



# NOAA FISHERIES

**Proposed Action:** Issuance of an Incidental Harassment Authorization to the City of San Diego to Take Marine Mammals by Harassment Incidental to Conducting a Sand Quality Study at Children's Pool Beach in La Jolla, California

**Type of Statement:** Final Environmental Assessment

**Lead Agency:** U.S. Department of Commerce,  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service

**Responsible Official:** Donna S. Wieting, Director,  
Office of Protected Resources,  
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**Location:** Children's Pool Beach, 850 Coast Boulevard, La Jolla, California  
(32° 50'51.18"North, 117° 16'41.94"West)

**Abstract:** This Environmental Assessment analyzes the environmental impacts of the National Marine Fisheries Service proposal to issue an Incidental Harassment Authorization to the City of San Diego for taking, by Level B behavioral harassment, of small numbers of marine mammals incidental to conduct of sand quality study activities at Children's Pool Beach in LaJolla, California.

## List of Abbreviations or Acronyms

CDP	Coastal Development Permit
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cm	Centimeter(s)
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FIB	Fecal Indicator Bacteria
FONSI	Finding of No Significant Impact
FR	<i>Federal Register</i>
ft	Feet
IHA	Incidental Harassment Authorization
km	Kilometer(s)
MMPA	Marine Mammal Protection Act
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act
nm	Nautical Mile(s)
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OMB	Office of Materials and Budget (White House)
OPR	Office of Protected Species (NMFS)
PSO	Protected Species Observer(s)
UME	Unusual Mortality Event

## **CHAPTER 1 – INTRODUCTION AND PURPOSE AND NEED**

### **1.1 BACKGROUND**

The Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1631 et seq.) prohibits the incidental taking of marine mammals. The incidental take of a marine mammal falls under three categories: mortality, serious injury or harassment (i.e., injury and behavioral effects). Harassment, as defined in the MMPA for non-military readiness activities (Section 3 (18)(A)) is any act of pursuit, torment or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment) or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns (Level B harassment). Disruption of behavioral patterns includes, but is not limited to, migration, breathing, nursing, breeding, feeding or sheltering. However, there are exceptions to the prohibition on take in Section 101(a)(5)(D) of the MMPA that gives the National Marine Fisheries Service (NMFS) the authority to authorize the incidental but not intentional take of small numbers of marine mammals by harassment provided certain determinations are made and statutory and regulatory procedures are met. Refer to Chapter 2 for details regarding this exception and NMFS' authorization criteria.

NMFS also promulgated regulations to implement the provisions of the MMPA governing the taking and importing of marine mammals, 50 Code of Federal Regulations (CFR) Part 216 and produced Office of Management and Budget (OMB)-approved application instructions (OMB Number 0648-0151) that prescribe the procedures necessary to apply for permits. All applicants must comply with these regulations and application instructions in addition to the provisions of the MMPA.

#### **1.1.1 APPLICANT'S INCIDENTAL TAKE AUTHORIZATION REQUEST**

On December 21, 2015 NMFS received an application for an incidental take authorization (ITA) from the City of San Diego, Transportation and Storm Water Department, Storm Water Division (herein "City of San Diego"). NMFS worked with the City of San Diego on revisions, and a complete application was received on February 25, 2016. The City of San Diego plans to collect sand samples for fecal indicator bacteria (FIB) and mercury testing at Children's Pool Beach located in La Jolla, where several pinniped species regularly haul out. They are conducting this sand quality study to fulfill a special condition requirement under a Coastal Development Permit (CDP) issued by the California Coastal Commission in May, 2014. The specific condition in the CPD requires the City of San Diego to conduct a feasibility study, which includes the need to analyze sand quality and identify methods for improving sand quality at Children's Pool Beach because this location is listed on the Clean Water Act Section 303(d) list as impaired for FIB. Additionally, pinniped molting and excrement has been identified as a potential source of mercury to the environment (McHuron *et. al.* 2014; Coosaboon *et. al.* 2015).

To meet the requirements of this CPD permit condition, the City of San Diego proposes to analyze the current extent and magnitude of FIB and mercury contamination in the beach sand at Children's Pool Beach. To maximize sample representativeness and minimize co-occurrence of the sand quality sampling activities with times of heaviest public usage of the beach, the initial sand sampling will take place the weeks immediately following the end of pinniped pupping season. The purpose of the initial sampling event is to compare the initial sample results with

samples collected during the warmer, high public-use summer and fall months. Sand quality sampling events would involve teams of two to three people performing sand sampling for approximately four hours along transects parallel to the shoreline, between the water line and the seawall/bluff railing at Children’s Pool Beach. All sampling events would occur during daylight hours and involve taking grab samples from the surface. In addition, a small subset of samples will be collected from the subsurface via narrow plastic cores (~ 5cm X 60cm) driven into the sand by hand to the extent possible, and then by using a small rubber mallet. Subsurface sampling is not anticipated to provide significant additional stimuli to pinnipeds compared to surface sampling. The number of sand sampling events planned is 16 and these events would take place between June 1, 2016 and December 14, 2016. Refer to Chapter 2 for more details about the City of San Diego’s sand quality sampling activities.

The MMPA and its implementing regulations require that upon receipt of an adequate and complete application for an IHA, NMFS must publish a notice of the proposed authorization in the FR within 45 days. Therefore, we provided initial feedback to the City of San Diego on January 8, 2016 regarding its application and requested additional information concerning the take estimates in the application, proposed sampling methods, mitigation measures and monitoring efforts as well as additional background on the requirements for the proposed sand quality study. Subsequently, the City of San Diego submitted a revised application on February 25, 2016, which reflected updates to ensure that measures would be implemented to avoid take of fur seals and would minimize takes of other pinnipeds.

### 1.1.2 MARINE MAMMALS IN THE ACTION AREA

Table 1 (below) is a list of the marine mammals under NMFS’ jurisdiction that could inhabit the general region and the location of the proposed sand sampling events. Refer to Chapters 3 and 4, which provide the detailed information about these marine mammals.

**Table 1. Habitat, abundance, and conservation status of marine mammals in the general region of the action area in the Pacific Ocean off the southern coast of California**

Species	Habitat	Best Population Estimate (Minimum) <sup>1</sup>	ESA <sup>2</sup>	MMPA <sup>3</sup>	Population Trend
<b>Mysticetes</b>					
Gray whale ( <i>Eschrichtius robustus</i> )	Coastal and shelf	20,990 (20,125)	DL – Eastern Pacific stock; EN – Western Pacific stock	NC – Eastern Pacific stock; D – Western Pacific stock	Increasing over past several decades
<b>Odontocetes</b>					
Killer whale ( <i>Orcinus orca</i> )	Widely distributed	354 (354) – West coast transient stock	NL EN – Southern resident population	NC D – Southern resident and AT1 transient populations	Increasing – West coast transient stock
Bottlenose dolphin ( <i>Tursiops truncatus</i> )	Offshore, inshore, coastal, estuaries	323 (290) – California coastal stock	NL	NC	Stable
Long-beaked		107,016 (76,224)	NL	NC	Increasing

common dolphin ( <i>Delphinus capensis</i> )	Inshore	– California stock			
<b>Pinnipeds</b>					
Pacific harbor seal ( <i>Phoca vitulina richardii</i> )	Coastal	30,968 (27,348) – California stock	NL	NC	Increased in California 1981-2004; 2009 and 2012 have been lower than 2004.
Northern elephant seal ( <i>Mirounga angustirostris</i> )	Coastal, pelagic when not migrating	179,000 (81,368) – California breeding stock	NL	NC	Increasing
California sea lion ( <i>Zalophus californianus</i> )	Coastal, shelf	296,750 (153,337) – U.S. stock	NL	NC	Increasing
Stellar sea lion ( <i>Eumetopias jubatus</i> )	Coastal, shelf	72,223 (58,847) – Eastern U.S. stock	T - -Eastern U.S. stock; EN – Western U.S. stock	D	Overall increasing, decreasing in California
Northern fur seal ( <i>Callorhinus ursinus</i> )	Pelagic, offshore	12,884 (6,722) – San Miguel Island stock	NL	NC – San Miguel Island stock	Increasing
Guadalupe fur seal ( <i>Arctocephalus townsendi</i> )	Coastal, shelf	7,408 (3,028) – Mexico to California	T	D	Increasing

<sup>1</sup> NMFS Marine Mammal Stock Assessment Reports

<sup>2</sup> U.S. Endangered Species Act: EN = Endangered; T = Threatened; DL = Delisted; and NL = Not listed

<sup>3</sup> Marine Mammal Protection Act: NC = Not classified; D = Depleted; S = Strategic

## 1.2 PURPOSE AND NEED

### 1.2.1 DESCRIPTION OF THE PROPOSED ACTION

NMFS proposes to issue an IHA to the City of San Diego pursuant to Section 101(a)(5)(A) of the MMPA and 50 CFR Part 216. The IHA would be valid from June 1, 2016 through December 14, 2016 and would authorize takes, by Level B harassment, of marine mammals incidental to sand quality sampling in La Jolla, California. NMFS' proposed action is a direct outcome of the City of San Diego requesting an authorization to take marine mammals. The City of San Diego's sand quality sampling, which have the potential to cause marine mammals<sup>1</sup> within or near the sampling event sites to be behaviorally disturbed by being alerted and/or flushed from the beach into the water, require an IHA from NMFS under section 101(a)(5)(D) of the MMPA.

<sup>1</sup> Specifically, the Pacific harbor seals (*Phoca vitulina richardii*), California sea lions (*Zalophus californianus*), and northern elephant seals (*Mirounga angustirostris*). It was determined that northern fur seals (*Callorhinus ursinus*) and Guadalupe fur seals (*Arctocephalus townsendi*) would not be affected due to measures that would avoid disturbing these species if they were present (see Mitigation and Monitoring Measures section below)

### **1.2.2 PURPOSE**

The purpose of our proposed action is to authorize take of marine mammals incidental to the City of San Diego's proposed sand quality sampling. The IHA, if issued, would provide an exception to the City of San Diego from the take prohibitions contained in the MMPA.

To authorize the incidental take of small numbers of marine mammals, NMFS will evaluate the best available scientific information to determine whether the take would have a negligible impact on marine mammals or stocks and whether the activity would have an unmitigable impact on the availability of affected marine mammal species for subsistence use. NMFS cannot issue this IHA if it would result in more than a negligible impact on marine mammals or stocks or would result in an unmitigable impact on subsistence uses. In addition, we must prescribe the permissible methods of taking and other means of effecting the least practicable impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance. If appropriate, we must prescribe means of affecting the least practicable impact on the availability of the species or stocks of marine mammals for subsistence uses. Authorizations must also include requirements or conditions pertaining to the monitoring and reporting, in large part to better understand the effects of such taking on the species.

### **1.2.3 NEED**

U.S. citizens seeking to obtain authorization for the incidental take of marine mammals under NMFS' jurisdiction must submit such a request (in the form of an application). On February 25, 2016, the City of San Diego submitted an adequate and complete application demonstrating both the need and potential eligibility for authorization under the MMPA. Therefore, NMFS has a corresponding duty to determine whether and how to authorize take of marine mammals incidental to the activities described in the City of San Diego's application. NMFS' responsibilities under section 101(a)(5)(A) of the MMPA and its implementing regulations establish and frame the need for NMFS proposed action.

### **1.3 ENVIRONMENTAL REVIEW PROCESS**

In accordance with the National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508) NMFS, to the fullest extent possible, integrates the requirements of NEPA with other regulatory processes required by law or by agency practice so that all procedures run concurrently, rather than consecutively. This includes coordination within the National Oceanic Atmospheric Administration (NOAA), (e.g., the Office of the National Marine Sanctuaries) and with other regulatory agencies (e.g., the U.S. Fish and Wildlife Service), as appropriate, during NEPA reviews prior to implementation of a proposed action to ensure that requirements are met. Regarding the issuance of authorizations, we rely substantially on the public process required by the MMPA for preparing proposed authorizations to develop and evaluate relevant environmental information and provide a meaningful opportunity for public participation when we prepare corresponding NEPA documents. We fully consider public comments received in response to the publication of proposed authorizations during the corresponding NEPA review process.

### **1.3.1 NATIONAL ENVIRONMENTAL POLICY ACT**

NEPA requires federal agencies to examine the environmental impacts of their proposed actions within the United States and its territories. A NEPA analysis is a detailed public document that provides an assessment of the potential effects a major federal action may have on the human environment, which includes the natural and physical environment. Major federal actions include activities that federal agencies fully or partially fund, regulate, conduct or approve. NMFS' issuance of permits, which allow for the taking of marine mammals consistent with provisions under the MMPA and incidental to the applicant's activities, is considered a major federal action; therefore, NMFS analyzes the environmental effects associated with authorizing incidental takes of protected species and prepares the appropriate NEPA documentation.

### **1.3.2 SCOPING AND PUBLIC INVOLVEMENT**

The NEPA process is intended to enable NMFS to make decisions based on an understanding of the environmental consequences and take actions to protect, restore, and enhance the environment. An integral part of the NEPA process is public involvement. Early public involvement facilitates the development of an EA and informs the scope of issues to be addressed in the EA. Although agency procedures do not require public involvement prior to finalizing an EA, NMFS determined that providing the Draft EA for public review with the publication of the proposed IHA was the appropriate step to involve the public in order to understand the public concerns for the proposed action, identify significant issues related to the proposed action and obtain the necessary information to complete an analysis.

On April 4, 2016, we published the proposed IHA with our preliminary determinations (81 FR 19137). The notice includes a detailed description of the proposed action resulting from the MMPA consultation process; consideration of environmental issues and impacts of relevance related to the proposed issuance of the IHA; and potential mitigation and monitoring measures to avoid and minimize potential adverse impacts to marine mammals and their habitat. In addition to the FR notice, we posted the Draft EA on our website at:  
<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>.

The notice of the proposed IHA, the Draft EA, and the corresponding public comment period are instrumental in providing the public with information on relevant environmental issues and offering the public a meaningful opportunity to provide comments for our consideration in both the MMPA and NEPA decision-making processes. The public comment period for the proposed IHA and Draft EA ended on May 4, 2016. One comment was received from the Marine Mammal Commission, which stated that “[t]he Commission concurs with NMFS’s preliminary finding and recommends NMFS issue the incidental harassment authorization, subject to inclusion of the proposed mitigation, monitoring, and reporting measures.” No other public comments were received during the comment period.

## **1.4 OTHER ENVIRONMENTAL LAWS, PERMITS, LICENSES OR CONSULTATION**

This section summarizes federal, state, and local permits, licenses, approvals, and consultation requirements necessary to implement the proposed action.

### **1.4.1 ENDANGERED SPECIES ACT**

Section 7 of the ESA and implementing regulations at 50 CFR §402 require consultation with the appropriate federal agency (either NMFS or the U.S. Fish and Wildlife Service) for federal actions that “may affect” a listed species or critical habitat. NMFS’ proposed issuance of an Authorization is a federal action subject to these section 7 consultation requirements.

Accordingly, NMFS is required to ensure that its action is not likely to jeopardize the continued existence of any threatened or endangered species or result in destruction or adverse modification of critical habitat for such species.

There is one marine mammal species listed as threatened under the ESA with possible occurrence in the proposed project area: the Guadalupe fur seal. Due to the fact that an Unusual Mortality Event (UME) has been declared in California for Guadalupe fur seals (a threatened species under the ESA), and instances of stranded northern and Guadalupe fur seals are much higher than average in Southern California, NMFS considered the potential effects of the sand quality sampling activities on these species. NMFS has determined that there is no potential for this project to affect Guadalupe fur seals because occurrence of this species at Children’s Pool Beach would be extremely rare and likely indicative of a sick or injured animal. Therefore, if any fur seals are observed, sand quality sampling activities would not be conducted if fur seals were present at this location in order to avoid potentially harassing these species. Coordination with the stranding network would take place if any fur seals were observed at Children’s Pool and sand quality sampling would not commence until the animal(s) have either left on their own accord or were collected by the stranding network. Therefore, NMFS determined that the sand quality sampling activities would not affect Guadalupe fur seals and a formal consultation under Section 7 is not required.

### **1.4.2 MARINE MAMMAL PROTECTION ACT**

We discuss the MMPA and its provisions that pertain to the proposed action described within Section 1.2.

### **1.4.3 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT**

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1801 et seq.), Federal agencies are required to consult with the Secretary of Commerce with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency which may adversely affect essential fish habitat (EFH) identified under the MSA.

We determined that issuance of the IHA and mitigation and monitoring measures required by the IHA for the action would not result in adverse effects to EFH. Therefore, we determined that EFH consultation is not required.

## 1.5 DOCUMENT SCOPE AND ORGANIZATION

This EA was prepared in accordance with NEPA (42 USC 4321, et seq.) and CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508). The analysis in this EA addresses potential impacts to the human environment and natural resources, specifically marine mammals and their habitat, resulting from NMFS' proposed action to authorize incidental takes associated with the City of San Diego's sand quality sampling. We analyze direct, indirect, and cumulative impacts related to authorizing incidental take of marine mammals under the MMPA. The scope of our analysis is limited to the decision for which we are responsible (i.e. whether or not to issue the IHA). This EA is intended to provide focused information on the primary issues and impacts of environmental concern, which is our issuance of the IHA authorizing the take of marine mammals incidental to the City of San Diego's activity and the mitigation and monitoring measures to minimize the effects of that take. For these reasons, this EA does not provide a detailed evaluation of the effects to the elements of the human environment listed in Table 2 below.

**Table 2 Components of the human environment not requiring further evaluation**

<b>Biological</b>	<b>Physical</b>	<b>Socioeconomic / Cultural</b>
Amphibians	Air Quality	Commercial Fishing
Humans	Essential Fish Habitat	Military Activities
Non-Indigenous Species	Geography	Oil and Gas Activities
	Land Use	Recreational Fishing
	Oceanography	Shipping and Boating
	State Marine Protected Areas	National Historic Preservation Sites
	Federal Marine Protected Areas	National Trails and Nationwide Inventory of Rivers
	National Estuarine Research Reserves	Low Income Populations
	National Marine Sanctuaries	Minority Populations
	Park Land	American Indian Religious Freedom Act
	Prime Farmlands	Indigenous Cultural Resources
	Wetlands	
	Wild and Scenic Rivers	Public Health and Safety
	Ecologically Critical Areas	Historic and Cultural Resources
	Districts, Sites, and Highways	

To support the need for decision-making, this EA is organized as follows:

- Chapter 1 describes the purpose of and need for the Proposed Action.
- Chapter 2 describes the Proposed Action, alternatives considered but eliminated and alternatives carried forward for analysis
- Chapter 3 describes the existing conditions of the affected environment
- Chapter 4 describes and analyzes the potential impacts for each alternative and describes standard terms and conditions for authorizations, including mitigation measures, monitoring and reporting

- Chapter 5 describes the analysis of cumulative impacts, which are the impacts of the Proposed Action when added to past, present, and reasonably foreseeable future actions
- Chapter 6 includes a list of the preparers and a list of agencies coordinated and consulted with
- Chapter 7 includes references or resources that supports the analyses

## **CHAPTER 2 – ALTERNATIVES INCLUDING THE PROPOSED ACTION**

### **2.1 INTRODUCTION**

As described in Chapter 1, the National Marine Fisheries Service's (NMFS) Proposed Action is to issue an Incidental Harassment Authorization (IHA) to authorize the take of small numbers of marine mammals incidental to the City of San Diego's sand quality sampling. NMFS' Proposed Action is triggered by the City of San Diego's request for an incidental take authorization per the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq.*). In accordance with the National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) Regulations NMFS is required to consider alternatives to a the Proposed Action. This includes the no action and other reasonable course of action associated with authorizing incidental take of protected species. The evaluation of alternatives under NEPA assists NMFS with ensuring that any unnecessary impacts are avoided through an assessment of alternative ways to achieve the purpose and need for our Proposed Action that may result in less environmental harm. To warrant detailed evaluation under NEPA, an alternative must be reasonable along with meeting the stated purpose and need for the proposed action. For the purposes of this EA, an alternative will only meet the purpose and need if it satisfies the requirements under section 101(a)(5)(D) the MMPA. Therefore, NMFS applied the following screening criteria to the alternatives to identify which alternatives to carry forward for analysis. Accordingly, an alternative must meet the following criteria to be considered "reasonable".

- The action must not violate any federal laws or regulations.
- The action is consistent with the goals and requirements of MMPA and its implementing regulations.
- The action includes NMFS' authorization criteria described in Chapter 1 and factors regarding mitigation measures further defined in Section 2.1.1 below.

#### **2.1.1 MITIGATION FACTORS**

In addition to prescribing permissible methods of take, NMFS must address other means of effecting the least practicable adverse impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance. Our evaluation of an applicants proposed mitigation measures includes consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals;
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and
- The practicability of the measure for applicant implementation

Any additional mitigation measure proposed by NMFS beyond what the applicant proposes should be able to or have a reasonable likelihood of accomplishing or contributing to the accomplishment of one or more of the following goals:

- Avoidance or minimization of marine mammal injury, serious injury, or death wherever possible;

- A reduction in the numbers of marine mammals taken (total number or number at biologically important time or location);
- A reduction in the number of times individual marine mammals are taken (total number or number at biologically important time or location);
- A reduction in the intensity of the anticipated takes (either total number or number at biologically important time or location);
- Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base; activities that block or limit passage to or from biologically important areas; permanent destruction of habitat; or temporary destruction/disturbance of habitat during a biologically important time; and
- For monitoring directly related to mitigation, an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on this evaluation, only one alternative was identified as reasonable and, along with the no-action alternative, is evaluated in detail in this EA.

## **2.2 DESCRIPTION OF APPLICANT'S ACTIVITY**

The City of San Diego plans to conduct sand quality sampling at the Children's Pool Beach in La Jolla, California (Figure 1). The project entails teams of two to three people performing sand sampling (sand surface grab samples and a small subset of subsurface samples) for approximately four hours along transects parallel to the shoreline between the water line and the seawall/bluff railing. Sampling would be conducted such that humans remain at least three meters from hauled out pinnipeds at all times. For subsurface samples, a narrow plastic core (approximately 5 cm by 60 cm) would be driven into the sand by hand to the extent possible and by use of a small rubber mallet. All sampling events would be conducted during daylight hours, and up to 16 sampling events would be conducted during the season when the beach is open to the public. Because the City closes the beach during harbor seal pupping season (December 15 through May 15), work would be performed between June 1 and December 14, 2016 in order to accommodate any potentially late-weaning pups.



**Figure 1. Location of the proposed action area for the Sand Quality Study**

### **2.2.1 Specified Time and Specified Geographical Area**

The La Jolla Children’s Pool Beach is located at 850 Coast Boulevard, La Jolla, California 92037 (32° 50’51.18”North, 117° 16’41.94”West). Because the City of San Diego already closes the Children’s Pool Beach area during the harbor seal pupping and weaning season (December 15<sup>th</sup> to May 15<sup>th</sup>; see the City of San Diego IHA application), and to allow additional time for any potentially late-weaning pups, work on this project can only be performed between June 1 and December 14, 2016, and up to 16 sampling events would take place in this timeframe. Therefore, we proposed to issue an IHA that is effective from June 1<sup>st</sup> to December 14, 2016.

### **2.2.2 Sand Quality Study Activities**

The City of San Diego’s IHA application and our notice of the proposed IHA (81 FR 19137) describe the proposed sand quality study activities protocol in detail. We hereby incorporate those by reference in this EA.

The Children’s Pool area was created in 1931 by building a breakwater wall which created a protected pool for swimming. This pool has partially filled with sand, but still

has open water for swimming, as well as a beach area for sunbathing and walking. In the 1990's harbor seals began to regularly haul out at Children's Pool and it has become a rookery. The Children's Pool and nearby shore areas are used by swimmers, sunbathers, SCUBA divers and snorkelers, shore/surf fishing enthusiasts, school classrooms, kayakers, surfers, boogie and skim boarders, nature watchers, and other activities by the general public. As a result of the seals' increased use of Children's Pool Beach as a haul out site, there has been ongoing disagreement on how the seals and their habitat should be protected, how public access should be protected, or whether seals and people can share the beach.

Addressing the conflicts between people and the seals at Children's Pool Beach has a long history. To address this issue, the City first installed a rope barrier with an opening to maintain public access directly upland of the Mean High Tide Line (MHTL) approved through various emergency and regular coastal development permits for the duration of the pupping season and eventually year-round beginning in 2006. However, the rope barrier was controversial and not entirely effective. In 2010, the City adopted a resolution establishing a Seasonal Shared Use Policy intended to protect the seals by providing a visual buffer and guideline with a year-round rope barrier that continued to allow shared use of the beach by seals and people while limiting access during the pupping season. Despite the Shared Use Policy measures and protective barriers implemented, accidental and intentional harassing of the seals by the public continued. The City of San Diego proposed to restrict public access at Children's Pool Beach from December 15 to May 15 each year in order to protect harbor seals from harassment during their pupping season. This limited closure is the fifth and final directive that would complete the protective measures to provide the seals with an undisturbed habitat during their pupping season as intended by the Shared Use Policy. The City applied to the California Coastal Commission for the required Coastal Development Permit for the closure, which was approved in 2014.

As noted in Chapter 1, the California Coastal Commission issued a Notice of Intent to Issue a Permit to the City of San Diego granting a revised Coastal Development Permit (CDP) for a seasonal closure of the Children's Pool Beach subject to certain special conditions. One of the required objectives of the feasibility study is to analyze the sand quality and methods for improving sand quality at Children's Pool Beach, which is currently listed on the Clean Water Act Section 303(d) list as impaired for FIB. Additionally, researchers have identified pinniped molting and excrement as a potential source of mercury to the environment (McHuron et. al. 2014; Coosaboon et. al. 2015). The sand quality study will analyze the current extent and magnitude of FIB and mercury contamination in the beach sand at Children's Pool Beach.

The sand quality study activities to be conducted under the proposed IHA would have the potential to alert and flush pinnipeds into the water during sample collection events. Sample collection events would involve teams of two to three people performing sand sampling for approximately four hours along transects parallel to the shoreline, between the water line and the seawall/bluff railing at Children's Pool Beach. All sampling events would occur during daylight hours, and would involve taking sand grab samples from the

surface. In addition, a small subset of samples will be taken collected from the subsurface via narrow plastic cores (approximately 5 centimeters by 60 centimeters) driven into the sand with a small rubber mallet. Subsurface sampling is not anticipated to provide additional stimuli to pinnipeds compared to surface sampling.

Generally, harbor seals are considered skittish and have the tendency to react or flush into the water at low levels of sound and/or movements. While a range of behavioral responses can be expected, it is difficult to predict what activities might cause noticeable behavioral reactions with Pacific harbor seals at this site. As noted by several studies, seals at this location do not respond to stimuli as readily as seals in other areas (Hanan 2004; Hanan & Associates 2011; Hanan and Hanan 2014; Hahn 2010). It has also been documented that ongoing lifeguard tower construction activities at this location, which produces equipment noise and visual cues, have at times caused seals to alert/flush, while at other times the same stimuli produce no reaction (City of San Diego, 2015). As noted above, Children's Pool Beach is a highly disturbed site with a lot of human activity. Humans currently visit Children's Pool Beach at all hours of the day and night, and during all seasons and weather conditions (as noted above, the beach is closed during pupping season, but humans are still present in the area), so human scent and visual presence generally do not cause the seals to alert/flush (Hanan 2004; Hanan & Associates 2011; Hanan and Hanan 2014). According to Dr. Hanan, harbor seals are disturbed when people get very close to them, generally less than two to three meters. However sand sampling as part of the proposed sand quality study would be conducted such that a distance of at least three meters would be maintained from any hauled out pinniped in order to avoid or minimize potential impacts.

Although sand will be collected from the beach, no impacts to habitat are anticipated due to the sand sampling activities. The total volume of sand to be collected over the entire course of the study is estimated to be less than one cubic foot. Additionally, as mentioned above, a small subset of samples would be collected approximately 25 to 50 cm below the sand surface. Because of the mechanism of collection (use of a hollow tube and mallet with minimal digging), only transient sand displacement is anticipated.

## **2.3 Description of Alternatives**

### **2.3.1 Alternative 1 – Issuance of an Authorization with Mitigation Measures**

The Proposed Action constitutes Alternative 1 and is the Preferred Alternative. Under this alternative, we would issue an IHA (valid from June 1 through December 14, 2016) to the City of San Diego allowing the incidental take, by Level B harassment, of three species of marine mammals during the sand quality sampling activities subject to the mandatory mitigation and monitoring measures and reporting requirements set forth in the final IHA.

The City of San Diego's analyses and our Federal Register notice requesting comments on the proposed IHA (81 FR 19137) analyzed the potential impacts of this alternative in detail and we incorporate those documents by reference here. We have determined that the taking of small numbers of marine mammals incidental to the City of San Diego's

action would constitute no more than a negligible impact on the relevant species or stocks and would not have an unmitigable adverse impact on affected species or stocks for taking for subsistence uses. Accordingly, this Preferred Alternative would satisfy the purpose and need of our proposed action under the MMPA—issuance of an Authorization, along with required mitigation measures and monitoring that meets the standards set forth in section 101(a)(5)(D) of the MMPA and the implementing regulations.

### ***2.3.1-1 MITIGATION AND MONITORING MEASURES***

- To reduce the potential for disturbance from stimuli associated with the sand quality study activities, the City of San Diego and/or its designees have proposed to implement the following monitoring and mitigation measures for marine mammals:
- Prohibiting sand quality study activities during the Pacific harbor seal pupping season from December 15<sup>th</sup> to May 16<sup>th</sup>, plus for an additional two weeks to accommodate any potentially late-weaning pups (sand quality sampling to be conducted June 1 through December 14, 2016);
- Limiting activity to the hours of daylight for visual monitoring purposes;
- Scheduling sand quality study activities, to the maximum extent practicable, during the daily period of lowest haul out occurrence (8:30 am – 3:30 PM);
- Conducting sand sampling such that a distance of at least three meters is maintained between people taking samples and any hauled out pinniped;
- Implementing a protected species monitoring plan and use of trained Protected Species Observers (PSOs) to detect, document, and minimize impacts to marine mammals; and
- Prohibiting sand quality sampling activities if any fur seals (northern or Guadalupe) are observed at Children’s Pool (beach, rocks, or water) and coordination with the stranding network in order to prevent taking of these species. PSOs will follow NMFS’ suggested reporting criteria for seal responses to stimuli: flushing into the water; moving more than twice its body length, but not into the water; and changing direction of current movement. PSOs will also estimate the number of seals that were observed to exhibit the behavior, as well as the apparent source of the stimulus. Because the beach is open for public use during sampling activities, harassment may be caused by members of the public and/or sampling activities.

The City has developed a monitoring plan (See Appendix A – Children’s Pool Beach Sand Quality Study Mitigation Monitoring). The plan will be utilized during all Children’s Pool Beach sand quality study sampling activities. All observations and associated data will be entered into and maintained on City computers. Field

observations will be documented on field monitoring forms, and a report summarizing mitigation monitoring for the duration of the study IHA will be prepared and submitted by the City to NMFS following completion of sand sampling activities. Monitoring reports will be maintained at the City for periodic summary reports to NMFS.

While the IHA would not authorize injury, serious injury, or mortality (Level A harassment), should the applicant, contractor, monitor, or any other individual associated with the sand quality study activities observe an injured or dead marine mammal, the City of San Diego will immediately report the incident to the Chief of Permits and Conservation Division, Office of Protected Resources, NMFS, by email to [Jolie.Harrison@noaa.gov](mailto:Jolie.Harrison@noaa.gov) as well as the NMFS Southwest Regional Office by email to the Southwest Regional Stranding Coordinator ([Justin.Viezbicke@noaa.gov](mailto:Justin.Viezbicke@noaa.gov)). NMFS will work with the City of San Diego to determine whether modifications to the activities are appropriate upon receipt of the report, which must contain the following information:

- Species information/description and number of animals;
- Condition of the animal(s) (dead or injured) and as much information on any obvious injuries as possible;
- Time, date, and location (latitude/longitude) of the incident;
- The type of activity involved;
- Description of the circumstances during and leading up to the incident;
- Status of all known sound and activity source use in the area 24 hours preceding the incident; water depth; environmental conditions (wind speed/direction; Beaufort sea state; cloud cover; and visibility);
- Description of the marine mammal observations in the 24 hours preceding the incident; and
- The fate of the animal(s) and photographs or video footage of the animal, if available.

In the unanticipated event that the City of San Diego discovers a live stranded marine mammal (sick or injured) at the Children's Pool Beach, they shall immediately contact Sea World's stranded animal hotline at 1-800-541-7235. Sea World shall also be notified for dead stranded pinnipeds so that a necropsy can be performed. In all cases, NMFS shall be notified as well, but for immediate response purposes, Sea World shall be contacted first.

### ***2.3.1-2 REPORTING MEASURES***

The City of San Diego would submit a comprehensive report to us within 90 days after the end of the sand quality study activities. The report would describe the activities that were conducted and sightings of marine mammals near these activities. The report would provide full documentation of the methods, results, and interpretation pertaining to all monitoring. The 90-day report would summarize the dates and locations of all sand quality study activities, and all marine mammal sightings (i.e., dates, times, locations, activities, and associated sand quality study activities). The report would also include

estimates of the number and nature of exposures that could result in takes of marine mammals (by harassment or other means).

In the unanticipated event that the specified activity causes the take of a marine mammal in a manner prohibited by the IHA, such as an injury (Level A harassment), serious injury or mortality, the City of San Diego shall immediately cease the specified activities and immediately report the incident to the Chief of Permits and Conservation Division, Office of Protected Resources. The City of San Diego may not resume activities until we are able to review the circumstances of the prohibited take.

### **2.3.2 NO ACTION ALTERNATIVE**

The No Action Alternative is the baseline against which the impacts of a proposed action are compared. For the purposes of the analysis in this EA, under the No Action Alternative, NMFS would not issue an IHA to the City of San Diego for the taking, by Level B behavioral harassment, of small numbers of marine mammals incidental to the conduct of the sand quality study activities.

The City of San Diego would not receive an exemption from the MMPA prohibition against the take of marine mammals, and would therefore choose not to continue forward with the project. As the sand quality study is a special provision as part of a California Coastal Commission permit amending the City's certified Land Use Plan, the No Action Alternative could potentially have impacts to marine mammals that are worse than the Preferred Alternative. The California Coastal Commission approved a Local Coastal Program amendment and certified a request by the City to amend its certified Land Use Plan in August 2014. Specifically, the amendment included revisions to the public access and marine resources protection policies to allow seasonal closure at Children's Pool Beach during the harbor seal pupping season. This amendment is intended to allow special protection of the Children's Pool harbor seal population during the vulnerable months of their pupping season, and prohibits all beach access at Children's Pool during this time. Therefore, if the sand quality study is not completed, the terms and conditions of the California Coastal Commission permit would not be met.

## **CHAPTER 3 – AFFECTED ENVIRONMENT**

The National Marine Fisheries Service (NMFS) reviewed all possible environmental, cultural, historical, social, and economic resources based on the geographic location associated with NMFS proposed action and alternatives and the City of San Diego's request for an incidental take authorization for the proposed sand quality sampling. Based on this review, this section describes the affected environment and existing (baseline) conditions for select resource categories. As explained in Chapter 1, certain resource categories not affected by NMFS' proposed action and alternatives were not be carried forward for further consideration or evaluation in this EA (See Table 1.2). Chapter 4 provides an analysis and description of environmental impacts associated with the affected environment.

### **3.1 PHYSICAL ENVIRONMENT**

Children's Pool Beach is a 0.7-acre artificial pocket beach held in place by a seawall/breakwater. In 1930, philanthropist Ellen Browning Scripps provided funding for the construction of this 300-ft arced concrete breakwater in order to create a safe bathing pool for children. Children's Pool Beach is designated as "Parks, Open Space" in the City's certified Land Use Plan. Children's Pool Beach provides recreational opportunities through its provision of lifeguard facilities, access stairway from Coast Boulevard, parking along Coast Boulevard, viewing gazebo along Coast Boulevard, benches, restroom facilities, pedestrian walkway atop the breakwater, and an emergency vehicle access ramp. As such, Children's Pool Beach is a fairly urban environment and is a highly disturbed hauling out site. It is bounded on the north and west by the Pacific Ocean; on the east by Coast Boulevard and Casa de Manana Retirement Community; and on the south by South Casa Beach. In addition, an adjacent haul out site (Seal Rock) is located approximately 500 feet northeast of Children's Pool Beach. Several beaches are located adjacent to or in close proximity to Children's Pool Beach, including La Jolla Shores, Marine Street Beach, La Jolla Cove, Whispering Sands Beach, Shell Beach, South Casa Beach, Ravina, Boomer Beach, and Windansea.

### **3.2 BIOLOGICAL ENVIRONMENT**

We rely on and incorporate by reference, the information provided in the *Federal Register* notice of the proposed IHA (81 FR 19137) about the occurrence, distribution, population size, and conservation status for each of the species of marine mammals, including all marine mammal species under our jurisdiction that may occur in the area proposed for sand quality sampling events. These species include one mysticete (baleen whale), three odontocetes (toothed cetaceans), and six pinnipeds (seals and sea lions). Three species of pinnipeds are known to occur in the proposed Children's Pool Beach action area. Pacific harbor seals are the most commonly occurring pinniped in the action area with California sea lions, and northern elephant seals occurring more rarely. Northern fur seals, and Guadalupe fur seals are not known to occur at Children's Pool Beach, but there have been higher than average strandings of these species in California and a UME has been declared for Guadalupe fur seal due to the unusually high number of strandings along the coast of California. Sightings of fur seals have been observed in nearby areas, including a sighting of a northern fur seal at La Jolla Cove (less than a mile from Children's Pool Beach). While fur seals are not expected to occur, they are mentioned here due to the rare occurrences of these species at nearby locations recently. NMFS Stock Assessment Reports, <http://www.nmfs.noaa.gov/pr/sars/species.htm> provide the latest abundance and life history information about each stock of marine mammal in the project area.

### 3.2.1 MARINE MAMMALS AND MARINE MAMMAL HABITAT

The proposed sand quality sampling events involves removing small amounts of sand from the Children's Pool Beach between the water line and the bluff. These activities have the potential to effect pinnipeds that are hauled out on the beach or rocks as well as pinnipeds attempting to haul out during the time of the surveys but will not affect other marine mammals that may inhabit that general region of Children's Pool Beach. Therefore, only pinniped species and potential effects to those species are addressed in detail in this EA. The rocks and beaches at or near the Children's Pool Beach in La Jolla, California are almost exclusively Pacific harbor seal hauling out sites. On infrequent occasions, one or two California sea lions or a single juvenile northern elephant seal have been observed on the sand or rocks at or near Children's Pool Beach (*i.e.*, breakwater ledge/rocks haul-out area, reef haul-out area, and Casa Beach haul out area). Studies conducted on abundance trends at the Children's Pool Beach have reported that appearances of California sea lions and northern elephant seals are infrequent, but not rare at Children's Pool (Yochem and Stewart, 1998; Hanan & Associates, 2004). Additionally, northern and Guadalupe fur seals have been observed at nearby beaches, but would not typically be expected at Children's Pool as they prefer isolated rocky haul out sites (Riedman, 1990). Occurrence of fur seals at Children's Pool would likely indicate that the animal is sick or injured. Therefore, sand sampling would not occur if fur seal(s) are sighted and coordination with the stranding network would commence.

#### 3.2.1-1 PACIFIC HARBOR SEAL

Harbor seals are widely distributed in the North Atlantic and North Pacific. Two subspecies exist in the Pacific Ocean: *P. v. stejnegeri* in the western North Pacific near Japan, and *P. v. richardii* in the eastern North Pacific. The subspecies in the eastern North Pacific Ocean inhabits near-shore coastal and estuarine waters from Baja California, Mexico to the Pribilof Islands in Alaska. These seals do not make extensive pelagic migrations, but do travel 300 to 500 kilometers (km) (162 to 270 nautical miles [nm]) on occasion to find food or suitable breeding areas (Herder, 1986; Harvey and Goley, 2011). Previous assessments of the status of harbor seals have recognized three stocks along the west coast of the continental U.S.: (1) California; (2) Oregon and Washington outer coast waters; and (3) inland waters of Washington. An unknown number of harbor seals also occur along the west coast of Baja California, as least as far south as Isla Asuncion, which is about 100 miles south of Punta Eugenia. Animals along Baja California are not considered to be a part of the California stock because it is not known if there is any demographically significant movement of harbor seals between California and Mexico and there is no international agreement for joint management of harbor seals. In California, approximately 400 to 600 harbor seal haul-out sites are distributed along the mainland coast and on offshore island, including intertidal sandbars and ledges, rocky shores and islets, and beaches (Harvey *et al.*, 1995; Hanan, 1996; Lowry *et al.*, 2008). Of these haul out sites, only 14 locations are rookeries (2 locations have multiple sites, for a total of 17 sites) on or near the mainland of California. Preferred haul out sites are those that are protected from the wind and waves, and allow access to deep water for foraging (Perrin *et al.*, 2008). Harbor seals are one of the most common and frequently observed marine mammals along the coastal environment.

The population of harbor seals has grown off the U.S. west coast and has led to new haul-out sites being used in California (Hannan, 1996). Pacific harbor seals haul out year-round on

nearby beaches and rocks at Children's Pool Beach. The Children's Pool Beach site is used by harbor seals at all hours of the day and at all tides with the exception of occasional high tide/high swell events in which the entire beach is awash. Harbor seals have been observed hauling out and documented giving birth at Children's Pool Beach since the 1990's (Yochem and Stewart, 1998; Hanan & Associates, 2004). It is the only rookery in San Diego and the only mainland rookery on the U.S. west coast between the border of Mexico and Point Mugu in Ventura County, California (321.9 km [200 nm]). Also, it is one of three known haul out sites for this species in San Diego County. They haul out, give birth to pups, nurse, and molt their pelage on the beach and often forage for food in nearby areas. Harbor seal numbers have increased since 1979 and seals are documented to give birth on these beaches from December through May (Hanan, 2004; 2001). The official start of the pupping season is December 15<sup>th</sup>, and during this time the beach is closed to the public. Females in advanced stages of pregnancy begin to show up on the Children's Pool Beach by late October to early November. Males, females, and pups (in season) of all ages and stages of development are observed at Children's Pool Beach and adjacent areas.

In southern California, a considerable amount of information is known about the movements and ecology of harbor seals, but population structure in the region is not as well known (Stewart and Yochem, 1994, 200; Keper *et al.*, 2005; Hanan & Associates, 2001). Linder (2011) suggests that this population moves along the California coast and beach of Children's Pool is part of a "regional network of interconnected" haul out and pupping sites. Harbor seals often haul out in protected bays, inlets, and beaches (Reeves *et al.*, 1992). At and near Children's Pool Beach, harbor seals haul out on the sand, rocks, and breakwater base and/near in numbers of 0 to 15 harbor seals to a maximum of approximately 150 to 200 depending on the time of day, season, and weather conditions (Hanan & Associates, 2004, 2011; Linder 2011). Based on monitoring from a camera, the Western Alliance for Nature (WAN) reports that during the month of May 2013, at any given time, up to 302 harbor seals were documented resting on the Children's Pool Beach with additional harbor seals on the rocks and in the water (personal communication). Almost every day, except for weekends, the number of harbor seals on the beach was over 250 individuals. During the months of September 2012 to January 2013, the average number of harbor seals on the beach during the hour prior to people on the beach or with people behind a rope varied from 83 to 120 animals. During this same period when there were people on the beach with or without the rope, the average varied between 7 to 27 individuals. The weather as well as the proximity of humans to the beach likely affects the presence of harbor seals on the beach. These animals have been observed in this area moving to/from the Children's Pool, exchanging with the rocky reef directly west of and adjacent to the breakwater and with Seal Rock, which is about 150 m (492 ft) west of Children's Pool. At low tide, additional space for hauling out is available on the rocky reef areas outside the retaining wall and on beaches immediately southward. Haul out times vary by time of year, from less than an hour to many hours. There have been no foraging studies at this site, but harbor seals have been observed in nearshore waters and kelp beds nearby, including La Jolla Cove.

Radio tagging and photographic studies have revealed that only a portion of seals utilizing a haul out site are present at any given moment or day (Hanan, 1996, 2005; Gilbert *et al.*, 2005; Harvey and Goley, 2011; and Linder, 2011). These radio tagging studies indicate that harbor seals in Santa Barbara County haul out about 70-90% of the days annually (Hanan, 1996), and harbor

seals at Children's Pool are expected to behave similarly. Tagged and branded harbor seals from other haul out sites have been observed by Dr. Hanan at Children's Pool. Harbor seals have been observed with red-stained heads and coats, which are typical of some harbor seals in San Francisco Bay, indicating that seals tagged at other locations and haul out sites do visit Children's Pool. There are also reports of seals tagged at Children's Pool at other haul out sites. These findings further indicate that seals are constantly moving along the coast including to/from the offshore islands and that there are may be as many of 600 harbor seals using Children's Pool during a year, but certainly not all at one time.

Pacific harbor seal presence at hauling out sites is seasonal with peaks in abundance during their pupping and molting periods, which are first observed in the south and progress northward up the coast of California with time (e.g., January-May near San Diego; Hanan 2004; Hanan & Associates 2011). The City of San Diego has fitted a polynomial curve to the number of expected harbor seals hauling out at Children's Pool by month (See Figure 2 of the IHA Application, and Figure 1 below) based on counts at the Children's Pool by Hanan & Associates (2004, 2011), Yochem and Stewart (1998), and the Children's Pool docents (Hanan & Associates 2004). A three percent annual growth rate of the population was applied to Yochem and Stewart (1998) counts to normalize them to Hanan & Associates and docent counts in 2003 and 2004.

A complete count of all harbor seals in California is impossible because some are always away from the haul out sites. A complete pup count (as is done for other pinnipeds in California) is also not possible because harbor seals are precocial, with pups entering the water almost immediately after birth. Population size is estimated by counting the number of seals ashore during the peak haul out period (May to July) and by multiplying this count by a correction factor equal to the inverse of the estimated fraction of seals on land. Based on the most recent harbor seal counts and including a revised correction factor, the estimated population of harbor seals in California is 30,968 individuals (NMFS 2014 Stock Assessment), with an estimated minimum population of 27,348 for the California stock of harbor seals. The harbor seal is not listed under the ESA and the California stock is not considered depleted or strategic under the MMPA (Carretta *et al.*, 2010).

### 3.2.1-2 CALIFORNIA SEA LION

The breeding areas of the California sea lion are on islands located in southern California, western Baja California, and the Gulf of California. Genetic analysis of California sea lions identified five genetically distinct geographic populations: (1) Pacific Temperate; (2) Pacific Subtropical; (3) Southern Gulf of California; (4) Central Gulf of California; and (5) Northern Gulf of California (Schramm *et al.*, 2009). In that study, the Pacific Temperate population included rookeries within U.S. waters and the Coronados Islands just south of the U.S./Mexican border. Animals from the Pacific Temperate population range into Canadian waters, and movement of animals between U.S. waters and Baja California waters has been documented, though the distance between major U.S. and Baja California rookeries is at least 740.8 km (400 nm). Males from western Baja California rookeries may spend most of the year in the U.S.

The entire population cannot be counted because all age and sex classes are never ashore at the same time. In lieu of counting all sea lions, pups are counted during the breeding season (because this is the only age class that is ashore in its entirety), and the numbers of births is

estimated from the pup count. The size of the population is then estimated from the number of births and the proportion of pups in the population. Censuses are conducted in July after all pups have been born. There are no rookeries at or near Children's Pool. Population estimates for the U.S. stock of California sea lions range from a minimum of 153,337 to an average estimate of 296,750 animals. They are considered to be a carrying capacity of the environment. The California sea lion is not listed under the ESA and the U.S. stock is not considered depleted or strategic under the MMPA.

There are no sea lion rookeries at or near Children's Pool Beach, although in the previous two years, sea lion births have been reported at La Jolla Cove (approximately 0.75 km east of Children's Pool Beach). In addition, numbers of sea lions observed in the area are known to increase during El Nino events, such as we are experiencing currently. Therefore, we have accounted for the possibility of higher than usual occurrence of sea lions in the take estimates.

### **3.2.1-3 NORTHERN ELEPHANT SEAL**

Northern elephant seals breed and give birth in California (U.S.) and Baja California (Mexico), primarily on offshore islands (Stewart *et al.*, 1994), from December to March (Stewart and Huber, 1993). Males feed near the eastern Aleutian Islands and in the Gulf of Alaska. Females feed in more southern areas, south of 45° North (Stewart and Huber, 1993; Le Boeuf *et al.*, 1993). Adults return to their feeding areas again between their spring/summer molting and their winter breeding seasons.

Populations of northern elephant seals in the U.S. and Mexico were all originally derived from a few tens or a few hundreds of individuals surviving in Mexico after being nearly hunted to extinction (Stewart *et al.*, 1994). Given the very recent derivation of most rookeries, no genetic differentiation would be expected. Although movement and genetic exchange continues between rookeries when they start breeding (Huber *et al.*, 1991), the California breeding population is now demographically isolated from the Baja California population. The California breeding population is considered in NMFS stock assessment reports to be a separate stock. There are no rookeries at or near Children's Pool Beach.

A complete population count of elephant seals is not possible because all age classes are not ashore at the same time. Elephant seal population size is typically estimated by counting the number of pups produced and multiplying by the inverse of the expected ratio of pups to total animals (McCann, 1985). Based on the estimated 40,684 pups born in 2014 (Lowry *et al.* 2014), and an appropriate multiplier to extrapolate from total pup counts, the population estimate is 179,000 individuals. The minimum population size for northern elephant seals is estimated very conservatively at 81,368 seals. Northern elephant seals are not listed under the ESA and are not considered as depleted or a strategic stock under the MMPA.

### **3.2.1-4 NORTHERN FUR SEAL**

Northern fur seals occur from southern California north to the Okhotsk Sea and Honshu Island, Japan. During breeding season, approximately 74% of the worldwide population is found on the Pribilof Islands in the southern Bering Sea, with the remaining animals spread throughout the North Pacific Ocean (Lander and Kajimura, 1982). Of the seals in U.S. waters outside of the

Pribilofs, approximately 1% of the population is found on Bogoslof Island in the southern Bering Sea, San Miguel Island off southern California (NMFS 2007), and the Farallon Islands off central California. Northern fur seals may temporarily haul out on land at other sites in Alaska, British Columbia, and on islets along the coast of the continental U.S., but this generally occurs outside of the breeding season (Fiscus 1983).

The population estimate for northern fur seals on San Miguel Island is calculated as the estimated number of pups at rookeries multiplied by an expansion factor, which is based on sex and age distribution estimated after the commercial harvest of juvenile males was terminated in 1984. The population estimate for northern fur seals on the Farallon Islands is calculated as the highest number of pups, juveniles, and adults counted at the rookery. The long-term population estimate at the Farallon Islands should be regarded as index of abundance rather than a precise indicator of population size for several reasons: (1) Population censuses are incomplete because researchers do not enter rookery areas until the end of the breeding/pupping season in order to reduce human disturbance; (2) mortality occurring early in the season is not accounted for; and (3) estimates of the number of pups is compromised because by the time counts are conducted, many pups have learned to swim and may not be present at the rookery. Additionally, yearlings may be present at the rookeries and may be misidentified as pups. Keeping these factors in mind, the peak counts of northern fur seals increased steadily from 1995 to 2006 and have increased exponentially from 2008 to 2001 (Tietz 2012). Incorporating estimates of numbers from San Miguel Island and the Farallon Islands, the most recent population estimate of the California stock is 12,844.

There are no rookeries at or near Children's Pool Beach. However, there have been greater than usual strandings of these animals in the area. The presence of this species at Children's Pool Beach would be very rare, and would likely indicate that the animal is sick or injured. In the event that any fur seals are observed at Children's Pool, sand quality sampling would not be conducted and coordination with the stranding network would commence. Sand quality sampling would not occur until either the animal has left on its own accord, or was collected by the stranding network. Therefore, no takes of northern fur seal would be authorized for the sand quality sampling activities at Children's Pool Beach.

### **3.2.1-5 GUADALUPE FUR SEAL**

Guadalupe fur seals pup and breed mainly at Isla Guadalupe, Mexico. In 1997, a second rookery was discovered at Isla Benito del Este, Baja California (Maravilla-Chavez and Lowry, 1999) and a pup was born at San Miguel Island, California (Melin and DeLong 1999). Individuals have stranded or been sighted as far north as Blind Beach, California (38°26'10"N, 123°07'20"W); inside the Gulf of California and as far south as Zihuatanejo, Mexico (17°39'N, 101°34'W); Hanni *et al.*, 1997 and Auriolles-Gamboa and Hernandez-Camacho 1999). In the U.S., a few Guadalupe fur seals are known to inhabit California sea lion rookeries in the Channel Islands (Stewart *et al.*, 1987). Guadalupe and northern fur seals have been recently observed at nearby coves and beaches, including one northern fur seal pup hauled out at La Jolla Cove, less than a mile from Children's Pool (personal communication, Hanan, 2016).

The population is considered to be a single stock because all are recent descendants from one breeding colony at Isla Guadalupe, Mexico after being hunted to near extinction in 1894

(Townsend 1931). The population size prior to commercial harvests of the 19<sup>th</sup> century is not known, but estimates range from 20,000 to 100,000 animals (Wedgforth 1928, Hubbs 1956, Fleisher 1987). The latest population size was estimated to be approximately 7,408 animals (Gallo, 1994), with a minimum population estimate of 3,028.

There are no rookeries at or near Children's Pool Beach. However, there have been greater than usual strandings of these animals in the area. The presence of this species at Children's Pool Beach would be very rare, and would likely indicate that the animal is sick or injured. In the event that any fur seals are observed at Children's Pool, sand quality sampling would not be conducted and coordination with the stranding network would commence. Sand quality sampling would not occur until either the animal has left on its own accord, or was collected by the stranding network. Therefore, no takes of Guadalupe fur seal would be authorized for the sand quality sampling activities at Children's Pool Beach.

## **CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES**

This chapter of the EA analyzes the impacts of the two alternatives on the human environment. The City's application and our *Federal Register* notice of the proposed Authorization inform our analysis of the direct, indirect, and cumulative effects of our proposed issuance of an Authorization.

### **4.1 EFFECTS OF ALTERNATIVE 1 – ISSUANCE OF AN IHA WITH MITIGATION**

Alternative 1 is the Preferred Alternative under which we would issue an IHA to the City of San Diego for the incidental taking by Level B behavioral harassment of small numbers of three species of marine mammals due to the conduct of sand quality study activities at the Children's Pool Beach in La Jolla, California from June 1 to December 14, 2016. We would incorporate the mitigation and monitoring measures and reporting described earlier in this EA into the Final IHA. The *Federal Register* notice requesting comments on the proposed IHA describes the potential effects of the sand quality study activities on marine mammals. We incorporate those descriptions by reference and briefly summarize or supplement the relevant sections in the following subsections.

#### **4.1.1 IMPACTS TO MARINE MAMMAL HABITAT**

Our proposed action would have no effect on the physical environment beyond those resulting from the sand quality sampling evaluated in the referenced documents. The effects of the sand quality sampling would not result in substantial damage to ocean and coastal habitat that might constitute marine mammal habitat, as the effects would be minimal and temporary in nature. The issuance of an IHA would not affect physical habitat features, such as substrates and water quality.

#### **4.1.2 IMPACTS TO MARINE MAMMALS**

The impacts of the sand quality study activities on marine mammals are specifically related to potentially being alerted/flushed due to the presence of small teams of people walking the beach and collecting sand samples for the sand quality study. We expect that any effect to marine mammals within the vicinity of the sand quality study activities would be limited to temporary behavioral responses and temporary changes in animal distribution. At most, we interpret these effects on marine mammals as falling within the MMPA definition of Level B (behavioral) harassment.

Under Alternative 1, Preferred Alternative, we would authorize incidental Level B harassment only. This would be in the form of temporary behavioral disturbance of three species of pinnipeds and expect no long-term or substantial adverse effects on marine mammals, their habitats, or their role in the environment. The City of San Diego proposed a number of monitoring and mitigation measures for marine mammals as part of our evaluation for the preferred alternative. In analyzing the effects of the preferred alternative, we anticipate the following monitoring and mitigation measures will minimize and/or avoid impacts to marine mammals:

- (1) Prohibiting sand quality sampling activities during the Pacific harbor seal pupping season from December 15, 2015 to June 1, 2016, and completing activities by December 14, 2016 in order to accommodate lactation and weaning of pups;
- (2) Limiting activity to the hours of daylight for visual monitoring purposes;
- (3) Scheduling sand quality study activities, to the maximum extent practicable, during the daily period of lowest haul out occurrence (8:30 am – 3:30 PM), and/or generally choosing times with low numbers of pinnipeds hauled out;
- (4) Conducting sand quality sampling such that a distance of at least 3 meters is maintained between people taking samples and any hauled out pinniped;
- (5) Implementing a protected species monitoring plan and use of trained Protected Species Observers (PSOs) to detect, document, and minimize impacts to marine mammals; and
- (6) Prohibiting sand quality sampling activities if any fur seals are observed at Children's Pool (water, rocks, or beach), and coordinating with the stranding network.

In the City of San Diego's application, they did not request authorization to take marine mammals by Level A harassment, nor do we anticipate that any take by injury, serious injury, or mortalities (Level A harassment) would occur. Therefore, we do not propose to authorize any take by injury, serious injury, or mortality associated with the sand quality study activities. We expect that harassment takes (Level B harassment) should be at the lowest practicable due to the incorporation of the mitigation measures proposed in the City of San Diego's application.

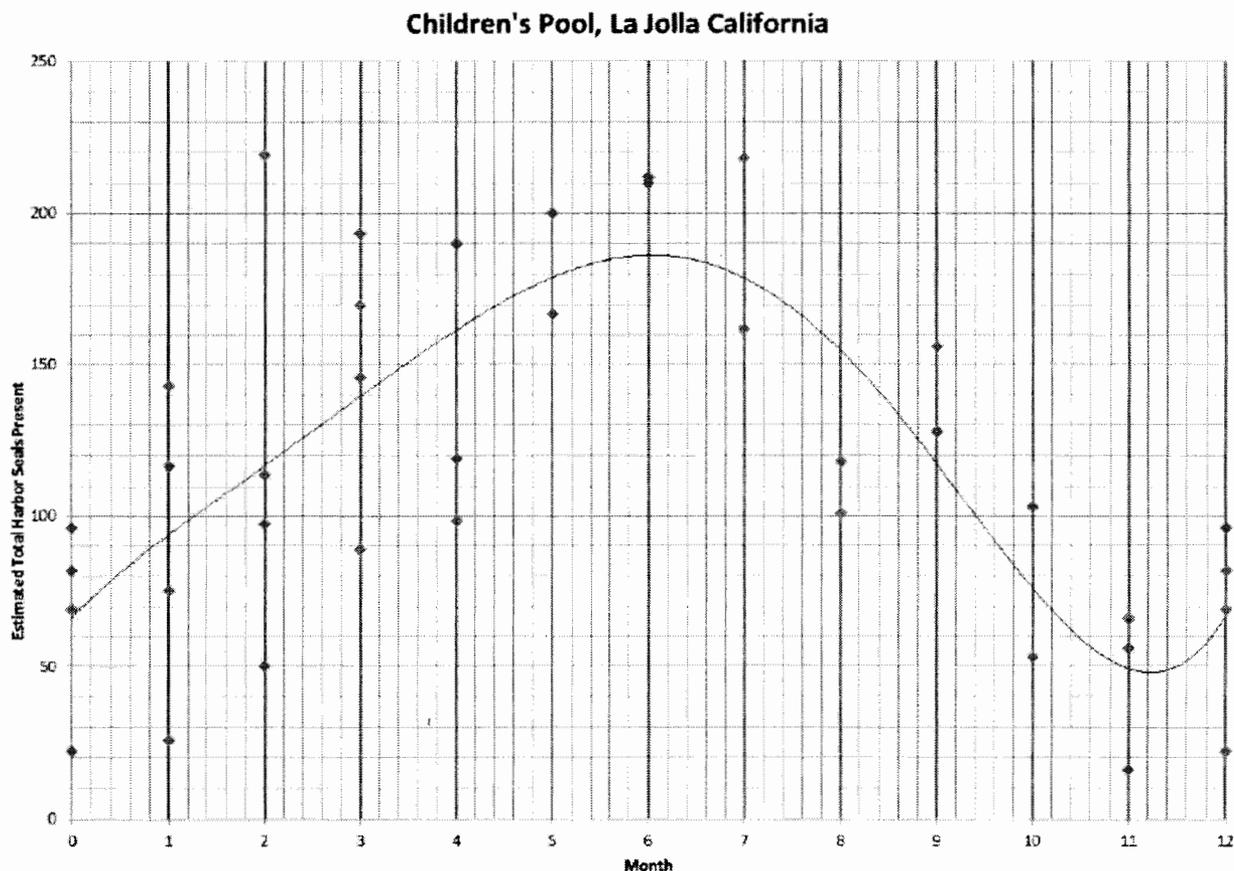
#### **Estimated Take of Marine Mammals by Level B Incidental Harassment:**

The City of San Diego has requested authorization for take by Level B (behavioral) harassment incidental to the proposed sand quality study activities at Children's Pool Beach. The City of San Diego and NMFS anticipate takes of Pacific harbor seals, California sea lions, and northern elephant seals by Level B (behavioral) harassment only incidental to these activities. There is a high likelihood that many of the harbor seals present during the sand quality study activities will not be flushed off the beach or rocks, as pinnipeds at this site are conditioned to human presence (Hanan 2004; 2001) (see <http://www.youtube.com/watch?v=4IRUYVTULsg>).

With sand quality study activities scheduled to begin in June 2016, the City of San Diego expects a range of 0 to 190 harbor seals to be present daily, and a seasonal decline through November to 0 to 50 individuals present daily. Based on the conservative estimate that all sampling would take place during peak abundance and all estimated seals present would be incidentally harassed each day of sampling activities, there could be a maximum of 3,040 incidental harbor seal takes (190 seals X 16 sampling events). Based on age and sex ratios presented in Harkonen *et. al.*, 1999, these 3,200 estimated harbor seal takes would include approximately 896 adult males; 672 juvenile males; 864 adult females; and 608 juvenile females. Approximately 90% of the adult females are expected to be pregnant after June/July (Greig 2012). Also, as stated previously, California sea lions and northern elephant seals are observed occasionally on this beach in small numbers. The latest monitoring report from Children's Pool (for June 28, 2014-June 27, 2015 IHA for construction activities associated with the lifeguard station) reported 93 sea lions on Children's Pool Beach and 28 days of juvenile elephant seals on the Beach out of 127 days of

observation. The previous year monitoring report for Children’s Pool (for the 2013-2014 IHA for construction activities) reported three sea lions and two elephant seals on the beach for the 115 days of observations. Based on reported numbers of sea lions from the 2014-2015 monitoring reports and the observations of higher than normal strandings associated with the UME, NMFS conservatively estimated 10 times the number of individuals authorized for take associated with the sand quality study compared to those authorized for past construction activities. In addition, NMFS conservatively estimated one individual elephant seal taken for each sand sampling event. Therefore, NMFS proposes authorization for 3,040 harbor seal; 320 sea lion (20 sea lions X 16 sampling events); and 16 elephant seal (one seal X 16 sampling events) instances of incidental Level B (behavioral) takes for sand quality sampling activities taking place between June 1 and December 14, 2016 at Children’s Pool Beach. A polynomial curve fit to counts by month, prepared by Hanan & Associates was used to estimate peak numbers and numbers of seals hauled out by day (Figure 2).

**Figure 2. Estimated total harbor seals by month based on counts at the site by Hanan & Associates, Yochem and Stewart, and Children’s Pool Docents. Source: City of San Diego 2015**



NMFS will consider pinnipeds flushing into the water; moving more than twice their body length, but not into the water; and changing direction of current movement by individuals as behavioral criteria for take by Level B harassment. The City of San Diego will report the portion of pinnipeds present that are observed to exhibit these behaviors as well as the apparent source of the stimulus (i.e., if it is from human presence alone [either sample collection team, or general public], sand sampling activities [grab sample or hammering plastic core tube], or some other

cause). NMFS anticipates only behavioral disturbance to occur during the conduct of the sand quality study activities at Children’s Pool Beach and does not believe that these activities would cause injury, serious injury, or mortality.

**Table 3. Summary of the anticipated incidental take by Level B harassment of pinnipeds for the City of San Diego’s sand quality study activities at Children’s Pool Beach in La Jolla, California.**

Species	Take Authorization (Number of Exposures)	Estimated Number of Individuals Taken	Approximate Percentage of Estimated Stock (Authorized Take/Population)
Pacific harbor seal	3,040	600	10
California sea lion	320	20	0.1
Northern elephant seal	16	16	>0.01

**Indirect Impacts:** Long-term impacts on the harbor seal population at the Children’s Pool from conduct of the sand quality study activities are not anticipated. Sand sampling activities would potentially have temporary behavioral effects and result in minor potential distribution shifts.

#### 4.2 EFFECTS OF ALTERNATIVE 2 – NO ACTION ALTERNATIVE

Under the No Action Alternative, we would not issue an IHA to the City of San Diego. As a result, the City of San Diego would not receive an exemption from the MMPA prohibitions against take. The sand quality study is a special provision of a permit issued by the California Coastal Commission due to a Local Coastal Program amendment request to amend the City’s Land Use Plan. Specifically, the amendment included revisions to the public access and marine resources protection policies of the certified La Jolla Community Plan to allow seasonal closure at Children’s Pool Beach during the harbor seal pupping season (generally, December 15 to May 15) of every year. Therefore, if the special provision is not met, the terms of the permit would not be met.

##### 4.2.1 IMPACTS TO MARINE MAMMALS

Under the No Action Alternative, NMFS would not issue the IHA authorizing the take of marine mammals incidental to the conduct of sand quality sampling activities at Children’s Pool Beach. For our purposes, we assume that means the City of San Diego would therefore not conduct the sand quality study and the terms of the California Coastal Commission’s Coastal Development Permit would not be met. The intent of that permit was to allow seasonal closure of the Children’s Pool Beach in order to allow protection of harbor seals during their pupping season. When terms of a permit are not met, revocation is a potential course of action. While it is not certain that would happen in this case, if that were to happen and protection was not provided through the seasonal closure as a result, there would be greater potential for adverse impacts to the harbor seal population at Children’s Pool Beach. The seasonal beach closure provides a much clearer, more enforceable line between public access restrictions and seal protection. This restriction is especially important during the vulnerable pupping season months to ensure mothers and pups are not separated due to disturbance.

### **4.3 COMPLIANCE WITH OTHER APPLICABLE ENVIRONMENTAL LAWS**

We have determined that the issuance of an IHA is consistent with the applicable requirements of the MMPA, ESA, and our regulations.

### **4.4 UNAVOIDABLE ADVERSE IMPACTS**

Our *Federal Register* notice (81 FR 19137) requesting comments on the proposed IHA summarizes the unavoidable adverse impacts to marine mammals or the populations to which they belong as well as the habitat occurring in the sand quality study area. We incorporate that document by reference here.

We acknowledge that the incidental take authorized by the IHA would potentially result in unavoidable adverse impacts. However, we do not expect the City of San Diego's activities to have adverse consequences on the viability of marine mammals in the study area and we do not expect the marine mammal populations in that area to experience reductions in reproduction, numbers, or distribution that might appreciably reduce their likelihood of surviving and recovering in the wild. Numbers of individuals of all species taken by harassment are expected to be small (relative to species or stock abundance), and the sand quality study activities would have a negligible impact on the affected species or stocks of marine mammals.

## **CHAPTER 5 CUMULATIVE EFFECTS**

### **5.1 INTRODUCTION**

Cumulative effects are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR § 1508.7). Cumulative impacts can result from individually minor but collectively significant actions that take place over time. This section provides a discussion of anticipated cumulative impacts of the NMFS proposed action and alternatives, which are the impacts of the Proposed Action when added to past, present, and reasonably foreseeable future actions for the geographic location of the City of San Diego’s proposed sand quality sampling events.

### **5.2 CHILDREN’S POOL CONSTRUCTION ACTIVITY**

On July 13, 2015 (80 FR 133), NMFS issued an IHA to the City of San Diego to take marine mammals by harassment incidental to the Children’s Pool Lifeguard Station demolition and construction. The effective dates for this IHA were June 28, 2015 to June 27, 2016; however, the IHA stipulated that work was to be completed prior to December 15, 2015 to coincide with the seasonal beach closure. This was the third IHA that was issued for this project, as there were delays in construction activities that prevented construction activities to be completed prior to the seasonal beach closures. The overall project included the demolition of the existing lifeguard station and construction of a new, three-story lifeguard station on the same site. Previous IHAs issued for this activity can be found in 79 FR 32699 (2014 IHA) and 78 FR 40705 (2013 IHA). NMFS also prepared an Environmental Assessment and issued a Finding of No Significant Impact (FONSI) on June 28, 2013 in support of issuing this IHA. Demolition of the existing lifeguard station was completed in 2014 and construction of the new lifeguard station was completed in 2016. Therefore, ongoing construction impacts are not anticipated during the sand quality sampling activities.

### **5.3 PUBLIC ACCESS AND USE**

As discussed above, Children’s Pool Beach is a fairly urban setting and is a highly disturbed haul out site, and there is a long history of addressing the conflicts between people and seals at this location. The California Coastal Commission’s permit (Appendix B) approval includes a detailed discussion of the project area’s history and past commission actions (Section IV, Findings and Declarations) in regard to these conflicts, and we incorporate that material by reference here. To summarize, since completion of the breakwater at Children’s Pool, the public has used Children’s Pool Beach for a variety of recreational activities. Many activities currently take place at Children’s Pool Beach and the surrounding shoreline areas, including swimming, surfing, kayaking, SCUBA diving, and nature watching to name a few. Controversy arose when seals began using the location as a haul out site in greater numbers in the early 1990’s, but the Pacific harbor seal colony also draws many nature watchers to the location. Therefore, the struggle of balancing the public use of the beach for recreation with protection of the seals has been an ongoing issue for many years.

The City has made several attempts at balancing public use of the beach while allowing for protection of the seals and their habitat. As discussed in Chapter 2, Section 2.2.2, the City developed a Shared Use plan in an attempt to balance uses of the beach, which includes restrictions on public access at Children’s Pool Beach for five months of the year (December 15 to May 15). This seasonal beach closure was proposed by the City in perpetuity, but the California Coastal Commission limited the duration to a period not to exceed five years, requiring the City to prepare a monitoring plan and submit annual reports throughout the five-year permit term that measure the level of use by seals and the effectiveness of the public access restrictions on reducing or eliminating harassment of seals.

During the sand quality sampling activities at Children’s Pool Beach, public access to the beach is not restricted. Therefore, seals and sea lions that are hauled out may be disturbed by the general public and recreational usage of the beach in addition to activities of the sand quality sampling technicians. It is not anticipated that the sand sampling activities would have a significantly greater impact to hauled out pinnipeds than exist already due to the urbanized setting of the area and the fact that seals at this location have been noted to be less responsive to stimuli than seals in other areas due to becoming acclimatized to the various activities in the area (Hanan & Associates, 2011, 2014).

#### **5.4 SUMMARY**

Despite the regional and global anthropogenic and natural pressures, available trend information indicates that most local populations of marine mammals in the Pacific Ocean, and specifically in the Children’s Pool area, are stable or increasing (Caretta *et. al.*, 2013). The proposed demolition and construction activities would add another, albeit temporary activity to the coastal and marine environment in the Pacific Ocean. The proposed sand quality sampling activities would be limited to a small area in southern California for a relatively short period of time; therefore, we believe our action will be minor to negligible. NMFS believes that the incremental impact of an IHA and the City of San Diego’s proposed sand quality study activities, when combined with other potential stressors (e.g., human activities) would not be expected to result in a significant cumulative effect to the environment. The potential impacts to marine mammals, their habitat, and the environment in general are expected to be minimal based on the limited and temporary nature of the activities along with the mitigation and monitoring requirements of the IHA.

## **CHAPTER 6 – LIST OF PREPARERS AND AGENCIES CONSULTED**

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**APPENDIX A – MONITORING PLAN FOR THE CHILDREN’S POOL  
FECAL INDICATOR BACTERIA AND MERCURY SAND STUDY**

**DRAFT**  
**MONITORING PLAN FOR THE CHILDREN'S POOL**  
**FECAL INDICATOR BACTERIA AND MERCURY SAND STUDY**

**Submitted to:**  
**City of San Diego**  
**Transportation & Storm Water Department**  
**9370 Chesapeake Drive, Suite 100**  
**San Diego, California 92123**



**Submitted by:**  
**Amec Foster Wheeler Environment & Infrastructure, Inc.**  
**San Diego, California**

**February 2016**

**Amec Foster Wheeler Project No. 502515C027**

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## ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
µS/cm	microsiemens per centimeter
%	percent
303(d) List	Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments
AB	Assembly Bill
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc.
AQUA	Aquaculture
Bacteria TMDL	<i>A Resolution Amending the Water Quality Control Plan for the San Diego Basin (9) to Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria Project I-Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)</i>
Basin Plan	San Diego Region Basin Plan
BIOL	Preservation of Biological Habitats of Special Significance
CDP	Coastal Development Permit
City	City of San Diego
COC	chain of custody
COMM	Commercial and Sportfishing
CWA	Clean Water Act
EDD	Electronic Data Deliverable
EM&TS	City of San Diego Environmental Monitoring & Technical Services
EPA	United States Environmental Protection Agency
EST	Estuarine Habitat
FIB	fecal indicator bacteria
IHA	Incidental Harassment Authorization
IND	Industrial Supply
MAR	Marine Habitat
MIGR	Fish Migration
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mL	milliliter
MMPA	Marine Mammal Protection Act
MPN	most probable number

## ACRONYMS AND ABBREVIATIONS (Cont.)

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NAV	Navigation
NOAA	National Oceanic and Atmospheric Administration
NTU	nephelometric turbidity unit
*.pdf	Portable Document Format
PSO	Protected Species Observer
QA	quality assurance
QAPP	Quality Assurance Project Plan
RARE	Preservation of Rare and Endangered Species
REC1	Water Contact Recreation
REC2	Non-Contact Water Recreation
SbS	subsurface sand
SCCWRP	Southern California Coastal Water Research Project
SDRWQCB	California Regional Water Quality Control Board, San Diego Region
SHELL	Shellfish Harvesting
SM	Standard Method
SPWN	Fish Spawning
SS	surface sand
State Board	State Water Resources Control Board
TMDL	Total Maximum Daily Load
WARM	Warm Water Habitat
WILD	Wildlife Habitat

## **1.0 PROJECT DESCRIPTION**

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### **1.1 Introduction**

The California Coastal Commission issued a Notice of Intent to Issue Permit on November 7, 2014, which granted a revised Coastal Development Permit (CDP) to the City of San Diego (City), subject to certain special conditions, including a feasibility study. One of the required objectives of the feasibility study is to analyze the sand quality and methods for improving sand quality, including dredging, at Children’s Pool Beach in La Jolla, California. Children’s Pool is currently listed on the Clean Water Act (CWA) Section 303(d) List (303(d) List) as impaired for fecal indicator bacteria (FIB). Additionally, researchers have identified pinniped molting and excrement as a potential source of mercury to the environment (McHuron et al. 2014, Cossaboon et al. 2015). To partially fulfill the requirements of feasibility study, the sand study will analyze the current extent and magnitude of FIB and mercury contamination in the beach sand at Children’s Pool.

### **1.2 Purpose**

The purpose of this Monitoring Plan is to outline the program designed to determine sand quality at Children’s Pool. The data generated will be used to address the following questions:

What is the spatial and vertical distribution and magnitude of FIB in beach sand?

What is the spatial and vertical distribution and magnitude of mercury in beach sand?

### **1.3 Site Background**

Children’s Pool Beach was established in 1931 with the construction of a seawall on the western side of the point in La Jolla, which created a protected pool area for swimmers. Over the years, sand has partially filled in Children’s Pool Beach. Additionally, Pacific harbor seals have taken up residence on the beach. The harbor seal population has been increasing since 1979. Harbor seals haul out on the sand, rocks, and seawall in and around Children’s Pool Beach, in numbers ranging from 0 to 250, depending on time of day, season, and weather conditions. A study conducted by Linder (2011) predicted that it was unlikely that harbor seal numbers would exceed 250 individuals because of limited space behind the seawall. During counts of Pacific harbor seals conducted during monitoring of lifeguard tower construction in the area in 2014-2015, 12 counts totaling more than 200 individuals, with a maximum of 238 individuals, occurred. As stated in the Marine Mammal Protection Act (MMPA) Incidental Harassment Authorization (IHA) application for the ongoing lifeguard tower construction at Children’s Pool Beach, “At low tide, additional hauling space is available on the rocky reef areas outside the retaining wall and on beaches immediately southward. Radio tagging and photographic studies have revealed that only a portion of the harbor seals utilizing a hauling site are present at any specific moment or day (Hanan 1996; Hanan 2005; Gilbert et al. 2005; Harvey and Goley 2011; Linder 2011). These studies further indicate that the harbor seals are constantly moving along the coast, including to and from the offshore islands, and that there may be as many as 600 harbor seals using Children’s Pool Beach during a year, but certainly not all at one time” (City of San Diego 2015). The harbor seals haul out, birth pups, molt, forage, and mate in and around Children’s Pool Beach. Seal pupping occurs from approximately January through May (Hanan 2004; Hanan & Associates 2011; Hanan and Hanan 2014). Per

Dr. Doyle Hanan, Children’s Pool Beach is one of three mainland harbor seal hauling sites in San Diego County.

California sea lions (*Z. californianus*) and northern elephant seals (*M. angustirostris*) are observed occasionally on this beach and in nearby areas (Yochem and Stewart 1998; Hanan 2004; Hanan & Associates 2011; Hanan and Hanan 2014) in small numbers (less than five). Additionally, northern (*C. ursinus*) and Guadalupe (*A. townsendi*) fur seals have been observed at nearby beaches (personal communication with Dr. Doyle Hanan, December 3, 2015), although sightings of these species are rare.

The City has designated Children’s Pool Beach as a shared use beach. Many activities currently take place at Children’s Pool Beach and the surrounding shoreline areas, including swimming, surfing, kayaking, diving, tide pooling, and nature watching. The Pacific harbor seal colony that has taken up residence at Children’s Pool Beach, in particular, draws many nature watchers. During the Pacific harbor seal pupping season (December 15 through May 15, annually), the beach is closed to the public per the revised City CDP issued by the California Coastal Commission. Outside of the pupping season, beach access and recreational uses are permitted, provided that there is no direct harassment of the harbor seals.

Beneficial uses within the Scripps subwatershed (which includes Children’s Pool), as designated by the State Water Resources Control Board (State Board) San Diego Region Basin Plan (Basin Plan) for surface waters, are provided in Table 1-1 (SDRWQCB 2007). Currently, Children’s Pool is identified in both the Scripps subwatershed Bacteria Total Maximum Daily Load (TMDL) and the 2010 CWA 303(d) List as impaired for indicator bacteria (SDRWQCB 2010a, SDRWQCB 2010b, USEPA 2011).

**Table 1-1. Beneficial Uses for the 303(d) Listed Waterbody**

Hydrologic Unit	Waterbody Type	Beneficial Use														
		IND	NAV	REC1	REC2	COMM	BIOL	EST	WILD	RARE	MAR	AQUA	MIGR	SPWN	WARM	SHELL
<b>Shoreline</b>																
Scripps (90630)	Pacific Ocean	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

AQUA = Aquaculture, BIOL = Preservation of Biological Habitats of Special Significance, COMM = Commercial and Sportfishing, EST = Estuarine Habitat, IND = Industrial Supply, MAR = Marine Habitat, MIGR = Fish Migration, NAV = Navigation, RARE = Preservation of Rare and Endangered Species, REC1 = Water Contact Recreation, REC2 = Non-Contact Water Recreation, SHELL = Shellfish Harvesting, SPWN = Fish Spawning, WARM = Warm Water Habitat, WILD = Wildlife Habitat

• Existing Beneficial Use

Source: Water Quality Control Plan for the San Diego Basin (9) (Basin Plan) (California Regional Water Quality Control Board, San Diego Region [SDRWQCB] 2007).



Figure 1-1. Study Site

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## 1.4 Project Organization and Responsibilities

For sampling efforts and reporting, the City, Consultants, and Laboratory staff will have the following roles and responsibilities:

**Contract Manager:** The Contract Manager contracts with the selected consultants and laboratories to implement the monitoring plan and act as the liaison between the City and Contractors. Andre Sonksen is the Contract Manager.

**Project Manager:** The Project Manager is responsible for overseeing the day-to-day activities of sample collection and ensuring that samples reach the laboratory within stated holding times. Rolf Schottle is the Project Manager.

**Project Quality Assurance (QA) Officer:** The Project QA Officer conducts quality assurance oversight for the project independently from project management and from the project's monitoring program. Jay Shrake is the Project QA Officer.

**Laboratory QA Officer/Project Manager:** Each participating laboratory must identify a QA Officer or Project Manager for this monitoring program. The Laboratory Project Manager is responsible for performing sample analyses and implementing quality control procedures in accordance with this Monitoring Plan. Laila Othman (City Environmental Monitoring and Technical Services [EM&TS] Laboratory) and Carla Hollowell (Eurofins-Calscience) are the Laboratory Project Managers.

**Lead Protected Species Observer:** The National Oceanic and Atmospheric Administration (NOAA)-Fisheries-approved Lead Protected Species Observer (PSO) is responsible for detecting, documenting, and minimizing the number of marine mammal harassment events in accordance with the IHA Permit. Heather Krish is the Lead PSO.

## 1.5 Sampling Schedule

Tasks and deliverables can be found in Table 1-2. All sampling events will be conducted during daylight hours (7:00 – 19:00); sand sampling activities shall be scheduled during the period of lowest haul-out occurrence (approximately 8:30 – 15:30) to the maximum extent practicable. Up to 16 sampling events, approximately 4 hours in duration, will be conducted. The City closes Children's Pool Beach during harbor seal pupping season (December 15 through May 15). In addition, the anticipated MMPA IHA Permit, which is required to perform the monitoring work for the Children's Pool FIB and Mercury Sand Study, stipulates that monitoring is to be performed between June 1, 2016, and December 14, 2016, as to accommodate late weaning seals. All sampling activities will be performed at 850 Coast Boulevard, La Jolla, California 92037: Children's Pool Beach (32.847557°, -117.278485°). A map showing the study area is presented in Figure 1-1.

**Table 1-2.  
Project Schedule**

<b>Children's Pool Fecal Indicator Bacteria and Mercury Sand Study</b>		
<b>Activity</b>	<b>Date</b>	<b>Deliverable</b>
Project Management and Meetings	10 business days after meeting	Meeting Notes
Incidental Harassment Authorization (IHA) Permit Procurement	Submitted December 2015	Draft Permit Application to City for Review
	Submitted December 2015	Permit Application to NOAA
Monitoring Plan and Quality Assurance Project Plan (QAPP) Development	January 29, 2016	Draft Monitoring Plan and QAPP (to City)
	March 18, 2016	Final Monitoring Plan and QAPP (to City)
	February 2016	Draft Monitoring Plan and QAPP (to NMSF)
Field Monitoring	June 1, 2016 through December 14, 2016	Laboratory Electronic Data Deliverable (EDD) (FY2017)
Reporting	TBD	Draft Technical Memorandum (FY2017)
	Before March 15, 2017, ≤90 days post sampling	Draft Monitoring Report (to Office of Protected Resources, NMFS)
	TBD, 30 days after comments from NMFS	Final Monitoring Report (to Office of Protected Resources, NMFS)

## **2.0 MONITORING APPROACH**

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This section describes the purpose, scope, and type of sampling to be conducted. Additional details of the sampling and analytical methodology and data quality objectives are described in the Quality Assurance Project Plan (QAPP), provided as Appendix A.

### **2.1 Incidental Harassment Authority Permit**

Before sampling of beach sand can take place, the City must obtain an IHA permit that allows for Level B harassment of marine mammals that use the area. An application for an IHA pursuant to the MMPA was submitted to the NOAA Fisheries Office of Protected Resources for review in December 2015.

Based on preliminary investigation, it was determined that an IHA permit under the Marine Mammal Protection Act is necessary to perform this study, due to the likelihood for IHA Level B harassment of harbor seals during sample collection. Level B harassment has the potential to disturb a marine mammal by causing disruption of behavioral patterns such as nursing, breeding, feeding, or sheltering, but does not have the potential to cause injury or direct contact, considered as Level A harassment. The IHA permit is effective for up to one year: it is assumed that the monitoring portion of this study will be completed within this timeframe, and an IHA permit renewal is required for additional work outside of this time frame. The sand study will have the potential to alert and flush harbor seals into the water during sampling events. Assuming that all harbor seals potentially hauled out at Children's Pool Beach would be exposed to Level B harassment during sampling events, there could be a maximum of 3,040 incidental harbor seal takes. The City requested the Incidental Harassment Authority for 3,040 Pacific harbor seals, 100 California sea lion and 10 northern elephant seal take authorizations for June 2016 through December 2016 during the non-pupping season.

Once the IHA permit is approved, it is valid for up to one year. The permit, once issued, may have special provisions that will require the amendment of the current monitoring plan and QAPP for the sand study sampling events.

#### **2.1.1 Sampling Schedule and Procedures**

Up to 16 sampling events may take place under this Monitoring Plan, with 6 primary events currently planned. The first monitoring event will be conducted following the formal end of harbor seal pupping season beach access restriction, inclusive of a two week extension to accommodate late weaning harbor seals beginning on June 1, 2016 and completed prior to December 15, 2016.

Per anticipated requirements of the IHA Permit, sand sampling activities will not be conducted if Guadalupe fur or Northern fur seals are present on the beach. Sighting of these species are rare and may be associated with well documented pinniped malnutrition and die-off observed during the current El Nino conditions. If either of these two species is observed, it will be presumed that these seal(s) are stranded and the Sea World stranded animal hotline (1-800-541-7235) as well as the NOAA regional marine stranded mammal coordinator will be immediately notified (<http://www.nmfs.noaa.gov/pr/health/report.htm>). Sampling will be rescheduled to a time after either of these depleted species have been removed by rescuers or return to the offshore. Scheduling sand sampling activities, to the maximum extent practicable, will be performed during the daily period of lowest haul-out occurrence (08:30-15:30), and sampling locations will be offset to accommodate hauled out pinnipeds during each monitoring

event. However, sand sampling activities may be extended from 7:00 to 19:00. (*i.e.*, daylight hours) to help assure that the project is completed during the 2016 sand sampling window and to assure that activities are conducted during lowest numbers of hauled out pinnipeds. During sand sampling, field teams will maintain a distance of at least 3 meters from any hauled-out pinniped. A PSO will conduct monitoring concurrent to all sampling activities to document pinniped behaviors and responses as required by the IHA Permit. PSO observations will be recorded using a customized log sheet in accordance to the IHA and corresponding amendment. A draft field monitoring form is provided in Appendix B.

### **2.1.2 Field Teams – Composition and Training**

A NMFS-qualified, trained Protected Species Observer (PSO) shall be used to detect, document, and minimize potential impacts from sand sampling activities. The PSO shall attend the project site 30 minutes prior until 30 minutes after sand sampling activities cease each day throughout the sand quality study window. The PSO shall be approved by NMFS prior to commencement of activities.

The PSO will be a trained biologist with the following minimum requirements:

- Visual acuity in both eyes (correction is permissible) sufficient for discernment of target species with ability to estimate required reporting parameters (*i.e.*, species; size; life stage; sex; etc.); use of binoculars may be necessary to correctly identify the target;
- Advanced education in biological science or related field (undergraduate degree or higher required);
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience);
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the study activities and area to provide for personal safety during observations;
- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when study activities were conducted; all relevant information regarding disturbance of marine mammals due to study activities; and marine mammal behavior in relation to study activities; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.
- Advanced education may not be necessary in this case. The point is to have some assurance that at minimum the head observer has demonstrated competency. Training should include:
  - The MMPA and conditions of the IHA
  - Required monitoring protocols
  - Relevant species identification
  - Age class identification
  - Recording of count and disturbance observations (including completion of data sheets)
  - Use of equipment

Prior to sampling events, all field staff will take part in marine mammal training conducted by a qualified biologist. It is assumed that two or three City staff will participate in each monitoring event, in both field sampling (one or two staff members) and PSO (one staff member) roles. It is

assumed that up to two Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) staff members will participate in each monitoring event, in both field support and technical lead roles, subject to any restrictions in the approved IHA.

The PSO shall search for marine mammals using binoculars and/or the naked eye within the study area. The PSO will observe (weather permitting) from the base of the cliff, on the sidewalk above the site, the staircase platform just above the beach, or the seawall catwalk, depending on where the best vantage is to observe where pinnipeds are present. The Project Manager will be available to assist on the beach as needed, but the Project Manager's primary role is to interact with and inform the public and any special interest groups on the sidewalk, oversee the sample collections, and function as a secondary PSO to confirm observations. Both the PSO and Project Manager will be in direct contact with the field team members on the beach via walkie-talkie or cell phone.

## **2.2 Beach Sand Sampling**

### **2.2.1 Fecal Indicator Bacteria**

The first three sampling events (herein referred to as Phase 1a) are designed to maximize sampling area and to capture critical conditions when FIB may be at their highest concentrations. During each Phase 1a event, three transects parallel to the shoreline at the swash zone, the high-tide line, and the supralittoral zone will be established relative to the seawall railing and three surface sand (SS) FIB samples (top 2 centimeters) will be collected across each of the transects at approximately left, middle, and right beach (Figure 2-1). GPS coordinates for each sample will be recorded along each transect. In addition, subsurface sand (SbS) FIB samples will also be collected at three of the nine SS sampling location during each event at approximately 25–50 centimeters below the surface. Additional adaptive FIB samples may be collected to document event-specific conditions, such as areas recently occupied by pinnipeds, areas of wrack deposits, or additional depths at existing sampling locations. A maximum of 21 FIB samples, including field replicates, will be collected for each Phase 1a monitoring event, for an approximate maximum Phase 1a total of 63 FIB samples. The remaining three sampling events (herein referred to as Phase 1b) will consist of biased sampling based on Phase 1a preliminary findings. The study design for Phase 1b will be finalized in consultation with the City. A maximum of 21 FIB samples, including field replicates, will be collected for each Phase 1b monitoring event, for an approximate maximum Phase 1b total of 63 FIB samples.

Because of the known heterogeneity of sediment bacteria populations, field replicates will be collected at a rate of approximately 10 percent (%) of the total sample count. All sand samples will be collected in sterile containers and transported on ice to the laboratory within six hours of collection. The City of San Diego EM&TS laboratory will perform analysis of sand samples.

### **2.2.2 Total Mercury**

Additionally, because of the potential for mercury deposition to the beach through pinniped molt and feces, total mercury may be added as an analytical constituent for up to 5 SS samples per event. A maximum of 32 mercury samples, including field replicates, may be collected during Phase 1a and 1b monitoring. The study design will be finalized in consultation with the City. Eurofins-Calscience Laboratories will perform analysis of mercury samples.



**Figure 2-1. Map of Beach Sampling Locations**

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### 2.2.3 Constituents

FIB and total mercury are the target constituents for the sand study. Grab samples will be collected aseptically and analyzed for target FIB in accordance with the Southern California Coastal Water Research Project (SCCWRP) sand protocol (SCCWRP, 2009). Because bacteria levels are being measured from sand samples, the values reported are not directly comparable with existing water quality reporting limits or water quality objectives. The results will provide a relative magnitude of FIB concentrations in beach sand from which appropriate recommendations may be made. Table 2-1 presents the constituents, reporting limits, and analytical methods.

**Table 2-1.  
Analyses for FIB and Mercury Sand Study**

Parameter	Analytical Methods
<i>Enterococcus</i>	EPA 1600
Fecal Coliform	SM 9222D
Total Coliform	SM 9222B
Total Mercury	EPA 7471A

### 2.3 Optional Reference Beach Monitoring

Marine mammal molting and excrement on the sand have been linked to elevated mercury concentrations in beach sand (McHuron et al. 2014, Cossaboon et al. 2015). Therefore, a beach in close proximity to Children’s Pool, where marine mammals are not typically observed, may be sampled as a reference site to assess pinniped-associated mercury deposition. South Boomers Beach is located directly north of Children’s Pool and is easily accessible via the stepped rocky bluff south of Point La Jolla Beach sand samples may be collected at this site when sand samples at Children’s Pool are designated for total mercury analysis. Reference samples may also be collected for FIB testing dependent on results from Phase 1 testing. Samples will be collected at the same depth from surface and tidal interface and paired to Children’s Pool samples during the same event (e.g., same swash zone, or supralittoral zone). It is anticipated that no more than 3 reference samples will be collected per event.

### 2.4 Non-Direct Measurements (Bacteria TMDL Water Quality Data)

The City conducts water quality monitoring at Children’s Pool as part of the Scripps HA Bacteria TMDL compliance monitoring program. From April through October, the City measures field parameters (see Table 2-2) as well as FIB during dry weather approximately weekly (minimum of five events per month). For November through March, the City samples during dry weather once per month in addition to sampling within 24 hours of the end of precipitation for three qualifying storm events. Sand quality sampling events will be coordinated with water quality monitoring events to the maximum extent practicable to improve assessment of sand quality.

**Table 2-2.  
Optional Field Parameters**

Field Parameter	Method	Unit
Dissolved Oxygen	YSI Pro ODO Field Meter	mg/L
pH	YSI Professional Plus Field Meter	–
Specific Conductivity	YSI Professional Plus Field Meter	µS/cm
Temperature	YSI Professional Plus Field Meter	°C
Turbidity	YSI Professional Plus Field Meter	NTU

Notes:

°C = degrees Celsius; µS/cm = microsiemens per centimeter, mg/L = milligrams per liter, NTU= nephelometric turbidity unit

### **3.0 DATA MANAGEMENT AND REPORTING PROCEDURES**

---

This section describes the management of field and analytical data and reporting procedures for the Children's Pool Fecal Indicator Bacteria and Mercury Sand Study.

#### **3.1 Data Management**

Field Data Records and Analytical Data Reports will be sent to and kept by the designated City of San Diego Project Manager.

Amec Foster Wheeler will review all Field Data Log Sheets for completeness, maintain the original hardcopies, and scan electronic copies (\*.pdf) for storage in the project file. Copies of Field Data Log Sheets and photographs for each event will be submitted to the City of San Diego with each EDD submittal. The field team will retain the original Field Data Log Sheets.

The laboratories will provide data in electronic format: both \*.pdf copies of lab reports and an EDD. Analytical results will be submitted to the Sampling Agency in \*.pdf format and as an EDD within three weeks of submittal of samples. The Sampling Agency will review all lab reports and EDDs for accuracy and completeness. The contract laboratory will retain original chain of custody (COC) forms. The contract laboratory will retain copies of the preliminary and final data reports.

#### **3.2 Reporting Procedures**

Amec Foster Wheeler will provide a laboratory EDD, data analysis and a draft technical memorandum, all tentatively planned for fiscal year 2017. The technical memorandum will describe the methods of sample collection, present results, and address the study questions.

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**APPENDIX A**

**CHILDREN'S POOL**  
**FECAL INDICATOR BACTERIA AND MERCURY SAND STUDY**  
**DRAFT QUALITY ASSURANCE PROJECT PLAN**

**DRAFT**  
**QUALITY ASSURANCE PROJECT PLAN FOR THE CHILDREN'S POOL**  
**FECAL INDICATOR BACTERIA AND MERCURY SAND STUDY**

**Submitted to:**  
**City of San Diego**  
**Transportation & Storm Water Department**  
**9370 Chesapeake Drive, Suite 100**  
**San Diego, California 92123**



**Submitted by:**  
**Amec Foster Wheeler Environment & Infrastructure, Inc.**  
**San Diego, California**

**February 2016**

**Amec Foster Wheeler Project No. 502515C027**  
**QAPP Revision No. 01**

**GROUP A ELEMENTS: PROJECT MANAGEMENT**

**TITLE AND APPROVAL SHEETS**

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DRAFT  
QUALITY ASSURANCE PROJECT PLAN FOR THE CHILDREN'S POOL  
FECAL INDICATOR BACTERIA AND MERCURY SAND STUDY

February 2016

**Submitted to:**  
City of San Diego  
Transportation & Storm Water Department  
9370 Chesapeake Drive, Suite 100  
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**Submitted by:**  
Amec Foster Wheeler Environment & Infrastructure, Inc.  
San Diego, California

**Amec Foster Wheeler Project No. 502515C027**  
**QAPP Revision No. 01**

Approval Signatures:

<b>Title:</b>	<b>Name:</b>	<b>Signature:</b>	<b>Date*:</b>
City of San Diego Contract Manager	Andre Sonksen	_____	_____
Amec Foster Wheeler Project QA Officer	Jay Shrake	_____	_____
Amec Foster Wheeler Project Manager	Rolf Schottle	_____	_____
City of San Diego EM&TS Lab Project Manager	Laila Othman	_____	_____
Eurofins-Calscience Project Manager	Carla Hollowell	_____	_____
Protected Species Observer (PSO) Lead	Heather Krish	_____	_____

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## ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
µS/cm	microsiemens per centimeter
%	percent
303(d) List	Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments
AB	Assembly Bill
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc.
AQUA	Aquaculture
Bacteria TMDL	<i>A Resolution Amending the Water Quality Control Plan for the San Diego Basin (9) to Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria Project I-Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)</i>
Basin Plan	San Diego Region Basin Plan
BIOL	Preservation of Biological Habitats of Special Significance
CDP	Coastal Development Permit
City	City of San Diego
CLRP	Comprehensive Load Reduction Program
COC	chain of custody
COMM	Commercial and Sportfishing
CWA	Clean Water Act
DHS	California Department of Health Services
DQO	data quality objective
EDD	Electronic Data Deliverable
ELAP	Environmental Laboratory Accreditation Program
EM&TS	City of San Diego Environmental Monitoring & Technical Services
EPA	United States Environmental Protection Agency
EST	Estuarine Habitat
FIB	fecal indicator bacteria
ID	identification
IHA	Incidental Harassment Authorization
IND	Industrial Supply
JPEG	Joint Photographic Experts Group
MAR	Marine Habitat
MIGR	Fish Migration
mg/kg	milligrams per kilogram

**ACRONYMS AND ABBREVIATIONS (Cont.)**

mg/L	milligrams per liter
mL	milliliter
MPN	most probable number
NA	not applicable
NAV	Navigation
NOAA	National Oceanic and Atmospheric Administration
NTU	nephelometric turbidity unit
*.pdf	Portable Document Format
PSO	Protected Species Observer
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RARE	Preservation of Rare and Endangered Species
REC1	Water Contact Recreation
REC2	Non-Contact Water Recreation
RL	reporting limit
RPD	relative percent difference
SbS	subsurface sand
SDRWQCB	California Regional Water Quality Control Board, San Diego Region
SHELL	Shellfish Harvesting
SM	Standard Method
SOP	standard operating procedure
SPWN	Fish Spawning
SS	surface sand
State Board	State Water Resources Control Board
SWAMP	Surface Water Ambient Monitoring Program
TBD	to be determined
TMDL	Total Maximum Daily Load
WARM	Warm Water Habitat
WILD	Wildlife Habitat

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## 2.0 DISTRIBUTION LIST

<b>Title:</b>	<b>Name (Affiliation):</b>	<b>Tel. No.:</b>	<b>QAPP No.:</b>
Contract Manager	Andre Sonksen (City of San Diego)	858-541-4317	1.0
Project Quality Assurance (QA) Officer	Jay Shrake (Amec Foster Wheeler)	858-514-6459	1.0
Project Manager	Rolf Schottle (Amec Foster Wheeler)	858-300-4323	1.0
City of San Diego Environmental Monitoring & Technical Services (EM&TS) Lab Project Manager	Laila Othman (City of San Diego EM&TS Laboratory)	619-758-2312	1.0
Eurofins-Calscience Project Manager	Carla Hollowell (Eurofins-Calscience)	515-280-8378	1.0
Protected Species Observer (PSO) Lead	Heather Krish (City of San Diego)	858-541-4319	1.0

Laboratory Managers will receive an electronic copy of the QAPP.

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### 3.0 PROJECT/TASK ORGANIZATION

#### 3.1 Involved Parties and Roles

The City of San Diego, consultants, and laboratory staff will have the following roles and responsibilities (Table 3-1):

- **Contract Manager:** Andre Sonksen is the Contract Manager for the City of San Diego (City). The Contract Manager will be responsible for establishing contracts with the selected consultants and/or laboratories to implement the Children’s Pool Fecal Indicator Bacteria and Mercury Sand Study (sand study) and act as the liaison between the Responsible Party (City) and consultants.
- **Project Manager:** Rolf Schottle is the Project Manager. The Project Manager will be responsible for overseeing the day-to-day activities of implementing the sand study.
- **Project Quality Assurance (QA) Officer:** Jay Shrake is the Project QA Officer. The Project QA Officer will be responsible for overseeing the project QA activities independently from the Project Manager to ensure that project implementation is being conducted in accordance with this Quality Assurance Project Plan (QAPP).
- **Laboratory QA Officer/Project Manager:** Laila Othman is the Laboratory Project Manager with the City of San Diego EM&TS Lab. Carla Hollowell is the Laboratory Project Manager with Eurofins-Calscience.
- **Protected Species Observer Lead:** Heather Krish is the PSO lead. The National Oceanic and Atmospheric Administration (NOAA)-Fisheries-approved PSO is responsible for detecting, documenting, and minimizing the number of marine mammal harassment events in accordance with the IHA Permit.

**Table 3-1. Personnel Responsibilities**

Name	Organizational Affiliation	Role/Responsibility	Contact Information
Andre Sonksen	City of San Diego	Contract Manager	858-541-4317 asonksen@sandiego.gov
Rolf Schottle	Amec Foster Wheeler	Project Manager	858-514-6459 rolf.schottle@amecfw.com
Jay Shrake	Amec Foster Wheeler	Project QA Officer	858-300-4323 jay.shrake@amecfw.com
Laila Othman	City of San Diego EM&TS Lab	Laboratory QA Officer	619-758-2312 lothman@sandiego.gov
Carla Hollowell	Eurofins-Calscience	Laboratory QA Officer	515-280-8378 carlahollowell@eurofinsus.com
Heather Krish	City of San Diego	PSO Lead	858-541-4319 hkrish@sandiego.gov

## **Quality Assurance Officer Role**

The Project QA Officer position is independent of data generation. The Project QA Officer will ensure that the QA and quality control (QC) procedures set in place in this document will be properly applied throughout the sampling activities and analysis. The Project QA Officer will coordinate with the Project Managers and QA Officers of participating laboratories to ensure that all QA and QC procedures within this QAPP are understood and followed by participating labs.

## **Persons Responsible for QAPP Update and Maintenance**

The Project Manager and Project QA Officer are responsible for maintaining this QAPP. Changes and updates to this QAPP may be made by the Project Manager or Project QA Officer. The Project Manager will be responsible for making the changes and ensuring that these updates are provided to each of the participating agencies as listed in Table 3-1. Previous versions of the QAPP should be removed to avoid any confusion regarding the most current version of the QAPP.

## **4.0 PROBLEM DEFINITION/BACKGROUND**

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### **4.1 Problem Statement**

Children's Pool Beach was established in 1931 with the construction of a seawall on the western side of the point in La Jolla, California, which created a protected pool area for swimmers. Over the years, sand has partially filled in Children's Pool Beach. Additionally, Pacific harbor seals have taken up residence on the beach. The harbor seal population has been increasing since 1979. The harbor seals haul out, birth pups, molt, forage, and mate in and around Children's Pool Beach. Seal pupping occurs from approximately January through May (Hanan 2004; Hanan & Associates 2011; Hanan and Hanan 2014). Several studies have identified harbor seal behavior and estimated harbor seal numbers, including patterns of daily and seasonal area use (Yochem and Stewart 1998; Hanan 2004; Hanan & Associates 2011; Linder 2011; Hanan and Hanan 2014). Per Dr. Doyle Hanan, Children's Pool Beach is one of three mainland harbor seal hauling sites in San Diego County.

Children's Pool is currently listed on the Clean Water Act (CWA) Section 303(d) List (303(d) List) as impaired for fecal indicator bacteria (FIB). Additionally, researchers have identified pinniped molting and excrement as a potential source of mercury to the environment (McHuron et al. 2014, Cossaboon et al. 2015).

The California Coastal Commission issued a Notice of Intent to Issue Permit on November 7, 2014, which granted a revised Coastal Development Permit (CDP) to the City, subject to certain special conditions, including a feasibility study. One of the required objectives of the feasibility study is to analyze the sand quality and methods for improving sand quality, including dredging, at Children's Pool Beach.

This sand study will analyze the current extent and magnitude of FIB and mercury contamination in the beach sand at Children's Pool Beach. The purpose of this QAPP is to outline the methodology and data quality requirements to meet the goals of the feasibility study.

### **4.2 Decisions or Outcomes**

The data generated by this project will be used to determine the quality of beach sand at Children's Pool using bacteria counts and mercury concentrations as indicators.

The general approach and specific design elements of the project are driven by the following monitoring questions:

- What is the spatial and vertical distribution and magnitude of FIB in beach sand?
- What is the spatial and vertical distribution and magnitude of mercury in beach sand?

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## **5.0 PROJECT/TASK DESCRIPTION**

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This QAPP reflects the beach sand sampling and reporting components of the Children's Pool Sand Fecal Indicator Bacteria and Mercury Sand Study.

### **5.1 Field Teams, Procedures and Sampling Schedule**

Up to 16 sampling events may take place under this Monitoring Plan, with 6 primary events currently planned. The first monitoring event will be conducted two weeks following the end of the formal harbor seal pupping season (June 1, 2016) and completed prior to December 15, 2016. Although May 15 is the end of pupping season according to the City CDP, the National Oceanic and Atmospheric Administration (NOAA) is requesting a start date of June 1 as a provision of the IHA permit to accommodate late weaning pups that may still be present on the beach. Reporting will continue through the City of San Diego 2016-2017 fiscal year (before June 1, 2017).

Sand sampling activities will not be conducted if Guadalupe or Northern fur seals are present on the beach. Scheduling sand sampling activities will be performed during daylight hours (07:00-19:00) and, to the maximum extent practicable, will be performed during the daily period of lowest haul-out occurrence (08:00-15:30). Sampling locations will be offset to accommodate hauled out pinnipeds during each monitoring event. During sand sampling, field teams will maintain a distance of at least 3 meters from any hauled-out pinniped. A PSO will conduct monitoring concurrent to all sampling activities to document pinniped behaviors and responses as required by the IHA Permit.

#### **5.1.1 Field Teams – Composition and Training**

A NMFS-qualified, trained Protected Species Observer (PSO) shall be used to detect, document, and minimize potential impacts from sand sampling activities. The PSO shall attend the project site 30 minutes prior until 30 minutes after sand sampling activities cease each day throughout the sand quality study window. The PSO shall be approved by NMFS prior to commencement of activities.

The PSO will be a trained biologist with the following minimum requirements:

- Visual acuity in both eyes (correction is permissible) sufficient for discernment of target species with ability to estimate required reporting parameters (i.e., species; size; life stage; sex; etc.); use of binoculars may be necessary to correctly identify the target;
- Advanced education in biological science or related field (undergraduate degree or higher required);
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience);
- Experience or training in the field identification of marine mammals, including the identification of behaviors;

- Sufficient training, orientation, or experience with the study activities and area to provide for personal safety during observations;
- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when study activities were conducted; all relevant information regarding disturbance of marine mammals due to study activities; and marine mammal behavior in relation to study activities; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.
- Advanced education may not be necessary in this case. The point is to have some assurance that at minimum the head observer has demonstrated competency. Training should include:
  - The MMPA and conditions of the IHA
  - Required monitoring protocol
  - Relevant species identification
  - Age class identification
  - Recording of count and disturbance observations (including completion of data sheets)
  - Use of equipment

Prior to sampling events, all field staff will take part in marine mammal training conducted by a qualified biologist. It is assumed that two or three City staff will participate in each monitoring event, in both field support (one or two staff members) and PSO (one staff member) roles. It is assumed that up to two Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) staff members will participate in each monitoring event, in both field support and technical lead roles, subject to any restrictions in the approved Incidental Harassment Authorization (IHA).

The PSO shall search for marine mammals using binoculars and/or the naked eye within the study area. The PSO will observe (weather permitting) from the base of the cliff, on the sidewalk above the site, the staircase platform just above the beach, or the seawall catwalk, depending on where the best vantage is to observe where pinnipeds are present. The Project Manager will be available to assist on the beach as needed, but the Project Manager's primary role is to interact with and inform the public and any special interest groups on the sidewalk, oversee the sample collections, and function as a secondary PSO to confirm observations. Both the PSO and Project Manager will be in direct contact with the field team members on the beach via walkie-talkie or cell phone.

### **5.1.2 Fecal Indicator Bacteria Sampling**

The first three sampling events (herein referred to as Phase 1a) are designed to maximize sampling area and to capture critical conditions when FIB may be at their highest concentrations. During each Phase 1a event, three transects parallel to the shoreline at the swash zone, the high-tide line, and the supralittoral zone will be established relative to the seawall railing and three surface sand (SS) FIB samples (top 2 centimeters) will be collected across each of the transects at approximately left, middle, and right beach. GPS coordinates for each sample collected along the transects will be recorded. In addition, subsurface sand (SbS) FIB samples will also be collected at three of the nine SS sampling locations during each event at approximately 25–50 centimeters below the surface. Additional adaptive FIB samples will be collected to document event-specific conditions, such as areas recently occupied by pinnipeds, areas of wrack deposits, or additional depths at existing sampling locations. A maximum of 21 FIB samples, including field replicates, will be collected for each Phase 1a monitoring event, for an approximate maximum Phase 1a total of 63 FIB samples. The remaining three sampling events (herein referred to as Phase 1b) will consist of biased sampling based on Phase 1a preliminary findings. The study design for Phase 1b will be finalized in consultation with the City. A maximum of 21 FIB samples, including field replicates, will be collected for each Phase 1b monitoring event, for an approximate maximum Phase 1b total of 63 FIB samples. Based on the combined Phase 1a and Phase 1b results up to an additional 10 sample collection events will be performed.

Because of the known heterogeneity of sediment bacteria populations, field replicates will be collected at a rate of approximately 10 percent (%) of the total sample count. All sand samples will be collected in sterile containers and transported on ice to the laboratory within six hours of collection. The City of San Diego Environmental Monitoring & Technical Services (EM&TS) laboratory will perform analysis of sand samples.

### **5.1.3 Total Mercury Sampling**

Additionally, because of the potential for mercury deposition to the beach through pinniped feces, total mercury may be added as an analytical constituent for up to 5 SS samples per event. A maximum of 32 mercury samples, including field replicates, may be collected during Phase 1a and 1b monitoring. The study design will be finalized in consultation with the City. Eurofins-Calscience Laboratories will perform analysis of mercury samples.

### **5.1.4 Optional/Non-Direct Monitoring**

#### **5.1.4.1 Reference Beach Monitoring**

Marine mammal molting and excrement on the sand have been linked to elevated mercury concentrations in beach sand (McHuron et al. 2014, Cossaboon et al. 2015). Therefore, a beach in close proximity to Children's Pool, where marine mammals are not typically observed, may be sampled as a reference site to assess pinniped-associated mercury deposition. South

Boomers Beach is located directly north of Children’s Pool and is easily accessible via the stepped rocky bluff south of Point La Jolla. Beach sand samples may be collected at this site when sand samples at Children’s Pool are designated for total mercury analysis. Reference samples may also be collected for FIB testing dependent on results from Phase 1 testing, although this beach is known to harbor significant numbers of seagulls (known sources of FIB) which may complicate reference comparisons for FIB. Samples will be collected at the same depth from surface and tidal interface and paired to Children’s Pool samples during the same event (e.g., same swash zone, or supralittoral zone). It is anticipated that no more than 3 reference samples will be collected per event.

#### 5.1.4.2 Bacteria TMDL Monitoring

The City conducts water quality monitoring at Children’s Pool as part of the Scripps HA Bacteria TMDL compliance monitoring program. From April through October, the City measures field parameters (see Table 5-1) as well as FIB during dry weather approximately weekly (minimum of five events per month). For November through March, the City samples during dry weather once per month in addition to sampling within 24 hours of the end of precipitation for three qualifying storm events. Sand sampling events will be coordinated with water quality monitoring events to the maximum extent practicable to improve assessment of sand quality.

**Table 5-1.  
 Optional Field Parameters**

Field Parameter	Method	Unit
Dissolved Oxygen	YSI Pro ODO Field Meter	mg/L
pH	YSI Professional Plus Field Meter	-
Specific Conductivity	YSI Professional Plus Field Meter	µS/cm
Temperature	YSI Professional Plus Field Meter	°C
Turbidity	YSI Professional Plus Field Meter	NTU

Notes:  
 °C = degrees Celsius; µS/cm = microsiemens per centimeter, mg/L = milligrams per liter, NTU= nephelometric turbidity unit

#### Reporting

Amec Foster Wheeler will provide a laboratory EDD, data analysis and a draft technical memorandum, all tentatively planned for fiscal year 2017. The technical memorandum will describe the methods of sample collection, present results, and address the study questions.

#### Monitored Constituents and Measurement Techniques

Samples will be analyzed for FIB and total mercury. Table 5-2 provides a master list of analytical constituents as well as applicable Surface Water Ambient Monitoring Program (SWAMP) requirements.

**Table 5-2.  
 Master List of Analytical Constituents**

Constituents	Method	Target Reporting Limit	Analytical Laboratory
<i>Enterococcus</i>	EPA 1600	NA	City EM&TS
Fecal coliform	SM 9222D	NA	
Total coliform	SM 9222B	NA	
Total Mercury	EPA 7471A	0.00587 mg/kg	Eurofins-Calscience

Notes:

EPA = United States Environmental Protection Agency; mg/kg = milligrams per kilogram; mL = milliliters; MPN = most probable number; NA = not applicable; SM = Standard Method

**5.3 Project Schedule and Sample Timing**

Tasks and deliverables are presented in Table 5-3. All sampling events will be conducted during daylight hours; each event will be approximately 4 hours in duration. To the maximum extent practicable, sand sampling activities shall be conducted from approximately 8:30 to 15:30., during the daily period of lowest haul-out occurrence; however, sand sampling activities may be extended from 7:00 to 19:00 (*i.e.*, daylight hours) to help assure that the project is completed during the 2016 sand sampling window and to assure that activities are conducted during lowest numbers of hauled out pinnipeds. The PSO shall attend the project site 30 minutes prior until 30 minutes after sand sampling activities cease each day throughout the sand quality study window. Up to 16 sampling events will be conducted, with Phase 1 consisting of the first 6 events. Pending the results of the Phase 1 study, up to 10 subsequent sampling events will be conducted. The City closes Children’s Pool Beach during harbor seal pupping season (December 15 through May 15). In addition, the IHA Permit, which is required to perform the monitoring work for the Children’s Pool FIB and Mercury Sand Study, stipulates that monitoring is to be performed between June 1, 2016, as to accommodate late weaning seals, and December 14, 2016. All permitted sampling activities will be performed at 850 Coast Boulevard, La Jolla, California 92037: Children’s Pool Beach (32.847557°, -117.278485°). Optional monitoring for mercury testing only may be conducted as described in Section 5.1.4.1. A map showing the study area is presented in Figure 5-1.

**Table 5-3.  
 Project Schedule**

<b>Children's Pool Fecal Indicator Bacteria and Mercury Sand Study</b>		
<b>Activity</b>	<b>Date</b>	<b>Deliverable</b>
Project Management and Meetings	10 business days after meeting	Meeting Notes
IHA Permit Procurement	Submitted December 2015	Draft Permit Application to City for Review
	Submitted December 2015	Permit Application to NOAA
Monitoring Plan and QAPP Development	January 29, 2016	Draft Monitoring Plan and QAPP (to City)
	March 18, 2016	Final Monitoring Plan and QAPP (to City)
	February 2016	Draft Monitoring Plan and QAPP (to NMSF)
Field Monitoring	June 1, 2016 through December 14, 2016	Laboratory Electronic Data Deliverable (EDD) (FY 2017)
Reporting	TBD (FY2017)	Draft Technical Memorandum (to City)
	Before March 15, 2017, ≤90 days post sampling	Draft Monitoring Report (to Office of Protected Resources, NMFS)
	TBD, 30 days after comments from NMFS	Final Monitoring Report (to Office of Protected Resources, NMFS)

#### 5.4 Geographical Setting

The City has designated Children’s Pool Beach as a shared use beach. Many activities currently take place at Children’s Pool Beach and the surrounding shoreline areas, including swimming, surfing, kayaking, diving, tide pooling, and nature watching. The Pacific harbor seal colony that has taken up residence at Children’s Pool Beach, in particular, draws many nature watchers. During the Pacific harbor seal pupping season (December 15 through May 15, annually), the beach is closed to the public per the revised City CDP issued by the California Coastal Commission. Outside of the pupping season, beach access and recreational uses are permitted, provided that there is no direct harassment of the harbor seals.

Beneficial uses within the Scripps subwatershed (which includes Children’s Pool), as designated by the State Water Resources Control Board (State Board) San Diego Region Basin Plan (Basin Plan ) for surface waters, are provided in Table 5-4 (SDRWQCB 2007). Currently, Children’s Pool is identified in both the Scripps subwatershed Bacteria Total Maximum Daily Load (TMDL) and the 2010 CWA 303(d) List as impaired for indicator bacteria (SDRWQCB 2010a, SDRWQCB 2010b, USEPA 2011).

**Table 5-4.  
 Beneficial Uses for the 303(d) Listed Waterbody**

Hydrologic Unit	Waterbody Type	Beneficial Use													
		IND	NAV	REC1	REC2	COMM	BIOL	EST	WILD	RARE	MAR	AQUA	MIGR	SPWN	WARM
Shoreline															
Scripps (906.30)	Pacific Ocean	*	*	*	*	*	*		*	*	*	*	*	*	*

Notes:

AQUA = Aquaculture, BIOL = Preservation of Biological Habitats of Special Significance, COMM = Commercial and Sportfishing, EST = Estuarine Habitat, IND = Industrial Supply, MAR = Marine Habitat, MIGR = Fish Migration, NAV = Navigation, RARE = Preservation of Rare and Endangered Species, REC1 = Water Contact Recreation, REC2 = Non-Contact Water Recreation, SHELL = Shellfish Harvesting, SPWN = Fish Spawning, WARM = Warm Water Habitat, WILD = Wildlife Habitat

- Existing Beneficial Use

Source: Water Quality Control Plan for the San Diego Basin (9) (Basin Plan) (California Regional Water Quality Control Board, San Diego Region [SDRWQCB] 2007).

### 5.5 Constraints

This program has the following procedural and logistical constraints:

- A current IHA Permit is required to perform monitoring at Children's Pool Beach. The IHA Permit may include additional constraints not explicitly listed herein.
- Field teams will not be mobilized during or near certain holidays if the mobilization or laboratory analyses should continue through that holiday. This includes the following holidays:
  - Independence Day
  - Labor Day
  - Thanksgiving

All other typical statutory holidays occur during the prescribed pupping season and are not applicable.

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Figure 5-1. Children's Pool

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## 6.0 QUALITY OBJECTIVES AND CRITERIA FOR MEASUREMENT DATA

Data quality will be assessed using measurement quality objectives (MQOs) such as accuracy, precision, and completeness. The applicable MQOs are provided for each analysis type in Table 6-1. Measurement quality objectives for laboratory analyses are provided in Table 6-2. Measurement quality objectives for field samples are provided in Table 6-3. Details on DQOs and how they are measured are provided below.

**Table 6-1.  
 Measurement Quality Objectives**

Measurement or Analysis Type	Applicable Data Quality Indicators
Laboratory – Bacteria	Accuracy, Precision, Completeness
Laboratory – Total Mercury	Accuracy, Precision, Completeness

Accuracy is a measurement of the closeness of a test value to the true or reference value. Accuracy can be measured in the laboratory using positive and negative controls.

Precision is a measurement of the repeatability of test measurements. Precision can be measured in the laboratory using laboratory replicates. Precision can be measured in the field using field duplicates. Relative percent differences (RPDs) will be calculated to determine the precision between duplicate samples. This calculation is shown below:

$$RPD = \frac{abs[x_1 - x_2]}{0.5 \times (x_1 + x_2)} \times 100$$

where:

$x_1$  is the primary sample concentration;  $x_2$  is the duplicate sample concentration.

Completeness is a measurement of the percentage of project-specific data that are valid. Percent completeness will be calculated by dividing the number of useable sample results by total number of sample results planned. This calculation is:

$$Completeness = \frac{ActualNumberofSamplesCollected(ValidResults)}{ProjectRequiredTotalSamplesPlanned(NumberofSampleResultsPlanned)} \times 100$$

**Table 6-2.  
 Measurement Quality Objectives for Laboratory Data**

Group	Parameter	Accuracy	Precision <sup>(a)</sup>	Completeness
Bacteria	<i>Enterococcus</i>	Positive control and reference material = 80-120% recovery. Negative control = no growth on filter.	Lab Replicate RPD<25%	90%
	Fecal coliform			
	Total coliform			
Metal	Total Mercury	Matrix Spike (75-125% recovery) Reference Material (75-125% recovery)	Lab Replicate RPD<25%	90%

Notes:

mL = milliliters; MPN = most probable number; RPD = Relative Percent Difference

a. Not applicable, if native concentration of either sample is less than Reporting Limit (RL).

b. The target reporting limits are consistent with methodology of the Assembly Bill (AB) 411 program to facilitate overlap with that program. However, reporting limits may be lower depending on the lab used to conduct the analysis.

**Table 6-3.  
 Measurement Quality Objectives for Field Samples**

Group	Parameter	Precision <sup>(a)</sup>	Completeness
Bacteria	<i>Enterococcus</i>	Lab Replicate RPD<25%	90%
	Fecal coliform		
	Total coliform		
Metal	Total Mercury	Lab Replicate RPD<25%	90%

Notes:

RPD = Relative Percent Difference

a. Not applicable, if native concentration of either sample is less than Reporting Limit (RL).

## 7.0 SPECIAL TRAINING NEEDS/CERTIFICATION

### 7.1 Specialized Training or Certifications

All project field staff members are required to receive training on sampling standard operation procedures (SOPs) and safety procedures prior to engaging in any field activities. Field staff will also be required to receive marine mammal training from a NOAA Fisheries scientist before conducting field activities. Field staff will annually review the following:

- Sampling procedures in accordance with the QAPP
- Safety procedures, site hazards, and safety awareness in accordance with the Sampling Agency’s Health and Safety Plan.
- NOAA marine mammal PSO training

### 7.2 Training and Certification Documentation

Amec Foster Wheeler will maintain records of training as detailed in Table 7-1. Documentation includes the date of training, the topic, the instructor name, and list of trainees.

**Table 7-1.  
 Specialized Personnel Training or Certification**

Specialized Training Course Title or Description	Training Provider	Personnel Receiving Training/Organizational Affiliation	Location of Records and Certification <sup>(a)</sup>
Sampling SOPs and Health and Safety Training	Amec Foster Wheeler	Field Staff (Amec Foster Wheeler)	9210 Sky Park Ct, San Diego, CA 92123
NOAA Marine Mammal PSO Training	Qualified Biologist (TBD)	Field Staff (Amec Foster Wheeler and City Storm Water)	

Notes:

a. If training records and/or certification are on file elsewhere, then document their location.

### 7.3 Training Personnel

Field staff will be trained on proper procedures for sampling, post-sampling processing, and sample handling in accordance with the QAPP and Monitoring Plan. The Amec Foster Wheeler Project Manager is responsible for training employees prior to the start of sampling, and to conduct any training sessions as needed throughout the course of the program.

Trained laboratory analysts will perform sample analysis for this program.

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## 8.0 DOCUMENTS AND RECORDS

Documentation and recordkeeping are essential for project organization, consistency, and data verification. There are many types of documents and records required by this project. Table 8-1 identifies the document and record types, the locations where they will be retained and archived, and their respective dispositions. Final and revised versions of the QAPP will be distributed to the Responsible Party (Section 3.0), analytical laboratory, and sampling agency.

**Table 8-1.**  
**Documents and Record Retention, Archival, and Disposition Information**

Documentation Category	Identify Type Needed	Retention	Archival	Disposition
Project Plans	QAPP	Project Manager	Document/Portable Document Format (*.pdf)	Minimum 5 years
	Monitoring Plan	Project Manager	Document/*.pdf	Minimum 5 years
Sampling Records	Water Sampling Field Data Sheets/ Electronic Data Deliverable (EDD)	Amec Foster Wheeler	Field Notebook/ *.pdf/ Excel Spreadsheet	Minimum 5 years
	Training Records	Amec Foster Wheeler	Field Notebook/ *.pdf	Minimum 5 years
	Photographs	Amec Foster Wheeler	Field Notebook/ Joint Photographic Experts Group (JPEG)	Minimum 5 years
Analytical Records	Chain-of-Custody	Analytical Laboratory	Field Notebook/ *.pdf	Minimum 5 years
	Laboratory Reports	Analytical Laboratory	*.pdf /Microsoft Excel spreadsheet	Minimum 5 years
	EDD	Analytical Laboratory	Excel spreadsheet or Database	Minimum 5 years
Data Records	Corrective Action Forms	Amec Foster Wheeler / Analytical Laboratory	*.pdf	Minimum 5 years

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## **GROUP B: DATA GENERATION AND ACQUISITION**

### **9.0 SAMPLING DESIGN**

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This section provides an overview of the sampling design. The Monitoring Plan provided details of the sampling design.

#### **9.1 Project Description and General Design**

During a sampling event, three transects parallel to the shoreline at the swash zone, the high-tide line, and the supralittoral zone will be established relative to the seawall railing and three surface sand (SS) FIB samples (top 2 centimeters) will be collected across each of the transects at approximately left, middle, and right beach. GPS coordinates will be recorded for each sample collected along the transects. In addition, subsurface sand (SbS) FIB samples will also be collected at three of the nine SS sampling locations during each event at approximately 25–50 centimeters below the surface. Additional adaptive FIB samples will be collected to document event-specific conditions, such as areas recently occupied by pinnipeds, areas of wrack deposits, or additional depths at existing sampling locations.

#### **9.2 Sampling Locations**

Beach sand samples will be taken from the beach at Children's Pool as well as from a reference beach, South Boomers Beach (32.847557°, -117.278485°). Boomers Beach lies directly north of Children's Pool at the southern end of Ellen Browning Scripps Park and is rarely used as a haul out location by marine mammals. Number of samples and events are detailed in Section 5.1.2 and 5.1.3.

Figure 9-1 presents the sampling locations for the sand study.

#### **9.3 Laboratory Distribution**

Laboratories will be ready to receive, preserve, and analyze bacteria and metal samples as necessary according to this QAPP. Sample collection may be timed so that sample collection will occur during daylight hours and delivery will occur during business hours Monday through Friday (holidays excluded). Additional details regarding sampling handling and distribution are provided in Section 11.0.

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Figure 9-1. Children's Pool Sampling Locations

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## **10.0 SAMPLING METHODS**

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Samples will be collected and analyzed for the analyses listed in Table 5-1. The collection of samples for FIB analyses will follow sampling protocols outlined in "Standard Operating Procedures (SOP) for the Collection of Bacteria Samples from Storm Drains and Receiving Waters (Creeks, Lagoons, Bays, and Ocean)" used by the San Diego Copermittees for the Coastal Storm Drain and Lagoon Monitoring (County of San Diego, 2007).

### **10.1 Field Observations and Documentation**

Field observations will be recorded during each sampling event to record site conditions and actions taken during sampling. Field data sheets will be used to record general observations and potential sources of bacteria located within the vicinity of the site. General observations include weather, debris/trash observed, color and clarity of the water, odor, and any other conditions of interest. Potential sources of bacteria will be identified, including human-related sources, activities, and natural sources.

The following general information should be recorded on a field data sheet during each site visit:

- Site identification (ID)
- Monitoring project name
- Field team personnel
- Weather conditions
- Runoff characteristics
- Water quality observations
- Grab sample IDs
- Grab sample date/time
- Miscellaneous comments
- 

### **10.2 Sand Sampling**

During the first three sampling events (Phase 1a), three transects parallel to the shoreline at the swash zone, the high-tide line, and the supralittoral zone will be established relative to the seawall railing and three surface sand (SS) FIB samples (top 2 centimeters) will be collected across each of the transects at approximately left, middle, and right beach (Figure 2-1). In addition, subsurface sand (SbS) FIB samples will also be collected at three of the nine SS sampling location during each event at approximately 25–50 centimeters below the surface. Additional adaptive FIB samples will be collected to document event-specific conditions, such as areas recently occupied by pinnipeds, areas of wrack deposits, or additional depths at existing sampling locations.

#### **10.2.1 Sample Handling**

The following sample handling protocols will be followed when collecting samples to minimize the possibility of contamination. Further information regarding sample handling and custody is provided in Table 11-1:

- Field personnel will be thoroughly trained in the proper use of sample collection gear.

- Unused (new), clean, powder-free nitrile gloves will be worn while collecting samples and will be replaced with new, clean gloves between samples and sites.
- New, sterile 50-milliliter polypropylene (Falcon) tubes and sterile spatulas will be used to collect sand samples aseptically for analysis of FIB. Sand samples for analysis of mercury will be collected directly into laboratory-provided containers. Tubes, spatulas and caps will be protected from contact with solvents, dust, or other contaminants during storage and handling.
- The inside of the sampling container and lids will not be touched during preparation and sampling activities.
- New bags of previously unopened ice will be used to cool samples following sample collection.

Once sample containers are filled, containers destined for FIB analysis will be promptly placed on ice, in a clean cooler (maximum temperature of 10 degrees Celsius) in the dark and transported to the City of San Diego EM&TS laboratory for processing to meet holding times.

## 11.0 SAMPLE HANDLING AND CUSTODY

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All bottles will be pre-labeled with the following information:

- Project name
- Date
- Time
- Sampling location name and number
- Sample matrix
- Collector's initials
- Sample ID number
- Analysis name

Samples will be marked with a unique sample ID that will be used to track the sample throughout its analyses. These sample IDs are also entered directly on to field and laboratory data sheets. All field observations and processed sample information will be recorded and transcribed to Microsoft Excel spreadsheets. Hard copies of these field and laboratory data sheets will be maintained by the responsible agency.

Once sample containers for FIB analyses are filled, they will be placed on ice, in a cooler, in the dark and transported to City of San Diego EM&TS laboratory for processing. Sand samples for analysis of mercury will be held at room temperature and shipped to Eurofins-Calscience. The chain-of-custody (COC) form will accompany the collected samples. Sand samples for FIB analyses will be kept below 10 degrees Celsius and transferred to an analytical laboratory within holding times. COC forms for the samples will be completed and transported with the samples to the analytical laboratory. Transportation will be coordinated to ensure that all samples are handled and analyzed within the proper holding time. Sample holding times are in Table 11-1. Custody of all samples will be transferred from the field personnel to laboratories.

**Table 11-1.  
 Sample Handling and Custody**

Analysis	Container	Minimum Sample Volume	Initial Preservation	Holding Time
Enterococcus	New, sterile 50-mL polypropylene centrifuge tubes	50 mL	< 10°C in the dark <sup>(b)</sup>	8 hours
Fecal coliform				
Total coliform				
Total Mercury	To be provided by the laboratory (Eurofins-Calscience)	TBD	None	48 hours before acidification; 90 days following acidification

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## 12.0 ANALYTICAL METHODS

The laboratory analyses and the analytical methods are provided in Table 12-1.

**Table 12-1.  
 Laboratory Analytical Methods**

Analyte	Laboratory	Project Reporting Limit	Analytical Method	
			Analytical Method/SOP	Modified for Method (yes/no)
Enterococcus	EM&TS	NA <sup>a</sup>	EPA 1600	Yes <sup>b</sup>
Fecal Coliform	EM&TS	NA <sup>a</sup>	SM 9222D	Yes <sup>b</sup>
Total Coliform	EM&TS	NA <sup>a</sup>	SM 9222B	Yes <sup>b</sup>
Total Mercury	Eurofins-Calscience	0.00587 mg/kg	EPA 7471A	No

**Notes:**

MDL = method detection limit; TBD = to be determined

a. Because bacteria levels are being measured from sand samples, the values reported are not directly comparable with existing water quality reporting limits or water quality objectives. The results will provide a relative magnitude of FIB concentrations in beach sand from which appropriate recommendations may be made.

b. Sand samples will be analyzed for FIB in accordance with the Southern California Coastal Water Research Project (SCCWRP) sand protocol (SCCWRP, 2009).

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## **13.0 QUALITY CONTROL**

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This section addresses QA/QC activities associated with both field sampling and laboratory analyses. The field QC samples are used to evaluate potential contamination and sampling error introduced prior to submittal of samples to the analytical laboratory. Laboratory QA/QC activities provide information needed to assess laboratory contamination, analytical precision, and analytical accuracy. If any QA/QC standards are not met, the appropriate corrective actions will be taken in accordance with Section 22.0 of this document and the laboratories' QA Manuals. The Project Manager is responsible for making decisions on corrective actions pertaining to laboratory analysis. If issues are identified by Amec Foster Wheeler staff, the Laboratory Project Manager or Project Manager will be notified immediately and documentation of the issue and the corrective action will be made.

### **13.1 Quality Control Types**

A set of QC samples will be submitted to the laboratory on the basis of the frequencies noted in Section 5.1.1.2. The analytical laboratory may also require more QC samples if one type of analysis is to be run in more than one batch. The main types of QC samples that will be utilized for this study include field duplicates, laboratory replicates, and positive and negative controls.

The duplicate samples and laboratory replicates may be collected from different sites during a particular sampling event. The number and frequency of field QC samples to be collected are presented in Table 13-1. Field QC samples will be submitted blind to the analytical laboratory. For laboratory replicates, additional sample volumes will be collected and it will be clearly identified on the COC form.

### **13.2 Field Quality Control Samples**

#### **Field Duplicates**

Duplicate samples consist of two distinct samples (an original and a duplicate) of the same matrix collected at the same time and location using the same sampling technique. Field duplicate samples will be collected by filling two grab sample containers at the same time, or in rapid sequence. The purpose of field duplicates is to measure the consistency of field sampling. The project frequency for field duplicates is 10 percent of samples. The result for each field duplicate will be compared to the sample result to estimate a RPD between the two sample results. The RPD between the two results will be calculated using the RPD equation provided in Section 6.0.

Table 13-1 presents summary of field quality control criteria.

**Table 13-1.**  
**Field QC**

Field QC	Frequency	Acceptance Limit
Field Duplicate	10% of all project samples	RPD range of 0-25% <sup>(a), (b)</sup>

Notes:

- a. For coliforms: within 95% confidence interval as defined by IDEXX Laboratories.
- b. Not applicable (NA) if native concentration of either sample is less than the RL.

### 13.3 Laboratory Quality Control

Laboratory QC samples include laboratory replicates, matrix spikes, positive and negative controls as described below. Laboratory QC sample results will be provided in a laboratory report and electronic data deliverable (EDD) with a batch ID number to correlate with the corresponding environmental sample data set. Table 13-2 describes the frequencies quality control samples for each constituent category. Quality control objectives are presented in Section 6.0

- **Laboratory Replicate** – For a laboratory replicate, a sample is prepared and analyzed twice to assess the repeatability (precision). The results are evaluated by calculating the RPD between the two sets of results. This serves as a measure of the reproducibility, or precision, of the sample analysis.
- **Matrix Spike and Matrix Spike Duplicates (Metals Only)** – Matrix spikes and matrix spike duplicates involve adding a known amount of the analyte(s) of interest to one of the actual samples being analyzed. One sample is split into three separate portions. One portion is analyzed to determine the concentration of the analyte in question in an unspiked state. The other two portions are spiked with a known concentration of the analytes of interest. The recovery of the spike, after accounting for the concentration of the analyte in the original sample, is a measure of the accuracy of the analysis. An additional precision measure is made by calculating the RPD of the duplicate spike recoveries. Both the RPD values and spike recoveries are compared against accepted and known method dependent acceptance limits. Results outside these limits are subject to corrective action.
- **Positive and Negative Controls (Bacteria Only)** – A negative control is created as a separate plate count after the buffered rinse water is filtered and incubated the same way as a sample. There should be no bacteria growth on the filter after incubation. It is used to detect laboratory bacterial contamination of the sample. A positive control is created as a separate plate count after a water sample known to contain bacteria (such as wastewater treatment plant influent) is filtered and incubated the same way as a sample. There should be bacteria growth on the filter after incubation. It is used to detect procedural errors or the presence of contaminants in the laboratory analysis that might inhibit bacteria growth (United States Environmental Protection Agency [USEPA] 2012).
- **Laboratory Control Sample (Metals Only)** – The laboratory control sample procedure involves spiking known amounts of the analyte of interest into a known, clean, sample matrix to assess the possible matrix effects on spike recoveries. High or low recoveries

of the analytes in the matrix spikes may be caused by interferences in the sample. Laboratory control samples assess these possible matrix effects since the LCS is known to be free from interferences.

- **Method Blank**– A method blank is an analysis of a known clean sample matrix that has been subjected to the same complete analytical procedure as the field sample to determine if potential contamination has been introduced during processing. Blank analysis results are evaluated by checking against reporting limits for that analyte. Results obtained should be less than the reporting limit for each analyte.

**Table 13-2.  
 Laboratory Quality Control Frequencies**

Group	Parameter	Laboratory Replicate	Matrix Spike	Positive Control/ Laboratory Control Sample	Negative Control/ Method Blank
Bacteria	<i>Enterococcus</i>	Per 10 samples or per analytical batch, whichever is more frequent	NA	Per 10 samples or per analytical batch, whichever is more frequent	
	Fecal coliform				
	Total coliform				
Metal	Total Mercury	Per 20 samples or per analytical batch, whichever is more frequent			

Notes:

a. Not applicable, if native concentration of either sample is less than Reporting Limit (RL).

RPD = Relative Percent Difference

#### **14.0 INSPECTION/ACCEPTANCE OF CONSUMABLES AND SUPPLIES**

All glassware, sample bottles, and collection equipment will be inspected prior to use. All ordered supplies will be examined for damage as they are received. Bottles and caps will be inspected for damage prior to sampling, and only sound containers will be used. The container caps will be tested for tightness prior to transport of samples.

Amec Foster Wheeler will ensure sufficient field supplies are on hand prior to the start of sampling for each period. Field supplies will be stored at Amec Foster Wheeler's offices. Laboratory supplies will be stored at the laboratories conducting the work. Table 14-1 presents the acceptance criteria for consumables and supplies that will be used for this study.

**Table 14-1.  
 Inspection/Acceptance Testing Requirements for Consumables and Supplies**

<b>Project-Related Supplies/Consumable</b>	<b>Inspection/Testing Specification</b>	<b>Acceptance Criteria</b>	<b>Frequency</b>	<b>Responsible Individual</b>
Pre-cleaned sample containers	Open container	Lids screwed on bottles/tubes	100%	Sampling Agency
Laboratory glassware	Dirty	Clean	100%	Laboratories

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## **15.0 INSTRUMENT CALIBRATION**

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There are no field measurements included in the Children's Pool Fecal Indicator Bacteria and Mercury Sand Study at this time. This section is included as a place holder for future optional monitoring.

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## **16.0 NON-DIRECT MEASUREMENTS**

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The City conducts water quality monitoring at Children's Pool as part of the Scripps HA Bacteria TMDL compliance monitoring program. Data collected under this program may be leveraged for the assessment of sand quality at Children's Pool Beach. This program is described in depth in the Scripps Bacteria TMDL Monitoring Program and QAPP documents (City of San Diego, 2012a,b).

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## **17.0 DATA MANAGEMENT**

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Data will be submitted in a standardized SWAMP-compatible format. Amec Foster Wheeler will compile the monitoring data and the laboratory will compile analytical data. A final data will be provided to the Responsible Party.

### **17.1 Field Observations**

Amec Foster Wheeler will review all field data sheets for completeness, maintain the original hardcopies, and scan electronic copies to \*.pdf format for storage in the project file. Field data sheets will be transcribed into an electronic spreadsheet. Photographs of the monitoring sites taken by field personnel will be uploaded into the project file within three business days of field visits. Field team members will name the photographs using the site ID and the date the photo was taken. Copies of field data sheets and photographs for each event will be submitted to the Project Manager with the quarterly sampling summary.

### **17.2 Analytical Data**

Laboratories will provide data in \*.pdf, hardcopy, and SWAMP-compatible EDD. A SWAMP-compatible EDD will ensure that the data files can be uploaded to the SWAMP regional database. The Project Manager will review all lab reports and EDDs for accuracy, completeness, and SWAMP compatibility. Analytical results will be submitted to the Project Manager within three weeks of submittal of samples.

Within two weeks of receipt, the Project Manager will screen preliminary data deliverables for the following major items:

- A 100-percent check between electronic data provided by the laboratory and the hard copy reports
- Conformity check between the COC forms and laboratory reports
- A check for laboratory data report completeness
- A check for typographical errors on the laboratory reports
- A check for suspect values, data qualifiers, and review of laboratory QC data

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## GROUP C: ASSESSMENT AND OVERSIGHT

### 18.0 ASSESSMENT AND RESPONSE ACTIONS

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The Project Manager will be responsible for the day-to-day oversight of monitoring activities, laboratory analyses, and/or data reporting. Any failures (e.g., instrument failures) that occur during data collection and/or laboratory analyses will be the responsibility of the field crew or laboratory conducting the work, respectively. It is the responsibility of the Laboratory's QA Officer and Sampling Agency's Project Manager to report any assessments and proposed corrective actions to the Lead Agency's Project Manager. The Project Manager will relay deviations to the Project's QA Officer. The Project's QA Officer has the authority to stop all sampling and analytical work if the deviations noted are considered detrimental to data quality. The following section describes how deviations from the QAPP will be identified.

Three types of assessments will be performed as part of this project to ensure that the sampling and analysis activities are in accordance with the approved QAPP. Assessment activities and results will be documented in writing first by field or laboratory reports, then in final reporting. They are as follows:

- **Surveillance of Sample Collection Activities:** The Project Manager will be responsible for oversight of sampling activities and will review field datasheets to verify that the samples were collected in accordance with QAPP requirements. If the Sampling Agency identifies any of the field activities to be in violation of QAPP requirements, the Project Manager will be contacted immediately. The Project Manager has the authority to stop field activities until corrective actions are successfully implemented. Corrective actions may include additional training to improve field team performance and QAPP compliance, or appropriate resampling of sites, as needed. Any corrective actions will be documented. Any actions necessary will be communicated to the Project Manager.
- **Data Quality Assessment:** Each Laboratory Manager will be responsible for providing a summary of QC data to the Sampling Agency's Project Manager. If it is determined that the precision and accuracy objectives were not met, the Sampling Agency's Project Manager will notify the Laboratory Manager. Laboratory techniques will be reviewed to minimize errors, and samples will be reanalyzed, if possible.
- **Assessment of Data Entry:** Once the performance criteria are met, the Sampling Agency's Project Manager will review data files to ensure that errors are detected and corrected. The Project Manager will retain original data files; qualified data will be retained by the Contract Manager in a database. Data are qualified in the database according to SWAMP protocols.

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## 19.0 REPORTS TO MANAGEMENT

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Amec Foster Wheeler will provide sampling summaries to the Contract Manager as a status of monitoring activities upon request. Additionally, a draft technical memorandum will be prepared following completion of sampling and analysis. Table 18-1 presents the required management reports.

**Table 19-1.  
 Management Reports**

<b>Type of Report</b>	<b>Frequency (Daily, weekly, monthly, quarterly, annually, etc.)</b>	<b>Projected Delivery Dates</b>	<b>Person(s) Responsible for Report Preparation</b>	<b>Report Recipients</b>
Sampling Summary	Upon Request	Upon Request	Project Manager	City of San Diego
Draft Technical Memorandum	Upon Completion of Sampling and Analysis	FY2017	Project Manager	City of San Diego

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## **GROUP D: DATA VALIDATION AND USABILITY**

### **20.0 DATA REVIEW, VERIFICATION, AND VALIDATION**

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All analytical data will be reviewed and compared to the DQOs described in Section 6.0 of this QAPP, along with the applicable QA/QC practices. If results fail to meet any DQO, the Sampling Agency's Project Manager will flag them for further review. Batch QC samples will be reviewed to determine the potential cause of failure to meet the DQO. Data will be separated into three categories: data meeting all DQOs (acceptable data), data failing precision or recovery criteria (further investigation warranted), and data failing to meet accuracy criteria (further investigation warranted).

If further investigation is warranted based on data failing precision or recovery criteria, all aspects of the data will be assessed for data quality by the Project Manager. At that point, the data will either be accepted or rejected. If accepted, the data will be flagged with a "J" qualifier per the EPA specifications (USEPA 2002). If data fail to meet accuracy criteria, or the cause of the failure cannot be identified and rectified, the data will be excluded from the results. All rejected data will be retained in the Project database, and qualified as "rejected." The ultimate decision of whether to accept or reject a data point will be made by the Project Manager in consultation with the Project QA Officer.

If the analysis for more than ten percent of data fails to meet the DQO, the Project Manager and Project QA Officer will meet to discuss the appropriateness of the DQO and any potential modifications. All proposed modifications of DQOs will require a reissuance of the QAPP.

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## **21.0 VERIFICATION AND VALIDATION METHODS**

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Data verification is the process of evaluating the completeness, correctness, and conformance of the dataset against the method, procedural, or contractual requirements. The goal of data validation is to evaluate whether the data quality goals established during the planning phase have been achieved. Data quality indicators will be continuously monitored by the analyst producing the data (i.e., field and lab personnel), as well as the Laboratory or Sampling Agency's Project Manager throughout the project to ensure that corrective actions are taken in a timely manner. Data validation is an analyte-specific and sample-specific process that extends verification to determine the analytical quality of the dataset. Laboratory and field personnel responsible for conducting QC analysis will be responsible for documenting when data do not meet measurement quality objectives as determined by data quality indicators.

### **21.1 Data Verification and Validation Responsibilities**

Data collected in the field will be verified by the Project Manager. The laboratories will maintain COC records and sample manifests.

Verification and validation of laboratory data is the responsibility of the laboratory section supervisor and Project Manager. Laboratories will maintain analytical reports including QC documentation. The Laboratory QA Officer will perform checks of all of its records.

The Project QA Officer and Project Manager are responsible for oversight of field data and laboratory data obtained from the contracted laboratory and sampling agency. All data records will be checked visually and recorded as checked by initials and dates.

Reconciliation and correction of any data that fails to meet the DQOs will be done by the Project Manager in consultation with the Laboratory QA Officer and/or Sampling Agency's Project Manager. Any corrections require a unanimous agreement that the correction is appropriate.

### **21.2 Process for Data Verification and Validation**

Data verification and validation for sample collection and handling activities will consist of the following tasks:

- Verification that the sampling activities, sample locations, number of samples collected, and type of analysis performed is in accordance with QAPP requirements
- Documentation of any field changes or discrepancies
- Verification that the field activities and field data (including sample location, sample type, sample date and time, name of field personnel, etc.) were properly documented
- Verification of proper completion of sample labels and COC forms, and secure storage of samples
- Verification that all samples recorded on COC forms were received by the laboratory

Data verification and validation for the sample analysis activities will include all of the following:

- Verification that appropriate methodology has been followed
- Verification that instrument calibrations have been adequately conducted
- Verification that QC samples meet performance criteria
- Verification that analytical results are complete
- Verification that documentation is complete

Verification and validation of data entry includes:

- Sorting data to identify missing or mistyped (too large or too small) values
- Double-checking all typed values
- Verifying that correct data types correspond to database fields (i.e., text for text, integers for integers, number for numbers, dates for dates, times for times, etc.)

## **22.0 RECONCILIATION WITH USER REQUIREMENTS**

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The data will be qualified if QA issues are identified. Statistics and reporting of standard deviation and relative error will be used to quantify the uncertainty associated with the data. Uncertainty and limitations on data use will be described in the draft technical memorandum.

City of San Diego  
Draft Quality Assurance Plan for the Children's Pool  
Fecal Indicator Bacteria and Mercury Sand Study  
Amec Foster Wheeler Project No. 502515C027  
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February 2016

## **APPENDIX B – CALIFORNIA COASTAL COMMISSION PERMIT**



**CALIFORNIA COASTAL COMMISSION**

SAN DIEGO AREA  
7575 METROPOLITAN DRIVE, SUITE 103  
SAN DIEGO, CA 92108-4421  
(619) 787-2370



November 7, 2014

Mayor Kevin Faulconer  
City Administration Building  
202 C Street, 11<sup>th</sup> Floor  
San Diego, CA 92101

Re: Certification of City of San Diego LCP Amendment No. LCP-6-LJS-14-0607-1  
(Children's Pool)

Dear Mayor Faulconer,

On August 14, 2014, the California Coastal Commission approved the above-described Local Coastal Program (LCP) amendment request. In its action, the Commission certified the request to amend the City's certified Land Use Plan. Specifically, the amendment included revisions to the public access and marine resources protection policies of the certified La Jolla Community Plan to allow seasonal closure at Children's Pool Beach during the Harbor Seal pupping season, generally from December 15 to May 15 of every year. The amendment applies only to Children's Pool Beach, and is intended to allow special protection of the Children's Pool harbor seal population during the vulnerable months of their pupping season. The amendment prohibits all beach access at Children's Pool during this time period.

Since the amendment request was intended to take effect automatically upon Commission certification, and the Commission certified the amendment as submitted (without any suggested modifications or other terms), there is no further action necessary for the local government. If you have any questions about the Commission's action, please contact Brittney Laver in our office. Thank you and the other staff members who worked on this planning effort. We remain available to assist you and your staff in any way possible to continue efforts towards successful implementation of the local coastal program.

Sincerely,

A handwritten signature in cursive script that reads "Deborah N. Lee".

Deborah N. Lee  
District Manager

Cc: Chris Zirkle  
Dan Normandin  
City Clerk

**CALIFORNIA COASTAL COMMISSION**

SAN DIEGO AREA  
7575 METROPOLITAN DRIVE, SUITE 103  
SAN DIEGO, CA 92108-4421  
(619) 767-2370



Chris Zirkle  
City of San Diego  
Park and Recreation Department  
202 C Street, MS 5D  
San Diego, CA 92101

NOTICE OF ACCEPTANCE

Date: November 7, 2014

Applicant: City of San Diego Park and Recreation Department

Document or Plans: Monitoring Plan, Sign Program

Submitted in compliance with Special Condition(s) No(s): 2, 3  
of Coastal Development Permit No. 6-14-0691

Remaining Special Condition(s): None

Material submitted in compliance with said Special Condition(s) of your development permit has been reviewed by the District Director and found to fulfill the requirements of said condition(s). Your submitted material and a copy of this letter have been made a part of the permanent file.

Sincerely,

A handwritten signature in black ink, appearing to read "DL", written over a horizontal line.

for

Deborah Lee  
District Manager

By: Brittney Laver

**CALIFORNIA COASTAL COMMISSION**

San Diego Coast District Office  
7575 Metropolitan Drive, Suite 103  
San Diego, California 92108-4402  
PH (619) 767-2370 FAX (619) 767-2384



Page 1

Date: November 7, 2014

Permit Application No.: 6-14-0691

**NOTICE OF INTENT TO ISSUE PERMIT**

(Upon satisfaction of special conditions)

THE SOLE PURPOSE OF THIS NOTICE IS TO INFORM THE APPLICANT OF THE STEPS NECESSARY TO OBTAIN A VALID AND EFFECTIVE COASTAL DEVELOPMENT PERMIT ("CDP"). A Coastal Development Permit for the development described below has been approved but is not yet effective. Development on the site cannot commence until the CDP is effective. In order for the CDP to be effective, Commission staff must issue the CDP to the applicant, and the applicant must sign and return the CDP. **Commission staff cannot issue the CDP until the applicant has fulfilled each of the "prior to issuance" Special Conditions.** A list of all the Special Conditions for this permit is attached.

The Commission's approval of the CDP is valid for two years from the date of approval. To prevent expiration of the CDP, you must fulfill the "prior to issuance" Special Conditions, obtain and sign the CDP, and commence development within two years of the approval date specified below. You may apply for an extension of the permit pursuant to the Commission's regulations at Cal. Code Regs. title 14, section 13169.

On August 14, 2014, the California Coastal Commission approved Coastal Development Permit No. **6-14-0691** requested by **City of San Diego, Park and Recreation Department** subject to the attached conditions, for development consisting of: **Closure of Children's Pool Beach to all public access during Harbor Seal pupping season, December 15 to May 15, of each year. Installation of "Area Closed" signage on barrier chain at the top of the lower staircase leading to the beach from the second landing area and on the western emergency access gate adjacent to the seawall, more specifically described in the application filed in the Commission offices. Commission staff will not issue the CDP until the "prior to issuance" special conditions have been satisfied.**

The development is within the coastal zone **west of Coast Blvd., southwest of Jenner St., La Jolla, San Diego (San Diego County)**

**NOTICE OF INTENT TO ISSUE PERMIT**

(Upon satisfaction of special conditions)

Date: November 7, 2014

Permit Application No.: 6-14-0691

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If you have any questions regarding how to fulfill the "prior to issuance" Special Conditions for CDP No. 6-14-0691, please contact the Coastal Program Analyst identified below.

Sincerely,  
CHARLES LESTER,  
Executive Director



Brittney Laver  
Coastal Program Analyst

**ACKNOWLEDGMENT**

The undersigned permittee acknowledges receipt of this Notice and fully understands its contents, including all conditions imposed.

\_\_\_\_\_  
Date 11/13/14 Permittee Ch. Z-P

Please sign and return one copy of this form to the Commission office at the above address.

**STANDARD CONDITIONS**

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. **Expiration.** If development has not commenced, then permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

## NOTICE OF INTENT TO ISSUE PERMIT

(Upon satisfaction of special conditions)

Date: November 7, 2014

Permit Application No.: 6-14-0691

Page 3

3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission and affidavit accepting all terms and conditions of the permit.
5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

### **SPECIAL CONDITIONS:**

This permit is granted subject to the following special conditions:

1. **Permit Term.**
  - A. This coastal development permit authorizes development on a temporary basis only. The development is authorized for a period of five (5) years, commencing upon the date of Commission approval of Coastal Development Permit No. 6-14-0691, after which time the authorization for continuation and/or retention of any development approved as part of this permit shall cease. After the authorization for the development expires, the retention of seasonal beach closure and associated signage at Children's Pool Beach will require the issuance of a new coastal development permit or an amendment to this coastal development permit.
  - B. If the applicant does not obtain a coastal development permit or amendment from the California Coastal Commission to continue implementation of seasonal beach closure and installation of associated signage at Children's Pool Beach prior to the date that authorization for the development expires, the City shall cease implementation of the seasonal beach closure.
  - C. All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions. Any deviation from the approved project plans must be submitted for review by the Executive Director to determine whether an amendment to this coastal development permit is legally required.
2. **Monitoring Plan.**
  - A. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit, for the review and written approval of the Executive Director, a Monitoring Plan for the management and monitoring of the seasonal beach closure at Children's Pool Beach. The plan shall include, but not be limited to, the following criteria:
    1. A physical description and exhibit delineating the precise location of the public access restrictions and associated signage at Children's Pool;

## NOTICE OF INTENT TO ISSUE PERMIT

(Upon satisfaction of special conditions)

Date: November 7, 2014

Permit Application No.: 6-14-0691

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2. A discussion of the goals and objectives of the plan, which shall include the method by which the applicant will assess the level of use by seals of the haul out site at Children's Pool Beach throughout the year and the method of determining the effectiveness of the seasonal beach closure at minimizing harassment of hauled out seals with both methods employing, at a minimum, the procedures described in section 3 and 4, below, of this special condition;
  3. Upon implementation of the seasonal beach closure, a qualified biologist, environmental resources specialist, park ranger, lifeguard, and/or City-trained volunteer shall record the number of seals hauled out at Children's Pool Beach, the number of people present on the beach, the number of people present in the water from the tip of the breakwater across to the point of rock directly below the green gazebo, the number of harassment instances, the number of citations and warnings issued, the outcomes of issued citations and warnings if available, the tide, the weather (including water and air temperature), and the date at least 16 days per month (to include weekends and holidays). Monitoring shall be conducted a minimum of 16 days per month and measurements shall be recorded a minimum of 3 times per day, to include 10 AM, 1 PM, and 4 PM;
  4. Provisions for taking measurements of the number of harassment instances, including what activities would qualify as harassment consistent with relevant regulatory definitions of harassment (e.g. seals flushing into water) under the MMPA.
- B. The City shall submit, for the review and approval of the Executive Director, on an annual basis, a written monitoring report from a qualified biologist or other qualified experts, as necessary to comply with the requirements of the monitoring report. Each monitoring report shall contain the following:
1. All records of measurements, analyses and conclusions created in conformance with the approved Monitoring Plan;
  2. Recommendations for repair, maintenance, modifications, or other work to the development; and
  3. Photographs taken from pre-designated sites (annotated to a copy of the site plans) indicating the condition, performance, and/or effectiveness of the seasonal beach closure and associated signage.
- If a monitoring report contains recommendations for repair, maintenance, modifications, or other work, the permittee shall contact the San Diego Coastal Commission Office to determine whether such work requires an amendment or new coastal development permit.
- C. The permittee shall undertake development in accordance with the approved final Monitoring Plan. No changes to the approved final Monitoring Plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

## NOTICE OF INTENT TO ISSUE PERMIT

(Upon satisfaction of special conditions)

Date: November 7, 2014

Permit Application No.: 6-14-0691

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3. **Sign Program. PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit to the Executive Director for review and written approval, a final comprehensive sign program in substantial conformance with the plans submitted by the applicant with the subject application on April 29, 2014 and as shown in Exhibits 3 and 4. As part of the sign program, signs shall not exceed 36 inches wide by 30 inches tall and a maximum of two (2) signs may be posted on the beach, one on a barrier chain at the top of the lower staircase leading to beach from the second landing area and one on the western emergency access gate adjacent to the seawall.

The applicant shall undertake the development in accordance with the approved program. Any proposed changes to the approved program shall be reported to the Executive Director. No changes to the program shall occur without a Coastal Commission approved amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

4. **Liability for Costs and Attorney Fees.**

By acceptance of this coastal development permit, the Applicants/Permittees agree to reimburse the Coastal Commission in full for all Coastal Commission costs and attorney's fees including (1) those charged by the Office of the Attorney General, and (2) any court costs and attorney's fees that the Coastal Commission may be required by a court to pay that the Coastal Commission incurs in connection with the defense of any action brought by a party other than the Applicant/Permittee against the Coastal Commission, its officers, employees, agents, successors and assigns challenging the approval or issuance of this permit. The Coastal Commission retains complete authority to conduct and direct the defense of any such action against the Coastal Commission.

5. **Feasibility Study.**

By acceptance of this coastal development permit, the applicant/permittee agrees that, prior to the submittal of any request for a new coastal development permit or an amendment to this coastal development permit to continue implementation of a seasonal beach closure and installation of associated signage at Children's Pool Beach, after the five (5) year authorized period of this coastal development permit expires, the applicant/permittee shall complete a feasibility study that shall address, the following three elements and shall be submitted with any new coastal development permit application or permit amendment application:

- a. Feasibility of providing ADA-compliant access to the sandy beach area of Children's Pool Beach.
- b. Analyze the water quality and methods for improving the water quality at Children's Pool Beach, including the feasibility of opening the sluiceways in the breakwater.

**NOTICE OF INTENT TO ISSUE PERMIT**  
(Upon satisfaction of special conditions)

Date: November 7, 2014

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- c. Analyze the sand quality and methods for improving sand quality at Children's Pool Beach, including dredging.

**CALIFORNIA COASTAL COMMISSION**

San Diego Coast District Office  
7575 Metropolitan Drive, Suite 103  
San Diego, CA 92108-4421  
(619) 767-2370  
[www.coastal.ca.gov](http://www.coastal.ca.gov)



Page: 1

Date: November 7, 2014

Permit Application No.: 6-14-0691

**COASTAL DEVELOPMENT PERMIT**

On **August 14, 2014**, the California Coastal Commission granted to:

**City of San Diego Parks and Recreation Department**

this permit subject to the attached Standard and Special Conditions, for development consisting of

**Closure of Children's Pool Beach to all public access during Harbor Seal pupping season, December 15 to May 15, of each year. Installation of "Area Closed" signage on barrier chain at the top of the lower staircase leading to the beach from the second landing area and on the western emergency access gate adjacent to the seawall.**

more specifically described in the application filed in the Commission offices.

The development is within the coastal zone

**west of Coast Blvd., south of Jenner St., La Jolla (San Diego County)**

Issued on behalf of the California Coastal Commission by

CHARLES LESTER  
Executive Director

A handwritten signature in black ink, appearing to read "Brittney Laver".

By: **BRITTNEY LAVER**  
Coastal Program Analyst

**ACKNOWLEDGMENT:**

The undersigned permittee acknowledges receipt of this permit and agrees to abide by all terms and conditions thereof.

The undersigned permittee acknowledges that Government Code Section 818.4 which states in pertinent part that: "A Public entity is not liable for injury caused by the issuance. . . of any permit. . ." applies to the issuance of this permit.

**COASTAL DEVELOPMENT PERMIT**

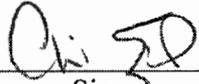
Date: November 7, 2014

Permit Application No.: 6-14-0691

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**IMPORTANT: THIS PERMIT IS NOT VALID UNLESS AND UNTIL A COPY OF THE PERMIT WITH THE SIGNED ACKNOWLEDGMENT HAS BEEN RETURNED TO THE COMMISSION OFFICE. 14 Cal. Admin. Code Section 13158(a).**

\_\_\_\_\_  
Date 11/13/14

\_\_\_\_\_  
Signature of Permittee 

**STANDARD CONDITIONS:**

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

**SPECIAL CONDITIONS:**

The permit is subject to the following conditions:

1. Permit Term.
  - A. This coastal development permit authorizes development on a temporary basis only. The development is authorized for a period of five (5) years, commencing upon the date of Commission approval of Coastal Development Permit No. 6-14-0691, after which time the authorization for continuation and/or retention of any development approved as

**COASTAL DEVELOPMENT PERMIT**

Date: November 7, 2014

Permit Application No.: 6-14-0691

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part of this permit shall cease. After the authorization for the development expires, the retention of seasonal beach closure and associated signage at Children's Pool Beach will require the issuance of a new coastal development permit or an amendment to this coastal development permit.

- B. If the applicant does not obtain a coastal development permit or amendment from the California Coastal Commission to continue implementation of seasonal beach closure and installation of associated signage at Children's Pool Beach prior to the date that authorization for the development expires, the City shall cease implementation of the seasonal beach closure.
- C. All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions. Any deviation from the approved project plans must be submitted for review by the Executive Director to determine whether an amendment to this coastal development permit is legally required.

2. Monitoring Plan.

- A. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit, for the review and written approval of the Executive Director, a Monitoring Plan for the management and monitoring of the seasonal beach closure at Children's Pool Beach. The plan shall include, but not be limited to, the following criteria:
  - 1. A physical description and exhibit delineating the precise location of the public access restrictions and associated signage at Children's Pool;
  - 2. A discussion of the goals and objectives of the plan, which shall include the method by which the applicant will assess the level of use by seals of the haul out site at Children's Pool Beach throughout the year and the method of determining the effectiveness of the seasonal beach closure at minimizing harassment of hauled out seals with both methods employing, at a minimum, the procedures described in section 3 and 4, below, of this special condition;
  - 3. Upon implementation of the seasonal beach closure, a qualified biologist, environmental resources specialist, park ranger, lifeguard, and/or City-trained volunteer shall record the number of seals hauled out at Children's Pool Beach, the number of people present on the beach, the number of people present in the water from the tip of the breakwater across to the point of rock directly below the green gazebo, the number of harassment instances, the number of citations and warnings issued, the outcomes of issued citations and warnings if available, the tide, the weather (including water and air temperature), and the date at least 16 days per month (to include weekends and holidays). Monitoring shall be conducted a minimum of 16 days per month and measurements shall be recorded a minimum of 3 times per day, to include 10 AM, 1 PM, and 4 PM;

**COASTAL DEVELOPMENT PERMIT**

Date: November 7, 2014

Permit Application No.: 6-14-0691

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4. Provisions for taking measurements of the number of harassment instances, including what activities would qualify as harassment consistent with relevant regulatory definitions of harassment (e.g. seals flushing into water) under the MMPA.
- B. The City shall submit, for the review and approval of the Executive Director, on an annual basis, a written monitoring report from a qualified biologist or other qualified experts, as necessary to comply with the requirements of the monitoring report. Each monitoring report shall contain the following:
1. All records of measurements, analyses and conclusions created in conformance with the approved Monitoring Plan;
  2. Recommendations for repair, maintenance, modifications, or other work to the development; and
  3. Photographs taken from pre-designated sites (annotated to a copy of the site plans) indicating the condition, performance, and/or effectiveness of the seasonal beach closure and associated signage.

If a monitoring report contains recommendations for repair, maintenance, modifications, or other work, the permittee shall contact the San Diego Coastal Commission Office to determine whether such work requires an amendment or new coastal development permit.

- C. The permittee shall undertake development in accordance with the approved final Monitoring Plan. No changes to the approved final Monitoring Plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.
3. **Sign Program.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, a final comprehensive sign program in substantial conformance with the plans submitted by the applicant with the subject application on April 29, 2014 and as shown in Exhibits 3 and 4. As part of the sign program, signs shall not exceed 36 inches wide by 30 inches tall and a maximum of two (2) signs may be posted on the beach, one on a barrier chain at the top of the lower staircase leading to beach from the second landing area and one on the western emergency access gate adjacent to the seawall.

The applicant shall undertake the development in accordance with the approved program. Any proposed changes to the approved program shall be reported to the Executive Director. No changes to the program shall occur without a Coastal Commission approved amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

4. **Liability for Costs and Attorney Fees.**

**COASTAL DEVELOPMENT PERMIT**

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By acceptance of this coastal development permit, the Applicants/Permittees agree to reimburse the Coastal Commission in full for all Coastal Commission costs and attorney's fees including (1) those charged by the Office of the Attorney General, and (2) any court costs and attorney's fees that the Coastal Commission may be required by a court to pay that the Coastal Commission incurs in connection with the defense of any action brought by a party other than the Applicant/Permittee against the Coastal Commission, its officers, employees, agents, successors and assigns challenging the approval or issuance of this permit. The Coastal Commission retains complete authority to conduct and direct the defense of any such action against the Coastal Commission.

5. Feasibility Study.

By acceptance of this coastal development permit, the applicant/permittee agrees that, prior to the submittal of any request for a new coastal development permit or an amendment to this coastal development permit to continue implementation of a seasonal beach closure and installation of associated signage at Children's Pool Beach, after the five (5) year authorized period of this coastal development permit expires, the applicant/permittee shall complete a feasibility study that shall address, the following three elements and shall be submitted with any new coastal development permit application or permit amendment application:

- a. Feasibility of providing ADA-compliant access to the sandy beach area of Children's Pool Beach.
- b. Analyze the water quality and methods for improving the water quality at Children's Pool Beach, including the feasibility of opening the sluiceways in the breakwater.
- c. Analyze the sand quality and methods for improving sand quality at Children's Pool Beach, including dredging.