

MONTHLY RECEIVING WATERS MONITORING REPORT FOR THE SOUTH BAY OCEAN OUTFALL

SOUTH BAY WATER RECLAMATION PLANT

NPDES PERMIT No. CA 0109045
SDRWQCB Order No. R9-2013-0006

DECEMBER 2017

Environmental Monitoring and Technical Services
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January 31, 2018

Mr. David W. Gibson, Executive Officer
California Regional Water Quality Control Board
San Diego Region
2375 Northside Drive, Suite 100
San Diego, CA 92108

Attention: POTW Compliance Unit

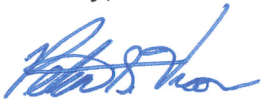
Dear Mr. Gibson:

Enclosed is the December 2017 Monthly Receiving Waters Monitoring Report for the South Bay Ocean Outfall, South Bay Water Reclamation Plant as required per Order No. R9-2013-0006 as amended by Order Nos. R9-2014-0071 and R9-2017-0023, NPDES Permit No. CA0109045.

This report includes raw ocean monitoring data and summaries of water quality parameters and ocean conditions measured during the month for the South Bay outfall region. Also included are summaries of compliance with the bacterial water-contact standards specified in the California Ocean Plan. These data are also presented in the monthly report submitted by the International Boundary and Water Commission, U.S. Section for discharge from the South Bay International Wastewater Treatment Plant (Order No. R9-2014-0009 as amended Order Nos. R9-2014-0094 and R9-2017-0024, NPDES Permit No. CA0108928).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,



Peter S. Vroom, Ph.D.
Deputy Director, Public Utilities Department

TS/rjg

cc: U.S. Environmental Protection Agency, Region 9

INTRODUCTION

Monthly reports of water quality and ocean conditions from Playa Blanco, Mexico to Coronado, USA are submitted to the San Diego Regional Water Quality Control Board and U.S. EPA Region 9 in accordance with Order No. R9-2013-0006 as amended by Order Nos. R9-2014-0071 and R9-2017-0023, NPDES Permit No. CA0109045, for the South Bay Water Reclamation Plant (SBWRP), South Bay Ocean Outfall (SBOO). This report includes receiving waters monitoring data collected from all shore, kelp and offshore stations specified in the above order. Data for influent and effluent monitoring activities for the SBWRP are presented in separate reports.

MATERIALS AND METHODS

Shore Stations

Water quality monitoring was conducted at 11 stations located along the shore from Playa Blanca, Mexico to Coronado, USA (see station locations map). Three sites are located south of the international border (stations S0, S2, S3), while eight sites are in the United States (stations S4–S6 and S8–S12).

Seawater samples were collected from the surf zone at each station on a weekly basis. These samples were subsequently transported to the City's Marine Microbiology Laboratory and analyzed for the presence of total coliform, fecal coliform, and *Enterococcus* bacteria. Visual observations of water color and clarity, surf height, human or animal activity, and weather conditions were recorded at the time of sample collection. Wind speed and direction were measured using a hand-held anemometer with a compass.

Kelp Bed Stations

Seven kelp bed and other nearshore stations (I19, I24, I25, I26, I32, I39, I40; collectively referred to as “kelp” stations herein) were sampled four times during the month according to NPDES permit specifications. Six stations (I19, I24, I25, I26, I32, I40) are located along the 9- m depth contour, and one (I39) is located along the 18-m depth contour. Three of these stations, I25, I26, and I39, were selected based on their proximity to suitable substrates for the Imperial Beach kelp bed (see station locations map); however, this kelp bed has been historically transient and variable in terms of size and density. Thus, these three stations are only occasionally located within an area where kelp is actually found.

The seven kelp stations are sampled on a weekly basis during the month. Routine monitoring at each kelp site consists of collecting seawater samples at three discrete depths for bacteriological analyses (total coliforms, fecal coliforms, and *Enterococcus* bacteria) and generating water column profiles of various physical/chemical parameters, including water temperature, salinity, density, dissolved oxygen, pH, chlorophyll *a*, and transmissivity. Visual observations of weather and water conditions are also recorded at all stations.

Seawater samples at the kelp bed stations are primarily collected using a CTD-integrated rosette sampler with Niskin bottles. Aliquots for bacteriological analyses were drawn from these bottles into sterile sample bottles for processing at the City's Marine Microbiology Laboratory. Water column profiles of the various physical/chemical parameters were taken using a CTD. The CTD collected these physical/chemical data at a rate \geq four scans per second. The data were then internally averaged using the CTD proprietary software, Seasoft, to create water column profiles

equivalent to one reading per meter. Additionally, CTD profile data for each water sample depth are presented with the bacteriological data.

Offshore Stations

Quarterly offshore water quality sampling is typically conducted over three days during February, May, August, and November for a total of 40 stations during each month (see station locations map). These offshore stations (I1–I40) are arranged in a grid surrounding the discharge site, and are generally located along the 9, 19, 28, 38, and 55-m depth contours. The seven offshore sites designated as kelp bed stations (described above) are included as part of the monthly offshore water quality sampling, however the data from these seven stations are reported within the kelp bed station section of the report with the other four days of kelp bed water quality sampling. Monitoring at all sites included measurements of various physical/chemical parameters, including water temperature, salinity, density, dissolved oxygen, pH, chlorophyll *a*, transmissivity, and chromomorphous dissolved organic matter (CDOM). Visual observations of weather and water conditions were also recorded at all stations. Seawater samples for the analysis of indicator bacteria, suspended solids, and oil and grease concentrations were collected at 28 of the stations.

At these offshore stations, water samples for bacteriological, suspended solids, and oil and grease analyses were typically collected using a rosette sampler with Niskin bottles. Measurements of the physical/chemical parameters listed above were taken using a Sea-Bird CTD. Additionally, CTD profile data for depths closest to those at which bacteriological samples were collected were extracted from the CTD profiles and are presented with the bacteriological data.

Bacteriological Reporting and Quality Assurance

Estimated values for bacteriological analyses are denoted by greater than (>), less than (<), or estimated (e) qualifiers and result from plates with colony counts above or below the permissible counting limits established in Bordner et al. (1978)^[1]. This document defines membrane filtration limits of 20–80 colonies per plate for total coliforms and 20–60 colonies per plate for fecal coliforms and *Enterococcus*. No Data (ND) is reported if plate counts from all dilutions have a total colony count of >200 per plate.

Results of the bacteriological analysis of seawater samples collected from each of the shore, kelp bed, and offshore stations located within State waters are assessed relative to the geometric mean and single sample maximum water-contact standards specified in the California Ocean Plan (Ocean Plan). The seven standards are defined as follows:

30-day Geometric Mean: The following standards are based on the geometric mean of the five most recent samples from each site.

- (1) Total coliform density shall not exceed 1000 CFU/100 mL;
- (2) Fecal coliform density shall not exceed 200 CFU/100 mL;
- (3) *Enterococcus* density shall not exceed 35 CFU/100 mL.

^[1]Bordner, R., J. Winter, and P. Scarpino (eds.). (1978). Microbiological Methods for Monitoring the Environment: Water and Wastes, EPA Research and Development, EPA-600/8-78-017. 337 p.

Single Sample Maximums:

- (1) Total coliform density shall not exceed 10,000 CFU/100 mL;
- (2) Fecal coliform density shall not exceed 400 CFU/100 mL;
- (3) *Enterococcus* density shall not exceed 104 CFU/100 mL;
- (4) Total coliform density shall not exceed 1,000 CFU/100 mL when the fecal coliform/total coliform ratio exceeds 0.1.

Compliance with the seven Ocean Plan standards are summarized below for the stations located in USA waters. In contrast, no such compliance summaries are presented for the three shore stations located in Mexican waters south of the International Border (i.e., S0, S2, and S3) since this region is not subject to the Ocean Plan standards.

Quality controls of bacteriological data include laboratory and field duplicate analyses. Laboratory duplicates are performed on approximately 10% of the water quality samples, while field duplicates are performed six times a month (see Appendix A). Laboratory duplicates represent two aliquots of the original sample that are split in the laboratory and analyzed by the same analyst using identical procedures within the same analytical run. The results of these analyses provide a measure of intra-analyst precision. In contrast, field duplicates represent two separate samples collected at the same time from the same site, which are handled under identical circumstances and treated exactly the same throughout field and lab procedures. The results of these analyses provide a measure of precision associated with sample collection, preservation, storage, and lab procedures. The sign test (see Gilbert, 1987) is used to statistically compare both the results from the laboratory duplicates, as well as the results from the field duplicates. These data will be further analyzed in the City's 2017 Quality Assurance Report, which will be completed in March 2018.

SUMMARY OF RESULTS

➤ **Shoreline Water Quality Sampling**

- Because of site access restrictions in Mexico, the South Bay shoreline sampling is carried out on the same day each week (i.e., Tuesday) in order to coordinate sampling between the Mexican and USA based stations. Seawater samples at the three shore stations located south of the USA/Mexico border (i.e., stations S0, S2 and S3) are presently collected by the Comisión Internacional de Límites y Aguas (CILA) and transported to the IBWC for subsequent delivery to the City's Marine Microbiology Lab, while samples from the eight stations located in USA waters are sampled by City staff.
- During December, the eight shore stations located north of the border were in compliance with all California Ocean Plan (Ocean Plan) water-contact standards; these standards do not apply to stations located in Mexican waters.
- Although the Ocean Plan standards do not apply to these stations, bacteria densities exceeded one or more benchmark levels (i.e., total coliforms >10,000 CFU/100mL; fecal coliforms >400 CFU/100 mL; *Enterococcus* >104 CFU/100 mL; total >1000 CFU/100 mL & F:T ratio >0.1) in seawater samples collected at stations S0 and S2 on one or more days.
- Historical analyses of Ocean Plan compliance rates for the South Bay outfall shore and kelp monitoring stations, combined with the results of satellite imagery data, suggest that

outflows from the Tijuana River and Los Buenos Creek, as well as surface runoff during or after rain events (storms), are likely to be the cause of impacted water quality along the shore and in near shore recreational waters in the South Bay region. See the City of San Diego's most recent *South Bay Ocean Outfall Annual Receiving Waters Monitoring and Assessment Report* for details (<http://www.sandiego.gov/mwwd/environment/oceanmonitor/reports/index.shtml>).

- Nothing of sewage origin was observed at any of the shore stations.

➤ **Kelp Bed Water Quality Sampling**

- The seven kelp bed water quality stations (I19, I24, I25, I26, I32, I39, I40) were sampled four times during the month (i.e. December 4, 14, 22, 26).
- During December, all of the kelp bed stations were in compliance.
- Water column temperatures ranged from 15.04 to 17.16°C. The difference between surface and bottom waters ranged from 0.04 to 1.14°C, indicating the water column was stratified at some of these sites during the month.
- Chlorophyll *a* concentrations ranged from 0.33 to 5.63 µg/L at the kelp bed stations, suggesting the presence of phytoplankton blooms during the month.
- Nothing of sewage origin was observed at any of the kelp bed stations.

➤ **Offshore Water Quality Sampling**

- Quarterly sampling was not conducted during December at the offshore stations. The next quarterly sampling is scheduled for February 2018.



TABLES AND FIGURES

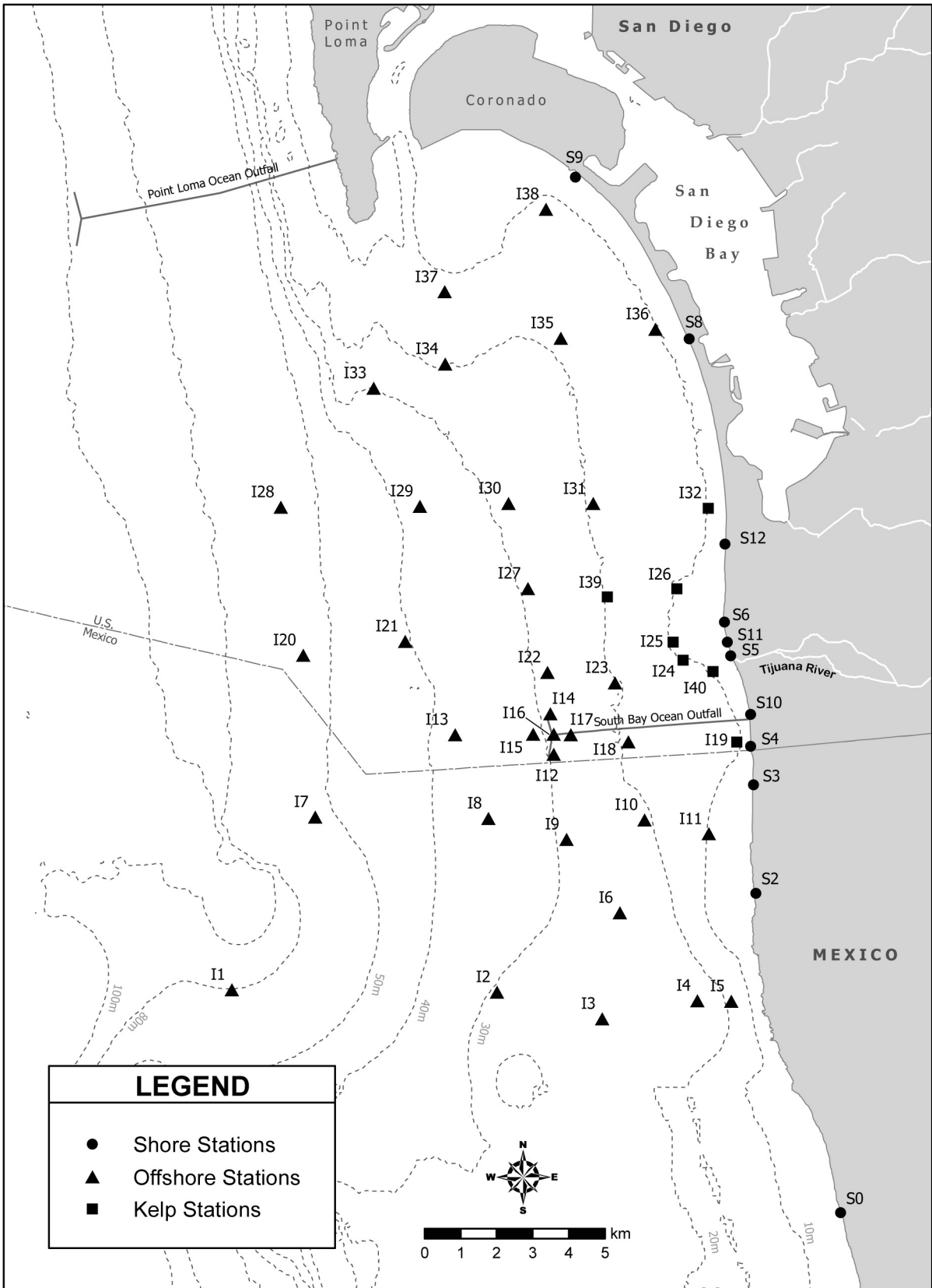


Figure 1.1 Station Map

Shore Stations

Table 2.1

Summary of compliance with the Ocean Plan's 30-day Geometric Mean standard for total coliform bacteria at the SBOO shore stations. Data are based on the geometric mean of the five most recent samples from each site over the previous 30 days unless otherwise noted (*). Values >1,000 CFU/100 mL exceed the standard.

Date	S4	S5	S6	S8	S9	S10	S11	S12
01 Dec 2017	11*	26*	36*	6*	36*	13*	13*	13*
02 Dec 2017	11*	26*	36*	6*	36*	13*	13*	13*
03 Dec 2017	11*	26*	36*	6*	36*	13*	13*	13*
04 Dec 2017	11*	26*	36*	6*	36*	13*	13*	13*
05 Dec 2017	12	25	32	8	32	14	14	14
06 Dec 2017	12	25	32	8	32	14	14	14
07 Dec 2017	11*	26*	36*	6*	30*	13*	13*	13*
08 Dec 2017	11*	26*	36*	6*	30*	13*	13*	13*
09 Dec 2017	11*	26*	36*	6*	30*	13*	13*	13*
10 Dec 2017	11*	26*	36*	6*	30*	13*	13*	13*
11 Dec 2017	11*	26*	36*	6*	30*	13*	13*	13*
12 Dec 2017	8	18	32	8	17	11	11	9
13 Dec 2017	8	18	32	8	17	11	11	9
14 Dec 2017	6*	9*	36*	11*	11*	9*	8*	8*
15 Dec 2017	6*	9*	36*	11*	11*	9*	8*	8*
16 Dec 2017	6*	9*	36*	11*	11*	9*	8*	8*
17 Dec 2017	6*	9*	36*	11*	11*	9*	8*	8*
18 Dec 2017	6*	9*	36*	11*	11*	9*	8*	8*
19 Dec 2017	5	7	20	8	11	9	6	6
20 Dec 2017	5	7	20	8	11	9	6	6
21 Dec 2017	6*	8*	11*	11*	10*	13*	8*	6*
22 Dec 2017	6*	8*	11*	11*	10*	13*	8*	6*
23 Dec 2017	6*	8*	11*	11*	10*	13*	8*	6*
24 Dec 2017	6*	8*	11*	11*	10*	13*	8*	6*
25 Dec 2017	6*	8*	11*	11*	10*	13*	8*	6*
26 Dec 2017	5	6	8	8	7	9	6	5
27 Dec 2017	5	6	8	8	7	9	6	5
28 Dec 2017	4*	4*	6*	6*	6*	6*	4*	4*
29 Dec 2017	4*	4*	6*	6*	6*	6*	4*	4*
30 Dec 2017	4*	4*	6*	6*	6*	6*	4*	4*
31 Dec 2017	4*	4*	6*	6*	6*	6*	4*	4*

* Geometric mean calculated using n<5

Table 2.2

Summary of compliance with the Ocean Plan's 30-day Geometric Mean standard for fecal coliform bacteria at the SBOO shore stations. Data are based on the geometric mean of the five most recent samples from each site over the previous 30 days unless otherwise noted (*). Values >200 CFU/100 mL exceed the standard.

Date	S4	S5	S6	S8	S9	S10	S11	S12
01 Dec 2017	2*	4*	3*	2*	6*	2*	2*	4*
02 Dec 2017	2*	4*	3*	2*	6*	2*	2*	4*
03 Dec 2017	2*	4*	3*	2*	6*	2*	2*	4*
04 Dec 2017	2*	4*	3*	2*	6*	2*	2*	4*
05 Dec 2017	2	3	3	2	5	2	2	4
06 Dec 2017	2	3	3	2	5	2	2	4
07 Dec 2017	2*	4*	3*	2*	4*	2*	2*	4*
08 Dec 2017	2*	4*	3*	2*	4*	2*	2*	4*
09 Dec 2017	2*	4*	3*	2*	4*	2*	2*	4*
10 Dec 2017	2*	4*	3*	2*	4*	2*	2*	4*
11 Dec 2017	2*	4*	3*	2*	4*	2*	2*	4*
12 Dec 2017	2	3	3	3	4	2	2	4
13 Dec 2017	2	3	3	3	4	2	2	4
14 Dec 2017	2*	2*	3*	4*	2*	2*	2*	2*
15 Dec 2017	2*	2*	3*	4*	2*	2*	2*	2*
16 Dec 2017	2*	2*	3*	4*	2*	2*	2*	2*
17 Dec 2017	2*	2*	3*	4*	2*	2*	2*	2*
18 Dec 2017	2*	2*	3*	4*	2*	2*	2*	2*
19 Dec 2017	2	2	2	3	2	2	2	2
20 Dec 2017	2	2	2	3	2	2	2	2
21 Dec 2017	2*	2*	3*	4*	2*	2*	2*	2*
22 Dec 2017	2*	2*	3*	4*	2*	2*	2*	2*
23 Dec 2017	2*	2*	3*	4*	2*	2*	2*	2*
24 Dec 2017	2*	2*	3*	4*	2*	2*	2*	2*
25 Dec 2017	2*	2*	3*	4*	2*	2*	2*	2*
26 Dec 2017	2	2	2	3	2	2	2	2
27 Dec 2017	2	2	2	3	2	2	2	2
28 Dec 2017	2*	2*	2*	4*	2*	2*	2*	2*
29 Dec 2017	2*	2*	2*	4*	2*	2*	2*	2*
30 Dec 2017	2*	2*	2*	4*	2*	2*	2*	2*
31 Dec 2017	2*	2*	2*	4*	2*	2*	2*	2*

* Geometric mean calculated using n<5

Table 2.3

Summary of compliance with the Ocean Plan's 30-day Geometric Mean standard for *Enterococcus* at the SBOO shore stations. Data are based on the geometric mean of the five most recent samples from each site over the previous 30 days unless otherwise noted (*). Values >35 CFU/100 mL exceed the standard.

Date	S4	S5	S6	S8	S9	S10	S11	S12
01 Dec 2017	3*	2*	2*	2*	5*	3*	2*	3*
02 Dec 2017	3*	2*	2*	2*	5*	3*	2*	3*
03 Dec 2017	3*	2*	2*	2*	5*	3*	2*	3*
04 Dec 2017	3*	2*	2*	2*	5*	3*	2*	3*
05 Dec 2017	2	3	2	2	4	3	2	2
06 Dec 2017	2	3	2	2	4	3	2	2
07 Dec 2017	2*	3*	2*	2*	4*	3*	2*	2*
08 Dec 2017	2*	3*	2*	2*	4*	3*	2*	2*
09 Dec 2017	2*	3*	2*	2*	4*	3*	2*	2*
10 Dec 2017	2*	3*	2*	2*	4*	3*	2*	2*
11 Dec 2017	2*	3*	2*	2*	4*	3*	2*	2*
12 Dec 2017	2	3	2	3	3	3	2	2
13 Dec 2017	2	3	2	3	3	3	2	2
14 Dec 2017	2*	3*	2*	3*	2*	3*	2*	2*
15 Dec 2017	2*	3*	2*	3*	2*	3*	2*	2*
16 Dec 2017	2*	3*	2*	3*	2*	3*	2*	2*
17 Dec 2017	2*	3*	2*	3*	2*	3*	2*	2*
18 Dec 2017	2*	3*	2*	3*	2*	3*	2*	2*
19 Dec 2017	2	2	2	3	2	3	2	2
20 Dec 2017	2	2	2	3	2	3	2	2
21 Dec 2017	2*	3*	2*	3*	2*	4*	2*	2*
22 Dec 2017	2*	3*	2*	3*	2*	4*	2*	2*
23 Dec 2017	2*	3*	2*	3*	2*	4*	2*	2*
24 Dec 2017	2*	3*	2*	3*	2*	4*	2*	2*
25 Dec 2017	2*	3*	2*	3*	2*	4*	2*	2*
26 Dec 2017	2	2	2	3	2	3	2	2
27 Dec 2017	2	2	2	3	2	3	2	2
28 Dec 2017	2*	3*	2*	3*	2*	3*	2*	2*
29 Dec 2017	2*	3*	2*	3*	2*	3*	2*	2*
30 Dec 2017	2*	3*	2*	3*	2*	3*	2*	2*
31 Dec 2017	2*	3*	2*	3*	2*	3*	2*	2*

* Geometric mean calculated using n<5

Table 2.4

Summary of compliance at the SBOO shore stations with the Ocean Plan's Single Sample Maximum standard for total coliform bacteria, which states that total coliform density shall not exceed 10,000 CFU/100 mL.

Date	S4	S5	S6	S8	S9	S10	S11	S12
05 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
12 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
19 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
26 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.5

Summary of compliance at the SBOO shore stations with the Ocean Plan's Single Sample Maximum standard for fecal coliform bacteria, which states that fecal coliform density shall not exceed 400 CFU/100 mL.

Date	S4	S5	S6	S8	S9	S10	S11	S12
05 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
12 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
19 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
26 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.6

Summary of compliance at the SBOO shore stations with the Ocean Plan's Single Sample Maximum standard for *Enterococcus* bacteria, which states that *Enterococcus* density shall not exceed 104 CFU/100 mL.

Date	S4	S5	S6	S8	S9	S10	S11	S12
05 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
12 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
19 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
26 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.7

Summary of compliance at the SBOO shore stations with the Ocean Plan's Single Sample Maximum standard for total coliform bacteria and the fecal/total coliform ratio (F:T), which states that total coliform density shall not exceed 1,000 CFU/100 mL when F:T > 0.1.

Date	S4	S5	S6	S8	S9	S10	S11	S12
05 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
12 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
19 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
26 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.8

Summary of water quality parameters at the SBOO shore stations for each sample date. Densities of total coliform (Total), fecal coliform (Fecal), and *Enterococcus* (Entero) are reported as CFU/100 mL. The fecal:total coliform ratio (F:T) is unitless. Comments follow the data summary.

Station	Date	Time	Total	Fecal	Entero	F:T
S0	04 Dec 2017	1030	>16000	620	920	0.04
S0	12 Dec 2017	1045	180e	<2	10e	0.01
S0	19 Dec 2017	1055	580e	12e	80e	0.02
S0	26 Dec 2017	1105	920	26e	160e	0.03
S2	04 Dec 2017	1120	80e	22e	120	0.28
S2	12 Dec 2017	1215	<2	<2	<2	1.00
S2	19 Dec 2017	1125	4e	<2	4e	0.50
S2	26 Dec 2017	1215	<2	<2	<2	1.00
S3	04 Dec 2017	1155	80e	2e	4e	0.02
S3	12 Dec 2017	1145	<2	<2	2e	1.00
S3	19 Dec 2017	1200	4e	<2	<2	0.50
S3	26 Dec 2017	1240	6e	<2	<2	0.33
S4	05 Dec 2017	850	<20	2e	<2	0.10
S4	12 Dec 2017	855	<2	<2	<2	1.00
S4	19 Dec 2017	711	<2	<2	<2	1.00
S4	26 Dec 2017	912	<2	<2	<2	1.00
S5	05 Dec 2017	1035	<20	<2	6e	0.10
S5	12 Dec 2017	1013	4e	<2	2e	0.50
S5	19 Dec 2017	815	<2	4e	<2	2.00
S5	26 Dec 2017	1033	<2	<2	<2	1.00
S6	05 Dec 2017	1023	<20	<2	2e	0.10
S6	12 Dec 2017	1002	<20	2e	<2	0.10
S6	19 Dec 2017	805	2e	<2	2e	1.00
S6	26 Dec 2017	1022	<2	<2	<2	1.00
S8	05 Dec 2017	1153	<20	<2	<2	0.10
S8	12 Dec 2017	1128	20e	<20	8e	1.00
S8	19 Dec 2017	940	2e	<2	2e	1.00
S8	26 Dec 2017	1220	<2	<2	<2	1.00
S9	05 Dec 2017	1228	<20	<2	<2	0.10
S9	12 Dec 2017	1151	<2	<2	<2	1.00
S9	19 Dec 2017	1006	12e	<2	<2	0.17
S9	26 Dec 2017	1300	<2	<2	<2	1.00
S10	05 Dec 2017	846	20e	<2	<2	0.10
S10	12 Dec 2017	850	4e	<2	<2	0.50
S10	19 Dec 2017	705	8e	<2	6e	0.25
S10	26 Dec 2017	906	<2	<2	<2	1.00
S11	05 Dec 2017	1029	<20	<2	2e	0.10
S11	12 Dec 2017	1007	4e	<2	2e	0.50
S11	19 Dec 2017	809	<2	<2	2e	1.00
S11	26 Dec 2017	1027	<2	<2	<2	1.00

Station	Date	Time	Total	Fecal	Enteroc	F:T
S12	05 Dec 2017	1013	<20	<2	2e	0.10
S12	12 Dec 2017	952	<2	<2	<2	1.00
S12	19 Dec 2017	751	<2	<2	<2	1.00
S12	26 Dec 2017	1010	<2	<2	2e	1.00

ns = not sampled

ND = no data

Comments

Station	Date	Depth	Parameter	Comments
S0	04 Dec 2017			Mexico stations were sampled on a different day
S2	04 Dec 2017			Mexico stations were sampled on a different day
S3	04 Dec 2017			Mexico stations were sampled on a different day

Table 2.9

Summary of visual observations made during the month for each SBOO shore station by sample date.

Station	Date	Parameter	Value
S0	04 Dec 2017	Arrive Time	1030
S0	04 Dec 2017	Weather	Sunny
S0	04 Dec 2017	Wind Speed (kts)	1.1
S0	04 Dec 2017	Wind Dir	SW
S0	04 Dec 2017	Animal Life	>20 Shorebirds
S0	04 Dec 2017	Floatables	None
S0	04 Dec 2017	Water Color	Green
S0	04 Dec 2017	Current Direction	SW
S0	04 Dec 2017	Water Temp (C)	15
S0	04 Dec 2017	Wave Height Low (ft)	4
S0	04 Dec 2017	High Tide (ft)	6.9
S0	04 Dec 2017	High Tide Time	839
S0	04 Dec 2017	Low Tide (ft)	-1.5
S0	04 Dec 2017	Low Tide Time	1550
S0	04 Dec 2017	Comments	Water clear; Flow from storm drain 0.5 L/sec
S0	12 Dec 2017	Arrive Time	1045
S0	12 Dec 2017	Weather	Sunny
S0	12 Dec 2017	Wind Speed (kts)	4.3
S0	12 Dec 2017	Wind Dir	NE
S0	12 Dec 2017	Animal Life	20 Birds
S0	12 Dec 2017	Floatables	None
S0	12 Dec 2017	Water Color	Green
S0	12 Dec 2017	Current Direction	N
S0	12 Dec 2017	Water Temp (C)	16
S0	12 Dec 2017	Wave Height Low (ft)	2
S0	12 Dec 2017	High Tide (ft)	5.1
S0	12 Dec 2017	High Tide Time	512
S0	12 Dec 2017	Low Tide (ft)	0.9
S0	12 Dec 2017	Low Tide Time	1158
S0	12 Dec 2017	Comments	Kelp; Water turbid; Flow from storm drain 1 L / sec
S0	19 Dec 2017	Arrive Time	1055
S0	19 Dec 2017	Weather	Sunny
S0	19 Dec 2017	Wind Speed (kts)	1.1
S0	19 Dec 2017	Wind Dir	SW
S0	19 Dec 2017	Animal Life	20 Birds; 3 Dogs
S0	19 Dec 2017	Floatables	None
S0	19 Dec 2017	Water Color	Green
S0	19 Dec 2017	Current Direction	N
S0	19 Dec 2017	Water Temp (C)	16
S0	19 Dec 2017	Wave Height Low (ft)	2
S0	19 Dec 2017	High Tide (ft)	5.7
S0	19 Dec 2017	High Tide Time	849
S0	19 Dec 2017	Low Tide (ft)	-0.5
S0	19 Dec 2017	Low Tide Time	1605
S0	19 Dec 2017	Comments	Kelp; 2 Surfers; Water turbid; Flow from storm drain 1 L / sec
S0	26 Dec 2017	Arrive Time	1105
S0	26 Dec 2017	Weather	Sunny
S0	26 Dec 2017	Wind Speed (kts)	2.3

Station	Date	Parameter	Value
S0	26 Dec 2017	Wind Dir	SE
S0	26 Dec 2017	Animal Life	15 Birds; 5 Dogs
S0	26 Dec 2017	Floatables	None
S0	26 Dec 2017	Water Color	Green
S0	26 Dec 2017	Current Direction	N
S0	26 Dec 2017	Water Temp (C)	15
S0	26 Dec 2017	Wave Height Low (ft)	2
S0	26 Dec 2017	High Tide (ft)	3.3
S0	26 Dec 2017	High Tide Time	1452
S0	26 Dec 2017	Low Tide (ft)	2.1
S0	26 Dec 2017	Low Tide Time	942
S0	26 Dec 2017	Comments	Kelp; 1 Fisherman; Water clear; Flow from storm drain 2 L/sec
S2	04 Dec 2017	Arrive Time	1120
S2	04 Dec 2017	Weather	Sunny
S2	04 Dec 2017	Wind Speed (kts)	1.3
S2	04 Dec 2017	Wind Dir	SW
S2	04 Dec 2017	Animal Life	>20 Shorebirds
S2	04 Dec 2017	Floatables	None
S2	04 Dec 2017	Water Color	Green
S2	04 Dec 2017	Current Direction	SW
S2	04 Dec 2017	Water Temp (C)	15
S2	04 Dec 2017	Wave Height Low (ft)	4
S2	04 Dec 2017	High Tide (ft)	6.9
S2	04 Dec 2017	High Tide Time	839
S2	04 Dec 2017	Low Tide (ft)	-1.5
S2	04 Dec 2017	Low Tide Time	1550
S2	04 Dec 2017	Comments	Water clear; No flow from storm drain
S2	12 Dec 2017	Arrive Time	1215
S2	12 Dec 2017	Weather	Sunny
S2	12 Dec 2017	Wind Speed (kts)	4.9
S2	12 Dec 2017	Wind Dir	NE
S2	12 Dec 2017	Animal Life	20 Birds; 1 Dog
S2	12 Dec 2017	Floatables	None
S2	12 Dec 2017	Water Color	Green
S2	12 Dec 2017	Current Direction	S
S2	12 Dec 2017	Water Temp (C)	16
S2	12 Dec 2017	Wave Height Low (ft)	2
S2	12 Dec 2017	High Tide (ft)	3.7
S2	12 Dec 2017	High Tide Time	1736
S2	12 Dec 2017	Low Tide (ft)	0.9
S2	12 Dec 2017	Low Tide Time	1158
S2	12 Dec 2017	Comments	Kelp; Water turbid; No flow from storm drain
S2	19 Dec 2017	Arrive Time	1125
S2	19 Dec 2017	Weather	Sunny
S2	19 Dec 2017	Wind Speed (kts)	1
S2	19 Dec 2017	Wind Dir	SW
S2	19 Dec 2017	Animal Life	20 Birds
S2	19 Dec 2017	Floatables	None
S2	19 Dec 2017	Water Color	Green
S2	19 Dec 2017	Current Direction	N
S2	19 Dec 2017	Water Temp (C)	17
S2	19 Dec 2017	Wave Height Low (ft)	2

Station	Date	Parameter	Value
S2	19 Dec 2017	High Tide (ft)	5.7
S2	19 Dec 2017	High Tide Time	849
S2	19 Dec 2017	Low Tide (ft)	-0.5
S2	19 Dec 2017	Low Tide Time	1605
S2	19 Dec 2017	Comments	Kelp; Water turbid; No flow from storm drain
S2	26 Dec 2017	Arrive Time	1215
S2	26 Dec 2017	Weather	Sunny
S2	26 Dec 2017	Wind Speed (kts)	3.3
S2	26 Dec 2017	Wind Dir	SE
S2	26 Dec 2017	Animal Life	20 Birds; 5 Dogs
S2	26 Dec 2017	Floatables	None
S2	26 Dec 2017	Water Color	Green
S2	26 Dec 2017	Current Direction	N
S2	26 Dec 2017	Water Temp (C)	15
S2	26 Dec 2017	Wave Height Low (ft)	2
S2	26 Dec 2017	High Tide (ft)	3.3
S2	26 Dec 2017	High Tide Time	1452
S2	26 Dec 2017	Low Tide (ft)	2.1
S2	26 Dec 2017	Low Tide Time	942
S2	26 Dec 2017	Comments	Kelp; 10 Persons; 1 Fisherman; Water clear; No flow from storm drain
S3	04 Dec 2017	Arrive Time	1155
S3	04 Dec 2017	Weather	Sunny
S3	04 Dec 2017	Wind Speed (kts)	1.5
S3	04 Dec 2017	Wind Dir	SW
S3	04 Dec 2017	Animal Life	15 Shorebirds; 5 Dogs
S3	04 Dec 2017	Floatables	None
S3	04 Dec 2017	Water Color	Green
S3	04 Dec 2017	Current Direction	SW
S3	04 Dec 2017	Water Temp (C)	15
S3	04 Dec 2017	Wave Height Low (ft)	4
S3	04 Dec 2017	High Tide (ft)	6.9
S3	04 Dec 2017	High Tide Time	839
S3	04 Dec 2017	Low Tide (ft)	-1.5
S3	04 Dec 2017	Low Tide Time	1550
S3	04 Dec 2017	Comments	Water clear; No flow from storm drain
S3	12 Dec 2017	Arrive Time	1145
S3	12 Dec 2017	Weather	Sunny
S3	12 Dec 2017	Wind Speed (kts)	4.6
S3	12 Dec 2017	Wind Dir	NE
S3	12 Dec 2017	Animal Life	20 Birds; 5 Dogs
S3	12 Dec 2017	Floatables	None
S3	12 Dec 2017	Water Color	Green
S3	12 Dec 2017	Current Direction	S
S3	12 Dec 2017	Water Temp (C)	16
S3	12 Dec 2017	Wave Height Low (ft)	2
S3	12 Dec 2017	High Tide (ft)	3.7
S3	12 Dec 2017	High Tide Time	1736
S3	12 Dec 2017	Low Tide (ft)	0.9
S3	12 Dec 2017	Low Tide Time	1158
S3	12 Dec 2017	Comments	Kelp; Water turbid; No flow from storm drain

Station	Date	Parameter	Value
S3	19 Dec 2017	Arrive Time	1200
S3	19 Dec 2017	Weather	Sunny
S3	19 Dec 2017	Wind Speed (kts)	2.1
S3	19 Dec 2017	Wind Dir	SW
S3	19 Dec 2017	Animal Life	3 Birds; 4 Dogs
S3	19 Dec 2017	Floatables	None
S3	19 Dec 2017	Water Color	Green
S3	19 Dec 2017	Current Direction	N
S3	19 Dec 2017	Water Temp (C)	17
S3	19 Dec 2017	Wave Height Low (ft)	2
S3	19 Dec 2017	High Tide (ft)	5.7
S3	19 Dec 2017	High Tide Time	849
S3	19 Dec 2017	Low Tide (ft)	-0.5
S3	19 Dec 2017	Low Tide Time	1605
S3	19 Dec 2017	Comments	Kelp; Water turbid; No flow from storm drain
S3	26 Dec 2017	Arrive Time	1240
S3	26 Dec 2017	Weather	Sunny
S3	26 Dec 2017	Wind Speed (kts)	3.8
S3	26 Dec 2017	Wind Dir	SE
S3	26 Dec 2017	Animal Life	20 Birds; 5 Dogs
S3	26 Dec 2017	Floatables	None
S3	26 Dec 2017	Water Color	Green
S3	26 Dec 2017	Current Direction	N
S3	26 Dec 2017	Water Temp (C)	15
S3	26 Dec 2017	Wave Height Low (ft)	2
S3	26 Dec 2017	High Tide (ft)	3.3
S3	26 Dec 2017	High Tide Time	1452
S3	26 Dec 2017	Low Tide (ft)	2.1
S3	26 Dec 2017	Low Tide Time	942
S3	26 Dec 2017	Comments	Kelp; 15 Persons; 1 Fisherman; Water clear; No flow from storm drain
S4	05 Dec 2017	Arrive Time	850
S4	05 Dec 2017	Weather	Sunny
S4	05 Dec 2017	Wind Speed (kts)	11.6
S4	05 Dec 2017	Wind Dir	SE
S4	05 Dec 2017	Animal Life	None
S4	05 Dec 2017	Floatables	None
S4	05 Dec 2017	Water Color	Green
S4	05 Dec 2017	Current Direction	N
S4	05 Dec 2017	Water Temp (C)	12.6
S4	05 Dec 2017	Wave Height Low (ft)	4
S4	05 Dec 2017	High Tide (ft)	6.7
S4	05 Dec 2017	High Tide Time	924
S4	05 Dec 2017	Low Tide (ft)	1.6
S4	05 Dec 2017	Low Tide Time	317
S4	05 Dec 2017	Comments	Kelp; Seagrass; Water clear
S4	12 Dec 2017	Arrive Time	855
S4	12 Dec 2017	Weather	Sunny
S4	12 Dec 2017	Wind Speed (kts)	4.3
S4	12 Dec 2017	Wind Dir	NE
S4	12 Dec 2017	Animal Life	None
S4	12 Dec 2017	Floatables	None

Station	Date	Parameter	Value
S4	12 Dec 2017	Water Color	Green
S4	12 Dec 2017	Current Direction	N
S4	12 Dec 2017	Water Temp (C)	12.3
S4	12 Dec 2017	Wave Height Low (ft)	2
S4	12 Dec 2017	High Tide (ft)	5.1
S4	12 Dec 2017	High Tide Time	512
S4	12 Dec 2017	Low Tide (ft)	0.9
S4	12 Dec 2017	Low Tide Time	1158
S4	12 Dec 2017	Comments	Seagrass; Water clear
S4	19 Dec 2017	Arrive Time	711
S4	19 Dec 2017	Weather	Sunny
S4	19 Dec 2017	Wind Speed (kts)	3.2
S4	19 Dec 2017	Wind Dir	E
S4	19 Dec 2017	Animal Life	None
S4	19 Dec 2017	Floatables	None
S4	19 Dec 2017	Water Color	Green
S4	19 Dec 2017	Current Direction	N
S4	19 Dec 2017	Water Temp (C)	14.4
S4	19 Dec 2017	Wave Height Low (ft)	3
S4	19 Dec 2017	High Tide (ft)	5.7
S4	19 Dec 2017	High Tide Time	849
S4	19 Dec 2017	Low Tide (ft)	2
S4	19 Dec 2017	Low Tide Time	245
S4	19 Dec 2017	Comments	Kelp; Seagrass; Water clear
S4	26 Dec 2017	Arrive Time	912
S4	26 Dec 2017	Weather	Hazy
S4	26 Dec 2017	Wind Speed (kts)	1.1
S4	26 Dec 2017	Wind Dir	NW
S4	26 Dec 2017	Animal Life	None
S4	26 Dec 2017	Floatables	None
S4	26 Dec 2017	Water Color	Green
S4	26 Dec 2017	Current Direction	N
S4	26 Dec 2017	Water Temp (C)	12.3
S4	26 Dec 2017	Wave Height Low (ft)	6
S4	26 Dec 2017	High Tide (ft)	3.3
S4	26 Dec 2017	High Tide Time	1452
S4	26 Dec 2017	Low Tide (ft)	2.1
S4	26 Dec 2017	Low Tide Time	942
S4	26 Dec 2017	Comments	Water clear
S5	05 Dec 2017	Arrive Time	1035
S5	05 Dec 2017	Weather	Sunny
S5	05 Dec 2017	Wind Speed (kts)	8.9
S5	05 Dec 2017	Wind Dir	E
S5	05 Dec 2017	Animal Life	None
S5	05 Dec 2017	Floatables	None
S5	05 Dec 2017	Water Color	Green
S5	05 Dec 2017	Current Direction	N
S5	05 Dec 2017	Water Temp (C)	13.3
S5	05 Dec 2017	Wave Height Low (ft)	4
S5	05 Dec 2017	High Tide (ft)	6.7
S5	05 Dec 2017	High Tide Time	924
S5	05 Dec 2017	Low Tide (ft)	-1.3

Station	Date	Parameter	Value
S5	05 Dec 2017	Low Tide Time	1640
S5	05 Dec 2017	Comments	Kelp; Seagrass; Water clear
S5	12 Dec 2017	Arrive Time	1013
S5	12 Dec 2017	Weather	Sunny
S5	12 Dec 2017	Wind Speed (kts)	5.1
S5	12 Dec 2017	Wind Dir	N
S5	12 Dec 2017	Animal Life	4 Birds
S5	12 Dec 2017	Floatables	None
S5	12 Dec 2017	Water Color	Green
S5	12 Dec 2017	Current Direction	N
S5	12 Dec 2017	Water Temp (C)	12.1
S5	12 Dec 2017	Wave Height Low (ft)	1
S5	12 Dec 2017	High Tide (ft)	5.1
S5	12 Dec 2017	High Tide Time	512
S5	12 Dec 2017	Low Tide (ft)	0.9
S5	12 Dec 2017	Low Tide Time	1158
S5	12 Dec 2017	Comments	Seagrass; Water clear
S5	19 Dec 2017	Arrive Time	815
S5	19 Dec 2017	Weather	Sunny
S5	19 Dec 2017	Wind Speed (kts)	4.4
S5	19 Dec 2017	Wind Dir	SE
S5	19 Dec 2017	Animal Life	None
S5	19 Dec 2017	Floatables	None
S5	19 Dec 2017	Water Color	Green
S5	19 Dec 2017	Current Direction	N
S5	19 Dec 2017	Water Temp (C)	14.5
S5	19 Dec 2017	Wave Height Low (ft)	2
S5	19 Dec 2017	High Tide (ft)	5.7
S5	19 Dec 2017	High Tide Time	849
S5	19 Dec 2017	Low Tide (ft)	2
S5	19 Dec 2017	Low Tide Time	245
S5	19 Dec 2017	Comments	Kelp; Seagrass; Water clear
S5	26 Dec 2017	Arrive Time	1033
S5	26 Dec 2017	Weather	Partly Cloudy
S5	26 Dec 2017	Wind Speed (kts)	6.9
S5	26 Dec 2017	Wind Dir	NW
S5	26 Dec 2017	Animal Life	None
S5	26 Dec 2017	Floatables	None
S5	26 Dec 2017	Water Color	Green
S5	26 Dec 2017	Current Direction	N
S5	26 Dec 2017	Water Temp (C)	12.8
S5	26 Dec 2017	Wave Height Low (ft)	5
S5	26 Dec 2017	High Tide (ft)	3.3
S5	26 Dec 2017	High Tide Time	1452
S5	26 Dec 2017	Low Tide (ft)	2.1
S5	26 Dec 2017	Low Tide Time	942
S5	26 Dec 2017	Comments	Water clear
S6	05 Dec 2017	Arrive Time	1023
S6	05 Dec 2017	Weather	Sunny
S6	05 Dec 2017	Wind Speed (kts)	4.6
S6	05 Dec 2017	Wind Dir	E

Station	Date	Parameter	Value
S6	05 Dec 2017	Animal Life	None
S6	05 Dec 2017	Floatables	None
S6	05 Dec 2017	Water Color	Green
S6	05 Dec 2017	Current Direction	N
S6	05 Dec 2017	Water Temp (C)	12.1
S6	05 Dec 2017	Wave Height Low (ft)	4
S6	05 Dec 2017	High Tide (ft)	6.7
S6	05 Dec 2017	High Tide Time	924
S6	05 Dec 2017	Low Tide (ft)	-1.3
S6	05 Dec 2017	Low Tide Time	1640
S6	05 Dec 2017	Comments	Kelp; Seagrass; 2 Persons; Water clear
S6	12 Dec 2017	Arrive Time	1002
S6	12 Dec 2017	Weather	Sunny
S6	12 Dec 2017	Wind Speed (kts)	2.1
S6	12 Dec 2017	Wind Dir	N
S6	12 Dec 2017	Animal Life	None
S6	12 Dec 2017	Floatables	None
S6	12 Dec 2017	Water Color	Green
S6	12 Dec 2017	Current Direction	N
S6	12 Dec 2017	Water Temp (C)	13.1
S6	12 Dec 2017	Wave Height Low (ft)	2
S6	12 Dec 2017	High Tide (ft)	5.1
S6	12 Dec 2017	High Tide Time	512
S6	12 Dec 2017	Low Tide (ft)	0.9
S6	12 Dec 2017	Low Tide Time	1158
S6	12 Dec 2017	Comments	Seagrass; 5 Persons; 8 Surfers; Water clear
S6	19 Dec 2017	Arrive Time	805
S6	19 Dec 2017	Weather	Sunny
S6	19 Dec 2017	Wind Speed (kts)	4.8
S6	19 Dec 2017	Wind Dir	E
S6	19 Dec 2017	Animal Life	None
S6	19 Dec 2017	Floatables	None
S6	19 Dec 2017	Water Color	Green
S6	19 Dec 2017	Current Direction	N
S6	19 Dec 2017	Water Temp (C)	13.8
S6	19 Dec 2017	Wave Height Low (ft)	3
S6	19 Dec 2017	High Tide (ft)	5.7
S6	19 Dec 2017	High Tide Time	849
S6	19 Dec 2017	Low Tide (ft)	2
S6	19 Dec 2017	Low Tide Time	245
S6	19 Dec 2017	Comments	Kelp; Seagrass; Water clear
S6	26 Dec 2017	Arrive Time	1022
S6	26 Dec 2017	Weather	Partly Cloudy
S6	26 Dec 2017	Wind Speed (kts)	4.4
S6	26 Dec 2017	Wind Dir	NW
S6	26 Dec 2017	Animal Life	None
S6	26 Dec 2017	Floatables	None
S6	26 Dec 2017	Water Color	Green
S6	26 Dec 2017	Current Direction	N
S6	26 Dec 2017	Water Temp (C)	12.8
S6	26 Dec 2017	Wave Height Low (ft)	5
S6	26 Dec 2017	High Tide (ft)	3.3

Station	Date	Parameter	Value
S6	26 Dec 2017	High Tide Time	1452
S6	26 Dec 2017	Low Tide (ft)	2.1
S6	26 Dec 2017	Low Tide Time	942
S6	26 Dec 2017	Comments	Water clear
S8	05 Dec 2017	Arrive Time	1153
S8	05 Dec 2017	Weather	Sunny
S8	05 Dec 2017	Wind Speed (kts)	2.3
S8	05 Dec 2017	Wind Dir	NW
S8	05 Dec 2017	Animal Life	None
S8	05 Dec 2017	Floatables	None
S8	05 Dec 2017	Water Color	Green
S8	05 Dec 2017	Current Direction	N
S8	05 Dec 2017	Water Temp (C)	18.2
S8	05 Dec 2017	Wave Height Low (ft)	2
S8	05 Dec 2017	High Tide (ft)	6.7
S8	05 Dec 2017	High Tide Time	924
S8	05 Dec 2017	Low Tide (ft)	-1.3
S8	05 Dec 2017	Low Tide Time	1640
S8	05 Dec 2017	Comments	Kelp; Seagrass; Water clear
S8	12 Dec 2017	Arrive Time	1128
S8	12 Dec 2017	Weather	Sunny
S8	12 Dec 2017	Wind Speed (kts)	0.7
S8	12 Dec 2017	Wind Dir	N
S8	12 Dec 2017	Animal Life	None
S8	12 Dec 2017	Floatables	None
S8	12 Dec 2017	Water Color	Green
S8	12 Dec 2017	Current Direction	N
S8	12 Dec 2017	Water Temp (C)	11.3
S8	12 Dec 2017	Wave Height Low (ft)	2
S8	12 Dec 2017	High Tide (ft)	3.7
S8	12 Dec 2017	High Tide Time	1736
S8	12 Dec 2017	Low Tide (ft)	0.9
S8	12 Dec 2017	Low Tide Time	1158
S8	12 Dec 2017	Comments	Kelp; Seagrass; Water clear
S8	19 Dec 2017	Arrive Time	940
S8	19 Dec 2017	Weather	Sunny
S8	19 Dec 2017	Wind Speed (kts)	3
S8	19 Dec 2017	Wind Dir	E
S8	19 Dec 2017	Animal Life	None
S8	19 Dec 2017	Floatables	None
S8	19 Dec 2017	Water Color	Blue
S8	19 Dec 2017	Current Direction	E
S8	19 Dec 2017	Water Temp (C)	13
S8	19 Dec 2017	Wave Height Low (ft)	2
S8	19 Dec 2017	High Tide (ft)	5.7
S8	19 Dec 2017	High Tide Time	849
S8	19 Dec 2017	Low Tide (ft)	-0.5
S8	19 Dec 2017	Low Tide Time	1605
S8	19 Dec 2017	Comments	Kelp; Seagrass; 2 Persons; Water turbid
S8	26 Dec 2017	Arrive Time	1220
S8	26 Dec 2017	Weather	Partly Cloudy

Station	Date	Parameter	Value
S8	26 Dec 2017	Wind Speed (kts)	2.7
S8	26 Dec 2017	Wind Dir	NW
S8	26 Dec 2017	Animal Life	None
S8	26 Dec 2017	Floatables	None
S8	26 Dec 2017	Water Color	Green
S8	26 Dec 2017	Current Direction	N
S8	26 Dec 2017	Water Temp (C)	13.4
S8	26 Dec 2017	Wave Height Low (ft)	3
S8	26 Dec 2017	High Tide (ft)	3.3
S8	26 Dec 2017	High Tide Time	1452
S8	26 Dec 2017	Low Tide (ft)	2.1
S8	26 Dec 2017	Low Tide Time	942
S8	26 Dec 2017	Comments	Water clear
S9	05 Dec 2017	Arrive Time	1228
S9	05 Dec 2017	Weather	Sunny
S9	05 Dec 2017	Wind Speed (kts)	3.3
S9	05 Dec 2017	Wind Dir	W
S9	05 Dec 2017	Animal Life	None
S9	05 Dec 2017	Floatables	None
S9	05 Dec 2017	Water Color	Green
S9	05 Dec 2017	Current Direction	N
S9	05 Dec 2017	Water Temp (C)	15.7
S9	05 Dec 2017	Wave Height Low (ft)	2
S9	05 Dec 2017	High Tide (ft)	6.7
S9	05 Dec 2017	High Tide Time	924
S9	05 Dec 2017	Low Tide (ft)	-1.3
S9	05 Dec 2017	Low Tide Time	1640
S9	05 Dec 2017	Comments	Kelp; Seagrass; 7 Persons; 1 Swimmer; Water clear
S9	12 Dec 2017	Arrive Time	1151
S9	12 Dec 2017	Weather	Sunny
S9	12 Dec 2017	Wind Speed (kts)	0.1
S9	12 Dec 2017	Wind Dir	N
S9	12 Dec 2017	Animal Life	None
S9	12 Dec 2017	Floatables	None
S9	12 Dec 2017	Water Color	Green
S9	12 Dec 2017	Current Direction	N
S9	12 Dec 2017	Water Temp (C)	13.1
S9	12 Dec 2017	Wave Height Low (ft)	2
S9	12 Dec 2017	High Tide (ft)	3.7
S9	12 Dec 2017	High Tide Time	1736
S9	12 Dec 2017	Low Tide (ft)	0.9
S9	12 Dec 2017	Low Tide Time	1158
S9	12 Dec 2017	Comments	Seagrass; 1 Person; 2 Surfers; Water clear
S9	19 Dec 2017	Arrive Time	1006
S9	19 Dec 2017	Weather	Sunny
S9	19 Dec 2017	Wind Speed (kts)	1
S9	19 Dec 2017	Wind Dir	E
S9	19 Dec 2017	Animal Life	None
S9	19 Dec 2017	Floatables	None
S9	19 Dec 2017	Water Color	Blue
S9	19 Dec 2017	Current Direction	E
S9	19 Dec 2017	Water Temp (C)	12

Station	Date	Parameter	Value
S9	19 Dec 2017	Wave Height Low (ft)	2
S9	19 Dec 2017	High Tide (ft)	5.7
S9	19 Dec 2017	High Tide Time	849
S9	19 Dec 2017	Low Tide (ft)	-0.5
S9	19 Dec 2017	Low Tide Time	1605
S9	19 Dec 2017	Comments	Kelp; Seagrass; Water turbid
S9	26 Dec 2017	Arrive Time	1300
S9	26 Dec 2017	Weather	Partly Cloudy
S9	26 Dec 2017	Wind Speed (kts)	3.1
S9	26 Dec 2017	Wind Dir	NW
S9	26 Dec 2017	Animal Life	None
S9	26 Dec 2017	Floatables	None
S9	26 Dec 2017	Water Color	Green
S9	26 Dec 2017	Current Direction	N
S9	26 Dec 2017	Water Temp (C)	11.9
S9	26 Dec 2017	Wave Height Low (ft)	4
S9	26 Dec 2017	High Tide (ft)	3.3
S9	26 Dec 2017	High Tide Time	1452
S9	26 Dec 2017	Low Tide (ft)	2.1
S9	26 Dec 2017	Low Tide Time	942
S9	26 Dec 2017	Comments	Water clear
S10	05 Dec 2017	Arrive Time	846
S10	05 Dec 2017	Weather	Overcast
S10	05 Dec 2017	Wind Speed (kts)	6.8
S10	05 Dec 2017	Wind Dir	E
S10	05 Dec 2017	Animal Life	None
S10	05 Dec 2017	Floatables	None
S10	05 Dec 2017	Water Color	Green
S10	05 Dec 2017	Current Direction	N
S10	05 Dec 2017	Water Temp (C)	12.2
S10	05 Dec 2017	Wave Height Low (ft)	2
S10	05 Dec 2017	High Tide (ft)	6.7
S10	05 Dec 2017	High Tide Time	924
S10	05 Dec 2017	Low Tide (ft)	1.6
S10	05 Dec 2017	Low Tide Time	317
S10	05 Dec 2017	Comments	Kelp; Seagrass; Water clear
S10	12 Dec 2017	Arrive Time	850
S10	12 Dec 2017	Weather	Sunny
S10	12 Dec 2017	Wind Speed (kts)	6.2
S10	12 Dec 2017	Wind Dir	E
S10	12 Dec 2017	Animal Life	None
S10	12 Dec 2017	Floatables	None
S10	12 Dec 2017	Water Color	Green
S10	12 Dec 2017	Current Direction	N
S10	12 Dec 2017	Water Temp (C)	12.6
S10	12 Dec 2017	Wave Height Low (ft)	2
S10	12 Dec 2017	High Tide (ft)	5.1
S10	12 Dec 2017	High Tide Time	512
S10	12 Dec 2017	Low Tide (ft)	0.9
S10	12 Dec 2017	Low Tide Time	1158
S10	12 Dec 2017	Comments	Seagrass; Water clear

Station	Date	Parameter	Value
S10	19 Dec 2017	Arrive Time	705
S10	19 Dec 2017	Weather	Sunny
S10	19 Dec 2017	Wind Speed (kts)	3.3
S10	19 Dec 2017	Wind Dir	SE
S10	19 Dec 2017	Animal Life	None
S10	19 Dec 2017	Floatables	None
S10	19 Dec 2017	Water Color	Green
S10	19 Dec 2017	Current Direction	N
S10	19 Dec 2017	Water Temp (C)	12.4
S10	19 Dec 2017	Wave Height Low (ft)	3
S10	19 Dec 2017	High Tide (ft)	5.7
S10	19 Dec 2017	High Tide Time	849
S10	19 Dec 2017	Low Tide (ft)	2
S10	19 Dec 2017	Low Tide Time	245
S10	19 Dec 2017	Comments	Kelp; Seagrass; Water clear
S10	26 Dec 2017	Arrive Time	906
S10	26 Dec 2017	Weather	Hazy
S10	26 Dec 2017	Wind Speed (kts)	2.7
S10	26 Dec 2017	Wind Dir	NW
S10	26 Dec 2017	Animal Life	None
S10	26 Dec 2017	Floatables	None
S10	26 Dec 2017	Water Color	Green
S10	26 Dec 2017	Current Direction	N
S10	26 Dec 2017	Water Temp (C)	12.6
S10	26 Dec 2017	Wave Height Low (ft)	4
S10	26 Dec 2017	High Tide (ft)	4.2
S10	26 Dec 2017	High Tide Time	317
S10	26 Dec 2017	Low Tide (ft)	2.1
S10	26 Dec 2017	Low Tide Time	942
S10	26 Dec 2017	Comments	Water clear
S11	05 Dec 2017	Arrive Time	1029
S11	05 Dec 2017	Weather	Sunny
S11	05 Dec 2017	Wind Speed (kts)	10.4
S11	05 Dec 2017	Wind Dir	E
S11	05 Dec 2017	Animal Life	None
S11	05 Dec 2017	Floatables	None
S11	05 Dec 2017	Water Color	Green
S11	05 Dec 2017	Current Direction	N
S11	05 Dec 2017	Water Temp (C)	13.4
S11	05 Dec 2017	Wave Height Low (ft)	4
S11	05 Dec 2017	High Tide (ft)	6.7
S11	05 Dec 2017	High Tide Time	924
S11	05 Dec 2017	Low Tide (ft)	-1.3
S11	05 Dec 2017	Low Tide Time	1640
S11	05 Dec 2017	Comments	Kelp; Seagrass; Water clear
S11	12 Dec 2017	Arrive Time	1007
S11	12 Dec 2017	Weather	Sunny
S11	12 Dec 2017	Wind Speed (kts)	5.4
S11	12 Dec 2017	Wind Dir	N
S11	12 Dec 2017	Animal Life	None
S11	12 Dec 2017	Floatables	None
S11	12 Dec 2017	Water Color	Colorless

Station	Date	Parameter	Value
S11	12 Dec 2017	Current Direction	N
S11	12 Dec 2017	Water Temp (C)	12.1
S11	12 Dec 2017	Wave Height Low (ft)	3
S11	12 Dec 2017	High Tide (ft)	5.1
S11	12 Dec 2017	High Tide Time	512
S11	12 Dec 2017	Low Tide (ft)	0.9
S11	12 Dec 2017	Low Tide Time	1158
S11	12 Dec 2017	Comments	3 Persons; Water clear
S11	19 Dec 2017	Arrive Time	809
S11	19 Dec 2017	Weather	Sunny
S11	19 Dec 2017	Wind Speed (kts)	3.6
S11	19 Dec 2017	Wind Dir	E
S11	19 Dec 2017	Animal Life	None
S11	19 Dec 2017	Floatables	None
S11	19 Dec 2017	Water Color	Green
S11	19 Dec 2017	Current Direction	N
S11	19 Dec 2017	Water Temp (C)	13.1
S11	19 Dec 2017	Wave Height Low (ft)	3
S11	19 Dec 2017	High Tide (ft)	5.7
S11	19 Dec 2017	High Tide Time	849
S11	19 Dec 2017	Low Tide (ft)	2
S11	19 Dec 2017	Low Tide Time	245
S11	19 Dec 2017	Comments	Kelp; Seagrass; Water clear
S11	26 Dec 2017	Arrive Time	1027
S11	26 Dec 2017	Weather	Partly Cloudy
S11	26 Dec 2017	Wind Speed (kts)	5.6
S11	26 Dec 2017	Wind Dir	NW
S11	26 Dec 2017	Animal Life	None
S11	26 Dec 2017	Floatables	None
S11	26 Dec 2017	Water Color	Green
S11	26 Dec 2017	Current Direction	N
S11	26 Dec 2017	Water Temp (C)	11.8
S11	26 Dec 2017	Wave Height Low (ft)	6
S11	26 Dec 2017	High Tide (ft)	3.3
S11	26 Dec 2017	High Tide Time	1452
S11	26 Dec 2017	Low Tide (ft)	2.1
S11	26 Dec 2017	Low Tide Time	942
S11	26 Dec 2017	Comments	Water clear
S12	05 Dec 2017	Arrive Time	1013
S12	05 Dec 2017	Weather	Sunny
S12	05 Dec 2017	Wind Speed (kts)	9.7
S12	05 Dec 2017	Wind Dir	NE
S12	05 Dec 2017	Animal Life	2 Dogs
S12	05 Dec 2017	Floatables	None
S12	05 Dec 2017	Water Color	Green
S12	05 Dec 2017	Current Direction	N
S12	05 Dec 2017	Water Temp (C)	13.5
S12	05 Dec 2017	Wave Height Low (ft)	2
S12	05 Dec 2017	High Tide (ft)	6.7
S12	05 Dec 2017	High Tide Time	924
S12	05 Dec 2017	Low Tide (ft)	-1.3
S12	05 Dec 2017	Low Tide Time	1640

Station	Date	Parameter	Value
S12	05 Dec 2017	Comments	Kelp; Seagrass; 2 Persons; Water clear
S12	12 Dec 2017	Arrive Time	952
S12	12 Dec 2017	Weather	Sunny
S12	12 Dec 2017	Wind Speed (kts)	4.8
S12	12 Dec 2017	Wind Dir	N
S12	12 Dec 2017	Animal Life	1 Dog
S12	12 Dec 2017	Floatables	None
S12	12 Dec 2017	Water Color	Green
S12	12 Dec 2017	Current Direction	N
S12	12 Dec 2017	Water Temp (C)	12.7
S12	12 Dec 2017	Wave Height Low (ft)	1
S12	12 Dec 2017	High Tide (ft)	5.1
S12	12 Dec 2017	High Tide Time	512
S12	12 Dec 2017	Low Tide (ft)	0.9
S12	12 Dec 2017	Low Tide Time	1158
S12	12 Dec 2017	Comments	Seagrass; 1 Person; Water clear
S12	19 Dec 2017	Arrive Time	751
S12	19 Dec 2017	Weather	Sunny
S12	19 Dec 2017	Wind Speed (kts)	1.3
S12	19 Dec 2017	Wind Dir	W
S12	19 Dec 2017	Animal Life	None
S12	19 Dec 2017	Floatables	None
S12	19 Dec 2017	Water Color	Green
S12	19 Dec 2017	Current Direction	N
S12	19 Dec 2017	Water Temp (C)	14.2
S12	19 Dec 2017	Wave Height Low (ft)	2
S12	19 Dec 2017	High Tide (ft)	5.7
S12	19 Dec 2017	High Tide Time	849
S12	19 Dec 2017	Low Tide (ft)	2
S12	19 Dec 2017	Low Tide Time	245
S12	19 Dec 2017	Comments	Kelp; Seagrass; Water clear
S12	26 Dec 2017	Arrive Time	1010
S12	26 Dec 2017	Weather	Partly Cloudy
S12	26 Dec 2017	Wind Speed (kts)	5.4
S12	26 Dec 2017	Wind Dir	NW
S12	26 Dec 2017	Animal Life	None
S12	26 Dec 2017	Floatables	None
S12	26 Dec 2017	Water Color	Green
S12	26 Dec 2017	Current Direction	N
S12	26 Dec 2017	Water Temp (C)	14
S12	26 Dec 2017	Wave Height Low (ft)	5
S12	26 Dec 2017	High Tide (ft)	3.3
S12	26 Dec 2017	High Tide Time	1452
S12	26 Dec 2017	Low Tide (ft)	2.1
S12	26 Dec 2017	Low Tide Time	942
S12	26 Dec 2017	Comments	Water clear

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Kelp Stations

Table 3.1

Summary of compliance with the Ocean Plan's 30-day Geometric Mean standard for total coliform bacteria at the SBOO kelp stations. Data are based on the geometric mean of the five most recent samples from each site over the previous 30 days unless otherwise noted (*). Values >1,000 CFU/100 mL exceed the standard.

Date	I19	I24	I25	I26	I32	I39	I40
01 Dec 2017	3*	2*	2*	2*	3*	2*	6*
02 Dec 2017	3*	2*	2*	2*	3*	2*	6*
03 Dec 2017	3*	2*	2*	2*	3*	2*	6*
04 Dec 2017	4	3	2	3	3	3	7
05 Dec 2017	4	3	2	3	3	3	7
06 Dec 2017	4	3	2	3	3	3	7
07 Dec 2017	4*	3*	2*	3*	3	3*	10*
08 Dec 2017	4*	3*	2*	3*	4*	3*	10*
09 Dec 2017	4*	3*	2*	3*	4*	3*	10*
10 Dec 2017	4*	3*	2*	3*	4*	3*	10*
11 Dec 2017	4*	3*	2*	3*	4*	3*	10*
12 Dec 2017	4*	3*	2*	3*	4*	3*	10*
13 Dec 2017	4*	3*	2*	3*	4*	3*	10*
14 Dec 2017	7*	3*	2*	3*	3*	4*	7*
15 Dec 2017	7*	3*	2*	3*	3*	4*	7*
16 Dec 2017	7*	3*	2*	3*	3*	4*	7*
17 Dec 2017	7*	3*	2*	3*	3*	4*	7*
18 Dec 2017	7*	3*	2*	3*	3*	4*	7*
19 Dec 2017	7*	3*	2*	3*	3*	4*	7*
20 Dec 2017	10*	3*	2*	3*	3*	5*	7*
21 Dec 2017	10*	3*	2*	3*	3*	5*	7*
22 Dec 2017	7*	3*	2*	3*	3*	4*	5*
23 Dec 2017	7*	3*	2*	3*	3*	4*	5*
24 Dec 2017	7*	3*	2*	3*	3*	4*	5*
25 Dec 2017	7*	3*	2*	3*	3*	4*	5*
26 Dec 2017	5	3	2	3	3	3	4
27 Dec 2017	5	3	2	3	3	3	4
28 Dec 2017	5	3	2	3	3	3	4
29 Dec 2017	5*	3*	2*	3*	3*	4*	5*
30 Dec 2017	5*	3*	2*	3*	3*	4*	5*
31 Dec 2017	5*	3*	2*	3*	3*	4*	5*

* Geometric mean calculated using n<5

Table 3.2

Summary of compliance with the Ocean Plan's 30-day Geometric Mean standard for fecal coliform bacteria at the SBOO kelp stations. Data are based on the geometric mean of the five most recent samples from each site over the previous 30 days unless otherwise noted (*). Values >200 CFU/100 mL exceed the standard.

Date	I19	I24	I25	I26	I32	I39	I40
01 Dec 2017	2*	2*	2*	2*	2*	2*	2*
02 Dec 2017	2*	2*	2*	2*	2*	2*	2*
03 Dec 2017	2*	2*	2*	2*	2*	2*	2*
04 Dec 2017	2	2	2	2	2	2	2
05 Dec 2017	2	2	2	2	2	2	2
06 Dec 2017	2	2	2	2	2	2	2
07 Dec 2017	2*	2*	2*	2*	2	2*	2*
08 Dec 2017	2*	2*	2*	2*	2*	2*	2*
09 Dec 2017	2*	2*	2*	2*	2*	2*	2*
10 Dec 2017	2*	2*	2*	2*	2*	2*	2*
11 Dec 2017	2*	2*	2*	2*	2*	2*	2*
12 Dec 2017	2*	2*	2*	2*	2*	2*	2*
13 Dec 2017	2*	2*	2*	2*	2*	2*	2*
14 Dec 2017	2*	2*	2*	2*	2*	2*	2*
15 Dec 2017	2*	2*	2*	2*	2*	2*	2*
16 Dec 2017	2*	2*	2*	2*	2*	2*	2*
17 Dec 2017	2*	2*	2*	2*	2*	2*	2*
18 Dec 2017	2*	2*	2*	2*	2*	2*	2*
19 Dec 2017	2*	2*	2*	2*	2*	2*	2*
20 Dec 2017	3*	2*	2*	2*	2*	2*	2*
21 Dec 2017	3*	2*	2*	2*	2*	2*	2*
22 Dec 2017	2*	2*	2*	2*	2*	2*	2*
23 Dec 2017	2*	2*	2*	2*	2*	2*	2*
24 Dec 2017	2*	2*	2*	2*	2*	2*	2*
25 Dec 2017	2*	2*	2*	2*	2*	2*	2*
26 Dec 2017	2	2	2	2	2	2	2
27 Dec 2017	2	2	2	2	2	2	2
28 Dec 2017	2	2	2	2	2	2	2
29 Dec 2017	2*	2*	2*	2*	2*	2*	2*
30 Dec 2017	2*	2*	2*	2*	2*	2*	2*
31 Dec 2017	2*	2*	2*	2*	2*	2*	2*

* Geometric mean calculated using n<5

Table 3.3

Summary of compliance with the Ocean Plan's 30-day Geometric Mean standard for *Enterococcus* at the SBOO kelp stations. Data are based on the geometric mean of the five most recent samples from each site over the previous 30 days unless otherwise noted (*). Values >35 CFU/100 mL exceed the standard.

Date	I19	I24	I25	I26	I32	I39	I40
01 Dec 2017	3*	2*	2*	2*	2*	2*	2*
02 Dec 2017	3*	2*	2*	2*	2*	2*	2*
03 Dec 2017	3*	2*	2*	2*	2*	2*	2*
04 Dec 2017	2	2	2	2	2	2	2
05 Dec 2017	2	2	2	2	2	2	2
06 Dec 2017	2	2	2	2	2	2	2
07 Dec 2017	3*	2*	2*	2*	2	2*	2*
08 Dec 2017	3*	2*	2*	2*	2*	2*	2*
09 Dec 2017	3*	2*	2*	2*	2*	2*	2*
10 Dec 2017	3*	2*	2*	2*	2*	2*	2*
11 Dec 2017	3*	2*	2*	2*	2*	2*	2*
12 Dec 2017	3*	2*	2*	2*	2*	2*	2*
13 Dec 2017	3*	2*	2*	2*	2*	2*	2*
14 Dec 2017	3*	2*	2*	2*	2*	2*	2*
15 Dec 2017	3*	2*	2*	2*	2*	2*	2*
16 Dec 2017	3*	2*	2*	2*	2*	2*	2*
17 Dec 2017	3*	2*	2*	2*	2*	2*	2*
18 Dec 2017	3*	2*	2*	2*	2*	2*	2*
19 Dec 2017	3*	2*	2*	2*	2*	2*	2*
20 Dec 2017	4*	2*	2*	2*	2*	2*	3*
21 Dec 2017	4*	2*	2*	2*	2*	2*	3*
22 Dec 2017	3*	2*	2*	2*	2*	2*	2*
23 Dec 2017	3*	2*	2*	2*	2*	2*	2*
24 Dec 2017	3*	2*	2*	2*	2*	2*	2*
25 Dec 2017	3*	2*	2*	2*	2*	2*	2*
26 Dec 2017	3	2	2	2	2	2	2
27 Dec 2017	3	2	2	2	2	2	2
28 Dec 2017	3	2	2	2	2	2	2
29 Dec 2017	3*	2*	2*	2*	2*	2*	2*
30 Dec 2017	3*	2*	2*	2*	2*	2*	2*
31 Dec 2017	3*	2*	2*	2*	2*	2*	2*

* Geometric mean calculated using n<5

Table 3.4

Summary of compliance at the SBOO kelp stations with the Ocean Plan's Single Sample Maximum standard for total coliform bacteria, which states that total coliform density shall not exceed 10,000 CFU/100 mL.

Date	I19	I24	I25	I26	I32	I39	I40
04 Dec 2017	IC	IC	IC	IC	IC	IC	IC
14 Dec 2017	IC	IC	IC	IC	IC	IC	IC
22 Dec 2017	IC	IC	IC	IC	IC	IC	IC
26 Dec 2017	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.5

Summary of compliance at the SBOO kelp stations with the Ocean Plan's Single Sample Maximum standard for fecal coliform bacteria, which states that fecal coliform density shall not exceed 400 CFU/100 mL.

Date	I19	I24	I25	I26	I32	I39	I40
04 Dec 2017	IC	IC	IC	IC	IC	IC	IC
14 Dec 2017	IC	IC	IC	IC	IC	IC	IC
22 Dec 2017	IC	IC	IC	IC	IC	IC	IC
26 Dec 2017	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.6

Summary of compliance at the SBOO kelp stations with the Ocean Plan's Single Sample Maximum standard for *Enterococcus* bacteria, which states that *Enterococcus* density shall not exceed 104 CFU/100 mL.

Date	I19	I24	I25	I26	I32	I39	I40
04 Dec 2017	IC	IC	IC	IC	IC	IC	IC
14 Dec 2017	IC	IC	IC	IC	IC	IC	IC
22 Dec 2017	IC	IC	IC	IC	IC	IC	IC
26 Dec 2017	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.7

Summary of compliance at the SBOO kelp stations with the Ocean Plan's Single Sample Maximum standard for total coliform bacteria and the fecal/total coliform ratio (F:T), which states that total coliform density shall not exceed 1,000 CFU/100 mL when F:T > 0.1.

Date	I19	I24	I25	I26	I32	I39	I40
04 Dec 2017	IC	IC	IC	IC	IC	IC	IC
14 Dec 2017	IC	IC	IC	IC	IC	IC	IC
22 Dec 2017	IC	IC	IC	IC	IC	IC	IC
26 Dec 2017	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.8

Summary of water quality parameters at the SBOO kelp stations for each sample date. Densities of total coliform (Total), fecal coliform (Fecal) and *Enterococcus* (Entero) bacteria are reported as CFU/100 mL; the fecal:total coliform ratio (F:T) is unitless; values for temperature (Temp, °C), transmissivity (XMS, %), dissolved oxygen (DO, mg/L), salinity (Sal, ppt) and pH were extracted from CTD profile data for depths closest to those at which the bacteriological samples were collected; oil and grease samples (OG) and suspended solids (SUSO) data are reported as mg/L. Duplicates are indicated by *. Comments follow the data summary.

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH	OG	SUSO
119	04 Dec 2017	1043	2	<2	<2	<2	1.0	16.1	71.44	8.1	33.42	8.1	ns	ns
119	04 Dec 2017	1043	6	<20	<2	<2	0.1	15.9	70.36	8.1	33.41	8.1	ns	ns
119	04 Dec 2017	1043	11	<20	<2	<2	0.1	15.8	59.55	8.1	33.41	8.1	ns	ns
119	14 Dec 2017	1012	2	2e	<2	2e	1.0	16.5	83.86	8.0	33.51	8.1	ns	ns
119	14 Dec 2017	1012	6	<20	2e	4e	0.1	16.4	80.64	8.1	33.50	8.1	ns	ns
119	14 Dec 2017	1012	11	<20	<2	12e	0.1	16.4	78.83	8.1	33.51	8.1	ns	ns
119	22 Dec 2017	1023	2	<2	<2	<2	1.0	16.7	81.65	7.9	33.58	8.2	ns	ns
119	22 Dec 2017	1023	6	<2	<2	<2	1.0	16.6	80.12	8.0	33.58	8.2	ns	ns
119	22 Dec 2017	1023	11	<2	<2	<2	1.0	16.5	79.58	8.0	33.58	8.2	ns	ns
119	26 Dec 2017	1035	2	<2	<2	<2	1.0	15.9	73.84	8.0	33.59	8.2	ns	ns
119	26 Dec 2017	1035	6	<2	<2	<2	1.0	15.8	70.87	8.0	33.59	8.2	ns	ns
119	26 Dec 2017	1035	11	<2	<2	<2	1.0	15.7	72.67	8.1	33.59	8.2	ns	ns
124	04 Dec 2017	1103	2	<2	<2	<2	1.0	16.2	70.63	8.4	33.41	8.1	ns	ns
124	04 Dec 2017	1103	6	<2	<2	<2	1.0	16.1	71.87	8.2	33.41	8.1	ns	ns
124	04 Dec 2017	1103	11	20e	<2	<2	0.1	15.9	65.05	7.7	33.41	8.1	ns	ns
124	14 Dec 2017	1029	2	<2	<2	<2	1.0	16.5	87.72	8.0	33.51	8.1	ns	ns
124	14 Dec 2017	1029	6	<2	<2	<2	1.0	16.3	85.01	8.0	33.50	8.1	ns	ns
124	14 Dec 2017	1029	11	<2	<2	<2	1.0	16.2	79.20	8.1	33.49	8.1	ns	ns
124	22 Dec 2017	1048	2	<2	<2	<2	1.0	16.7	82.40	7.9	33.57	8.2	ns	ns
124	22 Dec 2017	1048	6	<2	<2	<2	1.0	16.7	81.41	7.9	33.58	8.2	ns	ns
124	22 Dec 2017	1048	11	<2	<2	<2	1.0	16.5	79.18	7.9	33.58	8.2	ns	ns
124	26 Dec 2017	1057	2	<2	<2	<2	1.0	15.6	79.37	8.1	33.59	8.2	ns	ns
124	26 Dec 2017	1057	6	<2	<2	<2	1.0	15.6	79.00	8.0	33.59	8.2	ns	ns
124	26 Dec 2017	1057	11	<2	<2	<2	1.0	15.6	71.66	8.0	33.59	8.2	ns	ns
125	04 Dec 2017	1111	2	<2	<2	<2	1.0	16.2	74.18	8.4	33.41	8.1	ns	ns
125	04 Dec 2017	1111	6	<2	<2	<2	1.0	16.0	74.77	8.1	33.43	8.1	ns	ns
125	04 Dec 2017	1111	9	2e	<2	<2	1.0	15.6	72.02	7.7	33.39	8.1	ns	ns
125	14 Dec 2017	1038	2	<2	<2	<2	1.0	16.4	85.59	8.0	33.51	8.1	ns	ns
125	14 Dec 2017	1038	6	<2	<2	<2	1.0	16.3	85.22	8.0	33.50	8.1	ns	ns
125	14 Dec 2017	1038	9	<2	<2	<2	1.0	16.2	82.01	8.1	33.49	8.1	ns	ns
125	22 Dec 2017	1057	2	<2	<2	<2	1.0	16.7	83.29	8.0	33.58	8.2	ns	ns
125	22 Dec 2017	1057	6	<2	<2	<2	1.0	16.6	82.52	8.0	33.58	8.2	ns	ns
125	22 Dec 2017	1057	9	<2	<2	<2	1.0	16.6	82.23	8.1	33.58	8.2	ns	ns
125	26 Dec 2017	1106	2	<2	<2	<2	1.0	15.6	79.59	8.1	33.60	8.2	ns	ns
125	26 Dec 2017	1106	6	<2	<2	<2	1.0	15.6	79.38	8.0	33.59	8.2	ns	ns

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH	OG	SUSO
I25	26 Dec 2017	1106	9	<2	<2	<2	1.0	15.6	77.32	8.0	33.59	8.2	ns	ns
I26	04 Dec 2017	1121	2	<2	<2	<2	1.0	16.1	79.65	8.2	33.42	8.1	ns	ns
I26	04 Dec 2017	1121	6	<2	<2	<2	1.0	15.6	81.73	7.9	33.40	8.1	ns	ns
I26	04 Dec 2017	1121	9	<20	2e	<2	0.1	15.4	69.80	7.5	33.39	8.1	ns	ns
I26	14 Dec 2017	1047	2	<2	<2	<2	1.0	16.1	82.30	8.0	33.49	8.1	ns	ns
I26	14 Dec 2017	1047	6	<2	<2	<2	1.0	16.0	80.81	8.0	33.48	8.1	ns	ns
I26	14 Dec 2017	1047	9	<2	<2	<2	1.0	16.0	79.68	8.0	33.48	8.1	ns	ns
I26	22 Dec 2017	1111	2	<2	<2	<2	1.0	16.5	85.26	7.9	33.58	8.2	ns	ns
I26	22 Dec 2017	1111	6	<2	<2	<2	1.0	16.4	84.93	7.9	33.58	8.2	ns	ns
I26	22 Dec 2017	1111	9	<2	<2	<2	1.0	16.4	84.64	7.8	33.58	8.2	ns	ns
I26	26 Dec 2017	1116	2	<2	<2	<2	1.0	15.6	81.94	8.0	33.52	8.2	ns	ns
I26	26 Dec 2017	1116	6	<2	<2	<2	1.0	15.5	81.33	8.0	33.53	8.2	ns	ns
I26	26 Dec 2017	1116	9	<2	<2	<2	1.0	15.5	75.88	8.0	33.53	8.2	ns	ns
I32	04 Dec 2017	1134	2	<2	<2	<2	1.0	16.2	71.03	8.6	33.42	8.2	ns	ns
I32	04 Dec 2017	1134	6	<2	<2	<2	1.0	16.0	67.07	8.2	33.41	8.1	ns	ns
I32	04 Dec 2017	1134	9	<20	<2	<2	0.1	15.9	58.02	7.7	33.41	8.1	ns	ns
I32	14 Dec 2017	1059	2	<2	<2	<2	1.0	16.1	84.89	8.0	33.50	8.1	ns	ns
I32	14 Dec 2017	1059	6	<2	<2	<2	1.0	15.8	81.45	8.0	33.49	8.1	ns	ns
I32	14 Dec 2017	1059	9	<2	<2	<2	1.0	15.6	81.64	8.1	33.50	8.1	ns	ns
I32	22 Dec 2017	1123	2	<2	<2	<2	1.0	16.3	81.38	8.0	33.59	8.2	ns	ns
I32	22 Dec 2017	1123	6	<2	<2	<2	1.0	16.1	81.09	8.0	33.59	8.2	ns	ns
I32	22 Dec 2017	1123	9	2e	<2	<2	1.0	16.1	81.61	8.0	33.59	8.2	ns	ns
I32	26 Dec 2017	1128	2	<2	<2	<2	1.0	15.7	75.82	8.1	33.59	8.2	ns	ns
I32	26 Dec 2017	1128	6	<2	<2	<2	1.0	15.6	75.86	8.2	33.59	8.2	ns	ns
I32	26 Dec 2017	1128	9	<2	<2	<2	1.0	15.6	77.18	8.2	33.59	8.2	ns	ns
I39	04 Dec 2017	1021	2	4e	<2	<2	0.5	16.1	86.07	8.2	33.42	8.1	ns	ns
I39	04 Dec 2017	1021	12	12e	4e	<2	0.3	15.2	85.61	7.8	33.38	8.1	ns	ns
I39	04 Dec 2017	1021	18	<2	<2	<2	1.0	15.0	81.36	7.6	33.39	8.1	ns	ns
I39	14 Dec 2017	953	2	<2	<2	<2	1.0	16.9	88.07	7.8	33.58	8.1	ns	ns
I39	14 Dec 2017	953	12	<2	<2	<2	1.0	16.0	85.18	8.0	33.47	8.1	ns	ns
I39	14 Dec 2017	953	18	<20	<2	<2	0.1	16.0	84.64	8.0	33.48	8.1	ns	ns
I39	22 Dec 2017	1003	2	4e	<2	<2	0.5	16.4	85.34	7.9	33.56	8.2	ns	ns
I39	22 Dec 2017	1003	12	<2	<2	<2	1.0	16.4	85.33	7.8	33.56	8.2	ns	ns
I39	22 Dec 2017	1003	18	<2	<2	<2	1.0	16.4	85.22	7.8	33.56	8.2	ns	ns
I39	26 Dec 2017	1015	2	<2	<2	<2	1.0	15.5	84.80	7.9	33.50	8.1	ns	ns
I39	26 Dec 2017	1015	12	2e	<2	<2	1.0	15.5	85.01	7.8	33.50	8.1	ns	ns
I39	26 Dec 2017	1015	18	<2	<2	<2	1.0	15.2	81.85	7.4	33.48	8.1	ns	ns
I40	04 Dec 2017	1056	2	<20	<2	<2	0.1	16.1	57.82	7.9	33.41	8.1	ns	ns
I40	04 Dec 2017	1056	6	<20	<2	<2	0.1	16.1	57.64	7.8	33.41	8.1	ns	ns
I40	04 Dec 2017	1056	9	<20	<2	<2	0.1	16.0	59.24	7.7	33.41	8.1	ns	ns
I40	14 Dec 2017	1022	2	<2	<2	<2	1.0	16.4	87.64	8.0	33.51	8.1	ns	ns

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH	OG	SUSO
I40	14 Dec 2017	1022	6	<2	<2	<2	1.0	16.2	82.60	8.1	33.49	8.1	ns	ns
I40	14 Dec 2017	1022	9	<20	<2	<2	0.1	16.1	79.83	8.2	33.50	8.1	ns	ns
I40	22 Dec 2017	1036	2	<2	<2	<2	1.0	16.5	80.48	8.0	33.58	8.2	ns	ns
I40	22 Dec 2017	1036	6	<2	<2	<2	1.0	16.4	79.30	8.0	33.58	8.2	ns	ns
I40	22 Dec 2017	1036	9	<2	<2	<2	1.0	16.3	78.90	8.0	33.59	8.2	ns	ns
I40	26 Dec 2017	1048	2	<2	<2	<2	1.0	15.7	73.63	8.1	33.60	8.2	ns	ns
I40	26 Dec 2017	1048	6	<2	<2	<2	1.0	15.6	71.55	8.1	33.59	8.2	ns	ns
I40	26 Dec 2017	1048	9	<2	<2	<2	1.0	15.5	73.27	8.1	33.59	8.2	ns	ns

ns = not sampled

ND = no data

Table 3.9

Summary of visual observations made during the month for each SBOO kelp station by sample date.

Station	Date	Parameter	Value
I19	04 Dec 2017	Depth (m)	12
I19	04 Dec 2017	Arrive Time	1043
I19	04 Dec 2017	Depart Time	1046
I19	04 Dec 2017	Air Temp (C)	15
I19	04 Dec 2017	Weather	Partly Cloudy
I19	04 Dec 2017	Visibility (mi)	10
I19	04 Dec 2017	Wind Speed (kts)	1
I19	04 Dec 2017	Wind Dir	N
I19	04 Dec 2017	Water Color	Greenish-Brown
I19	04 Dec 2017	Wave Ht Low (ft)	4
I19	04 Dec 2017	Wave Period (sec)	13
I19	04 Dec 2017	Sea State	Calm
I19	04 Dec 2017	High Tide (ft)	6.9
I19	04 Dec 2017	High Tide Time	839
I19	04 Dec 2017	Low Tide (ft)	-1.5
I19	04 Dec 2017	Low Tide Time	1550
I19	04 Dec 2017	Comments	none
I19	14 Dec 2017	Depth (m)	12
I19	14 Dec 2017	Arrive Time	1012
I19	14 Dec 2017	Depart Time	1014
I19	14 Dec 2017	Air Temp (C)	16
I19	14 Dec 2017	Weather	Clear
I19	14 Dec 2017	Visibility (mi)	12
I19	14 Dec 2017	Wind Speed (kts)	4
I19	14 Dec 2017	Wind Dir	E
I19	14 Dec 2017	Water Color	Bluish-Green
I19	14 Dec 2017	Wave Ht Low (ft)	3
I19	14 Dec 2017	Wave Period (sec)	11
I19	14 Dec 2017	Sea State	Light chop
I19	14 Dec 2017	High Tide (ft)	5.6
I19	14 Dec 2017	High Tide Time	623
I19	14 Dec 2017	Low Tide (ft)	0
I19	14 Dec 2017	Low Tide Time	1323
I19	14 Dec 2017	Comments	none
I19	22 Dec 2017	Depth (m)	11
I19	22 Dec 2017	Arrive Time	1023
I19	22 Dec 2017	Depart Time	1028
I19	22 Dec 2017	Air Temp (C)	14
I19	22 Dec 2017	Weather	Clear
I19	22 Dec 2017	Visibility (mi)	12
I19	22 Dec 2017	Wind Speed (kts)	6
I19	22 Dec 2017	Wind Dir	SW
I19	22 Dec 2017	Water Color	Green
I19	22 Dec 2017	Wave Ht Low (ft)	2
I19	22 Dec 2017	Wave Period (sec)	9
I19	22 Dec 2017	Sea State	Calm
I19	22 Dec 2017	High Tide (ft)	4.9
I19	22 Dec 2017	High Tide Time	1023
I19	22 Dec 2017	Low Tide (ft)	2.4

Station	Date	Parameter	Value
I19	22 Dec 2017	Low Tide Time	429
I19	22 Dec 2017	Comments	none
I19	26 Dec 2017	Depth (m)	11
I19	26 Dec 2017	Arrive Time	1035
I19	26 Dec 2017	Depart Time	1040
I19	26 Dec 2017	Air Temp (C)	15
I19	26 Dec 2017	Weather	Overcast
I19	26 Dec 2017	Visibility (mi)	12
I19	26 Dec 2017	Wind Speed (kts)	0
I19	26 Dec 2017	Wind Dir	
I19	26 Dec 2017	Water Color	Greenish-Blue
I19	26 Dec 2017	Wave Ht Low (ft)	4
I19	26 Dec 2017	Wave Period (sec)	13
I19	26 Dec 2017	Sea State	Light chop
I19	26 Dec 2017	High Tide (ft)	3.3
I19	26 Dec 2017	High Tide Time	1452
I19	26 Dec 2017	Low Tide (ft)	2.1
I19	26 Dec 2017	Low Tide Time	942
I19	26 Dec 2017	Comments	none
I24	04 Dec 2017	Depth (m)	11
I24	04 Dec 2017	Arrive Time	1103
I24	04 Dec 2017	Depart Time	1106
I24	04 Dec 2017	Air Temp (C)	15
I24	04 Dec 2017	Weather	Partly Cloudy
I24	04 Dec 2017	Visibility (mi)	10
I24	04 Dec 2017	Wind Speed (kts)	2
I24	04 Dec 2017	Wind Dir	W
I24	04 Dec 2017	Water Color	Greenish-Brown
I24	04 Dec 2017	Wave Ht Low (ft)	4
I24	04 Dec 2017	Wave Period (sec)	13
I24	04 Dec 2017	Sea State	Calm
I24	04 Dec 2017	High Tide (ft)	6.9
I24	04 Dec 2017	High Tide Time	839
I24	04 Dec 2017	Low Tide (ft)	-1.5
I24	04 Dec 2017	Low Tide Time	1550
I24	04 Dec 2017	Comments	none
I24	14 Dec 2017	Depth (m)	11
I24	14 Dec 2017	Arrive Time	1029
I24	14 Dec 2017	Depart Time	1035
I24	14 Dec 2017	Air Temp (C)	16
I24	14 Dec 2017	Weather	Clear
I24	14 Dec 2017	Visibility (mi)	12
I24	14 Dec 2017	Wind Speed (kts)	7
I24	14 Dec 2017	Wind Dir	N
I24	14 Dec 2017	Water Color	Bluish-Green
I24	14 Dec 2017	Wave Ht Low (ft)	3
I24	14 Dec 2017	Wave Period (sec)	11
I24	14 Dec 2017	Sea State	Light chop
I24	14 Dec 2017	High Tide (ft)	5.6
I24	14 Dec 2017	High Tide Time	623
I24	14 Dec 2017	Low Tide (ft)	0
I24	14 Dec 2017	Low Tide Time	1323

Station	Date	Parameter	Value
I24	14 Dec 2017	Comments	none
I24	22 Dec 2017	Depth (m)	10
I24	22 Dec 2017	Arrive Time	1048
I24	22 Dec 2017	Depart Time	1056
I24	22 Dec 2017	Air Temp (C)	14
I24	22 Dec 2017	Weather	Clear
I24	22 Dec 2017	Visibility (mi)	12
I24	22 Dec 2017	Wind Speed (kts)	4
I24	22 Dec 2017	Wind Dir	NE
I24	22 Dec 2017	Water Color	Green
I24	22 Dec 2017	Wave Ht Low (ft)	2
I24	22 Dec 2017	Wave Period (sec)	9
I24	22 Dec 2017	Sea State	Calm
I24	22 Dec 2017	High Tide (ft)	4.9
I24	22 Dec 2017	High Tide Time	1023
I24	22 Dec 2017	Low Tide (ft)	2.4
I24	22 Dec 2017	Low Tide Time	429
I24	22 Dec 2017	Comments	none
I24	26 Dec 2017	Depth (m)	10
I24	26 Dec 2017	Arrive Time	1057
I24	26 Dec 2017	Depart Time	1104
I24	26 Dec 2017	Air Temp (C)	15
I24	26 Dec 2017	Weather	Overcast
I24	26 Dec 2017	Visibility (mi)	12
I24	26 Dec 2017	Wind Speed (kts)	7
I24	26 Dec 2017	Wind Dir	S
I24	26 Dec 2017	Water Color	Greenish-Blue
I24	26 Dec 2017	Wave Ht Low (ft)	4
I24	26 Dec 2017	Wave Period (sec)	13
I24	26 Dec 2017	Sea State	Light chop
I24	26 Dec 2017	High Tide (ft)	3.3
I24	26 Dec 2017	High Tide Time	1452
I24	26 Dec 2017	Low Tide (ft)	2.1
I24	26 Dec 2017	Low Tide Time	942
I24	26 Dec 2017	Comments	none
I25	04 Dec 2017	Depth (m)	10
I25	04 Dec 2017	Arrive Time	1111
I25	04 Dec 2017	Depart Time	1113
I25	04 Dec 2017	Air Temp (C)	15
I25	04 Dec 2017	Weather	Partly Cloudy
I25	04 Dec 2017	Visibility (mi)	10
I25	04 Dec 2017	Wind Speed (kts)	2
I25	04 Dec 2017	Wind Dir	NE
I25	04 Dec 2017	Water Color	Greenish-Brown
I25	04 Dec 2017	Wave Ht Low (ft)	4
I25	04 Dec 2017	Wave Period (sec)	13
I25	04 Dec 2017	Sea State	Calm
I25	04 Dec 2017	High Tide (ft)	6.9
I25	04 Dec 2017	High Tide Time	839
I25	04 Dec 2017	Low Tide (ft)	-1.5
I25	04 Dec 2017	Low Tide Time	1550
I25	04 Dec 2017	Comments	none

Station	Date	Parameter	Value
I25	14 Dec 2017	Depth (m)	10
I25	14 Dec 2017	Arrive Time	1038
I25	14 Dec 2017	Depart Time	1042
I25	14 Dec 2017	Air Temp (C)	16
I25	14 Dec 2017	Weather	Clear
I25	14 Dec 2017	Visibility (mi)	12
I25	14 Dec 2017	Wind Speed (kts)	3
I25	14 Dec 2017	Wind Dir	SE
I25	14 Dec 2017	Water Color	Bluish-Green
I25	14 Dec 2017	Wave Ht Low (ft)	3
I25	14 Dec 2017	Wave Period (sec)	11
I25	14 Dec 2017	Sea State	Light chop
I25	14 Dec 2017	High Tide (ft)	5.6
I25	14 Dec 2017	High Tide Time	623
I25	14 Dec 2017	Low Tide (ft)	0
I25	14 Dec 2017	Low Tide Time	1323
I25	14 Dec 2017	Comments	none
I25	22 Dec 2017	Depth (m)	10
I25	22 Dec 2017	Arrive Time	1057
I25	22 Dec 2017	Depart Time	1101
I25	22 Dec 2017	Air Temp (C)	14
I25	22 Dec 2017	Weather	Clear
I25	22 Dec 2017	Visibility (mi)	12
I25	22 Dec 2017	Wind Speed (kts)	3
I25	22 Dec 2017	Wind Dir	NE
I25	22 Dec 2017	Water Color	Green
I25	22 Dec 2017	Wave Ht Low (ft)	2
I25	22 Dec 2017	Wave Period (sec)	9
I25	22 Dec 2017	Sea State	Calm
I25	22 Dec 2017	High Tide (ft)	4.9
I25	22 Dec 2017	High Tide Time	1023
I25	22 Dec 2017	Low Tide (ft)	2.4
I25	22 Dec 2017	Low Tide Time	429
I25	22 Dec 2017	Comments	none
I25	26 Dec 2017	Depth (m)	10
I25	26 Dec 2017	Arrive Time	1106
I25	26 Dec 2017	Depart Time	1111
I25	26 Dec 2017	Air Temp (C)	14
I25	26 Dec 2017	Weather	Overcast
I25	26 Dec 2017	Visibility (mi)	12
I25	26 Dec 2017	Wind Speed (kts)	9
I25	26 Dec 2017	Wind Dir	E
I25	26 Dec 2017	Water Color	Greenish-Blue
I25	26 Dec 2017	Wave Ht Low (ft)	4
I25	26 Dec 2017	Wave Period (sec)	13
I25	26 Dec 2017	Sea State	Light chop
I25	26 Dec 2017	High Tide (ft)	3.3
I25	26 Dec 2017	High Tide Time	1452
I25	26 Dec 2017	Low Tide (ft)	2.1
I25	26 Dec 2017	Low Tide Time	942
I25	26 Dec 2017	Comments	none

Station	Date	Parameter	Value
I26	04 Dec 2017	Depth (m)	11
I26	04 Dec 2017	Arrive Time	1121
I26	04 Dec 2017	Depart Time	1123
I26	04 Dec 2017	Air Temp (C)	15
I26	04 Dec 2017	Weather	Partly Cloudy
I26	04 Dec 2017	Visibility (mi)	10
I26	04 Dec 2017	Wind Speed (kts)	2
I26	04 Dec 2017	Wind Dir	NE
I26	04 Dec 2017	Water Color	Green
I26	04 Dec 2017	Wave Ht Low (ft)	4
I26	04 Dec 2017	Wave Period (sec)	13
I26	04 Dec 2017	Sea State	Calm
I26	04 Dec 2017	High Tide (ft)	6.9
I26	04 Dec 2017	High Tide Time	839
I26	04 Dec 2017	Low Tide (ft)	-1.5
I26	04 Dec 2017	Low Tide Time	1550
I26	04 Dec 2017	Comments	none
I26	14 Dec 2017	Depth (m)	10
I26	14 Dec 2017	Arrive Time	1047
I26	14 Dec 2017	Depart Time	1051
I26	14 Dec 2017	Air Temp (C)	16
I26	14 Dec 2017	Weather	Clear
I26	14 Dec 2017	Visibility (mi)	12
I26	14 Dec 2017	Wind Speed (kts)	1
I26	14 Dec 2017	Wind Dir	N
I26	14 Dec 2017	Water Color	Bluish-Green
I26	14 Dec 2017	Wave Ht Low (ft)	3
I26	14 Dec 2017	Wave Period (sec)	11
I26	14 Dec 2017	Sea State	Light chop
I26	14 Dec 2017	High Tide (ft)	5.6
I26	14 Dec 2017	High Tide Time	623
I26	14 Dec 2017	Low Tide (ft)	0
I26	14 Dec 2017	Low Tide Time	1323
I26	14 Dec 2017	Comments	none
I26	22 Dec 2017	Depth (m)	11
I26	22 Dec 2017	Arrive Time	1111
I26	22 Dec 2017	Depart Time	1114
I26	22 Dec 2017	Air Temp (C)	14
I26	22 Dec 2017	Weather	Clear
I26	22 Dec 2017	Visibility (mi)	12
I26	22 Dec 2017	Wind Speed (kts)	1
I26	22 Dec 2017	Wind Dir	N
I26	22 Dec 2017	Water Color	Green
I26	22 Dec 2017	Wave Ht Low (ft)	2
I26	22 Dec 2017	Wave Period (sec)	9
I26	22 Dec 2017	Sea State	Calm
I26	22 Dec 2017	High Tide (ft)	4.9
I26	22 Dec 2017	High Tide Time	1023
I26	22 Dec 2017	Low Tide (ft)	2.4
I26	22 Dec 2017	Low Tide Time	429
I26	22 Dec 2017	Comments	none
I26	26 Dec 2017	Depth (m)	10

Station	Date	Parameter	Value
I26	26 Dec 2017	Arrive Time	1116
I26	26 Dec 2017	Depart Time	1121
I26	26 Dec 2017	Air Temp (C)	14
I26	26 Dec 2017	Weather	Overcast
I26	26 Dec 2017	Visibility (mi)	12
I26	26 Dec 2017	Wind Speed (kts)	7
I26	26 Dec 2017	Wind Dir	SW
I26	26 Dec 2017	Water Color	Greenish-Blue
I26	26 Dec 2017	Wave Ht Low (ft)	4
I26	26 Dec 2017	Wave Period (sec)	13
I26	26 Dec 2017	Sea State	Light chop
I26	26 Dec 2017	High Tide (ft)	3.3
I26	26 Dec 2017	High Tide Time	1452
I26	26 Dec 2017	Low Tide (ft)	2.1
I26	26 Dec 2017	Low Tide Time	942
I26	26 Dec 2017	Comments	none
I32	04 Dec 2017	Depth (m)	11
I32	04 Dec 2017	Arrive Time	1134
I32	04 Dec 2017	Depart Time	1136
I32	04 Dec 2017	Air Temp (C)	15
I32	04 Dec 2017	Weather	Partly Cloudy
I32	04 Dec 2017	Visibility (mi)	10
I32	04 Dec 2017	Wind Speed (kts)	3
I32	04 Dec 2017	Wind Dir	SW
I32	04 Dec 2017	Water Color	Green
I32	04 Dec 2017	Wave Ht Low (ft)	4
I32	04 Dec 2017	Wave Period (sec)	13
I32	04 Dec 2017	Sea State	Calm
I32	04 Dec 2017	High Tide (ft)	6.9
I32	04 Dec 2017	High Tide Time	839
I32	04 Dec 2017	Low Tide (ft)	-1.5
I32	04 Dec 2017	Low Tide Time	1550
I32	04 Dec 2017	Comments	none
I32	14 Dec 2017	Depth (m)	10
I32	14 Dec 2017	Arrive Time	1059
I32	14 Dec 2017	Depart Time	1102
I32	14 Dec 2017	Air Temp (C)	16
I32	14 Dec 2017	Weather	Clear
I32	14 Dec 2017	Visibility (mi)	12
I32	14 Dec 2017	Wind Speed (kts)	2
I32	14 Dec 2017	Wind Dir	W
I32	14 Dec 2017	Water Color	Bluish-Green
I32	14 Dec 2017	Wave Ht Low (ft)	3
I32	14 Dec 2017	Wave Period (sec)	11
I32	14 Dec 2017	Sea State	Light chop
I32	14 Dec 2017	High Tide (ft)	5.6
I32	14 Dec 2017	High Tide Time	623
I32	14 Dec 2017	Low Tide (ft)	0
I32	14 Dec 2017	Low Tide Time	1323
I32	14 Dec 2017	Comments	none
I32	22 Dec 2017	Depth (m)	11
I32	22 Dec 2017	Arrive Time	1123

Station	Date	Parameter	Value
I32	22 Dec 2017	Depart Time	1130
I32	22 Dec 2017	Air Temp (C)	14
I32	22 Dec 2017	Weather	Clear
I32	22 Dec 2017	Visibility (mi)	12
I32	22 Dec 2017	Wind Speed (kts)	3
I32	22 Dec 2017	Wind Dir	S
I32	22 Dec 2017	Water Color	Green
I32	22 Dec 2017	Wave Ht Low (ft)	2
I32	22 Dec 2017	Wave Period (sec)	9
I32	22 Dec 2017	Sea State	Calm
I32	22 Dec 2017	High Tide (ft)	4.9
I32	22 Dec 2017	High Tide Time	1023
I32	22 Dec 2017	Low Tide (ft)	2.4
I32	22 Dec 2017	Low Tide Time	429
I32	22 Dec 2017	Comments	none
I32	26 Dec 2017	Depth (m)	11
I32	26 Dec 2017	Arrive Time	1128
I32	26 Dec 2017	Depart Time	1135
I32	26 Dec 2017	Air Temp (C)	14
I32	26 Dec 2017	Weather	Overcast
I32	26 Dec 2017	Visibility (mi)	12
I32	26 Dec 2017	Wind Speed (kts)	7
I32	26 Dec 2017	Wind Dir	SE
I32	26 Dec 2017	Water Color	Greenish-Blue
I32	26 Dec 2017	Wave Ht Low (ft)	4
I32	26 Dec 2017	Wave Period (sec)	13
I32	26 Dec 2017	Sea State	Light chop
I32	26 Dec 2017	High Tide (ft)	3.3
I32	26 Dec 2017	High Tide Time	1452
I32	26 Dec 2017	Low Tide (ft)	2.1
I32	26 Dec 2017	Low Tide Time	942
I32	26 Dec 2017	Comments	none
I39	04 Dec 2017	Depth (m)	21
I39	04 Dec 2017	Arrive Time	1021
I39	04 Dec 2017	Depart Time	1024
I39	04 Dec 2017	Air Temp (C)	15
I39	04 Dec 2017	Weather	Partly Cloudy
I39	04 Dec 2017	Visibility (mi)	10
I39	04 Dec 2017	Wind Speed (kts)	0
I39	04 Dec 2017	Wind Dir	
I39	04 Dec 2017	Water Color	Bluish-Green
I39	04 Dec 2017	Wave Ht Low (ft)	5
I39	04 Dec 2017	Wave Period (sec)	13
I39	04 Dec 2017	Sea State	Calm
I39	04 Dec 2017	High Tide (ft)	6.9
I39	04 Dec 2017	High Tide Time	839
I39	04 Dec 2017	Low Tide (ft)	-1.5
I39	04 Dec 2017	Low Tide Time	1550
I39	04 Dec 2017	Comments	none
I39	14 Dec 2017	Depth (m)	20
I39	14 Dec 2017	Arrive Time	953
I39	14 Dec 2017	Depart Time	957

Station	Date	Parameter	Value
I39	14 Dec 2017	Air Temp (C)	16
I39	14 Dec 2017	Weather	Clear
I39	14 Dec 2017	Visibility (mi)	12
I39	14 Dec 2017	Wind Speed (kts)	0
I39	14 Dec 2017	Wind Dir	
I39	14 Dec 2017	Water Color	Bluish-Green
I39	14 Dec 2017	Wave Ht Low (ft)	3
I39	14 Dec 2017	Wave Period (sec)	11
I39	14 Dec 2017	Sea State	Light chop
I39	14 Dec 2017	High Tide (ft)	5.6
I39	14 Dec 2017	High Tide Time	623
I39	14 Dec 2017	Low Tide (ft)	0
I39	14 Dec 2017	Low Tide Time	1323
I39	14 Dec 2017	Comments	none
I39	22 Dec 2017	Depth (m)	20
I39	22 Dec 2017	Arrive Time	1003
I39	22 Dec 2017	Depart Time	1007
I39	22 Dec 2017	Air Temp (C)	12
I39	22 Dec 2017	Weather	Clear
I39	22 Dec 2017	Visibility (mi)	12
I39	22 Dec 2017	Wind Speed (kts)	5
I39	22 Dec 2017	Wind Dir	NW
I39	22 Dec 2017	Water Color	Green
I39	22 Dec 2017	Wave Ht Low (ft)	2
I39	22 Dec 2017	Wave Period (sec)	9
I39	22 Dec 2017	Sea State	Calm
I39	22 Dec 2017	High Tide (ft)	4.9
I39	22 Dec 2017	High Tide Time	1023
I39	22 Dec 2017	Low Tide (ft)	2.4
I39	22 Dec 2017	Low Tide Time	429
I39	22 Dec 2017	Comments	none
I39	26 Dec 2017	Depth (m)	20
I39	26 Dec 2017	Arrive Time	1015
I39	26 Dec 2017	Depart Time	1021
I39	26 Dec 2017	Air Temp (C)	14
I39	26 Dec 2017	Weather	Overcast
I39	26 Dec 2017	Visibility (mi)	12
I39	26 Dec 2017	Wind Speed (kts)	8
I39	26 Dec 2017	Wind Dir	W
I39	26 Dec 2017	Water Color	Greenish-Blue
I39	26 Dec 2017	Wave Ht Low (ft)	4
I39	26 Dec 2017	Wave Period (sec)	13
I39	26 Dec 2017	Sea State	Light chop
I39	26 Dec 2017	High Tide (ft)	3.3
I39	26 Dec 2017	High Tide Time	1452
I39	26 Dec 2017	Low Tide (ft)	2.1
I39	26 Dec 2017	Low Tide Time	942
I39	26 Dec 2017	Comments	Kelp debris
I40	04 Dec 2017	Depth (m)	11
I40	04 Dec 2017	Arrive Time	1056
I40	04 Dec 2017	Depart Time	1058
I40	04 Dec 2017	Air Temp (C)	15

Station	Date	Parameter	Value
I40	04 Dec 2017	Weather	Partly Cloudy
I40	04 Dec 2017	Visibility (mi)	10
I40	04 Dec 2017	Wind Speed (kts)	2
I40	04 Dec 2017	Wind Dir	W
I40	04 Dec 2017	Water Color	Greenish-Brown
I40	04 Dec 2017	Wave Ht Low (ft)	4
I40	04 Dec 2017	Wave Period (sec)	13
I40	04 Dec 2017	Sea State	Calm
I40	04 Dec 2017	High Tide (ft)	6.9
I40	04 Dec 2017	High Tide Time	839
I40	04 Dec 2017	Low Tide (ft)	-1.5
I40	04 Dec 2017	Low Tide Time	1550
I40	04 Dec 2017	Comments	none
I40	14 Dec 2017	Depth (m)	10
I40	14 Dec 2017	Arrive Time	1022
I40	14 Dec 2017	Depart Time	1025
I40	14 Dec 2017	Air Temp (C)	16
I40	14 Dec 2017	Weather	Clear
I40	14 Dec 2017	Visibility (mi)	12
I40	14 Dec 2017	Wind Speed (kts)	0
I40	14 Dec 2017	Wind Dir	
I40	14 Dec 2017	Water Color	Bluish-Green
I40	14 Dec 2017	Wave Ht Low (ft)	3
I40	14 Dec 2017	Wave Period (sec)	11
I40	14 Dec 2017	Sea State	Light chop
I40	14 Dec 2017	High Tide (ft)	5.6
I40	14 Dec 2017	High Tide Time	623
I40	14 Dec 2017	Low Tide (ft)	0
I40	14 Dec 2017	Low Tide Time	1323
I40	14 Dec 2017	Comments	none
I40	22 Dec 2017	Depth (m)	11
I40	22 Dec 2017	Arrive Time	1036
I40	22 Dec 2017	Depart Time	1043
I40	22 Dec 2017	Air Temp (C)	14
I40	22 Dec 2017	Weather	Clear
I40	22 Dec 2017	Visibility (mi)	12
I40	22 Dec 2017	Wind Speed (kts)	6
I40	22 Dec 2017	Wind Dir	NE
I40	22 Dec 2017	Water Color	Green
I40	22 Dec 2017	Wave Ht Low (ft)	2
I40	22 Dec 2017	Wave Period (sec)	9
I40	22 Dec 2017	Sea State	Calm
I40	22 Dec 2017	High Tide (ft)	4.9
I40	22 Dec 2017	High Tide Time	1023
I40	22 Dec 2017	Low Tide (ft)	2.4
I40	22 Dec 2017	Low Tide Time	429
I40	22 Dec 2017	Comments	none
I40	26 Dec 2017	Depth (m)	11
I40	26 Dec 2017	Arrive Time	1048
I40	26 Dec 2017	Depart Time	1052
I40	26 Dec 2017	Air Temp (C)	15
I40	26 Dec 2017	Weather	Overcast

Station	Date	Parameter	Value
I40	26 Dec 2017	Visibility (mi)	12
I40	26 Dec 2017	Wind Speed (kts)	6
I40	26 Dec 2017	Wind Dir	E
I40	26 Dec 2017	Water Color	Greenish-Blue
I40	26 Dec 2017	Wave Ht Low (ft)	4
I40	26 Dec 2017	Wave Period (sec)	13
I40	26 Dec 2017	Sea State	Light chop
I40	26 Dec 2017	High Tide (ft)	3.3
I40	26 Dec 2017	High Tide Time	1452
I40	26 Dec 2017	Low Tide (ft)	2.1
I40	26 Dec 2017	Low Tide Time	942
I40	26 Dec 2017	Comments	Kelp debris

Table 3.10

Summary of CTD profile data from the SBOO kelp stations for each sample date.

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I19	04 Dec 2017	1	16.11	71.84	8.1	33.41	8.1	24.5	1.42
I19	04 Dec 2017	2	16.10	71.44	8.1	33.42	8.1	24.5	1.47
I19	04 Dec 2017	3	16.02	70.71	8.1	33.42	8.1	24.5	1.72
I19	04 Dec 2017	4	15.98	70.62	8.1	33.42	8.1	24.5	2.24
I19	04 Dec 2017	5	15.95	70.62	8.1	33.41	8.1	24.5	2.56
I19	04 Dec 2017	6	15.91	70.36	8.1	33.41	8.1	24.5	2.74
I19	04 Dec 2017	7	15.87	70.21	8.1	33.41	8.1	24.6	2.79
I19	04 Dec 2017	8	15.83	68.21	8.1	33.41	8.1	24.6	2.68
I19	04 Dec 2017	9	15.79	62.71	8.1	33.41	8.1	24.6	2.50
I19	04 Dec 2017	10	15.76	59.55	8.1	33.41	8.1	24.6	2.26
I19	14 Dec 2017	1	16.62	84.75	8.0	33.50	8.1	24.5	0.63
I19	14 Dec 2017	2	16.54	83.86	8.0	33.51	8.1	24.5	0.63
I19	14 Dec 2017	3	16.47	83.29	8.0	33.50	8.1	24.5	0.69
I19	14 Dec 2017	4	16.43	82.98	8.0	33.50	8.1	24.5	0.80
I19	14 Dec 2017	5	16.43	81.45	8.0	33.50	8.1	24.5	0.89
I19	14 Dec 2017	6	16.43	80.64	8.1	33.50	8.1	24.5	0.98
I19	14 Dec 2017	7	16.42	79.80	8.1	33.50	8.1	24.5	1.08
I19	14 Dec 2017	8	16.41	79.26	8.2	33.51	8.1	24.5	1.14
I19	14 Dec 2017	9	16.40	79.10	8.1	33.51	8.1	24.5	1.15
I19	14 Dec 2017	10	16.40	78.83	8.1	33.51	8.1	24.5	1.13
I19	22 Dec 2017	1	16.71	81.56	7.9	33.58	8.2	24.5	0.68
I19	22 Dec 2017	2	16.71	81.65	7.9	33.58	8.2	24.5	0.68
I19	22 Dec 2017	3	16.70	81.55	7.9	33.58	8.2	24.5	0.73
I19	22 Dec 2017	4	16.67	80.79	7.9	33.58	8.2	24.5	0.90
I19	22 Dec 2017	5	16.65	80.37	7.9	33.58	8.2	24.5	1.09
I19	22 Dec 2017	6	16.62	80.12	8.0	33.58	8.2	24.5	1.33
I19	22 Dec 2017	7	16.60	79.94	8.0	33.58	8.2	24.5	1.57
I19	22 Dec 2017	8	16.58	79.50	8.0	33.58	8.2	24.5	1.72
I19	22 Dec 2017	9	16.54	79.42	8.0	33.58	8.2	24.5	1.89
I19	22 Dec 2017	10	16.48	79.58	8.0	33.58	8.2	24.5	1.86
I19	26 Dec 2017	1	15.88	73.21	8.0	33.59	8.2	24.7	1.28
I19	26 Dec 2017	2	15.88	73.84	8.0	33.59	8.2	24.7	1.30
I19	26 Dec 2017	3	15.87	73.32	8.0	33.59	8.2	24.7	1.44
I19	26 Dec 2017	4	15.86	72.56	8.0	33.59	8.2	24.7	1.62
I19	26 Dec 2017	5	15.84	71.83	8.0	33.59	8.2	24.7	1.70
I19	26 Dec 2017	6	15.83	70.87	8.0	33.59	8.2	24.7	1.75
I19	26 Dec 2017	7	15.81	70.52	8.0	33.59	8.2	24.7	1.77
I19	26 Dec 2017	8	15.78	71.04	8.0	33.59	8.2	24.7	1.72
I19	26 Dec 2017	9	15.76	71.91	8.1	33.59	8.2	24.7	1.66
I19	26 Dec 2017	10	15.73	72.67	8.1	33.59	8.2	24.7	1.58
I24	04 Dec 2017	1	16.18	70.76	8.4	33.41	8.1	24.5	2.10
I24	04 Dec 2017	2	16.19	70.63	8.4	33.41	8.1	24.5	2.09
I24	04 Dec 2017	3	16.19	70.32	8.4	33.41	8.1	24.5	2.20
I24	04 Dec 2017	4	16.18	70.43	8.3	33.41	8.1	24.5	2.46
I24	04 Dec 2017	5	16.12	70.79	8.3	33.41	8.1	24.5	2.73
I24	04 Dec 2017	6	16.08	71.87	8.2	33.41	8.1	24.5	2.85
I24	04 Dec 2017	7	16.05	71.35	8.1	33.41	8.1	24.5	2.73

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I24	04 Dec 2017	8	16.02	69.19	8.0	33.41	8.1	24.5	2.51
I24	04 Dec 2017	9	15.99	67.69	7.9	33.41	8.1	24.5	2.28
I24	04 Dec 2017	10	15.96	66.06	7.8	33.41	8.1	24.5	2.03
I24	04 Dec 2017	11	15.93	65.05	7.7	33.41	8.1	24.5	1.88
I24	14 Dec 2017	1	16.53	87.79	8.0	33.51	8.1	24.5	0.43
I24	14 Dec 2017	2	16.52	87.72	8.0	33.51	8.1	24.5	0.43
I24	14 Dec 2017	3	16.40	87.27	8.0	33.51	8.1	24.5	0.47
I24	14 Dec 2017	4	16.35	86.61	8.0	33.50	8.1	24.5	0.56
I24	14 Dec 2017	5	16.33	85.87	8.0	33.50	8.1	24.5	0.65
I24	14 Dec 2017	6	16.29	85.01	8.0	33.50	8.1	24.5	0.75
I24	14 Dec 2017	7	16.20	83.43	8.1	33.50	8.1	24.5	0.91
I24	14 Dec 2017	8	16.19	80.74	8.2	33.49	8.1	24.5	1.04
I24	14 Dec 2017	9	16.19	79.60	8.1	33.49	8.1	24.5	1.16
I24	14 Dec 2017	10	16.19	79.20	8.1	33.49	8.1	24.5	1.21
I24	22 Dec 2017	1	16.73	82.39	7.9	33.58	8.2	24.5	0.53
I24	22 Dec 2017	2	16.73	82.40	7.9	33.57	8.2	24.5	0.54
I24	22 Dec 2017	3	16.73	82.07	7.9	33.57	8.2	24.5	0.57
I24	22 Dec 2017	4	16.72	81.84	7.9	33.58	8.2	24.5	0.65
I24	22 Dec 2017	5	16.71	81.78	7.9	33.57	8.2	24.5	0.76
I24	22 Dec 2017	6	16.70	81.41	7.9	33.58	8.2	24.5	0.88
I24	22 Dec 2017	7	16.69	81.01	7.9	33.58	8.2	24.5	1.04
I24	22 Dec 2017	8	16.67	80.70	7.9	33.58	8.2	24.5	1.19
I24	22 Dec 2017	9	16.63	80.51	7.9	33.58	8.2	24.5	1.31
I24	22 Dec 2017	10	16.54	79.86	7.9	33.58	8.2	24.5	1.38
I24	22 Dec 2017	11	16.51	79.18	7.9	33.58	8.2	24.5	1.20
I24	26 Dec 2017	1	15.64	79.24	8.1	33.59	8.2	24.7	0.99
I24	26 Dec 2017	2	15.64	79.37	8.1	33.59	8.2	24.7	1.00
I24	26 Dec 2017	3	15.64	79.38	8.1	33.59	8.2	24.7	1.01
I24	26 Dec 2017	4	15.62	79.43	8.0	33.59	8.2	24.7	1.10
I24	26 Dec 2017	5	15.61	78.86	8.0	33.59	8.2	24.7	1.20
I24	26 Dec 2017	6	15.61	79.00	8.0	33.59	8.2	24.7	1.24
I24	26 Dec 2017	7	15.61	79.05	8.0	33.59	8.2	24.7	1.27
I24	26 Dec 2017	8	15.60	78.71	8.0	33.59	8.2	24.8	1.27
I24	26 Dec 2017	9	15.60	76.60	8.0	33.59	8.2	24.8	1.20
I24	26 Dec 2017	10	15.60	71.66	8.0	33.59	8.2	24.8	1.13
I25	04 Dec 2017	1	16.21	74.34	8.4	33.41	8.1	24.5	1.92
I25	04 Dec 2017	2	16.24	74.18	8.4	33.41	8.1	24.5	1.87
I25	04 Dec 2017	3	16.17	73.83	8.3	33.42	8.1	24.5	1.92
I25	04 Dec 2017	4	16.08	74.14	8.3	33.41	8.1	24.5	2.14
I25	04 Dec 2017	5	16.13	74.39	8.3	33.41	8.1	24.5	2.49
I25	04 Dec 2017	6	16.02	74.77	8.1	33.43	8.1	24.5	2.72
I25	04 Dec 2017	7	15.74	74.33	7.9	33.42	8.1	24.6	2.58
I25	04 Dec 2017	8	15.64	72.74	7.8	33.40	8.1	24.6	2.40
I25	04 Dec 2017	9	15.62	72.02	7.7	33.39	8.1	24.6	2.19
I25	14 Dec 2017	1	16.48	85.23	8.0	33.50	8.1	24.5	0.52
I25	14 Dec 2017	2	16.44	85.59	8.0	33.51	8.1	24.5	0.51
I25	14 Dec 2017	3	16.38	85.51	8.0	33.50	8.1	24.5	0.54
I25	14 Dec 2017	4	16.37	85.43	8.0	33.50	8.1	24.5	0.57
I25	14 Dec 2017	5	16.36	85.47	8.0	33.50	8.1	24.5	0.61
I25	14 Dec 2017	6	16.32	85.22	8.0	33.50	8.1	24.5	0.67

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I25	14 Dec 2017	7	16.25	82.95	8.1	33.49	8.1	24.5	0.77
I25	14 Dec 2017	8	16.25	82.03	8.1	33.49	8.1	24.5	0.86
I25	14 Dec 2017	9	16.25	82.01	8.1	33.49	8.1	24.5	0.89
I25	22 Dec 2017	1	16.70	83.22	8.0	33.58	8.2	24.5	0.56
I25	22 Dec 2017	2	16.69	83.29	8.0	33.58	8.2	24.5	0.54
I25	22 Dec 2017	3	16.68	83.06	8.0	33.58	8.2	24.5	0.60
I25	22 Dec 2017	4	16.68	82.70	8.0	33.58	8.2	24.5	0.68
I25	22 Dec 2017	5	16.66	82.74	8.0	33.58	8.2	24.5	0.76
I25	22 Dec 2017	6	16.65	82.52	8.0	33.58	8.2	24.5	0.86
I25	22 Dec 2017	7	16.62	82.37	8.0	33.58	8.2	24.5	1.02
I25	22 Dec 2017	8	16.58	81.93	8.1	33.58	8.2	24.5	1.13
I25	22 Dec 2017	9	16.55	82.23	8.1	33.58	8.2	24.5	1.02
I25	26 Dec 2017	1	15.60	79.07	8.0	33.60	8.2	24.8	0.83
I25	26 Dec 2017	2	15.60	79.59	8.1	33.60	8.2	24.8	0.86
I25	26 Dec 2017	3	15.60	79.67	8.1	33.60	8.2	24.8	0.94
I25	26 Dec 2017	4	15.59	79.36	8.1	33.59	8.2	24.8	1.02
I25	26 Dec 2017	5	15.58	79.48	8.1	33.59	8.2	24.8	1.08
I25	26 Dec 2017	6	15.57	79.38	8.0	33.59	8.2	24.8	1.12
I25	26 Dec 2017	7	15.57	79.12	8.0	33.59	8.2	24.8	1.14
I25	26 Dec 2017	8	15.56	78.83	8.0	33.59	8.2	24.8	1.06
I25	26 Dec 2017	9	15.57	77.32	8.0	33.59	8.2	24.8	0.98
I26	04 Dec 2017	1	16.16	79.88	8.3	33.41	8.1	24.5	1.61
I26	04 Dec 2017	2	16.12	79.65	8.2	33.42	8.1	24.5	1.68
I26	04 Dec 2017	3	15.84	79.46	8.1	33.43	8.1	24.6	1.92
I26	04 Dec 2017	4	15.71	80.07	8.1	33.41	8.1	24.6	1.92
I26	04 Dec 2017	5	15.62	81.15	8.0	33.41	8.1	24.6	1.97
I26	04 Dec 2017	6	15.55	81.73	7.9	33.40	8.1	24.6	1.98
I26	04 Dec 2017	7	15.49	80.24	7.8	33.39	8.1	24.6	1.95
I26	04 Dec 2017	8	15.47	74.32	7.6	33.39	8.1	24.6	1.87
I26	04 Dec 2017	9	15.45	69.80	7.5	33.39	8.1	24.6	1.89
I26	14 Dec 2017	1	16.17	82.49	8.0	33.49	8.1	24.5	0.58
I26	14 Dec 2017	2	16.09	82.30	8.0	33.49	8.1	24.6	0.61
I26	14 Dec 2017	3	16.02	81.75	8.0	33.48	8.1	24.6	0.72
I26	14 Dec 2017	4	16.01	80.96	8.0	33.48	8.1	24.6	0.83
I26	14 Dec 2017	5	16.00	80.85	8.0	33.48	8.1	24.6	0.92
I26	14 Dec 2017	6	15.99	80.81	8.0	33.48	8.1	24.6	1.05
I26	14 Dec 2017	7	15.98	80.51	8.0	33.48	8.1	24.6	1.18
I26	14 Dec 2017	8	15.98	80.12	8.0	33.48	8.1	24.6	1.29
I26	14 Dec 2017	9	15.98	79.68	8.0	33.48	8.1	24.6	1.33
I26	22 Dec 2017	1	16.49	85.39	7.9	33.58	8.2	24.5	0.43
I26	22 Dec 2017	2	16.47	85.26	7.9	33.58	8.2	24.5	0.40
I26	22 Dec 2017	3	16.44	85.14	7.9	33.58	8.2	24.6	0.44
I26	22 Dec 2017	4	16.43	85.03	7.9	33.58	8.2	24.6	0.47
I26	22 Dec 2017	5	16.41	85.06	7.8	33.58	8.2	24.6	0.49
I26	22 Dec 2017	6	16.40	84.93	7.9	33.58	8.2	24.6	0.53
I26	22 Dec 2017	7	16.39	84.86	7.9	33.58	8.2	24.6	0.57
I26	22 Dec 2017	8	16.39	84.77	7.9	33.58	8.2	24.6	0.62
I26	22 Dec 2017	9	16.38	84.64	7.8	33.58	8.2	24.6	0.66
I26	26 Dec 2017	1	15.56	81.97	8.0	33.52	8.2	24.7	0.92

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I26	26 Dec 2017	2	15.56	81.94	8.0	33.52	8.2	24.7	0.90
I26	26 Dec 2017	3	15.53	82.00	8.0	33.52	8.2	24.7	0.95
I26	26 Dec 2017	4	15.52	81.87	7.9	33.52	8.2	24.7	1.03
I26	26 Dec 2017	5	15.52	81.60	8.0	33.52	8.2	24.7	1.11
I26	26 Dec 2017	6	15.51	81.33	8.0	33.53	8.2	24.7	1.22
I26	26 Dec 2017	7	15.52	80.26	8.0	33.53	8.2	24.7	1.30
I26	26 Dec 2017	8	15.52	78.08	8.0	33.53	8.2	24.7	1.33
I26	26 Dec 2017	9	15.53	75.88	8.0	33.53	8.2	24.7	1.37
I32	04 Dec 2017	1	16.26	71.44	8.6	33.41	8.2	24.5	1.75
I32	04 Dec 2017	2	16.20	71.03	8.6	33.42	8.2	24.5	2.14
I32	04 Dec 2017	3	16.09	70.40	8.6	33.41	8.2	24.5	3.46
I32	04 Dec 2017	4	16.06	68.96	8.5	33.41	8.2	24.5	4.65
I32	04 Dec 2017	5	16.04	68.17	8.4	33.41	8.1	24.5	5.21
I32	04 Dec 2017	6	16.01	67.07	8.2	33.41	8.1	24.5	5.63
I32	04 Dec 2017	7	15.98	64.59	8.0	33.41	8.1	24.5	5.46
I32	04 Dec 2017	8	15.94	61.60	7.8	33.41	8.1	24.5	5.03
I32	04 Dec 2017	9	15.88	58.02	7.7	33.41	8.1	24.6	4.33
I32	04 Dec 2017	10	15.83	55.47	7.6	33.40	8.1	24.6	3.09
I32	14 Dec 2017	1	16.17	84.97	8.0	33.50	8.1	24.6	0.58
I32	14 Dec 2017	2	16.13	84.89	8.0	33.50	8.1	24.6	0.58
I32	14 Dec 2017	3	15.98	84.83	8.0	33.51	8.1	24.6	0.60
I32	14 Dec 2017	4	15.93	84.52	8.0	33.50	8.1	24.6	0.66
I32	14 Dec 2017	5	15.83	83.49	8.0	33.49	8.1	24.6	0.77
I32	14 Dec 2017	6	15.77	81.45	8.0	33.49	8.1	24.6	0.90
I32	14 Dec 2017	7	15.78	81.17	8.0	33.49	8.1	24.6	1.00
I32	14 Dec 2017	8	15.75	81.93	8.1	33.50	8.1	24.6	1.05
I32	14 Dec 2017	9	15.63	81.64	8.1	33.50	8.1	24.7	1.07
I32	14 Dec 2017	10	15.55	80.19	8.2	33.50	8.1	24.7	1.09
I32	22 Dec 2017	1	16.35	81.60	8.0	33.58	8.2	24.6	0.51
I32	22 Dec 2017	2	16.31	81.38	8.0	33.59	8.2	24.6	0.54
I32	22 Dec 2017	3	16.26	81.17	8.0	33.58	8.2	24.6	0.59
I32	22 Dec 2017	4	16.25	81.09	8.0	33.58	8.2	24.6	0.67
I32	22 Dec 2017	5	16.21	81.01	8.0	33.59	8.2	24.6	0.72
I32	22 Dec 2017	6	16.15	81.09	8.0	33.59	8.2	24.6	0.78
I32	22 Dec 2017	7	16.14	81.33	8.0	33.58	8.2	24.6	0.87
I32	22 Dec 2017	8	16.13	81.42	8.0	33.58	8.2	24.6	0.92
I32	22 Dec 2017	9	16.08	81.61	8.0	33.59	8.2	24.6	0.94
I32	22 Dec 2017	10	15.99	81.93	8.1	33.60	8.2	24.7	0.91
I32	26 Dec 2017	1	15.74	76.13	8.1	33.58	8.2	24.7	1.15
I32	26 Dec 2017	2	15.73	75.82	8.1	33.59	8.2	24.7	1.19
I32	26 Dec 2017	3	15.71	75.76	8.1	33.59	8.2	24.7	1.35
I32	26 Dec 2017	4	15.68	75.56	8.1	33.59	8.2	24.7	1.53
I32	26 Dec 2017	5	15.65	75.66	8.2	33.59	8.2	24.7	1.79
I32	26 Dec 2017	6	15.63	75.86	8.2	33.59	8.2	24.7	2.02
I32	26 Dec 2017	7	15.62	76.20	8.2	33.59	8.2	24.7	2.11
I32	26 Dec 2017	8	15.60	76.68	8.2	33.59	8.2	24.8	2.12
I32	26 Dec 2017	9	15.58	77.18	8.2	33.59	8.2	24.8	2.03
I32	26 Dec 2017	10	15.54	77.33	8.1	33.59	8.2	24.8	1.84
I39	04 Dec 2017	1	16.16	86.02	8.2	33.41	8.1	24.5	0.82
I39	04 Dec 2017	2	16.15	86.07	8.2	33.42	8.1	24.5	0.82

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I39	04 Dec 2017	3	16.08	85.90	8.2	33.42	8.1	24.5	0.88
I39	04 Dec 2017	4	15.96	85.46	8.1	33.41	8.1	24.5	1.01
I39	04 Dec 2017	5	15.83	85.22	8.1	33.41	8.1	24.6	1.20
I39	04 Dec 2017	6	15.66	84.84	8.0	33.40	8.1	24.6	1.49
I39	04 Dec 2017	7	15.50	84.36	8.0	33.40	8.1	24.6	1.75
I39	04 Dec 2017	8	15.35	84.17	7.9	33.40	8.1	24.7	2.00
I39	04 Dec 2017	9	15.29	84.45	7.9	33.39	8.1	24.7	2.29
I39	04 Dec 2017	10	15.23	84.66	7.8	33.39	8.1	24.7	2.49
I39	04 Dec 2017	11	15.18	84.98	7.8	33.38	8.1	24.7	2.46
I39	04 Dec 2017	12	15.17	85.61	7.8	33.38	8.1	24.7	2.35
I39	04 Dec 2017	13	15.17	85.90	7.7	33.39	8.1	24.7	2.25
I39	04 Dec 2017	14	15.17	86.10	7.8	33.39	8.1	24.7	2.20
I39	04 Dec 2017	15	15.16	86.12	7.7	33.39	8.1	24.7	2.28
I39	04 Dec 2017	16	15.13	86.01	7.7	33.39	8.1	24.7	2.38
I39	04 Dec 2017	17	15.09	84.50	7.6	33.39	8.1	24.7	2.42
I39	04 Dec 2017	18	15.04	81.36	7.6	33.39	8.1	24.7	2.36
I39	14 Dec 2017	1	17.16	88.32	7.7	33.56	8.1	24.4	0.33
I39	14 Dec 2017	2	16.87	88.07	7.8	33.58	8.1	24.5	0.34
I39	14 Dec 2017	3	16.77	87.72	7.8	33.53	8.1	24.4	0.40
I39	14 Dec 2017	4	16.73	87.76	7.8	33.54	8.1	24.5	0.44
I39	14 Dec 2017	5	16.70	87.67	7.8	33.52	8.1	24.5	0.50
I39	14 Dec 2017	6	16.63	87.68	7.8	33.55	8.1	24.5	0.51
I39	14 Dec 2017	7	16.32	86.98	7.9	33.52	8.1	24.5	0.59
I39	14 Dec 2017	8	16.21	86.51	7.9	33.50	8.1	24.5	0.73
I39	14 Dec 2017	9	16.08	86.14	8.0	33.48	8.1	24.6	0.90
I39	14 Dec 2017	10	16.06	85.78	8.0	33.47	8.1	24.6	0.99
I39	14 Dec 2017	11	16.05	85.47	8.0	33.47	8.1	24.6	1.10
I39	14 Dec 2017	12	16.04	85.18	8.0	33.47	8.1	24.6	1.21
I39	14 Dec 2017	13	16.03	85.12	8.0	33.47	8.1	24.6	1.23
I39	14 Dec 2017	14	16.03	84.94	8.0	33.47	8.1	24.6	1.29
I39	14 Dec 2017	15	16.02	84.80	8.0	33.47	8.1	24.6	1.31
I39	14 Dec 2017	16	16.03	84.67	8.0	33.47	8.1	24.6	1.36
I39	14 Dec 2017	17	16.03	84.64	8.0	33.47	8.1	24.6	1.32
I39	14 Dec 2017	18	16.03	84.64	8.0	33.48	8.1	24.6	1.27
I39	22 Dec 2017	1	16.44	85.59	7.9	33.56	8.2	24.5	0.49
I39	22 Dec 2017	2	16.44	85.34	7.9	33.56	8.2	24.5	0.45
I39	22 Dec 2017	3	16.44	85.22	7.9	33.56	8.2	24.5	0.46
I39	22 Dec 2017	4	16.44	85.38	7.8	33.56	8.2	24.5	0.49
I39	22 Dec 2017	5	16.43	85.41	7.8	33.56	8.2	24.5	0.50
I39	22 Dec 2017	6	16.43	85.48	7.8	33.56	8.2	24.5	0.54
I39	22 Dec 2017	7	16.43	85.46	7.9	33.56	8.2	24.5	0.58
I39	22 Dec 2017	8	16.43	85.39	7.9	33.56	8.2	24.5	0.63
I39	22 Dec 2017	9	16.43	85.40	7.9	33.56	8.2	24.5	0.70
I39	22 Dec 2017	10	16.43	85.34	7.8	33.56	8.2	24.5	0.74
I39	22 Dec 2017	11	16.43	85.22	7.8	33.56	8.2	24.5	0.77
I39	22 Dec 2017	12	16.43	85.33	7.8	33.56	8.2	24.5	0.80
I39	22 Dec 2017	13	16.43	85.51	7.8	33.56	8.2	24.5	0.82
I39	22 Dec 2017	14	16.43	85.55	7.8	33.56	8.2	24.5	0.84
I39	22 Dec 2017	15	16.42	85.49	7.8	33.56	8.2	24.5	0.85
I39	22 Dec 2017	16	16.42	85.58	7.8	33.56	8.2	24.5	0.84
I39	22 Dec 2017	17	16.42	85.48	7.8	33.56	8.2	24.5	0.88
I39	22 Dec 2017	18	16.40	85.22	7.8	33.56	8.2	24.5	0.86

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I39	26 Dec 2017	1	15.53	84.96	7.9	33.50	8.1	24.7	1.09
I39	26 Dec 2017	2	15.53	84.80	7.9	33.50	8.1	24.7	1.08
I39	26 Dec 2017	3	15.53	84.91	7.9	33.50	8.1	24.7	1.11
I39	26 Dec 2017	4	15.53	84.99	7.9	33.50	8.1	24.7	1.14
I39	26 Dec 2017	5	15.52	84.94	7.9	33.50	8.1	24.7	1.17
I39	26 Dec 2017	6	15.52	84.88	7.9	33.50	8.1	24.7	1.25
I39	26 Dec 2017	7	15.51	84.92	7.9	33.50	8.1	24.7	1.35
I39	26 Dec 2017	8	15.51	84.86	7.9	33.50	8.1	24.7	1.46
I39	26 Dec 2017	9	15.51	84.82	7.9	33.50	8.1	24.7	1.56
I39	26 Dec 2017	10	15.51	84.91	7.8	33.50	8.1	24.7	1.67
I39	26 Dec 2017	11	15.51	84.99	7.9	33.50	8.1	24.7	1.74
I39	26 Dec 2017	12	15.51	85.01	7.8	33.50	8.1	24.7	1.78
I39	26 Dec 2017	13	15.50	84.96	7.8	33.50	8.1	24.7	1.80
I39	26 Dec 2017	14	15.49	84.99	7.8	33.50	8.1	24.7	1.80
I39	26 Dec 2017	15	15.48	84.89	7.8	33.50	8.1	24.7	1.83
I39	26 Dec 2017	16	15.44	84.77	7.7	33.49	8.1	24.7	1.81
I39	26 Dec 2017	17	15.34	83.65	7.5	33.49	8.1	24.7	1.67
I39	26 Dec 2017	18	15.25	81.85	7.4	33.48	8.1	24.7	1.51
I40	04 Dec 2017	1	16.15	58.49	7.9	33.41	8.1	24.5	2.33
I40	04 Dec 2017	2	16.14	57.82	7.9	33.41	8.1	24.5	2.45
I40	04 Dec 2017	3	16.11	57.35	7.9	33.41	8.1	24.5	2.60
I40	04 Dec 2017	4	16.06	57.52	7.9	33.41	8.1	24.5	2.67
I40	04 Dec 2017	5	16.06	57.27	7.8	33.41	8.1	24.5	2.74
I40	04 Dec 2017	6	16.05	57.64	7.8	33.41	8.1	24.5	2.66
I40	04 Dec 2017	7	16.05	58.25	7.8	33.41	8.1	24.5	2.56
I40	04 Dec 2017	8	16.03	59.05	7.8	33.41	8.1	24.5	2.37
I40	04 Dec 2017	9	16.01	59.24	7.7	33.41	8.1	24.5	2.10
I40	04 Dec 2017	10	15.89	56.51	7.4	33.42	8.1	24.6	1.83
I40	14 Dec 2017	1	16.51	87.95	8.0	33.51	8.1	24.5	0.43
I40	14 Dec 2017	2	16.44	87.64	8.0	33.51	8.1	24.5	0.48
I40	14 Dec 2017	3	16.39	86.63	8.0	33.51	8.1	24.5	0.54
I40	14 Dec 2017	4	16.29	84.46	8.1	33.50	8.1	24.5	0.68
I40	14 Dec 2017	5	16.27	83.31	8.1	33.49	8.1	24.5	0.81
I40	14 Dec 2017	6	16.25	82.60	8.1	33.49	8.1	24.5	0.93
I40	14 Dec 2017	7	16.22	81.94	8.1	33.49	8.1	24.5	1.08
I40	14 Dec 2017	8	16.18	81.16	8.1	33.50	8.1	24.6	1.24
I40	14 Dec 2017	9	16.10	79.83	8.2	33.50	8.1	24.6	1.30
I40	14 Dec 2017	10	16.00	76.48	8.3	33.50	8.1	24.6	1.29
I40	22 Dec 2017	1	16.51	80.63	8.0	33.58	8.2	24.5	0.79
I40	22 Dec 2017	2	16.51	80.48	8.0	33.58	8.2	24.5	0.79
I40	22 Dec 2017	3	16.51	80.59	8.0	33.58	8.2	24.5	0.83
I40	22 Dec 2017	4	16.49	80.18	8.0	33.58	8.2	24.5	0.96
I40	22 Dec 2017	5	16.46	79.67	8.0	33.58	8.2	24.6	1.14
I40	22 Dec 2017	6	16.43	79.30	8.0	33.58	8.2	24.6	1.33
I40	22 Dec 2017	7	16.41	79.13	8.0	33.58	8.2	24.6	1.51
I40	22 Dec 2017	8	16.39	79.07	8.0	33.58	8.2	24.6	1.62
I40	22 Dec 2017	9	16.31	78.90	8.0	33.59	8.2	24.6	1.66
I40	22 Dec 2017	10	16.02	79.66	8.1	33.61	8.2	24.7	1.50
I40	26 Dec 2017	1	15.72	74.05	8.1	33.60	8.2	24.7	1.15
I40	26 Dec 2017	2	15.72	73.63	8.1	33.60	8.2	24.7	1.24
I40	26 Dec 2017	3	15.72	73.42	8.1	33.60	8.2	24.7	1.37

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I40	26 Dec 2017	4	15.70	73.15	8.1	33.60	8.2	24.7	1.56
I40	26 Dec 2017	5	15.68	72.30	8.1	33.60	8.2	24.7	1.72
I40	26 Dec 2017	6	15.65	71.55	8.1	33.59	8.2	24.7	1.80
I40	26 Dec 2017	7	15.62	71.43	8.1	33.59	8.2	24.8	1.74
I40	26 Dec 2017	8	15.57	72.45	8.1	33.59	8.2	24.8	1.65
I40	26 Dec 2017	9	15.51	73.27	8.1	33.59	8.2	24.8	1.57
I40	26 Dec 2017	10	15.42	73.88	8.2	33.59	8.2	24.8	1.46

NA = not available

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APPENDIX A

Quality Assurance

Table A.1

Summary of bacteriological quality assurance field and lab duplicate sample analyses at selected SBOO stations. Densities of total coliform (Total), fecal coliform (Fecal), and *Enterococcus* (Entero) are reported as CFU/100 mL.

Station	Date	Depth	Analyst	Procedure	Total	Fecal	Entero
I19	04 Dec 2017	6	LMA	LAB DUPLICATE	<20	<2	<2
I19	14 Dec 2017	6	AR	LAB DUPLICATE	16e	ns	ns
I19	14 Dec 2017	6	ZV	LAB DUPLICATE	ns	2e	<2
I19	22 Dec 2017	6	ZV	LAB DUPLICATE	<2	<2	<2
I19	26 Dec 2017	6	AR	LAB DUPLICATE	<2	<2	2e
I40	04 Dec 2017	6	AE	LAB DUPLICATE	<20	<2	<2
I40	14 Dec 2017	6	AR	LAB DUPLICATE	<2	ns	ns
I40	14 Dec 2017	6	ZV	LAB DUPLICATE	ns	<2	<2
I40	22 Dec 2017	6	ZV	LAB DUPLICATE	<2	<2	<2
I40	26 Dec 2017	6	ZV	LAB DUPLICATE	<2	<2	<2
S12	05 Dec 2017		JT	FIELD DUPLICATE	<20	<2	<2
S12	05 Dec 2017		JT	LAB DUPLICATE	<20	<2	<2
S12	12 Dec 2017		JT	FIELD DUPLICATE	<2	<2	<2
S12	12 Dec 2017		JT	LAB DUPLICATE	<2	<2	<2
S12	19 Dec 2017		JT	FIELD DUPLICATE	<2	<2	2e
S12	19 Dec 2017		JT	LAB DUPLICATE	<2	<2	ns
S12	26 Dec 2017		AE	FIELD DUPLICATE	<2	<2	<2
S12	26 Dec 2017		AR	LAB DUPLICATE	2e	<2	2e

ns = not sampled

ND = no data

