Appendix D: Terrestrial and Marine Biological Resources Assessments

D.1 - TERRESTRIAL BIOLOGICAL RESOURCE ASSESSMENT

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November 18, 2008

Rosalinh Ung, Associate Planner
City of Newport Beach
3300 Newport Boulevard
Planning Department
Newport Beach, CA 92658-8915

Subject: **Terrestrial Biological Resource Assessment**
Marina Park Project, Newport Beach, Orange County, CA

Dear Ms. Ung:

At the request of the City of Newport Beach, Michael Brandman Associates (MBA) conducted a biological resources assessment to document the existing conditions within the approximately 10-acre Marina Park property, hereafter referred to as project site or site, located in the City of Newport Beach, Orange County, California. This report provides a description of existing conditions. The information contained herein is intended to provide a baseline from which subsequent evaluations can be made of potential biological resource impacts associated with future projects, based upon environmental policies and regulations including the Clean Water Act (CWA), the Federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), California Environmental Quality Act (CEQA), and the California Coastal Act (CCA) the Central/Coastal Orange County Natural Communities Conservation Plan and Habitat Conservation Plan (NCCP/HCP). It should be noted that this document only provides an assessment of the terrestrial habitat and does not include a project specific impact analysis or an assessment of the marine habitat.

Summary

The existing land use on the site includes residential development (i.e. mobile homes), community service facilities (i.e. public park, American Legion building), and paved parking lots. The existing development does not provide suitable habitat for any sensitive species and is not considered a wildlife movement corridor. A public beach defines the northern property boundary and is comprised of highly disturbed beach sand. The adjacent Newport Harbor represents potentially suitable nursery habitat for marine life, which is addressed separately in the Marine Resources Assessment. Vegetation on the site is entirely ornamental including non-native trees and shrubs that provide potential nesting habitat for migratory birds. A nesting bird survey is required prior to removal of vegetation on the site, to reduce the potential for nest failure during the nesting season. Newport Harbor is a Traditionally Navigable Water and is under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the City of Newport Beach Coastal Land Use Program (CLUP).

Site Location

The project site encompasses approximately 10 acres, and is located in the southwestern portion of the City of Newport Beach in Orange County, California as shown

on Exhibit 1. It can be found on the Newport Beach, California, United States Geological Survey (USGS) 7.5-minute topographic quadrangle map, Section 33 of Township 6 South, Range 10 West (Exhibit 2). The site is specifically located north of West Balboa Boulevard, south of Newport Harbor east of 19th Street and west of 15th Street as shown in Exhibits 3.

Methodology

Prior to the field visit, MBA reviewed available literature and maps to evaluate the potential for sensitive biological resources to occur in the vicinity of the project site. This included a review of topographic maps, aerial photography, and sensitive species databases. A list of sensitive plant and wildlife species recorded in the vicinity of the site was completed from the California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDB) and California Native Plant Society Electronic Inventory (CNPSEI). Additional review included literature detailing the habitat requirements of sensitive plant and wildlife species that potentially occur in the project area.

Subsequently, a reconnaissance-level field survey was conducted. The primary objective of the survey is to document existing site conditions and determine the potential presence of sensitive species that require a significance analysis pursuant to CEQA including but not limited to species formally listed as threatened and/or endangered under the ESA and CESA, California Species of Special Concern, designated as Fully Protected by CDFG; given a status of 1A, 1B, or 2 by the CNPS, or designated as sensitive by City, County, or other regional planning documents.

Special attention was focused on the potential suitability of the site for light-footed clapper rail (*Rallus longirostris levipes*), California least tern (*Sternula antillarum browni*), coastal California gnatcatcher (*Polioptila californica californica*), western snowy plover (*Charadrius alexandrinus nivosus*), southern tarplant (*Centromadia parryi ssp. Australis*), Coulter's saltbush (*Atriplex coulteri*), Davidson's saltscale (*Atriplex serenana var. davidsonii*), estuary seablite (*Suaeda esteroa*), and mud nama (*Nama stenocarpum*). Each of these sensitive species of animals and plants are known to occur in the region and thus must be assessed regarding their potential presence.

The reconnaissance-level field survey was conducted on July 10, 2008, between 11:00 and 14:00. Weather conditions during the field survey included temperatures ranging from 70 to 75 degrees Fahrenheit, with an 80% cloud cover and winds between 2 and 10 miles per hour.

Environmental Setting

The existing site encompasses 10.45 acres and includes 1) an American Legion Community Building with an associated lawn, marina and parking lot; 2) Las Arenas community park including a children's play area, four tennis courts, and a public beach; 3) a 57-space mobile home park with an associated parking lot; and 4) a limited amount subtidal coastal wetland located immediately off-site. Surrounding land uses include the Newport Harbor to the north, residential housing to the east, West Balboa Boulevard to the south, and residential and commercial uses to the west. The proposed project entails the development of the Balboa Center Complex, a marina, and public use beach.

Topographic Features

Topographically, the project site is located on the coast at the southern end of Newport Harbor. The site is relatively flat except where the public beach slopes to the water. The project site has an elevation range of 5 to 8 feet above sea level.

Plant Communities/Land use

The plant communities and land uses on the site include disturbed/developed areas, ornamental landscaping, turf, sandy beach, and intertidal coastal wetland; subtidal coastal wetland is located

immediately off-site. No sensitive plant communities or suitable habitat for sensitive plants are present on the site. Vegetation on the site is exclusively ornamental landscaping between structures, in parkways and around public use areas (Exhibit 4). Table 1 below provides a summary of the plant community and land use acreages. Representative photos of the communities can be found in Exhibit 5.

Table 1: Plant Community/Land Use Acreages

Plant Community/Land Use	Area (acres)
Disturbed/Developed	7.05
Ornamental	0.70
Turf	0.40
Sandy Beach	1.00
Intertidal Coastal Wetland	1.20
Subtidal Coastal Wetland	0.10
Total	**10.45**

Disturbed/Developed (7.05 Acres)
Disturbed/developed land use includes any form of human disturbance, especially in cases of permanent impacts to natural communities, and comprises 7.05 acres of the property. By definition, disturbed areas include dirt roads, off-highway use, pavement, concrete, buildings and structures, bridges, agricultural activities, and permanent flood control measures. Disturbed/developed areas on the site include roads, a 56-space mobile home park and associated parking, a metered 21-stall surface parking lot, and Las Arenas Park, which includes the Balboa Community Center/Girl Scouts House, a children's play area, and four public tennis courts.

Ornamental (0.70 Acre)
Several individual specimens of white bottlebrush (*Callistemon salignus*), weeping fig (*Ficus benjamina*), Peruvian pepper (*Schinus molle*) and ornamental palm trees are scattered throughout the property for landscaping purposes. A hedge of ornamental shrubs is also present between the public beach and the mobile home park, and a line of ornamental palm trees lines the sidewalk that borders the public beach. These individual trees and landscaped areas of ornamental vegetation are not associated with any native vegetation and provide only limited habitat value, primarily as cover and perching areas for birds and common terrestrial wildlife that are normally found in and associated with developed areas. The scattered ornamental landscaping covers a total of 0.70-acre of non-native vegetation.

Turf (0.40 Acre)
Turf includes any form of grass lawn and comprises 0.40-acre of the property. By definition, turf includes areas that are covered with grass, regularly mowed, and artificially irrigated. A long strip of turf extends between the sidewalk and the tennis courts along West Balboa Boulevard, and several patches of turf are scattered between the mobile homes.

Sandy Beach (1.00 Acre)
Sandy beach habitat includes any unvegetated coastal area comprised exclusively of sand, and covers 1.00 acre of the property. Sandy beach can be subject to high energy wave action or, as in this case, can be located in a sheltered location with low energy wave action. By definition, this area includes the sandy shore adjacent to Newport Harbor that is subject to wave action. The strand of beach is approximately 60 feet wide and runs along the northern portion of the property for approximately 1,400 linear feet.

Intertidal Coastal Wetland (1.20 Acres)
Intertidal coastal wetlands are located immediately seaward of Sandy Beach habitat. Intertidal coastal wetlands are generally located in sheltered areas such as bays and estuaries, and form when mud and marine animal detritus are deposited by tides. Sediment in this habitat is subject to the ebb and flow of the tide, and is therefore submerged and exposed twice a day. Coastal wetland sediments may support algae, marine grasses, benthic invertebrates, and benthic fishes. Coastal wetland habitat covers 1.20 acres of the property. By definition, this area includes the intertidal shore between +7 feet MSL and -2 feet MSL adjacent to the sandy shore.

Subtidal Coastal Wetland (0.10 Acre)
Subtidal coastal wetlands are located immediately seaward of Intertidal Coastal Wetland habitat and are constantly submerged. Subtidal coastal wetlands include 1) deepwater habitats dominated by plants that grow on or below the surface of the water, 2) areas where sediment particles are generally smaller than stones and vegetative cover is less than 30-percent, and 3) areas with man-made or natural reef systems dominated by sessile invertebrates. Subtidal coastal wetland habitat is not present within the site boundary, but is present within a 0.10 acre off-site area immediately adjacent to the project site.

Wildlife
The plant communities discussed above provide marginally suitable foraging habitat for a few local terrestrial wildlife species, all of which are urban-adapted, and no sensitive wildlife or suitable habitat for sensitive wildlife are present on the site.

Invertebrates observed within the project site include sand fleas (insects in the family *Ceratopogonidae*), beached moon jellies (*Aurelia aurita*), and sand crabs (*Emerita talpoida*). The project site contains shallow marine habitat that provides potentially suitable habitat for several marine fish. The Marine Resource Assessment will include a detailed description of marine invertebrate and fish species on site. No amphibian or reptile species were observed during the field survey, and none are expected to occur due to lack of suitable habitat. The ornamental trees and shrubs on the project site provide suitable foraging and perching habitat for passerine birds, and the stretch of calm beach provides suitable foraging habitat for shore birds. Birds observed on site are urban-adapted and include house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), snowy egret (*Egretta thula*), brown pelican (*Pelecanus occidentalis*), and gull-billed tern (*Sterna nilotica*). No mammals were observed during the field survey, however, feral dogs and cats, and opossums can be expected to occur on the site.

Special Status Species
The following federally or state listed species are reported to occur within the vicinity of the site and were evaluated for their potential to occur on-site: light-footed clapper rail (*Rallus longirostris levipes*), California least tern (*Sternula antillarum browni*), coastal California gnatcatcher (*Polioptila californica californica*), western snowy plover (*Charadrius alexandrinus nivosus*), southern tarplant (*Centromadia parryi ssp. Australis*), Coulter's saltbush (*Atriplex coulteri*), Davidson's saltscale (*Atriplex serenana var. davidsonii*), estuary seablite (*Suaeda esteroa*), mud nama (*Nama stenocarpum*), chaparral sand-verbena (*Abronia villosa var. aurita*).

No federally or state listed species are present on the site, and no suitable habitat for any federally or state listed species is present on the site, therefore, no further action is required pursuant to the ESA or the CESA. Additionally, no species or habitat protected under the Orange County Coastal-Central NCCP/HCP are present on the site, therefore, no further action is required pursuant to the NCCP/HCP. Therefore, implementation of the proposed project will not have significant impacts on any special status or sensitive plant communities, special status or sensitive plants, or special status or sensitive species.

Nesting Birds

The project site contains several ornamental trees and shrubs that provide marginally suitable nesting habitat for migratory birds. Therefore, pursuant to the MBTA and CFG Code, removal of any trees, shrubs, or any other potential nesting habitat should be conducted outside the avian nesting season. The nesting season generally extends from early February through August, but can vary slightly from year to year based upon seasonal weather conditions. Any activity that may potentially cause a nest failure, requires a biological monitor, therefore, a pre-construction nesting bird survey will be required prior to any vegetation removal or ground disturbance activities to determine if nesting activity occurs onsite.

If active nests are observed, construction activity must be prohibited within a buffer around the nest, as determined by a biologist, until the nestlings have fledged. Construction activity may encroach within the designated buffer at the discretion of the biological monitor. Once the nestlings have fledged, construction activity may proceed.

Wildlife Movement Corridors

The project site does not provide wildlife movement corridors. Opossums, and feral cats and dogs can be expected to travel though the site and surrounding developed areas, but the site does not provide narrow connectivity between large areas of open space on a local or regional scale; therefore, implementation of the project will not have significant impacts on wildlife corridors.

The portion of the site included in Newport Harbor, may provide suitable nursery habitat for fish and marine resources, which will be addressed in the Marine Resource Assessment.

Jurisdictional Waters and Wetlands

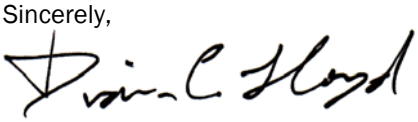
Based upon MBA's jurisdictional assessment during the field survey, the project site overlaps with Newport Harbor, a traditionally navigable water that is considered jurisdictional by regulatory agencies. A Delineation of Jurisdictional Waters and Wetlands is required in order to document potential impacts to any waters or wetlands that may require a permit. Based upon this assessment for the proposed project site, the shallow marine habitat within Newport Harbor that overlaps with the project site boundary and areas immediately off-site, falls under the jurisdiction of the USACE pursuant to Section 10 of the Rivers and Harbors Act, RWQCB pursuant to Section 401 of the CWA, and the City of Newport Beach CLUP pursuant to the CCA.

Conclusion

Pursuant to CEQA, no significant impacts to terrestrial biological resources on site will occur as a result of the proposed project; findings regarding impacts to marine biological resources will be discussed in the Marine Resource Assessment under a separate cover.

If you have any questions, please feel free to contact me at 714-508-4100.

Sincerely,



Diana Lloyd
Regulatory Specialist/Biologist
Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 92602

Enc: Exhibit 1 – Regional
Exhibit 2 – Vicinity topographic base
Exhibit 3 – Vicinity aerial base
Exhibit 4 – Vegetation/Land Use Map
Exhibit 5 – Site Photographs

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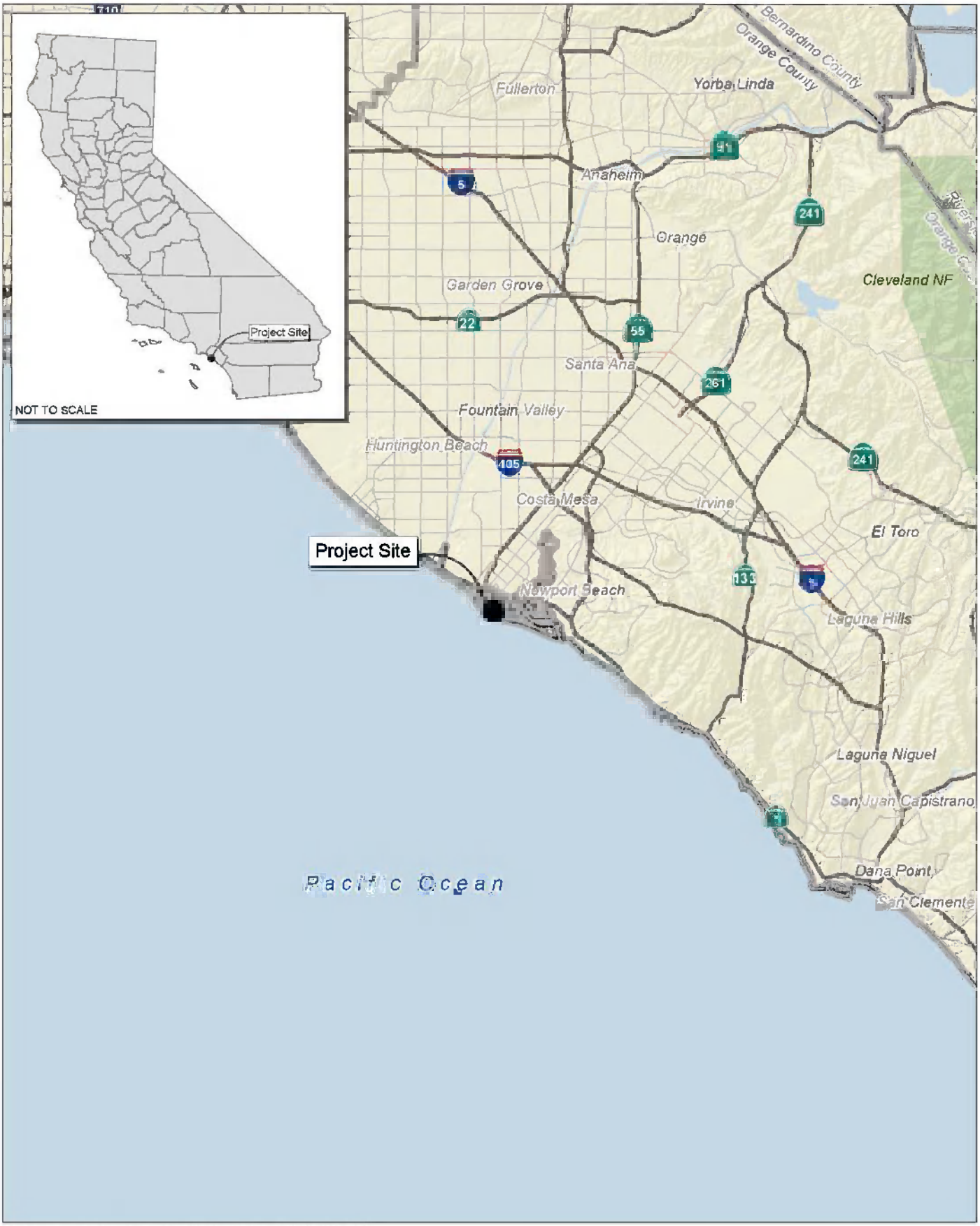
Exhibits



Source: Census 2000 Data, The CaSIL, MBA GIS 2008.

Michael Brandman Associates

NORTH

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Exhibit 1
Regional Location Map

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BIOLOGICAL RESOURCES LETTER REPORT

Source: TOPO! USGS Newport Beach OES (1981) 7.5' DRG.

Exhibit 2
Local Vicinity Map
Topographic Base

Michael Brandman Associates

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CITY OF NEWPORT BEACH • MARINA PARK
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Source: Google Earth Pro.

Michael Brandman Associates

NORTH

500 250 0 500

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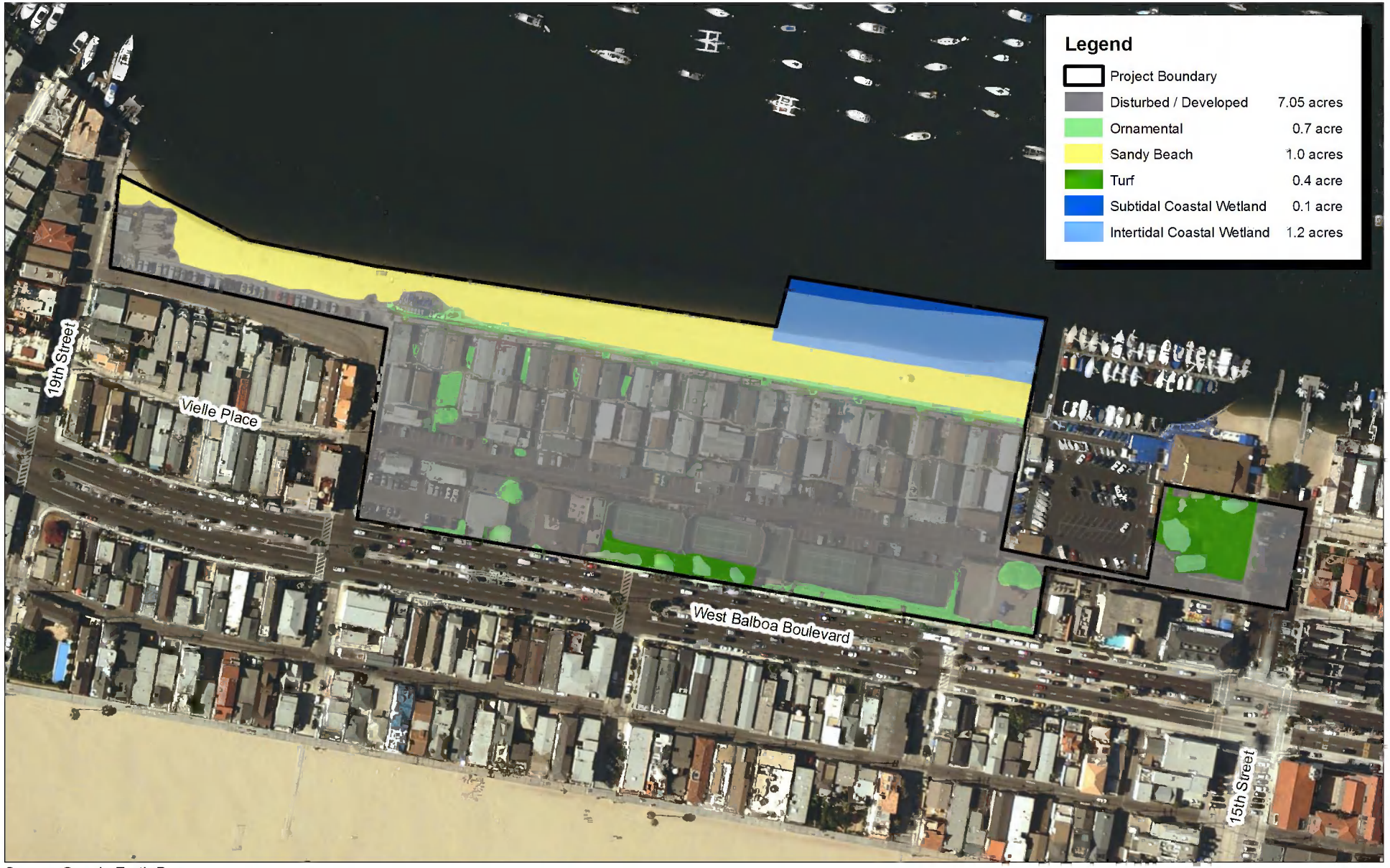
Exhibit 3
Local Vicinity Map
Aerial Base



Source: Google Earth Pro.

Michael Brandman Associates

NORTH

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Exhibit 4
Plant Communities Map

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Photograph 1 and 2 (merged): West facing view of representative turf grass and ornamental vegetation in the southeastern corner of the project site.

Source: MBA, 2008.

NORTH

Michael Brandman Associates

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Exhibit 5a
Site Photographs 1 and 2

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Photograph 3: East facing view of ornamental vegetation at the entrance to the Marina Park mobile homes, at the corner of West Balboa Boulevard and 18th Street.

Photograph 4: West facing view of tennis courts and mobile homes with associated parking lot in the eastern half of the site.

Source: Michael Brandman Associates, 2007.

Michael Brandman Associates

Exhibit 5b
Site Photographs 3 and 4

Photograph 5: West facing view of the beach adjacent to mobile homes in the northern portion of the site.

Source: MBA 2008.

NORTH

Michael Brandman Associates

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Exhibit 5c
Site Photograph 5

CITY OF NEWPORT BEACH • MARINA PARK
BIOLOGICAL RESOURCES LETTER REPORT

D.2 - MARINE BIOLOGICAL IMPACT ASSESSMENT

MARINE BIOLOGICAL IMPACT ASSESSMENT
MARINA PARK PROJECT
NEWPORT BEACH, CALIFORNIA

Prepared for:
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October 15th, 2008
Revised February 25th, 2009

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PHOTOGRAPHS

LIST OF APPENDICES

MARINE BIOLOGICAL RESOURCES ASSESSMENT
MARINA PARK PROJECT MARINA
NEWPORT BEACH, CALIFORNIA

1.0 INTRODUCTION

This report presents the results and findings of a marine biological impact assessment for the Marina Park Project Marina. The purposes of this investigation are to identify the existing marine resources in the vicinity of the project site, analyze project impacts on marine resources, and identify mitigation measures to avoid, reduce, or compensate for potential adverse project impacts on marine resources.

The study was conducted to (1) assess the project depths, sediment types, and types of marine life on the bayfloor in the vicinity of the property proposed for the marina and (2) to provide the basis for a marine biological resources impact assessment of the proposed project on intertidal and subtidal marine resources in the project area. Field survey results of surveys conducted by CRM in August and September 2008 are integrated into Section 2, Environmental Setting and presented in full in Appendix 1.

1.1 PROJECT LOCATION AND CURRENT USES

The project site is located on the Balboa Peninsula in southwest Newport Beach (Figure 1, Photograph 1). The existing site encompasses 10 acres and is built-up in nature with residential (i.e., mobile homes) community service (e.g., community center, public tennis courts, beach access, etc.), and surface parking lot uses. The 10-acre site is bordered on the east by an asphalt parking lot, the American Legion Post 291, residential and commercial uses, and 15th Street, to the south by West Balboa Boulevard and residential uses, and to the west by18th Street, a hotel and residential uses, and 19th Street along the public beach.

The shoreline consists of a wide, City-maintained sand beach between 16th and 18th Streets. A cement groin separates the sand beach from the American Legion Marina on the east. Residential docks border the west end of the public beach at 19th Street.

The shoreline and waters at the project site are located southeast of the Rhine Channel section of Lower Newport Bay (Newport Harbor) and south of Lido Isle. Several shipyards are active in the Rhine Channel, and private and commercial vessels are kept in boat slips that line the Rhine Channel, Lido Peninsula, and Balboa Peninsula perimeter. Private vessels are moored throughout the waters in the general vicinity of the project area. The waters along the shoreline between 15th and 18th Street are currently used for public recreation, including swimming, kayaking, sailing, and power boating.

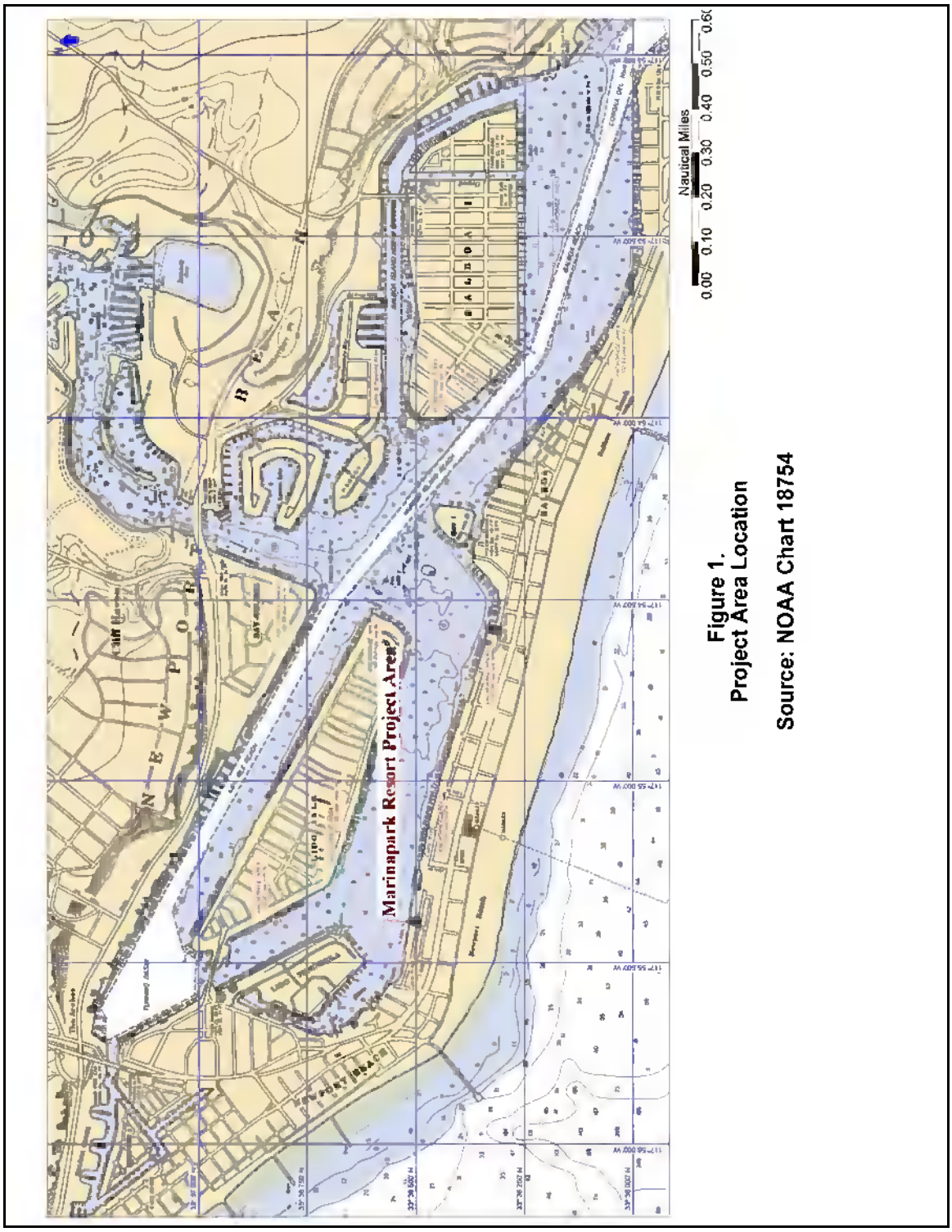

Figure 1.
Project Area Location
Source: NOAA Chart 18754

Photograph 1. Location of Project Site and other areas of West Newport Bay

1.2 PROPOSED PROJECT AND PROPOSED USES (Source; MBA)

The public park will provide for passive and active areas. The passive area will include an open lawn area and a water feature. The active areas will include a children's play area and a half-court basketball court. The public short-term visiting vessel marina is proposed to accommodate visiting vessels for up to 30 days. Utility hook-ups are proposed to be available for the marina. Bathrooms and laundry areas are proposed adjacent to the marina. The Balboa Sailing Center will include rooms for educational classes as well as community events. A restaurant will be located on top of the Balboa/Sailing center and will include areas for marina rentals as well as room for sailing classes. There are two tennis courts proposed on the eastern portion of the site adjacent to 15th Street. In addition, an existing bathroom on the public beach adjacent to 19th Street is proposed to be renovated or reconstructed but the size of the bathroom facility would remain the same. Primary access to the project will be via West Balboa Boulevard at 17th Street and secondary access will be via a controlled exit/entrance off of 15th Street. Public access to the beach will be provided by walkways within the proposed park as well as an access provided along the western side of the proposed marina. Furthermore, 18th and 19th Streets will still provide access to the public beach.

Figure 2a. Marina Park Layout
Source: Michael Brandman Associates

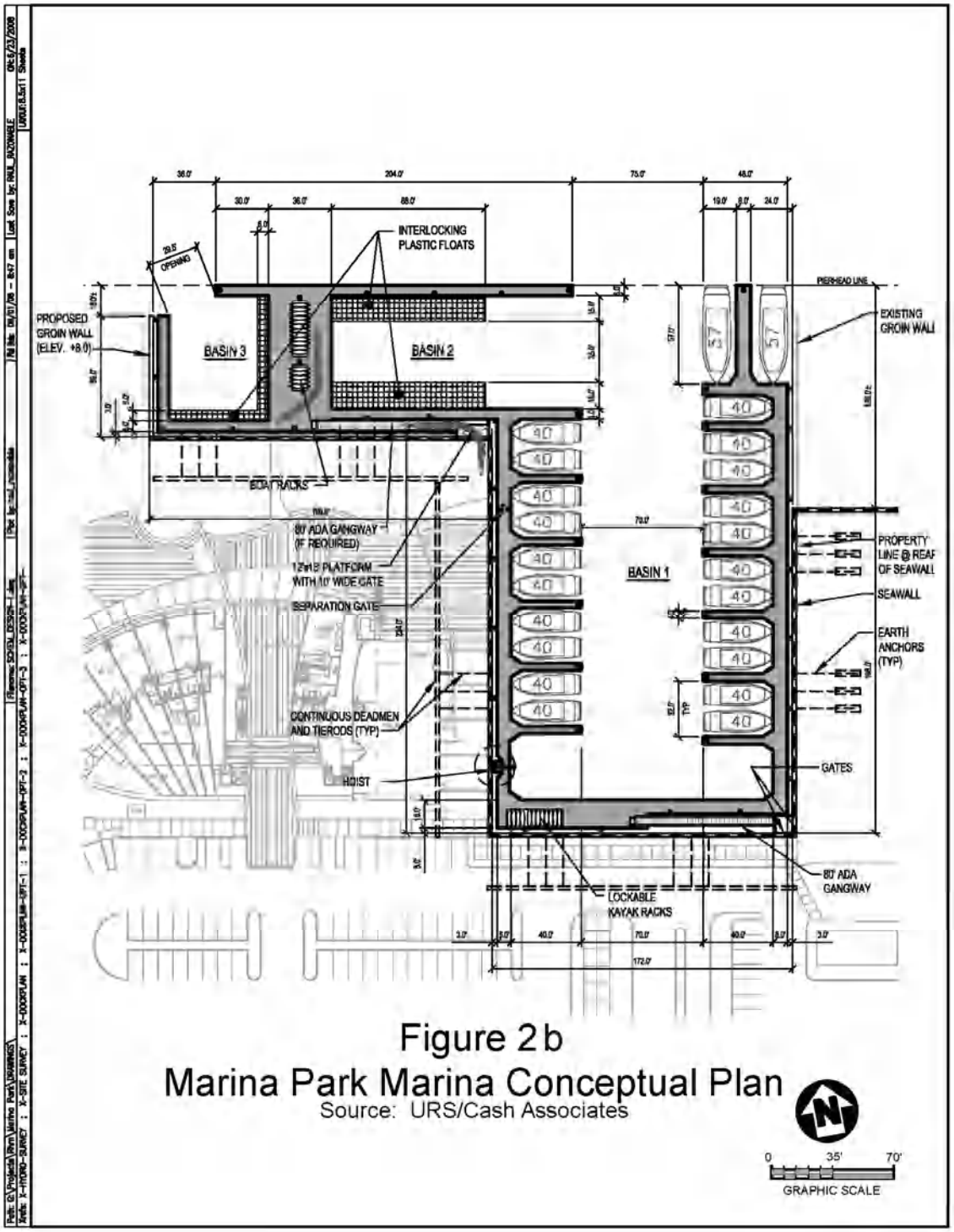

Figure 2b
Marina Park Marina Conceptual Plan
Source: URS/Cash Associates

2.0 MARINE RESOURCES ENVIRONMENTAL SETTING

The marine environment area investigated for this project extends between 15th Street and 19th Street, between the shoreline and a depth of -12 feet Mean Lower Low Water (MLLW). In addition, sediment, chemical, and biological information collected between 1952 and 2003 from 10th Street to and including the Rhine Channel was included where it pertained to potential project impacts. The local project area is shown in Photographs 2 through 5. Channel depths vary between 0 to approximately 12 feet (Mean Lower Low Water). At the site of the proposed docks at the east end of the swimming beach, the elevations extend from supra-tidal (+8 ft) MLLW to water depths of approximately 10 ft MLLW.

The marine environment in this section of Newport Harbor is subject to reductions in sediment and water quality as a result of restricted tidal circulation, industrial activities, dry weather runoff, and storm water runoff to the bay (California Department of Fish and Game 1952; County of Orange 1978; California Water Resources Control Board 1998; Southern California Coastal Water Research Project 2003). Newport Bay is currently included on the U.S. EPA 303(d) Listed Water Bodies and Associated Pollutants of Concern (EPA 2002). Newport Harbor (Lower Newport Bay) is specifically listed as impaired as a result of significant concentrations of metals and pesticides in the sediments.

Water-related industries and uses at various times in the past have included private and military vessel construction and boat repair facilities, cannery processing facilities for the Newport Bay fishing fleet, boat marinas and commercial businesses (i.e., restaurants).

2.1 WATER QUALITY

2.1.1 Flushing Rates. Tidal flushing rates differ throughout the Harbor (Everest International Consultants, Inc. 2007; Figures 3). The tidal flushing rate varies from one day at the harbor entrance to up to 30 days in the vicinity of Marina Park and the Rhine Channel. Longer periods between complete tidal flushing cycles reduces water quality by increasing water temperatures, lowering dissolved oxygen, and increasing the length of time that suspended sediments prevent light from illuminating the seafloor. The long residence time required to flush the bay through tidal action appears to be an important factor that affects both water and sediment quality.

2.1.2 July-August 2008 Oceanographic Data Water column sampling was conducted in the vicinity of Marina Park 10 times between 25 July and 22 August 2008 (Coastal Resources Management, Inc. unpublished data). Data were collected at surface, mid, and bottom depths. A summary of the data, by sampling level is presented in Table 1.

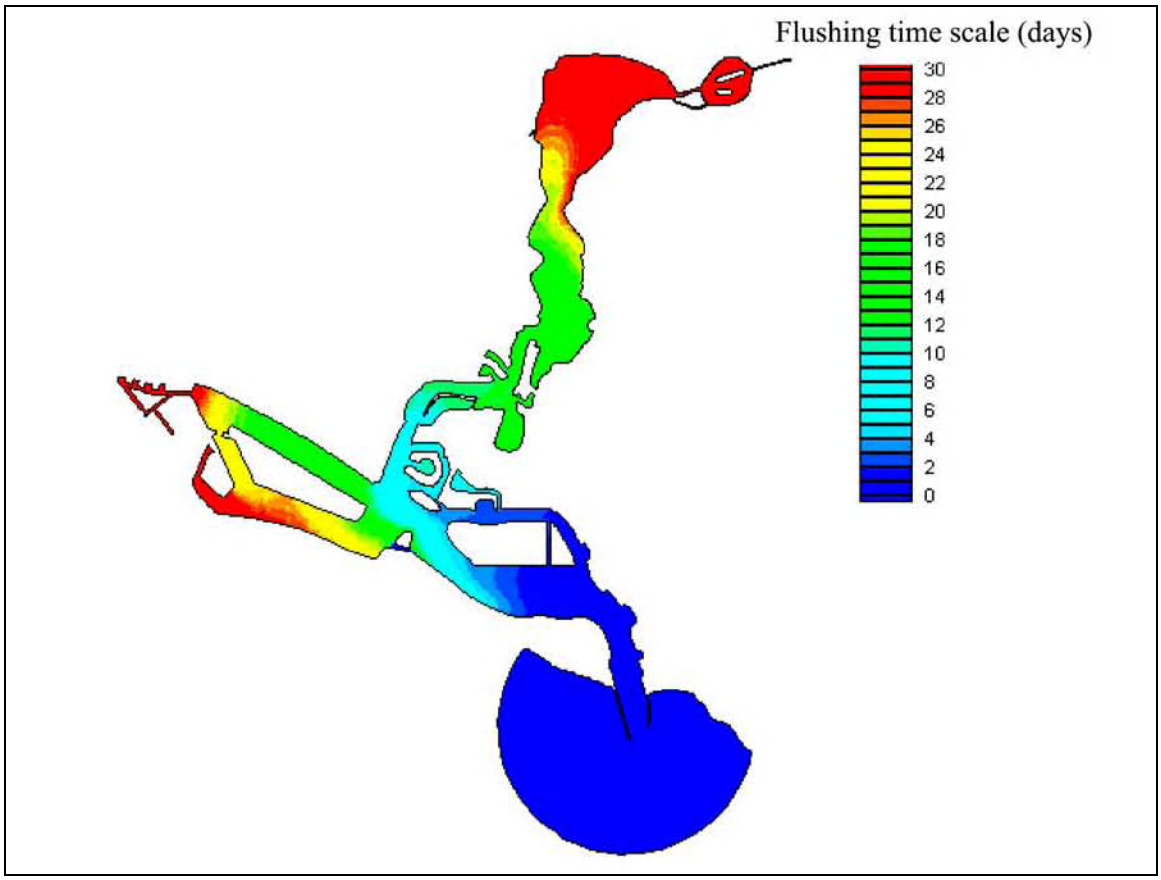

Figure 3 Tidal Flushing Rates for Newport Bay.
Source: Everest International Consultants, Inc.

The data illustrate summer maxima in water temperatures, with conversely, low dissolved oxygen concentrations and low pH. Low dissolved oxygen levels are an indication of degraded water quality, particularly if it is a persistent condition. It commonly occurs in areas of poor circulation and high organics. In general, a concentration of 5 mg/l (ppm) of dissolved oxygen is required to sustain marine life.

All parameters exhibited a decline in values with an increase in depth. Mean water temperatures varied from 74.28 F at the surface, to 72.69 at the bottom. Dissolved oxygen concentrations varied from 6.71 mg/l at the surface to 5.15 mg/l at the bottom; pH decreased from 7.95 at surface and mid depths, to 7.87 at the bottom; salinity ranged from 32.46 parts per thousand (ppt) at the surface to 32.42 ppt at the bottom. The range in Total Dissolved Solids varied from 32.23 g/l to 32.18 g/l at the bottom.

Maximum and minimum survey values for each parameter were 71.17 F (bottom) and 76.73 F (surface) for water temperature; 4.10 mg/l (bottom) to 7.76 mg/l for dissolved oxygen; 7.76 (bottom) to 8.05 (bottom) for pH; 32.26 ppt (surface and bottom) to 32.95 ppt (surface) for salinity; and 32.03 g/l (bottom) to 32.65 g/l (surface) for total dissolved solids.

Table 1.

Rhine Channel Buoy (Mid channel between Balboa Peninsula and Lido Peninsula)
Oceanographic Data, July 25th to August 22nd , 2008
Source: Coastal Resources Management, Inc.
n=9 surveys

Surface Values (1 ft below surface)

	Temp (F)	Temp (C)	Dissolved Oxygen mg/L	pH	Salinity ppt	Total Dissolved Solids g/L
Mean	74.28	23.49	6.71	7.95	32.46	32.23
Std Dev	1.1	0.6	0.5	0.1	0.2	0.1
N of reps	21	21	19	21	21	21
Min	72.68	22.60	5.89	7.85	32.26	32.04
Max	76.73	24.85	7.65	8.04	32.95	32.65

Mid Depth (-6 ft MLW)

	Temp (F)	Temp C	Dissolved Oxygen mg/L	pH	Salinity ppt	Total Dissolved Solids g/L
Mean	73.47	23.04	6.51	7.95	32.44	32.20
Std Dev	1.1	0.6	0.9	0.1	0.1	0.1
N of reps	19	19	17	19	19	19
Min	71.78	22.10	4.46	7.85	32.28	32.06
Max	76.14	24.52	7.76	8.04	32.59	32.34

Bottom Water (-12 ft MLLW)

	Temp (F)	Temp C	Dissolved Oxygen mg/L	pH	Salinity ppt	Total Dissolved Solids g/L
Mean	72.69	22.61	5.15	7.87	32.42	32.18
Std Dev	1.2	0.7	1.1	0.1	0.1	0.1
N of reps	16	16	14	16	16	19
Min	71.17	21.76	4.10	7.76	32.26	32.03
Max	75.13	23.96	7.27	8.05	32.64	32.38

2.2 SEDIMENTS

Identifying sediment types and concentration of chemicals in Newport bay sediments is important for several reasons: (1) chemical contaminants are primarily bound to finer grain sizes (2) contaminants in the sediments can be assimilated into the food chain (3) alterations to the seafloor through dredging or other activities that disrupt the seafloor may result in the release of contaminants to the water column and (4) sediment characteristics and sediment contamination will affect the distribution and abundances of marine organisms.

2.1.1 Intertidal Sand Beach Sediments and Levels of Contaminants

Petra (2004a) conducted sediment grain size and sediment chemistry testing from beach sediments in the area proposed as a 12-slip marina for a Limited Phase II Soils Assessment. These sediments were collected at the low tide line. Photograph 2 shows the general area where the samples were collected from. No tidal level data relative to Mean Lower Low Water information was provided. The upper three feet of sediment cores taken at the swimming beach sediments consisted of fine to medium sands; at a depth of four feet, the sediments included finer silts. No detectable concentrations of semi-volatile organic compounds (SVOCs), organo-chloride pesticides (OCPs), or polychlorinated biphenyl's (PCBs) were detected. Metals were not detected at elevated ranges. Total Petroleum Hydrocarbons (TPH*)* were detected at 10 milligrams per kilogram (mg/kg) in soil from Boring 2. TPH concentration of 10 mg/kg is insignificant and does not represent an environmental condition at these boring locations (Petra 2004a).

2.1.2 Subtidal Bayfloor Sediments and Levels of Contaminants

Beyond the tide line, Newport Harbor sediments consist of sand, mud, or combinations of sand/shell hash sediments depending on tidal exchange rates, current velocities, channel depths, the configuration of the bay, and proximity to sources of sediment inputs.

Observations made during a site reconnaissance survey at the proposed marina project site (CRM 2004, 2008) indicated that sediments at depths shallower than -2 ft MLLW were predominantly sands, a combination of sands and silts at depths up to -6 ft MLLW, and primarily silts at depths up to 11 ft MLLW. Sediment samples taken at a depth of -3 ft MLLW in front of the proposed marina in at 15th Street in front of the existing trailer park in September 2008 indicated the sediments consisted of 0.43% gravel, 3.12% coarse sand, 48.93% medium sand, 44.89% fine sand, 0.58% silts, and 2.05% clay (Coastal Resources Management, Inc. unpublished data). Comparatively, the bayfloor in the vicinity of 18th Street at the entrance to the Rhine Channel consists of between 90 % and 95% fine-grained sediments at depths of -5 to -10 ft MLLW (Harbor Resources Department unpublished data).

Petra (2004b) conducted environmental site assessment work at the proposed Regent Marina site, Newport Beach, California on March 17th, 2004. The work consisted of drilling and sampling three borings at a depth of 0.5, 2.5 foot and 5 feet below the mud line in the Rhine Channel to assess the environmental condition of submarine sediments on site. The five foot samples were archived. The soil samples were analyzed by dry

weight in a State approved laboratory. In addition, representative samples of the subsurface sediments were collected for grain size analysis.

The geologic and chemical information obtained indicates the following:

- The Rhine Channel in the vicinity of the site is underlain by one to three feet of bay mud consisting of organic silty and clayey sand. Beneath the bay mud is medium and coarse sand with shell fragments.

- Trace amounts of Total Petroleum Hydrocarbons (TPH) were detected in the one-half foot samples in all three borings and in the two and one half foot sample in Boring BP-2. The detected concentrations were less than 40 milligrams per kilogram (mg/kg). The likely source of this contamination is storm water runoff.

- Semi-volatile organic compounds (SVOCS) were not detected in any of the collected samples.

- The organo-chlorine pesticide 4,4'-DDE was detected at a concentration of 13 micrograms per kilogram (ug/kg) in the one half foot sample in boring BP-3. The source of this material is likely .

- Polychlorinated biphenyls (PCBs) were not detected in any of the collected samples.

- Metals concentrations were within the anticipated background range for soils in Southern California.

Based on these findings, the Limited Phase Two Sampling Program of submarine sediments at the proposed Marina Park marina site indicates that sediments are >80% sand material, and classified as medium to coarse sands. These materials are suitable for beach disposal. Slight chemical degradation of the sediments has occurred (Petra 2004b). Very low concentrations of petroleum hydrocarbons are present in the upper one-half foot of the bay mud. The hydrocarbons are not present at levels which require regulatory involvement or remediation. A single sample contained a very low concentration of a organo-chlorine pesticide (13 ug/kg 4,4-DDE). This concentration is well below action levels for soils on land.

Between 1992 and 1997, the State Water Resources Control Board (SWRCB and other State and Federal agencies conducted investigations of sediment chemistry, toxicity, and benthic community conditions in Newport Bay and other selected water bodies in the Santa Ana Region (SWRCB et al. 1998). Lower and Upper Newport Bay sediments were surveyed in 1994 at 23 locations (Figure 2). Three stations were located in west Newport Bay region, in the region surrounding the proposed marina site

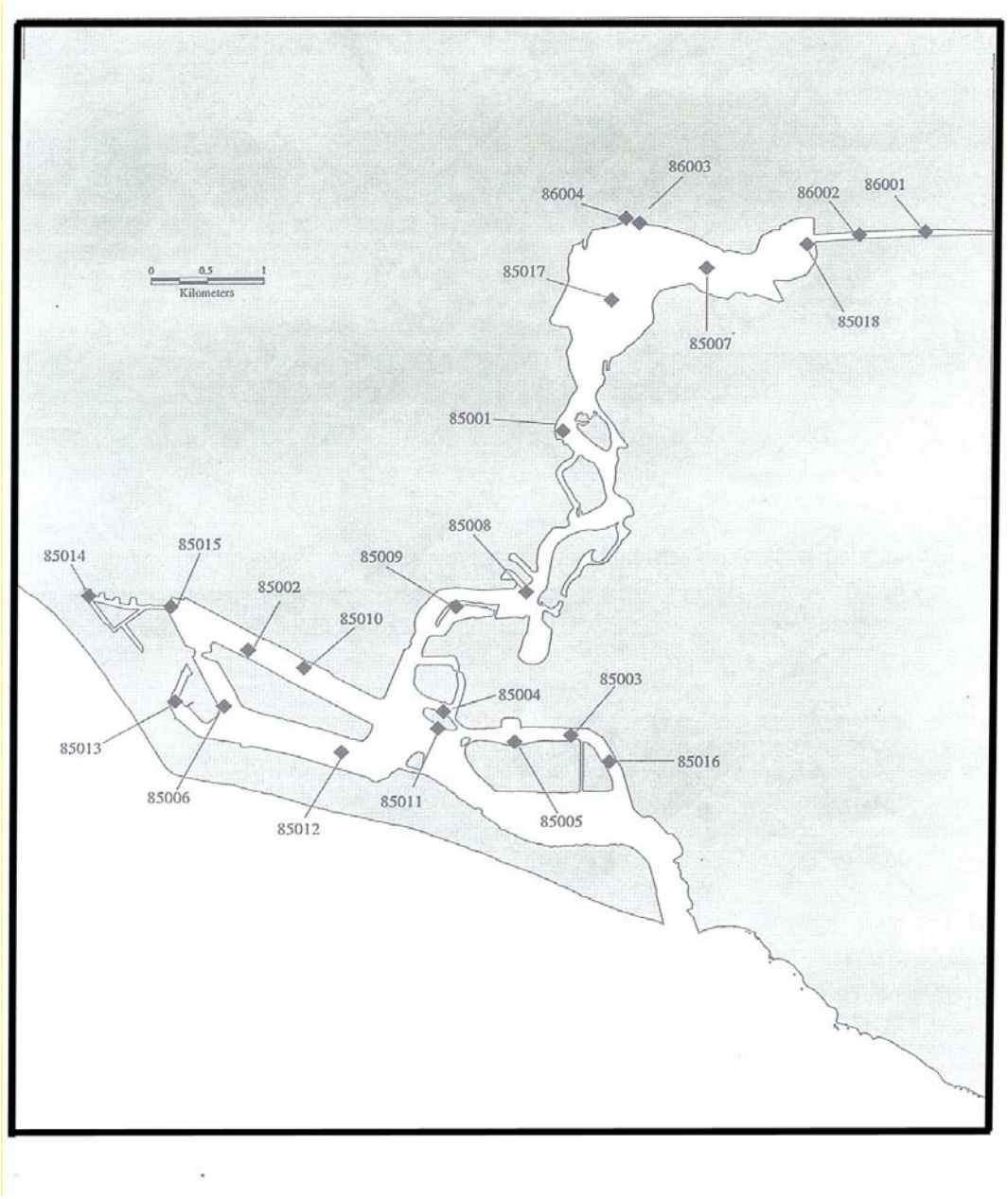

Figure 4. 1994 SWRCB Sampling Stations in Newport Bay

for sediment contaminants and sediment biology. These stations included 85006, off the east tip of Lido Peninsula; 85012, mid-channel between the Balboa Peninsula and Lido Isle near the 10th Street Beach, and 85013, in the Rhine Channel.

Based on the results of the sampling, Newport Bay sediments contained elevated concentrations of several contaminants at levels known to be toxic to marine organisms. Rhine Channel sediments (85013) contained elevated concentrations of mercury, copper, p,p; DDD, Total PCBs, and tri-butyl tin (TBT). Sediments around Lido Peninsula and Lido Isle (including 85006 and 85012), Harbor Island, Dover Shores, and De Anza (Bayside) Peninsula were elevated for either lead, p'p, DDE, or Total Chlordane, or a

combination of these compounds. Potential biotoxicity on marine organisms was also addressed. These results are summarized in Section 2.2.

The Southern California Coastal Water Research Project (SCCWRP) investigated site-specific sediment contamination in the Rhine Channel and the effects of contaminants on marine organisms at 16 stations in 2002 (SCCWRP 2003). Their study results also found contamination in the sediments. Concentrations of copper, mercury, lead, zinc, and total PCBs exceeded the sediment TMDL (Total Maximum Daily Load) targets at all 15 sediment stations in the Rhine Channel. The exceedances varied between 4.3 times the TMDL sediment target for zinc, to 110 times the TMDL sediment target for mercury. Total PCBs exceeded the TMDL sediment target by 13 times. Several other constituents were also elevated. Elevated concentrations of dissolved trace meters (copper, nickel, mercury, selenium, and zinc) indicated that some sediments were being released to the water column. The results of toxicity experiments conducted with these contaminated sediments are discussed in Section 2.2.

Petra (2003c) conducted sediment contaminant sampling in the Rhine Channel for a proposed shipyard redevelopment project at the South Coast Shipyards. Copper, lead, and mercury exceeded the Title 22 of the California Code of regulations Soluble Threshold Limit Concentration (STLC) by 10 times in several samples. Elevated concentrations of PCBs were also found in the sediments.

TABLE 2
Total Maximum Daily Load (TMDL) Target Values for Newport Bay
Source: SCCWRP 2003

Contaminant	TMDL Target Value (mg/kg)	Contaminant	TMDL Target Value (ng/g)
Copper	18.7	**chlordane**	2.26
Chromium	52	**dieldrin**	0.72
Lead	30.4	**Total DDTs**	3.89
Zinc	124	**Total PCBs**	21.5
Mercury	0.13		

2.3 MARINE BIOLOGICAL RESOURCES

Marine habitat types in the Marina Park project area include a city-maintained sandy beach, intertidal sand/mudflats, subtidal bay bottom (benthos), a cement groin that separates the sand beach from the American Legion marina, and open water bay habitat (Photographs 2 to 5).

The project area intertidal zone extends from Extreme Low Water (-2.0 ft. MLLW) to Extreme High Water (+7 ft. MLLW). Subtidally, water depths in the project area range from -2.0 ft to approximately -12 ft MLLW. Depths at the offshore edges of the boat docks located to the east of the project area are approximately -8 ft to -10 ft MLLW (Coastal Resources Management, 2004).

Photograph 2. Marine habitat fronting the proposed Marina Park Project. View facing east, towards location of proposed marina

Photograph 3. View looking west toward 18th Street

Photograph 4. South-facing view of sand beach in the vicinity of the proposed marina

Photograph 5. North-facing view of shoreline and waters in the vicinity of the proposed marina

2.3.1 Sand Beach

While most of the shoreline of Newport Harbor is dredged for boat slips and lined with bulkheads, open sand beaches are scattered throughout the harbor. Most of Newport Harbor's sandy beaches are located around Balboa Island, although some sand beach habitat is found on Bay Isle, Lido Isle and Balboa Peninsula.

On the Balboa Peninsula, public swimming beaches are located between 9th Street and 10th Street, and between 15th Street to 19th Street. These beaches provide the public with recreational opportunities, but they are also habitat for marine-associated wildlife.

The high intertidal portion of the city-maintained public beach support few if any marine organisms in the sediments because of the infrequent tidal exposure and periodic cleaning and grooming. This higher elevation however, is resting habitat for seabirds (gulls and pelicans). The middle and low intertidal zones provide more consistent tidal inundation and supports burrowing species of invertebrates (primarily clams, crustaceans, and polychaete worms). These organisms attract shorebirds to the mid and low intertidal elevations of the beach that utilize these invertebrates as their food source (Quammen 1980).

2.3.2 Subtidal Soft Bottom Benthos

Beyond the shoreline, the sediments support algae and bottom-dwelling organisms (benthic invertebrates), some of which crawl over the surface of Newport Bay sediments, while others lead a sessile existence and protrude above the sediments from within a tube. While the majority of benthic invertebrates of bays and estuaries obtain their nutrition by consuming organic detritus, some graze on diatoms and algae or actively prey on other invertebrates. In turn, bottom feeding fishes and resident soft bottom-dwelling fishes (gobies, juvenile flatfish, and sand bass) rely upon these benthic organisms as food sources (ACOE 2000, MBC and SCCWRP 1980).

Algae and Eelgrass. The shallow subtidal zone fronting the sand beach shoreline in the project area is occasionally vegetated green algae (*Enteromorpha* sp). At deeper depths, red algae is more common. During marine biological surveys conducted along the shoreline of the project area in October 2003, March 2004, October 2007, and August 2008, no eelgrass *(Zostera marina*) was at depths between 0.0 and -12 ft MLLW along the 15th to 19th Street shoreline. Eelgrass is a sensitive marine resource because of its value as a nursery habitat and protective cover that it provides for invertebrates and fish. While it is prolific throughout may parts other Newport Harbor from Bay Isle east to the Harbor Entrance Channel (CRM 2004, CRM 2008, in preparation) its western-most occurrence along the Balboa Peninsula is near the Newport Harbor Yacht Club (CRM, 2004; CRM 2008 in preparation).

Benthic Invertebrates. Over 300 species of benthic invertebrates that live in the sediments (benthic infauna) have been identified from Newport Bay mudflats and subtidal channel sediments (Barnard and Reish 1959, Dawson 1963, Daugherty 1978, MBC and SCCWRP 1980, Seapy 1981, Ware 1985, SWRCB et al., 1998). The dominant

types are annelid worms (polychaetes and oligochaetes), arthropods (gammarid and caprellid amphipods, isopods, ostracods, and cumaceans), and mollusks (gastropods and pelecypods). Most are not endemic to Newport Bay or necessarily reflect polluted bottom conditions. Rather, they are widely distributed and highly adaptable (they survive well under stress conditions which occur naturally in many California coastal bays and estuaries).

The numbers of benthic infaunal species decrease between the harbor entrance and the regions where water circulation is restricted in Newport Harbor and Upper Newport Bay (MBC and SCCWRP 1980, Daugherty 1978). These community changes occur because of increasing environmental stresses due to extremes in salinity, temperature, and dissolved oxygen, as well as decreasing grain sizes within the sediments they inhabit. Other influences, related to the concentrations of contaminants in the sediments will also affect the types and abundances of organisms inhabiting Newport Bay sediments (SWRCB et al. 1998).

Common benthic invertebrates identified in the fore-mentioned studies include polychaete worms (*Capitella capitata*, *Pseudopolydora paucibranchiata, Streblospio benedicti*, *Haploscoloplos elongatus*, *Tharyx* sp. *Neanthes arenaceodentata*, *Polydora socialis*, *P. ligni*, *P. nuchalis*, *Prionospio heterobranchia newportensis*), oligochaete worms, amphipods (*Grandidierella japonica, Corophium acherusicum*, C. *insidiosum*, *Ampithoe* spp.), caprellid amphipods (*Mayerella banksia*), snails (*Tryonia imitator* and *Assiminea californica*), and clams (*Theora lubrica, Chione fructiflaga, Macoma* spp., *Tagelus subteres* and *T. californianus*)

Many larger types of benthic invertebrates live on the sediment surface (epifauna). Several species of epifauna were observed at the site of the proposed Marina Park marina in October 2003 (CRM, 2003). These included the hydroid *Corymorpha palma*, tube anemone *Pachycerianthus fimbriatus*, tube-dwelling polychaete annelid worms, tube-dwelling amphipods (*Grandidierella japonica*), and the predatory sea slug (*Chelidonera [Navanax] inermis.*

A comparison of benthic species richness, abundance, and density per square meter is provided in Table 3. Historically, the benthic infaunal community in the general vicinity of the proposed Marina Park marina is characterized by low numbers of species and high abundances of a few species of invertebrates that reproduce well and out compete other species under stressed environmental conditions (California Department of Fish and Game 1953, County of Orange 1978, SWRCB et al. 1998). The number of benthic species identified at stations between 10th Street and the Rhine Channel during the SWRCB et al. 1994 survey varied between 14 (10th Street) to 32 (Lido Peninsula). Comparatively, cleaner sediments near the Newport Harbor Entrance Channel support as many as 207 species (MBC and SCCWRP 1980).

The Rhine Channel and Lido Peninsula sites were classified as a "Transitional" by the SWRCB which indicates that the sediments have elevated chemical contamination and some toxicity to marine organisms is present. However, the benthic community is not

Table 3.
Comparison of Benthic Species Richness, Abundance and Density Per Square Meter. Rhine Channel, Newport Bay. 1952-1994

SURVEY AND YEAR OF STUDY	SAMPLING METHOD AND SAMPING AREA	TOTAL RICHNESS AND ABUNDANCE	RICHNESS PER SAMPLE	MEAN DENSITY PER SAMPLE (SQ M)
Cal Fish & Game 1951-1952		16 individuals 1 species		
County of Orange September 1975	Three, 0.05 sq. m Ponar Grab samples	184 individuals 18 taxa	8.6 n=3	1,226 n=3
County of Orange March/April 1976	Three, 0.05 sq. m Ponar Grab samples	483 individuals 23 taxa	14.3 n=3	3,220 n=3
Combined Survey County of Orange 1975-1976	Six, 0.05 sq. m Ponar Grab samples	667 individuals 30 taxa	11.5 n=6	2,223 n=6
Regional Board September 1994	Three, 0.1 sq. m Modified Van Veen Samples	1,567 individuals 30 taxa	20.3* n=3	4,816* n=3

* Excludes nematode worms; nematodes were not counted during the County of Orange Survey

"degraded" compared to other areas of Newport Bay and other water bodies within the region. In Newport Harbor, “Degraded” benthic conditions were noted in the channel near 10th Street beach, on the north side of Lido Island, the south side of Harbor Island, and the north side of Balboa Island.

Based on the results of the 1998 SWRCB et al. benthic studies in Newport Harbor, the benthic community in the Rhine Channel has exhibited some signs of recovery compared to earlier studies in Newport Harbor in 1951-1952 (California Department of Fish and Game 1953) and 1975-1976 (County of Orange 1978). However, species richness is considerably lower in the sediments between Lido Isle and the Rhine Channel than in sediments nearer the harbor entrance channel. However, these sediments still have significant chemical contamination that may be toxic to benthic invertebrates and fishes. In addition, sediments released into the water column have a potential to release contaminants into the water column (SWRCB 1998 et al., SCCWRP 2003).

During the 1951-1952 Fish and Game study, 16 individuals of *C. capitata* were found in the Rhine Channel. In September 1975, 18 taxa and 184 individuals were collected in three, 0.05 sq. m. Ponar Grab samples. Mean density was 1,226 individuals/sq. m, and the mean number of species was 8.6. During March/April 1976, 23 taxa and 483 individuals were collected at the same site. Mean density was 3,220 individuals/sq. m, and the mean number of taxa increased to 14.3 per sample. The dominant species encountered in the Rhine Channel during the County study were the polychaetes *Capitella capitata, Schistomeringos rudolphi, Polydora ligni*, the crustaceans *Leptochelia* sp., *Ampithoe pollex, Corophium acherusicum, and C. insidiosum*. During both surveys, 30 species were collected.

During September 1994, three, 0.1 sq. m Young-modified Van Veen Grab samples were collected at Station 85013 in the Rhine Channel. Cumulatively, 30 taxa and 1,567 individuals were collected. With nematodes excluded (they were not counted during the County survey but described as "uncommon" in the Rhine Channel) the mean density per sample was 4,816 individuals/sq. m, and the mean number of species was 20.2 per sample. The dominant species included a complex of oligochaete worms, nematode worms, the polychaete worm *Streblospio benedict*, and the amphipod crustaceans *Grandidierella japonica* and *Ampithoe valida*.

Based upon this analysis, the health of the benthic community in the Rhine Channel slowly improved between 1952 and 1994, a span of 42 years. And, since 1975, the number of species in the Channel increased by a factor of 1.8 and infaunal density increased by a factor of 2.2. The stability of the community structure and the types of organisms present however, are likely still affected by levels of sediment contaminants that are known to produce toxicity at levels measured in the Rhine Channel sediments (SWRCB et al. 1998).

Benthic Contaminants and Toxicity to Marine Organisms in Newport Harbor. The State study (SWQCB et al. 1998) employed the Long and Morgan's Effects Range Low (ER-L) and Effects Range-Medium (ER-M) analysis (Long and Morgan 1990) to rate the potential for biological effects based upon the concentrations of contaminants found in the sediments that are associated with toxic responses on marine organisms. Biological effects are most probable at or above the ER-M (Long and Morgan 1990). Some Newport Bay sediments, including the Rhine Channel had the highest ERM Quotient of any regional water body. The Rhine Channel had the highest number of ERM exceedances; these were for copper, mercury, zinc, and total PCBs. The highest overall exceedances in Newport Bay were for mercury in the Rhine Channel (12.3x the ERM).

Toxicity studies were conducted using Rhine Channel Sediments during the SCCWRP 2002 investigation (SCCWRP 2003). Sediments were toxic to amphipod crustaceans and sea urchin larvae at a majority of the 15 stations sampled. However, the cause of the sediment or seawater-interface toxicity (SWI) reported in this study could not be determined with the available data. There were no statistically significant negative correlations among metals or organic contaminants and toxicity. It is possible that unmeasured contaminants or differences in contaminant bioavailability among stations may be responsible for the observed toxicity (SCCWRP 2003).

2.3.3 Bulkhead and Seawall Associated Plants and Animals.

Man-made substrates (bulkheads, seawalls, docks, pilings, jetties) in Newport Harbor are not biologically sensitive. However, hardscape provides surface area for sessile marine animals and plants that would not be present in the Harbor in the absence of development. Common types of organisms found on bulkheads and docks in Newport Bay are listed in Table 4. The hardscape of these structures support mussels, barnacles, and sponges, and other types of invertebrates, and plants that constitute the “biofouling

Table 4.
Common Invertebrates Observed on the Bulkheads and Docks in Newport Bay
Source: Coastal Resources Management (1998; unpublished observations)

Scientific Name	Common Name	Intertidal Zone to shallow subtidal zone	Relative Abundance
Chlorophyta	green algae		
Ulva spp.		mid to subtidal	common to abundant
Phaeophyta	brown algae	low to subtidal	
Cystoseira osmundacea		low to subtidal	present
Sargassum muticum		low to subtidal	present
Rhodophyta	red algae	low to subtidal	common
Haliclona sp.	sponge	low to subtidal	present
Cnidaria	hydroids & anemones		
Aglaophenia dispar	hydroid	low to subtidal	present
A. elegantissima	anemone-solitary form	mid to subtidal	uncommon
Polychaeta	segmented worms	mid to subtidal	common to abundant
Arthropoda	crustaceans		
Balanus glandula	barnacle	mid to high intertidal	common
Chthamalus fissus/dalli	barnacle	high to splash intertidal	common
Pachygrapsus crassipes	lined shore crab	high to low intertidal	uncommon
Mollusca-Gastropoda	snails		
Lottia limatula	finger limpet	middle to low intertidal	common
Mopalia mucosa	chiton	middle to low intertidal	present
Mollusca-Pelecypoda	bivalves		
Chamaidae, unid	rock jingle	low to subtidal	present
Ostrea conchilcola	oyster	mid intertidal	present
Mytilus galloprovincialis	bay mussel	mid to shallow subtidal	common
Bryozoa	moss animals	low intertidal to subtidal	
Zoobotryon verticillatum	soft bryozoan	low to subtidal	common
Urochordata	tunicates		
Styela montereyensis	sea squirt	low	common
Ciona intestinalis	tunicate	low	common
Styela plicata	sea squirt	low	common

community". The undersides of boat floats and docks are commonly colonized by green algae, barnacles, mussels, limpets, polychaete worms, moss animals (ectoprocts), and sea squirts (tunicates). Bay fishes are attracted to the biofouling habitat because it a constant source of food. The cement groin separating the American Legion marina from the sand beach at 16th Street is colonized by few species on the beach side of the groin, primarily because most of its length is buried by sand. Where exposed, it supports a limited population of barnacles (*Balanus glandula*) in the high tide zone and mussels (*Mytilus galloprovincialis*) in the mid to low tide zone.

2.3.4 Bay Fishes

Over 75 species of fish are known from Newport Bay (Allen 1976; Bane 1968; Marine Biological Consultants and SCCWRP 1980, SCCWRP 2002). Along the Peninsula between 9th St and 13th St, Allen (1976) recorded 19 species of fish during 18 months of sampling between 1974 and 1975. This sampling was conducted midchannel by otter trawl net methods. The numerically dominant species were white croaker (*Genyonemus lineatus*), shiner surf perch *(Cymatogaster aggregata*), white surf perch (*Phanerodon furcatus*), slough anchovy (*Anchoa delicatissima*), deepbody anchovy (*Anchoa compressa*), black surf perch (*Embiotoca jacksoni*), and queen fish (*Seriphus politus*). Bat ray (*Myliobatis californica*), white croaker, and queen fish contributed the most biomass. Other species, such as halibut (*Paralichthys californicus*), diamond turbot (*Hypsopsetta guttulata*), and various bottom-dwelling blennies and gobies are also found in Newport Harbor environments.

Marinas, docks, bulkheads, and groins provide habitat that attract a variety of fishes and these environments may exhibit a greater diversity of fishes than channel and mudflat habitats alone because both soft bottom channel fishes and rock-associated fishes inhabit these environments (Coastal Resources Management, 1993). Hard substrate offers cover, protection, or new sources of food for fishes such as pile perch (*Damalichthys vacca*), pipefish (*Sygnathus* spp.), kelpfish (*Heterostichus* spp.), opaleye (*Girella nigricans*), halfmoon (*Medialuna californiensis*), sargo (*Anisotremus davidsoni*), and kelp bass (*Paralabrax clathratus*).

During a site reconnaissance SCUBA survey conducted by Coastal Resources Management, Inc. in August 2008, round sting ray (*Myliobatis californicus*) and mullet (*Mugil cephalus*) were observed. During surveys conducted at the project site in 2004, four species were observed by SCUBA diving biologists at the site of a proposed marina. These included topsmelt (*Atherinops affinis*), spotted sand bass (*Paralabrax maculatofasciatus*), bay goby (*Lepidogobius lepidus*) and round stingray (*Urolophus halleri*) (Coastal Resources Management 2004).

Other common species recorded from Newport Harbor include arrow goby (*Clevelandia ios*),, California halibut (*Paralichthys californicus*), topsmelt (*Atherinops affinis*), black surfperch (*Embiotoca jacksoni*), white surfperch (*Phanerodon furcatus*) shiner perch (*Cymatogaster aggregata*), and walleye surfperch (*Hyperprosopon argenteum).* Several of these may be present at the site, but were not observed during the underwater surveys.

2.4 ENDANGERED, THREATENED, RARE, OR SENSITIVE MARINE SPECIES

Table 5 lists potential federal and/or state endangered, rare, or non-listed sensitive species and that could be present within or nearby the project area during construction. Species of particular concern and relevance to this project are discussed in detail below.

2.4.1 Plants

Eelgrass, *Zostera marina*. Eelgrass is a marine angiosperm that forms meadows in mud-and-sand substrates of bays and wetlands channels. Although it is not a listed species, it is considered sensitive by resource agencies because it is an important biological habitat for invertebrates and fishes. In Newport Bay, eelgrass grows in the lower intertidal and the shallow subtidal substrates at depths between 0.0 and -28 ft. MLLW, although more commonly, at depths shallower than -8 ft. MLLW (Coastal Resources Management, 2005 and Coastal Resources Management, in preparation). Surveys using GPS surveying methods of eelgrass in Newport Harbor and Upper Newport Bay indicate prolific growth of this seagrass along Corona del Mar, Balboa Island, Collins Isle, Beacon Bay, Harbor Island, Linda Isle, DeAnza Bayside Peninsula, Castaways, Bayshores Community, and Mariner's Mile extending between Bayshores and the Orange Coast College Rowing Facilities (CRM 2005), although areas within the middle parts of the harbor and Upper Newport Bay experienced significant declines in eelgrass areal cover and density between 2004 and 2008 (CRM 2008, in preparation). Eelgrass is not present along the shoreline between 15th St and 19th St. Eelgrass transplanted conducted along the 15th St to 19th St shoreline in late summer 2004 as part of the U.S. Army Corps of Engineers Lower Newport Harbor Pilot Eelgrass Restoration Project, in coordination with the County of Orange and the City of Newport Beach were unsuccessful (Chambers Consultants, Inc. and Coastal Resources Management, Inc. 2005), likely due to (1) the lateness of the transplant in the growing season and (2) significant rainfall in the months following the transplant.

2.4.2 Invertebrates

There are no sensitive species of marine invertebrates located in the project area.

2.4.3 Fishes

California Grunion *(Leuresthes tenuis).* The California grunion (*Leuresthes tenuis*) is a fish that uses the high intertidal sandy beach habitat of many southern California beaches as spawning habitat (Walker, 1952), including Newport Beach (CRM and Chambers Group, 2002). The grunion is a member of the silversides family, Atherinidae, along with the jacksmelt and topsmelt. They normally occur from Point Conception, California, to Point Abreojos, Baja California. Occasionally, they are found farther north to Monterey Bay, California and south to San Juanico Bay, Baja California. They inhabit the nearshore waters from the surf to a depth of 60 feet. Grunion are not expected to be present in the project area.

TABLE 5
SPECIAL STATUS SPECIES POTENTIALLY PRESENT IN THE MARINA PARK PROJECT AREA

Scientific Name	Common Name	USFWS Status or NMFS Status	CDFG Status	Habitat	Potential to Occur
Plants					
Phyllospadix torreyi	surfgrass	Habitat Area of Particular Concern (HAPC)) for Fisheries Management Plan (FMP) Species under the Magnuson-Stevens Fishery Conservation and Management Act	–	Nearshore rocky intertidal/rocky subtidal	none
Zostera marina	eelgrass	Habitat Area of Particular Concern (HAPC) for Fisheries Management Plan (FMP) Species under the Magnuson-Stevens Fishery Conservation and Management Act	–	Bays, harbors, shallow nearshore water sediments	Not observed at the project in 2003, 2004, 2005, and 2008
Fishes					
Eucyclogobius newberryi	Tidewater goby	FE	–	Shallow marine waters, lower reaches of streams	No potential, extirpated from Orange County
Leuresthes tenuis	California grunion	–	–	Spawns on local open coastal beaches	No potential to occur at the project site

Scientific Name	Common Name	USFWS Status or NMFS Status	CDFG Status	Habitat	Potential to Occur
Hypsypops rubicundus	California garibaldi	Protected under commercial and sport fish regulations	California State Marine Fish , Assembly Bill AB77, 1995	Subtidal rocky reef habitat; resident and territorial species in shallow subtidal rocky habitats	None in West Newport Bay; does occur near the harbor entrance channel in rocky subtidal environment
Paralichthys californicus	California halibut	–	–	Shallow coastal waters, open ocean	High potential
Reptiles					
Chelonia mydas	Green turtle	FE	–	Nearshore and open ocean waters	Rare visitor but unlikely to occur in the waters of West Newport Bay
Eretmochelys imbricata	Hawksbill sea turtle	FE	–	Nearshore and open ocean waters	Rare visitor but unlikely to occur in the waters of West Newport Bay
Birds					
Pelecanus occidentalis	Brown pelican	FE; proposed for delisting	CE	Bays, estuaries, nearshore waters	Forages and rests in project area
Sterna antillarum browni	California least tern	FE	CE	Nests on sparsely vegetated flat substrates, forages in nearby waters	Moderate potential. Forages in the waters of Newport Bay; Nesting habitat occurs in Upper Newport Bay and nearby at the Santa Ana River mouth; least terns will forage on juvenile baitfish in the nearshore waters, Newport Harbor and Upper Bay channels, usually within 5 mi of nesting sites .
Scientific Name	**Common Name**	**USFWS Status or NMFS Status**	**CDFG Status**	**Habitat**	**Potential to Occur**
Charadrius alexandrinus nivosus	Western snowy plover	FT	SSC	Nests on sandy beaches and shores	No nesting habitat present onsite, no potential for individuals to occur on site

Mammals					
Zalophus californianus	California sea lion	MMA		Nearshore and open ocean waters, occasionally enters bays/harbors	Moderate-to-high potential for individuals to be present in West Newport Bay. Locally becoming more abundant in Newport Harbor, and in the vicinity of vessels moored offshore of Lido Peninsula
Phoca vitulina	Harbor seal	MMA		Nearshore and open ocean, occasionally enters bays/harbors	Low potential to be present in West Newport Bay.
Tursiops truncatus	Bottlenose dolphin	MMA		Nearshore and open ocean waters	Rare visitor to Newport Harbor
Eschrichtius robustus	California gray whale	MMA		Nearshore and open ocean waters	Rare visitor to Newport Harbor

FE – Federal Endangered; FT – Federal Threatened; MMA – Protected under Marine Mammal Act
California Department of Fish and Game
CE – California Endangered
SSC – Species of Special Concern
HAPC are subsets of Essential Fish Habitat (EFH) which are rare, particularly susceptible to human induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the Magnuson Stevens Fishery Conservation and Management Act (MSA); however, federally permitted projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process (NMFS 2008a)

California halibut. Although the California halibut does not have a formal special species status, it is considered a sensitive species by resource agencies because of its commercial value and a continued region-wide reduction of its nursery habitat in bays and wetlands. California halibut spawn at sea and the larval stages are planktonic. After several months, the larval fish settle to the bottom, and migrate into shallow coastal waters, including Newport Bay. Halibut are distributed throughout the waters of Newport Harbor and Upper Newport Bay, primarily as juveniles, although larger individuals are caught near the ocean entrance and in offshore waters. Young-Of-The-Year (YOTY) prefer shallow waters between about –0.45 meter (1.5 ft) and –1.0 meter (3.5 ft) Mean Lower Low Water (MLLW), whereas juveniles prefer deeper channel bottoms to a maximum depth of approximately 4.5 meters (15 ft) MLLW. After spending nearly nine months in Newport Bay, juveniles will move out into the open coastal environment. This species has a low to moderate potential to occur in the shallow waters of the project area because of the nature of the sand shoreline and the relatively wide shelf of sandy silt sediments.

2.4.4 Marine Reptiles

Marine reptiles do not utilize the local marine waters as a permanent breeding or foraging habitat. However, the green turtle (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*), will occasionally occur in the nearshore environment offshore Orange County. Green sea turtles have been reported approximately 20 miles upcoast of Newport Bay in the San Gabriel River where they encounter the warmer, discharged waters of the power generating facilities located farther up the River and Alamitos Bay. (Vivian Cook, Marine Bureau; Allen Powder, Long Beach Lifeguards pers. comm. with R. Ware, CRM, 27 July 2007; Long Beach Aquarium, 2008). Their occurrence within Newport Bay is expected to be rare.

2.4.5 Birds

The State and Federally-listed California least tern (*Sterna antillarum browni*) is a spring-and-summer resident in southern California during the breeding and nesting season. The least tern does not breed or nest near the project site but will forage in Newport Bay and nearshore coastal waters during their March through September breeding season. The nearest least tern nesting sites are located approximately 2.5 miles west (upcoast) at the mouth of the Santa Ana River and 4.2 mi northeast in Upper Newport Bay near the Jamboree Bridge. The state-and federally listed California brown pelican (*Pelecanus occidentalis*) is found in Newport Bay year-around but does not breed locally. The brown pelican utilizes Newport Harbor waters for foraging on baitfish, and the shoreline as resting habitat. This species is proposed for delisting as a federally- endangered species, due to a population resurgence along the southern California coastline.

2.4.6 Marine Mammals

In recent years, California sea lions (*Zalophus californicus*) have taken up seasonal residence in the Harbor. While initially concentrated in the southeast section of the harbor between the Pavilion and the entrance channel, they now extend their seasonal distribution to the northwest (West Newport) waters and Mooring Areas J and H seaward of the proposed Marina Park development. Their abundance in the Bay is the result of abundant food resources and potential haul out areas on moored vessels. They are able to utilize boats in the harbor as haul outs because many of the boats have low stern platforms (i.e., dive platforms). Countermeasures have been implemented by the City and boat owners to reduce the ability of sea lions to use vessels as haul out areas, and to reduce the direct and indirect feeding of sea lions through the implementation of ordinances and public education brochures. Their presence is a concern for vessel owners who have experienced damaged vessels or sunken vessels (Orange Newport Beach Harbor Resources Department, 2006; and most recently in August 2008 (Orange County Register, 2008). Their distribution in the West Newport waters may also be related to observed increases in the population of mullet (*Mugil cephalus*) that have been particularly abundant in this section of the Harbor in 2008 (R. Ware, pers. observations). Harbor seals (*Phoca vitulina*) may also occasionally enter Newport Harbor but their presence in Newport Harbor is incidental.

The presence of bottlenose dolphin, and gray whales or other cetaceans would be an extremely rare event in the western section of Newport Harbor.

2.5 SENSITIVE HABITATS

Newport Harbor and Upper Newport Bay shorelines and waters are defined as wetland habitats under both the California Coastal Act and the National Environmental Policy Act. Consequently this water body is considered sensitive habitat and is afforded protection to conserve and protect the resource. Upper Newport Bay is also State of California Marine Protected Area, and is designated as a State Marine Park.

Habitat Areas of Particular Concern (HAPC). Although no eelgrass occurs at the Marina Park project site, Newport Bay in general is estuarine and eelgrass habitat, both of which are considered habitat areas of particular concern (HAPC) for various federally managed fish species (See Section 2.6) within the Pacific Groundfish Fisheries Management Plan (i.e., rockfishes). HAPC are described in the regulations as subsets of Essential Fish Habitat which are rare, particularly susceptible to human induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the Magnuson-Stevens Fishery Conservation and Management Act (1997). However, federally permitted projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process (National Marine Fisheries Service, 2007).

2.6 FISH MANAGEMENT PLAN SPECIES

This assessment of Essential Fish Habitat (EFH) for the Marina Park project is being provided in conformance with the 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (FR 62, 244, December 19, 1997). The 1996 amendments to the Magnuson-Stevens Act set forth a number of new mandates for the National Marine Fisheries Service, eight regional fishery management councils, and other federal agencies to identify and protect important marine and anadromous fish habitat. The councils, with the assistance from NMFS are required to delineate EFH for all managed species. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding the potential effects of their actions on EFH, and respond in writing to the NMFS recommendations.

EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". An adverse effect is "any impact which reduces the quality and/or quantity of EFH". Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to benthic organisms, prey species, and their habitat, and other ecosystem components. Adverse effects may be sites specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions [50 CFR 600.910(a)].

Impacts to Habitat Areas of Particular Concern (HAPC) are described in the regulations as subsets of EFH which are rare, particularly susceptible to human induced degradation, especially ecologically important, or located in an environmentally stressed area, including eelgrass.

The proposed project is located within an area designated as EFH for the Coastal Pelagics Management and the Groundfish Management Plan designated species. Four (4) coastal pelagic species, (the northern anchovy, pacific sardine, jack mackerel, and Pacific mackerel) potentially occur in the waters offshore of Newport Beach. Six (6) groundfish species also potentially occur within the local project area, including California scorpion fish, vermillion rockfish, calico rockfish, California skate, spiny dogfish shark, and leopard shark (Appendix 1). Of these species, only the northern anchovy comprises a significant portion of fish that occur, and contribute moderate-to-heavy abundances to the nearshore fish, but much less so within Newport Bay. Northern anchovy comprise a portion of the commercial bait fishery in San Pedro Bay and a commercial bait fishing operation operates in the Newport Harbor entrance channel that provides northern anchovy to sports fishermen. This species is a planktivore, and is preyed upon by larger fish and seabirds. Larvae of northern anchovy are also part of the Newport Bay ichthyofauna and icthyoplankton community.

Although several other coastal pelagic and groundfish FMP species are known from the project area, temporal data indicate that their presence in the project area is likely sporadic and their numbers in the project region would be extremely low (Coastal Resources Management, 2008).

2.7 INVASIVE SPECIES

***Caulerpa taxifolia*.** *Caulerpa taxifolia* has a characteristic bright green color, flat, leafy fern-like fronds (branches), and a below-ground root system. This noxious algae was found within shallow, enclosed lagoons located at the northeast section of Huntington Harbour and in Agua Hedionda Lagoon in San Diego County in 2001. Although efforts are believed to have eradicated this species over the last two years, this tropical marine algae can be extremely harmful to marine ecosystems because it invades, out-competes, and eliminates native algae, seagrasses, kelp forests and reef systems by forming a dense blanket of growth on mud, sand, or rock surfaces (National Marine Fisheries Service, California Department of Fish and Game and San Diego Regional Water Quality Control Board unpub. brochure). It can grow in shallow coastal lagoons as well as in deeper ocean waters, and up to nine feet in length.

Caulerpa has not been found within Newport Bay despite intensive underwater searches (Coast Keeper 2000; Coastal Resources Management, Inc. 2004, 2005, 2008, in preparation). Newport Bay has been designated as a *Caulerpa* free system (National Marine Fisheries Service 2001 revised 2003). This species was not observed at the project site in October 2003, March 2004, October 2007, and August, 2008 (R. Ware, CRM pers. observation).

3.0 IMPACT ANALYSIS

3.1 THRESHOLDS FOR SIGNIFICANCE

The threshold for significance of impacts to marine biological resources is determined by scientific judgment, and considers the relative importance of the habitat and/or species affected by project implementation. For the purposes of this analysis, the project's effects on biological resources are considered to be significant if it would:

- Substantially affect a rare, threatened, endangered, or candidate plant or animal species, or the habitat of any such species;
- Substantially diminish or degrade the habitat of any marine plant or animal;
- Result in notable net loss of a biotic community that is subject to local, state, and/or federal regulations or that is otherwise of very limited occurrence in the region.
- Interfere substantially with the movement of any resident or migratory fish and wildlife species; or
- Conflict with adopted environmental policies, general plans, or regulatory policies of the community and State of California.

3.2 RELEVANT CALIFORNIA ENVIROMENTAL POLICIES AND ACTS

The California Coastal Act (State of California 1976, amended 1999) provides the basis for protection of land and marine resources within the California coastal zone. The following relevant sections of the Coastal Act apply to protection of local marine resources in the vicinity of the proposed Marina Park project.

Section 30231 of the California Coastal Act:

"*The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through among other means, minimizing adverse effects of wastewater discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with groundwater flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Section 30107.5 of the California Coastal Act.

Environmentally sensitive areas are "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily be degraded by human activities and developments"

Section 30240 of the California Coastal Act:

(a) *Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas*.

(b) *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade these areas, and shall be compatible with the continuance of those habitats and recreational areas*.

Section 30230 of the California Coastal Act:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economical significance. Use of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific , and educational purposes.

3.3 PROPOSED ACTION

Figures 2a and 2b illustrate the components of the proposed project. Existing mobile homes on the project site will be removed and/or demolished. The basic features of the project will include a public park for passive and active recreation, short-term visiting vessel marina, bathroom and laundry facilities adjacent to the marina, a sailing center and restaurant, tennis courts, and improvements to an existing bathroom.

This impact analysis addresses water quality issues related to the demolition of existing structures, site hydrology, and marine-related impacts associated with the construction of the marina.

Marina facilities will be constructed by excavating a basin out of landside, non marine habitat and dredging a portion of the existing intertidal sandy beach to depths of -12 ft MLLW. The marine will include a groin wall around the marina, three boat basins, ADA gangway, 23 slips to accommodate vessels 40-57 ft in length, dry storage for small boats, lockable kayak racks, and interlocking floats to provide dry storage within two of the 3 basins. Approximately 18 piles will be driven into the bayfloor to support the docks (Source: URS, Inc).

3.4 PROJECT-RELATED ISSUES THAT COULD ADVERSELY AFFECT MARINE BIOLOGICAL RESOURCES

Demolition and construction tasks for the project could potentially affect Newport Harbor marine resources. Particular aspects of this project that have a potential to degrade water quality and the quality of local marine resources include hydrology and site runoff, visitor use, and construction and operation of a marina. This project incorporates upfront Water Quality Best Management Practices that ensure there will be no adverse and significant short-term or long-term effects on local water quality and subsequent adverse effects on marine biological resources. These items include:

3.4.1 Storm Water Pollution Prevention Plan

Land-side construction impacts on water quality and marine resources will be reduced to less than significant with the implementation of a Storm Water Pollution Prevention Plan that incorporates specific Best Management Practices to avoid impacts to water quality for both onshore and water-side construction operations. An Erosion Control Plan will be part of this document. This plan will reduce the potential impacts of airborne dust deposition and waterborne soil erosion during storm events on the marine environment. See Section 4 for a listing of potential construction BMPs.

3.4.2 Post-Construction (Operational) Project Water Quality Management Plan

A Water Quality Management Plan will be prepared to avoid potentially significant effects of the project on water quality and marine resources. The plan will address current drainage systems, improvements to the drainage system to manage storm water and dry weather runoff, hydrology, and mitigation measures to reduce potentially significant project-related effects to less than significant. The Water Quality Management Program will consist of strategies and Best Management Practices (BMPs) that will provide source control for pollutants as well as treatment of runoff constituents.

Additional water quality BMPs will be developed for the construction and operation of the marina.

Implementation of a Water Quality Plan for the construction and operation of Marina Park will reduce potentially significant water quality and hydrological impacts associated with storm water and dry weather runoff to less than significant impacts. Consequently, hydrological and water quality effects originating from the construction of the resort will have less than significant impacts on marine resources with the inclusion of these measures.

3.5 DEMOLITION AND MARINA CONSTRUCTION IMPACTS TO MARINE RESOURCES

3.5.1 Site Hydrology, Water Quality, Noise, Dust, and Pollutant Generation

Implementation of the proposed project may alter the existing drainage pattern of the site. In the short-term, construction activities may result in siltation and erosion as well as potential fuel oil spills, which could result in a decrease in water quality and an increase in turbidity and sedimentation as it relates to the amount of pollution flowing to Newport Bay and the ocean. The project site is under the jurisdictional responsibility of the Santa Ana Region of the California Water Quality Control Board which regulates discharges into the State's waters. As part of its oversight, the state ensures the project is implemented in accordance with federal water quality requirements during grading and construction. More specifically, the Federal Clean Water Act (Section 402[p]) requires discharges of stormwater associated with industrial and construction activity to be regulated by National Pollutant Discharge Elimination System (NPDES) permits. NPDES compliance requires implementation of Best Management Practices (BMPs) for water quality control.

Site Hydrology

A storm water conveyance system will be constructed to manage storm water flowing onto the site, as well as flows generated onsite. The project site, in its existing conditions, drains directly to the bay or the City storm drain system without incorporation of best management practices. Site drainage will be improved and standard Best Management Practices will be included to prevent adverse impacts to bay water quality and biology. The incorporation of the measures proposed by the project's Water Quality Management Plan (WQMP) will greatly reduce existing pollutant discharge to the bay. This is considered a beneficial impact on Newport Harbor water quality.

Storm Water Runoff

Fine **s**ediments generated from the construction activities that might be transported to the bay in storm water runoff would result in a localized short-term impact on water quality and bay marine resources. During rainfall events, sediment flowing to the bay would increase the concentration of suspended sediments, increasing water turbidity. Because the tidal flushing rate within this section of Newport Harbor is extended in this section of the bay (Everest Consultants, Inc. 2007), the material would tend to stay within the local water mass creating an extended period of higher water turbidity. Reductions in submarine light intensity, slight reductions in primary productivity, and reduced subsurface visibility for sight-foraging fishes and seabirds would be expected. These impacts will be mitigated to less than significant with the implementation of the Erosion Control Plan and the Storm Water Pollutant Prevention Plan. Project Water Quality Control Plan BMPs will ensure that Newport Harbor marine biological resources will be protected from short-term construction effects.

With the implementation of the project's long-term WQMP, storm water runoff associated with the project will not result in localized adverse hydraulic effects. Improved drainage system along the bay front will reduce storm drain flows to the beach area and will improve water quality compared to conditions that currently exist, resulting in a long-term, beneficial impact to water quality. Improvements to the storm drain system and implementing the Water Quality Management Plan BMP provisions will result in no significant impacts to water quality in Newport Bay.

Noise and Dust

Intertidal Sandy Beach Habitats and Resources. Noise, and dust generated from the project may result in a temporary reduction in the quality of the sand beach as resting and foraging habitat for shorebirds and seabirds. This would result in a temporary, less than significant impact to these resource groups. Implementation of construction BMPs including the installation of screening around the site will assist in lessening potential construction impacts on seabird and shorebirds. No shorebird or seabird nesting or breeding activity occurs on this local stretch of shoreline further reducing the potential for population-level impacts to these resource groups.

Open Bay Environment. Demolition, grading, and construction of the marina will produce dust from the operation of construction equipment and vehicles on the site. During high velocity, windy conditions, this dust might be transported into Newport Harbor with prevailing northwest winds, or offshore across the Peninsula and to the ocean environment during Santa Ana wind conditions. The addition of dust would result in a short-term, less-than-significant impact that would form a light coating of sediment on the water depending on the velocity and duration of the wind event. The deposition of fine dust in the project area could potentially result in a short-term increase of water turbidity and a reduction in photosynthetic processes. Such a reduction would result in a slight decrease in photosynthetic activity of bay and ocean phytoplankton. However, there would be no long-term impacts to benthic resources resulting from an increase of dust settling on the water.

Because of the expected short duration of any wind events that might generate dust the expected effect will be less-than significant on water quality and marine resources. The generation of dust from the construction site will also be mitigated by the inclusion of project water quality management BMPs .

Pollutant Generation

Typical pollutants generated during demolition and marina construction related-activities could include heavy metals, toxic chemicals, waste materials and debris, fuel, lubricants and other toxins related to construction equipment and its maintenance. If these pollutants enter the bay through airborne or water-borne transport methods, then water quality degradation and potential adverse impacts to marine life could occur, including reduced viability, tissue contamination, and a short-term/and or long term effect on plankton, fish, and benthic resources.

The generation of these pollutants from the construction site will be mitigated by the inclusion and implementation the Water Quality Management Plan and the preparation of both a Storm Water Pollution Protection Plan (SWPPP) and an erosion control plan. Strict adherence to identified source controls and project BMPs in these documents will result in short-term, and less than significant impacts on Newport Harbor water quality and marine resources.

In summary, the impacts of demolition and marina construction activities will be less than significant on Newport Harbor and marine resources with the preparation and implementation of the (1) Water Quality Control Plan, and (2) and a Storm Water Pollution Prevention Plan (SWPPP). These plans and will identify dry season and wet season runoff control measures, source control, and or treatment controls that will be implemented during construction to avoid and/or mitigate potential soil erosion, runoff pollutants, and other storm water constituents.

3.5.2 Marina Construction

Marine biological habitats and resources (plants, invertebrates, fishes, marine mammals, seabirds, federally listed and State-listed marine associated species and sensitive habitats) have a potential to be affected by marina dredging and excavation. Figure 5 illustrates the two components required to construct the marina. Table 6 summarizes the potential impacts of the proposed marina project on marine biological resources.

Landside excavation will be accomplished using dozers, skip loaders, trucks, and other small equipment. Dredging will involve the removal of bayfloor sediments by either a clam shell dredge or by hydraulic dredge for the purpose of providing necessary depths to accommodate vessels to depths of -12 ft MLLW. In addition, 18 cement piles will be driven into the sediments to secure the docks.

Table 6. Habitat Losses and Gains, Marina Park Marina Project

	Habitat Loss	Habitat Created	Net Effect	Mitigation
Construction of Marina Basin	0.90 acre of supra tidal (terrestrial), non-marine habitat for construction of marina basin. Depth modifications of 0.10 acre of shallow water marine habitat within and beyond the pierhead to reach project depths of -12 ft MLLW	0.90 acre of shallow water marine habitat created at depths of -12 ft MLLW None; will remain shallow water habitat	0.90 acre increase of wetland habitat. Beneficial impact to marine resources and Habitat Area of Particular Concern (HAPC).Essential Fish Habitat; provides additional water column habitat for fishes and foraging seabirds, and soft bottom benthic habitat for benthic invertebrates and bottom-foraging fishes Depths will be -12 ft MLLW	None required. Short-term Best Management Practices (BMPs) to avoid adverse water quality impacts to bay resources None required. Short-term BMPs to avoid adverse water quality impacts to bay resources
Dredging of sandy intertidal (+7 to -2 ft MLLW) to create deeper habitat for marina	0.66 acre loss of sandy intertidal habitat.	Additional 0.66 acre of shallow water marine habitat created at depths to -12 ft MLLW	Loss of 0.66 acre of sandy intertidal. Transition from intertidal seabird and shorebird roosting and foraging habitat and Habitat Area of Particular Concern (HAPC). to shallow water habitat for benthic invertebrates, fishes and water birds and HAPC.	Loss of 0.66 acre of sandy intertidal to be mitigated based upon a ratio determined by the project proponent and ACOE, NMFS, and the CDF&G during the project permitting phase with the knowledge that the project has an overall net gain 0.9 acre of wetland habitat (shallow water habitat.
Construction of groin wall around the marina and the installation of boat docks and piles	Included in construction of marina basins habitat losses	Increased intertidal and subtidal hard bottom habitat	Net increase in biomass of marine community of organisms living on hard substrate. Habitat will support an assemblage of species typical of Newport Bay's hardscape habitat (algae, mussels, limpets, chitons, sea squirts and moss animals) providing a source of food for bay fishes	None required. Short-term BMPs to avoid adverse water quality impacts to bay resources

3.5.2.1 Impacts on Water Quality

Dredging and marina construction activities will cause a short-term increase in turbidity from the discharging of the suspended fine sediments with the liquefied portion of the dredge material. Localized increases in turbidity can also occur as a result of vessel propeller wash from tug and support vessels. Increased turbidity will reduce the amount of available underwater light that could potentially lead to short-term adverse biological impacts such as a slight decrease in plankton production, the movement of fishes out of the project area, and an interruption of seabird and shorebird foraging behaviors. The extent and orientation of the dredge plume will depend on the prevailing tidal cycle. With ebbing tides, the plume will dissipate into the main channel, and out towards the harbor entrance channel. Incoming flood tides will cause the turbidity plume to disperse farther up towards the Rhine Channel. However, an increase in turbidity is expected to be a localized, less than significant impact with the implementation of Best Management Practices to limit the spread of any turbidity plumes.

The sediment-bound particulates resuspended during dredging could potentially affect water quality by releasing detectable levels of trace metals and organic contaminants in the water column. Organically enriched sediments resuspended into the water column during dredging will cause a slight decrease in dissolved oxygen levels. Tidal currents will slowly dissipate the oxygen-poor water mass and replenish ambient oxygen levels. These impacts are expected to be short-term and less than significant, with a return to ambient water quality conditions upon the completion of the dredging project.

Dredge material is being tested to determine its suitability for ocean disposal, if this option for disposal is pursued (Mike Houlihan, Michael Brandman Associates, pers. com. with R. Ware). However, preliminary analysis of sediment samples collected for the Proposed Newport Regency Hotel Project in 2004 at the same project site indicate that the intertidal sediments are greater than 80% sands, and would qualify for beach fill. Contaminant levels are relatively low (Petra 2004c). In addition, water discharged from the dredging operations or during dewatering of sediments will require a National Pollutant Discharge Elimination System (NPDES) permit or a Waste Discharge Requirements (WDR) permit from the California Regional Water Quality Control Board, Santa Ana Region.

Accidental oil or fuel spills that could occur during the dredging operation or marina construction could result in significant effects on the fish and wildlife of the Harbor depending on the severity of the spill. Such events are likely to be localized spills of lighter, refined diesel fuels, gasoline, and lubricating oils that are highly toxic to marine life. The potential for petroleum-product leaks or spills would be low but the potential for significant, long-term effect on marine resources would be moderate to high.

The inclusion and implementation of a Marina Dredging Management Plan will assist in preventing accidental spills and providing the necessary guidelines to follow in case of an oil or fuel spill and reduce the potential for a significant long term impact to be mitigated to less than significant.

3.5.2.2 Dredging, Excavation, and Marina Construction Impacts on Marine Resources

Habitat Alterations

Table 6 and Figure 5 summarize habitat losses and habitat created for the marina. The project will excavate approximately 0.9 acre of upland of dry material to create a portion of the marina to depths of -12 ft MLLW. This action will result in a beneficial increase of 0.9 acre of shallow water habitat. However, 0.66 acre of sandy beach habitat will be dredged to create the deeper shallow water habitat in the marina basin. Consequently, the project will result in a net beneficial increase of 0.24 acre of wetland habitat . However, there will be a shift in the acreage of wetland habitat types and habitat values as consequence of dredging 0.66 acre of sandy intertidal habitat to create deeper areas of the marina basin A more detailed discussion of habitat losses is provided in the Benthic Invertebrate Impact section (see below). The marina will be enclosed by a cement groin wall. Along with the hardscape of dock floats and 18 pilings this component of the marina will create a substantial amount hard bottom habitat that will support species of marine algae and invertebrates typical of Newport Bay (See Table 4).

Plants

Dredging will result in the loss of sandy intertidal and soft bottom habitat, upon which the green algae *Ulva* spp. commonly colonizes. Waterfowl graze on algae as a food source. However, this algae is opportunistic, grows throughout the shallow waters of the bay, and the loss of the algae would be considered a short-term, non significant loss of plant life. Eelgrass (*Zostera marina*) doe not grow in the project area, precluding any impacts to this sensitive species. Marine plants will not be affected by landside excavation activities.

Benthic Invertebrates

The intertidal and the shallow subtidal soft bottom wetland habitat of Newport Bay supports a diverse assemblage of benthic invertebrates (i.e., clams, worms, crustaceans) that are important in the detrital food web because they process organics and release nutrients back to the system. Additionally invertebrates are an important food source for shorebirds and bottom-foraging fishes. Dredging activity will deepen 0.66 acre of sandy intertidal habitat to permanent shallow subtidal habitat. Once dredging is completed, benthic invertebrates will colonize the portion of the marina basin created from land excavation, as well as bayfloor dredged to -12 ft MLLW, provided that tidal flushing and water quality within the marina basin is maintained to support marine life.

The loss of the intertidal sandy beach habitat and associated invertebrate populations would constitute a significant, but mitigable loss of 0.66 acre of intertidal habitat and benthic food resources for foraging shorebirds. The loss of 0.66 acre of sandy intertidal will be mitigated at an acceptable location within Newport Bay or another southern California embayment based upon a ratio determined by the project proponent and ACOE, NMFS, and the CDF&G during the project permitting phase with the knowledge that the project has an overall net gain 0.24 acre of wetland habitat (shallow water habitat).

Piling and groin wall associated flora and fauna

The installation of the groin wall surrounding the marina and the installation of the 12 support piles for the docks will occur following excavation of land soils and following project dredging. Therefore, the installation of the groin wall and piles will not impact marine resources. Piling-and-groin wall associated flora and fauna will colonize the hardscape soon after the groin wall and the piles are installed Within one to three years, the piling community is expected to be fully developed assuming successful recruitment and recolonization occurs and water quality and adequate flushing is maintained.

Fishes

The project area fish community consists of approximately 19 species (Allen 1976). The most common species are shiner surf perch, white surfperch, slough anchovy, and black perch. During summer 2008 surveys at the project site, mullet were also extremely common (Coastal Resources Management, Inc unpublished data).

There will be no direct mortality of open water (schooling) fishes during dredging. Some mortality of bottom-dwelling species such as gobies may occur. However, these losses will be short-term as other individuals migrate into the area created for the marina and colonize the newly exposed sediments within one year based upon Allen's (1988) study of how fast fish recolonized the Unit I and Unit II basins following the 1985 dredging project. Secondary impacts of increased water turbidity will be less than significant. A greater-than ambient suspended sediment load related to higher turbidity may reduce the ability of both visual foraging fishes to feed (i.e., surfperch and halibut) and planktivores (i.e., topsmelt, anchovy, juvenile surfperch, and juvenile sciaenid). In addition, water column dissolved oxygen concentrations may decrease due to the resuspension of organically-enriched sediments. These impacts would physiologically stress the fish, and result in their temporarily movement out of the area to feed. Turbidity will return to ambient levels upon cessation of dredging through tidal flushing and circulation and fishes would return to the area.

Non-Endangered Water Birds

The most common groups of non-endangered species of water birds to be present within the location of the marina construction and dredging activity are seabirds (gulls, cormorants), waterfowl (mallards), and various shorebirds (i.e., willets, marbled godwits, sanderlings). These species may avoid the marina construction zone due to noise, interruption of resting areas and foraging sites, resulting in a short-term, less than significant impact on the local water bird population.

Roosting areas for seabirds and shorebirds, and intertidal foraging habitat for shorebirds will be permanently replaced (see discussion of benthic invertebrates) resulting in a significant impact to bird habitat that would require mitigation as described above (See Benthic Invertebrates). Once construction is completed, marine birds will return to the unaffected areas of sandy beach, and non-endangered species of birds will use the roosting areas of the groin walls. No mortality of marine birds will occur as a result of marina construction or dredging activities.

Marine Reptiles

Marine reptiles are protected under the Endangered Species Act. See Endangered Species Section below.

Marine Mammals

All marine mammals are protected under the Marine Mammal Act (1972). See Endangered Species Section below.

Endangered, Threatened, Rare, or Sensitive Species

Plants. No sensitive species of marine plants occur within project intertidal or subtidal habitats. The nearest eelgrass habitat is located 0.9 mile east of the project area at the Newport Yacht Club (Coastal Resources Management, Inc. (2007).

Benthic Invertebrates. No sensitive species of benthic invertebrates occur in the project area.

Fishes. The California halibut is a sensitive marine fish but does not have official status as such. This species is an important commercial and sport fish resource that uses Newport Harbor as nursery habitat. The proposed project does not support a large population of halibut, although some may be present. Dredging activity will temporarily degrade soft bottom subtidal habitat where this species is present, but individuals will move to non-impacted areas precluding any direct or indirect adverse impacts. Proposed project construction activities will not result in the mortality of any individuals. Habitat degradation will be a short-term, less than significant impact on halibut. Once dredging

and the marina basins are completed, additional soft bottom and open water habitat will be available for this species provided that tidal flushing and water quality within the marina basin is maintained to support marine life.

Marine Reptiles. The potential for sea turtles to be in the project area is extremely low. No impacts are anticipated on this resource group.

Marine Birds. Brown pelicans and California least terns forage in Newport Harbor waters in the general vicinity of Marina Park. Turbidity plumes that would spread away from the dredge area could potentially affect their foraging behavior by limiting their ability see their prey, and causing them to search other nearby areas of Newport Harbor for food. This could result in a locally significant impact to endangered species, and in particular, the California least tern. Least terns are present in the region between March through late September during their breeding season. They forage within several miles of their nesting sites at Bolsa Chica Marsh, and Upper Newport Bay. During this period, adults will forage on juvenile baitfish and take their prey back to their fledglings. Brown pelicans however, do not breed in the project region and therefore, an alteration of their foraging behavior would not affect young-on-the-nest. Both species may react to construction disturbances (noise and vessel activity) by also altering their normal foraging behaviors. No direct mortality of endangered seabirds will result from the dredging or excavation activities.

To mitigate the potential for a locally significant impact to least terns and brown pelicans related to turbidity, a silt curtain should be placed around dredging and excavation activity when feasible to limit the spread of any turbidity plumes into Newport Harbor (See Section 4).

Marine Mammals. California sea lions have a potential to be present in the general project vicinity during the dredging period. Dredging is expected to have a less-than-significant impact on individuals that may be in the general dredging vicinity. In all likelihood, individuals would avoid the dredging operation, and although individuals may be curious, there is a low potential for harm to an individual or the population within Newport Bay. To date, there are no records of sea lions being harmed by the Upper Newport Bay dredging operation or the transport of dredge material by barges and tugs through Newport Harbor. Bottlenose dolphin or California gray whales are not expected to be within the dredge project area, precluding impacts to these species. No marine mammals will be impacted by landside excavation of material for the marina.

Fishery Management Plan Species (FMP), Essential Fish Habitat Analysis

Project activities that could potentially affect identified Coastal Pelagic FMP species (northern anchovy juveniles) and HAPC (estuarine habitat) include increased water turbidity caused by the site excavation, and dredging. These impacts could result in (1) the avoidance of juvenile and adult FMP species to the affected, turbid waters, (2) an increase in the suspended sediment load in the water column that could introduce contaminants to FMP species, and (3) the clogging of the gill apparatus of filter feeders

(engraulids) that would reduce the ability of the fish to breathe and/or feed. Groundfish species are likely to be extremely rare or absent in the Marina Park project area. However, should they be present, the potential for direct mortality on juveniles or adults of is minimal-any impacts resulting from project turbidity would result in species avoiding the project area.

Based upon the life histories and the distribution of identified FMP species that indicate coastal pelagic and groundfish-managed species occur in very low abundances in Newport Harbor, and in particular, in the West Newport Harbor project area. The potential for adverse short-term impacts on FMP species related to the Marina Park project is less than significant.

Estuaries are considered Habitats of Particular Concern (HAPC) for various federally managed fish species within the Pacific Groundfish Fisheries Management Plan of the Magnuson-Stevens Fishery Conservation and Management Act (1997). The excavation of the landside area will result in creation of 1.3 acres of estuarine habitat for benthic invertebrates, fishes, water fowl and seabirds, and result in a beneficial impact to Newport Bay. Another 1.3 acres of sandy shoreline from elevations of +7 to -2 ft MLLW will be dredged to depths of -12 ft MLLW (66,00 cy of sand and mud). The loss of 1.3 acres of intertidal sand beach habitat represents a 39% loss of estuarine intertidal habitat along the project area shoreline between 15th Street and 19th Street. The sandy habitat to be dredged includes approximately 0.8 acres of intertidal habitat, and 0.5 acre supra-tidal habitat at elevations above +7 ft MLLW. The net loss in HAPC is 0.13 acre (5,662 sq ft). Loss of this habitat is a significant long-term but mitigable impact by creating 0.26 acre (11,327 sq ft) of HAPC within Newport Bay or an acceptable offsite mitigation area.

There is no eelgrass in the project area, nor has it historically been present. The alteration of the shoreline at depths to -12 ft MLLW will not result in the loss of potential eelgrass habitat, as defined within the Southern California Eelgrass Mitigation Policy (NMFS, 1991 as amended).

Invasive Species

Caulerpa algae is not present at the site of the proposed marina (CRM 2004). However, a *Caulerpa* algae survey will be conducted according to the National Marine Fisheries Service Control Protocol (http://swr.ucsd.edu/hcd/CaulerpaControlProtocol.htm) prior to marina construction. If this species is found, then protocols for the eradication of *Caulerpa* will be implemented to remove this species from the project area.

3.6 LONG-TERM IMPACTS OF LANDSIDE OPERATIONS ON WATER QUALITY

3.6.1 Water Quality

With the implementation of the Water Quality Management Plan and a Storm Water Protection Plan (Section 4), there will be no significant impacts on Newport Bay water quality resulting from the use of Marina Park onshore facilities.

3.7 LONG-TERM IMPACTS OF VISITOR USE ON WATER QUALITY

The public beach between 16th and 19th Streets will continue to be a popular recreational area, and visitor use will likely increase. The volume of trash and debris generated from beach use will also likely increase. This has a low potential to degrade water quality, and impact marine life, provided that City maintenance of the area continues to be effective.

BMPs to reduce the potential for visitor-use impacts on Marina Park should be included in the project's Water Quality Management Plan (Section 4). These could include, but not be limited to adding additional signage to remind visitors to use trash receptacles, and providing conservation brochures to visitors who visit Marina Park.

3.8 LONG TERM MARINA IMPACTS ON MARINE RESOURCES

3.8.1 Water Quality

Tidal Flushing. Water quality within the proposed marina will be governed by its flushing capacity (Everest International Consultants, Inc. 2008). Water quality analyses conducted by Everest indicated that tidal flushing rates would be poor and the flushing capacities are well below the EPA guidelines which suggest adequate tidal flushing to maintain water quality of marina basins requires flushing reductions (the amount of a conservative substance that is flushed from the basin) ranging from 70% to 90% over a 24-hour period. Even with eliminating the existing groin system, the improvement is not enough to provide good water quality for the marina basin.

Inadequate tidal flushing in the marina basin would result in lowered dissolved oxygen levels, higher water temperatures, poor water transparency, a potential for eutrophication (a process where water bodies receive excess nutrients that stimulate excessive plant growth), and increased sedimentation. Poor tidal flushing would also exacerbate water quality issues in this region of the bay since the tidal flushing rate in this part of the Harbor is already poor (30 days) outside the proposed marina in front of the swimming beach and the American Legion Marina.

Poor flushing may also result in the potential for maintenance dredging to remove trapped sediments during the long-term operation of the marina. Maintenance dredging programs, conducted under either the City's Army Corps of Engineers blanket maintenance dredging permit or an Army Corps of Engineers individual dredging permit

would result in the periodic removal of soft bottom benthic organisms, the resuspension of bottom sediments that will increase water column turbidity, and periodic releases of trace metals and organic contaminants into the water column. Dissolved oxygen levels will be reduced slightly because of the resuspension of organic materials in the dredged sediments. The short-term impact on water quality would be potentially significant, and also result in short-term significant impacts to marine life.

Unless mitigated, poor tidal flushing within the marina would result in a significant, long-term impact on Newport Harbor water quality and would severely limit the colonization of marina habitats by plants, invertebrates and fish. See Section 4 for mitigation measures that will reduce the impact of poor tidal flushing on water quality and marine resources to a less-than-significant impact.

Marina Tenant Impacts. Water quality will also be governed by the practices of the tenants relative to their compliance with ordinances, laws, and guidelines related to discharges, vessel maintenance and marina maintenance. Periodic and/or uncontrolled discharges of various pollutants, oils, greases, and wastes will result in a long-term significant adverse effects on water quality and local marine life. Surface runoff from the marina will also be regulated through NPDES permit for storm water discharges. Implementation of the creation and the implementation of a Marina Management Plan (Section 4) will reduce potential long-term water quality impacts to less than significant.

3.8.2 Marine Resources

3.8.2.1 Non-sensitive Plants

The presence of marina hardscape (docks, pilings, and groin walls) will promote the growth and establishment of algal species typical of Newport Bay hardscape areas. This will result in a beneficial impact to marine plant productivity assuming water quality and tidal flushing is maintained in the marina.

3.8.2.1 Impacts to Benthic (bottom-dwelling) Resources

The loss of the intertidal sandy beach habitat and associated invertebrate populations would constitute a significant, but mitigable loss of 0.66 acre of intertidal habitat and benthic food resources for foraging shorebirds. The loss of 0.66 acre of sandy intertidal will be mitigated at an acceptable location within Newport Bay or another southern California embayment based upon a ratio determined by the project proponent and ACOE, NMFS, and the CDF&G during the project permitting phase with the knowledge that the project has an overall net gain 0.9 acre of wetland habitat (shallow water habitat). The increase to shallow water habitat will result in an increase of 0.9 acre of soft bottom subtidal habitat for benthic organisms, which is a beneficial impact to marine resources (See Section 3.5.2.3). Mitigation for this loss is described in Section 4.

Hard substrate of pilings, retaining walls (bulkheads) and docks will be created which will provide attachment surfaces for intertidal and subtidal hardscape associated plants

and animals such as algae, barnacles, mussels, limpets, and limpets, resulting in a beneficial impact to hard substrate-associated plants and invertebrates. Many of these organisms are food for fishes. The increased surface area and additional variety of marine habitat afforded by the presence of hard substrates will increase species diversity of both invertebrates and algae in the project area, which will also attract a greater diversity of fish to the project area because of an increase in diversity of habitat types.

3.8.1.3 Impacts to Fishes

Marina operation will result in a beneficial impact to fishes (i.e., topsmelt, perch, sand bass, and sting rays) because an additional 0.9 acre of shallow water habitat will be created, provided that water quality is maintained to support marine life. The addition of the retaining wall, the pilings, and docks will also attract fishes who will forage on plants and invertebrates attached to the hard substrate.

3.8.1.4 Impacts to Non-endangered Shorebirds and Seabirds

The presence of the new marina will provide seabirds with roosting and open water foraging habitat, although this will be at the expense of their current foraging and resting habitat on the existing sandy beach. Both shorebirds and seabirds, however, will also be permanently displaced to the remaining sandy beach habitat west of the marina. In the long-term, there will be a loss of sandy intertidal habitat as a consequence of marine construction (significant but mitigable), as described in Section 3.5.2.3 resulting in a mitigation requirement to offset seabird and shorebird habitat.

3.8.1.5 Impacts to Marine Mammals

See Section 3.8.1.6.

3.8.1.6 Impacts to Endangered Species and Sensitive Species

Plants. The proposed marina will be excavated and dredged to a depth of -12 ft MLLW, below the depth range in Newport Bay to support eelgrass in this part of the Harbor. Therefore, there will be no long-term effects on this species, since appropriate habitat will not be present.

Invertebrates. No endangered species of invertebrates will be impacted by the presence or the operation of the proposed marina.

Fishes. California halibut will be beneficially impacted by the creation of additional soft bottom habitat from (1) the excavation of 0.9 acre of non-marine habitat and the dredging and deepening of 0.66 acre of intertidal sand beach habitat. This will provide additional shallow water nursery habitat in Newport Harbor.

Reptiles. The proposed project will have no impact on marine reptiles (sea turtles) due to their absence in Newport Harbor.

Marine Mammals. There will be no long-term impacts on marine mammals resulting from the presence or operation of the marina. Although sea lions may occasionally swim into the marina, they are not expected to haul out if measures are taken to deter their presence. Cetaceans (whales and dolphins are not expected to enter this part of Newport Harbor, precluding potential impacts to these species.

Seabirds. There will be no long-term adverse impacts on endangered species of seabirds resulting from the presence or operation of the marina. The creation of shallow water habitat in the new marina will provide additional foraging habitat for these species, resulting in a beneficial impact to endangered species of seabirds.

3.8.1.7. Impacts to Fishery Management Plan Species. Based upon the life histories and the distribution of identified FMP species that indicate coastal pelagic and groundfish-managed species occur in very low abundances in Newport Harbor, the potential for long-term, adverse impacts is less than significant. The only managed species likely to be present in Newport Bay will be the northern anchovy, which is unlikely to be benefited or adversely affected in this part of Newport Harbor due to their limited numbers.

3.8.1.8 Impact To Sensitive Habitats

See Section 3.5.2.3 and Table 6 for a discussion of impacts to sensitive habitats. The loss of the intertidal sandy beach habitat and associated invertebrate populations would constitute a significant, but mitigable loss of 0.66 acre of intertidal habitat and benthic food resources for foraging shorebirds. The loss of 0.66 acre of sandy intertidal will be mitigated at an acceptable location within Newport Bay or another southern California embayment based upon a ratio determined by the project proponent and ACOE, NMFS, and the CDF&G during the project permitting phase with the knowledge that the project has an overall net gain 0.9 acre of wetland habitat (shallow water habitat). Since Newport Harbor is considered an estuarine Habitat of Particular Concern (HAPC) under provisions of the Magnuson-Stevens Fishery Conservation and Management Act (1997), this loss is considered a significant, but mitigable adverse impact on an HAPC. Mitigation for this loss is provided in Section 4.

3.8.1.9 Impacts to Invasive Species

Caulerpa is not currently present at the proposed marina site. In the event that it colonizes the marina, an eradication program would be implemented immediately under the supervision of the Regional Water Quality Control Board, National Marine Fisheries Service, and the California Department of Fish and Game according to the *Caulerpa* Eradication Protocol (http://swr.ucsd.edu/hcd/CaulerpaControlProtocol.htm). Informational and educational pamphlets alerting boaters and visitors of this potentially destructive species should be included in the Marina Management Plan.

4.0 MITIGATION MEASURES

4.1 RUNOFF WATER QUALITY

Planning Documents. With the preparation and implementation of the following documents and all required Best Management Practices contained in the plans, potential water quality impacts on Newport Harbor related to site construction and operation will be reduced to less than significant:

- **Post-Construction (Operational) Project Water Quality Management Plan and**
- **Storm Water Pollution Prevention Plan**

Specific BMPs should include:

Construction BMPs should include the following:

- Dust Control: Water will be sprayed in newly graded areas to prevent grading activities dust to be blown to adjacent areas.
- Construction Staging: Specific areas will be delineated for storage material and equipment, and for equipment maintenance, to contain potential spills.
- Sediment Control: Sand bags or silt fences will be located along the perimeter of the site. Existing inlets and proposed area drains will be protected against intrusion of sediment.
- Tracking: Tracking of sand and mud on the local street will be avoided by tire washing and/or road stabilization. Street cleaning will be done if tracking occurs.
- Waste Disposal: Specific area and/or methods will be selected for waste disposal. Typical construction waste include concrete, concrete washout, mortar, plaster, asphalt, paint, metal, isolation material, plants, wood products and other construction material. Solid waste will be disposed of in approved trash receptacles at specific locations. Washing of concrete trucks will be done in contained area allowing proper cleanup. Other liquid waste will not be allowed to percolate into the ground.
- Construction dewatering will require approved permits by the California Regional Water Quality Control Board and the City.
- Maintenance: Maintenance of BMPs will take place before and after rainfall events to insure proper operation.
- Training: The SWPPP will include directions for staff training and checklists for scheduled inspections.
- Installation of screening around the site will assist in lessening potential impacts on seabird and shorebirds.

[1] **Source: Metro Pointe Engineers, Inc. 2004**

These plans shall be completed prior to the initiation of construction and included in construction bid packages to the contractors and be part of project's long-term management requirements.

4.2 MARINA CONSTRUCTION AND OPERATION

4.2.1 Planning Documents.

- A Marina Management Plan shall be developed by the applicant to identify construction and long-term operational BMPs to reduce the level of potential water quality impacts to less than significant. This document shall be developed and included in marine construction bid packages and implemented as a requirement of the long term operation of the project.

With the implementation of the Marina Management Plan, and planning documents and Best Management Practices potential water quality impacts on Newport Harbor will be reduced to less than significant. This will significantly reduce the potential for adverse impacts to intertidal and subtidal marine resources. The plan should provide boaters with reasonable BMPs, safety guidelines, and steps to take in response to accidental spills, leakages and fires to reduce the potential for water quality degradation. In addition, two pamphlets *The Guide to Clean, Green Boating* (California Department of Fish and Game 1999) and *Clean Boating* (California Department of Boating and Waterways (undated material) should be distributed and made available to management and marina tenants. These are available through the City of Newport Beach Harbor Resources Department.

Clean Marinas California Program (2006) has developed a guidebook for to making marinas environmentally clean facilities and to help protect the state's waterways from pollution. This guidebook is available at http://cleanmarinascalifornia.org. It is recommended that a copy of this document be kept onsite in the Marina Office.

Examples of shoreline and boat dock BMPs[1] include:

- Limiting heavy equipment use to the backshore portions of the beach.
- Prohibit boat in-water maintenance and discharge of waste.
- Provide easily accessible restrooms and trash receptacles.
- Provide fire fighting and spill containment equipment.
- Additional BMPs for marina construction and operation will be integrated into the project's Water Quality Management Plan.
- Dispose of used oil, antifreeze, paints, and other household chemicals properly.
- Avoid spills of hazardous or polluting material and prepare guidelines for remediation of such occurrences.

- Affix signs educating user of the property about BMPs.
- Scheduled inspections.
- Long-Term Maintenance: As design progresses, the owner's plan for the long-term and continuous maintenance of all on-site BMP's requiring ongoing maintenance will be developed. This plan will include his acceptance of the responsibility for the on-site maintenance of all structural and treatment control BMPs.
- Maintenance of a Water Quality Management Plan report, its distribution to lessees, and assignment of specific responsibilities by the owner.

4.2.2 Specific Dredging BMPs to reduce impacts to water quality and marine resources

- The dredging contractor shall be required as part of the dredging contract to ensure that dredging activities shall be conducted so as not to disturb sensitive biological habitats and resources in Newport Bay.
- No vessel discharges are allowed within Newport Bay.
- Dredging and spoils disposal must be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation.

Prior to the issuance of a grading permit, the City of Newport Beach Public Works Department shall be provided with evidence that all appropriate permits or clearances have been obtained from the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Coast Guard, and Regional Water Quality Control Board.

- Dredging and excavation operations will be surrounded with a silt curtain to reduce turbidity from spreading outside the marina construction site and to mitigate the potential for a locally significant impact to endangered brown pelicans and least terns. In addition, Best Management Practices that will further reduce the impact of turbidity include using appropriate machinery when dredging and transporting materials, and employing proper maintenance and operation on equipment (including adequate training, staffing, and working procedures. Turbidity monitoring should be conducted during dredge operations to insure compliance with standards set forth by the Santa Ana Regional Water Quality Control Board.
- Treatment of extracted water, if required, shall be conducted in a manner and at a location approved by the City of Newport Beach City Engineer and the Santa Ana Regional Water Quality Control Board.
- Provisions shall be made, as necessary, for treatment of hydrogen sulfide to comply with water quality standards and to control odors from the dewatering process.

- The dredging contractor shall conduct dredging activities in accordance with the approved dredging permit from the U.S. Army Corps of Engineers.

- Conditions imposed by the Regional Water Quality Control Board and the Department of Fish and Game will be incorporated into the project.

- Should ocean disposal be required for the project, project operations will require that the scow doors used to release dredged material remain closed until the scows are towed to the disposal site.

- To prevent long-term impacts on local water quality due to potential tidal flushing issues the following mitigation measure is recommended:

4.2.3 Mitigation for Adverse Water Quality Impacts Related to Poor Flushing in the Marina

- Mechanical flow enhancement devices should be installed, if feasible, to improve tidal circulation within the marina (Everest International Consultants, Inc. 2008) to mitigate potential long-term, adverse impacts on water quality and marine biological resources. Other methods of providing increased circulation should also be considered.

4.2.4 Mitigation for the Loss of Intertidal Soft Bottom Habitat and Seabird/Shorebird Foraging and Roosting Habitat

- The loss of the intertidal sandy beach habitat and associated invertebrate populations would constitute a significant, but mitigable loss of 0.66 acre of intertidal habitat and benthic food resources for foraging shorebirds. The loss of 0.66 acre of sandy intertidal will be mitigated at an acceptable location within Newport Bay or another southern California embayment based upon a ratio determined by the project proponent and ACOE, NMFS, and the CDF&G during the project permitting phase with the knowledge that the project has an overall net gain 0.24 acre of wetland habitat (shallow water habitat).
    -
- In accordance with Public Resources Code 21081.6, a mitigation monitoring plan must be developed to monitor the success of the habitat replacement. A five-year monitoring program is recommended.

- The location of a suitable replacement site is under study and shall be approved by the U.S. Fish and Wildlife Services (USFWS), California Department of Fish and Game (CDF&G), and National Marine Fisheries Service (NMFS) prior to approval of the marina construction permit issued by the ACOE and the California Coastal Commission. An in-lieu fee agreement option for contributing to a permitted or nearly-permitted mitigation project option will also be simultaneously pursued.

- If the mitigation program is successful, then impacts would be reduced to a level considered less than significant.

4.2.5 Marine Biological Resource Monitoring

- A construction and post-construction marine biological mitigation monitoring plan will be prepared that will include preconstruction, construction, and post-construction monitoring of the health of marine life at the project site, and a final determination of areas impacted by the project. These monitoring programs should be implemented to ensure that Newport Harbor water quality and marine resources are being protected through the implementation of the Marina Management Plan. This monitoring program should include a phased monitoring of the marina basin and the channel waters in front of the sand beach prior to, during, and following marina construction for a one-year period. If there are no observable, adverse impacts during the first year, then all monitoring will be deemed complete. If adverse impacts are observed, then mitigation measures will be re-evaluated and implemented. Monitoring will occur and cease once there are no observable impacts, up to a period of five years. If it is determined that Newport Harbor water quality or marine life have been degraded as a result of the operation of the marina, then adaptive management techniques should be implemented to protect the bay's water quality and marine resources.

5.0 ALTERNATIVES ANALYSIS

5.1 ALTERNATIVE 1. NO PROJECT ALTERNATIVE/NO DEVELOPMENT ALTERNATIVE

This alternative would maintain status-quo marine water quality and marine resources conditions. There would be no loss of marine resources or reduction in soft bottom habitat as a consequence of this alternative.

6.0 CUMULATIVE IMPACTS

The proposed project will incrementally increase the potential for water quality degradation in Newport Harbor. However, with the implementation of proposed mitigation measures, these cumulative impacts are anticipated to be less than significant.

The project will incrementally reduce the amount of open sand beach and shallow subtidal soft bottom habitat in Newport Harbor, reducing the value of Newport Harbor as a biological habitat for seabirds and shorebirds. It will increase shallow water habitat area for fishes and soft bottom benthic invertebrates. The net loss of 0.13 acre of sandy intertidal habitat is a potentially significant, but mitigable long-term impact. Mitigation for habitat losses, if successful, will result in a less than significant cumulative impact to marine resources.

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Appendix 1.
Pelagic and Groundfish Fishery Management Plan Species
Potentially Present in Newport Bay

Common Name	Scientific Name	Comment
Coastal Pelagics FMP		
Northern anchovy	*Engraulis mordax*	Upper Newport Bay Absent in Upper Newport Bay (Allen, 1976) 1 individual in Upper Newport Bay (MBC and SCCCWRP, 1980; Eighth most abundant species in Upper Bay (Horn and Allen, 1981); Seventh most abundant species in Upper Newport Bay (Allen, 1988); Not among 10 most dominant species in Upper Newport Bay (MBC 1997 in MEC 1997); Engraulid juveniles abundant (1,844) in purse seines in Upper Newport Bay (MEC 1997); Lower Newport Bay Present (13) in Lower Newport Bay (Allen, 1976)
Pacific sardine	*Sardinops sagax*	Rare (1) in Lower Newport Bay (Allen, 1976)
Pacific mackerel	*Scomber japonicus*	rare (1) in Lower Newport Bay (Allen, 1976)
Jack mackerel	*Trachurus symmetricus*	none reported
Pacific Groundfish FMP		
English sole	*Parophrys vetulus*	rare (1) in Upper Newport Bay (Allen, 1976) rare (1) in Lower Newport Bay (Allen, 1976)
Pacific sanddab	*Citharichthys sordidus*	none reported
Leopard shark	*Triakis semifasciata*	rare (1) in Upper Newport Bay (Allen, 1976)
Bocaccio	*Sebastes paucispinis*	none reported
California scorpion fish	*Scorpaena guttata*	rare (1) in Lower Newport Bay (Allen, 1976)
Olive rockfish Rockfish, unid)	*Sebastes serranoides* *Sebastes* sp.	rare (1) in Lower Newport Bay (Allen, 1976)
Cabezon	*Scorpaenichthys marmoratus*	none reported