



**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**

February 1, 2021

Refer to NMFS No: WCR-2020-03351

James Mazza
Acting Chief, Regulatory Division
Department of the Army
San Francisco District, Corps of Engineers
450 Golden Gate Avenue, 4th Floor, Suite 0134
San Francisco, California 94102-3406

**Re: Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens
Fishery Conservation and Management Act Essential Fish Habitat Response for the Pillar
Point Living Shoreline Project**

Dear Mr. Mazza:

On December 8, 2020, NOAA's National Marine Fisheries Service (NMFS) received your request for a written concurrence that the U.S. Army Corps of Engineers' (Corps) proposed authorization of the San Mateo County Harbor District's (Applicant) construction of the West Trail Living Shoreline Project (Project) under Section 404 of the Clean Water Act of 1973 (33 U.S.C. Section 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403) 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 and implementing regulations at 50 CFR 402.

Thank you also for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1855(b)) for this action.

If you think there is a potential that marine mammals could be affected by the proposed action, it is good practice to contact a Protected Resources Division (PRD) as early as possible in the consultation process (Jolie.Harrison@noaa.gov). PRD will assist with Marine Mammal Protection Act compliance for the proposed action, if necessary, through our Permits and Conservation Division at our headquarters office.

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 document will be available within two weeks at the Environmental Consultation Organizer [<https://eco.fisheries.noaa.gov>]. A complete record of this consultation is on file at NMFS North-Central California Coast Office in Santa Rosa, California.



Consultation History

On December 8, 2020, we received a request for consultation from the Corps for the proposed Project. A Biological Assessment (GHD 2020) for the Project was included with the request. On December 17, 2020, we requested additional information from the Corps on construction details and timing. The Applicant responded with additional details by an email to us on December 17, 2020. On December 30, 2020, NMFS emailed the Corps regarding critical habitat in the action area. On December 31, 2020, the Corps provided information on critical habitat to NMFS. On December 31, 2020, NMFS requested updated eelgrass survey data that was collected in the action area. On December 31, 2020, the Corps provided the survey data to NMFS. Consultation was initiated by NMFS on December 31, 2020.

Proposed Action and Action Area

The proposed action entails construction of a living shoreline (sandy beach/dune habitat) along a severely eroded segment of the Pillar Point Harbor (Harbor) West Trail. It also involves upgrades to the existing storm drainage system. This will include removing and replacing a concrete-lined drainage ditch; replacing a corrugated metal pipe (CMP) with a concrete channel, check dam and concrete energy dissipater; construction of a bioretention basin; rechanneling runoff to the basin and removing an existing outfall pipe that discharges directly into the Harbor. The completed Project would include a nourished beach with an elevated dune adjacent to the trail. Buried beneath would be a cobble berm (otherwise known as a dynamic revetment). A 15 foot (ft) wide, decomposed granite trail is proposed along the Project length (approximately 300 ft). The newly created bioretention basin would channel runoff along the western edge of the trail. The Project objectives intend to stabilize the trail for public access; upgrade the stormwater system for a 50 year design event; maximize natural design features and/or living shoreline techniques while minimizing the use of hard armoring; enhance ecological systems and natural aesthetics of the landscape through Project design and native vegetation plantings and; provide resiliency to sea level rise. The Project will result in approximately 3.6 acres of fill of tidal waters below Mean High Water (MHW) and 0.065 acres of fill between the mean High Tide Line (HTL) and MHW. The expected duration of all construction is estimated to be 120 days.

Creation of the living shoreline. The living shoreline will be constructed on the Harbor side of West Trail, which is oriented north-south and located along the western edge of the Harbor. It provides a pedestrian pathway from the West Point Avenue access and parking area to the outer Harbor and Maverick's Beach. West Trail is used daily by the general public. The entire trail extends approximately 2,300 feet and is an unpaved, unvegetated, densely compacted dirt pathway, varying in width from 8 to 18 feet. The trail is bounded by rock and sand beach to the east and a steep hillside on the west. The Project focus is on an approximately 300-foot-length of trail and shoreline where the trail is generally at or near the Harbor's edge, varying in elevation from 5 to 10 feet above mean higher high water (MHHW). This section has severely eroded and has been subject to emergency repairs for several years.

To construct the living shoreline, a gravel berm adjacent to the trail will be constructed from no more than 6,000 cubic yards (CY) of native and imported non-angular gravel (¾ to 4-inch-diameter rock). Two large stone rock outcrops will be placed perpendicular to the shore to reduce

gravel loss in the longshore direction. Construction methods include: excavation of a 2-foot-depth cobble toe and placement of geotextile fabric where needed; placement of large stone to start the rock outcrops; placement of cobble berm after the first few outcrop stones are placed; two excavators working in tandem to place large stone in the rock outcrops while placing the cobble berm on the beach; placement of sand and construction of dune to cover the cobble berm and rock outcrops with a minimum of 2-foot-depth and; vegetation and irrigation of the beach for duration of the establishment period. Construction of the living shoreline includes the placement of sand and rock over 0.95 acres (300 linear feet) of the Harbor. In-water construction activities will not occur as work hours will be scheduled during low tide when no standing water is present in the Project area.

Bioretention basin/storm drainage improvement. Drainage issues in the action area will be improved by funneling stormwater discharge towards a newly created bioretention basin. The basin will be constructed along the western edge of the trail. This will involve removal and/or replacement of existing drainage infrastructure. The 3-foot-in-diameter concrete-lined drainage ditch along the bluff would be removed and replaced with a 6-foot-in-diameter concrete lined drainage ditch. A 2-foot-in-diameter CMP between the drainage ditch and the trail would be replaced with a buried 2-foot-in-diameter high-density polyethylene (HDPE) pipe that outlets through a concrete channel, check dam, and concrete energy dissipater into the newly created bioretention basin. This will enable removal of a 3-foot-in-diameter reinforced concrete pipe (RCP) that currently discharges from the drainage ditch directly to the Harbor. The bioretention basin will be graded and new drainage pipes will be placed. A bioswale will be created with backfill and native vegetation and will funnel the drainage runoff north to Pillar Point Marsh. Construction of the bioretention basin would include the placement of soil and gravel within 0.008 acre of non-tidal waters. Demolition and excavation will be carried out by excavators, skiploaders, concrete trucks/boom pump, wheel barrows and other associated construction vehicles and equipment.

Dredging. Dredging would be conducted from the shoreline during low tide using a clamshell or bucket dredge attached to a long-reach excavator. The Project will entail import of up to 10,000 CY of sand and up to 7,000 CY of gravel and rock to create the beach, dunes, bioretention basin and stabilize the shoreline. Approximately 8,400 CY of sand will be sourced from 1.96 acres of the Harbor during low tide when no water is present (Figure 1); 1,600 CY of sand from the Harbor is already stockpiled. Rock and gravel will be sourced from a nearby quarry.



Figure 1. Dredging areas in the Harbor and Project Footprint. (Figure 2, GHD 2020).

Construction Avoidance and Minimization Measures (AMMs)

- Construction, storage and staging areas will be well defined and no Project related activities will occur outside the delineated work area;
- dredging work shall occur in the dry using a long-reach excavator during low tides;

- in-water work will be performed during low tide when the area is naturally dry, this includes offloading of gravel and sand to rebuild the shoreline;
- silt fences, straw wattles or equivalent apparatus shall be installed at the perimeter of the construction site to prevent runoff or sediment from discharging to coastal waters;
- all construction equipment shall be inspected and maintained at an off-site location to prevent spills and fueling of equipment and vehicles shall occur at least 100 ft from any aquatic habitat or water body;
- the contractor shall ensure that controls and procedures are maintained at all times (e.g., clean up all leaks, drips, and other spills immediately; keep materials covered and out of the rain (including covering exposed piles of soil and wastes); dispose of all wastes properly and remove all construction debris from the site);
- all erosion and sediment controls shall be in place at the start and end of each workday;
- all cobble, gravel and sand used for shoreline rehabilitation shall be free of pollutants, pathogens and invasive species;
- an environmental awareness training will educate all personnel regarding special status habitat and species and all who attend will sign that they understand the conservation and protection measures;
- a “soft start” policy shall be implemented in order to allow wildlife species to vacate the area prior to construction activities, this includes a ramp up period prior to full-power equipment use at the beginning of each day, or following a 30 minute or longer break, to warn any marine mammals to move away from the construction area;
- temporary artificial lighting proposed during night work would be angled away from open water in the Harbor; and
- a litter control program will be instituted at the Project site to contain and dispose of all construction personnel food items and trash properly.

The action area is located at Pillar Point Harbor, immediately north of the City of Half Moon Bay in unincorporated San Mateo County. The Harbor is created by two rock breakwaters and is the only boat harbor located between Santa Cruz to the south and San Francisco to the north. The action area includes all ground disturbance and staging areas along the northwest bank of the Harbor. The action area also includes the concrete stormwater conveyance on the bluff and the trail, and the sediment excavation areas, as well as a 0.25 mile buffer.

The action area is within the San Vicente Creek and Denniston Creek watersheds and located approximately 0.55 miles west of Denniston Creek. West Trail is oriented along the western edge of the Harbor. The elevation at the West Trail Project area is approximately 5 to 10 ft relative to MHHW (Figure 2). A steep hillside, where the storm water conveyance construction activities will occur, is located to the west of the trail and is populated with a dense stand of cypress trees, but little to no low growing vegetation. The hillside reaches an elevation of over 100 ft above the trail.

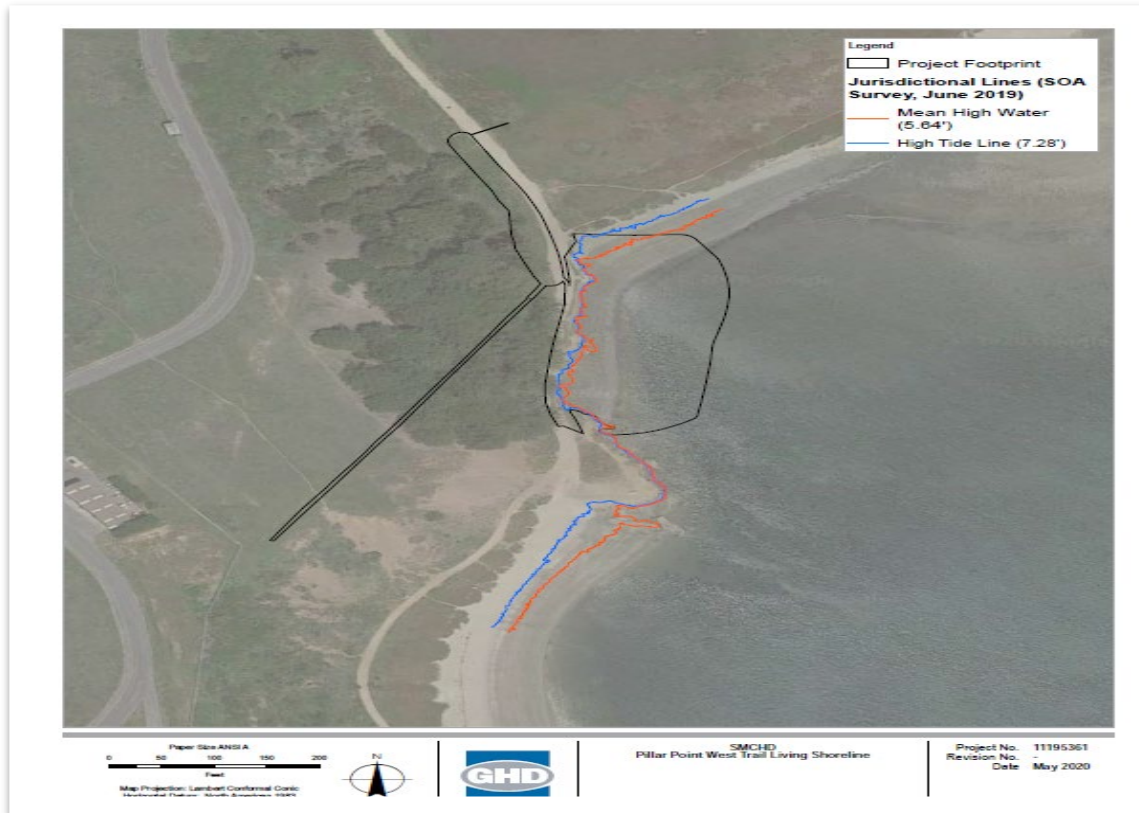


Figure 2. Project Footprint and Tidal Datums Map (Figure 3, GHD 2020).

The climate in the Project vicinity is defined by a dry season (summer and fall) and a mild wet season (winter and spring). The Project area is heavily influenced by cool, offshore marine air, which generates coastal fog. Moderate levels of seasonal precipitation occur (~26 inches) and average temperatures range from 47.1 to 62.2 degrees Fahrenheit. Vegetative communities adjacent to the Project area include: northern coastal salt march, freshwater marsh, northern coastal scrub, non-native grassland/Monterey cypress grove mosaic and coastal strand.

We considered, under the ESA whether or not the proposed action would cause any other activities and determined that it would not.

Background and Action Agency's Effects Determination

The Corps has determined that the proposed project may affect but is not likely to adversely affect the listed species, distinct population segments (DPS) and evolutionary significant units (ESU) listed below. Available information indicates the following listed species may be affected by the proposed project.

Central California Coast (CCC) steelhead (*Oncorhynchus mykiss*) DPS

Threatened (71 FR 834; January 5, 2006);

Central California Coast (CCC) coho salmon (*O. kisutch*) ESU

Endangered (70 FR 37160, June 28, 2005);

Leatherback sea turtle (*Dermochelys coriacea*)

Endangered (35 FR 8491; June 2, 1970);

North American green sturgeon (*Acipenser medirostris*) southern DPS
Threatened (71 FR 17757; April 7, 2006).

The Corps determination for each of the species listed above is based on dredging and fill discharge activities being conducted during low tide when the project area is naturally dewatered.

The life history of CCC coho salmon is summarized by NMFS (1995; 2016a). The life history of CCC steelhead is summarized by NMFS (1996; 2016). Both coho salmon and steelhead are anadromous, spending some time in both freshwater and saltwater. The older juvenile and adult life stage occur in the ocean, until the adults migrate to freshwater streams to spawn. Juveniles rear in freshwater until they are large enough to migrate to the ocean to finish rearing and maturing to adults. Adult coho salmon migration in California occurs between November and February, and smolt outmigration occurs between March and June (Fukushima and Lesh 1998). Steelhead migration occurs between December and April, while smolt outmigration occurs between January and June (Fukushima and Lesh 1998).

Denniston Creek, a 4.4-mile tributary stream flowing into Pillar Point Harbor, is designated CCC steelhead and CCC coho salmon critical habitat. The action area is not located within CCC steelhead or CCC coho salmon critical habitat, because critical habitat for both species ends at the mouth of Denniston Creek where it flows into the Harbor, which is approximately 0.4 miles away from the closest dredging location and approximately 0.55 miles away from the beach nourishment site. Due to an existing passage barrier at creek mile 1.2, Denniston Creek currently provides little and low quality spawning, migration, and rearing habitat to CCC steelhead. Based on available information, CCC coho salmon and CCC steelhead are expected to rarely occur in the action area, and are only expected to occur in very small numbers during project construction.

The waters in and around the Harbor, including the action area, fall within the range of the threatened southern DPS of North American green sturgeon. The life history of green sturgeon in California is summarized in NMFS (2015). The offshore marine waters outside the boundaries of Pillar Point Harbor, and outside the action area, are designated as green sturgeon critical habitat; however, the waters located inside the boundaries of the Harbor, and the action area, are not designated green sturgeon critical habitat.¹

Green sturgeon are anadromous, where adults spawn in deep turbulent sections of the upper Sacramento River. As juvenile green sturgeon age, they migrate downstream and rear in the lower delta and bays, entering the ocean during the first one to four years of their life history (Nakamoto et al. 1995). Acoustic monitors have detected tagged green sturgeon in nearshore marine waters at various locations along central California (e.g., Moss Landing Harbor, Golden

¹ The lateral extent of southern DPS North American green sturgeon critical habitat in nearshore waters to the west is defined by the 60 fathom depth bathymetry contour relative to mean lower low water (MLLW) and shoreward to the area inundated by MLLW, or to the COLREGS demarcation lines. Dividing Pillar Point Harbor from nearshore waters is the COLREGS line at the mouth of Pillar Point Harbor. Specifically the COLREGS line at Pillar Point Harbor is drawn from Pillar Point Harbor Light 6 to Pillar Point Harbor Entrance Light (33 CFR §80.1140). Certain bays in California are designated green sturgeon critical habitat (e.g., San Francisco Bay, Humboldt Bay), but Pillar Point Harbor is not included (74 FR 52300; Oct. 9, 2009).

Gate Bridge) (NMFS communication April 29, 2016, Joe Heublein, NMFS staff). NMFS is not aware of any reports of green sturgeon in the Harbor, including the action area. Although it is possible that the Harbor could provide green sturgeon marine habitat, there is insufficient information to determine the abundance of green sturgeon in the action area. The action area includes relatively poor conditions with relatively more boat traffic compared to other areas along the coast outside the Harbor where green sturgeon are more likely to be found. Based on this information, green sturgeon may be present in the action area during the proposed construction period in very small numbers.

The life history and latest status review on leatherback sea turtles is summarized by NMFS and USFWS (NMFS and USFWS 2013). California oceanic waters represent an important foraging region for leatherback turtles, with the greatest densities found feeding on jellyfish offshore in the coastal waters of California in the summer and fall seasons (Benson et al. 2007). Critical habitat for this species was designated along the U.S. west coast in 2012 (77 FR 4169; January 26, 2012). It contains one primary constituent element, occurrence of prey, mainly primarily scyphomedusae (jellyfish) of the order Semaestomeae (e.g., *Chrysaora*, *Aurelia*, *Phacellophora*, and *Cyanea*). The action area is not considered critical habitat for leatherback turtles.² There have been numerous sightings of leatherback sea turtles feeding on their preferred prey in Monterey Bay region and north towards San Francisco and nearby offshore waters. Based on this information, it is possible leatherback sea turtle can be present within the nearshore action area if prey is present.

Additionally, the proposed project has been reviewed for potential impacts to Essential Fish Habitat (EFH). The Corps has determined that the proposed action would have an adverse effect on EFH for species managed under the Pacific Coast Salmon Fishery Management Plan (FMP), Pacific Groundfish FMP and the Coastal Pelagics FMP. This determination is based on the proposed disturbance of benthic habitat and the potential for chemical spills and minor increases in underwater noise and turbidity during construction. The action area is not located within any Habitat Area of Particular Concern (HAPCs) for federally-managed fish species of any of the above listed FMPs. In additions, eelgrass (*Zostera marina*) surveys conducted on August and November of 2019 and a pre-construction survey conducted on September of 2020 by side-scan and SCUBA diver based visual survey determined that the action area does not contain eelgrass.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, “effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may

² Critical habitat for the leatherback sea turtle extends to a water depth of 80 meters from the ocean surface and is delineated along the shoreline at the line of extreme low water, except in the case of estuaries and bays where COLREGS lines (defined at 33 CFR part 80) shall be used as the shoreward boundary of critical habitat. Dividing Pillar Point Harbor from nearshore waters is the COLREGS line at the mouth of Pillar Point Harbor. Specifically the COLREGS line at Pillar Point Harbor is drawn from Pillar Point Harbor Light 6 to Pillar Point Harbor Entrance Light (33 CFR §80. 1140).

occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b). When evaluating whether the proposed action is not likely to adversely affect listed species or critical habitat, NMFS considers whether the effects are expected to be completely beneficial, insignificant, or discountable. Completely 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. Effects are considered discountable if they are extremely unlikely to occur.

The effects of the proposed action include: alteration of benthic habitat including dredging and discharge of fill into intertidal waters; temporary increase in suspended sediments; contamination from construction-related spills; and improved storm water quality runoff and shoreline resiliency.

Alteration of benthic habitat

Benthic habitat in the Harbor will be temporarily disturbed or permanently altered through dredging and discharge of fill into intertidal waters. Construction of the living shoreline includes the dredging of sand and placement of sand and rock during low tide when the action area is naturally dewatered. Working in the dry will avoid direct impacts to CCC coho salmon, CCC steelhead, green sturgeon and leatherback sea turtle. NMFS expects that these species would leave the area with the outgoing tide if they were foraging in the Harbor therefore avoiding any contact with construction equipment, fill discharge and/or dredging activities. Therefore, impacts from construction and dredging activities on these species is extremely unlikely and considered discountable.

Although critical habitat does not exist for any of the listed species within the Harbor, effects to these species may occur due to alteration of the benthic environment. The new shoreline will permanently alter the benthic environment within the Harbor including aquatic flora and fauna within the Project footprint. Leatherback sea turtles prey on pelagic species of jelly fish and sea nettles, and salmonid adults and older juveniles mostly feed on pelagic fishes and invertebrates. These prey items are not expected to be impacted by the Project. However, green sturgeon prey are likely to be affected by changes to benthic habitat.

Green sturgeon are known to feed in shallow subtidal and intertidal environments often entering at night or during high tides to access prey (Moser et al. 2016; Emmett et al. 1991). Green sturgeon and salmonids can feed on small benthic invertebrates including shrimp, mollusks, amphipods, and small fish (Moyle, 1976; Moyle et al. 1992). The proposed placement of beach sand and gravel is expected to bury existing benthic invertebrates and potential prey items for fish in an area of approximately 0.95 acres. Dredging activities within the Harbor will also temporarily disrupt the benthic environment although the substrate will be relatively unchanged. Based on rates of benthic community recovery listed in the scientific literature, NMFS expects the soft bottom benthic community in the dredged and disposal areas are adapted to a regularly disturbed environment and will recover to pre-existing conditions within several months (Oliver et al. 1977). Replacement of the existing substrate with a mixture of coarse sediment could alter

the benthic invertebrate community found in the action area, and this may, in turn, alter the food availability for fish. However, shoreline stabilization activities will create enhanced intertidal habitat by restoring natural beach habitat and native plant species that is currently lacking potentially adding more diversity of prey items. In addition, the foraging potential of the action area is relatively small compared with the large foraging areas of generally higher quality habitat available elsewhere in the Harbor and nearshore environment. The action area likely provides marginal foraging for green sturgeon due to its proximity to the shore and the volume of boat activity at the Harbor. Based on the above, the Project effects on benthic habitat will not reduce prey resources for green sturgeon in any meaningful way and is considered to be insignificant.

Temporary increase in suspended sediments

Project activities that involve sediment removal and discharge will result in temporary increases in the concentration of suspended sediments within the water column. Elevated levels of turbidity may affect green sturgeon, salmonids and leatherback sea turtles. Turbidity can affect fish by disrupting normal feeding behavior, reducing growth rates, and increasing stress levels (Benfield and Minello 1996; Nightingale and Simenstad 2001). The action area is subject to tidal circulation that is likely to disperse the relatively small, short-term turbidity plumes of primarily sand that are expected from Project actions. Additionally, dredging and discharge of sediment will be done in the dry limiting potential for turbidity plumes. When the tide reenters the action area, sediment can be expected to be suspended and settle similar to ambient levels common in an intertidal environment. Therefore, effects of turbidity on green sturgeon, salmonids, and leatherback sea turtles are discountable.

Accidental spills

The proposed project includes use of heavy construction equipment that, should an accidental spill occur, may expose the action area to small fuel and/or oil spills. It is expected that spills of oil, fuel, debris or other toxic substances will be contained and will not be released into the waters or sediments of the action area. AMMs described above and in the BA (GHD 2020) will be in place to prevent a spill of toxic fuel or oil, and debris will be prevented from entering the water. Despite the unlikelihood of spills, dilution and dispersion from the large volume of water in the Harbor would limit exposure and any adverse effects to listed species. NMFS expects that exposure of CCC steelhead, CCC coho salmon, green sturgeon and leatherback sea turtles to toxic materials in amounts that could cause a response is extremely unlikely, and therefore discountable.

Improved storm water quality runoff and shoreline resiliency

The project will enrich habitat conditions, enhance prey item species diversity (e.g., clams, crustaceans, worms, etc.), and improve Harbor water quality. Improvements to the existing stormwater drainage system would halt direct discharge into the Harbor. These improvements would also enhance the Pillar Point Marsh brackish-freshwater wetland transition zones by redirecting water into the marsh. Creation of a bioretention basin with plantings of native vegetation adjacent to the West Trail will feed captured stormwater north towards the Pillar Point Marsh where it will be naturally filtered. Improvements in water quality through reduction of

point source contamination will benefit listed species and their prey. Additionally, the Project's beach and berm configuration will allow for shoreline and intertidal habitat areas to adapt and function in response to sea level rise. This will reduce coastal erosion from natural processes and sea level rise. Maintaining resilient intertidal zones will preserve habitat for prey items of listed species. Based on the above, the potential effects from creation of a living shoreline and improvements to the management of storm water drainage is considered a beneficial effect of this Project on the habitat of listed salmonids, green sturgeon and leatherback sea turtle.

Conclusion

Based on this analysis, NMFS concurs with the Corps that the proposed action is not likely to adversely affect the subject listed species and designated critical habitats.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the Corps or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) the proposed action causes take; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the written concurrence; or (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA consultation.

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation 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). Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects may result from actions occurring within EFH or outside of it and may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH (50 CFR 600.905(b)).

NMFS determined the proposed action would adversely affect EFH for various life stages of fish species managed under the Pacific Groundfish FMP, the Coastal Pelagics FMP, and the Pacific Coast Salmon FMP through benthic substrate disturbance and associated turbidity effects. These effects are analyzed in the ESA section of this letter, and are applicable for the EFH analysis.

Sandy intertidal habitat infaunal prey items (e.g., clams, crustaceans, worms, etc.) of federally-managed fish species under the Groundfish and Coastal Pelagic Species FMPs may be removed or buried during shoreline dredging and fill activities. Although some impacts to infaunal prey items are anticipated from the proposed project, the effects will be short-term, localized, and large areas of the Harbor and nearshore waters just outside the Harbor will remain unaffected during the Project and will be available for federally-managed fish species for foraging. Upon completion of the Project the habitat is expected to recover quickly to its pre-project condition with potential for enhanced diversity of prey items upon establishment of the newly created living shoreline. As described above, the proposed action contains adequate measures to avoid, minimize, mitigate, or otherwise offset the adverse effects to EFH. A pre-construction eelgrass and *Culerpa* spp. clearance survey was conducted on September 2020 (MTS 2020) which confirmed the absence of these species as documented in the August and November 2019 surveys. Therefore, NMFS has no practical EFH conservation recommendations to provide to avoid or reduce the magnitude of these effects.

Please direct questions regarding this letter to Yvette Redler-Medina, Fisheries Biologist, Central Coast Office in Santa Cruz, California at (562) 676-2162, or via email at yvette.redler-medina@noaa.gov.

Sincerely,



Amanda Ingham
Central Coast Branch Chief
North Central Coastal Office

cc: Naomi Schowalter, U.S. Army Corps of Engineers, San Francisco, California
naomi.a.schowalter@usace.army.mil. Ph. 415-503-6763
Copy to E-File: ARN 151422WCR2020SR00249

REFERENCES

- Benfield, M. C., and T. J. Minello. 1996. Relative effects of turbidity and light intensity on reactive distance and feeding of an estuarine fish. *Environmental Biology of Fish* 46(2):211-216.
- Benson, S. R., K. A. Forney, J. T. Harvey, J. V. Carretta, and P. H. Dutton. 2007. Abundance, distribution, and habitat of leatherback turtles (*Dermochelys coriacea*) off California, 1990- 2003. *Fishery Bulletin* 105(3):337-347.
- Emmett, R. L., S. A. Hinton, S. L. Stone, and M. E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries, Volume II: Species life histories summaries. ELMR Report No. 8. NOS/NOAA Strategic Environmental Assessment Division, Rockville, MD, 329 pp
- Fukushima, L., and E. W. Lesh. "Adult and juvenile anadromous salmonid migration timing in California streams." *California Fish and Game* 84.3 (1998): 133-145.

- GHD. 2020. Biological Assessment: West Trail Living Shoreline Pillar Point Harbor, Eureka, California. 296 pp.
- Hays, Graeme C. (2017). "Ocean currents and marine life". *Current Biology*. 27(11): R470–R473. doi:10.1016/j.cub.2017.01.044. PMID 28586681.
- Marine Taxonomic Services (MTS). 2020. Pillar Point West Trail Project: Essential Fish Habitat Assessment, Pre-Construction Eelgrass Survey in Half Moon Bay, CA. Prepared for GHD Inc. October 5, 2020.
- Moser, M. L., Israel, J. A., Neuman, M. , Lindley, S. T., Erickson, D. L., McCovey, B. W. and Klimley, A. P. (2016), Biology and life history of Green Sturgeon (*Acipenser medirostris*) Ayres, 1854: State of the Science. *Journal of Applied Ichthyology*, 32: 67-86. doi:10.1111/jai.13238
- Moyle, P. B. 1976, *Inland Fishes of California*. University of California Press, Berkeley and Los Angeles, California.
- Moyle, P. B., Foley, P. J., and Yoshiyama, R. M. 1992. Status of green sturgeon, *Acipenser medirostris*, in California. Final Report submitted to National Marine Fisheries Service. 11 p. University of California, Davis.
- Nakamoto, R. J., T. T. Kisanuki, and G. H. Goldsmith. 1995. Age and growth of Klamath River green sturgeon (*Acipenser medirostris*), Yreka, CA. 20 pp.
- Nightingale, B., and C. A. Simenstad. 2001. *Dredging Activities: Marine Issues*. Washington State Transportation Center, University of Seattle, Seattle, Washington 98105.
- NMFS (National Marine Fisheries Service). 1995. Status review of coho salmon from Washington, Oregon, and California. U.S. Department of Commerce, NOAA Technical Memorandum, NMFS-NWFSC-24.
- NMFS (National Marine Fisheries Service). 1996. Status review of West Coast steelhead from Washington, Idaho, Oregon, and California. National Marine Fisheries Service, Northwest Fisheries Science Center and Southwest Region Protected Resources Division, NOAA Technical Memorandum, NMFS-NWFSC-27.
- National Marine Fisheries Service and U.S. Fish and Wildlife Service. 2013. Leatherback sea turtle (*Dermochelys coriacea*) 5-Year Review: Summary and Evaluation. National Marine Fisheries Service, Silver Spring, Maryland. 91 pages.
- NMFS (National Marine Fisheries Service). 2016. 2016 5-Year Review: Summary & Evaluation of Central California Coast Steelhead, National Marine Fisheries Service, West Coast Region, North Central-Coast Office, Santa Rosa, California.
- National Marine Fisheries Service. 2015. Status Review for Southern Distinct Population Segment of the North American Green Sturgeon (*Acipenser medirostris*). National Marine Fisheries Service, West Coast Region, Long Beach, CA.

NMFS (National Marine Fisheries Service). 2016a. 5-Year Status Review: Summary & Evaluation of Central California Coast Coho Salmon, National Marine Fisheries Service, West Coast Region, Southwest Fisheries Science Center, and Northwest Fisheries Science Center.