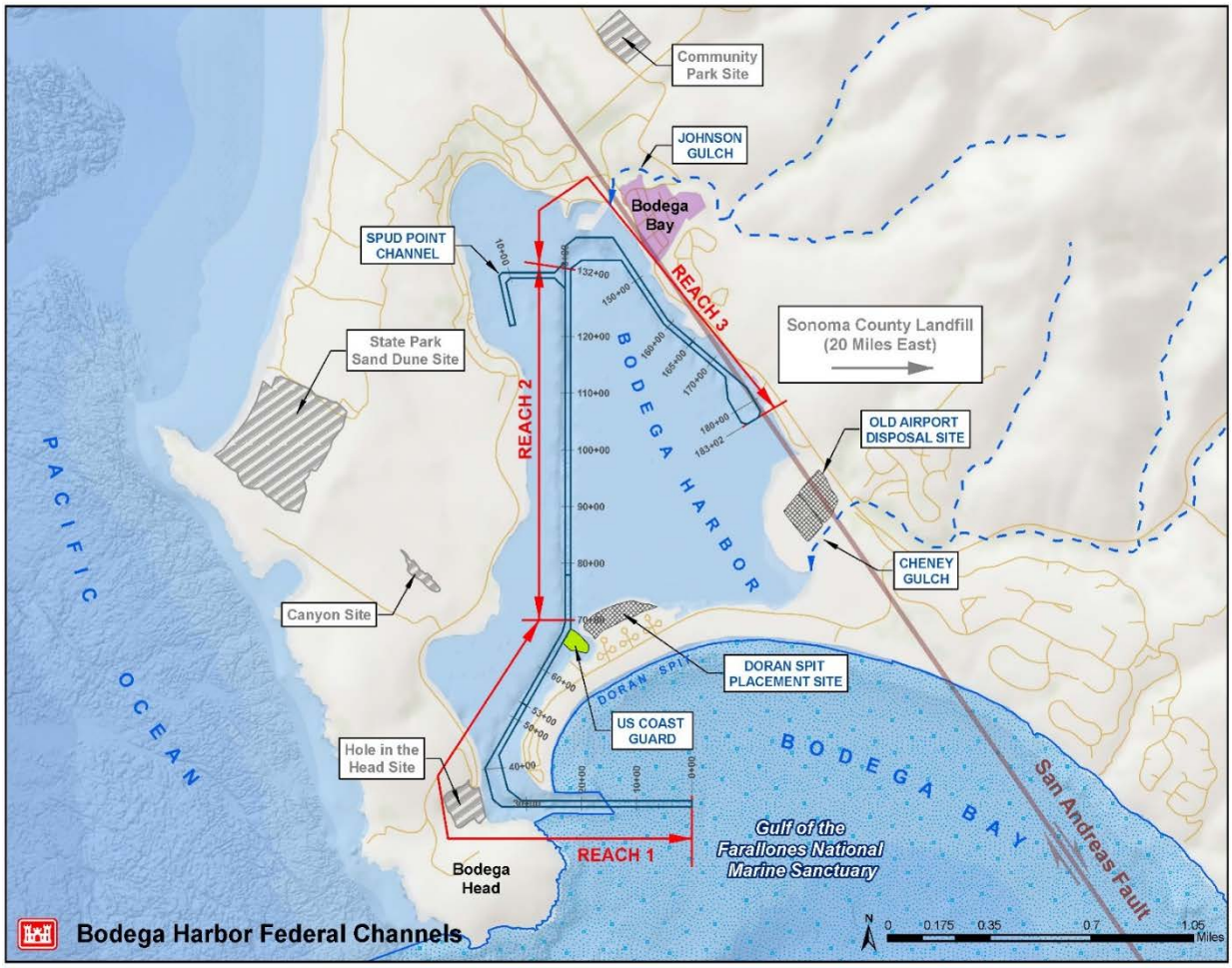

Figure 2: Bodega Harbor vicinity map illustrating the federal navigation channels, the San Andreas Fault, surrounding drainage pattern, and historical placement sites.

Assuming a total of 110,000 cubic yards of shoaled sediment in the federal channels, a 70 percent efficiency for the bucket, and a scoop cycle of about 1.5 minutes, it will take approximate 10–12 hours shift to fill each scow. Thus, it is expected to take approximately 60 days in total (not including mobilizing and demobilizing equipment); however, dredging may be temporarily halted if inclement weather or rough seas prevent safe transport of dredged material to placement sites. Once dredging is complete, post-dredge hydrosurveys will be conducted immediately following the dredging and will confirm the actual locations and volume of material that was dredged.

The proposed dredged material placement sites include SF-DODS and SF-8. SF-DODS is the nearest permanently designated deep-ocean disposal site to Bodega Harbor. This site is located off the Continental Shelf in approximately 8,200 to 9,800 feet of water, approximately 55 nautical

miles offshore of the city of San Francisco and 65 nautical miles from Bodega Harbor (Figure 1). It is a north-south aligned oval covering approximately 6.5 square mile. The United States Environmental Protection Agency (USEPA) officially designated the site in 1993. SF-DODS is permitted to receive 4.8 million cubic yards per year of dredged material, but it currently receives less than one-eighth of this volume.

Transporting material to SF-DODS requires large barges called scows. The larger size is required for safety reasons because of the weather and waves that may be encountered during transit. For shallow draft projects, such as Bodega Bay Harbor, oceangoing scows may be prevented, because of limiting depths, from entering the bay and, therefore, cannot be loaded at the dredge site. It is expected that the dredged material would be dredged into smaller barges and then re-handled into the larger barges outside of the bay before undertaking the 65-nautical-mile journey to the disposal site.

SF-8 is a large, sandy, ebb-tidal delta seaward of the entrance to San Francisco Bay with depths ranging from 35 to 45 feet MLLW. It placement site is approximately 65 nautical miles south of Bodega Harbor. USACE proposes to use the easternmost sliver of SF-8, which lies within the 3-mile limit (Figure 1). This area is available for the placement of clean sediment that is greater than 80 percent sand. Similar to SF-DODS, it is expected that the dredged material transported to SF-8 may entail double-handling like the material going to SF-DODS.

5.0 Bodega Harbor Essential Fish Habitat

Bodega Harbor and the areas outside the harbor area are considered essential fish habitat for three Fishery Management Plans (FMPs), including Pacific Salmonid FMP, Coastal Pelagic FMP, and Pacific Groundfish FMP. The EFH identified in the project area is described below.

5.1 Pacific Salmon Fishery Management Plan

The Pacific Salmon FMP consists of EFH for Coho, Chinook, and Puget Sound pink salmon. Pacific salmon EFH is defined as "…waters and substrate necessary for salmon product needed to support a long-term sustainable salmon fishery and salmon contributions to a healthy ecosystem." This EFH includes "…streams, lakes, ponds, wetlands, and other currently viable water bodies and most of the habitat historically accessible to salmon in Washington, Oregon, Idaho, and California. In estuarine and marine areas, salmon EFH extends from the nearshore and tidal submerged environments with state territorial waters out to the full extent of the exclusive economic zone…"

Both the federal navigation channel and transportation corridor is within nearshore Pacific salmon EFH. In addition, eelgrass in the harbor is considered HPAC for Pacific salmon EFH; however, because accessible rivers suitable for spawning do not flow into Bodega Harbor, it is unlikely that salmonids would utilize the eelgrass habitat within the harbor. Eelgrass is discussed in Section 6.1.

The transportation corridor is also within salmonid nearshore EFH. While the project area is identified as Pacific salmonid EFH for Coho (*Onchorynchus kisutch*) and Chinook (*Oncorhynchus tshawytscha*) salmon, suitable spawning habitat is not present in Bodega Harbor or the project's dredging footprint or transportation corridor; however, critical habitat is present in Estero Americano (70 FR 52488; September 2, 2005), a tributary to Bodega Bay proper, approximately 2.5 miles from the entrance of the federal Bodega Harbor Entrance Channel. Adult Chinook and Coho may be present migrating through Bodega Bay proper, outside of the harbor area, or other areas along the coastal transportation corridor while migrating to spawning grounds in fall and winter; however, most adults would have completed their spawning migration by the time dredging starts. Subadults may be outmigrating in April through early June and could be present in the dredged material transportation corridor, should dredging occur during these months.

Although individual salmonids may be present in the coastal waters along the transportation corridor, the barges and tugs transporting dredged material are extremely shallow, drafting less than 10 feet MLLW. Transportation of dredged material from the dredging site to the ocean disposal sites may temporarily affect the surface waters of Pacific salmon EFH, up to 10 feet MLLW deep in a small area surrounding the shallow scow and tug. As such, this impact would be minimal and not rise to the level of substantial. Apart from potential impacts to eelgrass, potential impacts to Pacific salmonid EFH is not further discussed in this assessment.

5.2 Coastal Pelagic Fishery Management Plan

The Coastal Pelagics FMP delineates EFH for five pelagic fish species: Pacific sardine, Pacific (chub or blue) mackerel, northern anchovy, jack mackerel, and market squid (invertebrate). Coastal pelagic fishes live in the water column, near the surface, in waters with temperatures ranging between 10 to 26 degrees Celsius (°C), and are not associated with the substrate. Generally, they occur above the thermocline in the upper mixed layer. The EFH for coastal pelagic fishes and market squid is defined as all marine and estuarine waters from the shoreline along the coasts of California, Oregon, and Washington, offshore to the limits of the EEZ and above the thermocline where the sea surface temperatures range between 10 to 26 °C, and south to the United States-Mexico maritime boundary. Generally, sea surface temperatures and habitat boundaries for coastal pelagic finfish extend farther to the north during the summer than during winter months. The project area, including SF-DODS, is within EFH for coastal pelagic species.

The proposed action has the potential to temporarily affect coastal pelagic EFH in the project. However, it is expected that the impacts would be temporary and not rise to the level of substantial. Dredging the federal channel would result in a small physical structure being present in the EFH; however, impacts typically associated with mechanical dredging, such as turbidity, would be greatly reduced with the use of an environmental clamshell bucket. Transportation of dredged material could temporarily affect the very surface of the water column in a very small area; however, this impact would be minimal and not rise to the level of substantial. Impacts to Coastal Pelagic EFH is not further discussed in this assessment.

5.3 Pacific Groundfish Fishery Management Plan

The Pacific Groundfish FMP consists of essential fish habitat for over 82 species of fish that typically live on or near the bottom of the ocean. Because groundfish species are widely dispersed during certain life stages, EFH for groundfish species is correspondingly large. As such, EFH for Pacific Coast Groundfish includes: the entire exclusive economic zone (EEZ) and all the waters from the mean higher high water line (MHHW) to the upriver extent of saltwater intrusion in river mouths along the coasts of Washington, Oregon and California, seaward to the boundary of the United States EEZ. The Pacific Coast Groundfish FMP describes seven composite units that comprise pacific groundfish EFH: estuarine, rocky shelf, non-rocky shelf, canyon, continental slope/basin, neritic zone and oceanic zone.

The overall extent of groundfish EFH includes all water and substrate in depths that are less than or equal to 11,483 feet (3,500 meters or 1,914 fathoms) to the mean higher high water level (MHHW) or the upriver extent of saltwater intrusion (upstream area and landward where waters have salinities less than 0.5 parts per thousand), seamounts in depths greater than 11,483 feet and areas designated as habitat area of particular concern (HAPC) (for pacific groundfish, HAPCs include estuary, seagrass, kelp canopy and rocky).

Bodega Harbor and the transportation corridor is considered EFH for Pacific groundfish. Several groundfish species may be present in the project area, such as rockfish (within which there are 55 different species of rockfish), starry flounder, leopard shark, and lingcod. In addition, eelgrass (*Zostera* spp.), a Pacific Groundfish FMP HAPC, are rather extensive in Bodega Harbor in the shallow areas and adjacent to the federal navigation channel. Eelgrass HAPC is further described below. Dredging the federal navigation channel in Bodega Harbor may affect Pacific groundfish EFH, particularly eelgrass. However, as discussed in Section 6.1.1, the USACE proposes to conduct pre- and post- dredging surveys to determine whether eelgrass is affected and, if so, to what extent. In addition, avoidance and minimization measures are proposed to reduce potential effects to eelgrass.

5.4 Habitat Area of Particular Concern – Eelgrass

As discussed, eelgrass is a HAPC of both Pacific salmonid and Pacific groundfish EFH. Eelgrass can form extensive meadows in soft-bottom habitats in waters with depths ranging from intertidal to 20 feet (6 meters) (CDFW 2008), and even deeper waters in Southern California (CDFW 2008; Engle and Miller 2005). However, NOAA Fisheries' 2014 California Eelgrass Mitigation Policy and Implementation Guidelines states, "[i]n general, eelgrass does not extend deeper than 12 feet mean lower low water (MLLW) in most protected bays and harbors in Southern California and is more limited in Central and Northern California embayments. However, eelgrass can grow much deeper in entrance channels and offshore."

Eelgrass distribution (as defined in NOAA Fisheries 2014). To encompass fluctuating eelgrass distribution and functional influence around eelgrass cover, eelgrass habitat is defined as areas of vegetated eelgrass cover—any eelgrass within 1 square meter of another shoot—bounded by a 5-meter perimeter of unvegetated area. The 5-meter perimeter may have eelgrass shoots that are not within 1 meter of another shoot and may be either within eelgrass vegetation (i.e., surrounded by eelgrass) or outside vegetation (i.e., around the perimeter of eelgrass). Eelgrass distribution does not include environmentally unsuitable areas, such as hard substrates, shaded locations, or areas too deep to support eelgrass.

The most recent eelgrass survey was conducted by the California Department of Fish and Wildlife (CDFW) in 2010 (CDFW 2010). According to the survey data, approximately 667.5 acres of eelgrass habitat is present in Bodega Harbor. Figure 2 provides an overview of the 2010 mapped eelgrass and the federal navigation channel. Figure 3 depicts a 5-meter eelgrass distribution band around eelgrass, as defined in the National Oceanic and Atmospheric Administration Fisheries' *California Eelgrass Mitigation Policy and Implementing Guidelines* (NOAA Fisheries 2014), and defined below. As shown in Figure 2, eelgrass was not present in the federal navigation channel in 2010; however, in the Inner Channel, eelgrass did abut the side of the channel. Eelgrass is also present along the Outer Channel; however, it appears that it is not present within 5 meters of the channel boundary. Figure 3 shows that areas along the channel that may be present within the 5-meter distribution band are near the boat harbor and the Inner Channel.

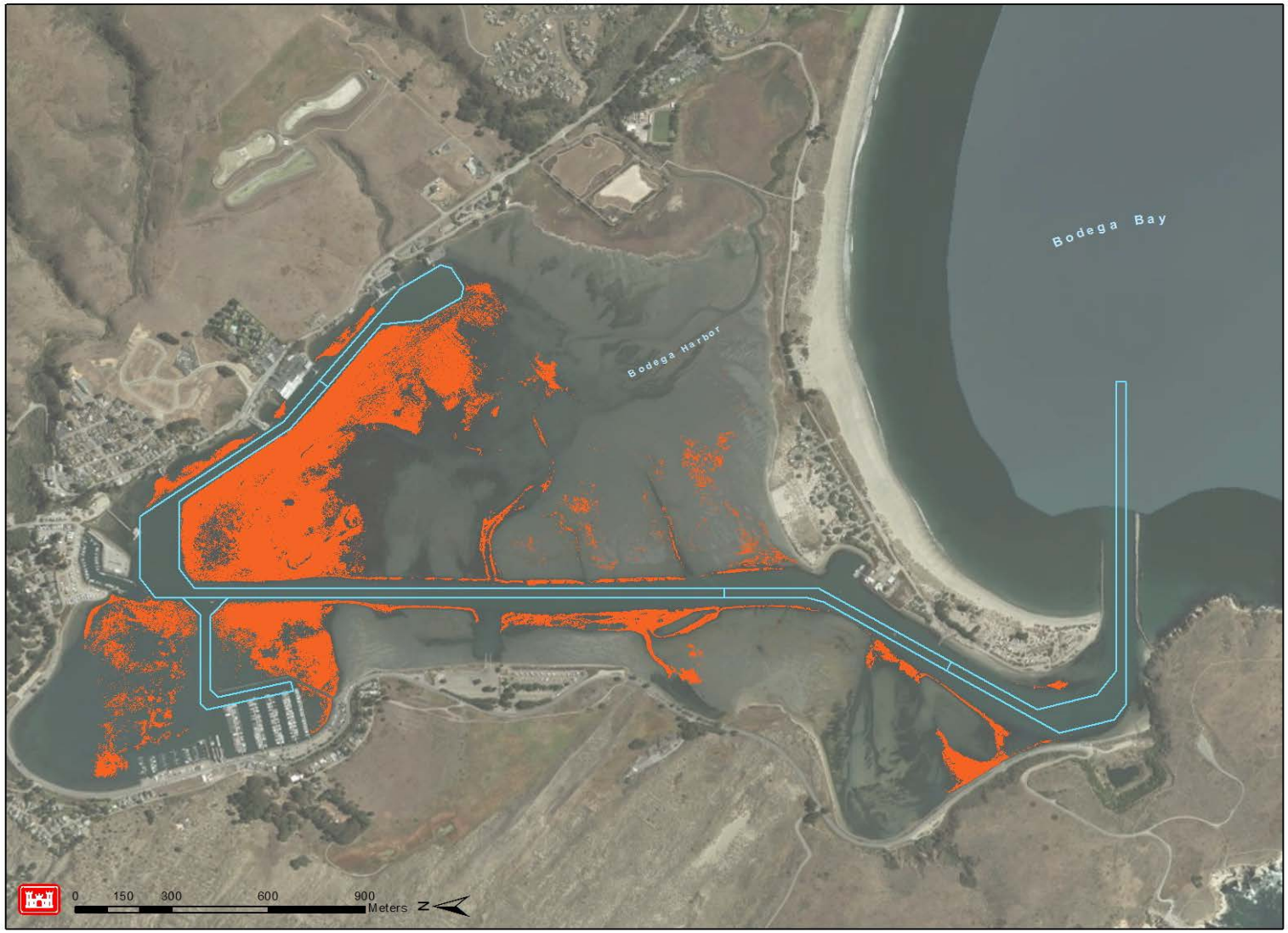

Figure 3. 2010 Bodega Harbor eelgrass survey (CDFW 2010). Eelgrass is depicted in orange and the federal navigation channel in blue.

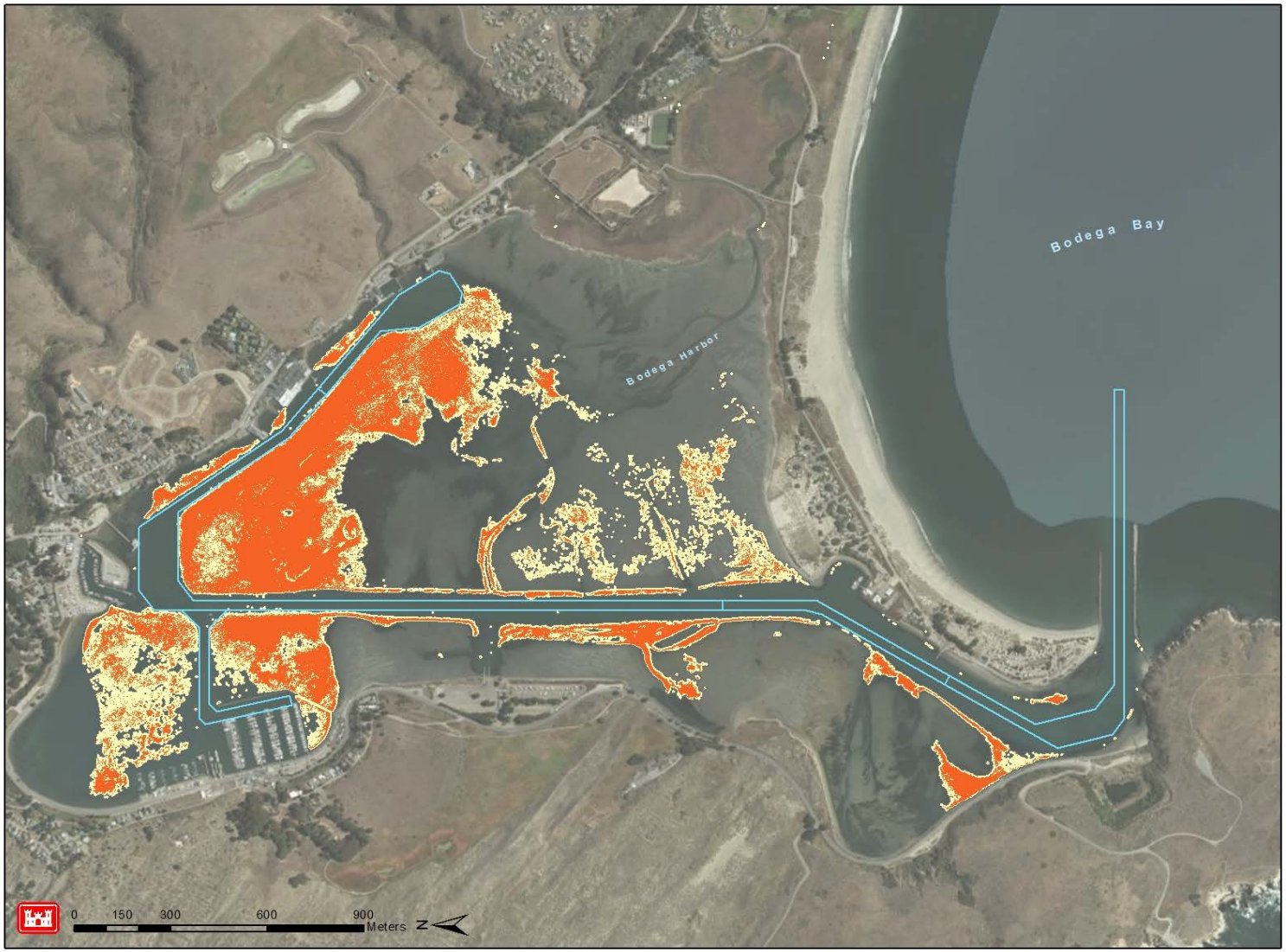

Figure 4. 2010 Bodega Harbor eelgrass survey with a 5-meter buffer (CDFW 2010). Eelgrass is depicted in orange, a 5-meter buffer around eelgrass in yellow, and the federal navigation channel in blue.

6.0 Potential Effects on Pacific Groundfish Essential Fish Habitat

Dredging the navigation channel in Bodega Harbor has the potential to affect eelgrass, remove benthic resources, and temporarily disturb water quality. These impacts are discussed below.

6.1 Potential Effects on Eelgrass and Minimization Measures of Dredging on Eelgrass Beds

Many parameters limit the where eelgrass grows, particularly regarding the depth which it can grow. Temperature, salinity, and light availability are important factors that limit eelgrass growth (Thom *et al*. 2008; CDFW 2008). Optimal temperatures for eelgrass ranges from approximately 10 to 20 °C, but can survive in temperatures as low as -6 °C and as high as 40.5 °C (CDFW 2008). Eelgrass typically prefers salinities (Thom *et al.* 2008). Thom *et al.* (2008) showed that eelgrass in Pacific Northwest embayments required instantaneous and long-term light requirements for growth and sustainment. Light availability is especially important during the wrong time of year, and even short-term reductions in light during this time can result in reduced eelgrass density and biomass (Thom *et al.* 2008). During times of the year when eelgrass growth is predominately from stored carbon, light availability may not be as important of a resource, compared to the growing season. Factors that can affect light availability include depth of light penetration, suspended sediment and turbidity, and other factors which shade suitable waters (CDFW 2008; Thom *et al.* 2008; NOAA Fisheries 2014).

The proposed maintenance dredging has the potential to directly remove eelgrass that may be present in the navigation channel and increase turbidity around eelgrass adjacent to the channel. The USACE proposes to use an environmental bucket mechanical dredge to reduce turbidity generated from dredging. Environmental buckets are typically used to dredge sediments with elevated levels of constituents of concern because the greatly limit the amount of sediment that is resuspended in the water column. Although the sediment proposed for dredging is clean material suitable for open ocean disposal, the USACE proposes to dredge the federal channel with an environmental bucket to reduce the potential for resuspended sediments and associated turbidity to substantially affect adjacent eelgrass beds. Potential effects, minimization and avoidance measures, and the effects determination are provided below.

Direct removal. Direct removal of eelgrass may occur should eelgrass be removed by dredging equipment. Direct removal will be documented by pre- and post-surveys (discussed in Section 6.1.1.) The USACE will conduct pre-dredge surveys prior to dredging to document locations of eelgrass within the dredging footprint. To the extent practicable, USACE will avoid areas of eelgrass. Areas where eelgrass cannot be avoided will be clearly identified in pre-dredge surveys. To the extent practicable, the USACE will remove and transplant eelgrass that would otherwise be removed during dredging. Post-dredge surveys, if required, will identify areas where eelgrass was directly removed.

Turbidity. Effects of turbidity will be reduced through use of environmental bucket and in-water work will be conducted as quickly as possible. Further, to the extent practicable, the USACE will schedule dredging closest to eelgrass beds during low, outgoing tides to minimize turbidity in eelgrass.

Shading – to the extent practicable, position scows and other dredging equipment such that eelgrass is not shaded, or is only temporarily shaded; work in areas where eelgrass is not present during peak hours of sunlight; and, further limit dredging activities by tide or day/night, to the extent practicable.

As discussed, it is expected that most effects on eelgrass could be avoided and minimized through avoidance of direct removal and the use of an environmental bucket dredge and scheduling dredging near eelgrass such that impacts are avoided. However, direct removal of eelgrass may adversely affect Pacific groundfish and Pacific salmonid EFH, which eelgrass is a component of. Pre- and post-dredge surveys, discussed below, will provide the level of this impact.

6.1.1 Proposed Eelgrass Surveys

The USACE proposes to conduct eelgrass surveys before and after dredging per the requirements of the NOAA Fisheries 2014 *California Eelgrass Mitigation Policy and Implementing Guidelines*. Pre-dredge eelgrass surveys will determine the distribution of eelgrass before dredging and after dredging, and will determine the impact of the maintenance dredging on eelgrass in Bodega Bay. The draft eelgrass survey plan is provided as Appendix B.

Pre-Dredge Surveys and Dredging

The USACE proposes to conduct pre-dredge surveys in areas where eelgrass may be affected by proposed dredging no more than 60 days prior to dredging. The proposed dredging is expected to occur for a period of 60 days sometime between April and November. According to NMFS 2014, pre-dredge surveys should be completed during the growing period, from May through September in Northern California. The pre-dredge survey would likely consist of an overview survey of the entire dredging footprint, along with the appropriate 5-meter buffer outside of the channel. Once this survey is complete, the USACE will review the results and further refine where dredging would occur (funding may not allow for the entire channel to be dredge; thus, there may be opportunities to avoid areas where eelgrass is present following review of pre-survey data). In areas where dredging activities may overlap with eelgrass or a 5-meter eelgrass buffer zone, ground-truthing may be necessary to provide greater resolution regarding the amount of eelgrass that could be affected. Surveys providing greater resolution will be conducted on an as-needed basis.

Pre-dredge surveys are good for a period of 60 days. As such, the USACE will make every effort possible to complete dredging within 60 days post-survey. To avoid the need for a second pre-dredge survey, every effort will be made to schedule dredging activities near eelgrass within the 60-day window and dredge in areas away from eelgrass after the 60-day period. Should dredging begin before the dredging season begins (in May) and persist into the dredging season, every effort will be made to dredge in areas away from known eelgrass beds and a pre-dredge survey will be conducted in early May, as soon as the dredging season begins. Should dredging start later in the growing season (i.e., after May), a survey would be conducted prior to dredging activities and would likely be applicable for the entire dredging duration. It is anticipated that an additional pre-dredge survey would not be required, as dredging could be scheduled to avoid eelgrass.

Further, as previously discussed, impacts to eelgrass resulting from turbidity and shading would be minimized by using an environmental bucket and positioning of equipment such that shading is minimized.

Once the survey complete, the USACE will provide a detailed pre-dredge survey report and detailed eelgrass map with accurate bathymetry contour intervals. The report will include a detailed description of the survey coverage (number, location and type of samples) and any interpolation methods. The report will provide details regarding:

- Spatial distribution: a continuous boundary around all areas of vegetated cover extending 5 meters outward – excluding gaps within cover that is greater than 10 meters.

- Aerial extent: a spatial distribution polygon, broken into extent of vegetated cover and unvegetated habitat.

- Percentage of vegetated cover: defined as one or more leaf shoots (turions) per square meter. Percent bottom cover will include the sum of the areas of vegetated eelgrass cover / total eelgrass habitat area. Divide into cover classes (20, 50, and 75 percent).

- Turion (shoot) density: the mean number of eelgrass leaf shoots per square within mapped eelgrass vegetated cover. Report as mean ± standard deviation of replicate measures, also report the number of replicate measures. Only measure in vegetated areas – can provide different densities in cover class areas.

- Reference area(s) that corrects for natural variability (spatial and aerial extent, percent cover, turion density). The reference area(s) will be chosen such that it responds similarly as action area, but is not affected by the project).

Post-Dredge Surveys

Should a pre-dredge survey identify areas that could be affected by dredging, post dredging surveys of these areas will be conducted. Post dredge surveys will be conducted within 30 days following dredging, if dredging is completed during the active growing season, or within 30 days of the next active growing season. Post-dredge surveys will focus only on areas where pre-dredge surveys identify potential impacts to eelgrass (i.e., areas where eelgrass is present within the dredging footprint or immediately adjacent to dredge areas—within a 5-meter buffer). Because the project would minimize impacts resulting from turbidity, it is expected that areas removed from the channel would not be affected. Reports should be provided 30 days following post-dredge surveys.

6.1.2 Proposed Eelgrass Mitigation (if required)

While indirect impacts on eelgrass are likely to be minimized and avoided, it is also anticipated that direct impacts on most eelgrass areas could also be avoided through avoiding dredging in areas; however, this will be determined after pre-dredge surveys are complete. Should pre-dredge

surveys identify areas of eelgrass that could be affected, the USACE will determine the appropriate steps to avoid impacts or mitigate, as necessary.

6.2 Potential Effects on Benthic Habitat

Dredging has the potential to directly remove benthic organisms within the channel. Because the channel is rather shallow and dredging episodes only occur about every 12 years, it is expected that the benthic community within the channel is well established, yet disturbed. Recreation and fishing vessels continually traverse the navigation channel, thereby disturbing the channel regularly. Removal of benthic organisms would be permanent, as the organisms would be transported outside of the harbor, along with the sediment dredged. However, it is expected that the dredged surface would recolonize rather quickly by adjacent organisms, thus proving ecological function for EFH. Therefore, it is expected that direct removal of benthic organisms would not substantially affect EFH.

7.0 Conclusions

Dredging would be conducted in such a manner to avoid and minimize potential adverse effects to EFH, particularly eelgrass. Pre- and post-dredge surveys would identify areas that have the potential to be affected by dredging activities. Eelgrass areas within the channel footprint would be avoided to the maximum extent practicable, or eelgrass may be transplanted. These determinations will be made following review of a pre-dredge survey. Other impacts to eelgrass, such as turbidity or shading, would be avoided by using an environmental bucket dredge, ensuring equipment placement minimizes shading, and scheduling dredging near eelgrass during outgoing tides. Post-dredge surveys, if required, would identify any impacts to eelgrass in and adjacent to the navigation channel. All surveys will be conducted pursuant to NOAA Fisheries' 2014 *California Eelgrass Mitigation Policy and Implementing Guidelines*.

8.0 Literature Cited

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Fiscal Year 2017 Maintenance Dredging of Bodega Bay Federal Channel Eelgrass Survey Plan

1.0 Introduction and Background

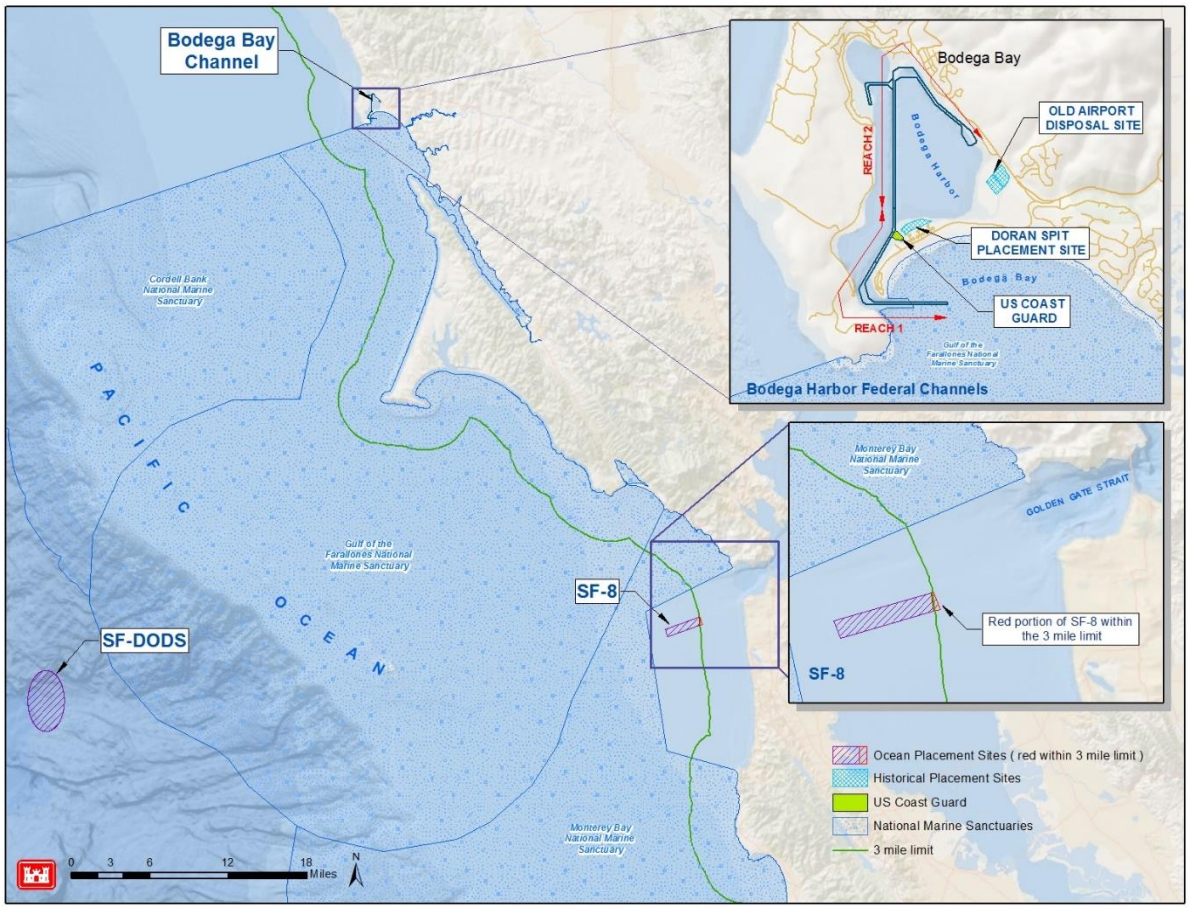
This survey plan details the tasks that will be performed to determine the extent of eelgrass *Zostera marina* in and around the federal navigation channel (including three turning basins) in Bodega Bay Harbor before and after the fiscal year 2017 maintenance dredging episode. Eelgrass surveys are required to determine the potential effects during dredging, pursuant to the Essential Fish Habitat (EFH) consultation between the National Marine Fisheries Service (NMFS) and USACE for this project.

Dredging is proposed to occur between July and November 2017 for a period of about 60 days.

To comply with the Magnuson-Stevens Fishery Conservation and Management Act, USACE will assess the potential effects of the dredging on EFH, including habitat areas of particular concern (HAPC). Eelgrass is considered an EFH HAPC. It is relatively rare in coastal California embayments; however, the habitat provided by this plant is considered a significant component of Pacific Groundfish and Pacific Salmonid EFH. The data collected from the pre-and post- dredge surveys will be analyzed to determine if there is a net loss of eelgrass resulting from the increased turbidity levels induced by maintenance dredging of this project or direct removal. A summary report will compare the results of the pre-and post-dredge surveys.

Bodega Bay is a natural coastal bay located in southwestern Sonoma County, approximately 58 miles north of the Golden Gate entrance to San Francisco Bay and 20 miles west-southwest of Santa Rosa. The crescent-shaped bay is bound by Bodega Head and Bodega Harbor to the north and Tomales Bluff and Tomales Bay to the south, and provides navigational access to Bodega Harbor via the federal entrance channel. Bodega Harbor, immediately north of and separated from Bodega Bay by Doran Spit, is a smaller lagoon inlet with a small boat harbor serving commercial fishing and recreation for the town of Bodega Bay, as well as a United States Coast Guard's search and rescue base. Bodega Harbor is the only harbor of refuge for light-draft vessels between San Francisco and Noyo Harbor.

The federal navigation channel is located predominately within Bodega Bay Harbor, with the entrance channel extending approximately 1,600 feet into Bodega Bay. The shallow-draft navigation channel is approximately 18,302 feet long, 100 feet wide, maintained to a depth of 12 feet mean lower low water (MLLW), with up to 2 feet of overdepth. The channel includes three 300-foot-wide turning basins, one just north of Campbell Cove at the end of the entrance channel, one at the most northern portion of the channel near the town of Bodega Bay, and one at the end of the federal channel.



Bodega Bay Harbor federal navigation channel and typical (historical) dredged material placement sites (SF-DODS and SF-8)

Bodega Harbor is a small, shallow embayment with limited freshwater input. The average depth of the harbor is less than 2.5 feet MLLW in areas outside the 12-foot MLLW navigation channel. If the channel were not present, the harbor would likely have a very gently sloping, uniform bottom gradient due to the natural effect of tides, winds, and sedimentation. Johnson Gulch in the northwest portion of the harbor and Cheney Gulch in the southwest

provide intermittent freshwater input to the harbor. The inflow from the gulches, along with runoff, ocean input, and other natural sedimentation process supply sediment to Bodega Harbor. The sediment slowly shoals in the federal navigation channel thereby affecting safe navigation. Because of the rather limited sediment supply, Bodega Bay Harbor federal navigation channel is on an approximate 11-year dredging cycle. Since the channel was constructed in 1943, it has been maintenance dredged only six times. The last dredging episode was in 2004, when approximately 112,000 cubic yards was dredged from the federal channel and the adjacent Coast Guard Station channel and placed at SF-DODS.

2.0 Eelgrass Surveys

The USACE will gather a team of biologists (botanists and ecologists included), and mapping technicians with experience in eelgrass surveying along the North Coast of California. The eelgrass survey team will have knowledge of the existing eelgrass patches within the vicinity of Bodega Bay.

The parameters that should be articulated and included in the eelgrass survey deliverables, as described in the *California Eelgrass Mitigation Policy and Implementing Guidelines (NMFS 2014)* are: 1) spatial distribution, 2) areal extent, 3) percentage of vegetated cover, and 4) the turion (shoot) density.

a) Spatial Distribution

The spatial distribution of eelgrass habitat should be delineated by a contiguous boundary around all areas of vegetated eelgrass cover extending outward a distance of 5 meters, excluding gaps within the vegetated cover that have individual plants greater than 10 meters from neighboring plants. Where such separations occur, either a separate area should be defined, or a gap in the area should be defined by extending a line around the void along a boundary defined by adjacent plants and including the 5 meters perimeter. The boundary of the eelgrass habitat should not extend into areas where depth, substrate, or existing structures are unsuited to supporting eelgrass habitat.

b*) Aerial Extent*

The eelgrass habitat aerial extent is the quantitative area (e.g., square meters) of the spatial distribution boundary polygon of the eelgrass habitat. The total aerial extent should be broken down into extent of vegetated cover and extent of unvegetated habitat. Areal extent should be determined using commercially available geo-spatial analysis software. For small projects, coordinate data for polygon vertices could be entered into a

spreadsheet format, and area could be calculated using simple geometry.

c) Percent Vegetated Cover

Eelgrass vegetated cover exists when one or more leaf shoots (turions) per square meter is present. The percent bottom cover within eelgrass habitat should be determined by totaling the area of vegetated eelgrass cover and dividing this by the total eelgrass habitat area. Where substantial differences in bottom cover occur across portions of the eelgrass habitat, the habitat could be subdivided into cover classes (e.g., 20 percent cover, 50 percent cover, 75 percent cover).

d) Turion (Shoot) Density

Turion density is the mean number of eelgrass leaf shoots per square meter within mapped eelgrass vegetated cover. Turion density should be reported as a mean ± the standard deviation of replicate measurements. The number of replicate measurements (n) should be reported along with the mean and deviation. Turion densities are determined only within vegetated areas of eelgrass habitat and therefore, it is not possible to measure a turion density equal to zero. If different cover classes are used, a turion density should be determined for each cover class.

2.1 Survey Tasks

Task 1: Pre-dredge eelgrass survey

The pre-dredge eelgrass survey task is described in Section 2.0. In addition to the eelgrass surveys described above, a reference site will be surveyed as well. The reference site will be located away from areas that may be impacted by dredging-induced turbidity or any other unnatural causes of turbidity.

Eelgrass will be surveyed within the growing season (May through November in Northern California) and prior to the dredging episode. The pre-dredge eelgrass survey will be conducted no more than 60 days prior to dredging, and as tide and weather conditions allow. Pre-dredge surveys will be submitted to NMFS prior to dredging.

A map of eelgrass locations in relation to the navigation channels and memo describing survey methods will be prepared. All source files used to create the map will be included (e.g., GIS/CADD files). The coordinate system will identified on the survey map. The maps shall reflect the results of the density surveys.

Task 2: Post-dredging eelgrass surveys

Post-dredge surveys will be conducted after completion of the dredging episode and within the growing season. If eelgrass is in its dormancy stage after dredging has concluded, surveys will be conducted during the start of the growing season no earlier than May of the following year.

A map of eelgrass locations in relation to the shipping channels and memo describing survey methods will be prepared. All source files used to create the map will be included (e.g., GIS/CADD files). The coordinate system will identified on the survey map. The maps shall reflect the results of the density surveys.

Task 3: Comprehensive pre- and post-dredging survey report

The pre- and post-dredge eelgrass survey methods, results, and conclusions will be described in a report using a format similar to a scientific paper. The analysis will include a calculation of net change in eelgrass density and distribution between the pre- and post-dredge survey results, as well as a comparison to the net change of eelgrass form all previous surveys, if available. A discussion of the trends is also required for comparative purposes.

From: Fowler, Cynthia J SPN
To: Wiechmann, Mark J SPN; BurtonEvans, Jessica L SPN; Palmer, Michele L SPN
Cc: Mull, Peter A SPN
Subject: FW: [EXTERNAL] Bodega Bay Maintenance Dredging (UNCLASSIFIED)
Date: Friday, July 29, 2016 6:04:00 AM

Below is NMFS' concurrence with our assessment for Bodega Harbor.

Thanks,

Cynthia

Cynthia Jo Fowler
US Army Corps of Engineers
1455 Market Street
San Francisco, CA
94103-1398

Phone: 415.503.6870

-----Original Message-----
From: Sara Azat - NOAA Federal [mailto:sara.azat@noaa.gov]
Sent: Thursday, July 28, 2016 2:53 PM
To: Fowler, Cynthia J SPN <Cynthia.J.Fowler@usace.army.mil>
Cc: Gary Stern - NOAA Federal <gary.stern@noaa.gov>
Subject: Re: [EXTERNAL] Bodega Bay Maintenance Dredging (UNCLASSIFIED)

Hi Cynthia,
Thank you for providing the draft preliminary assessment for ESA species and critical habitat for the Bodega Bay Maintenance Dredging Project. NMFS agrees with this preliminary assessment that informal consultation is appropriate for ESA-listed species and their critical habitat.
As I mentioned on the phone, we look forward to working closely with you to provide assistance in developing avoidance and minimization measures for EFH in the project area. This project may result in substantial effects to EFH, and specifically to eelgrass, but I am confident that early coordination on this project will facilitate timely completion of consultation.
Let me know if you have any questions.
-Sara

On Tue, Jul 19, 2016 at 8:04 AM, Fowler, Cynthia J SPN <Cynthia.J.Fowler@usace.army.mil <mailto:Cynthia.J.Fowler@usace.army.mil> > wrote:

> CLASSIFICATION: UNCLASSIFIED
>
> I forgot to mention - my computer is down and I'm on a loaner. I do plan to put keys on those figures for ease of reading - but, don't have the software on the loaner. Therefore, I've include a description of the figure key in the text. Sorry!
>
> Thanks,
>
> Cynthia
>
> -----Original Message-----
> From: Fowler, Cynthia J SPN
> Sent: Tuesday, July 19, 2016 10:02 AM

To: 'Sara Azat - NOAA Federal' <sara.azat@noaa.gov <mailto:sara.azat@noaa.gov> >
Cc: 'Gary Stern - NOAA Federal' <gary.stern@noaa.gov <mailto:gary.stern@noaa.gov> >
Subject: RE: [EXTERNAL] Bodega Bay Maintenance Dredging (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

CLASSIFICATION: UNCLASSIFIED

Hi Sara. Thanks for your email indicted the ESA species, critical habitat and EFH that may be present in the Bodega Harbor maintenance dredging project area. I've done a review of the ESA species, critical habitat, and ESA in the project area, as well as an impacts assessment. I think the biggest concern is the impacts on eelgrass HPAC/EFH; however, we do plan to minimize turbidity impacts using an environmental dredge and do pre- and post- surveys, according to the California eelgrass policy.

If you could, please take a look at the draft (and short) preliminary assessment for the species, critical habitat, and EFH that you provided in your 7 July 2016 email (below). With this analysis, I am hoping that we can move forward with informal ESA consultation and work together to look more closely at the impacts of the project on adjacent eelgrass in an abbreviated EFH.

I'd like to send an official letter to your agency requesting informal ESA consultation in the near future; however, I don't want to do this until you are comfortable with the analysis and agree that informal consultation is the path forward. I will work on an EFH assessment as well, but would like to focus that assessment on the specific concerns of your agency, rather than doing a large analysis on impacts that are likely to not be substantial.

Please let me know what your thoughts are on the attachment and my proposed path forward.

Thanks!

Cynthia
415.238.6906 <tel:415.238.6906>

-----Original Message-----
From: Fowler, Cynthia J SPN
Sent: Thursday, July 07, 2016 4:27 PM
To: Sara Azat - NOAA Federal <sara.azat@noaa.gov <mailto:sara.azat@noaa.gov> >
Cc: Gary Stern - NOAA Federal <gary.stern@noaa.gov <mailto:gary.stern@noaa.gov> >
Subject: RE: [EXTERNAL] Bodega Bay Maintenance Dredging

Thanks, Sara! Regarding ESA - the salmonids typically aren't present Bodega Harbor, as there isn't upstream spawning grounds. Bodega Bay does not include the enclosed lagoon harbor where the eelgrass is - it's a separate embayment. However, they could be present in Bodega Bay proper (outside the harbor). There is a small portion of the channel (1600 feet) that extends into Bodega Bay proper - the entrance channel. We may need to dredge an approximately 200 by 200 foot area; but, since dredging will not occur until approximately April - October, 2017, it may be larger or may not be required at all. The 1,600 foot entrance channel also extends into green sturgeon critical habitat.

I've also read through the 2014 eelgrass mitigation policy document you sent me and am basing our survey and impacts analysis off of that. We will also need to discuss any mitigation, if required.

I'm preparing a short write up to send you to facilitate your analysis. Do you think formal consultation will be required?

Thanks,

Cynthia

Cynthia Jo Fowler
US Army Corps of Engineers
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-----Original Message-----
From: Sara Azat - NOAA Federal [mailto:sara.azat@noaa.gov <mailto:sara.azat@noaa.gov>]
Sent: Thursday, July 07, 2016 12:13 PM
To: Fowler, Cynthia J SPN <Cynthia.J.Fowler@usace.army.mil <mailto:Cynthia.J.Fowler@usace.army.mil> >
Cc: Gary Stern - NOAA Federal <gary.stern@noaa.gov <mailto:gary.stern@noaa.gov> >
Subject: [EXTERNAL] Bodega Bay Maintenance Dredging

Hello Cynthia,

This is a follow-up to our phone conversation last week regarding the 2017 maintenance dredging for Bodega Bay Channel.

The following ESA-listed species and critical habitat are found in the project area:

Central California Coast steelhead

Central California Coast coho salmon and their critical habitat

North American green sturgeon and their critical habitat

Essential Fish Habitat for the Coastal Pelagic Species, Pacific Coast Groundfish Species, and Pacific Salmon Management Plans is located within the project area.

With regard to your question concerning the affects of transporting dredged material to SF-DODS on marine mammals, please contact Jolie Harrison at the Office of Protected Resources in Silver Spring - 301-427-8401 <tel:301-427-8401> .

Please contact me if you have any other questions regarding moving forward with the consultation process.

Thank you,

Sara

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Sara Azat
Fish Biologist

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