

SOUTH BAY OCEAN OUTFALL MONTHLY RECEIVING WATERS MONITORING REPORT

SOUTH BAY WATER RECLAMATION PLANT

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

DECEMBER 2018

Environmental Monitoring and Technical Services
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January 31, 2019

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

Attention: POTW Compliance Unit

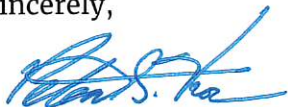
Dear Mr. Gibson:

Enclosed is the December 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 chromomorphpic 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 typically 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.
 - On December 11 and 26, logistical issues prevented samples from stations S0, S2 and S3 from being delivered to the City's Marine Microbiology Lab. Additionally, these stations were sampled on December 19 instead of being sampled on December 18 along with the eight shore stations located north of the border.
- During December, six of the eight shore stations located north of the border were out of compliance with various California Ocean Plan (Ocean Plan) water contact standards. These standards do not apply to stations located in Mexican waters.
 - The 30-day geometric mean standard for total coliform densities was exceeded at stations S4, S5, S10, and S11 on one or more days during the month.

- The 30-day geometric mean standard for fecal coliform densities was exceeded at stations S4, S5, S10, and S11 on one or more days during the month.
- The 30-day geometric mean standard for *Enterococcus* bacteria was exceeded at stations S4, S5, S6, S10, and S11 on one or more days during the month.
- The single sample maximum (SSM) standard for total coliform densities was exceeded at stations S4, S5, S10, and S11 on one or more days during the month.
- The SSM standard for fecal coliform densities was exceeded at stations S4, S5, S10, and S11 on one or more days during the month.
- The SSM standard for *Enterococcus* bacteria was exceeded at stations S4, S5, S6, S10, S11, and S12 on one or more days during December.
- The SSM standard that states total coliform densities shall not exceed 1000 CFU/100 mL when the fecal:total ratio exceeds 0.1 was exceeded at stations S4, S5, S6, S10, and S11 on one or more days during December.
- Per permit requirements, resamples were collected in response to these SSM exceedances (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 stations S0 and S2 on December 19.
- 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 *Biennial Receiving Waters Monitoring and Assessment Report for the Point Loma and South Bay Ocean Outfalls* for details (<http://www.sandiego.gov/mwwd/environment/oceanmonitor/reports/index.shtml>).
- Notable observations for December included a sewage-like odor at station S5 on December 13.

➤ **Kelp Bed Water Quality Sampling**

- The seven kelp bed water quality stations (I19, I24, I25, I26, I32, I39, I40) were sampled five times during the month (i.e. December 3, 10, 17, 20, 27).
- During December, six of the seven stations were out of compliance with various Ocean Plan water contact standards.
 - The 30-day geometric mean standard for total coliform densities was exceeded at stations I19, I24, and I40 on one or more days during the month.
 - The 30-day geometric mean standard for fecal coliform densities was exceeded at stations I19, I24, and I40 on one or more days during the month.
 - The 30-day geometric mean standard for *Enterococcus* bacteria was exceeded at stations I19, I24, I25, and I40 on one or more days during the month.
 - The single sample maximum (SSM) standard for total coliform densities was exceeded at stations I19, I24, I25, and I40 on one or more days during the month.
 - The SSM standard for fecal coliform densities was exceeded at stations I19, I24, I25, and I40 on one or more days during the month.

- The SSM standard for *Enterococcus* bacteria was exceeded at stations I19, I24, I26, I32, and I40 on one or more days during December.
- The SSM standard that states total coliform densities shall not exceed 1000 CFU/100 mL when the fecal:total ratio exceeds 0.1 was exceeded at stations I19, I24, I25, and I40 on one or more days during December.
- Water column temperatures ranged from 14.30 to 17.13°C. The difference between surface and bottom waters ranged from 0.01 to 2.32°C, indicating the water column was stratified at some of these sites during the month.
- Chlorophyll *a* concentrations ranged from 0.57 to 5.03 µg/L at the kelp bed stations, suggesting the presence of phytoplankton blooms during the month.
- Nothing of sewage origin was observed at any of the kelp bed stations.

➤ **Offshore Water Quality Sampling**

- Quarterly sampling was not conducted during December at the offshore stations. The next quarterly sampling is scheduled for February 2019.



TABLES AND FIGURES

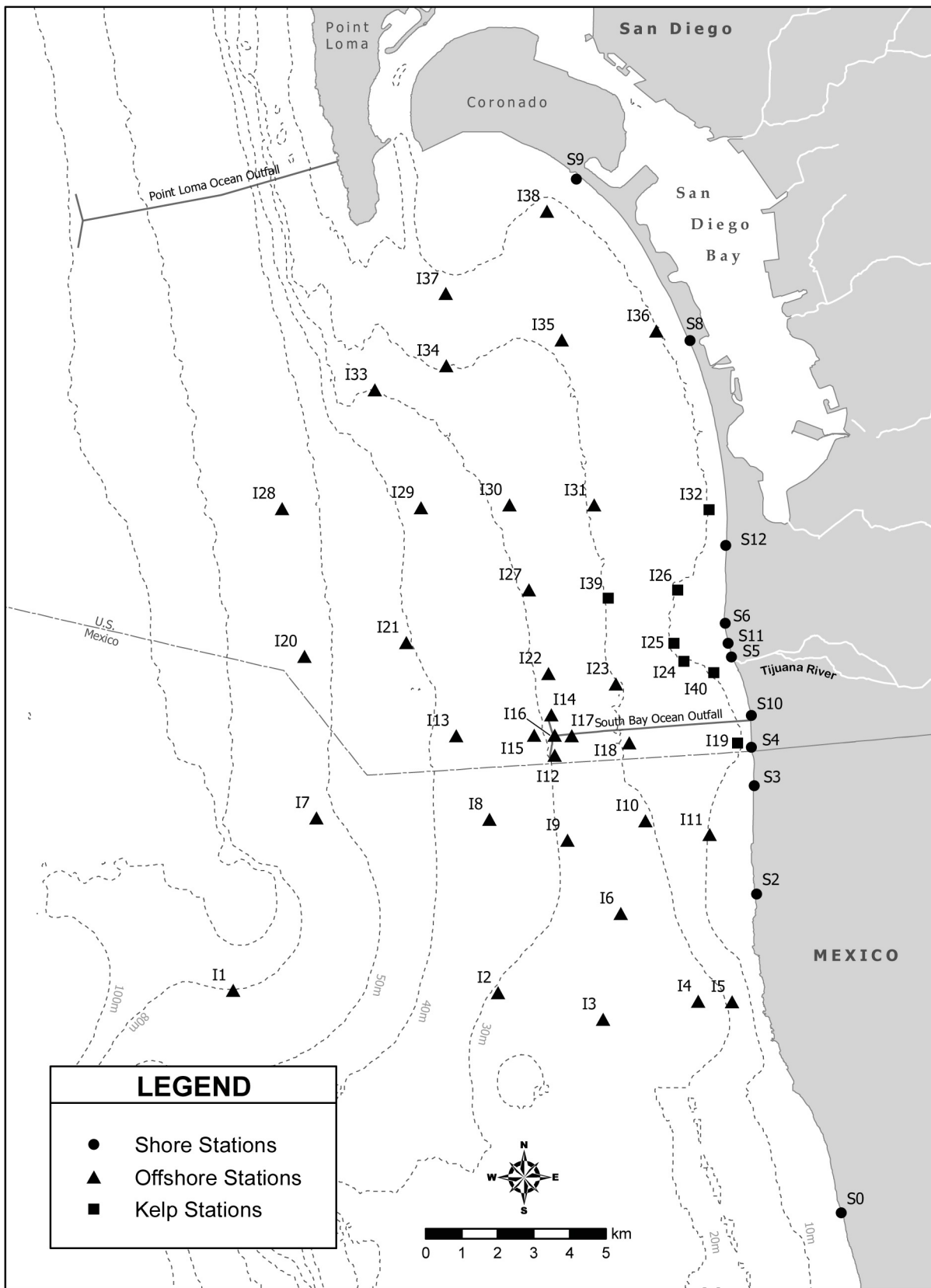


Figure 1.1 Station Map

Shore Stations

Table 2.1

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

Date	S4	S5	S6	S8	S9	S10	S11	S12
01 Dec 2018	10*	6*	4*	4*	11*	12*	5*	6*
02 Dec 2018	10*	6*	4*	4*	11*	12*	5*	6*
03 Dec 2018	10*	6*	4*	4*	11*	12*	5*	6*
04 Dec 2018	24	30	14	5	9	52	22	8
05 Dec 2018	24	30	14	5	9	52	22	8
06 Dec 2018	14*	115	13*	4*	8*	159	82	11*
07 Dec 2018	14*	263	13*	4*	8*	343	197	11*
08 Dec 2018	14*	263	13*	4*	8*	343	197	11*
09 Dec 2018	14*	434	13*	4*	8*	480	324	11*
10 Dec 2018	14*	434	13*	4*	8*	480	324	11*
11 Dec 2018	57	586	34	5	7	744	528	20
12 Dec 2018	57	586	34	5	7	744	528	20
13 Dec 2018	277	1737	128	6*	6*	1404	1218	20*
14 Dec 2018	484	2224	128	6*	6*	1840	1356	20*
15 Dec 2018	484	2224	128	6*	6*	1840	1356	20*
16 Dec 2018	732	2007	128	6*	6*	2284	1356	20*
17 Dec 2018	732	2007	128	6*	6*	2284	1356	20*
18 Dec 2018	730	1576	94	8	7	2535	889	28
19 Dec 2018	730	1576	94	8	7	2535	889	28
20 Dec 2018	1537	2439	202	11*	10*	5180	1621	30*
21 Dec 2018	1537	2439	202	11*	10*	5180	1621	30*
22 Dec 2018	1537	2439	202	11*	10*	5180	1621	30*
23 Dec 2018	1537	2439	202	11*	10*	5180	1621	30*
24 Dec 2018	1537	2439	202	11*	10*	5180	1621	30*
25 Dec 2018	1537	2439	202	11*	10*	5180	1621	30*
26 Dec 2018	1814	2016	173	13	11	5740	1301	28
27 Dec 2018	5580	4025	423	20*	10*	12993	2673	53*
28 Dec 2018	5580	4025	423	20*	10*	12993	2673	53*
29 Dec 2018	6228	4025	423	20*	10*	13220	2673	53*
30 Dec 2018	6228	4025	423	20*	10*	13220	2673	53*
31 Dec 2018	5176	4025	423	20*	10*	11238	2673	53*

* Geometric mean calculated using n<5

Table 2.2

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

Date	S4	S5	S6	S8	S9	S10	S11	S12
01 Dec 2018	4*	4*	2*	2*	2*	8*	2*	4*
02 Dec 2018	4*	4*	2*	2*	2*	8*	2*	4*
03 Dec 2018	4*	4*	2*	2*	2*	8*	2*	4*
04 Dec 2018	8	18	5	2	2	22	7	3
05 Dec 2018	8	18	5	2	2	22	7	3
06 Dec 2018	6*	90	6*	2*	2*	41	38	2*
07 Dec 2018	6*	203	6*	2*	2*	76	89	2*
08 Dec 2018	6*	203	6*	2*	2*	76	89	2*
09 Dec 2018	6*	240	6*	2*	2*	104	124	2*
10 Dec 2018	6*	240	6*	2*	2*	104	124	2*
11 Dec 2018	23	273	12	2	2	159	157	3
12 Dec 2018	23	273	12	2	2	159	157	3
13 Dec 2018	113	614	24	2*	2*	353	296	3*
14 Dec 2018	162	771	24	2*	2*	522	286	3*
15 Dec 2018	162	771	24	2*	2*	522	286	3*
16 Dec 2018	246	629	24	2*	2*	652	286	3*
17 Dec 2018	246	629	24	2*	2*	652	286	3*
18 Dec 2018	213	467	16	2	3	649	174	4
19 Dec 2018	213	467	16	2	3	649	174	4
20 Dec 2018	415	686	24	2*	3*	1158	286	5*
21 Dec 2018	415	686	24	2*	3*	1158	286	5*
22 Dec 2018	415	686	24	2*	3*	1158	286	5*
23 Dec 2018	415	686	24	2*	3*	1158	286	5*
24 Dec 2018	415	686	24	2*	3*	1158	286	5*
25 Dec 2018	415	686	24	2*	3*	1158	286	5*
26 Dec 2018	438	530	24	2	3	1142	200	4
27 Dec 2018	1103	926	39	2*	3*	2043	334	5*
28 Dec 2018	1103	926	39	2*	3*	2043	334	5*
29 Dec 2018	1213	926	39	2*	3*	2384	334	5*
30 Dec 2018	1213	926	39	2*	3*	2384	334	5*
31 Dec 2018	885	926	39	2*	3*	1937	334	5*

* Geometric mean calculated using n<5

Table 2.3

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

Date	S4	S5	S6	S8	S9	S10	S11	S12
01 Dec 2018	11*	2*	4*	2*	2*	5*	3*	2*
02 Dec 2018	11*	2*	4*	2*	2*	5*	3*	2*
03 Dec 2018	11*	2*	4*	2*	2*	5*	3*	2*
04 Dec 2018	15	11	6	2	2	13	5	2
05 Dec 2018	15	11	6	2	2	13	5	2
06 Dec 2018	10*	62	7*	2*	2*	39	7*	2*
07 Dec 2018	10*	149	7*	2*	2*	80	7*	2*
08 Dec 2018	10*	149	7*	2*	2*	80	7*	2*
09 Dec 2018	10*	182	7*	2*	2*	83	7*	2*
10 Dec 2018	10*	182	7*	2*	2*	83	7*	2*
11 Dec 2018	27	222	17	2	3	108	16	5
12 Dec 2018	27	222	17	2	3	108	16	5
13 Dec 2018	81	430	35	2*	2*	221	38	7
14 Dec 2018	109	525	41	2*	2*	308	46	7
15 Dec 2018	109	525	41	2*	2*	308	46	7
16 Dec 2018	128	460	41	2*	2*	280	46	7
17 Dec 2018	128	460	41	2*	2*	280	46	7
18 Dec 2018	113	619	38	3	4	272	43	9
19 Dec 2018	113	619	38	3	4	272	43	9
20 Dec 2018	160	1300	48	3*	4*	377	57	12
21 Dec 2018	160	1300	48	3*	4*	377	57	12
22 Dec 2018	160	949	48	3*	4*	377	57	12
23 Dec 2018	160	949	48	3*	4*	377	57	12
24 Dec 2018	160	949	48	3*	4*	377	57	12
25 Dec 2018	160	949	48	3*	4*	377	57	12
26 Dec 2018	191	711	39	3	4	425	47	9
27 Dec 2018	385	1159	65	3*	5*	668	74	12
28 Dec 2018	385	1159	65	3*	5*	668	74	12
29 Dec 2018	389	1159	65	3*	5*	775	74	12
30 Dec 2018	389	1159	65	3*	5*	775	74	12
31 Dec 2018	321	1159	65	3*	5*	662	74	12

* 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 Dec 2018	IC	E	IC	IC	IC	E	IC	IC
06 Dec 2018	ns	E	ns	ns	ns	E	E	ns
07 Dec 2018	ns	E	ns	ns	ns	E	E	ns
09 Dec 2018	ns	IC	ns	ns	ns	IC	IC	ns
11 Dec 2018	E	IC	IC	IC	IC	E	E	IC
13 Dec 2018	E	E	IC	ns	ns	E	IC	ns
14 Dec 2018	IC	E	ns	ns	ns	E	IC	ns
16 Dec 2018	IC	IC	ns	ns	ns	E	ns	ns
18 Dec 2018	IC	IC	IC	IC	IC	IC	IC	IC
26 Dec 2018	IC	IC	IC	IC	IC	E	IC	IC
27 Dec 2018	E	ns	ns	ns	ns	E	ns	ns
29 Dec 2018	E	ns	ns	ns	ns	E	ns	ns
31 Dec 2018	IC	ns	ns	ns	ns	IC	ns	ns

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 Dec 2018	IC	E	IC	IC	IC	E	E	IC
06 Dec 2018	ns	E	ns	ns	ns	E	E	ns
07 Dec 2018	ns	E	ns	ns	ns	E	E	ns
09 Dec 2018	ns	E	ns	ns	ns	E	E	ns
11 Dec 2018	E	E	IC	IC	IC	E	E	IC
13 Dec 2018	E	E	IC	ns	ns	E	IC	ns
14 Dec 2018	E	E	ns	ns	ns	E	IC	ns
16 Dec 2018	E	IC	ns	ns	ns	E	ns	ns
18 Dec 2018	IC	IC	IC	IC	IC	E	IC	IC
26 Dec 2018	E	IC	IC	IC	IC	E	IC	IC
27 Dec 2018	E	ns	ns	ns	ns	E	ns	ns
29 Dec 2018	E	ns	ns	ns	ns	E	ns	ns
31 Dec 2018	IC	ns	ns	ns	ns	IC	ns	ns

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 Dec 2018	IC	E	IC	IC	IC	E	IC	IC
06 Dec 2018	ns	E	ns	ns	ns	E	ns	ns
07 Dec 2018	ns	E	ns	ns	ns	E	ns	ns
09 Dec 2018	ns	E	ns	ns	ns	IC	ns	ns
11 Dec 2018	E	E	E	IC	IC	E	E	E
13 Dec 2018	E	E	E	ns	ns	E	E	IC
14 Dec 2018	E	E	IC	ns	ns	E	E	ns
16 Dec 2018	E	E	ns	ns	ns	E	IC	ns
18 Dec 2018	IC	E	IC	IC	IC	E	IC	IC
20 Dec 2018	ns	E	ns	ns	ns	IC	ns	ns
22 Dec 2018	ns	IC	ns	ns	ns	ns	ns	ns
26 Dec 2018	E	IC	IC	IC	IC	E	IC	IC
27 Dec 2018	E	ns	ns	ns	ns	E	ns	ns
29 Dec 2018	E	ns	ns	ns	ns	E	ns	ns
31 Dec 2018	IC	ns	ns	ns	ns	IC	ns	ns

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 Dec 2018	IC	E	IC	IC	IC	IC	E	IC
06 Dec 2018	ns	E	ns	ns	ns	IC	E	ns
07 Dec 2018	ns	E	ns	ns	ns	E	E	ns
09 Dec 2018	ns	IC	ns	ns	ns	E	E	ns
11 Dec 2018	E	E	E	IC	IC	E	IC	IC
13 Dec 2018	E	E	IC	ns	ns	E	IC	ns
14 Dec 2018	E	E	ns	ns	ns	E	IC	ns
16 Dec 2018	E	IC	ns	ns	ns	E	ns	ns
18 Dec 2018	IC	IC	IC	IC	IC	IC	IC	IC
26 Dec 2018	E	IC	IC	IC	IC	IC	IC	IC
27 Dec 2018	E	ns	ns	ns	ns	IC	ns	ns
29 Dec 2018	E	ns	ns	ns	ns	E	ns	ns
31 Dec 2018	IC	ns	ns	ns	ns	IC	ns	ns

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.8

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

Station	Date	Time	Total	Fecal	Entero	F:T
S0	04 Dec 2018	1025	40e	6e	6e	0.15
S0	19 Dec 2018	1120	4400	100e	320e	0.02
S2	04 Dec 2018	1115	<200	30e	2e	0.15
S2	19 Dec 2018	1250	2600e	180e	340e	0.07
S3	04 Dec 2018	1130	800e	40	8e	0.05
S3	19 Dec 2018	1230	580	60	40	0.10
S4	04 Dec 2018	857	800e	100	46	0.12
S4	11 Dec 2018	847	> 16000	3800e	1200e	0.24
S4	13 Dec 2018	846	> 16000	12000	3200	0.75
S4	14 Dec 2018	905	7800	1000	480	0.13
S4	16 Dec 2018	1010	8800	3000e	340e	0.34
S4	18 Dec 2018	859	720	78	46	0.11
S4	26 Dec 2018	915	5800	640	660	0.11
S4	27 Dec 2018	1109	> 16000	3200e	550e	0.20
S4	29 Dec 2018	806	15000e	2600e	420	0.17
S4	31 Dec 2018	823	980	52	58	0.05
S5	04 Dec 2018	1014	> 16000	12000	4800	0.75
S5	06 Dec 2018	1132	> 16000	> 12000	> 12000	0.75
S5	07 Dec 2018	1028	> 16000	> 12000	> 12000	0.75
S5	09 Dec 2018	948	8800	660	600e	0.07
S5	11 Dec 2018	1002	4800	680	880	0.14
S5	13 Dec 2018	952	12000	1300	400	0.11
S5	14 Dec 2018	1008	> 16000	4800	2600e	0.30
S5	16 Dec 2018	1045	800	100	140e	0.12
S5	18 Dec 2018	1034	140e	24e	> 12000	0.17
S5	20 Dec 2018	931	ns	ns	14000e	ns
S5	22 Dec 2018	928	ns	ns	30e	ns
S5	26 Dec 2018	820	300e	40	22e	0.13
S6	04 Dec 2018	1024	3800e	160e	32e	0.04
S6	11 Dec 2018	1016	1400e	160e	600	0.11
S6	13 Dec 2018	1008	1600	80e	130e	0.05
S6	14 Dec 2018	1022	ns	ns	96	ns
S6	18 Dec 2018	1048	20e	<2	26e	0.10
S6	26 Dec 2018	845	80e	22e	12e	0.28
S8	04 Dec 2018	1143	20e	<2	<2	0.10
S8	11 Dec 2018	1153	<20	2e	<2	0.10
S8	18 Dec 2018	1157	<20	<2	8e	0.10
S8	26 Dec 2018	801	<20	<2	<2	0.10
S9	04 Dec 2018	1226	4e	<2	<2	0.50
S9	11 Dec 2018	1229	6e	4e	4e	0.67
S9	18 Dec 2018	1235	20e	4e	20e	0.20
S9	26 Dec 2018	745	<20	<2	4e	0.10

Station	Date	Time	Total	Fecal	Entero	F:T
S10	04 Dec 2018	851	> 16000	980	540	0.06
S10	06 Dec 2018	1018	> 16000	1400e	2800e	0.09
S10	07 Dec 2018	915	> 16000	1800e	3200e	0.11
S10	09 Dec 2018	834	3600e	680	100e	0.19
S10	11 Dec 2018	841	> 16000	3000e	700	0.19
S10	13 Dec 2018	840	> 16000	> 12000	4200	0.75
S10	14 Dec 2018	900	> 16000	> 12000	4400	0.75
S10	16 Dec 2018	958	> 16000	4800	120e	0.30
S10	18 Dec 2018	853	7200	620	200e	0.09
S10	20 Dec 2018	925	ns	ns	72	ns
S10	26 Dec 2018	849	> 16000	1000e	1600e	0.06
S10	27 Dec 2018	1100	> 16000	1200e	460	0.07
S10	29 Dec 2018	740	> 16000	13000e	4600	0.81
S10	31 Dec 2018	803	1600e	160e	84	0.10
S11	04 Dec 2018	1019	7200	840	100e	0.12
S11	06 Dec 2018	1136	> 16000	> 12000	ns	0.75
S11	07 Dec 2018	1045	> 16000	6000	ns	0.38
S11	09 Dec 2018	1004	6400	940	ns	0.15
S11	11 Dec 2018	1008	> 16000	800e	460	0.05
S11	13 Dec 2018	1000	3200e	320e	150e	0.10
S11	14 Dec 2018	1017	3200e	220e	110	0.07
S11	16 Dec 2018	1053	ns	ns	50	ns
S11	18 Dec 2018	1040	<20	<2	26e	0.10
S11	26 Dec 2018	834	180e	8e	12e	0.04
S12	04 Dec 2018	1035	<20	<2	<2	0.10
S12	11 Dec 2018	1026	200e	14e	180e	0.07
S12	13 Dec 2018	1018	ns	ns	10e	ns
S12	18 Dec 2018	1016	100e	12e	36e	0.12
S12	26 Dec 2018	911	<20	<2	2e	0.10

ns = not sampled

ND = no data

Comments

Station	Date	Depth	Parameter	Comments
S10	06 Dec 2018			Resample
S11	06 Dec 2018			Resample
S5	06 Dec 2018			Resample
S10	07 Dec 2018			Resample
S11	07 Dec 2018			Resample
S5	07 Dec 2018			Resample
S10	09 Dec 2018			Resample
S11	09 Dec 2018			Resample
S5	09 Dec 2018			Resample
S0	11 Dec 2018			Samples were collected in Mexico but not transported to IBWC
S2	11 Dec 2018			Samples were collected in Mexico but not transported to IBWC
S3	11 Dec 2018			Samples were collected in Mexico but not transported to IBWC
S10	13 Dec 2018			Resample
S11	13 Dec 2018			Resample
S12	13 Dec 2018			Resample
S4	13 Dec 2018			Resample
S5	13 Dec 2018			Resample
S6	13 Dec 2018			Resample
S10	14 Dec 2018			Resample
S11	14 Dec 2018			Resample
S4	14 Dec 2018			Resample
S5	14 Dec 2018			Resample
S6	14 Dec 2018			Resample
S10	16 Dec 2018			Resample
S11	16 Dec 2018			Resample
S4	16 Dec 2018			Resample
S5	16 Dec 2018			Resample
S0	19 Dec 2018			Mexico stations sampled on the next day of regular sampling
S2	19 Dec 2018			Mexico stations sampled on the next day of regular sampling
S3	19 Dec 2018			Mexico stations sampled on the next day of regular sampling
S10	20 Dec 2018			Resample
S5	20 Dec 2018			Resample
S5	22 Dec 2018			Resample
S0	26 Dec 2018			Sample delivery from IBWC was not available due to government shutdown
S2	26 Dec 2018			Sample delivery from IBWC was not available due to government shutdown
S3	26 Dec 2018			Sample delivery from IBWC was not available due to government shutdown

Station	Date	Depth	Parameter	Comments
S4	27 Dec 2018			Resample
S10	27 Dec 2018			Resample
S4	29 Dec 2018			Resample
S10	29 Dec 2018			Resample
S10	31 Dec 2018			Resample
S4	31 Dec 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 Dec 2018	Arrive Time	1025
S0	04 Dec 2018	Weather	Sunny
S0	04 Dec 2018	Wind Speed (kts)	1.2
S0	04 Dec 2018	Wind Dir	SW
S0	04 Dec 2018	Animal Life	5 Birds
S0	04 Dec 2018	Floatables	None
S0	04 Dec 2018	Water Color	Green
S0	04 Dec 2018	Current Direction	N
S0	04 Dec 2018	Water Temp (C)	13
S0	04 Dec 2018	Wave Height Low (ft)	2
S0	04 Dec 2018	High Tide (ft)	6
S0	04 Dec 2018	High Tide Time	641
S0	04 Dec 2018	Low Tide (ft)	1
S0	04 Dec 2018	Low Tide Time	1224
S0	04 Dec 2018	Comments	Kelp; Algae; Water clear; 1.0L/s water flowing from storm drain
S0	19 Dec 2018	Arrive Time	1120
S0	19 Dec 2018	Weather	Sunny
S0	19 Dec 2018	Wind Speed (kts)	0.9
S0	19 Dec 2018	Wind Dir	SW
S0	19 Dec 2018	Animal Life	15 Birds; 5 Dogs
S0	19 Dec 2018	Floatables	None
S0	19 Dec 2018	Water Color	Green
S0	19 Dec 2018	Current Direction	N
S0	19 Dec 2018	Water Temp (C)	14
S0	19 Dec 2018	Wave Height Low (ft)	2
S0	19 Dec 2018	High Tide (ft)	5.7
S0	19 Dec 2018	High Tide Time	605
S0	19 Dec 2018	Low Tide (ft)	-0.1
S0	19 Dec 2018	Low Tide Time	1307
S0	19 Dec 2018	Comments	15 Persons; Water clear; 0.5 L/s water flowing from storm drain
S2	04 Dec 2018	Arrive Time	1115
S2	04 Dec 2018	Weather	Sunny
S2	04 Dec 2018	Wind Speed (kts)	1.1
S2	04 Dec 2018	Wind Dir	SW
S2	04 Dec 2018	Animal Life	20 Birds
S2	04 Dec 2018	Floatables	None
S2	04 Dec 2018	Water Color	Green
S2	04 Dec 2018	Current Direction	N
S2	04 Dec 2018	Water Temp (C)	14
S2	04 Dec 2018	Wave Height Low (ft)	2
S2	04 Dec 2018	High Tide (ft)	6
S2	04 Dec 2018	High Tide Time	641
S2	04 Dec 2018	Low Tide (ft)	1
S2	04 Dec 2018	Low Tide Time	1224
S2	04 Dec 2018	Comments	15 Persons; Water clear; No flow from storm drain
S2	19 Dec 2018	Arrive Time	1250
S2	19 Dec 2018	Weather	Sunny
S2	19 Dec 2018	Wind Speed (kts)	1.2

Station	Date	Parameter	Value
S2	19 Dec 2018	Wind Dir	SW
S2	19 Dec 2018	Animal Life	20 Birds; 5 Dogs
S2	19 Dec 2018	Floatables	None
S2	19 Dec 2018	Water Color	Green
S2	19 Dec 2018	Current Direction	N
S2	19 Dec 2018	Water Temp (C)	14
S2	19 Dec 2018	Wave Height Low (ft)	2
S2	19 Dec 2018	High Tide (ft)	3.7
S2	19 Dec 2018	High Tide Time	1907
S2	19 Dec 2018	Low Tide (ft)	-0.1
S2	19 Dec 2018	Low Tide Time	1307
S2	19 Dec 2018	Comments	10 Persons; Water clear; No flow from storm drain
S3	04 Dec 2018	Arrive Time	1130
S3	04 Dec 2018	Weather	Sunny
S3	04 Dec 2018	Wind Speed (kts)	1
S3	04 Dec 2018	Wind Dir	SW
S3	04 Dec 2018	Animal Life	20 Birds; 5 Dogs
S3	04 Dec 2018	Floatables	None
S3	04 Dec 2018	Water Color	Green
S3	04 Dec 2018	Current Direction	N
S3	04 Dec 2018	Water Temp (C)	14
S3	04 Dec 2018	Wave Height Low (ft)	2
S3	04 Dec 2018	High Tide (ft)	6
S3	04 Dec 2018	High Tide Time	641
S3	04 Dec 2018	Low Tide (ft)	1
S3	04 Dec 2018	Low Tide Time	1224
S3	04 Dec 2018	Comments	15 Persons; Water clear; No flow from storm drain
S3	19 Dec 2018	Arrive Time	1230
S3	19 Dec 2018	Weather	Sunny
S3	19 Dec 2018	Wind Speed (kts)	1
S3	19 Dec 2018	Wind Dir	SW
S3	19 Dec 2018	Animal Life	15 Birds; 5 Dogs
S3	19 Dec 2018	Floatables	None
S3	19 Dec 2018	Water Color	Green
S3	19 Dec 2018	Current Direction	N
S3	19 Dec 2018	Water Temp (C)	14
S3	19 Dec 2018	Wave Height Low (ft)	2
S3	19 Dec 2018	High Tide (ft)	5.7
S3	19 Dec 2018	High Tide Time	605
S3	19 Dec 2018	Low Tide (ft)	-0.1
S3	19 Dec 2018	Low Tide Time	1307
S3	19 Dec 2018	Comments	15 Persons; Water clear; No flow from storm drain; Red algae
S4	04 Dec 2018	Arrive Time	857
S4	04 Dec 2018	Weather	Sunny
S4	04 Dec 2018	Wind Speed (kts)	12.1
S4	04 Dec 2018	Wind Dir	N
S4	04 Dec 2018	Animal Life	None
S4	04 Dec 2018	Floatables	None
S4	04 Dec 2018	Water Color	Brown
S4	04 Dec 2018	Current Direction	N
S4	04 Dec 2018	Water Temp (C)	13
S4	04 Dec 2018	Wave Height Low (ft)	2

Station	Date	Parameter	Value
S4	04 Dec 2018	High Tide (ft)	6
S4	04 Dec 2018	High Tide Time	641
S4	04 Dec 2018	Low Tide (ft)	1
S4	04 Dec 2018	Low Tide Time	1224
S4	04 Dec 2018	Comments	Seagrass; Water clear
S4	11 Dec 2018	Arrive Time	847
S4	11 Dec 2018	Weather	Partly Cloudy
S4	11 Dec 2018	Wind Speed (kts)	0.9
S4	11 Dec 2018	Wind Dir	E
S4	11 Dec 2018	Animal Life	None
S4	11 Dec 2018	Floatables	None
S4	11 Dec 2018	Water Color	Green
S4	11 Dec 2018	Current Direction	N
S4	11 Dec 2018	Water Temp (C)	15
S4	11 Dec 2018	Wave Height Low (ft)	2
S4	11 Dec 2018	High Tide (ft)	5
S4	11 Dec 2018	High Tide Time	1025
S4	11 Dec 2018	Low Tide (ft)	2.6
S4	11 Dec 2018	Low Tide Time	426
S4	11 Dec 2018	Comments	Seagrass; Water clear
S4	13 Dec 2018	Arrive Time	846
S4	13 Dec 2018	Weather	Sunny
S4	13 Dec 2018	Wind Speed (kts)	5.4
S4	13 Dec 2018	Wind Dir	NE
S4	13 Dec 2018	Animal Life	None
S4	13 Dec 2018	Floatables	None
S4	13 Dec 2018	Water Color	Green
S4	13 Dec 2018	Current Direction	N
S4	13 Dec 2018	Water Temp (C)	16
S4	13 Dec 2018	Wave Height Low (ft)	3
S4	13 Dec 2018	High Tide (ft)	4.1
S4	13 Dec 2018	High Tide Time	1154
S4	13 Dec 2018	Low Tide (ft)	3
S4	13 Dec 2018	Low Tide Time	631
S4	13 Dec 2018	Comments	Resample; Kelp; Seagrass; Water clear
S4	14 Dec 2018	Arrive Time	905
S4	14 Dec 2018	Weather	Cloudy
S4	14 Dec 2018	Wind Speed (kts)	3.3
S4	14 Dec 2018	Wind Dir	W
S4	14 Dec 2018	Animal Life	15 Plovers
S4	14 Dec 2018	Floatables	None
S4	14 Dec 2018	Water Color	Green
S4	14 Dec 2018	Current Direction	N
S4	14 Dec 2018	Water Temp (C)	14
S4	14 Dec 2018	Wave Height Low (ft)	3
S4	14 Dec 2018	High Tide (ft)	3.7
S4	14 Dec 2018	High Tide Time	1310
S4	14 Dec 2018	Low Tide (ft)	2.9
S4	14 Dec 2018	Low Tide Time	814
S4	14 Dec 2018	Comments	Resample; Kelp; Water clear
S4	16 Dec 2018	Arrive Time	1010

Station	Date	Parameter	Value
S4	16 Dec 2018	Weather	Partly Cloudy
S4	16 Dec 2018	Wind Speed (kts)	1.6
S4	16 Dec 2018	Wind Dir	W
S4	16 Dec 2018	Animal Life	None
S4	16 Dec 2018	Floatables	None
S4	16 Dec 2018	Water Color	Green
S4	16 Dec 2018	Current Direction	N
S4	16 Dec 2018	Water Temp (C)	14
S4	16 Dec 2018	Wave Height Low (ft)	4
S4	16 Dec 2018	High Tide (ft)	4.4
S4	16 Dec 2018	High Tide Time	424
S4	16 Dec 2018	Low Tide (ft)	2
S4	16 Dec 2018	Low Tide Time	1057
S4	16 Dec 2018	Comments	Resample; Kelp; 4 Persons; Water clear
S4	18 Dec 2018	Arrive Time	859
S4	18 Dec 2018	Weather	Sunny
S4	18 Dec 2018	Wind Speed (kts)	5.1
S4	18 Dec 2018	Wind Dir	E
S4	18 Dec 2018	Animal Life	None
S4	18 Dec 2018	Floatables	None
S4	18 Dec 2018	Water Color	Green
S4	18 Dec 2018	Current Direction	N
S4	18 Dec 2018	Water Temp (C)	15
S4	18 Dec 2018	Wave Height Low (ft)	6
S4	18 Dec 2018	High Tide (ft)	5.2
S4	18 Dec 2018	High Tide Time	531
S4	18 Dec 2018	Low Tide (ft)	0.6
S4	18 Dec 2018	Low Tide Time	27
S4	18 Dec 2018	Comments	Kelp; Seagrass; Water clear
S4	26 Dec 2018	Arrive Time	915
S4	26 Dec 2018	Weather	Sunny
S4	26 Dec 2018	Wind Speed (kts)	2.7
S4	26 Dec 2018	Wind Dir	E
S4	26 Dec 2018	Animal Life	24 Shorebirds
S4	26 Dec 2018	Floatables	None
S4	26 Dec 2018	Water Color	Green
S4	26 Dec 2018	Current Direction	E
S4	26 Dec 2018	Water Temp (C)	15
S4	26 Dec 2018	Wave Height Low (ft)	6
S4	26 Dec 2018	High Tide (ft)	5.6
S4	26 Dec 2018	High Tide Time	1105
S4	26 Dec 2018	Low Tide (ft)	2
S4	26 Dec 2018	Low Tide Time	509
S4	26 Dec 2018	Comments	Kelp; Seagrass; Debris; 3 Persons; Water clear
S4	27 Dec 2018	Arrive Time	1109
S4	27 Dec 2018	Weather	Partly Cloudy
S4	27 Dec 2018	Wind Speed (kts)	3.8
S4	27 Dec 2018	Wind Dir	W
S4	27 Dec 2018	Animal Life	3 Horses
S4	27 Dec 2018	Floatables	None
S4	27 Dec 2018	Water Color	Green
S4	27 Dec 2018	Current Direction	N

Station	Date	Parameter	Value
S4	27 Dec 2018	Water Temp (C)	14
S4	27 Dec 2018	Wave Height Low (ft)	3
S4	27 Dec 2018	High Tide (ft)	4.1
S4	27 Dec 2018	High Tide Time	103
S4	27 Dec 2018	Low Tide (ft)	2.2
S4	27 Dec 2018	Low Tide Time	623
S4	27 Dec 2018	Comments	Resample; Kelp; 3 Persons; Water clear
S4	29 Dec 2018	Arrive Time	806
S4	29 Dec 2018	Weather	Sunny
S4	29 Dec 2018	Wind Speed (kts)	1.9
S4	29 Dec 2018	Wind Dir	S
S4	29 Dec 2018	Animal Life	33 Shorebirds; 20 Cormorants
S4	29 Dec 2018	Floatables	None
S4	29 Dec 2018	Water Color	Green
S4	29 Dec 2018	Current Direction	S
S4	29 Dec 2018	Water Temp (C)	11
S4	29 Dec 2018	Wave Height Low (ft)	4
S4	29 Dec 2018	High Tide (ft)	4.6
S4	29 Dec 2018	High Tide Time	310
S4	29 Dec 2018	Low Tide (ft)	1.8
S4	29 Dec 2018	Low Tide Time	930
S4	29 Dec 2018	Comments	Resample; Debris; Water clear
S4	31 Dec 2018	Arrive Time	823
S4	31 Dec 2018	Weather	Cloudy
S4	31 Dec 2018	Wind Speed (kts)	7.7
S4	31 Dec 2018	Wind Dir	N
S4	31 Dec 2018	Animal Life	10 Shorebirds; 8 Birds
S4	31 Dec 2018	Floatables	None
S4	31 Dec 2018	Water Color	Green
S4	31 Dec 2018	Current Direction	N
S4	31 Dec 2018	Water Temp (C)	14
S4	31 Dec 2018	Wave Height Low (ft)	3
S4	31 Dec 2018	High Tide (ft)	5.3
S4	31 Dec 2018	High Tide Time	457
S4	31 Dec 2018	Low Tide (ft)	0.5
S4	31 Dec 2018	Low Tide Time	0
S4	31 Dec 2018	Comments	Resample; Debris; Water clear
S5	04 Dec 2018	Arrive Time	1014
S5	04 Dec 2018	Weather	Partly Cloudy
S5	04 Dec 2018	Wind Speed (kts)	5.3
S5	04 Dec 2018	Wind Dir	N
S5	04 Dec 2018	Animal Life	None
S5	04 Dec 2018	Floatables	None
S5	04 Dec 2018	Water Color	Green
S5	04 Dec 2018	Current Direction	N
S5	04 Dec 2018	Water Temp (C)	15
S5	04 Dec 2018	Wave Height Low (ft)	2
S5	04 Dec 2018	High Tide (ft)	6
S5	04 Dec 2018	High Tide Time	641
S5	04 Dec 2018	Low Tide (ft)	1
S5	04 Dec 2018	Low Tide Time	1224
S5	04 Dec 2018	Comments	Kelp; Seagrass; Water clear

Station	Date	Parameter	Value
S5	06 Dec 2018	Arrive Time	1132
S5	06 Dec 2018	Weather	Partly Cloudy
S5	06 Dec 2018	Wind Speed (kts)	15.3
S5	06 Dec 2018	Wind Dir	S
S5	06 Dec 2018	Animal Life	None
S5	06 Dec 2018	Floatables	None
S5	06 Dec 2018	Water Color	Brown
S5	06 Dec 2018	Current Direction	N
S5	06 Dec 2018	Water Temp (C)	15
S5	06 Dec 2018	Wave Height Low (ft)	3
S5	06 Dec 2018	High Tide (ft)	6.2
S5	06 Dec 2018	High Tide Time	746
S5	06 Dec 2018	Low Tide (ft)	-0.7
S5	06 Dec 2018	Low Tide Time	1451
S5	06 Dec 2018	Comments	Resample; Kelp; Water clear
S5	07 Dec 2018	Arrive Time	1028
S5	07 Dec 2018	Weather	Cloudy
S5	07 Dec 2018	Wind Speed (kts)	4
S5	07 Dec 2018	Wind Dir	SE
S5	07 Dec 2018	Animal Life	None
S5	07 Dec 2018	Floatables	None
S5	07 Dec 2018	Water Color	Brown
S5	07 Dec 2018	Current Direction	SE
S5	07 Dec 2018	Water Temp (C)	16
S5	07 Dec 2018	Wave Height Low (ft)	4
S5	07 Dec 2018	High Tide (ft)	6.1
S5	07 Dec 2018	High Tide Time	817
S5	07 Dec 2018	Low Tide (ft)	-0.7
S5	07 Dec 2018	Low Tide Time	1528
S5	07 Dec 2018	Comments	Resample; Kelp; Seagrass; 1 Jogger; Water turbid; Detergent-like odor
S5	09 Dec 2018	Arrive Time	948
S5	09 Dec 2018	Weather	Sunny
S5	09 Dec 2018	Wind Speed (kts)	5.6
S5	09 Dec 2018	Wind Dir	S
S5	09 Dec 2018	Animal Life	None
S5	09 Dec 2018	Floatables	None
S5	09 Dec 2018	Water Color	Green
S5	09 Dec 2018	Current Direction	S
S5	09 Dec 2018	Water Temp (C)	17
S5	09 Dec 2018	Wave Height Low (ft)	3
S5	09 Dec 2018	High Tide (ft)	5.7
S5	09 Dec 2018	High Tide Time	919
S5	09 Dec 2018	Low Tide (ft)	2.2
S5	09 Dec 2018	Low Tide Time	314
S5	09 Dec 2018	Comments	Resample; Kelp; Seagrass; Algae; Debris; Water clear
S5	11 Dec 2018	Arrive Time	1002
S5	11 Dec 2018	Weather	Partly Cloudy
S5	11 Dec 2018	Wind Speed (kts)	5.3
S5	11 Dec 2018	Wind Dir	N
S5	11 Dec 2018	Animal Life	None

Station	Date	Parameter	Value
S5	11 Dec 2018	Floatables	None
S5	11 Dec 2018	Water Color	Green
S5	11 Dec 2018	Current Direction	N
S5	11 Dec 2018	Water Temp (C)	16
S5	11 Dec 2018	Wave Height Low (ft)	3
S5	11 Dec 2018	High Tide (ft)	5
S5	11 Dec 2018	High Tide Time	1025
S5	11 Dec 2018	Low Tide (ft)	2.6
S5	11 Dec 2018	Low Tide Time	426
S5	11 Dec 2018	Comments	Kelp; Seagrass; Water clear
S5	13 Dec 2018	Arrive Time	952
S5	13 Dec 2018	Weather	Sunny
S5	13 Dec 2018	Wind Speed (kts)	1.3
S5	13 Dec 2018	Wind Dir	NE
S5	13 Dec 2018	Animal Life	None
S5	13 Dec 2018	Floatables	None
S5	13 Dec 2018	Water Color	Brown
S5	13 Dec 2018	Current Direction	N
S5	13 Dec 2018	Water Temp (C)	15
S5	13 Dec 2018	Wave Height Low (ft)	3
S5	13 Dec 2018	High Tide (ft)	4.1
S5	13 Dec 2018	High Tide Time	1154
S5	13 Dec 2018	Low Tide (ft)	3
S5	13 Dec 2018	Low Tide Time	631
S5	13 Dec 2018	Comments	Resample; Seagrass; Sewage-like odor; Water clear
S5	14 Dec 2018	Arrive Time	1008
S5	14 Dec 2018	Weather	Cloudy
S5	14 Dec 2018	Wind Speed (kts)	1.7
S5	14 Dec 2018	Wind Dir	SE
S5	14 Dec 2018	Animal Life	None
S5	14 Dec 2018	Floatables	None
S5	14 Dec 2018	Water Color	Green
S5	14 Dec 2018	Current Direction	N
S5	14 Dec 2018	Water Temp (C)	14
S5	14 Dec 2018	Wave Height Low (ft)	2
S5	14 Dec 2018	High Tide (ft)	3.7
S5	14 Dec 2018	High Tide Time	1310
S5	14 Dec 2018	Low Tide (ft)	2.9
S5	14 Dec 2018	Low Tide Time	814
S5	14 Dec 2018	Comments	Resample; Kelp; Seagrass; Water clear
S5	16 Dec 2018	Arrive Time	1045
S5	16 Dec 2018	Weather	Partly Cloudy
S5	16 Dec 2018	Wind Speed (kts)	1.2
S5	16 Dec 2018	Wind Dir	W
S5	16 Dec 2018	Animal Life	None
S5	16 Dec 2018	Floatables	None
S5	16 Dec 2018	Water Color	Green
S5	16 Dec 2018	Current Direction	N
S5	16 Dec 2018	Water Temp (C)	14
S5	16 Dec 2018	Wave Height Low (ft)	4
S5	16 Dec 2018	High Tide (ft)	3.3
S5	16 Dec 2018	High Tide Time	1610

Station	Date	Parameter	Value
S5	16 Dec 2018	Low Tide (ft)	2
S5	16 Dec 2018	Low Tide Time	1057
S5	16 Dec 2018	Comments	Resample; Kelp; 1 Jogger; Water clear
S5	18 Dec 2018	Arrive Time	1034
S5	18 Dec 2018	Weather	Sunny
S5	18 Dec 2018	Wind Speed (kts)	4.3
S5	18 Dec 2018	Wind Dir	N
S5	18 Dec 2018	Animal Life	None
S5	18 Dec 2018	Floatables	None
S5	18 Dec 2018	Water Color	Green
S5	18 Dec 2018	Current Direction	N
S5	18 Dec 2018	Water Temp (C)	16
S5	18 Dec 2018	Wave Height Low (ft)	5
S5	18 Dec 2018	High Tide (ft)	5.2
S5	18 Dec 2018	High Tide Time	531
S5	18 Dec 2018	Low Tide (ft)	0.6
S5	18 Dec 2018	Low Tide Time	27
S5	18 Dec 2018	Comments	Water clear
S5	20 Dec 2018	Arrive Time	931
S5	20 Dec 2018	Weather	Partly Cloudy
S5	20 Dec 2018	Wind Speed (kts)	1.2
S5	20 Dec 2018	Wind Dir	N
S5	20 Dec 2018	Animal Life	None
S5	20 Dec 2018	Floatables	None
S5	20 Dec 2018	Water Color	Green
S5	20 Dec 2018	Current Direction	N
S5	20 Dec 2018	Water Temp (C)	13
S5	20 Dec 2018	Wave Height Low (ft)	4
S5	20 Dec 2018	High Tide (ft)	6.1
S5	20 Dec 2018	High Tide Time	640
S5	20 Dec 2018	Low Tide (ft)	1.4
S5	20 Dec 2018	Low Tide Time	1225
S5	20 Dec 2018	Comments	Resample; Kelp; Water clear
S5	22 Dec 2018	Arrive Time	928
S5	22 Dec 2018	Weather	Sunny
S5	22 Dec 2018	Wind Speed (kts)	2.8
S5	22 Dec 2018	Wind Dir	W
S5	22 Dec 2018	Animal Life	None
S5	22 Dec 2018	Floatables	None
S5	22 Dec 2018	Water Color	Green
S5	22 Dec 2018	Current Direction	N
S5	22 Dec 2018	Water Temp (C)	14
S5	22 Dec 2018	Wave Height Low (ft)	5
S5	22 Dec 2018	High Tide (ft)	6.7
S5	22 Dec 2018	High Tide Time	757
S5	22 Dec 2018	Low Tide (ft)	-1.4
S5	22 Dec 2018	Low Tide Time	1510
S5	22 Dec 2018	Comments	Resample; Kelp; 1 Person; Water clear
S5	26 Dec 2018	Arrive Time	820
S5	26 Dec 2018	Weather	Sunny
S5	26 Dec 2018	Wind Speed (kts)	6

Station	Date	Parameter	Value
S5	26 Dec 2018	Wind Dir	SE
S5	26 Dec 2018	Animal Life	None
S5	26 Dec 2018	Floatables	None
S5	26 Dec 2018	Water Color	Green
S5	26 Dec 2018	Current Direction	SE
S5	26 Dec 2018	Water Temp (C)	12
S5	26 Dec 2018	Wave Height Low (ft)	3
S5	26 Dec 2018	High Tide (ft)	5.6
S5	26 Dec 2018	High Tide Time	1105
S5	26 Dec 2018	Low Tide (ft)	2
S5	26 Dec 2018	Low Tide Time	509
S5	26 Dec 2018	Comments	Kelp; Seagrass; Water turbid
S6	04 Dec 2018	Arrive Time	1024
S6	04 Dec 2018	Weather	Sunny
S6	04 Dec 2018	Wind Speed (kts)	10.3
S6	04 Dec 2018	Wind Dir	N
S6	04 Dec 2018	Animal Life	None
S6	04 Dec 2018	Floatables	None
S6	04 Dec 2018	Water Color	Green
S6	04 Dec 2018	Current Direction	N
S6	04 Dec 2018	Water Temp (C)	15
S6	04 Dec 2018	Wave Height Low (ft)	3
S6	04 Dec 2018	High Tide (ft)	6
S6	04 Dec 2018	High Tide Time	641
S6	04 Dec 2018	Low Tide (ft)	1
S6	04 Dec 2018	Low Tide Time	1224
S6	04 Dec 2018	Comments	Kelp; Seagrass; 3 Persons; Water clear; Kelp
S6	11 Dec 2018	Arrive Time	1016
S6	11 Dec 2018	Weather	Partly Cloudy
S6	11 Dec 2018	Wind Speed (kts)	6.9
S6	11 Dec 2018	Wind Dir	W
S6	11 Dec 2018	Animal Life	None
S6	11 Dec 2018	Floatables	None
S6	11 Dec 2018	Water Color	Green
S6	11 Dec 2018	Current Direction	N
S6	11 Dec 2018	Water Temp (C)	16
S6	11 Dec 2018	Wave Height Low (ft)	4
S6	11 Dec 2018	High Tide (ft)	5
S6	11 Dec 2018	High Tide Time	1025
S6	11 Dec 2018	Low Tide (ft)	2.6
S6	11 Dec 2018	Low Tide Time	426
S6	11 Dec 2018	Comments	Kelp; Seagrass; 4 Persons; 2 Surfers; Water clear
S6	13 Dec 2018	Arrive Time	1008
S6	13 Dec 2018	Weather	Sunny
S6	13 Dec 2018	Wind Speed (kts)	6.6
S6	13 Dec 2018	Wind Dir	E
S6	13 Dec 2018	Animal Life	None
S6	13 Dec 2018	Floatables	None
S6	13 Dec 2018	Water Color	Green
S6	13 Dec 2018	Current Direction	N
S6	13 Dec 2018	Water Temp (C)	16
S6	13 Dec 2018	Wave Height Low (ft)	3

Station	Date	Parameter	Value
S6	13 Dec 2018	High Tide (ft)	4.1
S6	13 Dec 2018	High Tide Time	1154
S6	13 Dec 2018	Low Tide (ft)	3
S6	13 Dec 2018	Low Tide Time	631
S6	13 Dec 2018	Comments	Resample; Seagrass; 3 Persons; 1 Surfer; Water clear
S6	14 Dec 2018	Arrive Time	1022
S6	14 Dec 2018	Weather	Cloudy
S6	14 Dec 2018	Wind Speed (kts)	1
S6	14 Dec 2018	Wind Dir	SE
S6	14 Dec 2018	Animal Life	None
S6	14 Dec 2018	Floatables	None
S6	14 Dec 2018	Water Color	Green
S6	14 Dec 2018	Current Direction	N
S6	14 Dec 2018	Water Temp (C)	15
S6	14 Dec 2018	Wave Height Low (ft)	4
S6	14 Dec 2018	High Tide (ft)	3.7
S6	14 Dec 2018	High Tide Time	1310
S6	14 Dec 2018	Low Tide (ft)	2.9
S6	14 Dec 2018	Low Tide Time	814
S6	14 Dec 2018	Comments	Resample; Kelp; Water clear
S6	18 Dec 2018	Arrive Time	1048
S6	18 Dec 2018	Weather	Sunny
S6	18 Dec 2018	Wind Speed (kts)	5
S6	18 Dec 2018	Wind Dir	N
S6	18 Dec 2018	Animal Life	None
S6	18 Dec 2018	Floatables	Foam
S6	18 Dec 2018	Water Color	Green
S6	18 Dec 2018	Current Direction	N
S6	18 Dec 2018	Water Temp (C)	16
S6	18 Dec 2018	Wave Height Low (ft)	7
S6	18 Dec 2018	High Tide (ft)	5.2
S6	18 Dec 2018	High Tide Time	531
S6	18 Dec 2018	Low Tide (ft)	0.6
S6	18 Dec 2018	Low Tide Time	27
S6	18 Dec 2018	Comments	2 Persons; 1 Tractor; Water clear
S6	26 Dec 2018	Arrive Time	845
S6	26 Dec 2018	Weather	Sunny
S6	26 Dec 2018	Wind Speed (kts)	6
S6	26 Dec 2018	Wind Dir	SE
S6	26 Dec 2018	Animal Life	None
S6	26 Dec 2018	Floatables	None
S6	26 Dec 2018	Water Color	Green
S6	26 Dec 2018	Current Direction	SE
S6	26 Dec 2018	Water Temp (C)	12
S6	26 Dec 2018	Wave Height Low (ft)	3
S6	26 Dec 2018	High Tide (ft)	5.6
S6	26 Dec 2018	High Tide Time	1105
S6	26 Dec 2018	Low Tide (ft)	2
S6	26 Dec 2018	Low Tide Time	509
S6	26 Dec 2018	Comments	Kelp; Seagrass; Algae; 1 Person; Water turbid
S8	04 Dec 2018	Arrive Time	1143

Station	Date	Parameter	Value
S8	04 Dec 2018	Weather	Partly Cloudy
S8	04 Dec 2018	Wind Speed (kts)	2.3
S8	04 Dec 2018	Wind Dir	W
S8	04 Dec 2018	Animal Life	None
S8	04 Dec 2018	Floatables	None
S8	04 Dec 2018	Water Color	Green
S8	04 Dec 2018	Current Direction	N
S8	04 Dec 2018	Water Temp (C)	15
S8	04 Dec 2018	Wave Height Low (ft)	2
S8	04 Dec 2018	High Tide (ft)	6
S8	04 Dec 2018	High Tide Time	641
S8	04 Dec 2018	Low Tide (ft)	1
S8	04 Dec 2018	Low Tide Time	1224
S8	04 Dec 2018	Comments	1 Tractor; Water clear
S8	11 Dec 2018	Arrive Time	1153
S8	11 Dec 2018	Weather	Sunny
S8	11 Dec 2018	Wind Speed (kts)	6
S8	11 Dec 2018	Wind Dir	N
S8	11 Dec 2018	Animal Life	None
S8	11 Dec 2018	Floatables	None
S8	11 Dec 2018	Water Color	Green
S8	11 Dec 2018	Current Direction	N
S8	11 Dec 2018	Water Temp (C)	16
S8	11 Dec 2018	Wave Height Low (ft)	4
S8	11 Dec 2018	High Tide (ft)	5
S8	11 Dec 2018	High Tide Time	1025
S8	11 Dec 2018	Low Tide (ft)	0.1
S8	11 Dec 2018	Low Tide Time	1804
S8	11 Dec 2018	Comments	Kelp; Seagrass; 7 Persons; Water clear
S8	18 Dec 2018	Arrive Time	1157
S8	18 Dec 2018	Weather	Sunny
S8	18 Dec 2018	Wind Speed (kts)	5.3
S8	18 Dec 2018	Wind Dir	N
S8	18 Dec 2018	Animal Life	None
S8	18 Dec 2018	Floatables	Foam
S8	18 Dec 2018	Water Color	Green
S8	18 Dec 2018	Current Direction	N
S8	18 Dec 2018	Water Temp (C)	18
S8	18 Dec 2018	Wave Height Low (ft)	5
S8	18 Dec 2018	High Tide (ft)	5.2
S8	18 Dec 2018	High Tide Time	531
S8	18 Dec 2018	Low Tide (ft)	0.6
S8	18 Dec 2018	Low Tide Time	27
S8	18 Dec 2018	Comments	Water clear
S8	26 Dec 2018	Arrive Time	801
S8	26 Dec 2018	Weather	Sunny
S8	26 Dec 2018	Wind Speed (kts)	4
S8	26 Dec 2018	Wind Dir	SW
S8	26 Dec 2018	Animal Life	None
S8	26 Dec 2018	Floatables	Foam
S8	26 Dec 2018	Water Color	Green
S8	26 Dec 2018	Current Direction	SW

Station	Date	Parameter	Value
S8	26 Dec 2018	Water Temp (C)	13
S8	26 Dec 2018	Wave Height Low (ft)	4
S8	26 Dec 2018	High Tide (ft)	5.6
S8	26 Dec 2018	High Tide Time	1105
S8	26 Dec 2018	Low Tide (ft)	2
S8	26 Dec 2018	Low Tide Time	509
S8	26 Dec 2018	Comments	Kelp; Seagrass; Water clear
S9	04 Dec 2018	Arrive Time	1226
S9	04 Dec 2018	Weather	Sunny
S9	04 Dec 2018	Wind Speed (kts)	4.5
S9	04 Dec 2018	Wind Dir	N
S9	04 Dec 2018	Animal Life	None
S9	04 Dec 2018	Floatables	None
S9	04 Dec 2018	Water Color	Green
S9	04 Dec 2018	Current Direction	N
S9	04 Dec 2018	Water Temp (C)	19
S9	04 Dec 2018	Wave Height Low (ft)	2
S9	04 Dec 2018	High Tide (ft)	6
S9	04 Dec 2018	High Tide Time	641
S9	04 Dec 2018	Low Tide (ft)	1
S9	04 Dec 2018	Low Tide Time	1224
S9	04 Dec 2018	Comments	Kelp; 8 Persons; Water clear
S9	11 Dec 2018	Arrive Time	1229
S9	11 Dec 2018	Weather	Sunny
S9	11 Dec 2018	Wind Speed (kts)	2.4
S9	11 Dec 2018	Wind Dir	N
S9	11 Dec 2018	Animal Life	None
S9	11 Dec 2018	Floatables	None
S9	11 Dec 2018	Water Color	Green
S9	11 Dec 2018	Current Direction	N
S9	11 Dec 2018	Water Temp (C)	18
S9	11 Dec 2018	Wave Height Low (ft)	2
S9	11 Dec 2018	High Tide (ft)	5
S9	11 Dec 2018	High Tide Time	1025
S9	11 Dec 2018	Low Tide (ft)	0.1
S9	11 Dec 2018	Low Tide Time	1804
S9	11 Dec 2018	Comments	Kelp; Seagrass; 1 Jogger; 3 Persons; Water clear
S9	18 Dec 2018	Arrive Time	1235
S9	18 Dec 2018	Weather	Sunny
S9	18 Dec 2018	Wind Speed (kts)	7.1
S9	18 Dec 2018	Wind Dir	N
S9	18 Dec 2018	Animal Life	None
S9	18 Dec 2018	Floatables	None
S9	18 Dec 2018	Water Color	Green
S9	18 Dec 2018	Current Direction	N
S9	18 Dec 2018	Water Temp (C)	21
S9	18 Dec 2018	Wave Height Low (ft)	5
S9	18 Dec 2018	High Tide (ft)	3.5
S9	18 Dec 2018	High Tide Time	1817
S9	18 Dec 2018	Low Tide (ft)	1.3
S9	18 Dec 2018	Low Tide Time	2344
S9	18 Dec 2018	Comments	Seagrass; 2 Persons; Water clear

Station	Date	Parameter	Value
S9	26 Dec 2018	Arrive Time	745
S9	26 Dec 2018	Weather	Sunny
S9	26 Dec 2018	Wind Speed (kts)	2.7
S9	26 Dec 2018	Wind Dir	S
S9	26 Dec 2018	Animal Life	5 Shorebirds; 1 Bird
S9	26 Dec 2018	Floatables	None
S9	26 Dec 2018	Water Color	Green
S9	26 Dec 2018	Current Direction	S
S9	26 Dec 2018	Water Temp (C)	13
S9	26 Dec 2018	Wave Height Low (ft)	3
S9	26 Dec 2018	High Tide (ft)	5.6
S9	26 Dec 2018	High Tide Time	1105
S9	26 Dec 2018	Low Tide (ft)	2
S9	26 Dec 2018	Low Tide Time	509
S9	26 Dec 2018	Comments	Kelp; Water clear
S10	04 Dec 2018	Arrive Time	851
S10	04 Dec 2018	Weather	Sunny
S10	04 Dec 2018	Wind Speed (kts)	15.6
S10	04 Dec 2018	Wind Dir	E
S10	04 Dec 2018	Animal Life	None
S10	04 Dec 2018	Floatables	None
S10	04 Dec 2018	Water Color	Brown
S10	04 Dec 2018	Current Direction	N
S10	04 Dec 2018	Water Temp (C)	12
S10	04 Dec 2018	Wave Height Low (ft)	2
S10	04 Dec 2018	High Tide (ft)	6
S10	04 Dec 2018	High Tide Time	641
S10	04 Dec 2018	Low Tide (ft)	1
S10	04 Dec 2018	Low Tide Time	1224
S10	04 Dec 2018	Comments	Seagrass; Water clear
S10	06 Dec 2018	Arrive Time	1018
S10	06 Dec 2018	Weather	Partly Cloudy
S10	06 Dec 2018	Wind Speed (kts)	4.5
S10	06 Dec 2018	Wind Dir	S
S10	06 Dec 2018	Animal Life	None
S10	06 Dec 2018	Floatables	None
S10	06 Dec 2018	Water Color	Brown
S10	06 Dec 2018	Current Direction	N
S10	06 Dec 2018	Water Temp (C)	15
S10	06 Dec 2018	Wave Height Low (ft)	4
S10	06 Dec 2018	High Tide (ft)	6.2
S10	06 Dec 2018	High Tide Time	746
S10	06 Dec 2018	Low Tide (ft)	-0.7
S10	06 Dec 2018	Low Tide Time	1451
S10	06 Dec 2018	Comments	Resample; Kelp; Seagrass; Water clear
S10	07 Dec 2018	Arrive Time	915
S10	07 Dec 2018	Weather	Cloudy
S10	07 Dec 2018	Wind Speed (kts)	4
S10	07 Dec 2018	Wind Dir	SE
S10	07 Dec 2018	Animal Life	None
S10	07 Dec 2018	Floatables	None

Station	Date	Parameter	Value
S10	07 Dec 2018	Water Color	Green
S10	07 Dec 2018	Current Direction	SE
S10	07 Dec 2018	Water Temp (C)	17
S10	07 Dec 2018	Wave Height Low (ft)	4
S10	07 Dec 2018	High Tide (ft)	6.1
S10	07 Dec 2018	High Tide Time	817
S10	07 Dec 2018	Low Tide (ft)	-0.7
S10	07 Dec 2018	Low Tide Time	1528
S10	07 Dec 2018	Comments	Resample; Seagrass; Water turbid; Drift wood
S10	09 Dec 2018	Arrive Time	834
S10	09 Dec 2018	Weather	Sunny
S10	09 Dec 2018	Wind Speed (kts)	5.3
S10	09 Dec 2018	Wind Dir	E
S10	09 Dec 2018	Animal Life	10 Birds
S10	09 Dec 2018	Floatables	None
S10	09 Dec 2018	Water Color	Green
S10	09 Dec 2018	Current Direction	E
S10	09 Dec 2018	Water Temp (C)	15
S10	09 Dec 2018	Wave Height Low (ft)	4
S10	09 Dec 2018	High Tide (ft)	5.7
S10	09 Dec 2018	High Tide Time	919
S10	09 Dec 2018	Low Tide (ft)	2.2
S10	09 Dec 2018	Low Tide Time	314
S10	09 Dec 2018	Comments	Resample; Kelp; Seagrass; Debris; Water clear
S10	11 Dec 2018	Arrive Time	841
S10	11 Dec 2018	Weather	Partly Cloudy
S10	11 Dec 2018	Wind Speed (kts)	1.5
S10	11 Dec 2018	Wind Dir	E
S10	11 Dec 2018	Animal Life	None
S10	11 Dec 2018	Floatables	None
S10	11 Dec 2018	Water Color	Green
S10	11 Dec 2018	Current Direction	N
S10	11 Dec 2018	Water Temp (C)	14
S10	11 Dec 2018	Wave Height Low (ft)	3
S10	11 Dec 2018	High Tide (ft)	5
S10	11 Dec 2018	High Tide Time	1025
S10	11 Dec 2018	Low Tide (ft)	2.6
S10	11 Dec 2018	Low Tide Time	426
S10	11 Dec 2018	Comments	Kelp; Water clear
S10	13 Dec 2018	Arrive Time	840
S10	13 Dec 2018	Weather	Sunny
S10	13 Dec 2018	Wind Speed (kts)	5.8
S10	13 Dec 2018	Wind Dir	E
S10	13 Dec 2018	Animal Life	None
S10	13 Dec 2018	Floatables	None
S10	13 Dec 2018	Water Color	Green
S10	13 Dec 2018	Current Direction	N
S10	13 Dec 2018	Water Temp (C)	14
S10	13 Dec 2018	Wave Height Low (ft)	5
S10	13 Dec 2018	High Tide (ft)	4.1
S10	13 Dec 2018	High Tide Time	1154
S10	13 Dec 2018	Low Tide (ft)	3

Station	Date	Parameter	Value
S10	13 Dec 2018	Low Tide Time	631
S10	13 Dec 2018	Comments	Resample; Seagrass; Water clear
S10	14 Dec 2018	Arrive Time	900
S10	14 Dec 2018	Weather	Cloudy
S10	14 Dec 2018	Wind Speed (kts)	3.2
S10	14 Dec 2018	Wind Dir	W
S10	14 Dec 2018	Animal Life	None
S10	14 Dec 2018	Floatables	None
S10	14 Dec 2018	Water Color	Green
S10	14 Dec 2018	Current Direction	N
S10	14 Dec 2018	Water Temp (C)	15
S10	14 Dec 2018	Wave Height Low (ft)	3
S10	14 Dec 2018	High Tide (ft)	3.7
S10	14 Dec 2018	High Tide Time	1310
S10	14 Dec 2018	Low Tide (ft)	2.9
S10	14 Dec 2018	Low Tide Time	814
S10	14 Dec 2018	Comments	Resample; Kelp; Water clear
S10	16 Dec 2018	Arrive Time	958
S10	16 Dec 2018	Weather	Partly Cloudy
S10	16 Dec 2018	Wind Speed (kts)	2
S10	16 Dec 2018	Wind Dir	W
S10	16 Dec 2018	Animal Life	None
S10	16 Dec 2018	Floatables	None
S10	16 Dec 2018	Water Color	Green
S10	16 Dec 2018	Current Direction	N
S10	16 Dec 2018	Water Temp (C)	14
S10	16 Dec 2018	Wave Height Low (ft)	3
S10	16 Dec 2018	High Tide (ft)	4.4
S10	16 Dec 2018	High Tide Time	424
S10	16 Dec 2018	Low Tide (ft)	2
S10	16 Dec 2018	Low Tide Time	1057
S10	16 Dec 2018	Comments	Resample; Kelp; Seagrass; 4 Persons; Water clear
S10	18 Dec 2018	Arrive Time	853
S10	18 Dec 2018	Weather	Sunny
S10	18 Dec 2018	Wind Speed (kts)	4.2
S10	18 Dec 2018	Wind Dir	E
S10	18 Dec 2018	Animal Life	None
S10	18 Dec 2018	Floatables	Foam
S10	18 Dec 2018	Water Color	Green
S10	18 Dec 2018	Current Direction	N
S10	18 Dec 2018	Water Temp (C)	14
S10	18 Dec 2018	Wave Height Low (ft)	3
S10	18 Dec 2018	High Tide (ft)	5.2
S10	18 Dec 2018	High Tide Time	531
S10	18 Dec 2018	Low Tide (ft)	0.6
S10	18 Dec 2018	Low Tide Time	27
S10	18 Dec 2018	Comments	Kelp; Seagrass; Water clear
S10	20 Dec 2018	Arrive Time	925
S10	20 Dec 2018	Weather	Partly Cloudy
S10	20 Dec 2018	Wind Speed (kts)	0.6
S10	20 Dec 2018	Wind Dir	N

Station	Date	Parameter	Value
S10	20 Dec 2018	Animal Life	None
S10	20 Dec 2018	Floatables	None
S10	20 Dec 2018	Water Color	Green
S10	20 Dec 2018	Current Direction	N
S10	20 Dec 2018	Water Temp (C)	13
S10	20 Dec 2018	Wave Height Low (ft)	4
S10	20 Dec 2018	High Tide (ft)	6.1
S10	20 Dec 2018	High Tide Time	640
S10	20 Dec 2018	Low Tide (ft)	1.4
S10	20 Dec 2018	Low Tide Time	1225
S10	20 Dec 2018	Comments	Resample; Kelp; Water clear
S10	26 Dec 2018	Arrive Time	849
S10	26 Dec 2018	Weather	Sunny
S10	26 Dec 2018	Wind Speed (kts)	2.7
S10	26 Dec 2018	Wind Dir	W
S10	26 Dec 2018	Animal Life	1 Bird
S10	26 Dec 2018	Floatables	None
S10	26 Dec 2018	Water Color	Green
S10	26 Dec 2018	Current Direction	W
S10	26 Dec 2018	Water Temp (C)	15
S10	26 Dec 2018	Wave Height Low (ft)	4
S10	26 Dec 2018	High Tide (ft)	5.6
S10	26 Dec 2018	High Tide Time	1105
S10	26 Dec 2018	Low Tide (ft)	2
S10	26 Dec 2018	Low Tide Time	509
S10	26 Dec 2018	Comments	Kelp; Seagrass; Debris; Water clear
S10	27 Dec 2018	Arrive Time	1100
S10	27 Dec 2018	Weather	Partly Cloudy
S10	27 Dec 2018	Wind Speed (kts)	4.6
S10	27 Dec 2018	Wind Dir	W
S10	27 Dec 2018	Animal Life	None
S10	27 Dec 2018	Floatables	None
S10	27 Dec 2018	Water Color	Green
S10	27 Dec 2018	Current Direction	N
S10	27 Dec 2018	Water Temp (C)	14
S10	27 Dec 2018	Wave Height Low (ft)	3
S10	27 Dec 2018	High Tide (ft)	4.1
S10	27 Dec 2018	High Tide Time	103
S10	27 Dec 2018	Low Tide (ft)	2.2
S10	27 Dec 2018	Low Tide Time	623
S10	27 Dec 2018	Comments	Resample; Kelp; 3 Persons; Water clear
S10	29 Dec 2018	Arrive Time	740
S10	29 Dec 2018	Weather	Sunny
S10	29 Dec 2018	Wind Speed (kts)	0
S10	29 Dec 2018	Wind Dir	
S10	29 Dec 2018	Animal Life	15 Shorebirds
S10	29 Dec 2018	Floatables	None
S10	29 Dec 2018	Water Color	Green
S10	29 Dec 2018	Current Direction	
S10	29 Dec 2018	Water Temp (C)	13
S10	29 Dec 2018	Wave Height Low (ft)	2
S10	29 Dec 2018	High Tide (ft)	4.6

Station	Date	Parameter	Value
S10	29 Dec 2018	High Tide Time	310
S10	29 Dec 2018	Low Tide (ft)	1.8
S10	29 Dec 2018	Low Tide Time	930
S10	29 Dec 2018	Comments	Resample; Kelp; Water clear
S10	31 Dec 2018	Arrive Time	803
S10	31 Dec 2018	Weather	Cloudy
S10	31 Dec 2018	Wind Speed (kts)	15.9
S10	31 Dec 2018	Wind Dir	N
S10	31 Dec 2018	Animal Life	2 Birds
S10	31 Dec 2018	Floatables	None
S10	31 Dec 2018	Water Color	Green
S10	31 Dec 2018	Current Direction	N
S10	31 Dec 2018	Water Temp (C)	14
S10	31 Dec 2018	Wave Height Low (ft)	3
S10	31 Dec 2018	High Tide (ft)	5.3
S10	31 Dec 2018	High Tide Time	457
S10	31 Dec 2018	Low Tide (ft)	0.5
S10	31 Dec 2018	Low Tide Time	0
S10	31 Dec 2018	Comments	Resample; Debris; Water clear
S11	04 Dec 2018	Arrive Time	1019
S11	04 Dec 2018	Weather	Partly Cloudy
S11	04 Dec 2018	Wind Speed (kts)	11.5
S11	04 Dec 2018	Wind Dir	N
S11	04 Dec 2018	Animal Life	1 Dog
S11	04 Dec 2018	Floatables	None
S11	04 Dec 2018	Water Color	Green
S11	04 Dec 2018	Current Direction	N
S11	04 Dec 2018	Water Temp (C)	16
S11	04 Dec 2018	Wave Height Low (ft)	2
S11	04 Dec 2018	High Tide (ft)	6
S11	04 Dec 2018	High Tide Time	641
S11	04 Dec 2018	Low Tide (ft)	1
S11	04 Dec 2018	Low Tide Time	1224
S11	04 Dec 2018	Comments	Seagrass; 1 Person; Water clear
S11	06 Dec 2018	Arrive Time	1136
S11	06 Dec 2018	Weather	Partly Cloudy
S11	06 Dec 2018	Wind Speed (kts)	17.1
S11	06 Dec 2018	Wind Dir	S
S11	06 Dec 2018	Animal Life	1 Dog
S11	06 Dec 2018	Floatables	None
S11	06 Dec 2018	Water Color	Brown
S11	06 Dec 2018	Current Direction	N
S11	06 Dec 2018	Water Temp (C)	15
S11	06 Dec 2018	Wave Height Low (ft)	4
S11	06 Dec 2018	High Tide (ft)	6.2
S11	06 Dec 2018	High Tide Time	746
S11	06 Dec 2018	Low Tide (ft)	-0.7
S11	06 Dec 2018	Low Tide Time	1451
S11	06 Dec 2018	Comments	Resample; Kelp; 2 Persons; Water clear
S11	07 Dec 2018	Arrive Time	1045
S11	07 Dec 2018	Weather	Cloudy

Station	Date	Parameter	Value
S11	07 Dec 2018	Wind Speed (kts)	5
S11	07 Dec 2018	Wind Dir	SE
S11	07 Dec 2018	Animal Life	None
S11	07 Dec 2018	Floatables	None
S11	07 Dec 2018	Water Color	Green
S11	07 Dec 2018	Current Direction	SE
S11	07 Dec 2018	Water Temp (C)	15
S11	07 Dec 2018	Wave Height Low (ft)	4
S11	07 Dec 2018	High Tide (ft)	6.1
S11	07 Dec 2018	High Tide Time	817
S11	07 Dec 2018	Low Tide (ft)	-0.7
S11	07 Dec 2018	Low Tide Time	1528
S11	07 Dec 2018	Comments	Resample; Kelp; Seagrass; 1 Jogger; Water turbid
S11	09 Dec 2018	Arrive Time	1004
S11	09 Dec 2018	Weather	Sunny
S11	09 Dec 2018	Wind Speed (kts)	5.6
S11	09 Dec 2018	Wind Dir	E
S11	09 Dec 2018	Animal Life	3 Shorebirds
S11	09 Dec 2018	Floatables	None
S11	09 Dec 2018	Water Color	Green
S11	09 Dec 2018	Current Direction	E
S11	09 Dec 2018	Water Temp (C)	18
S11	09 Dec 2018	Wave Height Low (ft)	3
S11	09 Dec 2018	High Tide (ft)	5.7
S11	09 Dec 2018	High Tide Time	919
S11	09 Dec 2018	Low Tide (ft)	-0.4
S11	09 Dec 2018	Low Tide Time	1641
S11	09 Dec 2018	Comments	Resample; Kelp; Seagrass; Debris; Water clear
S11	11 Dec 2018	Arrive Time	1008
S11	11 Dec 2018	Weather	Partly Cloudy
S11	11 Dec 2018	Wind Speed (kts)	6
S11	11 Dec 2018	Wind Dir	W
S11	11 Dec 2018	Animal Life	None
S11	11 Dec 2018	Floatables	None
S11	11 Dec 2018	Water Color	Green
S11	11 Dec 2018	Current Direction	N
S11	11 Dec 2018	Water Temp (C)	16
S11	11 Dec 2018	Wave Height Low (ft)	5
S11	11 Dec 2018	High Tide (ft)	5
S11	11 Dec 2018	High Tide Time	1025
S11	11 Dec 2018	Low Tide (ft)	2.6
S11	11 Dec 2018	Low Tide Time	426
S11	11 Dec 2018	Comments	Kelp; Seagrass; Water clear
S11	13 Dec 2018	Arrive Time	1000
S11	13 Dec 2018	Weather	Sunny
S11	13 Dec 2018	Wind Speed (kts)	5.5
S11	13 Dec 2018	Wind Dir	NE
S11	13 Dec 2018	Animal Life	1 Dog
S11	13 Dec 2018	Floatables	None
S11	13 Dec 2018	Water Color	Green
S11	13 Dec 2018	Current Direction	N
S11	13 Dec 2018	Water Temp (C)	16

Station	Date	Parameter	Value
S11	13 Dec 2018	Wave Height Low (ft)	3
S11	13 Dec 2018	High Tide (ft)	4.1
S11	13 Dec 2018	High Tide Time	1154
S11	13 Dec 2018	Low Tide (ft)	3
S11	13 Dec 2018	Low Tide Time	631
S11	13 Dec 2018	Comments	Resample; Seagrass; 3 Persons; Water clear
S11	14 Dec 2018	Arrive Time	1017
S11	14 Dec 2018	Weather	Cloudy
S11	14 Dec 2018	Wind Speed (kts)	1.5
S11	14 Dec 2018	Wind Dir	SE
S11	14 Dec 2018	Animal Life	None
S11	14 Dec 2018	Floatables	None
S11	14 Dec 2018	Water Color	Green
S11	14 Dec 2018	Current Direction	N
S11	14 Dec 2018	Water Temp (C)	15
S11	14 Dec 2018	Wave Height Low (ft)	4
S11	14 Dec 2018	High Tide (ft)	3.7
S11	14 Dec 2018	High Tide Time	1310
S11	14 Dec 2018	Low Tide (ft)	2.9
S11	14 Dec 2018	Low Tide Time	814
S11	14 Dec 2018	Comments	Resample; Kelp; Water clear
S11	16 Dec 2018	Arrive Time	1053
S11	16 Dec 2018	Weather	Partly Cloudy
S11	16 Dec 2018	Wind Speed (kts)	2.2
S11	16 Dec 2018	Wind Dir	W
S11	16 Dec 2018	Animal Life	None
S11	16 Dec 2018	Floatables	None
S11	16 Dec 2018	Water Color	Green
S11	16 Dec 2018	Current Direction	N
S11	16 Dec 2018	Water Temp (C)	14
S11	16 Dec 2018	Wave Height Low (ft)	5
S11	16 Dec 2018	High Tide (ft)	3.3
S11	16 Dec 2018	High Tide Time	1610
S11	16 Dec 2018	Low Tide (ft)	2
S11	16 Dec 2018	Low Tide Time	1057
S11	16 Dec 2018	Comments	Resample; Kelp; Seagrass; 1 Jogger; 1 Person; Water clear
S11	18 Dec 2018	Arrive Time	1040
S11	18 Dec 2018	Weather	Sunny
S11	18 Dec 2018	Wind Speed (kts)	5.5
S11	18 Dec 2018	Wind Dir	W
S11	18 Dec 2018	Animal Life	None
S11	18 Dec 2018	Floatables	None
S11	18 Dec 2018	Water Color	Green
S11	18 Dec 2018	Current Direction	N
S11	18 Dec 2018	Water Temp (C)	16
S11	18 Dec 2018	Wave Height Low (ft)	6
S11	18 Dec 2018	High Tide (ft)	5.2
S11	18 Dec 2018	High Tide Time	531
S11	18 Dec 2018	Low Tide (ft)	0.6
S11	18 Dec 2018	Low Tide Time	27
S11	18 Dec 2018	Comments	Water clear

Station	Date	Parameter	Value
S11	26 Dec 2018	Arrive Time	834
S11	26 Dec 2018	Weather	Sunny
S11	26 Dec 2018	Wind Speed (kts)	6
S11	26 Dec 2018	Wind Dir	SE
S11	26 Dec 2018	Animal Life	None
S11	26 Dec 2018	Floatables	None
S11	26 Dec 2018	Water Color	Green
S11	26 Dec 2018	Current Direction	SE
S11	26 Dec 2018	Water Temp (C)	12
S11	26 Dec 2018	Wave Height Low (ft)	3
S11	26 Dec 2018	High Tide (ft)	5.6
S11	26 Dec 2018	High Tide Time	1105
S11	26 Dec 2018	Low Tide (ft)	2
S11	26 Dec 2018	Low Tide Time	509
S11	26 Dec 2018	Comments	Kelp; Seagrass; 2 Surfers; Water turbid
S12	04 Dec 2018	Arrive Time	1035
S12	04 Dec 2018	Weather	Partly Cloudy
S12	04 Dec 2018	Wind Speed (kts)	6
S12	04 Dec 2018	Wind Dir	N
S12	04 Dec 2018	Animal Life	2 Dogs
S12	04 Dec 2018	Floatables	None
S12	04 Dec 2018	Water Color	Green
S12	04 Dec 2018	Current Direction	N
S12	04 Dec 2018	Water Temp (C)	16
S12	04 Dec 2018	Wave Height Low (ft)	2
S12	04 Dec 2018	High Tide (ft)	6
S12	04 Dec 2018	High Tide Time	641
S12	04 Dec 2018	Low Tide (ft)	1
S12	04 Dec 2018	Low Tide Time	1224
S12	04 Dec 2018	Comments	Kelp; Seagrass; 4 Persons; Water clear
S12	11 Dec 2018	Arrive Time	1026
S12	11 Dec 2018	Weather	Partly Cloudy
S12	11 Dec 2018	Wind Speed (kts)	5.2
S12	11 Dec 2018	Wind Dir	N
S12	11 Dec 2018	Animal Life	2 Dogs
S12	11 Dec 2018	Floatables	None
S12	11 Dec 2018	Water Color	Green
S12	11 Dec 2018	Current Direction	N
S12	11 Dec 2018	Water Temp (C)	15
S12	11 Dec 2018	Wave Height Low (ft)	3
S12	11 Dec 2018	High Tide (ft)	5
S12	11 Dec 2018	High Tide Time	1025
S12	11 Dec 2018	Low Tide (ft)	2.6
S12	11 Dec 2018	Low Tide Time	426
S12	11 Dec 2018	Comments	Kelp; Seagrass; 6 Persons; Water clear
S12	13 Dec 2018	Arrive Time	1018
S12	13 Dec 2018	Weather	Sunny
S12	13 Dec 2018	Wind Speed (kts)	1.5
S12	13 Dec 2018	Wind Dir	E
S12	13 Dec 2018	Animal Life	1 Dog
S12	13 Dec 2018	Floatables	None
S12	13 Dec 2018	Water Color	Green

Station	Date	Parameter	Value
S12	13 Dec 2018	Current Direction	N
S12	13 Dec 2018	Water Temp (C)	16
S12	13 Dec 2018	Wave Height Low (ft)	3
S12	13 Dec 2018	High Tide (ft)	4.1
S12	13 Dec 2018	High Tide Time	1154
S12	13 Dec 2018	Low Tide (ft)	3
S12	13 Dec 2018	Low Tide Time	631
S12	13 Dec 2018	Comments	Resample; 4 Persons; Water clear
S12	18 Dec 2018	Arrive Time	1016
S12	18 Dec 2018	Weather	Sunny
S12	18 Dec 2018	Wind Speed (kts)	5.2
S12	18 Dec 2018	Wind Dir	NW
S12	18 Dec 2018	Animal Life	None
S12	18 Dec 2018	Floatables	Foam
S12	18 Dec 2018	Water Color	Green
S12	18 Dec 2018	Current Direction	N
S12	18 Dec 2018	Water Temp (C)	17
S12	18 Dec 2018	Wave Height Low (ft)	6
S12	18 Dec 2018	High Tide (ft)	5.2
S12	18 Dec 2018	High Tide Time	531
S12	18 Dec 2018	Low Tide (ft)	0.6
S12	18 Dec 2018	Low Tide Time	27
S12	18 Dec 2018	Comments	3 Surfers; Water clear
S12	26 Dec 2018	Arrive Time	911
S12	26 Dec 2018	Weather	Sunny
S12	26 Dec 2018	Wind Speed (kts)	1
S12	26 Dec 2018	Wind Dir	SE
S12	26 Dec 2018	Animal Life	None
S12	26 Dec 2018	Floatables	None
S12	26 Dec 2018	Water Color	Green
S12	26 Dec 2018	Current Direction	SE
S12	26 Dec 2018	Water Temp (C)	11
S12	26 Dec 2018	Wave Height Low (ft)	2
S12	26 Dec 2018	High Tide (ft)	5.6
S12	26 Dec 2018	High Tide Time	1105
S12	26 Dec 2018	Low Tide (ft)	2
S12	26 Dec 2018	Low Tide Time	509
S12	26 Dec 2018	Comments	Kelp; Seagrass; 5 Persons; Water turbid

Kelp Stations

Table 3.1

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

Date	I19	I24	I25	I26	I32	I39	I40
01 Dec 2018	3*	2*	2*	2*	2*	3*	2*
02 Dec 2018	3*	2*	2*	2*	2*	3*	2*
03 Dec 2018	15	9	10	3	3	4	9
04 Dec 2018	15	9	10	3	3	4	9
05 Dec 2018	19*	14*	15*	3*	4*	4*	13*
06 Dec 2018	19*	14*	15*	3*	4*	4*	13*
07 Dec 2018	19*	14*	15*	3*	4*	4*	13*
08 Dec 2018	19*	14*	15*	3*	4*	4*	13*
09 Dec 2018	19*	14*	15*	3*	4*	4*	13*
10 Dec 2018	62	54	26	6	9	6	48
11 Dec 2018	62	54	26	6	9	6	48
12 Dec 2018	62	54	26	6	9	6	48
13 Dec 2018	62	54	26	6	9	6	48
14 Dec 2018	147*	124*	49*	8*	13*	7*	105*
15 Dec 2018	147*	124*	49*	8*	13*	7*	105*
16 Dec 2018	147*	124*	49*	8*	13*	7*	105*
17 Dec 2018	147*	124*	49*	8*	12	6	105*
18 Dec 2018	147*	124*	49*	8*	12	6	105*
19 Dec 2018	618*	488*	143*	13*	19*	7*	395*
20 Dec 2018	907*	353*	88*	14*	19*	7*	275*
21 Dec 2018	907*	353*	88*	14*	19*	7*	275*
22 Dec 2018	907*	353*	88*	14*	19*	7*	275*
23 Dec 2018	907*	353*	88*	14*	19*	7*	275*
24 Dec 2018	907*	353*	88*	14*	19*	7*	275*
25 Dec 2018	907*	353*	88*	14*	19*	7*	275*
26 Dec 2018	5022*	1980*	309*	27*	39*	8*	1423*
27 Dec 2018	6675*	1816*	448*	32*	19*	6*	2549*
28 Dec 2018	6675*	1816*	448*	32*	19*	6*	2549*
29 Dec 2018	6675*	1816*	448*	32*	19*	6*	2549*
30 Dec 2018	6675*	1816*	448*	32*	19*	6*	2549*
31 Dec 2018	6675*	1816*	448*	32*	19*	6*	2549*

* Geometric mean calculated using n<5

Table 3.2

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

Date	I19	I24	I25	I26	I32	I39	I40
01 Dec 2018	2*	2*	2*	2*	2*	2*	2*
02 Dec 2018	2*	2*	2*	2*	2*	2*	2*
03 Dec 2018	6	6	6	2	2	2	6
04 Dec 2018	6	6	6	2	2	2	6
05 Dec 2018	8*	7*	8*	2*	2*	2*	7*
06 Dec 2018	8*	7*	8*	2*	2*	2*	7*
07 Dec 2018	8*	7*	8*	2*	2*	2*	7*
08 Dec 2018	8*	7*	8*	2*	2*	2*	7*
09 Dec 2018	8*	7*	8*	2*	2*	2*	7*
10 Dec 2018	20	19	12	3	4	2	19
11 Dec 2018	20	19	12	3	4	2	19
12 Dec 2018	20	19	12	3	4	2	19
13 Dec 2018	20	19	12	3	4	2	19
14 Dec 2018	36*	34*	18*	4*	5*	3*	32*
15 Dec 2018	36*	34*	18*	4*	5*	3*	32*
16 Dec 2018	36*	34*	18*	4*	5*	3*	32*
17 Dec 2018	36*	34*	18*	4*	4	2	32*
18 Dec 2018	36*	34*	18*	4*	4	2	32*
19 Dec 2018	95*	88*	38*	5*	5*	3*	82*
20 Dec 2018	133*	65*	18*	4*	5*	3*	59*
21 Dec 2018	133*	65*	18*	4*	5*	3*	59*
22 Dec 2018	133*	65*	18*	4*	5*	3*	59*
23 Dec 2018	133*	65*	18*	4*	5*	3*	59*
24 Dec 2018	133*	65*	18*	4*	5*	3*	59*
25 Dec 2018	133*	65*	18*	4*	5*	3*	59*
26 Dec 2018	539*	206*	38*	5*	8*	3*	183*
27 Dec 2018	700*	249*	56*	6*	5*	3*	330*
28 Dec 2018	700*	249*	56*	6*	5*	3*	330*
29 Dec 2018	700*	249*	56*	6*	5*	3*	330*
30 Dec 2018	700*	249*	56*	6*	5*	3*	330*
31 Dec 2018	700*	249*	56*	6*	5*	3*	330*

* Geometric mean calculated using n<5

Table 3.3

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

Date	I19	I24	I25	I26	I32	I39	I40
01 Dec 2018	2*	2*	2*	2*	2*	2*	2*
02 Dec 2018	2*	2*	2*	2*	2*	2*	2*
03 Dec 2018	4	4	4	2	2	2	3
04 Dec 2018	4	4	4	2	2	2	3
05 Dec 2018	4*	4*	4*	2*	2*	2*	3*
06 Dec 2018	4*	4*	4*	2*	2*	2*	3*
07 Dec 2018	4*	4*	4*	2*	2*	2*	3*
08 Dec 2018	4*	4*	4*	2*	2*	2*	3*
09 Dec 2018	4*	4*	4*	2*	2*	2*	3*
10 Dec 2018	9	10	7	4	4	3	7
11 Dec 2018	9	10	7	4	4	3	7
12 Dec 2018	9	10	7	4	4	3	7
13 Dec 2018	9	10	7	4	4	3	7
14 Dec 2018	13*	15*	10*	4*	5*	3*	10*
15 Dec 2018	13*	15*	10*	4*	5*	3*	10*
16 Dec 2018	13*	15*	10*	4*	5*	3*	10*
17 Dec 2018	13*	15*	10*	4*	6	3	10*
18 Dec 2018	13*	15*	10*	4*	6	3	10*
19 Dec 2018	24*	28*	16*	6*	8*	3*	18*
20 Dec 2018	33*	20*	17*	6*	8*	3*	18*
21 Dec 2018	33*	20*	17*	6*	8*	3*	18*
22 Dec 2018	33*	20*	17*	6*	8*	3*	18*
23 Dec 2018	33*	20*	17*	6*	8*	3*	18*
24 Dec 2018	33*	20*	17*	6*	8*	3*	18*
25 Dec 2018	33*	20*	17*	6*	8*	3*	18*
26 Dec 2018	84*	42*	34*	9*	12*	3*	37*
27 Dec 2018	120*	50*	43*	7*	8*	3*	61*
28 Dec 2018	120*	50*	43*	7*	8*	3*	61*
29 Dec 2018	120*	50*	43*	7*	8*	3*	61*
30 Dec 2018	120*	50*	43*	7*	8*	3*	61*
31 Dec 2018	120*	50*	43*	7*	8*	3*	61*

* 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
03 Dec 2018	E	IC	E	IC	IC	IC	IC
10 Dec 2018	E	E	IC	IC	IC	IC	E
17 Dec 2018	ns	ns	ns	ns	IC	IC	ns
20 Dec 2018	IC	IC	IC	IC	ns	ns	IC
27 Dec 2018	E	IC	IC	IC	IC	IC	E

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
03 Dec 2018	E	E	E	IC	IC	IC	E
10 Dec 2018	E	E	IC	IC	IC	IC	E
17 Dec 2018	ns	ns	ns	ns	IC	IC	ns
20 Dec 2018	E	IC	IC	IC	ns	ns	IC
27 Dec 2018	E	E	IC	IC	IC	IC	E

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
03 Dec 2018	IC	IC	IC	IC	IC	IC	IC
10 Dec 2018	E	E	IC	E	E	IC	E
17 Dec 2018	ns	ns	ns	ns	IC	IC	ns
20 Dec 2018	E	IC	IC	IC	ns	ns	IC
27 Dec 2018	E	IC	IC	IC	IC	IC	E

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
03 Dec 2018	E	E	E	IC	IC	IC	E
10 Dec 2018	E	IC	IC	IC	IC	IC	E
17 Dec 2018	ns	ns	ns	ns	IC	IC	ns
20 Dec 2018	E	IC	IC	IC	ns	ns	IC
27 Dec 2018	E	E	E	IC	IC	IC	E

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
I19	03 Dec 2018	1210	2	5400	560	14e	0.10	16.9	53.39	7.9	33.68	8.1
I19	03 Dec 2018	1210	6	11000	620	100	0.06	16.1	44.85	7.3	33.62	8.1
I19	03 Dec 2018	1210	11	1200	60e	18e	0.05	15.3	48.10	6.8	33.59	8.0
I19	10 Dec 2018	1120	2	5400	760	120e	0.14	16.7	71.43	8.1	33.53	8.1
I19	10 Dec 2018	1120	6	6200	1200	180e	0.19	16.7	71.68	8.0	33.54	8.1
I19	10 Dec 2018	1120	11	11000	1200e	160e	0.11	16.7	72.08	8.0	33.55	8.1
I19	20 Dec 2018	838	2	4600	420	84	0.09	16.4	49.32	7.8	33.58	8.1
I19	20 Dec 2018	838	6	1600e	360e	66	0.22	16.4	49.94	7.7	33.58	8.1
I19	20 Dec 2018	838	11	2400e	300e	110	0.12	16.3	50.43	7.5	33.58	8.1
I19	27 Dec 2018	1149	2	14000	1200e	300e	0.09	16.2	51.59	8.0	33.54	8.1
I19	27 Dec 2018	1149	6	17000e	1400e	300e	0.08	16.1	51.82	8.0	33.54	8.1
I19	27 Dec 2018	1149	11	>16000	2000e	460	0.12	16.1	51.95	7.9	33.55	8.1
I24	03 Dec 2018	1234	2	9400	320e	46	0.03	16.9	57.87	7.7	33.67	8.1
I24	03 Dec 2018	1234	6	3000e	500	52	0.17	16.6	56.55	7.4	33.69	8.1
I24	03 Dec 2018	1234	11	2000e	160e	28e	0.08	15.3	33.29	6.5	33.60	8.0
I24	10 Dec 2018	1143	2	>16000	1600e	220e	0.10	16.5	49.69	7.9	33.41	8.1
I24	10 Dec 2018	1143	6	>16000	1200e	400	0.07	16.4	51.55	7.8	33.44	8.1
I24	10 Dec 2018	1143	11	4400	280e	200e	0.06	16.6	57.54	7.5	33.52	8.1
I24	20 Dec 2018	815	2	120e	32e	8e	0.27	16.5	48.77	7.9	33.58	8.1
I24	20 Dec 2018	815	6	120e	18e	4e	0.15	16.5	48.11	7.8	33.58	8.1
I24	20 Dec 2018	815	11	160e	28e	8e	0.17	16.5	13.64	7.2	33.59	8.0
I24	27 Dec 2018	1208	2	1400	320e	100	0.23	16.1	59.06	7.9	33.58	8.1
I24	27 Dec 2018	1208	6	1600	480	66	0.30	16.1	56.95	7.8	33.58	8.1
I24	27 Dec 2018	1208	11	1200	520	80	0.43	16.1	42.44	7.7	33.59	8.1
I25	03 Dec 2018	1243	2	13000	720	56	0.06	16.9	58.51	7.7	33.65	8.1
I25	03 Dec 2018	1243	6	5000	540	52	0.11	16.4	56.72	7.4	33.68	8.1
I25	03 Dec 2018	1243	9	3000	320e	16e	0.11	15.5	34.88	6.7	33.61	8.0
I25	10 Dec 2018	1153	2	70	12e	32e	0.17	16.8	73.45	7.9	33.55	8.1
I25	10 Dec 2018	1153	6	280e	74	66	0.26	16.7	71.20	7.8	33.55	8.1
I25	10 Dec 2018	1153	9	280e	68	56	0.24	16.7	72.76	7.8	33.55	8.1
I25	20 Dec 2018	807	2	<20	<2	12e	0.10	16.5	32.60	7.9	33.58	8.0
I25	20 Dec 2018	807	6	20e	<2	20e	0.10	16.5	25.52	7.9	33.57	8.0
I25	20 Dec 2018	807	9	<20	2e	26e	0.10	16.5	9.05	7.7	33.57	8.0
I25	27 Dec 2018	1214	2	1100	180e	88	0.16	16.1	59.41	7.8	33.59	8.1
I25	27 Dec 2018	1214	6	1500	120e	68	0.08	16.1	59.98	7.8	33.59	8.1
I25	27 Dec 2018	1214	9	1500	260e	90	0.17	16.1	59.29	7.8	33.58	8.1

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
I26	03 Dec 2018	1301	2	8e	<2	<2	0.25	16.8	60.47	7.7	33.72	8.1
I26	03 Dec 2018	1301	6	<2	<2	<2	1.00	16.4	61.78	7.5	33.70	8.1
I26	03 Dec 2018	1301	9	<20	<2	<2	0.10	15.1	39.61	6.8	33.59	8.0
I26	10 Dec 2018	1204	2	26e	4e	6e	0.15	16.9	74.68	7.9	33.56	8.1
I26	10 Dec 2018	1204	6	60e	10e	22e	0.17	16.7	74.29	7.8	33.56	8.1
I26	10 Dec 2018	1204	9	260e	60	120e	0.23	16.6	58.98	7.5	33.54	8.1
I26	20 Dec 2018	857	2	<20	<2	4e	0.10	16.5	49.66	7.9	33.56	8.1
I26	20 Dec 2018	857	6	10e	<2	6e	0.20	16.5	47.70	7.9	33.56	8.1
I26	20 Dec 2018	857	9	<20	<2	10e	0.10	16.5	40.65	7.8	33.56	8.1
I26	27 Dec 2018	1223	2	<20	14e	4e	0.70	16.0	49.77	7.8	33.52	8.1
I26	27 Dec 2018	1223	6	80e	2e	4e	0.02	16.0	51.83	7.9	33.61	8.1
I26	27 Dec 2018	1223	9	60e	14e	2e	0.23	16.0	51.52	7.8	33.61	8.1
I32	03 Dec 2018	1313	2	<2	<2	<2	1.00	16.7	60.49	7.6	33.71	8.1
I32	03 Dec 2018	1313	6	<20	<2	<2	0.10	15.6	63.69	7.1	33.63	8.1
I32	03 Dec 2018	1313	9	40e	6e	<2	0.15	15.3	55.32	6.9	33.62	8.1
I32	10 Dec 2018	1219	2	20e	10e	30e	0.50	16.5	61.39	8.2	33.47	8.1
I32	10 Dec 2018	1219	6	460	74	100e	0.16	16.3	60.71	8.0	33.47	8.1
I32	10 Dec 2018	1219	9	440	110	160e	0.25	16.2	59.27	8.1	33.47	8.1
I32	17 Dec 2018	1155	2	<2	<2	4e	1.00	16.8	59.44	8.1	33.55	8.1
I32	17 Dec 2018	1155	6	20e	<2	10e	0.10	16.4	47.05	8.1	33.55	8.1
I32	17 Dec 2018	1155	9	6e	<2	12e	0.33	16.4	42.68	8.2	33.55	8.1
I32	27 Dec 2018	1234	2	<2	<2	<2	1.00	16.0	58.86	8.0	33.62	8.1
I32	27 Dec 2018	1234	6	<2	<2	<2	1.00	16.0	59.35	8.0	33.62	8.1
I32	27 Dec 2018	1234	9	<2	<2	<2	1.00	16.0	59.65	7.9	33.62	8.1
I39	03 Dec 2018	1152	2	<2	<2	<2	1.00	16.6	64.81	7.6	33.70	8.1
I39	03 Dec 2018	1152	12	16e	4e	<2	0.25	14.4	79.49	6.7	33.57	8.0
I39	03 Dec 2018	1152	18	38e	4e	<2	0.11	14.3	76.17	6.6	33.57	8.0
I39	10 Dec 2018	1055	2	<2	<2	<2	1.00	17.1	86.21	7.8	33.64	8.1
I39	10 Dec 2018	1055	12	<2	<2	<2	1.00	17.1	86.13	7.8	33.64	8.1
I39	10 Dec 2018	1055	18	40e	6e	24e	0.15	16.9	72.44	7.6	33.62	8.1
I39	17 Dec 2018	1054	2	<2	<2	<2	1.00	16.8	78.23	7.8	33.59	8.1
I39	17 Dec 2018	1054	12	2e	<2	<2	1.00	16.6	76.94	7.8	33.59	8.1
I39	17 Dec 2018	1054	18	<2	<2	<2	1.00	16.5	68.17	7.4	33.60	8.1
I39	27 Dec 2018	1123	2	<2	<2	<2	1.00	16.1	81.39	7.8	33.63	8.1
I39	27 Dec 2018	1123	12	<2	<2	<2	1.00	15.9	78.26	7.7	33.63	8.1
I39	27 Dec 2018	1123	18	<2	<2	<2	1.00	15.8	73.73	7.5	33.61	8.1
I40	03 Dec 2018	1223	2	6400	580	26e	0.09	17.0	52.06	7.8	33.52	8.1
I40	03 Dec 2018	1223	6	3400e	440	28e	0.13	16.2	46.36	7.1	33.65	8.1
I40	03 Dec 2018	1223	9	720	60e	<2	0.08	15.3	43.12	6.7	33.59	8.1
I40	10 Dec 2018	1134	2	>16000	1200e	80e	0.07	16.6	56.88	8.0	33.50	8.1
I40	10 Dec 2018	1134	6	5600	480	120e	0.09	16.6	61.44	7.9	33.55	8.1

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
I40	10 Dec 2018	1134	9	4800	640	260e	0.13	16.5	46.51	7.7	33.55	8.1
I40	20 Dec 2018	826	2	140e	26e	12e	0.19	16.5	43.64	7.9	33.59	8.1
I40	20 Dec 2018	826	6	40e	22e	20e	0.55	16.5	41.43	7.8	33.59	8.1
I40	20 Dec 2018	826	9	100e	18e	22e	0.18	16.5	34.93	7.7	33.59	8.1
I40	27 Dec 2018	1200	2	16000	2600e	180e	0.16	16.1	52.66	8.0	33.53	8.1
I40	27 Dec 2018	1200	6	14000	1200	340e	0.09	16.1	52.45	8.0	33.53	8.1
I40	27 Dec 2018	1200	9	14000	2000e	280e	0.14	16.0	46.96	8.0	33.55	8.1

ns = not sampled

ND = no data

Comments

Station	Date	Depth	Parameter	Comments
I25	17 Dec 2018			Unable to sample due to unsafe conditions
I19	17 Dec 2018			Unable to sample due to unsafe conditions
I24	17 Dec 2018			Unable to sample due to unsafe conditions
I26	17 Dec 2018			Unable to sample due to unsafe conditions
I40	17 Dec 2018			Unable to sample due to unsafe conditions

Table 3.9

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

Station	Date	Parameter	Value
I19	03 Dec 2018	Depth (m)	9
I19	03 Dec 2018	Arrive Time	1210
I19	03 Dec 2018	Depart Time	1216
I19	03 Dec 2018	Air Temp (C)	16
I19	03 Dec 2018	Weather	Clear
I19	03 Dec 2018	Visibility (mi)	15
I19	03 Dec 2018	Wind Speed (kts)	10
I19	03 Dec 2018	Wind Dir	SW
I19	03 Dec 2018	Water Color	Green
I19	03 Dec 2018	Wave Ht Low (ft)	4
I19	03 Dec 2018	Wave Period (sec)	13
I19	03 Dec 2018	Sea State	Light chop
I19	03 Dec 2018	High Tide (ft)	5.76
I19	03 Dec 2018	High Tide Time	607
I19	03 Dec 2018	Low Tide (ft)	0.18
I19	03 Dec 2018	Low Tide Time	53
I19	03 Dec 2018	Comments	none
I19	10 Dec 2018	Depth (m)	12
I19	10 Dec 2018	Arrive Time	1120
I19	10 Dec 2018	Depart Time	1125
I19	10 Dec 2018	Air Temp (C)	16
I19	10 Dec 2018	Weather	Overcast
I19	10 Dec 2018	Visibility (mi)	12
I19	10 Dec 2018	Wind Speed (kts)	4
I19	10 Dec 2018	Wind Dir	N
I19	10 Dec 2018	Water Color	Green
I19	10 Dec 2018	Wave Ht Low (ft)	3
I19	10 Dec 2018	Wave Period (sec)	13
I19	10 Dec 2018	Sea State	Calm
I19	10 Dec 2018	High Tide (ft)	5.35
I19	10 Dec 2018	High Tide Time	951
I19	10 Dec 2018	Low Tide (ft)	2.39
I19	10 Dec 2018	Low Tide Time	348
I19	10 Dec 2018	Comments	none
I19	17 Dec 2018	Depth (m)	15
I19	17 Dec 2018	Arrive Time	1115
I19	17 Dec 2018	Depart Time	1116
I19	17 Dec 2018	Air Temp (C)	16
I19	17 Dec 2018	Weather	Partly Cloudy
I19	17 Dec 2018	Visibility (mi)	10
I19	17 Dec 2018	Wind Speed (kts)	1
I19	17 Dec 2018	Wind Dir	SW
I19	17 Dec 2018	Water Color	Brownish-Green
I19	17 Dec 2018	Wave Ht Low (ft)	10
I19	17 Dec 2018	Wave Period (sec)	13
I19	17 Dec 2018	Sea State	Calm
I19	17 Dec 2018	High Tide (ft)	4.76
I19	17 Dec 2018	High Tide Time	458
I19	17 Dec 2018	Low Tide (ft)	1.31

Station	Date	Parameter	Value
I19	17 Dec 2018	Low Tide Time	1146
I19	17 Dec 2018	Comments	Unable to approach station due to unsafe conditions
I19	20 Dec 2018	Depth (m)	10
I19	20 Dec 2018	Arrive Time	838
I19	20 Dec 2018	Depart Time	841
I19	20 Dec 2018	Air Temp (C)	15
I19	20 Dec 2018	Weather	Partly Cloudy
I19	20 Dec 2018	Visibility (mi)	6
I19	20 Dec 2018	Wind Speed (kts)	11
I19	20 Dec 2018	Wind Dir	N
I19	20 Dec 2018	Water Color	Brownish-Green
I19	20 Dec 2018	Wave Ht Low (ft)	8
I19	20 Dec 2018	Wave Period (sec)	13
I19	20 Dec 2018	Sea State	Calm
I19	20 Dec 2018	High Tide (ft)	6.1
I19	20 Dec 2018	High Tide Time	640
I19	20 Dec 2018	Low Tide (ft)	1.39
I19	20 Dec 2018	Low Tide Time	1225
I19	20 Dec 2018	Comments	none
I19	27 Dec 2018	Depth (m)	12
I19	27 Dec 2018	Arrive Time	1149
I19	27 Dec 2018	Depart Time	1151
I19	27 Dec 2018	Air Temp (C)	15
I19	27 Dec 2018	Weather	Partly Cloudy
I19	27 Dec 2018	Visibility (mi)	9
I19	27 Dec 2018	Wind Speed (kts)	14
I19	27 Dec 2018	Wind Dir	S
I19	27 Dec 2018	Water Color	Green
I19	27 Dec 2018	Wave Ht Low (ft)	5
I19	27 Dec 2018	Wave Period (sec)	9
I19	27 Dec 2018	Sea State	Confused swell
I19	27 Dec 2018	High Tide (ft)	4.12
I19	27 Dec 2018	High Tide Time	103
I19	27 Dec 2018	Low Tide (ft)	2.15
I19	27 Dec 2018	Low Tide Time	623
I19	27 Dec 2018	Comments	none
I24	03 Dec 2018	Depth (m)	10
I24	03 Dec 2018	Arrive Time	1234
I24	03 Dec 2018	Depart Time	1239
I24	03 Dec 2018	Air Temp (C)	16
I24	03 Dec 2018	Weather	Clear
I24	03 Dec 2018	Visibility (mi)	15
I24	03 Dec 2018	Wind Speed (kts)	10
I24	03 Dec 2018	Wind Dir	S
I24	03 Dec 2018	Water Color	Brownish-Green
I24	03 Dec 2018	Wave Ht Low (ft)	4
I24	03 Dec 2018	Wave Period (sec)	13
I24	03 Dec 2018	Sea State	Light chop
I24	03 Dec 2018	High Tide (ft)	5.76
I24	03 Dec 2018	High Tide Time	607
I24	03 Dec 2018	Low Tide (ft)	0.18
I24	03 Dec 2018	Low Tide Time	53

Station	Date	Parameter	Value
I24	03 Dec 2018	Comments	none
I24	10 Dec 2018	Depth (m)	12
I24	10 Dec 2018	Arrive Time	1143
I24	10 Dec 2018	Depart Time	1149
I24	10 Dec 2018	Air Temp (C)	16
I24	10 Dec 2018	Weather	Overcast
I24	10 Dec 2018	Visibility (mi)	12
I24	10 Dec 2018	Wind Speed (kts)	4
I24	10 Dec 2018	Wind Dir	NW
I24	10 Dec 2018	Water Color	Green
I24	10 Dec 2018	Wave Ht Low (ft)	3
I24	10 Dec 2018	Wave Period (sec)	13
I24	10 Dec 2018	Sea State	Calm
I24	10 Dec 2018	High Tide (ft)	5.35
I24	10 Dec 2018	High Tide Time	951
I24	10 Dec 2018	Low Tide (ft)	2.39
I24	10 Dec 2018	Low Tide Time	348
I24	10 Dec 2018	Comments	none
I24	17 Dec 2018	Depth (m)	16
I24	17 Dec 2018	Arrive Time	1127
I24	17 Dec 2018	Depart Time	1127
I24	17 Dec 2018	Air Temp (C)	16
I24	17 Dec 2018	Weather	Partly Cloudy
I24	17 Dec 2018	Visibility (mi)	10
I24	17 Dec 2018	Wind Speed (kts)	3
I24	17 Dec 2018	Wind Dir	N
I24	17 Dec 2018	Water Color	Brownish-Green
I24	17 Dec 2018	Wave Ht Low (ft)	10
I24	17 Dec 2018	Wave Period (sec)	13
I24	17 Dec 2018	Sea State	Calm
I24	17 Dec 2018	High Tide (ft)	4.76
I24	17 Dec 2018	High Tide Time	458
I24	17 Dec 2018	Low Tide (ft)	1.31
I24	17 Dec 2018	Low Tide Time	1146
I24	17 Dec 2018	Comments	Unable to approach station due to unsafe conditions
I24	20 Dec 2018	Depth (m)	11
I24	20 Dec 2018	Arrive Time	815
I24	20 Dec 2018	Depart Time	818
I24	20 Dec 2018	Air Temp (C)	13
I24	20 Dec 2018	Weather	Partly Cloudy
I24	20 Dec 2018	Visibility (mi)	6
I24	20 Dec 2018	Wind Speed (kts)	4
I24	20 Dec 2018	Wind Dir	NW
I24	20 Dec 2018	Water Color	Brownish-Green
I24	20 Dec 2018	Wave Ht Low (ft)	8
I24	20 Dec 2018	Wave Period (sec)	13
I24	20 Dec 2018	Sea State	Calm
I24	20 Dec 2018	High Tide (ft)	6.1
I24	20 Dec 2018	High Tide Time	640
I24	20 Dec 2018	Low Tide (ft)	1.39
I24	20 Dec 2018	Low Tide Time	1225
I24	20 Dec 2018	Comments	none

Station	Date	Parameter	Value
I24	27 Dec 2018	Depth (m)	11
I24	27 Dec 2018	Arrive Time	1208
I24	27 Dec 2018	Depart Time	1212
I24	27 Dec 2018	Air Temp (C)	15
I24	27 Dec 2018	Weather	Partly Cloudy
I24	27 Dec 2018	Visibility (mi)	9
I24	27 Dec 2018	Wind Speed (kts)	14
I24	27 Dec 2018	Wind Dir	S
I24	27 Dec 2018	Water Color	Green
I24	27 Dec 2018	Wave Ht Low (ft)	5
I24	27 Dec 2018	Wave Period (sec)	9
I24	27 Dec 2018	Sea State	Confused swell
I24	27 Dec 2018	High Tide (ft)	4.12
I24	27 Dec 2018	High Tide Time	103
I24	27 Dec 2018	Low Tide (ft)	2.15
I24	27 Dec 2018	Low Tide Time	623
I24	27 Dec 2018	Comments	none
I25	03 Dec 2018	Depth (m)	10
I25	03 Dec 2018	Arrive Time	1243
I25	03 Dec 2018	Depart Time	1254
I25	03 Dec 2018	Air Temp (C)	16
I25	03 Dec 2018	Weather	Clear
I25	03 Dec 2018	Visibility (mi)	15
I25	03 Dec 2018	Wind Speed (kts)	11
I25	03 Dec 2018	Wind Dir	SW
I25	03 Dec 2018	Water Color	Brownish-Green
I25	03 Dec 2018	Wave Ht Low (ft)	4
I25	03 Dec 2018	Wave Period (sec)	13
I25	03 Dec 2018	Sea State	Light chop
I25	03 Dec 2018	High Tide (ft)	5.76
I25	03 Dec 2018	High Tide Time	607
I25	03 Dec 2018	Low Tide (ft)	0.18
I25	03 Dec 2018	Low Tide Time	53
I25	03 Dec 2018	Comments	none
I25	10 Dec 2018	Depth (m)	10
I25	10 Dec 2018	Arrive Time	1153
I25	10 Dec 2018	Depart Time	1158
I25	10 Dec 2018	Air Temp (C)	16
I25	10 Dec 2018	Weather	Overcast
I25	10 Dec 2018	Visibility (mi)	12
I25	10 Dec 2018	Wind Speed (kts)	4
I25	10 Dec 2018	Wind Dir	NW
I25	10 Dec 2018	Water Color	Green
I25	10 Dec 2018	Wave Ht Low (ft)	3
I25	10 Dec 2018	Wave Period (sec)	13
I25	10 Dec 2018	Sea State	Calm
I25	10 Dec 2018	High Tide (ft)	5.35
I25	10 Dec 2018	High Tide Time	951
I25	10 Dec 2018	Low Tide (ft)	2.39
I25	10 Dec 2018	Low Tide Time	348
I25	10 Dec 2018	Comments	none

Station	Date	Parameter	Value
I25	17 Dec 2018	Depth (m)	12
I25	17 Dec 2018	Arrive Time	1130
I25	17 Dec 2018	Depart Time	1130
I25	17 Dec 2018	Air Temp (C)	16
I25	17 Dec 2018	Weather	Partly Cloudy
I25	17 Dec 2018	Visibility (mi)	10
I25	17 Dec 2018	Wind Speed (kts)	5
I25	17 Dec 2018	Wind Dir	NW
I25	17 Dec 2018	Water Color	Brownish-Green
I25	17 Dec 2018	Wave Ht Low (ft)	10
I25	17 Dec 2018	Wave Period (sec)	13
I25	17 Dec 2018	Sea State	Calm
I25	17 Dec 2018	High Tide (ft)	4.76
I25	17 Dec 2018	High Tide Time	458
I25	17 Dec 2018	Low Tide (ft)	1.31
I25	17 Dec 2018	Low Tide Time	1146
I25	17 Dec 2018	Comments	Unable to approach station due to unsafe conditions
I25	20 Dec 2018	Depth (m)	11
I25	20 Dec 2018	Arrive Time	807
I25	20 Dec 2018	Depart Time	811
I25	20 Dec 2018	Air Temp (C)	13
I25	20 Dec 2018	Weather	Partly Cloudy
I25	20 Dec 2018	Visibility (mi)	6
I25	20 Dec 2018	Wind Speed (kts)	7
I25	20 Dec 2018	Wind Dir	NW
I25	20 Dec 2018	Water Color	Brownish-Green
I25	20 Dec 2018	Wave Ht Low (ft)	8
I25	20 Dec 2018	Wave Period (sec)	13
I25	20 Dec 2018	Sea State	Calm
I25	20 Dec 2018	High Tide (ft)	6.1
I25	20 Dec 2018	High Tide Time	640
I25	20 Dec 2018	Low Tide (ft)	1.39
I25	20 Dec 2018	Low Tide Time	1225
I25	20 Dec 2018	Comments	none
I25	27 Dec 2018	Depth (m)	10
I25	27 Dec 2018	Arrive Time	1214
I25	27 Dec 2018	Depart Time	1216
I25	27 Dec 2018	Air Temp (C)	15
I25	27 Dec 2018	Weather	Partly Cloudy
I25	27 Dec 2018	Visibility (mi)	9
I25	27 Dec 2018	Wind Speed (kts)	14
I25	27 Dec 2018	Wind Dir	S
I25	27 Dec 2018	Water Color	Green
I25	27 Dec 2018	Wave Ht Low (ft)	5
I25	27 Dec 2018	Wave Period (sec)	9
I25	27 Dec 2018	Sea State	Confused swell
I25	27 Dec 2018	High Tide (ft)	4.12
I25	27 Dec 2018	High Tide Time	103
I25	27 Dec 2018	Low Tide (ft)	2.15
I25	27 Dec 2018	Low Tide Time	623
I25	27 Dec 2018	Comments	none
I26	03 Dec 2018	Depth (m)	10

Station	Date	Parameter	Value
I26	03 Dec 2018	Arrive Time	1301
I26	03 Dec 2018	Depart Time	1305
I26	03 Dec 2018	Air Temp (C)	16
I26	03 Dec 2018	Weather	Clear
I26	03 Dec 2018	Visibility (mi)	15
I26	03 Dec 2018	Wind Speed (kts)	10
I26	03 Dec 2018	Wind Dir	W
I26	03 Dec 2018	Water Color	Brownish-Green
I26	03 Dec 2018	Wave Ht Low (ft)	4
I26	03 Dec 2018	Wave Period (sec)	13
I26	03 Dec 2018	Sea State	Light chop
I26	03 Dec 2018	High Tide (ft)	5.76
I26	03 Dec 2018	High Tide Time	607
I26	03 Dec 2018	Low Tide (ft)	0.18
I26	03 Dec 2018	Low Tide Time	53
I26	03 Dec 2018	Comments	none
I26	10 Dec 2018	Depth (m)	10
I26	10 Dec 2018	Arrive Time	1204
I26	10 Dec 2018	Depart Time	1210
I26	10 Dec 2018	Air Temp (C)	16
I26	10 Dec 2018	Weather	Overcast
I26	10 Dec 2018	Visibility (mi)	12
I26	10 Dec 2018	Wind Speed (kts)	4
I26	10 Dec 2018	Wind Dir	NW
I26	10 Dec 2018	Water Color	Green
I26	10 Dec 2018	Wave Ht Low (ft)	3
I26	10 Dec 2018	Wave Period (sec)	13
I26	10 Dec 2018	Sea State	Calm
I26	10 Dec 2018	High Tide (ft)	5.35
I26	10 Dec 2018	High Tide Time	951
I26	10 Dec 2018	Low Tide (ft)	2.39
I26	10 Dec 2018	Low Tide Time	348
I26	10 Dec 2018	Comments	none
I26	17 Dec 2018	Depth (m)	12
I26	17 Dec 2018	Arrive Time	1137
I26	17 Dec 2018	Depart Time	1137
I26	17 Dec 2018	Air Temp (C)	16
I26	17 Dec 2018	Weather	Partly Cloudy
I26	17 Dec 2018	Visibility (mi)	10
I26	17 Dec 2018	Wind Speed (kts)	8
I26	17 Dec 2018	Wind Dir	W
I26	17 Dec 2018	Water Color	Brownish-Green
I26	17 Dec 2018	Wave Ht Low (ft)	10
I26	17 Dec 2018	Wave Period (sec)	13
I26	17 Dec 2018	Sea State	Calm
I26	17 Dec 2018	High Tide (ft)	4.76
I26	17 Dec 2018	High Tide Time	458
I26	17 Dec 2018	Low Tide (ft)	1.31
I26	17 Dec 2018	Low Tide Time	1146
I26	17 Dec 2018	Comments	Unable to approach station due to unsafe conditions
I26	20 Dec 2018	Depth (m)	11
I26	20 Dec 2018	Arrive Time	857

Station	Date	Parameter	Value
I26	20 Dec 2018	Depart Time	901
I26	20 Dec 2018	Air Temp (C)	14
I26	20 Dec 2018	Weather	Partly Cloudy
I26	20 Dec 2018	Visibility (mi)	6
I26	20 Dec 2018	Wind Speed (kts)	13
I26	20 Dec 2018	Wind Dir	NW
I26	20 Dec 2018	Water Color	Brownish-Green
I26	20 Dec 2018	Wave Ht Low (ft)	8
I26	20 Dec 2018	Wave Period (sec)	13
I26	20 Dec 2018	Sea State	Calm
I26	20 Dec 2018	High Tide (ft)	6.1
I26	20 Dec 2018	High Tide Time	640
I26	20 Dec 2018	Low Tide (ft)	1.39
I26	20 Dec 2018	Low Tide Time	1225
I26	20 Dec 2018	Comments	none
I26	27 Dec 2018	Depth (m)	10
I26	27 Dec 2018	Arrive Time	1223
I26	27 Dec 2018	Depart Time	1226
I26	27 Dec 2018	Air Temp (C)	15
I26	27 Dec 2018	Weather	Partly Cloudy
I26	27 Dec 2018	Visibility (mi)	9
I26	27 Dec 2018	Wind Speed (kts)	15
I26	27 Dec 2018	Wind Dir	S
I26	27 Dec 2018	Water Color	Green
I26	27 Dec 2018	Wave Ht Low (ft)	5
I26	27 Dec 2018	Wave Period (sec)	9
I26	27 Dec 2018	Sea State	Confused swell
I26	27 Dec 2018	High Tide (ft)	4.12
I26	27 Dec 2018	High Tide Time	103
I26	27 Dec 2018	Low Tide (ft)	2.15
I26	27 Dec 2018	Low Tide Time	623
I26	27 Dec 2018	Comments	none
I32	03 Dec 2018	Depth (m)	10
I32	03 Dec 2018	Arrive Time	1313
I32	03 Dec 2018	Depart Time	1318
I32	03 Dec 2018	Air Temp (C)	16
I32	03 Dec 2018	Weather	Clear
I32	03 Dec 2018	Visibility (mi)	15
I32	03 Dec 2018	Wind Speed (kts)	17
I32	03 Dec 2018	Wind Dir	W
I32	03 Dec 2018	Water Color	Brownish-Green
I32	03 Dec 2018	Wave Ht Low (ft)	4
I32	03 Dec 2018	Wave Period (sec)	13
I32	03 Dec 2018	Sea State	Light chop
I32	03 Dec 2018	High Tide (ft)	5.76
I32	03 Dec 2018	High Tide Time	607
I32	03 Dec 2018	Low Tide (ft)	0.18
I32	03 Dec 2018	Low Tide Time	53
I32	03 Dec 2018	Comments	none
I32	10 Dec 2018	Depth (m)	11
I32	10 Dec 2018	Arrive Time	1219
I32	10 Dec 2018	Depart Time	1228

Station	Date	Parameter	Value
I32	10 Dec 2018	Air Temp (C)	16
I32	10 Dec 2018	Weather	Overcast
I32	10 Dec 2018	Visibility (mi)	12
I32	10 Dec 2018	Wind Speed (kts)	0
I32	10 Dec 2018	Wind Dir	
I32	10 Dec 2018	Water Color	Green
I32	10 Dec 2018	Wave Ht Low (ft)	3
I32	10 Dec 2018	Wave Period (sec)	13
I32	10 Dec 2018	Sea State	Calm
I32	10 Dec 2018	High Tide (ft)	5.35
I32	10 Dec 2018	High Tide Time	951
I32	10 Dec 2018	Low Tide (ft)	2.39
I32	10 Dec 2018	Low Tide Time	348
I32	10 Dec 2018	Comments	none
I32	17 Dec 2018	Depth (m)	11
I32	17 Dec 2018	Arrive Time	1155
I32	17 Dec 2018	Depart Time	1156
I32	17 Dec 2018	Air Temp (C)	16
I32	17 Dec 2018	Weather	Partly Cloudy
I32	17 Dec 2018	Visibility (mi)	10
I32	17 Dec 2018	Wind Speed (kts)	4
I32	17 Dec 2018	Wind Dir	E
I32	17 Dec 2018	Water Color	Brownish-Green
I32	17 Dec 2018	Wave Ht Low (ft)	10
I32	17 Dec 2018	Wave Period (sec)	13
I32	17 Dec 2018	Sea State	Calm
I32	17 Dec 2018	High Tide (ft)	4.76
I32	17 Dec 2018	High Tide Time	458
I32	17 Dec 2018	Low Tide (ft)	1.31
I32	17 Dec 2018	Low Tide Time	1146
I32	17 Dec 2018	Comments	none
I32	27 Dec 2018	Depth (m)	10
I32	27 Dec 2018	Arrive Time	1234
I32	27 Dec 2018	Depart Time	1237
I32	27 Dec 2018	Air Temp (C)	15
I32	27 Dec 2018	Weather	Partly Cloudy
I32	27 Dec 2018	Visibility (mi)	9
I32	27 Dec 2018	Wind Speed (kts)	16
I32	27 Dec 2018	Wind Dir	S
I32	27 Dec 2018	Water Color	Green
I32	27 Dec 2018	Wave Ht Low (ft)	5
I32	27 Dec 2018	Wave Period (sec)	9
I32	27 Dec 2018	Sea State	Confused swell
I32	27 Dec 2018	High Tide (ft)	4.12
I32	27 Dec 2018	High Tide Time	103
I32	27 Dec 2018	Low Tide (ft)	2.15
I32	27 Dec 2018	Low Tide Time	623
I32	27 Dec 2018	Comments	none
I39	03 Dec 2018	Depth (m)	18
I39	03 Dec 2018	Arrive Time	1152
I39	03 Dec 2018	Depart Time	1155
I39	03 Dec 2018	Air Temp (C)	16

Station	Date	Parameter	Value
I39	03 Dec 2018	Weather	Clear
I39	03 Dec 2018	Visibility (mi)	15
I39	03 Dec 2018	Wind Speed (kts)	7
I39	03 Dec 2018	Wind Dir	SW
I39	03 Dec 2018	Water Color	Green
I39	03 Dec 2018	Wave Ht Low (ft)	4
I39	03 Dec 2018	Wave Period (sec)	13
I39	03 Dec 2018	Sea State	Light chop
I39	03 Dec 2018	High Tide (ft)	5.76
I39	03 Dec 2018	High Tide Time	607
I39	03 Dec 2018	Low Tide (ft)	0.18
I39	03 Dec 2018	Low Tide Time	53
I39	03 Dec 2018	Comments	none
I39	10 Dec 2018	Depth (m)	20
I39	10 Dec 2018	Arrive Time	1055
I39	10 Dec 2018	Depart Time	1102
I39	10 Dec 2018	Air Temp (C)	16
I39	10 Dec 2018	Weather	Overcast
I39	10 Dec 2018	Visibility (mi)	12
I39	10 Dec 2018	Wind Speed (kts)	3
I39	10 Dec 2018	Wind Dir	N
I39	10 Dec 2018	Water Color	Blue
I39	10 Dec 2018	Wave Ht Low (ft)	3
I39	10 Dec 2018	Wave Period (sec)	13
I39	10 Dec 2018	Sea State	Calm
I39	10 Dec 2018	High Tide (ft)	5.35
I39	10 Dec 2018	High Tide Time	951
I39	10 Dec 2018	Low Tide (ft)	2.39
I39	10 Dec 2018	Low Tide Time	348
I39	10 Dec 2018	Comments	none
I39	17 Dec 2018	Depth (m)	18
I39	17 Dec 2018	Arrive Time	1054
I39	17 Dec 2018	Depart Time	1057
I39	17 Dec 2018	Air Temp (C)	16
I39	17 Dec 2018	Weather	Partly Cloudy
I39	17 Dec 2018	Visibility (mi)	10
I39	17 Dec 2018	Wind Speed (kts)	0
I39	17 Dec 2018	Wind Dir	
I39	17 Dec 2018	Water Color	Brownish-Green
I39	17 Dec 2018	Wave Ht Low (ft)	8
I39	17 Dec 2018	Wave Period (sec)	13
I39	17 Dec 2018	Sea State	Calm
I39	17 Dec 2018	High Tide (ft)	4.76
I39	17 Dec 2018	High Tide Time	458
I39	17 Dec 2018	Low Tide (ft)	1.31
I39	17 Dec 2018	Low Tide Time	1146
I39	17 Dec 2018	Comments	none
I39	27 Dec 2018	Depth (m)	20
I39	27 Dec 2018	Arrive Time	1123
I39	27 Dec 2018	Depart Time	1128
I39	27 Dec 2018	Air Temp (C)	15
I39	27 Dec 2018	Weather	Partly Cloudy

Station	Date	Parameter	Value
I39	27 Dec 2018	Visibility (mi)	9
I39	27 Dec 2018	Wind Speed (kts)	15
I39	27 Dec 2018	Wind Dir	S
I39	27 Dec 2018	Water Color	Greenish-Blue
I39	27 Dec 2018	Wave Ht Low (ft)	5
I39	27 Dec 2018	Wave Period (sec)	9
I39	27 Dec 2018	Sea State	Confused swell
I39	27 Dec 2018	High Tide (ft)	4.12
I39	27 Dec 2018	High Tide Time	103
I39	27 Dec 2018	Low Tide (ft)	2.15
I39	27 Dec 2018	Low Tide Time	623
I39	27 Dec 2018	Comments	none
I40	03 Dec 2018	Depth (m)	10
I40	03 Dec 2018	Arrive Time	1223
I40	03 Dec 2018	Depart Time	1231
I40	03 Dec 2018	Air Temp (C)	16
I40	03 Dec 2018	Weather	Clear
I40	03 Dec 2018	Visibility (mi)	15
I40	03 Dec 2018	Wind Speed (kts)	6
I40	03 Dec 2018	Wind Dir	S
I40	03 Dec 2018	Water Color	Green
I40	03 Dec 2018	Wave Ht Low (ft)	4
I40	03 Dec 2018	Wave Period (sec)	13
I40	03 Dec 2018	Sea State	Light chop
I40	03 Dec 2018	High Tide (ft)	5.76
I40	03 Dec 2018	High Tide Time	607
I40	03 Dec 2018	Low Tide (ft)	0.18
I40	03 Dec 2018	Low Tide Time	53
I40	03 Dec 2018	Comments	none
I40	10 Dec 2018	Depth (m)	11
I40	10 Dec 2018	Arrive Time	1134
I40	10 Dec 2018	Depart Time	1139
I40	10 Dec 2018	Air Temp (C)	16
I40	10 Dec 2018	Weather	Overcast
I40	10 Dec 2018	Visibility (mi)	12
I40	10 Dec 2018	Wind Speed (kts)	4
I40	10 Dec 2018	Wind Dir	N
I40	10 Dec 2018	Water Color	Green
I40	10 Dec 2018	Wave Ht Low (ft)	3
I40	10 Dec 2018	Wave Period (sec)	13
I40	10 Dec 2018	Sea State	Calm
I40	10 Dec 2018	High Tide (ft)	5.35
I40	10 Dec 2018	High Tide Time	951
I40	10 Dec 2018	Low Tide (ft)	2.39
I40	10 Dec 2018	Low Tide Time	348
I40	10 Dec 2018	Comments	none
I40	17 Dec 2018	Depth (m)	17
I40	17 Dec 2018	Arrive Time	1124
I40	17 Dec 2018	Depart Time	1125
I40	17 Dec 2018	Air Temp (C)	16
I40	17 Dec 2018	Weather	Partly Cloudy
I40	17 Dec 2018	Visibility (mi)	10

Station	Date	Parameter	Value
I40	17 Dec 2018	Wind Speed (kts)	1
I40	17 Dec 2018	Wind Dir	NW
I40	17 Dec 2018	Water Color	Brownish-Green
I40	17 Dec 2018	Wave Ht Low (ft)	10
I40	17 Dec 2018	Wave Period (sec)	13
I40	17 Dec 2018	Sea State	Calm
I40	17 Dec 2018	High Tide (ft)	4.76
I40	17 Dec 2018	High Tide Time	458
I40	17 Dec 2018	Low Tide (ft)	1.31
I40	17 Dec 2018	Low Tide Time	1146
I40	17 Dec 2018	Comments	Unable to approach station due to unsafe conditions
I40	20 Dec 2018	Depth (m)	11
I40	20 Dec 2018	Arrive Time	826
I40	20 Dec 2018	Depart Time	829
I40	20 Dec 2018	Air Temp (C)	14
I40	20 Dec 2018	Weather	Partly Cloudy
I40	20 Dec 2018	Visibility (mi)	6
I40	20 Dec 2018	Wind Speed (kts)	12
I40	20 Dec 2018	Wind Dir	NW
I40	20 Dec 2018	Water Color	Brownish-Green
I40	20 Dec 2018	Wave Ht Low (ft)	8
I40	20 Dec 2018	Wave Period (sec)	13
I40	20 Dec 2018	Sea State	Calm
I40	20 Dec 2018	High Tide (ft)	6.1
I40	20 Dec 2018	High Tide Time	640
I40	20 Dec 2018	Low Tide (ft)	1.39
I40	20 Dec 2018	Low Tide Time	1225
I40	20 Dec 2018	Comments	none
I40	27 Dec 2018	Depth (m)	11
I40	27 Dec 2018	Arrive Time	1200
I40	27 Dec 2018	Depart Time	1203
I40	27 Dec 2018	Air Temp (C)	15
I40	27 Dec 2018	Weather	Partly Cloudy
I40	27 Dec 2018	Visibility (mi)	9
I40	27 Dec 2018	Wind Speed (kts)	12
I40	27 Dec 2018	Wind Dir	SE
I40	27 Dec 2018	Water Color	Green
I40	27 Dec 2018	Wave Ht Low (ft)	5
I40	27 Dec 2018	Wave Period (sec)	9
I40	27 Dec 2018	Sea State	Confused swell
I40	27 Dec 2018	High Tide (ft)	4.12
I40	27 Dec 2018	High Tide Time	103
I40	27 Dec 2018	Low Tide (ft)	2.15
I40	27 Dec 2018	Low Tide Time	623
I40	27 Dec 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	03 Dec 2018	1	16.90	53.93	7.9	33.68	8.1	24.5	1.24
I19	03 Dec 2018	2	16.88	53.39	7.9	33.68	8.1	24.5	1.42
I19	03 Dec 2018	3	16.88	52.84	7.8	33.68	8.1	24.5	1.83
I19	03 Dec 2018	4	16.82	52.13	7.8	33.68	8.1	24.5	2.24
I19	03 Dec 2018	5	16.46	47.82	7.5	33.65	8.1	24.6	1.99
I19	03 Dec 2018	6	16.10	44.85	7.3	33.62	8.1	24.7	1.52
I19	03 Dec 2018	7	15.96	59.44	7.0	33.61	8.1	24.7	1.29
I19	03 Dec 2018	8	15.70	65.77	6.9	33.61	8.1	24.7	1.21
I19	03 Dec 2018	9	15.40	61.15	6.8	33.60	8.0	24.8	1.15
I19	03 Dec 2018	10	15.30	48.10	6.8	33.59	8.0	24.8	1.11
I19	10 Dec 2018	1	16.75	71.51	8.0	33.53	8.1	24.4	0.94
I19	10 Dec 2018	2	16.74	71.43	8.1	33.53	8.1	24.4	1.06
I19	10 Dec 2018	3	16.79	71.71	8.1	33.56	8.1	24.5	1.28
I19	10 Dec 2018	4	16.77	73.65	8.0	33.56	8.1	24.5	1.54
I19	10 Dec 2018	5	16.69	72.81	8.0	33.54	8.1	24.5	1.75
I19	10 Dec 2018	6	16.69	71.68	8.0	33.54	8.1	24.5	1.86
I19	10 Dec 2018	7	16.71	72.06	8.0	33.55	8.1	24.5	1.93
I19	10 Dec 2018	8	16.71	72.82	8.0	33.55	8.1	24.5	1.89
I19	10 Dec 2018	9	16.67	73.02	8.0	33.55	8.1	24.5	1.88
I19	10 Dec 2018	10	16.67	72.08	8.0	33.55	8.1	24.5	1.85
I19	20 Dec 2018	1	16.38	48.67	7.7	33.57	8.1	24.6	1.49
I19	20 Dec 2018	2	16.38	49.32	7.8	33.58	8.1	24.6	1.54
I19	20 Dec 2018	3	16.38	49.33	7.8	33.58	8.1	24.6	1.70
I19	20 Dec 2018	4	16.38	49.31	7.8	33.58	8.1	24.6	1.97
I19	20 Dec 2018	5	16.38	50.08	7.8	33.58	8.1	24.6	2.17
I19	20 Dec 2018	6	16.39	49.94	7.7	33.58	8.1	24.6	2.00
I19	20 Dec 2018	7	16.38	50.07	7.7	33.58	8.1	24.6	2.00
I19	20 Dec 2018	8	16.38	48.97	7.7	33.58	8.1	24.6	1.92
I19	20 Dec 2018	9	16.37	48.88	7.6	33.58	8.1	24.6	1.95
I19	20 Dec 2018	10	16.33	50.43	7.5	33.58	8.1	24.6	1.78
I19	27 Dec 2018	1	16.16	50.84	8.0	33.54	8.1	24.6	1.49
I19	27 Dec 2018	2	16.16	51.59	8.0	33.54	8.1	24.6	1.70
I19	27 Dec 2018	3	16.14	51.10	8.0	33.54	8.1	24.6	2.26
I19	27 Dec 2018	4	16.14	51.53	8.0	33.54	8.1	24.6	2.56
I19	27 Dec 2018	5	16.13	51.16	8.0	33.54	8.1	24.6	2.73
I19	27 Dec 2018	6	16.13	51.82	8.0	33.54	8.1	24.6	2.81
I19	27 Dec 2018	7	16.12	50.74	7.9	33.55	8.1	24.6	2.74
I19	27 Dec 2018	8	16.11	50.72	7.9	33.55	8.1	24.6	2.62
I19	27 Dec 2018	9	16.09	50.87	7.9	33.55	8.1	24.6	2.52
I19	27 Dec 2018	10	16.08	51.95	7.9	33.55	8.1	24.6	2.41
I24	03 Dec 2018	1	16.95	58.02	7.7	33.67	8.1	24.5	0.92
I24	03 Dec 2018	2	16.94	57.87	7.7	33.67	8.1	24.5	1.04
I24	03 Dec 2018	3	16.89	57.70	7.6	33.67	8.1	24.5	1.31
I24	03 Dec 2018	4	16.73	57.94	7.5	33.68	8.1	24.6	1.43
I24	03 Dec 2018	5	16.68	58.15	7.5	33.68	8.1	24.6	1.50
I24	03 Dec 2018	6	16.61	56.55	7.4	33.69	8.1	24.6	1.49
I24	03 Dec 2018	7	16.35	54.97	7.3	33.68	8.1	24.7	1.42

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I24	03 Dec 2018	8	16.12	53.00	6.9	33.67	8.1	24.7	1.43
I24	03 Dec 2018	9	15.48	45.52	6.6	33.61	8.0	24.8	1.32
I24	03 Dec 2018	10	15.35	33.29	6.5	33.60	8.0	24.8	1.36
I24	10 Dec 2018	1	16.55	50.00	7.9	33.41	8.1	24.4	1.70
I24	10 Dec 2018	2	16.54	49.69	7.9	33.41	8.1	24.4	1.96
I24	10 Dec 2018	3	16.49	49.52	8.0	33.41	8.1	24.4	2.58
I24	10 Dec 2018	4	16.44	48.09	8.0	33.42	8.1	24.4	3.08
I24	10 Dec 2018	5	16.44	49.45	7.9	33.42	8.1	24.4	2.85
I24	10 Dec 2018	6	16.39	51.55	7.8	33.44	8.1	24.5	2.36
I24	10 Dec 2018	7	16.37	53.84	7.8	33.46	8.1	24.5	1.91
I24	10 Dec 2018	8	16.44	56.70	7.6	33.49	8.1	24.5	1.48
I24	10 Dec 2018	9	16.46	58.01	7.6	33.50	8.1	24.5	1.37
I24	10 Dec 2018	10	16.50	57.52	7.6	33.51	8.1	24.5	1.29
I24	10 Dec 2018	11	16.55	57.54	7.5	33.52	8.1	24.5	1.23
I24	20 Dec 2018	1	16.49	48.83	7.9	33.58	8.1	24.5	1.75
I24	20 Dec 2018	2	16.50	48.77	7.9	33.58	8.1	24.5	1.79
I24	20 Dec 2018	3	16.50	49.25	7.9	33.58	8.1	24.5	2.04
I24	20 Dec 2018	4	16.51	49.12	7.9	33.58	8.1	24.5	2.26
I24	20 Dec 2018	5	16.51	47.78	7.8	33.58	8.1	24.5	2.23
I24	20 Dec 2018	6	16.51	48.11	7.8	33.58	8.1	24.5	2.10
I24	20 Dec 2018	7	16.51	47.93	7.8	33.58	8.1	24.5	2.07
I24	20 Dec 2018	8	16.50	47.44	7.8	33.58	8.1	24.5	2.06
I24	20 Dec 2018	9	16.50	46.73	7.8	33.58	8.1	24.5	2.01
I24	20 Dec 2018	10	16.49	36.48	7.5	33.59	8.1	24.5	1.82
I24	20 Dec 2018	11	16.46	13.64	7.2	33.59	8.0	24.6	1.74
I24	27 Dec 2018	1	16.15	56.88	8.0	33.53	8.1	24.6	1.27
I24	27 Dec 2018	2	16.15	59.06	7.9	33.58	8.1	24.6	1.35
I24	27 Dec 2018	3	16.15	61.24	7.9	33.58	8.1	24.6	1.57
I24	27 Dec 2018	4	16.14	61.32	7.9	33.58	8.1	24.6	1.91
I24	27 Dec 2018	5	16.12	58.40	7.9	33.58	8.1	24.6	2.30
I24	27 Dec 2018	6	16.12	56.95	7.8	33.58	8.1	24.6	2.48
I24	27 Dec 2018	7	16.10	55.91	7.8	33.59	8.1	24.6	2.40
I24	27 Dec 2018	8	16.11	53.50	7.8	33.58	8.1	24.6	2.46
I24	27 Dec 2018	9	16.09	46.28	7.7	33.59	8.1	24.6	2.37
I24	27 Dec 2018	10	16.07	41.44	7.6	33.59	8.1	24.6	2.25
I24	27 Dec 2018	11	16.08	42.44	7.7	33.59	8.1	24.6	2.17
I25	03 Dec 2018	1	16.92	58.64	7.7	33.65	8.1	24.5	0.95
I25	03 Dec 2018	2	16.91	58.51	7.7	33.65	8.1	24.5	1.02
I25	03 Dec 2018	3	16.89	58.43	7.6	33.65	8.1	24.5	1.24
I25	03 Dec 2018	4	16.62	59.56	7.5	33.66	8.1	24.6	1.38
I25	03 Dec 2018	5	16.50	59.97	7.4	33.67	8.1	24.6	1.45
I25	03 Dec 2018	6	16.45	56.72	7.4	33.68	8.1	24.6	1.51
I25	03 Dec 2018	7	16.00	52.45	7.1	33.67	8.1	24.7	1.39
I25	03 Dec 2018	8	15.58	43.37	6.8	33.62	8.1	24.8	1.25
I25	03 Dec 2018	9	15.50	34.88	6.7	33.61	8.0	24.8	1.31
I25	10 Dec 2018	1	16.81	73.56	7.9	33.55	8.1	24.4	1.05
I25	10 Dec 2018	2	16.79	73.45	7.9	33.55	8.1	24.5	1.18
I25	10 Dec 2018	3	16.70	72.64	7.8	33.55	8.1	24.5	1.44
I25	10 Dec 2018	4	16.68	70.83	7.8	33.55	8.1	24.5	1.69
I25	10 Dec 2018	5	16.67	70.88	7.8	33.55	8.1	24.5	1.84

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I25	10 Dec 2018	6	16.66	71.20	7.8	33.55	8.1	24.5	1.84
I25	10 Dec 2018	7	16.66	72.44	7.8	33.55	8.1	24.5	1.67
I25	10 Dec 2018	8	16.66	72.74	7.8	33.55	8.1	24.5	1.61
I25	10 Dec 2018	9	16.66	72.76	7.8	33.55	8.1	24.5	1.46
I25	20 Dec 2018	1	16.45	31.92	7.9	33.58	8.0	24.5	2.26
I25	20 Dec 2018	2	16.46	32.60	7.9	33.58	8.0	24.5	2.46
I25	20 Dec 2018	3	16.46	30.82	7.9	33.57	8.0	24.5	2.44
I25	20 Dec 2018	4	16.46	27.89	7.9	33.57	8.0	24.5	2.46
I25	20 Dec 2018	5	16.46	27.47	7.9	33.57	8.0	24.5	2.42
I25	20 Dec 2018	6	16.46	25.52	7.9	33.57	8.0	24.5	2.35
I25	20 Dec 2018	7	16.46	27.42	7.9	33.57	8.0	24.5	2.37
I25	20 Dec 2018	8	16.46	24.97	7.8	33.57	8.0	24.5	2.37
I25	20 Dec 2018	9	16.47	9.05	7.7	33.57	8.0	24.5	2.42
I25	27 Dec 2018	1	16.13	59.57	7.8	33.58	8.1	24.6	1.30
I25	27 Dec 2018	2	16.12	59.41	7.8	33.59	8.1	24.6	1.41
I25	27 Dec 2018	3	16.12	59.36	7.8	33.59	8.1	24.6	1.68
I25	27 Dec 2018	4	16.11	59.37	7.8	33.59	8.1	24.6	2.11
I25	27 Dec 2018	5	16.11	60.01	7.8	33.58	8.1	24.6	2.30
I25	27 Dec 2018	6	16.10	59.98	7.8	33.59	8.1	24.6	2.31
I25	27 Dec 2018	7	16.10	60.28	7.8	33.58	8.1	24.6	2.36
I25	27 Dec 2018	8	16.10	59.14	7.8	33.58	8.1	24.6	2.32
I25	27 Dec 2018	9	16.10	59.29	7.8	33.58	8.1	24.6	2.34
I26	03 Dec 2018	1	16.74	60.62	7.7	33.72	8.1	24.6	1.03
I26	03 Dec 2018	2	16.75	60.47	7.7	33.72	8.1	24.6	1.12
I26	03 Dec 2018	3	16.69	60.35	7.7	33.72	8.1	24.6	1.42
I26	03 Dec 2018	4	16.58	60.04	7.6	33.71	8.1	24.6	1.86
I26	03 Dec 2018	5	16.47	60.70	7.6	33.71	8.1	24.6	1.77
I26	03 Dec 2018	6	16.40	61.78	7.5	33.70	8.1	24.7	1.57
I26	03 Dec 2018	7	16.09	63.99	7.2	33.68	8.1	24.7	1.42
I26	03 Dec 2018	8	15.22	52.95	6.7	33.61	8.1	24.9	1.31
I26	03 Dec 2018	9	15.13	39.61	6.8	33.59	8.0	24.9	1.31
I26	10 Dec 2018	1	16.88	75.91	7.9	33.56	8.1	24.4	0.99
I26	10 Dec 2018	2	16.88	74.68	7.9	33.56	8.1	24.4	1.04
I26	10 Dec 2018	3	16.78	75.52	7.9	33.56	8.1	24.5	1.21
I26	10 Dec 2018	4	16.72	73.73	7.9	33.55	8.1	24.5	1.50
I26	10 Dec 2018	5	16.72	73.71	7.9	33.56	8.1	24.5	1.70
I26	10 Dec 2018	6	16.72	74.29	7.8	33.56	8.1	24.5	1.65
I26	10 Dec 2018	7	16.72	74.11	7.8	33.56	8.1	24.5	1.61
I26	10 Dec 2018	8	16.66	66.00	7.6	33.55	8.1	24.5	1.54
I26	10 Dec 2018	9	16.64	58.98	7.5	33.54	8.1	24.5	1.43
I26	20 Dec 2018	1	16.52	50.52	7.9	33.56	8.1	24.5	1.70
I26	20 Dec 2018	2	16.52	49.66	7.9	33.56	8.1	24.5	1.83
I26	20 Dec 2018	3	16.51	49.25	7.9	33.56	8.1	24.5	2.27
I26	20 Dec 2018	4	16.51	49.54	7.9	33.56	8.1	24.5	2.66
I26	20 Dec 2018	5	16.51	48.80	7.9	33.56	8.1	24.5	2.96
I26	20 Dec 2018	6	16.51	47.70	7.9	33.56	8.1	24.5	2.97
I26	20 Dec 2018	7	16.51	45.49	7.8	33.56	8.1	24.5	2.78
I26	20 Dec 2018	8	16.51	43.97	7.8	33.56	8.1	24.5	2.61
I26	20 Dec 2018	9	16.51	40.65	7.8	33.56	8.1	24.5	2.46

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I26	27 Dec 2018	1	16.04	51.17	7.9	33.60	8.1	24.7	1.61
I26	27 Dec 2018	2	16.03	49.77	7.8	33.52	8.1	24.6	1.79
I26	27 Dec 2018	3	16.04	53.58	7.8	33.61	8.1	24.7	2.12
I26	27 Dec 2018	4	16.04	53.32	7.9	33.60	8.1	24.7	2.41
I26	27 Dec 2018	5	16.03	51.67	7.8	33.61	8.1	24.7	2.59
I26	27 Dec 2018	6	16.03	51.83	7.9	33.61	8.1	24.7	2.74
I26	27 Dec 2018	7	16.02	51.90	7.8	33.61	8.1	24.7	2.74
I26	27 Dec 2018	8	16.02	52.31	7.8	33.61	8.1	24.7	2.80
I26	27 Dec 2018	9	16.01	51.52	7.8	33.61	8.1	24.7	2.72
I32	03 Dec 2018	1	16.76	60.97	7.7	33.71	8.1	24.6	0.75
I32	03 Dec 2018	2	16.74	60.49	7.6	33.71	8.1	24.6	0.83
I32	03 Dec 2018	3	16.71	59.62	7.6	33.71	8.1	24.6	1.01
I32	03 Dec 2018	4	16.47	55.63	7.4	33.71	8.1	24.6	1.17
I32	03 Dec 2018	5	16.00	51.62	7.2	33.66	8.1	24.7	1.31
I32	03 Dec 2018	6	15.63	63.69	7.1	33.63	8.1	24.8	1.32
I32	03 Dec 2018	7	15.51	66.20	7.1	33.62	8.1	24.8	1.31
I32	03 Dec 2018	8	15.49	57.87	7.0	33.63	8.1	24.8	1.28
I32	03 Dec 2018	9	15.34	55.32	6.9	33.62	8.1	24.8	1.28
I32	03 Dec 2018	10	15.04	50.07	6.9	33.61	8.1	24.9	1.26
I32	10 Dec 2018	1	16.56	61.44	8.2	33.47	8.1	24.4	1.88
I32	10 Dec 2018	2	16.51	61.39	8.2	33.47	8.1	24.5	2.52
I32	10 Dec 2018	3	16.35	58.95	8.3	33.46	8.1	24.5	5.03
I32	10 Dec 2018	4	16.31	59.31	8.1	33.46	8.1	24.5	4.28
I32	10 Dec 2018	5	16.30	60.64	8.0	33.46	8.1	24.5	3.68
I32	10 Dec 2018	6	16.29	60.71	8.0	33.47	8.1	24.5	3.58
I32	10 Dec 2018	7	16.28	60.34	8.0	33.47	8.1	24.5	3.76
I32	10 Dec 2018	8	16.27	59.69	8.0	33.47	8.1	24.5	3.42
I32	10 Dec 2018	9	16.25	59.27	8.1	33.47	8.1	24.5	2.99
I32	10 Dec 2018	10	16.23	59.63	8.1	33.48	8.1	24.5	2.35
I32	17 Dec 2018	1	16.80	60.36	8.1	33.55	8.1	24.4	1.13
I32	17 Dec 2018	2	16.78	59.44	8.1	33.55	8.1	24.5	1.30
I32	17 Dec 2018	3	16.73	57.49	8.2	33.55	8.1	24.5	1.60
I32	17 Dec 2018	4	16.73	57.16	8.1	33.55	8.1	24.5	2.01
I32	17 Dec 2018	5	16.49	53.28	8.2	33.55	8.1	24.5	3.10
I32	17 Dec 2018	6	16.44	47.05	8.1	33.55	8.1	24.5	3.53
I32	17 Dec 2018	7	16.44	47.78	8.1	33.55	8.1	24.5	3.42
I32	17 Dec 2018	8	16.43	46.38	8.2	33.55	8.1	24.5	3.32
I32	17 Dec 2018	9	16.41	42.68	8.2	33.55	8.1	24.5	2.48
I32	17 Dec 2018	10	16.39	41.63	8.2	33.55	8.1	24.5	1.97
I32	27 Dec 2018	1	16.01	58.91	8.0	33.62	8.1	24.7	1.62
I32	27 Dec 2018	2	16.01	58.86	8.0	33.62	8.1	24.7	1.67
I32	27 Dec 2018	3	16.01	59.19	8.0	33.62	8.1	24.7	1.75
I32	27 Dec 2018	4	16.01	59.05	7.9	33.62	8.1	24.7	1.91
I32	27 Dec 2018	5	16.00	59.41	8.0	33.62	8.1	24.7	2.27
I32	27 Dec 2018	6	16.00	59.35	8.0	33.62	8.1	24.7	2.55
I32	27 Dec 2018	7	15.97	59.71	8.0	33.62	8.1	24.7	2.95
I32	27 Dec 2018	8	15.97	60.24	8.0	33.62	8.1	24.7	3.23
I32	27 Dec 2018	9	15.96	59.65	7.9	33.62	8.1	24.7	3.27
I32	27 Dec 2018	10	15.96	59.36	8.0	33.62	8.1	24.7	3.24
I39	03 Dec 2018	1	16.62	64.88	7.6	33.70	8.1	24.6	0.72

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I39	03 Dec 2018	2	16.62	64.81	7.6	33.70	8.1	24.6	0.74
I39	03 Dec 2018	3	16.35	64.95	7.3	33.68	8.1	24.7	0.83
I39	03 Dec 2018	4	15.41	72.66	7.2	33.62	8.1	24.8	0.77
I39	03 Dec 2018	5	15.16	80.14	7.1	33.59	8.1	24.9	0.71
I39	03 Dec 2018	6	14.92	81.90	7.0	33.58	8.1	24.9	0.68
I39	03 Dec 2018	7	14.74	82.46	7.0	33.57	8.0	24.9	0.68
I39	03 Dec 2018	8	14.54	82.93	6.9	33.57	8.0	25.0	0.67
I39	03 Dec 2018	9	14.44	82.09	6.8	33.56	8.0	25.0	0.68
I39	03 Dec 2018	10	14.41	80.73	6.8	33.56	8.0	25.0	0.68
I39	03 Dec 2018	11	14.40	80.28	6.7	33.57	8.0	25.0	0.72
I39	03 Dec 2018	12	14.39	79.49	6.7	33.57	8.0	25.0	0.77
I39	03 Dec 2018	13	14.38	79.01	6.7	33.57	8.0	25.0	0.79
I39	03 Dec 2018	14	14.32	78.35	6.6	33.57	8.0	25.0	0.82
I39	03 Dec 2018	15	14.30	77.66	6.6	33.57	8.0	25.0	0.82
I39	03 Dec 2018	16	14.30	77.62	6.7	33.57	8.0	25.0	0.81
I39	03 Dec 2018	17	14.31	77.41	6.6	33.57	8.0	25.0	0.81
I39	03 Dec 2018	18	14.32	76.17	6.6	33.57	8.0	25.0	0.82
I39	10 Dec 2018	1	17.13	86.12	7.8	33.64	8.1	24.4	0.57
I39	10 Dec 2018	2	17.13	86.21	7.8	33.64	8.1	24.4	0.59
I39	10 Dec 2018	3	17.11	86.20	7.8	33.64	8.1	24.4	0.64
I39	10 Dec 2018	4	17.10	86.17	7.8	33.64	8.1	24.4	0.73
I39	10 Dec 2018	5	17.10	86.12	7.8	33.64	8.1	24.4	0.78
I39	10 Dec 2018	6	17.10	86.17	7.8	33.64	8.1	24.4	0.81
I39	10 Dec 2018	7	17.10	86.13	7.8	33.64	8.1	24.4	0.86
I39	10 Dec 2018	8	17.09	86.12	7.8	33.64	8.1	24.4	0.89
I39	10 Dec 2018	9	17.09	86.09	7.8	33.64	8.1	24.4	0.92
I39	10 Dec 2018	10	17.09	86.05	7.8	33.64	8.1	24.4	0.96
I39	10 Dec 2018	11	17.09	86.10	7.8	33.64	8.1	24.4	0.96
I39	10 Dec 2018	12	17.09	86.13	7.8	33.64	8.1	24.4	0.99
I39	10 Dec 2018	13	17.08	85.97	7.8	33.64	8.1	24.4	1.07
I39	10 Dec 2018	14	17.03	82.66	7.7	33.63	8.1	24.5	1.24
I39	10 Dec 2018	15	16.93	76.18	7.6	33.62	8.1	24.5	1.36
I39	10 Dec 2018	16	16.93	74.77	7.6	33.62	8.1	24.5	1.37
I39	10 Dec 2018	17	16.92	73.88	7.6	33.62	8.1	24.5	1.29
I39	10 Dec 2018	18	16.92	72.44	7.6	33.62	8.1	24.5	1.23
I39	17 Dec 2018	1	16.76	78.45	7.8	33.58	8.1	24.5	0.62
I39	17 Dec 2018	2	16.76	78.23	7.8	33.59	8.1	24.5	0.62
I39	17 Dec 2018	3	16.73	77.99	7.8	33.59	8.1	24.5	0.65
I39	17 Dec 2018	4	16.65	77.75	7.8	33.59	8.1	24.5	0.69
I39	17 Dec 2018	5	16.62	77.15	7.8	33.59	8.1	24.5	0.97
I39	17 Dec 2018	6	16.60	76.83	7.8	33.59	8.1	24.5	1.20
I39	17 Dec 2018	7	16.59	76.23	7.8	33.59	8.1	24.5	1.39
I39	17 Dec 2018	8	16.58	76.30	7.8	33.59	8.1	24.5	1.60
I39	17 Dec 2018	9	16.58	76.62	7.8	33.59	8.1	24.5	1.79
I39	17 Dec 2018	10	16.58	76.56	7.8	33.59	8.1	24.5	1.81
I39	17 Dec 2018	11	16.57	76.51	7.8	33.59	8.1	24.5	1.70
I39	17 Dec 2018	12	16.57	76.94	7.8	33.59	8.1	24.5	1.76
I39	17 Dec 2018	13	16.57	76.72	7.8	33.59	8.1	24.5	1.70
I39	17 Dec 2018	14	16.57	76.60	7.8	33.59	8.1	24.5	1.66
I39	17 Dec 2018	15	16.57	76.89	7.8	33.59	8.1	24.5	1.70
I39	17 Dec 2018	16	16.57	76.86	7.7	33.59	8.1	24.5	1.56
I39	17 Dec 2018	17	16.57	76.70	7.6	33.59	8.1	24.5	1.61
I39	17 Dec 2018	18	16.53	68.17	7.4	33.60	8.1	24.6	1.37

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I39	27 Dec 2018	1	16.11	73.97	7.8	33.63	8.1	24.7	0.61
I39	27 Dec 2018	2	16.11	81.39	7.8	33.63	8.1	24.7	0.69
I39	27 Dec 2018	3	16.11	82.31	7.8	33.63	8.1	24.7	0.73
I39	27 Dec 2018	4	16.10	82.38	7.8	33.63	8.1	24.7	0.84
I39	27 Dec 2018	5	16.10	82.42	7.8	33.63	8.1	24.7	0.92
I39	27 Dec 2018	6	16.09	82.30	7.8	33.63	8.1	24.7	0.98
I39	27 Dec 2018	7	16.07	81.77	7.8	33.63	8.1	24.7	1.13
I39	27 Dec 2018	8	16.06	81.64	7.8	33.63	8.1	24.7	1.27
I39	27 Dec 2018	9	16.04	81.55	7.8	33.63	8.1	24.7	1.40
I39	27 Dec 2018	10	16.02	80.98	7.8	33.63	8.1	24.7	1.48
I39	27 Dec 2018	11	16.00	80.19	7.8	33.63	8.1	24.7	1.58
I39	27 Dec 2018	12	15.94	78.26	7.7	33.63	8.1	24.7	1.55
I39	27 Dec 2018	13	15.88	76.39	7.6	33.62	8.1	24.7	1.46
I39	27 Dec 2018	14	15.87	75.46	7.5	33.62	8.1	24.7	1.43
I39	27 Dec 2018	15	15.87	75.13	7.5	33.62	8.1	24.7	1.35
I39	27 Dec 2018	16	15.86	74.04	7.5	33.62	8.1	24.7	1.28
I39	27 Dec 2018	17	15.85	73.81	7.6	33.62	8.1	24.7	1.26
I39	27 Dec 2018	18	15.82	73.73	7.5	33.61	8.1	24.7	1.27
I40	03 Dec 2018	1	17.00	52.21	7.8	33.45	8.1	24.3	1.01
I40	03 Dec 2018	2	16.98	52.06	7.8	33.52	8.1	24.4	1.26
I40	03 Dec 2018	3	16.95	50.85	7.7	33.68	8.1	24.5	1.77
I40	03 Dec 2018	4	16.90	51.06	7.6	33.70	8.1	24.5	1.86
I40	03 Dec 2018	5	16.69	49.79	7.3	33.68	8.1	24.6	1.73
I40	03 Dec 2018	6	16.24	46.36	7.1	33.65	8.1	24.7	1.65
I40	03 Dec 2018	7	16.12	51.22	7.0	33.63	8.1	24.7	1.57
I40	03 Dec 2018	8	15.64	49.00	6.8	33.61	8.1	24.8	1.43
I40	03 Dec 2018	9	15.33	43.12	6.7	33.59	8.1	24.8	1.34
I40	03 Dec 2018	10	15.16	39.68	6.7	33.59	8.0	24.8	1.25
I40	10 Dec 2018	1	16.62	57.59	8.0	33.50	8.1	24.5	1.19
I40	10 Dec 2018	2	16.60	56.88	8.0	33.50	8.1	24.5	1.41
I40	10 Dec 2018	3	16.58	56.92	7.9	33.53	8.1	24.5	1.69
I40	10 Dec 2018	4	16.59	59.18	7.9	33.54	8.1	24.5	1.70
I40	10 Dec 2018	5	16.58	62.45	7.9	33.55	8.1	24.5	1.67
I40	10 Dec 2018	6	16.57	61.44	7.9	33.55	8.1	24.5	1.72
I40	10 Dec 2018	7	16.55	57.87	7.8	33.55	8.1	24.5	1.71
I40	10 Dec 2018	8	16.52	48.50	7.7	33.55	8.1	24.5	1.69
I40	10 Dec 2018	9	16.52	46.51	7.7	33.55	8.1	24.5	1.70
I40	10 Dec 2018	10	16.49	43.77	7.7	33.54	8.1	24.5	1.72
I40	20 Dec 2018	1	16.50	44.15	7.9	33.59	8.1	24.6	1.96
I40	20 Dec 2018	2	16.50	43.64	7.9	33.59	8.1	24.6	2.16
I40	20 Dec 2018	3	16.50	44.72	7.8	33.59	8.1	24.6	2.55
I40	20 Dec 2018	4	16.50	44.13	7.9	33.59	8.1	24.6	2.64
I40	20 Dec 2018	5	16.50	43.46	7.9	33.59	8.1	24.6	2.66
I40	20 Dec 2018	6	16.50	41.43	7.8	33.59	8.1	24.6	2.51
I40	20 Dec 2018	7	16.50	41.52	7.8	33.59	8.1	24.6	2.39
I40	20 Dec 2018	8	16.51	39.31	7.8	33.59	8.1	24.6	2.40
I40	20 Dec 2018	9	16.51	34.93	7.7	33.59	8.1	24.6	2.29
I40	20 Dec 2018	10	16.51	33.27	7.6	33.60	8.1	24.6	2.18
I40	27 Dec 2018	1	16.09	52.20	8.0	33.53	8.1	24.6	1.55
I40	27 Dec 2018	2	16.09	52.66	8.0	33.53	8.1	24.6	1.66

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I40	27 Dec 2018	3	16.09	52.49	8.0	33.53	8.1	24.6	1.92
I40	27 Dec 2018	4	16.09	53.10	8.0	33.53	8.1	24.6	2.17
I40	27 Dec 2018	5	16.09	52.92	8.0	33.53	8.1	24.6	2.43
I40	27 Dec 2018	6	16.08	52.45	8.0	33.53	8.1	24.6	2.62
I40	27 Dec 2018	7	16.07	52.82	8.0	33.53	8.1	24.6	2.69
I40	27 Dec 2018	8	16.04	51.09	8.0	33.54	8.1	24.6	2.75
I40	27 Dec 2018	9	16.00	46.96	8.0	33.55	8.1	24.6	2.65
I40	27 Dec 2018	10	15.92	34.54	8.0	33.57	8.1	24.7	2.43

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

Station	Date	Depth	Analyst	Procedure	Total	Fecal	Entero
I19	03 Dec 2018	6	AE	LAB DUPLICATE	11000	1000	140e
I19	10 Dec 2018	6	AE	LAB DUPLICATE	6000	1000e	80e
I19	20 Dec 2018	6	JLT	LAB DUPLICATE	2200e	220e	94
I19	27 Dec 2018	6	AE	LAB DUPLICATE	15000	2000e	380e
I40	03 Dec 2018	6	LMA	LAB DUPLICATE	2400e	360e	16e
I40	10 Dec 2018	6	AE	LAB DUPLICATE	5600	800e	120e
I40	20 Dec 2018	6	JLT	LAB DUPLICATE	80e	22e	6e
I40	27 Dec 2018	6	AE	LAB DUPLICATE	>16000	1200	ns
S12	04 Dec 2018		AR	FIELD DUPLICATE	<20	<2	2e
S12	04 Dec 2018		AR	LAB DUPLICATE	<20	<2	2e
S12	11 Dec 2018		AE	FIELD DUPLICATE	800e	44	120e
S12	11 Dec 2018		AE	LAB DUPLICATE	140e	18e	80e
S12	18 Dec 2018		JLT	FIELD DUPLICATE	180e	<2	28e
S12	18 Dec 2018		AR	LAB DUPLICATE	80e	6e	30e
S12	26 Dec 2018		AE	FIELD DUPLICATE	<20	<2	4e
S12	26 Dec 2018		AE	LAB DUPLICATE	40e	<2	2e

ns = not sampled

ND = no data

