# PUBLIC NOTICE

**U.S. ARMY CORPS OF ENGINEERS**
**LOS ANGELES DISTRICT**

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**APPLICATION FOR PERMIT**
**Palos Verdes Marine Artificial Reef Restoration Project**

**Public Notice/Application No.:** SPL-2014-00291-BLR
**Project:** Palos Verdes Marine Artificial Reef Restoration Project
**Comment Period:** December 22, 2016 through January 25, 2017
**Project Manager:** Bonnie Rogers; 213-452-3372; Bonnie.L.Rogers@usace.army.mil

**Applicant**
Dan Pondella
Southern California Marine Institute
820 South Seaside Avenue
Terminal Island, California 90731

**Contact**
Dave Whiting
National Oceanic & Atmospheric Admin.
501 W. Ocean Blvd.
Long Beach, California,

**Location**
Approximately 0.3 miles offshore of Bunker Point past the existing kelp beds in 15–21 meters water depth, on the Palos Verdes Peninsula in the Pacific Ocean near the city of Palos Verde, Los Angeles County, California (at: 33.723000 latitude, -118.356000 longitude) (see attached figures).

**Activity**
To install quarry rock within approximately 9.1 acres waters of the United States (WOUS) to expand existing rocky reef habitat offshore from Palos Verdes and improve aquatic resources and functions across a 115 acre site, in association with Palos Verdes Marine Artificial Reef Montrose Settlement Restoration Project (see attached drawings). For more information see Additional Information section below.

Interested parties are hereby notified an application has been received for a Department of the Army permit for the activity described herein and shown on the attached drawing(s). We invite you to review today's public notice and provide views on the proposed work. By providing substantive, site-specific comments to the Corps Regulatory Division, you provide information that supports the Corps' decision-making process. All comments received during the comment period become part of the record and will be considered in the decision. This permit will be either issued, issued with special conditions, or denied under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Comments should be mailed to:

LOS ANGELES DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
ATTN: Bonnie Rogers

LOS ANGELES DISTRICT CORPS OF ENGINEERS
915 Wilshire Blvd. Ste 930
LOS ANGELES, CALIFORNIA 90017

Alternatively, comments can be sent electronically to: Bonnie.L.Rogers@usace.army.mil

The mission of the U.S. Army Corps of Engineers Regulatory Program is to protect the Nation's aquatic resources, while allowing reasonable development through fair, flexible and balanced permit decisions. The Corps evaluates permit applications for essentially all construction activities that occur in the Nation's waters, including wetlands. The Regulatory Program in the Los Angeles District is executed to protect aquatic resources by developing and implementing short- and long-term initiatives to improve regulatory products, processes, program transparency, and customer feedback considering current staffing levels and historical funding trends.

Corps permits are necessary for any work, including construction and dredging, in the Nation's navigable water and their tributary waters. The Corps balances the reasonably foreseeable benefits and detriments of proposed projects, and makes permit decisions that recognize the essential values of the Nation's aquatic ecosystems to the general public, as well as the property rights of private citizens who want to use their land. The Corps strives to make its permit decisions in a timely manner that minimizes impacts to the regulated public.

During the permit process, the Corps considers the views of other Federal, state and local agencies, interest groups, and the general public. The results of this careful public interest review are fair and equitable decisions that allow reasonable use of private property, infrastructure development, and growth of the economy, while offsetting the authorized impacts to the waters of the United States. The permit review process serves to first avoid and then minimize adverse effects of projects on aquatic resources to the maximum practicable extent. Any remaining unavoidable adverse impacts to the aquatic environment are offset by compensatory mitigation requirements, which may include restoration, enhancement, establishment, and/or preservation of aquatic ecosystem system functions and services.

**Evaluation Factors**

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof. Factors that will be considered include conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people. In addition, if the proposal would discharge dredged or fill material, the evaluation of the activity will include application of the EPA Guidelines (40 CFR Part 230) as required by Section 404 (b)(1) of the Clean Water Act.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water

quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

**Preliminary Review of Selected Factors**

**EIS Determination**- A preliminary determination has been made an environmental impact statement is not required for the proposed work.

**Water Quality**- The applicant is required to obtain water quality certification, under Section 401 of the Clean Water Act, from the California Regional Water Quality Control Board. Section 401 requires any applicant for an individual Section 404 permit provide proof of water quality certification to the Corps of Engineers prior to permit issuance.

**Coastal Zone Management**- The applicant has certified the proposed activity would comply with and would be conducted in a manner consistent with the approved State Coastal Zone Management Program. For those projects in or affecting the coastal zone, the Federal Coastal Zone Management Act requires that prior to issuing the Corps authorization for the project, the applicant must obtain concurrence from the California Coastal Commission the project is consistent with the State's Coastal Zone Management Plan. The District Engineer hereby requests the California Coastal Commission's concurrence or non-concurrence.

**Essential Fish Habitat**- The Corps of Engineers preliminary determination indicates the proposed activity may adversely affect EFH. Pursuant to Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Los Angeles District hereby requests initiation of EFH consultation for the proposed project. This notice initiates the EFH consultation requirements of the Act via expanded consultation. In order to comply with the Magnuson-Stevens Fishery Conservation and Management Act (MSA), pursuant to 50 CFR 600.920(e)(3), I am providing, enclosing, or otherwise identifying the following information:

1. Description of the proposed action: see project description below.

2. On site inspection information: see baseline information below.

3. Analysis of the potential adverse effects on EFH: The proposed project would result in adverse affects to EFH through placement of quarry rock, temporary turbidity, and disturbance thereby smothering sandy bottom habitat. The quarry rock would also result in habitat type conversion from soft-bottom habitat to rocky bottom habitat, however rocky bottom was historically present within the area prior to burial by sediment. While the placement of quarry rock would result in adverse effects to EFH, the project is intended to enhance marine resources and functions by providing suitable habitat substrate and shelter for fish and invertebrates and other marine organisms. While a variety of materials and siting options could be used, this project aims to site the project and use materials that would result in a net increase in aquatic resource functions. For example the Wheeler North Artificial Reef off San Onofre in Southern California has shown a significant increase in marine biomass after the placement of artificial reef quarry rock modules. Rocky habitat supports kelp, algae, invertebrates, fishes, and other organisms which provide for high productivity and a benefit to the ecosystem and human environment. The project would result in a large net increase in functions and therefore a large net increase in EFH resources via new habitat and biological productivity. The project would also support various federally and state managed fisheries therefore enhancing fishery resources. In

summary, while there would be adverse effects to EFH through initial installation of quarry rock material, the impacts would be offset and enhanced by the project.

4. Proposed minimization, conservation, or mitigation measures: The project is being analyzed under a standard individual permit and includes project alternatives to determine the least environmentally damaging practicable alternative for the purpose of avoiding and minizing initial impacts to aquatic resources. Quarry rock would be carefully placed via a floating barge away from the shoreline in order to avoid and minimize impacts to existing aquatic resources and hard bottom substrate. Quarry rock would not be placed on top of existing rocky reef or kelp, abeit some would be placed on top of areas where hard substrate lies buried beneath deep layers of sediment. In addition the quarry rock layout, rock size, and composition are designed to enhance resources and maximize productivity.

5. Conclusions regarding effects of the proposed project on EFH: For example: Based on the project description and EFH assessment provided by the applicant, the proposed project would result in disturbance of approximately 400,000 square feet of substrate. Furthermore, the affected substrate consists of soft-bottom sediments.

Therefore, it is my initial determination the proposed activity would have an adverse impact on EFH or federally managed fisheries in California waters; however, the proposed project would result in a total net increase in aquatic resources and EFH through restoration activities. My final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NOAA Fisheries. If I do not receive written comments (regular mail or e-mail) within the 30-day notification period, I will assume concurrence by NOAA Fisheries that no mitigation measures are necessary.

**Cultural Resources**-

A literature search of the known archeological sites in the project area and within a ½ mile radius of the project site was conducted through the South Central Coast Information Center and was completed in March 2015. The search included a review of all recorded archaeological and built-environment resources as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest (SPHI), the California Historical Landmarks (SHL), the California Register of Historical Resources (CAL REG), the National Register of Historic Places (NRHP), and the California State Historic Properties Directory (HPD) listings were researched.

From these studies it was determined that no archaeological resources exist within the project site. Even though archaeological resources are not documented at the project site, there are several recorded sites on shore. Therefore, these resources have the potential to have been transported to the project site through erosion and landslides. The majority of the known *in situ* submerged archaeological sites in California are located in relatively calm waters, such as estuarine environments or in the lee of a point of land. The proposed project site is in an area of unconsolidated sediments underlain by bedrock. The project area is in 15-21 meters (45-63 feet) deep water and is therefore in a dynamic high energy environment in which the thin veneer of sediment is readily moved by currents and wave energy. Because of these conditions, there are no archaeological resources at the project site. Results from a side-scan sonar survey conducted at the project site in January 2014 (ECOM, 2014) did not reveal any anthropogenic structures on the seafloor. A diver based ground-truthing survey performed in April 2014 also failed to reveal any historical resources that may have been missed during the sonar survey. An additional biological survey conducted in March 2015 also did not reveal any submerged historic resources. There are no known shipwrecks at the project site.

This review constitutes the extent of cultural resources investigations by the District Engineer, and the District Engineer is otherwise unaware of the presence of such resources.. Therefore, the Corps has made a preliminary determination the proposed project activities would have no potential to affect

historic properties, and consultation, pursuant to Section 106 of the NHPA, does not appear to be required at this time.

**Endangered Species**-

Preliminary determinations indicate the proposed activity would not affect federally-listed endangered or threatened species, or their critical habitat. Therefore, formal consultation under Section 7 of the Endangered Species Act does not appear to be required at this time. The sandy-bottom habitat found in the project area is extensive in the Southern California Bight (SCB), so it is not surprising the site consists mostly of this habitat type. While there are some species in the SCB that have been identified as sensitive, special status, threatened, or endangered, none of these have been specifically known to occur in the project area and none are expected.

**Public Hearing**-

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearing shall state with particularity the reasons for holding a public hearing.

## Proposed Activity for Which a Permit is Required

Basic Project Purpose- The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed project, and is used by the Corps to determine whether the applicant's project is water dependent (i.e., requires access or proximity to or siting within the special aquatic site to fulfill its basic purpose). Establishment of the basic project purpose is necessary only when the proposed activity would discharge dredged or fill material into a special aquatic site (e.g., wetlands, pool and riffle complex, mudflats, coral reefs). The basic project purpose for the proposed project is marine restoration. The project is water dependent.

Overall Project Purpose- The overall project purpose serves as the basis for the Corps' 404(b)(1) alternatives analysis and is determined by further defining the basic project purpose in a manner that more specifically describes the applicant's goals for the project, and which allows a reasonable range of alternatives to be analyzed. The overall project purpose for the proposed project is to provide approximately 9 acres of marine resource restoration near the Palos Verdes peninsula to offset impacts to marine resources in the Southern California Bight as described in the Montrose Settlement.

## Additional Project Information

Baseline information-

A geophysical survey was undertaken by EcoSystems Management Associates, Inc. in January 2014 in order to provide data to assess the suitability of reef construction at the project site. This survey included the acquisition of data from bathymetry, shallow sub-bottom profiling, and side-scan sonar. The bathymetry of the project site ranged from -11 to -30 m (33-90 feet) m (MLLW). Side-scan survey data confirmed that the survey area consisted of unconsolidated-sediment bottom habitat, with the line of hard substrate located at approximately the 15-20 m (45-60 foot) isobath. The sub-bottom profile survey determined that sediment thickness in the bottom areas ranged from 1 to 5 m (3-15 feet), with sediment thickness increasing with increasing water depth. The results of the side-scan survey also showed a 69-acre area between the line of hard substrate and the kelp canopy at the project site. This area contains buried reefs, with sediment depths ranging from 0 to over 100 cm (39 inches). At the project site, the delineated extent of hard substrate (line that marks the boundary between any amount of hard substrate and completely sandy bottom) was located at approximately 17-21 m (51-63 feet) water depths. Between this official line of hard substrate and the established kelp canopy, a 69-acre area exists that contains a mix of sand and low-relief reefs. Many of the reefs

in this area have been impacted by sedimentation and reef burial by landslide. From 1959-2011, there have been four major landslides near the project site that have contributed to sediment loadings in the area. These include (1) the Portuguese Bend landslide (PBL); (2) the Abalone Cove landslide; (3) the Trump National Golf Course landslide; and (4) the Whites Point landslide. Areas that do have sand in this region have predominantly shallow sediment depths, with 80% of this area having sediment depths (before hitting bedrock or hard substrate) of less than 1 m. Offshore of the boundary of hard substrate the area is predominantly sandy-bottom with sediment depths ranging from 1-5 m (3-15 feet).

A biological survey of the project site was conducted in January–February 2015. Because of their low productivity, subtidal sandy-bottom communities are often considered to be less important than more productive rocky-reef environments, which promote increased species richness and biological productivity. Subtidal sandy-bottom environments provide habitat for sand dollars (Dendraster spp.), sand stars (Astropecten spp. & Luidia spp.), and sea pens (Stylatula spp.), as well as for many species of polychaetes, crustaceans, gastropods, rays, and flat fishes. Subtidal sandy-bottom environments are also economically important to nearshore fisheries, which trawl for white croaker and various flatfish because that method entails less risk of entanglement and net damage. This habitat also contains plankton suspended in the water column, as well as some algal species. A review of side-scan sonar data collected within the boundaries of the project site identified approximately 9 acres of hard substrate. The remaining area (approximately 60 acres) based on surveys contains buried-reef habitat covered by a thin veneer of sand less than 1m thick. A diver ground-truthing survey conducted at the project site in April 2014 indicated the presence of gorgonians, algae, and sea urchins in the areas with hard substrate. Giant kelp was largely absent. The proposed project would avoid placement of quarry rock onto exposed hard substrate habitat. The proposed project would however place quarry rock on top of hard substrate areas that have been deeply buried with sand. By placing quarry rock, this hard substrate would be raised in elevation in effort to avoid being buried by sand. The euphotic zone in this area reaches up to 18 m, which indicates there would be sufficient light to sustain kelp growth. At the project site, 27% of the transects had 0– 10% biotic coverage, 12% had 10–20% biotic coverage, 23% had 20–30% biotic coverage, and 38% had >30% biotic coverage (**Figure 2-8**: SCUBA transects from the biological survey). Areas with higher biotic coverage (>20%) were generally found closer to the existing kelp bed at Bunker Reef, while areas of lower biotic coverage (<20%) were generally found farther offshore, closer to the line of hard substrate.

The study site sediments contain DDT and PCB contaminants, particularly on the San Pedro shelf (See background info below). Although the discharges of DDT and PCBs were halted in 1971 and 1976, respectively, significant quantities of toxins have continued to exist in the sediments off the Palos Verdes Shelf, resulting in ongoing injuries to the natural environment. These injuries include causing birds of prey and several seabirds to lay thin-shelled eggs, and causing the bioaccumulation of toxins in certain species of fish, notably the white croaker (Genyonemus lineatus). The highest concentrations of DDT and PCBs in the sediments are located at the 60 m isobath near White's Point Outfall. Contaminants are not found farther inshore than 30 m water depths, due to high wave energy and a larger grain size that is unable to retain the contamination. The 2013 EPA study indicated concentrations had declined substantially in the surface sediments surrounding White's Point Outfall. These decreases are believed to have been caused by dechlorination, sediment deposition and burial from terrestrial sources, and sediment resuspension, coupled with desorption of chemicals of concern (COCs) from sediment into seawater. The current concentrations of contaminants are below the requirements for cleanup efforts or capping.

<u>Background information on the Montrose Settlement-</u>

From the late 1940s to the early 1970s, Los Angeles area industries discharged approximately 2,000 metric tons (about 2,200 U.S. tons) of DDTs and PCBs in to the ocean waters off the southern California coast. Almost all of the DDTs released originated from the Montrose Chemical Corporation plant in Torrance, California, the waste from which was discharged through the Los Angeles County Sanitation Districts White Point sewage discharge outfall. This resulted in widespread DDT and PCB contamination throughout the Southern California Bight, settling in pelagic, sub-tidal benthic (both hard and soft bottom), intertidal benthic, coastal wetland (sandy beach and rocky shoreline), and throughout Channel Islands habitats. Impacts likely resulted in mortality or sublethal (including food-chain bioaccumulation) effects in many of the 5,000 species of benthic invertebrates, 481 species of fish, 496 species of algae and seagrasses, 39 species of marine mammals, and over 200 species of birds that can be found within the Southern California Bight. Because DDTs and PCBs bioaccumulate in the foodchain, they are known to cause reproductive problems in top predators such as Bald Eagles and Peregrine Falcons as well as adverse effects on humans via the commerically and recreationally important fish species such as White Croaker and Barred Sand Bass. Although concentrations of DDTs and PCBs in the environment are now distributed over a smaller area, approximately 9,600 acres of sediment on the Palos Verdes Shelf adjacent to the sewer outfall at White Point, adverse effects to the ecosystem are still occurring.

Even today, large amounts of DDTs and PCBs persist in ocean water and sediments, and certain fish, birds, and other wildlife continue to accumulate DDTs and PCBs in the foodchain in harmful amounts. The State of California Office of Environmental Health Hazard Assessment (OEHHA) completed a study of contaminants in fish collected from Point Dume to Dana Point in 1987 (Pollock et al. 1991), which resulted in fishing advisories for 11 sites and 8 fish species. In addition, because of especially high levels of DDTs and PCBs in white croaker, the State of California has imposed bag limits for this fish and has banned commercial fishing for white croaker in the vicinity of the PV Shelf. The state and federal governments investigated these problems and in 1990 filed an action in U.S. District Court against several parties responsible for the discharges of DDTs and PCBs. In October 2000, after ten years of litigation, the federal and state governments and the remaining defendants signed the last of a series of settlements. The court approved the final settlement in March 2001. These settlements provide funding to the U.S. Environmental Protection Agency (EPA) to respond to the ecological and human risks posed by the DDTs and PCBs of the case, and to the six federal and state natural resource trustee agencies (Trustees) to restore injured natural resources and compensate for the loss of the services they provide. The Trustees are National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service, National Park Service, California Department of Fish and Game, California State Lands Commission, and California Department of Parks and Recreation. The Trustees' restoration efforts are known as the Montrose Settlements Restoration Program (MSRP). The EPA refers to the site as the Palos Verdes Shelf Superfund site" ("2002-2004 Southern California Coastal Marine Fish Contaminants Survey", NOAA and USEPA, June 2007).

Project description-

Material Type and Source:

The Bunker Point Reef Restoration Project wuold be constructed of quarry rock. This rock would most likely come from the Pebbly Beach Quarry and the Empire Quarry, both located on Santa Catalina Island, approximately 26 nautical miles (29.9 miles) from the project site. The rock grade used for construction is 1-ton, with average dimensions of 3.0 x 2.5 x 2.0 feet. Approximately 70,000 standard tons of rock would be used to construct the restoration reef, which corresponds to approximately 30,000 cubic yards of rock. All construction materials would conform to the California Department of Fish and Wildlife's material specification guidelines for artificial reefs, which state that:

1. The materials shall be clean and free of any contaminants, especially those that could dissolve in seawater (e.g., asphalt, paint, oil, or oil stains).

2. All rocks used for the project must be acceptable by state and federal agencies in the following respects:

    a. Purity: The materials shall be free of contamination and foreign materials.
    b. Specific gravity: Shall be greater than 2.2.
    c. Durability: Rocks used must remain unchanged after 30 years of submersion in seawater.

Inspection of the building materials would be conducted to ensure conformance with specifications and permit requirements. These material tests would be performed by an independent laboratory. Material tests would include size, specific gravity, durability, purity, water absorption, and abrasion resistance.

Transportation of Materials:

Since the Catalina Island quarries have direct marine access for the loading of reef- building materials, this will eliminate the need for truck hauling over public highways. The quarries are located approximately 200 yards to a quarter of one mile from the loading docks; thus, a minimal amount of trucking will be required at the quarry. Based on estimates from the construction of the Wheeler North Reef, each dump truck should hold 22 tons of quarry rock (Resource Insights, 1999). Quarry rock would be loaded onto flat-deck barges with cranes and front-end loaders. Tug boats would tow (one at a time or two in tandem) the flat-deck barges approximately 26 nautical miles to the project site. Two different sizes of supply barges can be used; the smaller barges can carry 2,500 tons of rock, and the larger barges can carry 4,000 tons of rock. An estimated time of 3.5 hours would be required to deliver the barges to the project site (based on an estimated average speed of 8.1 knots [9.3 miles per hour]).

Construction Methods and Equipment:

The construction of the Bunker Point Reef would employ the “push off” construction method utilized in the construction of the Wheeler North Reef. In this method, a derrick barge, held in place by six anchor locations, is tethered to a flat-deck barge. Each anchor weighs approximately 7 tons and is accompanied by either a 15-ton concrete block (three seaward anchor locations) or by a second anchor (three shoreward anchor locations) to hold the derrick barge and accompanying rock barge in place. Each anchor is attached to a 2,500-foot steel cable (anchor line), which is individually controlled by a winch. This anchoring system allows for small movements in the barges to accurately maneuver the next “push off” location.

A set of six winches (one per anchor line) is used to maneuver the derrick barge along a set of parallel lines along which the quarry rock is placed in the water. Two differential GPS (DGPS) receivers would be mounted on the derrick barge to keep the barge accurately positioned as it moves along the lines. A front-end track loader is lowered via crane from the derrick barge to the flat-deck barge so that boulders can be pushed over the side. The winch operator maneuvers the edge of the flat-deck barge to the required position (e.g., at the first line) by winching “in” or “out” on the six anchor cables connected to their respective anchors. The derrick-barge winch operator uses a computer monitor displaying the triangulated data to assist in locating the edge of the supply barge at the exact line of deployment. Positional accuracy of the DGPS system is estimated at 1 to 2 feet, and the software acceptance limits can be set at 6 feet, meaning that the winch operator can hold position to within a tolerance of 6 feet. Figure A shows a schematic of the construction method and equipment, including the derrick barge, flat-deck barge (labelled “supply barge” in the figure), GPS markers,

anchoring points, rock placement lines, and front-end loader.

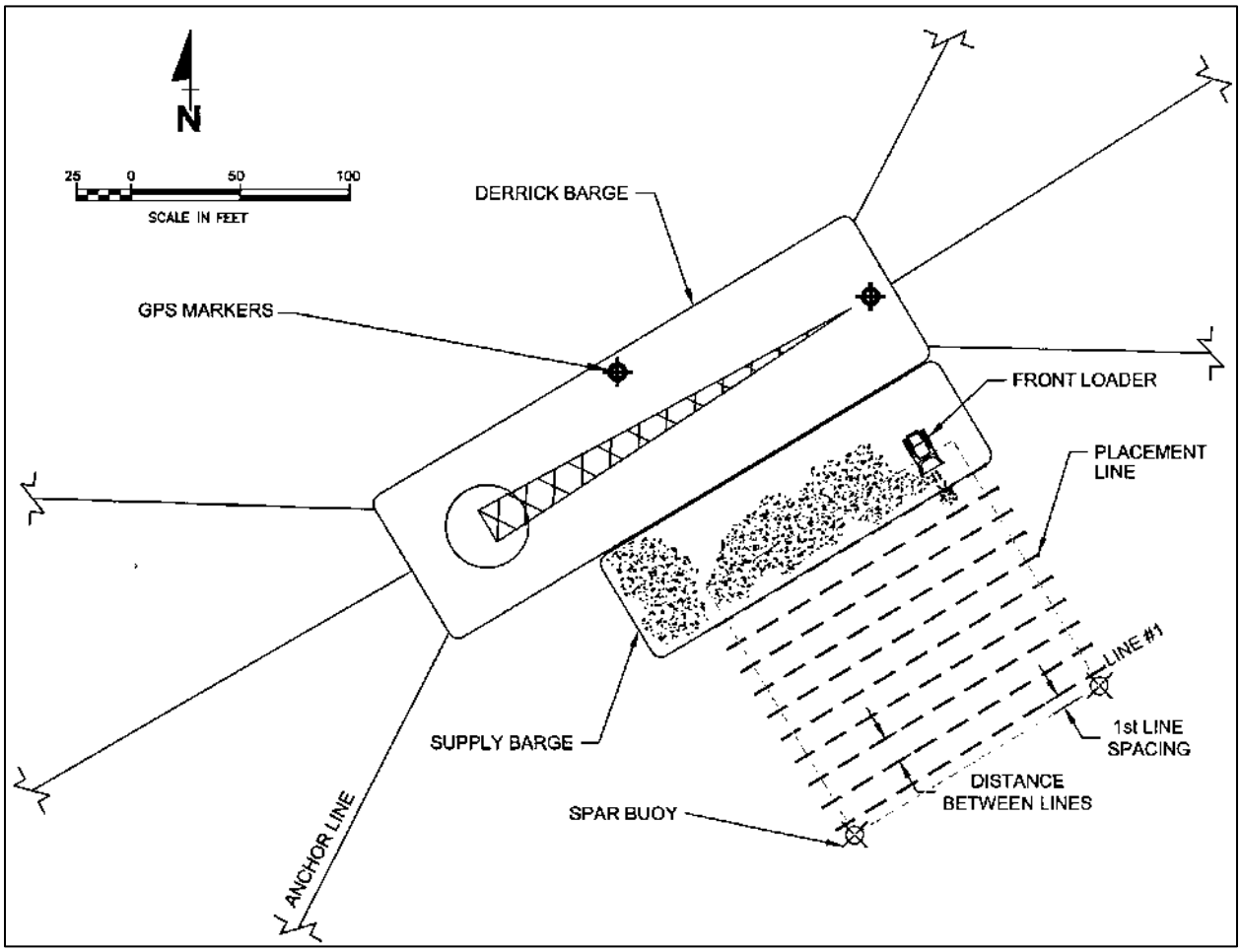


**Figure A.** Construction method schematic showing derrick barge, supply barge, front-loader, rock placement lines, and six-anchor positioning.

Equipment used during construction at the site would most likely consist of one derrick barge, two tugboats, three supply barges, two track-loaders (one backup), eight winches, and a DGPS survey system with appropriate software. The derrick-barge crew would consist of a crane operator, foreman, crane oiler, deck engineer, and pile driver/barge-hand, along with a loader operator, superintendent to direct operations, and project manager. Construction would be conducted during daylight hours six days a week (Monday through Saturday) except on holidays and during inclement weather. Work would commence at approximately 7:00 A.M.

Estimated Construction Timeline

Construction activities would take place between May 1 and September 30 to avoid lobster-fishing season and utilize the calm conditions typical of this time of year in Southern California. Construction activities would be performed during daylight hours six days a week (Monday – Saturday) during a regular 8-hour day. It is anticipated to take approximately 40 days to build the restoration reef. Assuming the output of 1,725 tons of quarry rock deposited per day, the operation schedule for the tugboats would be every day for the small barges and every other day for the large barges.

Restoration Reef Design

The Bunker Point Reef is designed as set of eight “blocks” (Figures B, C, D, E). Each block contains three modules (A, B, C). Each module consists of a 3 x 2 set of “piles”, offset by 1/2 of the pile width (8 m). Each pile is a 16 m x 16 m square pyramid of quarry rock with an overall height of 1 m, 2 m, 3 m, or 4 m (Figures D, Figure E). The blocks would be in two designs, either with a 3 m overall pile height or a 4 m overall pile height. There is a 10 to 20 m wide sand channel between modules and at least 30 m of space between blocks. These distances were chosen due to the previously described ‘halo’ effect around reef of ~30 m (Johnson et al. 1994). Reef modules separated by < 30 m operate as a single reef and blocks separated by > 30 m operate more independently (Pondella et al. 2006). In our design criteria reef blocks are spaced > 50 m apart. By separating the blocks and modules by the appropriate distances a greater amount of reef perimeter sand-rock ecotone habitat can be restored and maintain independent replicates among reef blocks to address the secondary study designs. The overall approach is to balance scientific study design considerations with maximizing the potential for an effective restoration effort across the range of important species, and kelp forest biodiversity. Major motivations included incorporating heterogeneity throughout the restoration reef design both within (e.g., varying pile heights within blocks) and amongst (e.g., varying block orientation across blocks) the reef blocks. Specific design elements and block placement considerations are described in more detail below.

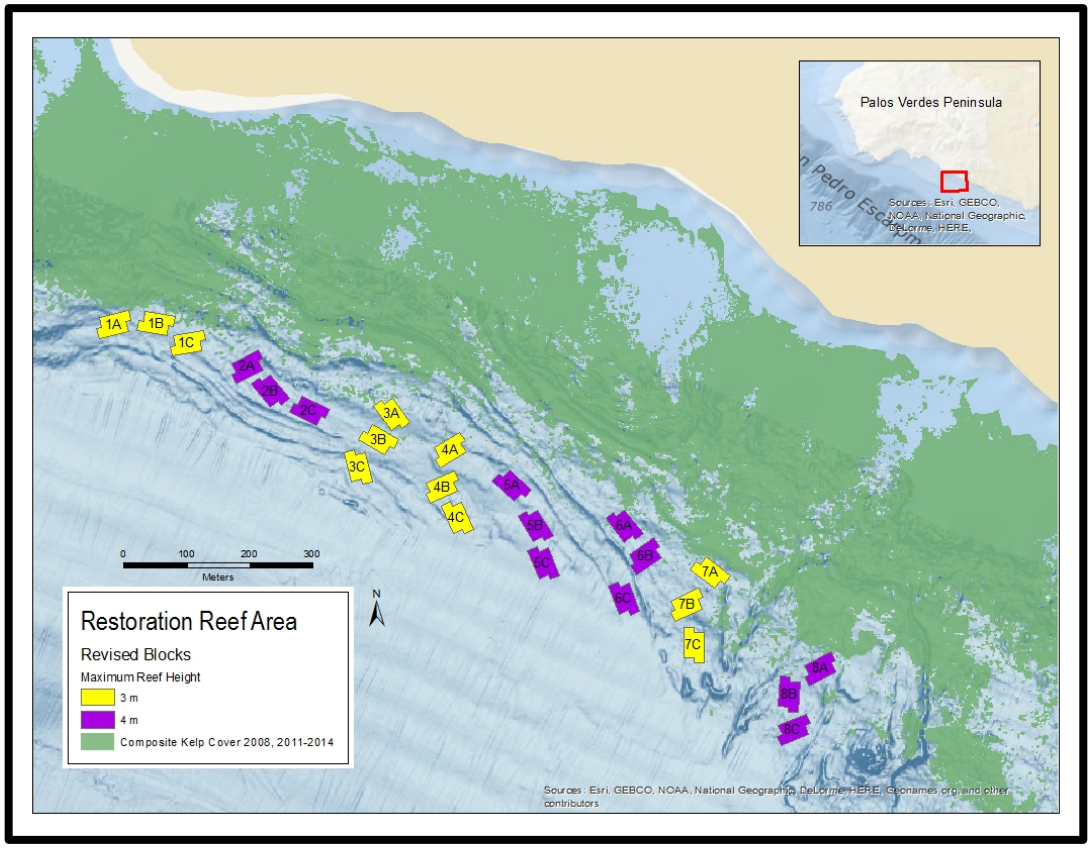


**Figure B.** Proposed locations for the restoration reef blocks (1-8) at the Bunker Point restoration site study area with kelp canopy, side scan imagery. Each block consists of 3 modules (A-C). Blocks have a maximum reef height of either 3 m (yellow) or 4 m (purple). Blocks would occupy 9.1 acres.

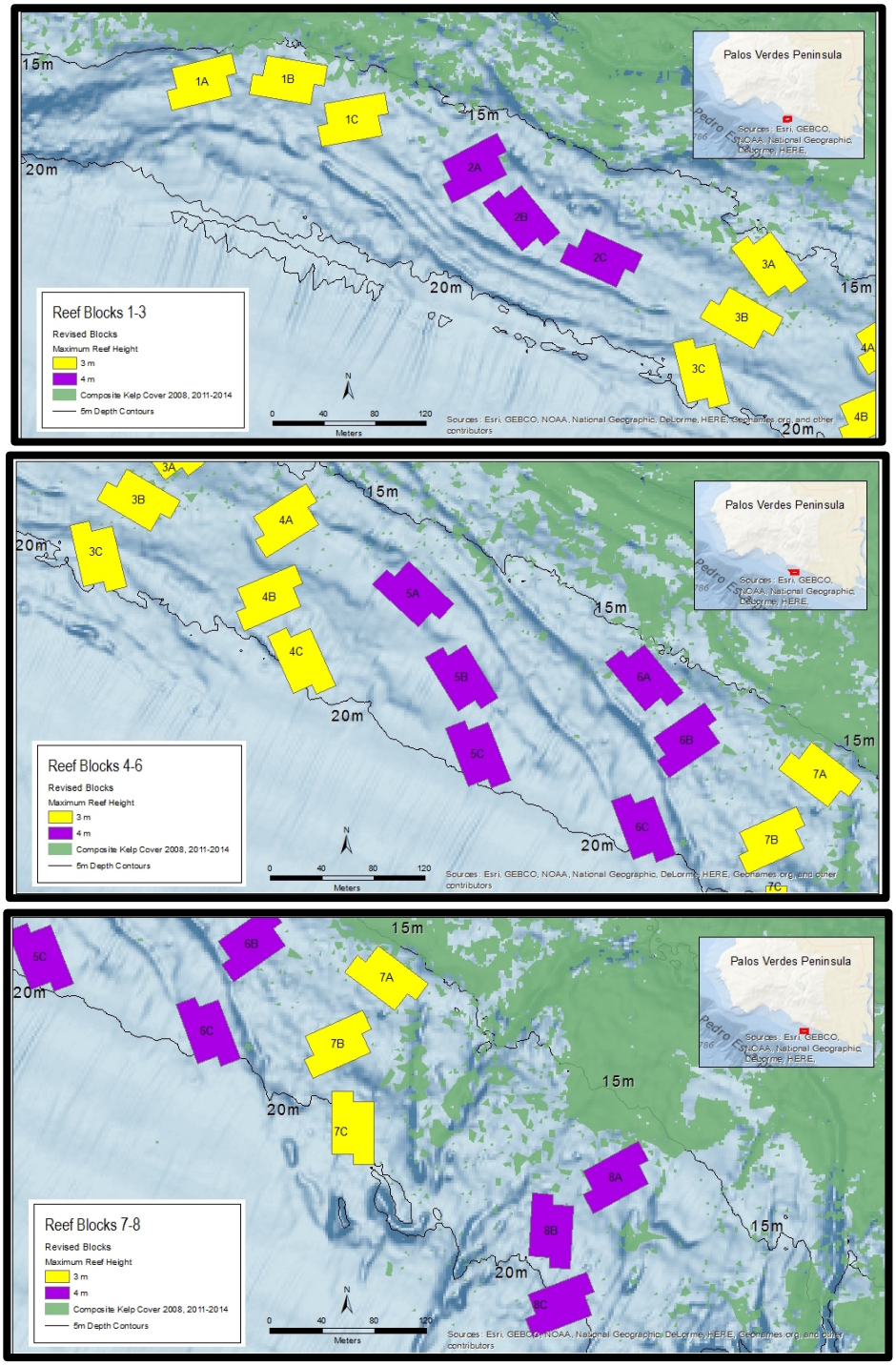


**Figure C.** Close-up maps of the proposed locations for the restoration reef blocks (1-8) at the Bunker Point restoration site study area with kelp canopy, side scan imagery. Each block consists of 3 modules (A-C). Blocks have a maximum reef height of either 3 m (yellow) or 4 m (purple).

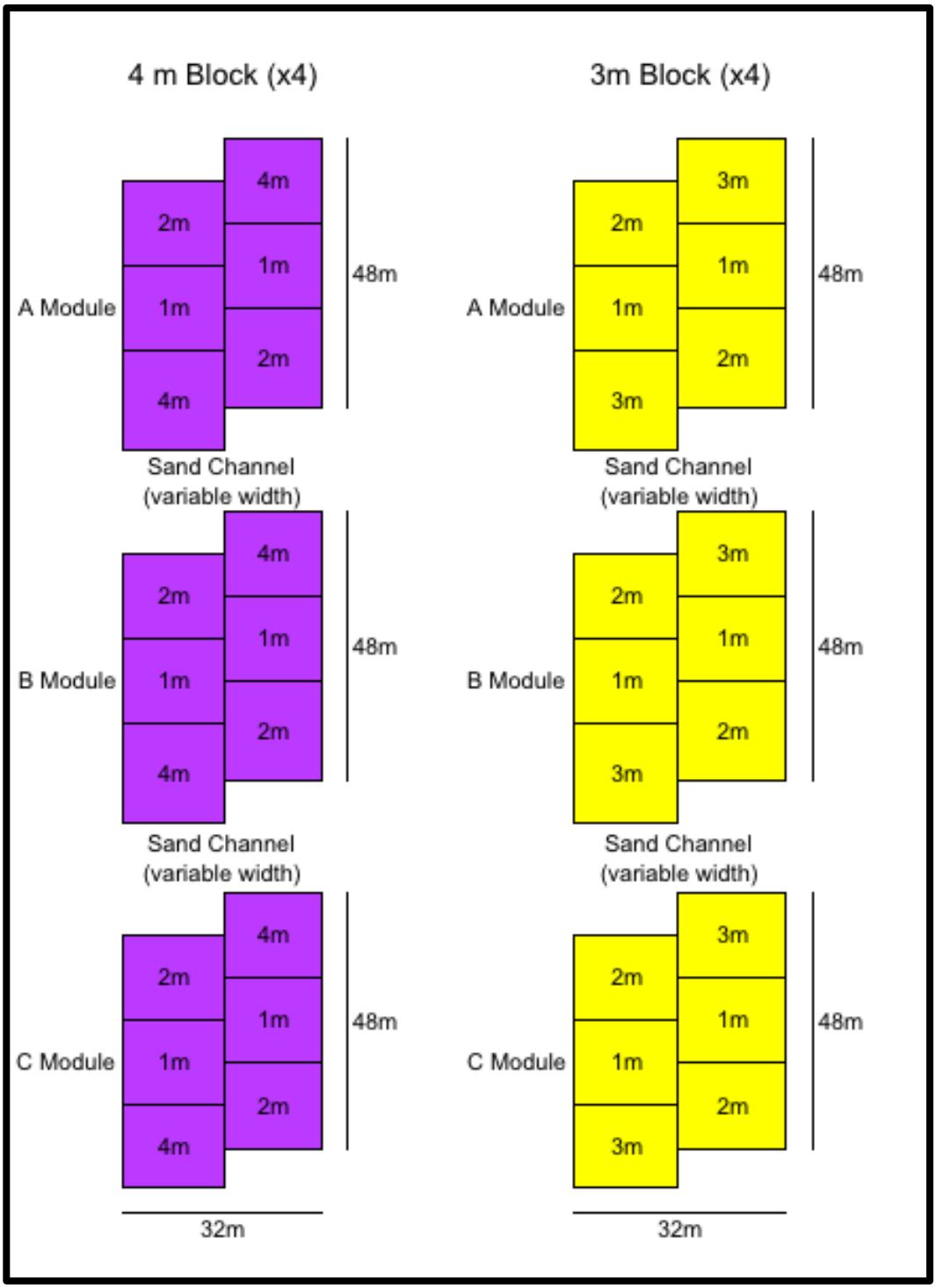


**Figure D.** Design of 3m blocks and 4m blocks. Each block contains three modules (A, B, C). Each module consists of a 3 x 2 set of piles, offset by ½ pile length. Each pile is a 16 m x 16 m square pyramid of quarry rock with the overall height listed. There is a 10 to 20 m wide sand channel between modules and at least 30 m of space between blocks.

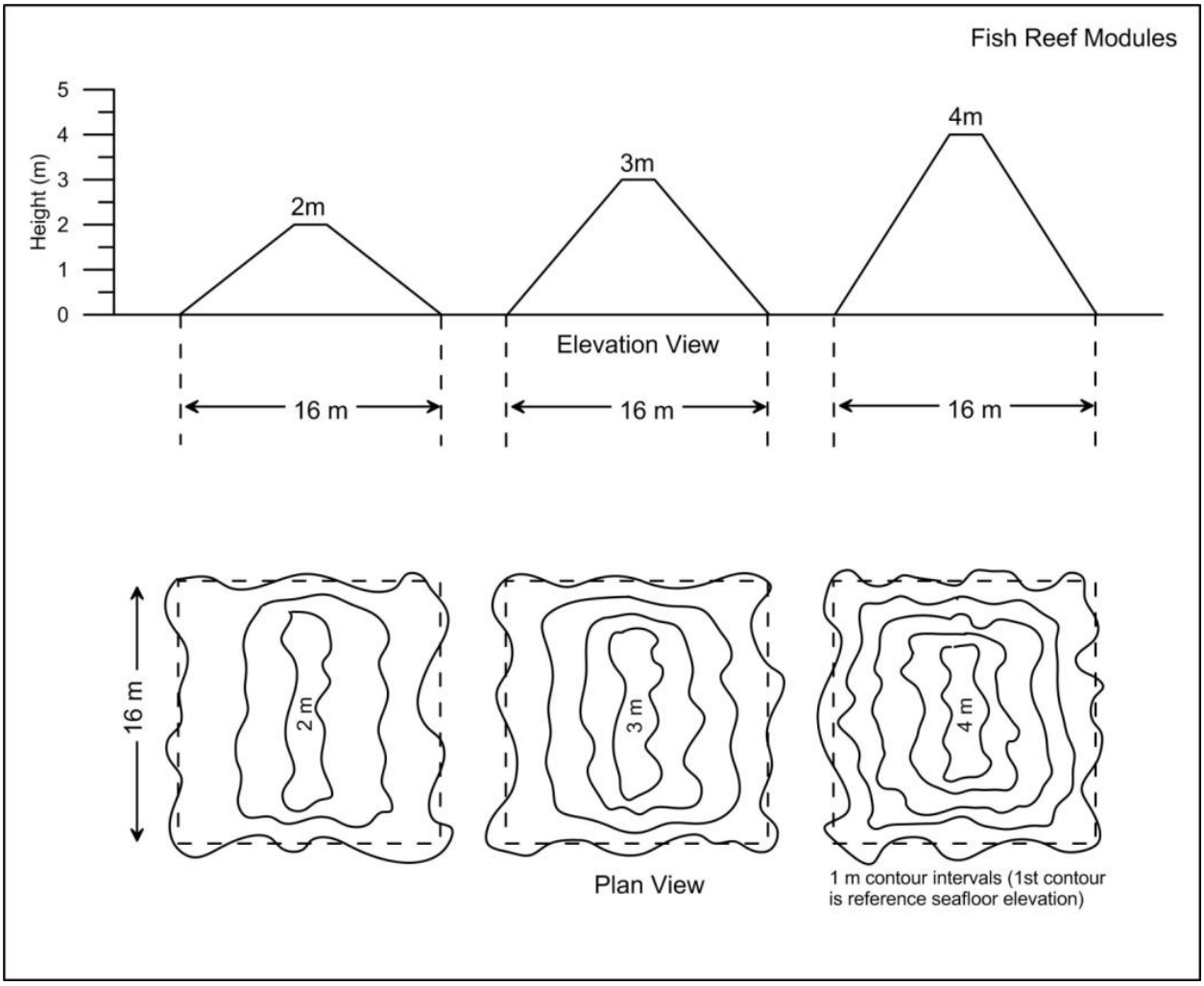


**Figure E**. Cross-section and contour views of high relief rock piles.

Primary Restoration Reef Design Considerations

Approximately 70,000 standard tons (30,000 cubic yards) of rock (Figure G) would be used for the project. The first consideration is quarry rock size and the corresponding weight and void space. The quarry can filter rock sizes within a tight range (more expensive) to variation around a mean size (less expensive) diameters. Considering that this project's goal is to mimic natural reefs, using heterogeneously sized rocks was optimal as natural reefs are not composed of single sized rocks. Designating an average size (weight) within the constraints of the quarry results in the following percent size by weight profiles for rock. A previous study compared elements of fish production on natural and artificial rocky reefs in southern California (Granneman 2011; Granneman and Steele 2014). They found tissue production was positively correlated with the abundance of large boulders, and they defined large boulders as those being at least 75 cm across. A higher proportion of larger boulders should also increase the likelihood of larger interstitial spaces between rocks in piles creating a variety (i.e., increase heterogeneity) of "hole" sizes for fishes and invertebrates that shelter within. Interstitial void space was also considered in the sizing criteria. Additionally, having larger stones will minimize the chances of rocks at the edges of blocks from being covered in sediment while creating more complex eco-tone habitats at the sand/rock interface.

**Figure F**. 3-ton, 2-ton and 1-ton quarry rocks arranged left to right.

In addition to optimizing rock sizes, the design of the blocks and modules seeks to maximize biological production based upon a variety of physical and biological criteria. Project goals are to design reefs that maximize high relief components, surface area, perimeter, flux, and are consistent with the size of reefs along the Palos Verdes Peninsula. High relief reefs have a cost tradeoff, as they are more expensive (more weight per unit area) than low relief reefs. And, a critical consideration is how much rock is buried (and generally unavailable biologically) to create the high relief components. Modules within blocks are designed in 16 $m^2$ rock piles where variation in relief is staggered increasing the amount of surface area of the reef (Figure H). These rock piles are also staggered maximizing the perimeter of the reef and surrounding ecotone.

**Figure G**. Example of a 4 m high reef pile.

The following additional design criteria were incorporated into the module and block designs:

- Stagger high relief piles within blocks. Vary pile heights across adjacent piles within blocks (Figure D).
    - This should increase water flow (potential for upwelling) by limiting overlap of high relief piles, reducing the occurrence of one high relief pile being in the "shadow" of another high relief pile.
    - Maximize external surface area by limiting rock overlap of adjacent high relief piles.
    - Maximize heterogeneity in reef characteristics (e.g., relief, interstitial space, overall angle of outer reef surface) to increase biodiversity by increasing the heterogeneity of available micro-habitats within each block.
- Place high relief piles at the ends of each block to buffer any potential sedimentation of the 1 m relief piles in the middle of each block.
- Size blocks similar to current reefs along Palos Verdes. The pinnacle reef at KOU Rock is ~45m wide, the finger reef at Long Point East is ~120m wide, and the finger reef at Point Vicente West is ~225m wide.
- Increase the amount of outer reef edge by not making blocks too large. The highest biomass areas of the reefs studied tended to be on the outer edges (zones).

<u>Block Placement</u>

The following design criteria were used to guide the positioning of restoration reef blocks (and the modules within them) across the Bunker Point Reef Restoration Project study area:

- Blocks do not overlap with persistent kelp canopy. Persistent kelp canopy is an indication of

stable rocky reef below that has not been covered by sediment (Figure B).

- Blocks are placed at 15-20 m seafloor depth. The highest biomass areas of the reefs we studied tended to be in this depth zone. Placing blocks in these somewhat deeper depths would also limit wave action, scouring, and seasonal excavation/deposition of sediments.
- Vary the orientation of each block and each module (Figure B). This would again increase heterogeneity in reef characteristics, with respect to their relative orientation to the shoreline and to prevailing currents and wave action. This should increase the likelihood of high relief blocks causing upwelling under variable current regimes.
- Mimic natural features (reef width and orientation to natural features).
- Blocks placed in a maximum of 1m sediment overlying rock substrate to limit long-term burial/sinking.
- 10-20 m sand channels between modules within a block (Figures C, D). This will allow space for sediments moving with longshore current and wave action to move around/through modules. Modules are still close enough to provide connectivity (fishes can move over sand between them).
- Maintain connectivity with existing natural reefs. The was done by positioning the ends of at least one module within a block less than 30 m from existing nearshore natural exposed reef (kelp line) or existing (non-buried) rocky reefs so the blocks are not “isolated islands” in the sand (Figure C).
- Maximize distance between blocks (>50 m) to increase independence of each block (Figure C). Mimics natural reef ridges, which are typically oriented perpendicular to shore with large sandy areas between them.

Secondary Block Design Study

A secondary focus of this reef project is to create a reef design that would allow replicated elements that could be studied to inform future restoration programs. These could include fine scale habitat utilization patterns, providing an opportunity to inform future restoration programs in the State.

Monitoring Plan

An important step in evaluating the effects of restoration actions along the Palos Verdes Peninsula is to develop an appropriate temporal and spatial sampling design for future monitoring. Short and long-term monitoring of the restoration reef blocks and sites across the Palos Verdes Peninsula would be imporant for evaluating the success of this restoration project and for evaluating the effect of various restoration reef design elements on the associated biological community. Over the first months to years after construction of the restoration reef, the level of “attraction” of adult fishes relocating from nearby reefs to the new reef habitat would be studied. Over the medium to long-term (3-10 years), monitoring would provide the opportunity to estimate the increase in biomass and production of important species associated with the restoration reef blocks, and for the whole larger reef complex made up of the restoration reef and the adjacent natural reefs. A key part of this assessment is being able determine what proportion of biomass changes are due to fish movements to the restoration reef from the surrounding natural reefs compared with the increase in biomass from additional secondary production of fishes and invertebrates.

A Before-After-Control-Impact Paired Series (BACIPS) sampling design is likely the most appropriate, particularly with respect to assessing the impacts due to fish movements. This model would help to account for year-to-year environmental variability when assessing changes in biomass and production.

## EVALUATION OF PROJECT ALTERNATIVES

Site Selection Analysis

Two areas (West Area and East Area) (Figure K) were considered as potential sites for reef placement. Both of these sites are located approximately 0.3 miles (0.5 km) offshore, past the existing kelp beds in water depths between 15-23 m. The project sites measure approximately 115 acres (46 hectares) and parallel about 1.5 miles (2.4 km) of coastline. The project sites are located approximately 5 miles (8 km) from the entrance to the Port of Long Beach and approximately 2.7 miles (4.3 km) inshore of the nearest shipping lanes. Several studies were carried out at the West and East areas ( Figure L, Figure M ) to characterize the seafloor in order to determine their suitability for reef placement. These studies included: 1) a geophysical survey; 2) a diver ground-truthing survey; and 3) a biological survey.

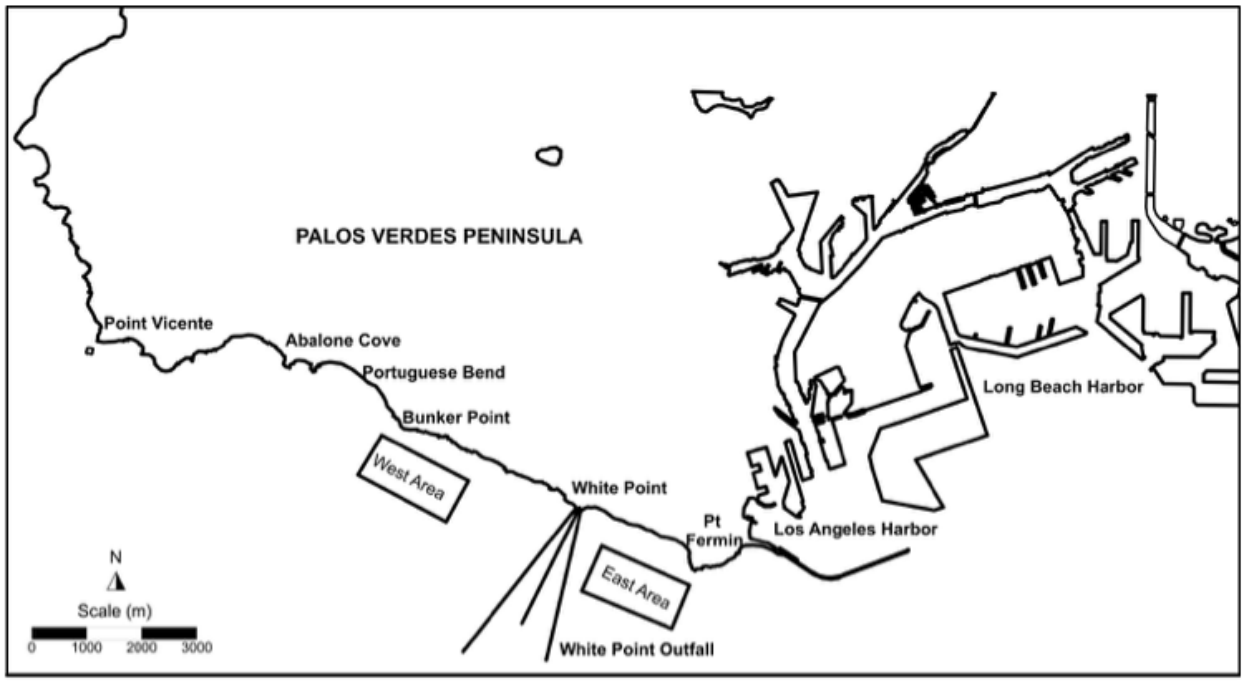


**Figure H**. Location of the two proposed sites (West area and East area) for the Bunker Point Reef Restoration Project, showing major landmarks in the area.

A geophysical survey was undertaken in order to provide data to assess the suitability of reef construction in the West and East Areas. This survey included acquisition of bathymetry, shallow sub-bottom profiling, and side-scan sonar data. These data sets allowed for the definition of suitable areas for reef placement based on appropriate depth (12-30 m), shallow sediment thickness (preferably <1 m), and outcropping of hard substrate. Surveys were performed from the seaward edge of existing kelp beds out to the 30 m isobaths. The side-scan survey was used to map the distribution and

rugosity of various seafloor substrate types. Sub-bottom profiling was performed to determine the thickness of areas covered by unconsolidated sediments. Bathymetric surveys were performed to determine the water depths and bathymetrical features in surveyed areas.

The bathymetry of the West Area (Figure N) ranged from -11 to -30 m (MLLW), while the East Area (Figure O) showed depths from -13 to -29 m (MLLW). Side-scan survey data confirmed that the survey area consisted of unconsolidated-sediment bottom habitat, with the line of hard substrate located at approximately the 15-20 m isobath. The sub-bottom profile survey determined that sediment thickness in the bottom areas ranged from 1 m to 5 m, with sediment thickness increasing with increasing water depth. Isopachs of sediment thickness for the East Area show that the width of the band of sediment thickness < 1m is generally relatively narrow, varying from 10 to 50 m. Sub-bottom records from the East Area show a thicker offshore layer of unconsolidated sediment, gradually decreasing in thickness to the inshore outcropping of hard substrate. The isopachs of sediment thickness for the West Area show that the width of the band with sediment thickness < 1m is relatively narrow, varying from 30 to 50 m. This area shows a thicker offshore layer of unconsolidated sediment, gradually decreasing in thickness to the inshore outcropping of hard substrate (the 0 m isopach).

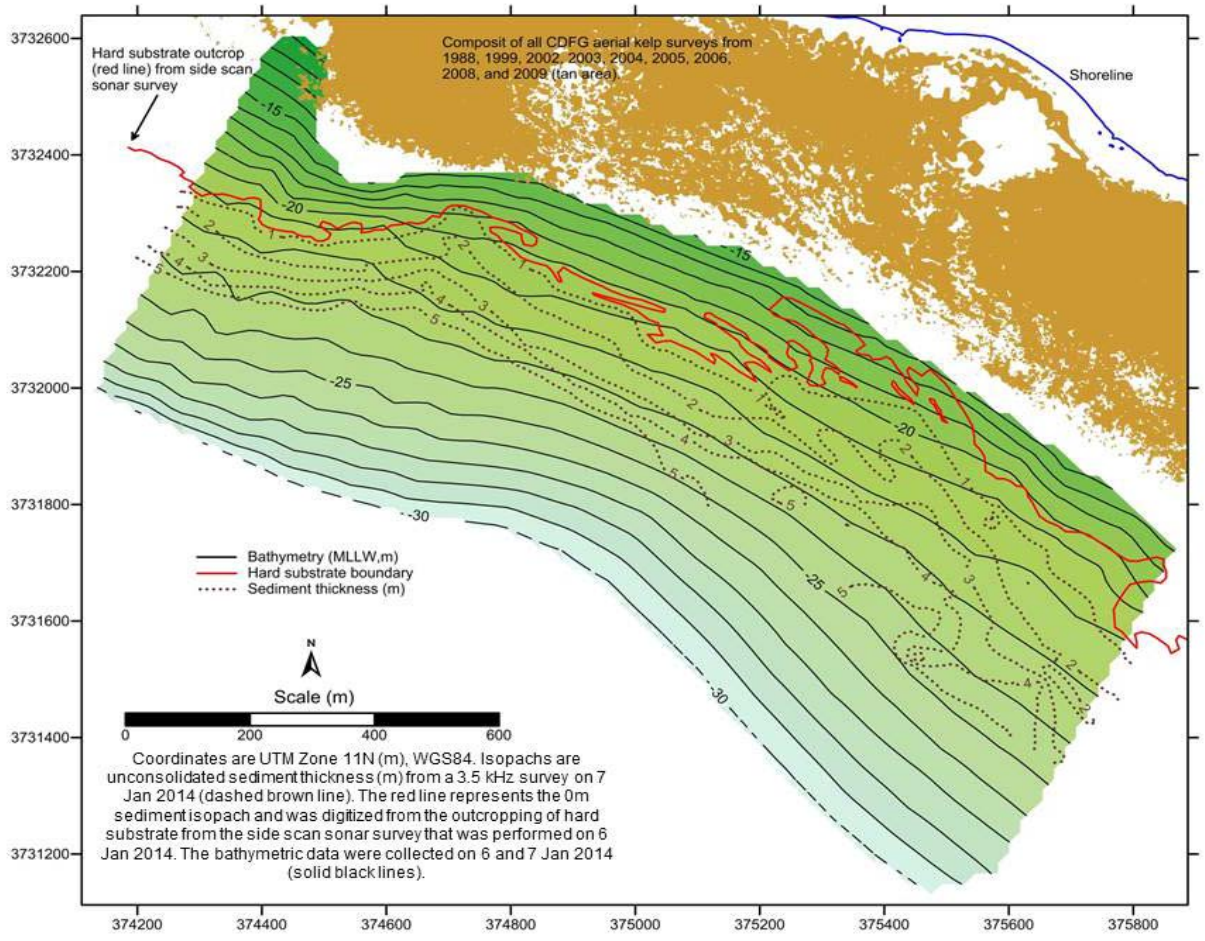


**Figure I**. Composite of the West Area isobaths (based on a bathymetric survey), showing the offshore boundary of hard substrate (based on a side-scan survey), isopachs of sediment thickness (based on a sub-bottom profile survey), and kelp canopy distribution from California Department of Fish and Wildlife database.

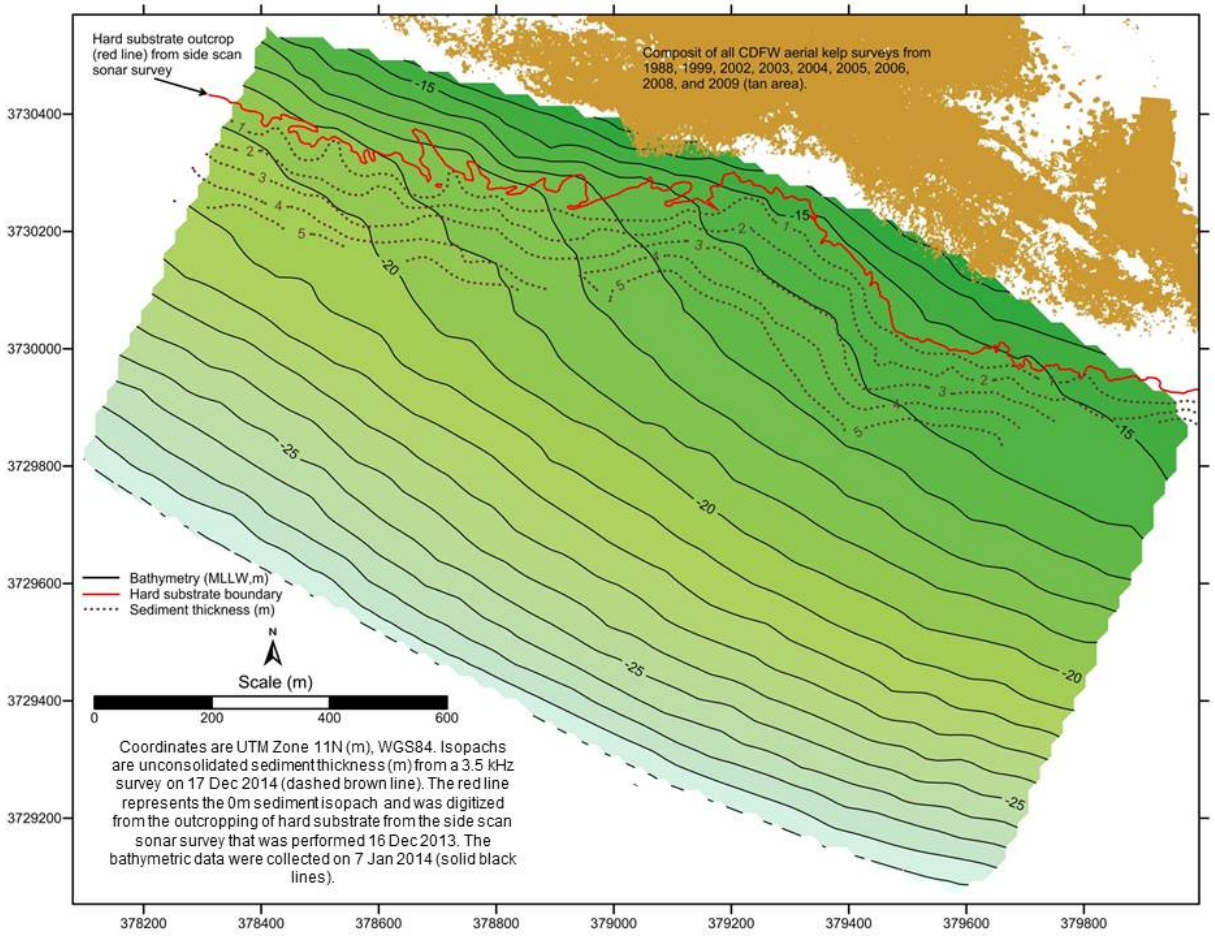


**Figure J**. Composite of the East Area isobaths (based on a bathymetric survey), showing the offshore boundary of hard substrate (based on a side-scan survey), isopachs of sediment thickness (based on a sub-bottom profile survey), and kelp canopy distribution from California Department of Fish and Wildlife database.

The results of the side-scan survey also showed a 69-acre area between the line of hard substrate and the kelp canopy in the West Area that could be suitable for reef placement (Figure P). Pondella et al. (2012) showed that the West Area contained buried reefs, with sediment depths ranging from 0 to over 100 cm. The area between the line of hard substrate and the kelp at the West area is being considered for reef placement because it contains thinner sediment depths, it is closer to the existing kelp beds, and it is located in shallower water depths where kelp may have grown in the past.

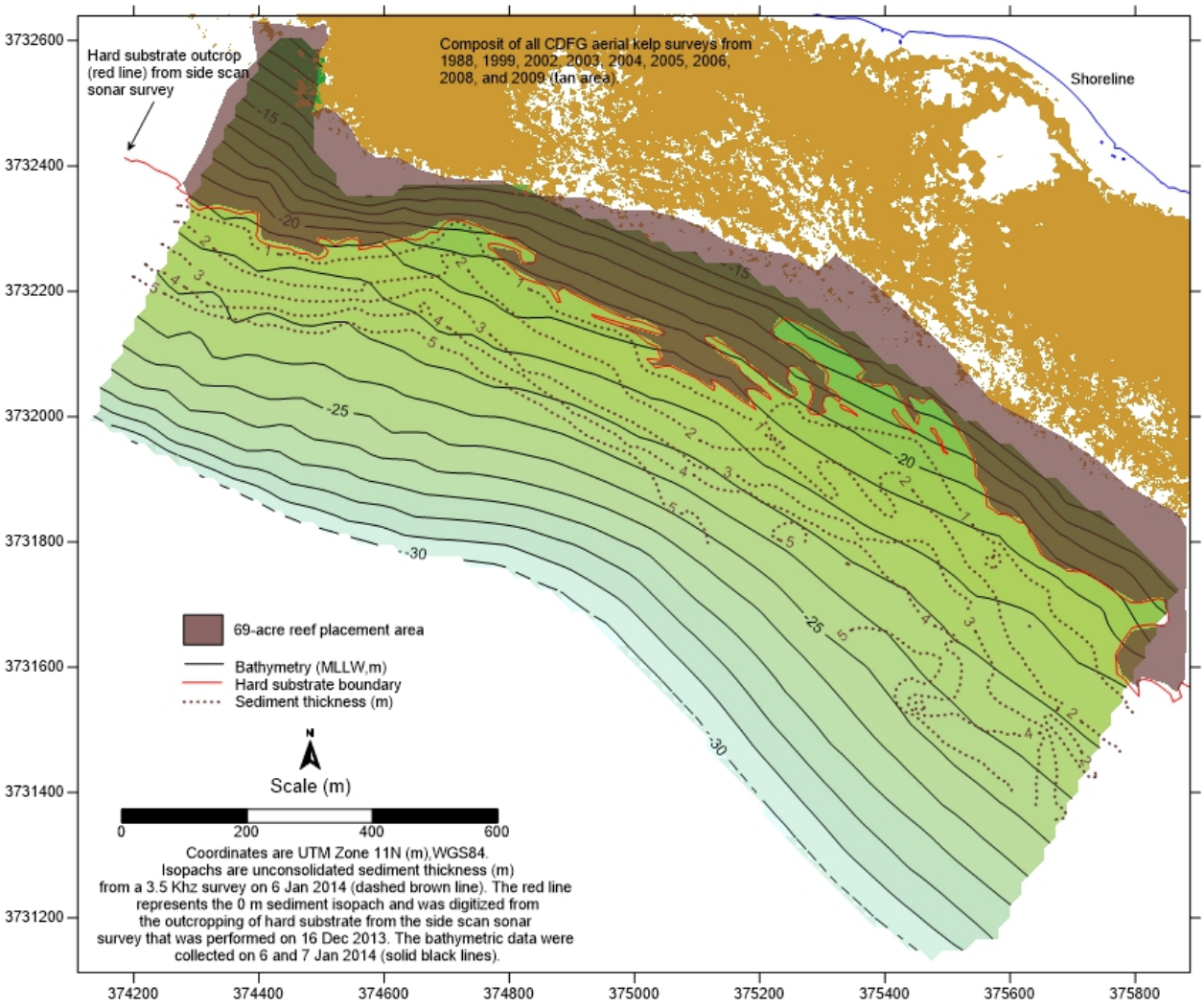


**Figure K**. Area between the line of hard substrate (red line) and the kelp canopy at the West Area being considered for reef placement.

A more careful review of the collected side-scan data and existing multi-beam data from Cal State University Monterey Bay (Seafloor Mapping Lab, 2008) in the area between the line of hard substrate and the kelp canopy at the West Area identified areas with substantial hard substrate and linear ledges (Figure Q). Areas of substantial hard substrate and areas with linear ledges cover a combined area of 9.4 acres. In order to accurately characterize this area, 13 transects were drawn across the 69-acre area and a detailed analysis of the substrate type in those areas was determined.

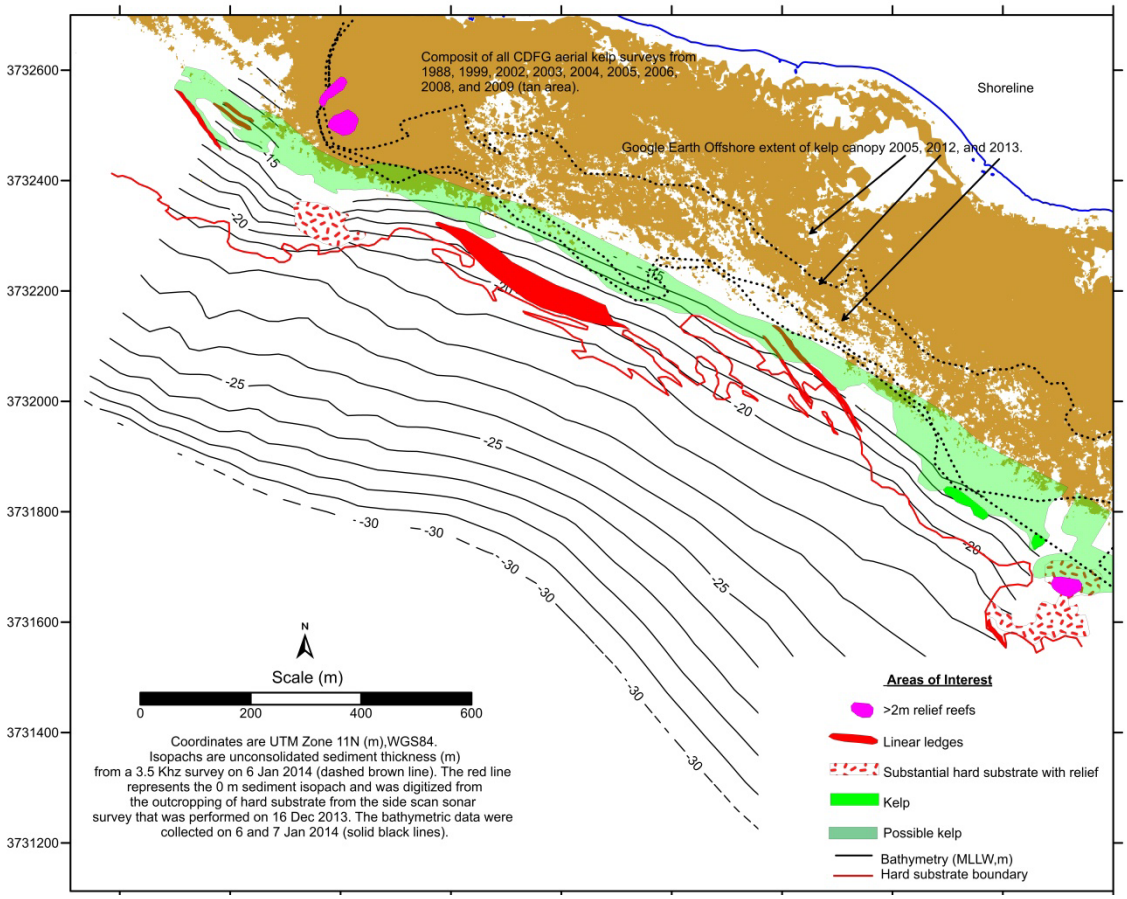


**Figure L**. Areas of interest between the official line of hard substrate (red line) and the established kelp canopy. Areas of interest include reefs with heights greater than 2m, linear ledges, areas of substantial hard substrate with relief, and kelp. Areas of interest were determined by reviewing side scan survey data (ECOM, 2014) and Cal State University Monterey Bay multibeam data (Seafloor Mapping Lab, 2008) and confirmed by diver ground-truthing surveys.

Diver-based ground-truthing was performed in March-April 2014 by the Vantuna Research Group in the East and West Areas between the line of hard substrate and the kelp canopy in an effort to determine the suitability of this region for reef placement. Eight 200m long transects (16 total) at the West and East Areas were done. Data collected included: 1) video documentation; 2) sediment cores; 3) sediment depth readings via jet probes; and 4) estimations of percent hard substrate at transect points. Video documentation taken during this survey showed that this region contained a mixture of mostly buried reef and some low-relief hard substrate. Sediment cores showed that approximately 35 percent of the West Area contained sand and 40 percent of the East Area contained sand (Table C). Jet probes showed that sediment depths ranged from 0 to more 100 cm in both the West Area and East Area (Table D). In the West Area, 80 percent of the area surveyed had sediment depths less than 1 m, versus 71 percent in the East Area. Hard substrate ranged from 0-95 percent in the West Area and 0-100 percent in the East Area (Table E). In the West Area, 71 percent of the surveyed area had less than 30 percent hard coverage. This compares with 66 percent in the East Area.

**Table A**. Sediment type and percent of each sediment type at the project site[1].

| Sediment type | Percent of Cores at West Area | Percent of Cores at East Area |
|---|---|---|
| Silt | 12.2 | 4.4 |
| Sand | 34.7 | 40.0 |
| Shell hash | 2.0 | 4.4 |
| Silt/sand | 12.2 | 2.2 |
| Sand/shell hash | 18.3 | 13.3 |
| Sand/cobble | 2.0 | 0 |
| Silt on rock | 2.0 | 0 |
| Boulder | 4.1 | 0 |
| Bedrock | 12.2 | 26.7 |
| Sand over boulder | 0 | 6.7 |
| Sand over bedrock | 0 | 2.2 |

[1] Data from cores collected by the Vantuna Research Group in April 2014.

Table B. Sediment thickness ranges and the percent of cores within those ranges for the West Area and East Area[1].

| Sediment Thickness Range (cm) | Percent of Cores at West Area | Percent of Cores at East Area |
|---|---|---|
| 0-20 | 39% | 45% |
| 21-40 | 15% | 4% |
| 41-60 | 12% | 11% |
| 61-80 | 0% | 4% |
| 81-100 | 14% | 7% |
| 100+ | 20% | 29% |

[1] From jet probe data collected by the Vantuna Research Group in April 2014.

**Table C**. Percent hard substrate ranges and the percent of surveyed areas in those ranges at the West Area and East Area[1].

| Percent Hard Substrate | Percent of Surveyed Area at West Area | Percent of Surveyed Area at East Area |
|---|---|---|
| 0-10% | 61% | 56% |
| 11-30% | 10% | 11% |
| 31-60% | 18% | 13% |
| 61-100% | 11% | 20% |

[1] Data collected by the Vantuna Research Group in April 2014.

Based on the results of the side scan and diver ground-truthing surveys, it was determined that the West Area would likely be the most conducive area for reef placement. The physical characteristics that made this site more conducive to reef placement included: 1) a thinner cover of sediment than the East Area. The relatively thin cover of sediment (less than one meter thick) will make it less likely that the reef material would sink into and be covered by existing sediments; 2) a lower coverage of bedrock than the East Area and less chance of covering existing habitats and biota; and 3) past studies that indicated the West Area has suffered from reef burial and may be in need of restoration.

Because the West Area was chosen as the preferred reef location, biological studies focused on this region. According to the California Department of Fish and Wildlife, important criteria for site selection of an artificial reef include: 1) no shellfish beds or other productive areas can exist that will be covered or damaged; 2) the proposed site must have the potential for providing and supporting giant kelp; 3) the bottom must be hard enough to prevent subsidence of the reef material; and 4) the site cannot be in an area that may impact existing infrastructure or navigational channels. The biological survey conducted at the West Area was designed to address the biological components of these above criteria to determine the suitability of the West Area for reef placement.

In summary, the West Area was chosen for the following reasons:

1. Diver ground-truthing surveys have confirmed that 71% of the area between the line of hard substrate and the kelp canopy in the West Area has either no hard substrate, or a low percentage of hard substrate (< 30% hard substrate), and that 80% of this area has sediment depths less than 1m;

2. The biological survey indicated that the West Area contained a relatively low biotic coverage with no rare, threatened, or endangered species noted;

3. Substantial recent and historical time-series data exists for the West Area, which may be useful for the design and permitting and post-construction monitoring of this restoration reef;

4. The West Area is owned by the State of California, thus, the permitting process for reef construction may be more streamlined because additional permits from the City of Los Angeles will not be required;

5. This area includes other restoration and enhancement projects on the Palos Verdes Peninsula that include the establishment of MPA's, new fishing regulations, abalone and kelp restoration, and restoration reefs.

On-site Alternatives

Four design alternatives were considered during initial stages of reef development (Figures R though T). These used the same 70,000 tons of rock available for this project, but the rock was placed in other configurations. Alternatives 1 and 2 (Figures R , Figure S) contained large areas of low relief "reef" (<1 or <0.5 m height), essentially individual rocks scattered over the landscape. This type of low relief design was used extensively throughout the Wheeler North artificial reef. However, it was not designed to maximize fish production, but to mimic the low relief natural reefs in the southern Orange County region. In the case of Palos Verdes where sedimentation and reef burial is a major concern, these low relief designs were deemed unlikely to meet the desired restoration objectives as they would likely be heavily impacted by sedimentation scour and burial. Alternatives 3 and 4 (Figures T, U) contained only high relief elements. Early in the design process these alternatives served to motivate discussion of additional design elements (e.g., heterogeneity, spacing, orientation and depth of reef blocks) that were ultimately included in the final proposed design.

The final project design includes elements of Alternatives 3 and 4 and includes high-relief elements that would have the least amount of impacts to the existing biological and human community due to a smaller reef footprint and a shorter construction timeframe. It would also be more resistant to reef burial and sinking due to a higher reef.

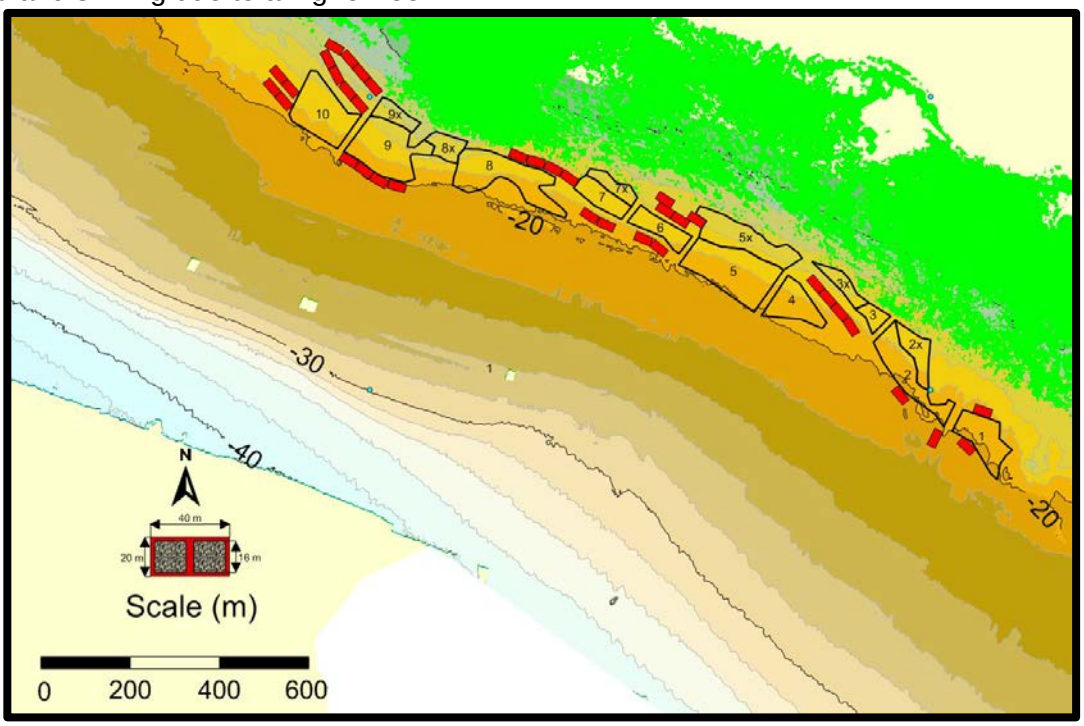


**Figure M.** Alternative 1: A reef with high relief components (red polygons) and low relief components (black outlined polygons).

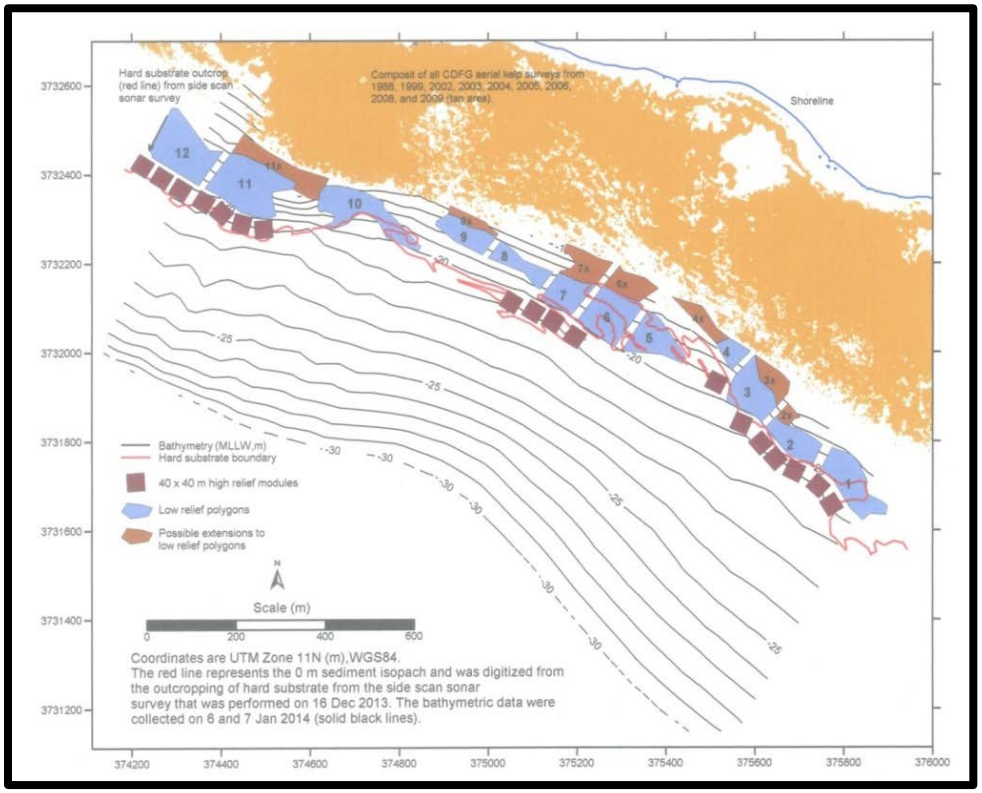


**Figure N.** Alternative 2: In this alternative, a reef with high relief components (dark brown square polygons) and low relief components (blue and light brown polygons).

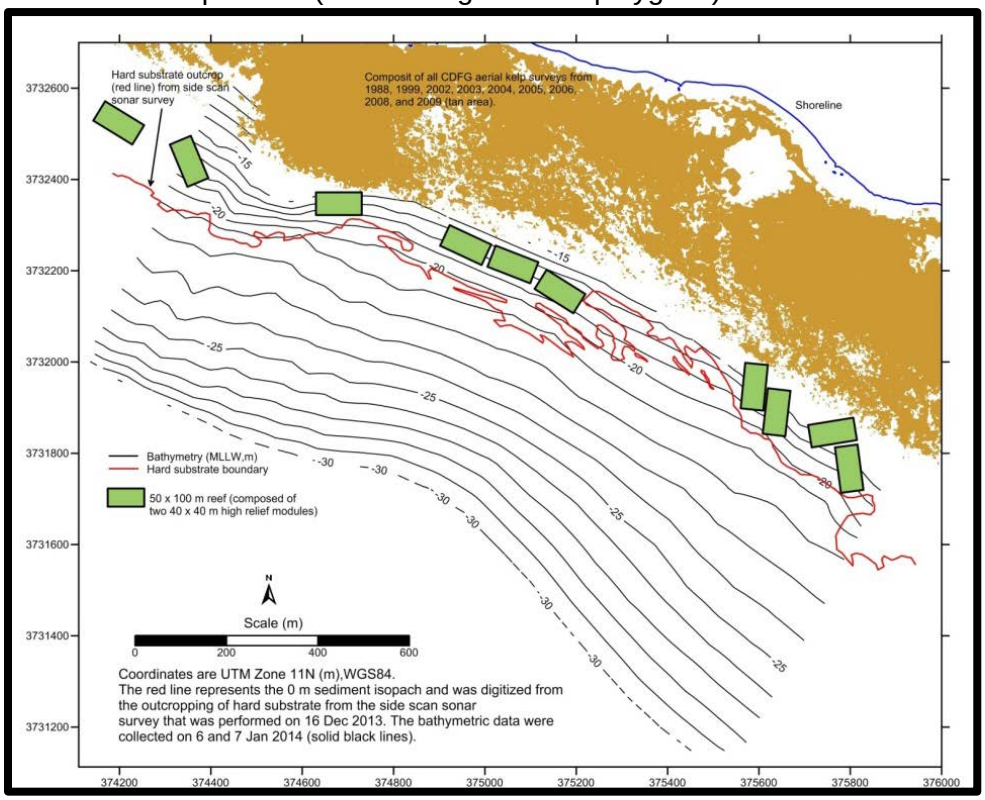


**Figure O**. Alternative 3: In this alternative, a reef with high relief components (green polygons) located in shallower water.

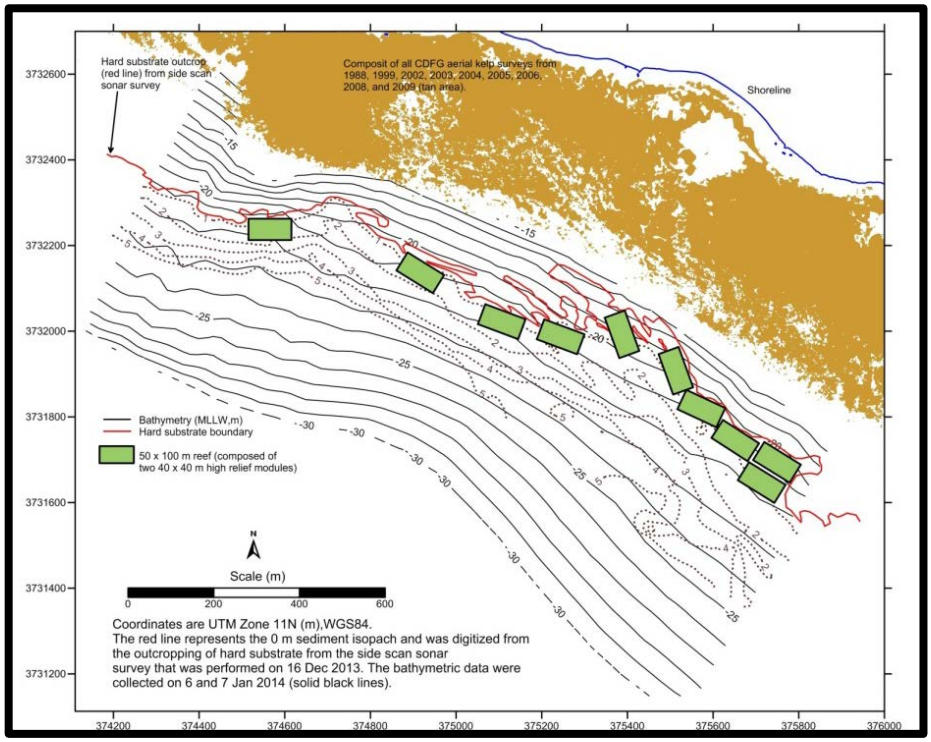


**Figure P**. Alternative 4: In this alternative, a reef with high relief components (green polygons) located in deeper water.

### SEDIMENTATION ASSESSMENT

The Palos Verdes Shelf sediments are derived from multiple sources, including: 1) landslides; 2) effluent from the Whites Point Outfall; 3) riverine discharge; and to a smaller extent, 4) primary production. However, the two largest sediment sources near the project area are landslides and effluent from the outfall (Santschi et al., 2001; Kayen et al, 2002; EPA, 2009). Input from other sources, such as rivers, is restricted due to shelf circulation patterns, the Redondo Submarine Canyon to the northwest, and the exposed bedrock ridge that traces the submarine extension of the Cabrillo fault system, acting as an impediment to sediment bypass (Lee et al., 2002; EPA, 2009). The base level of sedimentation, at around the 60 m isobath, is estimated to be 1.3 cm/yr (Santschi et al., 2001). Sediments derived from the nearby Portuguese Bend Landslide move in an east to southeasterly direction between the 5-15 m isobaths and the sediment from the Whites Point Outfall is predominantly in the 60m isobath, moving in a westerly direction. (Figure V; Kayen et al., 2002; Dong et al., 2009). In summary the proposed project would not be placed in an area experiencing rates of subsidence that would compromise the short term or long-term goals of the project.

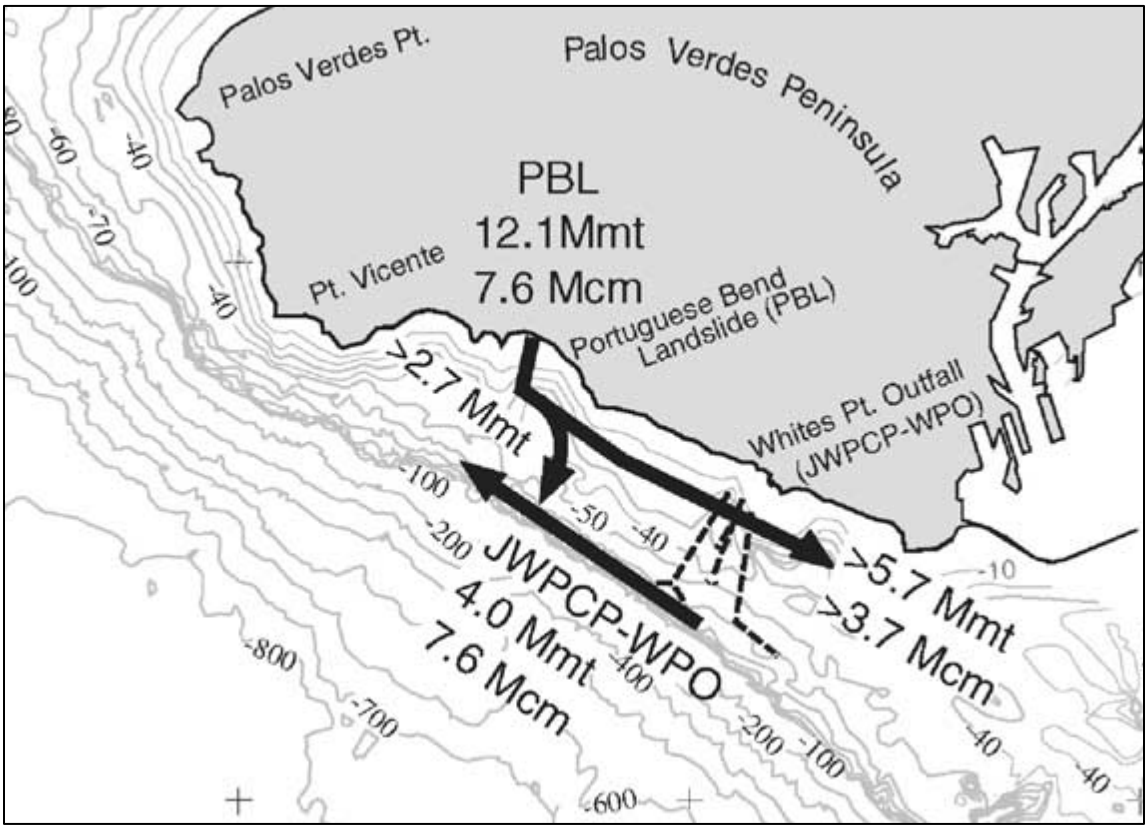


**Figure Q.** Estimated sediment contribution from the Portuguese Bend Landslide and the Whites Point Outfall. The sediment from the Portuguese Bend Landslide is predominantly in the 5-15m isobaths, moving in an easterly direction. The curved line represents the estimated fine particle contribution by eroded Portuguese Bend Landslide material to the Whites Point Outfall effluent affected sediment layer (image from Kayen et al., 2002).

## CONFORMANCE WITH THE NATIONAL ARTIFICIAL REEF PLAN

Siting

***Purpose***

The purpose of this project is to restore rocky-reef habitats and associated marine species on the Palos Verdes Shelf that were impacted by contamination in the sediments from the discharge of DDT and PCB from the Joint Water Pollution Control Plant's Whites Point Outfall (JWPCP) (under the Montrose Settlement), as well as to restore reefs that have been impacted by sedimentation and scour. The applicant considered and incorporated various aspects when designing and siting the proposed reef, including geological, hydrographic, water quality, and biological.

Artificial Reef Materials and Design

The materials, design, and construction methods of this project are detailed in the project description, above. The criteria outlined in the NOAA National Artificial Reef Plan (NARP) were used to determine project specifics, and the final project plan follows NARP guidelines. Under NARP, the project should conform to the following: 1. Enhance fishery resources to the maximum extent practicable; 2. Facilitate access to and utilization by United States recreational and commercial fishermen; 3. Minimize conflicts among competing uses of waters covered under this chapter and the resources in such waters; 4. Minimize environmental risks and risks to personal health and property;

and 5. Be consistent with generally accepted principles of international law and not create any unreasonable obstruction to navigation.

Construction

The construction methods for this project are detailed in the project description, above. The criteria outlined in the NARP were used to determine project specifics, and the final project plan follows NARP guidelines.

Management

Following reef construction, the project would be monitored for changes in the biological community as detailed in the Monitoring Plan. It would also be assessed for changes in physical structure, sedimentation, and fisheries enhancement. Maintenance would be performed as necessary to sustain functionality of the reef and may include deployment of additional materials (rock) to maintain the reef design, following approvals by all federal and local authorities required.

**Proposed Mitigation**

The proposed mitigation may change as a result of comments received in response to this public notice, the applicant's response to those comments, and/or the need for the project to comply with the 404(b)(1) Guidelines. In consideration of the above, the proposed mitigation sequence (avoidance/ minimization/compensation), as applied to the proposed project is summarized below:

**Avoidance:** Selection of the proposed site by the applicant for the reef project involved avoiding burial of existing natural reefs by placing the reef modules in an area where nearshore kelp bed habitat has been lost to sedimentation and reef burial. The restoration reef design closely reflects the morphology of nearby natural reefs that have survived the effects of sedimentation and wave action and remained productive fish habitat. The site is well inshore of shipping lanes and does not introduce any navigation hazards or threats to entanglement of commercial fishing gear. Fishing along the Palos Verdes Peninsula includes both recreational and commercial fishing. The two most important commercial invertebrate species are California spiny lobster and red sea urchin. Due to overfishing of many species, there are many fisheries closures and two recent marine protected areas (MPA's) were designed to protect the area from overfishing.

**Minimization:** The placement of the site also seeks to avoid any chance of exposing fish (and members of the public who catch and eat the fish) to sediments contaminated with DDT and PCBs by remaining inshore of areas with high concentrations of these contaminants. The highest concentrations of DDT and PCBs in the sediments are located at the 60 m (180 feet) isobath near the Whites Point Outfall. Contaminants are not found farther inshore than the 30 m (90 feet) isobath due to high wave energy and a larger grain size that is unable to retain the contamination.The project area is located inshore of the 20 m isobath and therefore is not within the contaminated area.

**Compensation:** The purpose of the proposed project is the restoration of reef habitat on a particularly disturbed portion of the Palos Verdes Peninsula caused by both natual and human-related impacts. Therefore, compensatory mitigation is not required because the impacts would result in a net benefit to waters of the United States, special aquatic sites, Essential Fish Habitat and their fisheries, state fisheries, and overall the marine biological communities.

**Proposed Special Conditions**

None at this time.

For additional information please call Bonnie Rogers of my staff at 213-452-3372 or via e-mail at Bonnie.L.Rogers@usace.army.mil. This public notice is issued by the Chief, Regulatory Division.

*Regulatory Program Goals:*

- To provide strong protection of the nation's aquatic environment, including wetlands.
- To ensure the Corps provides the regulated public with fair and reasonable decisions.
- To enhance the efficiency of the Corps' administration of its regulatory program.

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