



Long Beach Chapter

April 26, 2016

Mr. Naeem Siddiqui

Project Environmental Coordinator
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Subject: East San Pedro Bay Ecosystem Restoration Feasibility Study

Dear Mr. Siddiqui,

On behalf of the Surfrider Foundation Long Beach Chapter, I am writing this letter concerning the East San Pedro Bay Ecosystem Restoration Feasibility Study (herein referred to as the Study). This letter describes the proposed Surfrider Alternative for the Study, requests the Surfrider Alternative be included in the alternative matrix considered under the Study, and makes the case for only restoring ecosystems that historically existed in the proposed Project Area.

In short the Surfrider Alternative consists of restoring sandy bottom habitat by reconfiguring the Long Beach Breakwater (Breakwater), bringing waves back to the Long Beach shoreline, and mitigating for impacts.

Background

The Surfrider Foundation is dedicated to the protection and enjoyment of the world's ocean, waves and beaches through a powerful activist network. While supporting the mission and principles of the Surfrider Foundation, the Long Beach Chapter is dedicated to reconfiguring the Long Beach Breakwater to bring waves back to Long Beach.

In June of 1996, the U.S. Army Corps of Engineers (USACE) contacted *Long Beach Press Telegram* reporter Bill Hillburg about celebrating the 50th anniversary of the Long Beach Breakwater. His response was a three part article recommending removal or reconfiguration of the Breakwater. The Long Beach Chapter of the Surfrider Foundation was born of this public response and has been advocating for reconfiguration of the Breakwater ever since. This advocacy consisted of persistent public outreach to citizens, and appointed and elected officials. After 11 years of advocacy (July 24, 2007) the Long Beach City Council agreed to study the issue with the USACE. This effort concluded in the USACE determining that the federal government does have interest in proceeding to a feasibility study under the auspices of a single purpose ecosystem restoration study.

After 20 years working on this project, our chapter is happy to have the opportunity to engage with the USACE in seeking means to achieve our goals. It is understood that our chapter goals do not exactly match the primary missions of the USACE. Instead we look to areas where our interests overlap and all parties may benefit. To aide in developing a means for our goals to fit within the USACE mission of ecosystem restoration, the Surfrider Alternative is described below in USACE terms.

Surfrider Alternative

The Surfrider Alternative proposes to restore sandy bottom habitat by reconfiguring the Breakwater, bringing waves back to the shores of Long Beach, and mitigating for impacts.

Ecosystem Restoration

The Surfrider Alternative for the Study relies critically on the USACE definition of ecosystem restoration. The most recent definition available in a USACE Planning Guidance document is as follows:

The objective of ecosystem restoration is to restore degraded ecosystem structure, function, and dynamic processes to a less degraded, more natural condition. Restored ecosystems should mimic, as closely as possible, conditions which would occur in the area in the absence of human changes to the landscape and hydrology.¹

The ecosystem to be restored within the Surfrider Alternative consists of a restored sandy bottom benthic invertebrate habitat, with increased water circulation, improved water quality, increased mixing, decreased pollutant loading, a change from silty bottom to sandy bottom habitat, and increased oxygen content (due to breaking wave induced aeration). It is expected that many of these benefits would accrue throughout the entire Project Area between the Breakwater and the shoreline. The greatest amount of mixing and aeration would occur near the shoreline within the breaker zone. Many of

¹ Department of the Army, U.S. Army Corps of Engineers. Planning Planning Guidance Notebook. Engineer Regulation 1105-2-100. 22 April 2000.

these benefits are specifically called out by USACE guidance as beneficial. For example, water quality:

Water quality is an important component of ecosystem structure, and good water quality is generally integral to healthy functioning ecosystems. An important Corps contribution in rehabilitating ecosystems, where water characteristics are a critical structural component of those ecosystems, may involve improvement of water quality characteristics using engineering solutions. Corps restoration and protection projects may involve cost effective solutions to improve aeration, temperature, turbidity, acidity, sedimentation and other water quality parameters².

Structure and Function

To achieve these ecosystem restoration benefits the Surf rider Alternative would restore natural ocean waves into the Project Area. This would be achieved through reconfiguration of the Breakwater. Our vision for Breakwater reconfiguration consists of reducing the crest elevation to a depth capable of transmitting significant wave energy and capable of expanding the existing giant kelp forest that currently resides on the Breakwater. For purposes of discussion we assume this could be achieved with a depth of approximately 30 feet, below mean lower low water (MLLW). Actual crest elevation would be determined through analyses of waves, desired habitats, constructability, and other considerations. This crest elevation reduction would be applied throughout the entire 2.5 mile length of the Breakwater.

It is likely that through the alternative development phase of the Study some modifications to this alternative would be deemed necessary.

We acknowledge that complete restoration to historical conditions is not practically possible within the confines of the Study or project. However it is possible to partially reestablish the attributes of the naturalistic, functioning, and self-regulating system that had existed historically.

The Surf rider Alternative does satisfy the USACE objective for ecosystem restoration. Specifically, this is because a wave driven sandy bottom habitat did exist in the Project Area prior to development and has been significantly degraded due to human development. This degradation is summarized by the USACE in describing the beach after construction of the Breakwater³.

However, it is not as attractive a beach as it was when they had open surf. Now there is almost no cleansing action due to surf or littoral drift, and the bottom has become rather murky.

Other descriptions of the degradation are available upon request. The Surf rider Alternative lays out a means to restore significant ecosystem function, structure, dynamic processes, with numerous benefits.

² Department of the Army, U.S. Army Corps of Engineers. Water Resources Policies and Authorities Ecosystem Restoration Supporting Policy Information. Engineer Pamphlet 1165-2-502.. 30 September 1999

³ U.S. Army Corps of Engineers, Los Angeles District. An Oral History of Coastal Engineering Activities in Southern California, 1930-1981. January 1986.

Secondary Benefits

The Study was designed as a single purpose ecosystem restoration project. There are numerous other benefits of the Surfrider Alternative and we believe that the Study would have been more appropriate as a multiple purpose project including ecosystem restoration as a purpose. Nevertheless, a discussion of these other benefits is in order.

Ecosystem

In addition to the primary ecosystem components described above, the Surfrider Alternative would increase and improve the extent and density of giant kelp habitat by increasing the area of hard substrate habitat on the Breakwater and increasing wave driven circulation. The Surfrider Alternative can also increase lobster habitat and introduce surfgrass habitat as secondary benefits. These habitat features have been well documented as beneficial and are well supported by decision-makers at every level of government.

Recreation

As described by the USACE⁴ guidance in regards to recreation:

Recreation included as part of ecosystem restoration projects must be compatible with the ecosystem restoration purpose of the project, and appropriate in scope and scale to the opportunity provided by ecosystem restoration projects. Recreation development should not require additional lands, and should be ancillary to restoration benefits.

The Surfrider Alternative would certainly improve recreation within the Project Area. This would likely take the form of increased fishing, diving, swimming, surfing, boogie boarding, skim-boarding, beach lounging and general beach use. All of this increased recreation is compatible with USACE guidance and regulations for ecosystem restoration.

Navigation

The Breakwater as it currently exists it is a hazard to small craft navigation. It is a common occurrence for small craft to lose propulsion outside the Breakwater and drift onto the rocks. This has resulted in countless rescue and hazardous agent or spill containment operations by the Coast Guard, Lifeguards, Long Beach Fire Department, Long Beach Health Department, and Vessel Assist. These incidents have resulted in recreational coastal closures, required water quality testing and monitoring, damage to the watercraft, injury and death. If the crest of the Breakwater were removed to a depth sufficient for vessels to pass over, they would not flounder on the Breakwater. Buoys and other controls to further improve navigational safety are also recommended.

4 U.S. Army Corps of Engineers. Water Resources Policies and Authorities Civil Works Ecosystem Restoration Policy. ER 1165-2-501. 30 September 1999.

Flood Protection

Over the last fifteen years, an integral component of the Surfrider Alternative has been mitigation for project induced changes to the shoreline. Specifically, the Surfrider Alternative requires flood protection to be equal to or greater than what currently exists.

At locations such as the Long Beach Peninsula, this would require a wide, stable, and sandy beach, to absorb increased wave activity. Structures may be necessary to stabilize the beach such as groin fields or nearshore wave dissipating reefs. This wider beach would provide a larger sandy beach profile (than currently exists) to absorb the erosive tendencies expected with future sea level rise.

At locations such as Junipero Beach, a likely means to maintain or improve flood protection would be to relocate parking spaces landward, away from the shoreline.

Other flood protection mitigation measures are likely throughout the shoreline, depending on the location and purpose.

Other Benefits

Other secondary benefits not recognized by the USACE but still important to the Surfrider Foundation exist. There is a likelihood of increased property value resulting from a perceived improvement of the beach and nearshore waters. As part of the Reconnaissance Study for the current project, the coastal economist, Dr. Phil King, calculated increases in business revenue, local tax revenue and parking fees if waves are restored to the shores of Long Beach⁵. We also envision a new sense of stewardship permeating throughout the neighborhoods of Long Beach and other inland cities. It is hoped that through the reintroduction of waves and a thriving coastal economy, inland neighborhoods would become more connected to their coast and coastal recreation would become a normal activity. This would result in the additional benefits of reducing crime, increasing physical activity, reducing stress, and reducing health care expenditures.

Impacts and Mitigation

As touched on above, the Surfrider Alternative would have impacts throughout the Project Area and likely beyond. These impacts are discussed below with suggestions for likely mitigation.

Existing Habitat on Breakwater

The breakwater is currently home to numerous species.

The rocky surface from the water line to the sandy bottom is known to be viable lobster habitat. If the top portion were removed, effectively reducing this habitat, mitigation could take the form of ensuring that hard rock substrate exists across the horizontal face of the remaining portion of the Breakwater. Also, variations in the Breakwater crest slope could be incorporated into the design to maintain or increase this habitat. If it is

5 Philip G. King and Aaron McGregor. Economic Analysis of Reconfiguring the Long Beach Breakwater. Prepared as part of the US Army Corps of Engineers 905(b) with Moffatt & Nichol. July 2009.

found that not all of the length of the Breakwater can be removed, the remaining portions could have mildly sloping transitions from crest to saddle.

The Breakwater contains a mixture of soft fill material and clay at the bottom, becoming cobble, and armor stone as the height approaches the water surface, as shown in Figure 1. If the substrate remaining in place after removal of the top portion is too soft for viable kelp habitat, replacement of a layer of hard rock on this exposed surface may be necessary.

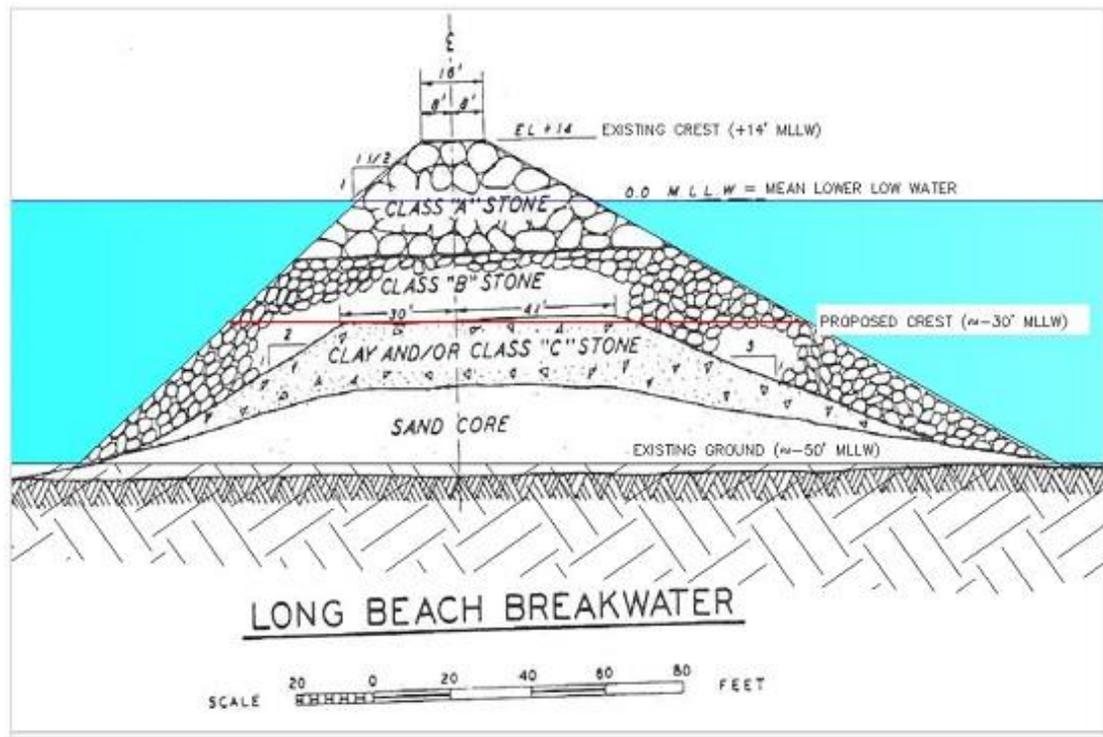


Figure 1. Breakwater Cross Section

In addition, the Breakwater is a loafing and roosting area for numerous birds. Whether reduction in the surface area of the Breakwater constitutes an impact for these species would have to be assessed with input from the resource agencies. Possible mitigations would also have to be discussed.

Existing Habitat in Lee of Breakwater

The aquatic area between the Breakwater and the shoreline is relatively calm open ocean water and can be home to juvenile fish species. Increasing wave activity would change this. It is hoped that the improvement in water quality and increase in reef habitat would offset these impacts as an out of kind mitigation to these resources.

Kitesurfing

Kitesurfing is popular in the eastern half of Long Beach. Introduction of waves would likely benefit experienced kitesurfers and make it more difficult for beginning kitesurfers. The net impact to kitesurfing is expected to be negligible.

Sailing

Sailing is popular in the Project Area with vessels of all sizes with both casual cruising and year-round racing. Race courses for larger vessels (generally over 20 feet) run in the wave protected lee of the Breakwater and outside the Breakwater and into Seal Beach. Introduction of more waves will have little effect on these races. Smaller vessels would be negatively impacted by introduction of waves. Implications would mean more racing within Alamitos Bay and less racing during larger swell and sea days.

Oil Islands

Boat access to the Thumbs Oil Islands would be negatively impacted during large swell events. Some of this restriction could be mitigated with the addition of local breakwaters or spurs near their landing areas. Overtopping and flood potential on these islands would be increased with increasing wave activity. This could be mitigated through the addition of reefs or increased revetment on the seaward side of the islands.

Harbors and Ship Motion

Due to the complex nature of ship motion it is unclear whether modification to the Breakwater would increase or reduce ship motion within the Ports of Long Beach or Los Angeles. Current theory holds that the long period waves that cause ship motion are locally produced through wave-wave interaction and reflection off beaches and structures in the region, with original energy coming from short period ocean waves from offshore. Regardless, an integral component of the Surfrider Alternative would be investigation into measures to maintain or reduce the likelihood of ship motion within the ports. A Boussinesq type model is recommended for analysis of the various alternatives that are expected to impart changes to the wave climate. If analysis indicates an increase in ship motion due to Breakwater reconfiguration, mitigating structures are recommended near Pier J and possibly near the Queens Gate entrance.

Navigation

Reducing the Breakwater crest height would have negligible effect on large vessel navigation as this occurs under direction of local port pilots through designated channels. Large vessel anchorage would be minimally impacted as well. During port shutdowns, almost all large vessels anchor outside the Breakwater. Impacts and mitigations to the Navy explosive anchorage are to be determined through the ongoing Naval Weapons Station Joint Land Use Study.

Other Structures

The Belmont Pier would have to be replaced with a structure sufficient to accommodate the increased wave climate.

Increased wave protection would be required near the entrance to Shoreline Marina, Rainbow Harbor, Catalina Landing, and the Queen Mary. One new breakwater could satisfy this function while at the same time serving as a training wall to direct LA River away from the shores of Long Beach.

Ecosystem Restoration vs. Enhancement

In developing alternatives for ecosystem restoration it is important to consider the clear and definitive differences between “ecosystem restoration” and “ecosystem enhancement.” Ecosystem restoration was defined above (and in detail below). The key difference between restoration and enhancement is that enhancement brings in ecosystem features that did not historically and naturally exist inside the Project Area and have not become degraded.

The Surfrider Foundation Long Beach Chapter opposes ecosystem enhancement (as defined by the USACE below) within the confines of the Study for the following reasons:

- 1) Given that our mission is to reconfigure the Long Beach Breakwater to bring waves back to the shores of Long Beach, it follows that, within the confines of the Study, we support alternatives that achieve this mission while opposing other alternatives that do not. Not by chance, the Surfrider Alternative is an ecosystem restoration alternative. We oppose alternatives that do not achieve ecosystem restoration and would unfairly compete with the Surfrider Alternative by ignoring USACE regulations (detailed below). For example, one group of alternatives recently proposed by the USACE involves ecosystem enhancement.
- 2) Based on experience, we feel that other local government and non-government agencies are more efficient at achieving ecosystem enhancement than the USACE.
- 3) Ecosystem enhancement is not a primary mission of the USACE, goes against USACE guidelines and regulations, and we feel that it would not be well supported by Congress. We prefer to support USACE projects where their involvement is essential and is supported as a primary mission of the USACE. For example, Breakwater reconfiguration has been viewed by many as requiring USACE involvement because the breakwater is owned by the federal government.

To be clear, while we oppose ecosystem enhancement by the USACE within the Study, we support ecosystem enhancement outside the Study. The Surfrider Foundation does support improving the habitats and ecosystems within San Pedro Bay and we have been working on this since our inception. We have worked on countless legislation, pollution ordinances, cleanups, habitat improvement projects, reef and wetlands projects, beach protection projects, and similar efforts in the past and will continue to do so in the future.

Definitions

To be unambiguous in understanding ecosystem restoration and ecosystem enhancement, we first begin with a simple definition of the word restore⁶ as follows:

- to give back (someone or something that was lost or taken): to return (someone or something);
- to put or bring (something) back into existence or use;
- to return (something) to an earlier or original condition by repairing it, cleaning it, etc.

Below is a review of USACE definitions of ecosystem restoration and enhancement in chronological order.

EP 1165-2-1⁷

Restoration is the process of implementing measures to return a degraded ecosystem's functions and values, including its hydrology, plant and animal communities, and/or portions thereof, to a less degraded ecological condition. The goal of restoration is to return the study area to as near a desired natural condition as is justified and technically feasible.

ER 1165-2-501⁸

Ecosystem Restoration is one of the primary missions of the Civil Works program. The purpose of Civil Works ecosystem restoration activities is to restore significant ecosystem function, structure, and dynamic processes that have been degraded. Ecosystem restoration efforts will involve a comprehensive examination of the problems contributing to the system degradation, and the development of alternative means for their solution. The intent of restoration is to partially or fully reestablish the attributes of a naturalistic, functioning, and self-regulating system.

Corps ecosystem restoration projects should utilize engineering and other technical solutions to water and related land resources problems, with emphasis on improving degraded ecosystem function and structure.

EP 1165-2-502⁹

Ecosystem Restoration is a primary missions of the Civil Works program. Civil Works ecosystem restoration initiatives attempt to accomplish a return of natural areas or ecosystems to a close approximation of their conditions prior to

6 Merriam Webster. <http://www.merriam-webster.com/dictionary/restore>

7 Department of the Army U.S. Army Corps of Engineers. Water Resources Policies and Authorities, Digest of Water Resources Policies and Authorities. Engineer Pamphlet 1165-2-1. July 30, 1999.

8 Department of the Army, U.S. Army Corps of Engineers. Water Resources Policies and Authorities Civil Works Ecosystem Restoration Policy. Engineer Regulation 1165-2-501. 30 September 1999

9 Department of the Army, U.S. Army Corps of Engineers. Water Resources Policies and Authorities Ecosystem Restoration Supporting Policy Information. Engineer Pamphlet 1165-2-502. 30 September 1999

disturbance, or to less degraded, more natural conditions. In some instances a return to pre-disturbance conditions may not be feasible. However, partial restoration may be possible, with significant and valuable improvements made to degraded ecological resources. The needs for improving or re-establishing both the structural components and the functions of the natural area should be examined. The goal is to partially or fully reestablish the attributes of a naturalistic, functioning, and self-regulating system.

Ecosystem Restoration. The purpose of Civil Works ecosystem restoration activities is to restore significant ecosystem function, structure, and dynamic processes that have been degraded (The concepts of ecosystem function and structure are closely intertwined, and both include abiotic and biotic elements and processes. Ecosystem structure is the state and spacial distribution of material forms within the ecosystem at a specified time.) Protection may be included as part of Civil Works ecosystem restoration initiatives, when such measures involve efforts to prevent future degradation of elements of an ecosystem's structure and functions. Such measures are most appropriate if they require the Corps' engineering expertise in accomplishing the protection measure. Protection measures can also be undertaken as part of Civil Works natural resources management and environmental dredging activities. The focus of projects implemented under this guidance is the restoration of ecosystems and ecological resources and not restoration of cultural and historic resources, aesthetic resources, or cleanup of hazardous and toxic wastes.

ER 1105-2-100¹⁰

The objective of ecosystem restoration is to restore degraded ecosystem structure, function, and dynamic processes to a less degraded, more natural condition. Restored ecosystems should mimic, as closely as possible, conditions which would occur in the area in the absence of human changes to the landscape and hydrology.

ER 1105-2-100 Appendices C & E

Enhancement is the net improvement an alternative plan, or project, makes to ecological resources (singularly or collectively) compared with the "without" plan or project condition. Policy under current budgetary constraints does not provide for implementation of separable features for enhancement of fish and wildlife resources unless such enhancement falls within the definition of fish and wildlife habitat restoration.

Historically the term "enhancement" has been used as an indication of a net habitat improvement over the without project condition. However, **this term now implies making the habitat better for some species than it would have been naturally in the absence of human intervention. Since this goes beyond the**

¹⁰ Department of the Army, U.S. Army Corps of Engineers, Planning Planning Guidance Notebook, Engineer Regulation 1105-2-100, 22 April 2000.

goal of ecosystem restoration, the use of the term “enhancement” is rarely appropriate in Corps documents.

IWR Report 03-PS-3¹¹

“Ecosystem restoration” is defined by Corps policy documentation as management actions that “attempt to accomplish a return of natural areas or ecosystems to a close approximation of their conditions prior to human disturbance, or to less degraded, more natural conditions.” The first part of this definition suggests that restoration is a concept that relies on some historical record of previous ecosystem condition as a target for management actions. The second part, on the other hand, recognizes that many ecosystems have been altered to such an extent that even partial return to some previous condition may not be possible.

As the USACE definitions are clear above, they require little comment to reinforce the idea that the USACE intended ecosystem restoration to mean returning degraded historically occurring ecosystems, and enhancement to mean improving not previously existing features. In fact as shown from ER 1105-2-100 the USACE has a separate and distinct definition of enhancement and goes to pains to point out how ecosystem restoration and enhancement are different terms and programs under USACE regulation and enhancement is not an appropriate USACE activity.

Enhancement Proposed by USACE LA District

The current plan formulation as proposed by the Los Angeles District of the USACE confuses ecosystem restoration with enhancement, in violation of USACE engineer regulation. Specifically, it would allow for the inclusion of historical habitat and ecosystem features from outside the Project Area to be imported into the Project Area under the guise of ecosystem restoration. Text from the community scoping meeting¹² is as follows:

The project area includes the East San Pedro Bay from the Port of Long Beach, extending south to Seal Beach. The broader study area includes Palos Verdes to the north and extends to Huntington Beach in the south. Information about the habitat and ecosystem in the entire study area will be analyzed and considered to formulate the final plan. However, only physical modifications inside the project area will be considered.

Intent of the above statement is not entirely clear. It could mean that habitat and ecosystems from the entire study area can be brought into Project Area, where physical

¹¹ Eugene Stakhiv, Richard Cole, Paul Scodari, Lynn Martin. Improving Environmental Benefits Analysis In Ecosystem Restoration Planning. IWR Report 03-PS-3 October 2003

¹² City of Long Beach. East San Pedro Bay Ecosystem Restoration Feasibility Study Community Scoping Meeting - Thursday, April 7th, 2016, Bixby Park Community Center

modifications are considered. Intent is clear however, in the PowerPoint presentation¹³ to the public as copied below.

Study Opportunities

- Restore aquatic habitats that were historically present in/near San Pedro Bay to:
 - Increase biodiversity
 - Increase abundance of marine organisms
- Examples of habitat types to restore include:
 - Rocky reef, kelp forest, sandy bottom/open water, eelgrass, intertidal zone (sandy/rocky), coastal wetland, other?

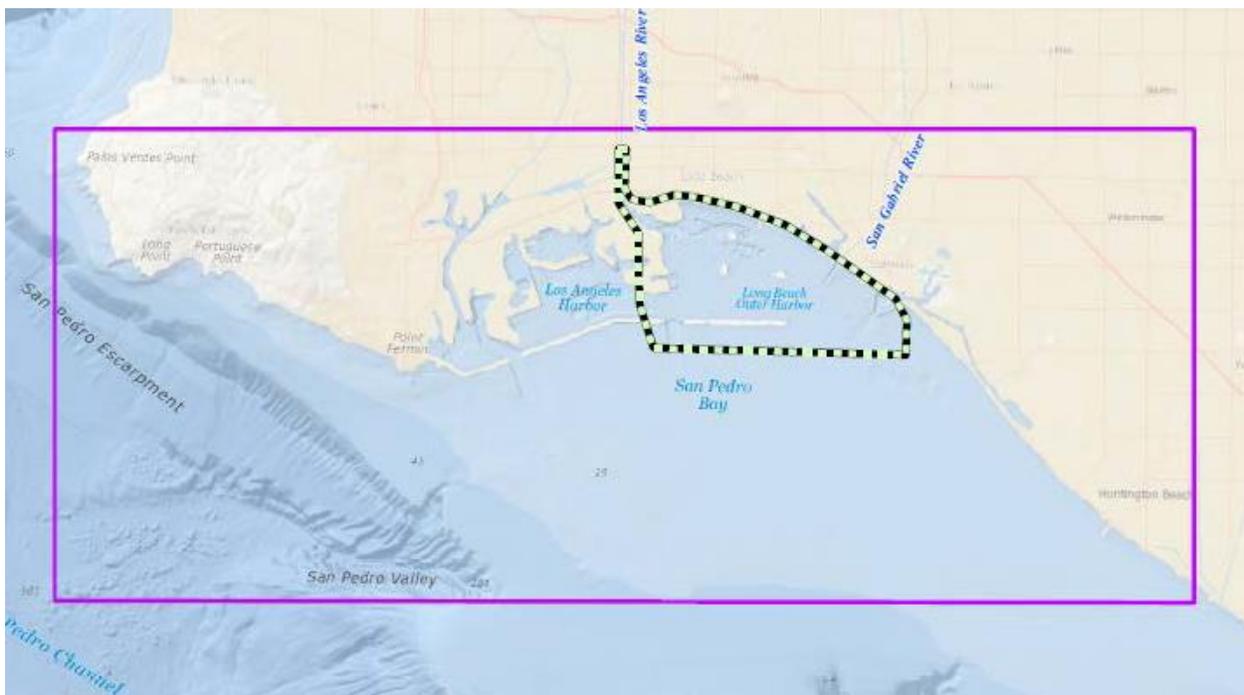


Figure 2. Project Area and Study Area (source USACE, 2016)

In Figure 2 the Study Area is bound by the purple rectangle, encompassing the Project Area, which is smaller, extending from just outside the Breakwater to inland of the beach. The key words from the PowerPoint are the intent to utilize aquatic habitats that were “historically present in/near San Pedro Bay.” In this instance near means outside the Project Area. This would allow importing habitat that was historically outside the Project Area into the Project Area, where it did not exist naturally. The habitat examples given include rocky reef, kelp forest, and eelgrass, which were not historically and

13 U.S. Army Corps of Engineers, Los Angeles District. East San Pedro Bay Ecosystem Restoration Feasibility Study. Hosted by City of Long Beach. Bixby Community Center, Long Beach. 7 April 2016

naturally present inside the Project Area. Bringing these into the Project Area constitutes enhancement (as defined by the USACE), not ecosystem restoration.

Also note, giant kelp and eelgrass currently exist in the Project Area, but are the result of human intervention. They did not exist under natural conditions prior to development. Additionally, they are not degraded. In fact, their presence indicates a more enhanced condition than historically existed.

The Project Area shown in Figure 2 encompasses areas fronting Seal Beach and the Seal Beach Naval Weapons Station, or the Anaheim Bay Entrance. It is unclear how the local sponsor for the Study (City of Long Beach) would be interested or allowed to support, let alone fund a project alternative outside their zone of influence that primarily benefits neighboring communities. Unless this can be better explained, we suggest moving the eastern side of Project Area boundary to far side of the San Gabriel River.

Again, Surfrider Foundation recommends a focus on ecosystem restoration activities in the smaller Project Area, based on ecosystems that historically and naturally existed in the Project Area. We do not support enhancement activities within this Study, composed of importing habitats from the larger Study Area (bound by the purple rectangle) into the Project Area. The larger the geographic area and broader scope of enhancement activities would result in less effective project alternatives that do not accomplish the goals of this Study

Vertical Review

In the spirit of the USACE's 3x3x3 requirement, it may be beneficial to pass the topic of ecosystem restoration versus enhancement vertically for ECO/PCX review as soon as possible. This may prove a time and budget saver, rather than finding out after 18 months of study that they do not concur with the current approach proposed by the LA District.

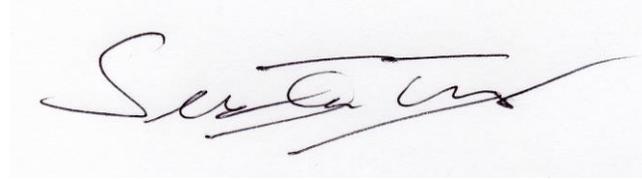
Closing

It is desired that the Surfrider Alternative be included into the alternative matrix considered under the Study. It is understood that a no-project alternative and a future without project alternative will be considered within the Study. We envision the Surfrider Alternative to bracket the opposite end of the spectrum of alternatives from the no project alternative. All other alternatives would likely fall in between. We look forward to reviewing the contrasts between a restored Long Beach ecosystem to a future condition defined by incremental but persistent human development.

In the above pages the clear difference between ecosystem restoration and enhancement has been exhaustively detailed. We sincerely desire the USACE to change direction of the Study to more accurately adhere to USACE guidelines and regulations that focus on ecosystem regulation. Habitat examples from outside the Project Area should not be considered for import to the Project Area within the confines of the Study as this would constitute ecosystem enhancement.

We look forward to working with the USACE and our local Study sponsor, the City of Long Beach, on this very exciting and promising project. Feel free to contact me any time to discuss this letter or any topic associated with the Study.

Sincerely,

A handwritten signature in black ink, appearing to read 'Seamus Ian Innes', written over a light blue horizontal line.

Seamus Ian Innes, M.Sc., P.E.
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