

SOUTH BAY OCEAN OUTFALL MONTHLY RECEIVING WATERS MONITORING REPORT

SOUTH BAY WATER RECLAMATION PLANT

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

DECEMBER 2021

Environmental Monitoring and Technical Services
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January 31, 2022

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

Attention: POTW Compliance Unit

Dear Mr. Gibson:

Enclosed is the December 2021 Monthly Receiving Waters Monitoring Report for the South Bay Ocean Outfall, South Bay Water Reclamation Plant as required per Order No. R9-2021-0011, NPDES Permit No. CA0109045.

This report includes raw ocean monitoring data and summaries of water quality parameters and ocean conditions measured during the month for the South Bay outfall region. Also included are summaries of compliance with the bacterial water-contact standards specified in the California Ocean Plan. These data are also presented in the monthly report submitted by the International Boundary and Water Commission, U.S. Section for discharge from the South Bay International Wastewater Treatment Plant (Order No. R9-2021-0001, 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

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. R9-2021-0011, 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 water-contact standards specified in the 2019 California Ocean Plan (Ocean Plan). The six standards are defined as follows:

Water-Contact Objectives

Fecal coliform:

- (1) The 30-day geometric mean (GM) of fecal coliform density not to exceed 200 CFU/100 mL, calculated based on the five most recent samples from each site
- (2) The single sample maximum (SSM) not to exceed 400 CFU/100 mL

Enterococci:

- (1) The six-week rolling GM of *Enterococci* not to exceed 30 CFU/100 mL, calculated weekly
- (2) The statistical threshold value (STV) of 110 CFU/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner

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.

Shellfish Harvesting Standards

Total coliform:

- (1) The median total coliform density shall not exceed 70 CFU/100 mL
- (2) The STV of 230 CFU/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner

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, 1987²) 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 2021 Quality Assurance Report, which will be completed in March 2022.

SUMMARY OF RESULTS

➤ Shoreline Water Quality Sampling

- Due to site access restrictions in Mexico, the South Bay shoreline sampling is typically carried out on the same day each week (i.e., Tuesday) 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.
 - During December, each of the eight shore stations located north of the border was out of compliance with 2019 California Ocean Plan (Ocean Plan) water contact standards on one or more days as follows:
 - The 30-day geometric mean standard for fecal coliforms was exceeded at stations S4 and S10.
 - The single sample maximum (SSM) standard for fecal coliforms was exceeded at stations S4, S5, and S10.
 - The 6-week geometric mean standard for *Enterococcus* was exceeded at stations S4, S5, and S10.
 - The statistical threshold value (STV) standard for *Enterococcus* was exceeded at stations S4, S5, S6, S10, S11, and S12.

² Gilbert, R.O. (1987). Statistical Methods for Environmental Pollution Monitoring. Van Nostrand Reinhold Co., New York.

- The 30-day running median standard for total coliforms was exceeded at stations S4, S5, S6, S9, S10, and S11.
- The STV standard for total coliforms was exceeded at stations S4, S5, S6, S8, S9, S10, and S11.
- Nothing of sewage origin was observed at any of the shore stations.
- 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 (<https://www.sandiego.gov/public-utilities/sustainability/ocean-monitoring/reports>).

➤ **Kelp Bed Water Quality Sampling**

- The seven kelp bed water quality stations (I19, I24, I25, I26, I32, I39, I40) were sampled on December 8, 17, 21, and 27.
- During December, six of the seven kelp stations were out of compliance with 2019 Ocean Plan water contact standards on one or more days as follows:
 - The SSM standard for fecal coliforms was exceeded at stations I19 and I40.
 - The 6-week geometric mean standard for *Enterococcus* was exceeded at station I19.
 - The STV standard for *Enterococcus* was exceeded at stations I19, I32, and I40.
 - The 30-day running median standard for total coliform was exceeded at stations I19, I24, I25, I26, and I40.
 - The STV standard for total coliforms was exceeded at stations I19, I24, I25, I26, I32, and I40.
- Water column temperatures ranged from 13.59 to 16.54°C. The difference between surface and bottom waters ranged from 0.02 to 1.49°C.
- Concentrations of chlorophyll *a* ranged from 0.43 to 3.75 µg/L at the kelp bed stations.
- Nothing of sewage origin was observed at any of these kelp stations.

➤ **Offshore Water Quality Sampling**

- Quarterly sampling was not conducted during December at the offshore stations. The next quarterly sampling is scheduled for February 2022.



TABLES AND FIGURES

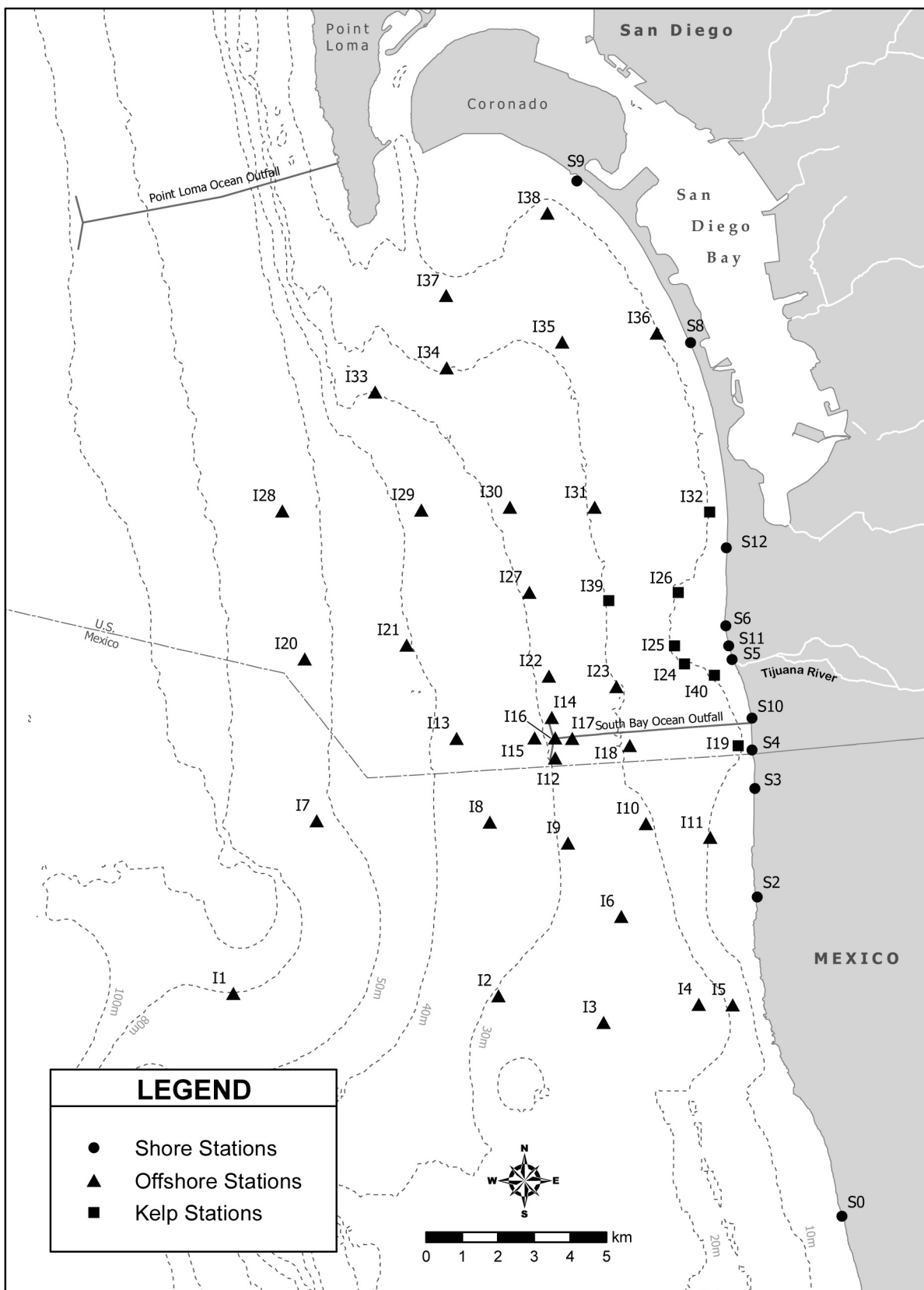


Figure 1.1 Station Map

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Shore Stations

Table 2.1

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

Date	S4	S5	S6	S8	S9	S10	S11	S12
01 Dec 2021	3	5	2	2	5	2	3	4
02 Dec 2021	2	3	2	2	3	3	3	4
03 Dec 2021	2	3	2	2	3	3	3	4
04 Dec 2021	2	3	2	2	3	3	3	4
05 Dec 2021	2	3	2	2	3	3	3	4
06 Dec 2021	2	3	2	2	3	3	3	4
07 Dec 2021	11	3	2	2	3	8	3	4
08 Dec 2021	11	3	2	2	3	8	3	4
09 Dec 2021	16	3	2	2	3	12	3	5
10 Dec 2021	16	3	2	2	3	12	3	5
11 Dec 2021	16	3	2	2	3	12	3	5
12 Dec 2021	16	3	2	2	3	12	3	5
13 Dec 2021	16	3	2	2	3	12	3	5
14 Dec 2021	35	7	6	5	5	29	7	10
15 Dec 2021	35	7	6	5	5	29	7	10
16 Dec 2021	60	10	9	6	5	43	8	15
17 Dec 2021	60	10	9	6	5	43	8	15
18 Dec 2021	60	10	9	6	5	43	8	15
19 Dec 2021	60	10	9	6	5	43	8	15
20 Dec 2021	60	10	9	6	5	43	8	15
21 Dec 2021	51	17	11	5	5	48	12	12
22 Dec 2021	51	17	11	5	5	48	12	12
23 Dec 2021	114	28	14	6	6	106	19	8
24 Dec 2021	114	28	14	6	6	106	19	8
25 Dec 2021	114	28	14	6	6	106	19	8
26 Dec 2021	114	28	14	6	6	106	19	8
27 Dec 2021	114	28	14	6	6	106	19	8
28 Dec 2021	256	95	15	5	6	274	19	8
29 Dec 2021	256	95	15	5	6	274	19	8
30 Dec 2021	860	177	24	6	7	936	34	12
31 Dec 2021	860	177	24	6	7	936	34	12

* Geometric mean calculated using n<5

Table 2.2

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
07 Dec 2021	E	IC	IC	IC	IC	E	IC	IC
14 Dec 2021	E	IC	IC	IC	IC	E	IC	IC
21 Dec 2021	IC	IC	IC	IC	IC	IC	IC	IC
28 Dec 2021	E	E	IC	IC	IC	E	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.3

Summary of compliance with the Ocean Plan's 6-week 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 6 weeks unless otherwise noted (*). Values >30 CFU/100 mL exceed the standard.

Date	S4	S5	S6	S8	S9	S10	S11	S12
01 Dec 2021	3	3	6	2	17	4	3	2
02 Dec 2021	3	3	6	2	17	4	3	2
03 Dec 2021	3	3	6	2	17	4	3	2
04 Dec 2021	3	3	6	2	17	4	3	2
05 Dec 2021	3	3	6	2	17	4	3	2
06 Dec 2021	3	3	6	2	17	4	3	2
07 Dec 2021	9	3	4	2	11	11	4	2
08 Dec 2021	9	3	4	2	11	11	4	2
09 Dec 2021	9	3	4	2	11	11	4	2
10 Dec 2021	9	3	4	2	11	11	4	2
11 Dec 2021	9	3	4	2	11	11	4	2
12 Dec 2021	9	3	4	2	11	11	4	2
13 Dec 2021	9	3	4	2	11	11	4	2
14 Dec 2021	25	4	10	3	5	22	11	5
15 Dec 2021	25	4	10	3	5	22	11	5
16 Dec 2021	25	4	10	3	5	22	11	5
17 Dec 2021	25	4	10	3	5	22	11	5
18 Dec 2021	25	4	10	3	5	22	11	5
19 Dec 2021	25	4	10	3	5	22	11	5
20 Dec 2021	25	4	10	3	5	22	11	5
21 Dec 2021	36	9	13	3	4	34	14	5
22 Dec 2021	36	9	13	3	4	34	14	5
23 Dec 2021	36	9	13	3	4	34	14	5
24 Dec 2021	36	9	13	3	4	34	14	5
25 Dec 2021	36	9	13	3	4	34	14	5
26 Dec 2021	36	9	13	3	4	34	14	5
27 Dec 2021	36	9	13	3	4	34	14	5
28 Dec 2021	100	38	19	4	4	130	21	9
29 Dec 2021	100	38	19	4	4	130	21	9
30 Dec 2021	100	38	19	4	4	130	21	9
31 Dec 2021	100	38	19	4	4	130	21	9

* Geometric mean calculated using n<5

Table 2.4

Summary of compliance at the SBOO shore stations with the Ocean Plan's Statistical Threshold Value standard for *Enterococcus* bacteria, which states that *Enterococcus* density shall not exceed 110 CFU/100 mL in more than 10% of samples per month.

Date	S4	S5	S6	S8	S9	S10	S11	S12
December	E	E	E	IC	IC	E	E	E

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.5

Summary of compliance with the Ocean Plan's 30-day Median standard for total coliform bacteria at the SBOO shore stations. Data are based on the median of the five most recent samples from each site over the previous 30 days unless otherwise noted (*). Values >70 CFU/100 mL exceed the standard.

Date	S4	S5	S6	S8	S9	S10	S11	S12
01 Dec 2021	20	20	4	2	180	6	8	4
02 Dec 2021	18	11	12	2	110	4	12	6
03 Dec 2021	18	11	12	2	110	4	12	6
04 Dec 2021	18	11	12	2	110	4	12	6
05 Dec 2021	18	11	12	2	110	4	12	6
06 Dec 2021	18	11	12	2	110	4	12	6
07 Dec 2021	20	20	20	2	20	6	4	2
08 Dec 2021	20	20	20	2	20	6	4	2
09 Dec 2021	18	20	20	11	110	43	4	6
10 Dec 2021	18	20	20	11	110	43	4	6
11 Dec 2021	18	20	20	11	110	43	4	6
12 Dec 2021	18	20	20	11	110	43	4	6
13 Dec 2021	18	20	20	11	110	43	4	6
14 Dec 2021	20	20	20	20	200	80	4	10
15 Dec 2021	20	20	20	20	200	80	4	10
16 Dec 2021	2508	20	40	11	110	3003	12	15
17 Dec 2021	2508	20	40	11	110	3003	12	15
18 Dec 2021	2508	20	40	11	110	3003	12	15
19 Dec 2021	2508	20	40	11	110	3003	12	15
20 Dec 2021	2508	20	40	11	110	3003	12	15
21 Dec 2021	780	20	60	6	20	1000	20	10
22 Dec 2021	780	20	60	6	20	1000	20	10
23 Dec 2021	2890	1710	630	13	110	3500	810	13
24 Dec 2021	2890	1710	630	13	110	3500	810	13
25 Dec 2021	2890	1710	630	13	110	3500	810	13
26 Dec 2021	2890	1710	630	13	110	3500	810	13
27 Dec 2021	2890	1710	630	13	110	3500	810	13
28 Dec 2021	5000	3400	60	20	20	6000	200	20
29 Dec 2021	5000	3400	60	20	20	6000	200	20
30 Dec 2021	10500	3600	630	40	20	6900	900	33
31 Dec 2021	10500	3600	630	40	20	6900	900	33

* Median calculated using n<5

Table 2.6

Summary of compliance at the SBOO shore stations with the Ocean Plan's Statistical Threshold Value standard for total coliform bacteria, which states that total coliform density shall not exceed 230 CFU/100 mL in more than 10% of samples per month.

Date	S4	S5	S6	S8	S9	S10	S11	S12
December	E	E	E	E	E	E	E	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.7

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. Comments follow the data summary.

Station	Date	Time	Total	Fecal	Entero
S0	07 Dec 2021	930	4800	480	4400
S0	14 Dec 2021	750	800	260e	320e
S0	21 Dec 2021	810	>16000	7400	4400
S0	28 Dec 2021	830	>16000	>12000	>12000
S2	07 Dec 2021	955	>16000	12000	7800
S2	14 Dec 2021	845	>16000	4200	2600e
S2	21 Dec 2021	910	42	2e	12e
S2	28 Dec 2021	935	9800	5400	1100
S3	07 Dec 2021	910	>16000	8400	6400
S3	14 Dec 2021	820	7600	640	1200
S3	21 Dec 2021	840	80e	62	56
S3	28 Dec 2021	910	9000	1200e	500
S4	07 Dec 2021	1036	>16000	4200	1800
S4	14 Dec 2021	827	5000	760	1100
S4	21 Dec 2021	949	780	26e	16e
S4	28 Dec 2021	835	>16000	6600	2000e
S5	07 Dec 2021	847	20e	<2	2e
S5	14 Dec 2021	932	3800e	340e	140e
S5	21 Dec 2021	1123	3400e	120	220e
S5	28 Dec 2021	932	>16000	>12000	>12000
S6	07 Dec 2021	917	<20	2e	2e
S6	14 Dec 2021	951	2200e	360e	420
S6	21 Dec 2021	1148	1200	24e	14e
S6	28 Dec 2021	1010	60e	<20	48
S8	07 Dec 2021	1135	<20	4e	2e
S8	14 Dec 2021	1041	980	60e	22e
S8	21 Dec 2021	846	6e	2e	<2
S8	28 Dec 2021	1118	60e	<2	6e
S9	07 Dec 2021	1152	<20	4e	22e
S9	14 Dec 2021	1102	340e	20e	2e
S9	21 Dec 2021	820	4e	4e	2e
S9	28 Dec 2021	1130	<20	6e	6e
S10	07 Dec 2021	1051	6000	820	520
S10	14 Dec 2021	836	7800	1000	1000e
S10	21 Dec 2021	1018	1000e	78	32e
S10	28 Dec 2021	844	>16000	>12000	>12000
S11	07 Dec 2021	910	4e	4e	8e
S11	14 Dec 2021	945	2800e	220e	520
S11	21 Dec 2021	1133	1600e	74	10e
S11	28 Dec 2021	956	<200	20e	70
S12	07 Dec 2021	927	<2	4e	<2
S12	14 Dec 2021	1127	200e	160e	260e
S12	21 Dec 2021	913	6e	4e	6e

Station	Date	Time	Total	Fecal	Entero
S12	28 Dec 2021	1033	60e	8e	50

ns = not sampled

ND = no data

Table 2.8

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

Station	Date	Parameter	Value
S0	07 Dec 2021	Arrive Time	830
S0	07 Dec 2021	Weather	Cloudy
S0	07 Dec 2021	Wind Speed (kts)	3.4
S0	07 Dec 2021	Wind Dir	NE
S0	07 Dec 2021	Animal Life	Bird-10
S0	07 Dec 2021	Floatables	None
S0	07 Dec 2021	Water Color	Green
S0	07 Dec 2021	Current Direction	N
S0	07 Dec 2021	Water Temp (C)	15
S0	07 Dec 2021	Wave Height Low (ft)	3
S0	07 Dec 2021	High Tide (ft)	6.18
S0	07 Dec 2021	High Tide Time	1026
S0	07 Dec 2021	Low Tide (ft)	2.33
S0	07 Dec 2021	Low Tide Time	414
S0	07 Dec 2021	Comments	none
S0	14 Dec 2021	Arrive Time	750
S0	14 Dec 2021	Weather	Cloudy
S0	14 Dec 2021	Wind Speed (kts)	5.7
S0	14 Dec 2021	Wind Dir	NE
S0	14 Dec 2021	Animal Life	Bird-20
S0	14 Dec 2021	Floatables	None
S0	14 Dec 2021	Water Color	Green
S0	14 Dec 2021	Current Direction	N
S0	14 Dec 2021	Water Temp (C)	15
S0	14 Dec 2021	Wave Height Low (ft)	4
S0	14 Dec 2021	High Tide (ft)	5.35
S0	14 Dec 2021	High Tide Time	554
S0	14 Dec 2021	Low Tide (ft)	0.45
S0	14 Dec 2021	Low Tide Time	1257
S0	14 Dec 2021	Comments	none
S0	21 Dec 2021	Arrive Time	810
S0	21 Dec 2021	Weather	Cloudy
S0	21 Dec 2021	Wind Speed (kts)	1.1
S0	21 Dec 2021	Wind Dir	NE
S0	21 Dec 2021	Animal Life	Bird-10; Dog-11
S0	21 Dec 2021	Floatables	None
S0	21 Dec 2021	Water Color	Green
S0	21 Dec 2021	Current Direction	NE
S0	21 Dec 2021	Water Temp (C)	13
S0	21 Dec 2021	Wave Height Low (ft)	3
S0	21 Dec 2021	High Tide (ft)	5.61
S0	21 Dec 2021	High Tide Time	918
S0	21 Dec 2021	Low Tide (ft)	2.39
S0	21 Dec 2021	Low Tide Time	310
S0	21 Dec 2021	Comments	Water clear; Trash-0; Kelp; Person/Walker/Jogger-1; 0.5 L/sec water flowing from storm drain
S2	07 Dec 2021	Arrive Time	955
S2	07 Dec 2021	Weather	Cloudy
S2	07 Dec 2021	Wind Speed (kts)	2.9
S2	07 Dec 2021	Wind Dir	NE
S2	07 Dec 2021	Animal Life	Bird-20; Dog-4
S2	07 Dec 2021	Floatables	None
S2	07 Dec 2021	Water Color	Green

Station	Date	Parameter	Value
S2	07 Dec 2021	Current Direction	N
S2	07 Dec 2021	Water Temp (C)	15
S2	07 Dec 2021	Wave Height Low (ft)	3
S2	07 Dec 2021	High Tide (ft)	6.18
S2	07 Dec 2021	High Tide Time	1026
S2	07 Dec 2021	Low Tide (ft)	2.33
S2	07 Dec 2021	Low Tide Time	414
S2	07 Dec 2021	Comments	Water clear; Trash-0; Kelp; Person/Walker/Jogger-10; No flow from storm drain
S2	14 Dec 2021	Arrive Time	845
S2	14 Dec 2021	Weather	Drizzle
S2	14 Dec 2021	Wind Speed (kts)	5.9
S2	14 Dec 2021	Wind Dir	NE
S2	14 Dec 2021	Animal Life	Bird-10; Dog-1
S2	14 Dec 2021	Floatables	None
S2	14 Dec 2021	Water Color	Green
S2	14 Dec 2021	Current Direction	N
S2	14 Dec 2021	Water Temp (C)	15
S2	14 Dec 2021	Wave Height Low (ft)	4
S2	14 Dec 2021	High Tide (ft)	5.35
S2	14 Dec 2021	High Tide Time	554
S2	14 Dec 2021	Low Tide (ft)	0.45
S2	14 Dec 2021	Low Tide Time	1257
S2	14 Dec 2021	Comments	Water clear; Trash-0; Kelp; Person/Walker/Jogger-3; no flow from storm drain
S2	21 Dec 2021	Arrive Time	910
S2	21 Dec 2021	Weather	Cloudy
S2	21 Dec 2021	Wind Speed (kts)	1.3
S2	21 Dec 2021	Wind Dir	NE
S2	21 Dec 2021	Animal Life	Bird-10; Dog-3
S2	21 Dec 2021	Floatables	None
S2	21 Dec 2021	Water Color	Green
S2	21 Dec 2021	Current Direction	NE
S2	21 Dec 2021	Water Temp (C)	13
S2	21 Dec 2021	Wave Height Low (ft)	3
S2	21 Dec 2021	High Tide (ft)	5.61
S2	21 Dec 2021	High Tide Time	918
S2	21 Dec 2021	Low Tide (ft)	2.39
S2	21 Dec 2021	Low Tide Time	310
S2	21 Dec 2021	Comments	Water clear; Trash-0; Kelp; Person/Walker/Jogger-5; No flow from storm drain
S3	07 Dec 2021	Arrive Time	2110
S3	07 Dec 2021	Weather	Cloudy
S3	07 Dec 2021	Wind Speed (kts)	3.2
S3	07 Dec 2021	Wind Dir	NE
S3	07 Dec 2021	Animal Life	Bird-20; Dog-6
S3	07 Dec 2021	Floatables	None
S3	07 Dec 2021	Water Color	Green
S3	07 Dec 2021	Current Direction	N
S3	07 Dec 2021	Water Temp (C)	15
S3	07 Dec 2021	Wave Height Low (ft)	3
S3	07 Dec 2021	High Tide (ft)	6.18
S3	07 Dec 2021	High Tide Time	1026
S3	07 Dec 2021	Low Tide (ft)	2.33
S3	07 Dec 2021	Low Tide Time	414
S3	07 Dec 2021	Comments	Water clear; Trash-0; Kelp; Person/Walker/Jogger-10; No flow from storm drain

Station	Date	Parameter	Value
S3	14 Dec 2021	Arrive Time	820
S3	14 Dec 2021	Weather	Cloudy
S3	14 Dec 2021	Wind Speed (kts)	7.3
S3	14 Dec 2021	Wind Dir	NE
S3	14 Dec 2021	Animal Life	Bird-20; Dog-2
S3	14 Dec 2021	Floatables	None
S3	14 Dec 2021	Water Color	Green
S3	14 Dec 2021	Current Direction	N
S3	14 Dec 2021	Water Temp (C)	15
S3	14 Dec 2021	Wave Height Low (ft)	4
S3	14 Dec 2021	High Tide (ft)	5.35
S3	14 Dec 2021	High Tide Time	554
S3	14 Dec 2021	Low Tide (ft)	0.45
S3	14 Dec 2021	Low Tide Time	1257
S3	14 Dec 2021	Comments	Water clear; Trash-0; Kelp; Person/Walker/Jogger-4; no flow from storm drain
S3	21 Dec 2021	Arrive Time	840
S3	21 Dec 2021	Weather	Cloudy
S3	21 Dec 2021	Wind Speed (kts)	1.3
S3	21 Dec 2021	Wind Dir	NE
S3	21 Dec 2021	Animal Life	Bird-10; Dog-2
S3	21 Dec 2021	Floatables	None
S3	21 Dec 2021	Water Color	Green
S3	21 Dec 2021	Current Direction	N
S3	21 Dec 2021	Water Temp (C)	13
S3	21 Dec 2021	Wave Height Low (ft)	3
S3	21 Dec 2021	High Tide (ft)	5.61
S3	21 Dec 2021	High Tide Time	918
S3	21 Dec 2021	Low Tide (ft)	2.39
S3	21 Dec 2021	Low Tide Time	310
S3	21 Dec 2021	Comments	Water clear; Trash-0; Kelp; Person/Walker/Jogger-5; No flow from storm drain
S4	07 Dec 2021	Arrive Time	1036
S4	07 Dec 2021	Weather	Moderate rain
S4	07 Dec 2021	Wind Speed (kts)	0.7
S4	07 Dec 2021	Wind Dir	S
S4	07 Dec 2021	Animal Life	Bird-40
S4	07 Dec 2021	Floatables	None
S4	07 Dec 2021	Water Color	Green
S4	07 Dec 2021	Current Direction	N
S4	07 Dec 2021	Water Temp (C)	16.4
S4	07 Dec 2021	Wave Height Low (ft)	3
S4	07 Dec 2021	High Tide (ft)	6.18
S4	07 Dec 2021	High Tide Time	1026
S4	07 Dec 2021	Low Tide (ft)	2.33
S4	07 Dec 2021	Low Tide Time	414
S4	07 Dec 2021	Comments	none
S4	14 Dec 2021	Arrive Time	827
S4	14 Dec 2021	Weather	Overcast
S4	14 Dec 2021	Wind Speed (kts)	19.5
S4	14 Dec 2021	Wind Dir	S
S4	14 Dec 2021	Animal Life	Bird-2
S4	14 Dec 2021	Floatables	None
S4	14 Dec 2021	Water Color	Green
S4	14 Dec 2021	Current Direction	N
S4	14 Dec 2021	Water Temp (C)	16.3
S4	14 Dec 2021	Wave Height Low (ft)	4
S4	14 Dec 2021	High Tide (ft)	5.35

Station	Date	Parameter	Value
S4	14 Dec 2021	High Tide Time	554
S4	14 Dec 2021	Low Tide (ft)	0.45
S4	14 Dec 2021	Low Tide Time	1257
S4	14 Dec 2021	Comments	none
S4	21 Dec 2021	Arrive Time	949
S4	21 Dec 2021	Weather	Overcast
S4	21 Dec 2021	Wind Speed (kts)	1
S4	21 Dec 2021	Wind Dir	SW
S4	21 Dec 2021	Animal Life	Bird-5
S4	21 Dec 2021	Floatables	None
S4	21 Dec 2021	Water Color	Blue
S4	21 Dec 2021	Current Direction	S
S4	21 Dec 2021	Water Temp (C)	15.3
S4	21 Dec 2021	Wave Height Low (ft)	5
S4	21 Dec 2021	High Tide (ft)	5.61
S4	21 Dec 2021	High Tide Time	918
S4	21 Dec 2021	Low Tide (ft)	2.39
S4	21 Dec 2021	Low Tide Time	310
S4	21 Dec 2021	Comments	none
S4	28 Dec 2021	Arrive Time	835
S4	28 Dec 2021	Weather	Drizzle
S4	28 Dec 2021	Wind Speed (kts)	9.1
S4	28 Dec 2021	Wind Dir	W
S4	28 Dec 2021	Animal Life	Seagull-5
S4	28 Dec 2021	Floatables	Foam
S4	28 Dec 2021	Water Color	Green
S4	28 Dec 2021	Current Direction	S
S4	28 Dec 2021	Water Temp (C)	14.2
S4	28 Dec 2021	Wave Height Low (ft)	2
S4	28 Dec 2021	High Tide (ft)	4.91
S4	28 Dec 2021	High Tide Time	417
S4	28 Dec 2021	Low Tide (ft)	1.08
S4	28 Dec 2021	Low Tide Time	1112
S4	28 Dec 2021	Comments	none
S5	07 Dec 2021	Arrive Time	847
S5	07 Dec 2021	Weather	Overcast
S5	07 Dec 2021	Wind Speed (kts)	6.4
S5	07 Dec 2021	Wind Dir	SE
S5	07 Dec 2021	Animal Life	Dog-1
S5	07 Dec 2021	Floatables	Foam
S5	07 Dec 2021	Water Color	Green
S5	07 Dec 2021	Current Direction	N
S5	07 Dec 2021	Water Temp (C)	16.8
S5	07 Dec 2021	Wave Height Low (ft)	2
S5	07 Dec 2021	High Tide (ft)	6.18
S5	07 Dec 2021	High Tide Time	1026
S5	07 Dec 2021	Low Tide (ft)	2.33
S5	07 Dec 2021	Low Tide Time	414
S5	07 Dec 2021	Comments	Water clear; Trash-2; Kelp; Seagrass; Debris; Person/Walker/Jogger-2
S5	14 Dec 2021	Arrive Time	932
S5	14 Dec 2021	Weather	Overcast
S5	14 Dec 2021	Wind Speed (kts)	25.7
S5	14 Dec 2021	Wind Dir	S
S5	14 Dec 2021	Animal Life	Pelican-13; Seagull-80
S5	14 Dec 2021	Floatables	Foam
S5	14 Dec 2021	Water Color	Brown

Station	Date	Parameter	Value
S5	14 Dec 2021	Current Direction	N
S5	14 Dec 2021	Water Temp (C)	16.6
S5	14 Dec 2021	Wave Height Low (ft)	4
S5	14 Dec 2021	High Tide (ft)	5.35
S5	14 Dec 2021	High Tide Time	554
S5	14 Dec 2021	Low Tide (ft)	0.45
S5	14 Dec 2021	Low Tide Time	1257
S5	14 Dec 2021	Comments	none
S5	21 Dec 2021	Arrive Time	1123
S5	21 Dec 2021	Weather	Overcast
S5	21 Dec 2021	Wind Speed (kts)	3.6
S5	21 Dec 2021	Wind Dir	NW
S5	21 Dec 2021	Animal Life	Bird-3; Pelican-2
S5	21 Dec 2021	Floatables	None
S5	21 Dec 2021	Water Color	Green
S5	21 Dec 2021	Current Direction	S
S5	21 Dec 2021	Water Temp (C)	15.6
S5	21 Dec 2021	Wave Height Low (ft)	3
S5	21 Dec 2021	High Tide (ft)	5.61
S5	21 Dec 2021	High Tide Time	918
S5	21 Dec 2021	Low Tide (ft)	2.39
S5	21 Dec 2021	Low Tide Time	310
S5	21 Dec 2021	Comments	none
S5	28 Dec 2021	Arrive Time	932
S5	28 Dec 2021	Weather	Partly cloudy
S5	28 Dec 2021	Wind Speed (kts)	4.8
S5	28 Dec 2021	Wind Dir	NW
S5	28 Dec 2021	Animal Life	Seagull-21
S5	28 Dec 2021	Floatables	Foam; Film
S5	28 Dec 2021	Water Color	Brown
S5	28 Dec 2021	Current Direction	S
S5	28 Dec 2021	Water Temp (C)	16.4
S5	28 Dec 2021	Wave Height Low (ft)	1
S5	28 Dec 2021	High Tide (ft)	4.91
S5	28 Dec 2021	High Tide Time	417
S5	28 Dec 2021	Low Tide (ft)	1.08
S5	28 Dec 2021	Low Tide Time	1112
S5	28 Dec 2021	Comments	none
S6	07 Dec 2021	Arrive Time	917
S6	07 Dec 2021	Weather	Overcast
S6	07 Dec 2021	Wind Speed (kts)	4.7
S6	07 Dec 2021	Wind Dir	E
S6	07 Dec 2021	Animal Life	
S6	07 Dec 2021	Floatables	Foam
S6	07 Dec 2021	Water Color	Green
S6	07 Dec 2021	Current Direction	N
S6	07 Dec 2021	Water Temp (C)	16.4
S6	07 Dec 2021	Wave Height Low (ft)	3
S6	07 Dec 2021	High Tide (ft)	6.18
S6	07 Dec 2021	High Tide Time	1026
S6	07 Dec 2021	Low Tide (ft)	2.33
S6	07 Dec 2021	Low Tide Time	414
S6	07 Dec 2021	Comments	Water clear; Trash-2; Kelp; Seagrass; Person/Walker/Jogger-1
S6	14 Dec 2021	Arrive Time	951
S6	14 Dec 2021	Weather	Overcast
S6	14 Dec 2021	Wind Speed (kts)	21.6

Station	Date	Parameter	Value
S6	14 Dec 2021	Wind Dir	S
S6	14 Dec 2021	Animal Life	
S6	14 Dec 2021	Floatables	None
S6	14 Dec 2021	Water Color	Green
S6	14 Dec 2021	Current Direction	N
S6	14 Dec 2021	Water Temp (C)	16.4
S6	14 Dec 2021	Wave Height Low (ft)	3
S6	14 Dec 2021	High Tide (ft)	5.35
S6	14 Dec 2021	High Tide Time	554
S6	14 Dec 2021	Low Tide (ft)	0.45
S6	14 Dec 2021	Low Tide Time	1257
S6	14 Dec 2021	Comments	Water turbid; Trash-1; Kelp; Seagrass; Person/Walker/Jogger-2
S6	21 Dec 2021	Arrive Time	1148
S6	21 Dec 2021	Weather	Overcast
S6	21 Dec 2021	Wind Speed (kts)	2.2
S6	21 Dec 2021	Wind Dir	NW
S6	21 Dec 2021	Animal Life	Bird-3
S6	21 Dec 2021	Floatables	None
S6	21 Dec 2021	Water Color	Green
S6	21 Dec 2021	Current Direction	S
S6	21 Dec 2021	Water Temp (C)	15.5
S6	21 Dec 2021	Wave Height Low (ft)	4
S6	21 Dec 2021	High Tide (ft)	5.61
S6	21 Dec 2021	High Tide Time	918
S6	21 Dec 2021	Low Tide (ft)	2.39
S6	21 Dec 2021	Low Tide Time	310
S6	21 Dec 2021	Comments	none
S6	28 Dec 2021	Arrive Time	1010
S6	28 Dec 2021	Weather	Partly cloudy
S6	28 Dec 2021	Wind Speed (kts)	5
S6	28 Dec 2021	Wind Dir	W
S6	28 Dec 2021	Animal Life	Bird-6; Seagull-6
S6	28 Dec 2021	Floatables	Foam
S6	28 Dec 2021	Water Color	Green
S6	28 Dec 2021	Current Direction	S
S6	28 Dec 2021	Water Temp (C)	15.7
S6	28 Dec 2021	Wave Height Low (ft)	2
S6	28 Dec 2021	High Tide (ft)	4.91
S6	28 Dec 2021	High Tide Time	417
S6	28 Dec 2021	Low Tide (ft)	1.08
S6	28 Dec 2021	Low Tide Time	1112
S6	28 Dec 2021	Comments	Water clear; Trash-1; Kelp; Seagrass; Person/Walker/Jogger-2
S8	07 Dec 2021	Arrive Time	1135
S8	07 Dec 2021	Weather	Drizzle
S8	07 Dec 2021	Wind Speed (kts)	6.3
S8	07 Dec 2021	Wind Dir	SE
S8	07 Dec 2021	Animal Life	Bird-35; Seagull-1
S8	07 Dec 2021	Floatables	None
S8	07 Dec 2021	Water Color	Green
S8	07 Dec 2021	Current Direction	N
S8	07 Dec 2021	Water Temp (C)	16.8
S8	07 Dec 2021	Wave Height Low (ft)	1
S8	07 Dec 2021	High Tide (ft)	6.18
S8	07 Dec 2021	High Tide Time	1026
S8	07 Dec 2021	Low Tide (ft)	2.33
S8	07 Dec 2021	Low Tide Time	414

Station	Date	Parameter	Value
S8	07 Dec 2021	Comments	Water clear; Fisherperson-1; Trash-2; Kelp; Seagrass
S8	14 Dec 2021	Arrive Time	1041
S8	14 Dec 2021	Weather	Moderate rain
S8	14 Dec 2021	Wind Speed (kts)	26.3
S8	14 Dec 2021	Wind Dir	S
S8	14 Dec 2021	Animal Life	Bird-45; Seagull-5
S8	14 Dec 2021	Floatables	Foam
S8	14 Dec 2021	Water Color	Green
S8	14 Dec 2021	Current Direction	N
S8	14 Dec 2021	Water Temp (C)	16.5
S8	14 Dec 2021	Wave Height Low (ft)	3
S8	14 Dec 2021	High Tide (ft)	5.35
S8	14 Dec 2021	High Tide Time	554
S8	14 Dec 2021	Low Tide (ft)	0.45
S8	14 Dec 2021	Low Tide Time	1257
S8	14 Dec 2021	Comments	none
S8	21 Dec 2021	Arrive Time	846
S8	21 Dec 2021	Weather	Overcast
S8	21 Dec 2021	Wind Speed (kts)	0
S8	21 Dec 2021	Wind Dir	
S8	21 Dec 2021	Animal Life	
S8	21 Dec 2021	Floatables	None
S8	21 Dec 2021	Water Color	Grey
S8	21 Dec 2021	Current Direction	S
S8	21 Dec 2021	Water Temp (C)	14.4
S8	21 Dec 2021	Wave Height Low (ft)	3
S8	21 Dec 2021	High Tide (ft)	5.61
S8	21 Dec 2021	High Tide Time	918
S8	21 Dec 2021	Low Tide (ft)	2.39
S8	21 Dec 2021	Low Tide Time	310
S8	21 Dec 2021	Comments	Water clear; Trash-1; Kelp; Seagrass; Algae; Person/Walker/Jogger-3
S8	28 Dec 2021	Arrive Time	1118
S8	28 Dec 2021	Weather	Cloudy
S8	28 Dec 2021	Wind Speed (kts)	6.3
S8	28 Dec 2021	Wind Dir	NW
S8	28 Dec 2021	Animal Life	Bird-200
S8	28 Dec 2021	Floatables	Foam
S8	28 Dec 2021	Water Color	Green
S8	28 Dec 2021	Current Direction	S
S8	28 Dec 2021	Water Temp (C)	15
S8	28 Dec 2021	Wave Height Low (ft)	1
S8	28 Dec 2021	High Tide (ft)	4.91
S8	28 Dec 2021	High Tide Time	417
S8	28 Dec 2021	Low Tide (ft)	1.08
S8	28 Dec 2021	Low Tide Time	1112
S8	28 Dec 2021	Comments	Water clear; Trash-1; Kelp; Seagrass; Person/Walker/Jogger-3
S9	07 Dec 2021	Arrive Time	1152
S9	07 Dec 2021	Weather	Drizzle
S9	07 Dec 2021	Wind Speed (kts)	3.1
S9	07 Dec 2021	Wind Dir	S
S9	07 Dec 2021	Animal Life	Seagull-12
S9	07 Dec 2021	Floatables	None
S9	07 Dec 2021	Water Color	Green
S9	07 Dec 2021	Current Direction	N
S9	07 Dec 2021	Water Temp (C)	16.6

Station	Date	Parameter	Value
S9	07 Dec 2021	Wave Height Low (ft)	1
S9	07 Dec 2021	High Tide (ft)	6.18
S9	07 Dec 2021	High Tide Time	1026
S9	07 Dec 2021	Low Tide (ft)	2.33
S9	07 Dec 2021	Low Tide Time	414
S9	07 Dec 2021	Comments	Water clear; Trash-1; Person/Walker/Jogger-1
S9	14 Dec 2021	Arrive Time	1102
S9	14 Dec 2021	Weather	Heavy rain
S9	14 Dec 2021	Wind Speed (kts)	26.2
S9	14 Dec 2021	Wind Dir	S
S9	14 Dec 2021	Animal Life	Bird-3; Seagull-6
S9	14 Dec 2021	Floatables	Foam
S9	14 Dec 2021	Water Color	Green
S9	14 Dec 2021	Current Direction	N
S9	14 Dec 2021	Water Temp (C)	16.2
S9	14 Dec 2021	Wave Height Low (ft)	3
S9	14 Dec 2021	High Tide (ft)	5.35
S9	14 Dec 2021	High Tide Time	554
S9	14 Dec 2021	Low Tide (ft)	0.45
S9	14 Dec 2021	Low Tide Time	1257
S9	14 Dec 2021	Comments	none
S9	21 Dec 2021	Arrive Time	820
S9	21 Dec 2021	Weather	Overcast
S9	21 Dec 2021	Wind Speed (kts)	0
S9	21 Dec 2021	Wind Dir	
S9	21 Dec 2021	Animal Life	Pelican-2; Seagull-2
S9	21 Dec 2021	Floatables	None
S9	21 Dec 2021	Water Color	Grey
S9	21 Dec 2021	Current Direction	S
S9	21 Dec 2021	Water Temp (C)	14.4
S9	21 Dec 2021	Wave Height Low (ft)	1
S9	21 Dec 2021	High Tide (ft)	5.61
S9	21 Dec 2021	High Tide Time	918
S9	21 Dec 2021	Low Tide (ft)	2.39
S9	21 Dec 2021	Low Tide Time	310
S9	21 Dec 2021	Comments	Water clear; Trash-1; Kelp; Algae; Person/Walker/Jogger-2
S9	28 Dec 2021	Arrive Time	1138
S9	28 Dec 2021	Weather	Cloudy
S9	28 Dec 2021	Wind Speed (kts)	5.1
S9	28 Dec 2021	Wind Dir	NW
S9	28 Dec 2021	Animal Life	Seagull-9
S9	28 Dec 2021	Floatables	Foam
S9	28 Dec 2021	Water Color	Green
S9	28 Dec 2021	Current Direction	S
S9	28 Dec 2021	Water Temp (C)	14.7
S9	28 Dec 2021	Wave Height Low (ft)	1
S9	28 Dec 2021	High Tide (ft)	4.91
S9	28 Dec 2021	High Tide Time	417
S9	28 Dec 2021	Low Tide (ft)	1.08
S9	28 Dec 2021	Low Tide Time	1112
S9	28 Dec 2021	Comments	Water turbid; Trash-1; Person/Walker/Jogger-3
S10	07 Dec 2021	Arrive Time	1051
S10	07 Dec 2021	Weather	Moderate rain
S10	07 Dec 2021	Wind Speed (kts)	5.4
S10	07 Dec 2021	Wind Dir	SE
S10	07 Dec 2021	Animal Life	
S10	07 Dec 2021	Floatables	None

Station	Date	Parameter	Value
S10	07 Dec 2021	Water Color	Green
S10	07 Dec 2021	Current Direction	N
S10	07 Dec 2021	Water Temp (C)	16.6
S10	07 Dec 2021	Wave Height Low (ft)	3
S10	07 Dec 2021	High Tide (ft)	6.18
S10	07 Dec 2021	High Tide Time	1026
S10	07 Dec 2021	Low Tide (ft)	2.33
S10	07 Dec 2021	Low Tide Time	414
S10	07 Dec 2021	Comments	none
S10	14 Dec 2021	Arrive Time	836
S10	14 Dec 2021	Weather	Drizzle
S10	14 Dec 2021	Wind Speed (kts)	22.8
S10	14 Dec 2021	Wind Dir	S
S10	14 Dec 2021	Animal Life	Bird-3
S10	14 Dec 2021	Floatables	Foam
S10	14 Dec 2021	Water Color	Green
S10	14 Dec 2021	Current Direction	N
S10	14 Dec 2021	Water Temp (C)	16.5
S10	14 Dec 2021	Wave Height Low (ft)	5
S10	14 Dec 2021	High Tide (ft)	5.35
S10	14 Dec 2021	High Tide Time	554
S10	14 Dec 2021	Low Tide (ft)	0.45
S10	14 Dec 2021	Low Tide Time	1257
S10	14 Dec 2021	Comments	Water turbid; Trash-1; Kelp; Seagrass; Person/Walker/Jogger-1
S10	21 Dec 2021	Arrive Time	1018
S10	21 Dec 2021	Weather	Overcast
S10	21 Dec 2021	Wind Speed (kts)	5.5
S10	21 Dec 2021	Wind Dir	NW
S10	21 Dec 2021	Animal Life	Bird-3; Horse-4
S10	21 Dec 2021	Floatables	None
S10	21 Dec 2021	Water Color	Green
S10	21 Dec 2021	Current Direction	S
S10	21 Dec 2021	Water Temp (C)	15.6
S10	21 Dec 2021	Wave Height Low (ft)	6
S10	21 Dec 2021	High Tide (ft)	5.61
S10	21 Dec 2021	High Tide Time	918
S10	21 Dec 2021	Low Tide (ft)	2.39
S10	21 Dec 2021	Low Tide Time	310
S10	21 Dec 2021	Comments	Water turbid; Trash-2; Debris; Person/Walker/Jogger-5
S10	28 Dec 2021	Arrive Time	844
S10	28 Dec 2021	Weather	Drizzle
S10	28 Dec 2021	Wind Speed (kts)	8.7
S10	28 Dec 2021	Wind Dir	W
S10	28 Dec 2021	Animal Life	
S10	28 Dec 2021	Floatables	Foam
S10	28 Dec 2021	Water Color	Green
S10	28 Dec 2021	Current Direction	S
S10	28 Dec 2021	Water Temp (C)	14.2
S10	28 Dec 2021	Wave Height Low (ft)	2
S10	28 Dec 2021	High Tide (ft)	4.91
S10	28 Dec 2021	High Tide Time	417
S10	28 Dec 2021	Low Tide (ft)	1.08
S10	28 Dec 2021	Low Tide Time	1112
S10	28 Dec 2021	Comments	none
S11	07 Dec 2021	Arrive Time	910
S11	07 Dec 2021	Weather	Overcast

Station	Date	Parameter	Value
S11	07 Dec 2021	Wind Speed (kts)	6
S11	07 Dec 2021	Wind Dir	E
S11	07 Dec 2021	Animal Life	Bird-1; Pelican-2; Seagull-1
S11	07 Dec 2021	Floatables	Foam
S11	07 Dec 2021	Water Color	Green
S11	07 Dec 2021	Current Direction	N
S11	07 Dec 2021	Water Temp (C)	16.3
S11	07 Dec 2021	Wave Height Low (ft)	3
S11	07 Dec 2021	High Tide (ft)	6.18
S11	07 Dec 2021	High Tide Time	1026
S11	07 Dec 2021	Low Tide (ft)	2.33
S11	07 Dec 2021	Low Tide Time	414
S11	07 Dec 2021	Comments	none
S11	14 Dec 2021	Arrive Time	945
S11	14 Dec 2021	Weather	Overcast
S11	14 Dec 2021	Wind Speed (kts)	21.1
S11	14 Dec 2021	Wind Dir	S
S11	14 Dec 2021	Animal Life	
S11	14 Dec 2021	Floatables	Foam
S11	14 Dec 2021	Water Color	Green
S11	14 Dec 2021	Current Direction	N
S11	14 Dec 2021	Water Temp (C)	16.4
S11	14 Dec 2021	Wave Height Low (ft)	4
S11	14 Dec 2021	High Tide (ft)	5.35
S11	14 Dec 2021	High Tide Time	554
S11	14 Dec 2021	Low Tide (ft)	0.45
S11	14 Dec 2021	Low Tide Time	1257
S11	14 Dec 2021	Comments	Water turbid; Trash-1; Seagrass; Kelp; Person/Walker/Jogger-2
S11	21 Dec 2021	Arrive Time	1133
S11	21 Dec 2021	Weather	Overcast
S11	21 Dec 2021	Wind Speed (kts)	2.5
S11	21 Dec 2021	Wind Dir	NW
S11	21 Dec 2021	Animal Life	
S11	21 Dec 2021	Floatables	None
S11	21 Dec 2021	Water Color	Green
S11	21 Dec 2021	Current Direction	S
S11	21 Dec 2021	Water Temp (C)	15.2
S11	21 Dec 2021	Wave Height Low (ft)	5
S11	21 Dec 2021	High Tide (ft)	5.61
S11	21 Dec 2021	High Tide Time	918
S11	21 Dec 2021	Low Tide (ft)	2.39
S11	21 Dec 2021	Low Tide Time	310
S11	21 Dec 2021	Comments	none
S11	28 Dec 2021	Arrive Time	956
S11	28 Dec 2021	Weather	Partly cloudy
S11	28 Dec 2021	Wind Speed (kts)	1.6
S11	28 Dec 2021	Wind Dir	NW
S11	28 Dec 2021	Animal Life	
S11	28 Dec 2021	Floatables	Foam
S11	28 Dec 2021	Water Color	Green
S11	28 Dec 2021	Current Direction	S
S11	28 Dec 2021	Water Temp (C)	17.9
S11	28 Dec 2021	Wave Height Low (ft)	2
S11	28 Dec 2021	High Tide (ft)	4.91
S11	28 Dec 2021	High Tide Time	417
S11	28 Dec 2021	Low Tide (ft)	1.08
S11	28 Dec 2021	Low Tide Time	1112

Station	Date	Parameter	Value
S11	28 Dec 2021	Comments	Water turbid; Trash-2; Kelp; Seagrass; Person/Walker/Jogger-2
S12	07 Dec 2021	Arrive Time	927
S12	07 Dec 2021	Weather	Overcast
S12	07 Dec 2021	Wind Speed (kts)	1.6
S12	07 Dec 2021	Wind Dir	SE
S12	07 Dec 2021	Animal Life	Seagull-4
S12	07 Dec 2021	Floatables	Foam
S12	07 Dec 2021	Water Color	Green
S12	07 Dec 2021	Current Direction	N
S12	07 Dec 2021	Water Temp (C)	16.7
S12	07 Dec 2021	Wave Height Low (ft)	2
S12	07 Dec 2021	High Tide (ft)	6.18
S12	07 Dec 2021	High Tide Time	1026
S12	07 Dec 2021	Low Tide (ft)	2.33
S12	07 Dec 2021	Low Tide Time	414
S12	07 Dec 2021	Comments	Water clear; Trash-1; Kelp; Seagrass; Person/Walker/Jogger-1
S12	14 Dec 2021	Arrive Time	1006, 1127
S12	14 Dec 2021	Weather	Drizzle, Heavy rain
S12	14 Dec 2021	Wind Speed (kts)	21.2, 18.6
S12	14 Dec 2021	Wind Dir	S
S12	14 Dec 2021	Animal Life	Dog-11, Seagull-28
S12	14 Dec 2021	Floatables	Foam, None
S12	14 Dec 2021	Water Color	Green
S12	14 Dec 2021	Current Direction	N
S12	14 Dec 2021	Water Temp (C)	16.5, 17
S12	14 Dec 2021	Wave Height Low (ft)	3, 4
S12	14 Dec 2021	High Tide (ft)	5.35
S12	14 Dec 2021	High Tide Time	554
S12	14 Dec 2021	Low Tide (ft)	0.45
S12	14 Dec 2021	Low Tide Time	1257
S12	14 Dec 2021	Comments	Water turbid; Trash-1; Kelp; Seagrass; Person/Walker/Jogger-1,
S12	21 Dec 2021	Arrive Time	913
S12	21 Dec 2021	Weather	Overcast
S12	21 Dec 2021	Wind Speed (kts)	0
S12	21 Dec 2021	Wind Dir	
S12	21 Dec 2021	Animal Life	Bird-15
S12	21 Dec 2021	Floatables	None
S12	21 Dec 2021	Water Color	Grey
S12	21 Dec 2021	Current Direction	S
S12	21 Dec 2021	Water Temp (C)	14.9
S12	21 Dec 2021	Wave Height Low (ft)	5
S12	21 Dec 2021	High Tide (ft)	5.61
S12	21 Dec 2021	High Tide Time	918
S12	21 Dec 2021	Low Tide (ft)	2.39
S12	21 Dec 2021	Low Tide Time	310
S12	21 Dec 2021	Comments	Water clear; Trash-1; Kelp; Algae; Person/Walker/Jogger-4
S12	28 Dec 2021	Arrive Time	1033
S12	28 Dec 2021	Weather	Partly cloudy
S12	28 Dec 2021	Wind Speed (kts)	9
S12	28 Dec 2021	Wind Dir	W
S12	28 Dec 2021	Animal Life	Dog-2
S12	28 Dec 2021	Floatables	Foam
S12	28 Dec 2021	Water Color	Green
S12	28 Dec 2021	Current Direction	S

Station	Date	Parameter	Value
S12	28 Dec 2021	Water Temp (C)	13.8
S12	28 Dec 2021	Wave Height Low (ft)	1
S12	28 Dec 2021	High Tide (ft)	4.91
S12	28 Dec 2021	High Tide Time	417
S12	28 Dec 2021	Low Tide (ft)	1.08
S12	28 Dec 2021	Low Tide Time	1112
S12	28 Dec 2021	Comments	Water clear; Trash-1; Kelp; Seagrass; Person/Walker/Jogger-4

Kelp Stations

Table 3.1

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

Date	I19	I24	I25	I26	I32	I39	I40
01 Dec 2021	2	2	2	2	2	2	2
02 Dec 2021	2	2	2	2	2	2	2
03 Dec 2021	2	2	2	2	2	2	2
04 Dec 2021	2	2	2	2	2	2	2
05 Dec 2021	2	2	2	2	2	2	2
06 Dec 2021	2	2	2	2	2	2	2
07 Dec 2021	2	2	2	2	2	2	2
08 Dec 2021	6	2	2	2	2	2	2
09 Dec 2021	6	2	2	2	2	2	2
10 Dec 2021	6	2	2	2	2	2	2
11 Dec 2021	6	2	2	2	2	2	2
12 Dec 2021	6	2	2	2	2	2	2
13 Dec 2021	6	2	2	2	2	2	2
14 Dec 2021	6	2	2	2	2	2	2
15 Dec 2021	6	2	2	2	2	2	2
16 Dec 2021	9*	2*	2*	2*	2*	2*	2*
17 Dec 2021	18	2	2	2	2	2	9
18 Dec 2021	18	2	2	2	2	2	9
19 Dec 2021	18	2	2	2	2	2	9
20 Dec 2021	18	2	2	2	2	2	9
21 Dec 2021	18	4	4	3	2	2	14
22 Dec 2021	32	5	5	3	2	2	22
23 Dec 2021	32	5	5	3	2	2	22
24 Dec 2021	32	5	5	3	2	2	22
25 Dec 2021	32	5	5	3	2	2	22
26 Dec 2021	32	5	5	3	2	2	22
27 Dec 2021	74	10	8	5	4	3	53
28 Dec 2021	74	10	8	5	4	3	53
29 Dec 2021	74	10	8	5	4	3	53
30 Dec 2021	182	14	11	6	5	3	120
31 Dec 2021	182	14	11	6	5	3	120

* Geometric mean calculated using n<5

Table 3.2

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
08 Dec 2021	IC	IC	IC	IC	IC	IC	IC
17 Dec 2021	IC	IC	IC	IC	IC	IC	E
21 Dec 2021	IC	IC	IC	IC	IC	IC	IC
27 Dec 2021	E	IC	IC	IC	IC	IC	E

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.3

Summary of compliance with the Ocean Plan's 6-week 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 6 weeks unless otherwise noted (*). Values >30 CFU/100 mL exceed the standard.

Date	I19	I24	I25	I26	I32	I39	I40
01 Dec 2021	3	2	2	2	2	3	3
02 Dec 2021	3	2	2	2	2	3	3
03 Dec 2021	3	2	2	2	2	3	3
04 Dec 2021	3	2	2	2	2	3	3
05 Dec 2021	3	2	2	2	2	3	3
06 Dec 2021	3	2	2	2	2	3	3
07 Dec 2021	3	2	2	2	2	3	3
08 Dec 2021	5	2	2	2	2	2	3
09 Dec 2021	5	2	2	2	2	2	3
10 Dec 2021	5	2	2	2	2	2	3
11 Dec 2021	5	2	2	2	2	2	3
12 Dec 2021	5	2	2	2	2	2	3
13 Dec 2021	5	2	2	2	2	2	3
14 Dec 2021	6	2	2	2	2	2	4
15 Dec 2021	6	2	2	2	2	2	4
16 Dec 2021	6	2	2	2	2	2	4
17 Dec 2021	9	2	2	2	2	2	6
18 Dec 2021	9	2	2	2	2	2	6
19 Dec 2021	9	2	2	2	2	2	6
20 Dec 2021	12	2	2	2	2	2	7
21 Dec 2021	14	3	3	2	2	2	8
22 Dec 2021	14	3	3	2	2	2	8
23 Dec 2021	14	3	3	2	2	2	8
24 Dec 2021	14	3	3	2	2	2	8
25 Dec 2021	14	3	3	2	2	2	8
26 Dec 2021	14	3	3	2	2	2	8
27 Dec 2021	26	5	4	4	4	3	15
28 Dec 2021	40	6	4	4	4	3	21
29 Dec 2021	40	6	4	4	4	3	21
30 Dec 2021	40	6	4	4	4	3	21
31 Dec 2021	40	6	4	4	4	3	21

* Geometric mean calculated using n<5

Table 3.4

Summary of compliance at the SBOO kelp stations with the Ocean Plan's Statistical Threshold Value standard for *Enterococcus* bacteria, which states that *Enterococcus* density shall not exceed 110 CFU/100 mL in more than 10% of samples per month.

Date	I19	I24	I25	I26	I32	I39	I40
December	E	IC	IC	IC	E	IC	E

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.5

Summary of compliance with the Ocean Plan's 30-day Median standard for total coliform bacteria at the SBOO kelp stations. Data are based on the median of the five most recent samples from each site and depth over the previous 30 days unless otherwise noted (*). Values >70 CFU/100 mL exceed the standard.

Date	I19			I24			I25			I26			I32			I39			I40		
	2m	6m	11m	2m	6m	11m	2m	6m	9m	2m	6m	9m	2m	6m	9m	2m	12m	18m	2m	6m	9m
01 Dec 2021	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
02 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
03 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
04 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
05 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
06 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
07 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
08 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	6	12
09 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	6	12
10 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	6	12
11 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	6	12
12 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	6	12
13 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	6	12
14 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	6	12
15 Dec 2021	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	6	12
16 Dec 2021	2*	2*	4*	2*	2*	2*	2*	2*	2*	2*	2*	2*	2*	2*	2*	2*	2*	8*	2*	10*	22*
17 Dec 2021	251	481	342	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	2	45	24
18 Dec 2021	251	481	342	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	2	45	24
19 Dec 2021	251	481	342	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	2	45	24
20 Dec 2021	251	481	342	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	2	45	24
21 Dec 2021	150	540	80	2	2	2	2	2	2	2	2	2	2	2	2	2	2	8	2	60	26
22 Dec 2021	325	750	380	2	2	31	2	2	3	2	7	3	2	2	2	2	4	11	3	70	103
23 Dec 2021	325	750	380	2	2	31	2	2	3	2	7	3	2	2	2	2	4	11	3	70	103
24 Dec 2021	325	750	380	2	2	31	2	2	3	2	7	3	2	2	2	2	4	11	3	70	103
25 Dec 2021	325	750	380	2	2	31	2	2	3	2	7	3	2	2	2	2	4	11	3	70	103
26 Dec 2021	325	750	380	2	2	31	2	2	3	2	7	3	2	2	2	2	4	11	3	70	103
27 Dec 2021	500	960	680	2	2	60	2	2	4	2	12	4	2	2	2	2	6	14	4	80	180
28 Dec 2021	500	960	680	2	2	60	2	2	4	2	12	4	2	2	2	2	6	14	4	80	180
29 Dec 2021	500	960	680	2	2	60	2	2	4	2	12	4	2	2	2	2	6	14	4	80	180
30 Dec 2021	650	1580	890	41	351	200	201	501	102	61	146	272	2	3	2	14	18	12	2040	3690	1050
31 Dec 2021	650	1580	890	41	351	200	201	501	102	61	146	272	2	3	2	14	18	12	2040	3690	1050

* Median calculated using n<5

Table 3.6

Summary of compliance at the SBOO kelp stations with the Ocean Plan's Statistical Threshold standard for total coliform bacteria, which states that total coliform density shall not exceed 230 CFU/100 mL in more than 10% of samples per station by depth, per month.

Date	I19			I24			I25			I26			I32			I39			I40		
	2m	6m	11m	2m	6m	11m	2m	6m	9m	2m	6m	9m	2m	6m	9m	2m	12m	18m	2m	6m	9m
December	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	IC	IC	IC	E	E	E

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.7

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; 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	Temp	XMS	DO	Sal	pH
I19	08 Dec 2021	1040	2	500	54	120	15.8	77.69	7.9	33.47	8.0
I19	08 Dec 2021	1040	6	2200e	380e	480	15.5	78.53	7.6	33.43	7.9
I19	08 Dec 2021	1040	11	1100	110	110	14.6	76.59	6.8	33.47	7.9
I19	17 Dec 2021	1127	2	800e	180e	46	15.1	63.24	7.8	33.38	8.0
I19	17 Dec 2021	1127	6	960	84	52	15.1	64.51	7.7	33.40	8.0
I19	17 Dec 2021	1127	11	680	160e	66	14.9	60.62	7.7	33.39	7.9
I19	21 Dec 2021	1041	2	150	4e	10e	14.2	69.42	7.6	33.45	7.9
I19	21 Dec 2021	1041	6	540	42	36e	14.0	61.23	7.3	33.46	7.9
I19	21 Dec 2021	1041	11	80e	14e	64	13.6	66.57	6.1	33.45	7.8
I19	27 Dec 2021	1007	2	>16000	5600	2400e	14.9	40.73	8.1	33.19	8.0
I19	27 Dec 2021	1007	6	6200	420	220e	15.1	66.66	7.8	33.41	8.0
I19	27 Dec 2021	1007	11	13000	440	480	15.1	47.96	7.6	33.42	8.0
I24	08 Dec 2021	1058	2	<2	<2	<2	16.2	84.18	7.7	33.52	8.0
I24	08 Dec 2021	1058	6	<2	<2	<2	15.7	84.40	7.4	33.48	7.9
I24	08 Dec 2021	1058	11	2e	<2	<2	15.2	83.60	6.9	33.47	7.9
I24	17 Dec 2021	1148	2	2e	<2	<2	15.1	71.22	7.6	33.43	8.0
I24	17 Dec 2021	1148	6	2e	<2	<2	15.0	68.80	7.4	33.43	8.0
I24	17 Dec 2021	1148	11	60e	<2	4e	15.0	66.49	7.3	33.42	7.9
I24	21 Dec 2021	1101	2	80e	48	20e	14.5	78.32	7.6	33.45	8.0
I24	21 Dec 2021	1101	6	700	100	26e	14.3	80.47	7.5	33.44	8.0
I24	21 Dec 2021	1101	11	340e	32e	20e	13.6	64.68	6.2	33.45	7.8
I24	27 Dec 2021	1024	2	1600e	160e	62	14.8	64.64	7.6	33.33	8.0
I24	27 Dec 2021	1024	6	2400e	120e	92	14.9	65.02	7.5	33.34	8.0
I24	27 Dec 2021	1024	11	1800e	220e	110	14.8	61.19	7.4	33.33	8.0
I25	08 Dec 2021	1105	2	<2	<2	<2	16.4	85.14	7.8	33.54	8.0
I25	08 Dec 2021	1105	6	2e	<2	<2	15.2	84.47	7.0	33.47	7.9
I25	08 Dec 2021	1105	9	4e	<2	<2	15.2	84.27	7.0	33.46	7.9
I25	17 Dec 2021	1156	2	<2	<2	<2	15.2	72.88	7.6	33.43	8.0
I25	17 Dec 2021	1156	6	2e	<2	<2	15.1	70.00	7.6	33.43	8.0
I25	17 Dec 2021	1156	9	2e	<2	<2	15.0	67.12	7.5	33.43	8.0
I25	21 Dec 2021	1108	2	460	22e	12e	14.5	77.63	7.6	33.45	8.0
I25	21 Dec 2021	1108	6	2400e	98	52	14.3	81.21	7.5	33.44	8.0
I25	21 Dec 2021	1108	9	480	34e	6e	13.7	71.93	6.4	33.45	7.9
I25	27 Dec 2021	1035	2	400e	46	12e	15.1	73.98	7.8	33.40	8.0
I25	27 Dec 2021	1035	6	1000e	72	32e	15.1	71.52	7.7	33.40	8.0
I25	27 Dec 2021	1035	9	200e	66	20e	15.1	71.19	7.6	33.39	8.0
I26	08 Dec 2021	1115	2	<2	<2	<2	16.2	83.06	7.8	33.52	8.0
I26	08 Dec 2021	1115	6	12e	2e	2e	15.6	83.94	7.5	33.49	8.0
I26	08 Dec 2021	1115	9	4e	<2	2e	14.9	85.02	7.2	33.46	7.9

Station	Date	Time	Depth	Total	Fecal	Entero	Temp	XMS	DO	Sal	pH
I26	17 Dec 2021	1208	2	<2	<2	<2	15.3	75.09	7.7	33.44	8.0
I26	17 Dec 2021	1208	6	2e	<2	<2	15.1	72.46	7.6	33.44	8.0
I26	17 Dec 2021	1208	9	<2	<2	<2	15.1	71.16	7.5	33.43	8.0
I26	21 Dec 2021	1120	2	120e	4e	4e	14.2	78.76	7.3	33.45	7.9
I26	21 Dec 2021	1120	6	280e	6e	10e	14.0	76.84	6.9	33.46	7.9
I26	21 Dec 2021	1120	9	540	20e	<2	13.9	73.64	6.5	33.46	7.9
I26	27 Dec 2021	1040	2	380e	14e	26e	15.2	72.54	7.8	33.42	8.0
I26	27 Dec 2021	1040	6	620	34e	58	15.2	70.93	7.8	33.42	8.0
I26	27 Dec 2021	1040	9	1800e	52	44	15.2	69.81	7.7	33.42	8.0
I32	08 Dec 2021	1127	2	<2	<2	<2	15.9	83.49	7.5	33.48	8.0
I32	08 Dec 2021	1127	6	<2	<2	<2	15.2	83.46	7.2	33.47	7.9
I32	08 Dec 2021	1127	9	<2	<2	<2	15.1	83.95	7.2	33.46	7.9
I32	17 Dec 2021	1221	2	2e	<2	<2	15.3	74.83	7.8	33.44	8.0
I32	17 Dec 2021	1221	6	<2	<2	<2	15.1	69.76	7.8	33.44	8.0
I32	17 Dec 2021	1221	9	<2	<2	<2	14.9	59.17	7.7	33.43	8.0
I32	21 Dec 2021	1132	2	<2	<2	<2	14.3	75.79	7.8	33.47	8.0
I32	21 Dec 2021	1132	6	4e	<2	2e	14.3	75.26	7.6	33.47	8.0
I32	21 Dec 2021	1132	9	<2	<2	2e	14.2	74.83	7.5	33.47	7.9
I32	27 Dec 2021	1052	2	340e	30e	280e	15.2	64.42	7.8	33.40	8.0
I32	27 Dec 2021	1052	6	800	40e	140e	15.2	61.27	7.6	33.41	8.0
I32	27 Dec 2021	1052	9	1800e	160e	68	14.9	46.98	7.8	33.38	8.0
I39	08 Dec 2021	1015	2	6e	2e	<2	16.2	84.98	7.7	33.50	8.0
I39	08 Dec 2021	1015	12	8e	<2	<2	16.1	84.39	7.7	33.50	8.0
I39	08 Dec 2021	1015	18	4e	<2	<2	14.9	85.74	7.2	33.52	7.9
I39	17 Dec 2021	1104	2	<2	<2	<2	15.3	81.63	7.7	33.47	8.0
I39	17 Dec 2021	1104	12	2e	<2	<2	15.2	81.53	7.7	33.45	8.0
I39	17 Dec 2021	1104	18	<2	<2	<2	15.1	82.23	7.3	33.45	8.0
I39	21 Dec 2021	1019	2	22e	2e	4e	14.5	82.33	7.4	33.45	8.0
I39	21 Dec 2021	1019	12	28e	2e	4e	14.1	83.10	7.0	33.45	7.9
I39	21 Dec 2021	1019	18	44	6e	2e	13.7	81.32	6.3	33.45	7.9
I39	27 Dec 2021	946	2	200e	22e	12e	15.1	77.02	8.0	33.41	8.0
I39	27 Dec 2021	946	12	<200	4e	<2	15.2	80.44	8.0	33.44	8.0
I39	27 Dec 2021	946	18	<20	4e	4e	15.2	80.14	8.0	33.44	8.0
I40	08 Dec 2021	1050	2	80e	6e	20e	15.8	80.13	7.7	33.48	8.0
I40	08 Dec 2021	1050	6	22e	2e	8e	15.5	76.20	7.4	33.48	7.9
I40	08 Dec 2021	1050	9	<20	<2	<2	14.9	76.70	7.0	33.47	7.9
I40	17 Dec 2021	1139	2	4000	180e	16e	15.1	59.67	7.9	33.42	7.9
I40	17 Dec 2021	1139	6	7200	700	44	15.0	59.48	7.8	33.42	7.9
I40	17 Dec 2021	1139	9	5400	500	64	14.9	56.30	7.7	33.42	7.9
I40	21 Dec 2021	1053	2	60e	4e	2e	14.2	80.03	7.4	33.45	7.9
I40	21 Dec 2021	1053	6	180e	18e	6e	14.2	79.27	7.3	33.45	7.9
I40	21 Dec 2021	1053	9	1300	200e	58	13.9	60.30	7.3	33.44	7.9
I40	27 Dec 2021	1018	2	>16000	4000	660	14.7	37.11	7.8	33.20	8.0
I40	27 Dec 2021	1018	6	9800	840	400	14.7	35.12	7.6	33.29	8.0
I40	27 Dec 2021	1018	9	800e	600e	480	14.7	29.95	7.6	33.30	8.0

ns = not sampled
ND = no data

Table 3.8

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

Station	Date	Parameter	Value
I19	08 Dec 2021	Depth (m)	11
I19	08 Dec 2021	Arrive Time	1040
I19	08 Dec 2021	Depart Time	1040
I19	08 Dec 2021	Air Temp (C)	16.2
I19	08 Dec 2021	Weather	Partly Cloudy
I19	08 Dec 2021	Visibility (mi)	9
I19	08 Dec 2021	Wind Speed (kts)	4.1
I19	08 Dec 2021	Wind Dir	NW
I19	08 Dec 2021	Water Color	Green
I19	08 Dec 2021	Wave Ht Low (ft)	2
I19	08 Dec 2021	Wave Period (sec)	6
I19	08 Dec 2021	Sea State	Calm
I19	08 Dec 2021	High Tide (ft)	5.58
I19	08 Dec 2021	High Tide Time	1906
I19	08 Dec 2021	Low Tide (ft)	-0.59
I19	08 Dec 2021	Low Tide Time	248
I19	08 Dec 2021	Comments	none
I19	17 Dec 2021	Depth (m)	11
I19	17 Dec 2021	Arrive Time	1127
I19	17 Dec 2021	Depart Time	1129
I19	17 Dec 2021	Air Temp (C)	14.2
I19	17 Dec 2021	Weather	Clear
I19	17 Dec 2021	Visibility (mi)	10
I19	17 Dec 2021	Wind Speed (kts)	10
I19	17 Dec 2021	Wind Dir	NW
I19	17 Dec 2021	Water Color	Green
I19	17 Dec 2021	Wave Ht Low (ft)	4.6
I19	17 Dec 2021	Wave Period (sec)	13
I19	17 Dec 2021	Sea State	Wind Ripples
I19	17 Dec 2021	High Tide (ft)	5.77
I19	17 Dec 2021	High Tide Time	1506
I19	17 Dec 2021	Low Tide (ft)	-0.46
I19	17 Dec 2021	Low Tide Time	2224
I19	17 Dec 2021	Comments	none
I19	21 Dec 2021	Depth (m)	12
I19	21 Dec 2021	Arrive Time	1041
I19	21 Dec 2021	Depart Time	1045
I19	21 Dec 2021	Air Temp (C)	14.5
I19	21 Dec 2021	Weather	Overcast
I19	21 Dec 2021	Visibility (mi)	10
I19	21 Dec 2021	Wind Speed (kts)	2
I19	21 Dec 2021	Wind Dir	NW
I19	21 Dec 2021	Water Color	Green
I19	21 Dec 2021	Wave Ht Low (ft)	2.3
I19	21 Dec 2021	Wave Period (sec)	15
I19	21 Dec 2021	Sea State	Calm
I19	21 Dec 2021	High Tide (ft)	5.68
I19	21 Dec 2021	High Tide Time	1712
I19	21 Dec 2021	Low Tide (ft)	-0.46
I19	21 Dec 2021	Low Tide Time	48
I19	21 Dec 2021	Comments	none
I19	27 Dec 2021	Depth (m)	11
I19	27 Dec 2021	Arrive Time	1007

Station	Date	Parameter	Value
I19	27 Dec 2021	Depart Time	1010
I19	27 Dec 2021	Air Temp (C)	12.2
I19	27 Dec 2021	Weather	Overcast
I19	27 Dec 2021	Visibility (mi)	10
I19	27 Dec 2021	Wind Speed (kts)	0
I19	27 Dec 2021	Wind Dir	S
I19	27 Dec 2021	Water Color	Brownish-Green
I19	27 Dec 2021	Wave Ht Low (ft)	4.6
I19	27 Dec 2021	Wave Period (sec)	12
I19	27 Dec 2021	Sea State	Light Chop
I19	27 Dec 2021	High Tide (ft)	4.36
I19	27 Dec 2021	High Tide Time	1130
I19	27 Dec 2021	Low Tide (ft)	1.12
I19	27 Dec 2021	Low Tide Time	506
I19	27 Dec 2021	Comments	none
I24	08 Dec 2021	Depth (m)	11
I24	08 Dec 2021	Arrive Time	1058
I24	08 Dec 2021	Depart Time	1101
I24	08 Dec 2021	Air Temp (C)	16.6
I24	08 Dec 2021	Weather	Partly Cloudy
I24	08 Dec 2021	Visibility (mi)	9
I24	08 Dec 2021	Wind Speed (kts)	1.4
I24	08 Dec 2021	Wind Dir	NW
I24	08 Dec 2021	Water Color	Greenish-Blue
I24	08 Dec 2021	Wave Ht Low (ft)	2
I24	08 Dec 2021	Wave Period (sec)	6
I24	08 Dec 2021	Sea State	Calm
I24	08 Dec 2021	High Tide (ft)	5.58
I24	08 Dec 2021	High Tide Time	1906
I24	08 Dec 2021	Low Tide (ft)	-0.59
I24	08 Dec 2021	Low Tide Time	248
I24	08 Dec 2021	Comments	none
I24	17 Dec 2021	Depth (m)	10
I24	17 Dec 2021	Arrive Time	1148
I24	17 Dec 2021	Depart Time	1151
I24	17 Dec 2021	Air Temp (C)	14.5
I24	17 Dec 2021	Weather	Clear
I24	17 Dec 2021	Visibility (mi)	10
I24	17 Dec 2021	Wind Speed (kts)	11.8
I24	17 Dec 2021	Wind Dir	NW
I24	17 Dec 2021	Water Color	Green
I24	17 Dec 2021	Wave Ht Low (ft)	4.6
I24	17 Dec 2021	Wave Period (sec)	13
I24	17 Dec 2021	Sea State	Wind Ripples
I24	17 Dec 2021	High Tide (ft)	5.77
I24	17 Dec 2021	High Tide Time	1506
I24	17 Dec 2021	Low Tide (ft)	-0.46
I24	17 Dec 2021	Low Tide Time	2224
I24	17 Dec 2021	Comments	none
I24	21 Dec 2021	Depth (m)	11
I24	21 Dec 2021	Arrive Time	1101
I24	21 Dec 2021	Depart Time	1104
I24	21 Dec 2021	Air Temp (C)	14.7
I24	21 Dec 2021	Weather	Overcast
I24	21 Dec 2021	Visibility (mi)	10
I24	21 Dec 2021	Wind Speed (kts)	2.9
I24	21 Dec 2021	Wind Dir	NW
I24	21 Dec 2021	Water Color	Green

Station	Date	Parameter	Value
I24	21 Dec 2021	Wave Ht Low (ft)	2.3
I24	21 Dec 2021	Wave Period (sec)	15
I24	21 Dec 2021	Sea State	Calm
I24	21 Dec 2021	High Tide (ft)	5.68
I24	21 Dec 2021	High Tide Time	1712
I24	21 Dec 2021	Low Tide (ft)	-0.46
I24	21 Dec 2021	Low Tide Time	48
I24	21 Dec 2021	Comments	none
I24	27 Dec 2021	Depth (m)	10
I24	27 Dec 2021	Arrive Time	1024
I24	27 Dec 2021	Depart Time	1028
I24	27 Dec 2021	Air Temp (C)	12.2
I24	27 Dec 2021	Weather	Overcast
I24	27 Dec 2021	Visibility (mi)	10
I24	27 Dec 2021	Wind Speed (kts)	8.4
I24	27 Dec 2021	Wind Dir	SW
I24	27 Dec 2021	Water Color	Brownish-Green
I24	27 Dec 2021	Wave Ht Low (ft)	4.6
I24	27 Dec 2021	Wave Period (sec)	12
I24	27 Dec 2021	Sea State	Wind Ripples
I24	27 Dec 2021	High Tide (ft)	4.36
I24	27 Dec 2021	High Tide Time	1130
I24	27 Dec 2021	Low Tide (ft)	1.12
I24	27 Dec 2021	Low Tide Time	506
I24	27 Dec 2021	Comments	none
I25	08 Dec 2021	Depth (m)	10
I25	08 Dec 2021	Arrive Time	1105
I25	08 Dec 2021	Depart Time	1108
I25	08 Dec 2021	Air Temp (C)	16.7
I25	08 Dec 2021	Weather	Partly Cloudy
I25	08 Dec 2021	Visibility (mi)	9
I25	08 Dec 2021	Wind Speed (kts)	0
I25	08 Dec 2021	Wind Dir	NW
I25	08 Dec 2021	Water Color	Greenish-Blue
I25	08 Dec 2021	Wave Ht Low (ft)	2
I25	08 Dec 2021	Wave Period (sec)	6
I25	08 Dec 2021	Sea State	Calm
I25	08 Dec 2021	High Tide (ft)	5.58
I25	08 Dec 2021	High Tide Time	1906
I25	08 Dec 2021	Low Tide (ft)	-0.59
I25	08 Dec 2021	Low Tide Time	248
I25	08 Dec 2021	Comments	none
I25	17 Dec 2021	Depth (m)	8
I25	17 Dec 2021	Arrive Time	1156
I25	17 Dec 2021	Depart Time	1159
I25	17 Dec 2021	Air Temp (C)	14.5
I25	17 Dec 2021	Weather	Clear
I25	17 Dec 2021	Visibility (mi)	10
I25	17 Dec 2021	Wind Speed (kts)	9.8
I25	17 Dec 2021	Wind Dir	NW
I25	17 Dec 2021	Water Color	Green
I25	17 Dec 2021	Wave Ht Low (ft)	4.6
I25	17 Dec 2021	Wave Period (sec)	13
I25	17 Dec 2021	Sea State	Light Chop
I25	17 Dec 2021	High Tide (ft)	5.77
I25	17 Dec 2021	High Tide Time	1506
I25	17 Dec 2021	Low Tide (ft)	-0.46
I25	17 Dec 2021	Low Tide Time	2224

Station	Date	Parameter	Value
I25	17 Dec 2021	Comments	none
I25	21 Dec 2021	Depth (m)	10
I25	21 Dec 2021	Arrive Time	1108
I25	21 Dec 2021	Depart Time	1112
I25	21 Dec 2021	Air Temp (C)	14.7
I25	21 Dec 2021	Weather	Overcast
I25	21 Dec 2021	Visibility (mi)	10
I25	21 Dec 2021	Wind Speed (kts)	6.2
I25	21 Dec 2021	Wind Dir	NW
I25	21 Dec 2021	Water Color	Green
I25	21 Dec 2021	Wave Ht Low (ft)	2.3
I25	21 Dec 2021	Wave Period (sec)	15
I25	21 Dec 2021	Sea State	Calm
I25	21 Dec 2021	High Tide (ft)	5.68
I25	21 Dec 2021	High Tide Time	1712
I25	21 Dec 2021	Low Tide (ft)	-0.46
I25	21 Dec 2021	Low Tide Time	48
I25	21 Dec 2021	Comments	none
I25	27 Dec 2021	Depth (m)	9
I25	27 Dec 2021	Arrive Time	1035
I25	27 Dec 2021	Depart Time	1035
I25	27 Dec 2021	Air Temp (C)	12.3
I25	27 Dec 2021	Weather	Overcast
I25	27 Dec 2021	Visibility (mi)	10
I25	27 Dec 2021	Wind Speed (kts)	8.8
I25	27 Dec 2021	Wind Dir	N
I25	27 Dec 2021	Water Color	Brownish-Green
I25	27 Dec 2021	Wave Ht Low (ft)	4.6
I25	27 Dec 2021	Wave Period (sec)	12
I25	27 Dec 2021	Sea State	Wind Ripples
I25	27 Dec 2021	High Tide (ft)	4.36
I25	27 Dec 2021	High Tide Time	1130
I25	27 Dec 2021	Low Tide (ft)	1.12
I25	27 Dec 2021	Low Tide Time	506
I25	27 Dec 2021	Comments	none
I26	08 Dec 2021	Depth (m)	10
I26	08 Dec 2021	Arrive Time	1115
I26	08 Dec 2021	Depart Time	1118
I26	08 Dec 2021	Air Temp (C)	16.7
I26	08 Dec 2021	Weather	Partly Cloudy
I26	08 Dec 2021	Visibility (mi)	9
I26	08 Dec 2021	Wind Speed (kts)	1.9
I26	08 Dec 2021	Wind Dir	SW
I26	08 Dec 2021	Water Color	Greenish-Blue
I26	08 Dec 2021	Wave Ht Low (ft)	2
I26	08 Dec 2021	Wave Period (sec)	6
I26	08 Dec 2021	Sea State	Calm
I26	08 Dec 2021	High Tide (ft)	5.58
I26	08 Dec 2021	High Tide Time	1906
I26	08 Dec 2021	Low Tide (ft)	-0.59
I26	08 Dec 2021	Low Tide Time	248
I26	08 Dec 2021	Comments	none
I26	17 Dec 2021	Depth (m)	9
I26	17 Dec 2021	Arrive Time	1208
I26	17 Dec 2021	Depart Time	1210
I26	17 Dec 2021	Air Temp (C)	14.4
I26	17 Dec 2021	Weather	Clear

Station	Date	Parameter	Value
I26	17 Dec 2021	Visibility (mi)	10
I26	17 Dec 2021	Wind Speed (kts)	11
I26	17 Dec 2021	Wind Dir	NW
I26	17 Dec 2021	Water Color	Green
I26	17 Dec 2021	Wave Ht Low (ft)	4.6
I26	17 Dec 2021	Wave Period (sec)	13
I26	17 Dec 2021	Sea State	Light Chop
I26	17 Dec 2021	High Tide (ft)	5.77
I26	17 Dec 2021	High Tide Time	1506
I26	17 Dec 2021	Low Tide (ft)	-0.46
I26	17 Dec 2021	Low Tide Time	2224
I26	17 Dec 2021	Comments	none
I26	21 Dec 2021	Depth (m)	10
I26	21 Dec 2021	Arrive Time	1120
I26	21 Dec 2021	Depart Time	1122
I26	21 Dec 2021	Air Temp (C)	14.6
I26	21 Dec 2021	Weather	Overcast
I26	21 Dec 2021	Visibility (mi)	10
I26	21 Dec 2021	Wind Speed (kts)	6.9
I26	21 Dec 2021	Wind Dir	NW
I26	21 Dec 2021	Water Color	Green
I26	21 Dec 2021	Wave Ht Low (ft)	2.3
I26	21 Dec 2021	Wave Period (sec)	15
I26	21 Dec 2021	Sea State	Calm
I26	21 Dec 2021	High Tide (ft)	5.68
I26	21 Dec 2021	High Tide Time	1712
I26	21 Dec 2021	Low Tide (ft)	-0.46
I26	21 Dec 2021	Low Tide Time	48
I26	21 Dec 2021	Comments	none
I26	27 Dec 2021	Depth (m)	1
I26	27 Dec 2021	Arrive Time	1040
I26	27 Dec 2021	Depart Time	1042
I26	27 Dec 2021	Air Temp (C)	12.3
I26	27 Dec 2021	Weather	Overcast
I26	27 Dec 2021	Visibility (mi)	10
I26	27 Dec 2021	Wind Speed (kts)	1.6
I26	27 Dec 2021	Wind Dir	N
I26	27 Dec 2021	Water Color	Green
I26	27 Dec 2021	Wave Ht Low (ft)	4.6
I26	27 Dec 2021	Wave Period (sec)	12
I26	27 Dec 2021	Sea State	Wind Ripples
I26	27 Dec 2021	High Tide (ft)	4.36
I26	27 Dec 2021	High Tide Time	1130
I26	27 Dec 2021	Low Tide (ft)	1.12
I26	27 Dec 2021	Low Tide Time	506
I26	27 Dec 2021	Comments	none
I32	08 Dec 2021	Depth (m)	11
I32	08 Dec 2021	Arrive Time	1127
I32	08 Dec 2021	Depart Time	1130
I32	08 Dec 2021	Air Temp (C)	16.9
I32	08 Dec 2021	Weather	Partly Cloudy
I32	08 Dec 2021	Visibility (mi)	9
I32	08 Dec 2021	Wind Speed (kts)	4.7
I32	08 Dec 2021	Wind Dir	W
I32	08 Dec 2021	Water Color	Greenish-Blue
I32	08 Dec 2021	Wave Ht Low (ft)	2
I32	08 Dec 2021	Wave Period (sec)	6
I32	08 Dec 2021	Sea State	Calm

Station	Date	Parameter	Value
I32	08 Dec 2021	High Tide (ft)	5.58
I32	08 Dec 2021	High Tide Time	1906
I32	08 Dec 2021	Low Tide (ft)	-0.59
I32	08 Dec 2021	Low Tide Time	248
I32	08 Dec 2021	Comments	none
I32	17 Dec 2021	Depth (m)	10
I32	17 Dec 2021	Arrive Time	1221
I32	17 Dec 2021	Depart Time	1224
I32	17 Dec 2021	Air Temp (C)	14.8
I32	17 Dec 2021	Weather	Clear
I32	17 Dec 2021	Visibility (mi)	10
I32	17 Dec 2021	Wind Speed (kts)	8.9
I32	17 Dec 2021	Wind Dir	NW
I32	17 Dec 2021	Water Color	Green
I32	17 Dec 2021	Wave Ht Low (ft)	4.6
I32	17 Dec 2021	Wave Period (sec)	13
I32	17 Dec 2021	Sea State	Light Chop
I32	17 Dec 2021	High Tide (ft)	5.77
I32	17 Dec 2021	High Tide Time	1506
I32	17 Dec 2021	Low Tide (ft)	-0.46
I32	17 Dec 2021	Low Tide Time	2224
I32	17 Dec 2021	Comments	none
I32	21 Dec 2021	Depth (m)	10
I32	21 Dec 2021	Arrive Time	1132
I32	21 Dec 2021	Depart Time	1135
I32	21 Dec 2021	Air Temp (C)	14.8
I32	21 Dec 2021	Weather	Overcast
I32	21 Dec 2021	Visibility (mi)	10
I32	21 Dec 2021	Wind Speed (kts)	2.7
I32	21 Dec 2021	Wind Dir	N
I32	21 Dec 2021	Water Color	Green
I32	21 Dec 2021	Wave Ht Low (ft)	2.3
I32	21 Dec 2021	Wave Period (sec)	15
I32	21 Dec 2021	Sea State	Calm
I32	21 Dec 2021	High Tide (ft)	5.68
I32	21 Dec 2021	High Tide Time	1712
I32	21 Dec 2021	Low Tide (ft)	-0.46
I32	21 Dec 2021	Low Tide Time	48
I32	21 Dec 2021	Comments	none
I32	27 Dec 2021	Depth (m)	10
I32	27 Dec 2021	Arrive Time	1052
I32	27 Dec 2021	Depart Time	1054
I32	27 Dec 2021	Air Temp (C)	12.4
I32	27 Dec 2021	Weather	Overcast
I32	27 Dec 2021	Visibility (mi)	10
I32	27 Dec 2021	Wind Speed (kts)	0.8
I32	27 Dec 2021	Wind Dir	SW
I32	27 Dec 2021	Water Color	Green
I32	27 Dec 2021	Wave Ht Low (ft)	4.6
I32	27 Dec 2021	Wave Period (sec)	12
I32	27 Dec 2021	Sea State	Wind Ripples
I32	27 Dec 2021	High Tide (ft)	4.36
I32	27 Dec 2021	High Tide Time	1130
I32	27 Dec 2021	Low Tide (ft)	1.12
I32	27 Dec 2021	Low Tide Time	506
I32	27 Dec 2021	Comments	none
I39	08 Dec 2021	Depth (m)	20

Station	Date	Parameter	Value
I39	08 Dec 2021	Arrive Time	1015
I39	08 Dec 2021	Depart Time	1018
I39	08 Dec 2021	Air Temp (C)	15.9
I39	08 Dec 2021	Weather	Partly Cloudy
I39	08 Dec 2021	Visibility (mi)	9
I39	08 Dec 2021	Wind Speed (kts)	2.8
I39	08 Dec 2021	Wind Dir	NE
I39	08 Dec 2021	Water Color	Greenish-Blue
I39	08 Dec 2021	Wave Ht Low (ft)	2
I39	08 Dec 2021	Wave Period (sec)	6
I39	08 Dec 2021	Sea State	Calm
I39	08 Dec 2021	High Tide (ft)	5.58
I39	08 Dec 2021	High Tide Time	1906
I39	08 Dec 2021	Low Tide (ft)	-0.59
I39	08 Dec 2021	Low Tide Time	248
I39	08 Dec 2021	Comments	none
I39	17 Dec 2021	Depth (m)	19
I39	17 Dec 2021	Arrive Time	1104
I39	17 Dec 2021	Depart Time	1107
I39	17 Dec 2021	Air Temp (C)	14
I39	17 Dec 2021	Weather	Clear
I39	17 Dec 2021	Visibility (mi)	10
I39	17 Dec 2021	Wind Speed (kts)	7.1
I39	17 Dec 2021	Wind Dir	NW
I39	17 Dec 2021	Water Color	Blueish-Green
I39	17 Dec 2021	Wave Ht Low (ft)	4.6
I39	17 Dec 2021	Wave Period (sec)	13
I39	17 Dec 2021	Sea State	Calm
I39	17 Dec 2021	High Tide (ft)	5.77
I39	17 Dec 2021	High Tide Time	1506
I39	17 Dec 2021	Low Tide (ft)	-0.46
I39	17 Dec 2021	Low Tide Time	2224
I39	17 Dec 2021	Comments	none
I39	21 Dec 2021	Depth (m)	19
I39	21 Dec 2021	Arrive Time	1019
I39	21 Dec 2021	Depart Time	1021
I39	21 Dec 2021	Air Temp (C)	14.3
I39	21 Dec 2021	Weather	Overcast
I39	21 Dec 2021	Visibility (mi)	10
I39	21 Dec 2021	Wind Speed (kts)	4.3
I39	21 Dec 2021	Wind Dir	N
I39	21 Dec 2021	Water Color	Blueish-Green
I39	21 Dec 2021	Wave Ht Low (ft)	2.3
I39	21 Dec 2021	Wave Period (sec)	15
I39	21 Dec 2021	Sea State	Calm
I39	21 Dec 2021	High Tide (ft)	5.68
I39	21 Dec 2021	High Tide Time	1712
I39	21 Dec 2021	Low Tide (ft)	-0.46
I39	21 Dec 2021	Low Tide Time	48
I39	21 Dec 2021	Comments	none
I39	27 Dec 2021	Depth (m)	19
I39	27 Dec 2021	Arrive Time	946
I39	27 Dec 2021	Depart Time	948
I39	27 Dec 2021	Air Temp (C)	11.9
I39	27 Dec 2021	Weather	Overcast
I39	27 Dec 2021	Visibility (mi)	10
I39	27 Dec 2021	Wind Speed (kts)	4.4
I39	27 Dec 2021	Wind Dir	E

Station	Date	Parameter	Value
I39	27 Dec 2021	Water Color	Blue
I39	27 Dec 2021	Wave Ht Low (ft)	4.6
I39	27 Dec 2021	Wave Period (sec)	12
I39	27 Dec 2021	Sea State	Light Chop
I39	27 Dec 2021	High Tide (ft)	4.36
I39	27 Dec 2021	High Tide Time	1130
I39	27 Dec 2021	Low Tide (ft)	1.12
I39	27 Dec 2021	Low Tide Time	506
I39	27 Dec 2021	Comments	none
I40	08 Dec 2021	Depth (m)	11
I40	08 Dec 2021	Arrive Time	1050
I40	08 Dec 2021	Depart Time	1053
I40	08 Dec 2021	Air Temp (C)	16.3
I40	08 Dec 2021	Weather	Partly Cloudy
I40	08 Dec 2021	Visibility (mi)	9
I40	08 Dec 2021	Wind Speed (kts)	2.2
I40	08 Dec 2021	Wind Dir	NW
I40	08 Dec 2021	Water Color	Green
I40	08 Dec 2021	Wave Ht Low (ft)	2
I40	08 Dec 2021	Wave Period (sec)	6
I40	08 Dec 2021	Sea State	Calm
I40	08 Dec 2021	High Tide (ft)	5.58
I40	08 Dec 2021	High Tide Time	1906
I40	08 Dec 2021	Low Tide (ft)	-0.59
I40	08 Dec 2021	Low Tide Time	248
I40	08 Dec 2021	Comments	none
I40	17 Dec 2021	Depth (m)	10
I40	17 Dec 2021	Arrive Time	1139
I40	17 Dec 2021	Depart Time	1144
I40	17 Dec 2021	Air Temp (C)	14.4
I40	17 Dec 2021	Weather	Clear
I40	17 Dec 2021	Visibility (mi)	10
I40	17 Dec 2021	Wind Speed (kts)	8.2
I40	17 Dec 2021	Wind Dir	NW
I40	17 Dec 2021	Water Color	Brownish-Green
I40	17 Dec 2021	Wave Ht Low (ft)	4.6
I40	17 Dec 2021	Wave Period (sec)	13
I40	17 Dec 2021	Sea State	Wind Ripples
I40	17 Dec 2021	High Tide (ft)	5.77
I40	17 Dec 2021	High Tide Time	1506
I40	17 Dec 2021	Low Tide (ft)	-0.46
I40	17 Dec 2021	Low Tide Time	2224
I40	17 Dec 2021	Comments	none
I40	21 Dec 2021	Depth (m)	11
I40	21 Dec 2021	Arrive Time	1053
I40	21 Dec 2021	Depart Time	1056
I40	21 Dec 2021	Air Temp (C)	14.5
I40	21 Dec 2021	Weather	Overcast
I40	21 Dec 2021	Visibility (mi)	10
I40	21 Dec 2021	Wind Speed (kts)	3.4
I40	21 Dec 2021	Wind Dir	NW
I40	21 Dec 2021	Water Color	Green
I40	21 Dec 2021	Wave Ht Low (ft)	2.3
I40	21 Dec 2021	Wave Period (sec)	15
I40	21 Dec 2021	Sea State	Calm
I40	21 Dec 2021	High Tide (ft)	5.68
I40	21 Dec 2021	High Tide Time	1712
I40	21 Dec 2021	Low Tide (ft)	-0.46

Station	Date	Parameter	Value
I40	21 Dec 2021	Low Tide Time	48
I40	21 Dec 2021	Comments	none
I40	27 Dec 2021	Depth (m)	10
I40	27 Dec 2021	Arrive Time	1018
I40	27 Dec 2021	Depart Time	1020
I40	27 Dec 2021	Air Temp (C)	12.3
I40	27 Dec 2021	Weather	Overcast
I40	27 Dec 2021	Visibility (mi)	10
I40	27 Dec 2021	Wind Speed (kts)	0.8
I40	27 Dec 2021	Wind Dir	SW
I40	27 Dec 2021	Water Color	Brownish-Green
I40	27 Dec 2021	Wave Ht Low (ft)	4.6
I40	27 Dec 2021	Wave Period (sec)	12
I40	27 Dec 2021	Sea State	Wind Ripples
I40	27 Dec 2021	High Tide (ft)	4.36
I40	27 Dec 2021	High Tide Time	1130
I40	27 Dec 2021	Low Tide (ft)	1.12
I40	27 Dec 2021	Low Tide Time	506
I40	27 Dec 2021	Comments	Cloudy visibility

Table 3.9

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

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
I19	08 Dec 2021	1	15.88	77.90	7.9	33.46	8.0	24.6	1.57
I19	08 Dec 2021	2	15.82	77.69	7.9	33.47	8.0	24.6	1.49
I19	08 Dec 2021	3	15.72	77.69	7.8	33.46	8.0	24.6	1.56
I19	08 Dec 2021	4	15.65	78.39	7.7	33.46	8.0	24.6	1.68
I19	08 Dec 2021	5	15.54	78.89	7.7	33.45	7.9	24.7	1.70
I19	08 Dec 2021	6	15.50	78.53	7.6	33.43	7.9	24.7	1.62
I19	08 Dec 2021	7	15.48	78.22	7.5	33.43	7.9	24.7	1.52
I19	08 Dec 2021	8	15.33	78.06	7.4	33.44	7.9	24.7	1.50
I19	08 Dec 2021	9	14.92	77.44	7.1	33.47	7.9	24.8	1.54
I19	08 Dec 2021	10	14.61	76.59	6.8	33.47	7.9	24.9	1.39
I19	17 Dec 2021	1	15.06	64.26	7.9	33.38	8.0	24.7	0.99
I19	17 Dec 2021	2	15.06	63.24	7.8	33.38	8.0	24.7	0.96
I19	17 Dec 2021	3	15.06	64.27	7.9	33.38	8.0	24.7	0.94
I19	17 Dec 2021	4	15.06	64.09	7.8	33.39	8.0	24.7	0.99
I19	17 Dec 2021	5	15.07	64.32	7.7	33.40	8.0	24.7	1.11
I19	17 Dec 2021	6	15.06	64.51	7.7	33.40	8.0	24.7	1.32
I19	17 Dec 2021	7	15.00	64.85	7.7	33.40	8.0	24.7	1.48
I19	17 Dec 2021	8	14.98	63.74	7.7	33.39	8.0	24.7	1.65
I19	17 Dec 2021	9	14.97	62.76	7.6	33.39	7.9	24.7	1.68
I19	17 Dec 2021	10	14.95	60.62	7.7	33.39	7.9	24.7	1.69
I19	21 Dec 2021	1	14.24	72.90	7.6	33.44	7.9	24.9	0.98
I19	21 Dec 2021	2	14.18	69.42	7.6	33.45	7.9	25.0	1.02
I19	21 Dec 2021	3	14.13	70.18	7.5	33.45	7.9	25.0	1.06
I19	21 Dec 2021	4	14.10	68.68	7.4	33.45	7.9	25.0	1.34
I19	21 Dec 2021	5	14.07	66.26	7.5	33.45	7.9	25.0	1.64
I19	21 Dec 2021	6	13.96	61.23	7.3	33.46	7.9	25.0	1.97
I19	21 Dec 2021	7	13.76	67.57	6.6	33.46	7.9	25.0	2.06
I19	21 Dec 2021	8	13.63	77.14	6.2	33.45	7.8	25.1	1.63
I19	21 Dec 2021	9	13.61	72.91	6.1	33.46	7.8	25.1	1.52
I19	21 Dec 2021	10	13.59	66.57	6.1	33.45	7.8	25.1	1.60
I19	27 Dec 2021	1	14.92	38.24	8.1	33.13	8.0	24.5	2.30
I19	27 Dec 2021	2	14.94	40.73	8.1	33.19	8.0	24.6	2.32
I19	27 Dec 2021	3	14.92	46.41	8.0	33.28	8.0	24.7	2.39
I19	27 Dec 2021	4	14.99	48.91	7.9	33.35	8.0	24.7	2.56
I19	27 Dec 2021	5	15.04	60.30	7.9	33.40	8.0	24.7	2.59
I19	27 Dec 2021	6	15.08	66.66	7.8	33.41	8.0	24.7	2.59
I19	27 Dec 2021	7	15.10	69.72	7.9	33.42	8.0	24.7	2.81
I19	27 Dec 2021	8	15.11	75.22	7.9	33.43	8.0	24.7	2.79
I19	27 Dec 2021	9	15.09	71.77	7.8	33.43	8.0	24.7	2.59
I19	27 Dec 2021	10	15.06	47.96	7.6	33.42	8.0	24.7	2.59
I24	08 Dec 2021	1	16.26	84.50	7.7	33.51	8.0	24.5	0.52
I24	08 Dec 2021	2	16.21	84.18	7.7	33.52	8.0	24.6	0.54
I24	08 Dec 2021	3	16.05	84.31	7.6	33.52	8.0	24.6	0.54
I24	08 Dec 2021	4	15.79	84.38	7.5	33.51	8.0	24.7	0.54
I24	08 Dec 2021	5	15.70	84.32	7.4	33.49	8.0	24.6	0.58
I24	08 Dec 2021	6	15.70	84.40	7.4	33.48	7.9	24.6	0.61
I24	08 Dec 2021	7	15.65	84.28	7.3	33.49	7.9	24.7	0.64
I24	08 Dec 2021	8	15.51	84.23	7.2	33.49	7.9	24.7	0.66
I24	08 Dec 2021	9	15.39	84.15	7.1	33.48	7.9	24.7	0.66
I24	08 Dec 2021	10	15.28	83.85	7.0	33.48	7.9	24.7	0.62
I24	08 Dec 2021	11	15.24	83.60	6.9	33.47	7.9	24.7	0.58

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I24	17 Dec 2021	1	15.17	71.25	7.6	33.43	8.0	24.7	0.75
I24	17 Dec 2021	2	15.13	71.22	7.6	33.43	8.0	24.7	0.79
I24	17 Dec 2021	3	15.07	70.53	7.5	33.43	8.0	24.7	0.89
I24	17 Dec 2021	4	15.06	70.07	7.5	33.43	8.0	24.7	1.02
I24	17 Dec 2021	5	15.03	69.66	7.5	33.43	8.0	24.8	1.26
I24	17 Dec 2021	6	14.99	68.80	7.4	33.43	8.0	24.8	1.52
I24	17 Dec 2021	7	14.98	68.62	7.4	33.43	8.0	24.8	1.62
I24	17 Dec 2021	8	14.98	67.96	7.4	33.42	8.0	24.8	1.57
I24	17 Dec 2021	9	14.97	67.40	7.4	33.42	7.9	24.8	1.69
I24	17 Dec 2021	10	14.97	66.49	7.3	33.42	7.9	24.8	1.59
I24	21 Dec 2021	1	14.53	80.41	7.6	33.45	8.0	24.9	1.33
I24	21 Dec 2021	2	14.47	78.32	7.6	33.45	8.0	24.9	1.41
I24	21 Dec 2021	3	14.41	79.51	7.6	33.45	8.0	24.9	1.50
I24	21 Dec 2021	4	14.37	79.81	7.6	33.44	8.0	24.9	1.79
I24	21 Dec 2021	5	14.34	80.11	7.5	33.44	8.0	24.9	2.07
I24	21 Dec 2021	6	14.29	80.47	7.5	33.44	8.0	24.9	2.10
I24	21 Dec 2021	7	14.24	80.97	7.4	33.44	8.0	24.9	2.36
I24	21 Dec 2021	8	14.15	81.76	7.3	33.45	8.0	25.0	2.23
I24	21 Dec 2021	9	13.90	81.87	7.0	33.44	7.9	25.0	2.04
I24	21 Dec 2021	10	13.68	73.33	6.5	33.45	7.9	25.1	1.82
I24	21 Dec 2021	11	13.65	64.68	6.2	33.45	7.8	25.1	1.66
I24	27 Dec 2021	1	14.85	64.93	7.6	33.33	8.0	24.7	1.59
I24	27 Dec 2021	2	14.85	64.64	7.6	33.33	8.0	24.7	1.65
I24	27 Dec 2021	3	14.87	64.95	7.6	33.34	8.0	24.7	1.70
I24	27 Dec 2021	4	14.86	65.08	7.6	33.34	8.0	24.7	1.85
I24	27 Dec 2021	5	14.86	65.21	7.6	33.34	8.0	24.7	2.10
I24	27 Dec 2021	6	14.86	65.02	7.5	33.34	8.0	24.7	2.14
I24	27 Dec 2021	7	14.84	64.57	7.5	33.34	8.0	24.7	2.23
I24	27 Dec 2021	8	14.82	62.73	7.5	33.33	8.0	24.7	2.21
I24	27 Dec 2021	9	14.81	61.19	7.4	33.33	8.0	24.7	2.10
I25	08 Dec 2021	1	16.54	85.28	7.8	33.51	8.0	24.5	0.46
I25	08 Dec 2021	2	16.40	85.14	7.8	33.54	8.0	24.5	0.47
I25	08 Dec 2021	3	16.01	84.71	7.6	33.56	8.0	24.6	0.50
I25	08 Dec 2021	4	15.29	84.29	7.3	33.53	7.9	24.8	0.54
I25	08 Dec 2021	5	15.24	84.36	7.1	33.48	7.9	24.7	0.56
I25	08 Dec 2021	6	15.20	84.47	7.0	33.47	7.9	24.7	0.52
I25	08 Dec 2021	7	15.18	84.39	7.0	33.46	7.9	24.7	0.54
I25	08 Dec 2021	8	15.17	84.40	7.0	33.46	7.9	24.7	0.50
I25	08 Dec 2021	9	15.16	84.27	7.0	33.46	7.9	24.7	0.48
I25	17 Dec 2021	1	15.19	73.56	7.7	33.43	8.0	24.7	0.76
I25	17 Dec 2021	2	15.18	72.88	7.6	33.43	8.0	24.7	0.73
I25	17 Dec 2021	3	15.16	72.54	7.6	33.44	8.0	24.7	0.73
I25	17 Dec 2021	4	15.09	72.26	7.6	33.44	8.0	24.7	0.76
I25	17 Dec 2021	5	15.07	70.96	7.6	33.43	8.0	24.7	0.80
I25	17 Dec 2021	6	15.05	70.00	7.6	33.43	8.0	24.8	1.00
I25	17 Dec 2021	7	15.03	68.88	7.6	33.43	8.0	24.8	1.12
I25	17 Dec 2021	8	15.03	68.10	7.5	33.43	8.0	24.8	1.40
I25	17 Dec 2021	9	15.03	67.12	7.5	33.43	8.0	24.8	1.45
I25	21 Dec 2021	1	14.54	79.19	7.6	33.44	8.0	24.9	1.65
I25	21 Dec 2021	2	14.47	77.63	7.6	33.45	8.0	24.9	1.45
I25	21 Dec 2021	3	14.41	79.88	7.6	33.44	8.0	24.9	1.53
I25	21 Dec 2021	4	14.37	79.76	7.6	33.44	8.0	24.9	2.02
I25	21 Dec 2021	5	14.33	80.44	7.5	33.44	8.0	24.9	2.36
I25	21 Dec 2021	6	14.28	81.21	7.5	33.44	8.0	24.9	2.44
I25	21 Dec 2021	7	14.07	80.87	7.2	33.45	7.9	25.0	2.33

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I25	21 Dec 2021	8	13.83	77.13	6.8	33.45	7.9	25.0	2.02
I25	21 Dec 2021	9	13.68	71.93	6.4	33.45	7.9	25.1	1.77
I25	27 Dec 2021	1	15.11	73.96	7.7	33.40	8.0	24.7	1.72
I25	27 Dec 2021	2	15.11	73.98	7.8	33.40	8.0	24.7	1.59
I25	27 Dec 2021	3	15.10	73.28	7.7	33.40	8.0	24.7	1.65
I25	27 Dec 2021	4	15.08	72.19	7.7	33.40	8.0	24.7	1.77
I25	27 Dec 2021	5	15.08	71.80	7.7	33.40	8.0	24.7	1.95
I25	27 Dec 2021	6	15.08	71.52	7.7	33.40	8.0	24.7	1.98
I25	27 Dec 2021	7	15.08	71.37	7.7	33.40	8.0	24.7	2.11
I25	27 Dec 2021	8	15.07	71.17	7.6	33.40	8.0	24.7	2.20
I25	27 Dec 2021	9	15.06	71.19	7.6	33.39	8.0	24.7	2.22
I26	08 Dec 2021	1	16.36	84.07	7.8	33.51	8.0	24.5	0.65
I26	08 Dec 2021	2	16.17	83.06	7.8	33.52	8.0	24.6	0.65
I26	08 Dec 2021	3	16.04	83.43	7.8	33.50	8.0	24.6	0.73
I26	08 Dec 2021	4	16.00	83.37	7.8	33.49	8.0	24.6	0.88
I26	08 Dec 2021	5	15.83	83.26	7.7	33.50	8.0	24.6	0.96
I26	08 Dec 2021	6	15.57	83.94	7.5	33.49	8.0	24.7	0.98
I26	08 Dec 2021	7	15.29	84.76	7.4	33.49	7.9	24.7	0.91
I26	08 Dec 2021	8	15.14	85.05	7.3	33.48	7.9	24.8	0.81
I26	08 Dec 2021	9	14.87	85.02	7.2	33.46	7.9	24.8	0.73
I26	17 Dec 2021	1	15.26	74.94	7.7	33.44	8.0	24.7	0.82
I26	17 Dec 2021	2	15.26	75.09	7.7	33.44	8.0	24.7	0.79
I26	17 Dec 2021	3	15.24	74.85	7.6	33.44	8.0	24.7	0.78
I26	17 Dec 2021	4	15.19	74.11	7.6	33.45	8.0	24.7	0.78
I26	17 Dec 2021	5	15.14	73.37	7.6	33.44	8.0	24.7	0.85
I26	17 Dec 2021	6	15.10	72.46	7.6	33.44	8.0	24.8	0.96
I26	17 Dec 2021	7	15.08	71.76	7.5	33.44	8.0	24.8	1.10
I26	17 Dec 2021	8	15.08	71.25	7.5	33.44	8.0	24.7	1.17
I26	17 Dec 2021	9	15.10	71.16	7.5	33.43	8.0	24.7	1.21
I26	21 Dec 2021	1	14.19	77.34	7.3	33.45	7.9	24.9	1.71
I26	21 Dec 2021	2	14.17	78.76	7.3	33.45	7.9	24.9	1.70
I26	21 Dec 2021	3	14.19	79.63	7.3	33.44	7.9	24.9	1.72
I26	21 Dec 2021	4	14.17	79.67	7.3	33.45	7.9	25.0	1.90
I26	21 Dec 2021	5	14.04	79.10	7.1	33.46	7.9	25.0	2.02
I26	21 Dec 2021	6	13.98	76.84	6.9	33.46	7.9	25.0	2.25
I26	21 Dec 2021	7	13.94	74.48	6.7	33.46	7.9	25.0	2.50
I26	21 Dec 2021	8	13.90	73.65	6.5	33.46	7.9	25.0	2.20
I26	21 Dec 2021	9	13.89	73.64	6.5	33.46	7.9	25.0	2.13
I26	27 Dec 2021	1	15.24	72.07	7.8	33.42	8.0	24.7	1.38
I26	27 Dec 2021	2	15.23	72.54	7.8	33.42	8.0	24.7	1.62
I26	27 Dec 2021	3	15.21	72.08	7.8	33.42	8.0	24.7	1.58
I26	27 Dec 2021	4	15.20	71.82	7.8	33.42	8.0	24.7	2.05
I26	27 Dec 2021	5	15.19	71.32	7.8	33.42	8.0	24.7	2.36
I26	27 Dec 2021	6	15.19	70.93	7.8	33.42	8.0	24.7	2.41
I26	27 Dec 2021	7	15.19	70.90	7.8	33.42	8.0	24.7	2.28
I26	27 Dec 2021	8	15.19	70.18	7.8	33.42	8.0	24.7	2.18
I26	27 Dec 2021	9	15.19	69.81	7.7	33.42	8.0	24.7	2.30
I32	08 Dec 2021	1	15.85	83.54	7.5	33.48	8.0	24.6	0.54
I32	08 Dec 2021	2	15.89	83.49	7.5	33.48	8.0	24.6	0.54
I32	08 Dec 2021	3	15.87	83.47	7.5	33.49	8.0	24.6	0.55
I32	08 Dec 2021	4	15.47	83.31	7.4	33.53	7.9	24.7	0.54
I32	08 Dec 2021	5	15.21	83.71	7.2	33.48	7.9	24.8	0.56
I32	08 Dec 2021	6	15.17	83.46	7.2	33.47	7.9	24.8	0.55
I32	08 Dec 2021	7	15.14	83.25	7.2	33.47	7.9	24.8	0.57
I32	08 Dec 2021	8	15.13	83.57	7.2	33.46	7.9	24.8	0.58

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I32	08 Dec 2021	9	15.12	83.95	7.2	33.46	7.9	24.8	0.60
I32	08 Dec 2021	10	15.12	83.47	7.1	33.46	7.9	24.8	0.60
I32	17 Dec 2021	1	15.31	74.88	7.8	33.44	8.0	24.7	0.84
I32	17 Dec 2021	2	15.30	74.83	7.8	33.44	8.0	24.7	0.85
I32	17 Dec 2021	3	15.29	74.84	7.8	33.44	8.0	24.7	0.92
I32	17 Dec 2021	4	15.25	74.59	7.8	33.45	8.0	24.7	0.95
I32	17 Dec 2021	5	15.18	73.27	7.8	33.45	8.0	24.7	1.03
I32	17 Dec 2021	6	15.06	69.76	7.8	33.44	8.0	24.8	1.26
I32	17 Dec 2021	7	15.00	65.59	7.8	33.44	8.0	24.8	1.58
I32	17 Dec 2021	8	14.93	61.75	7.8	33.44	8.0	24.8	1.84
I32	17 Dec 2021	9	14.88	59.17	7.7	33.43	8.0	24.8	1.85
I32	21 Dec 2021	1	14.41	76.51	7.8	33.47	8.0	24.9	2.53
I32	21 Dec 2021	2	14.35	75.79	7.8	33.47	8.0	24.9	2.46
I32	21 Dec 2021	3	14.32	75.16	7.8	33.47	8.0	24.9	2.64
I32	21 Dec 2021	4	14.31	75.79	7.7	33.47	8.0	24.9	3.00
I32	21 Dec 2021	5	14.30	75.89	7.7	33.47	8.0	24.9	3.25
I32	21 Dec 2021	6	14.30	75.26	7.6	33.47	8.0	24.9	3.46
I32	21 Dec 2021	7	14.29	75.55	7.6	33.47	8.0	24.9	3.75
I32	21 Dec 2021	8	14.27	75.81	7.6	33.47	8.0	24.9	3.56
I32	21 Dec 2021	9	14.25	74.83	7.5	33.47	7.9	25.0	3.36
I32	21 Dec 2021	10	14.22	72.67	7.6	33.48	7.9	25.0	3.31
I32	27 Dec 2021	1	15.22	64.03	7.8	33.40	8.0	24.7	1.63
I32	27 Dec 2021	2	15.22	64.42	7.8	33.40	8.0	24.7	1.76
I32	27 Dec 2021	3	15.20	65.82	7.8	33.40	8.0	24.7	1.81
I32	27 Dec 2021	4	15.19	66.07	7.8	33.40	8.0	24.7	2.09
I32	27 Dec 2021	5	15.21	63.81	7.7	33.40	8.0	24.7	2.22
I32	27 Dec 2021	6	15.23	61.27	7.6	33.41	8.0	24.7	2.31
I32	27 Dec 2021	7	15.23	59.02	7.7	33.42	8.0	24.7	2.31
I32	27 Dec 2021	8	15.14	55.85	7.7	33.41	8.0	24.7	2.34
I32	27 Dec 2021	9	14.90	46.98	7.8	33.38	8.0	24.7	2.46
I32	27 Dec 2021	10	14.84	41.55	7.8	33.35	8.0	24.7	2.38
I39	08 Dec 2021	1	16.23	85.07	7.8	33.50	8.0	24.5	0.68
I39	08 Dec 2021	2	16.21	84.98	7.7	33.50	8.0	24.5	0.68
I39	08 Dec 2021	3	16.19	84.93	7.8	33.50	8.0	24.6	0.71
I39	08 Dec 2021	4	16.18	84.90	7.8	33.50	8.0	24.6	0.76
I39	08 Dec 2021	5	16.18	84.74	7.7	33.50	8.0	24.6	0.85
I39	08 Dec 2021	6	16.16	84.58	7.8	33.50	8.0	24.6	0.91
I39	08 Dec 2021	7	16.15	84.47	7.8	33.50	8.0	24.6	1.07
I39	08 Dec 2021	8	16.14	84.25	7.8	33.50	8.0	24.6	1.26
I39	08 Dec 2021	9	16.13	84.11	7.8	33.50	8.0	24.6	1.47
I39	08 Dec 2021	10	16.13	84.04	7.8	33.50	8.0	24.6	1.73
I39	08 Dec 2021	11	16.12	84.12	7.7	33.50	8.0	24.6	1.93
I39	08 Dec 2021	12	16.12	84.39	7.7	33.50	8.0	24.6	1.97
I39	08 Dec 2021	13	16.12	84.46	7.7	33.50	8.0	24.6	1.83
I39	08 Dec 2021	14	16.11	84.61	7.7	33.50	8.0	24.6	1.85
I39	08 Dec 2021	15	16.02	84.74	7.6	33.51	8.0	24.6	1.69
I39	08 Dec 2021	16	15.75	85.06	7.5	33.52	8.0	24.7	1.60
I39	08 Dec 2021	17	15.40	85.56	7.3	33.52	7.9	24.7	1.31
I39	08 Dec 2021	18	14.93	85.74	7.2	33.52	7.9	24.8	1.14
I39	17 Dec 2021	1	15.45	80.90	7.7	33.45	8.0	24.7	0.44
I39	17 Dec 2021	2	15.34	81.63	7.7	33.47	8.0	24.7	0.43
I39	17 Dec 2021	3	15.28	80.70	7.8	33.45	8.0	24.7	0.48
I39	17 Dec 2021	4	15.26	80.28	7.8	33.45	8.0	24.7	0.57
I39	17 Dec 2021	5	15.25	80.30	7.8	33.45	8.0	24.7	0.65
I39	17 Dec 2021	6	15.24	80.54	7.8	33.45	8.0	24.7	0.73
I39	17 Dec 2021	7	15.23	80.73	7.7	33.45	8.0	24.7	0.79

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I39	17 Dec 2021	8	15.22	80.97	7.7	33.45	8.0	24.7	0.86
I39	17 Dec 2021	9	15.21	81.07	7.7	33.45	8.0	24.7	1.00
I39	17 Dec 2021	10	15.21	81.30	7.7	33.45	8.0	24.7	1.19
I39	17 Dec 2021	11	15.21	81.47	7.7	33.45	8.0	24.7	1.20
I39	17 Dec 2021	12	15.21	81.53	7.7	33.45	8.0	24.7	1.27
I39	17 Dec 2021	13	15.21	81.63	7.7	33.45	8.0	24.7	1.35
I39	17 Dec 2021	14	15.21	81.75	7.7	33.45	8.0	24.7	1.19
I39	17 Dec 2021	15	15.20	81.94	7.7	33.46	8.0	24.7	1.28
I39	17 Dec 2021	16	15.14	82.32	7.6	33.46	8.0	24.8	1.26
I39	17 Dec 2021	17	15.08	82.47	7.4	33.46	8.0	24.8	1.08
I39	17 Dec 2021	18	15.06	82.23	7.3	33.45	8.0	24.8	0.92
I39	21 Dec 2021	1	14.48	82.33	7.4	33.45	8.0	24.9	1.13
I39	21 Dec 2021	2	14.46	82.33	7.4	33.45	8.0	24.9	1.12
I39	21 Dec 2021	3	14.42	82.12	7.4	33.46	8.0	24.9	1.22
I39	21 Dec 2021	4	14.40	82.05	7.4	33.46	8.0	24.9	1.38
I39	21 Dec 2021	5	14.39	82.04	7.4	33.46	8.0	24.9	1.58
I39	21 Dec 2021	6	14.39	82.13	7.3	33.46	8.0	24.9	1.64
I39	21 Dec 2021	7	14.38	82.36	7.3	33.47	8.0	24.9	1.73
I39	21 Dec 2021	8	14.22	82.62	7.2	33.47	7.9	25.0	1.78
I39	21 Dec 2021	9	14.17	82.98	7.1	33.46	7.9	25.0	1.70
I39	21 Dec 2021	10	14.13	83.11	7.0	33.46	7.9	25.0	1.70
I39	21 Dec 2021	11	14.11	83.17	7.0	33.45	7.9	25.0	1.65
I39	21 Dec 2021	12	14.09	83.10	7.0	33.45	7.9	25.0	1.69
I39	21 Dec 2021	13	14.04	83.18	6.9	33.46	7.9	25.0	1.61
I39	21 Dec 2021	14	13.97	82.93	6.8	33.46	7.9	25.0	1.62
I39	21 Dec 2021	15	13.87	82.44	6.7	33.46	7.9	25.0	1.60
I39	21 Dec 2021	16	13.78	82.08	6.5	33.46	7.9	25.0	1.50
I39	21 Dec 2021	17	13.71	81.59	6.4	33.46	7.9	25.1	1.36
I39	21 Dec 2021	18	13.67	81.32	6.3	33.45	7.9	25.1	1.34
I39	27 Dec 2021	1	15.09	72.36	8.1	33.41	8.0	24.7	1.63
I39	27 Dec 2021	2	15.09	77.02	8.0	33.41	8.0	24.7	1.62
I39	27 Dec 2021	3	15.09	77.05	8.0	33.41	8.0	24.7	1.74
I39	27 Dec 2021	4	15.09	77.26	8.1	33.41	8.0	24.7	1.78
I39	27 Dec 2021	5	15.10	77.36	8.0	33.41	8.0	24.7	1.94
I39	27 Dec 2021	6	15.12	77.85	8.0	33.42	8.0	24.7	2.09
I39	27 Dec 2021	7	15.12	78.13	8.0	33.42	8.0	24.7	2.18
I39	27 Dec 2021	8	15.14	78.64	8.0	33.43	8.0	24.7	2.25
I39	27 Dec 2021	9	15.14	79.42	8.0	33.43	8.0	24.7	2.28
I39	27 Dec 2021	10	15.16	79.92	8.0	33.43	8.0	24.7	2.30
I39	27 Dec 2021	11	15.17	79.99	8.0	33.44	8.0	24.7	2.53
I39	27 Dec 2021	12	15.17	80.44	8.0	33.44	8.0	24.7	2.40
I39	27 Dec 2021	13	15.17	80.33	7.9	33.44	8.0	24.7	2.64
I39	27 Dec 2021	14	15.17	80.24	8.0	33.44	8.0	24.7	2.62
I39	27 Dec 2021	15	15.17	80.29	8.0	33.44	8.0	24.7	2.54
I39	27 Dec 2021	16	15.17	80.35	8.0	33.44	8.0	24.7	2.41
I39	27 Dec 2021	17	15.17	80.28	8.0	33.44	8.0	24.7	2.41
I39	27 Dec 2021	18	15.17	80.14	8.0	33.44	8.0	24.7	2.42
I40	08 Dec 2021	1	15.81	79.95	7.7	33.47	8.0	24.6	0.82
I40	08 Dec 2021	2	15.78	80.13	7.7	33.48	8.0	24.6	0.84
I40	08 Dec 2021	3	15.57	80.15	7.7	33.47	8.0	24.7	0.83
I40	08 Dec 2021	4	15.52	78.78	7.6	33.44	7.9	24.7	0.90
I40	08 Dec 2021	5	15.53	77.20	7.5	33.48	7.9	24.7	0.99
I40	08 Dec 2021	6	15.47	76.20	7.4	33.48	7.9	24.7	1.02
I40	08 Dec 2021	7	15.37	75.13	7.2	33.49	7.9	24.7	1.06
I40	08 Dec 2021	8	15.10	75.94	7.1	33.49	7.9	24.8	1.15
I40	08 Dec 2021	9	14.95	76.70	7.0	33.47	7.9	24.8	1.11
I40	08 Dec 2021	10	14.96	71.14	6.9	33.46	7.9	24.8	1.05

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
I40	17 Dec 2021	1	15.12	59.90	7.9	33.42	7.9	24.7	0.78
I40	17 Dec 2021	2	15.13	59.67	7.9	33.42	7.9	24.7	0.80
I40	17 Dec 2021	3	15.11	60.00	7.8	33.42	7.9	24.7	0.84
I40	17 Dec 2021	4	15.10	60.03	7.8	33.42	7.9	24.7	1.02
I40	17 Dec 2021	5	15.07	59.38	7.8	33.42	7.9	24.7	1.21
I40	17 Dec 2021	6	15.03	59.48	7.8	33.42	7.9	24.7	1.41
I40	17 Dec 2021	7	14.99	59.45	7.8	33.42	7.9	24.8	1.67
I40	17 Dec 2021	8	14.96	58.39	7.8	33.42	7.9	24.8	1.63
I40	17 Dec 2021	9	14.95	56.30	7.7	33.42	7.9	24.8	1.65
I40	17 Dec 2021	10	14.94	53.12	7.7	33.41	7.9	24.8	1.68
I40	21 Dec 2021	1	14.26	80.15	7.4	33.45	7.9	24.9	1.47
I40	21 Dec 2021	2	14.23	80.03	7.4	33.45	7.9	24.9	1.52
I40	21 Dec 2021	3	14.23	79.28	7.4	33.45	7.9	24.9	1.82
I40	21 Dec 2021	4	14.21	78.65	7.4	33.45	7.9	24.9	2.04
I40	21 Dec 2021	5	14.16	78.90	7.3	33.45	7.9	25.0	2.18
I40	21 Dec 2021	6	14.15	79.27	7.3	33.45	7.9	25.0	2.28
I40	21 Dec 2021	7	14.09	76.66	7.2	33.46	7.9	25.0	2.43
I40	21 Dec 2021	8	13.99	70.08	7.3	33.45	7.9	25.0	2.64
I40	21 Dec 2021	9	13.94	60.30	7.3	33.44	7.9	25.0	2.45
I40	21 Dec 2021	10	13.86	53.54	6.6	33.46	7.8	25.0	2.45
I40	27 Dec 2021	1	14.70	37.52	7.8	33.21	8.0	24.7	1.90
I40	27 Dec 2021	2	14.70	37.11	7.8	33.20	8.0	24.6	1.96
I40	27 Dec 2021	3	14.69	37.22	7.7	33.20	8.0	24.7	2.01
I40	27 Dec 2021	4	14.70	36.80	7.7	33.24	8.0	24.7	2.05
I40	27 Dec 2021	5	14.70	36.64	7.6	33.29	8.0	24.7	2.01
I40	27 Dec 2021	6	14.70	35.12	7.6	33.29	8.0	24.7	2.13
I40	27 Dec 2021	7	14.69	34.12	7.6	33.29	8.0	24.7	2.16
I40	27 Dec 2021	8	14.69	33.20	7.6	33.29	8.0	24.7	2.21
I40	27 Dec 2021	9	14.69	29.95	7.6	33.30	8.0	24.7	2.16
I40	27 Dec 2021	10	14.68	26.54	7.6	33.30	8.0	24.7	2.09

NA = not available

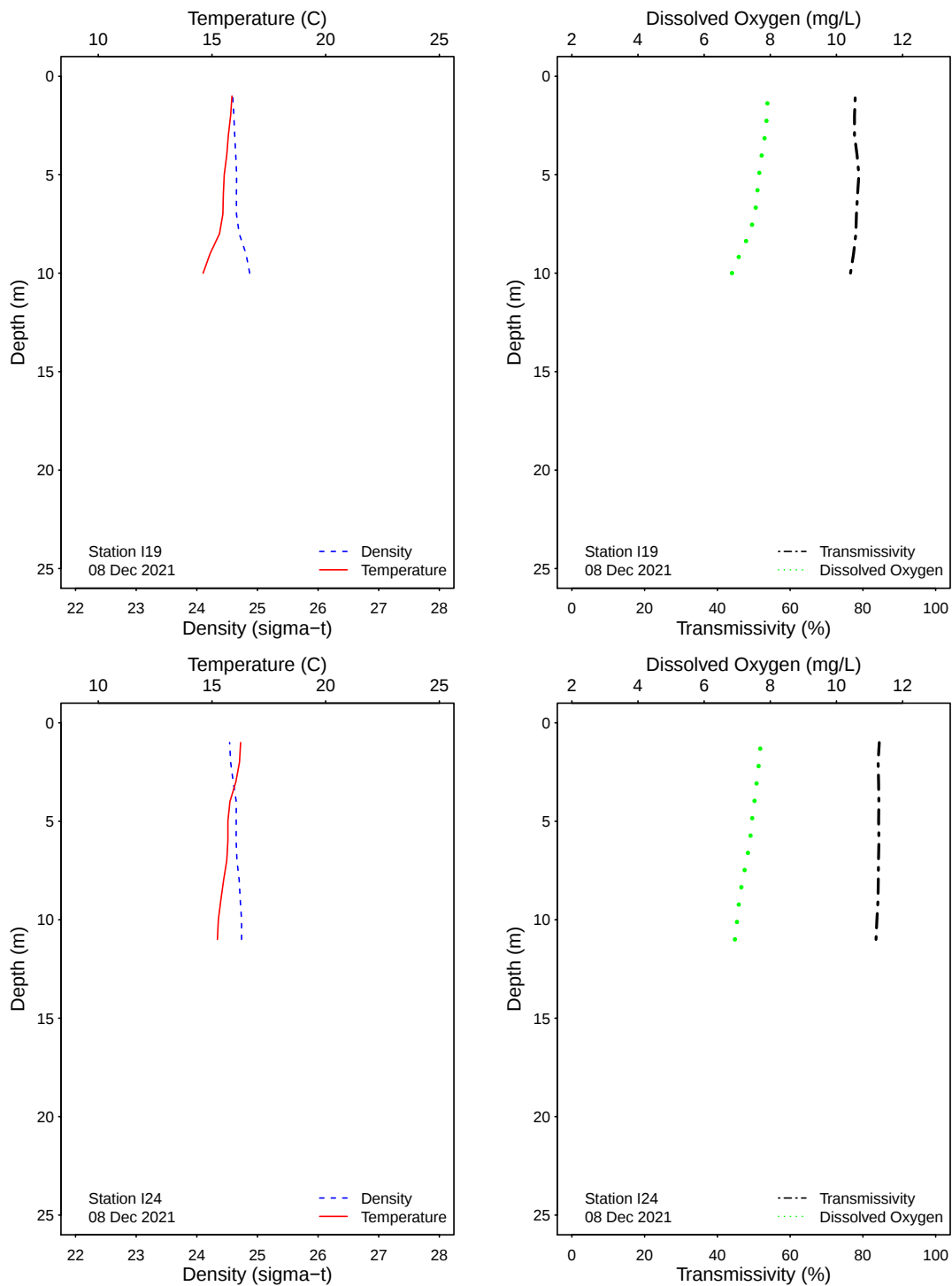


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

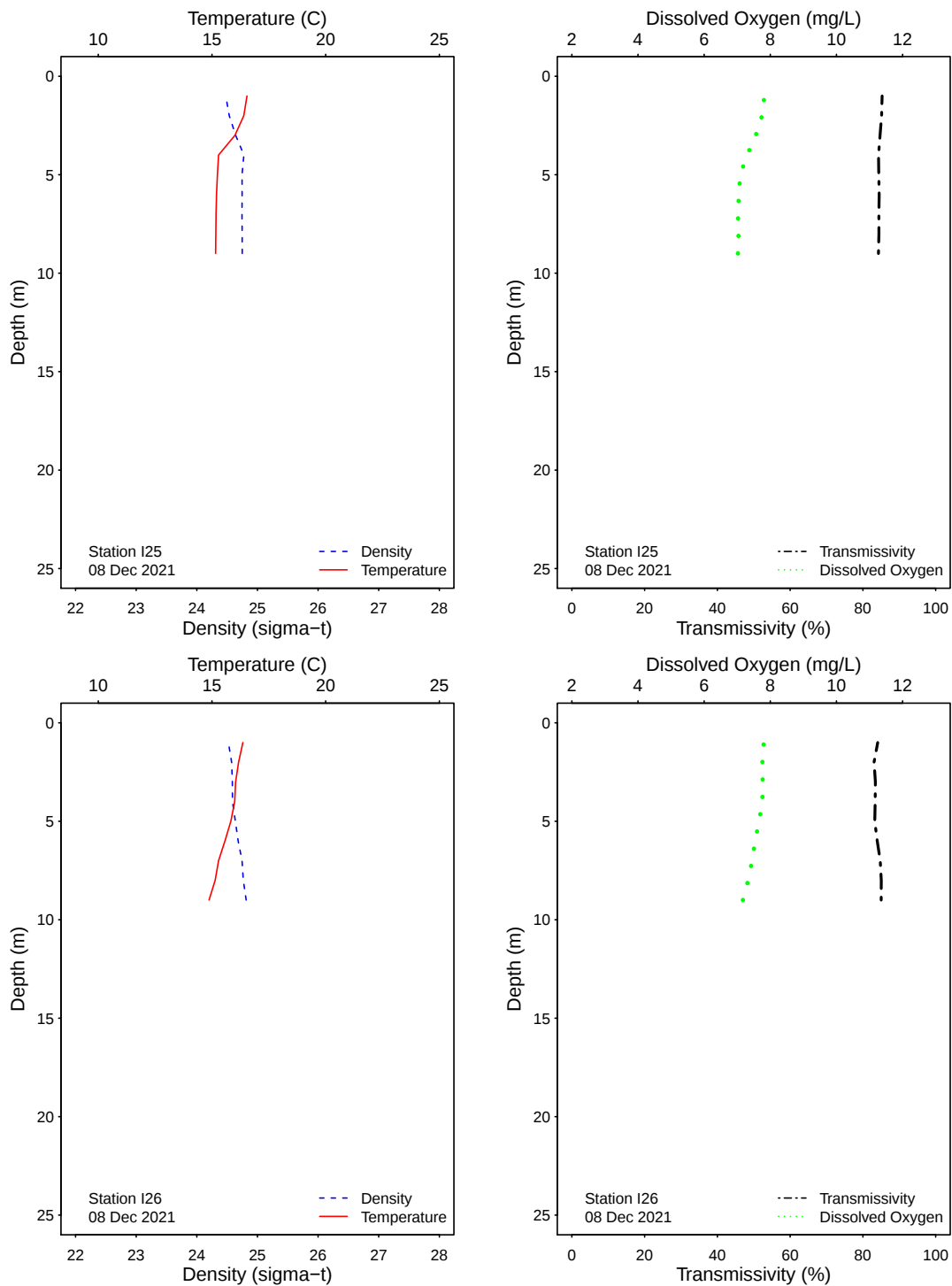


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

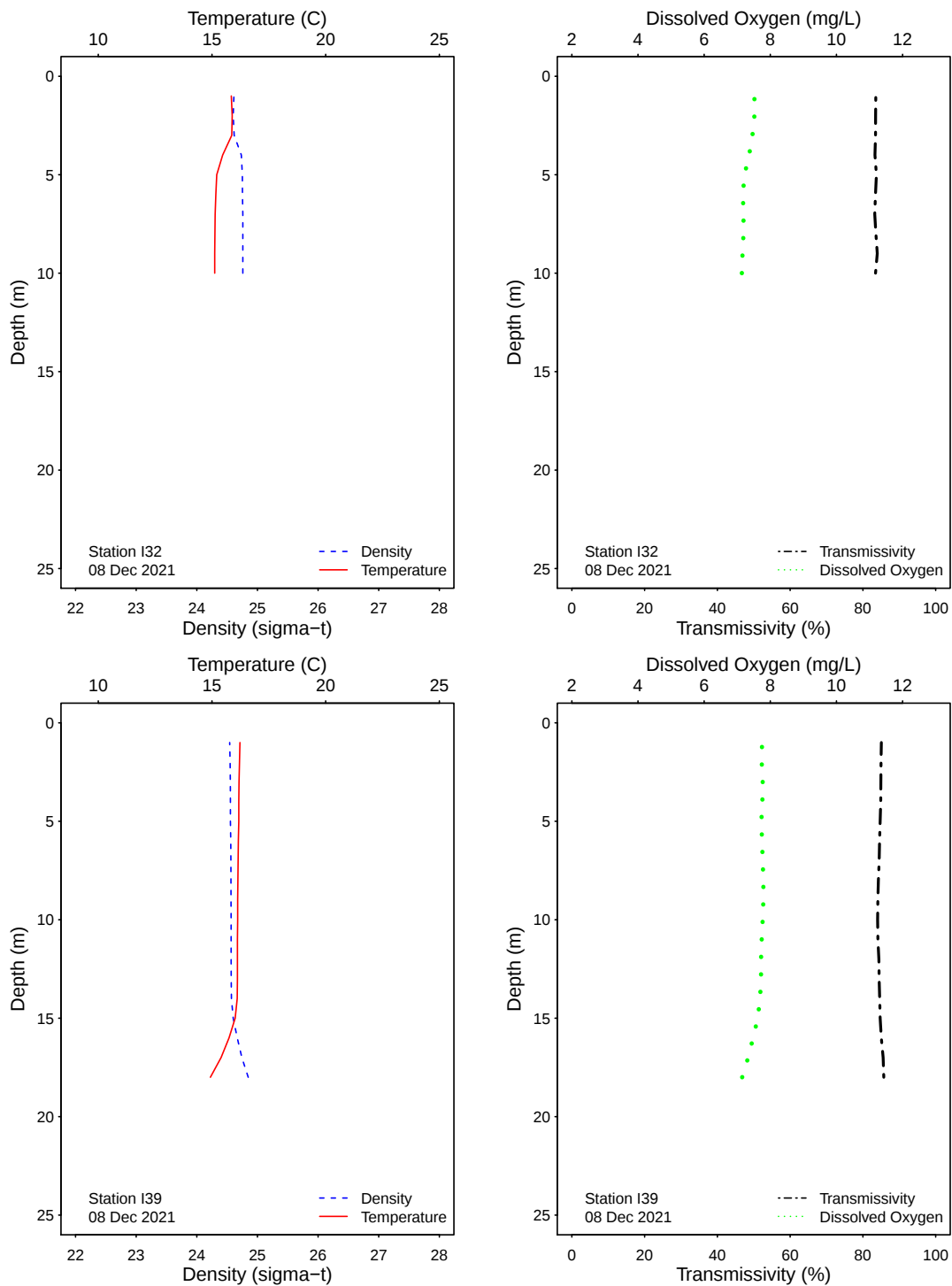


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

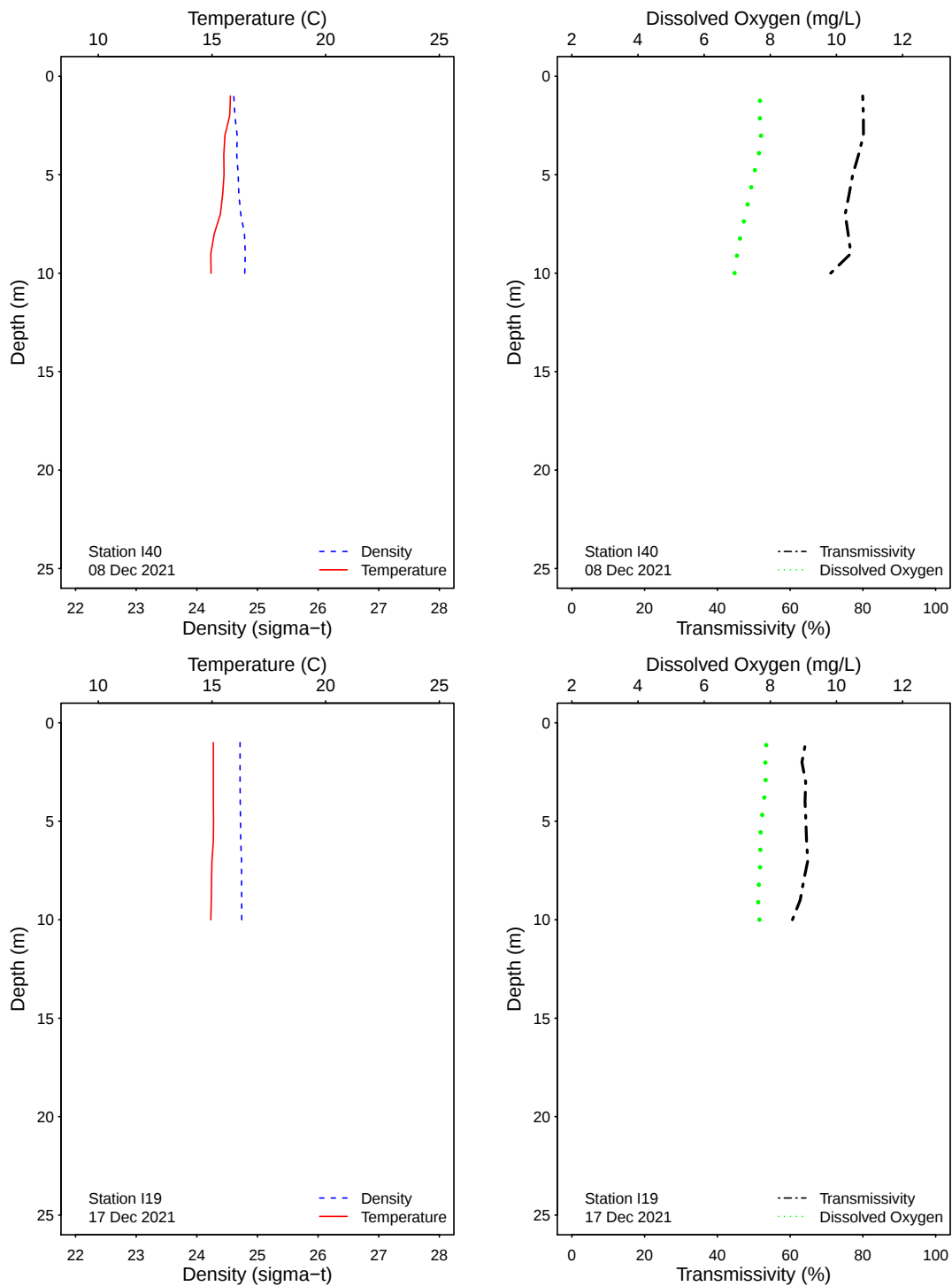


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

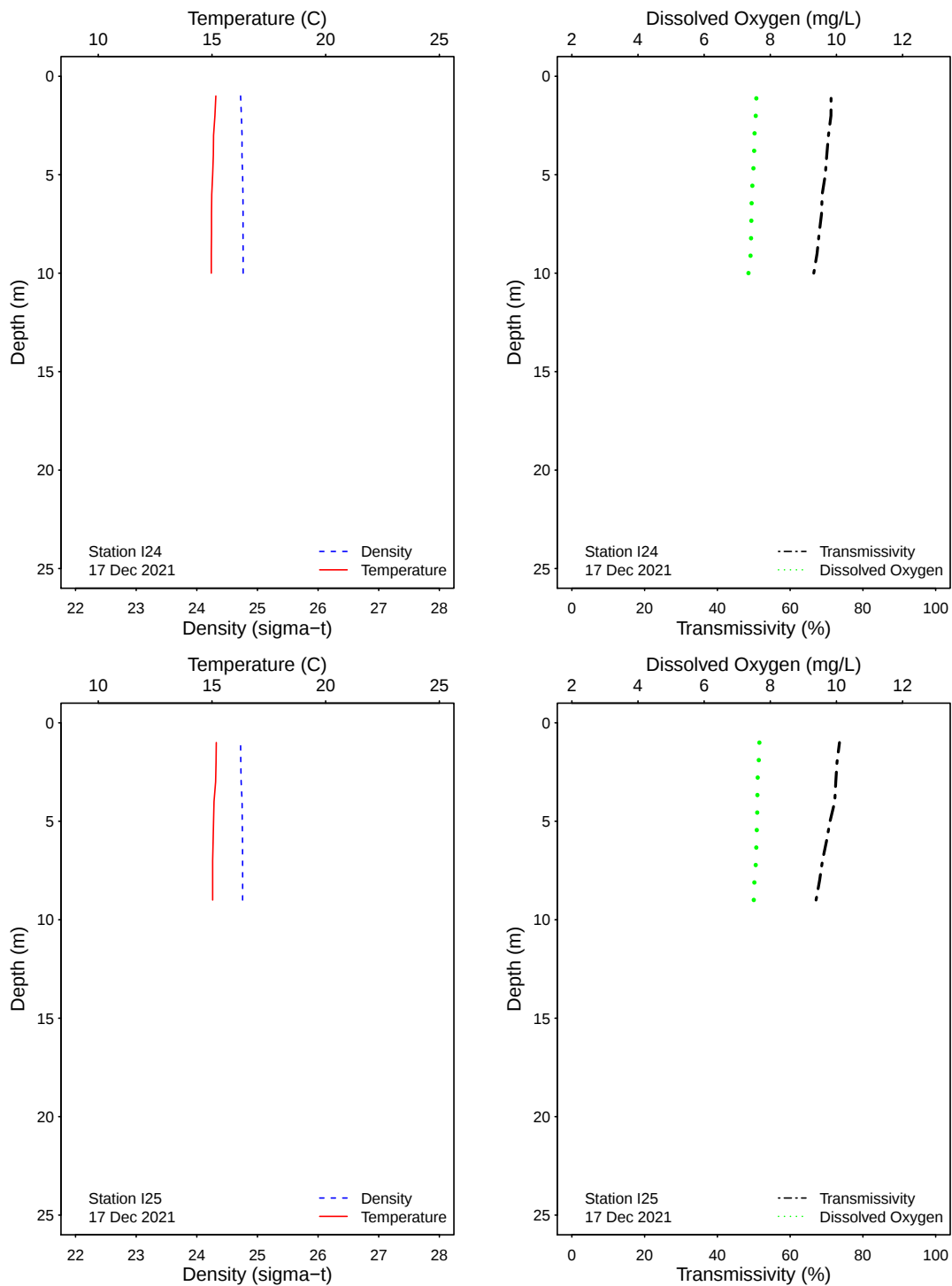


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

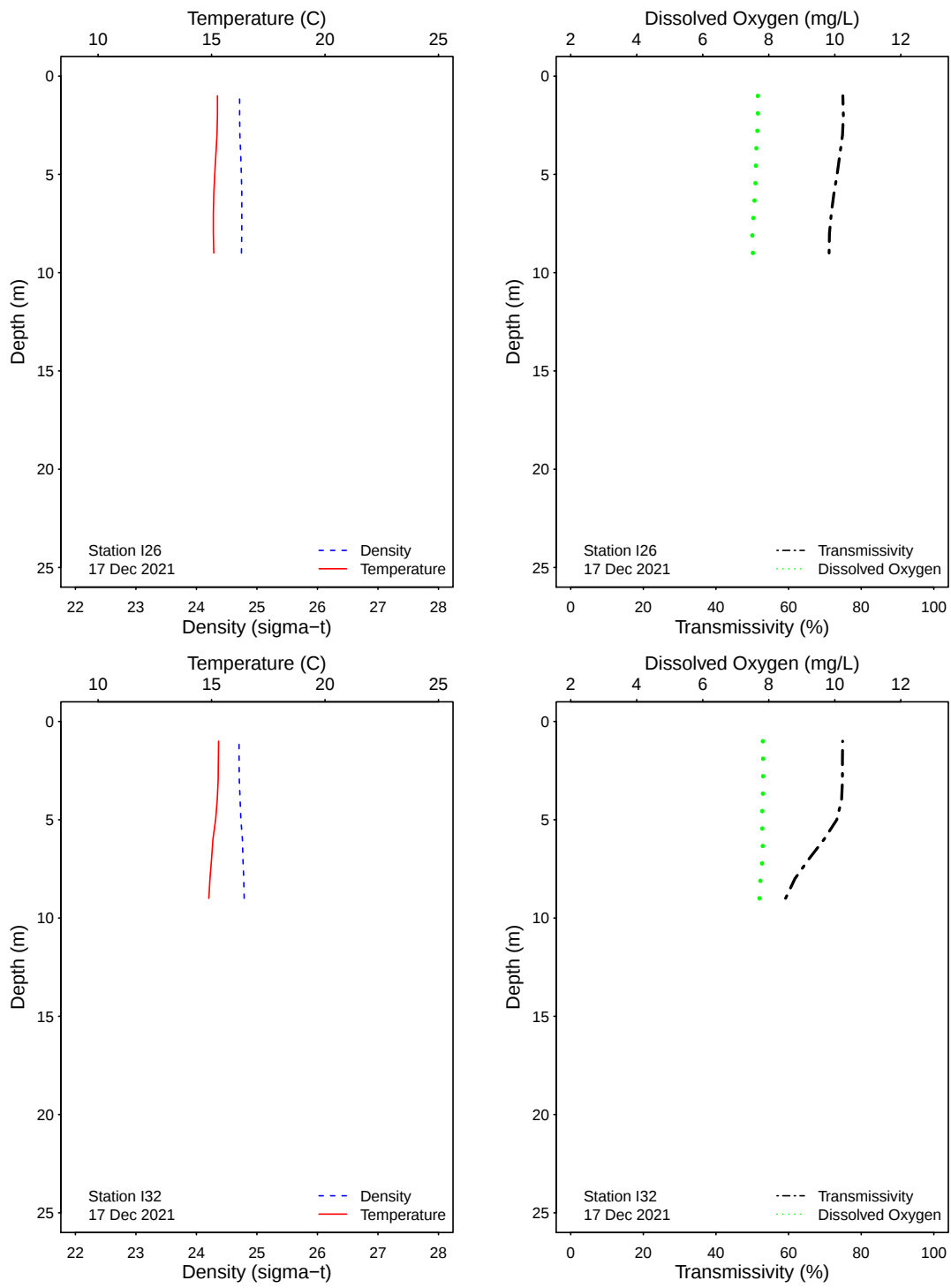


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

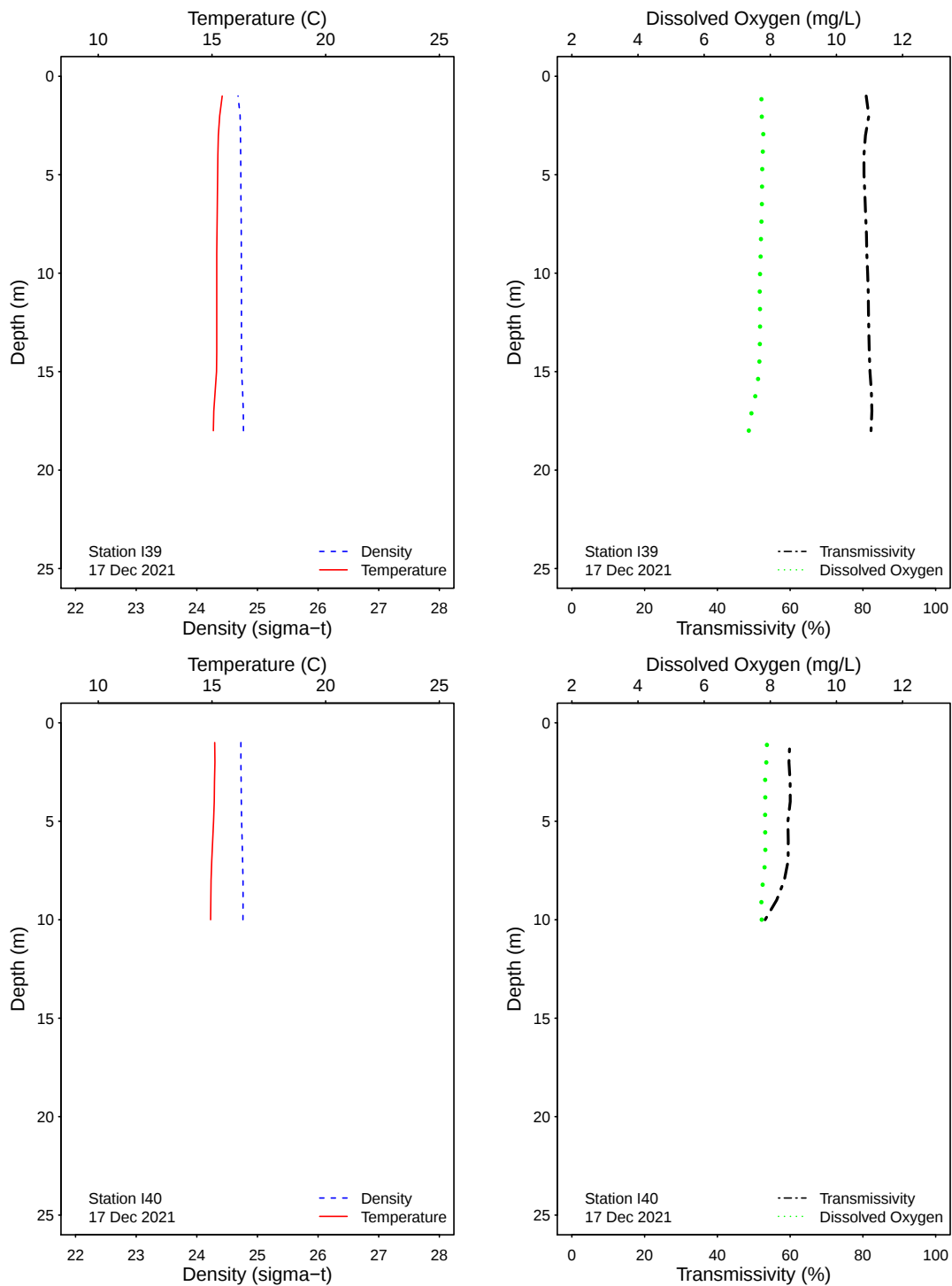


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

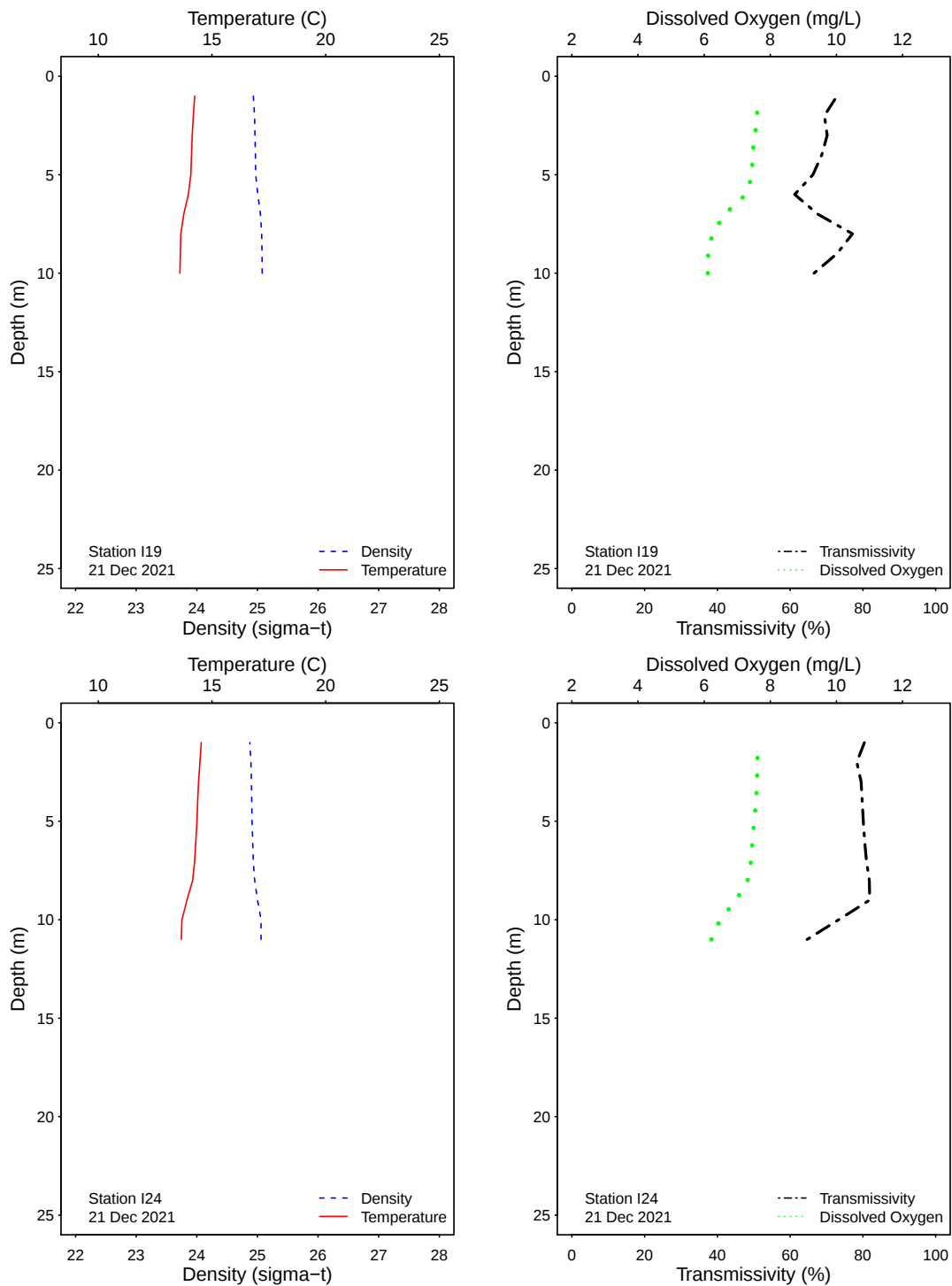


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

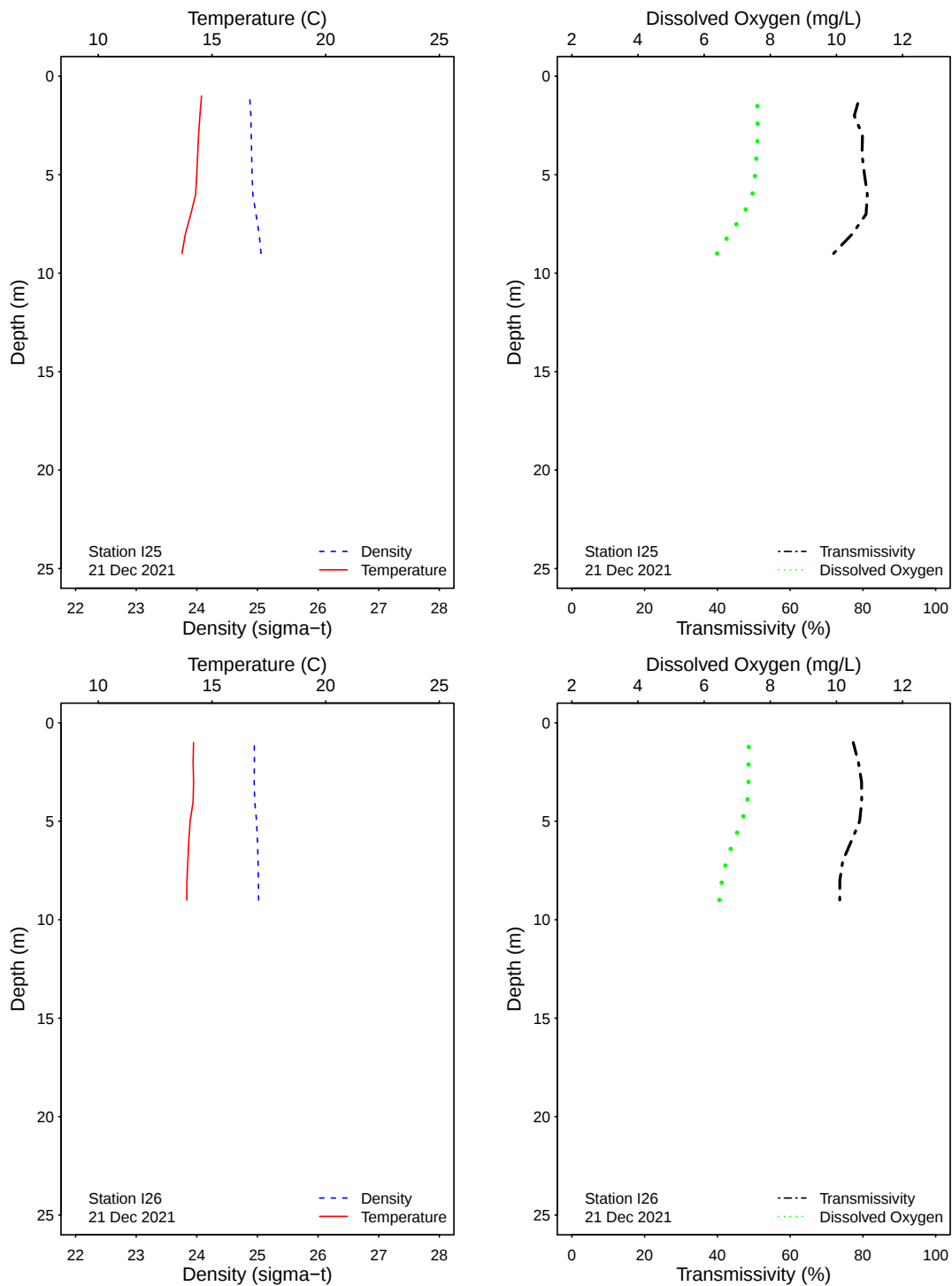


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

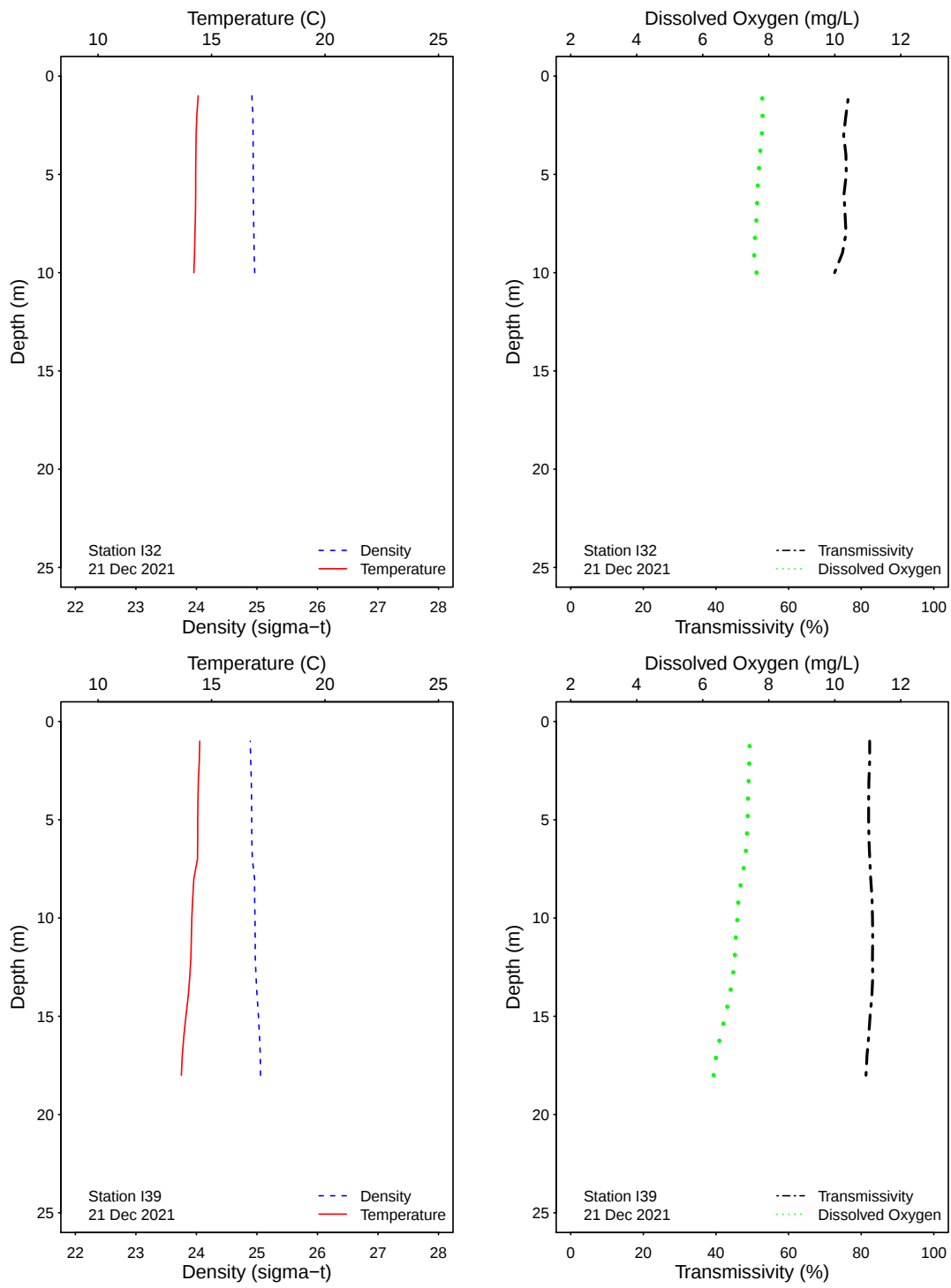


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

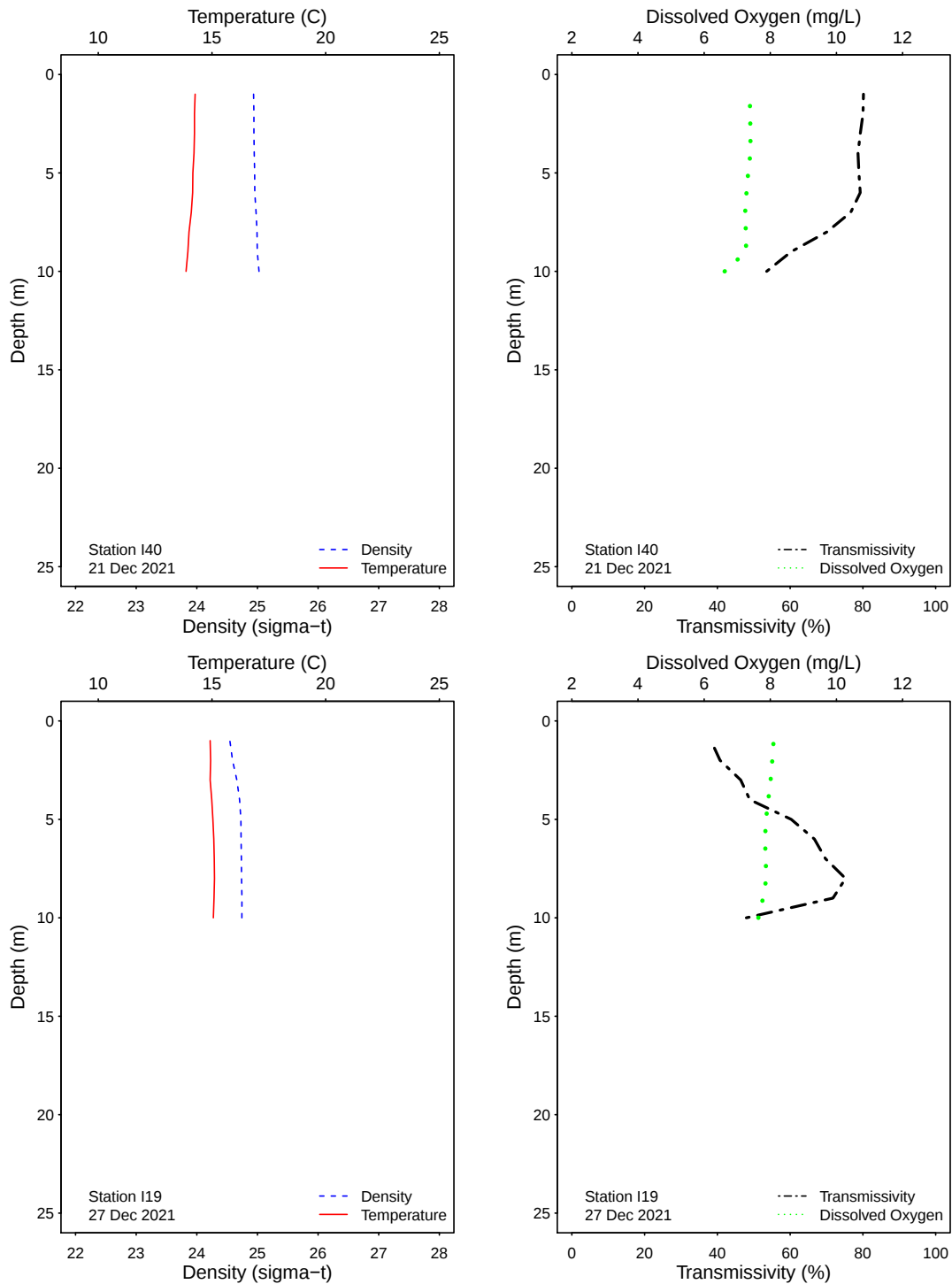


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

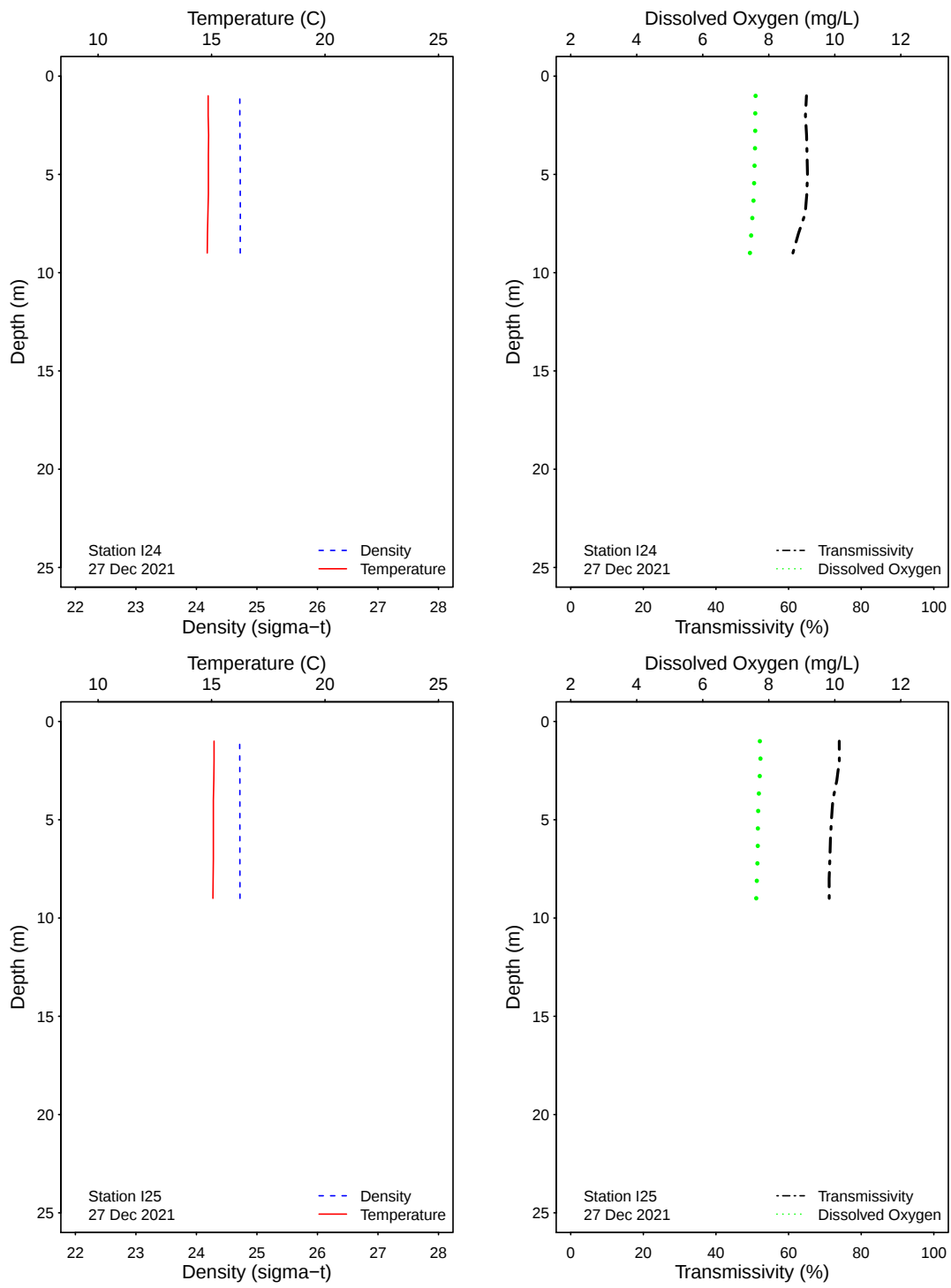


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

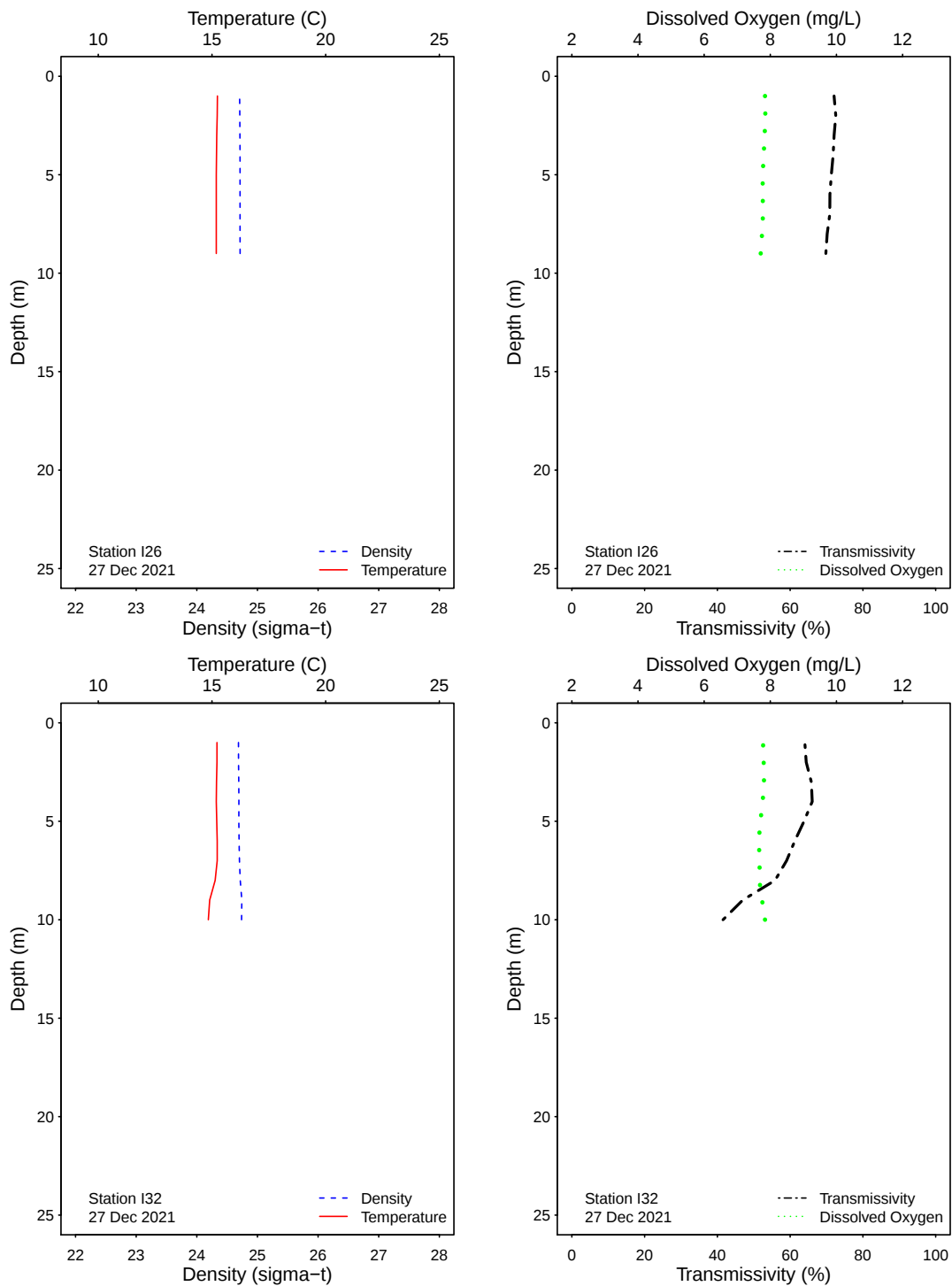


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

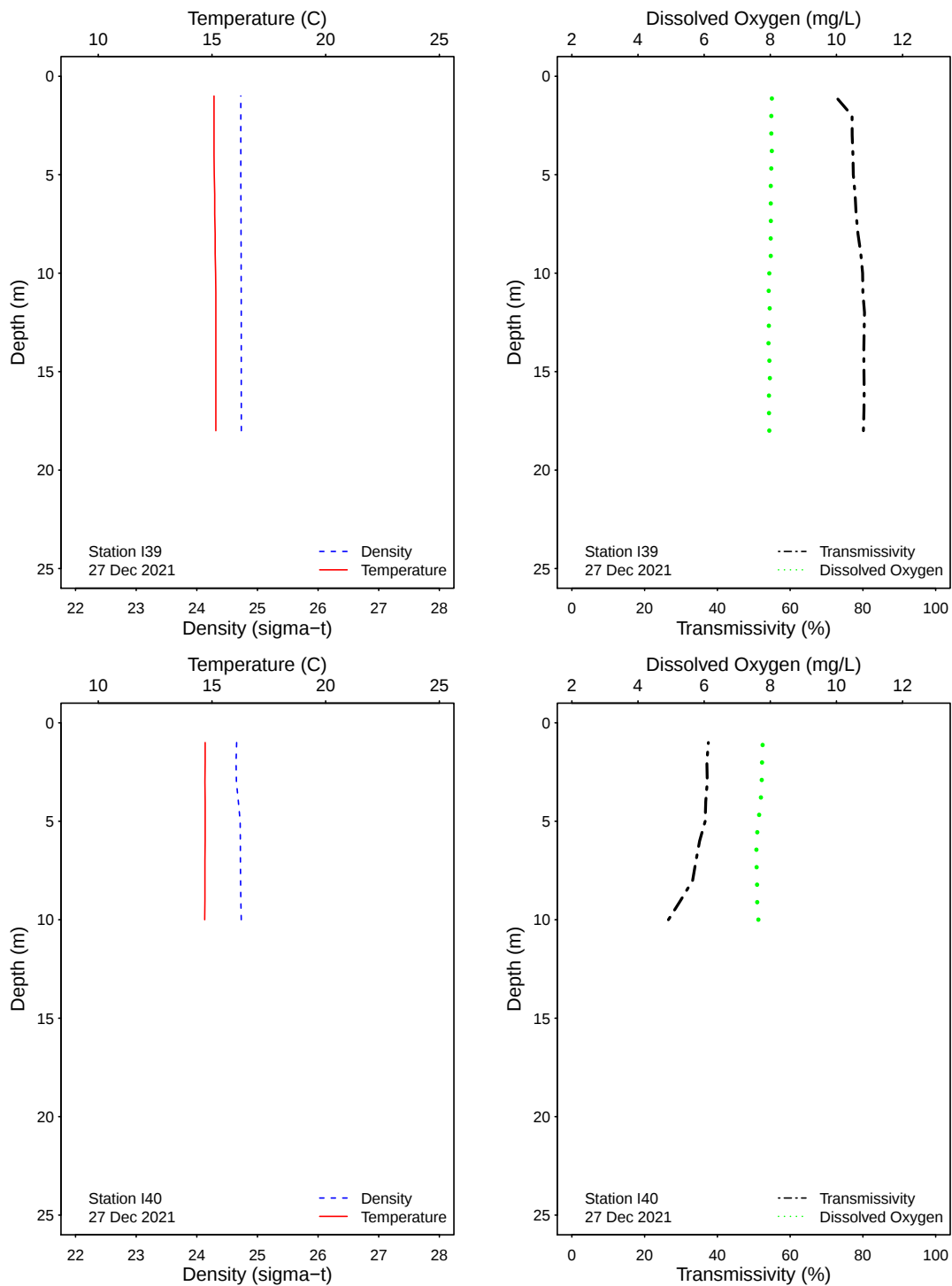


Figure 3.1: Graphics of CTD profile data from the SBOO kelp stations for each sample date.

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	08 Dec 2021	6	JF	LAB DUPLICATE	3600e	320e	440
I19	17 Dec 2021	6	AR	LAB DUPLICATE	1000	84	46
I19	21 Dec 2021	6	BS	LAB DUPLICATE	92	50	56
I19	27 Dec 2021	6	AR	LAB DUPLICATE	4000	300e	200e
I40	08 Dec 2021	6	JF	LAB DUPLICATE	16e	<2	6e
I40	17 Dec 2021	6	AR	LAB DUPLICATE	5800	780	64
I40	21 Dec 2021	6	BS	LAB DUPLICATE	320e	18e	12e
I40	27 Dec 2021	6	AR	LAB DUPLICATE	9400	1000	840
S12	07 Dec 2021		AR	FIELD DUPLICATE	4e	4e	<2
S12	07 Dec 2021		AR	LAB DUPLICATE	6e	4e	2e
S12	14 Dec 2021		CRE	FIELD DUPLICATE	1000e	180e	480
S12	14 Dec 2021		CRE	LAB DUPLICATE	1800e	120e	320e
S12	21 Dec 2021		BS	FIELD DUPLICATE	8e	2e	10e
S12	21 Dec 2021		BS	LAB DUPLICATE	8e	2e	2e
S12	28 Dec 2021		CRE	FIELD DUPLICATE	100e	6e	36e
S12	28 Dec 2021		CRE	LAB DUPLICATE	80e	2e	28e

ns = not sampled

ND = no data

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