

# Memorandum

September 10, 2019

To: Kat Prickett and Andrew Jirik, Port of Los Angeles; James Vernon and Dylan Porter,  
Port of Long Beach

From: Andrew Martin and Steve Cappellino, Anchor QEA, LLC

**Re: Sediment Quality Objectives for Benthic Health: Updated Area-Impacted Analysis and Compliance Assessment**

## Introduction

In February 2019, Anchor QEA, LLC, and Latitude Environmental, Inc., completed an area-impacted analysis to assess California's Sediment Quality Objective (SQO) for aquatic life benthic community (Benthic Community SQO) within the Greater Harbor Waters. This assessment was conducted using samples collected from randomly selected stations as part of the 2013 Southern California Coastal Water Research Project's (SCCWRP's) Regional Bight Monitoring Program (Bight '13) and the Greater Harbor Waters Regional Monitoring Coalition's (RMC's) 2016 compliance monitoring program as required by the *Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters* (Harbor Toxics TMDL). The methods used and the results of the initial assessment are included in Attachment A.

Since the initial assessment was completed, results from the RMC's 2018 compliance monitoring program have become available. The 2018 compliance monitoring program was coordinated with SCCWRP's Bight '18 program and consists of a subset of stations (22 stations) collected throughout Los Angeles and Long Beach Harbors and Eastern San Pedro Bay. In total, the Bight '18 Program consisted of 40 stations throughout the project area. The other 18 stations were sampled by the City of Los Angeles. Results for these 18 stations (consisting of 6 new Bight program stations and 12 revisit stations) are not anticipated to be made available until 2021 or 2022.

## Purpose

This memorandum updates the initial Benthic Community SQO area-impacted analysis with results from the RMC's 2018 compliance monitoring program. The methods used to conduct the assessment were unchanged from the initial assessment.

## Results

The approach for compliance with the Harbor Toxics TMDL using SQOs specifies that the most recent 6 years of SQO data collected will be used. In this case, results inclusive of the Bight '13 Program were used in the assessment. Incorporating results from RMC's 2018 compliance

monitoring program<sup>1</sup> increased the number of stations used in the assessment from 64 to 86 (Figure 1). The area of each station does not consider the areas associated with the six new Bight '18 stations (i.e., it assumes those stations do not exist).

There were no Clearly Impacted stations in any of the assessment units. Therefore, each assessment unit was evaluated on a percent area basis. The assessment unit was determined to be "Protective" if 85% or more of the area was categorized as Unimpacted or Likely Impacted or "Not Protective" if less than 85% of the area was categorized as Unimpacted or Likely Impacted (i.e., greater than 15% of the area was categorized as Possibly Impacted or Likely Impacted), as established in Attachment A to Resolution No. R11-008, Amendment to the Water Quality Control Plan – Los Angeles Region (RWQCB 2011) and Attachment A.

Table 1 provides a summary of each station, its SQO score, and the area (in acres) it represents. Outer Los Angeles Harbor, Inner Long Beach Harbor, Outer Long Beach Harbor, and Los Angeles River Estuary continue to meet the Protective condition. Consolidated Slip, Fish Harbor, Inner Los Angeles Harbor, and Eastern San Pedro Bay are determined to be Not Protective.

Because results from the 18 remaining Bight '18 Program stations are not yet available, the following "what-if" scenarios were conducted to predict the Benthic Community SQO area-impacted analysis using a complete dataset from the Bight '18 Program. In these scenarios, Thiessen polygons were adjusted to account for the six new Bight '18 Program stations (Figure 2).

1. All remaining new and revisit Bight '18 stations were assumed to be Unimpacted (integrated station category score of Unimpacted or Likely Impacted).
2. All remaining new and revisit Bight '18 stations were assumed to be Impacted (integrated station category score of Possibly Impacted or Likely Impacted).
3. All remaining new and revisit Bight '18 stations were assumed to have an integrated station category score that was an average of the integrated station category scores from any adjacent stations (represented by Thiessen polygons) not subject to change. Similar to SQO standard practices, if a station's average fell between two categories, the more conservative category (i.e., poorer condition) was used.

For revisit stations, it is assumed that the assumed Bight '18 results replaced Bight '13 results.<sup>2</sup> Attachment B provides a summary of each station, its SQO score and the area (in acres) it represents for these scenarios. Table 2 compares the results of each of these what-if scenarios to the initial assessment (January 2019) and the updated assessment incorporating the RMC's 2018 compliance

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<sup>1</sup> Results are currently being compiled into the 2018/19 Annual Compliance Monitoring Report for the Greater Los Angeles and Long Beach Harbor Waters. This report will be submitted to the Regional Water Quality Control Board in December 2019.

<sup>2</sup> Depending on the actual Bight '18 sample location, a Thiessen polygon representing a revisit station may be split into two, with one categorized using Bight '13 results and the other using Bight '18 results. Final coordinates for these remaining Bight '18 stations may also require adjustments to the other Thiessen polygons shown in Figure 2 and may ultimately change the categorization of an assessment unit.

monitoring program. In the first and third “what-if” scenarios described above, all areas would be considered Protective except Consolidated Slip, Fish Harbor, and Inner Los Angeles Harbor. In the second “what-if” scenario described above, all areas would be considered Not Protective except Los Angeles River Estuary.

## **Reference**

RWQCB (Regional Water Quality Control Board), 2011. *Final Basin Plan Amendment. Attachment A to Resolution No. R11-008. Amendment to the Water Quality Control Plan – Los Angeles Region to Incorporate the Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters. Adopted by the California Regional Water Quality Control Board, Los Angeles Region on May 5, 2011.* Available at:  
[http://www.waterboards.ca.gov/losangeles/board\\_decisions/basin\\_plan\\_amendments/technical\\_documents/66\\_New/11\\_0630/02%20Final%20BPA%2005%2005%2011.pdf](http://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/66_New/11_0630/02%20Final%20BPA%2005%2005%2011.pdf).

# Tables

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**Table 1**  
**Area-Impacted Analysis**

Assessment Unit	TMDL Waterbody	Station Identification	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8315	153	Possibly Impacted	5,974	4,565	76%
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8319	559	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8325	416	Possibly Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8346	341	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8350	114	Possibly Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8351	200	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8353	447	Possibly Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8355	383	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8358	279	Possibly Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8375	439	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8388	506	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	LE-SS-21	145	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-18	421	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-19	1001	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-20	223	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-20	346	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8347	0.3	Likely Unimpacted	1,483	1,262	85%
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8356	44	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8360	22	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8363	146	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8365	48	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8367	0.04	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8371	72	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8374	99	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8382	65	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8399	56	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8401	35	Possibly Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-12	17	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-12	41	Likely Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-13	114	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-13	31	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-14	200	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-14	145	Possibly Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-15	79	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-15	82	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	SP-SS-20	74	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	TMDL3-TB	112	Likely Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	B13-8390	44	Likely Unimpacted	246	219	89%
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	B13-8401	0.1	Possibly Impacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-21	74	Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-21	101	Likely Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-22	11	Possibly Impacted			

**Table 1**  
**Area-Impacted Analysis**

Assessment Unit	TMDL Waterbody	Station Identification	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-22	16	Likely Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8310	122	Unimpacted	2,617	2,460	94%
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8318	342	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8322	386	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8326	240	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8333	109	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8347	228	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8349	158	Possibly Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8360	56	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	IB-SS-14	0.003	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-16	458	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-17	262	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-17	136	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	SP-SS-20	121	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8316	38	Unimpacted	1,595	1,218	76%
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8340	31	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8384	87	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8396	40	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8397	7	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CB-SS-11	0.2	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CM-SS-10	63	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CS-SS-01	1	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	FH-SS-07	46	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-02	208	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-03	14	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-03	53	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-04	275	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-05	440	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-06	160	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	OA-SS-09	70	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	TMDL1-CH	60	Possibly Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8302	381	Likely Unimpacted	1,548	1,528	99%
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8304	99	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8306	33	Likely Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8308	64	Likely Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8310	88	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8316	11	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8326	37	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CB-SS-11	209	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CM-SS-10	19	Possibly Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-08	253	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-09	354	Unimpacted			

**Table 1**  
**Area-Impacted Analysis**

Assessment Unit	TMDL Waterbody	Station Identification	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Consolidated Slip	Consolidated Slip	CS-SS-01	16	Likely Impacted	37	0	0%
Consolidated Slip	Consolidated Slip	TMDL4-CS	21	Possibly Impacted			
Fish Harbor	Fish Harbor	FH-SS-07	25	Likely Unimpacted	87	25	29%
Fish Harbor	Fish Harbor	TMDL2-FH	62	Possibly Impacted			

Notes:

SQO: Sediment Quality Objective

TMDL: Total Maximum Daily Load

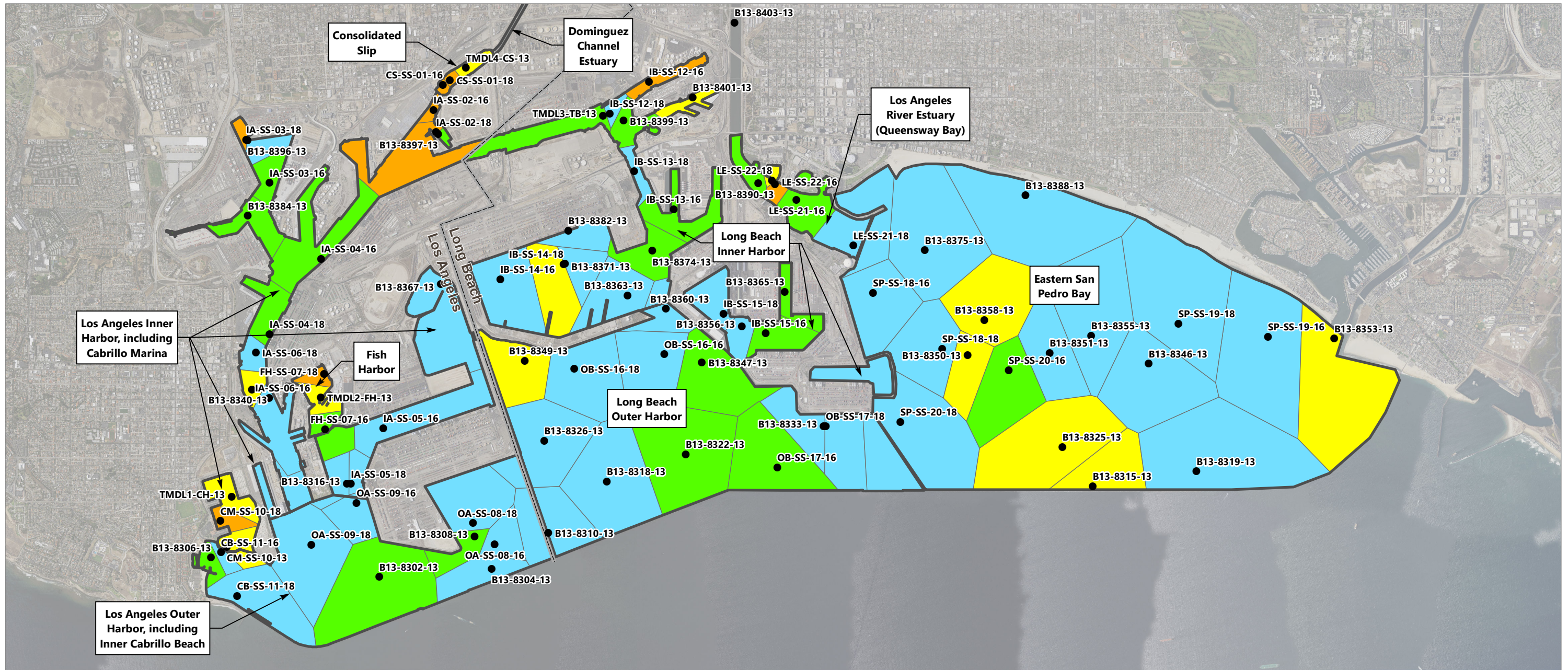
**Table 2**  
**Comparison of Area-Impacted Analysis Results for Varying Compliance Times and Predictive Scenarios**

Assessment Area	2013-2016 Assessment Completed January 2019		2013-2016-2018 Assessment Completed September 2019; Inclusive of RMC-Collected Bight '18 Station Results		"What-If" Scenario 2013-2016-2018 Assumes Remaining Bight '18 Stations = Unimpacted		"What-If" Scenario 2013-2016-2018 Assumes Remaining Bight '18 Stations = Impacted		"What-If" Scenario 2013-2016-2018 Assumes Remaining Bight '18 Stations = Average of Adjacent Stations	
	% Area	Category	% Area	Category	% Area	Category	% Area	Category	% Area	Category
Consolidated Slip	0%	Not Protective (<85%)	0%	Not Protective (<85%)	0%	Not Protective (<85%)	0%	Not Protective (<85%)	0%	Not Protective (<85%)
Fish Harbor	54%	Not Protective (<85%)	29%	Not Protective (<85%)	29%	Not Protective (<85%)	29%	Not Protective (<85%)	29%	Not Protective (<85%)
Inner Los Angeles Harbor	85%	Protective (≥85%)	76%	Not Protective (<85%)	82%	Not Protective (<85%)	74%	Not Protective (<85%)	74%	Not Protective (<85%)
Outer Los Angeles Harbor	100%	Protective (≥85%)	99%	Protective (≥85%)	99%	Protective (≥85%)	64%	Not Protective (<85%)	99%	Protective (≥85%)
Inner Long Beach Harbor	93%	Protective (≥85%)	85%	Protective (≥85%)	85%	Protective (≥85%)	73%	Not Protective (<85%)	85%	Protective (≥85%)
Outer Long Beach Harbor	91%	Protective (≥85%)	94%	Protective (≥85%)	94%	Protective (≥85%)	50%	Not Protective (<85%)	93%	Protective (≥85%)
Eastern San Pedro Bay	71%	Not Protective (<85%)	76%	Not Protective (<85%)	90%	Protective (≥85%)	66%	Not Protective (<85%)	85%	Protective (≥85%)
Los Angeles River Estuary	90%	Protective (≥85%)	89%	Protective (≥85%)	89%	Protective (≥85%)	89%	Protective (≥85%)	89%	Protective (≥85%)



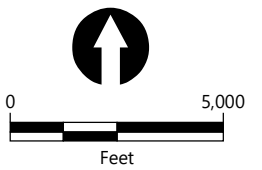
# Figures

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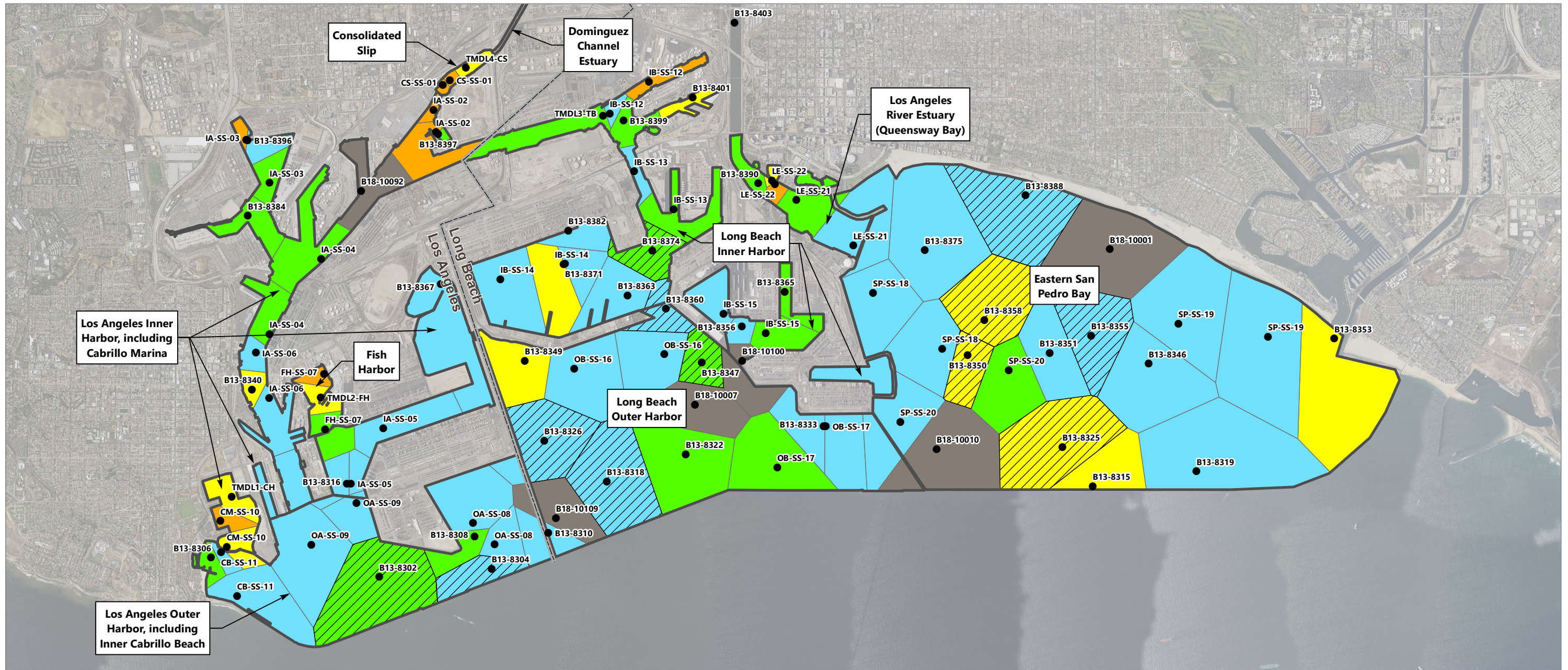
- Clearly Impacted
- Likely Impacted
- Possibly Impacted
- Likely Unimpacted
- Unimpacted
- Benthic Health SQO Assessment Units



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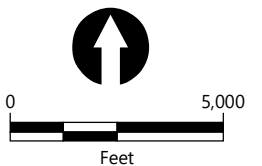


**Figure 1**  
**Benthic Community SQO Assessment Using Thiessen Polygon Area-Weighted Approach; 2013 – 2018 Available Results, Exclusive of Non-RMC Collected Bight '18 Stations**  
 Greater Los Angeles and Long Beach Harbor Waters



**LEGEND:**

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<span style="color: orange;">■</span> Likely Impacted	<span style="border: 1px dashed black; display: inline-block; width: 10px; height: 10px;"></span> Location Revisited During Bight 18 Sampling
<span style="color: yellow;">■</span> Possibly Impacted	
<span style="color: green;">■</span> Likely Unimpacted	
<span style="color: lightblue;">■</span> Unimpacted	
<span style="color: gray;">■</span> No Data	



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**Figure 2**  
**Stations Used for Benthic Community SQO Assessment using Thiessen Polygon Area-Weighted Approach; 2013 – 2018, Inclusive of Non-RMC Collected Bight '18 Stations**  
 Greater Los Angeles and Long Beach Harbor Waters

## Attachment A

# Sediment Quality Objectives for Benthic Health: Area-Impacted Analysis and Compliance Assessment, January 2019

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# Memorandum

January 14, 2019

To: Andrew Jirik, Port of Los Angeles, and James Vernon, Port of Long Beach

From: Steve Cappellino, Anchor QEA, LLC, and Shelly Anghera, PhD, Latitude Environmental, Inc.

**Re: Sediment Quality Objectives for Benthic Health: Area-Impacted Analysis and Compliance Assessment**

In accordance with monitoring requirements specified in the Coordinated Compliance Monitoring and Reporting Plan (CCMRP; Anchor QEA 2018), sediment quality from the Ports of Long Beach and Los Angeles (Ports) was assessed using California's Sediment Quality Objective (SQO) for aquatic life-benthic community (Benthic Community SQO). The assessment followed methods detailed in the Water Quality Control Plan for Enclosed Bays and Estuaries (SWRCB/CalEPA 2009), the Sediment Quality Assessment Draft Technical Support Manual (Bay et al. 2009), and the draft Amendments to the Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality (Sediment Quality Provisions) (WQ Control Plan; SWRCB 2018). The SQO is based on a multiple line of evidence (MLOE) approach in which the individual lines of evidence are sediment chemistry, sediment toxicity, and benthic community condition. As permitted in the Final Basin Plan Amendment (RWQCB 2011) for the *Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters* (Harbor Toxics TMDL), the Benthic Community SQO may be conducted to determine compliance with the sediment targets.

The amended WQ Control Plan includes a general description of how to use Benthic Community SQOs to evaluate attainment of beneficial uses for the benthic community by interpreting and integrating multiple lines of evidence. The qualitative sediment conditions of Unimpacted or Likely Unimpacted are protective of the benthic community. The Ports, together with the Los Angeles Regional Water Quality Control Board (RWQCB), developed a Total Maximum Daily Load (TMDL)-specific compliance framework for the Benthic Community SQOs to provide guidance for the assessment, evaluation, and documentation required to demonstrate compliance with the Harbor Toxics TMDL. The compliance framework is provided as Attachment A.

The Bight '13 program and the 2014/15 Annual Compliance Monitoring Report (Anchor QEA 2015) present the results of the Benthic Health SQO (i.e., designation of qualitative sediment condition such as Unimpacted, Likely Unimpacted, or Possibly Impacted) for each monitoring station (Figure 1). This memorandum summarizes the results of the Benthic Community SQO assessment using the area-impacted analysis approach described in the compliance framework (Attachment A). A detailed description of the methods applied to perform an area-impacted analysis is provided in Attachment A and summarized below.

## Area-Impacted Analysis

Consistent with the amended WQ Control Plan, both the Bight program and TMDL-required monitoring program use randomized sampling designs. The Bight method for calculating the percent area impacted has been well established (Bight '13 CIA Committee 2013; Stevens and Olsen 2003); however, this method is only appropriate for Bight program-collected data within pre-identified Bight-related strata. An alternate sampling design was used for the required TMDL monitoring program. Consequently, a method for calculating the percent area impacted that can be applied to both data sets is needed. The percent area-impacted analysis is based on use of a commonly used spatial analysis method called the Thiessen polygon approach.

### Area-Impacted Analysis Using Thiessen Polygon Approach

The SQO categorical value of each data point is assigned to the entire polygon and the percent area impacted is calculated using Equation 1.

#### Equation 1

$$\% \text{ Area Impacted} = \frac{\Sigma \text{ Area for each failing stations in assessment unit}}{\Sigma \text{ Area for all of the stations within the assessment unit (km}^2\text{)}} \times 100$$

where:

A failing station = Possibly, Likely, and Clearly Impacted

The polygons were allowed to extend beyond assessment unit boundaries. The percent area that met the protective condition of Unimpacted or Likely Unimpacted in each assessment unit was calculated and compared to the threshold set in the amended WQ Quality Plan. Specifically, the WQ Control Plan defines the threshold for the percent area impacted (i.e., exceedance of a receiving waterbody to protect aquatic life) as the following, "The total percent area categorized as Possibly Impacted and/or Likely Impacted equals or exceeds 15 percent of the site area over the duration of a permit cycle."

Therefore, if 85% or more of the assessment unit is found to be Unimpacted or Likely Unimpacted and no sites are characterized as Clearly Impacted, then the unit meets the Benthic Community SQO protective condition.

## Assessment Units

Assessment areas for the Greater Harbor Waters were established in consultation with the RWQCB and detailed in Attachment A. Nine assessment units incorporate one or more TMDL-defined waterbodies (Attachment A). These assessment units are shown in Figure 2 and include the following:

- Dominguez Channel Estuary
- Consolidated Slip
- Fish Harbor
- Los Angeles Inner Harbor (including Cabrillo Marina)
- Los Angeles Outer Harbor (including Inner Cabrillo Beach)
- Long Beach Inner Harbor
- Long Beach Outer Harbor
- Eastern San Pedro Bay
- Los Angeles River Estuary (Queensway Bay)

Each assessment unit includes samples that were taken from randomly selected stations as part of the Bight '13 program and the TMDL-required monitoring program (Figure 1).

## Results

Analysis of the Greater Harbor Waters included samples taken from 64 sampling stations. None of the sampled stations were characterized as Clearly Impacted. Table 1 provides a summary of each station, its SQO score, and the area (in acres) it represents. An assessment unit meets the protective condition when at least 85% of the area is Likely Unimpacted and Unimpacted as established in the amended WQ Control Plan and Attachment A. Los Angeles Inner Harbor, Los Angeles Outer Harbor, Long Beach Inner Harbor, Long Beach Outer Harbor, and Los Angeles River Estuary currently meet the 85% threshold. Fish Harbor, Consolidated Slip, and Eastern San Pedro Bay do not.

## References

- Anchor QEA, LLC, 2018. *Coordinated Compliance Monitoring and Reporting Plan*. Greater Los Angeles and Long Beach Harbor Water. June 2018.
- Anchor QEA, 2015. *2014/15 Annual Compliance Monitoring Report*. Harbor Toxics TMDL Coordinated Compliance Monitoring And Reporting for the Greater Los Angeles and Long Beach Harbor Waters. December 2015.
- Bay, SM, DJ Greenstein, JA Ranasinghe, DW Diehl, and AE Fetscher, 2009. *Sediment Quality Assessment Draft Technical Support Manual*. Technical Report 582. Southern California Coastal Water Research Project. May 2009.

Bight '13 CIA (Contaminant Impact Assessment) Committee, 2013. *Contaminant Impact Assessment Workplan*. Southern California Bight 2013 Regional Marine Monitoring Survey (Bight '13). Prepared for Commission of Southern California Coastal Water Research Project. July 2013.

RWQCB (Regional Water Quality Control Board), 2011. Final Basin Plan Amendment. Attachment A to Resolution No. R11-008. Amendment to the Water Quality Control Plan – Los Angeles Region to Incorporate the Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters. Adopted by the California Regional Water Quality Control Board, Los Angeles Region on May 5, 2011. Available from: [http://www.waterboards.ca.gov/losangeles/board\\_decisions/basin\\_plan\\_amendments/technical\\_documents/66\\_New/11\\_0630/02%20Final%20BPA%2005%2005%2011.pdf](http://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/66_New/11_0630/02%20Final%20BPA%2005%2005%2011.pdf).

Stevens, DL and AR Olsen, 2003. Variance estimation for spatially balanced samples of environmental resources. *Environmetrics* 14: 593-610.

SWRCB, 2018. Staff Report Including Substitute Environmental Documentation for Amendments to the Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality (Sediment Quality Provisions). July 5, 2018.

## **Attachments**

Table 1	Area-Impacted Analysis
Figure 1	2013/Benthic Community SQO Assessment
Figure 2	Benthic Community SQO Assessment Using Thiessen Polygon Area-Weighted Assessment
Attachment A	Total Maximum Daily Load Compliance Approach for Greater Harbor Area Using the Sediment Quality Objectives



## Table

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**Table 1**  
**Area-Impacted Analysis**

Assessment Unit	TMDL Waterbody	Station Identification	Acres	Integrated Score	Total Acres	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-20	249	Likely unimpacted	6048	4266	71%
	Eastern San Pedro Bay	B13-8315	153	Possibly impacted			
	Eastern San Pedro Bay	B13-8325	460	Possibly impacted			
	Eastern San Pedro Bay	B13-8350	426	Possibly impacted			
	Eastern San Pedro Bay	B13-8353	447	Possibly impacted			
	Eastern San Pedro Bay	B13-8358	297	Possibly impacted			
	Eastern San Pedro Bay	B13-8319	559	Unimpacted			
	Eastern San Pedro Bay	B13-8333	74	Unimpacted			
	Eastern San Pedro Bay	B13-8333	113	Unimpacted			
	Eastern San Pedro Bay	B13-8346	586	Unimpacted			
	Eastern San Pedro Bay	B13-8351	200	Unimpacted			
	Eastern San Pedro Bay	B13-8355	503	Unimpacted			
	Eastern San Pedro Bay	B13-8375	555	Unimpacted			
	Eastern San Pedro Bay	B13-8388	514	Unimpacted			
	Eastern San Pedro Bay	SP-SS-18	284	Unimpacted			
Eastern San Pedro Bay	SP-SS-19	628	Unimpacted				
Long Beach Inner Harbor	LA/LB Inner Harbor	IB-SS-12	42	Likely impacted	1156	1080	93%
	LA/LB Inner Harbor	B13-8374	99	Likely unimpacted			
	LA/LB Inner Harbor	B13-8397	38	Likely unimpacted			
	LA/LB Inner Harbor	B13-8399	77	Likely unimpacted			
	LA/LB Inner Harbor	IB-SS-13	131	Likely unimpacted			
	LA/LB Inner Harbor	TMDL3-TB	84	Likely unimpacted			
	LA/LB Inner Harbor	B13-8401	35	Possibly impacted			
	LA/LB Inner Harbor	B13-8363	167	Unimpacted			
	LA/LB Inner Harbor	B13-8371	212	Unimpacted			
	LA/LB Inner Harbor	B13-8382	66	Unimpacted			
	LA/LB Inner Harbor	IB-SS-14	205	Unimpacted			

**Table 1**  
**Area-Impacted Analysis**

Assessment Unit	TMDL Waterbody	Station Identification	Acres	Integrated Score	Total Acres	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-22	25	Likely impacted	246	221	90%
	Los Angeles River Estuary (Queensway Bay)	B13-8390	45	Likely unimpacted			
	Los Angeles River Estuary (Queensway Bay)	LE-SS-21	175	Likely unimpacted			
Long Beach Outer Harbor	LA/LB Outer Harbor	B13-8322	386	Likely unimpacted	2885	2632	91%
	LA/LB Outer Harbor	B13-8347	215	Likely unimpacted			
	LA/LB Outer Harbor	B13-8365	48	Likely unimpacted			
	LA/LB Outer Harbor	IB-SS-15	82	Likely unimpacted			
	LA/LB Outer Harbor	OB-SS-17	263	Likely unimpacted			
	LA/LB Outer Harbor	B13-8349	253	Possibly impacted			
	LA/LB Outer Harbor	B13-8310	131	Unimpacted			
	LA/LB Outer Harbor	B13-8318	350	Unimpacted			
	LA/LB Outer Harbor	B13-8326	300	Unimpacted			
	LA/LB Outer Harbor	B13-8333	378	Unimpacted			
	LA/LB Outer Harbor	B13-8356	123	Unimpacted			
	LA/LB Outer Harbor	B13-8360	52	Unimpacted			
Los Angeles Inner Harbor	LA/LB Outer Harbor	OB-SS-16	305	Unimpacted	1544	1312	85%
	Cabrillo Marina	CM-SS-10	42	Possibly impacted			
	Cabrillo Marina	TMDL1-CH	79	Possibly impacted			
	Inner Harbor	IA-SS-02	15	Likely impacted			
	Inner Harbor	B13-8340	96	Possibly impacted			
	Inner Harbor	B13-8384	87	Likely unimpacted			
	Inner Harbor	B13-8397	200	Likely unimpacted			
	Inner Harbor	IA-SS-03	53	Likely unimpacted			
	Inner Harbor	IA-SS-04	246	Likely unimpacted			
	Inner Harbor	B13-8316	69	Unimpacted			
Inner Harbor	B13-8367	266	Unimpacted				
Inner Harbor	B13-8396	54	Unimpacted				

**Table 1**  
**Area-Impacted Analysis**

Assessment Unit	TMDL Waterbody	Station Identification	Acres	Integrated Score	Total Acres	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Los Angeles Inner Harbor (continued)	Inner Harbor	IA-SS-05	141	Unimpacted	1544	1312	85%
	Inner Harbor	IA-SS-06	168	Unimpacted			
	Inner Harbor	OA-SS-09	5	Unimpacted			
	Inner Harbor	OA-SS-09	22	Unimpacted			
Los Angeles Outer Harbor	Outer Harbor	B13-8302	519	Likely unimpacted	1535	1535	100%
	Outer Harbor	B13-8306	57	Likely unimpacted			
	Outer Harbor	B13-8308	219	Likely unimpacted			
	Outer Harbor	B13-8304	99	Unimpacted			
	Outer Harbor	B13-8310	80	Unimpacted			
	Outer Harbor	B13-8326	42	Unimpacted			
	Outer Harbor	CB-SS-11	204	Unimpacted			
	Outer Harbor	OA-SS-08	86	Unimpacted			
Outer Harbor	OA-SS-09	230	Unimpacted				
Consolidated Slip	Consolidated Slip	CS-SS-01	14	Likely impacted	38	0	0%
	Consolidated Slip	TMDL4-CS	24	Possibly impacted			
Fish Harbor	Fish Harbor	FH-SS-07	71	Likely unimpacted	133	71	54%
	Fish Harbor	TMDL2-FH	62	Possibly impacted			

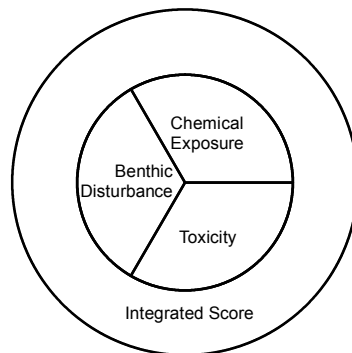
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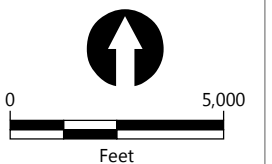


**LEGEND:**

- | Individual Category | Integrated Score    |
|---------------------|---------------------|
| ● High              | ● Clearly Impacted  |
| ● Moderate          | ● Likely Impacted   |
| ● Low               | ● Possibly Impacted |
| ● Reference         | ● Likely Unimpacted |
|                     | ● Unimpacted        |



□ TMDL Waterbodies



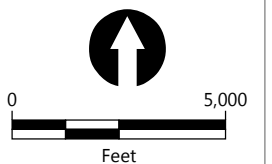
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**Figure 1**  
**2013/2016 Benthic Community SQO Assessment**  
 Greater Los Angeles and Long Beach Harbor Waters



- LEGEND:**
- Likely Impacted
  - Possibly Impacted
  - Likely Unimpacted
  - Unimpacted
  - East San Pedro Bay, including Los Angeles River Estuary (Queensway Bay)
  - Fish Harbor
  - LA/LB Inner Harbor, including Cabrillo Marina
  - LA/LB Outer harbor, including Inner Cabrillo Beach



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**Figure 2**  
**Benthic Community SQO Assessment Using Thiessen Polygon Area-Weighted Assessment**  
 Greater Los Angeles and Long Beach Harbor Waters

Attachment B

Area-Impacted Analysis Scenarios

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**Table B-1**  
**Area-Impacted Analysis Assuming Remaining Bight '18 Program Stations Are All Unimpacted**

Assessment Unit	TMDL Waterbody	Station Identification	Year	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8315	2013	153	Possibly Impacted	5,974	5,374	90%
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8319	2013	559	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8325	Revisit	364	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8346	2013	341	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8350	Revisit	106	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8351	2013	200	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8353	2013	447	Possibly Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8355	Revisit	248	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8358	Revisit	277	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8375	2013	439	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8388	Revisit	361	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B18-10001	Bight '18	413	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B18-10010	Bight '18	294	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	LE-SS-21	2016	5	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	LE-SS-21	2018	140	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-18	2016	215	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-18	2018	206	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-19	2016	490	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-19	2018	380	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-20	2016	196	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-20	2018	141	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8356	2013	30	Unimpacted	1,483	1,264	85%
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8360	Revisit	22	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8363	2013	147	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8365	2013	48	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8367	2013	0.04	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8371	2013	72	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8374	Revisit	99	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8382	2013	65	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8399	2013	57	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8401	2013	34	Possibly Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8403	2013	0.2	Likely Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B18-10100	Bight '18	19	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-12	2016	41	Likely Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-12	2018	17	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-13	2016	114	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-13	2018	31	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-14	2016	200	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-14	2018	144	Possibly Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-15	2016	78	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-15	2018	79	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	SP-SS-20	2018	74	Unimpacted			

**Table B-1**  
**Area-Impacted Analysis Assuming Remaining Bight '18 Program Stations Are All Unimpacted**

Assessment Unit	TMDL Waterbody	Station Identification	Year	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Long Beach Inner Harbor	Long Beach Inner Harbor	TMDL3-TB	2013	112	Likely Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	B13-8390	2013	44	Likely Unimpacted	246	220	89%
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-21	2016	101	Likely Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-21	2018	74	Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-22	2016	16	Likely Impacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-22	2018	11	Possibly Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8310	2013	30	Unimpacted	2,617	2,460	94%
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8318	Revisit	320	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8322	2013	296	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8326	Revisit	230	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8333	2013	97	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8347	Revisit	89	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8349	2013	158	Possibly Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8360	Revisit	55	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8363	2013	0.3	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10007	Bight '18	197	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10010	Bight '18	36	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10100	Bight '18	87	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10109	Bight '18	123	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	IB-SS-14	2016	0.003	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-16	2016	189	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-16	2018	242	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-17	2016	245	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-17	2018	136	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	SP-SS-20	2018	85	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8316	2013	38	Unimpacted	1,595	1,300	82%
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8340	2013	31	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8367	2013	276	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8384	2013	87	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8396	2013	40	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8397	2013	7	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B18-10092	Bight '18	122	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CB-SS-11	2016	0.2	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CM-SS-10	2013	32	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CM-SS-10	2018	31	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CS-SS-01	2016	1	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	FH-SS-07	2016	46	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-02	2016	13	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-02	2018	113	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-03	2016	53	Likely Unimpacted			

**Table B-1**  
**Area-Impacted Analysis Assuming Remaining Bight '18 Program Stations Are All Unimpacted**

Assessment Unit	TMDL Waterbody	Station Identification	Year	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-03	2018	14	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-04	2016	159	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-04	2018	76	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-05	2016	132	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-05	2018	32	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-06	2016	101	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-06	2018	37	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	OA-SS-09	2016	4	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	OA-SS-09	2018	89	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	TMDL1-CH	2013	60	Possibly Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8302	Revisit	381	Unimpacted	1,548	1,528	99%
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8304	Revisit	99	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8306	2013	33	Likely Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8308	2013	64	Likely Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8310	2013	62	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8316	2013	11	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8326	Revisit	34	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B18-10109	Bight '18	30	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CB-SS-11	2016	19	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CB-SS-11	2018	190	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CM-SS-10	2013	19	Possibly Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-08	2016	70	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-08	2018	182	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-09	2016	78	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-09	2018	276	Unimpacted			
Consolidated Slip	Consolidated Slip	CS-SS-01	2016	7	Likely Impacted	37	0	0%
Consolidated Slip	Consolidated Slip	CS-SS-01	2018	8	Likely Impacted			
Consolidated Slip	Consolidated Slip	TMDL4-CS	2013	21	Possibly Impacted			
Fish Harbor	Fish Harbor	FH-SS-07	2016	25	Likely Unimpacted	87	25	29%
Fish Harbor	Fish Harbor	FH-SS-07	2018	22	Likely Impacted			
Fish Harbor	Fish Harbor	TMDL2-FH	2013	40	Possibly Impacted			

Notes:

SQO: Sediment Quality Objective

TMDL: Total Maximum Daily Load

**Table B-2**  
**Area-Impacted Analysis Assuming Remaining Bight '18 Program Stations Are All Impacted**

Assessment Unit	TMDL Waterbody	Station Identification	Year	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8315	2013	153	Possibly Impacted	5,974	3,311	55%
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8319	2013	559	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8325	Revisit	364	Likely Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8346	2013	341	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8350	Revisit	106	Likely Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8351	2013	200	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8353	2013	447	Possibly Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8355	Revisit	248	Likely Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8358	Revisit	277	Likely Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8375	2013	439	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8388	Revisit	361	Likely Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B18-10001	Bight '18	413	Likely Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B18-10010	Bight '18	294	Likely Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	LE-SS-21	2016	5	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	LE-SS-21	2018	140	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-18	2016	215	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-18	2018	206	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-19	2016	490	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-19	2018	380	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-20	2016	196	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-20	2018	141	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8356	2013	30	Unimpacted	1,483	1,124	76%
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8360	Revisit	22	Likely Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8363	2013	147	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8365	2013	48	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8367	2013	0.04	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8371	2013	72	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8374	Revisit	99	Likely Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8382	2013	65	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8399	2013	57	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8401	2013	34	Possibly Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8403	2013	0.2	Likely Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B18-10100	Bight '18	19	Likely Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-12	2016	41	Likely Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-12	2018	17	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-13	2016	114	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-13	2018	31	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-14	2016	200	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-14	2018	144	Possibly Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-15	2016	78	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-15	2018	79	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	SP-SS-20	2018	74	Unimpacted			

**Table B-2**  
**Area-Impacted Analysis Assuming Remaining Bight '18 Program Stations Are All Impacted**

Assessment Unit	TMDL Waterbody	Station Identification	Year	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Long Beach Inner Harbor	Long Beach Inner Harbor	TMDL3-TB	2013	112	Likely Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	B13-8390	2013	44	Likely Unimpacted	246	220	89%
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-21	2016	101	Likely Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-21	2018	74	Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-22	2016	16	Likely Impacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-22	2018	11	Possibly Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8310	2013	30	Unimpacted	2,617	1,321	50%
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8318	Revisit	320	Likely Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8322	2013	296	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8326	Revisit	230	Likely Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8333	2013	97	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8347	Revisit	89	Likely Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8349	2013	158	Possibly Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8360	Revisit	55.0	Likely Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8363	2013	0	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10007	Bight '18	197	Likely Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10010	Bight '18	36	Likely Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10100	Bight '18	87	Likely Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10109	Bight '18	123.162	Likely Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	IB-SS-14	2016	0	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-16	2016	189	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-16	2018	242	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-17	2016	245	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-17	2018	136	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	SP-SS-20	2018	85	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8316	2013	38	Unimpacted	1,595	1,178	74%
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8340	2013	31	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8367	2013	276	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8384	2013	87	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8396	2013	40	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8397	2013	7	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B18-10092	Bight '18	121.5	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CB-SS-11	2016	0	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CM-SS-10	2013	32	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CM-SS-10	2018	31	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CS-SS-01	2016	1	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	FH-SS-07	2016	46	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-02	2016	13	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-02	2018	113	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-03	2016	53	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-03	2018	14	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-04	2016	159	Likely Unimpacted			

**Table B-2**  
**Area-Impacted Analysis Assuming Remaining Bight '18 Program Stations Are All Impacted**

Assessment Unit	TMDL Waterbody	Station Identification	Year	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-04	2018	76	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-05	2016	132	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-05	2018	32	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-06	2016	101	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-06	2018	37	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	OA-SS-09	2016	4	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	OA-SS-09	2018	89	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	TMDL1-CH	2013	60	Possibly Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8302	Revisit	381	Likely Impacted	1,548	985	64%
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8304	Revisit	99	Likely Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8306	2013	33	Likely Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8308	2013	64	Likely Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8310	2013	62	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8316	2013	11	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8326	Revisit	34	Likely Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B18-10109	Bight '18	30	Likely Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CB-SS-11	2016	19	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CB-SS-11	2018	190	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CM-SS-10	2013	19	Possibly Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-08	2016	70	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-08	2018	182	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-09	2016	78	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-09	2018	276	Unimpacted			
Consolidated Slip	Consolidated Slip	CS-SS-01	2016	7	Likely Impacted	37	0	0%
Consolidated Slip	Consolidated Slip	CS-SS-01	2018	8	Likely Impacted			
Consolidated Slip	Consolidated Slip	TMDL4-CS	2013	21	Possibly Impacted			
Fish Harbor	Fish Harbor	FH-SS-07	2016	25	Likely Unimpacted	87	25	29%
Fish Harbor	Fish Harbor	FH-SS-07	2018	22	Likely Impacted			
Fish Harbor	Fish Harbor	TMDL2-FH	2013	40	Possibly Impacted			

Notes:

SQO: Sediment Quality Objective

TMDL: Total Maximum Daily Load

**Table B-3**  
**Area-Impacted Analysis Assuming Remaining Bight '18 Program Stations Are An Average of All Adjacent Stations**

Assessment Unit	TMDL Waterbody	Station Identification	Year	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8315	2013	153	Possibly Impacted	5,974	5,080	85%
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8319	2013	559	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8325	Revisit	364	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8346	2013	341	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8350	Revisit	106	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8351	2013	200	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8353	2013	447	Possibly Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8355	Revisit	248	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8358	Revisit	277	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8375	2013	439	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B13-8388	Revisit	361	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B18-10001	Bight '18	413	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	B18-10010	Bight '18	294	Possibly Impacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	LE-SS-21	2016	5	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	LE-SS-21	2018	140	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-18	2016	215	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-18	2018	206	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-19	2016	490	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-19	2018	380	Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-20	2016	196	Likely Unimpacted			
Eastern San Pedro Bay	Eastern San Pedro Bay	SP-SS-20	2018	141	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8356	2013	30	Unimpacted	1,483	1,264	85%
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8360	Revisit	22	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8363	2013	147	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8365	2013	48	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8367	2013	0.04	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8371	2013	72	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8374	Revisit	99	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8382	2013	65	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8399	2013	57	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8401	2013	34	Possibly Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B13-8403	2013	0.2	Likely Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	B18-10100	Bight '18	19	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-12	2016	41	Likely Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-12	2018	17	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-13	2016	114	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-13	2018	31	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-14	2016	200	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-14	2018	144	Possibly Impacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-15	2016	78	Likely Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	IB-SS-15	2018	79	Unimpacted			

**Table B-3**  
**Area-Impacted Analysis Assuming Remaining Bight '18 Program Stations Are An Average of All Adjacent Stations**

Assessment Unit	TMDL Waterbody	Station Identification	Year	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Long Beach Inner Harbor	Long Beach Inner Harbor	SP-SS-20	2018	74	Unimpacted			
Long Beach Inner Harbor	Long Beach Inner Harbor	TMDL3-TB	2013	112	Likely Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	B13-8390	2013	44	Likely Unimpacted	246	220	89%
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-21	2016	101	Likely Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-21	2018	74	Unimpacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-22	2016	16	Likely Impacted			
Los Angeles River Estuary (Queensway Bay)	Los Angeles River Estuary (Queensway Bay)	LE-SS-22	2018	11	Possibly Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8310	2013	30	Unimpacted	2,617	2,424	93%
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8318	Revisit	320	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8322	2013	296	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8326	Revisit	230	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8333	2013	97	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8347	Revisit	89	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8349	2013	158	Possibly Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8360	Revisit	55	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B13-8363	2013	0.3	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10007	Bight '18	197	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10010	Bight '18	36	Possibly Impacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10100	Bight '18	87	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	B18-10109	Bight '18	123	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	IB-SS-14	2016	0.003	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-16	2016	189	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-16	2018	242	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-17	2016	245	Likely Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	OB-SS-17	2018	136	Unimpacted			
Long Beach Outer Harbor	Long Beach Outer Harbor	SP-SS-20	2018	85	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8316	2013	38	Unimpacted	1,595	1,178	74%
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8340	2013	31	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8367	2013	276	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8384	2013	87	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8396	2013	40	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B13-8397	2013	7	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	B18-10092	Bight '18	122	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CB-SS-11	2016	0.2	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CM-SS-10	2013	32	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CM-SS-10	2018	31	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	CS-SS-01	2016	1	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	FH-SS-07	2016	46	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-02	2016	13	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-02	2018	113	Likely Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-03	2016	53	Likely Unimpacted			



**Table B-3**

**Area-Impacted Analysis Assuming Remaining Bight '18 Program Stations Are An Average of All Adjacent Stations**

Assessment Unit	TMDL Waterbody	Station Identification	Year	Acres	Integrated Score	Total Acreage	SQO Area Meeting Protective Condition (acres)	% Area Meeting Protective Condition
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-03	2018	14	Possibly Impacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-04	2016	159	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-04	2018	76	Likely Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-05	2016	132	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-05	2018	32	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-06	2016	101	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	IA-SS-06	2018	37	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	OA-SS-09	2016	4	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	OA-SS-09	2018	89	Unimpacted			
Los Angeles Inner Harbor	Los Angeles Inner Harbor, including Cabrillo Marina	TMDL1-CH	2013	60	Possibly Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8302	Revisit	381	Likely Unimpacted	1,548	1,528	99%
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8304	Revisit	99	Likely Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8306	2013	33	Likely Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8308	2013	64	Likely Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8310	2013	62	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8316	2013	11	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B13-8326	Revisit	34	Likely Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	B18-10109	Bight '18	30	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CB-SS-11	2016	19	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CB-SS-11	2018	190	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	CM-SS-10	2013	19	Possibly Impacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-08	2016	70	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-08	2018	182	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-09	2016	78	Unimpacted			
Los Angeles Outer Harbor	Los Angeles Outer Harbor, including Inner Cabrillo Beach	OA-SS-09	2018	276	Unimpacted			
Consolidated Slip	Consolidated Slip	CS-SS-01	2016	7	Likely Impacted	37	0	0%
Consolidated Slip	Consolidated Slip	CS-SS-01	2018	8	Likely Impacted			
Consolidated Slip	Consolidated Slip	TMDL4-CS	2013	21	Possibly Impacted			
Fish Harbor	Fish Harbor	FH-SS-07	2016	25	Likely Unimpacted	87	25	29%
Fish Harbor	Fish Harbor	FH-SS-07	2018	22	Likely Impacted			
Fish Harbor	Fish Harbor	TMDL2-FH	2013	40	Possibly Impacted			

Notes:

SQO: Sediment Quality Objective

TMDL: Total Maximum Daily Load