US Army Corps of Engineers®

Los Angeles District (LAD)

DRAFT

DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR OPERATIONS AND MAINTENANCE (O&M) BREAKWATER REPAIRS PORT SAN LUIS HARBOR SAN LUIS OBISPO COUNTY, CALIFORNIA

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1.0 INTRODUCTION

This environmental assessment (EA) evaluates the potential environmental impacts associated with repairing the Port San Luis (PSL) breakwater, PSL Harbor, San Luis Obispo County, to maintain the breakwater's integrity (Proposed Action).

This document has prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code (USC) 4321, et seq.); Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of NEPA (40 Code of Federal Regulations (CFR) parts 1500-1508); and the United States Army Corps of Engineer's (Corps) procedures for implementing NEPA (33 CFR Part 230).

1.1 PROPOSED ACTION

Overview
The Proposed Action includes breakwater repairs, minor excavation of sediment adjacent to the breakwater to provide equipment access, placement of this sediment (material) and restoration and establishment of eelgrass to offset project impacts.

Project Location
PSL Harbor is located on the central California Coast, approximately midway between Los Angeles and San Francisco, in San Luis Obispo County [See Figure 1 Regional Vicinity Map; Figure 2 Local Vicinity Map; PSL Site Map - Figure 3] (Port San Luis Harbor District 2004). PSL Harbor is located in San Luis Obispo Bay, approximately 20 miles southeast of Morro Bay Harbor and approximately 100 miles northwest of Santa Barbara Harbor, and is adjacent to the town of Avila Beach. Avila Beach Drive, which is maintained by the county of San Luis Obispo, provides the vehicular access route to PSL Harbor (Port San Luis Harbor District 2004).

Background
Breakwaters are large rubble-mound structures located outside of harbors/ports, anchorage, or coastline to protect the inner waters and shoreline from the effects of heavy seas (Unified Facilities Criteria 2001). These manmade barriers help to ensure safe mooring, operating, loading, or unloading of boats and ships within harbors/ports.

PSL Harbor breakwater was constructed between 1889 and 1913 (Corps of Engineers 2017) as a rubble-mound breakwater that extended outwards 2,400 feet (ft) from the tip of Point San Luis, in a southeasterly direction. The Federal breakwater was designed to protect the inner bay, harbor, and small craft marine facilities from heavy surf and wave action approaching from the west. The breakwater structure was designed and constructed to act as a protected area of low current and reduced wave action within the PSL Harbor. Repairs have been performed six times to remedy the damage inflicted primarily by waves but also, on one occasion, by seismic activity (Corps of Engineers 2017). Historical documentation suggests that the original design of the breakwater was based on limited engineering, and that subsequent repair efforts sought to restore the structure to the original configuration rather than implement engineered improvements.

A Corps comprehensive condition survey of the PSL breakwater was performed in 2015 – 2017

that included bathymetric and topographic survey data, site inspections, and an assessment of construction and repair records. The functional effectiveness and structural integrity of the breakwater were assessed in terms of wave overtopping, wave transmission, and armor stability. Recommendations for repairs were developed from the findings of these tasks (Corps of Engineers 2017). The Proposed Project area map is shown in Figure 4. The current breakwater condition reflects the original construction, periodic damage sustained over the past century, and multiple repair operations. While it fulfills the functional intent of sheltering PSL Harbor against waves arriving from the west and northwest, it is in need of repair. It no longer retains the design crest elevation (+13 ft) along the entire length of Segment A (from the shoreline to Whalers Island) and along more than 85% of Segment B (from Whalers Island to the seaward end). The largest discrepancy, nearly 5 ft, occurs at the bow in the breakwater alignment near the midpoint of Segment B. The crest widths generally meet or exceed the design value of 20 ft. The side slopes on the seaward side of the breakwater tend to be milder than the design template (1.5H:1V), while those on the leeward side are consistent with the design value (also 1.5H:1V). The structure is highly porous with large void spaces between stones and lacks a traditional core of smaller stones. The smallest stones are found on portions of Segment A and near the middle of Segment B. Interlocking of the armor stone is poor along the entire length of Segment A and on most of the crest and the seaward side slopes of Segment B. A failure of the armor layer culminating in a breach in the structure is a distinct possibility under extreme wave conditions. If this damage scenario were to occur, it would cause a significant increase in the wave energy reaching the harbor, disrupting operations and potentially damaging infrastructure at the harbor and the town of Avila Beach. The middle portion of Segment B is most susceptible to such damage. Substantial armor displacement is predicted to occur in this region during a 10-year (yr) storm, with failure possible during a 25-yr storm and probable during a 50-yr storm event.

The breakwater is subject to frequent overtopping and relatively high wave transmission during extreme events (Corps of Engineers 2017). However, these phenomena exert only modest impacts on operations and facilities in the lee of the breakwater due to the substantial distance between the structure and the PSL Harbor itself.

Over the years, local sea and deep water swells from the Pacific storms have subjected the PSL breakwater and coastline to significant forces, including significant storms in 1983 and the December 2003 San Simeon earthquake, which caused damages to the breakwater (Corps of Engineers 2004). It is believed that ground motion from the 2003 San Simeon earthquake (a 6.6-magnitude quake occurring about 45 miles northwest of PSL near San Simeon) caused damage to the head section of the breakwater (Corps of Engineers 2017). The harbor and local shoreline/beach are situated such that strong seasonal waves from the open Pacific Ocean on the west have the potential to damage vessels and facilities within the harbor without protection from a functional breakwater.

In portions of the breakwater, sections of stone have collapsed including the length of the leeward side of the breakwater trunk, and damage to the head. Subsequently the condition of the structure has deteriorated further, to a point where repairs are necessary to maintain structural integrity and navigational safety. Under present conditions the effectiveness of the breakwater structure to protect the harbor has been reduced. During periods when the harbor is exposed to storm conditions, in combination with high tides, the potential exists for damage to vessels and

facilities in the mooring area and harbor. The repair of the breakwater would serve to maintain protection from wave action within the harbor to assure continued safe navigation for various private and commercial vessels entering and traversing the harbor.

Project Description

The Proposed Action involves repairing the breakwater by resetting and replacing stone along the approximately 2,400-f-long and 20 ft wide breakwater. Operation and maintenance (O&M) repair work would focus on the most heavily damaged sections, approximately 1,420 ft of the structure located between approximately Stations 4+00 and 18+20. O&M repair work would be conducted from the leeward side of the breakwater. The footprint of the breakwater would not be changed, but the crest elevation would be raised from +13 ft Mean Lower Low Water (MLLW) to +16 ft MLLW as a consequence of the armor stone size required for hydraulic stability and the breakwater prism. It is estimated that approximately 29,000 tons of existing stone would need to be reset and approximately 60,000 tons of new stone (individual stone size range is anticipated to range from approximately 5 to 20 tons) would be placed to restore the most heavily damaged portion of the breakwater. Repair work elevations on the seaward side of the breakwater are anticipated to extend down to approximately +4 ft MLLW and to approximately 0 ft MLLW on the leeward side of the breakwater.

Minor excavation of shoaled sediment (approximately 15,000 cubic yards) adjacent to the leeward side of the breakwater would be necessary to create adequate depths for barges and other vessels to access the breakwater for repairs. The excavated material would be relocated approximately 1,000 ft north of the breakwater and utilized to create an engineered eelgrass mitigation site. For figures of the proposed excavation site and mitigation sites see Appendix B, Eelgrass Mitigation and Monitoring Plan in Support of the Port San Luis Breakwater Repairs (Merkel & Associates 2021). The estimated direct impact to Pacific eelgrass (*Zostera pacifica*) due to shoal excavation is 1.8 acres. The estimated worst-case potential impact to Pacific eelgrass within the entire work area, including direct and indirect impacts, is 4.39 acres. The LAD has developed an eelgrass mitigation plan (Appendix B) in coordination with the National Marine Fisheries Service (NMFS), California Department of Fish & Wildlife, and other agencies to address minimization and offsetting measures to reduce eelgrass impacts and to mitigate the impacts in accordance with the California Eelgrass Mitigation Policy (CEMP). Based on past (1991, 2013) and recent (2020) characterization of the sediment in the vicinity of the breakwater and in PSL Harbor, the sediment has been determined to be clean, sand suitable for placement in the engineered eelgrass mitigation site. The placement of the excavated sediment into the engineered eelgrass mitigation site would raise the seafloor from a deeper margin at -22 ft MLLW up to a crest elevation of -12 ft MLLW, an elevation centered nearly precisely within the depth range presently occupied by Pacific eelgrass at PSL. While breakwater repair construction activities would be limited to daylight hours (approximately 11 hours a day), excavation of shoaled sediment could potentially occur during day and night hours (approximately 11 to 22 working hours a day).

Construction would be sea-based, conducted by a crane-equipped barge(s), barges carrying rock, tugboats, small craft support vessels, and possibly a scow. Construction crew parking areas have been identified within PSL Harbor District's paved public parking lot for the Proposed Action. The first phase of construction would involve excavating shoaled sediment adjacent to the

breakwater to allow for access of the equipment required to repair the breakwater. The excavation of shoaled sediment would require a crane-equipped barge, possibly a scow or barge, tugboats, and small craft support vessels. The second phase of construction would consist of the repair work to the breakwater structure, requiring a crane-equipped barge, barges carrying rock, tugboats, and small craft support vessels. Repair work would consist of resetting of existing stone and placement of new stone on the breakwater structure. Dropping of armor stone would not be permitted, but it should be expected that some stones may be accidentally dropped during placement. Stones would be carefully placed and interlocked with existing stones to maximize stability and minimize the intensity of sound due to stone placement.

The project duration is anticipated to last approximately six to seven months, generally from April to October, with extensions, and additional work windows varying due to weather patterns. The breakwater repair schedule is time dependent on weather conditions, equipment availability, working performance of the equipment, contractual commitments, and availability of funds.

Breakwater repair activities are proposed to be limited to the immediate area surrounding the PSL breakwater (with the crane-equipped barge and barges carrying rock extending into the leeward waters immediately adjacent to the breakwater the majority of the time). During non-working hours at night the crane-equipped barge and attached rock storage barge would be pulled away from the breakwater and remain moored overnight in the lee of the breakwater. In the event of adverse weather, the contractor would relocate the equipment from the lee of the breakwater and seek shelter, mooring within the established PSL Harbor District designated anchorage or within Morro Bay Harbor. The project area is approximately 20 acres including the engineered eelgrass mitigation site.

The following is a description of the type of the primary pieces of equipment to be utilized for the excavation and repair of the breakwater.

Crane-equipped Barge(s). The crane-equipped barge is a barge with an attached crane that can be utilized for the excavation of shoaled sediment and breakwater repair work. During excavation of shoaled sediment, the crane would be outfitted with a clamshell bucket. During excavation the clamshell bucket would be lowered by the crane operator to the sea floor to excavate sediment. The crane would place material on an adjacent storage barge or into a scow for placement at the designated site for the engineered eelgrass mitigation site. During breakwater repair construction a barge with an attached crane would be outfitted with lifting tongs to reset existing stone and retrieve stones from the storage barge, and then place those stones on damaged sections of the breakwater. A boat operator in a skiff, and spotter on the breakwater, would direct the operation of the crane to pick and place the stones. The picked stone must be able to match the dimensions of the voids along the breakwater. Approximately 30 to 35 stones can be picked and placed per day using this vessel, or roughly three to four stones per hour on average.

Support Vessels. Self-propelled vessels that serve as tenders, tugs, and spotting craft. The main purpose of a support vessel is to assist the crane operator as well as to ferry equipment and crew back and forth from the shore, breakwater, crew areas, and the crane and storage barges. The compliment of these vessels is usually just one operator unless ferrying other crew.

Storage/Rock Barge(s). A floating barge which serves as the stockpile of stone for repair work. This barge is typically towed in from an offsite quarry location (likely Pebbly Beach Quarry on Santa Catalina Island) and is then anchored next to the crane-equipped barge. The compliment of this vessel is usually a spotter/oiler who works with the crane operator to select stones. The rock barge is expected to carry approximately 2,000 to 4,000 tons of stone per trip. Excavated material would be placed on a storage barge (possibly a specialized storage barge known as a scow) for transport and placement at the designated site for the engineered eelgrass mitigation site. Unused/awaiting barges would be stored within a designated area within PSL Harbor.

Land-Based Quarry/Storage. While it is less likely that a land-based quarry for stone would be utilized for breakwater repair, this is a possibility. Previous LAD marine rock work projects have utilized stone sourced from an inland quarry, most recently stone was sourced from an inland quarry in Apple Valley/Victorville, San Bernardino County. It cannot be determined at this time what specific inland quarry or port a contractor may utilize for the Proposed Action. For the purposes of this analysis, we have assumed the following in-land quarry and port would be utilized based on the geographic proximity to PSL Harbor; stone would be sourced from the Apple Valley/Victorville in-land quarry and transported using large flatbed trailers or dump trucks on roadways, highways, and freeways to Port Hueneme, Ventura County, where the stone could be off-loaded directly onto a marine barge or offloaded into a designated land-based staging/storage area for transfer at a later time to a marine barge. The stone would then be transported by sea to PSL Harbor. Should land-based staging/storage construction equipment areas (contractor laydown areas) be required at Port Hueneme they would be designated on land that has been developed (i.e., paved), and/or already designated for such purposes.

Previous Environmental Documentation for Port San Luis Breakwater Projects

The PSL breakwater has been subject to continued storm and wave action since constructed between 1889 and 1913, and has had O&M repairs in the past (1894; 1926-1927; 1935; 1983-1984; 1992; 2005) (Corps of Engineers 2017). The Proposed Action is similar in kind to the previous breakwater O&M repair projects performed in PSL Harbor (Corps of Engineers 1992; Corps of Engineers 2004).

A Corps Engineering Study on PSL, completed in February 1988 (Corps of Engineers 1988), which included a comprehensive condition survey on the breakwater, recommended that the structure be returned to design specification by resetting old and adding new capstone to the crest of the breakwater and raising depressed areas to an approximate elevation of + 13 ft MLLW. The proposed recommendation was incorporated and the repairs to the breakwater were completed in the summer of 1992 (Corps of Engineers 1992) and have been maintained since that time by the Corps.

In December 1991, LAD prepared a Draft Environmental Assessment (DEA) for the repair of the breakwater, and the Final Environmental Assessment (FEA) and signed Finding of No Significant Impact (FONSI) was completed in March 1992 and is hereby incorporated by reference per 40 CFR 1502.21. The 1992 FEA included a Clean Water Act (CWA) Section 404(b)(1) analysis that determined that the proposed project would have no impacts to aquatic resources. A cultural resources investigation concluded there were no historic properties within

the area of potential effect (APE). In 1992, O&M repair work was accomplished by resetting stones and placing new quarry stone by barge to restore the design elevation of +13 ft MLLW. Approximately 22,000 tons of quarry stone were transported by barge and the quarry stones were placed by a barge-mounted crane by moving the stones from the barge onto the breakwater. For construction to access, the breakwater required minor excavation of approximately 10,000 cy of material due to shallow bathymetry adjacent to the breakwater, and then was side cast (lifted and deposited to the side) adjacent to the same location where it was excavated. Prior to placement, in December 1991, the sediments were tested (see Appendix D of this EA), and chemical analysis results showed no chemical or petroleum contaminants present.

In December 2003, the San Simeon earthquake, approximately 40 miles north of PSL, damaged portions of the breakwater including the outer approximately 50-feet of the tip of the breakwater, and quarry stones in the outer approximately 250-feet of the portion of the breakwater being displaced. Approximately 5,000 tons of stone and resetting of large quarry stones were displaced by the earthquake. In June 2004, the LAD prepared a DEA for the repair of the breakwater, and a FEA and FONSI was completed in September 2004. The FEA for the Repairs to the Port San Luis Breakwater, Corps, LAD, was completed in September 2004 (2004 FEA), and is hereby incorporated by reference per 40 CFR 1502.21. In 2005, the Corps excavated approximately 15,000 cy of material to allow adequate water depths for the barges to access the breakwater and completed repairs. As funding was limited for the breakwater repairs in 2005, the breakwater has not been performing as a functional breakwater per design criteria.

1.2 SCOPE AND CONTENT OF THE EA

The resources evaluated in this Environmental Assessment are:

- **Air Quality and Greenhouse Gases (GHG)**
- **Noise**
- **Land Use and Recreation**
- **Water Quality**
- **Marine Resources**
- **Cultural Resources**
- **Aesthetics**
- **Sea Vessels Traffic and Safety/Land-Based Traffic and Transportation**
- **Environmental Justice**

These resources are discussed and analyzed in Chapter 4.0, Affected Environment and Environmental Consequences. Environmental Justice is discussed and analyzed in Chapter 7.0 Compliance with Environmental Requirements.

1.3 NEPA SCOPE OF ANALYSIS

As part of the NEPA process, the Corps is responsible for establishing the NEPA scope of analysis pursuant to 33 CFR Part 230. The Corps' NEPA scope of analysis encompasses the

approximate 20-acre project area within the Port San Luis Harbor in San Luis Obispo County, plus sea vessel barging the rock on the Pacific Ocean from Catalina Island located in Los Angeles County to the project site (project area) at Port San Luis Harbor or a potential transportation of rock from an inland (land-based) quarry in Apple Valley/Victorville in the High Desert area of San Bernardino County using large trucks on roadways to a potential staging/storage area in Port Hueneme/Port of Hueneme in Ventura County to off load the rock, and then loading rock onto sea vessel barges from Port Hueneme/Port of Hueneme to Port San Luis Harbor.

1.4 AGENCY AND PUBLIC INPUT

This document is available for public review and comment for a period of 30 days, beginning April 9, 2021 through May 8, 2021, and will be posted on the Corps website. Comments should be mailed to:

U.S. Army Corps of Engineers
Los Angeles District, Planning Division
Attn: Kirk Brus
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and via electronic submission to: kirk.c.brus@usace.army.mil

If you have questions or would like additional information, please contact Kirk Brus at (213) 452-3876.

1.5 RELATIONSHIP TO ENVIRONMENTAL PROTECTION STATUTES, PLANS, AND OTHER REQUIREMENTS

The Corps is required to comply with all pertinent federal laws and regulations; project compliance is summarized in Section 7.0.

2.0 PROJECT PURPOSE

2.1 PURPOSE AND NEED

The PSL breakwater serves as protection from offshore waves and currents and therefore facilitates navigability within PSL Harbor. Maintenance repairs on the PSL breakwater are needed to ensure navigational safety and to prevent degradation of the structural integrity of harbor facilities. The purpose of the Proposed Action is to repair the existing PSL breakwater for the authorized purpose of maintaining navigability within PSL Harbor.

2.2 AUTHORIZATION

The breakwater in PSL, which is situated extending in a southeasterly direction approximately one-fourth (1/4) of a mile along the sunken reef commencing at or near Whalers Point, at San

Luis Obispo Bay, California, was authorized as described in Executive Document # 81 (Senate), 49th congress, 2nd session, 10 February 1887, titled "Reports of Engineers Relative to a Breakwater at Whalers Point, California". Construction of a federal breakwater was authorized by the River and Harbor Act of August 11, 1888 (s. Doc 81, 49th Congress, 2nd Session; Corps of Engineers 1969). Federal responsibility for maintenance of the breakwater structure was authorized by the River and Harbor Act of 1899, as amended, and modified by Public Law 99-62 (House Document 303, 81st Congress, 2nd session) provides for the establishment and maintenance of a breakwater. The breakwater is a Federal structure, maintained by the Corps, and the Proposed Action is solely a Federal project, funded with Federal dollars.

3.0 PROJECT ALTERNATIVES

3.1 ALTERNATIVES CONSIDERED

Two alternatives are considered in this document - the "No Action Alternative," under which no repair would be conducted, and the "Preferred Alternative," which is the Proposed Action. The terms Preferred Alternative, Proposed Action and Proposed Project are synonymous and used interchangeably in this Environmental Assessment. The terms project site and project area are synonymous and used interchangeably in this Environmental Assessment. The federal agency name U.S. Army Corps of Engineers, Corps of Engineers, USACE, Corps, Los Angeles District, and LAD are synonymous and used interchangeably in this Environmental Assessment. The words Section and Chapter are synonymous and used interchangeably in this Environmental Assessment.

No Action Alternative. Under this alternative, the proposed repairs would not take place. In the absence of breakwater repair, the breakwater would become increasingly susceptible to erosion and structural failure, which would jeopardize safety. Continued disrepair of the structure would eventually require emergency work to avoid public safety hazards, and/or closure of the harbor. Additional damages would also incur additional costs to restore the breakwater with emergency repairs.

Preferred Alternative. The Proposed Action, described more fully in Section 1.1, consists of performing O&M repair work on the most heavily damaged sections of the PSL breakwater; approximately 1,420 ft of the structure located approximately between Stations 4+00 and 18+20. Repair work would be sea based and conducted from the leeward side of the breakwater. Minor excavation of shoaled sediment (approximately 15,000 cubic yards) adjacent to the leeward side of the breakwater would be necessary to create adequate depths for barges and other vessels to access the breakwater for repair. Environmental commitments incorporated in the project description to avoid or minimize adverse impacts are listed in Section 5.

3.2 ALTERNATIVES REJECTED FROM CONSIDERATION

Congressional legislation directs that operations, maintenance, repair, replacement, and rehabilitation work associated with PSL Harbor must occur specifically at PSL Harbor on the PSL, no other alternative sites for maintenance construction and repair of existing facilities are considered viable. A reduced scope of repairs, or limiting work to a smaller footprint, would not adequately address all of the damage and would not fully meet the purpose and need.

Alternative placement sites were considered. Alternative sites were not considered practicable due to the increased cost the project would incur to place sediments at sites further distances from the Port San Luis Harbor breakwater given the limited operations and maintenance funding available. Alternative sites would also not provide the opportunity to support creation of the eelgrass mitigation site, which has specific location requirements based on parameters such as depth and limited wave action. Based on this information, alternative placement sites were rejected from further consideration.

4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section summarizes the existing condition of the physical and human environment within the scope of analysis, and also provides an assessment of potential direct and indirect impacts associated with each alternative. Direct impacts (or effects) are caused by the action and occur at the same time and place. Indirect impacts (or effects) are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

4.1 WATER QUALITY

4.1.1 Affected Environment

Water quality is typically characterized by salinity, pH, temperature, clarity, and dissolved oxygen (DO). The 1992 Corps Final Environmental Assessment (FEA) on the Port San Luis (PSL) Harbor breakwater repair included a Clean Water Act (CWA) 404(b)(1) analysis that determined the Proposed Action would have no impacts to aquatic resources.
Section 303(d) of the 1972 Federal Clean Water Act (CWA) requires states to identify water bodies that do not meet water quality objectives and are not supporting their beneficial uses. Each state must submit an updated list, called the 303(d) list, to the United States Environmental Protection Agency (USEPA) every two years. In addition to identifying the water bodies that are not supporting beneficial uses, the list also identifies the pollutant or stressor causing impairment, and establishes a priority for developing a control plan to address the impairment. The list also identifies water bodies where 1) a total maximum daily load (TMDL) has been approved by USEPA and an implementation is available, but water quality standards are not yet met, and 2) water bodies where the water quality problem is being addressed by an action other than a TMDL and water quality standards are not yet met. The most current USEPA approved 303(d) list is the 2014 and 2016 California Integrated Report (Clean Water Act Section 303(d) List And 305(b) Report). The California 303(d) list was approved by USEPA on April 6, 2018 (State Water Resources Control Board 2020). Port San Luis (Water Body Type: Bay and Harbor) is listed as a 303(d) impaired water body with pollutants of arsenic, dieldrin, polycyclic aromatic hydrocarbons (PAHs), and Polychlorinated biphenyls).

Sediment Characteristics. Based on past (1991-1992, 2012-2013) and recent (2020) characterization of the sediment in the vicinity of the breakwater and in PSL Harbor, the

sediment has been determined to be clean, sand suitable for creating an engineered eelgrass mitigation site. The testing results can be found in Appendix D of this EA.

4.1.2 Environmental Consequences

Significance Criteria

An impact to Water Quality will be considered significant if the alternative would:

- Cause substantial, long-term alteration of chemical properties and turbidity within the water column outside of a 500' buffer area around the project area;
- Cause release of toxic substances that would be deleterious to human, mammal, fish, or plant life.

Preferred Alternative

Sea based Proposed Action operations would include a crane-equipped barge(s), storage barges, tugboats and a crew boat. Barge, crane and small watercraft boats do not generally create extensive turbidity plumes. Small amounts of soil adhering to the stones may become temporarily suspended in the water column, causing a slight increase in turbidity. Due to the small amounts of suspended sediment material involved, however, the impact would be negligible. Removal of stone displaced from the breakwater, along with minor excavation and sediment placement, may also cause turbidity. However, due to the nature of the sediment, (i.e., clean sand) and the small excavation footprint, the sediment is expected to quickly settle. The addition of stone may also cause some turbidity, however, this should be minor, as the original footprint of the breakwater would not be changed. Increases in turbidity levels above background levels would be anticipated within 50 to 150 yards of the barges and from excavation and placement sites near or below mid-column depths. The clean, sandy soft bottom sediment that would be excavated is expected to quickly settle in the immediate area of the excavation and placement site. Any substrate sediment (turbidity) plume that would form would be relatively localized to the area near the breakwater and near the placement site and would dissipate within hours or a few days after work is completed. With the implementation of Best Management Practices (BMP) and water quality (WQ) environmental commitment that water quality monitoring for compliance purposes would occur during excavation work around the breakwater, to further avoid, reduce, and minimize impacts well below less than significant. Upon project construction completion, water quality would return to pre-project conditions. Based on the above, and with the implementation of BMP and WQ environmental commitments, the Proposed Action would not cause a substantial, long-term alteration of chemical properties and turbidity within the water column outside of a 500' buffer area around the project area. Impacts would be less than significant.

Marine sands do not contain high levels of pathogenic bacteria including total and fecal coliform. Surface layers of marine sands are generally well aerated and do not provide an environment suitable for the survival of pathogenic bacteria. Beaches nourished using marine sands do not show up on state monitoring lists as impacted by pathogenic bacteria, and breakwater rock repair work, excavation and placement activities would not result in beach closures or advisories. It

should also be noted that the State and County health department, such as San Luis Obispo County standards for safe contact recreational exposure to total and fecal coliform, are levels of 10,000 MPN/100 ml and 400 MPN/100 ml, respectively. These coliform standards are orders of magnitude higher than are detected during monitoring for maintenance dredging operations that occur in Morro Bay Harbor in San Luis Obispo County, which are generally in units of approximately <2-130 MPN/100 ml (Merkel 2014, 2015, 2016, 2017). The sandy soft bottom sediment to be excavated would more than likely have smaller, reduced readings well below <2-130 MPN/100 ml of coliform, if any. With the implementation of BMPs and WQ environmental commitment that water quality monitoring for compliance purposes would occur during excavation work around the breakwater, this would further avoid, reduce, and minimize impacts well below less than significant. Upon project construction completion, water quality would return to pre-project conditions. Based on the above, and with the implementation of BMPs and WQ environmental commitments, the Proposed Action would not cause release of pathogenic bacteria that would be deleterious to human, mammal, fish, or plant life. Impacts would be less than significant.

Temporary, minor impacts to water quality would occur during excavation and placement operations that may result in temporary reductions in dissolved oxygen and temporary increases in turbidity within and immediately adjacent to the work area. A WQ environmental commitment would be incorporated monitoring turbidity, dissolved oxygen, light transmittance, pH, salinity, and temperature during sediment excavation and placement activities minimizing impacts. If turbidity and/or dissolved oxygen exceeds water quality criteria during excavation and placement activities, a WQ environmental commitment would be implemented, to evaluate conditions and make modifications to operations to get turbidity and/or dissolved oxygen back into compliance. Upon project completion, water quality would return to pre-project conditions. Impacts would be less than significant.

Transportation of construction materials, barged to the site, may involve minor leakage of fuel and other fluids into the harbor. Such minor leakage, however, would not add significantly to that produced by other vessels utilizing the harbor. The Proposed Action would not cause a substantial release of contaminants that would be deleterious to human, mammal, fish, or plant life. With the implementation of BMPs and WQ environmental commitments (i.e., the Contractor shall stay within the boundaries of the identified construction zones; there would be no dumping of fill or material outside of the project area or within any adjacent aquatic community; construction vehicles would be continuously examined for leaking fluids; litter, petroleum products, cleaning agents, wash down waters, and other toxic or oxidizable materials would be prevented from entering marine waters), these would further avoid, reduce and minimize impacts well below less than significant. Based on the above, and with the implementation of BMPs and WQ environmental commitments, the Proposed Action would not cause a substantial release of contaminants that would be deleterious to human, mammal, fish, or plant life. Impacts would be less than significant.

No Action Alternative

The "no action" alternative would have no immediate impact on water quality. However, continued structural degradation and rising sea levels would impact harbor operations as the

function of the breakwater is compromised, resulting in the need for emergency repairs. This emergency work may require more extensive construction and may take longer to complete, thereby extending the duration of construction and area of impact in the future. Impacts to water quality would be less than significant.

4.2 MARINE RESOURCES

4.2.1 Affected Environment

Characteristic Habitats

PSL Harbor is located within the open bay system of San Luis Obispo Bay. PSL Harbor is influenced primarily by marine waters, tides, and currents, and to a lesser degree by surface freshwater drainages and groundwater (approximately one mile east of the harbor is San Luis Obispo Creek). The marine biotic communities within the scope of analysis are represented by a variety of plants, algae, and wildlife. Species diversity and density are high due to the area's transitional zone or overlap of warm and cold-water masses created by the California Current System, with warm water currents from the south mixing with cold water currents from the north. Biological productivity is enhanced in this zone due to upwelling (Walter *et al* 2018).

A variety of marine habitats occur in the San Luis Obispo Bay area. Habitats characteristic of the PSL breakwater area consist of subtidal and rocky intertidal habitats off the breakwater, rock revetment, seagrass habitat (surfgrass and eelgrass), sandy bottom habitat, kelp habitat and deeper water marine ecosystems of the Pacific Ocean adjacent to the outer breakwater. These habitats support ecological communities comprised of marine algae, invertebrates, plankton, fish, marine mammals, and avian species. There are no wetlands, beach areas, coastal strand or other terrestrial vegetation, and no dune or estuary areas within the project area.

Marine Habitats and Vegetation

Marine habitats in the project area include natural open water and sandy bottom benthic habitats, eelgrass, as well as artificial rocky intertidal and subtidal habitats created by the breakwater.

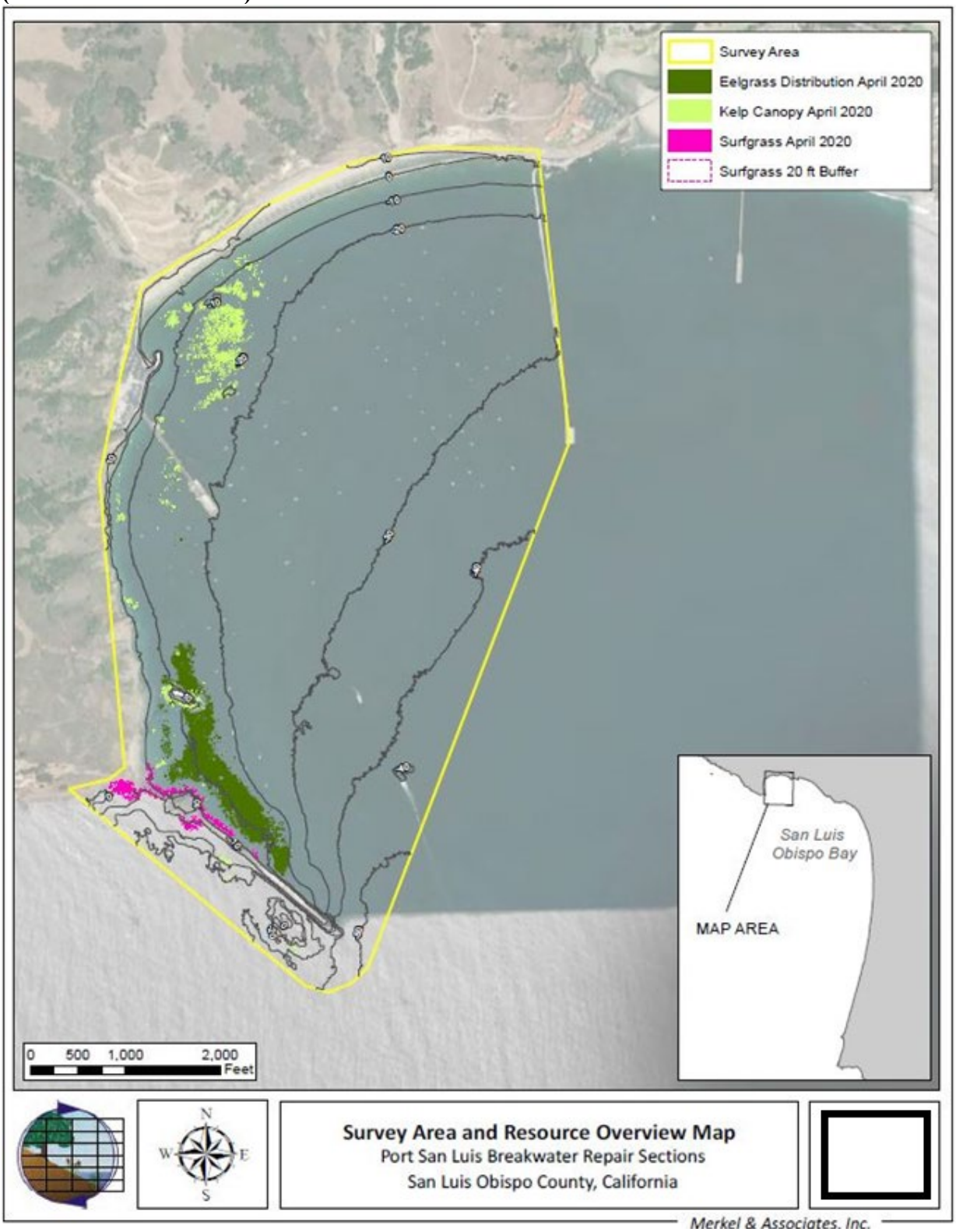
Marine vegetation on the PSL breakwater consists of several species of green, brown and red algae (seaweeds), and surfgrass. The native rocky substrate of Point San Luis and Whaler's Island are Franciscan Formation, volcanic, and metavolcanic rock formations. Whaler's Island and the native bedrock extending into the sea from Point San Luis was incorporated into the design and construction of the PSL breakwater. Sub- and intertidal habitats consist of those associated with the ocean floor and the breakwater side slopes. The distribution, abundance and community structure of these zones are influenced largely by depth, turbidity, seasonal water temperatures, salinity concentration, and substrate composition and movement. Rocky habitats of the breakwater provide interstitial surface areas for attachment of algae and marine invertebrates. The seaward side of the breakwater from Whaler's Island extending out to sea (Station 0+00 to 18+00) is characterized by a diverse microhabitat community structure including non-coralline algal crusts, coralline algal crusts, articulated coralline, turf algae. On the leeward east facing portion of the breakwater extending out to sea from Whaler's Rock the rock structure is similar

to that on the seaward side but is less impacted by wave energy. As a result, the breakwater supports a differing algal and invertebrate community with a more restricted tidal zone at the upper margins of the rock due to reduced wave, swell, and spray influence. The leeward side of the breakwater from Whaler's Island extending out to sea (Station 0+00 to 18+00) is characterized by a microhabitat community structure differing from the seaward side in that it has less coralline algal crusts (almost none) and supports more macroalgae (Merkel & Associates 2019).

The following is a summary excerpt from the May 2019 Biological Investigations of the PSL Breakwater Report and March 2021 PSL Eelgrass Mitigation and Monitoring Plan, see appendix B for full reports and figures (Merkel & Associates 2019 & 2021). Within PSL Harbor, three Habitat Areas of Particular Concern (HAPC) components are present: eelgrass, surfgrass, and canopy kelp. Within PSL Harbor, eelgrass surveys were completed within the approximately 700-acre sheltered embayment between the PSL breakwater and the Cal Poly Pier in April-May 2020. The surveys revealed the presence of 15.16 acres of Pacific eelgrass (*Zostera pacifica*). In June 2018 Pacific eelgrass within the immediate proximity of the breakwater between Smith Island and the lee of the breakwater was surveyed and determined to total 14.19 acres. In February 2019, the same survey extent supported 13.90 acres with approximately 2 percent difference in total area between the surveys and 92 percent of the bed being stable between the survey intervals (Merkel & Associates 2019). Similar stability from spring 2018 through spring 2020 has been observed for this bed segment. Notably, approximately 94 percent of the entirety of the eelgrass present within the PSL area occurs between Smith Island and the breakwater with well over 99 percent of the eelgrass occurring at the western margin of the bay with only a handful of scattered small plants extending from the consolidated larger beds eastward towards Harford Pier. Extensive Torrey's surfgrass (*Phyllospadix torreyi*) was found to occur extensively on the native bedrock of Point San Luis and Whaler's Island, and to a much lesser degree on the low-lying boulder rock on the leeward side of the breakwater. Although *P. torreyi* was specifically observed, Scouler's surfgrass (*P. scouleri*) is also present in the area with records existing from Diablo Canyon and Pismo Beach, and it would not be unexpected for both species to be represented in the project area (Merkel & Associates 2019). On the seaward side of the breakwater, surfgrass is found only within the partially sheltered areas near Point San Luis. On the lee side of the breakwater, surfgrass was most abundant on small areas of bedrock outcrops extending above the sand or adjacent to the breakwater boulder. However, surfgrass was also found on the lower intertidal imported boulder rubble that extended outward from the breakwater. The canopy kelp in PSL is dominated by giant kelp (*Macrocystis pyrifera*) which is present within scattered beds on rocky bottom habitats within PSL. Historically, beds have been found both inside the breakwater protection and outside of the breakwater. Over at least the past couple of years during which time surveys have been completed for this breakwater repair project, little to no kelp has been noted outside of the breakwater within the project area. In June-July 2018 no kelp was noted on the breakwater. Additional kelp surveys were conducted in January-February 2019 and kelp was not noted within the project area at this time. Because of the absence of kelp in 2018 and the absence of kelp in winter 2019, a kelp frequency analysis was undertaken to identify how often kelp occurred in the project area and along the breakwater using data from California Department of Fish and Wildlife (CDFW) kelp canopy surveys. This analysis revealed kelp at a low frequency of occurrence (14 percent of the surveys) with presence of narrow fringes of kelp being observed, principally on the lee of the breakwater. The

distribution showed kelp at the tip of the breakwater and, erroneously, on intertidal and very shallow subtidal rock not suited to supporting giant kelp or bull kelp (*Nereocystis luetkeana*). Rather it is believed that the CDFW mapping likely included the understory feather boa kelp (*Egregia menzieii*) that is present in these areas. In spring 2020, kelp was more expansive in PSL Harbor, but canopy kelp remained absent from the inside margin of the breakwater. A small amount of kelp canopy was present in small stands near the toe of the outer seaward portions of the breakwater and was fairly extensive in the harbor but remained absent from the project area. Based on the frequency distribution analyses of CDFW data and observations from 2018-2020, canopy kelp is not believed to be a significant habitat resource within the work area. See Figure 5 below for April 2020 mapping of all three HAPC components present within PSL Harbor: eelgrass, surfgrass, and canopy kelp.

Figure 5. PSL Harbor April 2020 Seagrass and Canopy Kelp Surveys (Merkel & Assoc. 2021).



Invertebrates

Marine invertebrates which commonly occur on or near the breakwater include various species of crabs, lobster, clams, sea urchins, barnacles, mollusks, mussels, anemones, limpets, chitons, snails, annelid worms, polychaetes, sponges, hydroides, sea stars, and micro-invertebrates (US Army Corps of Engineers, 1986; 1991; 2004). The breakwater from Whaler's Island extending out to sea (Station 0+00 to 18+00) is characterized by barnacles, tube worms, tube snails, anemones, sea urchins, encrusting invertebrates, and sea stars (Merkel & Associates 2019). A wide diversity of invertebrates occupy the sandy benthic and eelgrass habitat in the lee of the breakwater.

Fish and Essential Fish Habitat

Bays and eelgrass beds provide important nursery, rearing areas, and habitat for a wide diversity of marine organisms. A wide diversity of fish species, including several game and commercial species, are found within San Luis Obispo Bay and the surrounding offshore ocean waters. Some of the common fish species include: jacksmelt (*Atherinopsis californiensis*), shiner surf perch (*Cymatogaster aggregata*), walleye surfperch (*Hyperprosopon argenteum*), California scorpionfish (*Scorpaena guttata*), California halibut (*Paralichthys californicus*), Pacific Dover sole (*Microstomus pacificus*), English sole (*Parophrys vetulus*), bass (*Paralabrax* spp.), albacore (*Thunnus alalunga*), rockfish (*Sebastes* spp.), salmon (*Oncorhynchus* spp.), white seabass (*Atractoscion nobilis*), lingcod (*Ophiodon elongatus*), northern anchovy (*Engraulis mordax*), Pacific herring (*Clupea pallasii*), Pacific jack mackerel (*Trachurus symmetricus*), sablefish (*Anoplopoma fimbria*), California grunion (*Leuresthes tennis*), and sanddab (*Citharichthys* spp.) (Corps of Engineers 1986; Analytic Planning Services 1985).

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801, *et seq*.) set forth a number of mandates for the National Marine Fisheries Service (NMFS), regional fishery management councils, and other federal agencies to identify and protect important marine and anadromous fish habitat. The Councils, with assistance from NMFS, are required to delineate "essential fish habitat" (EFH) for all managed species. The Act defines EFH as " ... those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Magnuson-Stevens Act identifies discrete subsets of EFH referred to as Habitat Areas of Particular Concern (HAPC) that are defined as exhibiting one or more of the following traits: rare, stressed by development, provide important ecological functions for federally managed species, or are especially vulnerable to anthropogenic (or human impact) degradation. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding the potential effects of their actions on EFH, and respond in writing to the NMFS's recommendations.

Within PSL Harbor three HAPC components are present: eelgrass, surfgrass, and canopy kelp. See above Section 4.2.1 *Marine Habitats and Vegetation* for detailed inventory of the HAPCs within PSL Harbor.

For the Pacific region, EFH has been identified for a total of over 119 species covered by four fishery management plans (FMPs) under the auspices of the Pacific Fishery Management

Council; Coastal Pelagic Species FMP, Pacific Coast Groundfish FMP, Pacific Coast Salmon FMP, and Highly Migratory Species FMP. The EFH for these are to include all marine and estuarine waters from the shoreline to 200 nautical miles offshore (i.e., the Exclusive Economic Zone [EEZ]). Species managed under all four of the FMPs have the potential to occur within PSL Harbor. Several of the species managed under the Pacific Coast Groundfish FMP and Coastal Pelagic Species FMP are known to occur commonly within PSL Harbor, (e.g., Northern anchovy, Pacific sardine, Pacific mackerel, jack mackerel, Dover sole, Pacific sanddab, rockfish species, California scorpionfish, and English sole). In addition, many species identified as Ecosystem Component Species under the Pacific Groundfish Management Plan are present in the PSL Harbor (e.g., skate species, silversides, and smelts). Furthermore, many other native marine fish in the project area undoubtedly serve as prey for many of the managed species.

Avian Species

Numerous bird species utilize the PSL Harbor area. The bay is used as a major wintering and/or stopover area for migratory waterfowl and shorebirds. The open water is utilized for foraging by many avian species. The breakwater is used extensively as a roosting area by California brown pelicans (*Pelicanus occidentalis*), cormorants (*Phalacrocorax* spp.), terns (*Sternula* spp.), and gulls (*Larus* spp.) when sea state conditions allow (Corps of Engineers, 1986; 1991; 2004). Western gulls, black oyster-catchers, and pigeon guilemonts have historically nested and may currently nest in the cliffs of both Whaler's Island (which is part of the breakwater) and nearby Smith Island (Carter et al. 1990). For a list of avian species observed during the Summer 2018 and Winter 2019 biological surveys see May 2019 Biological Investigations of the Port San Luis Breakwater Report in Appendix B.

Marine Mammals

The central California coast supports a great abundance and diversity of marine mammals. Three pinniped species are commonly present in PSL Harbor and will likely be present in the project area; California sea lion (*Zalophus californianus*), Steller sea lion (*Eumetopias jubatus*), and harbor seal (*Phoca vitulina richardii*). Often California sea lions haul out on the PSL breakwater and on buoys and work docks within PSL Harbor. Steller sea lions have been observed intermittently hauled out on the PSL breakwater and on buoys and docks within PSL Harbor. The presence of pinnipeds on the PSL breakwater is influenced by the season and day to day sea state conditions. Harbor seals have not been observed hauling out on the PSL breakwater or work docks within the San Luis Obispo Bay, however marine mammal surveys documented harbor seals hauled out on the low-lying bedrock benches of nearby Smith Island. The Southern sea otter (*Enhydra lutris nereis*) occupies kelp beds located within the PSL Harbor year-round. Infrequent occurrences, more transient in nature have been observed of solitary individuals within the vicinity of the project area. One mile east of the project area within PSL Harbor, in the kelp beds a raft(s) of Southern sea otters were consistently observed during marine mammal surveys conducted in 2018 and monthly throughout 2019. The LAD conducted monthly marine mammal surveys throughout 2019, for details regarding these surveys and the use of PSL Harbor by marine mammals see Appendix B (IHA Application).

Other marine mammal species that have the potential to occur within the waters surrounding San Luis Obispo County are the: Guadalupe fur seal (*Arctocephalus townsendi*), Northern elephant seal (*Mirounga angustirostris*), Humpback whale (*Megaptera novaeangliae*), Blue whale (*Balaenoptera musculus*), Fin whale (*Balaenoptera physalus*), Killer whale (*Orcinus orca*), Eastern North Pacific Gray whale (*Eschrichtius robustus*), Pacific whitesided dolphin (*Lagenorhynchus obliquidens*), Risso's dolphin (*Grampus griseus*), Northern right whale dolphin (*Lissodelphis borealis*), Long-beaked common dolphin (*Delphinus capensis*), Shortbeaked common dolphin (*Delphinus delphis*), Dall's porpoise (*Phocoenoides dalli*), and Bottlenose dolphin (*Tursiops truncatus*). Occurrences within the vicinity of the project area of the species listed above are considered uncommon and would be not be expected in the limited project area within the lee of the breakwater. Generally, these species would be observed seaward of the breakwater and within the open waters of San Luis Obispo Bay.

Marine mammals are protected by the Marine Mammal Protection Act (MMPA).

Threatened and Endangered (T&E) Species

Three species protected under the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq*.), have the potential to occur within or near the project area. These include the threatened Southern sea otter (*Enhydra lutris nereis*), the endangered California Least Tern (*Sterna antillarum browni*), and the endangered Black Abalone (*Haliotis cracherodii*) and its' designated critical habitat.

Southern Sea Otter (*Enhydra lutris nereis*). The Southern sea otter, listed as threatened, ranges from Half Moon Bay to Santa Barbara. The 2019 census of Southern sea otters, which combined counts from the mainland range and San Nicolas Island was 2,962, a decline of 166 individuals from the 2018 survey (Hatfield *et al* 2019). The 2019 census survey found that the population of sea otters was largest in the central part of the species' range, just north of San Luis Obispo Bay between Seaside and Cayucos. Sea otters inhabit the intertidal and shallow subtidal areas, generally within one-half mile of shore. Sea otters prefer hard-bottom, kelp bed communities and rarely occur in sandy bottom areas.

Kelp near the breakwater is minimal, and data from the 2016 annual California sea otter census performed by U.S. Geological Survey (USGS) showed low densities of sea otter (See Figure 8) in the vicinity of the breakwater, with a 3-year average number of sea otters counted per square km equaling between 1 and 3 (Tinker 2016). Larger kelp beds occur near the Harford pier, Cal Poly pier, Fossil Point/Smugglers Cave, and Sunset Palisades, where otter densities are over 2 to 3. Based on historic data, only a few non-breeding males (10-20) were known to occur in the immediate vicinity of PSL; however a small group of breeding females had been observed south of Morro Bay between Pt. Buchan and PSL (Estes and Jameson 1983).

The federally threatened Southern sea otter has the potential to infrequently occur within the project area. Infrequent occurrences, more transient in nature have been observed of solitary individuals within the vicinity of the project area. One mile east of the project area within San Luis Obispo Bay, in the kelp beds a raft(s) of Southern sea otters were consistently observed during marine mammal surveys conducted in 2018 and monthly throughout 2019.

California Least Tern (*Sterna antillarum browni*). The California least tern, listed as endangered, migrates into coastal south-central California to breed, from Mexico and Central and South America. Breeding usually occurs between mid-April and mid-August, with post-breeding groups still present into September (United States Fish and Wildlife Service 1980). Least terns are known to forage in shallow waters of bays, lagoons, estuaries, tidal marshes, river mouths, ponds, and lakes. A significant amount of foraging also occurs offshore in deep-water habitats (Keane and Smith 2016). Least tern forage in fresh and saltwater on small prey fish such as anchovy and smelt. Birds typically nest in small colonies and place nests in the open expanse of lightly colored sand, dirt or dried mud next to lagoons, estuaries or on open sandy beaches. Nests generally consist of a small, subtle depression or scrape in the soil or sand lined with pebbles or seashell fragments.

The California least tern may use the project area for foraging as birds are known to nest at the Oceano Dunes State Vehicular Recreation Area (SVRA), approximately 7.5 miles from the project area (Frost 2015). However, previous studies have indicated that most foraging occurs within four miles of a nest site (Keane and Smith 2016). PSL is not a recognized nesting area, and is not considered a critical foraging area due to its distance from the nearest nesting colony.

Black Abalone (*Haliotis cracherodii*). The black abalone, listed as endangered, is a prosobranch gastropod mollusk that ranges from Point Arena in northern California to southern Baja California, Mexico, including offshore islands. A black abalone is identifiable and distinguishable from other abalone species by the smooth dark shell and five to nine round, flat shell holes. Maximum size is about 200 millimeters (mm) and maximum life span is thought to be about 20 to 30 years. Black abalone populate suitable rocky substrate from the high intertidal zone to the subtidal zone, approximately six meters (m) deep, but are more commonly found in the mid to low intertidal. They typically occur in habitats with complex surfaces and deep crevices that provide shelter for juveniles and adults. Suitable habitat is in part characterized by bare rock and crustose coralline algae. Juvenile black abalone graze on crustose coralline algae and micro flora, while adult abalone feed on drift algae. Furthermore, crustose coralline plays a role in prompting settlement and metamorphosis of abalone larvae by the release of chemical cues (Miner et al. 2006). Black abalone populations have declined dramatically since the 1970s from overfishing and a bacterial disease known as withering syndrome, significant declines in abundance and have led to local extinction in most locations south of Point Conception, CA.

PSL Harbor is located within the federally endangered black abalone's historic habitat range. Designated critical habitat (Specific Area 10) for black abalone encompasses PSL Harbor and the project area. The LAD conducted two focused surveys of the proposed PSL breakwater repair area in June/July 2018 and January/February 2019 in accordance with the NMFS's black abalone habitat assessment/survey requirements. While no black abalone were discovered within the proposed breakwater repair area, black abalone have been observed within the vicinity of PSL Harbor. During the 2018 and 2019 focused black abalone surveys it was noted the structural rock formations within the PSL breakwater area provide a possibility for suitable habitat to support juvenile and adult black abalone.

4.2.2 Environmental Consequences

Significance Criteria

An impact to Marine Resources will be considered significant if the alternative would:

- Degrade habitat for, or reduce, the population size of a federally threatened, endangered, or candidate species such that the local population size or capacity is permanently reduced, or its designated critical habitat is permanently adversely modified;
- Cause a permanent net loss in value of a sensitive biological habitat including a marine mammal haul out site or breeding area, seabird rookery, or Area of Special Biological Significance (ASBS);
- Impede the movement or migration of fish;
- Cause a substantial loss in the population or habitat of any native fish, wildlife, or vegetation (a substantial loss is defined as any change in a population which is detectable over natural variability for a period of 5 years or longer).

Preferred Alternative

Marine Habitats and Vegetation

Breakwater repair activities may result in direct and indirect impacts to algae attached to existing rock within and immediately adjacent to the repair area. Algae in the repair area may be crushed or smothered due to rock placement activities. Algae in other portions of the breakwater that are not under repair would remain intact, but may experience some loss due to small amounts of turbidity in the immediate vicinity of the work. Because a rocky breakwater of the type proposed for repair is a complex structure, with extensive interstitial spaces created by the placement of boulders, there would be a net increase in available rocky surface area for marine biota after construction. Upon project completion, the breakwater repairs would provide new productive rocky subtidal and intertidal habitats for marine algae to recolonize.

Because the excavation material has been deemed suitable for nearshore placement, oxygen depletion, eutrophication, and resuspension of contaminants would not be likely to result in significant adverse biological impacts. Shoal excavation and sediment placement activities may result in direct and/or indirect impacts to marine algae. Water column effects would be largely limited to turbidity impacts. Turbidity can impact plankton populations by lowering the light available for phytoplankton photosynthesis and by clogging the filter feeding mechanisms of zooplankton. Turbidity would be expected to be limited to a smaller footprint and shorter temporal duration due to the sandy characterization of the sediments and would be mostly confined to the immediate excavation and placement areas. Because turbidity effects would be localized and short-term, with respect to ambient conditions, and the marine plankton are transitory in nature, impacts on phytoplankton and zooplankton would not be significant. Environmental effects from turbidity and sediment fallout would primarily impact intertidal and subtidal macroalgae within the immediate area. Prolonged light limitation negatively effects photosynthesis, growth, and recruitment of algal species. Any benthic flora within the immediate project area would be eliminated by the excavation activities because of site excavation and

substrate removal. Given the depths of the placement site, minimal vegetation is expected to occur with the placement site footprint. Marine algae attached to the breakwater stones within the immediate area of the excavation site may experience indirect impacts due to turbidity. The excavation and placement activities' impacts are expected to be temporary and should not affect the overall growth and recruitment of algae. Marine algae would be expected to begin to recolonize the affected areas once construction is complete. Impacts to marine algae within the project area are considered adverse but not significant.

Sediments from the sandy bottom habitats in the lee of the breakwater would be excavated (within an approximately 1.8 acre area) and placed at the designated placement site to provide sufficient draft for repair equipment operating alongside the breakwater. Sediments were characterized as sand and are expected to settle quickly and locally.

Based on the frequency distribution analyses of CDFW data and observations from 2018-2020 canopy kelp surveys, canopy kelp is not believed to be a significant habitat resource within the project area or impacted by the Proposed Action. Pursuant to the environmental commitments, pre-construction and post-construction canopy kelp surveys will be performed.

For impacts to HAPC components, surfgrass and eelgrass, see section on Essential Fish Habitat.

As described in Section 4.1.2, impacts to water quality during breakwater repair, excavation and placement activities would be minimal, and environmental commitments will be implemented to further minimize or avoid the temporary impacts that could occur due to turbidity and presence of equipment. These measures would also minimize impacts to marine habitats and resources. Therefore, the proposed project will result in temporary adverse, but not significant impacts to marine habitats and vegetation.

Invertebrates

Breakwater repair activities would result in direct impacts to invertebrates especially sessile invertebrates occupying the repair area. Some invertebrates may suffer direct impacts of injury or mortality during rock movement and placement. Invertebrates on other portions of the breakwater that are not under repair would remain intact but may experience some loss due to turbidity in the immediate vicinity of the work. Localized alterations in life cycles from shading effects due to the presence of the barge may occur. Other portions of the breakwater that are not under repair would be available to motile invertebrates for the duration of the project. Upon project completion, the breakwater repairs would provide new rocky subtidal and intertidal habitats for invertebrates. Invertebrates are expected to recolonize the repair area once construction is complete, making the impact temporary in nature.

Shoal excavation and sediment placement activities in the lee of the breakwater would temporarily cause disturbance and redistribution of bottom sediments to the excavation template and placement site resulting in direct impacts to invertebrates. Temporary increases in turbidity and suspended solids may occur during excavation and placement activities which could decrease the amount of dissolved oxygen within the immediate area. Organisms may be exposed to suspended sediment concentrations during excavation activities and up to several hours later

for a distance generally 100 to 300 feet. Benthic organisms are more susceptible to turbidity. Mechanical or abrasive action of suspended silt and detritus can negatively impact filter-feeding organisms by clogging their gills and impairing proper respiratory and excretory functioning and feeding activity, resulting in smothering to invertebrates in the immediate vicinity. Some invertebrates inhabiting the sandy ocean bottom may relocate if they are mobile, be relocated with the sediments, be smothered or crushed, become food for opportunistic birds, or survive at a new location. Invertebrates are expected to recolonize the excavated and placement area after construction is complete. Effects of a clamshell dredge project in San Diego Bay on epibenthic invertebrate, and benthic infaunal invertebrate communities have previously been studied. Data were analyzed with regards to biomass, density, species richness, community similarity, and infaunal community indices. Results indicated that benthic infauna recovered within 5 months relative to density and biomass, but examination of community indices indicated that full recovery of community structure may have taken 17 to 24 months. Epibenthic invertebrates recovered within 29 to 35 months in terms of density and biomass. However, the epibenthic invertebrate community composition was still changing or had achieved an alternate stable state near the end of the study (Merkel & Associates 2010). This area of PSL Harbor does not experience a rapid influx of sand and would not expect to require excavation for several years, thus allowing the area to recolonize and recover. Therefore, the proposed project will result in temporary adverse, but not significant impacts to invertebrates.

For impacts to the black abalone, see section on Threatened and Endangered Species.

Fish and Essential Fish Habitat Assessment

The Corps has determined that the Proposed Action may result in a substantial adverse impact to EFH, but would not result in a substantial adverse impact to any species managed under the four Fishery Management Plans identified for this region of the Pacific. Expanded Essential Fish Habitat Consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) will be initiated with the NMFS, the agency responsible for managing EFH. The following is a discussion of potential effects to EFH:

Breakwater repair, shoal excavation and sediment placement activities would directly and indirectly impact fish species and resources. Breakwater repair activities would create increased noise and disturbance in the immediate vicinity of the repair area. Shoal excavation and placement activities would create increased noise, disturbance and turbidity within the project area and immediate vicinity. In addition, construction activities could result in temporary loss of habitat, foraging habitat, and prey items (invertebrate, plankton, marine plant, and algal) due to direct removal, smothering, burial, crushing of organisms, entrainment, temporary turbidity plumes and suspension of sediments, and/or temporary changes to dissolved oxygen levels. Increased turbidity may also indirectly impact fish resources. Upon project completion, the breakwater repairs would provide new rocky subtidal and intertidal habitats for marine invertebrates, algae, surfgrass, and fish; all are expected to recolonize the repair area once construction is complete, making the impact temporary in nature.

Local fishes would likely avoid disturbance areas, thus lethal effects of suspended sediment on

fishes are not anticipated to be great. Fish may be exposed to suspended sediment concentrations during excavation and sediment placement activities and up to several hours later for a distance generally 100 to 300 ft. Dredging operations may cause clogging to gills, resulting in smothering to fish in the immediate vicinity. In addition, direct removal and/or burial of individuals, or entrainment of individuals could result in injury or mortality. As presented above, the project area supports soft bottom habitat and Pacific eelgrass habitat. Approximately 1.8 acres of sandy soft bottom habitat and Pacific eelgrass habitat in the lee of the breakwater would be impacted during excavation. Excavated sediments would be placed approximately 1,000 ft north of the breakwater and utilized to create an engineered eelgrass mitigation site. As construction occurs, it is expected that demersal and pelagic fishes would temporarily relocate to avoid potential water quality impacts (i.e., turbidity plumes). Recolonization of fishes may occur quickly in the excavated area by local fishes temporarily displaced due to construction activities. Effects of a clamshell dredge project in San Diego Bay on demersal fish communities has previously been studied. Data was analyzed with regards to biomass, density, species richness, community similarity, and infaunal community indices. Results indicated that the demersal fish community took between 14 and 22 months to fully recover (Merkel & Associates 2010). Although, the demersal fish community may not experience significant direct mortality due to excavation there is likely a dependent correlation between the recovery of the benthic infauna and epibenthic invertebrate community recovery rates and that of the fish communities. The benthic infauna and epibenthic invertebrate communities are prey items for foraging fish and provide other ecosystem services. It is important to note that the above mentioned study was in reference to the recovery of strictly a sandy bottom benthic habitat, while the excavation template in the lee of the PSL breakwater is a combination of sandy bottom benthic habitat and Pacific eelgrass habitat so recovery rates of the demersal fish community within the proposed project area may differ. It is expected that most fish would avoid the immediate repair and excavation area due to the increased turbidity, noise levels, and oxygen depletion.

For the Pacific region, EFH has been identified for a total of over 119 species covered by four FMPs under the auspices of the Pacific Fishery Management Council; Coastal Pelagic Species FMP, Pacific Coast Groundfish FMP, Pacific Coast Salmon FMP, and Highly Migratory Species FMP. Species managed under all four of the FMPs have the potential to occur within PSL Harbor. Several of the species managed under the Pacific Coast Groundfish FMP and Coastal Pelagic Species FMP are known to occur commonly within PSL Harbor, (e.g., Northern anchovy, Pacific sardine, Pacific mackerel, jack mackerel, Dover sole, Pacific sanddab, rockfish species, California scorpionfish, and English sole). In addition, many species identified as Ecosystem Component Species under the Pacific Groundfish Management Plan are present in the PSL Harbor (e.g., skate species, silversides, and smelts). Furthermore, many other native marine fish in the project area undoubtedly serve as prey for many of the managed species.

While California grunion are known to spawn on beaches in Avila Beach, grunion spawning activities are not expected to be impacted as no sandy beaches are present within the project area.

Within PSL Harbor three Habitat Areas of Particular Concern (HAPC) components are present: eelgrass, surfgrass, and canopy kelp. The Proposed Action will not have an impact to canopy kelp. The estimated direct impact to Pacific eelgrass (*Zostera pacifica*) due to shoal excavation is 1.8 acres. The estimated worst case potential direct and indirect impacts to Pacific eelgrass due

to shoal excavation and breakwater repair construction activities within the entire work area is 4.39 acres. The estimated impact to surfgrass due to breakwater repair activities within the entire project area ranges from no impact (0 m^2) to 31 m^2. The LAD has a fully developed eelgrass and surfgrass mitigation plan that has been coordinated with the NMFS. The plan includes minimization measures to reduce eelgrass and surfgrass impacts and to mitigate the anticipated impacts to eelgrass in accordance with the CEMP at a 1.2:1 mitigation ratio. Pacific eelgrass is a woody, more robust, slower growing species than the common eelgrass, *Zostera marina,* found in harbors and marinas along the California coast. Due to the slower growth rates of Pacific eelgrass it is anticipated in combination with the mitigation efforts the ecosystem functions of the impacted Pacific eelgrass habitat would recover in five years (Keith Merkel, personal communication, March 25, 2021). Restoration of the Pacific eelgrass in anticipated to commence in the optimal time for transplantation of the 2021 growing season, one year ahead of construction, to reduce temporal effects and support an adaptive management restoration plan. For a complete analysis of impacts to seagrass species present within the project area, minimization measures, and detailed plan for mitigation see Appendix B, Eelgrass Mitigation and Monitoring Plan in Support of the Port San Luis Breakwater Repairs (Merkel & Associates Jan 2021).

The repair is expected to be beneficial in the long term by maintaining the harbor conditions that support a high density and diversity of marine life. The repair would place additional rock on the breakwater, which would increase rocky subtidal and intertidal habitat spaces to support fish habitat and prey item's habitat for fish species. In addition, the breakwater structure creates favorable conditions for the Pacific eelgrass bed in the lee of the PSL breakwater.

With the minimization measures outlined in the eelgrass mitigation plan and implementation of the mitigation and monitoring plan (see Appendix B) impacts to fish and EFH would be substantially adverse, but temporary and mitigable.

Avian Species

Breakwater repair activities may temporarily degrade water quality and increase ambient noise levels, which could cause disturbance to local and migratory birds. These disturbances may directly and/or indirectly impact avian resting, foraging, nesting, nest incubation, and rearing of chicks. Increased levels of construction activity in the repair area may decrease use of the breakwater by birds for roosting. Disturbance to avian species caused by the breakwater repair is expected to be short-term and minimal. Wildlife is expected to acclimate to the monotonous construction noises, and birds are expected to avoid perching on the breakwater within and adjacent to the construction site during operations. Approximately 75-100 feet linear feet of the breakwater would be repaired per week, therefore other portions of the breakwater not under repair would remain available for use by roosting birds. Work would be short term and localized on the breakwater, and birds are expected to vacate the immediate work area and find alternate foraging and roosting locations during construction activities.

The area to be excavated and sediment placement site is a small portion of the local habitat (less than 1% of San Luis Obispo Bay), thus the loss of foraging resources for avian populations is judged adverse, but not significant. Turbidity can also impact visually foraging piscivorous

seabirds by making it difficult for them to see their prey. Thus, it is likely that visual feeders may avoid foraging near the immediate vicinity of the excavation and placement activities. As it is likely that forage fish would avoid direct disturbance areas, these species would be available for capture elsewhere. Birds would be expected to return after excavation and placement activities cease. A reduction in overall prey availability would be experienced in the excavation and placement area until recolonization and recovery of the community has occurred. The proposed project action would not cause a substantial loss in the population or habitat of avian species.

The small footprint of the project area accounts for only a small fraction (less than 1%) of the available foraging and roosting areas available to avian species within San Luis Obispo Bay. In addition, the proposed project would not result in a net loss in value of a seabird rookery. Adverse impacts to nesting, foraging and roosting birds would be minimal, temporary and confined to active work limits and immediately adjacent areas, and impacts would be considered less than significant.

For impacts to the California least tern, see section on Threatened and Endangered Species.

Marine Mammals

The LAD has requested an incidental take authorization under section 101(a)(5) of the Marine Mammal Protection Act of 1972, as amended, for the take of marine mammals incidental to conducting repairs of the PSL breakwater. Because LAD's activities have the potential to cause Level B Take of marine mammals, the LAD has requested an Incidental Harassment Authorization from the National Oceanic and Atmospheric Administration (NOAA) Fisheries Office of Protected Resources. Three pinniped species may be present in the affected area during breakwater repair construction. Two species of pinnipeds were observed utilizing the PSL breakwater as a consistent haul-out site when weather permitted, the California sea lion and Steller sea lion. While harbor seals were not observed hauled out on the PSL breakwater, they were observed within the vicinity of the breakwater and have the potential to transit the waters near or within the project area. For a complete analysis of impacts to the marine mammal species present within the project area see Appendix for the submitted Incidental Harassment Authorization (IHA) Application for Operations and Maintenance (O&M) Port San Luis Harbor Breakwater Repairs (February 2021).

For impacts to the Southern sea otter (*Enhydra lutris nereis*), see section on Threatened and Endangered Species.

Threatened and Endangered (T&E) Species

Southern Sea Otter (*Enhydra lutris nereis*). The federally threatened Southern sea otter is known to use the kelp beds located both inside and outside the harbor. Use in the vicinity of the open water and rock structure of the breakwater by sea otters is low. Kelp near the breakwater is minimal, and data from the 2016 annual California sea otter census performed by USGS showed low densities of sea otter in the vicinity of the breakwater.

The Southern sea otter has the potential to infrequently occur within the project area. Infrequent occurrences, more transient in nature have been observed of solitary individuals within the vicinity of the project area. The project area was not observed to be commonly or frequently utilized as a foraging area by Southern sea otters, although it is possible that individuals may infrequently forage in the project area. The proposed action is not expected to have a consequential impact to foraging or feeding of Southern sea otters because the small footprint of the project area accounts for only a small fraction (less than 1%) of the available foraging area within San Luis Obispo Bay and this area has not been identified or observed as an area Southern sea otters are commonly or frequently present in. One mile east of the project area within Port San Luis Harbor, in the kelp beds a raft(s) of Southern sea otters were consistently observed during marine mammal surveys conducted in 2018 (Merkel & Associates) and monthly throughout 2019 (Corps Biologist).

Per the environmental commitments identified in Section 5:

- An on-site qualified marine mammal monitor would be on-site at all times during construction activities.
- A 50-meter safety zone for Southern sea otters would be established for this project. Should a sea otter come within 50 meters of the construction activities, operations would be halted until the sea otter leaves the designated safety zone.

It is expected that with the presence of active construction equipment and the associated noise, otters would avoid the immediate work area. With the implementation of avoidance and minimization measures, the Corps has determined the proposed project "may affect, not likely to adversely affect" the Southern sea otter. Informal consultation pursuant to Section 7 of the Endangered Species Act will be initiated with the USFWS, the agency responsible for managing Southern sea otters.

California Least Tern (*Sterna antillarum browni*). The California least tern may use the project area for foraging as birds are known to nest at the Oceano Dunes State Vehicular Recreation Area (SVRA), approximately 7.5 miles from the project area (Frost 2015). However, previous studies have indicated that most foraging occurs within four miles of a nest site (Keane and Smith 2016). PSL is not a recognized nesting area and is not considered a critical foraging area due to its distance from the nearest nesting colony.

Based on the small impact area (less than 1% of available foraging habitat within San Luis Obispo Bay) around the active construction site during breakwater repair construction activities, the water quality monitoring (including turbidity monitoring) that would occur, and the distance between the breakwater site and nearest nesting colony, least tern foraging is not expected to be impacted by the Proposed Action. The LAD has determined the Proposed Action would have "no effect" on California least tern.

Black Abalone (*Haliotis cracherodii*). No black abalone were present in the proposed repair area during the 2018 and 2019 focused black abalone surveys, but if undetected individuals are present, direct and/or indirect impacts to the species could occur. Indirect impacts due to the Proposed Action could be a temporary reduction in foraging resources (algal species and drift kelp) primarily due to direct removal of drift kelp and algae attached to the breakwater stones

within the repair areas during breakwater repair activities, or a loss of algal species within the immediate area of the excavation template due to increased turbidity. Direct impacts due to the breakwater repair activities could be injury or mortality due to resetting and placement of new stones within the repair area should an individual be present in the area. Impacts to designated critical habitat for black abalone would be temporary, as it is anticipated the repair areas would begin to recolonize once construction is complete. Furthermore, the repairs to the breakwater would result in more complex interstitial spaces and crevices in the intertidal and subtidal zones providing potential suitable habitat for black abalone.

Due to the documented observations of black abalone within the San Luis Obispo County region, and the habitat assessment's conclusion that the PSL breakwater provides suitable habitat to support juvenile and adult black abalone., the LAD has determined there is potential for black abalone to occur within the project area. The LAD will implement the following avoidance and minimization measures;

- An additional black abalone survey would be conducted when adequate low tides and safe sea state conditions allow during 2021 or 2022 prior to breakwater repair construction commencing to confirm no black abalone are present.
- A qualified black abalone biologist would be on-site during construction to periodically survey the breakwater structure as new sections are repaired and core interstitial spaces are exposed to ensure no black abalone are present or are in harm's way. Approximately, one 75 – 100 ft section of breakwater would be repaired per week.
- Should black abalone be observed within the PSL breakwater repair area, work will cease in that immediate area and Section 7 consultation would be immediately initiated with the NMFS.

With the implementation of the avoidance and minimization measures, the Corps has determined the proposed project "may affect not likely adversely affect" the black abalone or its designated critical habitat. Informal consultation pursuant to Section 7 of the Endangered Species Act will be initiated with the NMFS, the agency responsible for managing black abalone.

As documented in the above analysis, the Proposed Action would not degrade habitat for, or reduce, the population size of a federally threatened, endangered, or candidate species such that the local population size or capacity is permanently reduced, or its designated critical habitat is permanently adversely modified; cause a permanent net loss in value of a sensitive biological habitat including a marine mammal haul out site or breeding area, seabird rookery, or Area of Special Biological Significance (ASBS); impede the movement or migration of fish; or cause a substantial loss in the population or habitat of any native fish, wildlife, or vegetation (a substantial loss is defined as any change in a population which is detectable over natural variability for a period of 5 years or longer). Therefore, effects to Biological Resources would be less than significant.

No Action Alternative

The "no action" alternative would have no immediate effect on marine resources. However, continued structural degradation and rising sea levels would impact harbor operations as the function of the breakwater is compromised, resulting in the need for emergency repairs. This

emergency work may require more extensive construction and may take longer to complete, thereby extending the duration of construction and area of impact in the future.

4.3 AIR QUALITY AND GREENHOUSE GASES (GHG)

4.3.1 Affected Environment

Air Quality

The project area is located within the South Central Coast Air Basin (SCCAB) under the jurisdiction of the San Luis Obispo County Air Pollution Control District (SLOCAPCD) in the western portion of San Luis Obispo County in Port San Luis Harbor. The SLOCAPCD is a local government agency that works to project the people and the environment of San Luis Obispo County from harmful effects of air pollutants (SLOCAPCD, 2020a). The SLOCAPCD jurisdiction covers the entire county including the incorporated cities of Paso Robles, Atascadero, Morro Bay, San Luis Obispo, Pismo Beach, Arroyo Grande and Grover Beach. The project area is in western San Luis Obispo County.

Rocks would be procured from one of two quarries. One quarry (Pebbly Beach) at Santa Catalina Island (Catalina Island) is located within the Los Angeles County portion of the South Coast Air Basin (SCAB) under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Rocks from this island (sea based) quarry would be transported (delivered/delivery) on the sea (Pacific Ocean) with barges by tug boats to the project site, covering two, different air basins (SCAB; SCCAB) and four, separate air districts [SCAQMD; Ventura County Air Pollution Control District (VCAPCD); Santa Barbara County Air Pollution Control District (SBCAPCD), and; San Luis Obispo County Air Pollution Control District (SLOCAPCD)]. Within the SCCAB, Ventura County emissions are under the jurisdiction of the VCACPD; Santa Barbara County emissions are under the jurisdiction of the SBCAPCD; and, San Luis Obispo County emissions are under the jurisdiction of the SLOCAPCD. The SLOCAPCD Threshold of Significance For Construction Operations Table is in Appendix C, Air Criteria Pollutants Emissions and GHG Emissions Analysis.

While it is less likely that a land-based quarry for stone would be utilized for O&M breakwater repair, this is a possibility. Previous Corps Los Angeles District (Corps) marine rock work projects have utilized stone sourced from an inland quarry, most recently stone was sourced from an inland quarry in Apple Valley/Victorville, San Bernardino County. At this time, it cannot be determined what specific inland quarry or port a contractor may utilize for the Port San Luis Breakwater Repair Project (should a different quarry be utilized additional analyses may be required). For the purposes of this analysis for this EA it has assumed the following in-land quarry and port would be utilized based on the geographic proximity to Port San Luis Harbor. Stone would be sourced from the Apple Valley/Victorville in-land quarry and delivered using large flatbed trailers or dump trucks on roadways, highways, and freeways to Port Hueneme, Ventura County, where the stone would be off-loaded directly onto a marine barge or offloaded into a designated land-based staging/storage area for transfer at a later time to a marine barge. The stone would then be delivered by sea vessels barge(s) and tug(s) from the Port of Hueneme going north along the California coast to the Port San Luis Harbor in San Luis Obispo County.

Should land-based staging/storage construction equipment areas (contractor laydown areas) be required at Port Hueneme they would be designated on land that has been developed (i.e., paved), and/or already designated for such purposes. Rocks delivered (a combination of trucks on roadways and sea vessel barge(s) and tug boat(s) on the sea) from the Apple Valley/Victorville inland quarry would cover three, different air basins (MDAB; SCAB; SCCAB) and three, separate air districts (MDAQMD; SCAQMD; VCAPCD). Rocks from San Bernardino County inland quarry likely would be delivered on roadways using trucks from the San Bernardino County's High Desert portion of the MDAB under the jurisdiction of the MDAQMD through the Los Angeles County portion of the SCAB under the jurisdiction of the SCAQMD to the Port of Hueneme (Ventura County), which is in the SCCAB under the jurisdiction of the Ventura County Air Pollution Control District (VCAPCD). Then the rock would be loaded on to sea vessel(s) rock barge(s) and tug boat(s) and delivered from the Port of Hueneme (Ventura County), in the SCCAB under the jurisdiction of the VCAPCD, passing through along the coast of Santa Barbara County, which is in the SCCAB under the jurisdiction of the SBCAPCD, and passing through along the coast of San Luis Obispo County, which is in the SCCAB under the jurisdiction of the SLOCAPCD, to the project site in Port San Luis Harbor (San Luis Obispo County).

National Ambient Air Quality Standards

The Clean Air Act (CAA) identified and established the National Ambient Air Quality Standards (NAAQS) for a number of air criteria pollutants in order to protect the public health and welfare. The air criteria pollutants include ozone (O3), carbon monoxide (CO), suspended particulate matter (PM), sulfur dioxide (SO2), nitrogen dioxide (NO2), and lead (Pb). PM emissions are regulated in two size classes: Particulates up to 10 microns in diameter (PM10) and particulates up to 2.5 microns in diameter (PM2.5).

A region is given the status of "attainment" or "unclassified" if the NAAQS have not been exceeded. A status of "nonattainment" for particular criteria pollutants is assigned if the NAAQS have been exceeded. Once designated as nonattainment, attainment status may be achieved after three years of data showing non-exceedance of the standard. When an area is reclassified from nonattainment to attainment, it is designated as a "maintenance area," indicating the requirement to establish and enforce a plan to maintain attainment of the standard.

General Conformity Rule. A conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action would equal or exceed any of the rates specified in 40 CFR 93.153(b)(1). Total of direct and indirect emissions means the sum of direct and indirect emissions increases and decreases caused by the Federal action; i.e., the "net" emissions considering all direct and indirect emissions. The portion of emissions which are exempt or presumed to conform under § 93.153 (c), (d), (e), or (f) are not included in the "total of direct and indirect emissions." The "total of direct and indirect emissions" includes emissions of criteria pollutants and emissions of precursors of criteria pollutants. The air criteria pollutants are typically quantified in Tons per Year (Tons/Year).

Direct emissions include construction emissions. Indirect emissions means those emissions of a criteria pollutant or its precursors:
1. That are caused or initiated by the Federal action and originate in the same nonattainment or maintenance area but occur at a different time or place as the action;
2. That are reasonably foreseeable;
3. That the agency can practically control; and
4. For which the agency has continuing program responsibility.
All emissions associated with the Proposed Action are direct emissions.

Attainment Designations. For the western portion of San Luis Obispo County, the SCCAB is in attainment for the federal 8-hour ozone (O3) but the eastern portion of San Luis Obispo County is in non-attainment for the federal O3 and is in marginal attainment. The SCCAB for San Luis Obispo County is in attainment for the remaining pollutants regulated under the NAAQS. For San Luis Obispo County, a federal action would conform to the State Implementation Plan (SIP) if its annual emissions remain below 100 tons of volatile organic compound (VOC), 100 tons of oxides of nitrogen (NOx), 100 tons of PM10 , 100 tons of PM2.5, 100 tons of CO, 100 tons of NO2, 100 tons of SO2, and 25 tons of Pb. The NAAQS attainment designation for MDAB (in the San Bernardino County High Desert emissions are governed by the MDAQMD), for SCAB (the portion in Los Angeles County emissions are governed by the SCAQMD), and the SCCAB (in Ventura County emissions are governed by the VCAPCD; in Santa Barbara County emissions are governed by the SBCAPCD; in San Luis Obispo County emissions are governed by the SLOCAPCD) are summarized in Table 4.3-1. The General Conformity Applicability Rates for the MDAB (the San Bernardino County High Desert emissions are governed by the MDAQMD), for the SCAB (the portion in Los Angeles County emissions are governed by the SCAQMD), for the SCCAB (in Ventura County emissions are governed by the VCAPCD; in Santa Barbara County emissions are governed by the SBCAPCD, and; in San Luis Obispo County emissions are governed by the SLOCAPCD) are summarized in Table 4.3-2.

Table 4.3.1 NAAQS Attainment Designation

Air Basin	MDAB [1]	SCAB [2]	SCCAB [3]	SCCAB [4]	SCCAB [5]
Air District	MDAQMD [1]	SCAQMD [2]	VCAPCD [3]	SBCAPCD [4]	SLOCAPCD [5]
Pollutant					
O_3 [7]	Non-attainment (Severe [6])	Non-Attainment (Extreme [6])	Non-Attainment (Serious [6])	Attainment	Attainment (Western San Luis Obispo County); Non-Attainment [(Eastern San Luis Obispo County) - Marginal [6])]

CO	Attainment	Maintenance	Attainment	Attainment	Attainment
NO_2	Attainment	Maintenance	Attainment	Attainment	Attainment
PM 10	Non-Attainment (Moderate[6])	Maintenance	Attainment	Attainment	Attainment
PM 2.5	Attainment	Non-attainment (Serious [6])	Attainment	Attainment	Attainment
SO_2	Attainment	Attainment	Attainment	Attainment	Attainment
Lead (Pb)	Attainment	Non-attainment (Serious [6])	Attainment	Attainment	Attainment

Source: [1] https://www.mdaqmd.ca.gov/home/showpublisheddocument?id=1267, Accessed January 28, 2021

[2] https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf?sfvrsn=2 , accessed January 28, 2021, February 2-3, 2021

[3] http://www.vcapcd.org/air_quality_standards.htm , Accessed January 28, 2021

[4] https://www.ourair.org/air-quality-standards/#data-table, Accessed January 28, 2021

[5] https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/AttainmentStatus29January2019.pdf (Non-Attainment-Marginal, Eastern San Luis Obispo County; Attainment, Western CO. Accessed January 28, 2021

[6] https://www3.epa.gov/airquality/greenbook/ancl2.html; https://www3.epa.gov/airquality/greenbook/ancl3.html, accessed January 28, 2021, February 2-3, 2021

[7] Ozone O3 [precursors: Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOx)]. Reactive Organic Gases (ROG) is interchangeable with VOC. Note: NAAQS Ozone (O3) is for 8-hour. There is no NAAQS 1-hour for Ozone (O3)

Table 4.3.2 General Conformity Applicability Rates (Tons/Year) [1]

Air Basin	MDAB	SCAB	SCCAB	SCCAB	SCCAB
Air District	MDAQMD	SCAQMD	VCAPCD	SBCAPCD	SLOCAPCD
Pollutant					
Ozone (O3) [3]	25	10	50	N/A[4]	100 [2]
Volatile Organic Compound (VOC),O3 precursor [3]	25	10	50	N/A[4]	100
Nitrogen Oxide (NOx),	25	10	50	N/A[4]	100

O3 precursor [3]					
Carbon Monoxide (CO)	N/A[4]	100	N/A[4]	N/A[4]	N/A[4]
Nitrogen Dioxide (NO2)	N/A[4]	100	N/A[4]	N/A[4]	N/A[4]
Particulate Matter (PM10)	100	100	N/A[4]	N/A[4]	N/A[4]
Particulate Matter (PM2.5)	N/A[4]	70	N/A[4]	N/A[4]	N/A[4]
Sulfur Dioxide (SO2)	N/A[4]	N/A[4]	N/A[4]	N/A[4]	N/A[4]
Lead (Pb)	N/A[4]	25	N/A[4]	N/A[4]	N/A[4]

Source: [1] 40 CFR 93.153(b)(1) and 40 CFR 93.153(b)(2); https://www.epa.gov/general-conformity/de-minimis-tables , accessed February 2 - 3, 2021

[2] Port San Luis Harbor is located in Western portion of San Luis Obispo County that is in attainment for Ozone (O3). The Eastern of San Luis Obispo County is in non-attainment (marginal) for O3.

[3] Ozone O3 [precursors: Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOx)]. Reactive Organic Gases (ROG) is interchangeable with VOC. The relation between O3, NOx and VOC is driven by complex nonlinear photochemistry. Furthermore, the chemical reaction leading to the formation of O3 is reversible. Moreover, CARB on-road and off-road do not provide estimates for the compound. Additionally, due to the variability in rates of ozone formation, EMFAC2007 does not provide estimates for ozone. Instead, the emission associated with ozone precursors (VOCs and NOx) are calculated and used as a surrogate for reporting O3 emissions per the General Conformity Applicability Rates. Since the consumption of VOC in O3 formation reaction is variable and reversible, actual O3 levels are lower than those estimated.

[4] N/A (not applicable). Rates do not apply if the basin is in attainment.

Greenhouse Gases (GHG)

Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). GHGs are emitted by natural processes and human activities. Examples of GHGs that are produced both by natural processes and industry include carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). Currently, there are no Federal standards for GHG emission, and no Federal regulations have been set at this time. GHG emissions are typically quantified in units of Metric Tons per year CO2 equivalent (MT/Year CO2eq). GHG emissions (MT/Year CO2eq) have been estimated using the Proposed Action (Tons/Year) emissions and inputting the Proposed Action emissions into the USEPA Greenhouse Gas Equivalencies Calculator (USEPA, 2020b).

Emission Estimates Methodology. Emissions were estimated using the California Air Resources Boards (CARB) on-road and off-road emission factors. With the exception of lead (Pb), estimate of emissions for all criteria pollutants were calculated. Estimates of lead emissions were not calculated. Lead emissions from mobile sources in California have significantly decreased due to the near elimination of lead in fuels. Thus, EMFAC2007 does not provide estimated emissions for lead. Furthermore, CARB on-road and off-road emission factors do not provide emission factors for lead. Little to no quantifiable and foreseeable lead emissions would be generated by any of the alternatives.

Ozone (O3) formation is driven by two major classes of directly emitted precursors: nitrogen oxides (NOx) and VOC. The relation between O3, NOx and VOC is driven by complex nonlinear photochemistry. Furthermore, the chemical reaction leading to the formation of O3 is reversible. Moreover, CARB on-road and off-road do not provide estimates for the compound. Additionally, due to the variability in rates of ozone formation, EMFAC2007 does not provide estimates for ozone. Instead, the emission associated with ozone precursors (VOCs and NOx) are calculated and used as a surrogate for reporting O3 emissions per the General Conformity Applicability Rates. Since the consumption of VOC in O3 formation reaction is variable and reversible, actual O3 levels are lower than those estimated.

4.3.2 Environmental Consequences

Significance Criteria

An impact to Air Quality will be considered significant if the alternative would:

- Exceed the General Conformity applicability rates specified in 40 CFR 93.153.

Preferred Alternative

Onsite emissions associated with the proposed breakwater O&M repair construction activities would come mainly from sea vessels including barge mounted crane, two barges, two tugboats, a crew boat, a scow, a work boat, and a skiff vessel. Proposed excavation around the breakwater would be initiated in the first phase of construction and would require use of a crane-equipped barge, a scow, two small craft support vessels, and two tugboats. Excavation and deposition of shoaled sediment at the eelgrass mitigation site could potentially occur during day and night hours (approximately 11 to 22 working hours a day), 6 days a week, for approximately 3 weeks (approximately 18 days) in total, although not necessarily consecutively. The second phase of construction will consist of the repair work to the breakwater structure. It is estimated that approximately 29,000 tons of existing stone on the breakwater would need to be reset and approximately 60,000 tons of new stone (individual stone size range is anticipated to be from 5 to 20 tons) would be placed to restore the most heavily damaged portion of the breakwater with O&M repairs occurring on the leeward side of the breakwaters. During breakwater repair construction a barge with an attached crane will be outfitted with lifting tongs to reset existing stone and retrieve stones from the storage barge, and then place those stones on damaged sections of the breakwater. A boat operator in a skiff, and spotter on the breakwater, would direct

the operation of the crane in order to pick and place the stones. The picked stone must be able to match the dimensions of the voids along the breakwater. Approximately 30 to 35 stones can be picked and placed per day using this vessel, or roughly three to four stones per hour on average. Repair work will consist of resetting of existing stone and placement of new stone on the breakwater structure. Dropping of armor stone is not permitted, but it should be expected that some stones may be accidentally dropped during placement. Stones would be carefully placed and interlocked with existing stones to maximize stability and minimize the intensity of sound due to stone placement. O&M breakwater repair work construction activities would be limited to day light hours (approximately 11 hours a day), with a 6 day work week. The Proposed Action duration is anticipated to last approximately six to seven months, approximately 174 workdays, generally from April to October. It is anticipated approximately 12 sea crew would be needed for the construction work.

Rock would most likely be delivered by sea vessels barge(s) and tug(s) from Catalina Island in Los Angeles County moving north along the California coast up to Port San Luis Harbor located in San Luis Obispo County. Sea rock delivery equipment would mainly be a rock barge, two tug boats, a crew boat, a crane-equipped barge, a small craft support vessel, a crew boat vessel, a work boat, a survey boat. A floating barge would serves as the stockpile of stone for repair work. The barge is typically towed in from an offsite quarry location (likely Pebbly Beach Quarry on Santa Catalina Island) and is then anchored next to the crane-equipped barge. The rock barge is expected to carry approximately 2,000 to 4,000 tons of stone per trip. Unused/awaiting barges will be stored within a designated area within Port San Luis Harbor. Sea vessels rock delivery duration is approximately 60 works days, with a 6 day work week, approximately 11 hours workday, and approximately 400 miles by sea from Catalina Island to Port San Luis Harbor, or approximately 800 miles round trip.

Alternatively, depending on the Contractor's preference, rock could be transported by trucks on roadways from an inland quarry, most likely one located in Apple Valley/Victorville in San Bernardino County, offloaded at another port location such as Port Hueneme/Port of Hueneme (Ventura County) and then loaded on to sea barge(s) and tug boat(s) to be transported by sea north along the California coast to Port San Luis Harbor (San Luis Obispo County). This delivery method would utilize a combination of haul trucks and sea vessels. Both delivery methods (fully sea-based and a combination of trucks and barges) have been analyzed in this EA. For purpose of analyzing air quality impacts from the truck/barge combination, it is assumed that material would be trucked from Apple Valley to the Port of Hueneme and then barged to Port San Luis.

Use of an inland quarry would require an estimated 26 trucks daily travelling approximately 180 miles one way on roads from Apple Valley/Victorville, San Bernardino County, to Port Hueneme/Port of Hueneme, Ventura County, or approximately 360 miles round trip. For truck-delivered rock use of a landside crane would be used to transfer rocks from the quarry into the trucks and move rock from the trucks onto a barge in Port Hueneme/Port of Hueneme; a crawler loader and a water truck would also used. Hauling of rock on roadways using trucks from the inland quarry to Port Hueneme/Port of Hueneme is anticipated to be accomplished within the approximate 174 workdays Proposed Action duration. It is anticipated approximately 29 laborers would be needed for the inland quarry rock truck haul delivery.

Air criteria pollutants [VOC; PM10; PM2.5; CO, NO2; SO2, NO2, and lead (Pb)] emissions (Tons/Year) and GHG emissions (MT/Year CO2eq) calculations and assumptions for the Proposed Action are provided in Appendix C. Results are provided in Tables 4.3.3a..- d., and 4.3.4a.-f. The Proposed Action estimated construction work air emissions displayed in Tables 4.3.3(d) and 4.3.4(f) include emissions from both the excavation and (plus) the breakwater O&M repair; the Proposed Action construction emissions are identified for San Luis Obispo County as the proposed project area is located in Port San Luis Harbor. The estimated rock delivery air emissions are also provided; sea vessels rock delivery (from Catalina Island in Los Angeles County to Port San Luis Harbor in Port San Luis Obispo County) are provided in Tables 4.3.3a.- d. A combination of truck rock delivery on roadways from an inland quarry located in Apple Valley/Victorville in San Bernardino County High Desert area transported on land to Port Hueneme/Port of Hueneme in Ventura County, and then off loaded onto marine sea vessels rock delivery from Port Hueneme/Port of Hueneme to Port San Luis Harbor in San Luis Obispo County are provided in Tables 4.3.4 a.-f. Estimated Proposed Action annual air emissions would not exceed the Clean Air Act (CAA) General Conformity de minimis applicability rates for criteria pollutants for either delivery method. Impacts would be temporary. No indirect impacts are anticipated. Upon project completion, air quality would return to pre-project conditions. Therefore, impacts would be less than significant.

A GHG analysis of potential GHG emissions and effects of climate change is commensurate with the extent of the effects of the Proposed Action. The Proposed Action GHG analysis focused on significant potential effects and conducted an analysis that is proportionate to the environmental consequences of the Proposed Action. Results are provided in Tables 4.3.3a..- d., and 4.3.4a.-f. It is anticipated there would be no indirect impacts. Upon project completion, GHG would return to pre-project conditions.

Table 4.3.3a SCAB (Los Angeles County portion) Air Criteria Pollutant Emissions (Tons/Year) and GHG Emission (MT/Year CO2eq) Estimates for Rock Delivery by Sea Vessels

Pollutant	**VOC**	**PM10**	**PM 2.5**	**CO**	**NO2**	**SO2**	**Pb**	**GHG**
Construction	No Construction (No Const.)	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.
Rock Delivery by Sea Vessels	0.039	0.036	0.033	0.2459	1.2089	0.087	not calculated	68.471
Total	0.039	0.036	0.033	0.2459	1.2089	0.087	not calculated	68.471
Applicable General Conformity Rates	10	100	70	100	100	N/A	25	No Federal Standard

Note: N/A (not applicable). Rates do not apply if the basin is in attainment.

Table 4.3.3b SCCAB (Ventura County portion) Air Criteria Pollutant Emissions (Tons/Year) and GHG Emission (MT/Year CO2eq) Estimates for Rock Delivery by Sea Vessels

Pollutant	VOC	PM10	PM 2.5	CO	NO2	SO2	Pb	GHG
Construction	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.
Rock Delivery by Sea Vessels	0.04212	0.03888	0.03564	0.26568	1.30572	0.09396	not calculated	74.196
Total	0.04212	0.03888	0.03564	0.26568	1.30572	0. 09396	not calculated	74.196
Applicable General Conformity Rates	50	N/A	N/A	N/A	N/A	N/A	N/A	No Federal Standard

Note: N/A (not applicable). Rates do not apply if the basin is in attainment.

Table 4.3.3c SCCAB (Santa Barbara County portion) Air Criteria Pollutant Emissions (Tons/Year) and GHG Emission (MT/Year CO2eq) Estimates for Rock Delivery by Sea Vessels

Pollutant	VOC	PM10	PM 2.5	CO	NO2	SO2	Pb	GHG
Construction	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.
Rock Delivery by Sea Vessels	0.03042	0.02808	0.02574	0.19188	0.94302	0.06786	not calculated	53.586
Total	0. 03042	0.02808	0.02574	0. 19188	0. 94302	0.06786	not calculated	53.586
Applicable General Conformity Rates	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No Federal Standard

Note: N/A (not applicable). Rates do not apply if the basin is in attainment.

Table 4.3.3d SCCAB (San Luis Obispo County portion) Air Criteria Pollutant Emissions (Tons/Year) and GHG Emission (MT/Year CO2eq) Estimates for Rock Delivery by Sea Vessels

Pollutant	VOC	PM10	PM 2.5	CO	NO2	SO2	Pb	GHG
Construction	0.46	0.42	0.40	2.92	14.26	1.01	not calculated	819.00
Rock Delivery by Sea Vessels	0.01859	0.01716	0.01573	0.11726	0.57629	0.04147	not calculated	32.80
Total	0.47859	0.43716	0.41573	3.03726	14.83629	1.05147	not calculated	851.80

Applicable General Conformity Rates	100	N/A	N/A	N/A	N/A	N/A	N/A	No Federal Standard

Note: N/A (not applicable). Rates do not apply if the basin is in attainment.

Table 4.3.4a MDAB (San Bernardino County High Desert portion) Air Criteria Pollutant Emissions (Tons/Year) and GHG Emission (MT/Year CO2eq) Estimates for Rock Delivery by Combination Trucks on Roadways (Land) and Sea Vessels

Pollutant	**VOC**	**PM10**	**PM 2.5**	**CO**	**NO2**	**SO2**	**Pb**	**GHG**
Construction	No Construction (No Const.)	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.
Rock Delivery by Trucks on Roadways	0.433668	0.218859	0.17207	2.2456087	4.421555	0.0155	not calculated	1448.66667
Total	0.433668	0.218859	0.17207	2.2456087	4.421555	0.0155	not calculated	1448.66667
Applicable General Conformity Rates	25	100	N/A	N/A	N/A	N/A	N/A	No Federal Standard

Note: N/A (not applicable). Rates do not apply if the basin is in attainment.

Table 4.3.4b SCAB (Los Angeles County portion) Air Criteria Pollutant Emissions (Tons/Year) and GHG Emission (MT/Year CO2eq) Estimates for Rock Delivery by Combination Trucks on Roadways (Land) and Sea Vessels

Pollutant	**VOC**	**PM10**	**PM 2.5**	**CO**	**NO2**	**SO2**	**Pb**	**GHG**
Construction	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.
Rock Delivery by Trucks on Roadways	0.370205	0.1868	0.14689	1.91698	3.774498	0.013596	not calculated	1236.66667
Total	0.370205	0.1868	0.14689	1.91698	3.774498	0.013596	not calculated	1236.66667
Applicable General Conformity Rates	10	100	70	100	100	N/A	25	No Federal Standard

Note: N/A (not applicable). Rates do not apply if the basin is in attainment.

Table 4.3.4c SCCAB (Ventura County portion) Air Criteria Pollutant Emissions (Tons/Year) and GHG Emission (MT/Year CO2eq) Estimates for Rock Delivery by Combination Trucks on Roadways (Land) and Sea Vessels (Tons/Year)

Pollutant	VOC	PM10	PM 2.5	CO	NO2	SO2	Pb	GHG
Construction	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.
Rock Delivery by Trucks on Roadways	0.14808	0.0747	0.058756	0.76679	1.509799	0.0053	not calculated	494.666667
Total	0.14808	0.0747	0.058756	0.76679	1.509799	0.0053	not calculated	494.666667
Applicable General Conformity Rates	50	N/A	N/A	N/A	N/A	N/A	N/A	No Federal Standard

Note: N/A (not applicable). Rates do not apply if the basin is in attainment.

Table 4.3.4d SCCAB (Ventura County portion) Air Criteria Pollutant Emissions (Tons/Year) and GHG Emission (MT/Year CO2eq) Estimates for Rock Delivery by Combination Trucks on Roadways (Land) and Sea Vessels (Tons/Year)

Pollutant	VOC	PM10	PM 2.5	CO	NO2	SO2	Pb	GHG
Construction	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.
Rock Delivery by Sea Vessels	0.02106	0.01944	0.01782	0.13284	0.65286	0.04698	not calculated	37.098
Total	0.02106	0.01944	0.01782	0.13284	0.65286	0.04698	not calculated	37.098
Applicable General Conformity Rates	50	N/A	N/A	N/A	N/A	N/A	N/A	No Federal Standard

Note: N/A (not applicable). Rates do not apply if the basin is in attainment.

Table 4.3.4e SCCAB (Santa Barbara County portion) Air Criteria Pollutant Emissions (Tons/Year) and GHG Emission (MT/Year CO2eq) Estimates for Rock Delivery by Combination Trucks on Roadways (Land) and Sea Vessels (Tons/Year)

Pollutant	VOC	PM10	PM 2.5	CO	NO2	SO2	Pb	GHG
Construction	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.	No Const.
Rock Delivery by Sea Vessels	0.03042	0.02808	0.02574	0.19188	0.94302	0.06786	not calculated	53.586
Total	0.03042	0.02808	0.02574	0.19188	0.94302	0.06786	not calculated	53.586

Applicable General Conformity Rates	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No Federal Standard

Note: N/A (not applicable). Rates do not apply if the basin is in attainment.

Table 4.3.4f SCCAB (San Luis Obispo County portion) Air Criteria Pollutant Emissions (Tons/Year) and GHG Emission (MT/Year CO2eq) Estimates for Rock Delivery by Combination Trucks on Roadways (Land) and Sea Vessels

Pollutant	**VOC**	**PM10**	**PM 2.5**	**CO**	**NO2**	**SO2**	**Pb**	**GHG**
Construction	0.46	0.42	0.40	2.92	14.26	1.01	not calculated	819.00
Rock Delivery by Sea Vessels	0.01859	0.01716	0.01573	0.11726	0.57629	0.04147	not calculated	32.80
Total	0.47859	0.43716	0.41573	3.03726	14.83629	1.05147	not calculated	851.80
Applicable General Conformity Rates	100	N/A	N/A	N/A	N/A	N/A	N/A	No Federal Standard

Note: N/A (not applicable). Rates do not apply if the basin is in attainment.

Note that the estimated total emissions within the San Luis Obispo County portion of the SCCAB would be the same, whichever quarry is used. Impacts would be less than significant.

The Proposed Action estimated air pollutant emissions comparison to the SLOCAPCD threshold of significance for construction operation is in Appendix C, Air Criteria Pollutants Emissions and GHG Emissions Analysis.

No Action Alternative

Breakwater repair emissions associated with Proposed Action would not occur. However, if further harbor structure deterioration occurs, frequent emergency operations to repair the breakwater may be undertaken to maintain navigable conditions. If emergency repair work is foreseeably necessary, temporary increases in emissions from the construction equipment, ancillary vessels, and laborers' vehicles would be expected. This increase would be short term (temporary) and less than significant impacts.

4.4 NOISE

4.4.1 Affected Environment

In general, noise is defined as unwanted sound. The effects of noise on people range from annoyance to inconvenience to temporary or permanent hearing loss. Level of annoyance or impact produced by a sound depends on its loudness, duration, time of day, and land use. Sound

measurements are usually expressed as decibels (dB) which equally weights all frequencies. However, the human ear is not equally sensitive to sounds at all frequencies. Therefore, the dBA scale which primarily weighs frequencies within the human range of hearing is used to assess the impact of noise on human hearing (USEPA, 1971, 1972b, 1974). A range of noise levels in dBA are shown in Table 4.4.1

Table 4.4.1 Range of Noises

Noise level (dBA)	Examples of Noise	Human Response
0	recording studio	hearing threshold
20	rustling leaves	
40	conversational speech	Quiet
60	freeway at 50 feet	
70	freight train at 100 feet	moderately loud
90	heavy truck at 50 feet	
110	ambulance siren at 100 feet	very loud
120	jet engine at 200 feet	threshold of pain

Source: USEPA 1971, 1972b, 1974.

There are no baseline noise levels available for a breakwater work since it is located within an open marine environment. The existing ambient noise level within this environment is associated with wind and surf break as well as noise from passing vessels.

The dB level decreases with distance from the source, usually by a rate of 6 dB for every doubling of distance. Automobiles, recreational boats and vehicles, and small commercial fishing boats are typically primary contributors to the ambient noise environment in Port San Luis Harbor and nearby beaches. Noise levels tend to increase during heavy summer recreational uses and activities.

Currently, there are no noise standards or restrictions for construction projects within PSL Harbor District facilities except the citation discussed in Chapter 18 (Health and Safety), Code Ordinance 18.140 (Miscellaneous Prohibited Acts) paragraph (4) that states “no such person, within a Harbor District, may Operate any noise-producing equipment whether or not electrically amplified, which disturbs other people, except in accordance with the terms and conditions of a permit therefore issued by the Port San Luis District (Port San Luis Harbor District 2017a).

4.4.2 Environmental Consequences

Significance Criteria

An impact to Noise will be considered significant if the alternative would:

- Create a new, permanent source of noise that would exceed existing noise standards in an area where sensitive receptors occur, or
- Result in long-term exceedance of noise standards due to construction in an area where sensitive receptors occur unless a permit or variance is obtained.

Preferred Alternative

Under the Proposed Action, the breakwater would be repaired using sea-based equipment. Most of the sea-based noise would come from crane setting the stone on the breakwater. Operational noise of a crane with a capacity for a bucket/clamshell on a barge or a clamshell dredge would typically be less than a hopper dredge that has noise source ranges from 85 to 108 dBA (Bowes 1990). Furthermore, noise levels are atmospherically attenuated by a factor of 6 dB per doubling of the distance, as discussed above. Potential noise levels at various distances are shown in Table 4.4.2 below.

Table 4.4.2 Potential Noise Levels At Various Distances

Distance from Construction Activities (ft.)	Noise Levels (dBA)
50	80 - 90
100	74 – 84
200	68 – 78
400	66 – 72
800	60 – 66

Source: USEPA 1971, 1972, 1974.

Ambient noise levels from the Proposed Action within the Harbor, including use of sea based equipment (barges, tug boats, crew boats, and a crane on barge) or land based equipment (such as flat bed dump trucks, a crawler loader, a crane, a water truck, and commuter vehicles) would not be a significant new or permanent noise source. The closest residential area (sensitive receptor) to the Proposed Action is approximately 1,300 ft away, and based on Tables 4.4.1 (Range of Noise Levels) Table 4.4.2 (Potential Noise Levels at Various Distances), the noise from the Proposed Action would likely be undetectable at that distance. Decibel levels from the Proposed Action would be highest at the breakwater. Noise would be generated from the crane mounted barge moving or setting rocks onto the breakwater. Crane brakes tend to squeak, and backup alarms sound on cranes could potentially create obstructive noises from the Proposed Action. As the closet residential area to the Proposed Action is approximately one quarter of a mile (approximately 1,300 ft) away from the project area, noise levels would be substantially reduced across that distance and could be approaching at ambient noise levels based on the table above. Moreover, the breakwater and buildings in the harbor act as a noise buffer, separating the breakwater repair work the activities occurring in PSL Harbor. Excavation work around the breakwater, approximately 3 weeks in duration, would be performed during daylight hours (11 hours a day) but could occur 22 hours a day (daylight and nighttime hours). O&M rock repair on the breakwater is not proposed to occur at night time hours due to safety concerns for crew/laborers working on the breakwater.

The following noise (AQN) environmental commitments and Best Management Practices (BMPs) shall be implemented to further avoid, reduce, and minimize any noise-related impacts:

- Trucks and construction equipment would be properly maintained and scheduled in order to minimize unsafe and nuisance noise effects to sensitive biological resources, residential areas, and the socio-economic environment

- Sensitive receptors along potential haul routes, such as residential areas, schools, hospitals, convalescent homes, and churches would be avoided whenever possible
- Crane brakes shall be maintained to reduce any loud and unnecessary noise
- Construction related vehicles and equipment shall meet State, county and local requirements regarding emissions, noise, and weight capacity
- If reasonable complaints are received from local residents, the contractor shall implement additional measures to reduce these impacts. Specific measures shall be identified in coordination with the Corp's Contracting Officer
- If double or triple-shifts are utilized, the contractor shall obtain any necessary permits or exemptions from the Port San Luis Harbor, City of Avila Beach, or San Luis Obispo County.

Construction-related noise impacts would be short term and temporary, and are not expected to create a significant disturbance or nuisance to local residents or other sensitive receptors. The Proposed Action would not create a new, permanent source of noise or result in a long-term exceedance of noise standards. Upon completion of construction, noise would return to pre-project conditions. Based on the above, impacts would be less than significant.

No Action Alternative

The No Action alternative would avoid all noise impacts associated with the Proposed Action. However, a "No Action" response may result in frequent emergency breakwater operations to relieve an unprotected harbor, shoreline and beaches, and dangerously navigation conditions in the harbor. Impacts would be less than significant.

4.5 LAND USE AND RECREATION

4.5.1 Affected Environment

The PSL District is the governing agency that provides public services and improvements for the PSL District and regulates the various commercial and recreational uses at the port. The Port's Master Plan, May 2004, revised per Local Coastal Plan (LCP) update, 2007, sets forth the PSL Harbor District's official public policy regarding the uses and development of the land, piers, and tidelands under its administration (Port San Luis Harbor District 2017b).

The PSL Harbor District Master Plan study area encompasses about 520 acres of water and approximately 125 acres of land, and is divided into seven planning sub-areas according to the LU category established in the LCP for the San Luis Bay Planning Area, as follows: 1) Open Water; 2) Harford Pier; 3) Harford Landing; 4) Harbor Terrace; 5) Beach and Bluffs; 6) Lightstation (Port San Luis Lighthouse), and; 7) Avila Beach, Pier and Parking Lot. The seven planning sub-areas listed above are summarized as follows:

1) Open Water: The approximate 520-acre harbor area, is mostly used for navigation and mooring purposes. The Open Water Area also includes the shoreline/beach from Point San Luis to Shell Beach, the areas around the three piers in the study area, and the area around the PSL breakwater.

2) Harford Pier: The "backbone" of PSL, Harford Pier is an historic working pier that serves commercial and recreation fishing and boating, and is a primary focus of PSL District activities.

3) Harford Landing: An approximate 8.7-acre site at the base of Harford Pier that provides supportive land area to coastal-dependent and coastal-related uses at the main harbor, as well as serves visitor needs on the waterfront. Harford Landing is comprised of parking, launching facilities, a boatyard, and several buildings.

4) Harbor Terrace: An approximately 30-acre hillside property overlooking San Luis Obispo Bay along Avila Beach Drive that is currently used as storage area for boat owners, fishermen, and the Harbor District. A trailer park (non-conforming use) currently sits on the southeastern portion of the site. Development of Harbor Terrace is a primary long-term objective of the Harbor District.

5) Beach and Bluffs: A linear strip of land seaward of the County right-of-way of Avila Beach Drive, which provides recreational opportunities including coastal access, beach-oriented activities, informal parking, and ocean views.

6) Lightstation: An approximate 25-acre site that includes the historic Point San Luis Lighthouse and several other buildings, served by a private road and trail with controlled public access. The PSL Harbor District owns and operates the Lighstation.

7) Avila Beach, Pier and Parking Lot: The Avila Beach and Pier make up the "front porch" of the Avila community and primarily support recreational water-oriented activities. The Avila Parking Lot is located one block north of the beach and serves the parking needs of beach and pier users.

Some of the specific LU and recreation that are part of the PSL Harbor District in relation to the project area and in, adjacent to, or near the project area as follows:

- Port San Luis Harbor. PSL Harbor provides important recreational resources for the regional and local area. The port also supports petroleum product handling facilities. The PSL District complex includes administration facilities, the marina center, floating fuel dock, fish market, restaurants, bait and tackle stores, parking areas (with 246 car capacity). The Port San Luis wharf, known as Harford Pier, is approximately 1,456 feet long and has 300 mooring spaces including approximately 50% recreational sailboats, 40% commercial fishing boats and 10% power pleasure boats.

  The PSL services vessels ranging from small craft to larger than fifty feet in length. Small boat traffic is heavy in the PSL. The area adjacent to the Proposed breakwater repair (on the port side) is primarily used for boat anchorages, and the area adjacent to the anchorage area is used as a mooring field. There is a floating salmon rearing facility located within the port that is used to imprint young hatchery raised fish to acclimate them to local water prior to release, resulting in the return of adult salmon to local waters. The local commercial fishing in the port and in this part of the central coast of California involves sardines, rock cod, and halibut.

In addition to the PSL Harbor District facilities, other terminal facilities in the port include: an oil spill clean-up boat for emergency response to central California oil spills; a 3,082-foot-long pier operated by Union Oil Company for loading petroleum and petroleum products on ships; a 1,463-foot –long state-owned, County operated recreational pier, and sport fishing party-boat services.

The Port San Luis Harbor District also owns and operates a lighthouse (e.g., Lightstation described in the above section) that is northwest of the proposed Port San Luis District breakwater O&M repair project. The lighthouse was previously maintained by the USCG.

- Avila Beach. Avila Beach, is situated on the shore of the PSL, northeast of the breakwater and port. Avila Beach, along with Pismo Beach and Shell Beach, are lightly populated areas clustered along the cost in the area around San Luis Bay. Avila Beach is in the vicinity of the proposed breakwater repair but is not adjacent to it.

- Pacific Gas and Electric (PG&E). The land bordering the Lightstation, which is in the vicinity of the proposed breakwater repair but is not adjacent to it, is owned by PG&E, which owns and operations the Diablo Canyon Power Plant (DCPP) generation facility. The PG&E DCPP nuclear power plant is located approximately five (5) miles northwest (nw) of the PSL and the project area. Public access is restricted within the PG&E DCPP area. The PG&E DCPP is a vital part of the electricity produced in and for California, generating power for more than three (3.0) million northern and central California homes, and is an integral part of the central coast's economy (PG&E, 2010).

- USCG. The USCG, under the Department of Homeland Security (DHS), has operations immediately to the north of PSL Harbor in Morro Bay Harbor, and also to the south in Santa Barbara Harbor, and regularly does surveillance in PSL Harbor. The USCG operations is vital to navigational safety on California's central coast and supports the Federal Department of Homeland Security (DHS) mission through patrols of critical infrastructure and enforcement of the Port Security zones (US Coast Guard 2007) including PG&E's DCPP, which is a nuclear power generation facility, located approximately five miles northwest of Port San Luis Harbor. The USCG, under the DHS, operates a USCG operation based in Santa Barbara Harbor. The USCG Cutter Blackfin, an 87-foot patrol boat that typically support a crew of twelve (12) onboard including 1 officer and 11 enlisted personnel, is stationed out of Santa Barbara Harbor. The USGC Cutter Blackfin patrols an area of over 60,000 square miles of ocean along southern California's coastline as far north as Morro Bay and as far south as Dana Point. Its primary missions include Drug and Migrant Interdiction; Search and Rescue; Ports, Waterways, and Coastal Security; Marine Environmental Protection; Enforcement of Laws and Treaties, and; Defense Readiness. The USCG Cutter Blackfin routinely works alongside Custom and Border Protection, Immigration and Customs Enforcement, CDFW, and the NOAA to complete its mission and build strong working relationships with its partner agencies.

Typical recreation activities in the PSL Harbor District study area include beach activities, boating and water sports, golf, kayaking, sport fishing, pier fishing, and surfing.

4.5.2 Environmental Consequences

Significance Criteria

An impact to Land Use and Recreation will be considered significant if the alternative would:

- Result in permanent changes that are incompatible with designated uses.

Preferred Alternative

Breakwater repair may temporarily interfere with water based and land based recreational activities within the immediate vicinity of the Proposed Action. These recreational and commercial uses include boating, fishing, and beach activities. The potential environmental impacts and disturbances to such activities are expected to be minimal. These activities will be able to continue outside of project work limits.

The utilization of sea-based heavy equipment to repair the breakwater would detract from recreational and commercial use (i.e., boating) in the harbor but would be a temporary and localized impact, as it would be limited to the immediate area surrounding the breakwater. Land-based parking for crew/laborers would be established in the PSL Harbor District parking lot, which would minimize impacts to other harbor and beach land use operations. Should land-based staging/storage construction equipment areas (contactor laydown areas) be required at Port Hueneme/Port of Hueneme, Ventura County, they would be designated on land that has been developed (i.e., paved), and/or already designated for such purposes. The Proposed Action would not introduce a new land use or change existing land uses.

Navigational impacts would be minimized by properly marking buoys so that boaters can safely avoid the immediate breakwater Proposed Action area. The Proposed Action would benefit navigation and harbor operation. A fully functioning breakwater reduces wave action and shoaling of sediment into the harbor by assisting its deposition into the sand trap area, and also protects the shoreline and local beaches. The construction barges and associated workboats would use minimal harbor space for a short time period. Disturbances to recreation-related activities from project construction or use of the crew/laborer parking are also expected to be negligible. The Proposed Action would not affect or conflict with any existing development within the PSL Harbor or surrounding area.

Impacts would be further reduced or avoided through implementation of the following LUR commitment:

- In-field coordination will occur between the Corps contractor, the U.S. Coast Guard District, and the local Harbor Patrol

Upon completion of construction, land use and recreation would return to pre-project conditions. Based on the above, the Proposed Action would not result in permanent changes that are incompatible with designated uses. Therefore, impacts would be less than significant.

No Action Alternative

The "no action" alternative would avoid temporary disturbance to water-related recreation. If the breakwater is not repaired, the potential for a structural failure could occur. The undermined condition of the breakwater poses a hazard to navigational safety.

4.6 AESTHETICS

4.6.1 Affected Environment

The aesthetic character of PSL and Avila Beach and the immediate vicinity is primarily comprised of public and commercial water oriented recreational facilities located in a largely natural setting.

PSL is located on a south-facing beach with the prevailing winds and swell from the north, and the harbor is in a sheltered cove along the central coast of California.

The majority of the surrounding hillsides nearby the PSL are open space and agriculture. The scenic and visual resources of the project area are dominated by the harbor, marina, beach, open hillsides and open water vistas.

There is a possibility that rock could be delivered by trucks on roadways to Port Hueneme/Port of Hueneme, and a land based laydown contractor's staging/storage area would be designated on land that has been developed (i.e., paved), and/or already designated for such purposes. Port Hueneme/Port of Hueneme features include a port, a harbor, shipyards, marina, beaches, and some agriculture.

4.6.2 Environmental Consequences

Significance Criteria

An impact to Aesthetics will be considered significant if the alternative would:

- Cause a substantial and permanent modification of the scenic vista.

Preferred Alternative

The presence of construction equipment and truck hauling activities would temporarily reduce the aesthetic quality in PSL Harbor and the Pacific Ocean during the length of the construction operation. The presence of sea-based equipment, such as barges, crew and tugboats, and a crane, within the Harbor would not permanently affect views of the harbor, marina, wharf, bay, beach, or the Pacific Ocean. Land based equipment would not have a long-term impact on aesthetics, as the roadways, crew/ laborers parking area(s), and contractor laydown (staging/storage areas) in the Port San Luis Harbor or Port Hueneme/Port of Hueneme Harbor historically through the present have been utilized for harbor construction projects and this project would not change or

modify the views in the harbors. The Proposed Action would be for a limited duration, a of approximately one (1) year but could occur over a two (2) year duration, and the potential impacts from the Proposed Action would be short term, temporary, and localized. Upon completion of construction, aesthetics would return to pre-project conditions. The appearance of the breakwater itself would not substantially change, as the proposed repairs would return the project to its design condition. Based on the above, impacts would be less than significant impact.

No Action Alternative

The "no action" alternative would avoid temporary impacts to aesthetics. If the breakwater is not repaired, the potential for a structural failure could occur. The undermined condition of the breakwater poses a hazard to navigational safety. The aesthetics in the San Luis Bay and Harbor and in Port Hueneme/Port of Hueneme would not be permanently impacted. Impacts would be less than significant.

4.7 CULTURAL RESOURCES

4.7.1 Affected Environment

The culture history of San Luis Obispo County is commonly divided into a series of temporal periods. This construct emphasizes changes in adaptation over time and identifies particular temporal intervals and research issues that may be relevant to understanding archaeological resources in the project area. The Millingstone Period dates to approximately BC 8,000-3500 and is characterized by an abundance of handstones and millingslabs and a noticeable lack of hunting gear. The Early Period (approximately BC 3,500-600) shows the introduction of mortar-pestle technology, accompanied by an increase in projectile points. Expanding populations may have placed increasing reliance on acorns during this period, while increased storage seems to have allowed the establishment of sedentary villages. The Middle Period (BC 600-1000 AD) demonstrates changes in projectile point morphology and the growing importance of mortars and pestle grinding tools. Increased reliance on marine fish and sea mammals accompanied increased sedentism and population densities along the coast. Increasingly complex exchange networks suggest the beginning of high-level socio-political complexity. Sites from the Middle/Late Transition (1000-1300 AD) are rare but suggest a reversal in population densities along the San Luis Obispo coast, accompanied by disruptions in exchange networks. The Late Period (1300 AD – Present) shows the introduction of bow and arrow technology and heavy reliance on terrestrial food sources. (Brookshear et al 2018). [See Appendix E, Cultural Resources Appendix].

The project area was inhabited by Chumash language speakers at the time of Spanish contact. Local Chumash groups practiced a hunter-gatherer economy based on fish, birds, and mammals to augment gathered resources. Resource procurement activities were specific to gender. Marriages were the basis of interaction and exchange networks. Social-political organization was structured at the village level, with village headmen having an oversight role and enjoying privileged status. The population was reported to be sparsely distributed, and residential mobility was common based on natural resource availability. However, archaeological data

suggest that the ethnographic information reported by early Spanish records may reflect an already reduced population. (Brookshear et al 2018)

PSL Harbor is a shallow arc lightly sheltered on the west by Point San Luis, and it provides one of the few naturally protected harbors capable of landing commercial vessels. Use of the harbor probably dates back at least to 1794, when limited marine commerce supported the Mission San Luis Obispo. A granary or warehouse was constructed on the beach near San Luis Obispo Creek as early as 1808. However, loading and unloading cargo depended on the use of dinghies to reach ships anchored in deep water, and landing in the surf was risky.

The harbor was the primary point of shipping for the central coast of California from the mid nineteenth century through the early twentieth century. The port was being used for commercial shipping as early as the 1855, when the first wharf was built. A competing wharf was built in 1868. A third wharf, which is the one still in use today for commercial and recreational vessels, was initially constructed in 1875. The port's importance continued to grow until the interstate railroad connection captured much of the commerce, although the port continued to serve as an important shipping point for oil through much of the twentieth century.

The Corps was authorized to study a possible breakwater by the 1878 River and Harbor Act, but the study found that the construction of a breakwater was not justified at that time. A subsequent study resulting from the 1881 River and Harbor Act also failed to justify a breakwater. A subsequent study in 1887 examined a different breakwater plan and concluded that building a smaller breakwater was justified. The project was approved in 1888, and construction began in 1889.

The breakwater was not completed until 1914. Uneven appropriations and construction issues made for irregular progress. Small appropriations limited the headway that was made each year. Annual contracts meant that much of each appropriation was spent on mobilization costs. Finding a supply of suitable quarry stone was challenging. Heavy swells required the breakwater to be raised six feet above high water, which further increased costs. Damage from heavy wave action occurred in 1893, 1895, and again 1900, requiring repairs the following year. The alignment of the breakwater was changed by 11 degrees in 1897 to allow the contractor to work behind the existing reef, which provided a buffer from the heavy swell. The original alignment was resumed in 1900 for unknown reasons, leading to a bow in the alignment (Tetra Tech 2017). In 1907, Congress finally awarded a long-term contract that led to the more efficient completion of the breakwater in 1914.

Segment A of the breakwater extends southeasterly from Point San Luis a distance of 336 feet, at which point it intersects and incorporates a stone outcrop named Whaler's Island and rises +6 ft above mean high water. Segment B extends another 1,820 ft from the other side of the Whaler's Island. In total, it measures approximately 2,400 ft long. It is reportedly built atop a natural reef. The breakwater was not constructed to the original design, although the reasons for this are unknown, and conflicting accounts of the original breakwater exist. Based on construction drawings, Segment A had compound side slopes on the ocean side inclined at about 6H:1V below-water and 2H:1V above-water, while the harbor side was sloped at 2H:1V with a crest height of +12 ft. The width and slope of Segment B varied substantially, but crest height

continued generally at +12 ft. Actual measured slopes vary but average 2.5H:1V on the ocean side and 1.5H:1V on the harbor side. Crest width varies from 8 ft to 40 ft but averages 27 ft. It was constructed of large igneous stone (approximately 8-10 tons) quarried from Bishop's Peak and Morro Rock, although stone sourced from the surrounding bluffs was used the first year. (Brookshear et al 2018; Tetra Tech 2017)

Since completion, storms have repeatedly damaged the breakwater, and delays in repair have resulted in additional damage. 125 feet of damage incurred during a 1924 storm had grown to 200 ft by the time it was repaired in 1926-1927. This repair included installing a concrete cap atop the crest, but this cap was destroyed during the winter of 1931-32. Repairs in 1935 did not replace the cap, but may have increased the cross-section and increased the crest height to 13+ feet, and changed the side slopes to 1.5H:1V. Repairs were reportedly made to the entire length of the breakwater. Subsequent repairs were made in 1984, 1992, and 2005. Repairs have cumulatively been made to essentially the entire breakwater. Much of the repair work was done with larger stone, ranging between 13 and 17 tons. The stone was sourced from the Declezville Quarry and later from Pebbly Beach Quarry on Catalina Island. (Tetra Tech 2017)

JRP Historical Consulting, LLC (JRP) recorded the breakwater as a historic architectural resource and evaluated its eligibility for inclusion on the National Register of Historic Places (NRHP) in 2017 (Brookshear et al, 2018). JRP concluded that the breakwater retained integrity despite the multiple episodes of repair and use of larger stone because the repairs were all made in kind with the original construction. However, they recommended that the breakwater is not eligible to the NRHP. When evaluated in the context of breakwaters as a property type, this one lacks significance under all four criteria. The breakwater helped protect the harbor, but the trajectory of events that made PSL an important shipping hub began before the breakwater was constructed. The breakwater is not associated with any individuals who have played an important role in history. Its engineering design is a typical and unremarkable example of rubble mound breakwaters, which are the most common type of breakwaters in the U.S. It is neither particularly old, long, nor large. Finally, it is unlikely to yield information beyond the basic construction information that has already been documented. The Corps has determined the breakwater to be ineligible for inclusion on the NRHP, and the State Historic Preservation Officer (SHPO) concurred with that finding in a letter dated February 20, 2018.

4.7.2 Environmental Consequences

Significance Criteria

The impacts of Federal undertakings on cultural resources are formally assessed through a process mandated by the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. Section 300101, et seq), and its implementing regulation, Protection of Historic Properties promulgated at36 CFR 800. For the purposes of this analysis, the NHPA "criteria of adverse effect" was identified as the significance threshold for NEPA. The criteria of adverse effects are defined in 36 CFR 800.5a as follows:

> *"An adverse effect is found when an action may alter the characteristics of a historic property that qualify it for inclusion in NRHP in a manner that would diminish the*

integrity of the property's location, design, setting, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the action that may occur later in time, be farther removed in distance, or be cumulative".

If the undertaking would result in an adverse effect on an historic property, there would be a significant impact under NEPA.

Preferred Alternative

The Corps conducted repairs to the breakwater in 1992. After completing a literature and records search, the Corps determined that there were no historic properties within the project area at that time. The SHPO concurred with that determination in a letter dated March 5, 1991. However, that previous evaluation did not recognize the historic nature of the breakwater itself. An updated records search was performed by Far Western Anthropological Research Group, Inc. in 2017 (Brookshear et al 2018). The results of that study confirm there are no known cultural resources within the project area, other than the breakwater. As discussed above, the study also recorded the breakwater, evaluated it, and recommended that the breakwater is not eligible for the NRHP. As a result, the Corps has determined the breakwater to be ineligible for inclusion in the NRHP, for which the SHPO concurred.

As described in the alternative description, the Proposed Action includes minor excavation adjacent to the breakwater to allow access with the barges. The recent records search further indicates that there are no known shipwrecks within the area of potential effect (APE). Similar excavations have taken place within the same area for previous repairs, and the original construction of the breakwater likely disturbed the same area. The sediment to be removed is recently accumulated, and it would be placed in the nearshore to create an engineered eelgrass mitigation area, which is a dynamic and rapidly moving soft bottom. These sediments are previously disturbed and are very unlikely to contain any intact cultural deposits.

Crew/laborers parking has been identified in paved parking area at the Port San Luis Harbor District. The surface of the pavement will not be disturbed within the parking area.

There are no known historic properties within the APE, either near the breakwater or within the parking area. The Corps has determined that no historic properties will be affected by the Proposed Action, and the SHPO concurred in a letter dated February 20, 2018. Since this consultation, the APE was expanded due to the addition of eel grass removal and replanting, as well as additional dredging along the breakwater. To account for the mitigation of eel grass and the resulting expansion of the APE, a second consultation with the SHPO, to include notification of tribes, was undertaken. On March 25, 2021 the Corps received concurrence from the SHPO that no historic properties would be affected by the Proposed Action.

No Action Alternative

There would be no ground disturbing activities as a result of the "no action" alternative, so no historic properties would be affected.

4.8 SEA VESSEL TRAFFIC AND SAFETY/LAND-BASED TRAFFIC AND TRANSPORTATION

4.8.1 Affected Environment

PSL Harbor is a popular-use recreational and small commercial harbor. PSL Harbor provides important recreational resources for the regional and local area. The PSL wharf, known as Harford Pier, is approximately 1,456 ft long and has 300 mooring spaces including approximately 50% recreational sailboats, 40% commercial fishing boats and 10% power pleasure boats (Port San Luis Harbor District 2017b). The port also supports petroleum product handling facilities. The PSL Harbor District complex includes administration facilities, the marina center, floating fuel dock, fish market, restaurants, bait and tackle stores, parking areas (with 246 car capacity). The PSL services sea vessels ranging from small craft to larger than fifty feet in length. Small boat traffic is heavy in the PSL. The area adjacent to the project area (on the port side) is primarily used for boat anchorages, and the area adjacent to the anchorage area is used as a mooring field. There is a floating salmon rearing facility located within the port that is used to imprint young hatchery raised fish to acclimate them to local water prior to release, resulting in the return of adult salmon to local waters. The local commercial fishing in the port and in this part of the central coast of California involves sardines, rock cod, and halibut. In addition to the PSL Harbor District facilities, other terminal facilities in the port include: an oil spill clean-up boat for emergency response to central California oil spills; a 3,082-foot-long pier operated by Union Oil Company for loading petroleum and petroleum products on ships; a 1,463-foot –long state-owned, County operated recreational pier, and sport fishing party-boat services.

PSL Harbor has a Harbor Patrol. It enforces laws, educate the public and provide emergency fire, medical and ocean response services to facilitate the safe and orderly use of the harbor; provides emergency response seven days a week, 24 hours a day within the harbor jurisdiction; provide security and law enforcement in the harbor by patrolling the ocean and land areas; enforce state and local laws; coordinate operations with USCG, and County Sheriff.

The USCG, under the DHS, operates a USCG operation based in Santa Barbara Harbor. The USCG Cutter Blackfin, an 87-foot patrol boat that typically support a crew of twelve (12) onboard including 1 officer and 11 enlisted personnel, is stationed out of Santa Barbara Harbor (Santa Barbara Navy League 2015). The USCG Cutter Blackfin patrols an area of over 60,000 square miles of ocean along southern California's coastline as far north as Morro Bay and as far south as Dana Point. Its primary missions include Drug and Migrant Interdiction; Search and Rescue; Ports, Waterways, and Coastal Security; Marine Environmental Protection; Enforcement of Laws and Treaties, and Defense Readiness. The USCG Cutter Blackfin routinely works alongside Custom and Border Protection, Immigration and Customs Enforcement, CDFW, and the NOAA to complete its mission and build strong working relationships with its partner agencies. The PSL Harbor strategic location along the coast of California and reliable sea-based activities are important to the USCG operations.

4.8.2 Environmental Consequences

Significance Criteria

An impact to Sea Vessel Traffic and Safety/Land-based Traffic and Safety will be considered significant if the alternative would:

- Cause a navigational hazard to boat traffic or interfere with any emergency response or evacuation plans.
- Substantially changes sea vessel traffic or patterns.
- Cause a substantial increase in AADTs of main arteries used to access the site.

Preferred Alternative

Construction would not impede access to any harbor channels or entranceways, and would therefore, not create a substantial reduction in sea vessel traffic, impact navigation safety, create a navigational hazard to sea vessel traffic or interfere with local emergency/excavation response plans. The Proposed Action would not change the number of slips. As a result, sea vessel traffic or patterns would remain unaffected.

Rock to repair the breakwater is expected to be procured from Pebbly Beach quarry (sea based_ at Catalina Island located within the Los Angeles County. Rocks from this island (sea based) quarry would be transported (delivered/delivery) on the sea (Pacific Ocean) with barges by tug boats to the project site, covering four California counties: Los Angeles; Ventura; Santa Barbara, and; San Luis Obispo. Sea vessels traffic for transporting (delivery) of rock to repair the breakwater would come mainly from barge mounted crane, two barges, two tugboats, a crew boat, a scow, a work boat, and a skiff vessel. Proposed excavation around the breakwater, for construction equipment access, would come mainly from a crane-equipped barge, a scow, two small craft support vessels, and two tugboats. The rock barge is expected to carry approximately 2,000 to 4,000 tons of stone per trip. Unused/awaiting barges will be stored within a designated area within Port San Luis Harbor. Sea vessels rock delivery duration is approximately 60 works days, with a 6 day work week, approximately 11 hours workday, and approximately 400 miles by sea from Catalina Island to Port San Luis Harbor, or approximately 800 miles round trip. The first phase of construction work would be eexcavation around the breakwater, for construction equipment access, would come mainly from a crane-equipped barge, a scow, two small craft support vessels, and two tugboats. The first phase of construction would be the excavation of shoaled sediment adjacent to the breakwater to allow for access of the equipment required to repair the breakwater. The minor excavation of shoaled sediment (approximately 15,000 cubic yards) adjacent to the leeward side of the breakwater would be necessary to create adequate depths for barges and other vessels to access the breakwater for the O&M repair. Excavation of shoaled sediment could potentially occur during day and night hours (approximately 11 to 22 working hours a day), 6 days a week, for approximately 3 weeks (approximately 18 days). The excavated material would then be relocated approximately 1,000 feet north of the breakwater to minimize additional impacts to the existing eelgrass bed in the lee of the breakwater. The excavated and relocated sediment has a beneficial reuse to be utilized to create an engineered eelgrass mitigation site. The second phase of construction will consist of the

repair work to the breakwater structure. The proposed breakwater O&M repair would utilize barge mounted crane, two barges, two tugboats, a crew boat, a scow, a work boat, and a skiff sea vessel. It is estimated that approximately 29,000 tons of existing stone on the breakwater would need to be reset and approximately 60,000 tons of new stone (individual stone size range is anticipated to be from 5 to 20 tons) would be placed to restore the most heavily damaged portion of the breakwater with O&M repairs occurring on the leeward side of the breakwaters. Approximately 30 to 35 stones can be picked and placed per day using this vessel, or roughly three to four stones per hour on average. Repair work will consist of resetting of existing stone and placement of new stone on the breakwater structure. O&M breakwater repair work construction activities would be limited to day light hours (approximately 11 hours a day), with a 6 day work week. The Proposed Action duration is anticipated to last approximately six to seven months, approximately 174 workdays, generally from April to October. It is anticipated approximately 12 sea crew would be needed for the construction work.

The presence of construction equipment, materials, supplies and support vehicles, whether in an operation, boat slips, or in a storage area, would utilize space that would normally be available for navigation or other uses. Maneuvering of cranes, rock barges or scows to set or reset rock on the breakwater or to be used for excavation around the breakwater and placement of material (sediment) could create a hazard or obstacle that is not normally present. The immediate area adjacent to the breakwater where work is occurring would not be accessible to other sea vessel traffic during construction.

To ensure safe transit during barging of rock, excavation and breakwater construction activity, the following sea vessel traffic and transportation and safety land use and recreation (LUR) environmental commitments would be implemented:

- Coordination would be maintained with the Port San Luis Harbor Patrol and the USCG
- Information regarding O&M breakwater repair operations would be published in local notice to mariners, warning boat users about times, durations, and locations of construction activities.

The County of San Luis Obispo has established Level of Service (LOS) C as the acceptable condition for roadways in the Avila area (Port San Luis Harbor District 2004); however, circulation studies that consider anticipated growth and development in the Avila Community indicate that key areas of the roadway would experience substandard LOS conditions during summer weekends and holidays, i.e., peak visitor periods. An essential section of the road where capacity is limited is a reach of roadway lying between the intersection of San Luis Obispo Bay Drive and San Luis Street in Avila Beach.

The project area is accessible by roadways using US Highway 101, State Route (SR) 101, SR 001 (SR 1), and Avila Road, and these roadways are typically considered as main arteries. Other roadways in the project area are Diablo Canyon Road, San Luis Bay Drive, First Street, and Ontario Road, and these roadways are typically considered secondary arteries. The annual daily trips (AADTs) for the roadways in the vicinity of the project area of Avila Beach/Port San Luis are summarized in Table 4.8.1.

Table 4.8.1 Annual Daily Trips (AADT) on Roadways, City of Avila Beach/Port San Luis

Roadway	AADT
SR 101, Description - PISMO BEACH, JCT. RTE. 1 SOUTH	75,100[1]
SR 101, Description - NORTH SHELL BEACH	74,500[1]
SR 101, Description - AVILA ROAD	69,300[1]
SR 101, Description - NORTH AVILA ROAD	76,800[1]
SR 1, Description - PISMO BEACH, VILLA CREEK	11,200[1]
SR 1, Description - PISMO BEACH, SOUTH JCT. RTE. 101	11,000[1]
SR 1, Description SAN LUIS OBISPO, NORTH JCT. RTE. 101	29,500[1]
3024 Avila Beach Dr, Nearest Cross Street - W of San Luis Bay Dr	12,578[2]
1 Avila Beach Dr, Nearest Cross Street - E of Diablo Canyon Rd	4,973[2]
5 Avila Beach Dr, W of Ontario Rd	10,524[2]
3 Avila Beach Dr, Nearest Cross Street - E of Ontario Rd	12,061[2]
2 Avila Beach Dr, Nearest Cross Street - E of First St	9,576[2]
4 Avila Beach Dr, Nearest Cross Street - W of First St	7,030[2]
3020 Avila Rd, Nearest Cross Street - W of San Luis Bay Dr	12,876[2]
3261 Diablo Canyon Entrance, Nearest Cross Street - N of Harford Dr	1, 950[2]
3263 Diablo Canyon Entrance, Nearest Cross Street - N of Harford Dr	1,398[2]
3260 Diablo Canyon Entrance, Nearest Cross Street - N of Avila Beach Dr	3,501[2]

3451 First St (Avila), Nearest Cross Street - S of Avila Beach Dr	1,828[2]
3450 First St (Avila), Nearest Cross Street – S of Avila Beach Dr	2,867[2]
7 First St (Avila), Nearest Cross Street - S of Avila Beach Dr	5,312[2]
3320 Ontario Rd, Nearest Cross Street - N of San Luis Bay Dr	1,049[2]
3370 Ontario Rd, Nearest Cross Street - S of San Luis Bay Dr	1,151[2]
5270 Ontario Rd, Nearest Cross Street - S of Higuera St	1,299[2]
12 Ontario Rd, Nearest Cross Street - N of Avila Beach Dr	1,825[2]

Source: Caltrans[1], 2017; [2]County of San Luis Obispo[2], 2019.

The access roads to the PSL District experience peak traffic conditions and congestion during the summer season, week-days during the salmon season, weekends and warm days. The PSL District is typically accessed by coastal US Highway 101, SR 101, or SR 1, and then by Avila Beach Drive, a narrow, two lane roadways maintained by the County of San Luis Obispo. Avila Beach Drive provides the only vehicular access to the Port. The roadway is shared by motorists, bicyclists and pedestrians. Vehicle access by land to the breakwater area could be via the Diablo Canyon Road, which intersects Avila Beach Drive, and then by the "Lighthouse Road", a narrow steep road that extends past the Port San Luis breakwater to the Lightstation. The Diablo Canyon Road, which is also a narrow and steep roadway, provides access to the PG&E DCPP facility, which is outside of the proposed Port San Luis O&M breakwater repair project area, and is restricted from public access. Due to these narrow and/or steep access roads, in and around the western portion of San Luis Obispo County of Avila Beach and Port San Luis, the Proposed Action land truck haul delivery of rock using roadways would more than likely not be viable, more than likely would not be feasible, and not practicable. However, there would be some land-based traffic pertaining to the Proposed Action, primarily from 12 laborer commuter vehicles and work material deliveries, or approximately 24 trips per day on roadways. The AADTs increase from the Proposed Action for the roadways in the vicinity of the project area of Avila Beach/Port San Luis compared to the baseline AADT are summarized in Table 4.8.2

Table 4.8.2 Comparison of Baseline AADT to Proposed Action Traffic Increases, City of Avila Beach/Port San Luis

Roadway	AADT	Projected Increase in AADT	Percent Increase in Baseline AADT
SR 101, Description - PISMO BEACH, JCT. RTE. 1 SOUTH	75,100[1]	24	0.03%

SR 101, Description - NORTH SHELL BEACH	74,500[1]	24	0.03%
SR 101, Description - AVILA ROAD	69,300[1]	24	0.04%
SR 101, Description - NORTH AVILA ROAD	76,800[1]	24	0.03%
SR 1, Description - PISMO BEACH, VILLA CREEK	11,200[1]	24	0.22%
SR 1, Description - PISMO BEACH, SOUTH JCT. RTE. 101	11,000[1]	24	0.21%
SR 1, Description SAN LUIS OBISPO, NORTH JCT. RTE. 101	29,500[1]	24	0.81%
3024 Avila Beach Dr, Nearest Cross Street - W of San Luis Bay Dr	12,578[2]	24	0.19%
1 Avila Beach Dr, Nearest Cross Street - E of Diablo Canyon Rd	4,973[2]	24	0.48 %
5 Avila Beach Dr, W of Ontario Rd	10,524[2]	24	0.23%
3 Avila Beach Dr, Nearest Cross Street - E of Ontario Rd	12,061[2]	24	0.20%
2 Avila Beach Dr, Nearest Cross Street - E of First St	9,576[2]	24	0.25%
4 Avila Beach Dr, Nearest Cross Street - W of First St	7,030[2]	24	0.34%
3020 Avila Rd, Nearest Cross Street - W of San Luis Bay Dr	12,876[2]	24	0.19%
3261 Diablo Canyon Entrance, Nearest Cross Street - N of Harford Dr	1,950[2]	24	1.23%
3263 Diablo Canyon Entrance, Nearest Cross Street - N of Harford Dr	1,398[2]	24	1.72%
3260 Diablo Canyon Entrance, Nearest Cross Street - N of Avila Beach Dr	3,501[2]	24	0.68%
3451 First St (Avila), Nearest Cross Street - S of Avila Beach Dr	1,828[2]	24	1.31%

3450 First St (Avila), Nearest Cross Street – S of Avila Beach Dr	2,867[2]	24	0.84%
7 First St (Avila), Nearest Cross Street - S of Avila Beach Dr	5,312[2]	24	0.45%
3320 Ontario Rd, Nearest Cross Street - N of San Luis Bay Dr	1,049[2]	24	2.29%
3370 Ontario Rd, Nearest Cross Street - S of San Luis Bay Dr	1,151[2]	24	2.08%
5270 Ontario Rd, Nearest Cross Street - S of Higuera St	1,299[2]	24	1.85%
12 Ontario Rd, Nearest Cross Street - N of Avila Beach Dr	1,825[2]	24	1.32%

Source: Caltrans[1], 2017; [2]County of San Luis Obispo[2], 2019.

While it is less likely that a land-based (inland) quarry for stone would be utilized for O&M breakwater repair, this is a possibility. Previous Corps Los Angeles District (Corps) marine rock work projects have utilized stone sourced from an inland quarry, most recently stone was sourced from an inland quarry in Apple Valley/Victorville, San Bernardino County. Under the Proposed Action, stone could be procured from an inland quarry in Apple Valley/Victorville in San Bernardino County High Desert area and then loaded on to large big rig flat bed trailers or large dump trucks to be transported (delivered) on roadways, highways, and freeways to Port Hueneme/Port of Hueneme in Ventura County where the stone would be off-loaded directly onto a marine barge or offloaded into a designated land-based staging/storage area for transfer at a later time to a marine barge. The stone would then be delivered by sea vessels barge(s) and tug(s) from the Port Hueneme/Port of Hueneme going north along the California coast to the Port San Luis Harbor in San Luis Obispo County. Should land-based staging/storage construction equipment areas (contractor laydown areas) be required at Port Hueneme/Port of Hueneme they would be designated on land that has been developed (i.e., paved), and/or already designated for such purposes. At this time, it cannot be determined what specific inland quarry or port a contractor may utilize for the Port San Luis Breakwater Repair Project (should a different quarry be utilized additional analyses may be required). Table 4.8.3 shows the roadways and AADT that would more than likely be used to deliver rock using large trucks between Apple Valley/Victorville to Port Hueneme/Port of Hueneme.

Table 4.8.3 Annual Daily Trips (AADT) Truck Haul Delivery on Roadways, Apple Valley/Victorville (San Bernardino County) to Port Hueneme/Port of Hueneme (Ventura County)

Roadway	AADT
Interstate 15 (Victorville, San Bernardino County), Junction (Jct.) State Route (Rte. 18 Southeast)	69,000[1]

Interstate 15 (Ontario, San Bernardino County), Jct. Interstate 10	250,000[1]
Interstate 10 (Los Angeles), Jct. State Highway 101	211,000[1]
State Highway 101 (Oxnard, Ventura County), Santa Clara/Rice Avenue	129,000[1]
Pleasant Valley Road/Rice Avenue (Oxnard), State Rte. 1 (Pacific Coast Highway)	19,000[1]
State Route 1 (Pacific Coast Highway), Hueneme Road	12,600[1]

Source: Caltrans[1], 2017.

Stone could be sourced from the Apple Valley/Victorville in-land quarry and delivered using large flatbed trailers or dump trucks on roadways, highways, and freeways to Port Hueneme/Port of Hueneme, Ventura County, where the stone would be off-loaded directly onto a marine barge or offloaded into a designated land-based staging/storage area for transfer at a later time to a marine barge. The inland quarry hauling rock in trucks on roadways has estimated 26 trucks daily travelling approximately 180 miles one way on roads from Apple Valley/Victorville, San Bernardino County, to Port Hueneme/Port of Hueneme, Ventura County, or approximately 360 miles round trip. The stone would then be delivered by sea vessels barge(s) and tug(s) from Port Hueneme/Port of Hueneme going north along the California coast to the Port San Luis Harbor in San Luis Obispo County. Should land-based staging/storage construction equipment areas (contractor laydown areas) be required at the Port Hueneme/Port of Hueneme they would be designated on land that has been developed (i.e., paved), and/or already designated for such purposes. The land-based heavy equipment vehicles used to haul rock on roadways would include flatbed trailer big rig (or large dump trucks) carrying stone, a crawler loader, a crane, a water truck, and 29 laborer commuter vehicles, working 6 days a week, approximately 11 hours a day, over an approximate 7 month (approximately 174 days) project duration. For land transport, a weight haul capacity of approximately 14 tons for a flat bed big rig trailer (or a large dump truck) to carry and transport the stone on roadways, it has been estimated it would require approximately 26 trucks hauling rock per day, or approximately 52 round trips per day, to deliver approximately 60,000 tons of new stone Additionally, 3 support heavy duty equipment vehicles (a crawler loader, a crane) to load rock on to the flatbed big rig trailers or large dump trucks, and a water truck would be used for fugitive dust control, would be calculated at approximately 78 round trips per day. 29 laborers commuter vehicles would utilize roadways for the seven months duration of construction, or approximately 58 round trips daily would be required for the laborers commuter vehicles. Therefore, the estimated daily trips (AADT) for all vehicles on roadways between Apple Valley/Victorville in San Bernardino County to Port Hueneme/Port of Hueneme/ in Ventura County for the Proposed Action would be 188 daily truck trips. The increases in AADT associated with the Proposed Action Alternative compared to the baseline AADT is summarized in Table 4.8.4.

Table 4.8.4 Comparison of Baseline AADT to Proposed Action Traffic Increases, Truck Haul Delivery on Roadways, Apple Valley/Victorville (San Bernardino County) to Port Hueneme/Port of Hueneme (Ventura County)

Roadway	AADT	Projected Increase in AADT	Percent Increase in Baseline AADT
Interstate 15 (Victorville, San Bernardino County), Junction (Jct.) State Route (Rte. 18 Southeast)	69,000[1]	188	0.27%
Interstate 15 (Ontario, San Bernardino County), Jct. Interstate 10	250,000[1]	188	0.08%
Interstate 10 (Los Angeles), Jct. State Highway 101	211,000[1]	188	0.09%
State Highway 101 (Oxnard, Ventura County), Santa Clara/Rice Avenue	129,000[1]	188	0.15%
Pleasant Valley Road/Rice Avenue (Oxnard), State Rte. 1 (Pacific Coast Highway)	19,000[1]	188	0.99%
State Route 1 (Pacific Coast Highway), Hueneme Road	12,600[1]	188	1.49%

Source: Caltrans[1], 2017.

As shown in Table 4.8.3 and Table 4.8.4, there would be a minor increase in AADT on roadways from the Proposed Action. LUR environmental commitments applicable land based traffic and transportation discussed in Section 5 of the EA include obtaining CALTRANS permit(s) required on State highways when transporting oversized-transport vehicles or heavy construction equipment, and heavy duty equipment carrying materials and equipment to avoid sensitive receptor areas to the extent practicable. The implementation of LUR environmental commitments and Best Management Practices (BMPs) discussed in Section 5 of the EA would avoid, reduce and minimize impacts. Therefore, impacts would be short term and temporary from land based traffic and transportation. Upon completion of construction, land based traffic and transportation would return to pre-project conditions. Based on the above, and with implementation of LUR environmental commitments, impacts would be less than significant.

The following LUR environmental commitments would be implemented to further minimize the temporary impacts caused by the Proposed Action:

- As applicable, the Construction contractor would obtain CALTRANS permit(s) required on State highways when transporting oversized-transport vehicles or heavy construction equipment
- Heavy duty equipment carrying materials and equipment would avoid sensitive receptor areas to the extent practicable.

No Action Alternative

There would be no O&M repair of the breakwater under the No Action Alternative. However, continued deterioration of the breakwater structure would prevent a protected harbor and shoreline and beaches, and safe navigation through the harbor. Furthermore, any reduced ability for PSL Harbor Patrol or USCG vessels to transit the harbor could compromise emergency response and evacuation plans. It is likely that a limited and localized emergency repair would be undertaken in the event that continued exposure of the sub-standard breakwater would leave portions of the harbor, shoreline and beaches unprotected and threaten navigational safety. Any vessel and traffic impacts would be temporary and short term, and land-based traffic impacts would *de minimis* and short-term. Impacts would be less than significant.

4.9 GROWTH INDUCEMENT

The proposed project is located in Port San Luis Bay in San Luis Obispo County. The proposed project is a routine maintenance O&M repair program plan, repairing an attached breakwater for continued safe operation and protection of harbor facilities being the objective purpose. The proposed project is not in support of planned infrastructure improvements that would result in additional growth. The proposed project would not require additional employees other than temporary contractor employees to perform the O&M rock repair breakwater work and excavation around the breakwater construction operations. The proposed project would not induce growth within the project area.

4.10 CUMLATIVE IMPACTS

Currently, a major planned development Port San Luis Harbor project is the Harford Pier Redevelopment (new piles, decking, stringers, reconstruction of lease sites on the Pier) – final completion 2026 or beyond (estimate).

The Port San Luis Harbor District has a Clean Water Act (CWA) 404 permit issued from the Corps of Engineer for dredging and disposal authorizing the Harbor District to remove up to 250,000 cubic yards (CY) of sand annually within a 32-acre site surrounding two boat-launching facilities. The California Coastal Commission has limited the scope of the most recent Coastal Development Permit (CDP) to 75,000 cubic yards (cy) annually and 3 acres until a larger project has been identified. When a port-wide dredge project has been identified and funded, the Port San Luis Harbor District intends to amend its current CDP or reapply to encompass the expanded scope for the entire 250,000 cy. Material from the current dredge operation may be disposed of within 3 near-shore disposal sites: West Bluff Beach, Fisherman's Beach, and Olde Port Beach. With exception of the CDP, permits allow any of the following dredging methods: hydraulic suction, crane with clamshell, crane with dragline bucket, excavator-type machines with bucket or scoop, and/or other heavy equipment as appropriate and approved by the USACE. For the current project and CDP, the Port San Luis Harbor District will use a land-based crane and submersible dredge pump to remove sand and pump it through a pipeline to West Bluff Beach or Fisherman's Beach disposal sites. The Port San Luis Harbor District may pursue extending the disposal pipe to Olde Port Beach via booster pump to decrease the amount

of dredging needed on an annual basis. The intent of the Port San Luis Harbor District dredge operations plan is to satisfy pre-dredge permit conditions.

The Proposed Action would not induce a permanent, incremental impact on the environment. Impacts would be localized, and temporary (short term). Upon project completion, the Port San Luis Harbor/Bay would return to pre-project conditions. Impacts would be less than significant.

5.0 ENVIRONMENTAL COMMITMENTS

Based on the information available to the Corps LAD and recommendations of public agencies, the following environmental commitments have been identified to minimize potential environmental impacts. Applicable commitments would be incorporated into the project plans and contract specifications.

Water Quality (WQ)

WQ-1: The Contractor shall stay within the boundaries of the identified construction zones.

WQ-2 There would be no dumping of fill or material outside of the project area or within any adjacent aquatic community.

WQ-3: Construction vehicles would be continuously examined for leaking fluids.

WQ-4: Litter, petroleum products, cleaning agents, wash down waters, and other toxic or oxidizable materials would be prevented from entering marine waters.

WQ-5:Water quality monitoring for compliance purposes would occur during sediment excavation and sediment placement activities.

WQ-6: Turbidity, dissolved oxygen, light transmittance, pH, salinity, and temperature would be monitored during sediment excavation and sediment placement activities.

WQ-7: If turbidity and/or dissolved oxygen exceed water quality criteria during excavation and placement activities, conditions would be evaluated, and modifications would be made to operations to get turbidity and/or dissolved oxygen back into compliance.

Biological Resources

BR-1: The Contractor shall keep construction activities under surveillance, management, and control to minimize interference with and disturbance to fish and wildlife.

BR-2: Stockpiling of construction materials on shore shall be confined to authorized staging/storage area(s). Staging and stockpile areas shall be restored to their original condition after construction is complete.

BR-3: Any kelp beds in the vicinity of breakwater repairs shall be avoided.

BR-4: An on-site qualified marine mammal monitor will be on-site at all times during construction activities. A 50-meter safety zone for Southern sea otters will be established for this project. Should a sea otter come within 50 meters of the construction activities, operations will be halted until the sea otter leaves the designated safety zone.

BR-5: Operators of construction equipment shall not harass any marine mammal, bird, or fish in the project area.

BR-6: In the unlikely event of an interaction with a marine mammal, the Contractor shall cease all operations and immediately contact the Corps biologist and the National Marine Fisheries Service (NMFS) Stranding Coordinator, Mr. Justin Viezbicke at 562-980-3230 Justin.Viezbicke@noaa.gov or Mr. Justin Greenman at 562-980-3264 Justin.Greenman@noaa.gov before proceeding with repair work.

BR-7: Minimization and avoidance measures to reduce impacts to eelgrass and surfgrass proposed in the Eelgrass Mitigation and Monitoring Plan in Support of The Port San Luis Breakwater Repairs (Merkel & Associates 2021) will be implemented.

BR-8: The Corps will conduct pre- and post-construction eelgrass surveys in accordance with the CEMP, surfgrass surveys, and canopy kelp surveys.

BR-9: The Corps will mitigate the impacts to eelgrass in accordance with the CEMP at a 1.2:1 mitigation ratio, mitigation plan details can be found in the Eelgrass Mitigation and Monitoring Plan in Support of the Port San Luis Breakwater Repairs, Appendix B.

BR-10: The Corps will implement the Pilot Surfgrass Translocation detailed in the Eelgrass Mitigation and Monitoring Plan in Support of The Port San Luis Breakwater Repairs (Merkel & Associates 2021).

BR-11: All conditions of the Incidental Harassment Authorization issued to the Corps for the PSL Breakwater Repair Project by the NMFS Office of Protected Resources Division will be followed.

BR-12: The following black abalone minimization and avoidance measures will be implemented:

- An additional black abalone survey would be conducted when adequate low tides and safe sea state conditions allow during 2021 or 2022 prior to breakwater repair construction commencing to confirm no black abalone are present.
- A qualified black abalone biologist would be on-site during construction to periodically survey the breakwater structure as new sections are repaired and core interstitial spaces are exposed to ensure no black abalone are present or are in harm's way. Approximately, one 75 – 100 ft section of breakwater would be repaired per week.
- Should black abalone be observed within the PSL breakwater repair area, work will cease in that immediate area and Section 7 consultation would be immediately initiated with the NMFS.

Air Quality and Noise (AQN)

AQN-1: Trucks and construction equipment would be properly maintained in order to minimize release of diesel and hydrocarbon effluent into the atmosphere. The Contractor would comply with all air quality standards, including those regarding emissions, fuel use and fuel consumption. Appropriate measures would be taken to reduce fugitive dust caused by operations. Vehicle speed of all land transport equipment within the staging area would be kept at a minimum to avoid the formation of dust clouds and to ensure safety for the public.

AQN-2: The Contractor would be required to follow all applicable requirements of the Port San Luis Harbor District air permit issued from the SLOCAPCD. Otherwise, the contractor must obtain a separate air permit from the SLOCAPCD or the California Air Resources Board (CARB)prior to commencement of work, pay all associated fees, and follow all permit requirements.

AQN-3: Activities and operations on unpaved areas should be minimized to the extent feasible during high wind events to minimize fugitive dust.

AQN-4: Noise levels of the rockwork operation shall not exceed the limits established by the Port San Luis's Harbor, City of Avila Beach, or San Luis Obispo County noise ordinance(s). If, for any reason, double or triple-shifts are utilized, the contractor shall obtain any necessary permits or exemptions from the Port San Luis Harbor, City of Avila Beach, or San Luis Obispo County.

AQN-5: Trucks and construction equipment would be properly maintained and scheduled in order to minimize unsafe and nuisance noise effects to sensitive biological resources, residential areas, and the socio-economic environment.

AQN-6: Sensitive receptors along potential haul routes, such as residential areas, schools, hospitals, convalescent homes, and churches would be avoided whenever possible.

AQN-7: Crane brakes shall be maintained to reduce any loud and unnecessary noise.

AQN- 8: Construction related vehicles and equipment shall continue to meet State, county and local requirements regarding emissions, noise, and weight capacity.

AQN-9: If reasonable complaints are received from local residents, the contractor shall implement additional measures to reduce these impacts. Specific measures shall be identified in coordination with the Corp's Contracting Officer.

AQN-10: If double or triple-shifts are utilized, the contractor shall obtain any necessary permits or exemptions from the Port San Luis Harbor, City of Avila Beach, or San Luis Obispo County.

Land Use and Recreation (LUR)

LUR-1: The Corps contractor shall provide maximum public access to roads, streets and highways that might be utilized for hauling and construction. If possible, large-scale truck trips would be limited to off-peak commute periods. The contractor would be responsible for obtaining the necessary permits from and/or creating a transportation management plan for the CALTRANS prior to commencement of work, pay all associated fees, and follow all permit requirements.

LUR-2: Transport of oversized or over weight vehicles on State highways would need a CALTRANS Transportation Permit.

LUR-3: The Corps contractor would to the extent possible limit large scale truck trips of materials and equipment to off peak commute periods and avoid sensitive receptor areas, schools, hospitals, convalescent homes, residential areas, and churches.

LUR-4: Sea-based equipment must be marked in accordance with USCG and local Harbor Patrol provisions. Corps contractor shall notify the Commander, USCG District, at least 2 weeks before the start of activity or 30 days before if buoys are to be placed. This notification shall include the following:

a. The size and type of equipment that would be performing the work.

b. Name and radio call sign for working boats.

c. Telephone number for on-site contract with project engineer.

d. The schedule for completing the project.

Furthermore, the USCG and local Harbor Patrol shall be notified by the Corps contractor of any hazards to navigation.

LUR-5: The Corps contractor shall move equipment upon request by Coast Guard and Harbor Patrol law enforcement and rescue personnel.

LUR-6: Should land-based staging/storage construction equipment areas (contractor laydown areas) be required at Port Hueneme/Port of Hueneme, Ventura County, they would be designated on land that has been developed (i.e., paved), and/or already designated for such purposes.

LUR-7: In-field coordination will occur between the Corps contractor, the U.S. Coast Guard District, and the local Harbor Patrol

Cultural Resources (CR)

CR-1: Some of the original stone was quarried from Morro Rock, which is considered sacred by the Chumash Indians. All existing stone shall be treated in a respectful manner that minimizes breakage, and all stone material, both broken and whole, shall be retained on or adjacent to the breakwater.

CR-2: In the event that previously unknown cultural resources, including human beings, are encountered during the project, all ground disturbing activities within 100 feet of the discovery shall cease immediately and a Corps archaeologist notified. Work shall not resume in the area surrounding the discovery until the Corps has met the requirements of 36 CFR 800.13 and re-authorizes project construction.

6.0 COORDINATION

The principal agencies with which this project has been, and would continue to be coordinated include: USFWS, NMFS, CCC, CDFW, California State Resources Agency, State Lands Commission, California Regional Water Quality Control Board (Central Coast Regional Water Quality Control Board), CALTRANS (California Department of Transportation), California Department of Parks and Recreation (State Parks), San Luis Obispo County Air Pollution Control District (SLOCAPCD), the County of San Luis Obispo, the PSL Harbor District, and the Southern California Dredge Material Management Team (SC-DMMT). Coordination with the SHPO and the Native American Heritage Commission (NAHC) have also occurred. A distribution list for the EA is included in Appendix G.

7.0 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

National Environmental Policy Act of 1969 (NEPA)

This EA was prepared to evaluate impacts associated with the Proposed Action.. If it is determined after public review that the Proposed Action will not have a significant impact upon the quality of the human environment, then a Finding of No Significant Impact will be prepared and preparation of an environmental impact statement would not be required.

Clean Water Act

Section 404

Section 404 of the CWA (33 U.S.C. 1344) governs the discharge of dredged or fill material into waters of the U.S. Although the Corps does not process and issue permits for its own activities, the Corps authorizes its own discharges of dredged or fill material by applying all applicable substantive and procedural legal requirements, including public notice, opportunity for public hearing, and application of the section 404(b)(1) guidelines. The Corps' draft 404(b)(1) analysis is included in Appendix A.

Section 401 Water Quality Certification

On February 5, 2021, the Central Coast Regional Water Quality Control Board (Water Board) acknowledged receipt of the draft 401 application sent by the Corps on February 1, 2021, and the Water Board assigned it a Certification WDID number 34021WQ04. A pre-application filing meeting between the Corps and with Water Board occurred on February 17, 2021 to discuss the 401 application. The Corps applied for a Section 401 Water Quality Certification from the Water Board on March 31, 2021. A water quality certification pursuant to section 401 of the Clean Water Act will be obtained from the Water Board prior to construction. Relevant conditions of the water quality certification will be implemented in order to minimize adverse impacts to water quality.

Section 402

Section 402 of the CWA prohibits the discharge of pollutants into the "waters of the United States" from any point source unless the discharge is in compliance with the National Pollution Discharge Elimination System (NPDES) Permit. Section 402 requires a NPDES Permit for the discharge of stormwater from municipal separate storm sewer system (MS4) serving urban areas with a population greater 100,000; construction sites that disturb one acre or more; and industrial facilities. The Central Coast Regional Water Quality Control Board (Water Board) administers these permits with oversight provided by the U. S Environmental Protection Agency (USEPA), Region IX. Prior to construction, the construction contractor will prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) of the NPDES program.

Coastal Zone Management Act of 1972 and California Coastal Act of 1976

Section 307 of the CZMA states that federal activities within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs. The California Coastal Act is this state's approved coastal management program applicable to the federal action. Two previous CDs, CD-35-83 and CD-85-91, and a Negative Determination (ND), ND-050-04, have been prepared for earlier repairs to the Port San Luis Harbor breakwater, and the CCC concurred on these previous CDs and ND. The Corps has evaluated the Proposed Action and has determined it is consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program pursuant to section 307(c) of the Coastal Zone Management Act of 1972, as amended. On February 26, 2021, the Corps informally coordinated a Consistency Determination (CD) on the Proposed Action with the California Coastal Commission (CCC), and on March 2, 2021, the Corps formally submitted the CD to the CCC. The Proposed Action CD is on the April 2021 CCC Hearing Board agenda. A CCC Staff Report has assigned CD-0002-21 to the CD for Port San Luis Harbor breakwater repair project. With concurrence by the CCC, the Proposed Action will be in compliance with the Act.

Endangered Species Act of 1973

Under ESA Section 7(a)(2), each federal agency must ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of the species' designated critical habitat (16 U.S.C. § 1536(a)(2)). If an agency determines that its actions "may affect" a listed species or its critical habitat, the agency must conduct informal or formal consultation, as appropriate, with either the USFWS or the NMFS, depending on the species at issue (50 C.F.R. §§402.01, 402.14(a)– (b)). If, however, the action agency independently determines that the action would have "no effect" on listed species or critical habitat, the agency has no further obligations under the ESA. The Corps has determined that the Proposed Action would have "no effect" on the California least tern. The Corps has determined that the Proposed Action "may affect, not likely to adversely affect" the Southern sea otter. Informal consultation pursuant to Section 7 of the Endangered Species Act will be initiated with the US Fish and Wildlife Service, the agency responsible for managing Southern sea otters. The Corps has determined the proposed project "may affect, likely to adversely affect" the black abalone and black abalone designated critical habitat. Informal consultation pursuant to Section 7 of the Endangered Species Act will be initiated with the National Marine Fisheries Service, the agency responsible for managing black abalone.

National Historic Preservation Act of 1966, as amended

Section 106 of the NHPA requires Federal agencies to take into account the effects of undertakings they carry out, assist, fund, or permit on historic properties and to provide the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. Federal agencies meet this requirement by completing the Section 106 process set forth in the implementing regulations, "Protection of Historic Properties," 36 C.F.R. Part 800. The goal of the Section 106 process is to identify and to consider historic properties that might

be affected by an undertaking and to attempt to resolve any adverse effects through consultation. Based on a records search, evaluation of the breakwater, and consultation with SHPO, no historic properties would be affected by the proposed project. To comply with Section 106 of the National Historic Preservation Act (NHPA), the Corps consulted with the SHPO and on February 20, 2018, received concurrence that no historic properties would be affected. Following the addition of eel grass mitigation site and expanded dredging, the Corps consulted a second time with the SHPO, receiving concurrence on March 25, 2021 that no historic properties would be affected. The proposed project is therefore in compliance with the NHPA.

Fish and Wildlife Coordination Act

In response to the requirements of this Act, the Corps has and would continue to maintain continuous coordination with the USFWS, the NMFS, and the CDFW during phases of the planning and construction process. The proposed project is in compliance with the Act.

Magnuson-Stevens Fishery Conservation and Management Act, as amended

This EA includes an Essential Fish Habitat (EFH) Assessment as required by the Act. The Corps has determined that the proposed project may result in a substantial adverse impact to EFH, but would not result in a substantial adverse impact to any species managed under the four FMPs identified for this region of the Pacific. Expanded EFH consultation pursuant to the Act will be initiated with the NMFS, the agency responsible for managing EFH.

Clean Air Act (CAA)

Emissions generated by this project are expected to be temporary and short term impact. Furthermore, the contractor must obtain a permit from the San Luis Obispo County Air Pollution Control District (SLOCAPCD) or the State California Air Resources Board (CARB) permit requirements prior to commencement of work. A conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action would equal or exceed any of the applicability rates specified in 40 CFR 93.153(b)(1). Based on the analysis in Section 4, the total direct and indirect emissions associated with the federal action are not expected to equal or exceed the applicability rates, applicable in each air basin. A conformity determination is not required. The Proposed Project is in compliance with the CAA.

Migratory Bird Treaty Act (MBTA) as amended

The proposed Port San Luis O&M breakwater repair project area was coordinated with the USFWS and CDFW. The proposed project would not entail the taking, killing or possession of any migratory birds and is therefore in compliance with the Act. The Proposed Action also complies with Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. The Proposed Action is in compliance with the Act.

Executive Order 12898, Environmental Justice in Minority and Low-Income Populations

Executive Order (E.O.) 12898 focuses Federal attention on the environment and human health conditions of minority and low-income communities and calls on agencies to achieve environmental justice as part of its mission. The order requires the USEPA and all other Federal agencies (as well as state agencies receiving Federal funds) to develop strategies to address this issue as part of the NEPA process. The agencies are required to identify and address, as appropriate, any disproportionately high and adverse human health or environmental impacts of their programs, policies, and activities on minority and low-income populations. The order makes clear that its provisions apply fully to programs involving Native Americans. The Council of Environmental Quality (CEQ) has oversight responsibility for the Federal government's compliance with E.O. 12898 and NEPA. The CEQ, in consultation with the USEPA and other agencies, has developed guidance to assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed. According to the CEQ's Environmental Justice Guidance under the National Environmental Policy Act, agencies should consider the composition of the affected area to determine whether minority populations or low-income populations are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse human health or environmental impacts (CEQ 1997).

Demographic data from the USEPA's EJSCREEN, an online environmental justice screening and mapping tool, served as the source data for evaluation. Maps and data from EJSCREEN are found in Appendix F. EJSCREEN incorporates demographic data from the U.S. Census Bureau (USEPA EJ SCREEN, 2020a). An analysis of demographic data was conducted to derive information on the approximate locations of low-income and minority populations in the community of concern. Since the analysis considers disproportionate impacts, two areas must be defined to facilitate comparison between the area actually affected and a larger regional area that serves as a basis for comparison and includes the area actually affected. The larger regional area is defined as the smallest political unit that includes the affected area and is called the community of comparison. For purposes of this analysis, the affected area is a three-mile radius around the project area, and the San Luis Obispo City as the community of comparison.

Minority populations. EO 12898 defines a minority as an individual belonging to one of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. A minority population, for the purposes of this environmental justice analysis, is identified when the minority population of the potentially affected area is greater than 50% or the minority population is meaningfully greater than the general population or other appropriate unit of geographic analysis. USEPA's EJSCREEN 2020 tool was used to obtain the study area demographics (USEPA, 2020a). Table 7.1.1 below provides a summary of the study area minority population demographics.

Low-Income Population**.** The EO does not provide criteria to determine if an affected area consists of a low-income population. For purposes of this assessment, the CEQ criterion for defining low-income population has been adapted to identify whether or not the population in an affected area constitutes a low-income population. An affected geographic area is considered to consist of a low-income population (i.e., below the poverty level, for purposes of this analysis)

where the percentage of low-income persons: 1) is greater than 50%, or 2) is meaningfully greater than the low-income population percentage in the general population or other appropriate unit of geographic analysis. The United States Census Bureau poverty assessment weighs income before taxes and excludes capital gains and non-cash benefits (such as public housing, Medicaid, and food stamps). USEPA's EJScreen tool was used to obtain the study area low-income population for the affected area (USEPA, 2020a). Table 7.1.1 provides a summary of the low-income population percentages.

Table 7.1.1 Environmental Justice Study Area Demographics

Demographic Indicators	Affected Area	State of California	San Luis Obispo City
Minority Population	16%	62%	30.1% [1]
Low-Income Population	7%	33%	30.4% [1]

Source: [1] U.S. Census Bureau 2019.

As summarized in Table 7.1.1 Environmental Justice Study Area Demographics, the aggregate minority population in the affected area is 16% (USEPA, 2020a). The aggregate population percentage in the affected area does not exceed 50%. In addition, the affected area minority population percentage is not greater than the minority population percentage in the state of California as a whole that is approximately 62% (USEPA, 2020a), or the City of San Luis Obispo (U.S. Census Bureau, 2019) that is approximately 30.1%. Therefore, the affected area does not contain a high concentration of minority population.

As outlined in Table 7.1.1 Environmental Justice Study Area Demographics. 7% of the individuals in the affected area are considered low-income (below the poverty level) population (USEPA, 2020a). This percentage in the affected area does not exceed 50%. In addition, the affected area low-income population percentage is not greater than the low-income population in the state of California as a whole that is approximately 33% (USEPA, 2020a), or the city of San Luis Obispo that is approximately 30.4% (U.S. Census Bureau, 2019). Therefore, the affected area does not contain a high concentration of low-income population.

The project area does not constitute an EJ community. Therefore, there would be no impacts resulting from the Proposed Action that would result in disproportionately high and adverse impacts to minority and low-income communities.

8.0 LIST OF PREPARERS AND REVIEWERS

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9.0 REFERENCES

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FIGURES

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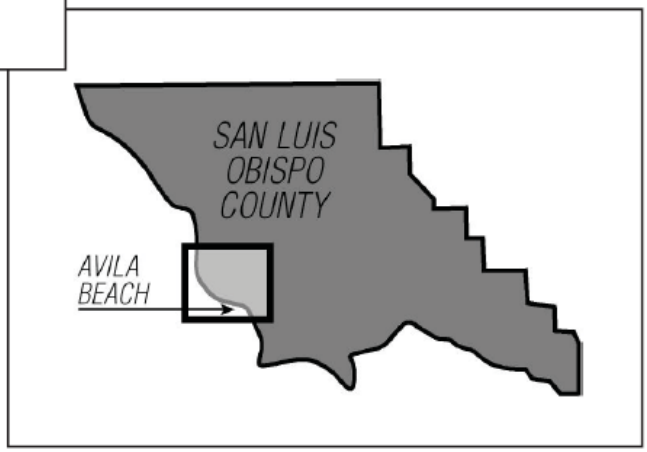
Figure 1 Regional Vicinity Map and Figure 2 Local Vicinity Map

Figure 1 Regional Vicinity Map

Figure 2 Local Vicinity Map

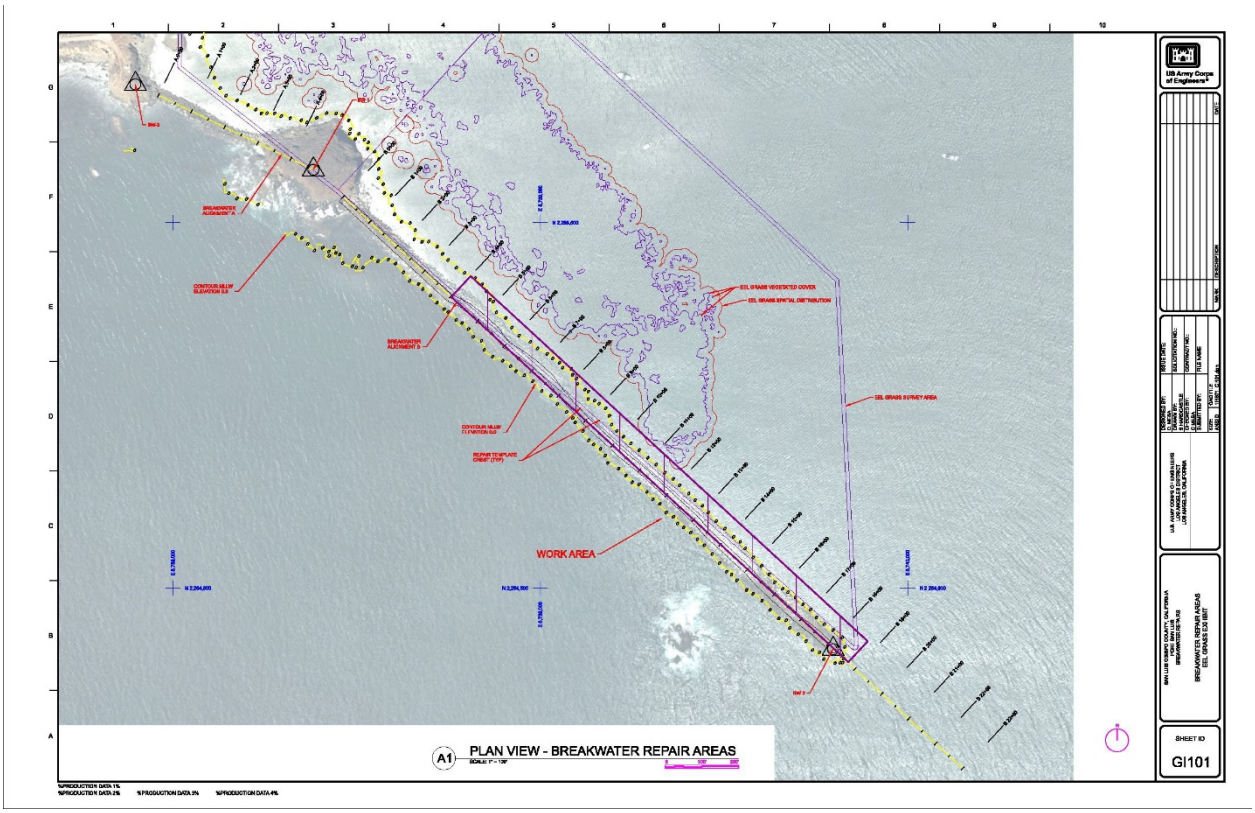


Reference: Port San Luis Harbor District, 2004

Figure 3 Port San Luis Harbor Site Map

Reference: Port San Luis Harbor District, 2004

Figure 4 Proposed Project Area Map Port San Luis Breakwater

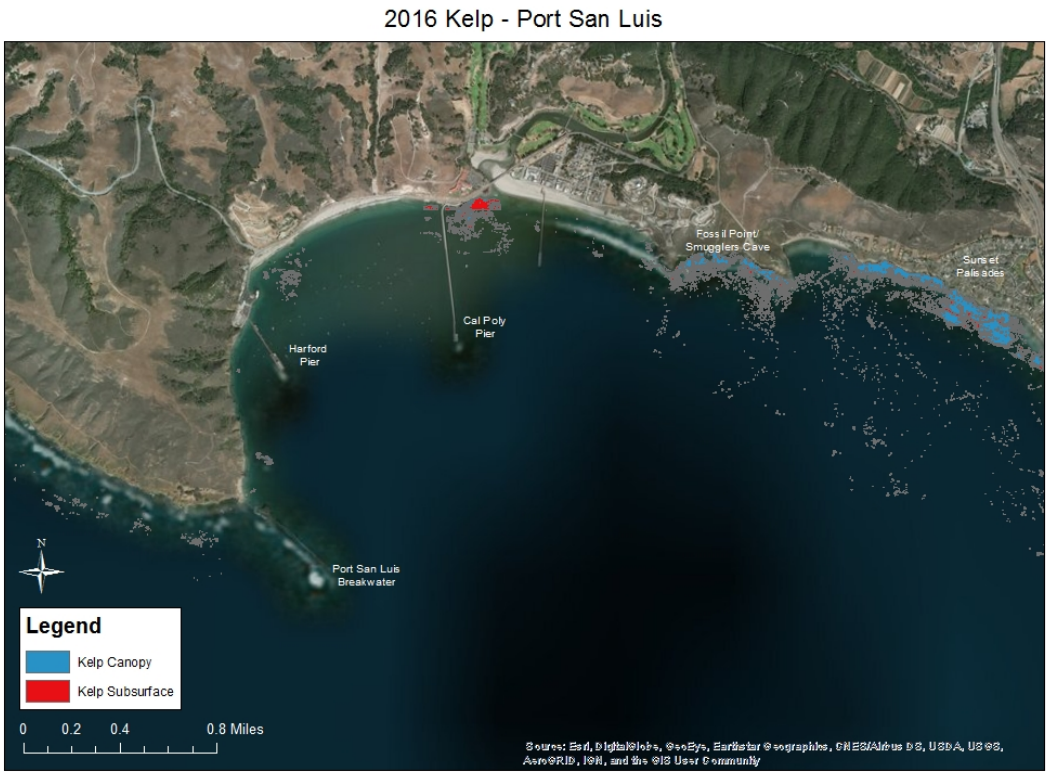


Reference: Corps

Figure 6 2016 Kelp Survey, In Vicinity of Port San Luis Breakwater

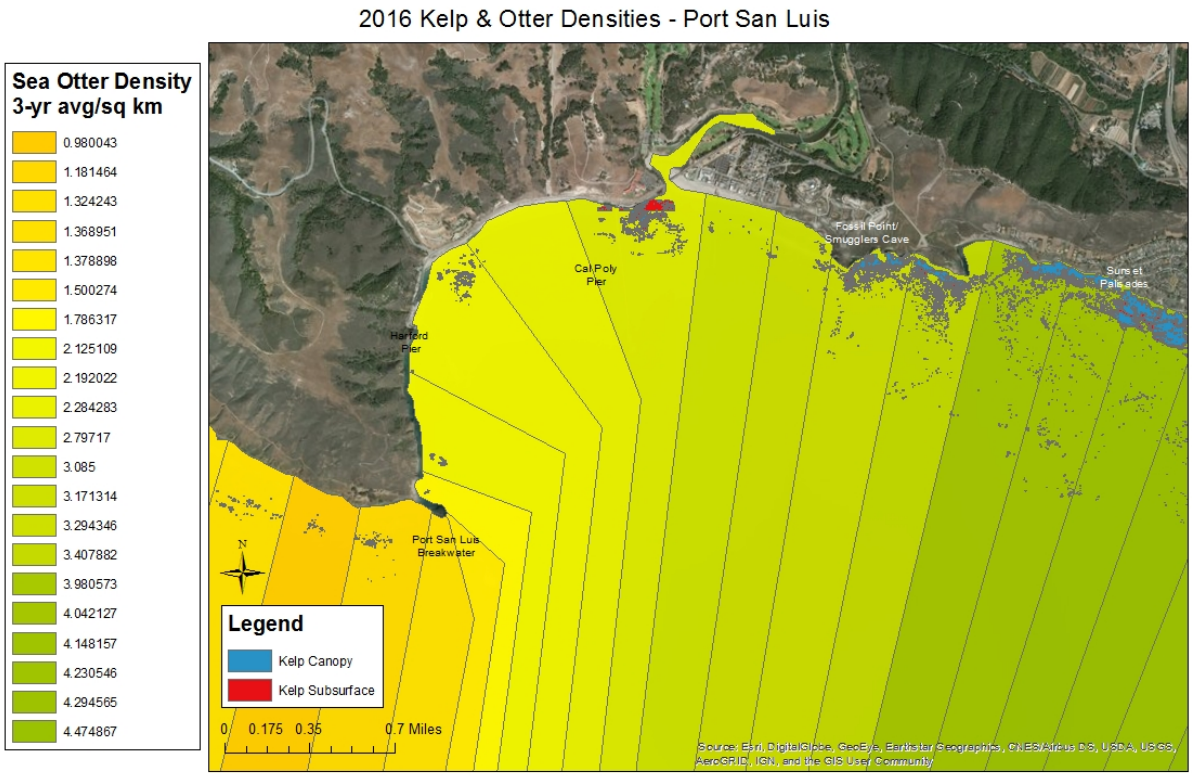
Source: CDFW, 2016
Note: Kelp was mapped approximately 1,000 feet west/southwest of the breakwater, and approximately 300 feet northwest of Whaler's Island, near the terminus of the inner breakwater on the land

Figure 7 2016 Kelp Survey, in Port San Luis Harbor



Source: CDFW, 2016.

Figure 8 2016 Kelp and Otter Densities – Port San Luis Harbor



Source: CDFW, 2016.

APPENDICES

APPENDIX A Section 404(b)(1) Water Quality Evaluation

APPENDIX B Biological Resources

APPENDIX C Air Criteria Pollutants Emissions and Greenhouse Gases (GHG) Emissions Analysis

APPENDIX D Sediment and Chemical Analysis Results of Proposed Excavated Material

APPENDIX E Cultural Resources

APPENDIX F Environmental Justice

APPENDIX G Distribution List

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