



POINT LOMA OCEAN OUTFALL MONTHLY RECEIVING WATERS MONITORING REPORT

**POINT LOMA
WASTEWATER TREATMENT PLANT**

NPDES Permit No. CA0107409
SDRWQCB Order No. R9-2017-0007

JANUARY 2021

Environmental Monitoring and Technical Services
2392 Kincaid Road • Mail Station 45A • San Diego, CA 92101
Tel (619) 758-2300 Fax (619) 758-2309





Public Utilities Department

Environmental Monitoring & Technical Services Division

February 28, 2021

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

Attention: POTW Compliance Unit

Dear Mr. Gibson:

Enclosed is the January 2021 Monthly Receiving Waters Monitoring Report for the Point Loma Ocean Outfall, Point Loma Wastewater Treatment Plant as required per Order No. R9-2017-0007, NPDES Permit No. CA0107409.

This report includes raw ocean monitoring data and summaries of water quality parameters and ocean conditions measured during the month for the Point Loma outfall region. Also included are summaries of compliance with the bacterial water-contact standards specified in the California Ocean Plan.

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,

A handwritten signature in blue ink, appearing to read "Peter S. Vroom".

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

PV/rk

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

INTRODUCTION

Monthly reports of water quality and ocean conditions for the San Diego coastal region surrounding the Point Loma Ocean Outfall are submitted to the San Diego Regional Water Quality Control Board and U.S. EPA Region 9 in accordance with Order No. R9-2017-0007, NPDES Permit No. CA0107409 for the Point Loma Wastewater Treatment Plant (PLWTP), Point Loma Ocean Outfall (PLOO). 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 PLWTP are presented in separate reports.

MATERIALS AND METHODS

Shore Stations

Water quality conditions are required to be monitored at eight shoreline stations, including D4, D5, D7, D8, D9, D10, D11 and D12, which range from the tip of the Point Loma Peninsula to west of Mission Bay (see station locations map). Over the past several years, due to increasing instability in several cliffside areas of Point Loma, City staff have been unable to safely access and sample several stations at various times. This has resulted in the following modifications:

- Station D8 was replaced by alternate station D8-A during July 2016, which was subsequently replaced by station D8-B in March 2018, after which sampling at station D8-A resumed in December 2020.

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

Kelp Bed Stations

The eight kelp stations are sampled weekly according to permit specifications to monitor water quality conditions within the Point Loma kelp forest. These stations include three sites located along the inshore edge of the kelp bed paralleling the 9-m depth contour (i.e., stations C4, C5 and C6), and five sites located near the offshore edge of the kelp bed along the 18-m depth contour (i.e., stations A1, A6, A7, C7 and C8).

Routine weekly monitoring at each of the kelp bed sites consists primarily of collecting seawater samples at discrete depths to determine concentrations of fecal indicator bacteria (i.e., total coliforms, fecal coliforms, and *Enterococcus*). Water column profiles of various physical/chemical parameters are also generated during each sampling event, and visual observations of weather and water conditions are recorded at each station.

Seawater samples at the kelp bed stations are collected using a CTD-integrated rosette sampler with Niskin bottles. Aliquots for bacteriological analyses are drawn from these bottles into sterile sample bottles for processing at the City's Marine Microbiology Laboratory. Water column profiles of temperature, transmissivity, dissolved oxygen, pH, salinity, density, chlorophyll *a* are

generated using a Sea-Bird conductivity, temperature and depth instrument (CTD), which collects these data at a rate of \geq 4 scans per second. These scans are then internally averaged to create water column profiles with data readings at a rate of one per meter. Additionally, CTD profile data for each water sample depth are presented with the bacteriological data.

Offshore Stations

Offshore water quality sampling is conducted quarterly typically during the months of February, May, August and November. A total of 36 offshore stations (F01–F36) are sampled during each survey usually over a 3-day period. Three of the stations (F01–F03) are located along the 18 m depth contour, while 11 stations are located along each of the following contours: 60 m (stations F04–F14), 80 m (stations F15–F25), and 98 m (stations F26–F36). Of these 36 stations, 15 (F01–F03, F06–F14, F18–F20) are located within State jurisdictional waters (i.e., within 3 nautical miles of shore) and are subject to the California Ocean Plan's compliance standards. Monitoring at all offshore sites includes measurements of *Enterococcus* bacteria, water temperature, salinity, density, dissolved oxygen, pH, chlorophyll *a*, transmissivity, chromomorphic dissolved organic matter (CDOM), and visual observations of weather and water conditions.

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

Bacteriological Reporting and Quality Assurance

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

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

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

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

Single Sample Maximums:

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.

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

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 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

As of October 2020, new 2019 Ocean Plan Water Quality Objectives are included for a six-week rolling geometric mean of *Enterococcus* density, which shall not exceed 30 cfu/100 ml, and a Statistical Threshold Value (STV) for *Enterococcus*, which shall not exceed 110 cfu/100 ml for more than 10% of samples per month (see Appendix B).

Shore Stations

- The eight shore stations (D4, D5, D7, D8-A, D9, D10, D11, D12) were sampled on January 6, 13, 20, and 27.
- During January, each of the shore stations was in compliance with the various 2015 California Ocean Plan (Ocean Plan) water contact standards.
- Nothing of sewage origin was observed at any of the shore stations.
- Over the years, elevated bacteria levels at shore and kelp bed stations have tended to be associated with rainfall events, heavy recreational use, or the presence of seabirds or decaying kelp and surf grass. 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 Stations

- The eight kelp bed water quality stations (A1, A6, A7, C4, C5, C6, C7, C8) were sampled on January 5, 13, 19, and 27.
- During January, each of the kelp stations was in compliance with the various 2015 California Ocean Plan (Ocean Plan) water contact standards.
- Water column temperatures ranged from 12.32 to 15.24°C. The difference between surface and bottom waters ranged from 0.02 to 1.96°C.

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

- Chlorophyll *a* concentrations ranged from 0.61 to 4.36 µg/L.
- Notable observations included a sewage-like odor at station C5 on January 27.

Offshore Stations

- Quarterly water quality sampling was not conducted during January at the offshore stations. The next quarterly sampling is scheduled for February 2021.



TABLES AND FIGURES



Figure 1.1 Station Map

Shore Stations

Table 2.1

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
01 Jan 2021	11	36	11	95	56	103	79	20
02 Jan 2021	11	36	11	95	56	103	79	20
03 Jan 2021	11	36	11	95	56	103	79	20
04 Jan 2021	11	36	11	95	56	103	79	20
05 Jan 2021	11	36	11	95	56	103	79	20
06 Jan 2021	9	32	13	69	45	118	60	20
07 Jan 2021	9	32	13	69	45	118	60	20
08 Jan 2021	8	20	11	53	26	103	44	20
09 Jan 2021	8	20	11	53	26	103	44	20
10 Jan 2021	8	20	11	53	26	103	44	20
11 Jan 2021	8	20	11	53	26	103	44	20
12 Jan 2021	8	20	11	53	26	103	44	20
13 Jan 2021	6	20	8	44	25	85	38	20
14 Jan 2021	6	20	8	44	25	85	38	20
15 Jan 2021	4	20	6	30	20	69	25	20
16 Jan 2021	4	20	6	30	20	69	25	20
17 Jan 2021	4	20	6	30	20	69	25	20
18 Jan 2021	4	20	6	30	20	69	25	20
19 Jan 2021	4	20	6	30	20	69	25	20
20 Jan 2021	4	13	5	28	20	39	17	20
21 Jan 2021	4	13	5	28	20	39	17	20
22 Jan 2021	4	11	6	20	20	46	25	20
23 Jan 2021	4	11	6	20	20	46	25	20
24 Jan 2021	4	11	6	20	20	46	25	20
25 Jan 2021	4	11	6	20	20	46	25	20
26 Jan 2021	4	11	6	20	20	46	25	20
27 Jan 2021	5	13	8	20	25	71	27	20
28 Jan 2021	5	13	8	20	25	71	27	20
29 Jan 2021	3	11	6	20	26	60	16	20
30 Jan 2021	3	11	6	20	26	60	16	20
31 Jan 2021	3	11	6	20	26	60	16	20

* Geometric mean calculated using n<5

ns = not sampled

Table 2.2

Summary of compliance with the Ocean Plan's 30-day Geometric Mean standard for fecal coliform bacteria at the PLOO 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	D4	D5	D7	D8-A	D9	D10	D11	D12
01 Jan 2021	3	5	2	7	13	22	6	3
02 Jan 2021	3	5	2	7	13	22	6	3
03 Jan 2021	3	5	2	7	13	22	6	3
04 Jan 2021	3	5	2	7	13	22	6	3
05 Jan 2021	3	5	2	7	13	22	6	3
06 Jan 2021	2	4	2	6	9	14	6	3
07 Jan 2021	2	4	2	6	9	14	6	3
08 Jan 2021	3	3	2	5	6	13	4	4
09 Jan 2021	3	3	2	5	6	13	4	4
10 Jan 2021	3	3	2	5	6	13	4	4
11 Jan 2021	3	3	2	5	6	13	4	4
12 Jan 2021	3	3	2	5	6	13	4	4
13 Jan 2021	2	2	2	4	5	13	4	4
14 Jan 2021	2	2	2	4	5	13	4	4
15 Jan 2021	3	3	2	5	4	12	4	5
16 Jan 2021	3	3	2	5	4	12	4	5
17 Jan 2021	3	3	2	5	4	12	4	5
18 Jan 2021	3	3	2	5	4	12	4	5
19 Jan 2021	3	3	2	5	4	12	4	5
20 Jan 2021	2	2	2	4	4	8	5	5
21 Jan 2021	2	2	2	4	4	8	5	5
22 Jan 2021	3	3	2	3	4	7	6	6
23 Jan 2021	3	3	2	3	4	7	6	6
24 Jan 2021	3	3	2	3	4	7	6	6
25 Jan 2021	3	3	2	3	4	7	6	6
26 Jan 2021	3	3	2	3	4	7	6	6
27 Jan 2021	2	2	2	3	4	6	6	8
28 Jan 2021	2	2	2	3	4	6	6	8
29 Jan 2021	2	2	2	3	2	4	6	7
30 Jan 2021	2	2	2	3	2	4	6	7
31 Jan 2021	2	2	2	3	2	4	6	7

* Geometric mean calculated using n<5

ns = not sampled

Table 2.3

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
01 Jan 2021	2	4	4	5	7	8	5	2
02 Jan 2021	2	4	4	5	7	8	5	2
03 Jan 2021	2	4	4	5	7	8	5	2
04 Jan 2021	2	4	4	5	7	8	5	2
05 Jan 2021	2	4	4	5	7	8	5	2
06 Jan 2021	2	3	3	5	6	9	6	2
07 Jan 2021	2	3	3	5	6	9	6	2
08 Jan 2021	2	2	2	3	3	6	4	2
09 Jan 2021	2	2	2	3	3	6	4	2
10 Jan 2021	2	2	2	3	3	6	4	2
11 Jan 2021	2	2	2	3	3	6	4	2
12 Jan 2021	2	2	2	3	3	6	4	2
13 Jan 2021	2	2	2	3	3	8	5	2
14 Jan 2021	2	2	2	3	3	8	5	2
15 Jan 2021	2	2	2	3	3	9	5	2
16 Jan 2021	2	2	2	3	3	9	5	2
17 Jan 2021	2	2	2	3	3	9	5	2
18 Jan 2021	2	2	2	3	3	9	5	2
19 Jan 2021	2	2	2	3	3	9	5	2
20 Jan 2021	2	2	2	3	2	7	5	2
21 Jan 2021	2	2	2	3	2	7	5	2
22 Jan 2021	2	2	2	3	3	9	5	2
23 Jan 2021	2	2	2	3	3	9	5	2
24 Jan 2021	2	2	2	3	3	9	5	2
25 Jan 2021	2	2	2	3	3	9	5	2
26 Jan 2021	2	2	2	3	3	9	5	2
27 Jan 2021	2	2	2	4	3	10	6	4
28 Jan 2021	2	2	2	4	3	10	6	4
29 Jan 2021	2	2	2	3	3	10	8	5
30 Jan 2021	2	2	2	3	3	10	8	5
31 Jan 2021	2	2	2	3	3	10	8	5

* Geometric mean calculated using n<5

ns = not sampled

Table 2.4

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
06 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
13 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
20 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
27 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.5

Summary of compliance at the PLOO 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	D4	D5	D7	D8-A	D9	D10	D11	D12
06 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
13 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
20 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
27 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.6

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
06 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
13 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
20 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
27 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.7

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
06 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
13 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
20 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC
27 Jan 2021	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.8

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

Station	Date	Time	Total	Fecal	Enter	F:T
D4	06 Jan 2021	833	4e	2e	2e	0.50
D4	13 Jan 2021	1140	2e	2e	<2	1.00
D4	20 Jan 2021	802	<2	<2	<2	1.00
D4	27 Jan 2021	1030	6e	<2	<2	0.33
D5	06 Jan 2021	820	<20	2e	<2	0.10
D5	13 Jan 2021	1130	<20	<2	<2	0.10
D5	20 Jan 2021	745	<2	<2	<2	1.00
D5	27 Jan 2021	1045	<20	<2	<2	0.10
D7	06 Jan 2021	851	<20	<2	<2	0.10
D7	13 Jan 2021	1200	<2	<2	<2	1.00
D7	20 Jan 2021	830	<2	<2	<2	1.00
D7	27 Jan 2021	940	<20	<2	2e	0.10
D8-A	06 Jan 2021	905	20e	4e	4e	0.20
D8-A	13 Jan 2021	1215	<20	<2	2e	0.10
D8-A	20 Jan 2021	847	<20	<2	<2	0.10
D8-A	27 Jan 2021	911	20e	4e	8e	0.20
D9	06 Jan 2021	950	20e	<2	<2	0.10
D9	13 Jan 2021	1022	<20	<2	6e	0.10
D9	20 Jan 2021	915	20e	2e	<2	0.10
D9	27 Jan 2021	852	60e	4e	4e	0.07
D10	06 Jan 2021	1001	<200	2e	10e	0.01
D10	13 Jan 2021	955	40e	12e	24e	0.30
D10	20 Jan 2021	932	4e	2e	<2	0.50
D10	27 Jan 2021	831	400e	6e	18e	0.01
D11	06 Jan 2021	1017	20e	8e	6e	0.40
D11	13 Jan 2021	940	20e	6e	10e	0.30
D11	20 Jan 2021	1000	4e	8e	4e	2.00
D11	27 Jan 2021	816	40e	4e	20e	0.10
D12	06 Jan 2021	1051	<20	4e	<2	0.20
D12	13 Jan 2021	915	<20	6e	4e	0.30
D12	20 Jan 2021	1025	<20	4e	<2	0.20
D12	27 Jan 2021	753	<20	26e	38e	1.30

ns = not sampled

ND = no data

Table 2.9

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

Station	Date	Parameter	Value
D4	06 Jan 2021	Arrive Time	833
D4	06 Jan 2021	Weather	Foggy
D4	06 Jan 2021	Wind Speed (kts)	0
D4	06 Jan 2021	Wind Dir	
D4	06 Jan 2021	Animal Life	3 Cormorants
D4	06 Jan 2021	Floatables	Foam
D4	06 Jan 2021	Water Color	Green
D4	06 Jan 2021	Current Direction	S
D4	06 Jan 2021	Water Temp (C)	15
D4	06 Jan 2021	Wave Height Low (ft)	3
D4	06 Jan 2021	High Tide (ft)	4.51
D4	06 Jan 2021	High Tide Time	258
D4	06 Jan 2021	Low Tide (ft)	1.7
D4	06 Jan 2021	Low Tide Time	931
D4	06 Jan 2021	Comments	Kelp; Seagrass; 5 Surfers; Water clear
D4	13 Jan 2021	Arrive Time	1140
D4	13 Jan 2021	Weather	Sunny
D4	13 Jan 2021	Wind Speed (kts)	3.3
D4	13 Jan 2021	Wind Dir	N
D4	13 Jan 2021	Animal Life	None
D4	13 Jan 2021	Floatables	Foam; Film
D4	13 Jan 2021	Water Color	Green
D4	13 Jan 2021	Current Direction	S
D4	13 Jan 2021	Water Temp (C)	15.7
D4	13 Jan 2021	Wave Height Low (ft)	6
D4	13 Jan 2021	High Tide (ft)	6.52
D4	13 Jan 2021	High Tide Time	830
D4	13 Jan 2021	Low Tide (ft)	-1.54
D4	13 Jan 2021	Low Tide Time	1548
D4	13 Jan 2021	Comments	Algae; 6 Surfers; 3 Boats; Water clear
D4	20 Jan 2021	Arrive Time	802
D4	20 Jan 2021	Weather	Sunny
D4	20 Jan 2021	Wind Speed (kts)	4.2
D4	20 Jan 2021	Wind Dir	N
D4	20 Jan 2021	Animal Life	5 Cormorants
D4	20 Jan 2021	Floatables	Foam
D4	20 Jan 2021	Water Color	Blue
D4	20 Jan 2021	Current Direction	N
D4	20 Jan 2021	Water Temp (C)	16
D4	20 Jan 2021	Wave Height Low (ft)	2
D4	20 Jan 2021	High Tide (ft)	3.25
D4	20 Jan 2021	High Tide Time	1304
D4	20 Jan 2021	Low Tide (ft)	2.14
D4	20 Jan 2021	Low Tide Time	751
D4	20 Jan 2021	Comments	Algae; Water clear
D4	27 Jan 2021	Arrive Time	1030
D4	27 Jan 2021	Weather	Sunny
D4	27 Jan 2021	Wind Speed (kts)	1.9
D4	27 Jan 2021	Wind Dir	E
D4	27 Jan 2021	Animal Life	None
D4	27 Jan 2021	Floatables	None
D4	27 Jan 2021	Water Color	Green
D4	27 Jan 2021	Current Direction	N

Station	Date	Parameter	Value
D4	27 Jan 2021	Water Temp (C)	18.8
D4	27 Jan 2021	Wave Height Low (ft)	3
D4	27 Jan 2021	High Tide (ft)	5.98
D4	27 Jan 2021	High Tide Time	737
D4	27 Jan 2021	Low Tide (ft)	-1.11
D4	27 Jan 2021	Low Tide Time	1455
D4	27 Jan 2021	Comments	Algae; Seagrass; Kelp; 1 Surfer; Water clear
D5	06 Jan 2021	Arrive Time	820
D5	06 Jan 2021	Weather	Foggy
D5	06 Jan 2021	Wind Speed (kts)	0.3
D5	06 Jan 2021	Wind Dir	W
D5	06 Jan 2021	Animal Life	30 Cormorants; 1 Seagull
D5	06 Jan 2021	Floatables	Foam
D5	06 Jan 2021	Water Color	Green
D5	06 Jan 2021	Current Direction	N
D5	06 Jan 2021	Water Temp (C)	14.6
D5	06 Jan 2021	Wave Height Low (ft)	5
D5	06 Jan 2021	High Tide (ft)	4.51
D5	06 Jan 2021	High Tide Time	258
D5	06 Jan 2021	Low Tide (ft)	1.7
D5	06 Jan 2021	Low Tide Time	931
D5	06 Jan 2021	Comments	Kelp; Algae; Water clear
D5	13 Jan 2021	Arrive Time	1130
D5	13 Jan 2021	Weather	Sunny
D5	13 Jan 2021	Wind Speed (kts)	3.8
D5	13 Jan 2021	Wind Dir	N
D5	13 Jan 2021	Animal Life	10 Seagulls; 3 Pelicans; 6 Cormorants
D5	13 Jan 2021	Floatables	Foam; Film
D5	13 Jan 2021	Water Color	Green
D5	13 Jan 2021	Current Direction	S
D5	13 Jan 2021	Water Temp (C)	14.8
D5	13 Jan 2021	Wave Height Low (ft)	6
D5	13 Jan 2021	High Tide (ft)	6.52
D5	13 Jan 2021	High Tide Time	830
D5	13 Jan 2021	Low Tide (ft)	-1.54
D5	13 Jan 2021	Low Tide Time	1548
D5	13 Jan 2021	Comments	Algae; 2 Boats; Water clear
D5	20 Jan 2021	Arrive Time	745
D5	20 Jan 2021	Weather	Sunny
D5	20 Jan 2021	Wind Speed (kts)	1.9
D5	20 Jan 2021	Wind Dir	N
D5	20 Jan 2021	Animal Life	1 Seagull; 12 Cormorants; 4 Pelicans
D5	20 Jan 2021	Floatables	Foam
D5	20 Jan 2021	Water Color	Gray
D5	20 Jan 2021	Current Direction	N
D5	20 Jan 2021	Water Temp (C)	15.1
D5	20 Jan 2021	Wave Height Low (ft)	2
D5	20 Jan 2021	High Tide (ft)	3.25
D5	20 Jan 2021	High Tide Time	1304
D5	20 Jan 2021	Low Tide (ft)	2.14
D5	20 Jan 2021	Low Tide Time	751
D5	20 Jan 2021	Comments	Water clear
D5	27 Jan 2021	Arrive Time	1045
D5	27 Jan 2021	Weather	Sunny
D5	27 Jan 2021	Wind Speed (kts)	0.5
D5	27 Jan 2021	Wind Dir	E
D5	27 Jan 2021	Animal Life	11 Seagulls; 2 Cormorants

Station	Date	Parameter	Value
D5	27 Jan 2021	Floatables	Foam
D5	27 Jan 2021	Water Color	Brown
D5	27 Jan 2021	Current Direction	N
D5	27 Jan 2021	Water Temp (C)	16.9
D5	27 Jan 2021	Wave Height Low (ft)	3
D5	27 Jan 2021	High Tide (ft)	5.98
D5	27 Jan 2021	High Tide Time	737
D5	27 Jan 2021	Low Tide (ft)	-1.11
D5	27 Jan 2021	Low Tide Time	1455
D5	27 Jan 2021	Comments	Algae; Seagrass; Kelp; Water turbid
D7	06 Jan 2021	Arrive Time	851
D7	06 Jan 2021	Weather	Foggy
D7	06 Jan 2021	Wind Speed (kts)	1.1
D7	06 Jan 2021	Wind Dir	SW
D7	06 Jan 2021	Animal Life	None
D7	06 Jan 2021	Floatables	Foam; Film
D7	06 Jan 2021	Water Color	Green
D7	06 Jan 2021	Current Direction	S
D7	06 Jan 2021	Water Temp (C)	14.3
D7	06 Jan 2021	Wave Height Low (ft)	4
D7	06 Jan 2021	High Tide (ft)	4.51
D7	06 Jan 2021	High Tide Time	258
D7	06 Jan 2021	Low Tide (ft)	1.7
D7	06 Jan 2021	Low Tide Time	931
D7	06 Jan 2021	Comments	Kelp; Seagrass; 23 Surfers; Water clear
D7	13 Jan 2021	Arrive Time	1200
D7	13 Jan 2021	Weather	Sunny
D7	13 Jan 2021	Wind Speed (kts)	1.5
D7	13 Jan 2021	Wind Dir	N
D7	13 Jan 2021	Animal Life	None
D7	13 Jan 2021	Floatables	Foam; Film
D7	13 Jan 2021	Water Color	Green
D7	13 Jan 2021	Current Direction	S
D7	13 Jan 2021	Water Temp (C)	15.2
D7	13 Jan 2021	Wave Height Low (ft)	5
D7	13 Jan 2021	High Tide (ft)	6.52
D7	13 Jan 2021	High Tide Time	830
D7	13 Jan 2021	Low Tide (ft)	-1.54
D7	13 Jan 2021	Low Tide Time	1548
D7	13 Jan 2021	Comments	Kelp; Algae; Seagrass; 50 Surfers; Water clear
D7	20 Jan 2021	Arrive Time	830
D7	20 Jan 2021	Weather	Sunny
D7	20 Jan 2021	Wind Speed (kts)	2.1
D7	20 Jan 2021	Wind Dir	N
D7	20 Jan 2021	Animal Life	3 Seagulls
D7	20 Jan 2021	Floatables	None
D7	20 Jan 2021	Water Color	Green
D7	20 Jan 2021	Current Direction	S
D7	20 Jan 2021	Water Temp (C)	16.3
D7	20 Jan 2021	Wave Height Low (ft)	3
D7	20 Jan 2021	High Tide (ft)	3.25
D7	20 Jan 2021	High Tide Time	1304
D7	20 Jan 2021	Low Tide (ft)	2.14
D7	20 Jan 2021	Low Tide Time	751
D7	20 Jan 2021	Comments	Algae; 12 Surfers; Water clear
D7	27 Jan 2021	Arrive Time	940
D7	27 Jan 2021	Weather	Sunny

Station	Date	Parameter	Value
D7	27 Jan 2021	Wind Speed (kts)	7.5
D7	27 Jan 2021	Wind Dir	E
D7	27 Jan 2021	Animal Life	14 Terns; 1 Pelican; 2 Seagulls
D7	27 Jan 2021	Floatables	Foam
D7	27 Jan 2021	Water Color	Brown
D7	27 Jan 2021	Current Direction	N
D7	27 Jan 2021	Water Temp (C)	15.2
D7	27 Jan 2021	Wave Height Low (ft)	3
D7	27 Jan 2021	High Tide (ft)	5.98
D7	27 Jan 2021	High Tide Time	737
D7	27 Jan 2021	Low Tide (ft)	-1.11
D7	27 Jan 2021	Low Tide Time	1455
D7	27 Jan 2021	Comments	Algae; Seagrass; Kelp; 1 Surfer; Water turbid
D8-A	06 Jan 2021	Arrive Time	905
D8-A	06 Jan 2021	Weather	Foggy
D8-A	06 Jan 2021	Wind Speed (kts)	3.8
D8-A	06 Jan 2021	Wind Dir	W
D8-A	06 Jan 2021	Animal Life	7 Cormorants
D8-A	06 Jan 2021	Floatables	Foam; Film
D8-A	06 Jan 2021	Water Color	Green
D8-A	06 Jan 2021	Current Direction	SE
D8-A	06 Jan 2021	Water Temp (C)	14.3
D8-A	06 Jan 2021	Wave Height Low (ft)	4
D8-A	06 Jan 2021	High Tide (ft)	4.51
D8-A	06 Jan 2021	High Tide Time	258
D8-A	06 Jan 2021	Low Tide (ft)	1.7
D8-A	06 Jan 2021	Low Tide Time	931
D8-A	06 Jan 2021	Comments	2 Persons; Water turbid
D8-A	13 Jan 2021	Arrive Time	1215
D8-A	13 Jan 2021	Weather	Sunny
D8-A	13 Jan 2021	Wind Speed (kts)	2.3
D8-A	13 Jan 2021	Wind Dir	SW
D8-A	13 Jan 2021	Animal Life	1 Dog; 1 Cormorant; 1 Seagull
D8-A	13 Jan 2021	Floatables	Foam; Film; Soap; 4 Persons; 5 Surfers; Water clear
D8-A	13 Jan 2021	Water Color	Green
D8-A	13 Jan 2021	Current Direction	SE
D8-A	13 Jan 2021	Water Temp (C)	15.3
D8-A	13 Jan 2021	Wave Height Low (ft)	6
D8-A	13 Jan 2021	High Tide (ft)	6.52
D8-A	13 Jan 2021	High Tide Time	830
D8-A	13 Jan 2021	Low Tide (ft)	-1.54
D8-A	13 Jan 2021	Low Tide Time	1548
D8-A	13 Jan 2021	Comments	2 Boats
D8-A	20 Jan 2021	Arrive Time	847
D8-A	20 Jan 2021	Weather	Partly Cloudy
D8-A	20 Jan 2021	Wind Speed (kts)	11.4
D8-A	20 Jan 2021	Wind Dir	NE
D8-A	20 Jan 2021	Animal Life	3 Seagulls
D8-A	20 Jan 2021	Floatables	Foam
D8-A	20 Jan 2021	Water Color	Green
D8-A	20 Jan 2021	Current Direction	S
D8-A	20 Jan 2021	Water Temp (C)	15.2
D8-A	20 Jan 2021	Wave Height Low (ft)	3
D8-A	20 Jan 2021	High Tide (ft)	3.25
D8-A	20 Jan 2021	High Tide Time	1304
D8-A	20 Jan 2021	Low Tide (ft)	2.14
D8-A	20 Jan 2021	Low Tide Time	751
D8-A	20 Jan 2021	Comments	Algae, Seagrass; 2 Persons; 10 Surfers; Water clear

Station	Date	Parameter	Value
D8-A	27 Jan 2021	Arrive Time	911
D8-A	27 Jan 2021	Weather	Sunny
D8-A	27 Jan 2021	Wind Speed (kts)	6.6
D8-A	27 Jan 2021	Wind Dir	E
D8-A	27 Jan 2021	Animal Life	3 Terns
D8-A	27 Jan 2021	Floatables	Foam
D8-A	27 Jan 2021	Water Color	Brown
D8-A	27 Jan 2021	Current Direction	S
D8-A	27 Jan 2021	Water Temp (C)	15.5
D8-A	27 Jan 2021	Wave Height Low (ft)	4
D8-A	27 Jan 2021	High Tide (ft)	5.98
D8-A	27 Jan 2021	High Tide Time	737
D8-A	27 Jan 2021	Low Tide (ft)	-1.11
D8-A	27 Jan 2021	Low Tide Time	1455
D8-A	27 Jan 2021	Comments	Kelp; Water turbid
D9	06 Jan 2021	Arrive Time	950
D9	06 Jan 2021	Weather	Foggy
D9	06 Jan 2021	Wind Speed (kts)	3.6
D9	06 Jan 2021	Wind Dir	W
D9	06 Jan 2021	Animal Life	2 Pelicans; 1 Seagull
D9	06 Jan 2021	Floatables	Foam; Film
D9	06 Jan 2021	Water Color	Green
D9	06 Jan 2021	Current Direction	N
D9	06 Jan 2021	Water Temp (C)	14.8
D9	06 Jan 2021	Wave Height Low (ft)	8
D9	06 Jan 2021	High Tide (ft)	4.51
D9	06 Jan 2021	High Tide Time	258
D9	06 Jan 2021	Low Tide (ft)	1.7
D9	06 Jan 2021	Low Tide Time	931
D9	06 Jan 2021	Comments	Water clear
D9	13 Jan 2021	Arrive Time	1022
D9	13 Jan 2021	Weather	Sunny
D9	13 Jan 2021	Wind Speed (kts)	1.1
D9	13 Jan 2021	Wind Dir	Wood; Foam; Film
D9	13 Jan 2021	Animal Life	2 Seagulls
D9	13 Jan 2021	Floatables	Foam; Film
D9	13 Jan 2021	Water Color	Green
D9	13 Jan 2021	Current Direction	S
D9	13 Jan 2021	Water Temp (C)	14.4
D9	13 Jan 2021	Wave Height Low (ft)	6
D9	13 Jan 2021	High Tide (ft)	6.52
D9	13 Jan 2021	High Tide Time	830
D9	13 Jan 2021	Low Tide (ft)	-1.54
D9	13 Jan 2021	Low Tide Time	1548
D9	13 Jan 2021	Comments	Algae; Water clear
D9	20 Jan 2021	Arrive Time	915
D9	20 Jan 2021	Weather	Cloudy
D9	20 Jan 2021	Wind Speed (kts)	5.4
D9	20 Jan 2021	Wind Dir	E
D9	20 Jan 2021	Animal Life	1 Cormorant; 1 Dog
D9	20 Jan 2021	Floatables	Foam
D9	20 Jan 2021	Water Color	Green
D9	20 Jan 2021	Current Direction	S
D9	20 Jan 2021	Water Temp (C)	15.8
D9	20 Jan 2021	Wave Height Low (ft)	5
D9	20 Jan 2021	High Tide (ft)	3.25
D9	20 Jan 2021	High Tide Time	1304

Station	Date	Parameter	Value
D9	20 Jan 2021	Low Tide (ft)	2.14
D9	20 Jan 2021	Low Tide Time	751
D9	20 Jan 2021	Comments	Algae; Seagrass; 1 Person; 3 Surfers; Water clear
D9	27 Jan 2021	Arrive Time	852
D9	27 Jan 2021	Weather	Sunny
D9	27 Jan 2021	Wind Speed (kts)	3.8
D9	27 Jan 2021	Wind Dir	E
D9	27 Jan 2021	Animal Life	2 Seagulls
D9	27 Jan 2021	Floatables	Foam
D9	27 Jan 2021	Water Color	Brown
D9	27 Jan 2021	Current Direction	S
D9	27 Jan 2021	Water Temp (C)	15
D9	27 Jan 2021	Wave Height Low (ft)	4
D9	27 Jan 2021	High Tide (ft)	5.98
D9	27 Jan 2021	High Tide Time	737
D9	27 Jan 2021	Low Tide (ft)	-1.11
D9	27 Jan 2021	Low Tide Time	1455
D9	27 Jan 2021	Comments	Algae; Kelp; Seagrass; Water turbid
D10	06 Jan 2021	Arrive Time	1001
D10	06 Jan 2021	Weather	Foggy
D10	06 Jan 2021	Wind Speed (kts)	3.6
D10	06 Jan 2021	Wind Dir	W
D10	06 Jan 2021	Animal Life	40 Seagulls; 1 Dog
D10	06 Jan 2021	Floatables	Foam; Film
D10	06 Jan 2021	Water Color	Green
D10	06 Jan 2021	Current Direction	N
D10	06 Jan 2021	Water Temp (C)	15
D10	06 Jan 2021	Wave Height Low (ft)	10
D10	06 Jan 2021	High Tide (ft)	4.51
D10	06 Jan 2021	High Tide Time	258
D10	06 Jan 2021	Low Tide (ft)	1.7
D10	06 Jan 2021	Low Tide Time	931
D10	06 Jan 2021	Comments	1 Person; Water clear
D10	13 Jan 2021	Arrive Time	955
D10	13 Jan 2021	Weather	Sunny
D10	13 Jan 2021	Wind Speed (kts)	0
D10	13 Jan 2021	Wind Dir	
D10	13 Jan 2021	Animal Life	2 Seagulls
D10	13 Jan 2021	Floatables	Foam; Film
D10	13 Jan 2021	Water Color	Green
D10	13 Jan 2021	Current Direction	S
D10	13 Jan 2021	Water Temp (C)	14.6
D10	13 Jan 2021	Wave Height Low (ft)	10
D10	13 Jan 2021	High Tide (ft)	6.52
D10	13 Jan 2021	High Tide Time	830
D10	13 Jan 2021	Low Tide (ft)	-1.54
D10	13 Jan 2021	Low Tide Time	1548
D10	13 Jan 2021	Comments	Kelp; Seagrass; 1 Person; 1 Surfer; Water clear
D10	20 Jan 2021	Arrive Time	932
D10	20 Jan 2021	Weather	Partly Cloudy
D10	20 Jan 2021	Wind Speed (kts)	6
D10	20 Jan 2021	Wind Dir	NE
D10	20 Jan 2021	Animal Life	1 Dog; 4 Pelicans; 4 Seagulls
D10	20 Jan 2021	Floatables	Foam
D10	20 Jan 2021	Water Color	Green
D10	20 Jan 2021	Current Direction	S
D10	20 Jan 2021	Water Temp (C)	16.8

Station	Date	Parameter	Value
D10	20 Jan 2021	Wave Height Low (ft)	5
D10	20 Jan 2021	High Tide (ft)	3.25
D10	20 Jan 2021	High Tide Time	1304
D10	20 Jan 2021	Low Tide (ft)	2.14
D10	20 Jan 2021	Low Tide Time	751
D10	20 Jan 2021	Comments	6 Persons; 11 Surfers; Water clear
D10	27 Jan 2021	Arrive Time	831
D10	27 Jan 2021	Weather	Sunny
D10	27 Jan 2021	Wind Speed (kts)	2.3
D10	27 Jan 2021	Wind Dir	E
D10	27 Jan 2021	Animal Life	1 Dog
D10	27 Jan 2021	Floatables	Foam
D10	27 Jan 2021	Water Color	Brown
D10	27 Jan 2021	Current Direction	S
D10	27 Jan 2021	Water Temp (C)	13.3
D10	27 Jan 2021	Wave Height Low (ft)	4
D10	27 Jan 2021	High Tide (ft)	5.98
D10	27 Jan 2021	High Tide Time	737
D10	27 Jan 2021	Low Tide (ft)	-1.11
D10	27 Jan 2021	Low Tide Time	1455
D10	27 Jan 2021	Comments	Kelp; 4 Persons; 8 Surfers; Water turbid
D11	06 Jan 2021	Arrive Time	1017
D11	06 Jan 2021	Weather	Foggy
D11	06 Jan 2021	Wind Speed (kts)	2.1
D11	06 Jan 2021	Wind Dir	W
D11	06 Jan 2021	Animal Life	
D11	06 Jan 2021	Floatables	Foam; Film
D11	06 Jan 2021	Water Color	Green
D11	06 Jan 2021	Current Direction	S
D11	06 Jan 2021	Water Temp (C)	15.4
D11	06 Jan 2021	Wave Height Low (ft)	6
D11	06 Jan 2021	High Tide (ft)	4.51
D11	06 Jan 2021	High Tide Time	258
D11	06 Jan 2021	Low Tide (ft)	1.7
D11	06 Jan 2021	Low Tide Time	931
D11	06 Jan 2021	Comments	9 Persons; Water clear
D11	13 Jan 2021	Arrive Time	940
D11	13 Jan 2021	Weather	Sunny
D11	13 Jan 2021	Wind Speed (kts)	1.5
D11	13 Jan 2021	Wind Dir	SE
D11	13 Jan 2021	Animal Life	2 Dogs
D11	13 Jan 2021	Floatables	Foam; Film; Debris; 9 People; 1 Surfer
D11	13 Jan 2021	Water Color	Blue
D11	13 Jan 2021	Current Direction	S
D11	13 Jan 2021	Water Temp (C)	14.4
D11	13 Jan 2021	Wave Height Low (ft)	7
D11	13 Jan 2021	High Tide (ft)	6.52
D11	13 Jan 2021	High Tide Time	830
D11	13 Jan 2021	Low Tide (ft)	-1.54
D11	13 Jan 2021	Low Tide Time	1548
D11	13 Jan 2021	Comments	Seagrass; Water clear
D11	20 Jan 2021	Arrive Time	1000
D11	20 Jan 2021	Weather	Cloudy
D11	20 Jan 2021	Wind Speed (kts)	12.6
D11	20 Jan 2021	Wind Dir	E
D11	20 Jan 2021	Animal Life	2 Dogs
D11	20 Jan 2021	Floatables	

Station	Date	Parameter	Value
D11	20 Jan 2021	Water Color	Green
D11	20 Jan 2021	Current Direction	N
D11	20 Jan 2021	Water Temp (C)	15.8
D11	20 Jan 2021	Wave Height Low (ft)	5
D11	20 Jan 2021	High Tide (ft)	3.25
D11	20 Jan 2021	High Tide Time	1304
D11	20 Jan 2021	Low Tide (ft)	2.14
D11	20 Jan 2021	Low Tide Time	751
D11	20 Jan 2021	Comments	3 Persons; 5 Surfers; Water clear
D11	27 Jan 2021	Arrive Time	816
D11	27 Jan 2021	Weather	Sunny
D11	27 Jan 2021	Wind Speed (kts)	5.2
D11	27 Jan 2021	Wind Dir	E
D11	27 Jan 2021	Animal Life	2 Dogs; 4 Terns; 1 Godwit; 2 Seagulls
D11	27 Jan 2021	Floatables	Foam
D11	27 Jan 2021	Water Color	Brown
D11	27 Jan 2021	Current Direction	S
D11	27 Jan 2021	Water Temp (C)	13.5
D11	27 Jan 2021	Wave Height Low (ft)	5
D11	27 Jan 2021	High Tide (ft)	5.98
D11	27 Jan 2021	High Tide Time	737
D11	27 Jan 2021	Low Tide (ft)	-1.11
D11	27 Jan 2021	Low Tide Time	1455
D11	27 Jan 2021	Comments	Kelp; 4 Persons; 5 Surfers; Water turbid
D12	06 Jan 2021	Arrive Time	1051
D12	06 Jan 2021	Weather	Partly Cloudy
D12	06 Jan 2021	Wind Speed (kts)	3.1
D12	06 Jan 2021	Wind Dir	W
D12	06 Jan 2021	Animal Life	5 Seagulls; 2 Dolphins, 12 Seagulls
D12	06 Jan 2021	Floatables	Foam; Film
D12	06 Jan 2021	Water Color	Green
D12	06 Jan 2021	Current Direction	S
D12	06 Jan 2021	Water Temp (C)	15.2
D12	06 Jan 2021	Wave Height Low (ft)	6
D12	06 Jan 2021	High Tide (ft)	4.51
D12	06 Jan 2021	High Tide Time	258
D12	06 Jan 2021	Low Tide (ft)	1.7
D12	06 Jan 2021	Low Tide Time	931
D12	06 Jan 2021	Comments	7 Persons; Water clear
D12	13 Jan 2021	Arrive Time	915
D12	13 Jan 2021	Weather	Partly Cloudy
D12	13 Jan 2021	Wind Speed (kts)	0.1
D12	13 Jan 2021	Wind Dir	E
D12	13 Jan 2021	Animal Life	2 Seagulls
D12	13 Jan 2021	Floatables	Wood; Foam; Film
D12	13 Jan 2021	Water Color	Green
D12	13 Jan 2021	Current Direction	N
D12	13 Jan 2021	Water Temp (C)	15
D12	13 Jan 2021	Wave Height Low (ft)	5
D12	13 Jan 2021	High Tide (ft)	6.52
D12	13 Jan 2021	High Tide Time	830
D12	13 Jan 2021	Low Tide (ft)	-1.54
D12	13 Jan 2021	Low Tide Time	1548
D12	13 Jan 2021	Comments	Kelp; Seagrass; 4 People; 13 Surfers; Water clear
D12	20 Jan 2021	Arrive Time	1025
D12	20 Jan 2021	Weather	Cloudy
D12	20 Jan 2021	Wind Speed (kts)	2

Station	Date	Parameter	Value
D12	20 Jan 2021	Wind Dir	NE
D12	20 Jan 2021	Animal Life	1 Pelican; 2 Seagulls
D12	20 Jan 2021	Floatables	None
D12	20 Jan 2021	Water Color	Green
D12	20 Jan 2021	Current Direction	N
D12	20 Jan 2021	Water Temp (C)	17.5
D12	20 Jan 2021	Wave Height Low (ft)	3
D12	20 Jan 2021	High Tide (ft)	3.25
D12	20 Jan 2021	High Tide Time	1304
D12	20 Jan 2021	Low Tide (ft)	2.14
D12	20 Jan 2021	Low Tide Time	751
D12	20 Jan 2021	Comments	3 Persons; 3 Surfers; Water clear
D12	27 Jan 2021	Arrive Time	753
D12	27 Jan 2021	Weather	Sunny
D12	27 Jan 2021	Wind Speed (kts)	2.3
D12	27 Jan 2021	Wind Dir	E
D12	27 Jan 2021	Animal Life	1 Dog; 6 Seagulls
D12	27 Jan 2021	Floatables	Foam
D12	27 Jan 2021	Water Color	Green
D12	27 Jan 2021	Current Direction	
D12	27 Jan 2021	Water Temp (C)	14.2
D12	27 Jan 2021	Wave Height Low (ft)	4
D12	27 Jan 2021	High Tide (ft)	5.98
D12	27 Jan 2021	High Tide Time	737
D12	27 Jan 2021	Low Tide (ft)	-1.11
D12	27 Jan 2021	Low Tide Time	1455
D12	27 Jan 2021	Comments	Kelp; 2 Persons; 2 Surfers; Water clear

Kelp Stations

Table 3.1

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Jan 2021	15	4	9	3	7	4	3	3
02 Jan 2021	15	4	9	3	7	4	3	3
03 Jan 2021	15	4	9	3	7	4	3	3
04 Jan 2021	15	4	9	3	7	4	3	3
05 Jan 2021	16	8	12	3	7	3	3	4
06 Jan 2021	24	10	15	3	7	2	4	4
07 Jan 2021	24	10	15	3	7	2	4	4
08 Jan 2021	24	10	15	3	7	2	4	4
09 Jan 2021	24	10	15	3	7	2	4	4
10 Jan 2021	24	10	15	3	7	2	4	4
11 Jan 2021	24	10	15	3	7	2	4	4
12 Jan 2021	24	10	15	3	7	2	4	4
13 Jan 2021	21	16	22	3	6	2	7	5
14 Jan 2021	23	19	28	2	5	2	7	6
15 Jan 2021	23	19	28	2	5	2	7	6
16 Jan 2021	23	19	28	2	5	2	7	6
17 Jan 2021	23	19	28	2	5	2	7	6
18 Jan 2021	23	19	28	2	5	2	7	6
19 Jan 2021	14	24	22	2	5	4	7	8
20 Jan 2021	16	32	41	2	7	4	10	10
21 Jan 2021	16	32	41	2	7	4	10	10
22 Jan 2021	16	32	41	2	7	4	10	10
23 Jan 2021	16	32	41	2	7	4	10	10
24 Jan 2021	16	32	41	2	7	4	10	10
25 Jan 2021	16	32	41	2	7	4	10	10
26 Jan 2021	8*	79*	35*	2*	6*	6*	16*	15*
27 Jan 2021	12	76	34	3	8	4	16	21
28 Jan 2021	12	76	34	3	8	4	16	21
29 Jan 2021	12	76	34	3	8	4	16	21
30 Jan 2021	12	76	34	3	8	4	16	21
31 Jan 2021	12	76	34	3	8	4	16	21

* Geometric mean calculated using n<5

Table 3.2

Summary of compliance with the Ocean Plan's 30-day Geometric Mean standard for fecal coliform bacteria at the PLOO 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	A1	A6	A7	C4	C5	C6	C7	C8
01 Jan 2021	3	2	2	2	2	2	2	2
02 Jan 2021	3	2	2	2	2	2	2	2
03 Jan 2021	3	2	2	2	2	2	2	2
04 Jan 2021	3	2	2	2	2	2	2	2
05 Jan 2021	4	3	3	2	2	2	2	2
06 Jan 2021	4	3	3	2	2	2	2	2
07 Jan 2021	4	3	3	2	2	2	2	2
08 Jan 2021	4	3	3	2	2	2	2	2
09 Jan 2021	4	3	3	2	2	2	2	2
10 Jan 2021	4	3	3	2	2	2	2	2
11 Jan 2021	4	3	3	2	2	2	2	2
12 Jan 2021	4	3	3	2	2	2	2	2
13 Jan 2021	3	5	3	2	2	2	3	3
14 Jan 2021	4	6	4	2	2	2	4	3
15 Jan 2021	4	6	4	2	2	2	4	3
16 Jan 2021	4	6	4	2	2	2	4	3
17 Jan 2021	4	6	4	2	2	2	4	3
18 Jan 2021	4	6	4	2	2	2	4	3
19 Jan 2021	3	6	4	2	2	2	4	3
20 Jan 2021	4	7	4	2	2	2	5	3
21 Jan 2021	4	7	4	2	2	2	5	3
22 Jan 2021	4	7	4	2	2	2	5	3
23 Jan 2021	4	7	4	2	2	2	5	3
24 Jan 2021	4	7	4	2	2	2	5	3
25 Jan 2021	4	7	4	2	2	2	5	3
26 Jan 2021	3*	11*	5*	2*	2*	3*	6*	3*
27 Jan 2021	3	9	6	2	2	2	5	3
28 Jan 2021	3	9	6	2	2	2	5	3
29 Jan 2021	3	9	6	2	2	2	5	3
30 Jan 2021	3	9	6	2	2	2	5	3
31 Jan 2021	3	9	6	2	2	2	5	3

* Geometric mean calculated using n<5

Table 3.3

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Jan 2021	2	2	2	2	2	2	2	2
02 Jan 2021	2	2	2	2	2	2	2	2
03 Jan 2021	2	2	2	2	2	2	2	2
04 Jan 2021	2	2	2	2	2	2	2	2
05 Jan 2021	2	2	2	2	2	2	2	2
06 Jan 2021	2	2	2	2	2	2	2	2
07 Jan 2021	2	2	2	2	2	2	2	2
08 Jan 2021	2	2	2	2	2	2	2	2
09 Jan 2021	2	2	2	2	2	2	2	2
10 Jan 2021	2	2	2	2	2	2	2	2
11 Jan 2021	2	2	2	2	2	2	2	2
12 Jan 2021	2	2	2	2	2	2	2	2
13 Jan 2021	2	3	2	2	2	2	2	2
14 Jan 2021	2	3	2	2	2	2	2	2
15 Jan 2021	2	3	2	2	2	2	2	2
16 Jan 2021	2	3	2	2	2	2	2	2
17 Jan 2021	2	3	2	2	2	2	2	2
18 Jan 2021	2	3	2	2	2	2	2	2
19 Jan 2021	2	3	2	2	2	2	2	2
20 Jan 2021	2	3	2	2	2	2	2	2
21 Jan 2021	2	3	2	2	2	2	2	2
22 Jan 2021	2	3	2	2	2	2	2	2
23 Jan 2021	2	3	2	2	2	2	2	2
24 Jan 2021	2	3	2	2	2	2	2	2
25 Jan 2021	2	3	2	2	2	2	2	2
26 Jan 2021	2*	3*	2*	2*	2*	2*	3*	2*
27 Jan 2021	2	3	2	2	2	2	2	2
28 Jan 2021	2	3	2	2	2	2	2	2
29 Jan 2021	2	3	2	2	2	2	2	2
30 Jan 2021	2	3	2	2	2	2	2	2
31 Jan 2021	2	3	2	2	2	2	2	2

* Geometric mean calculated using n<5

Table 3.4

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
05 Jan 2021	IC							
13 Jan 2021	IC							
19 Jan 2021	IC							
27 Jan 2021	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.5

Summary of compliance at the PLOO 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	A1	A6	A7	C4	C5	C6	C7	C8
05 Jan 2021	IC							
13 Jan 2021	IC							
19 Jan 2021	IC							
27 Jan 2021	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.6

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
05 Jan 2021	IC							
13 Jan 2021	IC							
19 Jan 2021	IC							
27 Jan 2021	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.7

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
05 Jan 2021	IC							
13 Jan 2021	IC							
19 Jan 2021	IC							
27 Jan 2021	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.8

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

Station	Date	Time	Depth	Total	Fecal	Enter	F:T	Temp	XMS	DO	Sal	pH
A1	05 Jan 2021	818	1	14e	<2	2e	0.14	ns	ns	ns	ns	ns
A1	05 Jan 2021	818	12	20e	<2	<2	0.10	13.5	87.12	6.0	33.61	8.0
A1	05 Jan 2021	818	18	32e	10e	4e	0.31	13.4	87.39	5.9	33.61	8.0
A1	13 Jan 2021	753	1	4e	2e	<2	0.50	14.2	86.83	7.3	33.60	8.0
A1	13 Jan 2021	753	12	<20	<2	<2	0.10	13.1	82.62	6.0	33.60	7.9
A1	13 Jan 2021	753	18	14e	2e	<2	0.14	12.8	81.13	5.5	33.63	7.9
A1	19 Jan 2021	902	1	<2	<2	<2	1.00	15.2	82.99	7.8	33.59	8.1
A1	19 Jan 2021	902	12	<2	<2	<2	1.00	14.5	76.99	7.9	33.58	8.1
A1	19 Jan 2021	902	18	<2	<2	<2	1.00	14.4	77.95	7.7	33.59	8.1
A1	27 Jan 2021	743	1	<20	2e	<2	0.10	14.6	75.59	7.6	33.60	8.2
A1	27 Jan 2021	743	12	40e	4e	2e	0.10	14.6	75.71	7.6	33.60	8.2
A1	27 Jan 2021	743	18	60e	10e	2e	0.17	14.3	73.51	7.2	33.61	8.1
A6	05 Jan 2021	844	1	<2	<2	<2	1.00	14.2	77.24	7.2	33.59	8.0
A6	05 Jan 2021	844	12	26e	2e	4e	0.08	13.5	84.35	6.0	33.62	8.0
A6	05 Jan 2021	844	18	200e	18e	6e	0.09	13.0	66.88	5.3	33.63	7.9
A6	13 Jan 2021	825	1	2e	<2	<2	1.00	14.1	86.14	7.4	33.59	8.1
A6	13 Jan 2021	825	12	60e	22e	6e	0.37	13.0	83.22	5.8	33.63	7.9
A6	13 Jan 2021	825	18	260e	62	6e	0.24	12.3	81.09	4.8	33.68	7.8
A6	19 Jan 2021	924	1	<2	<2	<2	1.00	15.0	82.18	7.8	33.58	8.1
A6	19 Jan 2021	924	12	140e	8e	<2	0.06	14.2	78.83	7.2	33.59	8.1
A6	19 Jan 2021	924	18	40e	8e	2e	0.20	14.1	77.58	7.1	33.59	8.0
A6	27 Jan 2021	816	1	26e	2e	2e	0.08	14.6	78.86	7.4	33.59	8.2
A6	27 Jan 2021	816	12	34e	6e	6e	0.18	14.0	78.28	6.8	33.60	8.1
A6	27 Jan 2021	816	18	140e	10e	4e	0.07	13.6	78.17	6.4	33.60	8.1
A7	05 Jan 2021	830	1	22e	4e	<2	0.18	14.3	82.56	7.2	33.59	8.0
A7	05 Jan 2021	830	12	60	18e	4e	0.30	13.6	80.70	6.1	33.61	8.0
A7	05 Jan 2021	830	18	60e	24e	2e	0.40	13.2	80.98	5.7	33.62	7.9
A7	13 Jan 2021	809	1	<2	<2	<2	1.00	14.3	86.83	7.5	33.58	8.1
A7	13 Jan 2021	809	12	80e	6e	<2	0.07	13.1	83.51	6.0	33.62	7.9
A7	13 Jan 2021	809	18	<200	4e	<2	0.02	12.4	81.69	4.9	33.67	7.9
A7	19 Jan 2021	913	1	2e	<2	<2	1.00	15.2	83.07	7.8	33.58	8.1
A7	19 Jan 2021	913	12	6e	<2	<2	0.33	14.5	79.70	7.3	33.59	8.1
A7	19 Jan 2021	913	18	<20	4e	<2	0.20	14.1	76.72	6.7	33.60	8.0
A7	27 Jan 2021	806	1	10e	<2	<2	0.20	14.7	76.82	7.5	33.60	8.2
A7	27 Jan 2021	806	12	12e	<2	<2	0.17	14.7	77.35	7.5	33.59	8.2
A7	27 Jan 2021	806	18	80e	20e	4e	0.25	14.0	73.54	6.6	33.62	8.1
C4	05 Jan 2021	959	1	<2	<2	<2	1.00	14.2	62.66	7.3	33.61	8.0
C4	05 Jan 2021	959	3	<2	<2	<2	1.00	14.2	62.74	7.3	33.61	8.0
C4	05 Jan 2021	959	9	4e	<2	<2	0.50	14.0	76.34	6.5	33.61	8.0

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
C4	13 Jan 2021	935	1	2e	<2	<2	1.00	14.3	85.85	7.4	33.60	8.1
C4	13 Jan 2021	935	3	2e	<2	<2	1.00	14.2	85.80	7.3	33.60	8.1
C4	13 Jan 2021	935	9	<2	4e	<2	2.00	13.8	82.27	6.5	33.63	8.0
C4	19 Jan 2021	1032	1	<2	<2	<2	1.00	14.4	76.55	7.6	33.59	8.1
C4	19 Jan 2021	1032	3	<2	<2	<2	1.00	14.3	76.28	7.5	33.59	8.1
C4	19 Jan 2021	1032	9	2e	<2	<2	1.00	14.2	69.81	6.8	33.59	8.0
C4	27 Jan 2021	915	1	10e	<2	<2	0.20	14.5	67.74	7.3	33.59	8.2
C4	27 Jan 2021	915	3	<20	<2	<2	0.10	14.5	67.27	7.3	33.59	8.2
C4	27 Jan 2021	915	9	10e	<2	<2	0.20	14.5	66.55	7.4	33.59	8.2
C5	05 Jan 2021	946	1	<2	<2	<2	1.00	14.2	67.40	7.3	33.61	8.0
C5	05 Jan 2021	946	3	<2	<2	<2	1.00	14.1	68.80	7.1	33.61	8.0
C5	05 Jan 2021	946	9	<20	<2	<2	0.10	13.9	67.01	6.3	33.62	8.0
C5	13 Jan 2021	924	1	4e	<2	<2	0.50	14.4	86.63	7.6	33.59	8.1
C5	13 Jan 2021	924	3	2e	<2	<2	1.00	14.4	86.62	7.5	33.59	8.1
C5	13 Jan 2021	924	9	6e	<2	<2	0.33	13.9	83.10	6.9	33.61	8.0
C5	19 Jan 2021	1021	1	2e	<2	<2	1.00	14.6	49.15	7.4	33.61	8.0
C5	19 Jan 2021	1021	3	<2	<2	<2	1.00	14.6	46.34	7.3	33.61	8.0
C5	19 Jan 2021	1021	9	<20	<2	<2	0.10	14.4	43.80	6.9	33.61	8.0
C5	27 Jan 2021	905	1	4e	2e	<2	0.50	14.4	58.13	7.8	33.61	8.2
C5	27 Jan 2021	905	3	<20	2e	<2	0.10	14.4	57.66	7.8	33.61	8.2
C5	27 Jan 2021	905	9	<20	<2	<2	0.10	14.4	55.53	7.9	33.61	8.2
C6	05 Jan 2021	935	1	<2	<2	<2	1.00	14.2	73.60	7.2	33.60	8.0
C6	05 Jan 2021	935	3	<2	<2	<2	1.00	14.2	72.98	7.2	33.60	8.0
C6	05 Jan 2021	935	9	2e	<2	<2	1.00	14.0	68.17	6.5	33.60	8.0
C6	13 Jan 2021	912	1	2e	<2	<2	1.00	14.3	86.28	7.6	33.59	8.1
C6	13 Jan 2021	912	3	6e	<2	2e	0.33	14.2	86.15	7.6	33.59	8.1
C6	13 Jan 2021	912	9	2e	2e	<2	1.00	13.7	85.95	6.8	33.63	8.0
C6	19 Jan 2021	1010	1	4e	<2	<2	0.50	15.0	81.95	7.6	33.58	8.1
C6	19 Jan 2021	1010	3	<2	<2	<2	1.00	14.9	81.63	7.6	33.59	8.1
C6	19 Jan 2021	1010	9	80e	10e	<2	0.12	14.0	66.29	6.6	33.59	8.0
C6	27 Jan 2021	854	1	2e	<2	<2	1.00	14.5	69.49	7.7	33.61	8.2
C6	27 Jan 2021	854	3	<2	2e	<2	1.00	14.5	69.18	7.7	33.61	8.2
C6	27 Jan 2021	854	9	<2	<2	<2	1.00	14.5	67.83	7.7	33.61	8.2
C7	05 Jan 2021	859	1	<2	<2	<2	1.00	14.3	70.65	7.5	33.59	8.0
C7	05 Jan 2021	859	12	6e	<2	<2	0.33	14.1	72.63	6.9	33.60	8.0
C7	05 Jan 2021	859	18	6e	2e	6e	0.33	13.3	68.65	5.8	33.62	7.9
C7	13 Jan 2021	840	1	<2	<2	<2	1.00	14.2	83.62	7.6	33.58	8.1
C7	13 Jan 2021	840	12	60e	10e	<2	0.17	13.2	84.36	6.1	33.62	8.0
C7	13 Jan 2021	840	18	200e	62	4e	0.31	12.7	81.77	5.2	33.65	7.9
C7	19 Jan 2021	939	1	2e	<2	<2	1.00	14.7	79.79	7.8	33.58	8.1
C7	19 Jan 2021	939	12	10e	<2	<2	0.20	14.4	79.29	7.6	33.58	8.1
C7	19 Jan 2021	939	18	<20	12e	<2	0.60	13.6	75.81	6.2	33.60	8.0
C7	27 Jan 2021	827	1	6e	<2	<2	0.33	14.7	80.06	7.6	33.59	8.2
C7	27 Jan 2021	827	12	2e	<2	<2	1.00	14.6	78.93	7.4	33.59	8.2
C7	27 Jan 2021	827	18	40e	<2	<2	0.05	14.2	79.20	7.1	33.59	8.1
C8	05 Jan 2021	913	1	<2	<2	<2	1.00	14.3	67.39	7.5	33.58	8.0

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
C8	05 Jan 2021	913	12	<20	<2	<2	0.10	13.8	63.47	6.5	33.60	8.0
C8	05 Jan 2021	913	18	<20	4e	2e	0.20	13.2	52.51	5.6	33.62	7.9
C8	13 Jan 2021	852	1	<2	<2	<2	1.00	14.0	81.01	7.6	33.60	8.1
C8	13 Jan 2021	852	12	20e	6e	<2	0.30	13.3	81.75	6.1	33.62	8.0
C8	13 Jan 2021	852	18	20e	10e	2e	0.50	13.1	82.62	5.9	33.63	7.9
C8	19 Jan 2021	950	1	2e	<2	<2	1.00	14.8	76.60	7.9	33.57	8.1
C8	19 Jan 2021	950	12	40e	4e	<2	0.10	14.0	79.38	7.1	33.59	8.0
C8	19 Jan 2021	950	18	6e	2e	<2	0.33	13.6	72.07	6.4	33.60	8.0
C8	27 Jan 2021	836	1	<2	2e	4e	1.00	14.6	79.83	7.5	33.59	8.2
C8	27 Jan 2021	836	12	2e	<2	<2	1.00	14.6	79.82	7.6	33.59	8.2
C8	27 Jan 2021	836	18	<200	2e	<2	0.01	14.4	79.04	7.2	33.60	8.2

ns = not sampled

ND = no data

Table 3.9

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

Station	Date	Parameter	Value
A1	05 Jan 2021	Depth (m)	19
A1	05 Jan 2021	Arrive Time	818
A1	05 Jan 2021	Depart Time	823
A1	05 Jan 2021	Air Temp (C)	12
A1	05 Jan 2021	Weather	Fog
A1	05 Jan 2021	Visibility (mi)	5
A1	05 Jan 2021	Wind Speed (kts)	5
A1	05 Jan 2021	Wind Dir	E
A1	05 Jan 2021	Water Color	Bluish-Green
A1	05 Jan 2021	Wave Ht Low (ft)	6
A1	05 Jan 2021	Wave Period (sec)	16
A1	05 Jan 2021	Sea State	Light chop
A1	05 Jan 2021	High Tide (ft)	3.85
A1	05 Jan 2021	High Tide Time	1313
A1	05 Jan 2021	Low Tide (ft)	2.19
A1	05 Jan 2021	Low Tide Time	754
A1	05 Jan 2021	Comments	none
A1	13 Jan 2021	Depth (m)	18
A1	13 Jan 2021	Arrive Time	753
A1	13 Jan 2021	Depart Time	759
A1	13 Jan 2021	Air Temp (C)	13
A1	13 Jan 2021	Weather	Partly Cloudy
A1	13 Jan 2021	Visibility (mi)	7
A1	13 Jan 2021	Wind Speed (kts)	2
A1	13 Jan 2021	Wind Dir	N
A1	13 Jan 2021	Water Color	Greenish-Blue
A1	13 Jan 2021	Wave Ht Low (ft)	5
A1	13 Jan 2021	Wave Period (sec)	16
A1	13 Jan 2021	Sea State	Light chop
A1	13 Jan 2021	High Tide (ft)	6.52
A1	13 Jan 2021	High Tide Time	830
A1	13 Jan 2021	Low Tide (ft)	-1.54
A1	13 Jan 2021	Low Tide Time	1548
A1	13 Jan 2021	Comments	Kelp
A1	19 Jan 2021	Depth (m)	18
A1	19 Jan 2021	Arrive Time	902
A1	19 Jan 2021	Depart Time	908
A1	19 Jan 2021	Air Temp (C)	13
A1	19 Jan 2021	Weather	Haze
A1	19 Jan 2021	Visibility (mi)	6
A1	19 Jan 2021	Wind Speed (kts)	6
A1	19 Jan 2021	Wind Dir	NE
A1	19 Jan 2021	Water Color	Greenish-Blue
A1	19 Jan 2021	Wave Ht Low (ft)	5
A1	19 Jan 2021	Wave Period (sec)	13
A1	19 Jan 2021	Sea State	Light chop
A1	19 Jan 2021	High Tide (ft)	3.25
A1	19 Jan 2021	High Tide Time	1304
A1	19 Jan 2021	Low Tide (ft)	2.14
A1	19 Jan 2021	Low Tide Time	751
A1	19 Jan 2021	Comments	Kelp
A1	27 Jan 2021	Depth (m)	19
A1	27 Jan 2021	Arrive Time	743

Station	Date	Parameter	Value
A1	27 Jan 2021	Depart Time	759
A1	27 Jan 2021	Air Temp (C)	9
A1	27 Jan 2021	Weather	Partly Cloudy
A1	27 Jan 2021	Visibility (mi)	10
A1	27 Jan 2021	Wind Speed (kts)	18
A1	27 Jan 2021	Wind Dir	SE
A1	27 Jan 2021	Water Color	Greenish-Blue
A1	27 Jan 2021	Wave Ht Low (ft)	4
A1	27 Jan 2021	Wave Period (sec)	7
A1	27 Jan 2021	Sea State	Confused swell
A1	27 Jan 2021	High Tide (ft)	5.98
A1	27 Jan 2021	High Tide Time	737
A1	27 Jan 2021	Low Tide (ft)	-1.11
A1	27 Jan 2021	Low Tide Time	1455
A1	27 Jan 2021	Comments	Kelp; Kelp debris
A6	05 Jan 2021	Depth (m)	16
A6	05 Jan 2021	Arrive Time	844
A6	05 Jan 2021	Depart Time	848
A6	05 Jan 2021	Air Temp (C)	11
A6	05 Jan 2021	Weather	Fog
A6	05 Jan 2021	Visibility (mi)	5
A6	05 Jan 2021	Wind Speed (kts)	5
A6	05 Jan 2021	Wind Dir	N
A6	05 Jan 2021	Water Color	Bluish-Green
A6	05 Jan 2021	Wave Ht Low (ft)	6
A6	05 Jan 2021	Wave Period (sec)	16
A6	05 Jan 2021	Sea State	Wind ripples
A6	05 Jan 2021	High Tide (ft)	3.85
A6	05 Jan 2021	High Tide Time	1313
A6	05 Jan 2021	Low Tide (ft)	2.19
A6	05 Jan 2021	Low Tide Time	754
A6	05 Jan 2021	Comments	Held CTD at bottom for longer than normal to get depth and may impacted trans
A6	13 Jan 2021	Depth (m)	22
A6	13 Jan 2021	Arrive Time	825
A6	13 Jan 2021	Depart Time	828
A6	13 Jan 2021	Air Temp (C)	14
A6	13 Jan 2021	Weather	Haze
A6	13 Jan 2021	Visibility (mi)	9
A6	13 Jan 2021	Wind Speed (kts)	2
A6	13 Jan 2021	Wind Dir	E
A6	13 Jan 2021	Water Color	Greenish-Blue
A6	13 Jan 2021	Wave Ht Low (ft)	4
A6	13 Jan 2021	Wave Period (sec)	13
A6	13 Jan 2021	Sea State	Light chop
A6	13 Jan 2021	High Tide (ft)	6.52
A6	13 Jan 2021	High Tide Time	830
A6	13 Jan 2021	Low Tide (ft)	-1.54
A6	13 Jan 2021	Low Tide Time	1548
A6	13 Jan 2021	Comments	Kelp; Kelp debris
A6	19 Jan 2021	Depth (m)	18
A6	19 Jan 2021	Arrive Time	924
A6	19 Jan 2021	Depart Time	929
A6	19 Jan 2021	Air Temp (C)	15
A6	19 Jan 2021	Weather	Haze
A6	19 Jan 2021	Visibility (mi)	7
A6	19 Jan 2021	Wind Speed (kts)	5
A6	19 Jan 2021	Wind Dir	E

Station	Date	Parameter	Value
A6	19 Jan 2021	Water Color	Greenish-Blue
A6	19 Jan 2021	Wave Ht Low (ft)	5
A6	19 Jan 2021	Wave Period (sec)	13
A6	19 Jan 2021	Sea State	Light chop
A6	19 Jan 2021	High Tide (ft)	3.25
A6	19 Jan 2021	High Tide Time	1304
A6	19 Jan 2021	Low Tide (ft)	2.14
A6	19 Jan 2021	Low Tide Time	751
A6	19 Jan 2021	Comments	Kelp; Kelp debris
A6	27 Jan 2021	Depth (m)	18
A6	27 Jan 2021	Arrive Time	816
A6	27 Jan 2021	Depart Time	818
A6	27 Jan 2021	Air Temp (C)	10
A6	27 Jan 2021	Weather	Partly Cloudy
A6	27 Jan 2021	Visibility (mi)	10
A6	27 Jan 2021	Wind Speed (kts)	10
A6	27 Jan 2021	Wind Dir	NE
A6	27 Jan 2021	Water Color	Green
A6	27 Jan 2021	Wave Ht Low (ft)	4
A6	27 Jan 2021	Wave Period (sec)	7
A6	27 Jan 2021	Sea State	Confused swell
A6	27 Jan 2021	High Tide (ft)	5.98
A6	27 Jan 2021	High Tide Time	737
A6	27 Jan 2021	Low Tide (ft)	-1.11
A6	27 Jan 2021	Low Tide Time	1455
A6	27 Jan 2021	Comments	Kelp; Kelp debris
A7	05 Jan 2021	Depth (m)	20
A7	05 Jan 2021	Arrive Time	830
A7	05 Jan 2021	Depart Time	835
A7	05 Jan 2021	Air Temp (C)	12
A7	05 Jan 2021	Weather	Fog
A7	05 Jan 2021	Visibility (mi)	5
A7	05 Jan 2021	Wind Speed (kts)	5
A7	05 Jan 2021	Wind Dir	N
A7	05 Jan 2021	Water Color	Bluish-Green
A7	05 Jan 2021	Wave Ht Low (ft)	6
A7	05 Jan 2021	Wave Period (sec)	16
A7	05 Jan 2021	Sea State	Wind ripples
A7	05 Jan 2021	High Tide (ft)	3.85
A7	05 Jan 2021	High Tide Time	1313
A7	05 Jan 2021	Low Tide (ft)	2.19
A7	05 Jan 2021	Low Tide Time	754
A7	05 Jan 2021	Comments	none
A7	13 Jan 2021	Depth (m)	18
A7	13 Jan 2021	Arrive Time	809
A7	13 Jan 2021	Depart Time	813
A7	13 Jan 2021	Air Temp (C)	14
A7	13 Jan 2021	Weather	Partly Cloudy
A7	13 Jan 2021	Visibility (mi)	9
A7	13 Jan 2021	Wind Speed (kts)	0
A7	13 Jan 2021	Wind Dir	
A7	13 Jan 2021	Water Color	Greenish-Blue
A7	13 Jan 2021	Wave Ht Low (ft)	4
A7	13 Jan 2021	Wave Period (sec)	16
A7	13 Jan 2021	Sea State	Light chop
A7	13 Jan 2021	High Tide (ft)	6.52
A7	13 Jan 2021	High Tide Time	830
A7	13 Jan 2021	Low Tide (ft)	-1.54

Station	Date	Parameter	Value
A7	13 Jan 2021	Low Tide Time	1548
A7	13 Jan 2021	Comments	Kelp
A7	19 Jan 2021	Depth (m)	19
A7	19 Jan 2021	Arrive Time	913
A7	19 Jan 2021	Depart Time	916
A7	19 Jan 2021	Air Temp (C)	15
A7	19 Jan 2021	Weather	Haze
A7	19 Jan 2021	Visibility (mi)	6
A7	19 Jan 2021	Wind Speed (kts)	1
A7	19 Jan 2021	Wind Dir	NE
A7	19 Jan 2021	Water Color	Greenish-Blue
A7	19 Jan 2021	Wave Ht Low (ft)	5
A7	19 Jan 2021	Wave Period (sec)	13
A7	19 Jan 2021	Sea State	Light chop
A7	19 Jan 2021	High Tide (ft)	3.25
A7	19 Jan 2021	High Tide Time	1304
A7	19 Jan 2021	Low Tide (ft)	2.14
A7	19 Jan 2021	Low Tide Time	751
A7	19 Jan 2021	Comments	Kelp
A7	27 Jan 2021	Depth (m)	19
A7	27 Jan 2021	Arrive Time	806
A7	27 Jan 2021	Depart Time	808
A7	27 Jan 2021	Air Temp (C)	10
A7	27 Jan 2021	Weather	Partly Cloudy
A7	27 Jan 2021	Visibility (mi)	10
A7	27 Jan 2021	Wind Speed (kts)	9
A7	27 Jan 2021	Wind Dir	NE
A7	27 Jan 2021	Water Color	Green
A7	27 Jan 2021	Wave Ht Low (ft)	4
A7	27 Jan 2021	Wave Period (sec)	7
A7	27 Jan 2021	Sea State	Confused swell
A7	27 Jan 2021	High Tide (ft)	5.98
A7	27 Jan 2021	High Tide Time	737
A7	27 Jan 2021	Low Tide (ft)	-1.11
A7	27 Jan 2021	Low Tide Time	1455
A7	27 Jan 2021	Comments	Kelp; Kelp debris
C4	05 Jan 2021	Depth (m)	12
C4	05 Jan 2021	Arrive Time	959
C4	05 Jan 2021	Depart Time	1002
C4	05 Jan 2021	Air Temp (C)	12
C4	05 Jan 2021	Weather	Fog
C4	05 Jan 2021	Visibility (mi)	5
C4	05 Jan 2021	Wind Speed (kts)	7
C4	05 Jan 2021	Wind Dir	NW
C4	05 Jan 2021	Water Color	Bluish-Green
C4	05 Jan 2021	Wave Ht Low (ft)	6
C4	05 Jan 2021	Wave Period (sec)	16
C4	05 Jan 2021	Sea State	Wind ripples
C4	05 Jan 2021	High Tide (ft)	3.85
C4	05 Jan 2021	High Tide Time	1313
C4	05 Jan 2021	Low Tide (ft)	2.19
C4	05 Jan 2021	Low Tide Time	754
C4	05 Jan 2021	Comments	Kelp debris
C4	13 Jan 2021	Depth (m)	9
C4	13 Jan 2021	Arrive Time	935
C4	13 Jan 2021	Depart Time	938
C4	13 Jan 2021	Air Temp (C)	14

Station	Date	Parameter	Value
C4	13 Jan 2021	Weather	Haze
C4	13 Jan 2021	Visibility (mi)	12
C4	13 Jan 2021	Wind Speed (kts)	2
C4	13 Jan 2021	Wind Dir	W
C4	13 Jan 2021	Water Color	Green
C4	13 Jan 2021	Wave Ht Low (ft)	4
C4	13 Jan 2021	Wave Period (sec)	13
C4	13 Jan 2021	Sea State	Calm
C4	13 Jan 2021	High Tide (ft)	6.52
C4	13 Jan 2021	High Tide Time	830
C4	13 Jan 2021	Low Tide (ft)	-1.54
C4	13 Jan 2021	Low Tide Time	1548
C4	13 Jan 2021	Comments	Kelp
C4	19 Jan 2021	Depth (m)	10
C4	19 Jan 2021	Arrive Time	1032
C4	19 Jan 2021	Depart Time	1033
C4	19 Jan 2021	Air Temp (C)	16
C4	19 Jan 2021	Weather	Haze
C4	19 Jan 2021	Visibility (mi)	8
C4	19 Jan 2021	Wind Speed (kts)	5
C4	19 Jan 2021	Wind Dir	N
C4	19 Jan 2021	Water Color	Green
C4	19 Jan 2021	Wave Ht Low (ft)	5
C4	19 Jan 2021	Wave Period (sec)	13
C4	19 Jan 2021	Sea State	Calm
C4	19 Jan 2021	High Tide (ft)	3.25
C4	19 Jan 2021	High Tide Time	1304
C4	19 Jan 2021	Low Tide (ft)	2.14
C4	19 Jan 2021	Low Tide Time	751
C4	19 Jan 2021	Comments	none
C4	27 Jan 2021	Depth (m)	9
C4	27 Jan 2021	Arrive Time	915
C4	27 Jan 2021	Depart Time	920
C4	27 Jan 2021	Air Temp (C)	10
C4	27 Jan 2021	Weather	Partly Cloudy
C4	27 Jan 2021	Visibility (mi)	14
C4	27 Jan 2021	Wind Speed (kts)	4
C4	27 Jan 2021	Wind Dir	N
C4	27 Jan 2021	Water Color	Greenish-Brown
C4	27 Jan 2021	Wave Ht Low (ft)	4
C4	27 Jan 2021	Wave Period (sec)	7
C4	27 Jan 2021	Sea State	Light chop
C4	27 Jan 2021	High Tide (ft)	5.98
C4	27 Jan 2021	High Tide Time	737
C4	27 Jan 2021	Low Tide (ft)	-1.11
C4	27 Jan 2021	Low Tide Time	1455
C4	27 Jan 2021	Comments	Kelp; Seagrass
C5	05 Jan 2021	Depth (m)	11
C5	05 Jan 2021	Arrive Time	946
C5	05 Jan 2021	Depart Time	949
C5	05 Jan 2021	Air Temp (C)	12
C5	05 Jan 2021	Weather	Fog
C5	05 Jan 2021	Visibility (mi)	5
C5	05 Jan 2021	Wind Speed (kts)	4
C5	05 Jan 2021	Wind Dir	NW
C5	05 Jan 2021	Water Color	Bluish-Green
C5	05 Jan 2021	Wave Ht Low (ft)	6
C5	05 Jan 2021	Wave Period (sec)	16

Station	Date	Parameter	Value
C5	05 Jan 2021	Sea State	Wind ripples
C5	05 Jan 2021	High Tide (ft)	3.85
C5	05 Jan 2021	High Tide Time	1313
C5	05 Jan 2021	Low Tide (ft)	2.19
C5	05 Jan 2021	Low Tide Time	754
C5	05 Jan 2021	Comments	Kelp
C5	13 Jan 2021	Depth (m)	9
C5	13 Jan 2021	Arrive Time	924
C5	13 Jan 2021	Depart Time	926
C5	13 Jan 2021	Air Temp (C)	14
C5	13 Jan 2021	Weather	Haze
C5	13 Jan 2021	Visibility (mi)	12
C5	13 Jan 2021	Wind Speed (kts)	4
C5	13 Jan 2021	Wind Dir	W
C5	13 Jan 2021	Water Color	Green
C5	13 Jan 2021	Wave Ht Low (ft)	4
C5	13 Jan 2021	Wave Period (sec)	13
C5	13 Jan 2021	Sea State	Light chop
C5	13 Jan 2021	High Tide (ft)	6.52
C5	13 Jan 2021	High Tide Time	830
C5	13 Jan 2021	Low Tide (ft)	-1.54
C5	13 Jan 2021	Low Tide Time	1548
C5	13 Jan 2021	Comments	none
C5	19 Jan 2021	Depth (m)	11
C5	19 Jan 2021	Arrive Time	1021
C5	19 Jan 2021	Depart Time	1023
C5	19 Jan 2021	Air Temp (C)	15
C5	19 Jan 2021	Weather	Haze
C5	19 Jan 2021	Visibility (mi)	8
C5	19 Jan 2021	Wind Speed (kts)	5
C5	19 Jan 2021	Wind Dir	N
C5	19 Jan 2021	Water Color	Green
C5	19 Jan 2021	Wave Ht Low (ft)	5
C5	19 Jan 2021	Wave Period (sec)	13
C5	19 Jan 2021	Sea State	Calm
C5	19 Jan 2021	High Tide (ft)	3.25
C5	19 Jan 2021	High Tide Time	1304
C5	19 Jan 2021	Low Tide (ft)	2.14
C5	19 Jan 2021	Low Tide Time	751
C5	19 Jan 2021	Comments	Kelp debris
C5	27 Jan 2021	Depth (m)	10
C5	27 Jan 2021	Arrive Time	905
C5	27 Jan 2021	Depart Time	907
C5	27 Jan 2021	Air Temp (C)	10
C5	27 Jan 2021	Weather	Partly Cloudy
C5	27 Jan 2021	Visibility (mi)	14
C5	27 Jan 2021	Wind Speed (kts)	11
C5	27 Jan 2021	Wind Dir	NE
C5	27 Jan 2021	Water Color	Greenish-Brown
C5	27 Jan 2021	Wave Ht Low (ft)	4
C5	27 Jan 2021	Wave Period (sec)	7
C5	27 Jan 2021	Sea State	Light chop
C5	27 Jan 2021	High Tide (ft)	5.98
C5	27 Jan 2021	High Tide Time	737
C5	27 Jan 2021	Low Tide (ft)	-1.11
C5	27 Jan 2021	Low Tide Time	1455
C5	27 Jan 2021	Comments	Odor of sewage present; Kelp debris

Station	Date	Parameter	Value
C6	05 Jan 2021	Depth (m)	10
C6	05 Jan 2021	Arrive Time	935
C6	05 Jan 2021	Depart Time	939
C6	05 Jan 2021	Air Temp (C)	12
C6	05 Jan 2021	Weather	Fog
C6	05 Jan 2021	Visibility (mi)	5
C6	05 Jan 2021	Wind Speed (kts)	1
C6	05 Jan 2021	Wind Dir	N
C6	05 Jan 2021	Water Color	Bluish-Green
C6	05 Jan 2021	Wave Ht Low (ft)	6
C6	05 Jan 2021	Wave Period (sec)	16
C6	05 Jan 2021	Sea State	Wind ripples
C6	05 Jan 2021	High Tide (ft)	3.85
C6	05 Jan 2021	High Tide Time	1313
C6	05 Jan 2021	Low Tide (ft)	2.19
C6	05 Jan 2021	Low Tide Time	754
C6	05 Jan 2021	Comments	none
C6	13 Jan 2021	Depth (m)	11
C6	13 Jan 2021	Arrive Time	912
C6	13 Jan 2021	Depart Time	916
C6	13 Jan 2021	Air Temp (C)	14
C6	13 Jan 2021	Weather	Haze
C6	13 Jan 2021	Visibility (mi)	12
C6	13 Jan 2021	Wind Speed (kts)	2
C6	13 Jan 2021	Wind Dir	W
C6	13 Jan 2021	Water Color	Green
C6	13 Jan 2021	Wave Ht Low (ft)	4
C6	13 Jan 2021	Wave Period (sec)	13
C6	13 Jan 2021	Sea State	Light chop
C6	13 Jan 2021	High Tide (ft)	6.52
C6	13 Jan 2021	High Tide Time	830
C6	13 Jan 2021	Low Tide (ft)	-1.54
C6	13 Jan 2021	Low Tide Time	1548
C6	13 Jan 2021	Comments	Kelp
C6	19 Jan 2021	Depth (m)	10
C6	19 Jan 2021	Arrive Time	1010
C6	19 Jan 2021	Depart Time	1014
C6	19 Jan 2021	Air Temp (C)	15
C6	19 Jan 2021	Weather	Haze
C6	19 Jan 2021	Visibility (mi)	8
C6	19 Jan 2021	Wind Speed (kts)	6
C6	19 Jan 2021	Wind Dir	NE
C6	19 Jan 2021	Water Color	Green
C6	19 Jan 2021	Wave Ht Low (ft)	5
C6	19 Jan 2021	Wave Period (sec)	13
C6	19 Jan 2021	Sea State	Calm
C6	19 Jan 2021	High Tide (ft)	3.25
C6	19 Jan 2021	High Tide Time	1304
C6	19 Jan 2021	Low Tide (ft)	2.14
C6	19 Jan 2021	Low Tide Time	751
C6	19 Jan 2021	Comments	Kelp debris; Seagrass
C6	27 Jan 2021	Depth (m)	9
C6	27 Jan 2021	Arrive Time	854
C6	27 Jan 2021	Depart Time	858
C6	27 Jan 2021	Air Temp (C)	11
C6	27 Jan 2021	Weather	Partly Cloudy
C6	27 Jan 2021	Visibility (mi)	12
C6	27 Jan 2021	Wind Speed (kts)	15

Station	Date	Parameter	Value
C6	27 Jan 2021	Wind Dir	NE
C6	27 Jan 2021	Water Color	Green
C6	27 Jan 2021	Wave Ht Low (ft)	4
C6	27 Jan 2021	Wave Period (sec)	7
C6	27 Jan 2021	Sea State	Confused swell
C6	27 Jan 2021	High Tide (ft)	5.98
C6	27 Jan 2021	High Tide Time	737
C6	27 Jan 2021	Low Tide (ft)	-1.11
C6	27 Jan 2021	Low Tide Time	1455
C6	27 Jan 2021	Comments	Kelp
C7	05 Jan 2021	Depth (m)	19
C7	05 Jan 2021	Arrive Time	859
C7	05 Jan 2021	Depart Time	903
C7	05 Jan 2021	Air Temp (C)	11
C7	05 Jan 2021	Weather	Fog
C7	05 Jan 2021	Visibility (mi)	5
C7	05 Jan 2021	Wind Speed (kts)	3
C7	05 Jan 2021	Wind Dir	NE
C7	05 Jan 2021	Water Color	Bluish-Green
C7	05 Jan 2021	Wave Ht Low (ft)	6
C7	05 Jan 2021	Wave Period (sec)	16
C7	05 Jan 2021	Sea State	Wind ripples
C7	05 Jan 2021	High Tide (ft)	3.85
C7	05 Jan 2021	High Tide Time	1313
C7	05 Jan 2021	Low Tide (ft)	2.19
C7	05 Jan 2021	Low Tide Time	754
C7	05 Jan 2021	Comments	none
C7	13 Jan 2021	Depth (m)	19
C7	13 Jan 2021	Arrive Time	840
C7	13 Jan 2021	Depart Time	844
C7	13 Jan 2021	Air Temp (C)	14
C7	13 Jan 2021	Weather	Haze
C7	13 Jan 2021	Visibility (mi)	12
C7	13 Jan 2021	Wind Speed (kts)	0
C7	13 Jan 2021	Wind Dir	
C7	13 Jan 2021	Water Color	Greenish-Blue
C7	13 Jan 2021	Wave Ht Low (ft)	4
C7	13 Jan 2021	Wave Period (sec)	13
C7	13 Jan 2021	Sea State	Light chop
C7	13 Jan 2021	High Tide (ft)	6.52
C7	13 Jan 2021	High Tide Time	830
C7	13 Jan 2021	Low Tide (ft)	-1.54
C7	13 Jan 2021	Low Tide Time	1548
C7	13 Jan 2021	Comments	Kelp; Kelp debris
C7	19 Jan 2021	Depth (m)	19
C7	19 Jan 2021	Arrive Time	939
C7	19 Jan 2021	Depart Time	942
C7	19 Jan 2021	Air Temp (C)	15
C7	19 Jan 2021	Weather	Haze
C7	19 Jan 2021	Visibility (mi)	7
C7	19 Jan 2021	Wind Speed (kts)	6
C7	19 Jan 2021	Wind Dir	E
C7	19 Jan 2021	Water Color	Greenish-Blue
C7	19 Jan 2021	Wave Ht Low (ft)	5
C7	19 Jan 2021	Wave Period (sec)	13
C7	19 Jan 2021	Sea State	Light chop
C7	19 Jan 2021	High Tide (ft)	3.25
C7	19 Jan 2021	High Tide Time	1304

Station	Date	Parameter	Value
C7	19 Jan 2021	Low Tide (ft)	2.14
C7	19 Jan 2021	Low Tide Time	751
C7	19 Jan 2021	Comments	Kelp
C7	27 Jan 2021	Depth (m)	18
C7	27 Jan 2021	Arrive Time	827
C7	27 Jan 2021	Depart Time	830
C7	27 Jan 2021	Air Temp (C)	10
C7	27 Jan 2021	Weather	Haze
C7	27 Jan 2021	Visibility (mi)	10
C7	27 Jan 2021	Wind Speed (kts)	11
C7	27 Jan 2021	Wind Dir	E
C7	27 Jan 2021	Water Color	Green
C7	27 Jan 2021	Wave Ht Low (ft)	4
C7	27 Jan 2021	Wave Period (sec)	7
C7	27 Jan 2021	Sea State	Confused swell
C7	27 Jan 2021	High Tide (ft)	5.98
C7	27 Jan 2021	High Tide Time	737
C7	27 Jan 2021	Low Tide (ft)	-1.11
C7	27 Jan 2021	Low Tide Time	1455
C7	27 Jan 2021	Comments	Kelp; Kelp debris
C8	05 Jan 2021	Depth (m)	20
C8	05 Jan 2021	Arrive Time	913
C8	05 Jan 2021	Depart Time	917
C8	05 Jan 2021	Air Temp (C)	11
C8	05 Jan 2021	Weather	Fog
C8	05 Jan 2021	Visibility (mi)	5
C8	05 Jan 2021	Wind Speed (kts)	3
C8	05 Jan 2021	Wind Dir	NE
C8	05 Jan 2021	Water Color	Bluish-Green
C8	05 Jan 2021	Wave Ht Low (ft)	6
C8	05 Jan 2021	Wave Period (sec)	16
C8	05 Jan 2021	Sea State	Wind ripples
C8	05 Jan 2021	High Tide (ft)	3.85
C8	05 Jan 2021	High Tide Time	1313
C8	05 Jan 2021	Low Tide (ft)	2.19
C8	05 Jan 2021	Low Tide Time	754
C8	05 Jan 2021	Comments	none
C8	13 Jan 2021	Depth (m)	18
C8	13 Jan 2021	Arrive Time	852
C8	13 Jan 2021	Depart Time	855
C8	13 Jan 2021	Air Temp (C)	13
C8	13 Jan 2021	Weather	Haze
C8	13 Jan 2021	Visibility (mi)	12
C8	13 Jan 2021	Wind Speed (kts)	1
C8	13 Jan 2021	Wind Dir	N
C8	13 Jan 2021	Water Color	Greenish-Blue
C8	13 Jan 2021	Wave Ht Low (ft)	4
C8	13 Jan 2021	Wave Period (sec)	13
C8	13 Jan 2021	Sea State	Light chop
C8	13 Jan 2021	High Tide (ft)	6.52
C8	13 Jan 2021	High Tide Time	830
C8	13 Jan 2021	Low Tide (ft)	-1.54
C8	13 Jan 2021	Low Tide Time	1548
C8	13 Jan 2021	Comments	none
C8	19 Jan 2021	Depth (m)	20
C8	19 Jan 2021	Arrive Time	950
C8	19 Jan 2021	Depart Time	953

Station	Date	Parameter	Value
C8	19 Jan 2021	Air Temp (C)	16
C8	19 Jan 2021	Weather	Haze
C8	19 Jan 2021	Visibility (mi)	7
C8	19 Jan 2021	Wind Speed (kts)	3
C8	19 Jan 2021	Wind Dir	NE
C8	19 Jan 2021	Water Color	Greenish-Blue
C8	19 Jan 2021	Wave Ht Low (ft)	5
C8	19 Jan 2021	Wave Period (sec)	13
C8	19 Jan 2021	Sea State	Light chop
C8	19 Jan 2021	High Tide (ft)	3.25
C8	19 Jan 2021	High Tide Time	1304
C8	19 Jan 2021	Low Tide (ft)	2.14
C8	19 Jan 2021	Low Tide Time	751
C8	19 Jan 2021	Comments	none
C8	27 Jan 2021	Depth (m)	18
C8	27 Jan 2021	Arrive Time	836
C8	27 Jan 2021	Depart Time	841
C8	27 Jan 2021	Air Temp (C)	11
C8	27 Jan 2021	Weather	Partly Cloudy
C8	27 Jan 2021	Visibility (mi)	12
C8	27 Jan 2021	Wind Speed (kts)	9
C8	27 Jan 2021	Wind Dir	NE
C8	27 Jan 2021	Water Color	Green
C8	27 Jan 2021	Wave Ht Low (ft)	4
C8	27 Jan 2021	Wave Period (sec)	7
C8	27 Jan 2021	Sea State	Confused swell
C8	27 Jan 2021	High Tide (ft)	5.98
C8	27 Jan 2021	High Tide Time	737
C8	27 Jan 2021	Low Tide (ft)	-1.11
C8	27 Jan 2021	Low Tide Time	1455
C8	27 Jan 2021	Comments	Kelp

Table 3.10

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

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
A1	05 Jan 2021	2	14.20	82.71	7.0	33.58	8.0	25.1	2.01
A1	05 Jan 2021	3	14.12	83.65	7.0	33.59	8.0	25.1	1.82
A1	05 Jan 2021	4	14.08	84.33	6.8	33.59	8.0	25.1	1.72
A1	05 Jan 2021	5	13.99	85.04	6.7	33.59	8.0	25.1	1.46
A1	05 Jan 2021	6	13.74	85.92	6.4	33.61	8.0	25.2	1.11
A1	05 Jan 2021	7	13.68	86.70	6.3	33.60	8.0	25.2	0.99
A1	05 Jan 2021	8	13.68	86.69	6.3	33.60	8.0	25.2	0.95
A1	05 Jan 2021	9	13.65	86.80	6.2	33.60	8.0	25.2	0.94
A1	05 Jan 2021	10	13.63	87.01	6.2	33.60	8.0	25.2	0.91
A1	05 Jan 2021	11	13.50	87.09	6.1	33.61	8.0	25.2	0.86
A1	05 Jan 2021	12	13.47	87.12	6.0	33.61	8.0	25.2	0.83
A1	05 Jan 2021	13	13.49	87.27	6.0	33.61	8.0	25.2	0.81
A1	05 Jan 2021	14	13.46	87.33	6.0	33.61	8.0	25.2	0.84
A1	05 Jan 2021	15	13.45	87.20	6.0	33.61	8.0	25.2	0.76
A1	05 Jan 2021	16	13.42	87.22	5.9	33.61	8.0	25.2	0.73
A1	05 Jan 2021	17	13.39	87.39	5.9	33.61	8.0	25.2	0.70
A1	13 Jan 2021	1	14.20	86.83	7.3	33.60	8.0	25.1	1.58
A1	13 Jan 2021	2	14.22	86.93	7.2	33.59	8.1	25.1	1.67
A1	13 Jan 2021	3	13.90	86.32	7.0	33.60	8.0	25.1	1.74
A1	13 Jan 2021	4	13.56	85.42	6.7	33.61	8.0	25.2	1.54
A1	13 Jan 2021	5	13.38	85.66	6.5	33.60	8.0	25.2	1.44
A1	13 Jan 2021	6	13.28	85.14	6.4	33.60	8.0	25.3	1.51
A1	13 Jan 2021	7	13.24	84.10	6.3	33.60	8.0	25.3	1.73
A1	13 Jan 2021	8	13.21	83.23	6.2	33.60	8.0	25.3	1.69
A1	13 Jan 2021	9	13.20	82.98	6.2	33.60	8.0	25.3	1.64
A1	13 Jan 2021	10	13.18	83.16	6.2	33.60	7.9	25.3	1.67
A1	13 Jan 2021	11	13.16	82.97	6.1	33.60	7.9	25.3	1.65
A1	13 Jan 2021	12	13.14	82.62	6.0	33.60	7.9	25.3	1.64
A1	13 Jan 2021	13	13.07	82.41	6.0	33.61	7.9	25.3	1.58
A1	13 Jan 2021	14	13.08	82.27	5.9	33.61	7.9	25.3	1.50
A1	13 Jan 2021	15	12.95	81.99	5.8	33.62	7.9	25.3	1.38
A1	13 Jan 2021	16	12.95	81.68	5.7	33.62	7.9	25.3	1.32
A1	13 Jan 2021	17	12.92	81.50	5.6	33.62	7.9	25.3	1.25
A1	13 Jan 2021	18	12.85	81.13	5.5	33.63	7.9	25.4	1.19
A1	13 Jan 2021	19	12.83	81.06	5.4	33.63	7.9	25.4	1.10
A1	19 Jan 2021	1	15.24	82.99	7.8	33.59	8.1	24.8	0.97
A1	19 Jan 2021	2	15.22	82.93	7.8	33.59	8.1	24.8	1.01
A1	19 Jan 2021	3	15.15	82.59	7.8	33.59	8.1	24.9	1.15
A1	19 Jan 2021	4	15.13	82.15	7.7	33.59	8.1	24.9	1.32
A1	19 Jan 2021	5	15.08	81.96	7.7	33.59	8.1	24.9	1.49
A1	19 Jan 2021	6	15.04	81.91	7.7	33.59	8.1	24.9	1.65
A1	19 Jan 2021	7	15.04	81.60	7.7	33.59	8.1	24.9	1.85
A1	19 Jan 2021	8	15.00	81.04	7.7	33.59	8.1	24.9	2.29
A1	19 Jan 2021	9	14.85	80.04	7.7	33.59	8.1	24.9	3.12
A1	19 Jan 2021	10	14.61	78.17	7.8	33.59	8.1	25.0	3.64
A1	19 Jan 2021	11	14.55	77.11	7.8	33.59	8.1	25.0	4.06
A1	19 Jan 2021	12	14.54	76.99	7.9	33.58	8.1	25.0	4.20
A1	19 Jan 2021	13	14.50	76.98	7.8	33.58	8.1	25.0	4.15
A1	19 Jan 2021	14	14.48	77.11	7.8	33.58	8.1	25.0	4.12
A1	19 Jan 2021	15	14.44	77.24	7.8	33.59	8.1	25.0	3.80
A1	19 Jan 2021	16	14.44	77.51	7.8	33.58	8.1	25.0	3.66
A1	19 Jan 2021	17	14.38	77.83	7.7	33.59	8.1	25.0	3.38
A1	19 Jan 2021	18	14.36	77.95	7.7	33.59	8.1	25.0	3.06
A1	19 Jan 2021	19	14.36	76.76	7.7	33.59	8.1	25.0	2.87

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
A1	27 Jan 2021	1	14.61	75.59	7.6	33.60	8.2	25.0	1.19
A1	27 Jan 2021	2	14.61	75.63	7.6	33.60	8.2	25.0	1.23
A1	27 Jan 2021	3	14.61	75.59	7.6	33.60	8.2	25.0	1.32
A1	27 Jan 2021	4	14.61	75.60	7.6	33.60	8.2	25.0	1.38
A1	27 Jan 2021	5	14.62	75.51	7.7	33.59	8.2	25.0	1.46
A1	27 Jan 2021	6	14.62	75.67	7.6	33.59	8.2	25.0	1.53
A1	27 Jan 2021	7	14.62	75.56	7.6	33.60	8.2	25.0	1.56
A1	27 Jan 2021	8	14.62	75.77	7.7	33.60	8.2	25.0	1.54
A1	27 Jan 2021	9	14.63	75.94	7.7	33.59	8.2	25.0	1.60
A1	27 Jan 2021	10	14.64	75.83	7.6	33.59	8.2	25.0	1.61
A1	27 Jan 2021	11	14.64	75.98	7.7	33.60	8.2	25.0	1.54
A1	27 Jan 2021	12	14.61	75.71	7.6	33.60	8.2	25.0	1.49
A1	27 Jan 2021	13	14.56	73.19	7.7	33.60	8.2	25.0	1.38
A1	27 Jan 2021	14	14.56	72.30	7.6	33.60	8.2	25.0	1.34
A1	27 Jan 2021	15	14.52	72.47	7.5	33.60	8.1	25.0	1.17
A1	27 Jan 2021	16	14.48	72.77	7.4	33.60	8.1	25.0	1.03
A1	27 Jan 2021	17	14.43	73.23	7.3	33.60	8.1	25.0	0.97
A1	27 Jan 2021	18	14.32	73.51	7.2	33.61	8.1	25.0	0.89
A1	27 Jan 2021	19	14.13	72.80	7.0	33.62	8.1	25.1	0.84
A6	05 Jan 2021	1	14.21	77.24	7.2	33.59	8.0	25.1	2.06
A6	05 Jan 2021	2	14.27	76.71	7.4	33.59	8.0	25.0	2.58
A6	05 Jan 2021	3	14.22	76.55	7.2	33.59	8.0	25.1	2.48
A6	05 Jan 2021	4	14.11	76.72	7.1	33.60	8.0	25.1	1.96
A6	05 Jan 2021	5	14.05	79.00	6.9	33.60	8.0	25.1	1.57
A6	05 Jan 2021	6	13.96	80.27	6.7	33.60	8.0	25.1	1.34
A6	05 Jan 2021	7	13.89	81.35	6.6	33.60	8.0	25.1	1.18
A6	05 Jan 2021	8	13.61	82.32	6.3	33.62	8.0	25.2	1.04
A6	05 Jan 2021	9	13.58	83.67	6.2	33.61	8.0	25.2	0.94
A6	05 Jan 2021	10	13.49	83.56	6.1	33.62	8.0	25.2	0.85
A6	05 Jan 2021	11	13.52	84.02	6.0	33.61	8.0	25.2	0.86
A6	05 Jan 2021	12	13.46	84.35	6.0	33.62	8.0	25.2	0.83
A6	05 Jan 2021	13	13.41	83.84	5.9	33.62	8.0	25.2	0.81
A6	05 Jan 2021	14	13.33	83.36	5.7	33.62	8.0	25.3	0.76
A6	05 Jan 2021	15	13.10	80.89	5.6	33.63	7.9	25.3	0.66
A6	05 Jan 2021	16	12.97	75.63	5.4	33.63	7.9	25.3	0.63
A6	05 Jan 2021	17	12.95	66.86	5.3	33.64	7.9	25.3	0.61
A6	05 Jan 2021	18	13.03	66.88	5.3	33.63	7.9	25.3	0.69
A6	13 Jan 2021	1	14.12	86.14	7.4	33.59	8.1	25.1	1.83
A6	13 Jan 2021	2	14.10	86.31	7.3	33.59	8.1	25.1	1.88
A6	13 Jan 2021	3	14.04	86.36	7.2	33.59	8.1	25.1	1.92
A6	13 Jan 2021	4	13.92	86.39	7.0	33.60	8.0	25.1	1.89
A6	13 Jan 2021	5	13.70	86.61	6.8	33.61	8.0	25.2	1.61
A6	13 Jan 2021	6	13.48	86.23	6.5	33.62	8.0	25.2	1.51
A6	13 Jan 2021	7	13.37	85.28	6.4	33.62	8.0	25.2	1.45
A6	13 Jan 2021	8	13.37	84.76	6.3	33.62	8.0	25.2	1.44
A6	13 Jan 2021	9	13.21	84.17	6.1	33.62	8.0	25.3	1.35
A6	13 Jan 2021	10	13.15	83.88	6.0	33.62	8.0	25.3	1.36
A6	13 Jan 2021	11	13.09	83.65	6.0	33.62	7.9	25.3	1.30
A6	13 Jan 2021	12	13.03	83.22	5.8	33.63	7.9	25.3	1.28
A6	13 Jan 2021	13	12.87	82.89	5.6	33.64	7.9	25.4	1.23
A6	13 Jan 2021	14	12.54	82.28	5.3	33.67	7.9	25.5	0.99
A6	13 Jan 2021	15	12.45	82.07	5.0	33.67	7.9	25.5	0.91
A6	13 Jan 2021	16	12.51	82.11	5.2	33.66	7.9	25.5	0.86
A6	13 Jan 2021	17	12.36	81.54	4.8	33.68	7.9	25.5	0.81
A6	13 Jan 2021	18	12.34	81.09	4.8	33.68	7.8	25.5	0.74
A6	13 Jan 2021	19	12.33	80.78	4.7	33.68	7.8	25.5	0.72
A6	13 Jan 2021	20	12.32	80.65	4.7	33.68	7.8	25.5	0.86

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
A6	19 Jan 2021	1	15.02	82.18	7.8	33.58	8.1	24.9	1.67
A6	19 Jan 2021	2	14.96	81.77	7.8	33.58	8.1	24.9	1.94
A6	19 Jan 2021	3	14.88	81.28	7.8	33.58	8.1	24.9	2.21
A6	19 Jan 2021	4	14.77	80.72	7.7	33.59	8.1	24.9	2.23
A6	19 Jan 2021	5	14.71	80.68	7.6	33.58	8.1	24.9	2.21
A6	19 Jan 2021	6	14.64	80.60	7.5	33.59	8.1	25.0	2.08
A6	19 Jan 2021	7	14.54	80.23	7.4	33.59	8.1	25.0	1.99
A6	19 Jan 2021	8	14.44	79.59	7.4	33.59	8.1	25.0	2.02
A6	19 Jan 2021	9	14.39	79.39	7.3	33.59	8.1	25.0	2.09
A6	19 Jan 2021	10	14.37	79.40	7.3	33.59	8.1	25.0	2.20
A6	19 Jan 2021	11	14.31	79.21	7.3	33.59	8.1	25.0	2.09
A6	19 Jan 2021	12	14.22	78.83	7.2	33.59	8.1	25.1	1.93
A6	19 Jan 2021	13	14.21	78.16	7.2	33.59	8.0	25.1	1.80
A6	19 Jan 2021	14	14.21	77.86	7.2	33.59	8.0	25.1	1.81
A6	19 Jan 2021	15	14.19	77.85	7.1	33.59	8.0	25.1	1.75
A6	19 Jan 2021	16	14.16	77.55	7.1	33.59	8.0	25.1	1.71
A6	19 Jan 2021	17	14.12	77.46	7.1	33.59	8.0	25.1	1.73
A6	19 Jan 2021	18	14.08	77.58	7.1	33.59	8.0	25.1	1.86
A6	19 Jan 2021	19	14.06	77.80	7.1	33.59	8.0	25.1	1.81
A6	19 Jan 2021	20	14.06	78.15	7.1	33.59	8.0	25.1	1.85
A6	19 Jan 2021	21	14.05	78.23	7.1	33.59	8.0	25.1	1.80
A6	27 Jan 2021	1	14.63	78.86	7.4	33.59	8.2	25.0	0.95
A6	27 Jan 2021	2	14.63	79.14	7.4	33.59	8.2	25.0	0.96
A6	27 Jan 2021	3	14.63	79.15	7.4	33.59	8.2	25.0	1.02
A6	27 Jan 2021	4	14.64	79.09	7.4	33.59	8.2	25.0	1.15
A6	27 Jan 2021	5	14.63	79.12	7.4	33.59	8.2	25.0	1.24
A6	27 Jan 2021	6	14.60	79.24	7.4	33.59	8.2	25.0	1.29
A6	27 Jan 2021	7	14.57	79.21	7.3	33.59	8.2	25.0	1.35
A6	27 Jan 2021	8	14.42	79.08	7.2	33.60	8.2	25.0	1.36
A6	27 Jan 2021	9	14.16	78.94	7.0	33.60	8.1	25.1	1.34
A6	27 Jan 2021	10	14.12	78.99	7.0	33.59	8.1	25.1	1.28
A6	27 Jan 2021	11	14.06	78.90	6.9	33.59	8.1	25.1	1.23
A6	27 Jan 2021	12	13.98	78.28	6.8	33.60	8.1	25.1	1.21
A6	27 Jan 2021	13	13.94	78.18	6.8	33.59	8.1	25.1	1.15
A6	27 Jan 2021	14	13.93	78.44	6.8	33.59	8.1	25.1	1.15
A6	27 Jan 2021	15	13.91	78.62	6.8	33.60	8.1	25.1	1.13
A6	27 Jan 2021	16	13.80	78.49	6.7	33.61	8.1	25.2	1.04
A6	27 Jan 2021	17	13.70	78.31	6.6	33.60	8.1	25.2	0.98
A6	27 Jan 2021	18	13.65	78.17	6.4	33.60	8.1	25.2	0.96
A6	27 Jan 2021	19	13.55	77.21	6.3	33.61	8.1	25.2	0.88
A7	05 Jan 2021	1	14.32	82.56	7.2	33.59	8.0	25.0	2.22
A7	05 Jan 2021	2	14.30	82.54	7.2	33.59	8.1	25.0	2.29
A7	05 Jan 2021	3	14.15	82.58	7.0	33.60	8.0	25.1	1.95
A7	05 Jan 2021	4	14.11	83.22	6.9	33.60	8.0	25.1	1.72
A7	05 Jan 2021	5	14.09	83.73	6.8	33.60	8.0	25.1	1.49
A7	05 Jan 2021	6	14.05	83.98	6.7	33.60	8.0	25.1	1.39
A7	05 Jan 2021	7	13.98	83.91	6.6	33.60	8.0	25.1	1.31
A7	05 Jan 2021	8	13.91	83.52	6.5	33.60	8.0	25.1	1.25
A7	05 Jan 2021	9	13.80	83.34	6.4	33.61	8.0	25.2	1.10
A7	05 Jan 2021	10	13.70	82.94	6.2	33.61	8.0	25.2	0.96
A7	05 Jan 2021	11	13.64	81.60	6.1	33.61	8.0	25.2	0.91
A7	05 Jan 2021	12	13.59	80.70	6.1	33.61	8.0	25.2	0.92
A7	05 Jan 2021	13	13.55	80.52	6.0	33.61	8.0	25.2	0.93
A7	05 Jan 2021	14	13.47	80.34	6.0	33.62	8.0	25.2	0.89
A7	05 Jan 2021	15	13.43	81.02	5.9	33.62	8.0	25.2	0.86
A7	05 Jan 2021	16	13.28	81.20	5.8	33.63	8.0	25.3	0.86
A7	05 Jan 2021	17	13.22	81.09	5.7	33.62	7.9	25.3	0.72
A7	05 Jan 2021	18	13.21	80.98	5.7	33.62	7.9	25.3	0.68
A7	05 Jan 2021	19	13.21	80.65	5.6	33.62	7.9	25.3	0.65

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
A7	13 Jan 2021	1	14.33	86.83	7.5	33.58	8.1	25.0	1.95
A7	13 Jan 2021	2	14.32	86.80	7.5	33.59	8.1	25.0	1.98
A7	13 Jan 2021	3	14.23	86.79	7.3	33.59	8.1	25.1	1.96
A7	13 Jan 2021	4	14.07	86.99	7.1	33.60	8.0	25.1	1.67
A7	13 Jan 2021	5	13.79	87.23	6.9	33.61	8.0	25.2	1.51
A7	13 Jan 2021	6	13.60	86.72	6.7	33.61	8.0	25.2	1.43
A7	13 Jan 2021	7	13.56	86.06	6.5	33.61	8.0	25.2	1.41
A7	13 Jan 2021	8	13.38	85.38	6.4	33.62	8.0	25.2	1.41
A7	13 Jan 2021	9	13.30	84.91	6.3	33.62	8.0	25.3	1.40
A7	13 Jan 2021	10	13.18	84.48	6.1	33.62	8.0	25.3	1.35
A7	13 Jan 2021	11	13.16	83.72	6.0	33.62	8.0	25.3	1.34
A7	13 Jan 2021	12	13.13	83.51	6.0	33.62	7.9	25.3	1.38
A7	13 Jan 2021	13	13.01	83.12	5.8	33.63	7.9	25.3	1.28
A7	13 Jan 2021	14	12.97	82.70	5.7	33.63	7.9	25.3	1.21
A7	13 Jan 2021	15	12.87	82.32	5.6	33.64	7.9	25.4	1.16
A7	13 Jan 2021	16	12.64	82.08	5.3	33.66	7.9	25.4	0.97
A7	13 Jan 2021	17	12.46	81.55	5.0	33.67	7.9	25.5	0.83
A7	13 Jan 2021	18	12.40	81.69	4.9	33.67	7.9	25.5	0.80
A7	13 Jan 2021	19	12.37	81.11	4.8	33.67	7.8	25.5	0.77
A7	19 Jan 2021	1	15.22	83.07	7.8	33.58	8.1	24.8	1.09
A7	19 Jan 2021	2	15.19	82.87	7.8	33.59	8.1	24.8	1.18
A7	19 Jan 2021	3	15.13	82.30	7.7	33.59	8.1	24.9	1.43
A7	19 Jan 2021	4	15.03	81.55	7.7	33.59	8.1	24.9	1.77
A7	19 Jan 2021	5	14.99	81.42	7.7	33.59	8.1	24.9	2.02
A7	19 Jan 2021	6	14.98	81.33	7.7	33.59	8.1	24.9	2.00
A7	19 Jan 2021	7	14.96	81.32	7.7	33.59	8.1	24.9	2.10
A7	19 Jan 2021	8	14.90	81.34	7.6	33.59	8.1	24.9	2.07
A7	19 Jan 2021	9	14.77	80.34	7.5	33.59	8.1	24.9	1.96
A7	19 Jan 2021	10	14.69	79.80	7.5	33.59	8.1	25.0	1.88
A7	19 Jan 2021	11	14.62	79.55	7.4	33.60	8.1	25.0	1.84
A7	19 Jan 2021	12	14.53	79.70	7.3	33.59	8.1	25.0	1.66
A7	19 Jan 2021	13	14.46	79.47	7.2	33.60	8.1	25.0	1.51
A7	19 Jan 2021	14	14.44	78.88	7.2	33.59	8.1	25.0	1.45
A7	19 Jan 2021	15	14.39	78.27	7.1	33.60	8.0	25.0	1.34
A7	19 Jan 2021	16	14.33	77.81	7.0	33.60	8.0	25.0	1.19
A7	19 Jan 2021	17	14.16	77.32	6.8	33.60	8.0	25.1	1.03
A7	19 Jan 2021	18	14.11	76.72	6.7	33.60	8.0	25.1	0.90
A7	27 Jan 2021	1	14.74	76.82	7.5	33.60	8.2	24.9	0.92
A7	27 Jan 2021	2	14.74	77.03	7.5	33.60	8.2	24.9	1.02
A7	27 Jan 2021	3	14.74	77.09	7.5	33.60	8.2	24.9	1.16
A7	27 Jan 2021	4	14.74	76.94	7.5	33.60	8.2	24.9	1.21
A7	27 Jan 2021	5	14.74	77.07	7.6	33.60	8.2	24.9	1.25
A7	27 Jan 2021	6	14.73	77.13	7.6	33.60	8.2	24.9	1.33
A7	27 Jan 2021	7	14.73	77.08	7.5	33.60	8.2	24.9	1.37
A7	27 Jan 2021	8	14.73	77.03	7.5	33.60	8.2	24.9	1.39
A7	27 Jan 2021	9	14.73	77.14	7.5	33.60	8.2	24.9	1.38
A7	27 Jan 2021	10	14.72	77.30	7.6	33.60	8.2	24.9	1.40
A7	27 Jan 2021	11	14.71	77.17	7.5	33.60	8.2	25.0	1.43
A7	27 Jan 2021	12	14.70	77.35	7.5	33.59	8.2	25.0	1.44
A7	27 Jan 2021	13	14.69	77.17	7.5	33.60	8.2	25.0	1.44
A7	27 Jan 2021	14	14.65	76.54	7.4	33.60	8.2	25.0	1.35
A7	27 Jan 2021	15	14.49	75.64	7.2	33.61	8.2	25.0	1.21
A7	27 Jan 2021	16	14.26	74.78	6.9	33.62	8.1	25.1	1.13
A7	27 Jan 2021	17	14.14	74.03	6.8	33.61	8.1	25.1	1.10
A7	27 Jan 2021	18	13.96	73.54	6.6	33.62	8.1	25.1	1.06
A7	27 Jan 2021	19	13.96	72.32	6.6	33.61	8.1	25.1	1.01
C4	05 Jan 2021	1	14.16	62.66	7.3	33.61	8.0	25.1	0.65

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C4	05 Jan 2021	2	14.21	63.07	7.4	33.61	8.0	25.1	0.64
	05 Jan 2021	3	14.16	62.74	7.3	33.61	8.0	25.1	0.68
	05 Jan 2021	4	14.11	62.18	7.1	33.61	8.0	25.1	0.74
	05 Jan 2021	5	14.02	63.35	6.8	33.61	8.0	25.1	0.74
	05 Jan 2021	6	13.99	67.35	6.6	33.61	8.0	25.1	0.70
	05 Jan 2021	7	13.98	73.47	6.6	33.61	8.0	25.1	0.70
	05 Jan 2021	8	13.98	75.77	6.5	33.61	8.0	25.1	0.70
	05 Jan 2021	9	13.98	76.34	6.5	33.61	8.0	25.1	0.69
	05 Jan 2021	10	13.98	76.53	6.5	33.61	8.0	25.1	0.69
C4	13 Jan 2021	1	14.26	85.85	7.4	33.60	8.1	25.0	1.24
	13 Jan 2021	2	14.24	85.93	7.3	33.60	8.1	25.1	1.36
	13 Jan 2021	3	14.16	85.80	7.3	33.60	8.1	25.1	1.71
	13 Jan 2021	4	14.15	85.41	7.3	33.60	8.1	25.1	1.99
	13 Jan 2021	5	14.08	85.00	7.2	33.61	8.1	25.1	1.95
	13 Jan 2021	6	14.02	83.34	7.2	33.61	8.0	25.1	1.58
	13 Jan 2021	7	13.95	81.95	7.0	33.62	8.0	25.1	1.40
	13 Jan 2021	8	13.82	82.32	6.8	33.62	8.0	25.2	1.09
	13 Jan 2021	9	13.75	82.27	6.5	33.63	8.0	25.2	0.89
	13 Jan 2021	10	13.68	79.29	6.2	33.63	8.0	25.2	0.74
	13 Jan 2021	11	13.68	75.08	6.1	33.62	7.9	25.2	0.66
	13 Jan 2021	12	13.68	73.63	6.2	33.62	7.9	25.2	0.63
C4	19 Jan 2021	1	14.37	76.55	7.6	33.59	8.1	25.0	1.37
	19 Jan 2021	2	14.33	76.33	7.5	33.59	8.1	25.0	1.51
	19 Jan 2021	3	14.28	76.28	7.5	33.59	8.1	25.0	1.68
	19 Jan 2021	4	14.24	76.00	7.4	33.60	8.0	25.1	1.81
	19 Jan 2021	5	14.22	74.24	7.4	33.60	8.0	25.1	1.69
	19 Jan 2021	6	14.20	73.80	7.3	33.59	8.0	25.1	1.47
	19 Jan 2021	7	14.19	72.65	7.2	33.59	8.0	25.1	1.29
	19 Jan 2021	8	14.18	70.93	7.0	33.59	8.0	25.1	0.96
	19 Jan 2021	9	14.18	69.81	6.8	33.59	8.0	25.1	0.77
	19 Jan 2021	10	14.18	67.41	6.8	33.59	8.0	25.1	0.71
C4	27 Jan 2021	1	14.47	67.74	7.3	33.59	8.2	25.0	0.95
	27 Jan 2021	2	14.48	67.81	7.3	33.59	8.2	25.0	0.97
	27 Jan 2021	3	14.47	67.27	7.3	33.59	8.2	25.0	1.12
	27 Jan 2021	4	14.47	67.06	7.3	33.59	8.2	25.0	1.30
	27 Jan 2021	5	14.47	67.10	7.4	33.59	8.2	25.0	1.36
	27 Jan 2021	6	14.47	67.14	7.4	33.59	8.2	25.0	1.39
	27 Jan 2021	7	14.47	67.34	7.3	33.59	8.2	25.0	1.37
	27 Jan 2021	8	14.46	66.23	7.3	33.59	8.2	25.0	1.29
	27 Jan 2021	9	14.46	66.55	7.4	33.59	8.2	25.0	1.25
	27 Jan 2021	10	14.46	65.61	7.3	33.59	8.2	25.0	1.24
C5	05 Jan 2021	1	14.17	67.40	7.3	33.61	8.0	25.1	0.86
	05 Jan 2021	2	14.15	67.26	7.2	33.61	8.0	25.1	0.79
	05 Jan 2021	3	14.12	68.80	7.1	33.61	8.0	25.1	0.74
	05 Jan 2021	4	14.14	69.92	7.1	33.61	8.0	25.1	0.72
	05 Jan 2021	5	14.14	66.80	7.1	33.61	8.0	25.1	0.72
	05 Jan 2021	6	14.14	58.69	7.1	33.61	8.0	25.1	0.76
	05 Jan 2021	7	14.08	62.81	6.9	33.61	8.0	25.1	0.69
	05 Jan 2021	8	13.93	65.47	6.6	33.62	8.0	25.1	0.65
	05 Jan 2021	9	13.86	67.01	6.3	33.62	8.0	25.1	0.61
	05 Jan 2021	10	13.86	66.39	6.3	33.61	8.0	25.1	0.62
C5	13 Jan 2021	1	14.42	86.63	7.6	33.59	8.1	25.0	1.46
	13 Jan 2021	2	14.42	86.68	7.6	33.59	8.1	25.0	1.67
	13 Jan 2021	3	14.38	86.62	7.5	33.59	8.1	25.0	1.97
	13 Jan 2021	4	14.24	86.30	7.4	33.60	8.1	25.1	1.86
	13 Jan 2021	5	14.21	86.22	7.3	33.60	8.1	25.1	1.79

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
C5	13 Jan 2021	6	14.19	85.92	7.3	33.60	8.1	25.1	1.75
C5	13 Jan 2021	7	14.15	85.52	7.2	33.60	8.1	25.1	1.49
C5	13 Jan 2021	8	14.12	85.42	7.1	33.60	8.0	25.1	1.33
C5	13 Jan 2021	9	13.95	83.10	6.9	33.61	8.0	25.1	1.16
C5	13 Jan 2021	10	13.79	76.75	6.5	33.62	8.0	25.2	1.22
C5	13 Jan 2021	11	13.69	45.63	6.3	33.62	8.0	25.2	1.49
C5	19 Jan 2021	1	14.62	49.15	7.4	33.61	8.0	25.0	0.75
C5	19 Jan 2021	2	14.62	48.74	7.4	33.61	8.0	25.0	0.79
C5	19 Jan 2021	3	14.55	46.34	7.3	33.61	8.0	25.0	0.85
C5	19 Jan 2021	4	14.52	44.30	7.2	33.61	8.0	25.0	0.79
C5	19 Jan 2021	5	14.48	41.87	7.1	33.61	8.0	25.0	0.78
C5	19 Jan 2021	6	14.45	42.62	7.1	33.61	8.0	25.0	0.74
C5	19 Jan 2021	7	14.45	42.85	7.0	33.61	8.0	25.0	0.71
C5	19 Jan 2021	8	14.44	44.50	7.0	33.61	8.0	25.0	0.73
C5	19 Jan 2021	9	14.39	43.80	6.9	33.61	8.0	25.0	0.75
C5	19 Jan 2021	10	14.20	42.07	6.8	33.61	8.0	25.1	0.76
C5	19 Jan 2021	11	14.17	40.14	6.7	33.60	8.0	25.1	0.79
C5	27 Jan 2021	1	14.40	58.13	7.8	33.61	8.2	25.0	0.68
C5	27 Jan 2021	2	14.40	57.79	7.8	33.61	8.2	25.0	0.70
C5	27 Jan 2021	3	14.41	57.66	7.8	33.61	8.2	25.0	0.72
C5	27 Jan 2021	4	14.41	57.66	7.8	33.61	8.2	25.0	0.76
C5	27 Jan 2021	5	14.41	57.58	7.8	33.61	8.2	25.0	0.80
C5	27 Jan 2021	6	14.39	56.91	7.8	33.61	8.2	25.0	0.80
C5	27 Jan 2021	7	14.38	55.63	7.8	33.61	8.2	25.0	0.81
C5	27 Jan 2021	8	14.39	54.84	7.8	33.61	8.2	25.0	0.80
C5	27 Jan 2021	9	14.39	55.53	7.9	33.61	8.2	25.0	0.80
C5	27 Jan 2021	10	14.38	54.91	7.9	33.61	8.2	25.0	0.79
C6	05 Jan 2021	1	14.21	73.60	7.2	33.60	8.0	25.1	0.70
C6	05 Jan 2021	2	14.21	73.35	7.2	33.60	8.0	25.1	0.76
C6	05 Jan 2021	3	14.20	72.98	7.2	33.60	8.0	25.1	0.75
C6	05 Jan 2021	4	14.18	73.37	7.2	33.60	8.0	25.1	0.71
C6	05 Jan 2021	5	14.12	73.78	7.0	33.61	8.0	25.1	0.65
C6	05 Jan 2021	6	14.02	74.77	6.7	33.61	8.0	25.1	0.63
C6	05 Jan 2021	7	13.99	72.60	6.6	33.60	8.0	25.1	0.62
C6	05 Jan 2021	8	13.99	69.18	6.5	33.60	8.0	25.1	0.62
C6	05 Jan 2021	9	13.99	68.17	6.5	33.60	8.0	25.1	0.63
C6	05 Jan 2021	10	13.99	67.29	6.5	33.60	8.0	25.1	0.63
C6	13 Jan 2021	1	14.29	86.28	7.6	33.59	8.1	25.0	2.08
C6	13 Jan 2021	2	14.28	86.24	7.6	33.59	8.1	25.0	2.12
C6	13 Jan 2021	3	14.25	86.15	7.6	33.59	8.1	25.0	2.36
C6	13 Jan 2021	4	14.25	86.12	7.5	33.59	8.1	25.0	2.54
C6	13 Jan 2021	5	14.23	86.09	7.5	33.59	8.1	25.1	2.76
C6	13 Jan 2021	6	14.23	85.94	7.5	33.59	8.1	25.1	2.86
C6	13 Jan 2021	7	14.22	85.86	7.5	33.59	8.1	25.1	2.87
C6	13 Jan 2021	8	14.16	85.68	7.3	33.59	8.1	25.1	2.41
C6	13 Jan 2021	9	13.74	85.95	6.8	33.63	8.0	25.2	1.52
C6	13 Jan 2021	10	13.50	85.07	6.3	33.62	8.0	25.2	0.91
C6	13 Jan 2021	11	13.50	82.76	6.1	33.62	8.0	25.2	0.76
C6	19 Jan 2021	1	14.98	81.95	7.6	33.58	8.1	24.9	1.20
C6	19 Jan 2021	2	14.95	81.92	7.6	33.58	8.1	24.9	1.23
C6	19 Jan 2021	3	14.92	81.63	7.6	33.59	8.1	24.9	1.41
C6	19 Jan 2021	4	14.82	80.99	7.6	33.60	8.1	24.9	1.63
C6	19 Jan 2021	5	14.58	78.10	7.4	33.61	8.1	25.0	1.89
C6	19 Jan 2021	6	14.38	70.45	7.2	33.62	8.0	25.0	1.77
C6	19 Jan 2021	7	14.08	66.87	6.9	33.61	8.0	25.1	1.28
C6	19 Jan 2021	8	14.00	66.71	6.7	33.60	8.0	25.1	0.94

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C6	19 Jan 2021	9	13.97	66.29	6.6	33.59	8.0	25.1	0.83
C6	19 Jan 2021	10	13.98	66.00	6.6	33.59	8.0	25.1	0.76
C6	27 Jan 2021	1	14.51	69.49	7.7	33.61	8.2	25.0	0.66
C6	27 Jan 2021	2	14.53	69.35	7.7	33.61	8.2	25.0	0.70
C6	27 Jan 2021	3	14.50	69.18	7.7	33.61	8.2	25.0	0.71
C6	27 Jan 2021	4	14.51	68.88	7.7	33.61	8.2	25.0	0.73
C6	27 Jan 2021	5	14.50	69.18	7.7	33.61	8.2	25.0	0.81
C6	27 Jan 2021	6	14.49	68.25	7.7	33.61	8.2	25.0	0.83
C6	27 Jan 2021	7	14.48	68.05	7.7	33.61	8.2	25.0	0.83
C6	27 Jan 2021	8	14.47	67.59	7.7	33.61	8.2	25.0	0.83
C6	27 Jan 2021	9	14.48	67.83	7.7	33.61	8.2	25.0	0.82
C7	05 Jan 2021	1	14.27	70.65	7.5	33.59	8.0	25.0	2.58
C7	05 Jan 2021	2	14.27	70.66	7.5	33.59	8.0	25.0	2.73
C7	05 Jan 2021	3	14.27	70.44	7.5	33.59	8.0	25.0	2.99
C7	05 Jan 2021	4	14.26	70.26	7.4	33.59	8.0	25.0	3.00
C7	05 Jan 2021	5	14.26	70.14	7.4	33.59	8.0	25.0	3.07
C7	05 Jan 2021	6	14.26	70.32	7.4	33.59	8.0	25.0	2.99
C7	05 Jan 2021	7	14.25	70.36	7.3	33.59	8.0	25.0	2.52
C7	05 Jan 2021	8	14.20	70.68	7.2	33.60	8.0	25.1	2.18
C7	05 Jan 2021	9	14.16	72.17	7.1	33.60	8.0	25.1	2.04
C7	05 Jan 2021	10	14.15	72.77	7.0	33.59	8.0	25.1	2.05
C7	05 Jan 2021	11	14.13	72.29	7.0	33.60	8.0	25.1	1.89
C7	05 Jan 2021	12	14.09	72.63	6.9	33.60	8.0	25.1	1.71
C7	05 Jan 2021	13	14.03	73.45	6.8	33.60	8.0	25.1	1.58
C7	05 Jan 2021	14	13.97	75.54	6.6	33.60	8.0	25.1	1.46
C7	05 Jan 2021	15	13.80	76.04	6.4	33.61	8.0	25.2	1.21
C7	05 Jan 2021	16	13.63	75.47	6.1	33.61	8.0	25.2	1.00
C7	05 Jan 2021	17	13.58	74.97	6.0	33.62	8.0	25.2	0.91
C7	05 Jan 2021	18	13.35	68.65	5.8	33.62	7.9	25.3	0.80
C7	13 Jan 2021	1	14.20	83.62	7.6	33.58	8.1	25.1	2.55
C7	13 Jan 2021	2	14.20	83.84	7.6	33.58	8.1	25.1	2.53
C7	13 Jan 2021	3	14.12	82.97	7.5	33.59	8.1	25.1	2.77
C7	13 Jan 2021	4	14.10	83.33	7.4	33.59	8.1	25.1	2.76
C7	13 Jan 2021	5	14.00	84.00	7.2	33.60	8.1	25.1	2.70
C7	13 Jan 2021	6	13.82	84.95	7.1	33.60	8.0	25.1	2.42
C7	13 Jan 2021	7	13.82	85.92	6.9	33.60	8.0	25.1	2.20
C7	13 Jan 2021	8	13.64	86.46	6.8	33.61	8.0	25.2	1.84
C7	13 Jan 2021	9	13.64	86.47	6.6	33.61	8.0	25.2	1.62
C7	13 Jan 2021	10	13.38	85.35	6.4	33.63	8.0	25.3	1.27
C7	13 Jan 2021	11	13.31	84.56	6.2	33.62	8.0	25.3	1.16
C7	13 Jan 2021	12	13.25	84.36	6.1	33.62	8.0	25.3	1.13
C7	13 Jan 2021	13	13.27	84.21	6.0	33.62	8.0	25.3	1.15
C7	13 Jan 2021	14	13.19	83.62	6.0	33.63	8.0	25.3	1.20
C7	13 Jan 2021	15	13.14	83.90	5.9	33.63	8.0	25.3	1.14
C7	13 Jan 2021	16	12.82	82.89	5.6	33.65	7.9	25.4	1.10
C7	13 Jan 2021	17	12.70	82.19	5.4	33.65	7.9	25.4	1.02
C7	13 Jan 2021	18	12.67	81.77	5.2	33.65	7.9	25.4	0.97
C7	13 Jan 2021	19	12.59	80.81	5.1	33.66	7.9	25.4	0.89
C7	19 Jan 2021	1	14.72	79.79	7.8	33.58	8.1	24.9	2.25
C7	19 Jan 2021	2	14.68	79.51	7.9	33.58	8.1	24.9	2.70
C7	19 Jan 2021	3	14.66	79.14	7.9	33.58	8.1	24.9	3.14
C7	19 Jan 2021	4	14.63	78.95	7.8	33.58	8.1	25.0	3.52
C7	19 Jan 2021	5	14.61	78.86	7.8	33.58	8.1	25.0	3.77
C7	19 Jan 2021	6	14.60	78.58	7.8	33.58	8.1	25.0	4.03
C7	19 Jan 2021	7	14.59	78.26	7.8	33.58	8.1	25.0	4.06
C7	19 Jan 2021	8	14.58	78.37	7.8	33.58	8.1	25.0	3.94
C7	19 Jan 2021	9	14.57	78.81	7.8	33.58	8.1	25.0	3.87

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C7	19 Jan 2021	10	14.54	78.84	7.8	33.58	8.1	25.0	3.78
C7	19 Jan 2021	11	14.50	78.95	7.7	33.58	8.1	25.0	3.55
C7	19 Jan 2021	12	14.44	79.29	7.6	33.58	8.1	25.0	2.99
C7	19 Jan 2021	13	14.41	80.23	7.5	33.58	8.1	25.0	2.44
C7	19 Jan 2021	14	14.36	80.36	7.3	33.59	8.1	25.0	1.92
C7	19 Jan 2021	15	14.17	79.59	6.8	33.60	8.0	25.1	1.33
C7	19 Jan 2021	16	13.74	77.23	6.4	33.61	8.0	25.2	0.95
C7	19 Jan 2021	17	13.62	76.89	6.3	33.60	8.0	25.2	0.84
C7	19 Jan 2021	18	13.56	75.81	6.2	33.60	8.0	25.2	0.76
C7	19 Jan 2021	19	13.57	75.56	6.2	33.60	8.0	25.2	0.73
C7	27 Jan 2021	1	14.68	80.06	7.6	33.59	8.2	25.0	0.97
C7	27 Jan 2021	2	14.68	80.41	7.5	33.59	8.2	25.0	0.99
C7	27 Jan 2021	3	14.66	80.15	7.5	33.59	8.2	25.0	1.07
C7	27 Jan 2021	4	14.66	79.73	7.5	33.59	8.2	25.0	1.17
C7	27 Jan 2021	5	14.64	79.49	7.5	33.59	8.2	25.0	1.22
C7	27 Jan 2021	6	14.62	79.32	7.5	33.59	8.2	25.0	1.32
C7	27 Jan 2021	7	14.61	78.97	7.5	33.59	8.2	25.0	1.43
C7	27 Jan 2021	8	14.60	78.85	7.5	33.59	8.2	25.0	1.47
C7	27 Jan 2021	9	14.59	78.70	7.5	33.59	8.2	25.0	1.51
C7	27 Jan 2021	10	14.59	78.88	7.5	33.59	8.2	25.0	1.45
C7	27 Jan 2021	11	14.59	79.04	7.4	33.59	8.2	25.0	1.48
C7	27 Jan 2021	12	14.58	78.93	7.4	33.59	8.2	25.0	1.50
C7	27 Jan 2021	13	14.49	78.74	7.3	33.60	8.2	25.0	1.50
C7	27 Jan 2021	14	14.37	78.40	7.3	33.60	8.2	25.0	1.44
C7	27 Jan 2021	15	14.31	78.35	7.2	33.59	8.2	25.0	1.42
C7	27 Jan 2021	16	14.27	78.44	7.2	33.59	8.1	25.0	1.35
C7	27 Jan 2021	17	14.22	78.80	7.1	33.59	8.1	25.1	1.22
C7	27 Jan 2021	18	14.22	79.20	7.1	33.59	8.1	25.1	1.17
C7	27 Jan 2021	19	14.19	78.97	7.1	33.59	8.1	25.1	1.10
C8	05 Jan 2021	1	14.28	67.39	7.5	33.58	8.0	25.0	1.92
C8	05 Jan 2021	2	14.29	67.45	7.5	33.58	8.0	25.0	2.09
C8	05 Jan 2021	3	14.28	67.34	7.4	33.58	8.0	25.0	2.08
C8	05 Jan 2021	4	14.27	66.91	7.4	33.58	8.0	25.0	1.95
C8	05 Jan 2021	5	14.25	66.87	7.4	33.58	8.0	25.0	1.81
C8	05 Jan 2021	6	14.23	66.97	7.3	33.59	8.0	25.0	1.66
C8	05 Jan 2021	7	14.22	66.70	7.2	33.59	8.0	25.1	1.64
C8	05 Jan 2021	8	14.22	66.33	7.2	33.59	8.0	25.1	1.64
C8	05 Jan 2021	9	14.15	66.37	7.1	33.60	8.0	25.1	1.69
C8	05 Jan 2021	10	14.01	65.95	6.9	33.60	8.0	25.1	1.46
C8	05 Jan 2021	11	13.92	64.99	6.7	33.60	8.0	25.1	1.38
C8	05 Jan 2021	12	13.85	63.47	6.5	33.60	8.0	25.1	1.33
C8	05 Jan 2021	13	13.80	61.95	6.4	33.60	8.0	25.1	1.30
C8	05 Jan 2021	14	13.72	60.26	6.3	33.61	8.0	25.2	1.29
C8	05 Jan 2021	15	13.66	59.20	6.2	33.61	8.0	25.2	1.31
C8	05 Jan 2021	16	13.43	60.30	6.0	33.63	8.0	25.2	1.11
C8	05 Jan 2021	17	13.30	59.90	5.8	33.62	8.0	25.3	1.11
C8	05 Jan 2021	18	13.24	52.51	5.6	33.62	7.9	25.3	1.25
C8	05 Jan 2021	19	13.25	35.61	5.5	33.62	7.9	25.3	1.41
C8	05 Jan 2021	20	13.27	23.70	5.6	33.62	7.9	25.3	1.36
C8	13 Jan 2021	1	14.03	81.01	7.6	33.60	8.1	25.1	3.06
C8	13 Jan 2021	2	14.02	80.84	7.6	33.60	8.1	25.1	3.16
C8	13 Jan 2021	3	13.90	81.34	7.4	33.61	8.0	25.1	2.84
C8	13 Jan 2021	4	13.81	83.47	7.2	33.60	8.0	25.1	2.26
C8	13 Jan 2021	5	13.78	84.57	7.1	33.60	8.0	25.2	2.22
C8	13 Jan 2021	6	13.76	85.01	7.0	33.60	8.0	25.2	1.93
C8	13 Jan 2021	7	13.62	85.37	6.8	33.61	8.0	25.2	1.64
C8	13 Jan 2021	8	13.52	85.52	6.6	33.62	8.0	25.2	1.41
C8	13 Jan 2021	9	13.37	84.48	6.4	33.62	8.0	25.3	1.22

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C8	13 Jan 2021	10	13.34	83.30	6.3	33.62	8.0	25.3	1.22
C8	13 Jan 2021	11	13.28	82.30	6.2	33.62	8.0	25.3	1.18
C8	13 Jan 2021	12	13.30	81.75	6.1	33.62	8.0	25.3	1.19
C8	13 Jan 2021	13	13.24	81.34	6.1	33.62	8.0	25.3	1.15
C8	13 Jan 2021	14	13.24	81.66	6.1	33.62	8.0	25.3	1.21
C8	13 Jan 2021	15	13.22	81.48	6.0	33.62	8.0	25.3	1.21
C8	13 Jan 2021	16	13.20	81.54	6.0	33.62	8.0	25.3	1.27
C8	13 Jan 2021	17	13.19	82.05	6.0	33.62	8.0	25.3	1.23
C8	13 Jan 2021	18	13.07	82.62	5.9	33.63	7.9	25.3	1.21
C8	13 Jan 2021	19	12.90	82.22	5.6	33.64	7.9	25.4	1.19
C8	13 Jan 2021	20	12.84	80.48	5.5	33.64	7.9	25.4	1.18
C8	19 Jan 2021	1	14.83	76.60	7.9	33.57	8.1	24.9	2.37
C8	19 Jan 2021	2	14.76	76.48	7.9	33.57	8.1	24.9	3.00
C8	19 Jan 2021	3	14.74	76.16	7.9	33.57	8.1	24.9	3.51
C8	19 Jan 2021	4	14.70	75.79	7.9	33.57	8.1	24.9	4.02
C8	19 Jan 2021	5	14.63	75.63	7.8	33.58	8.1	25.0	4.33
C8	19 Jan 2021	6	14.54	75.78	7.8	33.58	8.1	25.0	4.36
C8	19 Jan 2021	7	14.48	76.87	7.7	33.58	8.1	25.0	3.97
C8	19 Jan 2021	8	14.42	77.51	7.7	33.58	8.1	25.0	3.72
C8	19 Jan 2021	9	14.39	77.90	7.6	33.58	8.1	25.0	3.43
C8	19 Jan 2021	10	14.33	78.59	7.5	33.58	8.1	25.0	2.86
C8	19 Jan 2021	11	14.22	79.06	7.3	33.58	8.1	25.0	2.51
C8	19 Jan 2021	12	14.04	79.38	7.1	33.59	8.0	25.1	2.17
C8	19 Jan 2021	13	13.92	79.57	7.0	33.59	8.0	25.1	1.95
C8	19 Jan 2021	14	13.91	79.40	6.9	33.59	8.0	25.1	1.68
C8	19 Jan 2021	15	13.90	79.10	6.9	33.59	8.0	25.1	1.62
C8	19 Jan 2021	16	13.87	78.54	6.8	33.59	8.0	25.1	1.51
C8	19 Jan 2021	17	13.71	75.91	6.6	33.60	8.0	25.2	1.47
C8	19 Jan 2021	18	13.59	72.07	6.4	33.60	8.0	25.2	1.40
C8	19 Jan 2021	19	13.54	69.08	6.3	33.60	8.0	25.2	1.35
C8	27 Jan 2021	1	14.61	79.83	7.5	33.59	8.2	25.0	1.06
C8	27 Jan 2021	2	14.61	79.72	7.5	33.59	8.2	25.0	1.12
C8	27 Jan 2021	3	14.61	79.62	7.5	33.59	8.2	25.0	1.16
C8	27 Jan 2021	4	14.61	79.77	7.5	33.59	8.2	25.0	1.27
C8	27 Jan 2021	5	14.61	79.76	7.5	33.59	8.2	25.0	1.41
C8	27 Jan 2021	6	14.61	79.82	7.5	33.59	8.2	25.0	1.52
C8	27 Jan 2021	7	14.61	79.84	7.5	33.59	8.2	25.0	1.56
C8	27 Jan 2021	8	14.61	79.83	7.5	33.59	8.2	25.0	1.56
C8	27 Jan 2021	9	14.60	79.90	7.5	33.59	8.2	25.0	1.59
C8	27 Jan 2021	10	14.61	80.00	7.6	33.59	8.2	25.0	1.64
C8	27 Jan 2021	11	14.61	79.98	7.6	33.59	8.2	25.0	1.61
C8	27 Jan 2021	12	14.61	79.82	7.6	33.59	8.2	25.0	1.63
C8	27 Jan 2021	13	14.60	79.92	7.6	33.59	8.2	25.0	1.58
C8	27 Jan 2021	14	14.59	79.93	7.6	33.59	8.2	25.0	1.59
C8	27 Jan 2021	15	14.56	79.85	7.5	33.59	8.2	25.0	1.57
C8	27 Jan 2021	16	14.55	79.80	7.4	33.59	8.2	25.0	1.58
C8	27 Jan 2021	17	14.44	79.65	7.3	33.60	8.2	25.0	1.48
C8	27 Jan 2021	18	14.40	79.04	7.2	33.60	8.2	25.0	1.39
C8	27 Jan 2021	19	14.27	78.26	7.1	33.60	8.2	25.0	1.25
C8	27 Jan 2021	20	14.25	77.69	7.1	33.60	8.1	25.0	1.18

NA = not available

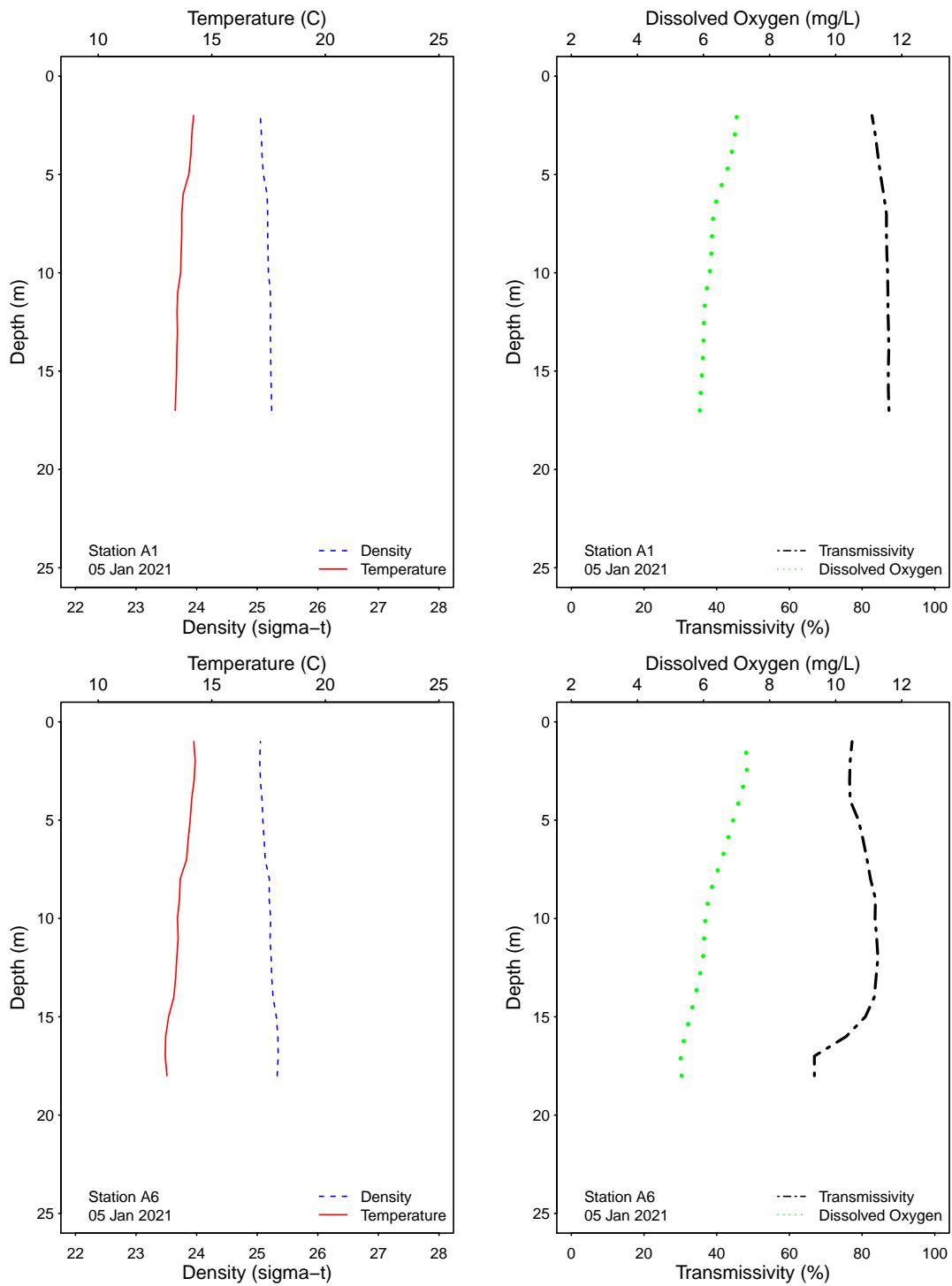


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

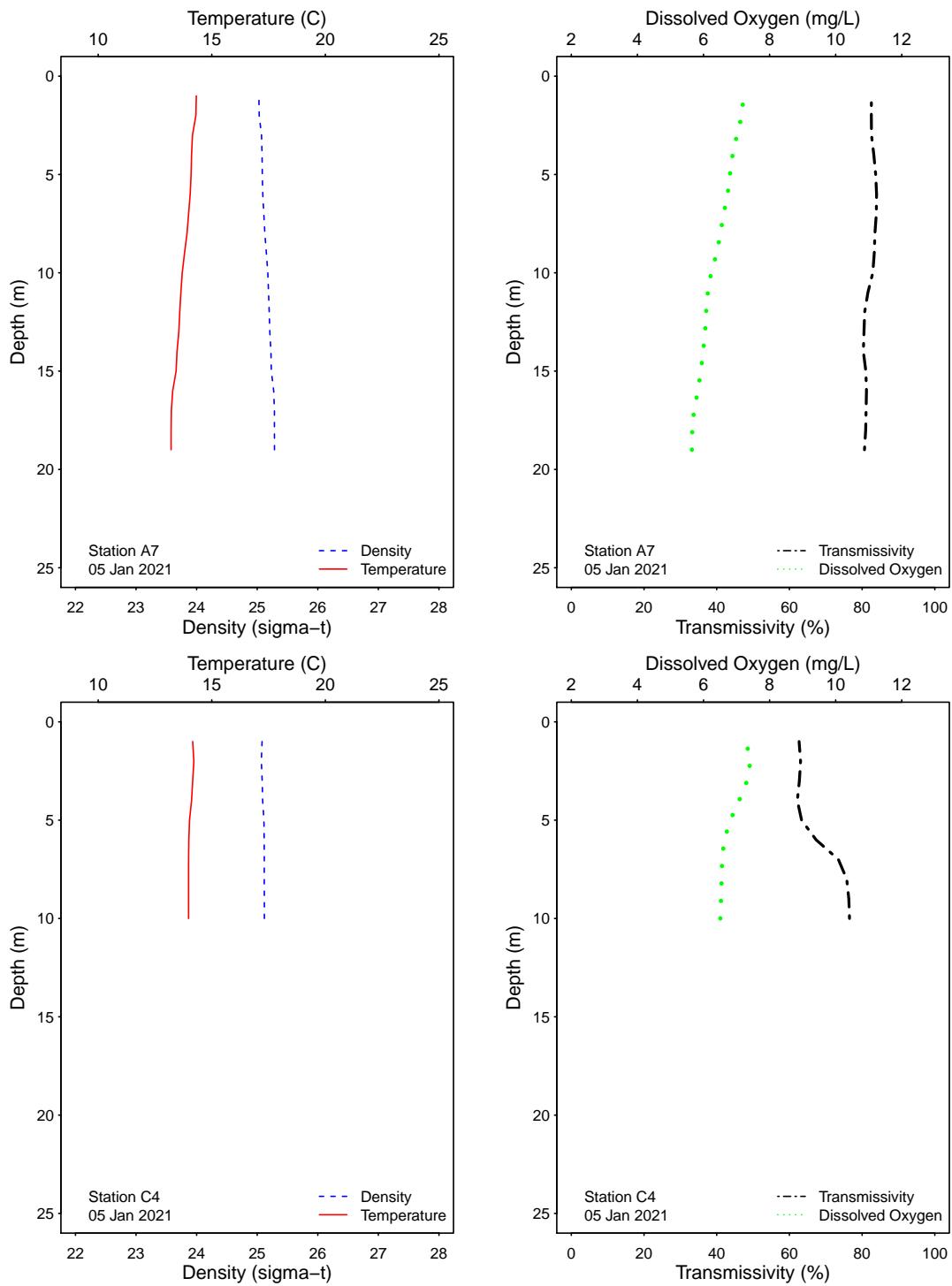


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

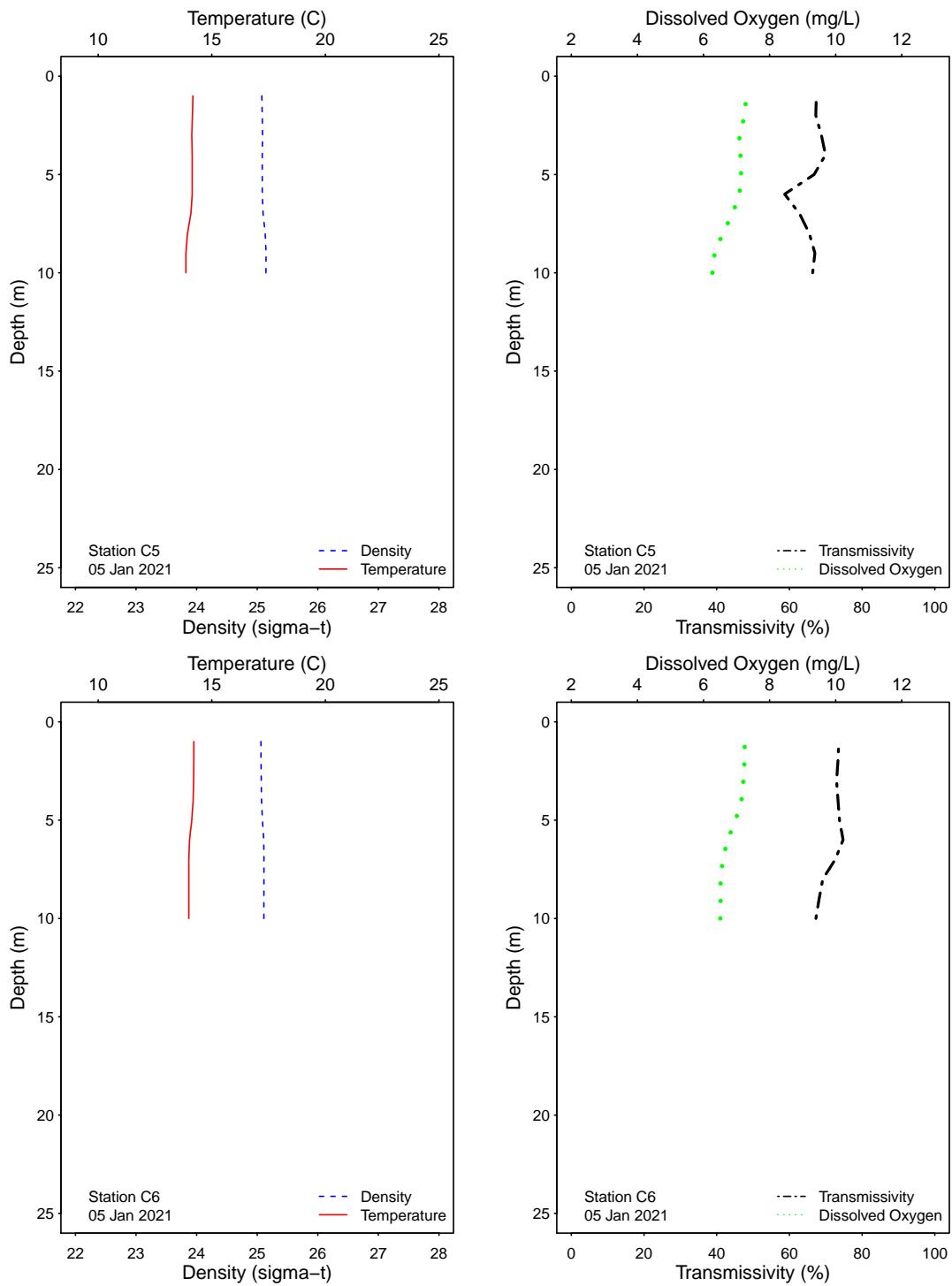


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

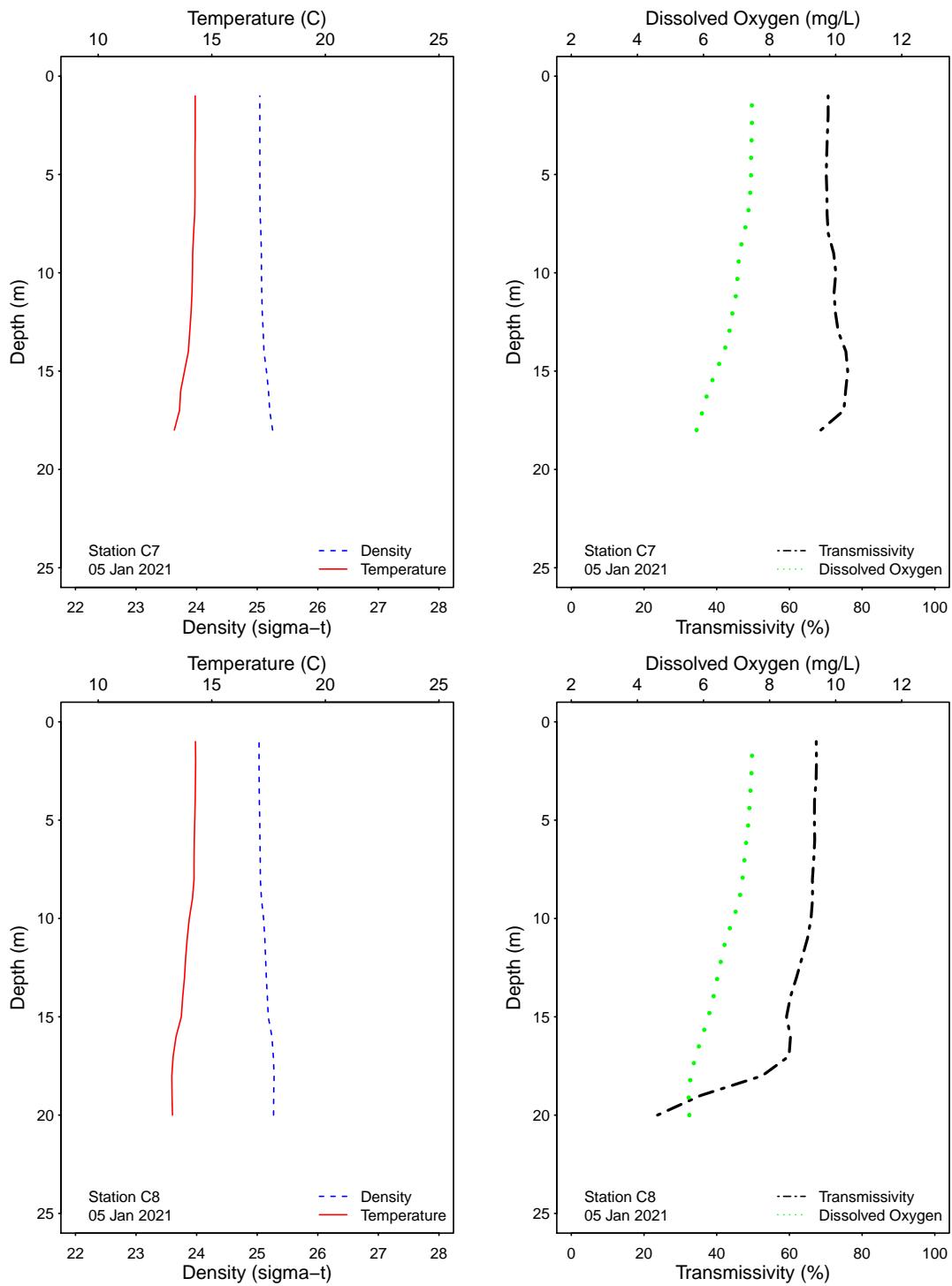


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

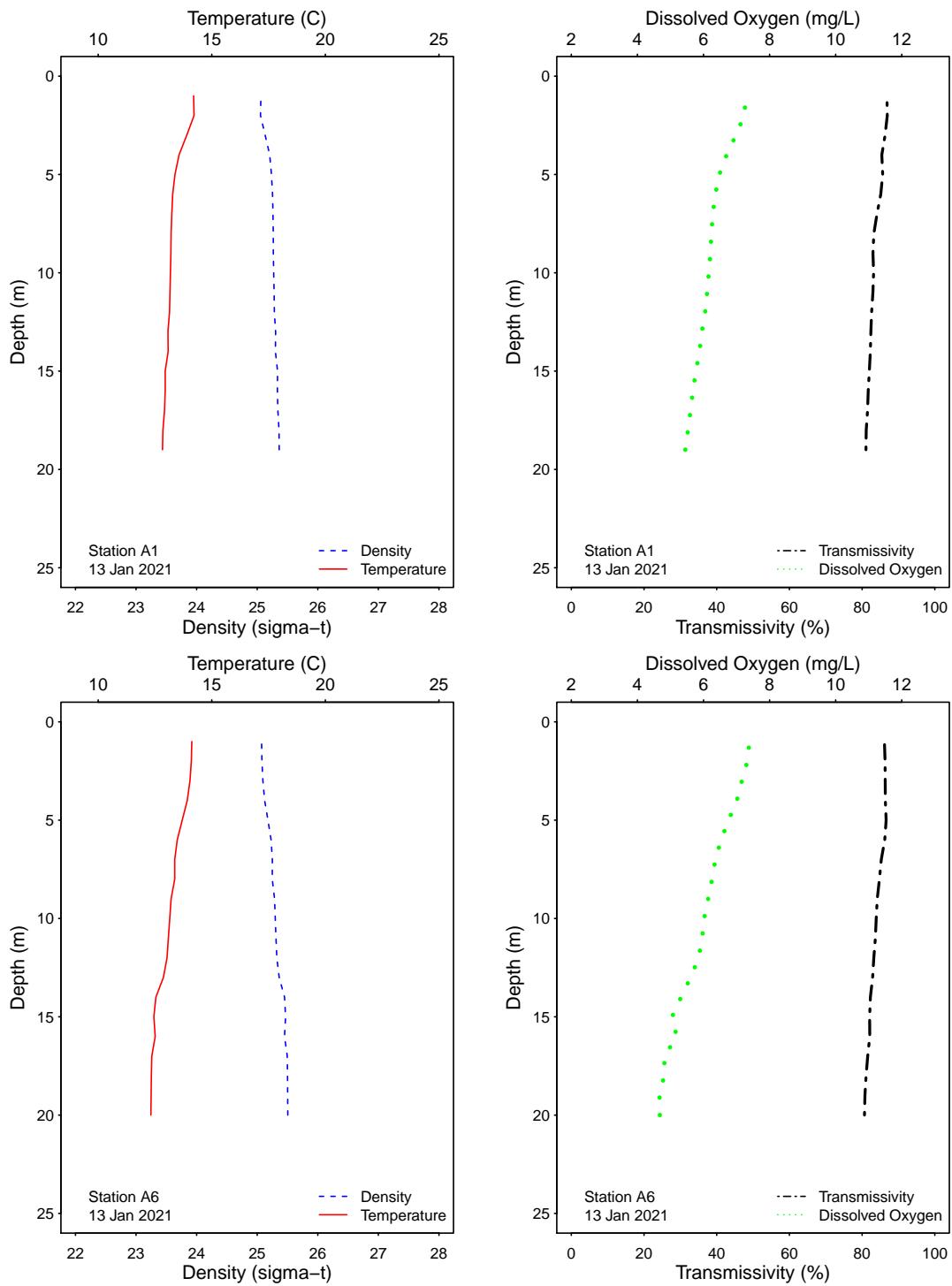


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

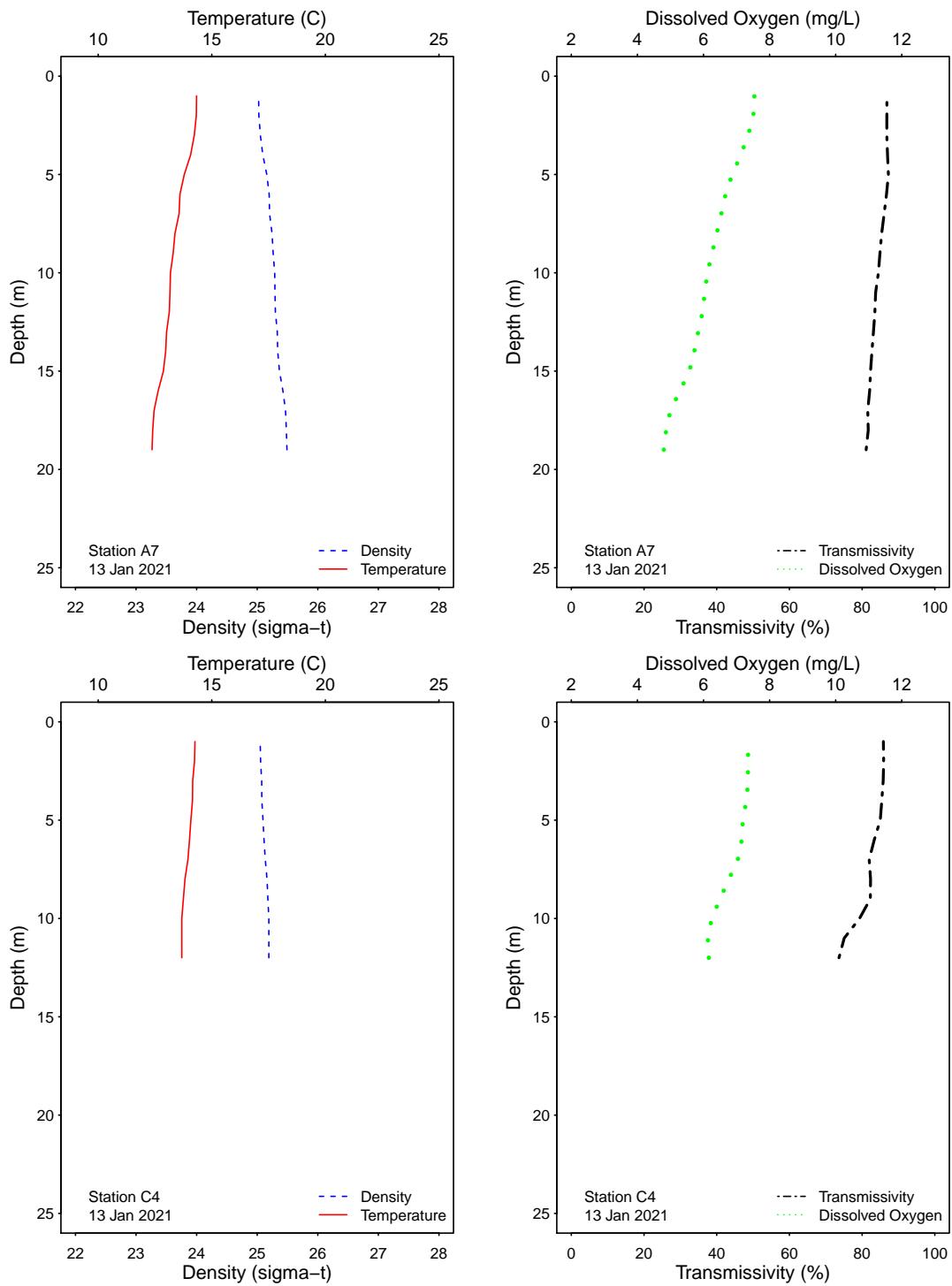


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

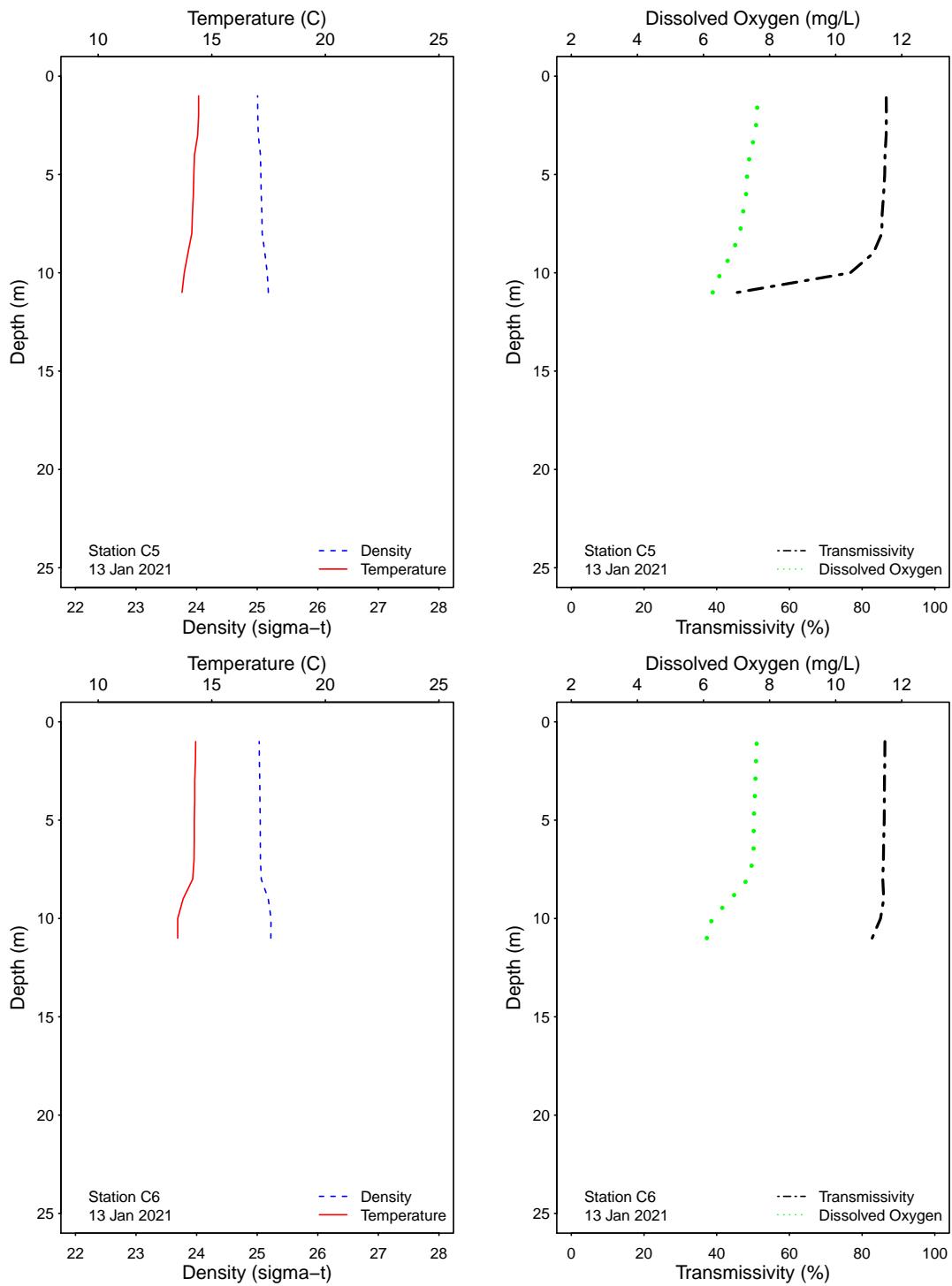


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

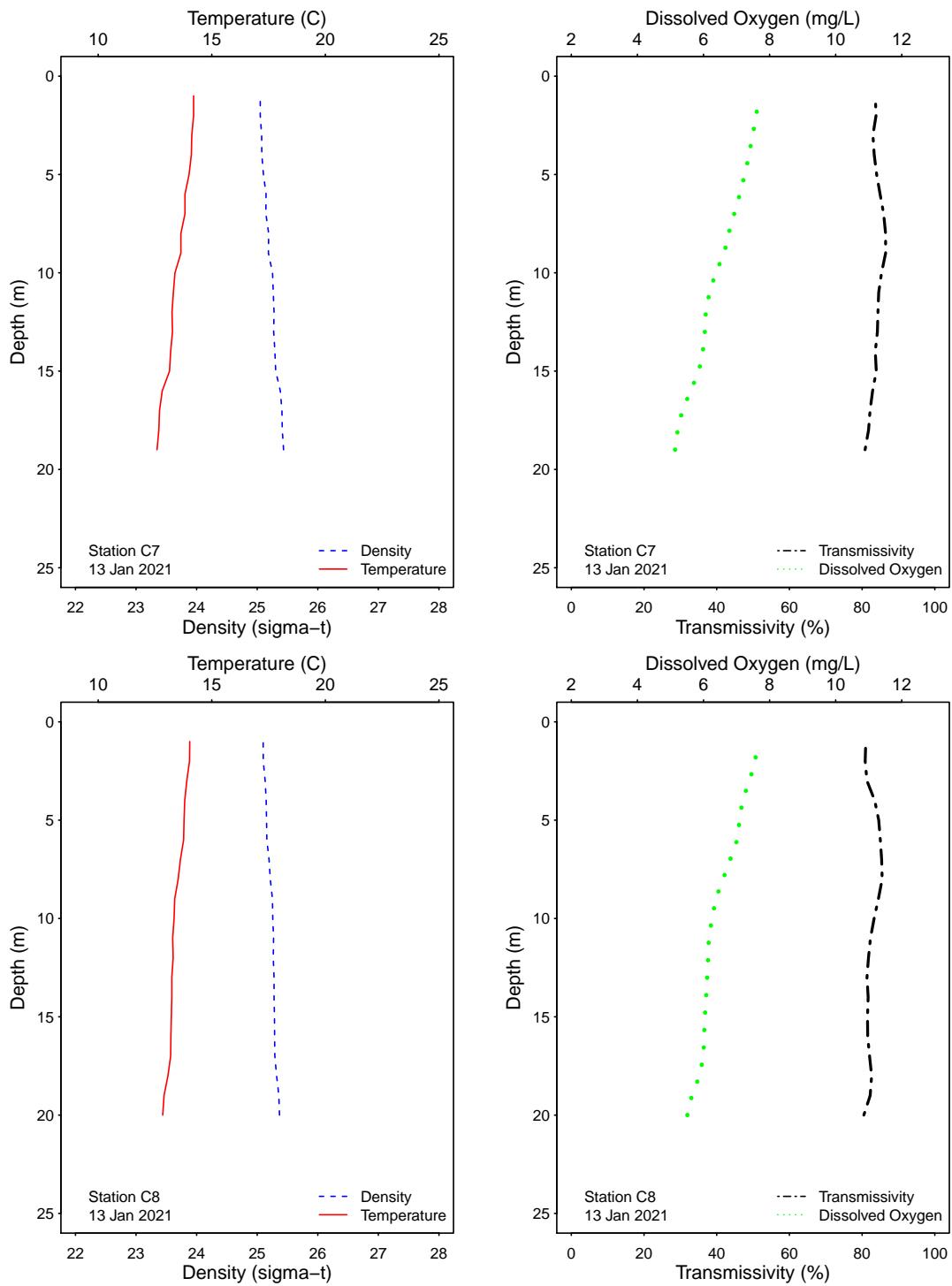


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

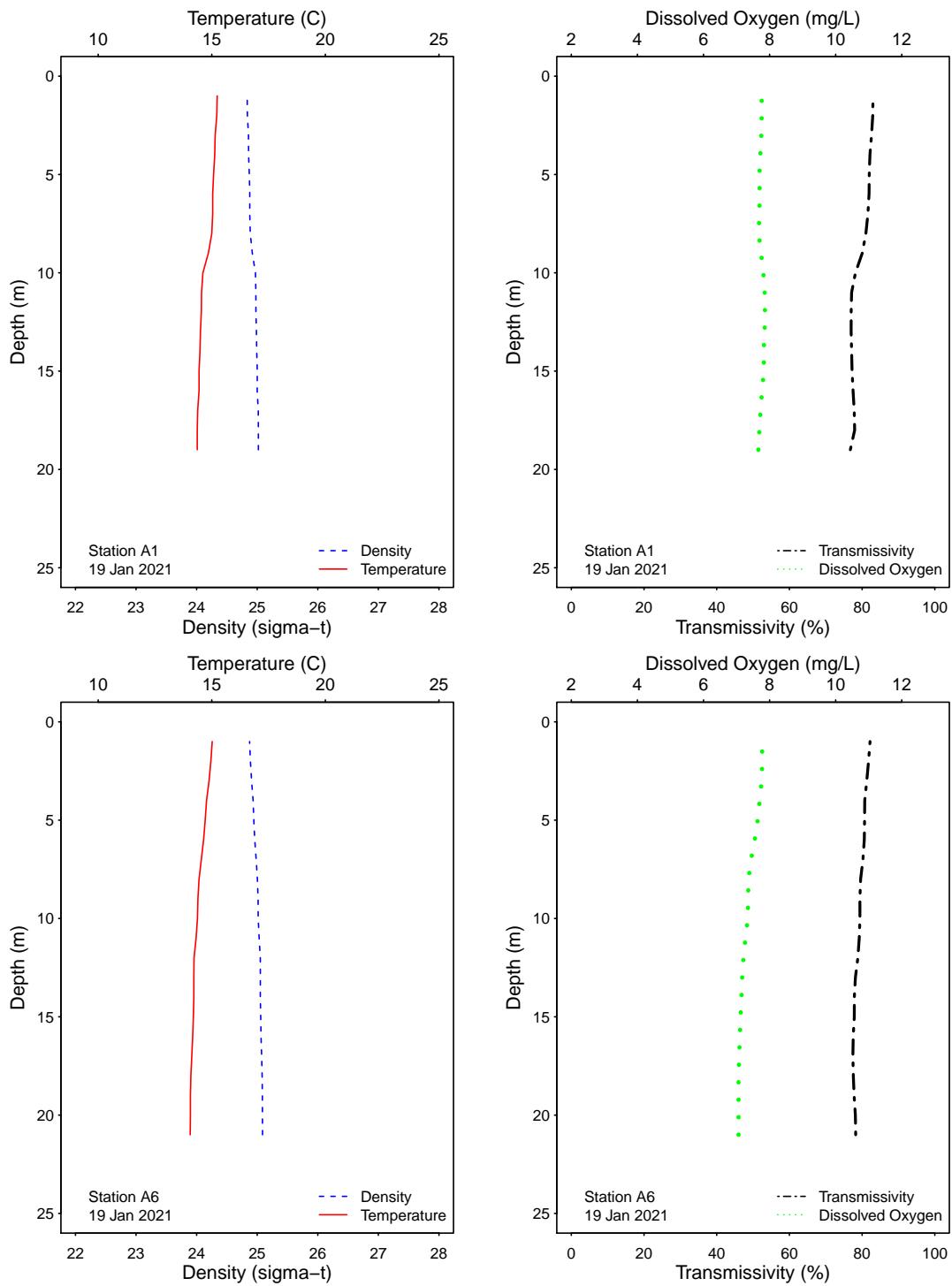


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

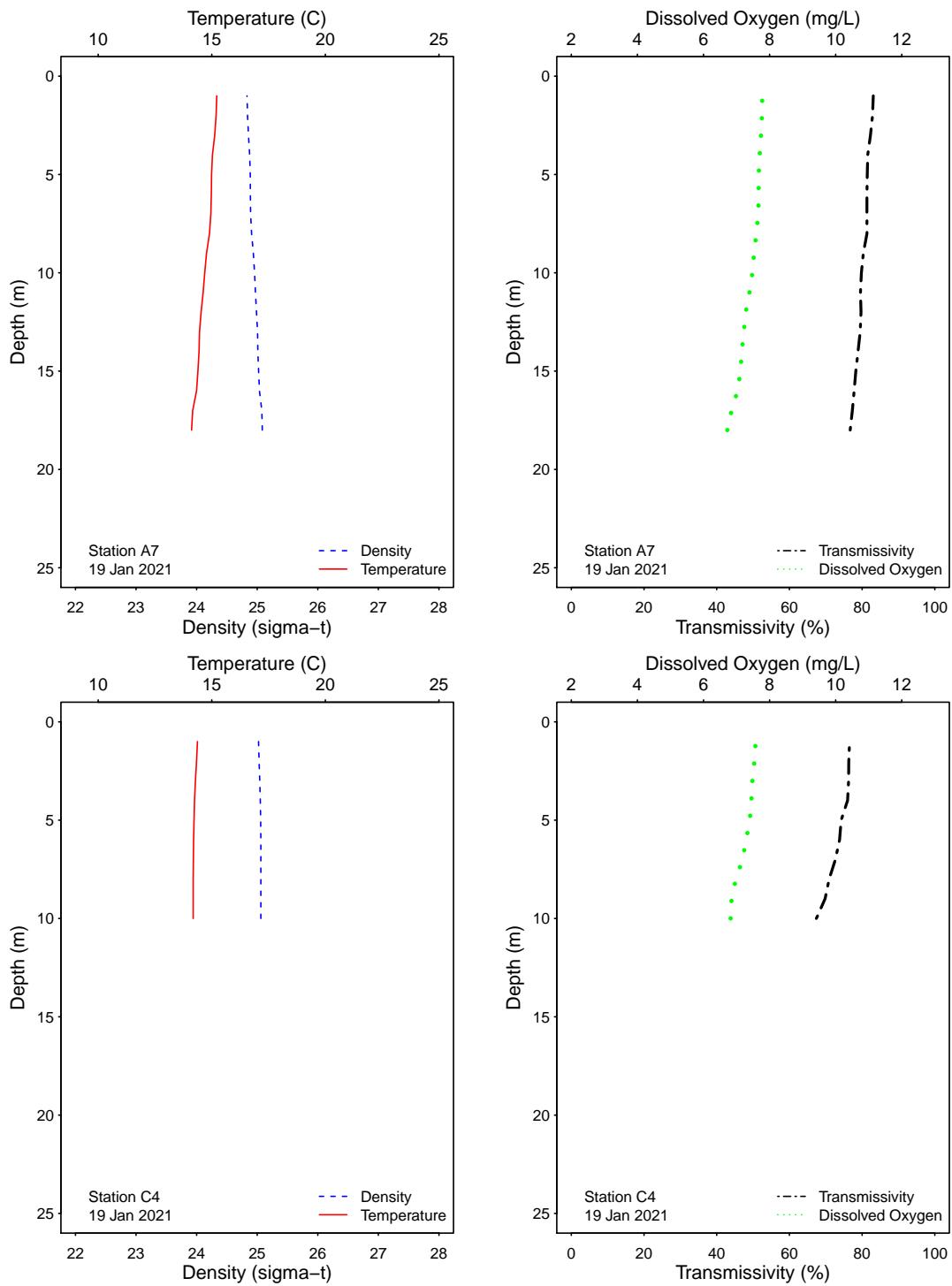


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

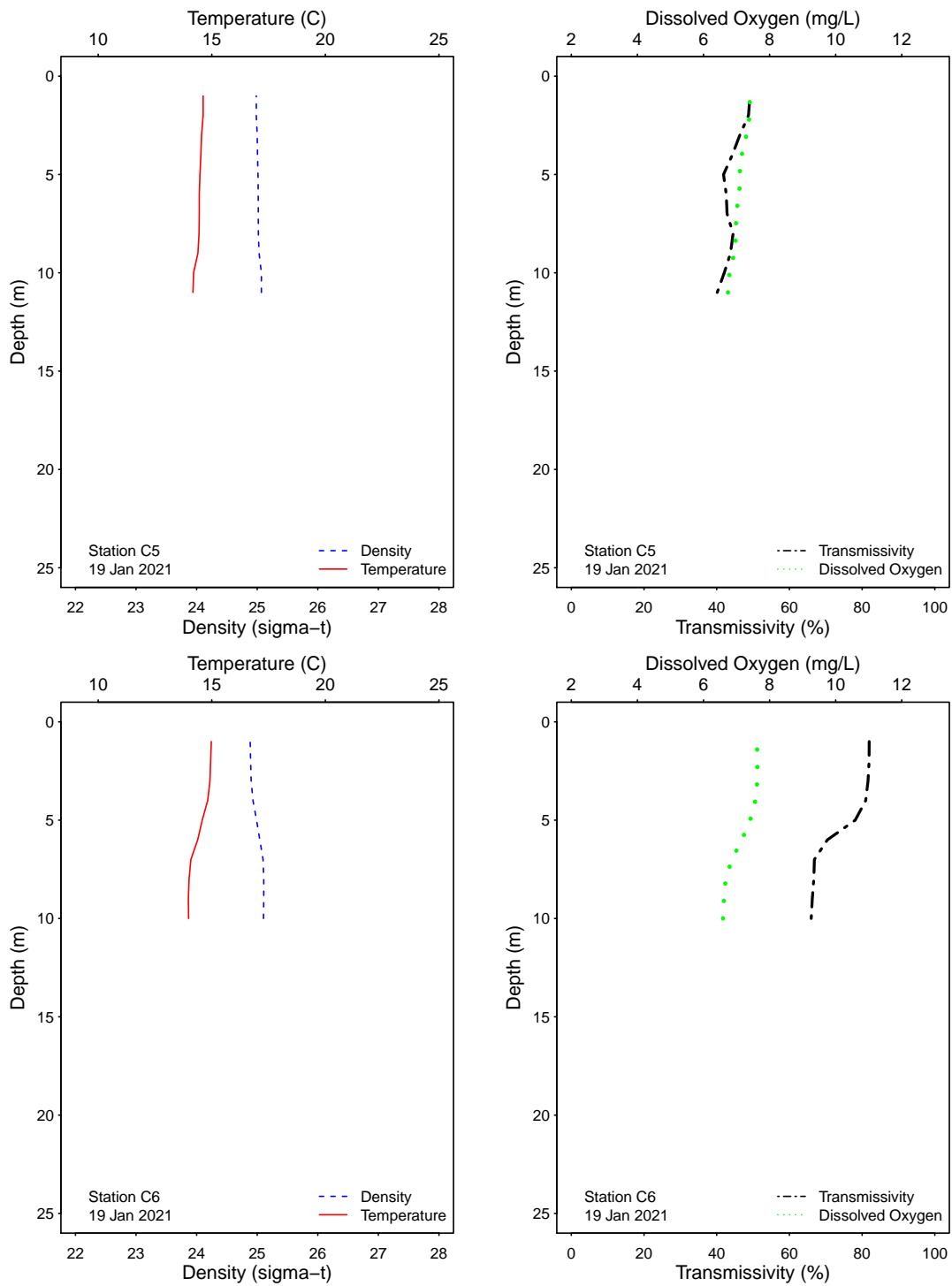


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

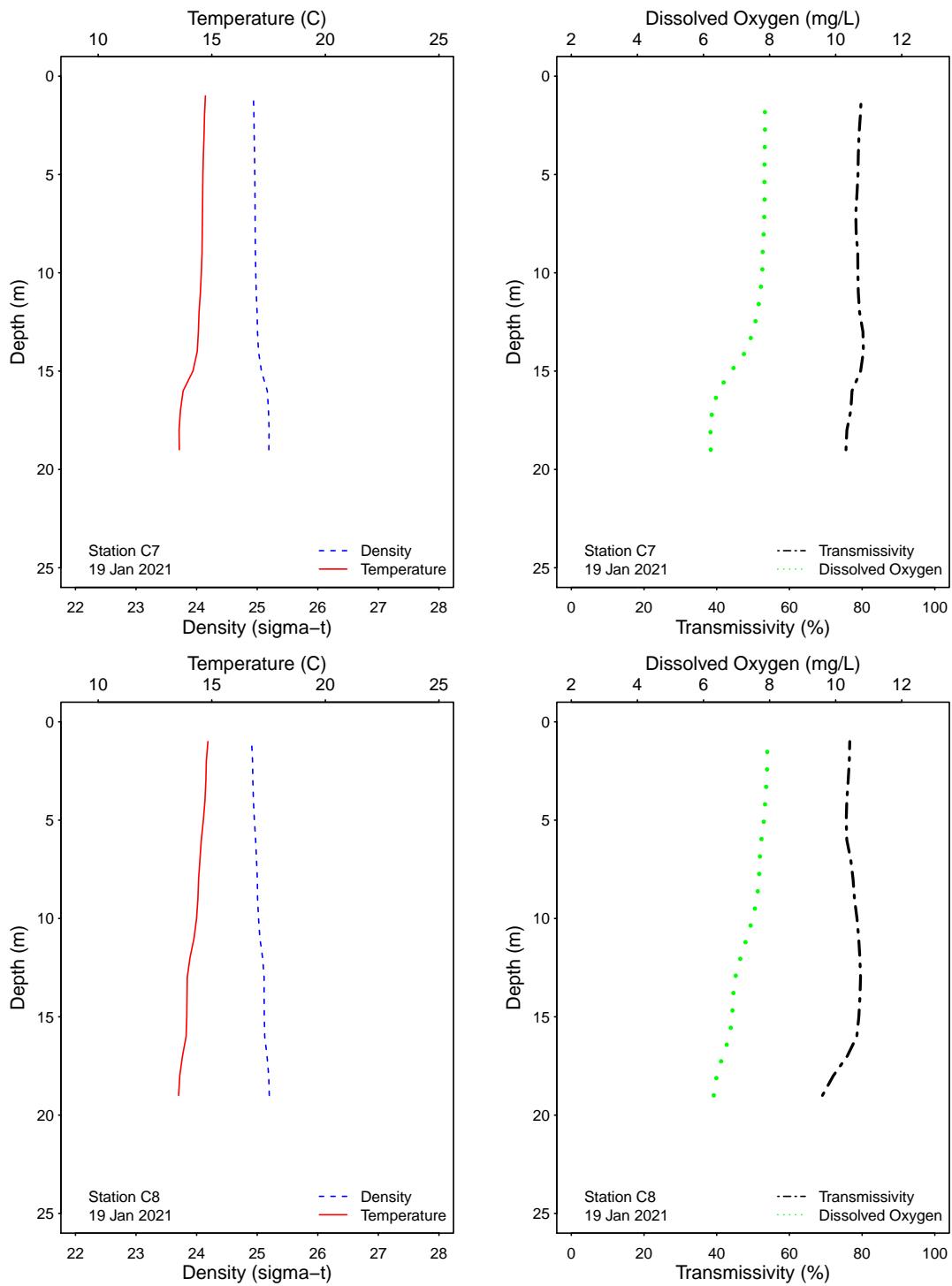


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

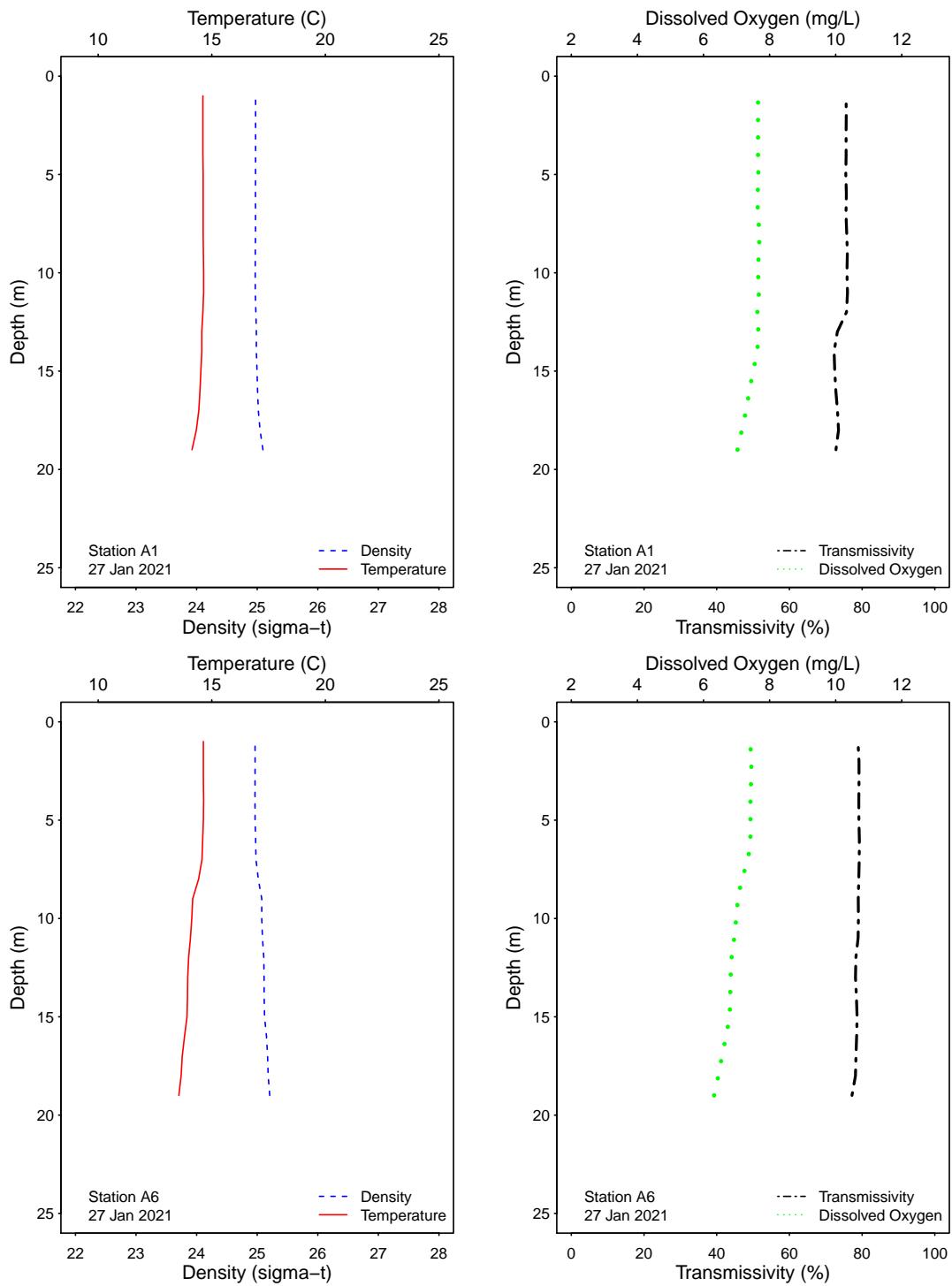


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

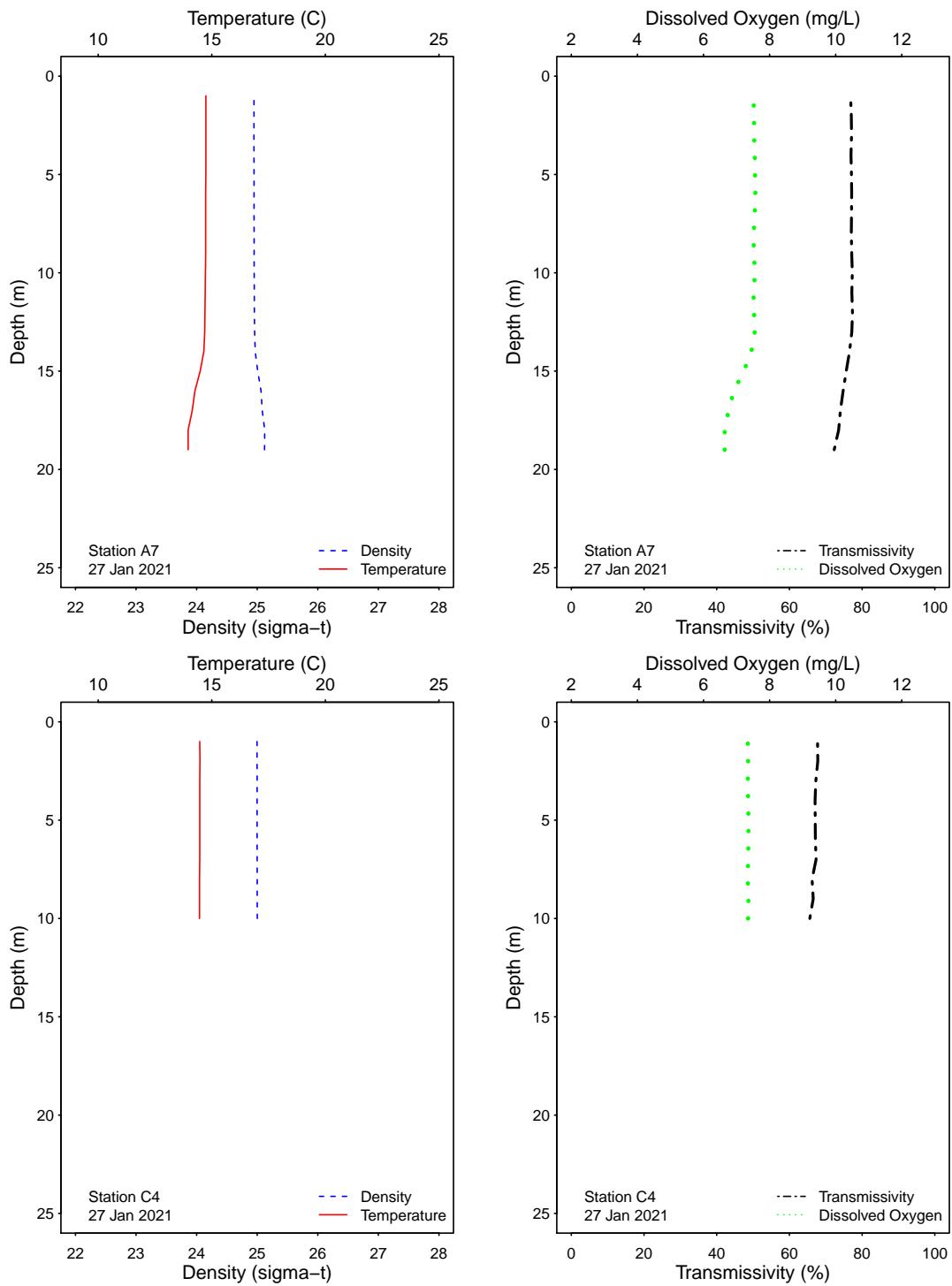


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

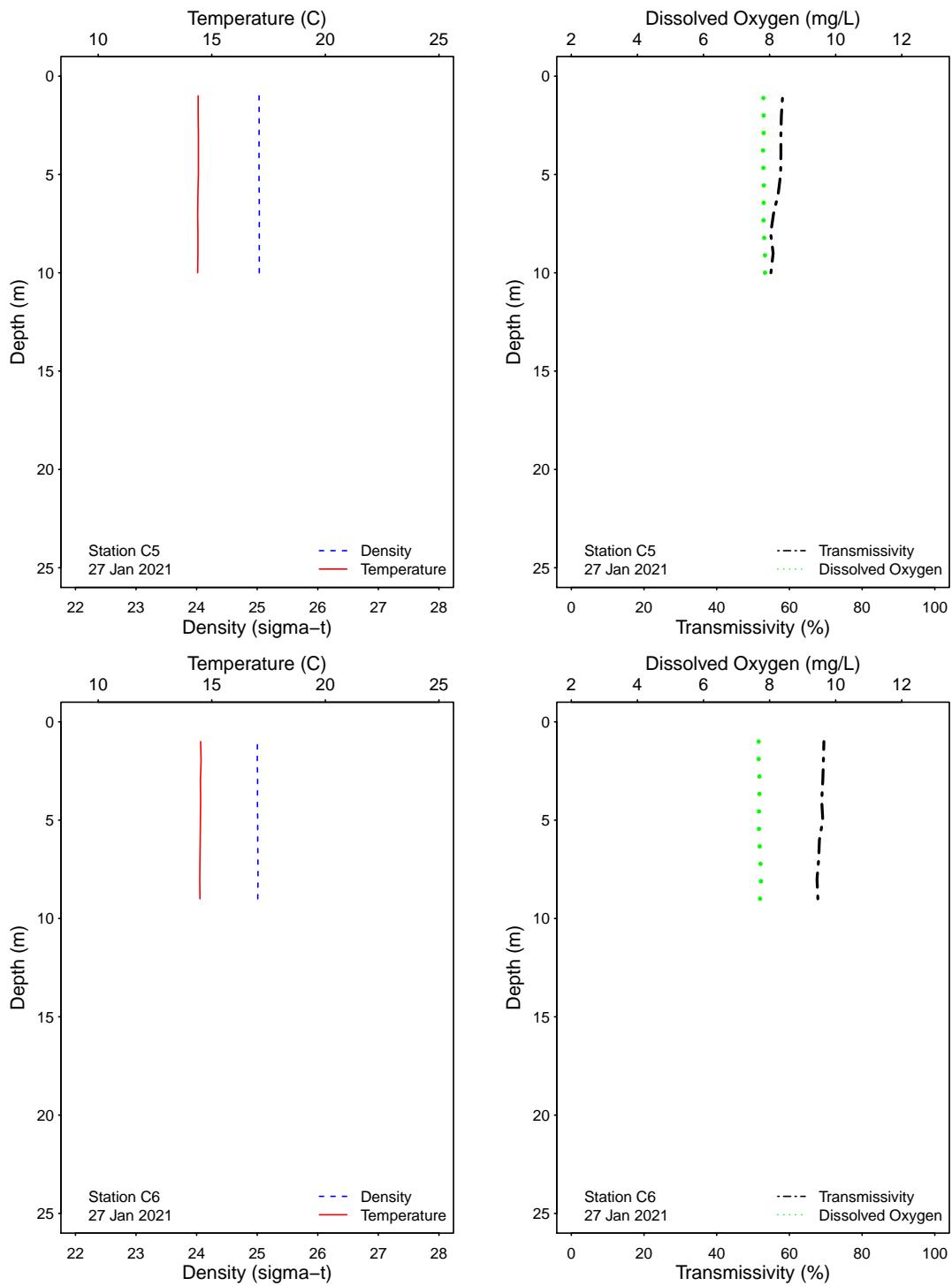


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

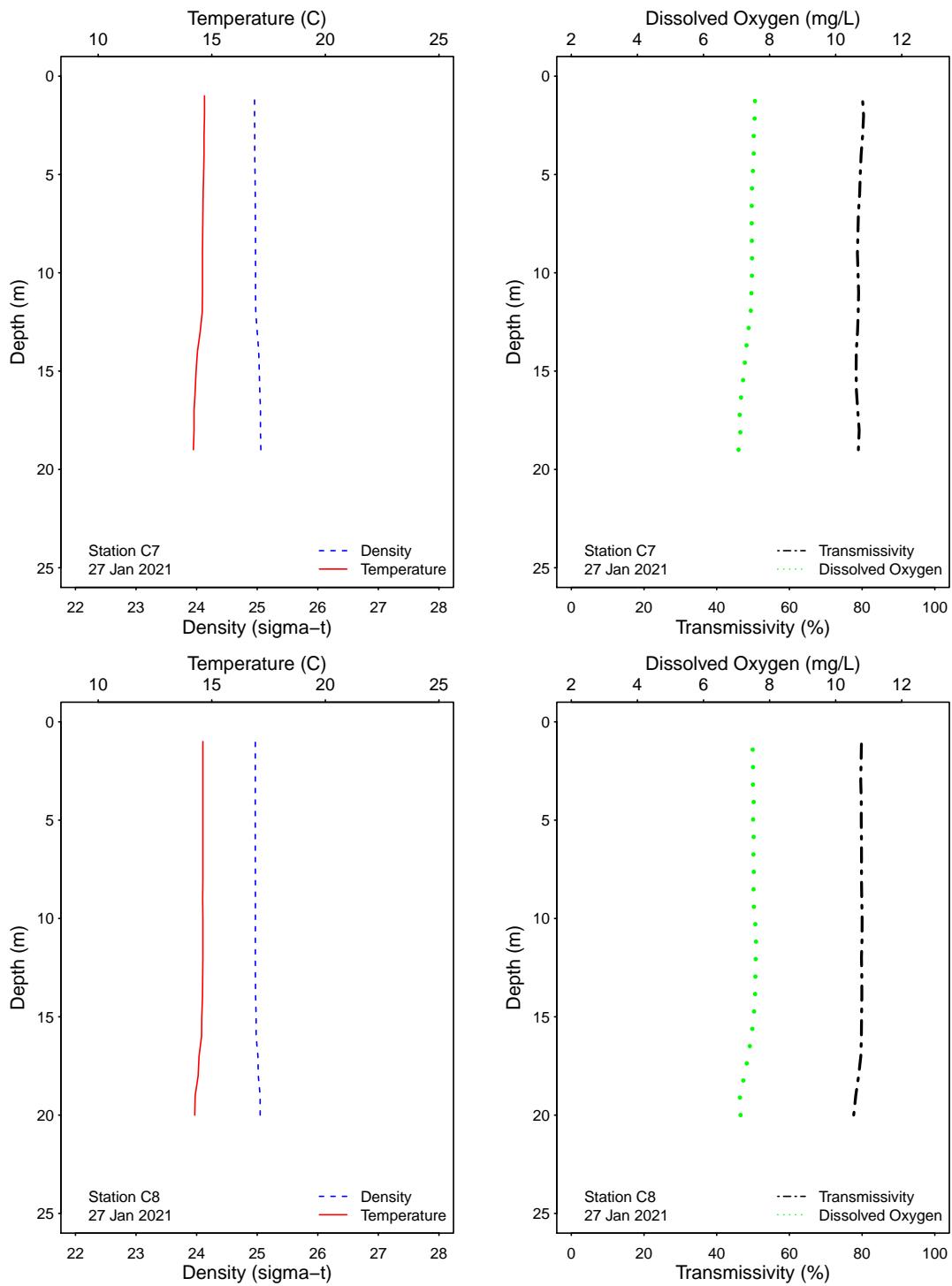


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

APPENDIX A

Quality Assurance

Table A.1

Summary of bacteriological quality assurance field and lab duplicate sample analyses at selected PLOO 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
A7	05 Jan 2021	18	AR	LAB DUPLICATE	98	18e	<2
A7	13 Jan 2021	18	AE	LAB DUPLICATE	40e	6e	2e
A7	19 Jan 2021	18	AR	LAB DUPLICATE	20e	2e	<2
A7	27 Jan 2021	18	BS	LAB DUPLICATE	120e	24e	6e
C7	05 Jan 2021	18	AR	LAB DUPLICATE	16e	4e	<2
C7	13 Jan 2021	18	AE	LAB DUPLICATE	180e	36e	4e
C7	19 Jan 2021	18	AR	LAB DUPLICATE	6e	6e	2e
C7	27 Jan 2021	18	BS	LAB DUPLICATE	<20	<2	<2
C8	05 Jan 2021	12	AR	LAB DUPLICATE	8e	6e	2e
C8	13 Jan 2021	12	BS	LAB DUPLICATE	<200	4e	<2
C8	19 Jan 2021	12	AR	LAB DUPLICATE	10e	<2	2e
C8	27 Jan 2021	12	BS	LAB DUPLICATE	4e	<2	2e
D12	06 Jan 2021		BS	FIELD DUPLICATE	<20	4e	2e
D12	06 Jan 2021		BS	LAB DUPLICATE	<20	2e	<2
D12	13 Jan 2021		AE	FIELD DUPLICATE	20e	<2	8e
D12	13 Jan 2021		AE	LAB DUPLICATE	<20	<2	10e
D12	20 Jan 2021		JF	FIELD DUPLICATE	6e	2e	<2
D12	20 Jan 2021		JF	LAB DUPLICATE	2e	2e	<2
D12	27 Jan 2021		AR	FIELD DUPLICATE	20e	16e	24e
D12	27 Jan 2021		AR	LAB DUPLICATE	20e	2e	26e

ns = not sampled

ND = no data

APPENDIX B

New 2019 Ocean Plan Water Quality Objectives

Shore Stations

Table B.1

Summary of compliance with the Ocean Plan's 6-week Geometric Mean standard for *Enterococcus* at the PLOO 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	D4	D5	D7	D8-A	D8-B	D9	D10	D11	D12
01 Jan 2021	3	4	3	5	13*	5	6	6	2
02 Jan 2021	3	4	3	5	13*	5	6	6	2
03 Jan 2021	3	4	3	5	13*	5	6	6	2
04 Jan 2021	3	4	3	5	80*	6	8	6	2
05 Jan 2021	3	4	3	5	80*	6	8	6	2
06 Jan 2021	3	4	3	5	80*	5	8	6	2
07 Jan 2021	3	4	3	5	80*	5	8	6	2
08 Jan 2021	3	4	3	5	80*	5	8	6	2
09 Jan 2021	3	4	3	5	80*	5	8	6	2
10 Jan 2021	3	4	3	5	80*	5	8	6	2
11 Jan 2021	3	4	3	5	80*	5	8	6	2
12 Jan 2021	3	4	3	5	80*	5	8	6	2
13 Jan 2021	2	3	3	4	ns	6	10	6	2
14 Jan 2021	2	3	3	4	ns	6	10	6	2
15 Jan 2021	2	3	3	4	ns	6	10	6	2
16 Jan 2021	2	3	3	4	ns	6	10	6	2
17 Jan 2021	2	3	3	4	ns	6	10	6	2
18 Jan 2021	2	3	3	4	ns	6	10	6	2
19 Jan 2021	2	3	3	4	ns	6	10	6	2
20 Jan 2021	2	2	2	3	ns	3	7	4	2
21 Jan 2021	2	2	2	3	ns	3	7	4	2
22 Jan 2021	2	2	2	3	ns	3	7	4	2
23 Jan 2021	2	2	2	3	ns	3	7	4	2
24 Jan 2021	2	2	2	3	ns	3	7	4	2
25 Jan 2021	2	2	2	3	ns	3	7	4	2
26 Jan 2021	2	2	2	3	ns	3	7	4	2
27 Jan 2021	2	2	2	3	ns	3	8	6	4
28 Jan 2021	2	2	2	3	ns	3	8	6	4
29 Jan 2021	2	2	2	3	ns	3	8	6	4
30 Jan 2021	2	2	2	3	ns	3	8	6	4
31 Jan 2021	2	2	2	3	ns	3	8	6	4

* Geometric mean calculated using n<5

ns = not sampled

Table B.2

Summary of compliance at the PLOO 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	D4	D5	D7	D8-A	D9	D10	D11	D12
January	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Kelp Stations

Table B.3

Summary of compliance with the Ocean Plan's 6-week Geometric Mean standard for *Enterococcus* at the PLOO 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	A1	A6	A7	C4	C5	C6	C7	C8
01 Jan 2021	2	2	2	2	2	2	2	2
02 Jan 2021	2	2	2	2	2	2	2	2
03 Jan 2021	2	2	2	2	2	2	2	2
04 Jan 2021	2	2	2	2	2	2	2	2
05 Jan 2021	2	2	2	2	2	2	2	2
06 Jan 2021	2	2	2	2	2	2	2	2
07 Jan 2021	2	2	2	2	2	2	2	2
08 Jan 2021	2	2	2	2	2	2	2	2
09 Jan 2021	2	2	2	2	2	2	2	2
10 Jan 2021	2	2	2	2	2	2	2	2
11 Jan 2021	2	2	2	2	2	2	2	2
12 Jan 2021	2	2	2	2	2	2	2	2
13 Jan 2021	2	3	2	2	2	2	2	2
14 Jan 2021	2	3	2	2	2	2	2	2
15 Jan 2021	2	3	2	2	2	2	2	2
16 Jan 2021	2	3	2	2	2	2	2	2
17 Jan 2021	2	3	2	2	2	2	2	2
18 Jan 2021	2	3	2	2	2	2	2	2
19 Jan 2021	2	3	2	2	2	2	2	2
20 Jan 2021	2	3	2	2	2	2	2	2
21 Jan 2021	2	3	2	2	2	2	2	2
22 Jan 2021	2	3	2	2	2	2	2	2
23 Jan 2021	2	3	2	2	2	2	2	2
24 Jan 2021	2	3	2	2	2	2	2	2
25 Jan 2021	2	3	2	2	2	2	2	2
26 Jan 2021	2	3	2	2	2	2	2	2
27 Jan 2021	2	3	2	2	2	2	2	2
28 Jan 2021	2	3	2	2	2	2	2	2
29 Jan 2021	2	3	2	2	2	2	2	2
30 Jan 2021	2	3	2	2	2	2	2	2
31 Jan 2021	2	3	2	2	2	2	2	2

* Geometric mean calculated using n<5

Table B.4

Summary of compliance at the PLOO 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	A1	A6	A7	C4	C5	C6	C7	C8
January	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data