



Edmund G. Brown Jr.  
Governor

STATE OF CALIFORNIA  
Governor's Office of Planning and Research  
State Clearinghouse and Planning Unit



Ken Alex  
Director

October 12, 2011

Thomas W. Keeney  
U.S. Army Corps of Engineers - SPL  
P.O. Box 532711  
Los Angeles, CA 92053-2325

Subject: San Clemente Shoreline Feasibility Study  
SCH#: 2010084002

Dear Thomas W. Keeney:

The State Clearinghouse submitted the above named Final Document to selected state agencies for review. The review period closed on September 28, 2011, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan  
Director, State Clearinghouse

Document Details Report  
State Clearinghouse Data Base

P.003

**SCH#** 2010084002  
**Project Title** San Clemente Shoreline Feasibility Study  
**Lead Agency** U.S. Army Corps of Engineers

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**Type** FIN Final Document  
**Description** The study area is encompassed within the City of San Clemente and extends approximately 3,412 ft. (1,040m) from Linda Lane to T Street. The Proposed Projects consists of dredging material from offshore Oceanside, then hauling and placing it at San Clemente Beach. The proposed Project is a 50 foot (15m) resultant beach width. Beach fill would be 3,412 ft. (1,040 m) long with a +17 ft (+5.2 m) crest elevation. The dredge volume is estimated to be approximately 251,130 cubic yards (192,000 m3). Construction is anticipated to begin in 2012.

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**Lead Agency Contact**

**Name** Thomas W. Keeney  
**Agency** U.S. Army Corps of Engineers - SPL  
**Phone** (213) 452-3875 **Fax**  
**email**  
**Address** P.O Box 532711  
**City** Los Angeles **State** CA **Zip** 92053-2325

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**Project Location**

**County** Orange  
**City** San Clemente  
**Region**  
**Cross Streets** San Clemente Pier near Avenida Victoria and Coronado Lane  
**Lat / Long** 33° 25' 10" N / 117° 37' 06" W  
**Parcel No.** 058-240-15  
**Township** 9S **Range** 7W **Section** 4 **Base**

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**Proximity to:**

**Highways** SR-1/Pacific Coast Hwy  
**Airports**  
**Railways** Amtrak/Metrolink/SCRRA  
**Waterways** Pacific Ocean  
**Schools** 14 schools  
**Land Use** OSI-SI - Coastal Zone - Open Space, Public Parks and Publicly Owned Open Spaces

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**Project Issues** Air Quality; Archaeologic-Historic; Biological Resources; Coastal Zone; Economics/Jobs; Geologic/Seismic; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Soil Erosion/Compaction/Grading; Traffic/Circulation; Vegetation; Water Quality; Growth Inducing; Landuse; Cumulative Effects

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**Reviewing Agencies** Resources Agency; Department of Boating and Waterways; California Coastal Commission; Department of Fish and Game, Region 5; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 12; Regional Water Quality Control Board, Region 9; Department of Toxic Substances Control; Native American Heritage Commission; Public Utilities Commission; State Lands Commission

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**Date Received** 08/30/2011 **Start of Review** 08/30/2011 **End of Review** 09/28/2011

Note: Blanks in data fields result from insufficient information provided by lead agency.

TOTAL P.003



# United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240



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PEP/NRM

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Mr. Theodore A. Brown, P.E.  
Chief, Planning and Policy Division  
Directorate of Civil Works  
Headquarters  
U.S. Army Corps of Engineers  
CECW-P (SA)  
7701 Telegraph Road  
Alexandria, VA 22315-3860

**RE:** Thirty-Day Review of Chief of Engineers Proposed Report,  
on the San Clemente Shoreline Protection Project, Orange County, CA

Dear Mr. Brown:

The U. S. Department of the Interior (Department) has reviewed the U. S. Army Corps of Engineers (Corps), Chief of Engineers Proposed Report on the San Clemente Shoreline Protection Project, Orange County, CA.

In July 2011, the Department's U.S. Fish and Wildlife Service (FWS) developed a Coordination Act Report (CAR) for the project, pursuant to the Fish and Wildlife Coordination Act. It appears that the recommendations in the CAR were not incorporated into the current project description provided by the Corps; notably our suggestions to modify the project to a 10-meter (m) [33-foot (ft)] beach width to help minimize potential impacts to surfgrass and reef and mitigation risks/costs due to the uncertainty regarding surfgrass restoration. We are enclosing the July 2011 CAR for your consideration and inclusion within your report.

Thank you for the opportunity to provide comments. If you have any questions regarding our comments or need additional information, please contact Mr. Jon Avery, FWS, Federal Projects Coordinator, at 760-431-9440 or email [Jon\\_Avery@fws.gov](mailto:Jon_Avery@fws.gov).

Sincerely,

Willie R. Taylor  
Director, Office of Environmental Policy  
and Compliance

Enclosure



SEP 30 2011

Theodore A. Brown, P.E.  
Chief, Planning and Policy Division  
Directorate of Civil Works  
U.S. Army Corps of Engineers  
CECW-P (SA)  
7701 Telegraph Road  
Alexandria, Virginia 22315-3860

Dear Mr. Brown:

The National Oceanic and Atmospheric Administration (NOAA) has reviewed the U.S. Army Corps of Engineers' (Corps) Final Joint Environmental Impact Statement/Environmental Impact Report (FEIS) San Clemente Shoreline Protection Project. The enclosed comments include an evaluation of the Corps' response to the issues raised by NOAA's National Marine Fisheries Service's (NMFS) during development of the FEIS regarding effects of the project on the marine environment. These evaluations are based on NOAA's special expertise and responsibility to protect essential fish habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act and conserve wildlife resources under the Fish and Wildlife Coordination Act. NMFS previously provided comments on the Draft Environmental Impact Statement on September 20, 2010. The comments included EFH conservation recommendations and recommendations pursuant to our Fish and Wildlife Coordination Act (FWCA) responsibilities. The San Clemente Shoreline Project sets a precedent for how Corps Civil Works may plan and implement similar projects for which sensitive nearshore habitats may be impacted. NMFS discusses their concerns in greater detail in the enclosed comments and provides recommendations that should be addressed prior to a record of decision.

Thank you for consideration of NMFS comments and recommendations. If you have any questions, please contact Bryant Chesney, NMFS Southern California Habitat Coordinator, at (562) 980-4037 or [Bryant.Chesney@noaa.gov](mailto:Bryant.Chesney@noaa.gov).

Sincerely,

Paul N. Doremus, Ph.D.  
NOAA NEPA Coordinator

Enclosure

cc: Colonel R. Mark Toy



NOAA's National Marine Fisheries Service (NMFS) has reviewed the U.S. Army Corps of Engineers' (Corps) Final Joint Environmental Impact Statement/Environmental Impact Report (FEIS). NMFS offers the following comments pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), National Environmental Policy Act (NEPA), and Fish and Wildlife Coordination Act (FWCA).

### **Consultation History**

NMFS has provided informal technical input via a number of interagency meetings and email correspondence dating back to 2007. NMFS formally provided comments on the Draft Environmental Impact Assessment (DEIS) pursuant to MSA, NEPA, FWCA, the Endangered Species Act, and the Marine Mammal Protection Act on September 20, 2010. Within these comments, NMFS provided essential fish habitat (EFH) Conservation Recommendations pursuant to our MSA responsibilities and FWCA recommendations.

### **Proposed Project**

The following project description is found on page ES-2 of the FEIS.

*Two scales of the Beach Fill Alternative were analyzed; they both consist of dredging material from offshore Oceanside, then hauling and placing it at San Clemente Beach. The proposed Project is a 50 foot (15 m) resultant beach width. Beach fill would be 3,412 ft (1,040 m) long with a +17 ft (+5.2 m) crest elevation. The dredge volume is estimated to be approximately 251,130 cubic yards (192,000 m<sup>3</sup>). Dredge material gradation is 6 to 12 percent of fines, 5 to 8 percent of gravel/cobbles, and the rest is sand. Material classification assumed is 10 percent fines, 83 percent sand and 7 percent gravel. Construction is anticipated to begin in 2012 but may begin as soon as 2010.*

### **Summary of Concerns on the FEIS**

The San Clemente Shoreline Project sets a precedent for how Corps Civil Works may plan and implement similar projects for which sensitive nearshore habitats may be impacted. NMFS has a number of concerns regarding the proposed project and the FEIS. They are summarized in bullet form below. These concerns are described in greater detail in the text that follows.

- The FEIS and Final Feasibility Report do not explicitly address comments provided by an Independent External Peer Review.
- The Corps' response is inconsistent with key aspects of our EFH Conservation Recommendations. In some cases, justification for the inconsistent responses is absent, unclear, and/or not supported by adequate scientific justification.
- The Corps incorrectly states that NMFS has no authority to provide comments pursuant to the FWCA.
- The FEIS contains various mischaracterizations of NMFS involvement and opinions expressed during the agency coordination process.

## **Precedent of Corps Civil Works Beach Nourishment Projects Near Sensitive Resources**

NMFS believes this project sets a precedent for how Corps Civil Works intends to approach beach nourishment projects for which sensitive habitats exist immediately offshore. The Corps is also in the planning stages of a similar project at Encinitas -Solana Beach. This area is within San Diego County and very similar to San Clemente with high coastal bluffs, little or no sandy beach, and a rock platform. This project is substantially larger – over 1,200,000 cubic yards of sediment over approximately 2.9 miles of shoreline with extensive reef habitat immediately offshore.

Based upon comments given during the agency coordination process, our response to the DEIS, and our current response to the FEIS, NMFS does not believe the Corps has fully addressed NMFS' concerns regarding monitoring, impact determination, and mitigation for sensitive nearshore resources. Thus, NMFS hopes that resolution of concerns expressed for the San Clemente Shoreline Project will facilitate a more efficient and environmentally benign project in Encinitas-Solana Beach.

## **Disclosure of Pertinent NEPA Information**

NMFS recently became aware of a document titled 'A Final Independent External Peer Review Report: San Clemente Storm Damage and Shoreline Protection Feasibility Study' and was dated July 23, 2010. NMFS obtained the document from the following Corps website: [http://www.usace.army.mil/CECW/PlanningCOP/Documents/peer/san\\_clemente.pdf](http://www.usace.army.mil/CECW/PlanningCOP/Documents/peer/san_clemente.pdf). The NMFS notes the absence of this review in Section 12.0 References of the FEIS. Given the findings of the independent review, NMFS finds it highly problematic that this review was not discussed in the DEIS or the FEIS.

Below is the summary of the panelist comments:

**Plan Formulation:** Several aspects of the plan formulation component of the San Clemente Feasibility Study lack the details necessary to fully understand the decision-making process. In particular, more details are needed on the following: the screening process for management measures, the population and properties potentially impacted by the project, and the public involvement process.

**Economics:** Overall, the economics portions of the report are well written, and do not include any serious issues. However, one minor concern is the lack of documentation supporting the use of an uncertified beach damage model. In addition, while the economics appendix demonstrates a clear understanding that recreational benefits are treated as incidental, the Feasibility Report's Sections 4.5 and 4.6 suggest, in contrast, that recreation was a primary planning objective.

**Engineering:** There are several significant engineering assumptions and analyses that affect plan formulation results which are not substantiated or well justified. There also are several parameters included in the integrated engineering-economic model that are not well supported by data, assumptions, and analyses. Further, these parameters inherently have a high degree of uncertainty that is not quantified and included in plan formulation. Additional data and analyses

to substantiate the assumptions, and consideration of the uncertainties must be incorporated into the plan formulation analyses.

**Environmental:** The environmental review of the project was generally clear and thorough; however, the discussion on the significance of impacts on two habitats (surfgrass and kelp beds) that are of primary concern when selecting beach width alternatives were inconsistent and not substantiated. While uncertainties exist as to the likely impact on these communities due to sand burial, the document does not provide an adequate approach to determining the significance on these communities and the species they support nor a clear adaptive management program to deal with the uncertainty.

Below is a table that lists the 24 Final Panel Comment statements by level of significance.

**Table 3. Overview of 24 Final Panel Comments Identified by San Clemente Feasibility Study IEPR Panel**

<b>Significance – High</b>	
1	The assumption that the existing beach is erosional is not supported by the data and analyses used to develop representative Future without Project conditions
2	The sediment budget discussion needs to be updated and refined to include reach-specific information.
3	Railroad Reach Conversion Criterion assumptions and values are not substantiated or consistent.
4	There are significant uncertainties associated with the selected value of the Minimum Beach Criterion that are not considered in the project alternatives evaluation and plan formulation analyses.
5	The use of the San Diego Association of Governments (SANDAG) project to predict the performance of the San Clemente project has not been justified.
6	The values used to represent expected storm-induced cross-shore sand transport and beach change have not been verified to site-specific conditions.
7	Details on sediment compatibility and relationship of depth to closure need to be added to the equilibrium beach profile, toe of fill, and rock coverage analyses.
8	The volume-to-area relationship used to derive beach fill volume and expected fill performance is not supported and additional details are needed on specific beach profile characteristics and beach fill design parameters.
<b>Significance – Medium</b>	
9	The significance of the loss of surfgrass and kelp bed communities should be defined.
10	The description of each planning reach should include information on the reach's economic, environmental, socio-demographic, and engineering characteristics, and the rationale for the elimination of specific reaches needs to be better described.
11	Based on the information provided, it was not evident that a sufficient level of public involvement took place.

12	Cost effectiveness and not cost should be used for screening the measures.
13	More thorough documentation and analysis is needed on management measures to justify the selection of the alternative.
14	More detailed examination of the impacts of future sea level rise on the project is warranted.
15	Impacts of the project to the local community are not described in detail sufficient to provide a clear and accurate representation of the current conditions in the study area.
16	The cost analysis assumptions are reasonable; however, the mobilization/demobilization costs and the estimate of contingencies should be revised to reflect equipment availability, travel times, and production capacity.
17	It is not clear whether Borrow Area 2A can satisfy the project's 50-year needs.
18	Since the coastal storm damage model does not appear to have been certified, then the model itself and particularly the key random variables need to be described in considerably more detail, and evidence of model certification should be provided.
19	It is not clear how the effects of loose rock and cobble in the San Clemente beach profile affect beach dynamics and expected project performance.
20	Some elements of project monitoring are missing and an adaptive management plan needs to be developed.
21	The effects of borrow area sediment quality variation on water quality, project constructability, and project performance could be different than those discussed in the report.
<b>Significance – Low</b>	
22	The calibration of railroad damage functions is not clear.
23	There are omissions in the Environmental Impact Statement's section on Biological Resources (including unclear figures, missing information on surfgrass fauna, and incomplete discussions on shorebirds and sea turtles) that need to be addressed.
24	Recreational benefits must be treated as incidental benefits of the project.

Given that the Feasibility Study provides the foundation for the Corps' NEPA documentation, NMFS recommends that the Corps explain how they addressed the comments provided by this independent review.

It is possible that the Corps made reference to this document on page 5-55.

*No ATR or IEPR comments raised this [mitigation approach] as a concern, and uncertainty persists as to whether there will be any impacts at all to rocky reef and surfgrass vegetation from the recommended alternative.*

The meaning of the IEPR acronym was not listed in Section 11.0 Glossary, Acronyms, and Abbreviations. NMFS used the Acrobat 'Find' tool in Volumes I and II of the FEIS, the San Clemente Shoreline Feasibility Study Final Report, and the Technical Appendices to the Final Report, but was unable to locate another instance of its use. Thus, NMFS was not able to determine the exact meaning of the acronym, but, superficially, the acronym matches **I**ndependent **E**xternal **P**eer **R**eview. If the use of the acronym 'IEPR' was referring to the peer review, then this statement is misleading. As summarized above, the panelists found that 'while uncertainties exist as to the likely impact on these communities [surfgrass and kelp beds] due to sand burial, the document does not provide an adequate approach to determining the significance on these communities and the species they support nor a clear adaptive management program to deal with the uncertainty.'

## **Statutory Response to EFH Conservation Recommendations**

The Corps' response to our EFH Conservation Recommendations reads as follows:

*The monitoring and mitigation plan in Appendix B has been revised to include mitigation for loss of surfgrass and reef habitat. If surfgrass mitigation fails, a contingency plan has been developed to plant kelp on an offshore reef.*

The Corps' final response must include a description of measures to be required to avoid, mitigate, or offset the adverse impacts of the activity. If the Corps' response is inconsistent with our EFH conservation recommendations, the Corps must provide an explanation of the reasons for not implementing those recommendations. The reasons must include the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

The Corps response to the EFH Conservation Recommendations pointed to Appendix B. However, Appendix B did not provide an adequate response to all of our EFH Conservation Recommendations. Below NMFS identifies those EFH Conservation Recommendations that were not adequately addressed.

**Conservation Recommendation 1: Given the high ecological values associated with surfgrass and rocky reef habitat, NMFS believes unavoidable reductions in quantity and/or quality of these habitats should be addressed via compensatory mitigation. The Corps and project sponsor should develop a contingency mitigation plan in consultation with NMFS and other interested agencies prior to the record of decision for the proposed project.**

**The contingency mitigation plan should be based upon a reasonable estimate of potential impacts to rocky reef and surfgrass habitat. This estimate should be developed and agreed upon by Corps, NMFS, and other interested agencies prior to the record of decision for the proposed project. This estimate may then be used as the basis for determining the approximate cost of implementing a mitigation project and should be incorporated into the benefit to cost ratio of the proposed project. In addition, the estimated cost can serve as the basis for providing financial assurances that will ensure a high level of confidence that the compensatory mitigation project will be completed if impacts are observed.**

The Corps developed a contingency mitigation plan, which is described in Appendix B. However, the estimate of potential impacts to rocky reef and surfgrass habitat was not agreed upon by NMFS and other interested agencies. NMFS believes the Corps estimate is not well supported and outlines some of the problematic issues below.

### **Impact Uncertainty**

The basis for the Corps estimate of impacts is uncertain. Appendix B states the following regarding estimated impacts:

*Impacts to rocky reef and surfgrass are expected to be none to very minor, but currently are unknown.*

*Potential project impacts to these resources were based on modeling that indicates that sand movement may extend to the offshore/outer edge of the reef; however, sand at the offshore/outer edge of the reef would be thin and not significant. Potential burial of the inshore edge of T-Street reef is uncertain; however, in a reasonable worst case scenario, approximately 20 percent of the inshore edge of the T-Street reef area (about 1 acre) may be buried.*

On page 5-57, the following is stated:

*The estimate that approximately 20 percent of the reef or 1 acre would experience significant burial was determined by superimposing the sand distribution cross section predicted by Corps coastal engineers on the offshore bathymetry and by delineating the reef as well as the surfgrass locations measured in the field by Chambers Group.*

The FEIS acknowledges the uncertainty of their impact predictions and the associated modeling. On page 93 of the Coastal Engineering Appendix (Appendix), the following is stated:

*Conclusions drawn from the SANDAG Oceanside Beach monitoring suggests that the San Clemente fill will have burial impacts in the cross-shore direction, but there are no known cross-shore sediment transport models which have been demonstrated to accurately predict the distribution of material across the existing profile.*

Further, on page 94 of the Appendix, the following is stated:

*The depth of burial is greatest at the shoreline, and is expected to range up to 6m (19ft) thick. The depth of burial at the seaward toe of the fill footprint is expected to range between 0.3-1.0m (1-3ft)...*

*...The tentatively recommended plan is expected to create burial impacts to rocky bottom habitats.*

Thus, according to the Appendix, burial at the outer edge will range between 0.3-1.0 meter (m) (1-3 feet (ft)). Whereas, in Appendix B, it is stated that burial on the outer edges would be thin and insignificant. NMFS does not believe 1-3ft burial is insignificant. NMFS notes that short term burial at depths of 0.8 feet exhibited a statistically significant decline in shoot count within a laboratory setting (Craig et al, 2008). Furthermore, the FEIS indicates that some portions of surfgrass habitat within the equilibrium footprint already exhibit some burial. Thus, the additive impact associated with this beach fill project may exacerbate existing conditions for surfgrass habitat.

#### Limited Characterization of Nearshore Habitats for Impact Assessment Purposes

In addition to the uncertainty of potential impacts, NMFS does not believe the sensitive resources within the impact area have been adequately characterized for impact assessment purposes. NMFS indicated in our comments to the DEIS that the survey information that was provided does not delineate areal extent of rocky reef and surfgrass within the impact area. No quantification of area and/or coverage was provided for the scattered boulders and surfgrass habitat. In response to NMFS comments regarding the action area, the Corps states the following:

*The Corps' marine ecology contractor conducted several dives along 25 transects, as noted in the FEIS/R. These field data were more than reconnaissance level field investigations. The data clearly and unequivocally captures the distribution extent of rocky reef, single boulders, and the extent of surfgrass distribution.*

Further, on page 5-51, the following is stated:

*Above all, the surveys provided the information needed to assess potential impacts, and the basis needed for discussion and evaluation of project alternatives, along with potential monitoring and mitigation.*

NMFS does not believe the information provided justifies this assertion. First, the above statements are inconsistent with the following statement made in their comment response:

*There currently is no available data that depicts or illustrates the rocky reef or surfgrass of the entire locale.*

Second, a detailed description of the surveys was not provided. Thus, there is little to judge the confidence of the surveys that were conducted. Third, the only spatially explicit information obtained from these surveys is depicted in Figure 4-10. For example, the T-street reef is delineated on Figure 4-10. However, the Corps later states on page B-4 that a survey was not conducted to delineate the T-street reef. Instead, only the general area of T-street reef was mapped. Furthermore, single boulders were not identified and surfgrass is represented by individual points on Figure 4-10. Fourth, the dive transect surveys are inadequate to fully characterize the offshore habitat within the impact area. Although 25 dive transects were surveyed in total, only 21 transects were surveyed in the impact area. The 21 transects are immediately offshore of the approximately 3,412 foot long project area. Ideal visibility conditions may reach 30 feet in the impact area, though NMFS expects that typical visibility in this area is likely much less. Regardless, assuming optimal conditions, a diver could cover 37% of the project area. A more likely estimate of visibility in the project area would be 10 ft, which would allow 12% of the impact area to be visually estimated. At equilibrium, the Corps indicates that the fill footprint is approximately 132.0 acres. Thus, under optimum conditions 84 acres of the impact site was not characterized by diver transects. Under the more likely visibility scenario, 116 acres was not characterized by diver transects.

Thus, NMFS maintains our assertion that the survey information provided by their marine ecology contractor does not delineate areal extent of rocky reef and surfgrass within the impact

area. Hence, the information provided does not provide an accurate characterization of offshore habitats for impact assessment purposes.

Upon closer inspection of the Coastal Engineering Appendix, NMFS notes Figure 2-6 in the Appendix, which depicts the surficial geologic features in the project vicinity. Although the survey coverage is not entirely comprehensive, there appears to be a considerable amount of area where rock outcroppings cover more than 50 percent of the seabed within the impact footprint. Unfortunately, this geophysical survey is not overlaid with other mapped features in Figure 4-10 of the FEIS.

Additional information relevant to the characterization of nearshore habitat may be found on page 35 of the Coastal Engineering Appendix. Geologic mapping indicated that the areas from San Juan Creek to San Mateo creek are essentially hard exposed bedrock throughout the regime. Mapping indicated the offshore regime is primarily hard bottom covered in some places by shallow pockets or a thin veneer of sediment. The sediment sources described in Section 2.5.2 are indicative of a region that does not naturally have an abundance of sediment supplied to the beaches.

#### Corps Ability to Predict and Effectively Compensate for Impacts to Seagrass

The Corps has not demonstrated strong predictive abilities for impacts to seagrass for recent Corps projects. In addition, the Corps has not consistently provided adequate seagrass surveys in a timely manner and has not consistently met its environmental commitments for seagrass mitigation. The following are examples.

For the Morro Bay Harbor Six-Year Maintenance Dredging Program, the Corps concluded that the proposed dredging would not have a significant impact on eelgrass. In response to NMFS' EFH Conservation Recommendations, the Corps committed to pre-construction and post-construction surveys for dredging activities within the Morro and Navy Federal channels. In addition, they indicated that the surveys and any necessary mitigation would be conducted in accordance with the Southern California Mitigation Policy (SCEMP). The Corps conducted maintenance dredging in Morro Bay during 2009 and 2010. However, the original pre-construction eelgrass survey for the 2009/2010 dredging cycle was inadequate and significantly underestimated the distribution of eelgrass in the dredge footprint. In particular, the survey failed to capture an approximately 1 acre eelgrass bed that was directly in the dredge footprint. Unfortunately, due to contractual limitations, the Corps indicated they could not implement another pre-construction survey without significant delays that would significantly increase dredging costs. Given that the project was funded by the American Recovery and Reinvestment Act, NMFS compromised with the Corps and agreed upon an assumed impact of 1 acre based upon expected impacts within the dredge footprint, for which the Corps agreed to provide compensation. The dredging ultimately resulted in additional impacts beyond the dredge footprint - likely due to slope failures. However, the extent of the additional impacts is difficult to predict because 1) the original pre-construction survey was inadequate and 2) the Corps did not provide a timely post-construction survey of the affected areas. In fact, NMFS has yet to receive a post-construction survey from this dredging cycle that shows the affected eelgrass areas in the vicinity of the Morro Channel.

There were also issues associated with the Corps' San Diego River Mission Bay Jetty and Revetment Repair and Maintenance Dredging Project in San Diego County. NMFS expressed the importance of protecting eelgrass habitat within the project site in accordance with the SCEMP in our EFH letter dated July 29, 2009, and throughout the project planning process in general. The Corps also recognized the importance of this valuable resource and committed to protecting it while implementing the project. For instance, in section 3.2.2 of the Final Supplemental Environmental Assessment (FSEA), the NEPA document for this project, the Corps specified the measures that would be taken to avoid impacting eelgrass and then stated, "If necessary, mitigation will be coordinated with the US National Marine Fisheries Service (NMFS) and carried out in accordance with NMFS's Southern California Eelgrass Mitigation Policy". Under section 4.1.7 of the FSEA, the Corps also noted that any impacts to eelgrass would be mitigated "...in accordance with current policies and practices". In addition, the cover letter accompanying the "Pre-Dredge Eelgrass and Caulerpa Surveys for the 2010 Mission Bay Harbor Maintenance Dredging Project" appropriately reiterated the Corps' obligation to mitigate for eelgrass impacts in accordance with SCEMP. Thus the need to protect, and mitigate for any impacts to, eelgrass habitat during construction activities was adequately addressed by both the Corps and NMFS prior to project initiation. However, the Corps has yet to fully comply with these obligations. Implementation of the project resulted in the loss of approximately 0.8 acres of eelgrass habitat, as documented in the "Post-Dredge Eelgrass Survey for the 2010 Mission Bay Harbor Maintenance Dredging Project". According to SCEMP, the mitigation for these impacts should have begun within 135 days of initiating in-water construction, which occurred in October, 2010. Therefore, even if the mitigation was postponed until the next active growth phase to increase the likelihood of success, this mitigation project should have been started on or around March 1, 2011. Unfortunately, the mitigation transplant has not yet begun, nor has a mitigation plan been released by the Corps. Under section 8 of SCEMP, for projects that do not begin within the 135 day time frame, an additional seven percent for each month of delay shall be applied to the original mitigation area. This is consistent with a widely held concept that temporal losses should result in additional mitigation. However, when we reminded the Corps of this obligation, their response was that they would be unable to comply with the mitigation delay provision of SCEMP. Because NMFS does not believe an effective NEPA process and/or EFH consultation can be conducted if the Corps can not be relied upon to meet their environmental obligations, we relayed these concerns in a letter on July 22, 2011. The Corps has yet to respond to this letter.

In addition, a Corps maintenance dredging project in Lower Newport Bay also impacted eelgrass habitat. Specifically, a 2003 dredging event impacted shallow water and eelgrass habitat in Lower Newport Bay offshore of the east end of Balboa Island. Approximately 0.88 acres of eelgrass habitat was impacted with a mitigation requirement of 1.06 acres. However, mitigation measures to offset these losses have not been successfully implemented.

#### Summary and Recommendation for Estimated Impacts

Given the uncertainty of the modeling used to predict impacts, the limited characterization of existing offshore habitats, and the Corps' recent history in predicting and mitigating impacts to seagrass habitat, NMFS does not believe the Corps' proposed impact estimate is appropriate.

Instead, NMFS believes a more conservative estimate is appropriate. NMFS is using the following factors in determining a more conservative estimate: 1) a comprehensive survey has yet to be conducted, 2) the T-street reef structure is roughly estimated at 5 acres, 3) the scattered reefs and boulders have not been well characterized with no reliable acreage estimate, 4) the T-street reef structure is within the equilibrium footprint in which cross-shore sand movement is expected to occur, 5) the DEIS indicates that some portions of surfgrass habitat within the equilibrium footprint already exhibit some burial. Without additional information and justification, NMFS recommends that the Corps assume at least 5 acres of surfgrass/reef impacts to help ensure that adequate funds are budgeted for potential mitigation costs. This recommendation is also consistent with a recommendation provided by the U.S. Fish and Wildlife Service (USFWS) in their Final Coordination Act Report. This estimate should be adopted within the record of decision.

**Conservation Recommendation 1c: The Corps and/or the project partner should coordinate with NMFS and other interested agencies to determine an appropriate mitigation ratio for impacts to surfgrass and rocky reef habitat.**

Appendix B does not specifically respond to this recommendation, but indicates that reef habitat mitigation shall be constructed at an equivalent functional value of shallow and deep water reef proportional to the area of impacted surfgrass and reef.

Section 5.4.5.2 discusses the Corps' mitigation approach in greater detail.

*The Corps does not use ratios, but instead a scientific-based approach through the use of functional habitat evaluation assessment. A basic FA was used in the BPJ approach and a more robust FA will be accomplished in PED during the monitoring of the project site and the reference site.*

In contrast to this statement, Corps Regulatory routinely uses ratios for mitigation purposes. The use of mitigation ratios is discussed in the 2008 Final Rule for Compensatory Mitigation for Losses of Aquatic Resources (Final Rule). However, at an interagency meeting on January 31, 2011, the Corps Civil Works indicated that the Final Rule does not apply to their projects. In response, NMFS specifically requested that Corps Civil Works share their policy. The Corps was unable to respond to this request at the meeting, but did cite Engineering Regulation 1105-2-100 in the FEIS.

Also, in contrast to this statement, is a 2007 memorandum from the Corps regarding the Encinitas and Solana Beach Shoreline Protection project – a project similar in nature to the San Clemente Shoreline Protection project. This memorandum specifically indicates that mitigation for impacts to reef shall be in the form of artificial reefs constructed within the reach suffering losses on a 1:1 ratio.

Moreover, the Corps implies the use of a 1:1 ratio on page 5-58:

*The Project has a mitigation budget that accommodates 1 acre of impacts to surfgrass plus 1 acre of impacts to reef, for a total potential impact to 2 acres of resources as a worst-case scenario.*

NMFS also notes that the best professional judgment (BPJ) referenced above from the FEIS did not incorporate opinions expressed by NMFS, USFWS, California Department of Fish and Game, Environmental Protection Agency, and California Coastal Commission. Instead it relied upon the Corps' contractors.

Regardless, NMFS agrees with the Corps that the use of ratios should be based upon sound science and, to the extent possible, a functional based approach. In response to Corps concerns that there was no scientifically-based approach to developing ratios, NMFS recommended that the Corps consider the use of a mitigation ratio calculator as a defensible means of identifying an appropriate ratio (King and Price 2004). In addition, we shared scientific rationale for why a 1:1 approach is not defensible. In summary, NMFS believes a 1:1 ratio is inappropriate because: 1) surfgrass is a difficult to replace resource, 2) uncertainty of success, and 3) temporal lag in mitigation. NMFS notes that our rationale is consistent with the Final Rule. Specifically, the Final Rule suggests that higher mitigation ratios should be required where necessary to account for the method of compensatory mitigation, the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site. The best available science suggests surfgrass exhibits late successional traits, recovers very slowly from disturbance, and requires facilitation from algae before settling - all factors suggesting that this is a difficult to replace resource. Furthermore, if impacts are identified, a significant time lag will occur between the impact and mitigation. This will result in a temporal loss of function beyond that which would be expected from a difficult to replace species.

#### Summary and Recommendation for Mitigation Approach

In light of the Corps assertion that they do not use mitigation ratios, NMFS has revised our recommendation. The Corps and/or the project partner should coordinate with NMFS and other interested agencies to develop an appropriate functional assessment for impacts to surfgrass and rocky reef habitat. The final functional assessment used for determining appropriate mitigation to biological resources should receive written concurrence from NMFS prior to project implementation. This recommendation should be included as a mitigation measure in the record of decision.

**Conservation Recommendation 2: A scientifically defensible monitoring plan should be developed prior to a record of decision on the proposed project.**

**The purpose of the monitoring plan is to detect environmental impacts associated with the proposed project and serve as the basis for determining whether compensatory mitigation is appropriate. Results from the monitoring plan will inform the development of a final mitigation plan, which will be based upon the approach described in the contingency**

**mitigation plan. The monitoring plan should be described in greater detail than the program currently described in Appendix B. The sampling design and statistical analyses should be clearly described and should be based upon fundamental principles of statistical inference. This monitoring plan should be reviewed and approved by the Corps, NMFS, and other interested resource agencies prior to a record of decision. In addition, to ensure adequate scientific rigor, consideration should be given to involving an independent review by recognized, biostatistical experts.**

A general approach to the monitoring plan is outlined in Appendix B. The Corps indicates that the final monitoring plan will be prepared during the pre-construction engineering design (PED) phase. NMFS had recommended that this plan be developed prior to the record of decision. Given the limited characterization of nearshore resources for impact assessment purposes, NMFS is amenable to the finalization of the monitoring plan during the PED phase.

NMFS previously expressed concern that the presumption that nourishment projects are ecologically benign may be based upon an incomplete and flawed body of science (Peterson and Bishop, 2005). NMFS recommended that, if previous monitoring results in Southern California are to be used as support for conclusions that impacts to biological resources are minor and/or insignificant, a more rigorous examination of their sampling design, statistical analyses, and conclusions are necessary. The Corps did not adequately respond to this recommendation in light of the flawed science identified in Peterson and Bishop (2005). Instead, they summarized conclusions from previous monitoring events for other nourishment projects without conducting an adequate examination of their sampling design, statistical analyses, and conclusions. The Corps then concluded that the weight of evidence would suggest no impacts would occur at San Clemente.

#### Summary and Recommendation for Monitoring Plan

NMFS maintains that the sampling design and statistical analyses of the final monitoring plan be clearly described and should be based upon fundamental principles of statistical inference. In addition, the final monitoring plan should avoid the problems identified in Peterson and Bishop (2005). The final monitoring plan used for determining impacts to biological resources should receive written concurrence from NMFS prior to project implementation. This recommendation should be included as a mitigation measure in the record of decision.

#### **Fish and Wildlife Coordination Act Comments**

16 U.S.C. 662 (a) states that whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency first shall consult with the United States Fish and Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular State wherein the impoundment, diversion, or other control facility is to be constructed, with a view to the conservation of wildlife resources by preventing loss of and damage to such resources as well as

providing for the development and improvement thereof in connection with such water-resource development.

Reorganization Plan No. 4 of 1970 transferred all functions vested by law in the Bureau of Commercial Fisheries of the Department of the Interior or in its head, together with all functions vested by law in the Secretary of the Interior or the Department of the Interior which are administered through that Bureau or are primarily related to the Bureau to the Secretary of Commerce. NOAA NMFS is the primary agency within the Department of Commerce responsible for FWCA coordination.

The Corps states that the FWCA is an action that is taken between the USFWS and the Corps, not NMFS. The Corps' statement is inaccurate. As stated above, NMFS does have the authority to provide comments and recommendations through the FWCA. In fact, the Corps acknowledges NMFS' FWCA role on one of their websites

([http://el.erdc.usace.army.mil/emrrp/emris/emrishelp5/fish\\_and\\_wildlife\\_coordination\\_act\\_legal\\_matters.htm](http://el.erdc.usace.army.mil/emrrp/emris/emrishelp5/fish_and_wildlife_coordination_act_legal_matters.htm)). Below is an excerpt from the above referenced Corps website:

*16 U.S.C. 662(a) provides that whenever the waters of any stream or other body of water are proposed to be impounded, diverted, the channel deepened or otherwise controlled or modified, the Corps shall consult with the U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service (NMFS) as appropriate, and the agency administering the wildlife resources of the state. The consultation shall consider conservation of wildlife resources with the view of preventing loss of and damages to such resources as well as providing for development and improvement in connection with such water resources development.*

### **Mischaracterization of NMFS Comments and Involvement in the Review Process**

A number of statements were made in the FEIS and in response to comments that mischaracterize NMFS comments and our involvement in the review process. Below, NMFS provides additional context and some examples of this mischaracterization.

In the Corps response to comments, they repeatedly emphasized their two year coordination with the resource agencies. NMFS notes that this coordination was not particularly effective or organized. Examples include the following: short notification for agency meetings, all interested agencies were not invited despite NMFS encouragement to do so, meeting times were delayed, meeting dates abruptly canceled, and clear and substantive information was often not provided at the meetings. Furthermore, much of the comments that were given to the Corps were superficially addressed. After submission of comments on the DEIS, an interagency meeting was held on January 31, 2011, to address the range of concerns expressed by various agencies. Despite acknowledgment of the Corps internal deadlines and commitment to continue discussions regarding the monitoring, mitigation, and reporting plan, the Corps did not follow up with NMFS. NMFS reached out to the Corps via email on February 25, 2011, but received no reply. NMFS believes many of the problems identified in the FEIS are attributable to the Corps' coordination approach.

On page 5-58, the following is stated:

*Because resource agency recommendations for mitigation were only clarified in their response to the DEIS, development and certification of a habitat model to assess surfgrass impacts was not previously contemplated.*

This is an inaccurate statement. NMFS had provided a variety of input regarding surfgrass impact concerns during agency meetings, via email, and telephone discussions with Corps staff. These discussions culminated in a detailed email that was provided on August 5, 2010, which outlined many of NMFS concerns regarding the Corps proposed mitigation approach. For reference, the email chain is attached to this letter. Comments provided on the DEIS were generally consistent with the email comments.

Page 5-58 indicated that NMFS proposed a 5:1 mitigation ratio. This is incorrect. NMFS did not specifically identify a 5:1 ratio. Rather, NMFS questioned the appropriateness of estimating a 2 acre impact when 1) a comprehensive survey has yet to be conducted, 2) the T-street reef structure is roughly estimated at 5 acres, 3) the scattered reefs and boulders have not been well characterized with no reliable acreage estimate, 4) the T-street reef structure is within the equilibrium footprint in which cross-shore sand movement is expected to occur, 5) the DEIS indicates that some portions of surfgrass habitat within the equilibrium footprint already exhibit some burial. Thus, without additional information and justification, NMFS believed a 5 acre impact was a more appropriate worst case scenario.

On page 5-50, the Corps implies that NMFS was not forthcoming during the two year coordination process when we recommended the use of the San Diego Nearshore Program data at the January 31, 2011, meeting. NMFS recommended its use to provide additional information for the Corps NEPA document, not as a means of serving as a baseline dataset for determining impacts. NMFS would like to remind the Corps that the Nearshore Program was a cooperative effort involving their agency.

### **Closing Summary and Recommendations**

NMFS believes protection of existing infrastructure and maintaining recreational opportunities associated with beach usage are important ecosystem services. However, repeated beach fill projects may have an environmental cost to various natural resources. These costs should be incorporated into the analysis to ensure the benefit to cost ratio is not skewed. Unfortunately, the views expressed by NMFS regarding potential impacts, mitigation, and monitoring have not been fully considered in the FEIS. Therefore, NMFS is concerned that the Corps may have underestimated the potential environmental costs of the project. Based on January 2011 price levels, the estimated initial construction cost of the plan is \$11,100,000, for which the Federal share is approximately \$7,220,000 and the non-Federal share is approximately \$3,890,000. Total periodic nourishment costs are estimated to be \$84,900,000 (January 2011 price level) over the 50-year period following initiation of construction, for which the Federal share is approximately \$42,450,000 and the non-Federal share is approximately \$42,450,000. Given the concerns expressed on this project, NMFS believes the Corps should re-evaluate their cost estimates to

ensure the project still achieves a positive benefit/cost ratio prior to further planning and implementation of a 50 year project costing \$96,000,000.

Below is a summary of NMFS recommendations that should be addressed prior to a record of decision:

- The Corps should explicitly discuss how they addressed the comments provided by the Independent External Peer Review.
- The Corps should assume a minimum 5 acre impact to surfgrass/reef to help ensure that adequate funds are budgeted for potential mitigation costs. This recommendation is also consistent with a recommendation provided by the USFWS in their Final Coordination Act Report. This estimate should be adopted within the record of decision.
- The sampling design and statistical analyses of the final monitoring plan should be clearly described and should be based upon fundamental principles of statistical inference. In addition, the final monitoring plan should avoid the problems identified in Peterson and Bishop (2005). The final monitoring plan used for determining impacts to biological resources should receive written concurrence from NMFS prior to project implementation. This recommendation should be included as a mitigation measure in the record of decision.
- The Corps should coordinate with NMFS and other interested agencies to develop an appropriate functional assessment for impacts to surfgrass and rocky reef habitat. The final functional assessment used for determining appropriate mitigation to biological resources should receive written concurrence from NMFS prior to project implementation. This recommendation should be included as a mitigation measure in the record of decision.
- The Corps should include a monitoring and enforcement program for each mitigation measure identified in the record of decision. NMFS also recommends that the Corps inform commenting agencies on the progress of mitigation measures they have proposed and make the monitoring results available to the public.

Enclosure(s):

Literature Cited

NMFS August 05, 2010, email discussing surfgrass mitigation with additional literature cited

**Literature Cited**

Craig, C., S. Wylie-Echeverria, E. Carrington, and D. Shafer. 2008. Short-term sediment burial effects on the seagrass *Phyllospadix scouleri*. ERDC TN-EMRRP-EI-03.

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Peterson, C.H. and M.J. Bishop. 2005. Assessing the Environmental Impacts of Beach Nourishment. *Bioscience* 55: 887-896.

**NMFS August 05, 2010, email discussing surfgrass mitigation with additional literature cited**

**From:** Bryant Chesney [Bryant.Chesney@noaa.gov]  
**Sent:** Thursday, August 05, 2010 3:44 PM  
**To:** 'Smith, Lawrence J SPL'; 'Bob Hoffman'; 'Clifford, Jodi L SPL'; 'Keeney, Thomas W SPL'  
**Cc:** 'Lawrence Honma'  
**Subject:** RE: Surf Grass Mitigation

NMFS appreciates Corps collaboration on this important topic and believe we are coming closer to agreement on how to address surfgrass impacts. However, there are various aspects of your proposal for which NMFS has concerns. We summarize them below.

According to Subpart E Section 230.43 of the Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (404(b)(1) Guidelines), vegetated shallows are considered special aquatic sites (SAS). SAS are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. This status provides special consideration when evaluating actions involving dredged or fill material pursuant to Section 404 of the Clean Water Act. Vegetated shallows are defined as permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation. NMFS believes surfgrass should be considered a SAS and receive special consideration when evaluating actions involving discharge of dredged or fill material.

Moreover, surfgrass is designated as a habitat area of particular concern (HAPC) for various federally managed fish species under the Pacific Groundfish Fishery Management Plans, as well as essential fish habitat (EFH) for various species within the Coastal Pelagics and Highly Migratory Species Fishery Management Plans. Surfgrasses (*Phyllospadix* spp.) are considered to be among the most productive seagrass systems on the planet (Ramírez-García et al. 1998). Galst and Anderson (2008) indicate that surfgrass beds serve as an important habitat for nearshore fishes, and the loss of surfgrass from disturbance has negative consequences for recruitment success. Surfgrass also serves as an important nursery habitat for a variety of invertebrates, such as California spiny lobster (Engle 1979, as cited in MPLA Initiative 2009), and as habitat for algae (Stewart and Myers 1980, as cited in MLPA Initiative 2009). Shaw (1986) suggests that the importance of surfgrass as a nursery for juvenile lobsters in southern California is clearly apparent and the disturbance or destruction of this habitat could seriously decrease lobster abundance. Surfgrass is also important foraging habitat for the endangered green turtle, *Chelonia mydas* on the Pacific side of the Baja Peninsula (Lopez-Mendilaharsu et al 2005). Although utilization of nearshore habitats in southern California is less understood, sub-populations of the endangered green turtle are known to utilize San Diego Bay and the Long Beach area for foraging. If surfgrass serves a similar function in southern California, then adverse effects to surfgrass habitat may have a negative impact on habitat used by this listed species.

Surfgrasses are likely to be impacted by beach nourishment and shoreline protection projects that place sand either directly or indirectly onto surf grass beds (Craig et al 2008). The Corps has acknowledged this in meetings, email correspondence, and draft environmental planning documents. As described in the 404(b)(1) Guidelines, the discharge of dredged or fill material may reduce the value of vegetated shallows as nesting, spawning, nursery, cover, and forage areas, as well as their value in protecting shorelines from erosion and wave actions. In addition, the primary productivity of the system would be reduced if impacts were to occur. Surfgrasses exhibit late successional traits, recover very slowly from disturbance, require facilitation from algae before settling, and are strong competitors (Turner 1985). Removal of surfgrass from a rocky reef community has profound impacts to community structure (Turner 1985). Thus, surfgrass habitat is largely determined by patterns of disturbance. Repeated beach nourishment efforts likely will increase this rate of disturbance to these systems. Slow recovery times suggest that disturbances to these communities may be ecologically significant.

Given the high ecological values associated with surfgrass, NMFS believes unavoidable impacts to surfgrass should be addressed via compensatory mitigation and should comply with the 2008 mitigation rule. According to the rule, compensatory mitigation is defined as the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved. The rule suggests that compensation for unavoidable impacts to difficult to replace (DTR) resources (e.g. bogs, fens, springs, streams, etc.) should be provided through in-kind rehabilitation, enhancement or preservation. Given the slow recovery time and the difficulties associated with restoring this habitat, NMFS believes that surfgrass should be considered a DTR resource. Therefore, NMFS believes the Corps and/or the project partner should include in-kind surfgrass restoration or establishment as part of the mitigation plan. Therefore, NMFS does not concur with the Corps assertion that it not be considered "mitigation" in the technical sense of the term, nor do we concur that the NEPA/CEQA documents should refer to this as an unavoidable, unmitigable loss.

Although NMFS recognizes that surfgrass restoration techniques are not well established, recent successes have emerged. For example, Bull et al (2004) have demonstrated that surfgrass transplants that used sprigs survived and grew reasonably well, and regrowth of rhizomes that were cut to obtain sprigs for transplanting was rapid. They argued that the patterns of growth and survival of transplants and of recovery of donor plots, combined with the amount of effort involved, revealed that the largest gain in rhizome coverage per unit of effort occurred when sprigs were used. Moreover sprigs suitable for transplanting required relatively little effort to prepare and were abundant at study sites (Bull 2002), suggesting that collection of sprigs for transplanting would not have a large impact on existing surfgrass beds. Based upon this, Bull et al (2004) concluded that sprigs may be the most acceptable form for use in restoration.

Alternatively, MMS (1999) found that restoration of surfgrass beds using seeds and seedlings may be feasible. Sufficient numbers of seeds can easily be collected from most populations during most years to supply most restoration needs. Seeds readily germinate in the laboratory, or can be stored for several months and germinated when needed. Laboratory cultivation of large numbers of small seedlings for use in restoration is relatively simple and does not require any sophisticated equipment or facilities. Mortality rates are relatively high, though, so future efforts should reduce the likely sources of mortality to increase the efficacy of this technique. Holbrook et al. (2002) tested the use of seedlings in the field and attached seedlings to nylon rope to mimic natural conditions and achieved a survival comparable to that of control groups. The use of either sprigs or seedling transplants would minimize impacts to donor beds.

NMFS recognizes that transplant success is much higher for subtidal than for intertidal conditions. However, NMFS does not believe restoration efforts in the intertidal should be summarily dismissed within the mitigation plan, as implied in the Corps proposal. NMFS would be amenable to a smaller percentage of the mitigation addressing intertidal surfgrass habitat, but believes some good-faith effort should be applied to restore similar resources that may be lost due to the proposed projects.

The Corps has proposed a 1:1 ratio for surfgrass transplants and rocky reef impacts. The final mitigation rule suggests that higher mitigation ratios should be required where necessary to account for the method of compensatory mitigation, the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site. Given the difficulties associated with mitigating for surfgrass and the time lag in recovery, a higher ratio is likely appropriate. NMFS recommends that the Corps consider the guidance provided by the final rule and provide a more detailed rationale for determination of the mitigation ratio. NMFS also offers to provide technical assistance to the Corps in developing an appropriate mitigation ratio.

The mitigation plan should also contain performance standards that will be used to assess whether the project is achieving its objectives. These performance standards should be based on attributes that are objective, verifiable, and can be measured with a reasonable amount of effort. Thus, we do not believe it

appropriate to not include success criteria, as the Corps has proposed. NMFS recommends that the Corps work with NMFS and other appropriate agencies to develop appropriate performance standards. That said, NMFS recognizes the potential for in-kind mitigation failure. The potential for failure, however, does not justify a mitigation plan with no success criteria. Instead, NMFS believes a contingency out-of-kind mitigation approach should be developed as a back-up in case surfgrass mitigation techniques prove unsuccessful. Out-of-kind mitigation should strive to offset similar ecological functions and values that may be lost due to surfgrass impacts. Functions of high importance to NMFS include: primary productivity, fishery and invertebrate habitat, and wave energy reduction. NMFS believes eelgrass and/or kelp may be appropriate surrogates for out-of-kind mitigation.

The rule further states that there should be sufficient financial assurances to ensure a high level of confidence that the compensatory mitigation project will be completed in accordance with its performance standards. The Corps indicates they would like to place a cap on surf grass mitigation costs. NMFS is unsure how placing a cap on the mitigation costs would provide sufficient financial assurances. Perhaps a more appropriate alternative approach is to place a cap on surfgrass transplant techniques based upon cost estimates provided by both typical mitigation practitioners, such as Corps has preliminarily done via inquiries with SAIC and Merkel, and other researchers with more experience with surfgrass restoration. If success criteria are not met, the Corps and/or project partner would then move to the contingency plan for which reasonable cost estimates could also be provided. Assuming the total cost estimates of surfgrass mitigation and the out-of-kind contingency plan have appropriate justification and provide sufficient financial assurances, then NMFS would believe this total estimate could be used as an appropriate dollar amount in the Corps cost-benefit analysis. Placing a funding cap that is not well justified could skew the cost-benefit analysis and should be avoided.

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**From:** Smith, Lawrence J SPL [mailto:Lawrence.J.Smith@usace.army.mil]  
**Sent:** Friday, July 23, 2010 3:10 PM  
**To:** Bob Hoffman; Bryant Chesney; Clifford, Jodi L SPL; Keeney, Thomas W SPL  
**Cc:** Lawrence Honma  
**Subject:** Surf Grass Mitigation

Recent discussion have taken place between the Corps and NMFS on the issue of surf grass losses and mitigation in southern California. I'd like to take this opportunity to present our understanding of the resolution reached during recent conversations. The point is to avoid any confusion and to ensure that we are in agreement on the details prior to moving forward, first with San Clemente and then with Encinitas/Solana Beach.

The first step, as with other impact categories, is to avoid surf grass impacts to the maximum extent practicable. The second step is to minimize unavoidable impacts. The third step is to mitigate remaining impacts. The concept of mitigation, as it applies to surf grass, follows. There are currently no proven methods of transplanting surf grass. However, there are some experimental methods that show promise. Our approach is to develop the experimental methods building towards a proven transplant method. There are several key assumptions in moving in this direction. First, transplant success is much higher for subtidal than for intertidal conditions. Initial projects therefore will focus on subtidal transplants only. This is particularly true for the first two projects where we anticipate creating artificial, subtidal reef habitat as mitigation for lost reef habitat thus creating new subtidal surf grass habitat. A portion of the reef would have to be built shallow enough to accommodate surf grass. Subtidal transplants are also safer than intertidal. Transplant area will be determined by actual impact as determined by monitoring. Post-construction monitoring of the surf grass in and adjacent to project sites will determine the actual area of surf grass lost as a result of each project. Transplant area will be on a 1:1 ratio, reef transplant ratio is

also on a 1:1 ratio for monitored reef losses. Post mitigation monitoring will be performed to track performance and to identify areas where the transplant method could be modified to improve success. We are proposing two years of post-mitigation monitoring. We are not including any success criteria nor are we including any additional transplant efforts at a given site. This is a one and done proposal for each project. Follow-on projects will incorporate lessons learned incorporating method modifications as we move towards an improved methodology.

Transplanting sprigs or plants require a donor bed for plant material. Studies have shown that surf grass is sensitive to losses from harvesting plants for transplant purposes. I'm not sure how to incorporate this concern. We could harvest plant material from that portion of the bed where potential impacts are expected. However, this would require maintaining that material alive ex-situ for one to two years post construction when mitigation would be constructed. Additionally, it could become a self-fulfilling prophesy where we weaken a bed that is then impacted partially as a result of the project and partially as a result of harvesting effects. An alternative approach would be to spread these impacts over a very large area focusing on harvesting plants from the interior of the bed and avoiding harvesting from edges. It appears that edge harvesting has more of an impact on the existing bed than does interior harvesting. A recommendation on this issue would be appreciated.

One additional measure that the Corps would like to propose is a cap on surf grass mitigation costs. This would be done separately for each project and would be based on predicted impacts. This would enable the Corps to incorporate a not to exceed cost into its calculations of total project costs for comparison to project benefits. This would greatly assist us in our planning and project authorization efforts. Initially the cap would be estimated based on known costs for eelgrass restoration multiplied by a factor of three to account for the more difficult conditions expected from open coastal restoration for surf grass as opposed to in-bay restoration encountered for eelgrass restoration. After conferring with both SAIC and Merkel & Associates, we propose that an initial cost of \$180K per acre be used for a surf grass restoration cap. This is based on a cost of \$60K per acre for recent eelgrass restoration efforts. Our methods for surf grass impact assessment tend to err on the conservative side and to overestimate impacts. This cap should then allow for mitigation at a 1:1 ratio should actual costs exceed the \$180K per acre figure. This cap cost does not include the cost of monitoring.

This is a proposal for experimental transplants. As such, we have included no success criteria. This is not "mitigation" in the technical sense of the term. We cannot guarantee that impacts to surf grass will be "mitigated". Therefore, NEPA/CEQA documents will continue to refer to this as an unavoidable, unmitigable loss. We anticipate some success, so it will not be a total loss.

Please let me know if you have any questions with the above. We would also appreciate written concurrence from the NMFS.

Larry Smith  
(213) 452-3846



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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September 27, 2011

Thomas Keeney  
Ecologist/Biological Sciences Manager  
U.S. Army Corps of Engineers  
915 Wilshire Boulevard, 14th Floor  
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Subject: Final Environmental Impact Statement for San Clemente Shoreline Protection Project, Orange County California. (CEQ# 20110285)

Dear Mr. Keeney:

The U.S. Environmental Protection Agency (EPA) has reviewed the Final Environmental Impact Statement (FEIS) for San Clemente Shoreline Protection Project, Orange County California. Our review is provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act. Our comments were also prepared in accordance with the provisions of the Federal Guidelines promulgated at 40 CFR 230 under Section 404(b)(1) of the Clean Water Act (CWA).

EPA reviewed the Draft Environmental Impact Statement (DEIS) for San Clemente Shoreline Protection Project (Project) and provided comments to the U.S. Army Corps of Engineers, (Corps), on September 20, 2010. We rated the document EC-2, Environmental Concerns – Insufficient Information based on potential impacts to waters of the United States (WUS), quality of beach nourishment materials, biological resources, climate change and air quality. Based on our review of the FEIS, some of our concerns regarding the significant environmental impacts identified in our comments on the DEIS remain unresolved.

EPA continues to have concerns regarding the use of sediment analysis results for the proposed Oceanside borrow pit that are 5-6 years old. We continue to recommend additional confirmatory testing data no more than 3 years old to ensure accurate sediment characterization is performed before the signing of the ROD. Results of the sediment testing should include a description of how many cores and if the core sampling reached the anticipated dredging depth. Should the testing determine that contaminants exceed acceptable levels; the Corps should consider other sources of beach nourishment materials.

The FEIS indicates that the shoreline is “essentially in balance between erosion and accretion” [p. 4-35]. Furthermore, the document acknowledges that the shoreline will likely change as a result of projected sea level rise, (“present best estimates regarding sea level rise within southern

California vary between 0.1 and 0.2 ft (0.03 to 0.06 m) in a time span of 25 years”[p.4-27]). Given projected sea level rise, the shoreline should be monitored for any changes that may occur. Based on the combined impacts of the sediment placement and projected sea level rise, we recommend the Corps consider a shorter time period e.g. 25 years for the project. Due to the potential adverse impacts to biological resources resulting from the placement of the large volumes of sediment, we also recommend monitoring and assessment of impacts to species of concern and their habitat in the project area. We encourage the Corps to include in the ROD the results of a current comprehensive biological survey of the San Clemente shoreline. Without such baseline data, it would be difficult, if not impossible, to accurately evaluate or mitigate the environmental impacts of the proposed action.

It is unclear whether the off-shore emissions associated with the proposed action have been included in the general conformity applicability analysis for this project. The ROD should ensure that the direct and indirect emissions from both the construction and the operational phases of the project, including the off-shore emissions within three miles of the coast, conform to the approved State Implementation Plan and do not cause or contribute to violations of the NAAQS.

We appreciate the opportunity to review this FEIS. If you have any questions, please contact me at (415) 972-3521, or contact James Munson, the lead reviewer for this project. James can be reached at (415) 972-3800 or munson.james@epa.gov.

Sincerely,



Kathleen Martyn Goforth, Manager  
Environmental Review Office

Cc:

Bryant Chesney, NOAA  
David Zoutendyk, USFWS  
Loni Adams, CDFG  
U.S. Army Corps of Engineers, Headquarters.

U.S. Department of Homeland Security  
FEMA Region IX  
1111 Broadway, Suite 1200  
Oakland, CA. 94607-4052



FEMA

October 28, 2011

Theodore A. Brown, P. E.  
Chief, Planning and Policy Division  
Directorate of Civil Works, Headquarters  
U. S. Army Corps of Engineers  
CECW-P (SA)  
7701 Telegraph Road  
Alexandria, Virginia 22315-3860

Dear Mr. Brown:

This is in response to your request for comments on the San Clementine Shoreline (Orange County) Final Joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR).

Please review the current effective Flood Insurance Rate Maps (FIRMs) for the City of San Clementine (Community Number 060230) and countywide FIRM for Orange County (Community Number 060212), Maps revised December 3, 2009. Please note that the City of San Clementine, Orange County, California is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.
- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any *development* must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

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- All buildings constructed within a coastal high hazard area, (any of the "V" Flood Zones as delineated on the FIRM), must be elevated on pilings and columns, so that the lowest horizontal structural member, (excluding the pilings and columns), is elevated to or above the base flood elevation level. In addition, the posts and pilings foundation and the structure attached thereto, is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components.
- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at <http://www.fema.gov/business/nfip/forms.shtm>.

**Please Note:**

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The City of San Clementine floodplain manager can be reached by calling William E. Cameron, City Engineer, at (949) 361-6118. The Orange County floodplain manager can be reached by calling Penny Lew, Senior Civil Engineer, at (714) 834-2606.

If you have any questions or concerns, please do not hesitate to call Robert Durrin of the Mitigation staff at (510) 627-7057.

Sincerely,



Gregor Blackburn, CFM, Branch Chief  
Floodplain Management and Insurance Branch

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cc:

William E. Cameron, City Engineer, City of San Clementine

Penny Lew, Senior Civil Engineer, Orange County

Patricia L. Bee, U. S. Army Corps of Engineers, HQ, USACE, OWPR

Garret Tam Sing/Salomon Miranda, State of California, Department of Water Resources,  
Southern Region Office

Robert Durrin, Floodplanner, CFM, DHS/FEMA Region IX

Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX