SD Public Utilities

SOUTH BAY OCEAN OUTFALL MONTHLY RECEIVING WATERS MONITORING REPORT

SOUTH BAY WATER RECLAMATION PLANT

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

JULY 2019

REVISED MARCH 2021

Environmental Monitoring and Technical Services
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CERTIFIED
Public Utilities Department
Continual Improvement, Prevention of Pollution, Regulatory Compliance
ISO 14001

The City of
SAN DIEGO
Public Utilities Department
Environmental Monitoring & Technical Services Division

April 1, 2021

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 revised July 2019 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 revised report is being submitted to address data integrity issues identified to the Board in the letter dated October 22, 2020, subject: "San Diego NPDES Shoreline Sampling Program Report."

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 by Order Nos. R9-2014-0094, R9-2017-0024, R9-2019-0012, 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 Public Utilities Director

PV/rk

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

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INTRODUCTION

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

MATERIALS AND METHODS

Shore Stations

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

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

Kelp Bed Stations

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

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

Seawater samples at the kelp bed stations are primarily collected using a CTD-integrated rosette sampler with Niskin bottles. Aliquots for bacteriological analyses were drawn from these bottles into sterile sample bottles for processing at the City's Marine Microbiology Laboratory. Water column profiles of the various physical/chemical parameters were taken using a CTD. The CTD collected these physical/chemical data at a rate ≥ 4 scans per second. The data were then internally averaged using the CTD proprietary software, Seasoft, to create water column profiles equivalent

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

Offshore Stations

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

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

Bacteriological Reporting and Quality Assurance

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

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

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

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

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

Single Sample Maximums:

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

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

Quality controls of bacteriological data include laboratory and field duplicate analyses. Laboratory duplicates are performed on approximately 10% of the water quality samples, while field duplicates are performed six times a month (see Appendix A). Laboratory duplicates represent two aliquots of the original sample that are split in the laboratory and analyzed by the same analyst using identical procedures within the same analytical run. The results of these analyses provide a measure of intra-analyst precision. In contrast, field duplicates represent two separate samples collected at the same time from the same site, which are handled under identical circumstances and treated exactly the same throughout field and lab procedures. The results of these analyses provide a measure of precision associated with sample collection, preservation, storage, and lab procedures. The sign test (see Gilbert, 1987) is used to statistically compare both the results from the laboratory duplicates, as well as the results from the field duplicates. These data will be further analyzed in the City's 2019 Quality Assurance Report, which will be completed in March 2020.

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 USIBWC 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.
  - The 11 shore stations (S0, S2, S3, S4, S5, S6, S8, S9, S10, S11, S12) were on July 2, 9, 16/17, 23, 30. Subsequent to initial reporting, samples collected at station S11 on July 2, station S6 on July 9, station S5 on July 23, and stations S4, S6, S10, and S11 on July 30, were determined to be problematic. The results from these samples have been removed from this report.
  - All remaining samples collected in July from stations located north of the border were in compliance with various California Ocean Plan (Ocean Plan) water contact standards (these standards do not apply to stations located in Mexican waters).

- Although the Ocean Plan standards do not apply to this station, 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 the seawater sample collected at station S0 on July 30.
- 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).
- Nothing of sewage origin was observed at any of the shore stations.

- **Kelp Bed Water Quality Sampling**
  - The seven kelp bed water quality stations (I19, I24, I25, I26, I32, I39, I40) were sampled five times during July (i.e. July 1, 8, 15, 24, 30).
  - One of these stations was out of compliance with various Ocean Plan water contact standards as follows:
    - The single sample maximum (SSM) for fecal coliform densities was exceeded at station I40 on July 8.
    - 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 station I40 on July 8.
  - Water column temperatures ranged from 11.14 to 20.46°C. The difference between surface and bottom waters ranged from 0.41 to 7.40°C, indicating the water column was stratified at some of these sites during the month.
  - Chlorophyll *a* concentrations ranged from 0.36 to 33.14 µg/L, suggesting the presence of phytoplankton blooms during the month.
  - Nothing of sewage origin was observed at any of the kelp stations.

- **Offshore Water Quality Sampling**
  - Quarterly offshore water quality sampling was not conducted during July. The next quarterly sampling is scheduled for August 2019.

TABLES AND FIGURES

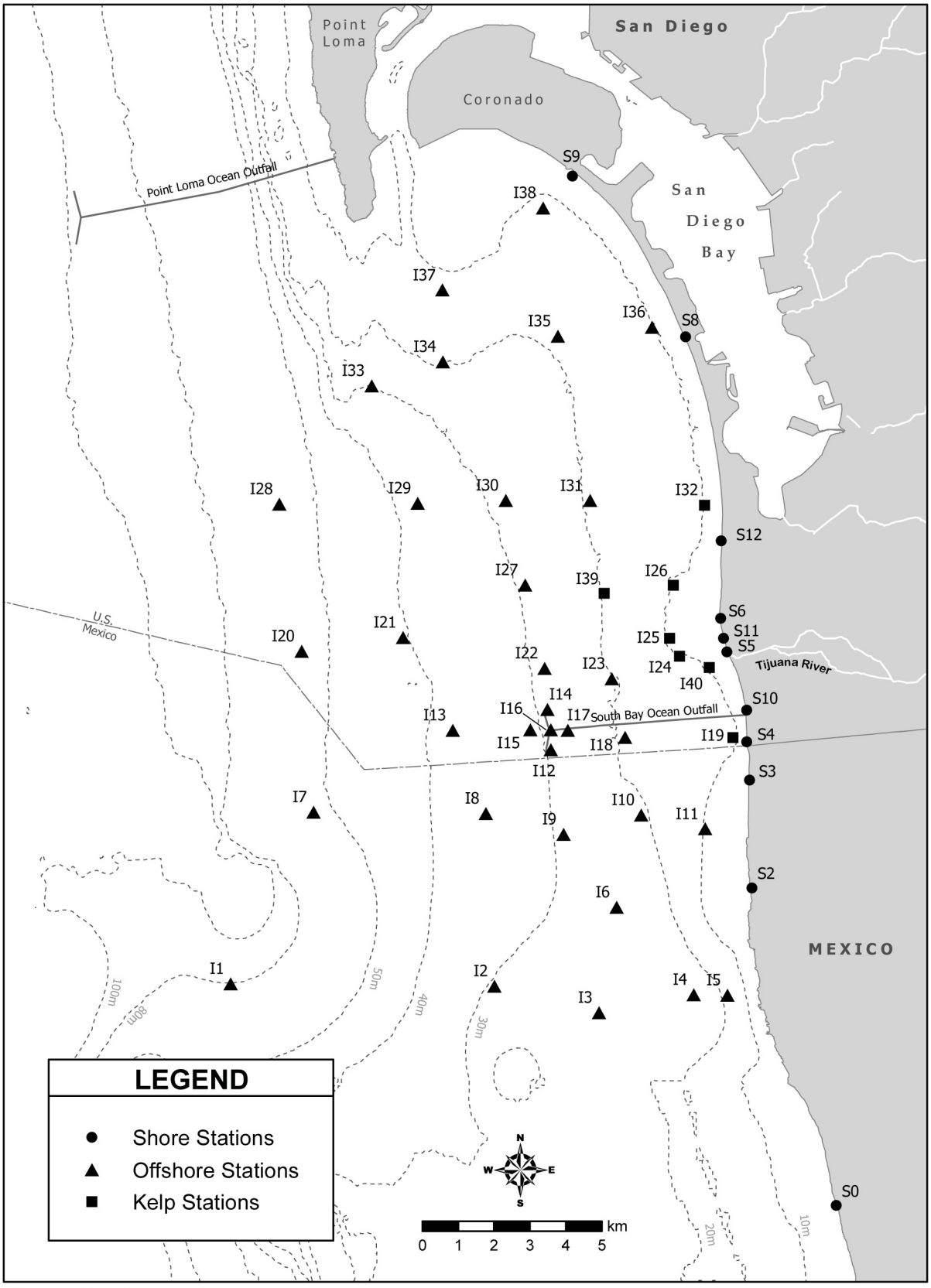

Figure 1.1 Station Map

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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 Jul 2019	52	63	29	36	225	50	26	94
02 Jul 2019	73	80	47	50	221	71	26	109
03 Jul 2019	73	80	47	50	221	71	26	109
04 Jul 2019	52	112	29	36	133	50	30	94
05 Jul 2019	52	112	29	36	133	50	30	94
06 Jul 2019	52	112	29	36	200	50	30	94
07 Jul 2019	52	112	29	36	200	50	30	94
08 Jul 2019	52	112	29	36	200	50	30	94
09 Jul 2019	49	126	29	50	200	63	58	109
10 Jul 2019	49	126	29	50	200	63	58	109
11 Jul 2019	54	112	63	63	200	78	98	134
12 Jul 2019	54	112	63	63	200	78	98	134
13 Jul 2019	54	112	63	63	200	78	98	134
14 Jul 2019	54	112	63	63	200	78	98	134
15 Jul 2019	54	112	63	63	200	78	98	134
16 Jul 2019	24	80	43	50	126	31	58	91
17 Jul 2019	24	80	43	50	126	31	58	91
18 Jul 2019	24	112	43	63	112	31	58	75
19 Jul 2019	24	112	43	63	112	31	58	75
20 Jul 2019	24	112	43	63	112	31	58	75
21 Jul 2019	24	112	43	63	112	31	58	75
22 Jul 2019	24	112	43	63	112	31	58	75
23 Jul 2019	26	112	36	50	80	18	44	36
24 Jul 2019	28	93	43	63	63	18	44	36
25 Jul 2019	28	93	43	63	63	18	44	36
26 Jul 2019	28	93	43	63	63	18	44	36
27 Jul 2019	28	93	43	63	63	18	44	36
28 Jul 2019	28	93	43	63	63	18	44	36
29 Jul 2019	28	93	43	63	63	18	44	36
30 Jul 2019	28	75	43	80	80	18	44	50
31 Jul 2019	28	75	43	80	80	18	44	50

* 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 Jul 2019	20	12	36	4	47	17	19	29
02 Jul 2019	13	9	18	4	28	10	19	21
03 Jul 2019	13	9	18	4	28	10	19	21
04 Jul 2019	9	8	8	4	13	8	18	21
05 Jul 2019	9	8	8	4	13	8	18	21
06 Jul 2019	9	8	8	4	11	8	18	21
07 Jul 2019	9	8	8	4	11	8	18	21
08 Jul 2019	9	8	8	4	11	8	18	21
09 Jul 2019	12	10	8	4	9	8	16	19
10 Jul 2019	12	10	8	4	9	8	16	19
11 Jul 2019	12	8	11	4	8	7	24	15
12 Jul 2019	12	8	11	4	8	7	24	15
13 Jul 2019	12	8	11	4	8	7	24	15
14 Jul 2019	12	8	11	4	8	7	24	15
15 Jul 2019	12	8	11	4	8	7	24	15
16 Jul 2019	8	6	6	4	6	5	15	15
17 Jul 2019	8	6	6	4	6	5	15	15
18 Jul 2019	8	8	6	4	8	5	15	12
19 Jul 2019	8	8	6	4	8	5	15	12
20 Jul 2019	8	8	6	4	8	5	15	12
21 Jul 2019	8	8	6	4	8	5	15	12
22 Jul 2019	8	8	6	4	8	5	15	12
23 Jul 2019	8	8	5	3	6	4	9	8
24 Jul 2019	7	6	2	2	2	3	6	7
25 Jul 2019	7	6	2	2	2	3	6	7
26 Jul 2019	7	6	2	2	2	3	6	7
27 Jul 2019	7	6	2	2	2	3	6	7
28 Jul 2019	7	6	2	2	2	3	6	7
29 Jul 2019	7	6	2	2	2	3	6	7
30 Jul 2019	7	7	2	3	4	3	6	8
31 Jul 2019	7	7	2	3	4	3	6	8

* Geometric mean calculated using n<5

Table 2.3

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

Date	S4	S5	S6	S8	S9	S10	S11	S12
01 Jul 2019	5	7	4	3	26	5	5	7
02 Jul 2019	4	6	4	3	20	5	5	6
03 Jul 2019	4	6	4	3	20	5	5	6
04 Jul 2019	4	6	3	3	14	5	9	6
05 Jul 2019	4	6	3	3	14	5	9	6
06 Jul 2019	4	6	3	3	14	5	9	6
07 Jul 2019	4	6	3	3	14	5	9	6
08 Jul 2019	4	6	3	3	14	5	9	6
09 Jul 2019	5	7	3	3	15	5	9	5
10 Jul 2019	5	7	3	3	15	5	9	5
11 Jul 2019	5	8	3	3	12	5	9	6
12 Jul 2019	5	8	3	3	12	5	9	6
13 Jul 2019	5	8	3	3	12	5	9	6
14 Jul 2019	5	8	3	3	12	5	9	6
15 Jul 2019	5	8	3	3	12	5	9	6
16 Jul 2019	4	7	5	3	11	4	9	6
17 Jul 2019	4	7	5	3	11	4	9	6
18 Jul 2019	4	9	5	2	16	4	9	4
19 Jul 2019	4	9	5	2	16	4	9	4
20 Jul 2019	4	9	5	2	16	4	9	4
21 Jul 2019	4	9	5	2	16	4	9	4
22 Jul 2019	4	9	5	2	16	4	9	4
23 Jul 2019	6	9	7	2	12	3	6	4
24 Jul 2019	7	7	10	2	7	3	5	4
25 Jul 2019	7	7	10	2	7	3	5	4
26 Jul 2019	7	7	10	2	7	3	5	4
27 Jul 2019	7	7	10	2	7	3	5	4
28 Jul 2019	7	7	10	2	7	3	5	4
29 Jul 2019	7	7	10	2	7	3	5	4
30 Jul 2019	7	7	10	2	8	3	5	4
31 Jul 2019	7	7	10	2	8	3	5	4

* 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
02 Jul 2019	IC	IC	IC	IC	IC	IC	ns	IC
09 Jul 2019	IC	IC	ns	IC	IC	IC	IC	IC
16 Jul 2019	IC	IC	IC	IC	IC	IC	IC	IC
23 Jul 2019	IC	ns	IC	IC	IC	IC	IC	IC
30 Jul 2019	ns	IC	ns	IC	IC	ns	ns	IC

IC = In Compliance
E = Exceedance
ns = not sampled
ND = no data

Table 2.5

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

Date	S4	S5	S6	S8	S9	S10	S11	S12
02 Jul 2019	IC	IC	IC	IC	IC	IC	ns	IC
09 Jul 2019	IC	IC	ns	IC	IC	IC	IC	IC
16 Jul 2019	IC	IC	IC	IC	IC	IC	IC	IC
23 Jul 2019	IC	ns	IC	IC	IC	IC	IC	IC
30 Jul 2019	ns	IC	ns	IC	IC	ns	ns	IC

IC = In Compliance
E = Exceedance
ns = not sampled
ND = no data

Table 2.6

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

Date	S4	S5	S6	S8	S9	S10	S11	S12
02 Jul 2019	IC	IC	IC	IC	IC	IC	ns	IC
09 Jul 2019	IC	IC	ns	IC	IC	IC	IC	IC
16 Jul 2019	IC	IC	IC	IC	IC	IC	IC	IC
23 Jul 2019	IC	ns	IC	IC	IC	IC	IC	IC
30 Jul 2019	ns	IC	ns	IC	IC	ns	ns	IC

IC = In Compliance
E = Exceedance
ns = not sampled
ND = no data

Table 2.7

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

Date	S4	S5	S6	S8	S9	S10	S11	S12
02 Jul 2019	IC	IC	IC	IC	IC	IC	ns	IC
09 Jul 2019	IC	IC	ns	IC	IC	IC	IC	IC
16 Jul 2019	IC	IC	IC	IC	IC	IC	IC	IC
23 Jul 2019	IC	ns	IC	IC	IC	IC	IC	IC
30 Jul 2019	ns	IC	ns	IC	IC	ns	ns	IC

IC = In Compliance
E = Exceedance
ns = not sampled
ND = no data

Table 2.8

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

Station	Date	Time	Total	Fecal	Entero	F:T
S0	02 Jul 2019	945	1000e	220e	100e	0.22
S0	09 Jul 2019	1029	<200	<2	14e	0.01
S0	17 Jul 2019	1005	62	6e	20e	0.10
S0	23 Jul 2019	1045	110	46	6e	0.42
S0	30 Jul 2019	1020	>16000	800e	560	0.05
S2	02 Jul 2019	1050	<20	<20	6e	1.00
S2	09 Jul 2019	1124	400e	18e	12e	0.04
S2	17 Jul 2019	932	2e	<2	<2	1.00
S2	23 Jul 2019	940	2e	2e	<2	1.00
S2	30 Jul 2019	1150	100e	6e	8e	0.06
S3	02 Jul 2019	1135	<200	10e	14e	0.05
S3	09 Jul 2019	1212	60e	4e	<2	0.07
S3	17 Jul 2019	920	<2	<2	<2	1.00
S3	23 Jul 2019	830	<2	<2	48e	1.00
S3	30 Jul 2019	1115	<200	20e	8e	0.10
S4	02 Jul 2019	1131	<200	4e	<2	0.02
S4	09 Jul 2019	1130	40e	22e	18e	0.55
S4	16 Jul 2019	938	<2	<2	<2	1.00
S4	23 Jul 2019	1011	40e	12e	38e	0.30
S4	30 Jul 2019		ns	ns	ns	ns
S5	02 Jul 2019	922	<200	4e	6e	0.02
S5	09 Jul 2019	1007	<200	22e	14e	0.11
S5	16 Jul 2019	759	<20	<2	4e	0.10
S5	23 Jul 2019		ns	ns	ns	ns
S5	30 Jul 2019	1054	40e	14e	8e	0.35
S6	02 Jul 2019	935	<200	<2	4e	0.01
S6	09 Jul 2019		ns	ns	ns	ns
S6	16 Jul 2019	821	20e	2e	12e	0.10
S6	23 Jul 2019	945	<20	<2	20e	0.10
S6	30 Jul 2019		ns	ns	ns	ns
S8	02 Jul 2019	848	<200	2e	2e	0.01
S8	09 Jul 2019	931	<200	<2	<2	0.01
S8	16 Jul 2019	723	<20	<2	2e	0.10
S8	23 Jul 2019	847	20e	<2	<2	0.10
S8	30 Jul 2019	918	<200	16e	6e	0.08
S9	02 Jul 2019	820	<200	<2	6e	0.01
S9	09 Jul 2019	853	<200	4e	20e	0.02
S9	16 Jul 2019	705	<20	<2	6e	0.10
S9	23 Jul 2019	820	<20	<2	4e	0.10
S9	30 Jul 2019	850	<200	<20	10e	0.10
S10	02 Jul 2019	1137	<200	2e	4e	0.01
S10	09 Jul 2019	1125	120e	8e	8e	0.07
S10	16 Jul 2019	920	2e	2e	<2	1.00
S10	23 Jul 2019	1030	2e	<2	<2	1.00
S10	30 Jul 2019		ns	ns	ns	ns

Station	Date	Time	Total	Fecal	Entero	F:T
S11	02 Jul 2019		ns	ns	ns	ns
S11	09 Jul 2019	1019	220e	14e	8e	0.06
S11	16 Jul 2019	812	20e	6e	10e	0.30
S11	23 Jul 2019	939	<20	2e	<2	0.10
S11	30 Jul 2019		ns	ns	ns	ns
S12	02 Jul 2019	905	<200	6e	6e	0.03
S12	09 Jul 2019	949	<200	12e	4e	0.06
S12	16 Jul 2019	739	<20	14e	8e	0.70
S12	23 Jul 2019	908	2e	<2	<2	1.00
S12	30 Jul 2019	1012	<200	12e	<2	0.06

ns = not sampled
ND = no data

Table 2.9

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

Station	Date	Parameter	Value
S0	02 Jul 2019	Arrive Time	945
S0	02 Jul 2019	Weather	Sunny
S0	02 Jul 2019	Wind Speed (kts)	1.5
S0	02 Jul 2019	Wind Dir	NW
S0	02 Jul 2019	Animal Life	5 Shorebirds; 5Dogs
S0	02 Jul 2019	Floatables	None
S0	02 Jul 2019	Water Color	Green
S0	02 Jul 2019	Current Direction	N
S0	02 Jul 2019	Water Temp (C)	14
S0	02 Jul 2019	Wave Height Low (ft)	3
S0	02 Jul 2019	High Tide (ft)	3.9
S0	02 Jul 2019	High Tide Time	1016
S0	02 Jul 2019	Low Tide (ft)	1.8
S0	02 Jul 2019	Low Tide Time	1510
S0	02 Jul 2019	Comments	Kelp; Algae; Water turbid; Residual plastic on the beach; 2.0 L/s water flowing from storm drain; Water clarity was left blank so used 'turbid' to match other two sites
S0	09 Jul 2019	Arrive Time	1029
S0	09 Jul 2019	Weather	Sunny
S0	09 Jul 2019	Wind Speed (kts)	3.4
S0	09 Jul 2019	Wind Dir	SE
S0	09 Jul 2019	Animal Life	None
S0	09 Jul 2019	Floatables	None
S0	09 Jul 2019	Water Color	Blue
S0	09 Jul 2019	Current Direction	SE
S0	09 Jul 2019	Water Temp (C)	15
S0	09 Jul 2019	Wave Height Low (ft)	4
S0	09 Jul 2019	High Tide (ft)	5
S0	09 Jul 2019	High Tide Time	1623
S0	09 Jul 2019	Low Tide (ft)	0.7
S0	09 Jul 2019	Low Tide Time	936
S0	09 Jul 2019	Comments	Kelp; 5 Persons; Water turbid; No flow from storm drain
S0	17 Jul 2019	Arrive Time	1005
S0	17 Jul 2019	Weather	Sunny
S0	17 Jul 2019	Wind Speed (kts)	3.9
S0	17 Jul 2019	Wind Dir	SW
S0	17 Jul 2019	Animal Life	3 Dogs
S0	17 Jul 2019	Floatables	None
S0	17 Jul 2019	Water Color	Green
S0	17 Jul 2019	Current Direction	N
S0	17 Jul 2019	Water Temp (C)	18
S0	17 Jul 2019	Wave Height Low (ft)	2
S0	17 Jul 2019	High Tide (ft)	3.9
S0	17 Jul 2019	High Tide Time	1058
S0	17 Jul 2019	Low Tide (ft)	-0.7
S0	17 Jul 2019	Low Tide Time	439
S0	17 Jul 2019	Comments	Kelp; Algae; Water turbid; 1.0 L/sec water flowing from storm drain
S0	23 Jul 2019	Arrive Time	1045
S0	23 Jul 2019	Weather	Sunny
S0	23 Jul 2019	Wind Speed (kts)	2.6
S0	23 Jul 2019	Wind Dir	NE
S0	23 Jul 2019	Animal Life	15 Shorebirds; 5 Dogs

Station	Date	Parameter	Value
S0	23 Jul 2019	Floatables	None
S0	23 Jul 2019	Water Color	Green
S0	23 Jul 2019	Current Direction	S
S0	23 Jul 2019	Water Temp (C)	16
S0	23 Jul 2019	Wave Height Low (ft)	2
S0	23 Jul 2019	High Tide (ft)	4.1
S0	23 Jul 2019	High Tide Time	1447
S0	23 Jul 2019	Low Tide (ft)	1.1
S0	23 Jul 2019	Low Tide Time	800
S0	23 Jul 2019	Comments	Kelp; Algae; 5 Fishermen; Water turbid; 0.5 L/sec water flowing from storm drain
S0	30 Jul 2019	Arrive Time	1020
S0	30 Jul 2019	Weather	Cloudy
S0	30 Jul 2019	Wind Speed (kts)	3.1
S0	30 Jul 2019	Wind Dir	SW
S0	30 Jul 2019	Animal Life	2 Dogs; >20 Seagulls
S0	30 Jul 2019	Floatables	None
S0	30 Jul 2019	Water Color	Green
S0	30 Jul 2019	Current Direction	SW
S0	30 Jul 2019	Water Temp (C)	17
S0	30 Jul 2019	Wave Height Low (ft)	2
S0	30 Jul 2019	High Tide (ft)	4
S0	30 Jul 2019	High Tide Time	917
S0	30 Jul 2019	Low Tide (ft)	1.8
S0	30 Jul 2019	Low Tide Time	1416
S0	30 Jul 2019	Comments	Kelp; Algae; Water turbid; 1.0 L/sec water flowing from storm drain
S2	02 Jul 2019	Arrive Time	1050
S2	02 Jul 2019	Weather	Sunny
S2	02 Jul 2019	Wind Speed (kts)	2.1
S2	02 Jul 2019	Wind Dir	NW
S2	02 Jul 2019	Animal Life	>20 Shorebirds
S2	02 Jul 2019	Floatables	None
S2	02 Jul 2019	Water Color	Green
S2	02 Jul 2019	Current Direction	N
S2	02 Jul 2019	Water Temp (C)	15
S2	02 Jul 2019	Wave Height Low (ft)	3
S2	02 Jul 2019	High Tide (ft)	3.9
S2	02 Jul 2019	High Tide Time	1016
S2	02 Jul 2019	Low Tide (ft)	1.8
S2	02 Jul 2019	Low Tide Time	1510
S2	02 Jul 2019	Comments	15 Persons; Water turbid; No flow from storm drain; Trash on beach
S2	09 Jul 2019	Arrive Time	1124
S2	09 Jul 2019	Weather	Sunny
S2	09 Jul 2019	Wind Speed (kts)	3.3
S2	09 Jul 2019	Wind Dir	SE
S2	09 Jul 2019	Animal Life	15 Shorebirds
S2	09 Jul 2019	Floatables	None
S2	09 Jul 2019	Water Color	Green
S2	09 Jul 2019	Current Direction	SE
S2	09 Jul 2019	Water Temp (C)	15
S2	09 Jul 2019	Wave Height Low (ft)	4
S2	09 Jul 2019	High Tide (ft)	5
S2	09 Jul 2019	High Tide Time	1623
S2	09 Jul 2019	Low Tide (ft)	0.7
S2	09 Jul 2019	Low Tide Time	936
S2	09 Jul 2019	Comments	Kelp; >20 Persons; Water turbid; No flow from storm drain

Station	Date	Parameter	Value
S2	17 Jul 2019	Arrive Time	932
S2	17 Jul 2019	Weather	Sunny
S2	17 Jul 2019	Wind Speed (kts)	8
S2	17 Jul 2019	Wind Dir	SW
S2	17 Jul 2019	Animal Life	2 Dogs; >20 Seagulls
S2	17 Jul 2019	Floatables	None
S2	17 Jul 2019	Water Color	Green
S2	17 Jul 2019	Current Direction	N
S2	17 Jul 2019	Water Temp (C)	18
S2	17 Jul 2019	Wave Height Low (ft)	2
S2	17 Jul 2019	High Tide (ft)	3.9
S2	17 Jul 2019	High Tide Time	1058
S2	17 Jul 2019	Low Tide (ft)	-0.7
S2	17 Jul 2019	Low Tide Time	439
S2	17 Jul 2019	Comments	Kelp; Algae; Water turbid; No flow from storm drain
S2	23 Jul 2019	Arrive Time	940
S2	23 Jul 2019	Weather	Sunny
S2	23 Jul 2019	Wind Speed (kts)	1.8
S2	23 Jul 2019	Wind Dir	NE
S2	23 Jul 2019	Animal Life	>20 Shorebirds
S2	23 Jul 2019	Floatables	None
S2	23 Jul 2019	Water Color	Green
S2	23 Jul 2019	Current Direction	S
S2	23 Jul 2019	Water Temp (C)	15
S2	23 Jul 2019	Wave Height Low (ft)	2
S2	23 Jul 2019	High Tide (ft)	4.1
S2	23 Jul 2019	High Tide Time	1447
S2	23 Jul 2019	Low Tide (ft)	1.1
S2	23 Jul 2019	Low Tide Time	800
S2	23 Jul 2019	Comments	Kelp; Algae; 5 Persons; Water turbid; 0.5 L/sec water flowing from storm drain
S2	30 Jul 2019	Arrive Time	1150
S2	30 Jul 2019	Weather	Cloudy
S2	30 Jul 2019	Wind Speed (kts)	6.8
S2	30 Jul 2019	Wind Dir	NW
S2	30 Jul 2019	Animal Life	5 Dogs; >20 Seagulls
S2	30 Jul 2019	Floatables	None
S2	30 Jul 2019	Water Color	Green
S2	30 Jul 2019	Current Direction	NW
S2	30 Jul 2019	Water Temp (C)	17
S2	30 Jul 2019	Wave Height Low (ft)	2
S2	30 Jul 2019	High Tide (ft)	4
S2	30 Jul 2019	High Tide Time	917
S2	30 Jul 2019	Low Tide (ft)	1.8
S2	30 Jul 2019	Low Tide Time	1416
S2	30 Jul 2019	Comments	Kelp; Algae; Water turbid; No flow from storm drain
S3	02 Jul 2019	Arrive Time	1135
S3	02 Jul 2019	Weather	Sunny
S3	02 Jul 2019	Wind Speed (kts)	2.3
S3	02 Jul 2019	Wind Dir	NW
S3	02 Jul 2019	Animal Life	5 Dogs
S3	02 Jul 2019	Floatables	None
S3	02 Jul 2019	Water Color	Green
S3	02 Jul 2019	Current Direction	N
S3	02 Jul 2019	Water Temp (C)	15
S3	02 Jul 2019	Wave Height Low (ft)	3
S3	02 Jul 2019	High Tide (ft)	3.9

Station	Date	Parameter	Value
S3	02 Jul 2019	High Tide Time	1016
S3	02 Jul 2019	Low Tide (ft)	1.8
S3	02 Jul 2019	Low Tide Time	1510
S3	02 Jul 2019	Comments	Kelp; Algae; 15 Persons; Water turbid; 0.5 L/sec water flowing from storm drain; Brown plume
S3	09 Jul 2019	Arrive Time	1212
S3	09 Jul 2019	Weather	Sunny
S3	09 Jul 2019	Wind Speed (kts)	4.2
S3	09 Jul 2019	Wind Dir	SE
S3	09 Jul 2019	Animal Life	5 Shorebirds
S3	09 Jul 2019	Floatables	None
S3	09 Jul 2019	Water Color	Green
S3	09 Jul 2019	Current Direction	SE
S3	09 Jul 2019	Water Temp (C)	15
S3	09 Jul 2019	Wave Height Low (ft)	4
S3	09 Jul 2019	High Tide (ft)	5
S3	09 Jul 2019	High Tide Time	1623
S3	09 Jul 2019	Low Tide (ft)	0.7
S3	09 Jul 2019	Low Tide Time	936
S3	09 Jul 2019	Comments	Kelp; >20 Persons; Water turbid; No flow from storm drain
S3	17 Jul 2019	Arrive Time	920
S3	17 Jul 2019	Weather	Sunny
S3	17 Jul 2019	Wind Speed (kts)	6.9
S3	17 Jul 2019	Wind Dir	SW
S3	17 Jul 2019	Animal Life	>20 Seagulls
S3	17 Jul 2019	Floatables	None
S3	17 Jul 2019	Water Color	Green
S3	17 Jul 2019	Current Direction	N
S3	17 Jul 2019	Water Temp (C)	18
S3	17 Jul 2019	Wave Height Low (ft)	2
S3	17 Jul 2019	High Tide (ft)	3.9
S3	17 Jul 2019	High Tide Time	1058
S3	17 Jul 2019	Low Tide (ft)	-0.7
S3	17 Jul 2019	Low Tide Time	439
S3	17 Jul 2019	Comments	Water turbid; 0.5L/sec water flowing from storm drain; Plume of residual water discharge
S3	23 Jul 2019	Arrive Time	830
S3	23 Jul 2019	Weather	Sunny
S3	23 Jul 2019	Wind Speed (kts)	1.1
S3	23 Jul 2019	Wind Dir	NE
S3	23 Jul 2019	Animal Life	5 Shorebirds; 5 Dogs
S3	23 Jul 2019	Floatables	None
S3	23 Jul 2019	Water Color	Green
S3	23 Jul 2019	Current Direction	S
S3	23 Jul 2019	Water Temp (C)	15
S3	23 Jul 2019	Wave Height Low (ft)	2
S3	23 Jul 2019	High Tide (ft)	4.1
S3	23 Jul 2019	High Tide Time	1447
S3	23 Jul 2019	Low Tide (ft)	1.1
S3	23 Jul 2019	Low Tide Time	800
S3	23 Jul 2019	Comments	Kelp; Algae; >20 Persons; Water turbid; No flow from storm drain
S3	30 Jul 2019	Arrive Time	1115
S3	30 Jul 2019	Weather	Cloudy
S3	30 Jul 2019	Wind Speed (kts)	6.8
S3	30 Jul 2019	Wind Dir	NW
S3	30 Jul 2019	Animal Life	3 Dogs; >20 Seagulls

Station	Date	Parameter	Value
S3	30 Jul 2019	Floatables	None
S3	30 Jul 2019	Water Color	Green
S3	30 Jul 2019	Current Direction	NW
S3	30 Jul 2019	Water Temp (C)	17
S3	30 Jul 2019	Wave Height Low (ft)	2
S3	30 Jul 2019	High Tide (ft)	4
S3	30 Jul 2019	High Tide Time	917
S3	30 Jul 2019	Low Tide (ft)	1.8
S3	30 Jul 2019	Low Tide Time	1416
S3	30 Jul 2019	Comments	Kelp; Algae; 5 Swimmers; Water turbid; No flow from storm drain
S4	02 Jul 2019	Arrive Time	1131
S4	02 Jul 2019	Weather	Sunny
S4	02 Jul 2019	Wind Speed (kts)	3.4
S4	02 Jul 2019	Wind Dir	SW
S4	02 Jul 2019	Animal Life	None
S4	02 Jul 2019	Floatables	None
S4	02 Jul 2019	Water Color	Green
S4	02 Jul 2019	Current Direction	N
S4	02 Jul 2019	Water Temp (C)	19
S4	02 Jul 2019	Wave Height Low (ft)	4
S4	02 Jul 2019	High Tide (ft)	3.9
S4	02 Jul 2019	High Tide Time	1016
S4	02 Jul 2019	Low Tide (ft)	1.8
S4	02 Jul 2019	Low Tide Time	1510
S4	02 Jul 2019	Comments	Kelp; Seagrass; Water clear
S4	09 Jul 2019	Arrive Time	1130
S4	09 Jul 2019	Weather	Sunny
S4	09 Jul 2019	Wind Speed (kts)	3.1
S4	09 Jul 2019	Wind Dir	W
S4	09 Jul 2019	Animal Life	40 Sand Pipers
S4	09 Jul 2019	Floatables	None
S4	09 Jul 2019	Water Color	Green
S4	09 Jul 2019	Current Direction	N
S4	09 Jul 2019	Water Temp (C)	23
S4	09 Jul 2019	Wave Height Low (ft)	3
S4	09 Jul 2019	High Tide (ft)	5
S4	09 Jul 2019	High Tide Time	1623
S4	09 Jul 2019	Low Tide (ft)	0.7
S4	09 Jul 2019	Low Tide Time	936
S4	09 Jul 2019	Comments	Kelp; Seagrass; Water clear
S4	16 Jul 2019	Arrive Time	938
S4	16 Jul 2019	Weather	Overcast
S4	16 Jul 2019	Wind Speed (kts)	12.6
S4	16 Jul 2019	Wind Dir	N
S4	16 Jul 2019	Animal Life	25 Godwits; 25 Seagulls
S4	16 Jul 2019	Floatables	Foam; Film
S4	16 Jul 2019	Water Color	Green
S4	16 Jul 2019	Current Direction	N
S4	16 Jul 2019	Water Temp (C)	21.1
S4	16 Jul 2019	Wave Height Low (ft)	4
S4	16 Jul 2019	High Tide (ft)	3.9
S4	16 Jul 2019	High Tide Time	1025
S4	16 Jul 2019	Low Tide (ft)	-0.7
S4	16 Jul 2019	Low Tide Time	406
S4	16 Jul 2019	Comments	Kelp; Seagrass; Debris; Water clear
S4	23 Jul 2019	Arrive Time	1011

Station	Date	Parameter	Value
S4	23 Jul 2019	Weather	Partly Cloudy
S4	23 Jul 2019	Wind Speed (kts)	4.4
S4	23 Jul 2019	Wind Dir	W
S4	23 Jul 2019	Animal Life	None
S4	23 Jul 2019	Floatables	None
S4	23 Jul 2019	Water Color	Green
S4	23 Jul 2019	Current Direction	N
S4	23 Jul 2019	Water Temp (C)	21.3
S4	23 Jul 2019	Wave Height Low (ft)	3
S4	23 Jul 2019	High Tide (ft)	4.1
S4	23 Jul 2019	High Tide Time	1447
S4	23 Jul 2019	Low Tide (ft)	1.1
S4	23 Jul 2019	Low Tide Time	800
S4	23 Jul 2019	Comments	Kelp; Seagrass; Water clear
S5	02 Jul 2019	Arrive Time	922
S5	02 Jul 2019	Weather	Sunny
S5	02 Jul 2019	Wind Speed (kts)	3.1
S5	02 Jul 2019	Wind Dir	W
S5	02 Jul 2019	Animal Life	1 Dog
S5	02 Jul 2019	Floatables	None
S5	02 Jul 2019	Water Color	Green
S5	02 Jul 2019	Current Direction	N
S5	02 Jul 2019	Water Temp (C)	16.6
S5	02 Jul 2019	Wave Height Low (ft)	4
S5	02 Jul 2019	High Tide (ft)	3.9
S5	02 Jul 2019	High Tide Time	1016
S5	02 Jul 2019	Low Tide (ft)	-1.2
S5	02 Jul 2019	Low Tide Time	357
S5	02 Jul 2019	Comments	Kelp; Seagrass; 1 Person; Water clear
S5	09 Jul 2019	Arrive Time	1007
S5	09 Jul 2019	Weather	Sunny
S5	09 Jul 2019	Wind Speed (kts)	2.6
S5	09 Jul 2019	Wind Dir	W
S5	09 Jul 2019	Animal Life	None
S5	09 Jul 2019	Floatables	None
S5	09 Jul 2019	Water Color	Green
S5	09 Jul 2019	Current Direction	N
S5	09 Jul 2019	Water Temp (C)	23.3
S5	09 Jul 2019	Wave Height Low (ft)	2
S5	09 Jul 2019	High Tide (ft)	5
S5	09 Jul 2019	High Tide Time	1623
S5	09 Jul 2019	Low Tide (ft)	0.7
S5	09 Jul 2019	Low Tide Time	936
S5	09 Jul 2019	Comments	Kelp; Seagrass; Water clear; Dead seal
S5	16 Jul 2019	Arrive Time	759
S5	16 Jul 2019	Weather	Overcast
S5	16 Jul 2019	Wind Speed (kts)	5.8
S5	16 Jul 2019	Wind Dir	N
S5	16 Jul 2019	Animal Life	60 Godwits
S5	16 Jul 2019	Floatables	Foam; Film
S5	16 Jul 2019	Water Color	Green
S5	16 Jul 2019	Current Direction	N
S5	16 Jul 2019	Water Temp (C)	19
S5	16 Jul 2019	Wave Height Low (ft)	1
S5	16 Jul 2019	High Tide (ft)	3.9
S5	16 Jul 2019	High Tide Time	1025
S5	16 Jul 2019	Low Tide (ft)	-0.7
S5	16 Jul 2019	Low Tide Time	406

Station	Date	Parameter	Value
S5	16 Jul 2019	Comments	Kelp; Seagrass; Debris; Water clear
S5	30 Jul 2019	Arrive Time	1054
S5	30 Jul 2019	Weather	Cloudy
S5	30 Jul 2019	Wind Speed (kts)	6.3
S5	30 Jul 2019	Wind Dir	W
S5	30 Jul 2019	Animal Life	None
S5	30 Jul 2019	Floatables	None
S5	30 Jul 2019	Water Color	Green
S5	30 Jul 2019	Current Direction	N
S5	30 Jul 2019	Water Temp (C)	22.1
S5	30 Jul 2019	Wave Height Low (ft)	3
S5	30 Jul 2019	High Tide (ft)	4
S5	30 Jul 2019	High Tide Time	917
S5	30 Jul 2019	Low Tide (ft)	1.8
S5	30 Jul 2019	Low Tide Time	1416
S5	30 Jul 2019	Comments	Kelp; Seagrass; Water clear
S6	02 Jul 2019	Arrive Time	935
S6	02 Jul 2019	Weather	Sunny
S6	02 Jul 2019	Wind Speed (kts)	5
S6	02 Jul 2019	Wind Dir	W
S6	02 Jul 2019	Animal Life	None
S6	02 Jul 2019	Floatables	None
S6	02 Jul 2019	Water Color	Green
S6	02 Jul 2019	Current Direction	N
S6	02 Jul 2019	Water Temp (C)	17.2
S6	02 Jul 2019	Wave Height Low (ft)	4
S6	02 Jul 2019	High Tide (ft)	3.9
S6	02 Jul 2019	High Tide Time	1016
S6	02 Jul 2019	Low Tide (ft)	-1.2
S6	02 Jul 2019	Low Tide Time	357
S6	02 Jul 2019	Comments	Kelp; Seagrass; 6 Surfers; Water clear
S6	16 Jul 2019	Arrive Time	821
S6	16 Jul 2019	Weather	Overcast
S6	16 Jul 2019	Wind Speed (kts)	5.8
S6	16 Jul 2019	Wind Dir	N
S6	16 Jul 2019	Animal Life	1 Dog; 7 Godwits
S6	16 Jul 2019	Floatables	Foam; Film
S6	16 Jul 2019	Water Color	Green
S6	16 Jul 2019	Current Direction	N
S6	16 Jul 2019	Water Temp (C)	19.1
S6	16 Jul 2019	Wave Height Low (ft)	5
S6	16 Jul 2019	High Tide (ft)	3.9
S6	16 Jul 2019	High Tide Time	1025
S6	16 Jul 2019	Low Tide (ft)	-0.7
S6	16 Jul 2019	Low Tide Time	406
S6	16 Jul 2019	Comments	Kelp; Seagrass; Debris; 2 Joggers; 2 Persons; 5 Surfers; Water clear
S6	23 Jul 2019	Arrive Time	945
S6	23 Jul 2019	Weather	Partly Cloudy
S6	23 Jul 2019	Wind Speed (kts)	3
S6	23 Jul 2019	Wind Dir	W
S6	23 Jul 2019	Animal Life	None
S6	23 Jul 2019	Floatables	None
S6	23 Jul 2019	Water Color	Green
S6	23 Jul 2019	Current Direction	N
S6	23 Jul 2019	Water Temp (C)	21.4
S6	23 Jul 2019	Wave Height Low (ft)	3

Station	Date	Parameter	Value
S6	23 Jul 2019	High Tide (ft)	4.1
S6	23 Jul 2019	High Tide Time	1447
S6	23 Jul 2019	Low Tide (ft)	1.1
S6	23 Jul 2019	Low Tide Time	800
S6	23 Jul 2019	Comments	Kelp; Seagrass; 4 Persons; Water clear
S8	02 Jul 2019	Arrive Time	848
S8	02 Jul 2019	Weather	Partly Cloudy
S8	02 Jul 2019	Wind Speed (kts)	6.6
S8	02 Jul 2019	Wind Dir	W
S8	02 Jul 2019	Animal Life	None
S8	02 Jul 2019	Floatables	None
S8	02 Jul 2019	Water Color	Green
S8	02 Jul 2019	Current Direction	N
S8	02 Jul 2019	Water Temp (C)	19.5
S8	02 Jul 2019	Wave Height Low (ft)	4
S8	02 Jul 2019	High Tide (ft)	3.9
S8	02 Jul 2019	High Tide Time	1016
S8	02 Jul 2019	Low Tide (ft)	-1.2
S8	02 Jul 2019	Low Tide Time	357
S8	02 Jul 2019	Comments	Kelp; Seagrass; 4 Persons; 1 Fisherman; Water clear
S8	09 Jul 2019	Arrive Time	931
S8	09 Jul 2019	Weather	Sunny
S8	09 Jul 2019	Wind Speed (kts)	1.1
S8	09 Jul 2019	Wind Dir	W
S8	09 Jul 2019	Animal Life	None
S8	09 Jul 2019	Floatables	None
S8	09 Jul 2019	Water Color	Green
S8	09 Jul 2019	Current Direction	N
S8	09 Jul 2019	Water Temp (C)	20.4
S8	09 Jul 2019	Wave Height Low (ft)	3
S8	09 Jul 2019	High Tide (ft)	4
S8	09 Jul 2019	High Tide Time	303
S8	09 Jul 2019	Low Tide (ft)	0.7
S8	09 Jul 2019	Low Tide Time	936
S8	09 Jul 2019	Comments	Kelp; Seagrass; 5 Persons; Water clear; Two vehicles
S8	16 Jul 2019	Arrive Time	723
S8	16 Jul 2019	Weather	Overcast
S8	16 Jul 2019	Wind Speed (kts)	3.3
S8	16 Jul 2019	Wind Dir	NE
S8	16 Jul 2019	Animal Life	10 Seagulls
S8	16 Jul 2019	Floatables	Foam; Film
S8	16 Jul 2019	Water Color	Green
S8	16 Jul 2019	Current Direction	NE
S8	16 Jul 2019	Water Temp (C)	20.1
S8	16 Jul 2019	Wave Height Low (ft)	1
S8	16 Jul 2019	High Tide (ft)	3.9
S8	16 Jul 2019	High Tide Time	1025
S8	16 Jul 2019	Low Tide (ft)	-0.7
S8	16 Jul 2019	Low Tide Time	406
S8	16 Jul 2019	Comments	Kelp; Seagrass; Debris; 3 Persons; Water clear
S8	23 Jul 2019	Arrive Time	847
S8	23 Jul 2019	Weather	Partly Cloudy
S8	23 Jul 2019	Wind Speed (kts)	1.5
S8	23 Jul 2019	Wind Dir	W
S8	23 Jul 2019	Animal Life	None
S8	23 Jul 2019	Floatables	None
S8	23 Jul 2019	Water Color	Green

Station	Date	Parameter	Value
S8	23 Jul 2019	Current Direction	N
S8	23 Jul 2019	Water Temp (C)	22.2
S8	23 Jul 2019	Wave Height Low (ft)	2
S8	23 Jul 2019	High Tide (ft)	4.1
S8	23 Jul 2019	High Tide Time	1447
S8	23 Jul 2019	Low Tide (ft)	1.1
S8	23 Jul 2019	Low Tide Time	800
S8	23 Jul 2019	Comments	Kelp; Seagrass; 3 Persons; Water clear
S8	30 Jul 2019	Arrive Time	918
S8	30 Jul 2019	Weather	Cloudy
S8	30 Jul 2019	Wind Speed (kts)	4.8
S8	30 Jul 2019	Wind Dir	W
S8	30 Jul 2019	Animal Life	None
S8	30 Jul 2019	Floatables	None
S8	30 Jul 2019	Water Color	Green
S8	30 Jul 2019	Current Direction	N
S8	30 Jul 2019	Water Temp (C)	21.2
S8	30 Jul 2019	Wave Height Low (ft)	2
S8	30 Jul 2019	High Tide (ft)	4
S8	30 Jul 2019	High Tide Time	917
S8	30 Jul 2019	Low Tide (ft)	1.8
S8	30 Jul 2019	Low Tide Time	1416
S8	30 Jul 2019	Comments	Kelp; Seagrass; 2 Persons; Water clear
S9	02 Jul 2019	Arrive Time	820
S9	02 Jul 2019	Weather	Partly Cloudy
S9	02 Jul 2019	Wind Speed (kts)	3.4
S9	02 Jul 2019	Wind Dir	W
S9	02 Jul 2019	Animal Life	None
S9	02 Jul 2019	Floatables	None
S9	02 Jul 2019	Water Color	Green
S9	02 Jul 2019	Current Direction	N
S9	02 Jul 2019	Water Temp (C)	19.4
S9	02 Jul 2019	Wave Height Low (ft)	3
S9	02 Jul 2019	High Tide (ft)	3.9
S9	02 Jul 2019	High Tide Time	1016
S9	02 Jul 2019	Low Tide (ft)	-1.2
S9	02 Jul 2019	Low Tide Time	357
S9	02 Jul 2019	Comments	Kelp; Seagrass; 2 Persons; 2 Surfers; Water clear
S9	09 Jul 2019	Arrive Time	853
S9	09 Jul 2019	Weather	Sunny
S9	09 Jul 2019	Wind Speed (kts)	0.7
S9	09 Jul 2019	Wind Dir	W
S9	09 Jul 2019	Animal Life	8 Seagulls
S9	09 Jul 2019	Floatables	None
S9	09 Jul 2019	Water Color	Green
S9	09 Jul 2019	Current Direction	N
S9	09 Jul 2019	Water Temp (C)	22
S9	09 Jul 2019	Wave Height Low (ft)	2
S9	09 Jul 2019	High Tide (ft)	4
S9	09 Jul 2019	High Tide Time	303
S9	09 Jul 2019	Low Tide (ft)	0.7
S9	09 Jul 2019	Low Tide Time	936
S9	09 Jul 2019	Comments	Kelp; Seagrass; 3 Persons; Water clear
S9	16 Jul 2019	Arrive Time	705
S9	16 Jul 2019	Weather	Overcast
S9	16 Jul 2019	Wind Speed (kts)	6.9
S9	16 Jul 2019	Wind Dir	NE

Station	Date	Parameter	Value
S9	16 Jul 2019	Animal Life	18 Godwits; 40 Seagulls
S9	16 Jul 2019	Floatables	None
S9	16 Jul 2019	Water Color	Green
S9	16 Jul 2019	Current Direction	NE
S9	16 Jul 2019	Water Temp (C)	21.1
S9	16 Jul 2019	Wave Height Low (ft)	1
S9	16 Jul 2019	High Tide (ft)	3.9
S9	16 Jul 2019	High Tide Time	1025
S9	16 Jul 2019	Low Tide (ft)	-0.7
S9	16 Jul 2019	Low Tide Time	406
S9	16 Jul 2019	Comments	Kelp; Seagrass; 2 Joggers; Water clear
S9	23 Jul 2019	Arrive Time	820
S9	23 Jul 2019	Weather	Partly Cloudy
S9	23 Jul 2019	Wind Speed (kts)	2.1
S9	23 Jul 2019	Wind Dir	W
S9	23 Jul 2019	Animal Life	16 Seagulls
S9	23 Jul 2019	Floatables	None
S9	23 Jul 2019	Water Color	Green
S9	23 Jul 2019	Current Direction	N
S9	23 Jul 2019	Water Temp (C)	21
S9	23 Jul 2019	Wave Height Low (ft)	2
S9	23 Jul 2019	High Tide (ft)	4.1
S9	23 Jul 2019	High Tide Time	1447
S9	23 Jul 2019	Low Tide (ft)	1.1
S9	23 Jul 2019	Low Tide Time	800
S9	23 Jul 2019	Comments	Kelp; Seagrass; 2 Persons; Water clear
S9	30 Jul 2019	Arrive Time	850
S9	30 Jul 2019	Weather	Cloudy
S9	30 Jul 2019	Wind Speed (kts)	5.8
S9	30 Jul 2019	Wind Dir	W
S9	30 Jul 2019	Animal Life	None
S9	30 Jul 2019	Floatables	None
S9	30 Jul 2019	Water Color	Green
S9	30 Jul 2019	Current Direction	N
S9	30 Jul 2019	Water Temp (C)	21.8
S9	30 Jul 2019	Wave Height Low (ft)	2
S9	30 Jul 2019	High Tide (ft)	4
S9	30 Jul 2019	High Tide Time	917
S9	30 Jul 2019	Low Tide (ft)	1.8
S9	30 Jul 2019	Low Tide Time	1416
S9	30 Jul 2019	Comments	Kelp; Seagrass; 9 Persons; 4 Surfers; 1 Swimmer; 1 Tractor; Water clear
S10	02 Jul 2019	Arrive Time	1137
S10	02 Jul 2019	Weather	Sunny
S10	02 Jul 2019	Wind Speed (kts)	4.4
S10	02 Jul 2019	Wind Dir	W
S10	02 Jul 2019	Animal Life	None
S10	02 Jul 2019	Floatables	None
S10	02 Jul 2019	Water Color	Green
S10	02 Jul 2019	Current Direction	N
S10	02 Jul 2019	Water Temp (C)	18.8
S10	02 Jul 2019	Wave Height Low (ft)	4
S10	02 Jul 2019	High Tide (ft)	3.9
S10	02 Jul 2019	High Tide Time	1016
S10	02 Jul 2019	Low Tide (ft)	1.8
S10	02 Jul 2019	Low Tide Time	1510
S10	02 Jul 2019	Comments	Kelp; Seagrass; Water clear

Station	Date	Parameter	Value
S10	09 Jul 2019	Arrive Time	1125
S10	09 Jul 2019	Weather	Sunny
S10	09 Jul 2019	Wind Speed (kts)	3.8
S10	09 Jul 2019	Wind Dir	W
S10	09 Jul 2019	Animal Life	None
S10	09 Jul 2019	Floatables	None
S10	09 Jul 2019	Water Color	Green
S10	09 Jul 2019	Current Direction	N
S10	09 Jul 2019	Water Temp (C)	21.4
S10	09 Jul 2019	Wave Height Low (ft)	3
S10	09 Jul 2019	High Tide (ft)	5
S10	09 Jul 2019	High Tide Time	1623
S10	09 Jul 2019	Low Tide (ft)	0.7
S10	09 Jul 2019	Low Tide Time	936
S10	09 Jul 2019	Comments	Kelp; Seagrass; Water clear
S10	16 Jul 2019	Arrive Time	920
S10	16 Jul 2019	Weather	Overcast
S10	16 Jul 2019	Wind Speed (kts)	7.9
S10	16 Jul 2019	Wind Dir	N
S10	16 Jul 2019	Animal Life	28 Godwits
S10	16 Jul 2019	Floatables	Foam; Film
S10	16 Jul 2019	Water Color	Green
S10	16 Jul 2019	Current Direction	N
S10	16 Jul 2019	Water Temp (C)	20.6
S10	16 Jul 2019	Wave Height Low (ft)	4
S10	16 Jul 2019	High Tide (ft)	3.9
S10	16 Jul 2019	High Tide Time	1025
S10	16 Jul 2019	Low Tide (ft)	-0.7
S10	16 Jul 2019	Low Tide Time	406
S10	16 Jul 2019	Comments	Kelp; Seagrass; Debris; Water clear
S10	23 Jul 2019	Arrive Time	1030
S10	23 Jul 2019	Weather	Partly Cloudy
S10	23 Jul 2019	Wind Speed (kts)	4.9
S10	23 Jul 2019	Wind Dir	W
S10	23 Jul 2019	Animal Life	None
S10	23 Jul 2019	Floatables	None
S10	23 Jul 2019	Water Color	Green
S10	23 Jul 2019	Current Direction	N
S10	23 Jul 2019	Water Temp (C)	22.1
S10	23 Jul 2019	Wave Height Low (ft)	3
S10	23 Jul 2019	High Tide (ft)	4.1
S10	23 Jul 2019	High Tide Time	1447
S10	23 Jul 2019	Low Tide (ft)	1.1
S10	23 Jul 2019	Low Tide Time	800
S10	23 Jul 2019	Comments	Kelp; Seagrass; Water clear
S11	09 Jul 2019	Arrive Time	1019
S11	09 Jul 2019	Weather	Sunny
S11	09 Jul 2019	Wind Speed (kts)	1.5
S11	09 Jul 2019	Wind Dir	W
S11	09 Jul 2019	Animal Life	None
S11	09 Jul 2019	Floatables	None
S11	09 Jul 2019	Water Color	Green
S11	09 Jul 2019	Current Direction	W
S11	09 Jul 2019	Water Temp (C)	23.4
S11	09 Jul 2019	Wave Height Low (ft)	2
S11	09 Jul 2019	High Tide (ft)	5
S11	09 Jul 2019	High Tide Time	1623
S11	09 Jul 2019	Low Tide (ft)	0.7

Station	Date	Parameter	Value
S11	09 Jul 2019	Low Tide Time	936
S11	09 Jul 2019	Comments	Kelp; Seagrass; Water clear
S11	16 Jul 2019	Arrive Time	812
S11	16 Jul 2019	Weather	Overcast
S11	16 Jul 2019	Wind Speed (kts)	5.2
S11	16 Jul 2019	Wind Dir	N
S11	16 Jul 2019	Animal Life	16 Godwits
S11	16 Jul 2019	Floatables	Foam; Film
S11	16 Jul 2019	Water Color	Green
S11	16 Jul 2019	Current Direction	N
S11	16 Jul 2019	Water Temp (C)	18.8
S11	16 Jul 2019	Wave Height Low (ft)	2
S11	16 Jul 2019	High Tide (ft)	3.9
S11	16 Jul 2019	High Tide Time	1025
S11	16 Jul 2019	Low Tide (ft)	-0.7
S11	16 Jul 2019	Low Tide Time	406
S11	16 Jul 2019	Comments	Kelp; Seagrass; Debris; 2 Persons; Water clear
S11	23 Jul 2019	Arrive Time	939
S11	23 Jul 2019	Weather	Partly Cloudy
S11	23 Jul 2019	Wind Speed (kts)	2.8
S11	23 Jul 2019	Wind Dir	W
S11	23 Jul 2019	Animal Life	None
S11	23 Jul 2019	Floatables	None
S11	23 Jul 2019	Water Color	Green
S11	23 Jul 2019	Current Direction	N
S11	23 Jul 2019	Water Temp (C)	22
S11	23 Jul 2019	Wave Height Low (ft)	2
S11	23 Jul 2019	High Tide (ft)	4.1
S11	23 Jul 2019	High Tide Time	1447
S11	23 Jul 2019	Low Tide (ft)	1.1
S11	23 Jul 2019	Low Tide Time	800
S11	23 Jul 2019	Comments	Kelp; Seagrass; Water clear
S12	02 Jul 2019	Arrive Time	905
S12	02 Jul 2019	Weather	Sunny
S12	02 Jul 2019	Wind Speed (kts)	1.1
S12	02 Jul 2019	Wind Dir	W
S12	02 Jul 2019	Animal Life	9 Sand Pipers
S12	02 Jul 2019	Floatables	None
S12	02 Jul 2019	Water Color	Green
S12	02 Jul 2019	Current Direction	N
S12	02 Jul 2019	Water Temp (C)	17.4
S12	02 Jul 2019	Wave Height Low (ft)	3
S12	02 Jul 2019	High Tide (ft)	3.9
S12	02 Jul 2019	High Tide Time	1016
S12	02 Jul 2019	Low Tide (ft)	-1.2
S12	02 Jul 2019	Low Tide Time	357
S12	02 Jul 2019	Comments	Kelp; Seagrass; 2 Persons; 3 Swimmers; Water clear
S12	09 Jul 2019	Arrive Time	949
S12	09 Jul 2019	Weather	Sunny
S12	09 Jul 2019	Wind Speed (kts)	3.5
S12	09 Jul 2019	Wind Dir	W
S12	09 Jul 2019	Animal Life	None
S12	09 Jul 2019	Floatables	None
S12	09 Jul 2019	Water Color	Green
S12	09 Jul 2019	Current Direction	N
S12	09 Jul 2019	Water Temp (C)	23.8
S12	09 Jul 2019	Wave Height Low (ft)	2

Station	Date	Parameter	Value
S12	09 Jul 2019	High Tide (ft)	5
S12	09 Jul 2019	High Tide Time	1623
S12	09 Jul 2019	Low Tide (ft)	0.7
S12	09 Jul 2019	Low Tide Time	936
S12	09 Jul 2019	Comments	Kelp; Seagrass; 9 Persons; Water clear
S12	16 Jul 2019	Arrive Time	739
S12	16 Jul 2019	Weather	Overcast
S12	16 Jul 2019	Wind Speed (kts)	5
S12	16 Jul 2019	Wind Dir	N
S12	16 Jul 2019	Animal Life	1 Dog; 50 Godwits
S12	16 Jul 2019	Floatables	None
S12	16 Jul 2019	Water Color	Green
S12	16 Jul 2019	Current Direction	N
S12	16 Jul 2019	Water Temp (C)	18.1
S12	16 Jul 2019	Wave Height Low (ft)	1
S12	16 Jul 2019	High Tide (ft)	3.9
S12	16 Jul 2019	High Tide Time	1025
S12	16 Jul 2019	Low Tide (ft)	-0.7
S12	16 Jul 2019	Low Tide Time	406
S12	16 Jul 2019	Comments	Kelp; Seagrass; 3 Persons; 1 Fisherman; Water clear
S12	23 Jul 2019	Arrive Time	908
S12	23 Jul 2019	Weather	Partly Cloudy
S12	23 Jul 2019	Wind Speed (kts)	3.8
S12	23 Jul 2019	Wind Dir	W
S12	23 Jul 2019	Animal Life	None
S12	23 Jul 2019	Floatables	None
S12	23 Jul 2019	Water Color	Green
S12	23 Jul 2019	Current Direction	N
S12	23 Jul 2019	Water Temp (C)	21.7
S12	23 Jul 2019	Wave Height Low (ft)	2
S12	23 Jul 2019	High Tide (ft)	4.1
S12	23 Jul 2019	High Tide Time	1447
S12	23 Jul 2019	Low Tide (ft)	1.1
S12	23 Jul 2019	Low Tide Time	800
S12	23 Jul 2019	Comments	Kelp; Seagrass; 1 Person; 1 Fisherman; Water clear
S12	30 Jul 2019	Arrive Time	1012
S12	30 Jul 2019	Weather	Cloudy
S12	30 Jul 2019	Wind Speed (kts)	4.3
S12	30 Jul 2019	Wind Dir	W
S12	30 Jul 2019	Animal Life	None
S12	30 Jul 2019	Floatables	None
S12	30 Jul 2019	Water Color	Green
S12	30 Jul 2019	Current Direction	N
S12	30 Jul 2019	Water Temp (C)	22.2
S12	30 Jul 2019	Wave Height Low (ft)	3
S12	30 Jul 2019	High Tide (ft)	4
S12	30 Jul 2019	High Tide Time	917
S12	30 Jul 2019	Low Tide (ft)	1.8
S12	30 Jul 2019	Low Tide Time	1416
S12	30 Jul 2019	Comments	Kelp; Seagrass; 3 Persons; 1 Surfer; Water clear

Kelp Stations

Table 3.1

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

Date	I19	I24	I25	I26	I32	I39	I40
01 Jul 2019	24	20	6	5	20	4	80
02 Jul 2019	24	20	6	5	20	4	80
03 Jul 2019	25	18	5	6	15	4	74
04 Jul 2019	25	18	5	6	15	4	74
05 Jul 2019	25	18	5	6	15	4	74
06 Jul 2019	25	18	5	6	15	4	74
07 Jul 2019	25	18	5	6	15	4	74
08 Jul 2019	36	14	4	9	13	4	139
09 Jul 2019	36	14	4	9	13	4	139
10 Jul 2019	29	10	3	7	13	3	157
11 Jul 2019	29	10	3	7	13	3	157
12 Jul 2019	29	10	3	7	13	3	157
13 Jul 2019	29	10	3	7	13	3	157
14 Jul 2019	29	10	3	7	13	3	157
15 Jul 2019	27	10	3	8	19	2	137
16 Jul 2019	27	10	3	8	19	2	137
17 Jul 2019	29	16	4	12	19	2	160
18 Jul 2019	29	16	4	12	19	2	160
19 Jul 2019	29	16	4	12	19	2	160
20 Jul 2019	29	16	4	12	19	2	160
21 Jul 2019	29	16	4	12	19	2	160
22 Jul 2019	29	16	4	12	19	2	160
23 Jul 2019	29	16	4	12	19	2	160
24 Jul 2019	18	10	3	8	12	3	88
25 Jul 2019	20	10	4	12	18	3	147
26 Jul 2019	20	10	4	12	18	3	147
27 Jul 2019	20	10	4	12	18	3	147
28 Jul 2019	20	10	4	12	18	3	147
29 Jul 2019	20	10	4	12	18	3	147
30 Jul 2019	30	7	3	8	11	3	100
31 Jul 2019	33	4	3	8	7	3	70

* 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 Jul 2019	4	5	3	2	2	2	8
02 Jul 2019	4	5	3	2	2	2	8
03 Jul 2019	3	4	3	2	2	2	7
04 Jul 2019	3	4	3	2	2	2	7
05 Jul 2019	3	4	3	2	2	2	7
06 Jul 2019	3	4	3	2	2	2	7
07 Jul 2019	3	4	3	2	2	2	7
08 Jul 2019	5	4	3	3	2	2	15
09 Jul 2019	5	4	3	3	2	2	15
10 Jul 2019	4	2	2	3	2	2	16
11 Jul 2019	4	2	2	3	2	2	16
12 Jul 2019	4	2	2	3	2	2	16
13 Jul 2019	4	2	2	3	2	2	16
14 Jul 2019	4	2	2	3	2	2	16
15 Jul 2019	4	2	2	3	2	2	10
16 Jul 2019	4	2	2	3	2	2	10
17 Jul 2019	4	2	2	3	2	2	11
18 Jul 2019	4	2	2	3	2	2	11
19 Jul 2019	4	2	2	3	2	2	11
20 Jul 2019	4	2	2	3	2	2	11
21 Jul 2019	4	2	2	3	2	2	11
22 Jul 2019	4	2	2	3	2	2	11
23 Jul 2019	4	2	2	3	2	2	11
24 Jul 2019	4	2	2	3	2	2	8
25 Jul 2019	4	2	2	3	2	2	10
26 Jul 2019	4	2	2	3	2	2	10
27 Jul 2019	4	2	2	3	2	2	10
28 Jul 2019	4	2	2	3	2	2	10
29 Jul 2019	4	2	2	3	2	2	10
30 Jul 2019	6	2	2	3	2	2	9
31 Jul 2019	7	2	2	3	2	2	8

* 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 Jul 2019	3	3	2	2	2	2	4
02 Jul 2019	3	3	2	2	2	2	4
03 Jul 2019	3	2	2	2	2	2	4
04 Jul 2019	3	2	2	2	2	2	4
05 Jul 2019	3	2	2	2	2	2	4
06 Jul 2019	3	2	2	2	2	2	4
07 Jul 2019	3	2	2	2	2	2	4
08 Jul 2019	4	2	2	2	2	2	7
09 Jul 2019	4	2	2	2	2	2	7
10 Jul 2019	5	2	2	2	2	2	7
11 Jul 2019	5	2	2	2	2	2	7
12 Jul 2019	5	2	2	2	2	2	7
13 Jul 2019	5	2	2	2	2	2	7
14 Jul 2019	5	2	2	2	2	2	7
15 Jul 2019	4	2	2	2	2	2	6
16 Jul 2019	4	2	2	2	2	2	6
17 Jul 2019	5	2	2	2	2	2	6
18 Jul 2019	5	2	2	2	2	2	6
19 Jul 2019	5	2	2	2	2	2	6
20 Jul 2019	5	2	2	2	2	2	6
21 Jul 2019	5	2	2	2	2	2	6
22 Jul 2019	5	2	2	2	2	2	6
23 Jul 2019	5	2	2	2	2	2	6
24 Jul 2019	4	2	2	2	2	2	5
25 Jul 2019	4	2	2	2	2	2	5
26 Jul 2019	4	2	2	2	2	2	5
27 Jul 2019	4	2	2	2	2	2	5
28 Jul 2019	4	2	2	2	2	2	5
29 Jul 2019	4	2	2	2	2	2	5
30 Jul 2019	4	2	2	2	2	2	6
31 Jul 2019	5	2	2	2	2	2	7

* 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
01 Jul 2019	IC	IC	IC	IC	IC	IC	IC
08 Jul 2019	IC	IC	IC	IC	IC	IC	IC
15 Jul 2019	IC	IC	IC	IC	IC	IC	IC
24 Jul 2019	IC	IC	IC	IC	IC	IC	IC
30 Jul 2019	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance
E = Exceedance
ns = not sampled
ND = no data

Table 3.5

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

Date	I19	I24	I25	I26	I32	I39	I40
01 Jul 2019	IC	IC	IC	IC	IC	IC	IC
08 Jul 2019	IC	IC	IC	IC	IC	IC	E
15 Jul 2019	IC	IC	IC	IC	IC	IC	IC
24 Jul 2019	IC	IC	IC	IC	IC	IC	IC
30 Jul 2019	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance
E = Exceedance
ns = not sampled
ND = no data

Table 3.6

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

Date	I19	I24	I25	I26	I32	I39	I40
01 Jul 2019	IC	IC	IC	IC	IC	IC	IC
08 Jul 2019	IC	IC	IC	IC	IC	IC	IC
15 Jul 2019	IC	IC	IC	IC	IC	IC	IC
24 Jul 2019	IC	IC	IC	IC	IC	IC	IC
30 Jul 2019	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance
E = Exceedance
ns = not sampled
ND = no data

Table 3.7

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

Date	I19	I24	I25	I26	I32	I39	I40
01 Jul 2019	IC	IC	IC	IC	IC	IC	IC
08 Jul 2019	IC	IC	IC	IC	IC	IC	E
15 Jul 2019	IC	IC	IC	IC	IC	IC	IC
24 Jul 2019	IC	IC	IC	IC	IC	IC	IC
30 Jul 2019	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance
E = Exceedance
ns = not sampled
ND = no data

Table 3.8

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

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
I19	01 Jul 2019	1033	2	20e	2e	<2	0.10	16.0	72.23	6.3	33.65	8.1
I19	01 Jul 2019	1033	6	20e	6e	2e	0.30	14.7	50.28	5.0	33.64	8.1
I19	01 Jul 2019	1033	11	<20	2e	<2	0.10	13.4	59.23	1.9	33.64	7.9
I19	08 Jul 2019	1038	2	<200	46	44	0.23	20.2	40.01	9.4	33.62	8.4
I19	08 Jul 2019	1038	6	200e	28e	12e	0.14	19.6	74.73	7.9	33.71	8.3
I19	08 Jul 2019	1038	11	80e	14e	16e	0.17	18.9	60.51	7.0	33.70	8.3
I19	15 Jul 2019	1031	2	<20	<2	<2	0.10	18.0	78.39	7.6	33.73	8.2
I19	15 Jul 2019	1031	6	<20	<2	<2	0.10	16.2	74.47	7.4	33.73	8.2
I19	15 Jul 2019	1031	11	<20	<2	<2	0.10	12.4	69.20	5.6	33.64	8.1
I19	24 Jul 2019	1055	2	<2	<2	<2	1.00	14.7	76.81	7.2	33.62	8.1
I19	24 Jul 2019	1055	6	<2	<2	<2	1.00	12.2	79.55	6.0	33.60	8.0
I19	24 Jul 2019	1055	11	4e	<2	<2	0.50	12.0	70.82	5.9	33.62	8.0
I19	30 Jul 2019	1033	2	22e	6e	<2	0.27	19.1	65.94	9.9	33.55	8.3
I19	30 Jul 2019	1033	6	44	2e	<2	0.05	19.1	64.67	9.8	33.55	8.3
I19	30 Jul 2019	1033	11	360e	46	14e	0.13	14.9	56.17	9.2	33.69	8.3
I24	01 Jul 2019	1055	2	<2	<2	<2	1.00	16.6	72.83	8.5	33.71	8.2
I24	01 Jul 2019	1055	6	220e	6e	<2	0.03	14.1	66.90	5.0	33.71	8.2
I24	01 Jul 2019	1055	11	10e	<2	<2	0.20	13.5	77.37	4.8	33.63	8.1
I24	08 Jul 2019	1059	2	8e	<2	<2	0.25	19.6	83.90	7.9	33.72	8.2
I24	08 Jul 2019	1059	6	2e	<2	<2	1.00	19.2	83.13	7.8	33.71	8.2
I24	08 Jul 2019	1059	11	<2	<2	<2	1.00	19.2	81.08	7.7	33.70	8.2
I24	15 Jul 2019	1053	2	<2	<2	<2	1.00	16.6	77.80	7.6	33.69	8.1
I24	15 Jul 2019	1053	6	<20	<2	<2	0.10	13.8	78.15	6.7	33.66	8.1
I24	15 Jul 2019	1053	11	<20	<2	<2	0.10	12.7	74.38	5.3	33.66	8.0
I24	24 Jul 2019	1129	2	2e	<2	<2	1.00	14.4	74.24	7.4	33.83	8.1
I24	24 Jul 2019	1129	6	<2	<2	<2	1.00	12.1	77.02	6.1	33.59	8.0
I24	24 Jul 2019	1129	11	<2	<2	<2	1.00	11.9	78.11	5.5	33.62	7.9
I24	30 Jul 2019	1053	2	<2	<2	<2	1.00	19.0	73.52	10.0	33.62	8.3
I24	30 Jul 2019	1053	6	<2	<2	<2	1.00	18.8	70.96	10.1	33.62	8.3
I24	30 Jul 2019	1053	11	2e	2e	<2	1.00	14.7	71.11	10.1	33.52	8.3
I25	01 Jul 2019	1103	2	<2	<2	<2	1.00	16.8	77.86	8.3	33.74	8.2
I25	01 Jul 2019	1103	6	6e	2e	<2	0.33	14.3	64.66	6.2	33.67	8.2
I25	01 Jul 2019	1103	9	<2	<2	<2	1.00	13.5	78.72	4.8	33.62	8.1
I25	08 Jul 2019	1105	2	<2	<2	<2	1.00	19.7	84.08	7.9	33.71	8.2
I25	08 Jul 2019	1105	6	2e	<2	<2	1.00	19.2	83.75	7.8	33.70	8.2
I25	08 Jul 2019	1105	9	6e	<2	<2	0.33	18.9	76.18	7.1	33.70	8.2
I25	15 Jul 2019	1100	2	<2	<2	<2	1.00	16.1	77.72	7.3	33.77	8.2
I25	15 Jul 2019	1100	6	<2	<2	<2	1.00	13.4	78.95	6.5	33.65	8.1
I25	15 Jul 2019	1100	9	<20	<2	<2	0.10	13.2	79.57	6.1	33.64	8.1

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
I25	24 Jul 2019	1141	2	<2	<2	<2	1.00	14.8	74.76	7.8	33.67	8.1
I25	24 Jul 2019	1141	6	<2	<2	<2	1.00	12.2	80.27	6.0	33.60	8.0
I25	24 Jul 2019	1141	9	<2	<2	<2	1.00	12.2	80.60	6.0	33.60	8.0
I25	30 Jul 2019	1059	2	<2	<2	<2	1.00	19.3	75.34	9.7	33.64	8.3
I25	30 Jul 2019	1059	6	4e	<2	<2	0.50	18.7	70.60	10.3	33.61	8.3
I25	30 Jul 2019	1059	9	<2	<2	<2	1.00	14.9	69.73	10.1	33.60	8.3
I26	01 Jul 2019	1113	2	<2	<2	<2	1.00	17.3	76.98	8.1	33.74	8.2
I26	01 Jul 2019	1113	6	<20	<2	<2	0.10	14.1	52.89	6.1	33.69	8.2
I26	01 Jul 2019	1113	9	<2	<2	<2	1.00	13.3	76.90	5.2	33.62	8.1
I26	08 Jul 2019	1114	2	<200	18e	2e	0.09	20.2	67.86	8.6	33.63	8.3
I26	08 Jul 2019	1114	6	20e	<2	<2	0.10	19.8	73.98	7.6	33.72	8.3
I26	08 Jul 2019	1114	9	<20	<2	<2	0.10	18.0	74.92	7.6	33.67	8.2
I26	15 Jul 2019	1110	2	<2	<2	<2	1.00	16.7	77.09	7.6	33.72	8.2
I26	15 Jul 2019	1110	6	<20	<2	<2	0.10	14.0	77.28	6.6	33.68	8.1
I26	15 Jul 2019	1110	9	<20	<2	<2	0.10	13.1	80.40	6.1	33.65	8.1
I26	24 Jul 2019	1154	2	<2	<2	<2	1.00	14.1	76.31	7.7	33.70	8.1
I26	24 Jul 2019	1154	6	<2	<2	<2	1.00	12.2	80.02	6.3	33.60	8.0
I26	24 Jul 2019	1154	9	<2	<2	<2	1.00	12.2	80.17	6.2	33.61	8.0
I26	30 Jul 2019	1108	2	<2	<2	<2	1.00	19.4	70.16	10.1	33.60	8.3
I26	30 Jul 2019	1108	6	<2	<2	<2	1.00	19.1	67.61	10.2	33.60	8.3
I26	30 Jul 2019	1108	9	<2	<2	<2	1.00	15.2	65.78	10.2	33.67	8.3
I32	01 Jul 2019	1125	2	<2	<2	<2	1.00	16.8	75.63	8.3	33.71	8.3
I32	01 Jul 2019	1125	6	<20	2e	<2	0.10	15.9	66.58	7.6	33.64	8.2
I32	01 Jul 2019	1125	9	<200	<2	<2	0.01	14.3	61.09	4.2	33.73	8.2
I32	08 Jul 2019	1126	2	<20	<2	<2	0.10	20.0	76.55	7.9	33.71	8.2
I32	08 Jul 2019	1126	6	2e	<2	<2	1.00	19.4	78.55	8.0	33.71	8.2
I32	08 Jul 2019	1126	9	<2	<2	<2	1.00	18.5	77.42	7.4	33.72	8.2
I32	15 Jul 2019	1123	2	<200	<2	<2	0.01	17.9	74.46	7.6	33.73	8.1
I32	15 Jul 2019	1123	6	<20	<2	<2	0.10	14.9	70.66	7.3	33.71	8.1
I32	15 Jul 2019	1123	9	<20	<2	<2	0.10	13.5	77.59	6.2	33.67	8.1
I32	24 Jul 2019	1207	2	<2	<2	<2	1.00	14.0	75.67	8.0	33.68	8.1
I32	24 Jul 2019	1207	6	<2	<2	<2	1.00	12.7	67.83	7.3	33.59	8.1
I32	24 Jul 2019	1207	9	<2	<2	<2	1.00	12.3	77.39	6.1	33.61	8.0
I32	30 Jul 2019	1120	2	<2	<2	<2	1.00	19.7	69.38	9.9	33.63	8.4
I32	30 Jul 2019	1120	6	<2	<2	<2	1.00	19.3	69.08	10.2	33.62	8.4
I32	30 Jul 2019	1120	9	<2	<2	<2	1.00	19.2	69.45	10.2	33.62	8.4
I39	01 Jul 2019	1011	2	<2	<2	<2	1.00	17.2	81.88	7.9	33.72	8.2
I39	01 Jul 2019	1011	12	<2	<2	<2	1.00	12.7	78.66	4.6	33.63	8.2
I39	01 Jul 2019	1011	18	<2	<2	<2	1.00	12.5	83.45	4.4	33.64	8.1
I39	08 Jul 2019	1014	2	<2	<2	<2	1.00	19.3	83.21	7.8	33.72	8.2
I39	08 Jul 2019	1014	12	<2	<2	<2	1.00	17.3	79.65	8.2	33.75	8.2
I39	08 Jul 2019	1014	18	<2	<2	<2	1.00	13.6	72.48	4.7	33.68	8.1
I39	15 Jul 2019	1009	2	<2	<2	<2	1.00	17.2	73.78	7.5	33.74	8.2
I39	15 Jul 2019	1009	12	<2	<2	<2	1.00	11.9	85.12	5.5	33.66	8.1
I39	15 Jul 2019	1009	18	<2	<2	<2	1.00	11.6	85.01	5.1	33.67	8.0
I39	24 Jul 2019	1055	2	<2	<2	<2	1.00	18.2	77.02	7.9	33.66	8.1

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
I39	24 Jul 2019	1055	12	<20	<2	<2	0.10	11.2	85.55	5.2	33.65	7.9
I39	24 Jul 2019	1055	18	<2	<2	<2	1.00	11.2	85.19	5.2	33.67	7.9
I39	30 Jul 2019	1012	2	<2	<2	<2	1.00	19.3	76.74	9.7	33.66	8.3
I39	30 Jul 2019	1012	12	2e	<2	<2	1.00	14.8	67.86	10.6	33.62	8.4
I39	30 Jul 2019	1012	18	<2	<2	<2	1.00	13.0	79.00	6.3	33.60	8.3
I40	01 Jul 2019	1046	2	<20	<2	<2	0.10	16.8	73.13	7.3	33.69	8.2
I40	01 Jul 2019	1046	6	1200e	30e	4e	0.02	14.2	62.90	4.9	33.67	8.1
I40	01 Jul 2019	1046	9	40e	4e	4e	0.10	13.4	66.11	2.5	33.62	8.0
I40	08 Jul 2019	1050	2	1000e	40e	30e	0.04	20.5	47.31	10.8	33.56	8.4
I40	08 Jul 2019	1050	6	600e	60e	74	0.10	19.9	74.51	8.2	33.68	8.3
I40	08 Jul 2019	1050	9	3600e	540	100e	0.15	19.6	79.58	7.8	33.70	8.3
I40	15 Jul 2019	1042	2	<20	<2	<2	0.10	17.5	74.63	7.5	33.72	8.2
I40	15 Jul 2019	1042	6	<20	<2	<2	0.10	14.7	75.47	6.7	33.67	8.1
I40	15 Jul 2019	1042	9	<200	<2	<2	0.01	12.7	65.42	5.5	33.69	8.1
I40	24 Jul 2019	1115	2	<2	<2	<2	1.00	13.4	74.09	6.3	33.71	8.0
I40	24 Jul 2019	1115	6	<2	<2	<2	1.00	12.2	77.27	6.3	33.59	8.0
I40	24 Jul 2019	1115	9	<20	<2	<2	0.10	12.1	75.90	5.7	33.60	8.0
I40	30 Jul 2019	1043	2	<2	<2	2e	1.00	19.0	61.08	10.2	33.57	8.3
I40	30 Jul 2019	1043	6	4e	<2	2e	0.50	18.9	64.09	10.1	33.57	8.3
I40	30 Jul 2019	1043	9	60e	10e	18e	0.17	15.5	66.70	9.3	33.77	8.3

ns = not sampled
ND = no data

Table 3.9

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

Station	Date	Parameter	Value
I19	01 Jul 2019	Depth (m)	12
I19	01 Jul 2019	Arrive Time	1033
I19	01 Jul 2019	Depart Time	1038
I19	01 Jul 2019	Air Temp (C)	18
I19	01 Jul 2019	Weather	Partly Cloudy
I19	01 Jul 2019	Visibility (mi)	6
I19	01 Jul 2019	Wind Speed (kts)	5
I19	01 Jul 2019	Wind Dir	W
I19	01 Jul 2019	Water Color	Brownish-Green
I19	01 Jul 2019	Wave Ht Low (ft)	4
I19	01 Jul 2019	Wave Period (sec)	7
I19	01 Jul 2019	Sea State	Light chop
I19	01 Jul 2019	High Tide (ft)	3.76
I19	01 Jul 2019	High Tide Time	931
I19	01 Jul 2019	Low Tide (ft)	1.8
I19	01 Jul 2019	Low Tide Time	1427
I19	01 Jul 2019	Comments	none
I19	08 Jul 2019	Depth (m)	11
I19	08 Jul 2019	Arrive Time	1038
I19	08 Jul 2019	Depart Time	1041
I19	08 Jul 2019	Air Temp (C)	18
I19	08 Jul 2019	Weather	Continuous layer of clouds
I19	08 Jul 2019	Visibility (mi)	8
I19	08 Jul 2019	Wind Speed (kts)	7
I19	08 Jul 2019	Wind Dir	SW
I19	08 Jul 2019	Water Color	Reddish-Brown
I19	08 Jul 2019	Wave Ht Low (ft)	2
I19	08 Jul 2019	Wave Period (sec)	13
I19	08 Jul 2019	Sea State	Light chop
I19	08 Jul 2019	High Tide (ft)	4.65
I19	08 Jul 2019	High Tide Time	1526
I19	08 Jul 2019	Low Tide (ft)	0.17
I19	08 Jul 2019	Low Tide Time	840
I19	08 Jul 2019	Comments	Possible red tide
I19	15 Jul 2019	Depth (m)	12
I19	15 Jul 2019	Arrive Time	1031
I19	15 Jul 2019	Depart Time	1034
I19	15 Jul 2019	Air Temp (C)	19
I19	15 Jul 2019	Weather	Continuous layer of clouds
I19	15 Jul 2019	Visibility (mi)	6
I19	15 Jul 2019	Wind Speed (kts)	2
I19	15 Jul 2019	Wind Dir	SW
I19	15 Jul 2019	Water Color	Green
I19	15 Jul 2019	Wave Ht Low (ft)	2
I19	15 Jul 2019	Wave Period (sec)	13
I19	15 Jul 2019	Sea State	Calm
I19	15 Jul 2019	High Tide (ft)	3.81
I19	15 Jul 2019	High Tide Time	950
I19	15 Jul 2019	Low Tide (ft)	2.02
I19	15 Jul 2019	Low Tide Time	1442
I19	15 Jul 2019	Comments	none
I19	24 Jul 2019	Depth (m)	12
I19	24 Jul 2019	Arrive Time	1055

Station	Date	Parameter	Value
I19	24 Jul 2019	Depart Time	1108
I19	24 Jul 2019	Air Temp (C)	0
I19	24 Jul 2019	Weather	Partly Cloudy
I19	24 Jul 2019	Visibility (mi)	10
I19	24 Jul 2019	Wind Speed (kts)	0
I19	24 Jul 2019	Wind Dir	
I19	24 Jul 2019	Water Color	Greenish-Blue
I19	24 Jul 2019	Wave Ht Low (ft)	3
I19	24 Jul 2019	Wave Period (sec)	11
I19	24 Jul 2019	Sea State	Calm
I19	24 Jul 2019	High Tide (ft)	6.33
I19	24 Jul 2019	High Tide Time	2106
I19	24 Jul 2019	Low Tide (ft)	-0.71
I19	24 Jul 2019	Low Tide Time	405
I19	24 Jul 2019	Comments	none
I19	30 Jul 2019	Depth (m)	11
I19	30 Jul 2019	Arrive Time	1033
I19	30 Jul 2019	Depart Time	1037
I19	30 Jul 2019	Air Temp (C)	18
I19	30 Jul 2019	Weather	Overcast
I19	30 Jul 2019	Visibility (mi)	5
I19	30 Jul 2019	Wind Speed (kts)	13
I19	30 Jul 2019	Wind Dir	S
I19	30 Jul 2019	Water Color	Brownish-Green
I19	30 Jul 2019	Wave Ht Low (ft)	3
I19	30 Jul 2019	Wave Period (sec)	9
I19	30 Jul 2019	Sea State	Light chop
I19	30 Jul 2019	High Tide (ft)	6.33
I19	30 Jul 2019	High Tide Time	2106
I19	30 Jul 2019	Low Tide (ft)	-0.71
I19	30 Jul 2019	Low Tide Time	405
I19	30 Jul 2019	Comments	none
I24	01 Jul 2019	Depth (m)	11
I24	01 Jul 2019	Arrive Time	1055
I24	01 Jul 2019	Depart Time	1059
I24	01 Jul 2019	Air Temp (C)	18
I24	01 Jul 2019	Weather	Haze
I24	01 Jul 2019	Visibility (mi)	6
I24	01 Jul 2019	Wind Speed (kts)	6
I24	01 Jul 2019	Wind Dir	W
I24	01 Jul 2019	Water Color	Brownish-Green
I24	01 Jul 2019	Wave Ht Low (ft)	4
I24	01 Jul 2019	Wave Period (sec)	7
I24	01 Jul 2019	Sea State	Light chop
I24	01 Jul 2019	High Tide (ft)	3.76
I24	01 Jul 2019	High Tide Time	931
I24	01 Jul 2019	Low Tide (ft)	1.8
I24	01 Jul 2019	Low Tide Time	1427
I24	01 Jul 2019	Comments	none
I24	08 Jul 2019	Depth (m)	10
I24	08 Jul 2019	Arrive Time	1059
I24	08 Jul 2019	Depart Time	1100
I24	08 Jul 2019	Air Temp (C)	18
I24	08 Jul 2019	Weather	Partly Cloudy
I24	08 Jul 2019	Visibility (mi)	11
I24	08 Jul 2019	Wind Speed (kts)	5
I24	08 Jul 2019	Wind Dir	W
I24	08 Jul 2019	Water Color	Greenish-Blue

Station	Date	Parameter	Value
I24	08 Jul 2019	Wave Ht Low (ft)	2
I24	08 Jul 2019	Wave Period (sec)	13
I24	08 Jul 2019	Sea State	Light chop
I24	08 Jul 2019	High Tide (ft)	4.65
I24	08 Jul 2019	High Tide Time	1526
I24	08 Jul 2019	Low Tide (ft)	0.17
I24	08 Jul 2019	Low Tide Time	840
I24	08 Jul 2019	Comments	none
I24	15 Jul 2019	Depth (m)	11
I24	15 Jul 2019	Arrive Time	1053
I24	15 Jul 2019	Depart Time	1055
I24	15 Jul 2019	Air Temp (C)	19
I24	15 Jul 2019	Weather	Continuous layer of clouds
I24	15 Jul 2019	Visibility (mi)	6
I24	15 Jul 2019	Wind Speed (kts)	4
I24	15 Jul 2019	Wind Dir	W
I24	15 Jul 2019	Water Color	Green
I24	15 Jul 2019	Wave Ht Low (ft)	2
I24	15 Jul 2019	Wave Period (sec)	13
I24	15 Jul 2019	Sea State	Calm
I24	15 Jul 2019	High Tide (ft)	3.81
I24	15 Jul 2019	High Tide Time	950
I24	15 Jul 2019	Low Tide (ft)	2.02
I24	15 Jul 2019	Low Tide Time	1442
I24	15 Jul 2019	Comments	none
I24	24 Jul 2019	Depth (m)	11
I24	24 Jul 2019	Arrive Time	1129
I24	24 Jul 2019	Depart Time	1137
I24	24 Jul 2019	Air Temp (C)	0
I24	24 Jul 2019	Weather	Partly Cloudy
I24	24 Jul 2019	Visibility (mi)	10
I24	24 Jul 2019	Wind Speed (kts)	0
I24	24 Jul 2019	Wind Dir	
I24	24 Jul 2019	Water Color	Greenish-Blue
I24	24 Jul 2019	Wave Ht Low (ft)	3
I24	24 Jul 2019	Wave Period (sec)	11
I24	24 Jul 2019	Sea State	Calm
I24	24 Jul 2019	High Tide (ft)	6.33
I24	24 Jul 2019	High Tide Time	2106
I24	24 Jul 2019	Low Tide (ft)	-0.71
I24	24 Jul 2019	Low Tide Time	405
I24	24 Jul 2019	Comments	none
I24	30 Jul 2019	Depth (m)	11
I24	30 Jul 2019	Arrive Time	1053
I24	30 Jul 2019	Depart Time	1056
I24	30 Jul 2019	Air Temp (C)	18
I24	30 Jul 2019	Weather	Overcast
I24	30 Jul 2019	Visibility (mi)	5
I24	30 Jul 2019	Wind Speed (kts)	13
I24	30 Jul 2019	Wind Dir	SE
I24	30 Jul 2019	Water Color	Brownish-Green
I24	30 Jul 2019	Wave Ht Low (ft)	4
I24	30 Jul 2019	Wave Period (sec)	9
I24	30 Jul 2019	Sea State	Light chop
I24	30 Jul 2019	High Tide (ft)	6.33
I24	30 Jul 2019	High Tide Time	2106
I24	30 Jul 2019	Low Tide (ft)	-0.71
I24	30 Jul 2019	Low Tide Time	405

Station	Date	Parameter	Value
I24	30 Jul 2019	Comments	none
I25	01 Jul 2019	Depth (m)	9
I25	01 Jul 2019	Arrive Time	1103
I25	01 Jul 2019	Depart Time	1107
I25	01 Jul 2019	Air Temp (C)	18
I25	01 Jul 2019	Weather	Haze
I25	01 Jul 2019	Visibility (mi)	6
I25	01 Jul 2019	Wind Speed (kts)	7
I25	01 Jul 2019	Wind Dir	NW
I25	01 Jul 2019	Water Color	Brownish-Green
I25	01 Jul 2019	Wave Ht Low (ft)	4
I25	01 Jul 2019	Wave Period (sec)	7
I25	01 Jul 2019	Sea State	Light chop
I25	01 Jul 2019	High Tide (ft)	3.76
I25	01 Jul 2019	High Tide Time	931
I25	01 Jul 2019	Low Tide (ft)	1.8
I25	01 Jul 2019	Low Tide Time	1427
I25	01 Jul 2019	Comments	none
I25	08 Jul 2019	Depth (m)	9
I25	08 Jul 2019	Arrive Time	1105
I25	08 Jul 2019	Depart Time	1107
I25	08 Jul 2019	Air Temp (C)	18
I25	08 Jul 2019	Weather	Partly Cloudy
I25	08 Jul 2019	Visibility (mi)	11
I25	08 Jul 2019	Wind Speed (kts)	8
I25	08 Jul 2019	Wind Dir	W
I25	08 Jul 2019	Water Color	Greenish-Blue
I25	08 Jul 2019	Wave Ht Low (ft)	2
I25	08 Jul 2019	Wave Period (sec)	13
I25	08 Jul 2019	Sea State	Light chop
I25	08 Jul 2019	High Tide (ft)	4.65
I25	08 Jul 2019	High Tide Time	1526
I25	08 Jul 2019	Low Tide (ft)	0.17
I25	08 Jul 2019	Low Tide Time	840
I25	08 Jul 2019	Comments	none
I25	15 Jul 2019	Depth (m)	10
I25	15 Jul 2019	Arrive Time	1100
I25	15 Jul 2019	Depart Time	1102
I25	15 Jul 2019	Air Temp (C)	19
I25	15 Jul 2019	Weather	Continuous layer of clouds
I25	15 Jul 2019	Visibility (mi)	7
I25	15 Jul 2019	Wind Speed (kts)	4
I25	15 Jul 2019	Wind Dir	W
I25	15 Jul 2019	Water Color	Greenish-Blue
I25	15 Jul 2019	Wave Ht Low (ft)	2
I25	15 Jul 2019	Wave Period (sec)	13
I25	15 Jul 2019	Sea State	Calm
I25	15 Jul 2019	High Tide (ft)	3.81
I25	15 Jul 2019	High Tide Time	950
I25	15 Jul 2019	Low Tide (ft)	2.02
I25	15 Jul 2019	Low Tide Time	1442
I25	15 Jul 2019	Comments	none
I25	24 Jul 2019	Depth (m)	9
I25	24 Jul 2019	Arrive Time	1141
I25	24 Jul 2019	Depart Time	1146
I25	24 Jul 2019	Air Temp (C)	0
I25	24 Jul 2019	Weather	Partly Cloudy

Station	Date	Parameter	Value
I25	24 Jul 2019	Visibility (mi)	10
I25	24 Jul 2019	Wind Speed (kts)	0
I25	24 Jul 2019	Wind Dir	
I25	24 Jul 2019	Water Color	Greenish-Blue
I25	24 Jul 2019	Wave Ht Low (ft)	3
I25	24 Jul 2019	Wave Period (sec)	11
I25	24 Jul 2019	Sea State	Calm
I25	24 Jul 2019	High Tide (ft)	6.33
I25	24 Jul 2019	High Tide Time	2106
I25	24 Jul 2019	Low Tide (ft)	-0.71
I25	24 Jul 2019	Low Tide Time	405
I25	24 Jul 2019	Comments	none
I25	30 Jul 2019	Depth (m)	9
I25	30 Jul 2019	Arrive Time	1059
I25	30 Jul 2019	Depart Time	1103
I25	30 Jul 2019	Air Temp (C)	18
I25	30 Jul 2019	Weather	Overcast
I25	30 Jul 2019	Visibility (mi)	5
I25	30 Jul 2019	Wind Speed (kts)	8
I25	30 Jul 2019	Wind Dir	E
I25	30 Jul 2019	Water Color	Brownish-Green
I25	30 Jul 2019	Wave Ht Low (ft)	4
I25	30 Jul 2019	Wave Period (sec)	9
I25	30 Jul 2019	Sea State	Light chop
I25	30 Jul 2019	High Tide (ft)	6.33
I25	30 Jul 2019	High Tide Time	2106
I25	30 Jul 2019	Low Tide (ft)	-0.71
I25	30 Jul 2019	Low Tide Time	405
I25	30 Jul 2019	Comments	none
I26	01 Jul 2019	Depth (m)	10
I26	01 Jul 2019	Arrive Time	1113
I26	01 Jul 2019	Depart Time	1117
I26	01 Jul 2019	Air Temp (C)	18
I26	01 Jul 2019	Weather	Haze
I26	01 Jul 2019	Visibility (mi)	6
I26	01 Jul 2019	Wind Speed (kts)	10
I26	01 Jul 2019	Wind Dir	W
I26	01 Jul 2019	Water Color	Brownish-Green
I26	01 Jul 2019	Wave Ht Low (ft)	4
I26	01 Jul 2019	Wave Period (sec)	7
I26	01 Jul 2019	Sea State	Light chop
I26	01 Jul 2019	High Tide (ft)	3.76
I26	01 Jul 2019	High Tide Time	931
I26	01 Jul 2019	Low Tide (ft)	1.8
I26	01 Jul 2019	Low Tide Time	1427
I26	01 Jul 2019	Comments	none
I26	08 Jul 2019	Depth (m)	9
I26	08 Jul 2019	Arrive Time	1114
I26	08 Jul 2019	Depart Time	1116
I26	08 Jul 2019	Air Temp (C)	18
I26	08 Jul 2019	Weather	Partly Cloudy
I26	08 Jul 2019	Visibility (mi)	11
I26	08 Jul 2019	Wind Speed (kts)	8
I26	08 Jul 2019	Wind Dir	SW
I26	08 Jul 2019	Water Color	Greenish-Blue
I26	08 Jul 2019	Wave Ht Low (ft)	2
I26	08 Jul 2019	Wave Period (sec)	13
I26	08 Jul 2019	Sea State	Light chop

Station	Date	Parameter	Value
I26	08 Jul 2019	High Tide (ft)	4.65
I26	08 Jul 2019	High Tide Time	1526
I26	08 Jul 2019	Low Tide (ft)	0.17
I26	08 Jul 2019	Low Tide Time	840
I26	08 Jul 2019	Comments	none
I26	15 Jul 2019	Depth (m)	10
I26	15 Jul 2019	Arrive Time	1110
I26	15 Jul 2019	Depart Time	1112
I26	15 Jul 2019	Air Temp (C)	19
I26	15 Jul 2019	Weather	Continuous layer of clouds
I26	15 Jul 2019	Visibility (mi)	7
I26	15 Jul 2019	Wind Speed (kts)	5
I26	15 Jul 2019	Wind Dir	NW
I26	15 Jul 2019	Water Color	Greenish-Blue
I26	15 Jul 2019	Wave Ht Low (ft)	2
I26	15 Jul 2019	Wave Period (sec)	13
I26	15 Jul 2019	Sea State	Calm
I26	15 Jul 2019	High Tide (ft)	3.81
I26	15 Jul 2019	High Tide Time	950
I26	15 Jul 2019	Low Tide (ft)	2.02
I26	15 Jul 2019	Low Tide Time	1442
I26	15 Jul 2019	Comments	none
I26	24 Jul 2019	Depth (m)	9
I26	24 Jul 2019	Arrive Time	1154
I26	24 Jul 2019	Depart Time	1158
I26	24 Jul 2019	Air Temp (C)	0
I26	24 Jul 2019	Weather	Partly Cloudy
I26	24 Jul 2019	Visibility (mi)	11
I26	24 Jul 2019	Wind Speed (kts)	0
I26	24 Jul 2019	Wind Dir	
I26	24 Jul 2019	Water Color	Greenish-Blue
I26	24 Jul 2019	Wave Ht Low (ft)	3
I26	24 Jul 2019	Wave Period (sec)	11
I26	24 Jul 2019	Sea State	Calm
I26	24 Jul 2019	High Tide (ft)	6.33
I26	24 Jul 2019	High Tide Time	2106
I26	24 Jul 2019	Low Tide (ft)	-0.71
I26	24 Jul 2019	Low Tide Time	405
I26	24 Jul 2019	Comments	none
I26	30 Jul 2019	Depth (m)	10
I26	30 Jul 2019	Arrive Time	1108
I26	30 Jul 2019	Depart Time	1112
I26	30 Jul 2019	Air Temp (C)	18
I26	30 Jul 2019	Weather	Overcast
I26	30 Jul 2019	Visibility (mi)	5
I26	30 Jul 2019	Wind Speed (kts)	10
I26	30 Jul 2019	Wind Dir	E
I26	30 Jul 2019	Water Color	Brownish-Green
I26	30 Jul 2019	Wave Ht Low (ft)	4
I26	30 Jul 2019	Wave Period (sec)	9
I26	30 Jul 2019	Sea State	Light chop
I26	30 Jul 2019	High Tide (ft)	6.33
I26	30 Jul 2019	High Tide Time	2106
I26	30 Jul 2019	Low Tide (ft)	-0.71
I26	30 Jul 2019	Low Tide Time	405
I26	30 Jul 2019	Comments	none
I32	01 Jul 2019	Depth (m)	11

Station	Date	Parameter	Value
I32	01 Jul 2019	Arrive Time	1125
I32	01 Jul 2019	Depart Time	1129
I32	01 Jul 2019	Air Temp (C)	18
I32	01 Jul 2019	Weather	Haze
I32	01 Jul 2019	Visibility (mi)	6
I32	01 Jul 2019	Wind Speed (kts)	12
I32	01 Jul 2019	Wind Dir	W
I32	01 Jul 2019	Water Color	Brownish-Green
I32	01 Jul 2019	Wave Ht Low (ft)	4
I32	01 Jul 2019	Wave Period (sec)	7
I32	01 Jul 2019	Sea State	Light chop
I32	01 Jul 2019	High Tide (ft)	3.76
I32	01 Jul 2019	High Tide Time	931
I32	01 Jul 2019	Low Tide (ft)	1.8
I32	01 Jul 2019	Low Tide Time	1427
I32	01 Jul 2019	Comments	none
I32	08 Jul 2019	Depth (m)	10
I32	08 Jul 2019	Arrive Time	1126
I32	08 Jul 2019	Depart Time	1128
I32	08 Jul 2019	Air Temp (C)	18
I32	08 Jul 2019	Weather	Partly Cloudy
I32	08 Jul 2019	Visibility (mi)	11
I32	08 Jul 2019	Wind Speed (kts)	8
I32	08 Jul 2019	Wind Dir	SW
I32	08 Jul 2019	Water Color	Greenish-Blue
I32	08 Jul 2019	Wave Ht Low (ft)	2
I32	08 Jul 2019	Wave Period (sec)	13
I32	08 Jul 2019	Sea State	Light chop
I32	08 Jul 2019	High Tide (ft)	4.65
I32	08 Jul 2019	High Tide Time	1526
I32	08 Jul 2019	Low Tide (ft)	0.17
I32	08 Jul 2019	Low Tide Time	840
I32	08 Jul 2019	Comments	none
I32	15 Jul 2019	Depth (m)	10
I32	15 Jul 2019	Arrive Time	1123
I32	15 Jul 2019	Depart Time	1127
I32	15 Jul 2019	Air Temp (C)	19
I32	15 Jul 2019	Weather	Continuous layer of clouds
I32	15 Jul 2019	Visibility (mi)	7
I32	15 Jul 2019	Wind Speed (kts)	7
I32	15 Jul 2019	Wind Dir	W
I32	15 Jul 2019	Water Color	Greenish-Blue
I32	15 Jul 2019	Wave Ht Low (ft)	2
I32	15 Jul 2019	Wave Period (sec)	13
I32	15 Jul 2019	Sea State	Calm
I32	15 Jul 2019	High Tide (ft)	3.81
I32	15 Jul 2019	High Tide Time	950
I32	15 Jul 2019	Low Tide (ft)	2.02
I32	15 Jul 2019	Low Tide Time	1442
I32	15 Jul 2019	Comments	none
I32	24 Jul 2019	Depth (m)	9
I32	24 Jul 2019	Arrive Time	1207
I32	24 Jul 2019	Depart Time	1213
I32	24 Jul 2019	Air Temp (C)	0
I32	24 Jul 2019	Weather	Partly Cloudy
I32	24 Jul 2019	Visibility (mi)	11
I32	24 Jul 2019	Wind Speed (kts)	0
I32	24 Jul 2019	Wind Dir	

Station	Date	Parameter	Value
I32	24 Jul 2019	Water Color	Greenish-Blue
I32	24 Jul 2019	Wave Ht Low (ft)	3
I32	24 Jul 2019	Wave Period (sec)	11
I32	24 Jul 2019	Sea State	Calm
I32	24 Jul 2019	High Tide (ft)	6.33
I32	24 Jul 2019	High Tide Time	2106
I32	24 Jul 2019	Low Tide (ft)	-0.71
I32	24 Jul 2019	Low Tide Time	405
I32	24 Jul 2019	Comments	none
I32	30 Jul 2019	Depth (m)	11
I32	30 Jul 2019	Arrive Time	1120
I32	30 Jul 2019	Depart Time	1129
I32	30 Jul 2019	Air Temp (C)	18
I32	30 Jul 2019	Weather	Overcast
I32	30 Jul 2019	Visibility (mi)	5
I32	30 Jul 2019	Wind Speed (kts)	12
I32	30 Jul 2019	Wind Dir	S
I32	30 Jul 2019	Water Color	Brownish-Green
I32	30 Jul 2019	Wave Ht Low (ft)	4
I32	30 Jul 2019	Wave Period (sec)	9
I32	30 Jul 2019	Sea State	Light chop
I32	30 Jul 2019	High Tide (ft)	6.33
I32	30 Jul 2019	High Tide Time	2106
I32	30 Jul 2019	Low Tide (ft)	-0.71
I32	30 Jul 2019	Low Tide Time	405
I32	30 Jul 2019	Comments	none
I39	01 Jul 2019	Depth (m)	20
I39	01 Jul 2019	Arrive Time	1011
I39	01 Jul 2019	Depart Time	1016
I39	01 Jul 2019	Air Temp (C)	18
I39	01 Jul 2019	Weather	Partly Cloudy
I39	01 Jul 2019	Visibility (mi)	6
I39	01 Jul 2019	Wind Speed (kts)	1
I39	01 Jul 2019	Wind Dir	NW
I39	01 Jul 2019	Water Color	Green
I39	01 Jul 2019	Wave Ht Low (ft)	4
I39	01 Jul 2019	Wave Period (sec)	7
I39	01 Jul 2019	Sea State	Light chop
I39	01 Jul 2019	High Tide (ft)	3.76
I39	01 Jul 2019	High Tide Time	931
I39	01 Jul 2019	Low Tide (ft)	1.8
I39	01 Jul 2019	Low Tide Time	1427
I39	01 Jul 2019	Comments	none
I39	08 Jul 2019	Depth (m)	19
I39	08 Jul 2019	Arrive Time	1014
I39	08 Jul 2019	Depart Time	1016
I39	08 Jul 2019	Air Temp (C)	18
I39	08 Jul 2019	Weather	Continuous layer of clouds
I39	08 Jul 2019	Visibility (mi)	8
I39	08 Jul 2019	Wind Speed (kts)	6
I39	08 Jul 2019	Wind Dir	SW
I39	08 Jul 2019	Water Color	Brownish-Green
I39	08 Jul 2019	Wave Ht Low (ft)	2
I39	08 Jul 2019	Wave Period (sec)	13
I39	08 Jul 2019	Sea State	Light chop
I39	08 Jul 2019	High Tide (ft)	4.65
I39	08 Jul 2019	High Tide Time	1526
I39	08 Jul 2019	Low Tide (ft)	0.17

Station	Date	Parameter	Value
I39	08 Jul 2019	Low Tide Time	840
I39	08 Jul 2019	Comments	none
I39	15 Jul 2019	Depth (m)	20
I39	15 Jul 2019	Arrive Time	1009
I39	15 Jul 2019	Depart Time	1011
I39	15 Jul 2019	Air Temp (C)	19
I39	15 Jul 2019	Weather	Continuous layer of clouds
I39	15 Jul 2019	Visibility (mi)	5
I39	15 Jul 2019	Wind Speed (kts)	4
I39	15 Jul 2019	Wind Dir	N
I39	15 Jul 2019	Water Color	Greenish-Blue
I39	15 Jul 2019	Wave Ht Low (ft)	2
I39	15 Jul 2019	Wave Period (sec)	13
I39	15 Jul 2019	Sea State	Calm
I39	15 Jul 2019	High Tide (ft)	3.81
I39	15 Jul 2019	High Tide Time	950
I39	15 Jul 2019	Low Tide (ft)	2.02
I39	15 Jul 2019	Low Tide Time	1442
I39	15 Jul 2019	Comments	Kelp debris
I39	24 Jul 2019	Depth (m)	18
I39	24 Jul 2019	Arrive Time	1034
I39	24 Jul 2019	Depart Time	1038
I39	24 Jul 2019	Air Temp (C)	0
I39	24 Jul 2019	Weather	Partly Cloudy
I39	24 Jul 2019	Visibility (mi)	10
I39	24 Jul 2019	Wind Speed (kts)	0
I39	24 Jul 2019	Wind Dir	
I39	24 Jul 2019	Water Color	Greenish-Blue
I39	24 Jul 2019	Wave Ht Low (ft)	3
I39	24 Jul 2019	Wave Period (sec)	11
I39	24 Jul 2019	Sea State	Calm
I39	24 Jul 2019	High Tide (ft)	6.33
I39	24 Jul 2019	High Tide Time	2106
I39	24 Jul 2019	Low Tide (ft)	-0.71
I39	24 Jul 2019	Low Tide Time	405
I39	24 Jul 2019	Comments	none
I39	30 Jul 2019	Depth (m)	19
I39	30 Jul 2019	Arrive Time	1012
I39	30 Jul 2019	Depart Time	1018
I39	30 Jul 2019	Air Temp (C)	18
I39	30 Jul 2019	Weather	Overcast
I39	30 Jul 2019	Visibility (mi)	5
I39	30 Jul 2019	Wind Speed (kts)	8
I39	30 Jul 2019	Wind Dir	N
I39	30 Jul 2019	Water Color	Brownish-Green
I39	30 Jul 2019	Wave Ht Low (ft)	3
I39	30 Jul 2019	Wave Period (sec)	9
I39	30 Jul 2019	Sea State	Light chop
I39	30 Jul 2019	High Tide (ft)	6.33
I39	30 Jul 2019	High Tide Time	2106
I39	30 Jul 2019	Low Tide (ft)	-0.71
I39	30 Jul 2019	Low Tide Time	405
I39	30 Jul 2019	Comments	none
I40	01 Jul 2019	Depth (m)	11
I40	01 Jul 2019	Arrive Time	1046
I40	01 Jul 2019	Depart Time	1050
I40	01 Jul 2019	Air Temp (C)	18

Station	Date	Parameter	Value
I40	01 Jul 2019	Weather	Haze
I40	01 Jul 2019	Visibility (mi)	6
I40	01 Jul 2019	Wind Speed (kts)	5
I40	01 Jul 2019	Wind Dir	W
I40	01 Jul 2019	Water Color	Brownish-Green
I40	01 Jul 2019	Wave Ht Low (ft)	4
I40	01 Jul 2019	Wave Period (sec)	7
I40	01 Jul 2019	Sea State	Light chop
I40	01 Jul 2019	High Tide (ft)	3.76
I40	01 Jul 2019	High Tide Time	931
I40	01 Jul 2019	Low Tide (ft)	1.8
I40	01 Jul 2019	Low Tide Time	1427
I40	01 Jul 2019	Comments	none
I40	08 Jul 2019	Depth (m)	10
I40	08 Jul 2019	Arrive Time	1050
I40	08 Jul 2019	Depart Time	1052
I40	08 Jul 2019	Air Temp (C)	18
I40	08 Jul 2019	Weather	Partly Cloudy
I40	08 Jul 2019	Visibility (mi)	8
I40	08 Jul 2019	Wind Speed (kts)	9
I40	08 Jul 2019	Wind Dir	SW
I40	08 Jul 2019	Water Color	Reddish-Brown
I40	08 Jul 2019	Wave Ht Low (ft)	2
I40	08 Jul 2019	Wave Period (sec)	13
I40	08 Jul 2019	Sea State	Light chop
I40	08 Jul 2019	High Tide (ft)	4.65
I40	08 Jul 2019	High Tide Time	1526
I40	08 Jul 2019	Low Tide (ft)	0.17
I40	08 Jul 2019	Low Tide Time	840
I40	08 Jul 2019	Comments	Possible red tide
I40	15 Jul 2019	Depth (m)	11
I40	15 Jul 2019	Arrive Time	1042
I40	15 Jul 2019	Depart Time	1047
I40	15 Jul 2019	Air Temp (C)	18
I40	15 Jul 2019	Weather	Continuous layer of clouds
I40	15 Jul 2019	Visibility (mi)	6
I40	15 Jul 2019	Wind Speed (kts)	4
I40	15 Jul 2019	Wind Dir	W
I40	15 Jul 2019	Water Color	Green
I40	15 Jul 2019	Wave Ht Low (ft)	2
I40	15 Jul 2019	Wave Period (sec)	13
I40	15 Jul 2019	Sea State	Calm
I40	15 Jul 2019	High Tide (ft)	3.81
I40	15 Jul 2019	High Tide Time	950
I40	15 Jul 2019	Low Tide (ft)	2.02
I40	15 Jul 2019	Low Tide Time	1442
I40	15 Jul 2019	Comments	none
I40	24 Jul 2019	Depth (m)	9
I40	24 Jul 2019	Arrive Time	1115
I40	24 Jul 2019	Depart Time	1120
I40	24 Jul 2019	Air Temp (C)	0
I40	24 Jul 2019	Weather	Partly Cloudy
I40	24 Jul 2019	Visibility (mi)	10
I40	24 Jul 2019	Wind Speed (kts)	0
I40	24 Jul 2019	Wind Dir	
I40	24 Jul 2019	Water Color	Greenish-Blue
I40	24 Jul 2019	Wave Ht Low (ft)	3
I40	24 Jul 2019	Wave Period (sec)	11

Station	Date	Parameter	Value
I40	24 Jul 2019	Sea State	Calm
I40	24 Jul 2019	High Tide (ft)	6.33
I40	24 Jul 2019	High Tide Time	2106
I40	24 Jul 2019	Low Tide (ft)	-0.71
I40	24 Jul 2019	Low Tide Time	405
I40	24 Jul 2019	Comments	Birds on station
I40	30 Jul 2019	Depth (m)	11
I40	30 Jul 2019	Arrive Time	1043
I40	30 Jul 2019	Depart Time	1049
I40	30 Jul 2019	Air Temp (C)	18
I40	30 Jul 2019	Weather	Overcast
I40	30 Jul 2019	Visibility (mi)	5
I40	30 Jul 2019	Wind Speed (kts)	10
I40	30 Jul 2019	Wind Dir	SE
I40	30 Jul 2019	Water Color	Brownish-Green
I40	30 Jul 2019	Wave Ht Low (ft)	4
I40	30 Jul 2019	Wave Period (sec)	9
I40	30 Jul 2019	Sea State	Light chop
I40	30 Jul 2019	High Tide (ft)	6.33
I40	30 Jul 2019	High Tide Time	2106
I40	30 Jul 2019	Low Tide (ft)	-0.71
I40	30 Jul 2019	Low Tide Time	405
I40	30 Jul 2019	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 (µg/L)
I19	01 Jul 2019	1	16.24	72.87	6.4	33.64	8.1	24.6	0.66
I19	01 Jul 2019	2	15.97	72.23	6.3	33.65	8.1	24.7	0.73
I19	01 Jul 2019	3	15.96	70.07	6.2	33.62	8.1	24.7	0.86
I19	01 Jul 2019	4	15.12	64.71	6.0	33.69	8.1	24.9	3.61
I19	01 Jul 2019	5	14.84	53.13	5.6	33.64	8.1	25.0	13.24
I19	01 Jul 2019	6	14.69	50.28	5.0	33.64	8.1	25.0	17.92
I19	01 Jul 2019	7	14.35	59.19	4.2	33.65	8.0	25.1	12.84
I19	01 Jul 2019	8	14.00	61.81	3.5	33.62	8.0	25.1	8.31
I19	01 Jul 2019	9	14.08	59.32	3.1	33.65	8.0	25.1	8.01
I19	01 Jul 2019	10	13.37	59.23	1.9	33.64	7.9	25.3	6.72
I19	08 Jul 2019	1	20.31	34.35	10.9	33.61	8.4	23.6	33.14
I19	08 Jul 2019	2	20.16	40.01	9.4	33.62	8.4	23.7	26.32
I19	08 Jul 2019	3	20.02	58.65	8.1	33.64	8.4	23.7	12.03
I19	08 Jul 2019	4	19.95	70.91	8.0	33.66	8.3	23.8	5.70
I19	08 Jul 2019	5	19.72	77.20	7.9	33.72	8.3	23.9	3.96
I19	08 Jul 2019	6	19.59	74.73	7.9	33.71	8.3	23.9	8.45
I19	08 Jul 2019	7	19.47	67.04	7.7	33.71	8.3	23.9	12.96
I19	08 Jul 2019	8	19.34	66.23	7.5	33.71	8.3	23.9	12.24
I19	08 Jul 2019	9	19.26	65.18	7.2	33.70	8.3	24.0	6.83
I19	08 Jul 2019	10	18.85	60.51	7.0	33.70	8.3	24.1	5.56
I19	15 Jul 2019	1	18.20	78.84	7.7	33.71	8.2	24.2	0.97
I19	15 Jul 2019	2	18.01	78.39	7.6	33.73	8.2	24.3	1.06
I19	15 Jul 2019	3	17.46	77.05	7.6	33.72	8.2	24.4	1.43
I19	15 Jul 2019	4	17.29	75.96	7.5	33.71	8.2	24.5	1.92
I19	15 Jul 2019	5	17.04	75.15	7.4	33.72	8.2	24.5	2.37
I19	15 Jul 2019	6	16.24	74.47	7.4	33.73	8.2	24.7	3.45
I19	15 Jul 2019	7	15.81	74.29	7.1	33.70	8.2	24.8	3.84
I19	15 Jul 2019	8	14.76	75.40	6.4	33.76	8.1	25.1	3.61
I19	15 Jul 2019	9	12.51	73.93	5.7	33.72	8.1	25.5	3.04
I19	15 Jul 2019	10	12.42	69.20	5.6	33.64	8.1	25.5	2.85
I19	24 Jul 2019	1	14.81	76.86	7.4	33.61	8.1	24.9	0.58
I19	24 Jul 2019	2	14.72	76.81	7.2	33.62	8.1	25.0	0.57
I19	24 Jul 2019	3	12.91	75.85	7.1	33.70	8.1	25.4	0.93
I19	24 Jul 2019	4	12.47	76.72	6.5	33.61	8.0	25.4	1.16
I19	24 Jul 2019	5	12.25	78.49	6.0	33.60	8.0	25.5	0.99
I19	24 Jul 2019	6	12.22	79.55	6.0	33.60	8.0	25.5	0.97
I19	24 Jul 2019	7	12.20	79.81	5.9	33.60	8.0	25.5	0.94
I19	24 Jul 2019	8	12.12	78.10	5.8	33.62	8.0	25.5	1.05
I19	24 Jul 2019	9	12.04	74.72	5.8	33.62	8.0	25.5	1.50
I19	24 Jul 2019	10	12.04	70.82	5.9	33.62	8.0	25.5	2.08
I19	30 Jul 2019	1	19.14	65.85	9.9	33.55	8.3	23.9	3.20
I19	30 Jul 2019	2	19.13	65.94	9.9	33.55	8.3	23.9	3.42
I19	30 Jul 2019	3	19.13	65.73	9.9	33.55	8.3	23.9	4.17
I19	30 Jul 2019	4	19.11	65.07	9.8	33.55	8.3	23.9	5.22
I19	30 Jul 2019	5	19.09	64.69	9.8	33.55	8.3	23.9	6.25
I19	30 Jul 2019	6	19.05	64.67	9.8	33.55	8.3	23.9	6.81
I19	30 Jul 2019	7	19.00	65.00	9.4	33.55	8.3	23.9	7.47
I19	30 Jul 2019	8	18.62	64.69	8.6	33.54	8.3	24.0	7.35
I19	30 Jul 2019	9	17.48	65.32	8.4	33.64	8.3	24.4	6.36
I19	30 Jul 2019	10	14.86	56.17	9.2	33.69	8.3	25.0	7.78
I24	01 Jul 2019	1	17.26	76.46	8.5	33.65	8.2	24.4	0.77

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
I24	01 Jul 2019	2	16.59	72.83	8.5	33.71	8.2	24.6	0.79
I24	01 Jul 2019	3	15.98	77.15	8.4	33.67	8.2	24.7	0.91
I24	01 Jul 2019	4	15.48	77.21	7.9	33.69	8.2	24.9	1.17
I24	01 Jul 2019	5	15.09	71.65	6.6	33.66	8.2	24.9	1.95
I24	01 Jul 2019	6	14.06	66.90	5.0	33.71	8.2	25.2	3.21
I24	01 Jul 2019	7	13.65	67.80	4.1	33.65	8.2	25.2	3.87
I24	01 Jul 2019	8	13.57	74.28	4.1	33.63	8.1	25.2	3.24
I24	01 Jul 2019	9	13.56	76.90	4.5	33.62	8.1	25.2	2.56
I24	01 Jul 2019	10	13.54	77.37	4.8	33.63	8.1	25.2	2.58
I24	08 Jul 2019	1	19.63	83.85	7.9	33.71	8.2	23.9	0.43
I24	08 Jul 2019	2	19.61	83.90	7.9	33.72	8.2	23.9	0.44
I24	08 Jul 2019	3	19.56	83.84	7.9	33.71	8.2	23.9	0.46
I24	08 Jul 2019	4	19.48	83.63	7.9	33.71	8.2	23.9	0.52
I24	08 Jul 2019	5	19.40	83.61	7.8	33.71	8.2	23.9	0.56
I24	08 Jul 2019	6	19.25	83.13	7.8	33.71	8.2	24.0	0.61
I24	08 Jul 2019	7	19.22	82.17	7.8	33.70	8.2	24.0	0.65
I24	08 Jul 2019	8	19.22	81.67	7.8	33.70	8.2	24.0	0.65
I24	08 Jul 2019	9	19.24	81.08	7.7	33.70	8.2	24.0	0.67
I24	15 Jul 2019	1	16.29	77.83	7.8	33.65	8.1	24.6	1.26
I24	15 Jul 2019	2	16.57	77.80	7.6	33.69	8.1	24.6	1.24
I24	15 Jul 2019	3	16.02	77.65	7.3	33.73	8.1	24.8	1.33
I24	15 Jul 2019	4	14.26	77.70	7.3	33.71	8.1	25.1	1.77
I24	15 Jul 2019	5	14.13	77.46	7.1	33.65	8.1	25.1	2.07
I24	15 Jul 2019	6	13.80	78.15	6.7	33.66	8.1	25.2	2.05
I24	15 Jul 2019	7	13.38	77.90	6.2	33.66	8.1	25.3	1.88
I24	15 Jul 2019	8	13.15	78.44	6.0	33.65	8.1	25.3	1.61
I24	15 Jul 2019	9	13.04	79.18	5.7	33.66	8.1	25.3	1.43
I24	15 Jul 2019	10	12.74	74.38	5.3	33.66	8.0	25.4	1.56
I24	24 Jul 2019	1	17.87	73.68	7.4	33.61	8.1	24.2	0.75
I24	24 Jul 2019	2	14.45	74.24	7.4	33.83	8.1	25.2	0.84
I24	24 Jul 2019	3	13.12	74.18	7.4	33.59	8.0	25.3	1.05
I24	24 Jul 2019	4	12.56	69.10	7.6	33.60	8.1	25.4	2.00
I24	24 Jul 2019	5	12.35	68.36	6.9	33.57	8.0	25.4	3.22
I24	24 Jul 2019	6	12.13	77.02	6.1	33.59	8.0	25.5	2.37
I24	24 Jul 2019	7	12.10	80.13	5.8	33.59	8.0	25.5	1.64
I24	24 Jul 2019	8	11.95	80.37	5.6	33.61	7.9	25.5	1.31
I24	24 Jul 2019	9	11.95	79.19	5.6	33.61	7.9	25.5	1.07
I24	24 Jul 2019	10	11.92	78.11	5.5	33.62	7.9	25.5	0.96
I24	30 Jul 2019	1	19.00	73.56	10.0	33.62	8.3	24.0	1.61
I24	30 Jul 2019	2	19.00	73.52	10.0	33.62	8.3	24.0	1.61
I24	30 Jul 2019	3	18.97	73.47	10.0	33.62	8.3	24.0	1.70
I24	30 Jul 2019	4	18.93	72.71	10.1	33.62	8.3	24.0	2.10
I24	30 Jul 2019	5	18.87	71.81	10.1	33.62	8.3	24.0	2.50
I24	30 Jul 2019	6	18.78	70.96	10.1	33.62	8.3	24.0	2.89
I24	30 Jul 2019	7	18.12	68.29	10.3	33.68	8.3	24.2	3.90
I24	30 Jul 2019	8	16.00	62.70	11.8	33.70	8.4	24.8	7.09
I24	30 Jul 2019	9	15.41	66.07	11.9	33.63	8.4	24.8	9.14
I24	30 Jul 2019	10	14.73	70.05	10.3	33.65	8.4	25.0	7.92
I24	30 Jul 2019	11	14.72	71.11	10.1	33.52	8.3	24.9	6.73
I25	01 Jul 2019	1	17.43	76.39	8.5	33.66	8.2	24.4	0.69
I25	01 Jul 2019	2	16.77	77.86	8.3	33.74	8.2	24.6	0.69
I25	01 Jul 2019	3	15.58	79.83	8.6	33.70	8.2	24.8	0.64
I25	01 Jul 2019	4	15.43	78.96	8.8	33.65	8.3	24.8	0.72
I25	01 Jul 2019	5	15.07	71.35	7.8	33.68	8.2	24.9	1.49
I25	01 Jul 2019	6	14.30	64.66	6.2	33.67	8.2	25.1	3.78
I25	01 Jul 2019	7	13.79	64.32	5.3	33.69	8.2	25.2	4.79

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I25	01 Jul 2019	8	13.50	76.12	4.9	33.63	8.2	25.2	4.01
I25	01 Jul 2019	9	13.52	78.72	4.8	33.62	8.1	25.2	2.11
I25	08 Jul 2019	1	19.68	84.06	7.9	33.71	8.2	23.9	0.43
I25	08 Jul 2019	2	19.67	84.08	7.9	33.71	8.2	23.9	0.44
I25	08 Jul 2019	3	19.58	84.06	7.9	33.72	8.2	23.9	0.46
I25	08 Jul 2019	4	19.44	83.90	7.9	33.72	8.2	23.9	0.51
I25	08 Jul 2019	5	19.32	83.95	7.9	33.71	8.2	24.0	0.55
I25	08 Jul 2019	6	19.21	83.75	7.8	33.70	8.2	24.0	0.58
I25	08 Jul 2019	7	19.14	83.09	7.5	33.70	8.2	24.0	0.64
I25	08 Jul 2019	8	18.90	76.18	7.1	33.70	8.2	24.1	0.69
I25	15 Jul 2019	1	17.78	77.56	7.6	33.69	8.1	24.3	0.85
I25	15 Jul 2019	2	16.13	77.72	7.3	33.77	8.2	24.8	1.07
I25	15 Jul 2019	3	14.49	77.67	7.4	33.69	8.1	25.1	1.45
I25	15 Jul 2019	4	13.97	77.44	7.2	33.64	8.1	25.1	2.01
I25	15 Jul 2019	5	13.81	77.37	7.0	33.63	8.1	25.2	1.99
I25	15 Jul 2019	6	13.39	78.95	6.5	33.65	8.1	25.3	1.67
I25	15 Jul 2019	7	13.19	79.89	6.3	33.63	8.1	25.3	1.53
I25	15 Jul 2019	8	13.17	80.08	6.2	33.64	8.1	25.3	1.52
I25	15 Jul 2019	9	13.15	79.57	6.1	33.64	8.1	25.3	1.47
I25	24 Jul 2019	1	16.08	74.87	7.9	33.65	8.1	24.7	0.78
I25	24 Jul 2019	2	14.81	74.76	7.8	33.67	8.1	25.0	0.95
I25	24 Jul 2019	3	14.44	75.74	7.2	33.61	8.1	25.0	1.04
I25	24 Jul 2019	4	12.17	79.66	6.1	33.63	8.0	25.5	0.84
I25	24 Jul 2019	5	12.19	80.59	6.0	33.59	8.0	25.5	0.76
I25	24 Jul 2019	6	12.15	80.27	6.0	33.60	8.0	25.5	0.85
I25	24 Jul 2019	7	12.14	80.26	6.0	33.59	8.0	25.5	0.84
I25	24 Jul 2019	8	12.19	80.40	6.0	33.60	8.0	25.5	0.87
I25	24 Jul 2019	9	12.15	80.60	6.0	33.60	8.0	25.5	0.88
I25	30 Jul 2019	1	19.33	75.04	9.7	33.64	8.3	23.9	1.07
I25	30 Jul 2019	2	19.32	75.34	9.7	33.64	8.3	23.9	1.13
I25	30 Jul 2019	3	19.25	75.07	9.8	33.64	8.3	23.9	1.29
I25	30 Jul 2019	4	19.16	74.20	9.9	33.63	8.3	23.9	1.64
I25	30 Jul 2019	5	19.05	73.16	10.0	33.63	8.3	24.0	2.03
I25	30 Jul 2019	6	18.74	70.60	10.3	33.61	8.3	24.0	2.68
I25	30 Jul 2019	7	18.31	68.54	9.8	33.63	8.3	24.1	3.61
I25	30 Jul 2019	8	15.09	65.92	10.1	33.76	8.3	25.0	5.60
I25	30 Jul 2019	9	14.90	69.73	10.1	33.60	8.3	24.9	5.55
I26	01 Jul 2019	1	17.95	76.90	8.5	33.66	8.2	24.3	0.67
I26	01 Jul 2019	2	17.34	76.98	8.1	33.74	8.2	24.5	0.65
I26	01 Jul 2019	3	15.43	79.98	7.7	33.72	8.2	24.9	0.64
I26	01 Jul 2019	4	15.10	71.45	7.5	33.64	8.2	24.9	1.82
I26	01 Jul 2019	5	14.99	49.42	6.9	33.63	8.2	24.9	5.50
I26	01 Jul 2019	6	14.11	52.89	6.1	33.69	8.2	25.2	9.74
I26	01 Jul 2019	7	13.32	65.88	5.5	33.63	8.2	25.3	8.69
I26	01 Jul 2019	8	13.28	73.96	5.3	33.62	8.2	25.3	6.27
I26	01 Jul 2019	9	13.26	76.90	5.2	33.62	8.1	25.3	4.40
I26	08 Jul 2019	1	20.39	68.55	9.0	33.59	8.3	23.6	1.21
I26	08 Jul 2019	2	20.17	67.86	8.6	33.63	8.3	23.7	1.61
I26	08 Jul 2019	3	20.12	67.32	8.3	33.64	8.3	23.7	2.23
I26	08 Jul 2019	4	20.09	70.60	8.1	33.66	8.3	23.7	2.19
I26	08 Jul 2019	5	20.02	73.00	7.7	33.69	8.3	23.8	2.46
I26	08 Jul 2019	6	19.79	73.98	7.6	33.72	8.3	23.8	2.69
I26	08 Jul 2019	7	19.44	76.38	7.5	33.71	8.3	23.9	2.60
I26	08 Jul 2019	8	18.31	76.56	7.5	33.76	8.3	24.2	2.96
I26	08 Jul 2019	9	18.03	74.92	7.6	33.67	8.2	24.2	2.44

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
I26	15 Jul 2019	1	17.00	77.48	7.8	33.70	8.2	24.5	0.92
I26	15 Jul 2019	2	16.73	77.09	7.6	33.72	8.2	24.6	0.99
I26	15 Jul 2019	3	15.88	76.08	7.4	33.72	8.2	24.8	1.30
I26	15 Jul 2019	4	15.49	76.02	7.3	33.68	8.1	24.8	1.53
I26	15 Jul 2019	5	14.61	75.95	7.0	33.73	8.1	25.1	1.67
I26	15 Jul 2019	6	13.97	77.28	6.6	33.68	8.1	25.2	1.91
I26	15 Jul 2019	7	13.11	78.04	6.2	33.69	8.1	25.4	1.71
I26	15 Jul 2019	8	13.05	80.16	6.1	33.65	8.1	25.3	1.47
I26	15 Jul 2019	9	13.06	80.40	6.1	33.65	8.1	25.3	1.44
I26	24 Jul 2019	1	15.62	75.98	7.9	33.64	8.1	24.8	0.62
I26	24 Jul 2019	2	14.14	76.31	7.7	33.70	8.1	25.2	0.73
I26	24 Jul 2019	3	12.77	74.07	7.1	33.63	8.1	25.4	1.20
I26	24 Jul 2019	4	12.39	76.65	6.6	33.59	8.0	25.4	1.26
I26	24 Jul 2019	5	12.20	79.00	6.3	33.59	8.0	25.5	1.01
I26	24 Jul 2019	6	12.20	80.02	6.3	33.60	8.0	25.5	0.93
I26	24 Jul 2019	7	12.19	80.15	6.3	33.60	8.0	25.5	0.94
I26	24 Jul 2019	8	12.18	80.09	6.2	33.60	8.0	25.5	1.13
I26	24 Jul 2019	9	12.19	80.17	6.2	33.61	8.0	25.5	1.21
I26	30 Jul 2019	1	19.41	70.11	10.1	33.60	8.3	23.8	1.53
I26	30 Jul 2019	2	19.41	70.16	10.1	33.60	8.3	23.9	1.55
I26	30 Jul 2019	3	19.38	69.80	10.1	33.60	8.3	23.9	1.79
I26	30 Jul 2019	4	19.37	69.67	10.1	33.60	8.3	23.9	2.16
I26	30 Jul 2019	5	19.19	68.09	10.1	33.61	8.3	23.9	2.82
I26	30 Jul 2019	6	19.13	67.61	10.2	33.60	8.3	23.9	3.52
I26	30 Jul 2019	7	18.87	67.45	10.2	33.62	8.3	24.0	4.01
I26	30 Jul 2019	8	18.08	66.98	9.7	33.66	8.3	24.2	4.73
I26	30 Jul 2019	9	15.19	65.78	10.2	33.67	8.3	24.9	6.30
I32	01 Jul 2019	1	17.61	74.85	8.5	33.65	8.3	24.3	0.81
I32	01 Jul 2019	2	16.79	75.63	8.3	33.71	8.3	24.6	0.75
I32	01 Jul 2019	3	16.20	76.08	8.3	33.66	8.2	24.7	0.86
I32	01 Jul 2019	4	16.14	70.75	8.2	33.64	8.2	24.7	1.28
I32	01 Jul 2019	5	16.05	68.88	8.0	33.64	8.2	24.7	1.77
I32	01 Jul 2019	6	15.92	66.58	7.6	33.64	8.2	24.7	2.69
I32	01 Jul 2019	7	15.67	64.09	7.1	33.64	8.2	24.8	3.67
I32	01 Jul 2019	8	15.58	63.51	6.5	33.64	8.2	24.8	4.06
I32	01 Jul 2019	9	14.31	61.09	4.2	33.73	8.2	25.1	3.99
I32	01 Jul 2019	10	13.46	60.42	2.7	33.64	8.1	25.2	4.27
I32	08 Jul 2019	1	20.06	76.50	7.9	33.71	8.2	23.8	0.65
I32	08 Jul 2019	2	20.03	76.55	7.9	33.71	8.2	23.8	0.68
I32	08 Jul 2019	3	19.95	76.05	7.9	33.71	8.2	23.8	0.78
I32	08 Jul 2019	4	19.81	75.53	7.9	33.71	8.2	23.8	1.03
I32	08 Jul 2019	5	19.53	74.83	8.0	33.72	8.2	23.9	1.27
I32	08 Jul 2019	6	19.43	78.55	8.0	33.71	8.2	23.9	1.30
I32	08 Jul 2019	7	19.27	79.72	7.8	33.71	8.2	24.0	1.47
I32	08 Jul 2019	8	18.96	79.36	7.7	33.71	8.2	24.0	1.68
I32	08 Jul 2019	9	18.50	77.42	7.4	33.72	8.2	24.2	1.80
I32	08 Jul 2019	10	17.84	59.00	7.7	33.66	8.2	24.3	4.22
I32	15 Jul 2019	1	18.34	74.37	7.6	33.69	8.1	24.2	0.89
I32	15 Jul 2019	2	17.89	74.46	7.6	33.73	8.1	24.3	1.00
I32	15 Jul 2019	3	17.19	72.40	7.5	33.71	8.1	24.5	1.33
I32	15 Jul 2019	4	16.50	72.22	7.3	33.73	8.1	24.7	1.66
I32	15 Jul 2019	5	15.74	71.64	7.4	33.70	8.1	24.8	2.27
I32	15 Jul 2019	6	14.90	70.66	7.3	33.71	8.1	25.0	4.28
I32	15 Jul 2019	7	14.01	71.03	7.0	33.69	8.1	25.2	5.05
I32	15 Jul 2019	8	13.80	75.50	6.7	33.65	8.1	25.2	4.17

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
I32	15 Jul 2019	9	13.48	77.59	6.2	33.67	8.1	25.3	3.08
I32	15 Jul 2019	10	12.83	77.16	5.9	33.68	8.1	25.4	2.29
I32	24 Jul 2019	1	15.77	75.54	7.6	33.62	8.1	24.7	0.57
I32	24 Jul 2019	2	14.02	75.67	8.0	33.68	8.1	25.2	0.67
I32	24 Jul 2019	3	13.14	74.08	9.0	33.61	8.2	25.3	0.92
I32	24 Jul 2019	4	12.92	70.32	9.0	33.60	8.2	25.3	1.82
I32	24 Jul 2019	5	12.87	65.03	8.4	33.59	8.2	25.3	2.80
I32	24 Jul 2019	6	12.72	67.83	7.3	33.59	8.1	25.4	3.74
I32	24 Jul 2019	7	12.73	73.00	7.0	33.59	8.1	25.4	3.88
I32	24 Jul 2019	8	12.50	76.41	6.4	33.63	8.0	25.4	2.80
I32	24 Jul 2019	9	12.30	77.39	6.1	33.61	8.0	25.5	1.86
I32	24 Jul 2019	10	12.29	77.00	6.1	33.62	8.0	25.5	1.66
I32	30 Jul 2019	1	19.77	69.45	9.8	33.63	8.4	23.8	1.17
I32	30 Jul 2019	2	19.73	69.38	9.9	33.63	8.4	23.8	1.21
I32	30 Jul 2019	3	19.48	69.95	10.1	33.63	8.4	23.9	1.42
I32	30 Jul 2019	4	19.44	70.27	10.1	33.62	8.4	23.9	1.60
I32	30 Jul 2019	5	19.39	69.89	10.2	33.62	8.4	23.9	1.96
I32	30 Jul 2019	6	19.29	69.08	10.2	33.62	8.4	23.9	2.64
I32	30 Jul 2019	7	19.27	69.01	10.2	33.62	8.4	23.9	3.21
I32	30 Jul 2019	8	19.25	68.98	10.2	33.62	8.4	23.9	3.42
I32	30 Jul 2019	9	19.22	69.45	10.2	33.62	8.4	23.9	3.68
I32	30 Jul 2019	10	19.08	69.70	10.1	33.62	8.4	23.9	3.75
I39	01 Jul 2019	1	17.81	82.16	8.0	33.66	8.2	24.3	0.36
I39	01 Jul 2019	2	17.24	81.88	7.9	33.72	8.2	24.5	0.41
I39	01 Jul 2019	3	16.60	81.71	7.9	33.67	8.2	24.6	0.49
I39	01 Jul 2019	4	16.32	81.44	7.8	33.68	8.2	24.7	0.55
I39	01 Jul 2019	5	15.18	81.42	8.5	33.71	8.2	24.9	0.60
I39	01 Jul 2019	6	14.52	81.93	9.2	33.64	8.2	25.0	0.68
I39	01 Jul 2019	7	13.94	81.95	8.9	33.64	8.2	25.1	0.88
I39	01 Jul 2019	8	13.30	79.61	8.0	33.61	8.2	25.3	3.72
I39	01 Jul 2019	9	13.16	66.80	7.0	33.61	8.2	25.3	9.16
I39	01 Jul 2019	10	12.99	71.92	5.9	33.63	8.2	25.3	10.16
I39	01 Jul 2019	11	12.76	76.70	5.1	33.63	8.2	25.4	8.29
I39	01 Jul 2019	12	12.70	78.66	4.6	33.63	8.2	25.4	6.61
I39	01 Jul 2019	13	12.66	79.94	4.3	33.63	8.1	25.4	5.19
I39	01 Jul 2019	14	12.63	81.34	4.4	33.63	8.1	25.4	4.43
I39	01 Jul 2019	15	12.59	82.09	4.5	33.64	8.1	25.4	3.46
I39	01 Jul 2019	16	12.52	82.19	4.4	33.64	8.1	25.4	2.86
I39	01 Jul 2019	17	12.49	82.64	4.4	33.64	8.1	25.4	2.26
I39	01 Jul 2019	18	12.49	83.45	4.4	33.64	8.1	25.4	1.84
I39	08 Jul 2019	1	19.39	83.17	7.8	33.72	8.2	23.9	0.39
I39	08 Jul 2019	2	19.34	83.21	7.8	33.72	8.2	24.0	0.42
I39	08 Jul 2019	3	19.31	83.12	7.9	33.72	8.2	24.0	0.45
I39	08 Jul 2019	4	19.30	83.13	7.8	33.71	8.2	24.0	0.50
I39	08 Jul 2019	5	19.28	83.08	7.8	33.71	8.2	24.0	0.55
I39	08 Jul 2019	6	19.23	83.02	7.8	33.71	8.2	24.0	0.61
I39	08 Jul 2019	7	18.97	82.60	7.9	33.72	8.2	24.0	0.67
I39	08 Jul 2019	8	18.74	82.08	8.0	33.70	8.2	24.1	0.76
I39	08 Jul 2019	9	18.64	82.01	8.0	33.69	8.2	24.1	0.83
I39	08 Jul 2019	10	18.39	81.69	8.0	33.70	8.2	24.2	0.93
I39	08 Jul 2019	11	18.10	80.65	8.0	33.67	8.2	24.2	1.15
I39	08 Jul 2019	12	17.26	79.65	8.2	33.75	8.2	24.5	1.34
I39	08 Jul 2019	13	16.23	78.14	8.6	33.69	8.2	24.7	2.23
I39	08 Jul 2019	14	15.85	74.48	8.9	33.63	8.2	24.7	4.70
I39	08 Jul 2019	15	15.65	71.37	8.5	33.67	8.2	24.8	5.90
I39	08 Jul 2019	16	14.73	74.32	7.5	33.64	8.2	25.0	5.32
I39	08 Jul 2019	17	14.51	75.71	6.3	33.64	8.2	25.0	3.96

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
I39	08 Jul 2019	18	13.59	72.48	4.7	33.68	8.1	25.3	3.59
I39	15 Jul 2019	1	17.73	74.08	7.7	33.70	8.1	24.3	1.62
I39	15 Jul 2019	2	17.18	73.78	7.5	33.74	8.2	24.5	1.87
I39	15 Jul 2019	3	16.38	73.73	7.3	33.72	8.1	24.7	2.08
I39	15 Jul 2019	4	14.61	74.98	7.3	33.75	8.1	25.1	2.18
I39	15 Jul 2019	5	13.55	77.11	7.2	33.66	8.1	25.2	3.27
I39	15 Jul 2019	6	13.25	78.37	6.9	33.64	8.1	25.3	3.36
I39	15 Jul 2019	7	13.06	81.37	6.7	33.63	8.1	25.3	2.41
I39	15 Jul 2019	8	13.03	82.05	6.5	33.64	8.1	25.3	2.21
I39	15 Jul 2019	9	12.87	82.20	6.4	33.64	8.1	25.4	2.28
I39	15 Jul 2019	10	12.61	82.81	6.0	33.68	8.1	25.4	2.18
I39	15 Jul 2019	11	11.98	84.25	5.7	33.66	8.1	25.6	1.86
I39	15 Jul 2019	12	11.90	85.12	5.5	33.66	8.1	25.6	1.60
I39	15 Jul 2019	13	11.66	85.49	5.3	33.66	8.0	25.6	1.36
I39	15 Jul 2019	14	11.63	85.37	5.2	33.66	8.0	25.6	1.46
I39	15 Jul 2019	15	11.63	85.28	5.1	33.66	8.0	25.6	1.30
I39	15 Jul 2019	16	11.63	85.11	5.1	33.67	8.0	25.6	1.26
I39	15 Jul 2019	17	11.63	85.05	5.1	33.67	8.0	25.6	1.25
I39	15 Jul 2019	18	11.63	85.01	5.1	33.67	8.0	25.6	1.33
I39	24 Jul 2019	1	18.54	76.92	8.0	33.66	8.1	24.1	0.73
I39	24 Jul 2019	2	18.24	77.02	7.9	33.66	8.1	24.2	0.79
I39	24 Jul 2019	3	17.83	77.09	7.0	33.69	8.1	24.3	0.89
I39	24 Jul 2019	4	13.51	75.03	6.4	33.97	8.1	25.5	1.28
I39	24 Jul 2019	5	12.15	77.34	5.8	33.62	7.9	25.5	1.09
I39	24 Jul 2019	6	11.54	84.14	5.6	33.63	7.9	25.6	0.76
I39	24 Jul 2019	7	11.47	85.04	5.5	33.60	7.9	25.6	0.54
I39	24 Jul 2019	8	11.46	85.07	5.5	33.60	7.9	25.6	0.47
I39	24 Jul 2019	9	11.43	85.04	5.4	33.62	7.9	25.6	0.44
I39	24 Jul 2019	10	11.26	85.25	5.3	33.64	7.9	25.7	0.41
I39	24 Jul 2019	11	11.17	85.58	5.3	33.65	7.9	25.7	0.40
I39	24 Jul 2019	12	11.15	85.55	5.2	33.65	7.9	25.7	0.41
I39	24 Jul 2019	13	11.16	85.47	5.2	33.65	7.9	25.7	0.43
I39	24 Jul 2019	14	11.14	85.37	5.2	33.66	7.9	25.7	0.43
I39	24 Jul 2019	15	11.14	85.35	5.2	33.66	7.9	25.7	0.46
I39	24 Jul 2019	16	11.14	85.23	5.2	33.66	7.9	25.7	0.48
I39	24 Jul 2019	17	11.14	85.31	5.2	33.66	7.9	25.7	0.48
I39	24 Jul 2019	18	11.15	85.19	5.2	33.67	7.9	25.7	0.49
I39	30 Jul 2019	1	19.52	76.96	9.5	33.65	8.3	23.9	1.16
I39	30 Jul 2019	2	19.26	76.74	9.7	33.66	8.3	23.9	1.29
I39	30 Jul 2019	3	18.39	75.06	10.5	33.70	8.3	24.2	1.61
I39	30 Jul 2019	4	15.92	70.36	12.6	33.69	8.4	24.8	2.25
I39	30 Jul 2019	5	15.49	68.08	12.6	33.62	8.4	24.8	4.08
I39	30 Jul 2019	6	15.50	65.03	12.3	33.59	8.4	24.8	6.43
I39	30 Jul 2019	7	15.35	64.97	11.9	33.60	8.4	24.8	8.76
I39	30 Jul 2019	8	15.34	65.35	12.0	33.60	8.4	24.8	9.70
I39	30 Jul 2019	9	15.38	65.35	12.0	33.60	8.4	24.8	10.16
I39	30 Jul 2019	10	15.17	63.46	11.8	33.62	8.4	24.9	11.82
I39	30 Jul 2019	11	14.86	63.25	11.3	33.62	8.4	24.9	12.92
I39	30 Jul 2019	12	14.80	67.86	10.6	33.62	8.4	25.0	12.02
I39	30 Jul 2019	13	14.13	64.77	8.8	33.66	8.4	25.1	12.06
I39	30 Jul 2019	14	13.47	68.06	7.3	33.65	8.3	25.2	9.09
I39	30 Jul 2019	15	13.24	76.58	6.6	33.62	8.3	25.3	5.50
I39	30 Jul 2019	16	13.12	78.26	6.4	33.62	8.3	25.3	4.16
I39	30 Jul 2019	17	12.96	78.69	6.2	33.62	8.3	25.3	3.36
I39	30 Jul 2019	18	13.04	79.00	6.3	33.60	8.3	25.3	3.16
I40	01 Jul 2019	1	17.40	70.21	8.0	33.66	8.2	24.4	0.72
I40	01 Jul 2019	2	16.80	73.13	7.3	33.69	8.2	24.6	0.94

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I40	01 Jul 2019	3	16.03	68.33	6.8	33.66	8.2	24.7	1.88
I40	01 Jul 2019	4	15.75	63.66	6.5	33.64	8.2	24.8	2.66
I40	01 Jul 2019	5	15.11	62.55	5.9	33.64	8.1	24.9	3.66
I40	01 Jul 2019	6	14.15	62.90	4.9	33.67	8.1	25.1	5.62
I40	01 Jul 2019	7	13.79	55.85	4.0	33.63	8.1	25.2	12.73
I40	01 Jul 2019	8	13.51	61.03	2.8	33.64	8.1	25.2	12.14
I40	01 Jul 2019	9	13.42	66.11	2.5	33.62	8.0	25.2	7.22
I40	01 Jul 2019	10	13.43	66.07	2.6	33.62	8.0	25.2	4.89
I40	08 Jul 2019	1	20.46	47.16	11.0	33.56	8.4	23.5	11.42
I40	08 Jul 2019	2	20.46	47.31	10.8	33.56	8.4	23.5	12.03
I40	08 Jul 2019	3	20.19	48.43	9.5	33.62	8.4	23.7	11.69
I40	08 Jul 2019	4	20.05	57.29	8.8	33.64	8.4	23.7	6.77
I40	08 Jul 2019	5	19.95	68.30	8.5	33.66	8.4	23.8	4.03
I40	08 Jul 2019	6	19.86	74.51	8.2	33.68	8.3	23.8	2.37
I40	08 Jul 2019	7	19.74	78.69	8.1	33.70	8.3	23.8	1.75
I40	08 Jul 2019	8	19.65	81.16	8.0	33.70	8.3	23.9	1.51
I40	08 Jul 2019	9	19.56	79.58	7.8	33.70	8.3	23.9	1.26
I40	15 Jul 2019	1	17.84	75.27	7.7	33.70	8.2	24.3	0.93
I40	15 Jul 2019	2	17.54	74.63	7.5	33.72	8.2	24.4	1.03
I40	15 Jul 2019	3	16.88	72.81	7.3	33.70	8.1	24.5	1.32
I40	15 Jul 2019	4	15.94	72.42	7.1	33.76	8.1	24.8	1.80
I40	15 Jul 2019	5	15.00	74.70	7.1	33.68	8.1	25.0	2.36
I40	15 Jul 2019	6	14.66	75.47	6.7	33.67	8.1	25.0	2.66
I40	15 Jul 2019	7	14.35	74.03	6.4	33.66	8.1	25.1	2.51
I40	15 Jul 2019	8	13.75	71.14	5.8	33.69	8.1	25.2	2.48
I40	15 Jul 2019	9	12.73	65.42	5.5	33.69	8.1	25.4	2.59
I40	15 Jul 2019	10	12.51	54.14	5.4	33.64	8.1	25.4	2.85
I40	24 Jul 2019	1	16.52	74.44	6.8	33.65	8.1	24.6	0.57
I40	24 Jul 2019	2	13.44	74.09	6.3	33.71	8.0	25.3	0.60
I40	24 Jul 2019	3	12.61	75.29	6.4	33.59	8.0	25.4	0.69
I40	24 Jul 2019	4	12.38	76.23	6.6	33.58	8.0	25.4	1.00
I40	24 Jul 2019	5	12.23	75.83	6.5	33.58	8.0	25.4	1.45
I40	24 Jul 2019	6	12.15	77.27	6.3	33.59	8.0	25.5	1.53
I40	24 Jul 2019	7	12.11	78.80	5.9	33.59	8.0	25.5	1.46
I40	24 Jul 2019	8	12.12	73.15	5.7	33.60	7.9	25.5	1.44
I40	24 Jul 2019	9	12.11	75.90	5.7	33.60	8.0	25.5	1.47
I40	30 Jul 2019	1	18.97	60.93	10.2	33.56	8.3	23.9	4.69
I40	30 Jul 2019	2	18.97	61.08	10.2	33.57	8.3	23.9	5.36
I40	30 Jul 2019	3	18.96	60.86	10.1	33.57	8.3	23.9	6.72
I40	30 Jul 2019	4	18.94	62.15	10.1	33.57	8.3	23.9	7.84
I40	30 Jul 2019	5	18.93	63.20	10.1	33.57	8.3	23.9	8.06
I40	30 Jul 2019	6	18.93	64.09	10.1	33.57	8.3	23.9	7.97
I40	30 Jul 2019	7	18.89	64.55	9.6	33.58	8.3	24.0	8.02
I40	30 Jul 2019	8	18.05	65.32	8.8	33.62	8.3	24.2	7.11
I40	30 Jul 2019	9	15.52	66.70	9.3	33.77	8.3	24.9	5.91
I40	30 Jul 2019	10	14.70	63.95	10.0	33.61	8.3	25.0	5.37

NA = not available

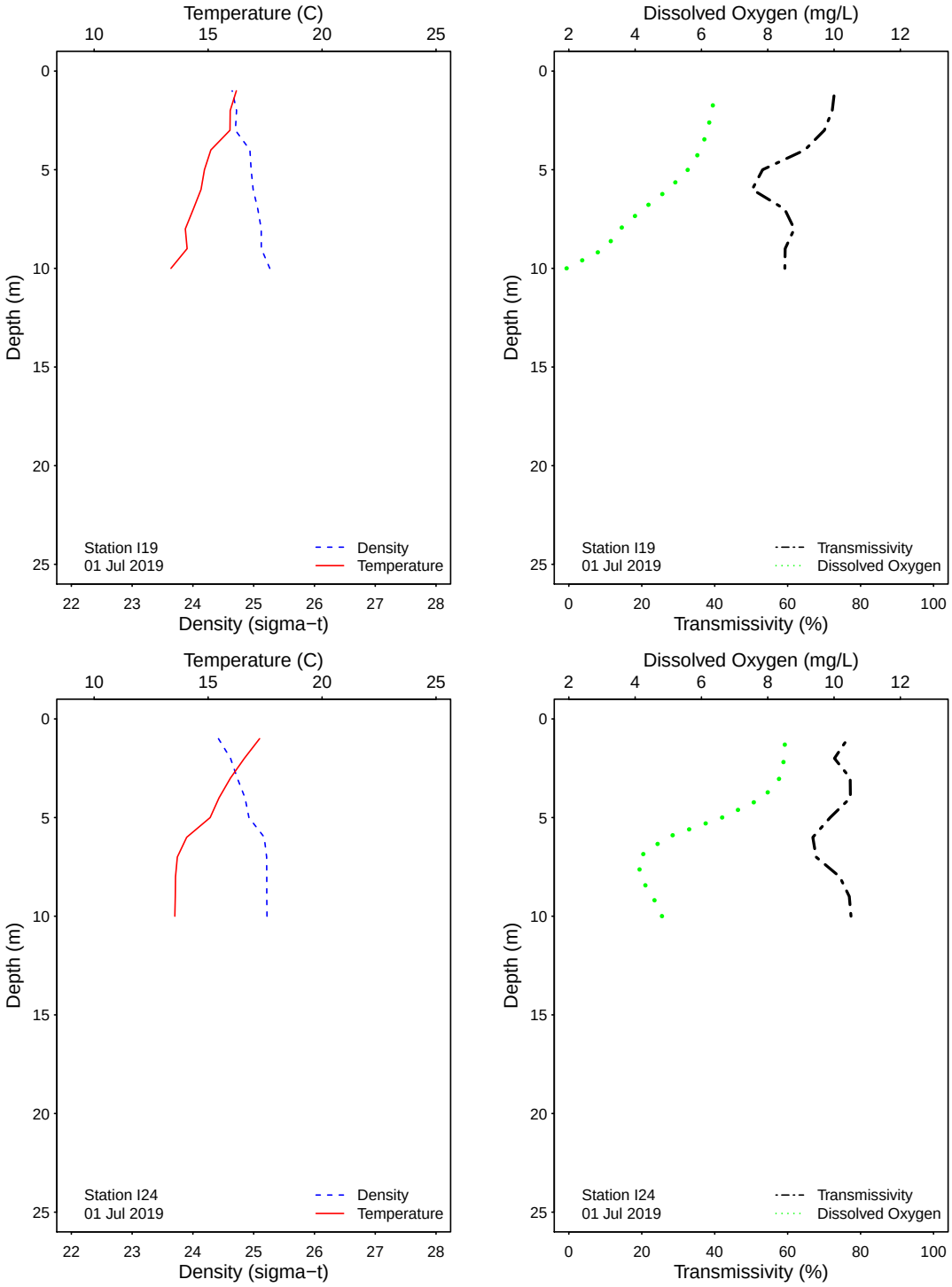

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

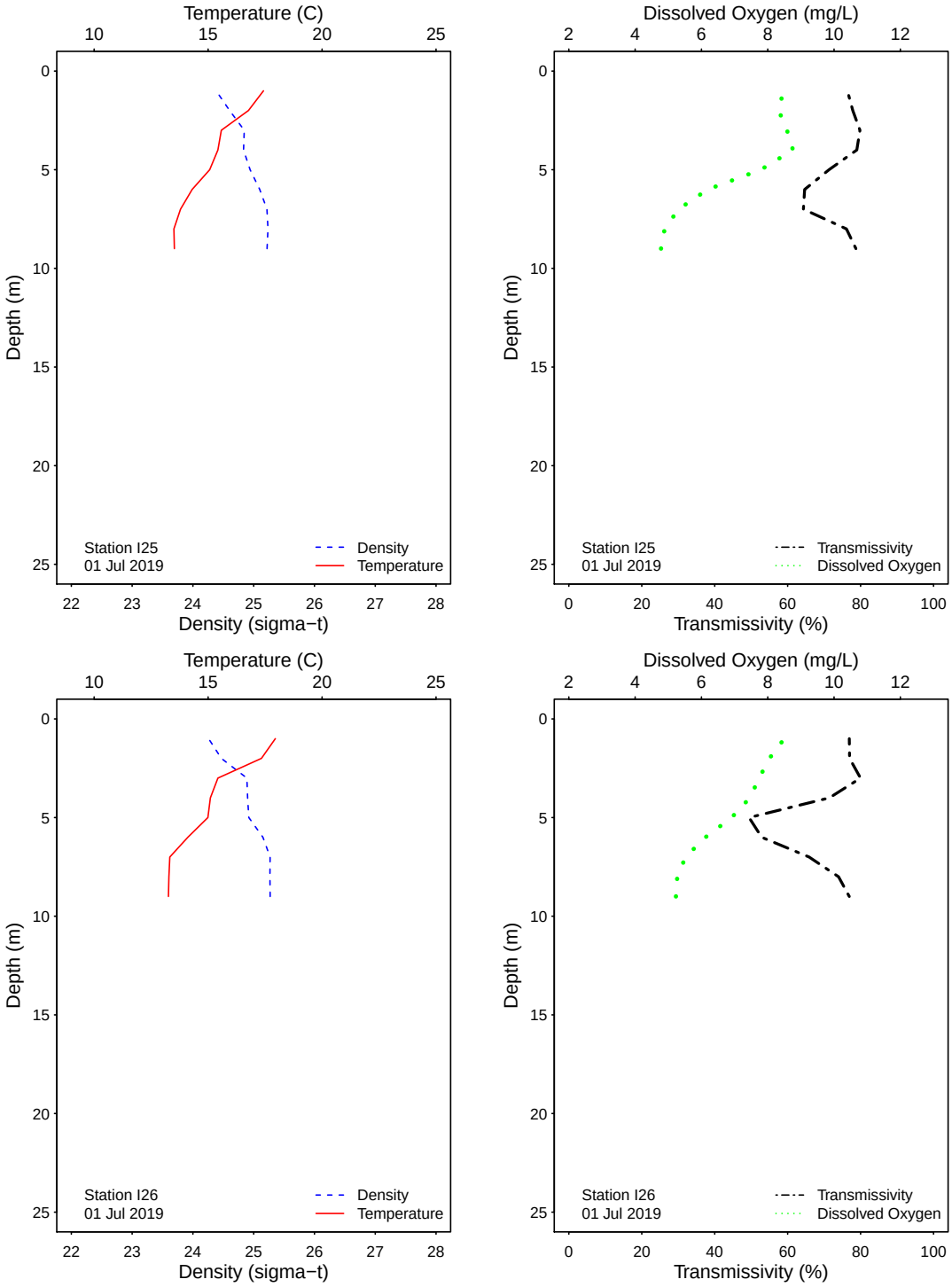

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

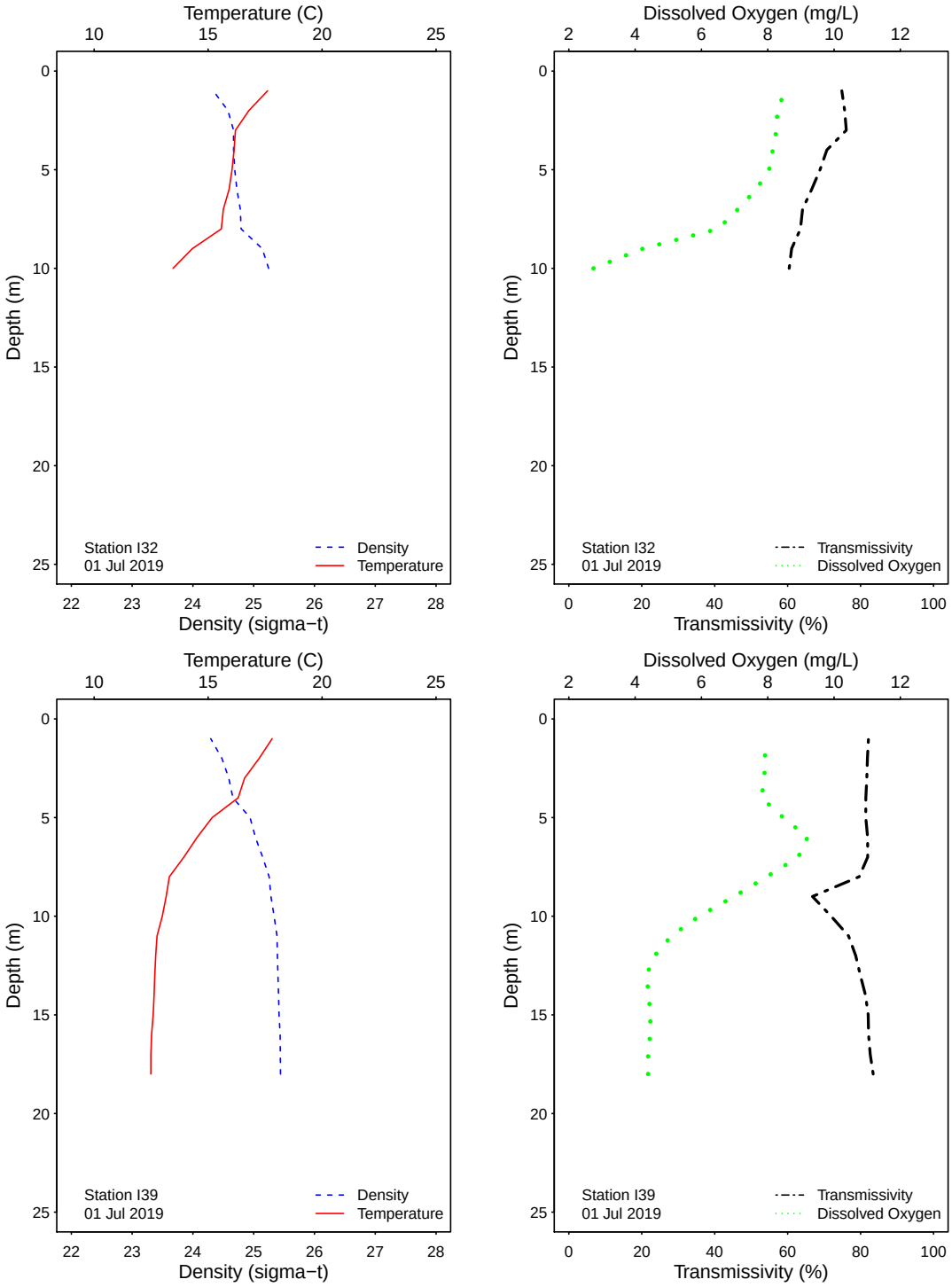

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

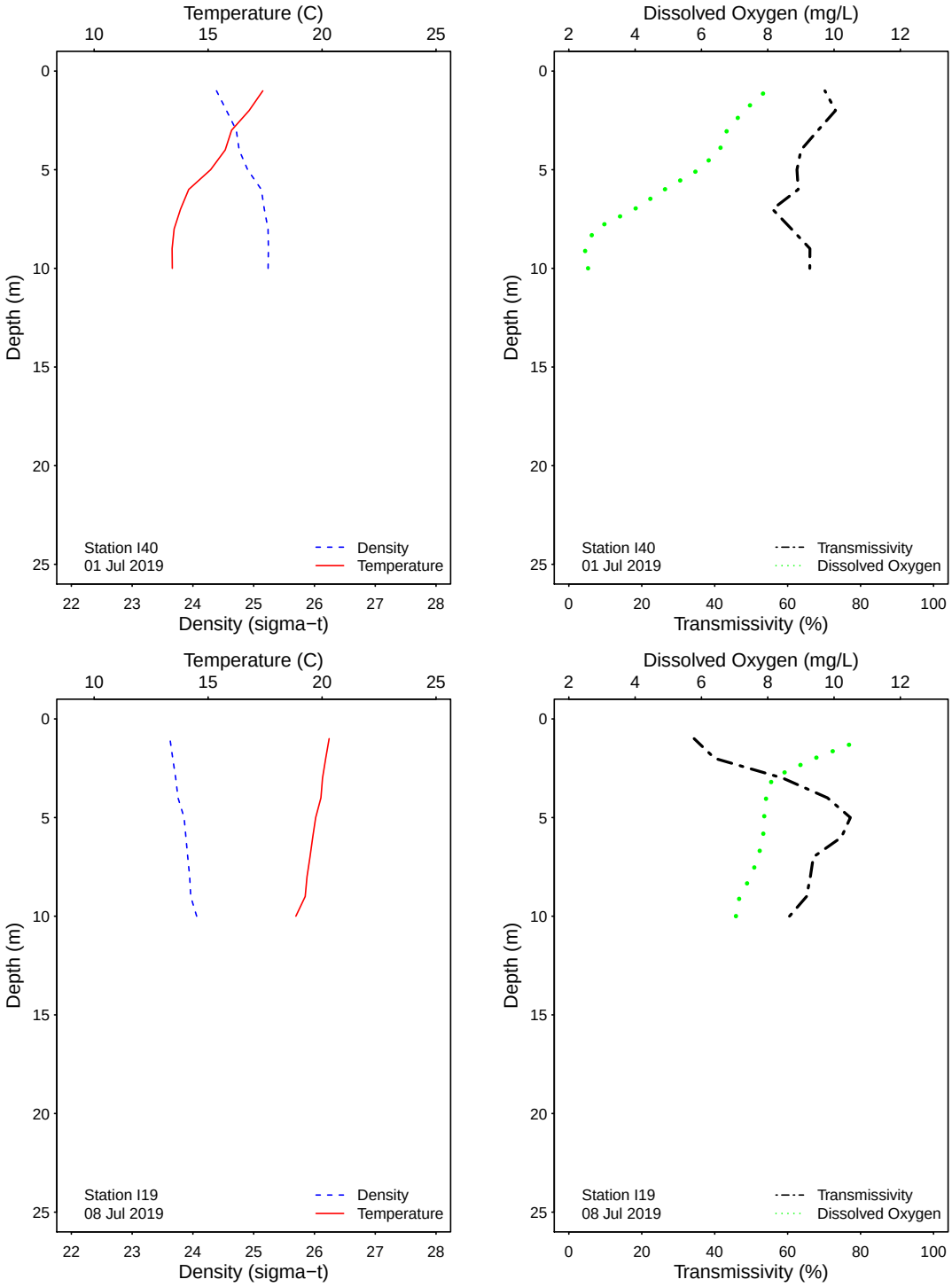

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

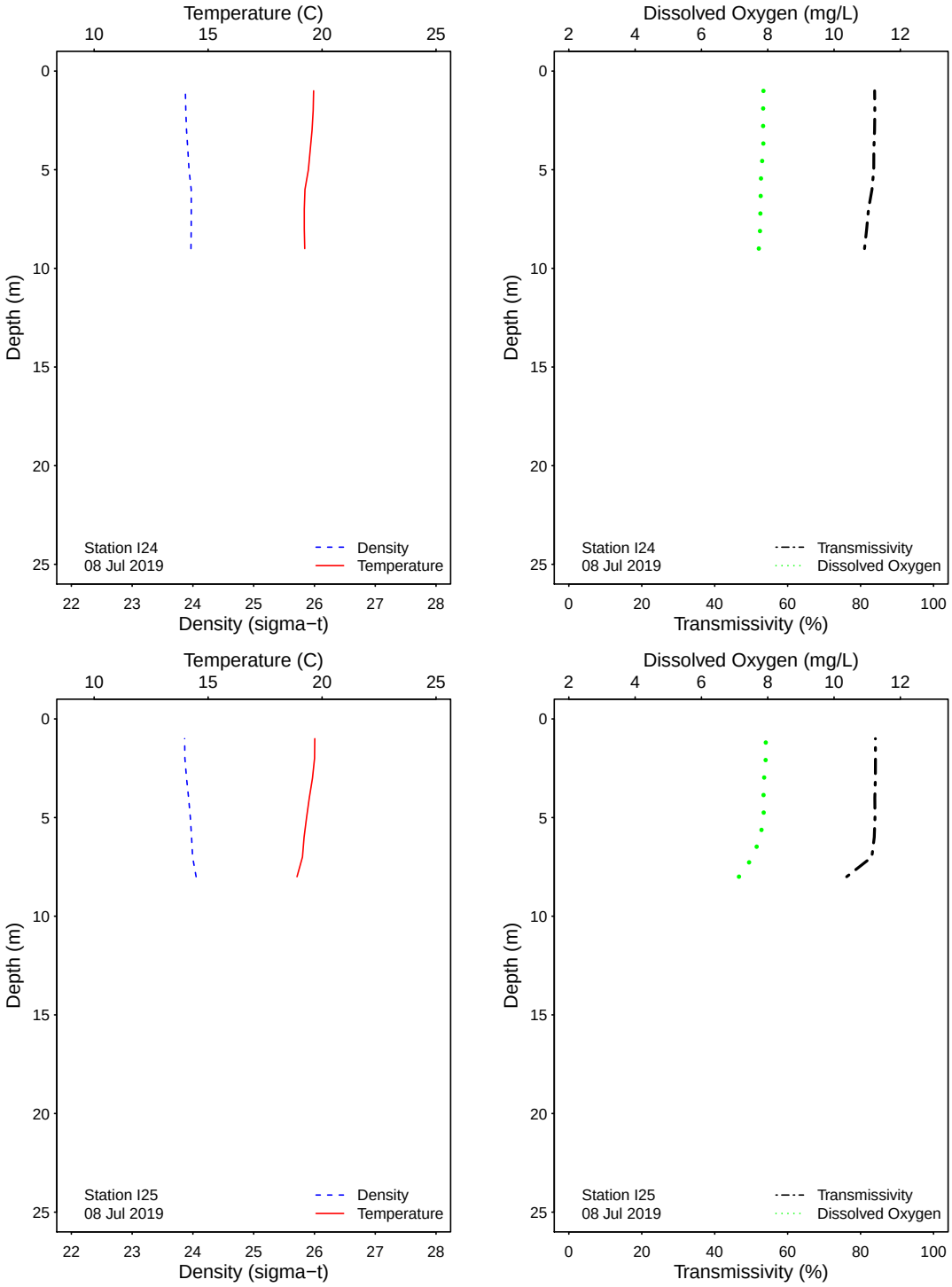

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

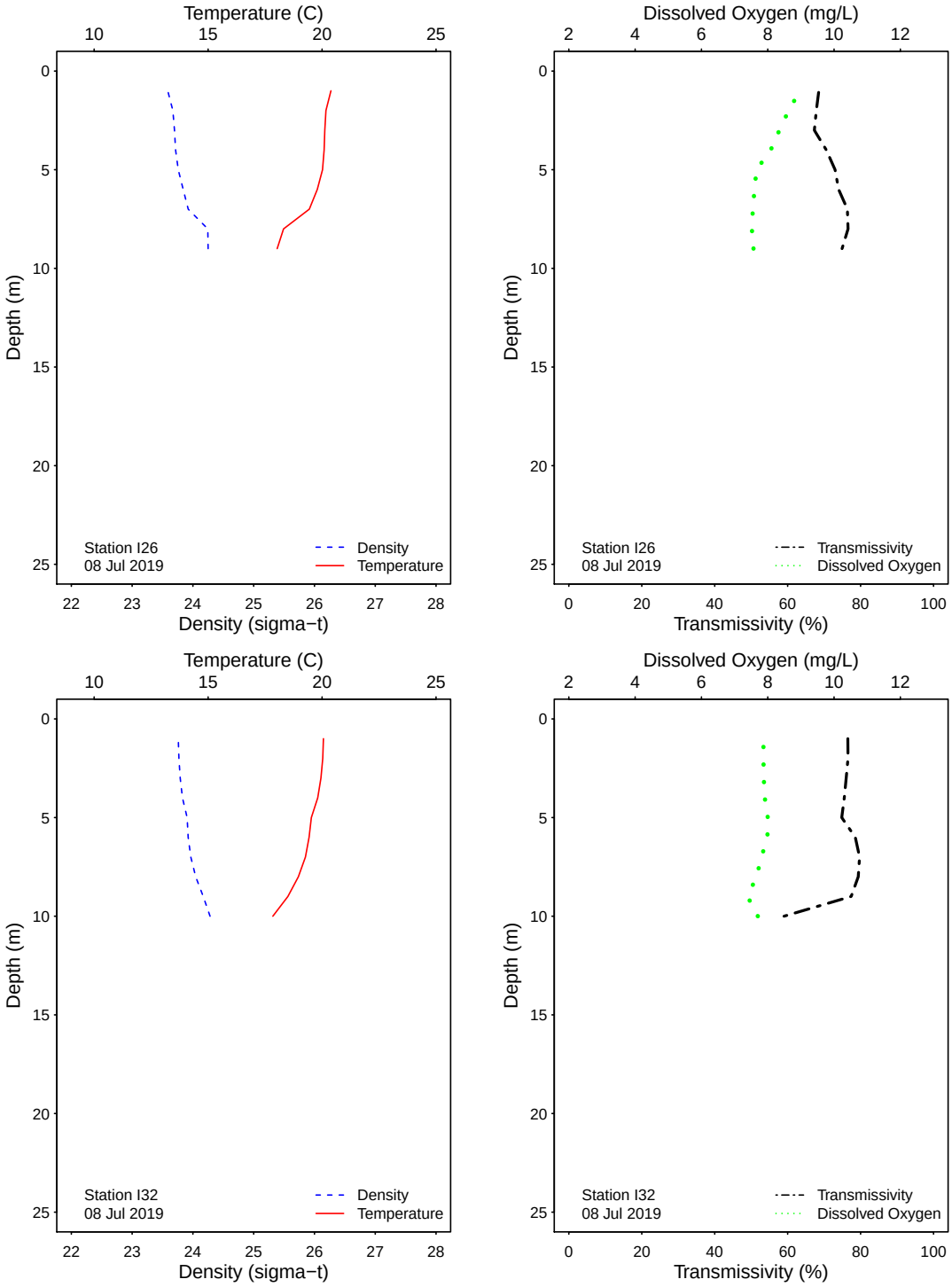

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

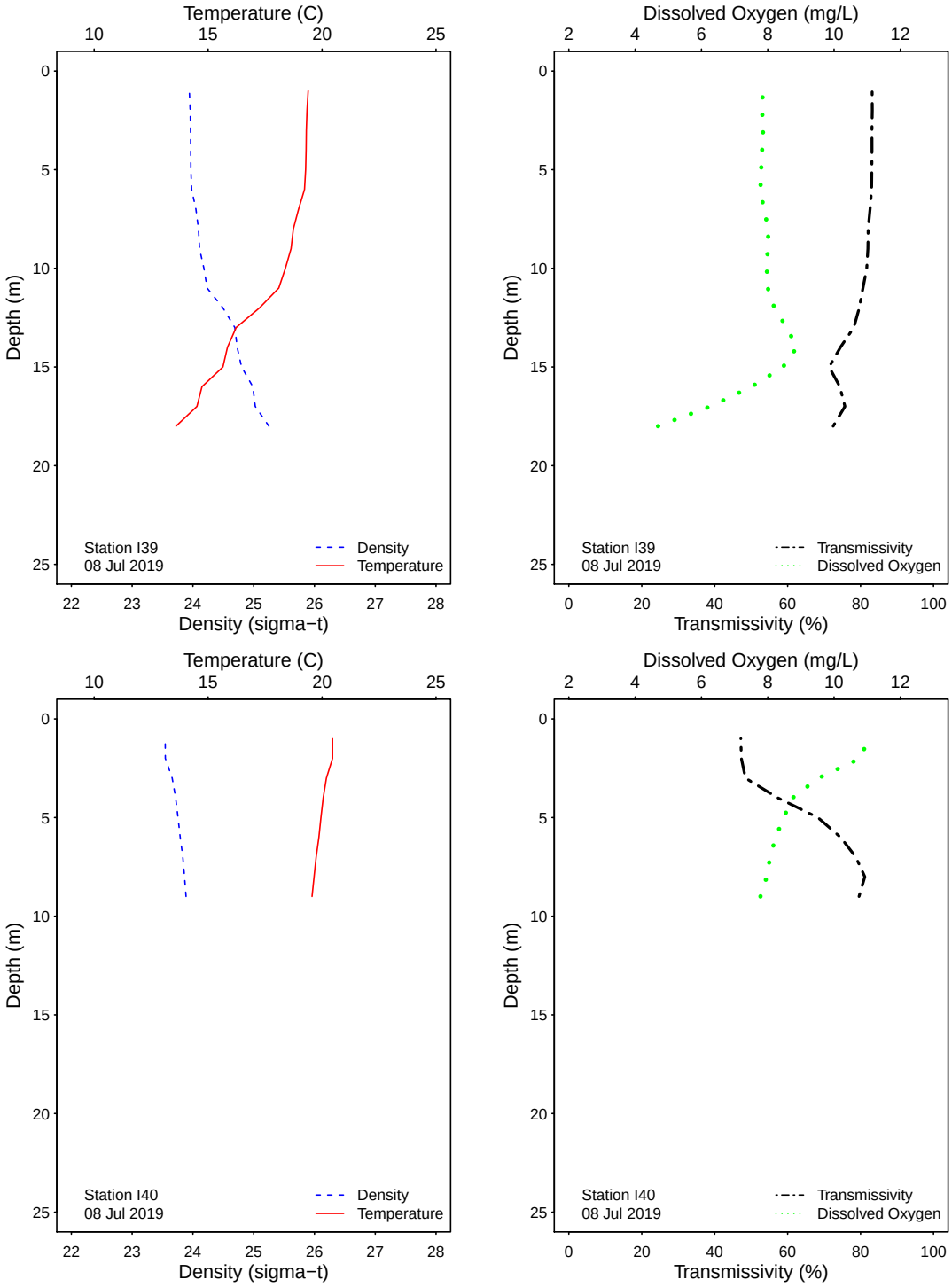

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

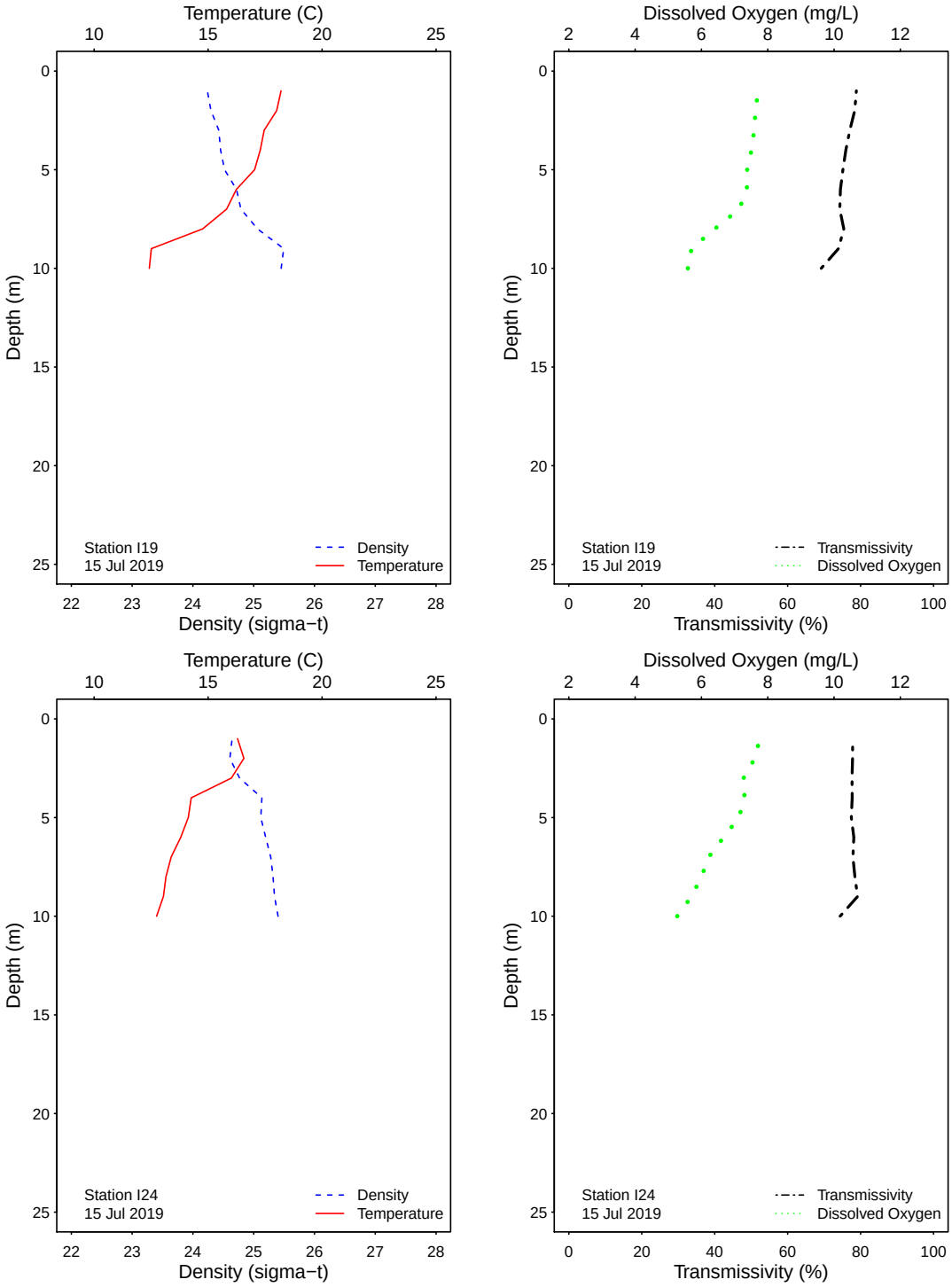

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

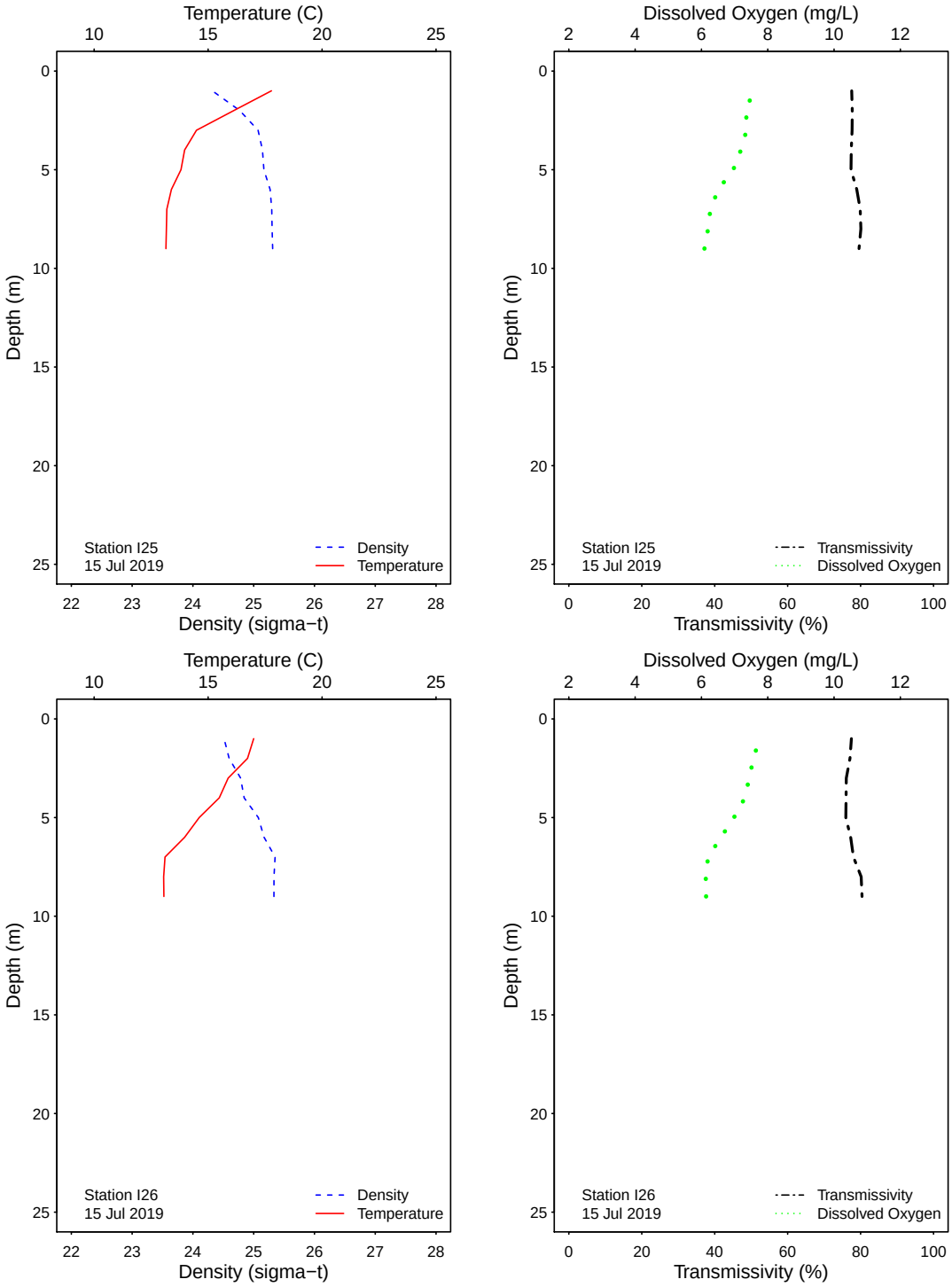

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

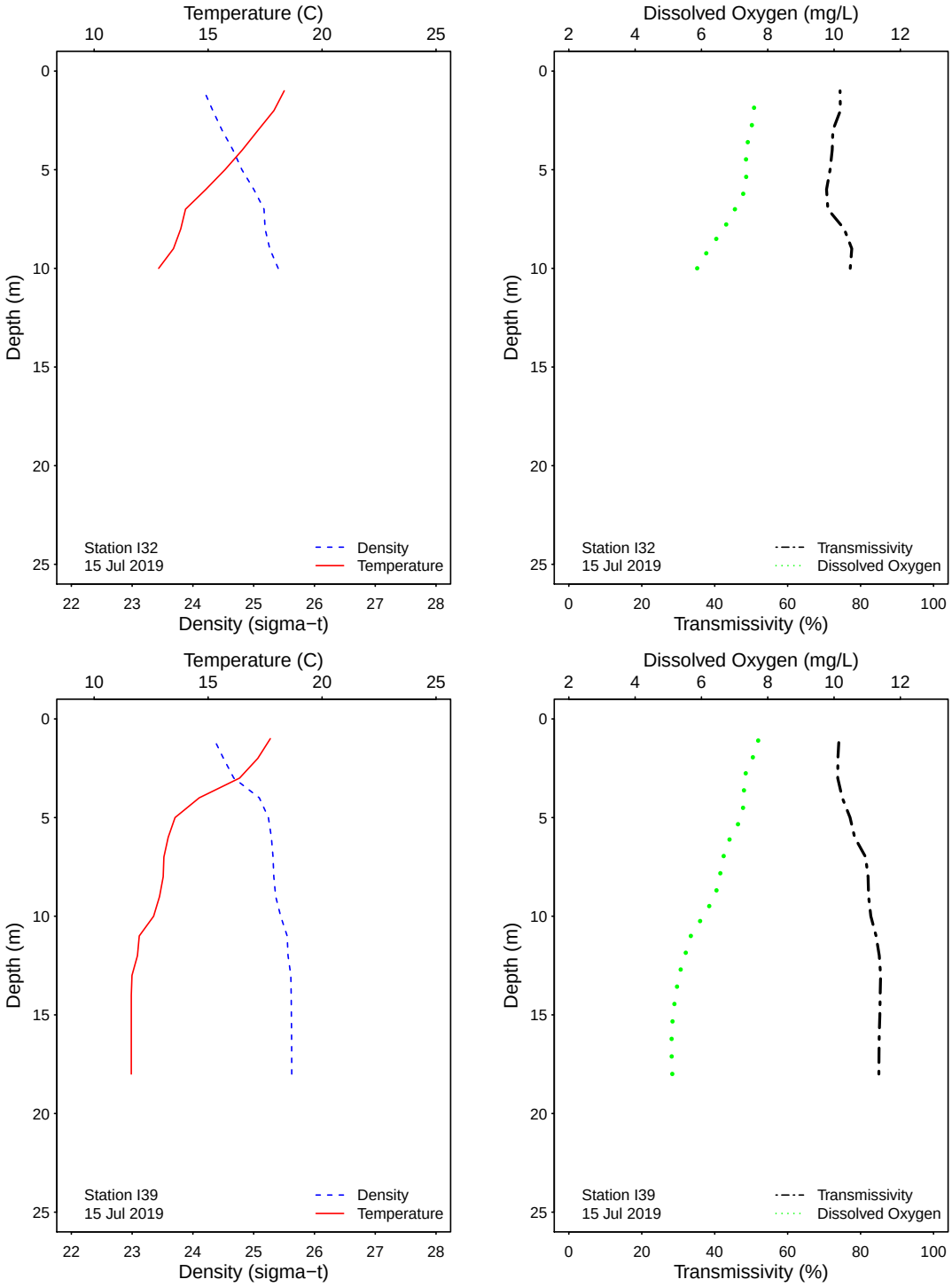

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

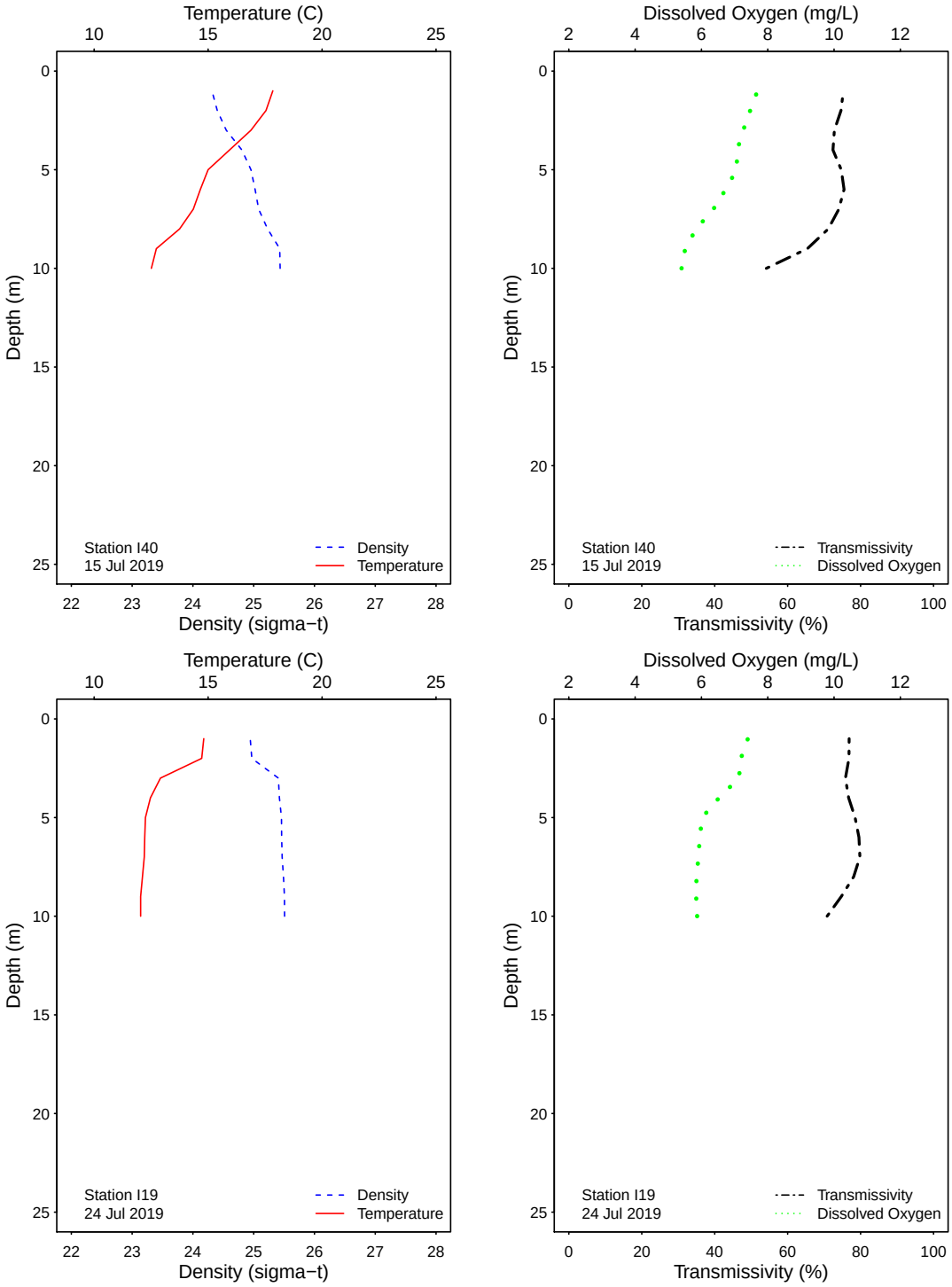

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

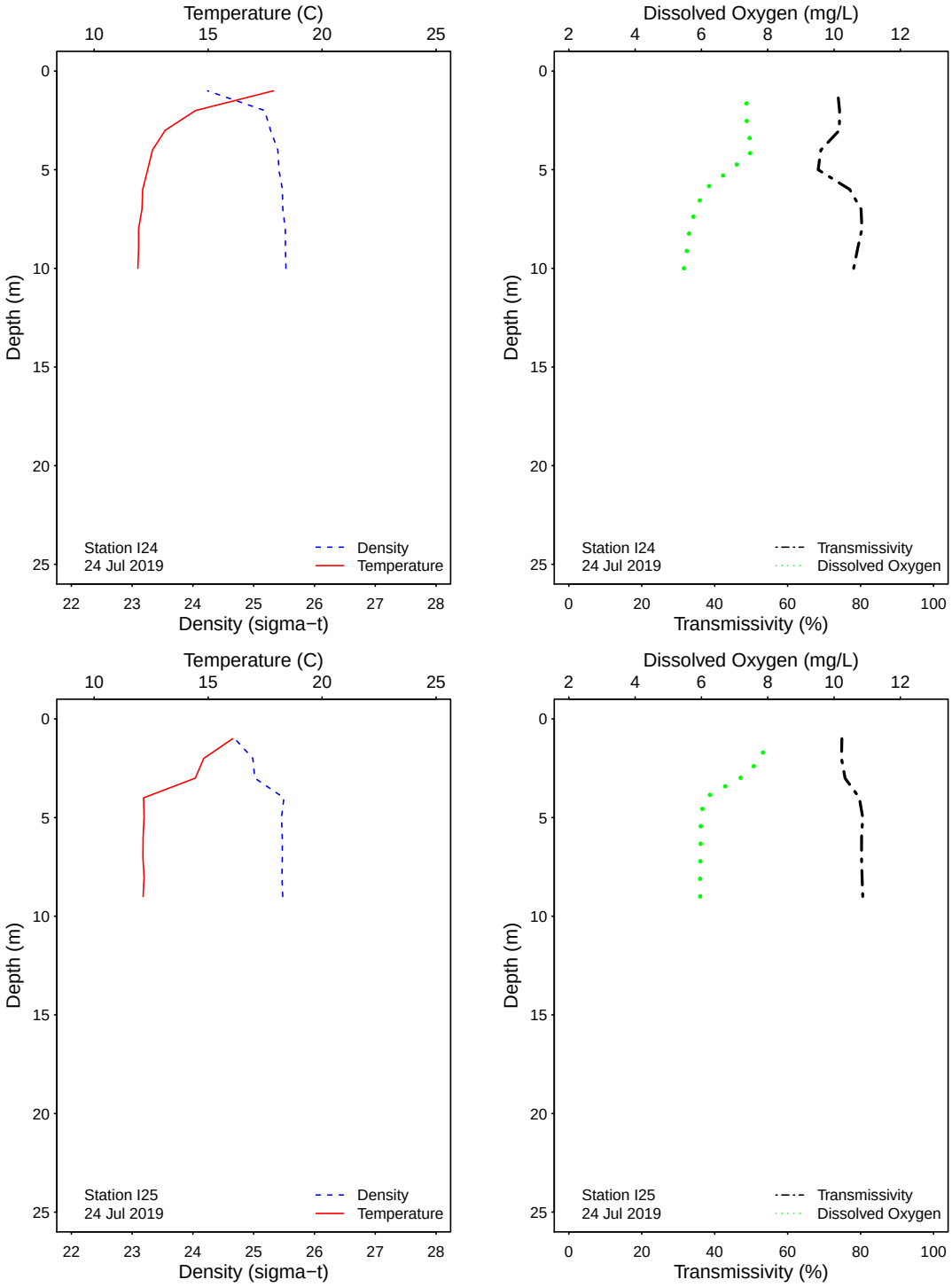

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

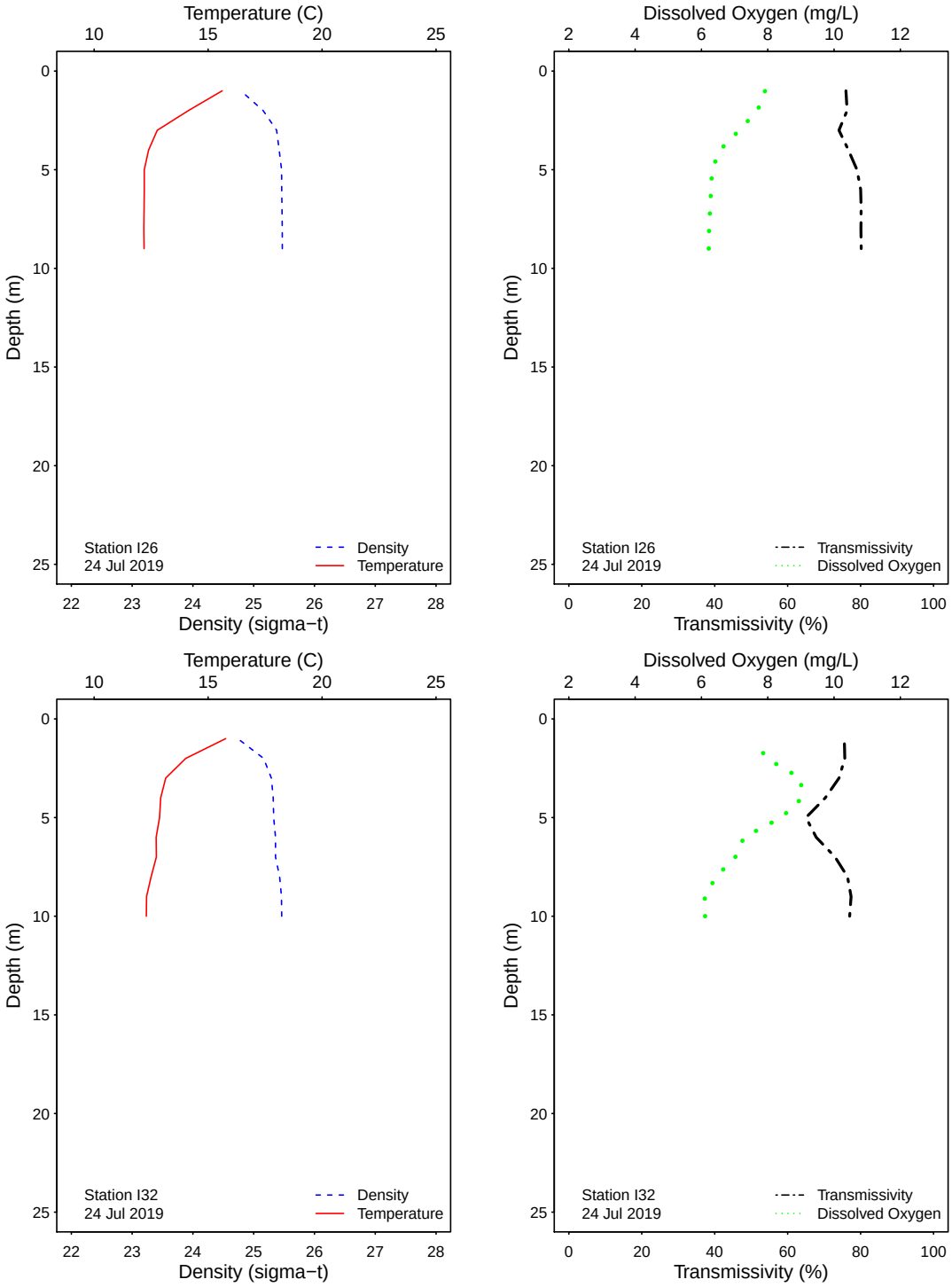

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

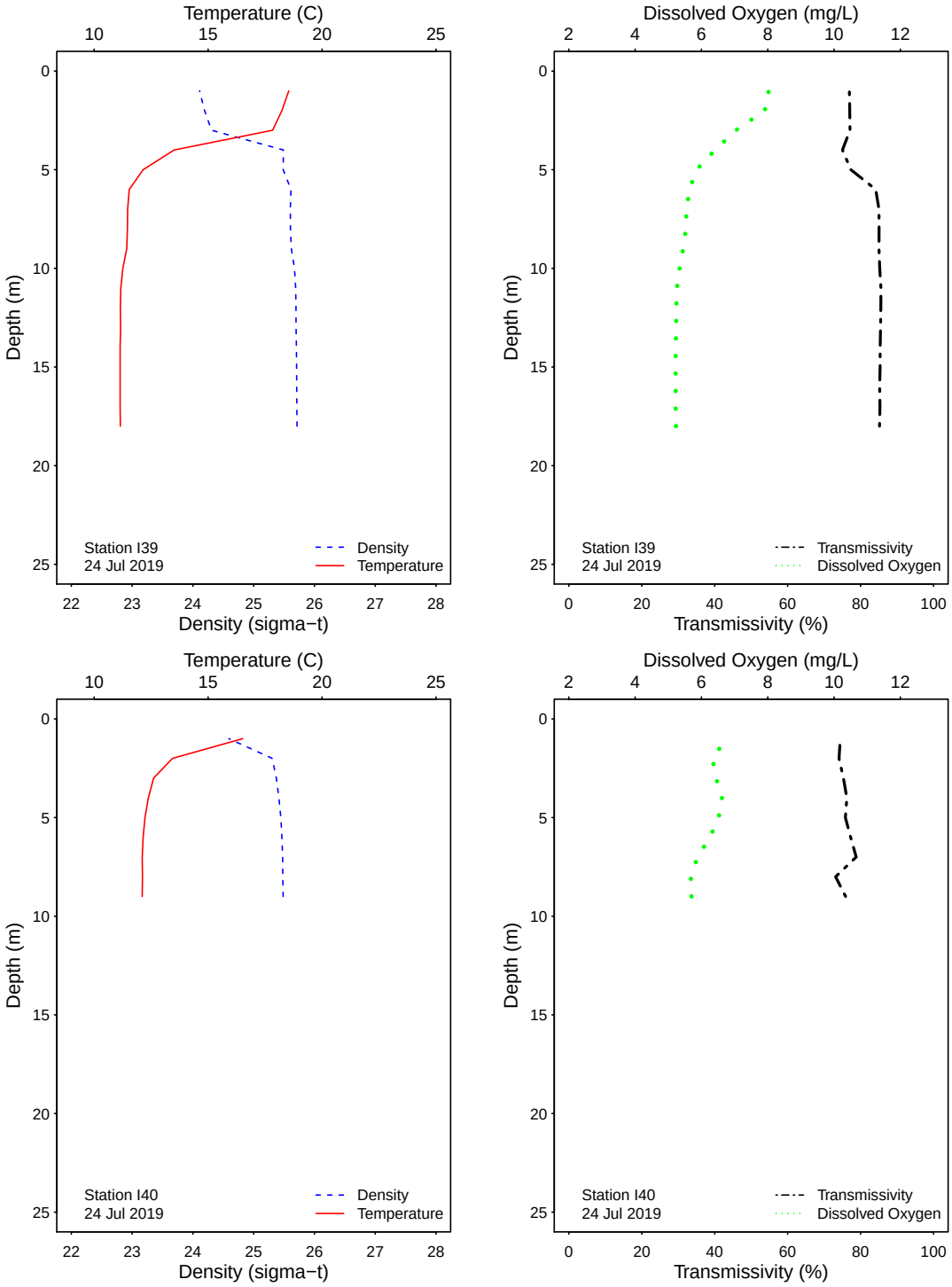

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

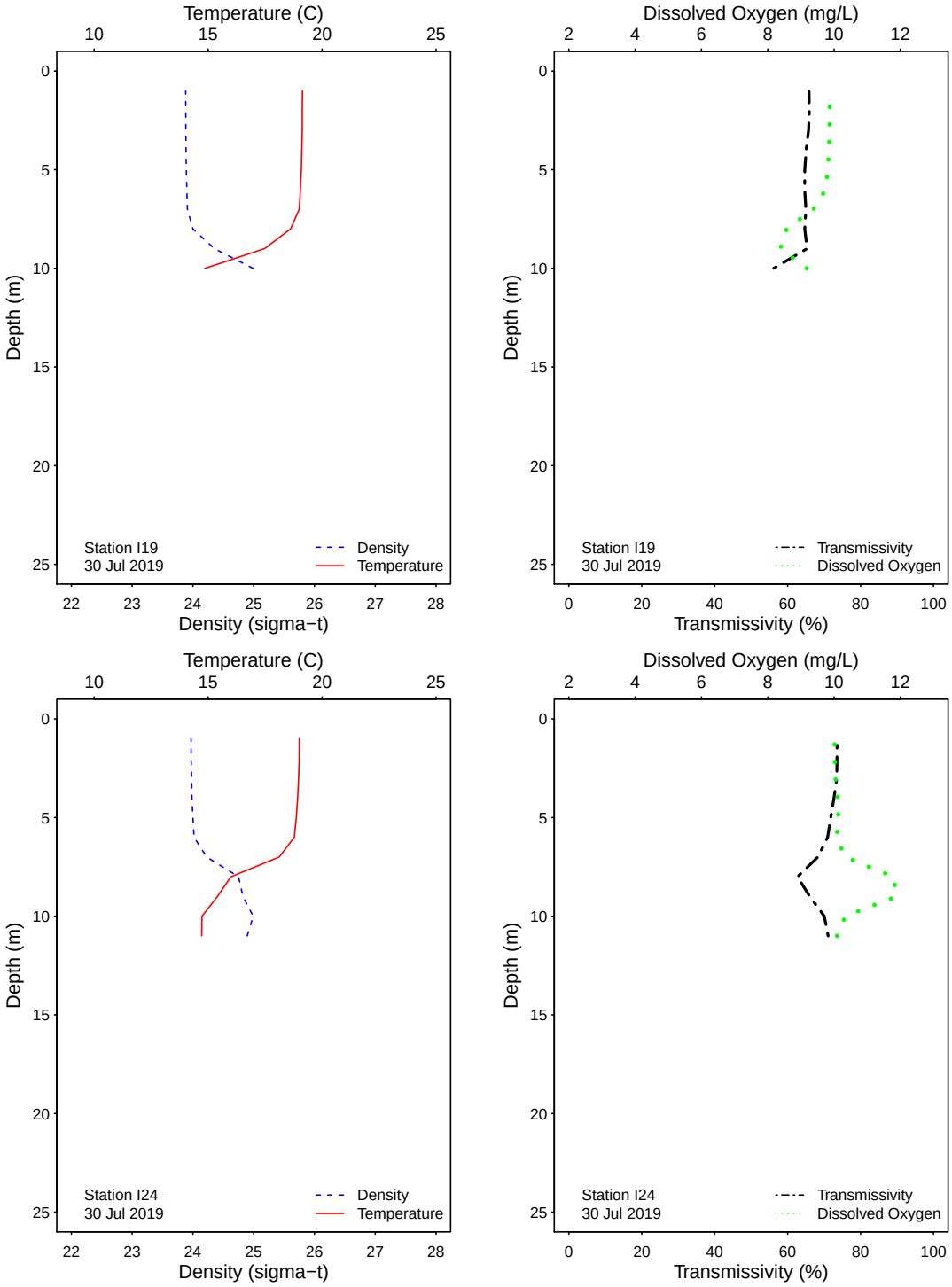

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

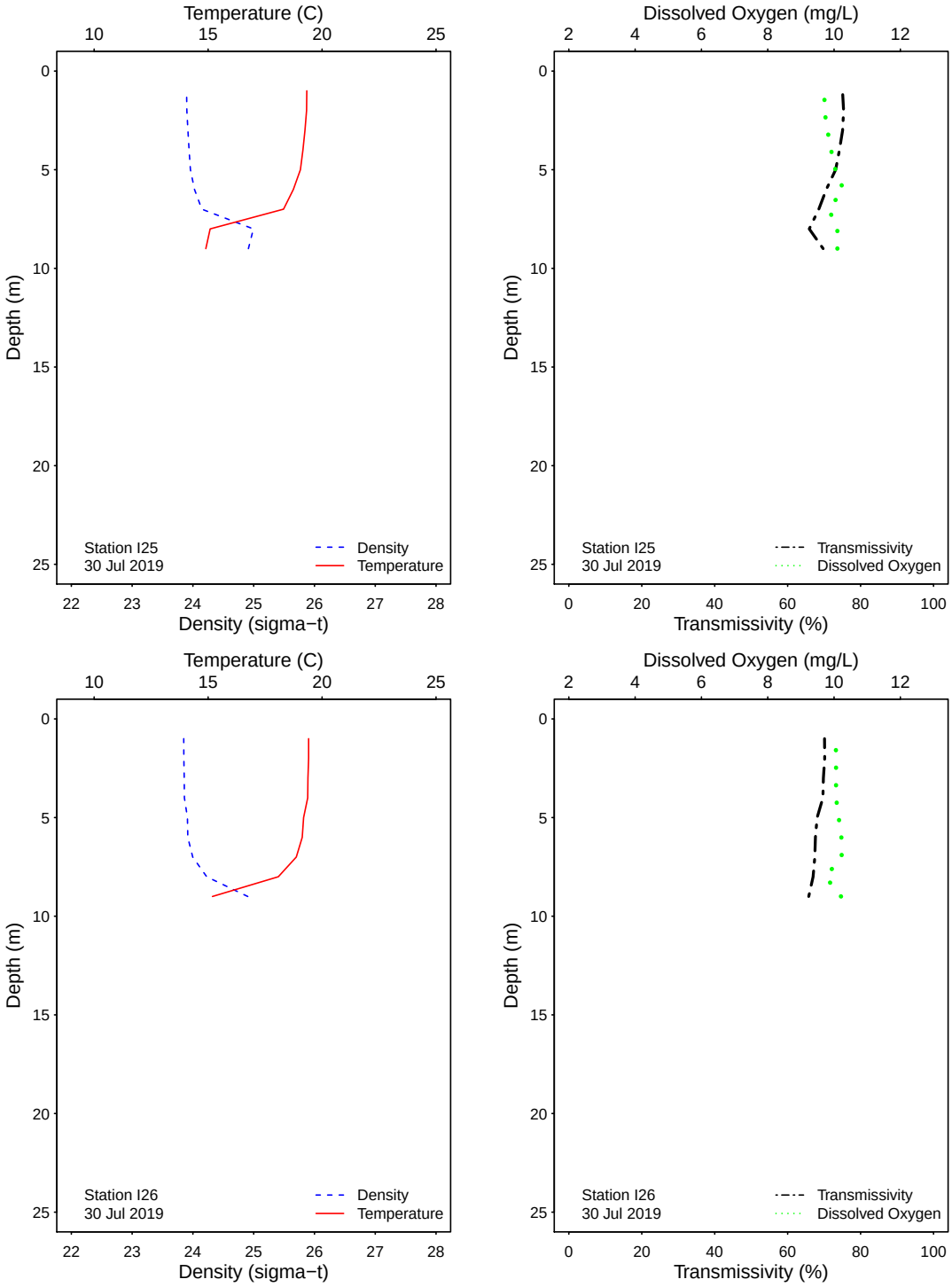

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

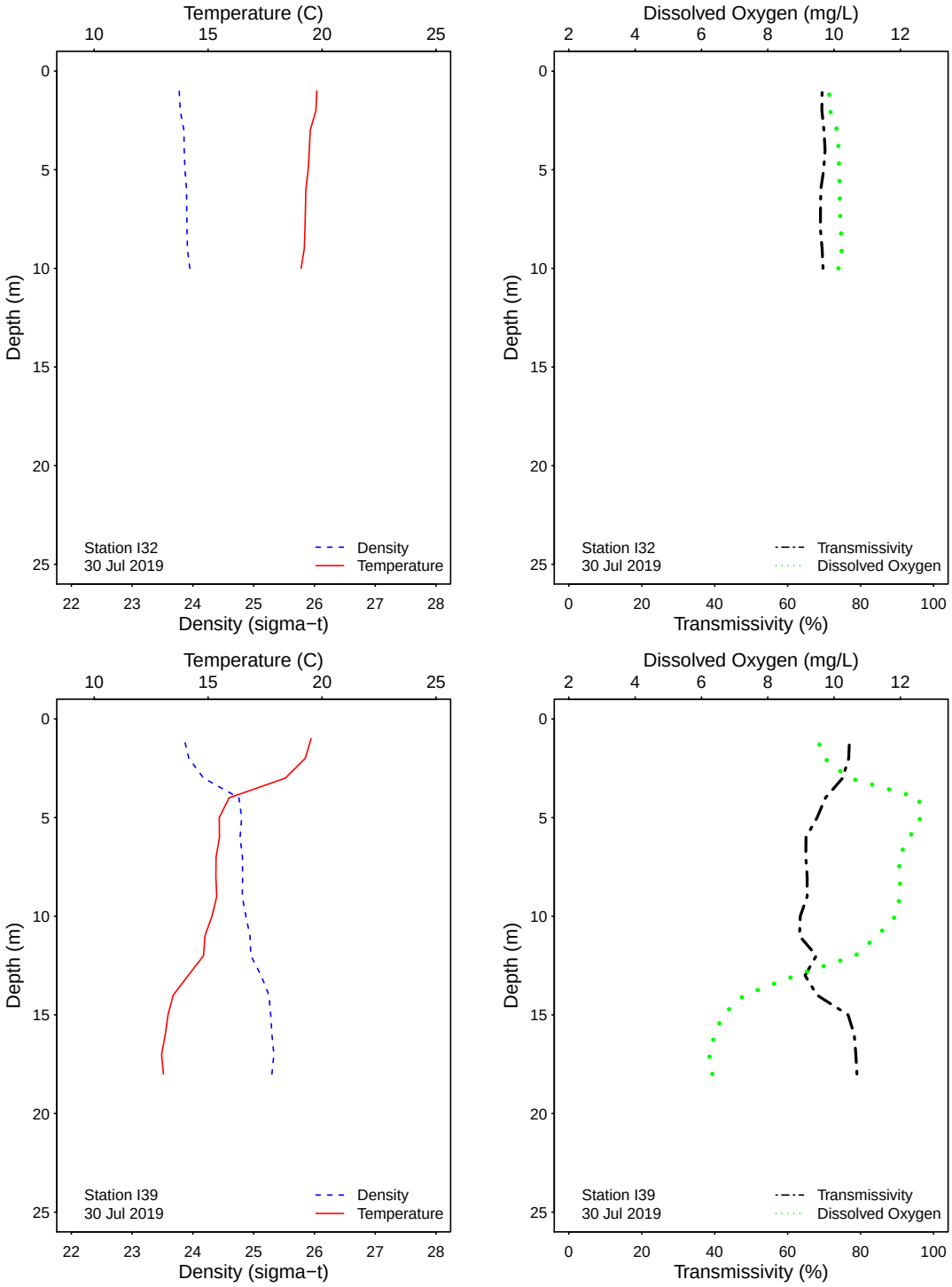

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

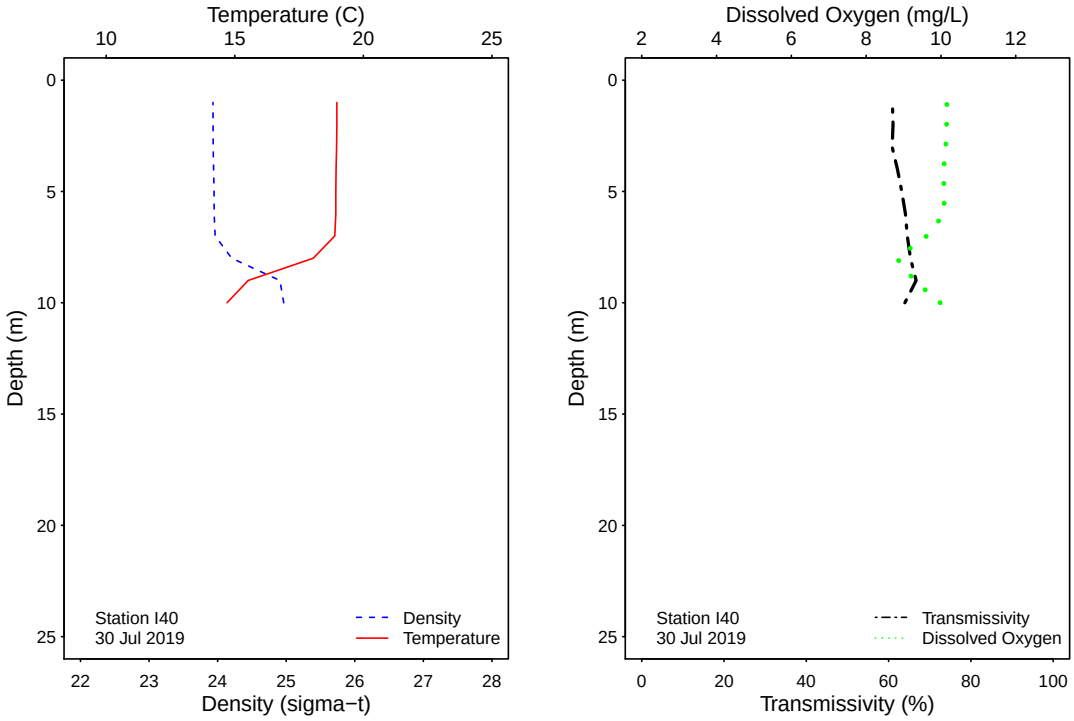

Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

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	01 Jul 2019	6	AR	LAB DUPLICATE	<20	<2	<2
I19	08 Jul 2019	6	AE	LAB DUPLICATE	140e	22e	4e
I19	15 Jul 2019	6	BS	LAB DUPLICATE	<20	<2	<2
I19	24 Jul 2019	6	JF	LAB DUPLICATE	<2	<2	<2
I19	30 Jul 2019	6	BS	LAB DUPLICATE	88	6e	4e
I40	01 Jul 2019	6	AR	LAB DUPLICATE	380e	32e	<2
I40	08 Jul 2019	6	AE	LAB DUPLICATE	1200e	76	60
I40	15 Jul 2019	6	AE	LAB DUPLICATE	<20	<2	<2
I40	24 Jul 2019	6	JF	LAB DUPLICATE	<2	<2	<2
I40	30 Jul 2019	6	BS	LAB DUPLICATE	18e	2e	<2
S12	02 Jul 2019		AE	FIELD DUPLICATE	<200	<2	4e
S12	02 Jul 2019		AE	LAB DUPLICATE	<200	6e	4e
S12	09 Jul 2019		JF	FIELD DUPLICATE	<200	16e	4e
S12	09 Jul 2019		JF	LAB DUPLICATE	<200	10e	4e
S12	16 Jul 2019		AE	FIELD DUPLICATE	<200	28e	8e
S12	16 Jul 2019		AE	LAB DUPLICATE	<20	14e	<2
S12	23 Jul 2019		JF	FIELD DUPLICATE	2e	<2	<2
S12	23 Jul 2019		JF	LAB DUPLICATE	2e	2e	<2
S12	30 Jul 2019		BS	FIELD DUPLICATE	<200	6e	<2
S12	30 Jul 2019		BS	LAB DUPLICATE	200e	10e	<2

ns = not sampled
ND = no data

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