

SOUTH BAY OCEAN OUTFALL MONTHLY RECEIVING WATERS MONITORING REPORT

SOUTH BAY WATER RECLAMATION PLANT

NPDES Permit No. CA0109045
SDRWQCB Order No. R9-2013-0006

SEPTEMBER 2018

Environmental Monitoring and Technical Services
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October 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 September 2018 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/amw

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 ≥ 4 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 chromomorphic 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 analyses were 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 2018 Quality Assurance Report, which will be completed in March 2019.

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 September, one of the eight shore stations located north of the border was out of compliance with various California Ocean Plan (Ocean Plan) water contact standards (see below); these standards do not apply to stations located in Mexican waters.
 - The single sample maximum (SSM) standard for *Enterococcus* bacteria was exceeded at station S4 on September 11.
 - Per permit requirements, a resample was collected in response to this SSM exceedance (see Table 2.8 for details).
- 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 station S0 on September 4, and at station S2 on September 11.

- 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. September 4, 10, 17, 24).
 - During September, each of the seven stations was in compliance with various Ocean Plan water contact standards.
 - Water column temperatures ranged from 13.74 to 22.51°C. The difference between surface and bottom waters ranged from 0.77 to 6.74°C, indicating the water column was stratified at some of these sites during the month.
 - Chlorophyll *a* concentrations ranged from 0.36 to 5.49 µg/L at the kelp bed stations, suggesting the presence of a phytoplankton bloom during the month.
 - Nothing of sewage origin was observed at any of the kelp bed stations.
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- **Offshore Water Quality Sampling**
 - Quarterly sampling was not conducted during September at the offshore stations. The next quarterly sampling is scheduled for November 2018.



TABLES AND FIGURES

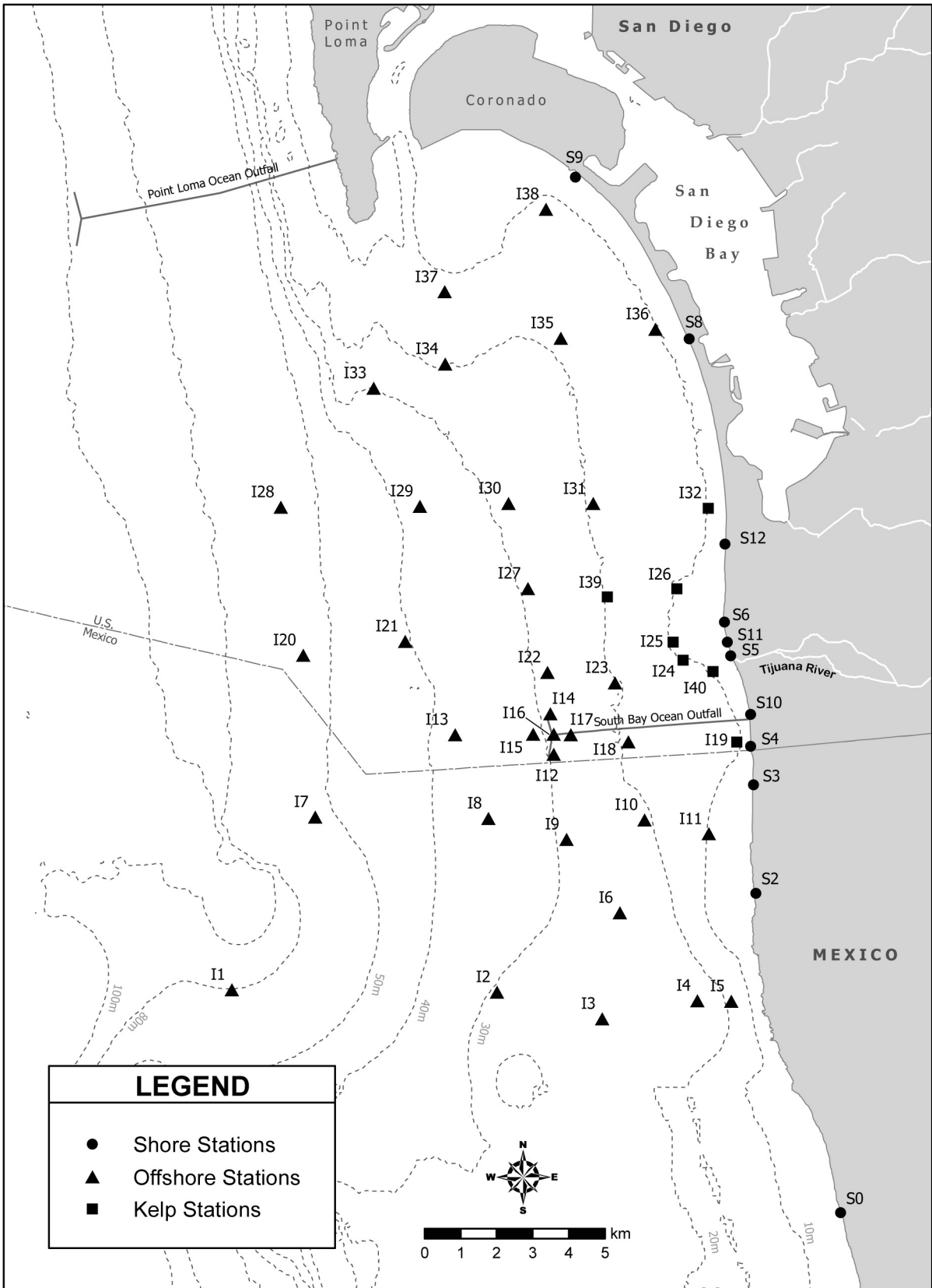


Figure 1.1 Station Map

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 Sep 2018	11*	20*	11*	17*	36*	13*	11*	20*
02 Sep 2018	11*	20*	11*	17*	36*	13*	11*	20*
03 Sep 2018	11*	20*	11*	17*	36*	13*	11*	20*
04 Sep 2018	10	25	13	11	20	9	11	16
05 Sep 2018	10	25	13	11	20	9	11	16
06 Sep 2018	8*	26*	11*	9*	20*	8*	10*	15*
07 Sep 2018	8*	26*	11*	9*	20*	8*	10*	15*
08 Sep 2018	8*	26*	11*	9*	20*	8*	10*	15*
09 Sep 2018	8*	26*	11*	9*	20*	8*	10*	15*
10 Sep 2018	8*	26*	11*	9*	20*	8*	10*	15*
11 Sep 2018	13	36	14	11	20	14	11	16
12 Sep 2018	13	36	14	11	20	14	11	16
13 Sep 2018	12*	41*	13*	9*	20*	13*	10*	15*
14 Sep 2018	12*	41*	13*	9*	20*	13*	10*	15*
15 Sep 2018	12*	41*	13*	9*	20*	13*	10*	15*
16 Sep 2018	12*	41*	13*	9*	20*	13*	10*	15*
17 Sep 2018	12*	41*	13*	9*	20*	13*	10*	15*
18 Sep 2018	13	36	14	11	20	14	11	13
19 Sep 2018	13	36	14	11	20	14	11	13
20 Sep 2018	12*	41*	13*	9*	11*	11*	10*	12*
21 Sep 2018	12*	41*	13*	9*	11*	11*	10*	12*
22 Sep 2018	12*	41*	13*	9*	11*	11*	10*	12*
23 Sep 2018	12*	41*	13*	9*	11*	11*	10*	12*
24 Sep 2018	12*	41*	13*	9*	11*	11*	10*	12*
25 Sep 2018	10	22	13	7	13	13	8	15
26 Sep 2018	10	22	13	7	13	13	8	15
27 Sep 2018	15*	23*	21*	6*	11*	20*	12*	14*
28 Sep 2018	15*	23*	21*	6*	11*	20*	12*	14*
29 Sep 2018	15*	23*	21*	6*	11*	20*	12*	14*
30 Sep 2018	15*	23*	21*	6*	11*	20*	12*	14*

* 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 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
02 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
03 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
04 Sep 2018	2	3	2	2	2	2	2	3
05 Sep 2018	2	3	2	2	2	2	2	3
06 Sep 2018	2*	4*	2*	2*	2*	2*	2*	2*
07 Sep 2018	2*	4*	2*	2*	2*	2*	2*	2*
08 Sep 2018	2*	4*	2*	2*	2*	2*	2*	2*
09 Sep 2018	2*	4*	2*	2*	2*	2*	2*	2*
10 Sep 2018	2*	4*	2*	2*	2*	2*	2*	2*
11 Sep 2018	3	4	2	2	2	2	2	4
12 Sep 2018	3	4	2	2	2	2	2	4
13 Sep 2018	3*	5*	2*	2*	2*	2*	2*	5*
14 Sep 2018	3*	5*	2*	2*	2*	2*	2*	5*
15 Sep 2018	3*	5*	2*	2*	2*	2*	2*	5*
16 Sep 2018	3*	5*	2*	2*	2*	2*	2*	5*
17 Sep 2018	3*	5*	2*	2*	2*	2*	2*	5*
18 Sep 2018	4	4	2	2	2	2	2	4
19 Sep 2018	4	4	2	2	2	2	2	4
20 Sep 2018	5*	5*	2*	2*	2*	2*	2*	5*
21 Sep 2018	5*	5*	2*	2*	2*	2*	2*	5*
22 Sep 2018	5*	5*	2*	2*	2*	2*	2*	5*
23 Sep 2018	5*	5*	2*	2*	2*	2*	2*	5*
24 Sep 2018	5*	5*	2*	2*	2*	2*	2*	5*
25 Sep 2018	4	4	2	2	2	2	2	6
26 Sep 2018	4	4	2	2	2	2	2	6
27 Sep 2018	5*	5*	2*	2*	2*	2*	2*	8*
28 Sep 2018	5*	5*	2*	2*	2*	2*	2*	8*
29 Sep 2018	5*	5*	2*	2*	2*	2*	2*	8*
30 Sep 2018	5*	5*	2*	2*	2*	2*	2*	8*

* 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 Sep 2018	4*	7*	2*	2*	2*	2*	2*	2*
02 Sep 2018	4*	7*	2*	2*	2*	2*	2*	2*
03 Sep 2018	4*	7*	2*	2*	2*	2*	2*	2*
04 Sep 2018	3	5	2	2	2	2	2	2
05 Sep 2018	3	5	2	2	2	2	2	2
06 Sep 2018	3*	7*	2*	2*	2*	2*	2*	2*
07 Sep 2018	3*	7*	2*	2*	2*	2*	2*	2*
08 Sep 2018	3*	7*	2*	2*	2*	2*	2*	2*
09 Sep 2018	3*	7*	2*	2*	2*	2*	2*	2*
10 Sep 2018	3*	7*	2*	2*	2*	2*	2*	2*
11 Sep 2018	6	10	2	2	2	4	2	2
12 Sep 2018	6	10	2	2	2	4	2	2
13 Sep 2018	5	7*	2*	2*	2*	5*	3*	2*
14 Sep 2018	5	7*	2*	2*	2*	5*	3*	2*
15 Sep 2018	5	7*	2*	2*	2*	5*	3*	2*
16 Sep 2018	5	7*	2*	2*	2*	5*	3*	2*
17 Sep 2018	5	7*	2*	2*	2*	5*	3*	2*
18 Sep 2018	4	5	2	2	2	4	2	2
19 Sep 2018	4	5	2	2	2	4	2	2
20 Sep 2018	5	7*	2*	2*	2*	5*	3*	2*
21 Sep 2018	5	7*	2*	2*	2*	5*	3*	2*
22 Sep 2018	5	7*	2*	2*	2*	5*	3*	2*
23 Sep 2018	5	7*	2*	2*	2*	5*	3*	2*
24 Sep 2018	5	7*	2*	2*	2*	5*	3*	2*
25 Sep 2018	4	5	2	2	2	4	2	2
26 Sep 2018	4	5	2	2	2	4	2	2
27 Sep 2018	5	4*	2*	2*	2*	5*	3*	2*
28 Sep 2018	5	4*	2*	2*	2*	5*	3*	2*
29 Sep 2018	5	4*	2*	2*	2*	5*	3*	2*
30 Sep 2018	5	4*	2*	2*	2*	5*	3*	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
04 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
11 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
18 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
25 Sep 2018	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
04 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
11 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
18 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
25 Sep 2018	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
04 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
11 Sep 2018	E	IC	IC	IC	IC	IC	IC	IC
13 Sep 2018	IC	ns	ns	ns	ns	ns	ns	ns
18 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
25 Sep 2018	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
04 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
11 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
18 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
25 Sep 2018	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 Sep 2018	1055	400	2e	130e	0.005
S0	11 Sep 2018	1115	12e	2e	6e	0.167
S0	18 Sep 2018	1055	800e	32e	64	0.040
S0	25 Sep 2018	1120	240e	22e	26e	0.092
S2	04 Sep 2018	1235	14e	<2	<2	0.143
S2	11 Sep 2018	1035	300e	2e	120e	0.007
S2	18 Sep 2018	1210	<2	<2	<2	1.000
S2	25 Sep 2018	1240	2e	<2	<2	1.000
S3	04 Sep 2018	1145	10e	4e	4e	0.400
S3	11 Sep 2018	1000	60e	4e	22e	0.067
S3	18 Sep 2018	1245	<200	<2	2e	0.010
S3	25 Sep 2018	1205	<2	<2	<2	1.000
S4	04 Sep 2018	1159	6e	<2	2e	0.333
S4	11 Sep 2018	908	80e	10e	140e	0.125
S4	13 Sep 2018	922	ns	ns	2e	ns
S4	18 Sep 2018	1144	<20	12e	<2	0.600
S4	25 Sep 2018	845	6e	<2	2e	0.333
S5	04 Sep 2018	1026	60e	24e	<2	0.400
S5	11 Sep 2018	852	120e	6e	50	0.050
S5	18 Sep 2018	1004	<20	<2	<2	0.100
S5	25 Sep 2018	946	2e	2e	<2	1.000
S6	04 Sep 2018	1037	20e	<2	<2	0.100
S6	11 Sep 2018	1023	40e	<2	2e	0.050
S6	18 Sep 2018	1014	<20	<2	<2	0.100
S6	25 Sep 2018	957	12e	<2	2e	0.167
S8	04 Sep 2018	904	<2	<2	<2	1.000
S8	11 Sep 2018	1213	<20	2e	<2	0.100
S8	18 Sep 2018	912	<20	<2	2e	0.100
S8	25 Sep 2018	1140	<2	<2	<2	1.000
S9	04 Sep 2018	829	<2	<2	<2	1.000
S9	11 Sep 2018	1250	<20	<2	<2	0.100
S9	18 Sep 2018	839	<20	<2	<2	0.100
S9	25 Sep 2018	1228	20e	<2	2e	0.100
S10	04 Sep 2018	1154	2e	<2	<2	1.000
S10	11 Sep 2018	903	<200	<2	92	0.010
S10	18 Sep 2018	1140	<20	<2	<2	0.100
S10	25 Sep 2018	839	<20	<2	2e	0.100
S11	04 Sep 2018	1033	12e	<2	<2	0.167
S11	11 Sep 2018	1018	<20	<2	6e	0.100
S11	18 Sep 2018	1010	<20	<2	<2	0.100

Station	Date	Time	Total	Fecal	Enterico	F:T
S11	25 Sep 2018	954	4e	2e	2e	0.500
S12	04 Sep 2018	1008	6e	4e	4e	0.667
S12	11 Sep 2018	1030	<20	40e	2e	2.000
S12	18 Sep 2018	1023	8e	<2	<2	0.250
S12	25 Sep 2018	1004	40e	16e	2e	0.400

ns = not sampled

ND = no data

Comments

Station	Date	Depth	Parameter	Comments
S4	13 Sep 2018			Resample

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 Sep 2018	Arrive Time	1055
S0	04 Sep 2018	Weather	Cloudy
S0	04 Sep 2018	Wind Speed (kts)	4.1
S0	04 Sep 2018	Wind Dir	N
S0	04 Sep 2018	Animal Life	10 Shorebirds
S0	04 Sep 2018	Floatables	None
S0	04 Sep 2018	Water Color	Green
S0	04 Sep 2018	Current Direction	N
S0	04 Sep 2018	Water Temp (C)	19
S0	04 Sep 2018	Wave Height Low (ft)	3
S0	04 Sep 2018	High Tide (ft)	3.4
S0	04 Sep 2018	High Tide Time	618
S0	04 Sep 2018	Low Tide (ft)	2.6
S0	04 Sep 2018	Low Tide Time	1054
S0	04 Sep 2018	Comments	Water clear; 0.5 L/s water flowing from storm drain
S0	11 Sep 2018	Arrive Time	1115
S0	11 Sep 2018	Weather	Sunny
S0	11 Sep 2018	Wind Speed (kts)	0.8
S0	11 Sep 2018	Wind Dir	SW
S0	11 Sep 2018	Animal Life	20 Birds
S0	11 Sep 2018	Floatables	None
S0	11 Sep 2018	Water Color	Green
S0	11 Sep 2018	Current Direction	N
S0	11 Sep 2018	Water Temp (C)	16
S0	11 Sep 2018	Wave Height Low (ft)	2
S0	11 Sep 2018	High Tide (ft)	5.5
S0	11 Sep 2018	High Tide Time	1054
S0	11 Sep 2018	Low Tide (ft)	0.4
S0	11 Sep 2018	Low Tide Time	1707
S0	11 Sep 2018	Comments	Water clear; 0.5 L/s water flowing from storm drain.
S0	18 Sep 2018	Arrive Time	1055
S0	18 Sep 2018	Weather	Sunny
S0	18 Sep 2018	Wind Speed (kts)	3.6
S0	18 Sep 2018	Wind Dir	N
S0	18 Sep 2018	Animal Life	5 Shorebirds
S0	18 Sep 2018	Floatables	None
S0	18 Sep 2018	Water Color	Green
S0	18 Sep 2018	Current Direction	N
S0	18 Sep 2018	Water Temp (C)	17
S0	18 Sep 2018	Wave Height Low (ft)	2
S0	18 Sep 2018	High Tide (ft)	3.7
S0	18 Sep 2018	High Tide Time	709
S0	18 Sep 2018	Low Tide (ft)	2.8
S0	18 Sep 2018	Low Tide Time	1150
S0	18 Sep 2018	Comments	5 Persons; Water clear; 3.0 L/s water flowing from storm drain
S0	25 Sep 2018	Arrive Time	1120
S0	25 Sep 2018	Weather	Cloudy
S0	25 Sep 2018	Wind Speed (kts)	3.5

Station	Date	Parameter	Value
S0	25 Sep 2018	Wind Dir	NW
S0	25 Sep 2018	Animal Life	10 Shorebirds
S0	25 Sep 2018	Floatables	None
S0	25 Sep 2018	Water Color	Green
S0	25 Sep 2018	Current Direction	N
S0	25 Sep 2018	Water Temp (C)	21
S0	25 Sep 2018	Wave Height Low (ft)	4
S0	25 Sep 2018	High Tide (ft)	5.2
S0	25 Sep 2018	High Tide Time	952
S0	25 Sep 2018	Low Tide (ft)	0.7
S0	25 Sep 2018	Low Tide Time	1603
S0	25 Sep 2018	Comments	Water clear; 0.5 L/s water flowing from storm drain
S2	04 Sep 2018	Arrive Time	1235
S2	04 Sep 2018	Weather	Cloudy
S2	04 Sep 2018	Wind Speed (kts)	4.8
S2	04 Sep 2018	Wind Dir	N
S2	04 Sep 2018	Animal Life	10 Shorebirds
S2	04 Sep 2018	Floatables	None
S2	04 Sep 2018	Water Color	Green
S2	04 Sep 2018	Current Direction	N
S2	04 Sep 2018	Water Temp (C)	19
S2	04 Sep 2018	Wave Height Low (ft)	3
S2	04 Sep 2018	High Tide (ft)	5.3
S2	04 Sep 2018	High Tide Time	1711
S2	04 Sep 2018	Low Tide (ft)	2.6
S2	04 Sep 2018	Low Tide Time	1054
S2	04 Sep 2018	Comments	Kelp; Algae; Water clear; No flow from storm drain
S2	11 Sep 2018	Arrive Time	1035
S2	11 Sep 2018	Weather	Sunny
S2	11 Sep 2018	Wind Speed (kts)	1.3
S2	11 Sep 2018	Wind Dir	SW
S2	11 Sep 2018	Animal Life	5 Birds; 5 Dogs
S2	11 Sep 2018	Floatables	None
S2	11 Sep 2018	Water Color	Green
S2	11 Sep 2018	Current Direction	N
S2	11 Sep 2018	Water Temp (C)	16
S2	11 Sep 2018	Wave Height Low (ft)	2
S2	11 Sep 2018	High Tide (ft)	5.5
S2	11 Sep 2018	High Tide Time	1054
S2	11 Sep 2018	Low Tide (ft)	-0.2
S2	11 Sep 2018	Low Tide Time	447
S2	11 Sep 2018	Comments	Water clear; No flow from storm drain
S2	18 Sep 2018	Arrive Time	1210
S2	18 Sep 2018	Weather	Sunny
S2	18 Sep 2018	Wind Speed (kts)	3.6
S2	18 Sep 2018	Wind Dir	N
S2	18 Sep 2018	Animal Life	None
S2	18 Sep 2018	Floatables	None
S2	18 Sep 2018	Water Color	Green
S2	18 Sep 2018	Current Direction	N
S2	18 Sep 2018	Water Temp (C)	17
S2	18 Sep 2018	Wave Height Low (ft)	2

Station	Date	Parameter	Value
S2	18 Sep 2018	High Tide (ft)	3.7
S2	18 Sep 2018	High Tide Time	709
S2	18 Sep 2018	Low Tide (ft)	0.9
S2	18 Sep 2018	Low Tide Time	1209
S2	18 Sep 2018	Comments	Kelp; Seagrass; Algae; 5 Persons; Water clear; No flow from storm drain
S2	25 Sep 2018	Arrive Time	1240
S2	25 Sep 2018	Weather	Cloudy
S2	25 Sep 2018	Wind Speed (kts)	4
S2	25 Sep 2018	Wind Dir	NW
S2	25 Sep 2018	Animal Life	10 Shorebirds; 1 Dog
S2	25 Sep 2018	Floatables	None
S2	25 Sep 2018	Water Color	Green
S2	25 Sep 2018	Current Direction	N
S2	25 Sep 2018	Water Temp (C)	22
S2	25 Sep 2018	Wave Height Low (ft)	4
S2	25 Sep 2018	High Tide (ft)	5.2
S2	25 Sep 2018	High Tide Time	952
S2	25 Sep 2018	Low Tide (ft)	0.7
S2	25 Sep 2018	Low Tide Time	1603
S2	25 Sep 2018	Comments	2 Persons; Water clear; No flow from storm drain
S3	04 Sep 2018	Arrive Time	1145
S3	04 Sep 2018	Weather	Cloudy
S3	04 Sep 2018	Wind Speed (kts)	4.8
S3	04 Sep 2018	Wind Dir	N
S3	04 Sep 2018	Animal Life	10 Shorebirds
S3	04 Sep 2018	Floatables	None
S3	04 Sep 2018	Water Color	Green
S3	04 Sep 2018	Current Direction	N
S3	04 Sep 2018	Water Temp (C)	19
S3	04 Sep 2018	Wave Height Low (ft)	3
S3	04 Sep 2018	High Tide (ft)	3.4
S3	04 Sep 2018	High Tide Time	618
S3	04 Sep 2018	Low Tide (ft)	2.6
S3	04 Sep 2018	Low Tide Time	1054
S3	04 Sep 2018	Comments	10 Persons; Water clear; No flow from storm drain
S3	11 Sep 2018	Arrive Time	1000
S3	11 Sep 2018	Weather	Sunny
S3	11 Sep 2018	Wind Speed (kts)	1.2
S3	11 Sep 2018	Wind Dir	SW
S3	11 Sep 2018	Animal Life	5 Birds
S3	11 Sep 2018	Floatables	None
S3	11 Sep 2018	Water Color	Green
S3	11 Sep 2018	Current Direction	N
S3	11 Sep 2018	Water Temp (C)	16
S3	11 Sep 2018	Wave Height Low (ft)	2
S3	11 Sep 2018	High Tide (ft)	5.5
S3	11 Sep 2018	High Tide Time	1054
S3	11 Sep 2018	Low Tide (ft)	-0.2
S3	11 Sep 2018	Low Tide Time	447
S3	11 Sep 2018	Comments	Water clear; No flow from storm drain

Station	Date	Parameter	Value
S3	18 Sep 2018	Arrive Time	1245
S3	18 Sep 2018	Weather	Sunny
S3	18 Sep 2018	Wind Speed (kts)	3.6
S3	18 Sep 2018	Wind Dir	N
S3	18 Sep 2018	Animal Life	15 Shorebirds; 5 Dogs
S3	18 Sep 2018	Floatables	None
S3	18 Sep 2018	Water Color	Green
S3	18 Sep 2018	Current Direction	N
S3	18 Sep 2018	Water Temp (C)	17
S3	18 Sep 2018	Wave Height Low (ft)	3
S3	18 Sep 2018	High Tide (ft)	4.6
S3	18 Sep 2018	High Tide Time	1737
S3	18 Sep 2018	Low Tide (ft)	0.9
S3	18 Sep 2018	Low Tide Time	1209
S3	18 Sep 2018	Comments	Kelp; Seagrass; Algae; 10 Persons; Water clear; No flow from storm drain
S3	25 Sep 2018	Arrive Time	1205
S3	25 Sep 2018	Weather	Cloudy
S3	25 Sep 2018	Wind Speed (kts)	3.8
S3	25 Sep 2018	Wind Dir	NW
S3	25 Sep 2018	Animal Life	10 Shorebirds; 1 Dog
S3	25 Sep 2018	Floatables	None
S3	25 Sep 2018	Water Color	Green
S3	25 Sep 2018	Current Direction	NW
S3	25 Sep 2018	Water Temp (C)	21
S3	25 Sep 2018	Wave Height Low (ft)	4
S3	25 Sep 2018	High Tide (ft)	5.2
S3	25 Sep 2018	High Tide Time	952
S3	25 Sep 2018	Low Tide (ft)	0.7
S3	25 Sep 2018	Low Tide Time	1603
S3	25 Sep 2018	Comments	Water clear; No flow from storm drian
S4	04 Sep 2018	Arrive Time	1159
S4	04 Sep 2018	Weather	Overcast
S4	04 Sep 2018	Wind Speed (kts)	3.6
S4	04 Sep 2018	Wind Dir	N
S4	04 Sep 2018	Animal Life	None
S4	04 Sep 2018	Floatables	None
S4	04 Sep 2018	Water Color	Green
S4	04 Sep 2018	Current Direction	N
S4	04 Sep 2018	Water Temp (C)	21
S4	04 Sep 2018	Wave Height Low (ft)	2
S4	04 Sep 2018	High Tide (ft)	5.3
S4	04 Sep 2018	High Tide Time	1711
S4	04 Sep 2018	Low Tide (ft)	2.6
S4	04 Sep 2018	Low Tide Time	1054
S4	04 Sep 2018	Comments	Kelp; Seagrass; Water clear
S4	11 Sep 2018	Arrive Time	908
S4	11 Sep 2018	Weather	Overcast
S4	11 Sep 2018	Wind Speed (kts)	2.8
S4	11 Sep 2018	Wind Dir	W
S4	11 Sep 2018	Animal Life	None
S4	11 Sep 2018	Floatables	None

Station	Date	Parameter	Value
S4	11 Sep 2018	Water Color	Green
S4	11 Sep 2018	Current Direction	N
S4	11 Sep 2018	Water Temp (C)	19
S4	11 Sep 2018	Wave Height Low (ft)	3
S4	11 Sep 2018	High Tide (ft)	5.5
S4	11 Sep 2018	High Tide Time	1054
S4	11 Sep 2018	Low Tide (ft)	-0.2
S4	11 Sep 2018	Low Tide Time	447
S4	11 Sep 2018	Comments	Kelp; Seagrass; Water clear
S4	13 Sep 2018	Arrive Time	922
S4	13 Sep 2018	Weather	Sunny
S4	13 Sep 2018	Wind Speed (kts)	6.6
S4	13 Sep 2018	Wind Dir	N
S4	13 Sep 2018	Animal Life	50 Birds
S4	13 Sep 2018	Floatables	None
S4	13 Sep 2018	Water Color	Green
S4	13 Sep 2018	Current Direction	N
S4	13 Sep 2018	Water Temp (C)	21
S4	13 Sep 2018	Wave Height Low (ft)	3
S4	13 Sep 2018	High Tide (ft)	5.3
S4	13 Sep 2018	High Tide Time	11
S4	13 Sep 2018	Low Tide (ft)	1.1
S4	13 Sep 2018	Low Tide Time	559
S4	13 Sep 2018	Comments	Resample; Seagrass; Water clear
S4	18 Sep 2018	Arrive Time	1144
S4	18 Sep 2018	Weather	Sunny
S4	18 Sep 2018	Wind Speed (kts)	2.9
S4	18 Sep 2018	Wind Dir	N
S4	18 Sep 2018	Animal Life	None
S4	18 Sep 2018	Floatables	None
S4	18 Sep 2018	Water Color	Green
S4	18 Sep 2018	Current Direction	N
S4	18 Sep 2018	Water Temp (C)	20
S4	18 Sep 2018	Wave Height Low (ft)	3
S4	18 Sep 2018	High Tide (ft)	3.7
S4	18 Sep 2018	High Tide Time	709
S4	18 Sep 2018	Low Tide (ft)	2.8
S4	18 Sep 2018	Low Tide Time	1150
S4	18 Sep 2018	Comments	Kelp; Seagrass; 4 Persons; Water clear
S4	25 Sep 2018	Arrive Time	845
S4	25 Sep 2018	Weather	Cloudy
S4	25 Sep 2018	Wind Speed (kts)	0.3
S4	25 Sep 2018	Wind Dir	W
S4	25 Sep 2018	Animal Life	None
S4	25 Sep 2018	Floatables	None
S4	25 Sep 2018	Water Color	Green
S4	25 Sep 2018	Current Direction	N
S4	25 Sep 2018	Water Temp (C)	17
S4	25 Sep 2018	Wave Height Low (ft)	3
S4	25 Sep 2018	High Tide (ft)	5.2
S4	25 Sep 2018	High Tide Time	952
S4	25 Sep 2018	Low Tide (ft)	0.4

Station	Date	Parameter	Value
S4	25 Sep 2018	Low Tide Time	349
S4	25 Sep 2018	Comments	Kelp; Seagrass; Water clear
S5	04 Sep 2018	Arrive Time	1026
S5	04 Sep 2018	Weather	Overcast
S5	04 Sep 2018	Wind Speed (kts)	3.6
S5	04 Sep 2018	Wind Dir	N
S5	04 Sep 2018	Animal Life	None
S5	04 Sep 2018	Floatables	None
S5	04 Sep 2018	Water Color	Green
S5	04 Sep 2018	Current Direction	N
S5	04 Sep 2018	Water Temp (C)	22
S5	04 Sep 2018	Wave Height Low (ft)	2
S5	04 Sep 2018	High Tide (ft)	3.4
S5	04 Sep 2018	High Tide Time	618
S5	04 Sep 2018	Low Tide (ft)	2.6
S5	04 Sep 2018	Low Tide Time	1054
S5	04 Sep 2018	Comments	Seagrass; Water clear
S5	11 Sep 2018	Arrive Time	852
S5	11 Sep 2018	Weather	Overcast
S5	11 Sep 2018	Wind Speed (kts)	3
S5	11 Sep 2018	Wind Dir	W
S5	11 Sep 2018	Animal Life	None
S5	11 Sep 2018	Floatables	None
S5	11 Sep 2018	Water Color	Green
S5	11 Sep 2018	Current Direction	N
S5	11 Sep 2018	Water Temp (C)	19
S5	11 Sep 2018	Wave Height Low (ft)	2
S5	11 Sep 2018	High Tide (ft)	5.5
S5	11 Sep 2018	High Tide Time	1054
S5	11 Sep 2018	Low Tide (ft)	-0.2
S5	11 Sep 2018	Low Tide Time	447
S5	11 Sep 2018	Comments	Kelp; Seagrass; Water clear
S5	18 Sep 2018	Arrive Time	1004
S5	18 Sep 2018	Weather	Sunny
S5	18 Sep 2018	Wind Speed (kts)	2.9
S5	18 Sep 2018	Wind Dir	W
S5	18 Sep 2018	Animal Life	None
S5	18 Sep 2018	Floatables	None
S5	18 Sep 2018	Water Color	Green
S5	18 Sep 2018	Current Direction	N
S5	18 Sep 2018	Water Temp (C)	20
S5	18 Sep 2018	Wave Height Low (ft)	2
S5	18 Sep 2018	High Tide (ft)	3.7
S5	18 Sep 2018	High Tide Time	709
S5	18 Sep 2018	Low Tide (ft)	2.8
S5	18 Sep 2018	Low Tide Time	1150
S5	18 Sep 2018	Comments	Kelp; Water clear
S5	25 Sep 2018	Arrive Time	946
S5	25 Sep 2018	Weather	Cloudy
S5	25 Sep 2018	Wind Speed (kts)	3.8
S5	25 Sep 2018	Wind Dir	NW

Station	Date	Parameter	Value
S5	25 Sep 2018	Animal Life	None
S5	25 Sep 2018	Floatables	None
S5	25 Sep 2018	Water Color	Green
S5	25 Sep 2018	Current Direction	N
S5	25 Sep 2018	Water Temp (C)	18
S5	25 Sep 2018	Wave Height Low (ft)	3
S5	25 Sep 2018	High Tide (ft)	5.2
S5	25 Sep 2018	High Tide Time	952
S5	25 Sep 2018	Low Tide (ft)	0.4
S5	25 Sep 2018	Low Tide Time	349
S5	25 Sep 2018	Comments	Kelp; Seagrass; Water clear
S6	04 Sep 2018	Arrive Time	1037
S6	04 Sep 2018	Weather	Overcast
S6	04 Sep 2018	Wind Speed (kts)	6.1
S6	04 Sep 2018	Wind Dir	N
S6	04 Sep 2018	Animal Life	2 Dogs
S6	04 Sep 2018	Floatables	None
S6	04 Sep 2018	Water Color	Green
S6	04 Sep 2018	Current Direction	N
S6	04 Sep 2018	Water Temp (C)	22
S6	04 Sep 2018	Wave Height Low (ft)	2
S6	04 Sep 2018	High Tide (ft)	3.4
S6	04 Sep 2018	High Tide Time	618
S6	04 Sep 2018	Low Tide (ft)	2.6
S6	04 Sep 2018	Low Tide Time	1054
S6	04 Sep 2018	Comments	Seagrass; 2 Persons; Water clear
S6	11 Sep 2018	Arrive Time	1023
S6	11 Sep 2018	Weather	Sunny
S6	11 Sep 2018	Wind Speed (kts)	4.8
S6	11 Sep 2018	Wind Dir	W
S6	11 Sep 2018	Animal Life	None
S6	11 Sep 2018	Floatables	None
S6	11 Sep 2018	Water Color	Green
S6	11 Sep 2018	Current Direction	N
S6	11 Sep 2018	Water Temp (C)	19
S6	11 Sep 2018	Wave Height Low (ft)	4
S6	11 Sep 2018	High Tide (ft)	5.5
S6	11 Sep 2018	High Tide Time	1054
S6	11 Sep 2018	Low Tide (ft)	-0.2
S6	11 Sep 2018	Low Tide Time	447
S6	11 Sep 2018	Comments	Kelp; Seagrass; Water clear
S6	18 Sep 2018	Arrive Time	1014
S6	18 Sep 2018	Weather	Sunny
S6	18 Sep 2018	Wind Speed (kts)	1.6
S6	18 Sep 2018	Wind Dir	N
S6	18 Sep 2018	Animal Life	None
S6	18 Sep 2018	Floatables	None
S6	18 Sep 2018	Water Color	Green
S6	18 Sep 2018	Current Direction	N
S6	18 Sep 2018	Water Temp (C)	20
S6	18 Sep 2018	Wave Height Low (ft)	3
S6	18 Sep 2018	High Tide (ft)	3.7

Station	Date	Parameter	Value
S6	18 Sep 2018	High Tide Time	709
S6	18 Sep 2018	Low Tide (ft)	2.8
S6	18 Sep 2018	Low Tide Time	1150
S6	18 Sep 2018	Comments	Kelp; Seagrass; 2 Persons; Water clear
S6	25 Sep 2018	Arrive Time	957
S6	25 Sep 2018	Weather	Cloudy
S6	25 Sep 2018	Wind Speed (kts)	2.9
S6	25 Sep 2018	Wind Dir	W
S6	25 Sep 2018	Animal Life	None
S6	25 Sep 2018	Floatables	None
S6	25 Sep 2018	Water Color	Green
S6	25 Sep 2018	Current Direction	N
S6	25 Sep 2018	Water Temp (C)	17
S6	25 Sep 2018	Wave Height Low (ft)	3
S6	25 Sep 2018	High Tide (ft)	5.2
S6	25 Sep 2018	High Tide Time	952
S6	25 Sep 2018	Low Tide (ft)	0.4
S6	25 Sep 2018	Low Tide Time	349
S6	25 Sep 2018	Comments	Kelp; Seagrass; Water clear
S8	04 Sep 2018	Arrive Time	904
S8	04 Sep 2018	Weather	Overcast
S8	04 Sep 2018	Wind Speed (kts)	1.1
S8	04 Sep 2018	Wind Dir	N
S8	04 Sep 2018	Animal Life	None
S8	04 Sep 2018	Floatables	None
S8	04 Sep 2018	Water Color	Green
S8	04 Sep 2018	Current Direction	N
S8	04 Sep 2018	Water Temp (C)	22
S8	04 Sep 2018	Wave Height Low (ft)	2
S8	04 Sep 2018	High Tide (ft)	3.4
S8	04 Sep 2018	High Tide Time	618
S8	04 Sep 2018	Low Tide (ft)	2.6
S8	04 Sep 2018	Low Tide Time	1054
S8	04 Sep 2018	Comments	Seagrass; Water clear
S8	11 Sep 2018	Arrive Time	1213
S8	11 Sep 2018	Weather	Sunny
S8	11 Sep 2018	Wind Speed (kts)	5.2
S8	11 Sep 2018	Wind Dir	W
S8	11 Sep 2018	Animal Life	None
S8	11 Sep 2018	Floatables	None
S8	11 Sep 2018	Water Color	Green
S8	11 Sep 2018	Current Direction	N
S8	11 Sep 2018	Water Temp (C)	20
S8	11 Sep 2018	Wave Height Low (ft)	3
S8	11 Sep 2018	High Tide (ft)	5.5
S8	11 Sep 2018	High Tide Time	1054
S8	11 Sep 2018	Low Tide (ft)	0.4
S8	11 Sep 2018	Low Tide Time	1707
S8	11 Sep 2018	Comments	Kelp; Seagrass; 4 Persons; 1 Fisherman; Water clear
S8	18 Sep 2018	Arrive Time	912
S8	18 Sep 2018	Weather	Sunny

Station	Date	Parameter	Value
S8	18 Sep 2018	Wind Speed (kts)	2.3
S8	18 Sep 2018	Wind Dir	S
S8	18 Sep 2018	Animal Life	None
S8	18 Sep 2018	Floatables	None
S8	18 Sep 2018	Water Color	Green
S8	18 Sep 2018	Current Direction	N
S8	18 Sep 2018	Water Temp (C)	17
S8	18 Sep 2018	Wave Height Low (ft)	2
S8	18 Sep 2018	High Tide (ft)	3.7
S8	18 Sep 2018	High Tide Time	709
S8	18 Sep 2018	Low Tide (ft)	2.8
S8	18 Sep 2018	Low Tide Time	1150
S8	18 Sep 2018	Comments	Seagrass; 1 Person; Water clear
S8	25 Sep 2018	Arrive Time	1140
S8	25 Sep 2018	Weather	Partly Cloudy
S8	25 Sep 2018	Wind Speed (kts)	5.8
S8	25 Sep 2018	Wind Dir	W
S8	25 Sep 2018	Animal Life	100 Plovers
S8	25 Sep 2018	Floatables	None
S8	25 Sep 2018	Water Color	Green
S8	25 Sep 2018	Current Direction	N
S8	25 Sep 2018	Water Temp (C)	16
S8	25 Sep 2018	Wave Height Low (ft)	2
S8	25 Sep 2018	High Tide (ft)	5.2
S8	25 Sep 2018	High Tide Time	952
S8	25 Sep 2018	Low Tide (ft)	0.7
S8	25 Sep 2018	Low Tide Time	1603
S8	25 Sep 2018	Comments	Kelp; Seagrass; Water clear
S9	04 Sep 2018	Arrive Time	829
S9	04 Sep 2018	Weather	Overcast
S9	04 Sep 2018	Wind Speed (kts)	2.7
S9	04 Sep 2018	Wind Dir	S
S9	04 Sep 2018	Animal Life	None
S9	04 Sep 2018	Floatables	None
S9	04 Sep 2018	Water Color	Green
S9	04 Sep 2018	Current Direction	N
S9	04 Sep 2018	Water Temp (C)	22
S9	04 Sep 2018	Wave Height Low (ft)	1
S9	04 Sep 2018	High Tide (ft)	3.4
S9	04 Sep 2018	High Tide Time	618
S9	04 Sep 2018	Low Tide (ft)	2.6
S9	04 Sep 2018	Low Tide Time	1054
S9	04 Sep 2018	Comments	Seagrass; 4 Joggers; Water clear
S9	11 Sep 2018	Arrive Time	1250
S9	11 Sep 2018	Weather	Sunny
S9	11 Sep 2018	Wind Speed (kts)	6.8
S9	11 Sep 2018	Wind Dir	W
S9	11 Sep 2018	Animal Life	None
S9	11 Sep 2018	Floatables	None
S9	11 Sep 2018	Water Color	Green
S9	11 Sep 2018	Current Direction	N
S9	11 Sep 2018	Water Temp (C)	20

Station	Date	Parameter	Value
S9	11 Sep 2018	Wave Height Low (ft)	3
S9	11 Sep 2018	High Tide (ft)	5.5
S9	11 Sep 2018	High Tide Time	1054
S9	11 Sep 2018	Low Tide (ft)	0.4
S9	11 Sep 2018	Low Tide Time	1707
S9	11 Sep 2018	Comments	Kelp; Seagrass; 6 Persons; Water clear
S9	18 Sep 2018	Arrive Time	839
S9	18 Sep 2018	Weather	Sunny
S9	18 Sep 2018	Wind Speed (kts)	0.7
S9	18 Sep 2018	Wind Dir	W
S9	18 Sep 2018	Animal Life	None
S9	18 Sep 2018	Floatables	None
S9	18 Sep 2018	Water Color	Green
S9	18 Sep 2018	Current Direction	N
S9	18 Sep 2018	Water Temp (C)	17
S9	18 Sep 2018	Wave Height Low (ft)	2
S9	18 Sep 2018	High Tide (ft)	3.7
S9	18 Sep 2018	High Tide Time	709
S9	18 Sep 2018	Low Tide (ft)	2.8
S9	18 Sep 2018	Low Tide Time	1150
S9	18 Sep 2018	Comments	Seagrass; 4 Joggers; Water clear
S9	25 Sep 2018	Arrive Time	1228
S9	25 Sep 2018	Weather	Partly Cloudy
S9	25 Sep 2018	Wind Speed (kts)	6.4
S9	25 Sep 2018	Wind Dir	W
S9	25 Sep 2018	Animal Life	None
S9	25 Sep 2018	Floatables	None
S9	25 Sep 2018	Water Color	Green
S9	25 Sep 2018	Current Direction	N
S9	25 Sep 2018	Water Temp (C)	17
S9	25 Sep 2018	Wave Height Low (ft)	2
S9	25 Sep 2018	High Tide (ft)	5.2
S9	25 Sep 2018	High Tide Time	952
S9	25 Sep 2018	Low Tide (ft)	0.7
S9	25 Sep 2018	Low Tide Time	1603
S9	25 Sep 2018	Comments	Kelp; Seagrass; 12 Persons; Water clear
S10	04 Sep 2018	Arrive Time	1154
S10	04 Sep 2018	Weather	Overcast
S10	04 Sep 2018	Wind Speed (kts)	7.1
S10	04 Sep 2018	Wind Dir	N
S10	04 Sep 2018	Animal Life	None
S10	04 Sep 2018	Floatables	None
S10	04 Sep 2018	Water Color	Green
S10	04 Sep 2018	Current Direction	N
S10	04 Sep 2018	Water Temp (C)	21
S10	04 Sep 2018	Wave Height Low (ft)	3
S10	04 Sep 2018	High Tide (ft)	5.3
S10	04 Sep 2018	High Tide Time	1711
S10	04 Sep 2018	Low Tide (ft)	2.6
S10	04 Sep 2018	Low Tide Time	1054
S10	04 Sep 2018	Comments	Kelp; Seagrass; Water clear

Station	Date	Parameter	Value
S10	11 Sep 2018	Arrive Time	903
S10	11 Sep 2018	Weather	Overcast
S10	11 Sep 2018	Wind Speed (kts)	3.6
S10	11 Sep 2018	Wind Dir	W
S10	11 Sep 2018	Animal Life	None
S10	11 Sep 2018	Floatables	None
S10	11 Sep 2018	Water Color	Green
S10	11 Sep 2018	Current Direction	N
S10	11 Sep 2018	Water Temp (C)	20
S10	11 Sep 2018	Wave Height Low (ft)	3
S10	11 Sep 2018	High Tide (ft)	5.5
S10	11 Sep 2018	High Tide Time	1054
S10	11 Sep 2018	Low Tide (ft)	-0.2
S10	11 Sep 2018	Low Tide Time	447
S10	11 Sep 2018	Comments	Kelp; Seagrass; Water clear
S10	18 Sep 2018	Arrive Time	1140
S10	18 Sep 2018	Weather	Sunny
S10	18 Sep 2018	Wind Speed (kts)	3.3
S10	18 Sep 2018	Wind Dir	N
S10	18 Sep 2018	Animal Life	None
S10	18 Sep 2018	Floatables	None
S10	18 Sep 2018	Water Color	Green
S10	18 Sep 2018	Current Direction	N
S10	18 Sep 2018	Water Temp (C)	20
S10	18 Sep 2018	Wave Height Low (ft)	2
S10	18 Sep 2018	High Tide (ft)	3.7
S10	18 Sep 2018	High Tide Time	709
S10	18 Sep 2018	Low Tide (ft)	2.8
S10	18 Sep 2018	Low Tide Time	1150
S10	18 Sep 2018	Comments	Seagrass; Water clear
S10	25 Sep 2018	Arrive Time	839
S10	25 Sep 2018	Weather	Cloudy
S10	25 Sep 2018	Wind Speed (kts)	2.1
S10	25 Sep 2018	Wind Dir	W
S10	25 Sep 2018	Animal Life	None
S10	25 Sep 2018	Floatables	None
S10	25 Sep 2018	Water Color	Green
S10	25 Sep 2018	Current Direction	N
S10	25 Sep 2018	Water Temp (C)	17
S10	25 Sep 2018	Wave Height Low (ft)	3
S10	25 Sep 2018	High Tide (ft)	5.2
S10	25 Sep 2018	High Tide Time	952
S10	25 Sep 2018	Low Tide (ft)	0.4
S10	25 Sep 2018	Low Tide Time	349
S10	25 Sep 2018	Comments	Kelp; Seagrass; Water clear
S11	04 Sep 2018	Arrive Time	1033
S11	04 Sep 2018	Weather	Overcast
S11	04 Sep 2018	Wind Speed (kts)	5.2
S11	04 Sep 2018	Wind Dir	N
S11	04 Sep 2018	Animal Life	None
S11	04 Sep 2018	Floatables	None
S11	04 Sep 2018	Water Color	Green

Station	Date	Parameter	Value
S11	04 Sep 2018	Current Direction	N
S11	04 Sep 2018	Water Temp (C)	22
S11	04 Sep 2018	Wave Height Low (ft)	2
S11	04 Sep 2018	High Tide (ft)	3.4
S11	04 Sep 2018	High Tide Time	618
S11	04 Sep 2018	Low Tide (ft)	2.6
S11	04 Sep 2018	Low Tide Time	1054
S11	04 Sep 2018	Comments	Seagrass; 2 Persons; Water clear
S11	11 Sep 2018	Arrive Time	1018
S11	11 Sep 2018	Weather	Sunny
S11	11 Sep 2018	Wind Speed (kts)	4.6
S11	11 Sep 2018	Wind Dir	W
S11	11 Sep 2018	Animal Life	None
S11	11 Sep 2018	Floatables	None
S11	11 Sep 2018	Water Color	Green
S11	11 Sep 2018	Current Direction	N
S11	11 Sep 2018	Water Temp (C)	18
S11	11 Sep 2018	Wave Height Low (ft)	3
S11	11 Sep 2018	High Tide (ft)	5.5
S11	11 Sep 2018	High Tide Time	1054
S11	11 Sep 2018	Low Tide (ft)	-0.2
S11	11 Sep 2018	Low Tide Time	447
S11	11 Sep 2018	Comments	Kelp; Seagrass; Water clear
S11	18 Sep 2018	Arrive Time	1010
S11	18 Sep 2018	Weather	Sunny
S11	18 Sep 2018	Wind Speed (kts)	2.7
S11	18 Sep 2018	Wind Dir	N
S11	18 Sep 2018	Animal Life	None
S11	18 Sep 2018	Floatables	None
S11	18 Sep 2018	Water Color	Green
S11	18 Sep 2018	Current Direction	N
S11	18 Sep 2018	Water Temp (C)	20
S11	18 Sep 2018	Wave Height Low (ft)	3
S11	18 Sep 2018	High Tide (ft)	3.7
S11	18 Sep 2018	High Tide Time	709
S11	18 Sep 2018	Low Tide (ft)	2.8
S11	18 Sep 2018	Low Tide Time	1150
S11	18 Sep 2018	Comments	2 Persons; Water clear
S11	25 Sep 2018	Arrive Time	954
S11	25 Sep 2018	Weather	Cloudy
S11	25 Sep 2018	Wind Speed (kts)	3.6
S11	25 Sep 2018	Wind Dir	NW
S11	25 Sep 2018	Animal Life	None
S11	25 Sep 2018	Floatables	None
S11	25 Sep 2018	Water Color	Green
S11	25 Sep 2018	Current Direction	N
S11	25 Sep 2018	Water Temp (C)	17
S11	25 Sep 2018	Wave Height Low (ft)	3
S11	25 Sep 2018	High Tide (ft)	5.2
S11	25 Sep 2018	High Tide Time	952
S11	25 Sep 2018	Low Tide (ft)	0.4
S11	25 Sep 2018	Low Tide Time	349

Station	Date	Parameter	Value
S11	25 Sep 2018	Comments	Kelp; Seagrass; Water clear
S12	04 Sep 2018	Arrive Time	1008
S12	04 Sep 2018	Weather	Overcast
S12	04 Sep 2018	Wind Speed (kts)	5.2
S12	04 Sep 2018	Wind Dir	N
S12	04 Sep 2018	Animal Life	None
S12	04 Sep 2018	Floatables	None
S12	04 Sep 2018	Water Color	Green
S12	04 Sep 2018	Current Direction	N
S12	04 Sep 2018	Water Temp (C)	21
S12	04 Sep 2018	Wave Height Low (ft)	1
S12	04 Sep 2018	High Tide (ft)	3.4
S12	04 Sep 2018	High Tide Time	618
S12	04 Sep 2018	Low Tide (ft)	2.6
S12	04 Sep 2018	Low Tide Time	1054
S12	04 Sep 2018	Comments	Seagrass; 5 Persons; 1 Surfer; Water clear
S12	11 Sep 2018	Arrive Time	1030
S12	11 Sep 2018	Weather	Sunny
S12	11 Sep 2018	Wind Speed (kts)	3.9
S12	11 Sep 2018	Wind Dir	W
S12	11 Sep 2018	Animal Life	None
S12	11 Sep 2018	Floatables	None
S12	11 Sep 2018	Water Color	Green
S12	11 Sep 2018	Current Direction	N
S12	11 Sep 2018	Water Temp (C)	21
S12	11 Sep 2018	Wave Height Low (ft)	3
S12	11 Sep 2018	High Tide (ft)	5.5
S12	11 Sep 2018	High Tide Time	1054
S12	11 Sep 2018	Low Tide (ft)	-0.2
S12	11 Sep 2018	Low Tide Time	447
S12	11 Sep 2018	Comments	Kelp; Seagrass; Water clear
S12	18 Sep 2018	Arrive Time	1023
S12	18 Sep 2018	Weather	Sunny
S12	18 Sep 2018	Wind Speed (kts)	2.3
S12	18 Sep 2018	Wind Dir	W
S12	18 Sep 2018	Animal Life	None
S12	18 Sep 2018	Floatables	None
S12	18 Sep 2018	Water Color	Green
S12	18 Sep 2018	Current Direction	N
S12	18 Sep 2018	Water Temp (C)	20
S12	18 Sep 2018	Wave Height Low (ft)	2
S12	18 Sep 2018	High Tide (ft)	3.7
S12	18 Sep 2018	High Tide Time	709
S12	18 Sep 2018	Low Tide (ft)	2.8
S12	18 Sep 2018	Low Tide Time	1150
S12	18 Sep 2018	Comments	Seagrass; 1 Person; 2 Surfers; Water clear
S12	19 Sep 2018	Arrive Time	850
S12	19 Sep 2018	Weather	Sunny
S12	19 Sep 2018	Wind Speed (kts)	2.2
S12	19 Sep 2018	Wind Dir	E
S12	19 Sep 2018	Animal Life	None

Station	Date	Parameter	Value
S12	19 Sep 2018	Floatables	None
S12	19 Sep 2018	Water Color	Green
S12	19 Sep 2018	Current Direction	E
S12	19 Sep 2018	Water Temp (C)	20
S12	19 Sep 2018	Wave Height Low (ft)	2
S12	19 Sep 2018	High Tide (ft)	4
S12	19 Sep 2018	High Tide Time	738
S12	19 Sep 2018	Low Tide (ft)	0.6
S12	19 Sep 2018	Low Tide Time	1258
S12	19 Sep 2018	Comments	Kelp; Seagrass; Water turbid
S12	25 Sep 2018	Arrive Time	1004
S12	25 Sep 2018	Weather	Cloudy
S12	25 Sep 2018	Wind Speed (kts)	1.7
S12	25 Sep 2018	Wind Dir	SW
S12	25 Sep 2018	Animal Life	None
S12	25 Sep 2018	Floatables	None
S12	25 Sep 2018	Water Color	Green
S12	25 Sep 2018	Current Direction	N
S12	25 Sep 2018	Water Temp (C)	16
S12	25 Sep 2018	Wave Height Low (ft)	3
S12	25 Sep 2018	High Tide (ft)	5.2
S12	25 Sep 2018	High Tide Time	952
S12	25 Sep 2018	Low Tide (ft)	0.7
S12	25 Sep 2018	Low Tide Time	1603
S12	25 Sep 2018	Comments	Kelp; Seagrass; 3 Persons; Water clear

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 Sep 2018	6*	4*	2*	3*	7*	2*	4*
02 Sep 2018	6*	4*	2*	3*	7*	2*	4*
03 Sep 2018	6*	4*	2*	3*	7*	2*	4*
04 Sep 2018	8	9	5	7	8	3	5
05 Sep 2018	12*	12*	6*	9*	12*	3*	7*
06 Sep 2018	12*	12*	6*	9*	12*	3*	7*
07 Sep 2018	12*	12*	6*	9*	12*	3*	7*
08 Sep 2018	12*	12*	6*	9*	12*	3*	7*
09 Sep 2018	12*	12*	6*	9*	12*	3*	7*
10 Sep 2018	11	11	5	7	13	3	7
11 Sep 2018	11	11	5	7	13	3	7
12 Sep 2018	11*	13*	6*	9*	13*	3*	8*
13 Sep 2018	11*	13*	6*	9*	13*	3*	8*
14 Sep 2018	11*	13*	6*	9*	13*	3*	8*
15 Sep 2018	11*	13*	6*	9*	13*	3*	8*
16 Sep 2018	11*	13*	6*	9*	13*	3*	8*
17 Sep 2018	11	12	5	7	12	4	9
18 Sep 2018	11	12	5	7	12	4	9
19 Sep 2018	11*	18*	6*	6*	13*	5*	9*
20 Sep 2018	11*	18*	6*	6*	13*	5*	9*
21 Sep 2018	11*	18*	6*	6*	13*	5*	9*
22 Sep 2018	11*	18*	6*	6*	13*	5*	9*
23 Sep 2018	11*	18*	6*	6*	13*	5*	9*
24 Sep 2018	8	12	5	5	9	4	7
25 Sep 2018	8	12	5	5	9	4	7
26 Sep 2018	8*	13*	6*	6*	9*	5*	9*
27 Sep 2018	8*	13*	6*	6*	9*	5*	9*
28 Sep 2018	8*	13*	6*	6*	9*	5*	9*
29 Sep 2018	8*	13*	6*	6*	9*	5*	9*
30 Sep 2018	8*	13*	6*	6*	9*	5*	9*

* 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 Sep 2018	2*	2*	2*	2*	2*	2*	2*
02 Sep 2018	2*	2*	2*	2*	2*	2*	2*
03 Sep 2018	2*	2*	2*	2*	2*	2*	2*
04 Sep 2018	2	2	2	2	2	2	2
05 Sep 2018	2*	2*	2*	2*	2*	2*	2*
06 Sep 2018	2*	2*	2*	2*	2*	2*	2*
07 Sep 2018	2*	2*	2*	2*	2*	2*	2*
08 Sep 2018	2*	2*	2*	2*	2*	2*	2*
09 Sep 2018	2*	2*	2*	2*	2*	2*	2*
10 Sep 2018	2	2	2	2	2	2	2
11 Sep 2018	2	2	2	2	2	2	2
12 Sep 2018	2*	2*	2*	2*	2*	2*	2*
13 Sep 2018	2*	2*	2*	2*	2*	2*	2*
14 Sep 2018	2*	2*	2*	2*	2*	2*	2*
15 Sep 2018	2*	2*	2*	2*	2*	2*	2*
16 Sep 2018	2*	2*	2*	2*	2*	2*	2*
17 Sep 2018	2	2	2	2	2	2	2
18 Sep 2018	2	2	2	2	2	2	2
19 Sep 2018	2*	2*	2*	2*	2*	2*	2*
20 Sep 2018	2*	2*	2*	2*	2*	2*	2*
21 Sep 2018	2*	2*	2*	2*	2*	2*	2*
22 Sep 2018	2*	2*	2*	2*	2*	2*	2*
23 Sep 2018	2*	2*	2*	2*	2*	2*	2*
24 Sep 2018	2	2	2	2	2	2	2
25 Sep 2018	2	2	2	2	2	2	2
26 Sep 2018	2*	2*	2*	2*	2*	2*	2*
27 Sep 2018	2*	2*	2*	2*	2*	2*	2*
28 Sep 2018	2*	2*	2*	2*	2*	2*	2*
29 Sep 2018	2*	2*	2*	2*	2*	2*	2*
30 Sep 2018	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 Sep 2018	2*	2*	2*	2*	2*	2*	2*
02 Sep 2018	2*	2*	2*	2*	2*	2*	2*
03 Sep 2018	2*	2*	2*	2*	2*	2*	2*
04 Sep 2018	2	2	2	2	2	2	2
05 Sep 2018	2*	2*	2*	2*	2*	2*	2*
06 Sep 2018	2*	2*	2*	2*	2*	2*	2*
07 Sep 2018	2*	2*	2*	2*	2*	2*	2*
08 Sep 2018	2*	2*	2*	2*	2*	2*	2*
09 Sep 2018	2*	2*	2*	2*	2*	2*	2*
10 Sep 2018	2	2	2	2	2	2	2
11 Sep 2018	2	2	2	2	2	2	2
12 Sep 2018	2*	2*	2*	2*	2*	2*	2*
13 Sep 2018	2*	2*	2*	2*	2*	2*	2*
14 Sep 2018	2*	2*	2*	2*	2*	2*	2*
15 Sep 2018	2*	2*	2*	2*	2*	2*	2*
16 Sep 2018	2*	2*	2*	2*	2*	2*	2*
17 Sep 2018	2	2	2	2	2	2	2
18 Sep 2018	2	2	2	2	2	2	2
19 Sep 2018	2*	2*	2*	2*	2*	2*	2*
20 Sep 2018	2*	2*	2*	2*	2*	2*	2*
21 Sep 2018	2*	2*	2*	2*	2*	2*	2*
22 Sep 2018	2*	2*	2*	2*	2*	2*	2*
23 Sep 2018	2*	2*	2*	2*	2*	2*	2*
24 Sep 2018	2	2	2	2	2	2	2
25 Sep 2018	2	2	2	2	2	2	2
26 Sep 2018	2*	2*	2*	2*	2*	2*	2*
27 Sep 2018	2*	2*	2*	2*	2*	2*	2*
28 Sep 2018	2*	2*	2*	2*	2*	2*	2*
29 Sep 2018	2*	2*	2*	2*	2*	2*	2*
30 Sep 2018	2*	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 Sep 2018	IC	IC	IC	IC	IC	IC	IC
10 Sep 2018	IC	IC	IC	IC	IC	IC	IC
17 Sep 2018	IC	IC	IC	IC	IC	IC	IC
24 Sep 2018	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 Sep 2018	IC	IC	IC	IC	IC	IC	IC
10 Sep 2018	IC	IC	IC	IC	IC	IC	IC
17 Sep 2018	IC	IC	IC	IC	IC	IC	IC
24 Sep 2018	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 Sep 2018	IC	IC	IC	IC	IC	IC	IC
10 Sep 2018	IC	IC	IC	IC	IC	IC	IC
17 Sep 2018	IC	IC	IC	IC	IC	IC	IC
24 Sep 2018	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 Sep 2018	IC	IC	IC	IC	IC	IC	IC
10 Sep 2018	IC	IC	IC	IC	IC	IC	IC
17 Sep 2018	IC	IC	IC	IC	IC	IC	IC
24 Sep 2018	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. Comments follow the data summary.

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
119	04 Sep 2018	1030	2	<20	<2	<2	0.10	22.3	77.74	7.0	NA	8.3
119	04 Sep 2018	1030	6	40e	<2	<2	0.05	19.3	77.37	7.2	NA	8.2
119	04 Sep 2018	1030	11	40e	<2	<2	0.05	16.7	75.33	7.6	NA	8.1
119	10 Sep 2018	115	2	<2	<2	<2	1.00	18.6	80.31	8.1	33.61	8.2
119	10 Sep 2018	115	6	<2	<2	<2	1.00	18.3	78.34	8.2	33.60	8.2
119	10 Sep 2018	115	11	20e	<2	6e	0.10	17.7	75.37	7.9	33.59	8.2
119	17 Sep 2018	1028	2	<2	<2	<2	1.00	16.9	71.78	8.0	33.53	8.1
119	17 Sep 2018	1028	6	<2	<2	<2	1.00	15.8	70.46	7.8	33.52	8.1
119	17 Sep 2018	1028	11	<20	<2	<2	0.10	15.0	46.19	7.2	33.51	8.1
119	24 Sep 2018	1043	2	<2	<2	<2	1.00	18.4	78.68	7.8	33.56	8.1
119	24 Sep 2018	1043	6	<2	<2	<2	1.00	16.6	77.08	7.7	33.53	8.1
119	24 Sep 2018	1043	11	<2	<2	<2	1.00	15.0	69.44	7.6	33.50	8.1
124	04 Sep 2018	1056	2	<200	<2	<2	0.01	22.4	79.25	8.1	33.83	8.3
124	04 Sep 2018	1056	6	<200	<2	<2	0.01	18.7	78.68	8.0	33.62	8.2
124	04 Sep 2018	1056	11	<200	<2	<2	0.01	16.9	78.89	8.0	33.48	8.1
124	10 Sep 2018	1138	2	<2	<2	<2	1.00	18.6	82.72	6.7	33.90	8.2
124	10 Sep 2018	1138	6	<2	<2	<2	1.00	17.5	81.88	7.8	33.67	8.2
124	10 Sep 2018	1138	11	<20	<2	<2	0.10	15.4	74.61	7.7	33.68	8.1
124	17 Sep 2018	1052	2	<2	<2	<2	1.00	17.3	68.56	7.8	33.54	8.1
124	17 Sep 2018	1052	6	<2	<2	<2	1.00	15.4	71.85	7.7	33.52	8.1
124	17 Sep 2018	1052	11	<20	<2	<2	0.10	15.1	64.02	7.3	33.51	8.1
124	24 Sep 2018	1105	2	<2	<2	<2	1.00	18.5	85.59	7.9	33.59	8.1
124	24 Sep 2018	1105	6	<2	<2	<2	1.00	17.6	82.04	7.8	33.56	8.1
124	24 Sep 2018	1105	11	<2	<2	<2	1.00	15.1	78.58	7.3	33.51	8.1
125	04 Sep 2018	1103	2	<200	<2	<2	0.01	22.5	79.23	8.1	33.84	8.3
125	04 Sep 2018	1103	6	<200	<2	<2	0.01	20.4	79.92	8.4	33.72	8.3
125	04 Sep 2018	1103	9	20e	<2	<2	0.10	16.9	79.55	8.2	33.50	8.1
125	10 Sep 2018	1151	2	<2	<2	<2	1.00	18.0	83.24	7.3	33.87	8.2
125	10 Sep 2018	1151	6	<2	<2	<2	1.00	17.3	81.80	8.1	33.61	8.2
125	10 Sep 2018	1151	9	<2	<2	<2	1.00	16.8	75.85	7.8	33.58	8.1
125	17 Sep 2018	1059	2	<2	<2	<2	1.00	17.0	78.28	8.1	33.56	8.2
125	17 Sep 2018	1059	6	<2	<2	<2	1.00	15.5	75.26	7.8	33.52	8.1
125	17 Sep 2018	1059	9	2e	<2	<2	1.00	15.3	76.88	7.8	33.52	8.1
125	24 Sep 2018	1113	2	<2	<2	<2	1.00	18.2	85.23	7.9	33.59	8.1
125	24 Sep 2018	1113	6	4e	<2	<2	0.50	17.8	84.78	7.9	33.57	8.1
125	24 Sep 2018	1113	9	2e	2e	<2	1.00	16.1	80.85	7.6	33.55	8.1

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
I26	04 Sep 2018	1114	2	<200	<2	<2	0.01	22.5	78.05	8.1	33.84	8.3
I26	04 Sep 2018	1114	6	<200	<2	<2	0.01	19.5	79.52	8.1	33.65	8.2
I26	04 Sep 2018	1114	9	<20	6e	<2	0.30	17.4	78.82	7.4	33.57	8.1
I26	10 Sep 2018	1205	2	<2	<2	<2	1.00	18.1	82.56	7.0	33.75	8.2
I26	10 Sep 2018	1205	6	<2	<2	<2	1.00	17.6	80.69	7.1	33.77	8.2
I26	10 Sep 2018	1205	9	<2	<2	<2	1.00	16.7	75.01	7.8	33.95	8.2
I26	17 Sep 2018	1110	2	<2	<2	<2	1.00	17.1	72.15	8.2	33.55	8.2
I26	17 Sep 2018	1110	6	<2	<2	<2	1.00	15.4	76.81	7.8	33.52	8.1
I26	17 Sep 2018	1110	9	<2	<2	<2	1.00	15.4	76.18	7.8	33.53	8.1
I26	24 Sep 2018	1123	2	<2	<2	<2	1.00	18.4	84.21	7.8	33.59	8.1
I26	24 Sep 2018	1123	6	<2	<2	<2	1.00	17.6	83.63	8.0	33.55	8.1
I26	24 Sep 2018	1123	9	<2	<2	<2	1.00	15.1	81.26	7.8	33.56	8.1
I32	04 Sep 2018	1125	2	<20	<2	<2	0.10	22.1	74.75	8.2	33.81	8.3
I32	04 Sep 2018	1125	6	<20	<2	<2	0.10	20.5	74.66	7.5	33.75	8.2
I32	04 Sep 2018	1125	9	20e	<2	<2	0.10	17.0	78.56	8.1	33.56	8.2
I32	10 Sep 2018	1214	2	<20	<2	<2	0.10	18.9	76.98	6.9	33.58	8.2
I32	10 Sep 2018	1214	6	<20	<2	<2	0.10	18.4	76.29	8.0	33.60	8.2
I32	10 Sep 2018	1214	9	20e	<2	2e	0.10	18.3	73.39	8.0	33.59	8.2
I32	17 Sep 2018	1123	2	<2	<2	<2	1.00	18.2	68.98	7.1	33.61	8.2
I32	17 Sep 2018	1123	6	<20	<2	<2	0.10	15.7	77.53	7.9	33.72	8.2
I32	17 Sep 2018	1123	9	<2	<2	<2	1.00	15.3	72.51	7.8	33.56	8.2
I32	24 Sep 2018	1123	2	2e	<2	<2	1.00	18.6	80.29	7.9	33.57	8.1
I32	24 Sep 2018	1136	6	<2	<2	<2	1.00	18.6	80.32	7.8	33.57	8.1
I32	24 Sep 2018	1136	9	2e	<2	<2	1.00	18.0	80.06	7.4	33.57	8.1
I39	04 Sep 2018	1012	2	<20	<2	<2	0.10	22.3	80.14	8.0	33.82	8.3
I39	04 Sep 2018	1012	12	<2	<2	<2	1.00	17.6	80.99	8.5	33.58	8.2
I39	04 Sep 2018	1012	18	10e	<2	<2	0.20	15.6	81.07	8.0	33.51	8.1
I39	10 Sep 2018	1039	2	<2	<2	<2	1.00	18.9	82.47	7.8	33.68	8.2
I39	10 Sep 2018	1039	12	<2	<2	<2	1.00	16.3	82.29	8.0	33.56	8.1
I39	10 Sep 2018	1039	18	<2	<2	<2	1.00	14.4	81.26	7.3	33.52	8.1
I39	17 Sep 2018	1005	2	<20	<2	<2	0.10	18.1	78.85	8.2	33.55	8.2
I39	17 Sep 2018	1005	12	<20	<2	<2	0.10	13.8	85.52	7.2	33.51	8.1
I39	17 Sep 2018	1005	18	<20	<2	<2	0.10	13.7	83.67	6.9	33.53	8.1
I39	24 Sep 2018	1136	2	<2	<2	<2	1.00	18.4	83.58	7.8	33.60	8.1
I39	24 Sep 2018	1021	12	<2	<2	<2	1.00	14.8	86.28	7.8	33.52	8.1
I39	24 Sep 2018	1021	18	<2	<2	<2	1.00	14.4	86.56	7.6	33.51	8.1
I40	04 Sep 2018	1046	2	<20	2e	<2	0.10	21.2	77.28	7.9	33.74	8.2
I40	04 Sep 2018	1046	6	40e	<2	<2	0.05	18.9	78.52	8.0	33.58	8.2
I40	04 Sep 2018	1046	9	<20	<2	<2	0.10	17.2	79.00	8.0	33.51	8.1
I40	10 Sep 2018	1127	2	<2	2e	<2	1.00	18.6	80.73	6.8	33.76	8.2
I40	10 Sep 2018	1127	6	<2	<2	<2	1.00	18.1	78.28	6.7	33.72	8.2

Station	Date	Time	Depth	Total	Fecal	Enteroc	F:T	Temp	XMS	DO	Sal	pH
I40	10 Sep 2018	1127	9	<20	<2	2e	0.10	17.9	75.69	7.7	33.71	8.2
I40	17 Sep 2018	1041	2	2e	<2	<2	1.00	17.2	70.19	8.0	33.53	8.2
I40	17 Sep 2018	1041	6	<20	<2	<2	0.10	15.5	69.59	7.8	33.51	8.1
I40	17 Sep 2018	1041	9	<20	<2	<2	0.10	15.2	60.17	7.4	33.51	8.1
I40	24 Sep 2018	1057	2	<2	<2	<2	1.00	18.5	79.35	7.8	33.56	8.1
I40	24 Sep 2018	1057	6	<2	<2	<2	1.00	16.0	75.23	7.5	33.55	8.1
I40	24 Sep 2018	1057	9	<2	<2	<2	1.00	14.9	75.22	7.4	33.50	8.1

ns = not sampled

ND = no data

Comments

Station	Date	Depth	Parameter	Comments
I19	04 Sep 2018			Salinity data was deleted due to erroneous values

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 Sep 2018	Depth (m)	12
I19	04 Sep 2018	Arrive Time	1030
I19	04 Sep 2018	Depart Time	1036
I19	04 Sep 2018	Air Temp (C)	21
I19	04 Sep 2018	Weather	Overcast
I19	04 Sep 2018	Visibility (mi)	8
I19	04 Sep 2018	Wind Speed (kts)	4
I19	04 Sep 2018	Wind Dir	SW
I19	04 Sep 2018	Water Color	Green
I19	04 Sep 2018	Wave Ht Low (ft)	3
I19	04 Sep 2018	Wave Period (sec)	9
I19	04 Sep 2018	Sea State	Heavy chop
I19	04 Sep 2018	High Tide (ft)	3.41
I19	04 Sep 2018	High Tide Time	618
I19	04 Sep 2018	Low Tide (ft)	2.58
I19	04 Sep 2018	Low Tide Time	1054
I19	04 Sep 2018	Comments	Salinity data was deleted due to erroneous values
I19	10 Sep 2018	Depth (m)	12
I19	10 Sep 2018	Arrive Time	1115
I19	10 Sep 2018	Depart Time	1118
I19	10 Sep 2018	Air Temp (C)	19
I19	10 Sep 2018	Weather	Haze
I19	10 Sep 2018	Visibility (mi)	5
I19	10 Sep 2018	Wind Speed (kts)	4
I19	10 Sep 2018	Wind Dir	E
I19	10 Sep 2018	Water Color	Green
I19	10 Sep 2018	Wave Ht Low (ft)	3
I19	10 Sep 2018	Wave Period (sec)	11
I19	10 Sep 2018	Sea State	Calm
I19	10 Sep 2018	High Tide (ft)	5.48
I19	10 Sep 2018	High Tide Time	1018
I19	10 Sep 2018	Low Tide (ft)	-0.58
I19	10 Sep 2018	Low Tide Time	411
I19	10 Sep 2018	Comments	none
I19	17 Sep 2018	Depth (m)	10
I19	17 Sep 2018	Arrive Time	1028
I19	17 Sep 2018	Depart Time	1035
I19	17 Sep 2018	Air Temp (C)	19
I19	17 Sep 2018	Weather	Haze
I19	17 Sep 2018	Visibility (mi)	8
I19	17 Sep 2018	Wind Speed (kts)	2
I19	17 Sep 2018	Wind Dir	E
I19	17 Sep 2018	Water Color	Brownish-Green
I19	17 Sep 2018	Wave Ht Low (ft)	4
I19	17 Sep 2018	Wave Period (sec)	13
I19	17 Sep 2018	Sea State	Calm
I19	17 Sep 2018	High Tide (ft)	3.41
I19	17 Sep 2018	High Tide Time	615
I19	17 Sep 2018	Low Tide (ft)	2.97

Station	Date	Parameter	Value
I19	17 Sep 2018	Low Tide Time	1018
I19	17 Sep 2018	Comments	none
I19	24 Sep 2018	Depth (m)	12
I19	24 Sep 2018	Arrive Time	1043
I19	24 Sep 2018	Depart Time	1047
I19	24 Sep 2018	Air Temp (C)	18
I19	24 Sep 2018	Weather	Overcast
I19	24 Sep 2018	Visibility (mi)	10
I19	24 Sep 2018	Wind Speed (kts)	10
I19	24 Sep 2018	Wind Dir	E
I19	24 Sep 2018	Water Color	Greenish-Blue
I19	24 Sep 2018	Wave Ht Low (ft)	2
I19	24 Sep 2018	Wave Period (sec)	13
I19	24 Sep 2018	Sea State	Light chop
I19	24 Sep 2018	High Tide (ft)	5.06
I19	24 Sep 2018	High Tide Time	927
I19	24 Sep 2018	Low Tide (ft)	0.89
I19	24 Sep 2018	Low Tide Time	1529
I19	24 Sep 2018	Comments	none
I24	04 Sep 2018	Depth (m)	12
I24	04 Sep 2018	Arrive Time	1056
I24	04 Sep 2018	Depart Time	1059
I24	04 Sep 2018	Air Temp (C)	21
I24	04 Sep 2018	Weather	Overcast
I24	04 Sep 2018	Visibility (mi)	8
I24	04 Sep 2018	Wind Speed (kts)	7
I24	04 Sep 2018	Wind Dir	SW
I24	04 Sep 2018	Water Color	Green
I24	04 Sep 2018	Wave Ht Low (ft)	3
I24	04 Sep 2018	Wave Period (sec)	9
I24	04 Sep 2018	Sea State	Heavy chop
I24	04 Sep 2018	High Tide (ft)	3.41
I24	04 Sep 2018	High Tide Time	618
I24	04 Sep 2018	Low Tide (ft)	2.58
I24	04 Sep 2018	Low Tide Time	1054
I24	04 Sep 2018	Comments	none
I24	10 Sep 2018	Depth (m)	11
I24	10 Sep 2018	Arrive Time	1138
I24	10 Sep 2018	Depart Time	1146
I24	10 Sep 2018	Air Temp (C)	20
I24	10 Sep 2018	Weather	Haze
I24	10 Sep 2018	Visibility (mi)	4
I24	10 Sep 2018	Wind Speed (kts)	3
I24	10 Sep 2018	Wind Dir	SE
I24	10 Sep 2018	Water Color	Green
I24	10 Sep 2018	Wave Ht Low (ft)	3
I24	10 Sep 2018	Wave Period (sec)	11
I24	10 Sep 2018	Sea State	Calm
I24	10 Sep 2018	High Tide (ft)	5.48
I24	10 Sep 2018	High Tide Time	1018
I24	10 Sep 2018	Low Tide (ft)	-0.58
I24	10 Sep 2018	Low Tide Time	411

Station	Date	Parameter	Value
I24	10 Sep 2018	Comments	Multiple casts due to salinity spikes
I24	17 Sep 2018	Depth (m)	11
I24	17 Sep 2018	Arrive Time	1052
I24	17 Sep 2018	Depart Time	1056
I24	17 Sep 2018	Air Temp (C)	20
I24	17 Sep 2018	Weather	Haze
I24	17 Sep 2018	Visibility (mi)	8
I24	17 Sep 2018	Wind Speed (kts)	9
I24	17 Sep 2018	Wind Dir	SW
I24	17 Sep 2018	Water Color	Green
I24	17 Sep 2018	Wave Ht Low (ft)	4
I24	17 Sep 2018	Wave Period (sec)	13
I24	17 Sep 2018	Sea State	Calm
I24	17 Sep 2018	High Tide (ft)	3.41
I24	17 Sep 2018	High Tide Time	615
I24	17 Sep 2018	Low Tide (ft)	2.97
I24	17 Sep 2018	Low Tide Time	1018
I24	17 Sep 2018	Comments	none
I24	24 Sep 2018	Depth (m)	11
I24	24 Sep 2018	Arrive Time	1105
I24	24 Sep 2018	Depart Time	1109
I24	24 Sep 2018	Air Temp (C)	18
I24	24 Sep 2018	Weather	Overcast
I24	24 Sep 2018	Visibility (mi)	10
I24	24 Sep 2018	Wind Speed (kts)	0
I24	24 Sep 2018	Wind Dir	
I24	24 Sep 2018	Water Color	Greenish-Blue
I24	24 Sep 2018	Wave Ht Low (ft)	2
I24	24 Sep 2018	Wave Period (sec)	13
I24	24 Sep 2018	Sea State	Light chop
I24	24 Sep 2018	High Tide (ft)	5.06
I24	24 Sep 2018	High Tide Time	927
I24	24 Sep 2018	Low Tide (ft)	0.89
I24	24 Sep 2018	Low Tide Time	1529
I24	24 Sep 2018	Comments	none
I25	04 Sep 2018	Depth (m)	10
I25	04 Sep 2018	Arrive Time	1103
I25	04 Sep 2018	Depart Time	1108
I25	04 Sep 2018	Air Temp (C)	21
I25	04 Sep 2018	Weather	Overcast
I25	04 Sep 2018	Visibility (mi)	8
I25	04 Sep 2018	Wind Speed (kts)	7
I25	04 Sep 2018	Wind Dir	S
I25	04 Sep 2018	Water Color	Green
I25	04 Sep 2018	Wave Ht Low (ft)	3
I25	04 Sep 2018	Wave Period (sec)	9
I25	04 Sep 2018	Sea State	Heavy chop
I25	04 Sep 2018	High Tide (ft)	3.41
I25	04 Sep 2018	High Tide Time	618
I25	04 Sep 2018	Low Tide (ft)	2.58
I25	04 Sep 2018	Low Tide Time	1054
I25	04 Sep 2018	Comments	none

Station	Date	Parameter	Value
I25	10 Sep 2018	Depth (m)	10
I25	10 Sep 2018	Arrive Time	1151
I25	10 Sep 2018	Depart Time	1154
I25	10 Sep 2018	Air Temp (C)	20
I25	10 Sep 2018	Weather	Haze
I25	10 Sep 2018	Visibility (mi)	4
I25	10 Sep 2018	Wind Speed (kts)	1
I25	10 Sep 2018	Wind Dir	S
I25	10 Sep 2018	Water Color	Green
I25	10 Sep 2018	Wave Ht Low (ft)	3
I25	10 Sep 2018	Wave Period (sec)	11
I25	10 Sep 2018	Sea State	Calm
I25	10 Sep 2018	High Tide (ft)	5.48
I25	10 Sep 2018	High Tide Time	1018
I25	10 Sep 2018	Low Tide (ft)	-0.58
I25	10 Sep 2018	Low Tide Time	411
I25	10 Sep 2018	Comments	High CDOM throughout cast
I25	17 Sep 2018	Depth (m)	10
I25	17 Sep 2018	Arrive Time	1059
I25	17 Sep 2018	Depart Time	1105
I25	17 Sep 2018	Air Temp (C)	20
I25	17 Sep 2018	Weather	Haze
I25	17 Sep 2018	Visibility (mi)	8
I25	17 Sep 2018	Wind Speed (kts)	5
I25	17 Sep 2018	Wind Dir	S
I25	17 Sep 2018	Water Color	Green
I25	17 Sep 2018	Wave Ht Low (ft)	4
I25	17 Sep 2018	Wave Period (sec)	13
I25	17 Sep 2018	Sea State	Calm
I25	17 Sep 2018	High Tide (ft)	3.41
I25	17 Sep 2018	High Tide Time	615
I25	17 Sep 2018	Low Tide (ft)	2.97
I25	17 Sep 2018	Low Tide Time	1018
I25	17 Sep 2018	Comments	none
I25	24 Sep 2018	Depth (m)	10
I25	24 Sep 2018	Arrive Time	1113
I25	24 Sep 2018	Depart Time	1116
I25	24 Sep 2018	Air Temp (C)	18
I25	24 Sep 2018	Weather	Overcast
I25	24 Sep 2018	Visibility (mi)	10
I25	24 Sep 2018	Wind Speed (kts)	2
I25	24 Sep 2018	Wind Dir	E
I25	24 Sep 2018	Water Color	Greenish-Blue
I25	24 Sep 2018	Wave Ht Low (ft)	2
I25	24 Sep 2018	Wave Period (sec)	13
I25	24 Sep 2018	Sea State	Light chop
I25	24 Sep 2018	High Tide (ft)	5.06
I25	24 Sep 2018	High Tide Time	927
I25	24 Sep 2018	Low Tide (ft)	0.89
I25	24 Sep 2018	Low Tide Time	1529
I25	24 Sep 2018	Comments	none

Station	Date	Parameter	Value
I26	04 Sep 2018	Depth (m)	10
I26	04 Sep 2018	Arrive Time	1114
I26	04 Sep 2018	Depart Time	1117
I26	04 Sep 2018	Air Temp (C)	20
I26	04 Sep 2018	Weather	Overcast
I26	04 Sep 2018	Visibility (mi)	8
I26	04 Sep 2018	Wind Speed (kts)	5
I26	04 Sep 2018	Wind Dir	SW
I26	04 Sep 2018	Water Color	Green
I26	04 Sep 2018	Wave Ht Low (ft)	3
I26	04 Sep 2018	Wave Period (sec)	9
I26	04 Sep 2018	Sea State	Heavy chop
I26	04 Sep 2018	High Tide (ft)	3.41
I26	04 Sep 2018	High Tide Time	618
I26	04 Sep 2018	Low Tide (ft)	2.58
I26	04 Sep 2018	Low Tide Time	1054
I26	04 Sep 2018	Comments	none
I26	10 Sep 2018	Depth (m)	9
I26	10 Sep 2018	Arrive Time	1205
I26	10 Sep 2018	Depart Time	1206
I26	10 Sep 2018	Air Temp (C)	20
I26	10 Sep 2018	Weather	Haze
I26	10 Sep 2018	Visibility (mi)	4
I26	10 Sep 2018	Wind Speed (kts)	7
I26	10 Sep 2018	Wind Dir	SW
I26	10 Sep 2018	Water Color	Green
I26	10 Sep 2018	Wave Ht Low (ft)	3
I26	10 Sep 2018	Wave Period (sec)	11
I26	10 Sep 2018	Sea State	Calm
I26	10 Sep 2018	High Tide (ft)	5.48
I26	10 Sep 2018	High Tide Time	1018
I26	10 Sep 2018	Low Tide (ft)	-0.58
I26	10 Sep 2018	Low Tide Time	411
I26	10 Sep 2018	Comments	none
I26	17 Sep 2018	Depth (m)	10
I26	17 Sep 2018	Arrive Time	1110
I26	17 Sep 2018	Depart Time	1114
I26	17 Sep 2018	Air Temp (C)	20
I26	17 Sep 2018	Weather	Haze
I26	17 Sep 2018	Visibility (mi)	8
I26	17 Sep 2018	Wind Speed (kts)	12
I26	17 Sep 2018	Wind Dir	SW
I26	17 Sep 2018	Water Color	Green
I26	17 Sep 2018	Wave Ht Low (ft)	4
I26	17 Sep 2018	Wave Period (sec)	13
I26	17 Sep 2018	Sea State	Calm
I26	17 Sep 2018	High Tide (ft)	3.41
I26	17 Sep 2018	High Tide Time	615
I26	17 Sep 2018	Low Tide (ft)	2.97
I26	17 Sep 2018	Low Tide Time	1018
I26	17 Sep 2018	Comments	none
I26	24 Sep 2018	Depth (m)	10

Station	Date	Parameter	Value
I26	24 Sep 2018	Arrive Time	1123
I26	24 Sep 2018	Depart Time	1126
I26	24 Sep 2018	Air Temp (C)	18
I26	24 Sep 2018	Weather	Overcast
I26	24 Sep 2018	Visibility (mi)	10
I26	24 Sep 2018	Wind Speed (kts)	7
I26	24 Sep 2018	Wind Dir	SE
I26	24 Sep 2018	Water Color	Greenish-Blue
I26	24 Sep 2018	Wave Ht Low (ft)	2
I26	24 Sep 2018	Wave Period (sec)	13
I26	24 Sep 2018	Sea State	Light chop
I26	24 Sep 2018	High Tide (ft)	5.06
I26	24 Sep 2018	High Tide Time	927
I26	24 Sep 2018	Low Tide (ft)	0.89
I26	24 Sep 2018	Low Tide Time	1529
I26	24 Sep 2018	Comments	none
I32	04 Sep 2018	Depth (m)	11
I32	04 Sep 2018	Arrive Time	1125
I32	04 Sep 2018	Depart Time	1132
I32	04 Sep 2018	Air Temp (C)	20
I32	04 Sep 2018	Weather	Overcast
I32	04 Sep 2018	Visibility (mi)	8
I32	04 Sep 2018	Wind Speed (kts)	7
I32	04 Sep 2018	Wind Dir	SW
I32	04 Sep 2018	Water Color	Green
I32	04 Sep 2018	Wave Ht Low (ft)	3
I32	04 Sep 2018	Wave Period (sec)	9
I32	04 Sep 2018	Sea State	Heavy chop
I32	04 Sep 2018	High Tide (ft)	3.41
I32	04 Sep 2018	High Tide Time	618
I32	04 Sep 2018	Low Tide (ft)	2.58
I32	04 Sep 2018	Low Tide Time	1054
I32	04 Sep 2018	Comments	none
I32	10 Sep 2018	Depth (m)	11
I32	10 Sep 2018	Arrive Time	1214
I32	10 Sep 2018	Depart Time	1218
I32	10 Sep 2018	Air Temp (C)	20
I32	10 Sep 2018	Weather	Clear
I32	10 Sep 2018	Visibility (mi)	11
I32	10 Sep 2018	Wind Speed (kts)	4
I32	10 Sep 2018	Wind Dir	S
I32	10 Sep 2018	Water Color	Green
I32	10 Sep 2018	Wave Ht Low (ft)	3
I32	10 Sep 2018	Wave Period (sec)	11
I32	10 Sep 2018	Sea State	Calm
I32	10 Sep 2018	High Tide (ft)	5.48
I32	10 Sep 2018	High Tide Time	1018
I32	10 Sep 2018	Low Tide (ft)	-0.58
I32	10 Sep 2018	Low Tide Time	411
I32	10 Sep 2018	Comments	none
I32	17 Sep 2018	Depth (m)	10
I32	17 Sep 2018	Arrive Time	1123

Station	Date	Parameter	Value
I32	17 Sep 2018	Depart Time	1128
I32	17 Sep 2018	Air Temp (C)	20
I32	17 Sep 2018	Weather	Haze
I32	17 Sep 2018	Visibility (mi)	8
I32	17 Sep 2018	Wind Speed (kts)	8
I32	17 Sep 2018	Wind Dir	S
I32	17 Sep 2018	Water Color	Green
I32	17 Sep 2018	Wave Ht Low (ft)	4
I32	17 Sep 2018	Wave Period (sec)	13
I32	17 Sep 2018	Sea State	Calm
I32	17 Sep 2018	High Tide (ft)	3.41
I32	17 Sep 2018	High Tide Time	615
I32	17 Sep 2018	Low Tide (ft)	2.97
I32	17 Sep 2018	Low Tide Time	1018
I32	17 Sep 2018	Comments	none
I32	24 Sep 2018	Depth (m)	11
I32	24 Sep 2018	Arrive Time	1136
I32	24 Sep 2018	Depart Time	1139
I32	24 Sep 2018	Air Temp (C)	18
I32	24 Sep 2018	Weather	Overcast
I32	24 Sep 2018	Visibility (mi)	10
I32	24 Sep 2018	Wind Speed (kts)	9
I32	24 Sep 2018	Wind Dir	SE
I32	24 Sep 2018	Water Color	Greenish-Blue
I32	24 Sep 2018	Wave Ht Low (ft)	2
I32	24 Sep 2018	Wave Period (sec)	13
I32	24 Sep 2018	Sea State	Light chop
I32	24 Sep 2018	High Tide (ft)	5.06
I32	24 Sep 2018	High Tide Time	927
I32	24 Sep 2018	Low Tide (ft)	0.89
I32	24 Sep 2018	Low Tide Time	1529
I32	24 Sep 2018	Comments	none
I39	04 Sep 2018	Depth (m)	19
I39	04 Sep 2018	Arrive Time	1012
I39	04 Sep 2018	Depart Time	1018
I39	04 Sep 2018	Air Temp (C)	21
I39	04 Sep 2018	Weather	Overcast
I39	04 Sep 2018	Visibility (mi)	8
I39	04 Sep 2018	Wind Speed (kts)	6
I39	04 Sep 2018	Wind Dir	SW
I39	04 Sep 2018	Water Color	Green
I39	04 Sep 2018	Wave Ht Low (ft)	3
I39	04 Sep 2018	Wave Period (sec)	9
I39	04 Sep 2018	Sea State	Heavy chop
I39	04 Sep 2018	High Tide (ft)	3.41
I39	04 Sep 2018	High Tide Time	618
I39	04 Sep 2018	Low Tide (ft)	2.58
I39	04 Sep 2018	Low Tide Time	1054
I39	04 Sep 2018	Comments	none
I39	10 Sep 2018	Depth (m)	19
I39	10 Sep 2018	Arrive Time	1039
I39	10 Sep 2018	Depart Time	1044

Station	Date	Parameter	Value
I39	10 Sep 2018	Air Temp (C)	19
I39	10 Sep 2018	Weather	Haze
I39	10 Sep 2018	Visibility (mi)	5
I39	10 Sep 2018	Wind Speed (kts)	3
I39	10 Sep 2018	Wind Dir	S
I39	10 Sep 2018	Water Color	Green
I39	10 Sep 2018	Wave Ht Low (ft)	3
I39	10 Sep 2018	Wave Period (sec)	11
I39	10 Sep 2018	Sea State	Calm
I39	10 Sep 2018	High Tide (ft)	5.48
I39	10 Sep 2018	High Tide Time	1018
I39	10 Sep 2018	Low Tide (ft)	-0.58
I39	10 Sep 2018	Low Tide Time	411
I39	10 Sep 2018	Comments	none
I39	17 Sep 2018	Depth (m)	21
I39	17 Sep 2018	Arrive Time	1005
I39	17 Sep 2018	Depart Time	1012
I39	17 Sep 2018	Air Temp (C)	20
I39	17 Sep 2018	Weather	Haze
I39	17 Sep 2018	Visibility (mi)	8
I39	17 Sep 2018	Wind Speed (kts)	2
I39	17 Sep 2018	Wind Dir	SE
I39	17 Sep 2018	Water Color	Brownish-Green
I39	17 Sep 2018	Wave Ht Low (ft)	4
I39	17 Sep 2018	Wave Period (sec)	13
I39	17 Sep 2018	Sea State	Calm
I39	17 Sep 2018	High Tide (ft)	3.41
I39	17 Sep 2018	High Tide Time	615
I39	17 Sep 2018	Low Tide (ft)	2.97
I39	17 Sep 2018	Low Tide Time	1018
I39	17 Sep 2018	Comments	none
I39	24 Sep 2018	Depth (m)	20
I39	24 Sep 2018	Arrive Time	1021
I39	24 Sep 2018	Depart Time	1024
I39	24 Sep 2018	Air Temp (C)	18
I39	24 Sep 2018	Weather	Overcast
I39	24 Sep 2018	Visibility (mi)	10
I39	24 Sep 2018	Wind Speed (kts)	8
I39	24 Sep 2018	Wind Dir	S
I39	24 Sep 2018	Water Color	Greenish-Blue
I39	24 Sep 2018	Wave Ht Low (ft)	2
I39	24 Sep 2018	Wave Period (sec)	13
I39	24 Sep 2018	Sea State	Light chop
I39	24 Sep 2018	High Tide (ft)	5.06
I39	24 Sep 2018	High Tide Time	927
I39	24 Sep 2018	Low Tide (ft)	0.89
I39	24 Sep 2018	Low Tide Time	1529
I39	24 Sep 2018	Comments	none
I40	04 Sep 2018	Depth (m)	10
I40	04 Sep 2018	Arrive Time	1046
I40	04 Sep 2018	Depart Time	1051
I40	04 Sep 2018	Air Temp (C)	21

Station	Date	Parameter	Value
I40	04 Sep 2018	Weather	Overcast
I40	04 Sep 2018	Visibility (mi)	8
I40	04 Sep 2018	Wind Speed (kts)	4
I40	04 Sep 2018	Wind Dir	SW
I40	04 Sep 2018	Water Color	Green
I40	04 Sep 2018	Wave Ht Low (ft)	3
I40	04 Sep 2018	Wave Period (sec)	9
I40	04 Sep 2018	Sea State	Heavy chop
I40	04 Sep 2018	High Tide (ft)	3.41
I40	04 Sep 2018	High Tide Time	618
I40	04 Sep 2018	Low Tide (ft)	2.58
I40	04 Sep 2018	Low Tide Time	1054
I40	04 Sep 2018	Comments	none
I40	10 Sep 2018	Depth (m)	10
I40	10 Sep 2018	Arrive Time	1127
I40	10 Sep 2018	Depart Time	1136
I40	10 Sep 2018	Air Temp (C)	20
I40	10 Sep 2018	Weather	Haze
I40	10 Sep 2018	Visibility (mi)	4
I40	10 Sep 2018	Wind Speed (kts)	2
I40	10 Sep 2018	Wind Dir	S
I40	10 Sep 2018	Water Color	Green
I40	10 Sep 2018	Wave Ht Low (ft)	3
I40	10 Sep 2018	Wave Period (sec)	11
I40	10 Sep 2018	Sea State	Calm
I40	10 Sep 2018	High Tide (ft)	5.48
I40	10 Sep 2018	High Tide Time	1018
I40	10 Sep 2018	Low Tide (ft)	-0.58
I40	10 Sep 2018	Low Tide Time	411
I40	10 Sep 2018	Comments	Multiple casts due to salinity spikes
I40	17 Sep 2018	Depth (m)	9
I40	17 Sep 2018	Arrive Time	1041
I40	17 Sep 2018	Depart Time	1048
I40	17 Sep 2018	Air Temp (C)	20
I40	17 Sep 2018	Weather	Haze
I40	17 Sep 2018	Visibility (mi)	8
I40	17 Sep 2018	Wind Speed (kts)	5
I40	17 Sep 2018	Wind Dir	S
I40	17 Sep 2018	Water Color	Green
I40	17 Sep 2018	Wave Ht Low (ft)	4
I40	17 Sep 2018	Wave Period (sec)	13
I40	17 Sep 2018	Sea State	Calm
I40	17 Sep 2018	High Tide (ft)	3.41
I40	17 Sep 2018	High Tide Time	615
I40	17 Sep 2018	Low Tide (ft)	2.97
I40	17 Sep 2018	Low Tide Time	1018
I40	17 Sep 2018	Comments	none
I40	24 Sep 2018	Depth (m)	11
I40	24 Sep 2018	Arrive Time	1057
I40	24 Sep 2018	Depart Time	1100
I40	24 Sep 2018	Air Temp (C)	18
I40	24 Sep 2018	Weather	Overcast

Station	Date	Parameter	Value
I40	24 Sep 2018	Visibility (mi)	10
I40	24 Sep 2018	Wind Speed (kts)	4
I40	24 Sep 2018	Wind Dir	E
I40	24 Sep 2018	Water Color	Greenish-Blue
I40	24 Sep 2018	Wave Ht Low (ft)	2
I40	24 Sep 2018	Wave Period (sec)	13
I40	24 Sep 2018	Sea State	Light chop
I40	24 Sep 2018	High Tide (ft)	5.06
I40	24 Sep 2018	High Tide Time	927
I40	24 Sep 2018	Low Tide (ft)	0.89
I40	24 Sep 2018	Low Tide Time	1529
I40	24 Sep 2018	Comments	none

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 Sep 2018	1	22.20	77.45	6.0	NA	8.3	23.0	0.54
I19	04 Sep 2018	2	22.26	77.74	7.0	NA	8.3	23.2	0.72
I19	04 Sep 2018	3	22.01	77.80	7.1	NA	8.3	23.4	0.72
I19	04 Sep 2018	4	21.51	77.44	7.5	NA	8.2	23.6	0.72
I19	04 Sep 2018	5	20.74	77.69	7.4	NA	8.2	23.8	0.86
I19	04 Sep 2018	6	19.30	77.37	7.2	NA	8.2	24.3	1.00
I19	04 Sep 2018	7	18.14	74.81	7.3	NA	8.1	24.5	1.51
I19	04 Sep 2018	8	17.49	69.54	7.5	NA	8.1	24.5	1.27
I19	04 Sep 2018	9	16.90	71.77	7.6	NA	8.1	24.5	1.56
I19	04 Sep 2018	10	16.72	75.33	7.6	NA	8.1	24.5	0.96
I19	10 Sep 2018	1	18.78	80.44	8.1	33.61	8.2	24.0	0.39
I19	10 Sep 2018	2	18.65	80.31	8.1	33.61	8.2	24.0	0.43
I19	10 Sep 2018	3	18.45	79.85	8.2	33.61	8.2	24.1	0.48
I19	10 Sep 2018	4	18.40	79.05	8.2	33.60	8.2	24.1	0.66
I19	10 Sep 2018	5	18.34	78.49	8.2	33.60	8.2	24.1	0.84
I19	10 Sep 2018	6	18.31	78.34	8.2	33.60	8.2	24.1	1.06
I19	10 Sep 2018	7	18.29	78.14	8.2	33.59	8.2	24.1	1.28
I19	10 Sep 2018	8	18.24	77.98	8.2	33.60	8.2	24.1	1.44
I19	10 Sep 2018	9	18.11	77.28	8.1	33.59	8.2	24.2	1.64
I19	10 Sep 2018	10	17.73	75.37	7.9	33.59	8.2	24.3	1.87
I19	17 Sep 2018	1	17.36	72.10	8.1	33.53	8.1	24.3	0.77
I19	17 Sep 2018	2	16.94	71.78	8.0	33.53	8.1	24.4	1.15
I19	17 Sep 2018	3	16.48	70.95	8.1	33.53	8.1	24.5	1.92
I19	17 Sep 2018	4	16.37	70.05	8.0	33.52	8.1	24.5	2.54
I19	17 Sep 2018	5	16.05	70.24	8.0	33.52	8.1	24.6	3.10
I19	17 Sep 2018	6	15.77	70.46	7.8	33.52	8.1	24.7	3.84
I19	17 Sep 2018	7	15.32	68.82	7.5	33.52	8.1	24.8	4.78
I19	17 Sep 2018	8	15.07	59.54	7.3	33.51	8.1	24.8	5.49
I19	17 Sep 2018	9	15.00	51.12	7.2	33.51	8.1	24.8	5.46
I19	17 Sep 2018	10	14.96	46.19	7.2	33.51	8.1	24.8	5.01
I19	24 Sep 2018	1	18.49	78.96	7.8	33.56	8.1	24.1	1.69
I19	24 Sep 2018	2	18.40	78.68	7.8	33.56	8.1	24.1	1.91
I19	24 Sep 2018	3	18.38	78.50	7.8	33.56	8.1	24.1	2.01
I19	24 Sep 2018	4	18.38	78.60	7.7	33.56	8.1	24.1	2.13
I19	24 Sep 2018	5	18.02	78.47	7.5	33.55	8.1	24.2	2.28
I19	24 Sep 2018	6	16.62	77.08	7.7	33.53	8.1	24.5	2.36
I19	24 Sep 2018	7	15.74	77.86	8.1	33.53	8.1	24.7	2.24
I19	24 Sep 2018	8	15.66	79.28	8.0	33.51	8.1	24.7	2.24
I19	24 Sep 2018	9	15.23	75.45	7.7	33.51	8.1	24.8	2.90
I19	24 Sep 2018	10	14.98	69.44	7.6	33.50	8.1	24.8	4.07
I24	04 Sep 2018	1	22.43	78.77	8.2	33.83	8.3	23.2	2.04
I24	04 Sep 2018	2	22.44	79.25	8.1	33.83	8.3	23.2	2.35
I24	04 Sep 2018	3	22.44	79.73	8.0	33.83	8.3	23.2	2.44
I24	04 Sep 2018	4	21.78	79.76	8.0	33.80	8.3	23.4	2.71
I24	04 Sep 2018	5	20.79	79.44	8.0	33.71	8.3	23.6	3.21
I24	04 Sep 2018	6	18.70	78.68	8.0	33.62	8.2	24.0	3.15
I24	04 Sep 2018	7	17.89	77.86	7.9	33.55	8.2	24.2	2.65

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I24	04 Sep 2018	8	17.19	78.40	8.1	33.51	8.1	24.3	2.46
I24	04 Sep 2018	9	16.80	79.09	8.1	33.49	8.1	24.4	2.00
I24	04 Sep 2018	10	16.88	78.89	8.0	33.48	8.1	24.4	1.56
I24	10 Sep 2018	1	19.11	82.22	6.5	33.31	8.2	23.7	0.39
I24	10 Sep 2018	2	18.58	82.72	6.7	33.90	8.2	24.3	0.39
I24	10 Sep 2018	3	18.19	83.04	6.9	34.06	8.2	24.5	0.41
I24	10 Sep 2018	4	17.60	82.92	7.4	34.02	8.2	24.6	0.42
I24	10 Sep 2018	5	17.51	82.54	7.7	33.72	8.2	24.4	0.48
I24	10 Sep 2018	6	17.46	81.88	7.8	33.67	8.2	24.4	0.49
I24	10 Sep 2018	7	17.43	81.65	8.0	33.63	8.2	24.4	0.51
I24	10 Sep 2018	8	17.40	81.41	8.0	33.62	8.2	24.4	0.51
I24	10 Sep 2018	9	17.23	81.22	8.0	33.65	8.2	24.4	0.59
I24	10 Sep 2018	10	16.44	79.80	7.8	33.70	8.1	24.6	0.63
I24	10 Sep 2018	11	15.44	74.61	7.7	33.68	8.1	24.9	1.03
I24	17 Sep 2018	1	18.00	68.65	8.0	33.53	8.2	24.1	0.75
I24	17 Sep 2018	2	17.29	68.56	7.8	33.54	8.1	24.3	0.82
I24	17 Sep 2018	3	16.62	66.08	7.8	33.53	8.1	24.5	1.13
I24	17 Sep 2018	4	16.21	68.84	7.9	33.53	8.1	24.6	1.66
I24	17 Sep 2018	5	15.97	67.97	7.7	33.52	8.1	24.6	2.21
I24	17 Sep 2018	6	15.43	71.85	7.7	33.52	8.1	24.7	3.05
I24	17 Sep 2018	7	15.23	69.56	7.6	33.51	8.1	24.8	4.21
I24	17 Sep 2018	8	15.19	66.81	7.5	33.51	8.1	24.8	4.43
I24	17 Sep 2018	9	15.07	66.47	7.3	33.51	8.1	24.8	3.96
I24	17 Sep 2018	10	15.09	64.02	7.3	33.51	8.1	24.8	3.23
I24	24 Sep 2018	1	18.52	85.30	7.9	33.59	8.1	24.1	0.44
I24	24 Sep 2018	2	18.53	85.59	7.9	33.59	8.1	24.1	0.46
I24	24 Sep 2018	3	18.45	85.50	7.9	33.58	8.1	24.1	0.60
I24	24 Sep 2018	4	18.27	85.05	7.9	33.58	8.1	24.1	0.71
I24	24 Sep 2018	5	18.09	84.17	7.8	33.57	8.1	24.2	0.75
I24	24 Sep 2018	6	17.61	82.04	7.8	33.56	8.1	24.3	0.96
I24	24 Sep 2018	7	16.91	79.50	7.7	33.55	8.1	24.4	1.28
I24	24 Sep 2018	8	15.62	78.65	7.6	33.55	8.1	24.7	1.41
I24	24 Sep 2018	9	15.16	77.54	7.4	33.52	8.1	24.8	1.29
I24	24 Sep 2018	10	15.02	78.54	7.4	33.51	8.1	24.8	1.05
I24	24 Sep 2018	11	15.05	78.58	7.3	33.51	8.1	24.8	0.90
I25	04 Sep 2018	1	22.45	79.47	8.1	33.84	8.3	23.2	2.01
I25	04 Sep 2018	2	22.46	79.23	8.1	33.84	8.3	23.2	2.16
I25	04 Sep 2018	3	22.45	79.89	8.1	33.84	8.3	23.2	2.35
I25	04 Sep 2018	4	22.30	79.95	8.1	33.82	8.3	23.2	2.61
I25	04 Sep 2018	5	21.26	79.24	8.3	33.77	8.3	23.5	2.88
I25	04 Sep 2018	6	20.37	79.92	8.4	33.72	8.3	23.7	3.26
I25	04 Sep 2018	7	19.20	79.93	8.2	33.66	8.2	23.9	3.37
I25	04 Sep 2018	8	17.75	78.90	8.0	33.55	8.2	24.2	2.75
I25	04 Sep 2018	9	16.95	79.55	8.2	33.50	8.1	24.4	1.89
I25	10 Sep 2018	1	18.47	82.95	6.6	33.71	8.2	24.2	0.43
I25	10 Sep 2018	2	17.98	83.24	7.3	33.87	8.2	24.4	0.36
I25	10 Sep 2018	3	17.64	83.24	7.6	33.77	8.2	24.4	0.39
I25	10 Sep 2018	4	17.46	83.23	8.0	33.68	8.2	24.4	0.44
I25	10 Sep 2018	5	17.31	82.44	8.0	33.63	8.2	24.4	0.45
I25	10 Sep 2018	6	17.30	81.80	8.1	33.61	8.2	24.4	0.49

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I25	10 Sep 2018	7	17.29	81.41	8.1	33.60	8.2	24.4	0.60
I25	10 Sep 2018	8	17.25	81.04	8.0	33.60	8.2	24.4	0.69
I25	10 Sep 2018	9	16.75	75.85	7.8	33.58	8.1	24.5	0.87
I25	17 Sep 2018	1	18.24	74.16	8.1	33.54	8.2	24.1	0.53
I25	17 Sep 2018	2	16.96	78.28	8.1	33.56	8.2	24.4	0.46
I25	17 Sep 2018	3	16.50	79.52	8.2	33.54	8.2	24.5	0.52
I25	17 Sep 2018	4	16.07	80.75	8.2	33.53	8.2	24.6	0.68
I25	17 Sep 2018	5	15.82	77.16	7.9	33.53	8.2	24.7	0.92
I25	17 Sep 2018	6	15.51	75.26	7.8	33.52	8.1	24.7	1.20
I25	17 Sep 2018	7	15.34	75.23	7.8	33.52	8.1	24.8	1.39
I25	17 Sep 2018	8	15.30	76.86	7.8	33.52	8.1	24.8	1.52
I25	17 Sep 2018	9	15.30	76.88	7.8	33.52	8.1	24.8	1.59
I25	24 Sep 2018	1	18.19	85.07	7.9	33.59	8.1	24.1	0.49
I25	24 Sep 2018	2	18.19	85.23	7.9	33.59	8.1	24.1	0.50
I25	24 Sep 2018	3	18.19	85.27	7.9	33.59	8.1	24.1	0.49
I25	24 Sep 2018	4	18.18	85.35	7.9	33.59	8.1	24.1	0.58
I25	24 Sep 2018	5	18.08	85.26	7.9	33.58	8.1	24.2	0.61
I25	24 Sep 2018	6	17.79	84.78	7.9	33.57	8.1	24.2	0.68
I25	24 Sep 2018	7	17.59	83.95	7.9	33.56	8.1	24.3	0.81
I25	24 Sep 2018	8	17.21	82.58	7.8	33.55	8.1	24.4	0.94
I25	24 Sep 2018	9	16.07	80.85	7.6	33.55	8.1	24.6	0.99
I26	04 Sep 2018	1	22.51	77.85	8.1	33.84	8.3	23.2	2.45
I26	04 Sep 2018	2	22.51	78.05	8.1	33.84	8.3	23.2	2.79
I26	04 Sep 2018	3	22.42	77.78	8.1	33.83	8.3	23.2	2.81
I26	04 Sep 2018	4	22.27	78.47	8.1	33.81	8.3	23.2	3.23
I26	04 Sep 2018	5	21.15	79.26	8.1	33.76	8.3	23.5	3.20
I26	04 Sep 2018	6	19.50	79.52	8.1	33.65	8.2	23.9	3.04
I26	04 Sep 2018	7	19.13	79.29	7.6	33.62	8.2	23.9	2.41
I26	04 Sep 2018	8	18.97	79.77	7.1	33.61	8.2	24.0	1.64
I26	04 Sep 2018	9	17.37	78.82	7.4	33.57	8.1	24.3	1.19
I26	10 Sep 2018	1	18.34	82.49	6.8	33.57	8.2	24.1	0.45
I26	10 Sep 2018	2	18.09	82.56	7.0	33.75	8.2	24.3	0.41
I26	10 Sep 2018	3	18.00	82.65	6.8	33.72	8.2	24.3	0.41
I26	10 Sep 2018	4	17.68	82.42	7.0	33.93	8.2	24.5	0.43
I26	10 Sep 2018	5	17.61	81.13	6.9	33.90	8.2	24.5	0.47
I26	10 Sep 2018	6	17.57	80.69	7.1	33.77	8.2	24.4	0.47
I26	10 Sep 2018	7	17.50	80.55	7.1	33.77	8.2	24.5	0.49
I26	10 Sep 2018	8	17.38	78.88	7.6	33.72	8.2	24.4	0.47
I26	10 Sep 2018	9	16.68	75.01	7.8	33.95	8.2	24.8	0.46
I26	17 Sep 2018	1	18.17	70.19	8.1	33.54	8.2	24.1	0.60
I26	17 Sep 2018	2	17.07	72.15	8.2	33.55	8.2	24.4	0.63
I26	17 Sep 2018	3	16.79	79.10	8.0	33.53	8.2	24.4	0.71
I26	17 Sep 2018	4	15.55	77.48	8.0	33.53	8.2	24.7	1.27
I26	17 Sep 2018	5	15.49	76.86	7.9	33.52	8.1	24.7	1.59
I26	17 Sep 2018	6	15.44	76.81	7.8	33.52	8.1	24.7	1.57
I26	17 Sep 2018	7	15.43	76.33	7.8	33.52	8.1	24.7	1.70
I26	17 Sep 2018	8	15.43	76.33	7.8	33.52	8.1	24.7	1.92
I26	17 Sep 2018	9	15.43	76.18	7.8	33.53	8.1	24.7	2.03
I26	24 Sep 2018	1	18.48	84.16	7.9	33.58	8.1	24.1	0.63

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I26	24 Sep 2018	2	18.35	84.21	7.8	33.59	8.1	24.1	0.67
I26	24 Sep 2018	3	17.98	84.38	7.9	33.58	8.1	24.2	0.75
I26	24 Sep 2018	4	17.83	84.01	8.0	33.56	8.1	24.2	0.84
I26	24 Sep 2018	5	17.73	83.70	8.0	33.56	8.1	24.2	0.87
I26	24 Sep 2018	6	17.62	83.63	8.0	33.55	8.1	24.3	0.92
I26	24 Sep 2018	7	17.57	83.21	7.8	33.55	8.1	24.3	0.98
I26	24 Sep 2018	8	16.80	82.07	7.6	33.58	8.1	24.5	1.06
I26	24 Sep 2018	9	15.08	81.26	7.8	33.56	8.1	24.8	1.12
I32	04 Sep 2018	1	22.10	74.70	8.2	33.81	8.3	23.3	3.58
I32	04 Sep 2018	2	22.10	74.75	8.2	33.81	8.3	23.3	3.96
I32	04 Sep 2018	3	21.97	74.96	8.1	33.80	8.3	23.3	4.35
I32	04 Sep 2018	4	21.76	74.08	7.9	33.79	8.3	23.4	4.75
I32	04 Sep 2018	5	21.66	73.66	7.6	33.79	8.2	23.4	4.22
I32	04 Sep 2018	6	20.53	74.66	7.5	33.75	8.2	23.7	3.93
I32	04 Sep 2018	7	17.96	75.85	8.3	33.63	8.2	24.2	3.84
I32	04 Sep 2018	8	17.44	78.28	8.4	33.56	8.2	24.3	3.54
I32	04 Sep 2018	9	16.97	78.56	8.1	33.56	8.2	24.4	2.71
I32	04 Sep 2018	10	17.25	73.45	8.0	33.54	8.2	24.3	2.20
I32	10 Sep 2018	1	18.87	76.45	6.6	33.53	8.2	23.9	0.45
I32	10 Sep 2018	2	18.88	76.98	6.9	33.58	8.2	24.0	0.45
I32	10 Sep 2018	3	18.52	77.62	7.1	33.81	8.2	24.2	0.47
I32	10 Sep 2018	4	18.38	76.79	7.5	33.68	8.2	24.2	0.47
I32	10 Sep 2018	5	18.36	76.52	7.9	33.62	8.2	24.1	0.47
I32	10 Sep 2018	6	18.36	76.29	8.0	33.60	8.2	24.1	0.49
I32	10 Sep 2018	7	18.35	75.77	7.9	33.59	8.2	24.1	0.53
I32	10 Sep 2018	8	18.35	74.18	8.1	33.59	8.2	24.1	0.57
I32	10 Sep 2018	9	18.34	73.39	8.0	33.59	8.2	24.1	0.72
I32	10 Sep 2018	10	18.11	71.00	7.9	33.62	8.2	24.2	0.85
I32	17 Sep 2018	1	18.34	65.56	6.0	33.44	8.2	24.0	0.46
I32	17 Sep 2018	2	18.18	68.98	7.1	33.61	8.2	24.2	0.46
I32	17 Sep 2018	3	16.81	68.32	7.5	33.95	8.2	24.8	0.46
I32	17 Sep 2018	4	16.55	70.41	7.6	33.78	8.2	24.7	0.47
I32	17 Sep 2018	5	16.19	74.89	7.8	33.75	8.2	24.7	0.50
I32	17 Sep 2018	6	15.72	77.53	7.9	33.72	8.2	24.8	0.53
I32	17 Sep 2018	7	15.42	78.30	7.9	33.64	8.2	24.8	0.83
I32	17 Sep 2018	8	15.40	75.53	7.9	33.59	8.2	24.8	1.44
I32	17 Sep 2018	9	15.35	72.51	7.8	33.56	8.2	24.8	1.56
I32	17 Sep 2018	10	15.35	68.72	7.8	33.55	8.2	24.8	2.43
I32	24 Sep 2018	1	18.68	80.41	7.9	33.57	8.1	24.0	1.13
I32	24 Sep 2018	2	18.64	80.29	7.9	33.57	8.1	24.0	1.51
I32	24 Sep 2018	3	18.64	79.80	7.9	33.57	8.1	24.0	1.64
I32	24 Sep 2018	4	18.64	80.42	7.9	33.57	8.1	24.0	1.68
I32	24 Sep 2018	5	18.63	80.51	7.8	33.57	8.1	24.0	1.76
I32	24 Sep 2018	6	18.62	80.32	7.8	33.57	8.1	24.0	1.82
I32	24 Sep 2018	7	18.60	80.18	7.8	33.57	8.1	24.0	1.89
I32	24 Sep 2018	8	18.57	80.02	7.6	33.57	8.1	24.0	1.82
I32	24 Sep 2018	9	17.96	80.06	7.4	33.57	8.1	24.2	1.60
I32	24 Sep 2018	10	16.20	79.08	7.7	33.56	8.1	24.6	1.54
I39	04 Sep 2018	1	22.33	79.81	8.1	33.82	8.3	23.2	1.48
I39	04 Sep 2018	2	22.33	80.14	8.0	33.82	8.3	23.2	1.73

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I39	04 Sep 2018	3	21.55	80.29	8.0	33.78	8.3	23.4	1.62
I39	04 Sep 2018	4	21.11	80.13	8.0	33.73	8.2	23.5	1.82
I39	04 Sep 2018	5	20.27	80.10	8.2	33.70	8.2	23.7	2.10
I39	04 Sep 2018	6	19.77	80.41	8.3	33.66	8.2	23.8	1.99
I39	04 Sep 2018	7	19.56	80.54	8.3	33.64	8.2	23.8	1.98
I39	04 Sep 2018	8	19.33	80.54	8.3	33.64	8.2	23.9	2.10
I39	04 Sep 2018	9	19.02	80.72	8.2	33.62	8.2	24.0	2.15
I39	04 Sep 2018	10	18.54	81.15	8.3	33.61	8.2	24.1	2.06
I39	04 Sep 2018	11	17.99	81.18	8.5	33.60	8.2	24.2	2.33
I39	04 Sep 2018	12	17.56	80.99	8.5	33.58	8.2	24.3	2.62
I39	04 Sep 2018	13	16.83	81.19	8.6	33.55	8.2	24.4	2.69
I39	04 Sep 2018	14	16.45	81.42	8.5	33.53	8.2	24.5	2.49
I39	04 Sep 2018	15	16.01	80.93	8.2	33.51	8.2	24.6	2.12
I39	04 Sep 2018	16	15.77	80.84	8.1	33.50	8.1	24.6	1.87
I39	04 Sep 2018	17	15.66	81.10	8.0	33.50	8.1	24.7	1.61
I39	04 Sep 2018	18	15.59	81.07	8.0	33.51	8.1	24.7	1.46
I39	10 Sep 2018	1	19.16	82.09	7.9	33.67	8.2	24.0	0.37
I39	10 Sep 2018	2	18.89	82.47	7.8	33.68	8.2	24.0	0.37
I39	10 Sep 2018	3	17.95	83.00	8.0	33.65	8.2	24.3	0.38
I39	10 Sep 2018	4	17.52	83.18	8.0	33.63	8.2	24.3	0.45
I39	10 Sep 2018	5	16.94	83.35	8.1	33.60	8.2	24.5	0.51
I39	10 Sep 2018	6	16.81	83.77	8.2	33.58	8.2	24.5	0.59
I39	10 Sep 2018	7	16.67	83.55	8.2	33.58	8.2	24.5	0.72
I39	10 Sep 2018	8	16.57	82.88	8.2	33.57	8.2	24.5	0.88
I39	10 Sep 2018	9	16.47	82.27	8.2	33.56	8.2	24.5	1.14
I39	10 Sep 2018	10	16.47	82.88	8.2	33.56	8.2	24.5	1.31
I39	10 Sep 2018	11	16.41	82.51	8.2	33.56	8.2	24.5	1.47
I39	10 Sep 2018	12	16.28	82.29	8.0	33.56	8.1	24.6	1.62
I39	10 Sep 2018	13	15.35	81.63	7.8	33.57	8.1	24.8	2.06
I39	10 Sep 2018	14	14.89	81.03	7.7	33.53	8.1	24.9	1.90
I39	10 Sep 2018	15	14.80	81.21	7.6	33.52	8.1	24.9	1.82
I39	10 Sep 2018	16	14.47	81.29	7.4	33.52	8.1	24.9	1.67
I39	10 Sep 2018	17	14.37	81.39	7.3	33.52	8.1	25.0	1.53
I39	10 Sep 2018	18	14.37	81.26	7.3	33.52	8.1	25.0	1.41
I39	17 Sep 2018	1	19.09	76.02	8.3	33.56	8.2	23.9	0.75
I39	17 Sep 2018	2	18.15	78.85	8.2	33.55	8.2	24.1	0.69
I39	17 Sep 2018	3	17.14	78.57	8.1	33.56	8.2	24.4	0.60
I39	17 Sep 2018	4	16.18	83.64	8.2	33.54	8.2	24.6	0.51
I39	17 Sep 2018	5	15.84	84.51	8.1	33.52	8.2	24.6	0.57
I39	17 Sep 2018	6	14.94	84.33	8.1	33.51	8.1	24.8	0.85
I39	17 Sep 2018	7	14.86	83.06	8.1	33.49	8.1	24.8	1.21
I39	17 Sep 2018	8	14.53	81.72	7.9	33.51	8.1	24.9	1.74
I39	17 Sep 2018	9	14.32	82.81	7.8	33.51	8.1	25.0	2.09
I39	17 Sep 2018	10	14.17	83.85	7.6	33.51	8.1	25.0	1.99
I39	17 Sep 2018	11	13.81	85.51	7.4	33.52	8.1	25.1	1.47
I39	17 Sep 2018	12	13.82	85.52	7.2	33.51	8.1	25.1	1.18
I39	17 Sep 2018	13	13.77	85.40	7.1	33.52	8.1	25.1	1.10
I39	17 Sep 2018	14	13.75	84.98	7.0	33.52	8.1	25.1	1.00
I39	17 Sep 2018	15	13.75	84.55	6.9	33.52	8.1	25.1	0.89
I39	17 Sep 2018	16	13.75	84.10	6.9	33.53	8.1	25.1	0.90
I39	17 Sep 2018	17	13.74	83.80	6.9	33.53	8.1	25.1	0.86
I39	17 Sep 2018	18	13.74	83.67	6.9	33.53	8.1	25.1	0.88

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I39	24 Sep 2018	1	18.44	83.32	7.8	33.60	8.1	24.1	0.72
I39	24 Sep 2018	2	18.44	83.58	7.8	33.60	8.1	24.1	0.78
I39	24 Sep 2018	3	18.32	83.67	7.8	33.60	8.1	24.1	0.83
I39	24 Sep 2018	4	17.77	84.40	7.8	33.58	8.1	24.2	0.69
I39	24 Sep 2018	5	17.13	85.47	8.0	33.56	8.1	24.4	0.67
I39	24 Sep 2018	6	16.43	85.92	8.1	33.55	8.1	24.5	0.71
I39	24 Sep 2018	7	16.09	86.04	8.2	33.53	8.1	24.6	0.77
I39	24 Sep 2018	8	16.01	86.09	8.2	33.52	8.1	24.6	0.77
I39	24 Sep 2018	9	15.92	86.09	8.1	33.52	8.1	24.6	0.80
I39	24 Sep 2018	10	15.55	86.08	8.0	33.53	8.1	24.7	0.78
I39	24 Sep 2018	11	15.21	86.19	7.9	33.52	8.1	24.8	0.77
I39	24 Sep 2018	12	14.81	86.28	7.8	33.52	8.1	24.9	0.75
I39	24 Sep 2018	13	14.65	86.69	7.8	33.51	8.1	24.9	0.74
I39	24 Sep 2018	14	14.57	86.69	7.8	33.50	8.1	24.9	0.77
I39	24 Sep 2018	15	14.45	86.64	7.8	33.51	8.1	24.9	0.80
I39	24 Sep 2018	16	14.37	86.44	7.7	33.51	8.1	25.0	0.75
I39	24 Sep 2018	17	14.36	86.58	7.6	33.51	8.1	25.0	0.73
I39	24 Sep 2018	18	14.36	86.56	7.6	33.51	8.1	25.0	0.78
I40	04 Sep 2018	1	22.11	77.21	7.8	33.82	8.2	23.3	2.33
I40	04 Sep 2018	2	21.20	77.28	7.9	33.74	8.2	23.5	2.80
I40	04 Sep 2018	3	20.93	77.16	7.8	33.72	8.2	23.5	3.16
I40	04 Sep 2018	4	20.82	75.74	7.6	33.72	8.2	23.6	2.86
I40	04 Sep 2018	5	19.95	76.85	7.8	33.66	8.2	23.8	3.01
I40	04 Sep 2018	6	18.95	78.52	8.0	33.58	8.2	23.9	2.78
I40	04 Sep 2018	7	18.02	78.91	8.1	33.55	8.2	24.2	2.52
I40	04 Sep 2018	8	17.64	79.37	8.1	33.51	8.2	24.2	2.12
I40	04 Sep 2018	9	17.23	79.00	8.0	33.51	8.1	24.3	1.81
I40	04 Sep 2018	10	17.12	72.59	8.1	33.49	8.1	24.3	1.76
I40	10 Sep 2018	1	18.75	81.65	5.4	33.37	8.2	23.8	0.47
I40	10 Sep 2018	2	18.61	80.73	6.8	33.76	8.2	24.2	0.47
I40	10 Sep 2018	3	18.22	79.30	6.9	33.91	8.2	24.4	0.48
I40	10 Sep 2018	4	18.18	78.83	6.8	33.78	8.2	24.3	0.47
I40	10 Sep 2018	5	18.17	78.65	6.8	33.71	8.2	24.2	0.49
I40	10 Sep 2018	6	18.15	78.28	6.7	33.72	8.2	24.3	0.48
I40	10 Sep 2018	7	18.14	77.66	7.1	33.69	8.2	24.2	0.48
I40	10 Sep 2018	8	18.09	77.10	7.6	33.65	8.2	24.2	0.52
I40	10 Sep 2018	9	17.89	75.69	7.7	33.71	8.2	24.3	0.49
I40	10 Sep 2018	10	17.42	71.45	8.0	33.79	8.2	24.5	0.49
I40	17 Sep 2018	1	17.64	70.14	8.1	33.53	8.2	24.2	0.70
I40	17 Sep 2018	2	17.22	70.19	8.0	33.53	8.2	24.3	0.78
I40	17 Sep 2018	3	16.60	68.47	8.0	33.53	8.1	24.5	1.29
I40	17 Sep 2018	4	16.56	68.68	8.0	33.52	8.1	24.5	1.82
I40	17 Sep 2018	5	15.82	69.13	7.9	33.53	8.1	24.7	2.69
I40	17 Sep 2018	6	15.54	69.59	7.8	33.51	8.1	24.7	3.25
I40	17 Sep 2018	7	15.25	69.35	7.7	33.51	8.1	24.8	4.08
I40	17 Sep 2018	8	15.23	67.14	7.5	33.51	8.1	24.8	4.57
I40	17 Sep 2018	9	15.20	60.17	7.4	33.51	8.1	24.8	4.47
I40	17 Sep 2018	10	15.16	57.66	7.3	33.51	8.1	24.8	3.82
I40	24 Sep 2018	1	18.55	79.44	7.8	33.56	8.1	24.0	1.23
I40	24 Sep 2018	2	18.50	79.35	7.8	33.56	8.1	24.1	1.43
I40	24 Sep 2018	3	18.25	78.50	7.8	33.56	8.1	24.1	1.70

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I40	24 Sep 2018	4	18.02	77.62	7.7	33.56	8.1	24.2	1.79
I40	24 Sep 2018	5	17.65	77.57	7.4	33.54	8.1	24.2	1.83
I40	24 Sep 2018	6	16.04	75.23	7.5	33.55	8.1	24.6	2.19
I40	24 Sep 2018	7	15.49	70.81	7.6	33.52	8.1	24.7	2.32
I40	24 Sep 2018	8	15.16	75.40	7.5	33.51	8.1	24.8	1.91
I40	24 Sep 2018	9	14.95	75.22	7.4	33.50	8.1	24.8	1.50
I40	24 Sep 2018	10	14.95	72.09	7.4	33.50	8.1	24.8	1.35

NA = not available

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* (Enter) are reported as CFU/100 mL.

Station	Date	Depth	Analyst	Procedure	Total	Fecal	Enter
I19	04 Sep 2018	6	AR	LAB DUPLICATE	<20	<2	<2
I19	10 Sep 2018	6	AE	LAB DUPLICATE	<2	<2	<2
I19	17 Sep 2018	6	JT	LAB DUPLICATE	2e	<2	<2
I19	24 Sep 2018	6	JLT	LAB DUPLICATE	<2	<2	<2
I40	04 Sep 2018	6	AR	LAB DUPLICATE	60e	2e	<2
I40	10 Sep 2018	6	AE	LAB DUPLICATE	<2	<2	<2
I40	17 Sep 2018	6	JT	LAB DUPLICATE	<2	<2	<2
I40	24 Sep 2018	6	JLT	LAB DUPLICATE	<2	2e	2e
S12	04 Sep 2018		LMA	FIELD DUPLICATE	<20	4e	2e
S12	04 Sep 2018		LMA	LAB DUPLICATE	4e	4e	2e
S12	11 Sep 2018		LMA	FIELD DUPLICATE	<20	2e	<2
S12	11 Sep 2018		LMA	LAB DUPLICATE	<20	4e	6e
S12	18 Sep 2018		JT	FIELD DUPLICATE	<2	2e	4e
S12	18 Sep 2018		JT	LAB DUPLICATE	2e	4e	2e
S12	25 Sep 2018		LMA	FIELD DUPLICATE	20e	2e	2e
S12	25 Sep 2018		LMA	LAB DUPLICATE	<20	10e	8e

ns = not sampled

ND = no data

