



POINT LOMA OCEAN OUTFALL MONTHLY RECEIVING WATERS MONITORING REPORT

POINT LOMA WASTEWATER TREATMENT PLANT

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

JULY 2022

Environmental Monitoring and Technical Services
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Public Utilities Department
Environmental Monitoring & Technical Services Division

August 31, 2022

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

Attention: POTW Compliance Unit

Dear Mr. Gibson:

Enclosed is the July 2022 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 that reads "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. Due to recent access issues at D8-A, sampling resumed at D8-B during February 2021.

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 ≥ 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 2022 Quality Assurance Report, which will be completed in March 2023.

SUMMARY OF RESULTS

As of October 2020, new 2019 Ocean Plan Water Quality Objectives are included for *Enterococcus* and total coliforms, see Appendix B.

Shore Stations

- The eight shore stations (D4, D5, D7, D8-B, D9, D10, D11, D12) were sampled on July 6, 13, 20, and 27.
- During July, one of the eight shore stations was out of compliance with the various 2015 California Ocean Plan (Ocean Plan) water contact standards on one or more days as follows:
 - o The Single Sample Maximum standard for *Enterococcus* was exceeded at station D11.
- Nothing of sewage origin was observed at PLOO shore stations in July.
- 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 July 5, 11, 20, and 25.
- During July, each of the kelp stations was in compliance with the various 2015 California Ocean Plan (Ocean Plan) water contact standards.

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

- Water column temperatures ranged from 11.33 to 21.62°C. The difference between surface and bottom waters ranged from 3.48 to 8.94°C.
- Chlorophyll *a* concentrations ranged from 0.39 to 18.44 µg/L.
- Nothing of sewage origin was observed at PLOO kelp stations in July.

Offshore Stations

- Quarterly water quality sampling was not conducted during July at the offshore stations. The next quarterly sampling is scheduled for August 2022.



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-B	D9	D10	D11	D12
01 Jul 2022	6	20	26	20	28	58	31	13
02 Jul 2022	6	20	26	20	28	58	31	13
03 Jul 2022	6	20	26	20	28	58	31	13
04 Jul 2022	6	20	26	20	28	58	31	13
05 Jul 2022	6	20	26	20	28	58	31	13
06 Jul 2022	7	13	16	20	22	56	36	14
07 Jul 2022	7	13	16	20	22	56	36	14
08 Jul 2022	9	6	15	20	22	51	31	20
09 Jul 2022	9	6	15	20	22	51	31	20
10 Jul 2022	9	6	15	20	22	51	31	20
11 Jul 2022	9	6	15	20	22	51	31	20
12 Jul 2022	9	6	15	20	22	51	31	20
13 Jul 2022	11	8	25	23	20	42	29	20
14 Jul 2022	11	8	25	23	20	42	29	20
15 Jul 2022	10	6	26	24	20	39	31	20
16 Jul 2022	10	6	26	24	20	39	31	20
17 Jul 2022	10	6	26	24	20	39	31	20
18 Jul 2022	10	6	26	24	20	39	31	20
19 Jul 2022	10	6	26	24	20	39	31	20
20 Jul 2022	12	8	25	17	19	34	31	14
21 Jul 2022	12	8	25	17	19	34	31	14
22 Jul 2022	18	6	26	16	19	39	29	8
23 Jul 2022	18	6	26	16	19	39	29	8
24 Jul 2022	18	6	26	16	19	39	29	8
25 Jul 2022	18	6	26	16	19	39	29	8
26 Jul 2022	18	6	26	16	19	39	29	8
27 Jul 2022	19	8	39	24	21	34	27	9
28 Jul 2022	19	8	39	24	21	34	27	9
29 Jul 2022	18	11	36	25	15	25	29	13
30 Jul 2022	18	11	36	25	15	25	29	13
31 Jul 2022	18	11	36	25	15	25	29	13

* 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-B	D9	D10	D11	D12
01 Jul 2022	2	6	4	4	4	3	5	4
02 Jul 2022	2	6	4	4	4	3	5	4
03 Jul 2022	2	6	4	4	4	3	5	4
04 Jul 2022	2	6	4	4	4	3	5	4
05 Jul 2022	2	6	4	4	4	3	5	4
06 Jul 2022	2	5	3	3	3	3	8	4
07 Jul 2022	2	5	3	3	3	3	8	4
08 Jul 2022	2	6	4	4	4	3	6	4
09 Jul 2022	2	6	4	4	4	3	6	4
10 Jul 2022	2	6	4	4	4	3	6	4
11 Jul 2022	2	6	4	4	4	3	6	4
12 Jul 2022	2	6	4	4	4	3	6	4
13 Jul 2022	2	5	4	4	4	3	7	4
14 Jul 2022	2	5	4	4	4	3	7	4
15 Jul 2022	2	4	3	2	2	2	7	4
16 Jul 2022	2	4	3	2	2	2	7	4
17 Jul 2022	2	4	3	2	2	2	7	4
18 Jul 2022	2	4	3	2	2	2	7	4
19 Jul 2022	2	4	3	2	2	2	7	4
20 Jul 2022	2	3	3	2	2	2	7	4
21 Jul 2022	2	3	3	2	2	2	7	4
22 Jul 2022	2	2	3	2	2	2	9	2
23 Jul 2022	2	2	3	2	2	2	9	2
24 Jul 2022	2	2	3	2	2	2	9	2
25 Jul 2022	2	2	3	2	2	2	9	2
26 Jul 2022	2	2	3	2	2	2	9	2
27 Jul 2022	2	2	3	3	2	2	9	2
28 Jul 2022	2	2	3	3	2	2	9	2
29 Jul 2022	2	2	3	3	2	2	13	2
30 Jul 2022	2	2	3	3	2	2	13	2
31 Jul 2022	2	2	3	3	2	2	13	2

* 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-B	D9	D10	D11	D12
01 Jul 2022	2	2	3	2	2	2	10	2
02 Jul 2022	2	2	3	2	2	2	10	2
03 Jul 2022	2	2	3	2	2	2	10	2
04 Jul 2022	2	2	3	2	2	2	10	2
05 Jul 2022	2	2	3	2	2	2	10	2
06 Jul 2022	2	2	2	2	2	2	15	2
07 Jul 2022	2	2	2	2	2	2	13	2
08 Jul 2022	2	2	3	2	2	2	8	2
09 Jul 2022	2	2	3	2	2	2	8	2
10 Jul 2022	2	2	3	2	2	2	7	2
11 Jul 2022	2	2	3	2	2	2	7	2
12 Jul 2022	2	2	3	2	2	2	7	2
13 Jul 2022	3	2	4	3	2	2	7	2
14 Jul 2022	3	2	4	3	2	2	7	2
15 Jul 2022	3	2	5	3	2	2	9	2
16 Jul 2022	3	2	5	3	2	2	9	2
17 Jul 2022	3	2	5	3	2	2	9	2
18 Jul 2022	3	2	5	3	2	2	9	2
19 Jul 2022	3	2	5	3	2	2	9	2
20 Jul 2022	3	2	4	2	2	2	7	2
21 Jul 2022	3	2	4	2	2	2	7	2
22 Jul 2022	3	2	5	3	2	2	7	2
23 Jul 2022	3	2	5	3	2	2	7	2
24 Jul 2022	3	2	5	3	2	2	7	2
25 Jul 2022	3	2	5	3	2	2	7	2
26 Jul 2022	3	2	5	3	2	2	7	2
27 Jul 2022	3	2	6	2	2	2	6	2
28 Jul 2022	3	2	6	2	2	2	6	2
29 Jul 2022	3	2	6	3	2	2	7	2
30 Jul 2022	3	2	6	3	2	2	7	2
31 Jul 2022	3	2	6	3	2	2	7	2

* 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-B	D9	D10	D11	D12
06 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
13 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
20 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
27 Jul 2022	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-B	D9	D10	D11	D12
06 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
13 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
20 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
27 Jul 2022	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-B	D9	D10	D11	D12
06 Jul 2022	IC	IC	IC	IC	IC	IC	E	IC
07 Jul 2022	ns	ns	ns	ns	ns	ns	IC	ns
13 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
20 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
27 Jul 2022	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-B	D9	D10	D11	D12
06 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
13 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
20 Jul 2022	IC	IC	IC	IC	IC	IC	IC	IC
27 Jul 2022	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 Jul 2022	901	14e	<2	<2	0.14
D4	13 Jul 2022	755	<20	2e	8e	0.10
D4	20 Jul 2022	805	<20	<2	<2	0.10
D4	27 Jul 2022	808	20e	<2	<2	0.10
D5	06 Jul 2022	843	<2	<2	<2	1.00
D5	13 Jul 2022	808	<20	<2	2e	0.10
D5	20 Jul 2022	819	<20	2e	<2	0.10
D5	27 Jul 2022	824	20e	<2	<2	0.10
D7	06 Jul 2022	952	<2	<2	<2	1.00
D7	13 Jul 2022	837	<200	8e	20e	0.04
D7	20 Jul 2022	844	<20	<2	<2	0.10
D7	27 Jul 2022	852	<200	<2	16e	0.01
D8-B	06 Jul 2022	1012	20e	<2	<2	0.10
D8-B	13 Jul 2022	902	40e	4e	6e	0.10
D8-B	20 Jul 2022	910	4e	<2	<2	0.50
D8-B	27 Jul 2022	918	120e	6e	2e	0.05
D9	06 Jul 2022	1023	8e	<2	<2	0.25
D9	13 Jul 2022	917	12e	4e	2e	0.33
D9	20 Jul 2022	928	16e	<2	<2	0.12
D9	27 Jul 2022	937	34e	2e	2e	0.06
D10	06 Jul 2022	1125	48	<2	2e	0.04
D10	13 Jul 2022	958	20e	<2	2e	0.10
D10	20 Jul 2022	942	20e	<2	<2	0.10
D10	27 Jul 2022	1019	20e	<2	<2	0.10
D11	06 Jul 2022	1108	60e	48	120e	0.80
D11	07 Jul 2022	1352	ns	ns	4e	ns
D11	13 Jul 2022	1012	<20	12e	8e	0.60
D11	20 Jul 2022	1013	28e	6e	<2	0.21
D11	27 Jul 2022	1037	<20	8e	2e	0.40
D12	06 Jul 2022	1155	<20	<2	2e	0.10
D12	13 Jul 2022	1052	<20	<2	<2	0.10
D12	20 Jul 2022	1054	4e	2e	<2	0.50
D12	27 Jul 2022	1110	<20	<2	4e	0.10

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 Jul 2022	Arrive Time	901
D4	06 Jul 2022	Weather	Overcast
D4	06 Jul 2022	Wind Speed (kts)	7.5
D4	06 Jul 2022	Wind Dir	NW
D4	06 Jul 2022	Animal Life	Bird-1; Seagull-2; Sea hare-1
D4	06 Jul 2022	Floatables	None
D4	06 Jul 2022	Water Color	Green
D4	06 Jul 2022	Current Direction	S
D4	06 Jul 2022	Water Temp (C)	21.9
D4	06 Jul 2022	Wave Height Low (ft)	1
D4	06 Jul 2022	High Tide (ft)	3.81
D4	06 Jul 2022	High Tide Time	156
D4	06 Jul 2022	Low Tide (ft)	0.91
D4	06 Jul 2022	Low Tide Time	852
D4	06 Jul 2022	Comments	none
D4	13 Jul 2022	Arrive Time	755
D4	13 Jul 2022	Weather	Cloudy
D4	13 Jul 2022	Wind Speed (kts)	2.8
D4	13 Jul 2022	Wind Dir	N
D4	13 Jul 2022	Animal Life	Bird-1; Seagull-1; Seal/Sea Lion-1
D4	13 Jul 2022	Floatables	None
D4	13 Jul 2022	Water Color	Grey
D4	13 Jul 2022	Current Direction	N
D4	13 Jul 2022	Water Temp (C)	18.4
D4	13 Jul 2022	Wave Height Low (ft)	1
D4	13 Jul 2022	High Tide (ft)	3.96
D4	13 Jul 2022	High Tide Time	1020
D4	13 Jul 2022	Low Tide (ft)	-1.66
D4	13 Jul 2022	Low Tide Time	358
D4	13 Jul 2022	Comments	Seagrass; Algae; Kelp
D4	20 Jul 2022	Arrive Time	805
D4	20 Jul 2022	Weather	Cloudy
D4	20 Jul 2022	Wind Speed (kts)	3.9
D4	20 Jul 2022	Wind Dir	SW
D4	20 Jul 2022	Animal Life	Bird-1; Pelican-3
D4	20 Jul 2022	Floatables	None
D4	20 Jul 2022	Water Color	Green
D4	20 Jul 2022	Current Direction	N
D4	20 Jul 2022	Water Temp (C)	21
D4	20 Jul 2022	Wave Height Low (ft)	4
D4	20 Jul 2022	High Tide (ft)	3.53
D4	20 Jul 2022	High Tide Time	304
D4	20 Jul 2022	Low Tide (ft)	1.3
D4	20 Jul 2022	Low Tide Time	914
D4	20 Jul 2022	Comments	Water clear; Surfer/Paddle boarder-3; Trash-1; Seagrass; Algae; Kelp
D4	27 Jul 2022	Arrive Time	808
D4	27 Jul 2022	Weather	Cloudy
D4	27 Jul 2022	Wind Speed (kts)	3.8
D4	27 Jul 2022	Wind Dir	NW
D4	27 Jul 2022	Animal Life	Bird-2; Pelican-2
D4	27 Jul 2022	Floatables	None
D4	27 Jul 2022	Water Color	Blue

Station	Date	Parameter	Value
D4	27 Jul 2022	Current Direction	N
D4	27 Jul 2022	Water Temp (C)	21.7
D4	27 Jul 2022	Wave Height Low (ft)	1
D4	27 Jul 2022	High Tide (ft)	3.74
D4	27 Jul 2022	High Tide Time	1012
D4	27 Jul 2022	Low Tide (ft)	-0.43
D4	27 Jul 2022	Low Tide Time	347
D4	27 Jul 2022	Comments	Seagrass; Kelp; Algae
D5	06 Jul 2022	Arrive Time	843
D5	06 Jul 2022	Weather	Overcast
D5	06 Jul 2022	Wind Speed (kts)	3
D5	06 Jul 2022	Wind Dir	NW
D5	06 Jul 2022	Animal Life	
D5	06 Jul 2022	Floatables	Foam; Film
D5	06 Jul 2022	Water Color	Green
D5	06 Jul 2022	Current Direction	S
D5	06 Jul 2022	Water Temp (C)	22.1
D5	06 Jul 2022	Wave Height Low (ft)	1
D5	06 Jul 2022	High Tide (ft)	3.81
D5	06 Jul 2022	High Tide Time	156
D5	06 Jul 2022	Low Tide (ft)	0.91
D5	06 Jul 2022	Low Tide Time	852
D5	06 Jul 2022	Comments	Kelp; Seagrass; Algae
D5	13 Jul 2022	Arrive Time	808
D5	13 Jul 2022	Weather	Cloudy
D5	13 Jul 2022	Wind Speed (kts)	5.1
D5	13 Jul 2022	Wind Dir	N
D5	13 Jul 2022	Animal Life	Bird-1
D5	13 Jul 2022	Floatables	Foam
D5	13 Jul 2022	Water Color	Green
D5	13 Jul 2022	Current Direction	N
D5	13 Jul 2022	Water Temp (C)	19.4
D5	13 Jul 2022	Wave Height Low (ft)	1
D5	13 Jul 2022	High Tide (ft)	3.96
D5	13 Jul 2022	High Tide Time	1020
D5	13 Jul 2022	Low Tide (ft)	-1.66
D5	13 Jul 2022	Low Tide Time	358
D5	13 Jul 2022	Comments	Seagrass; Algae; Kelp
D5	20 Jul 2022	Arrive Time	819
D5	20 Jul 2022	Weather	Cloudy
D5	20 Jul 2022	Wind Speed (kts)	1.3
D5	20 Jul 2022	Wind Dir	SW
D5	20 Jul 2022	Animal Life	
D5	20 Jul 2022	Floatables	Foam
D5	20 Jul 2022	Water Color	Green
D5	20 Jul 2022	Current Direction	N
D5	20 Jul 2022	Water Temp (C)	21.8
D5	20 Jul 2022	Wave Height Low (ft)	2
D5	20 Jul 2022	High Tide (ft)	3.53
D5	20 Jul 2022	High Tide Time	304
D5	20 Jul 2022	Low Tide (ft)	1.3
D5	20 Jul 2022	Low Tide Time	914
D5	20 Jul 2022	Comments	Seagrass; Kelp; Algae
D5	27 Jul 2022	Arrive Time	824
D5	27 Jul 2022	Weather	Cloudy
D5	27 Jul 2022	Wind Speed (kts)	5
D5	27 Jul 2022	Wind Dir	NW

Station	Date	Parameter	Value
D5	27 Jul 2022	Animal Life	
D5	27 Jul 2022	Floatables	Foam
D5	27 Jul 2022	Water Color	Green
D5	27 Jul 2022	Current Direction	N
D5	27 Jul 2022	Water Temp (C)	22.9
D5	27 Jul 2022	Wave Height Low (ft)	2
D5	27 Jul 2022	High Tide (ft)	3.74
D5	27 Jul 2022	High Tide Time	1012
D5	27 Jul 2022	Low Tide (ft)	-0.43
D5	27 Jul 2022	Low Tide Time	347
D5	27 Jul 2022	Comments	Seagrass; Kelp
D7	06 Jul 2022	Arrive Time	952
D7	06 Jul 2022	Weather	Overcast
D7	06 Jul 2022	Wind Speed (kts)	8.3
D7	06 Jul 2022	Wind Dir	NW
D7	06 Jul 2022	Animal Life	
D7	06 Jul 2022	Floatables	None
D7	06 Jul 2022	Water Color	Green
D7	06 Jul 2022	Current Direction	S
D7	06 Jul 2022	Water Temp (C)	22.7
D7	06 Jul 2022	Wave Height Low (ft)	0
D7	06 Jul 2022	High Tide (ft)	3.81
D7	06 Jul 2022	High Tide Time	156
D7	06 Jul 2022	Low Tide (ft)	0.91
D7	06 Jul 2022	Low Tide Time	852
D7	06 Jul 2022	Comments	Water clear; Trash-1; Kelp; Seagrass; Algae; Person/Walker/Jogger-9; Freediver-1
D7	13 Jul 2022	Arrive Time	837
D7	13 Jul 2022	Weather	Cloudy
D7	13 Jul 2022	Wind Speed (kts)	3.9
D7	13 Jul 2022	Wind Dir	N
D7	13 Jul 2022	Animal Life	
D7	13 Jul 2022	Floatables	Foam
D7	13 Jul 2022	Water Color	Grey
D7	13 Jul 2022	Current Direction	S
D7	13 Jul 2022	Water Temp (C)	20.3
D7	13 Jul 2022	Wave Height Low (ft)	1
D7	13 Jul 2022	High Tide (ft)	3.96
D7	13 Jul 2022	High Tide Time	1020
D7	13 Jul 2022	Low Tide (ft)	-1.66
D7	13 Jul 2022	Low Tide Time	358
D7	13 Jul 2022	Comments	Water clear; Surfer/Paddle boarder-9; Trash-1; Algae; Seagrass; Kelp
D7	20 Jul 2022	Arrive Time	844
D7	20 Jul 2022	Weather	Cloudy
D7	20 Jul 2022	Wind Speed (kts)	2.6
D7	20 Jul 2022	Wind Dir	W
D7	20 Jul 2022	Animal Life	
D7	20 Jul 2022	Floatables	Foam
D7	20 Jul 2022	Water Color	Green
D7	20 Jul 2022	Current Direction	N
D7	20 Jul 2022	Water Temp (C)	22.3
D7	20 Jul 2022	Wave Height Low (ft)	3
D7	20 Jul 2022	High Tide (ft)	3.53
D7	20 Jul 2022	High Tide Time	304
D7	20 Jul 2022	Low Tide (ft)	1.3
D7	20 Jul 2022	Low Tide Time	914

Station	Date	Parameter	Value
D7	20 Jul 2022	Comments	Water turbid; Surfer/Paddle boarder-14; Trash-1; Seagrass; Kelp; Algae
D7	27 Jul 2022	Arrive Time	852
D7	27 Jul 2022	Weather	Sunny
D7	27 Jul 2022	Wind Speed (kts)	0.5
D7	27 Jul 2022	Wind Dir	W
D7	27 Jul 2022	Animal Life	
D7	27 Jul 2022	Floatables	Foam
D7	27 Jul 2022	Water Color	Green
D7	27 Jul 2022	Current Direction	S
D7	27 Jul 2022	Water Temp (C)	22.8
D7	27 Jul 2022	Wave Height Low (ft)	1
D7	27 Jul 2022	High Tide (ft)	3.74
D7	27 Jul 2022	High Tide Time	1012
D7	27 Jul 2022	Low Tide (ft)	-0.43
D7	27 Jul 2022	Low Tide Time	347
D7	27 Jul 2022	Comments	Water turbid; Surfer/Paddle boarder-9; Trash-1; Kelp; Seagrass; Algae
D8-B	06 Jul 2022	Arrive Time	1012
D8-B	06 Jul 2022	Weather	Overcast
D8-B	06 Jul 2022	Wind Speed (kts)	4
D8-B	06 Jul 2022	Wind Dir	NW
D8-B	06 Jul 2022	Animal Life	
D8-B	06 Jul 2022	Floatables	None
D8-B	06 Jul 2022	Water Color	Green
D8-B	06 Jul 2022	Current Direction	S
D8-B	06 Jul 2022	Water Temp (C)	22.3
D8-B	06 Jul 2022	Wave Height Low (ft)	2
D8-B	06 Jul 2022	High Tide (ft)	3.81
D8-B	06 Jul 2022	High Tide Time	156
D8-B	06 Jul 2022	Low Tide (ft)	0.91
D8-B	06 Jul 2022	Low Tide Time	852
D8-B	06 Jul 2022	Comments	Kelp; Algae; Seagrass
D8-B	13 Jul 2022	Arrive Time	902
D8-B	13 Jul 2022	Weather	Cloudy
D8-B	13 Jul 2022	Wind Speed (kts)	5.8
D8-B	13 Jul 2022	Wind Dir	SW
D8-B	13 Jul 2022	Animal Life	
D8-B	13 Jul 2022	Floatables	Foam
D8-B	13 Jul 2022	Water Color	Green
D8-B	13 Jul 2022	Current Direction	S
D8-B	13 Jul 2022	Water Temp (C)	19.8
D8-B	13 Jul 2022	Wave Height Low (ft)	1
D8-B	13 Jul 2022	High Tide (ft)	3.96
D8-B	13 Jul 2022	High Tide Time	1020
D8-B	13 Jul 2022	Low Tide (ft)	-1.66
D8-B	13 Jul 2022	Low Tide Time	358
D8-B	13 Jul 2022	Comments	Kelp; Seagrass; Algae
D8-B	20 Jul 2022	Arrive Time	910
D8-B	20 Jul 2022	Weather	Partly cloudy
D8-B	20 Jul 2022	Wind Speed (kts)	4.4
D8-B	20 Jul 2022	Wind Dir	SW
D8-B	20 Jul 2022	Animal Life	
D8-B	20 Jul 2022	Floatables	Foam
D8-B	20 Jul 2022	Water Color	Green
D8-B	20 Jul 2022	Current Direction	N
D8-B	20 Jul 2022	Water Temp (C)	22.2

Station	Date	Parameter	Value
D8-B	20 Jul 2022	Wave Height Low (ft)	3
D8-B	20 Jul 2022	High Tide (ft)	3.53
D8-B	20 Jul 2022	High Tide Time	304
D8-B	20 Jul 2022	Low Tide (ft)	1.3
D8-B	20 Jul 2022	Low Tide Time	914
D8-B	20 Jul 2022	Comments	Water turbid; Surfer/Paddle boarder-3; Trash-1; Seagrass; Algae; Kelp
D8-B	27 Jul 2022	Arrive Time	918
D8-B	27 Jul 2022	Weather	Sunny
D8-B	27 Jul 2022	Wind Speed (kts)	5.2
D8-B	27 Jul 2022	Wind Dir	SW
D8-B	27 Jul 2022	Animal Life	
D8-B	27 Jul 2022	Floatables	Foam
D8-B	27 Jul 2022	Water Color	Brown
D8-B	27 Jul 2022	Current Direction	S
D8-B	27 Jul 2022	Water Temp (C)	23.6
D8-B	27 Jul 2022	Wave Height Low (ft)	1
D8-B	27 Jul 2022	High Tide (ft)	3.74
D8-B	27 Jul 2022	High Tide Time	1012
D8-B	27 Jul 2022	Low Tide (ft)	-0.43
D8-B	27 Jul 2022	Low Tide Time	347
D8-B	27 Jul 2022	Comments	Seagrass; Kelp; Algae
D9	06 Jul 2022	Arrive Time	1023
D9	06 Jul 2022	Weather	Overcast
D9	06 Jul 2022	Wind Speed (kts)	5.1
D9	06 Jul 2022	Wind Dir	W
D9	06 Jul 2022	Animal Life	Seagull-2
D9	06 Jul 2022	Floatables	None
D9	06 Jul 2022	Water Color	Blue
D9	06 Jul 2022	Current Direction	S
D9	06 Jul 2022	Water Temp (C)	22
D9	06 Jul 2022	Wave Height Low (ft)	1
D9	06 Jul 2022	High Tide (ft)	3.81
D9	06 Jul 2022	High Tide Time	156
D9	06 Jul 2022	Low Tide (ft)	0.91
D9	06 Jul 2022	Low Tide Time	852
D9	06 Jul 2022	Comments	Water clear; Trash-1; Seagrass; Person/Walker/Jogger-2
D9	13 Jul 2022	Arrive Time	917
D9	13 Jul 2022	Weather	Partly cloudy
D9	13 Jul 2022	Wind Speed (kts)	5.7
D9	13 Jul 2022	Wind Dir	W
D9	13 Jul 2022	Animal Life	
D9	13 Jul 2022	Floatables	Foam
D9	13 Jul 2022	Water Color	Green
D9	13 Jul 2022	Current Direction	S
D9	13 Jul 2022	Water Temp (C)	19.9
D9	13 Jul 2022	Wave Height Low (ft)	1
D9	13 Jul 2022	High Tide (ft)	3.96
D9	13 Jul 2022	High Tide Time	1020
D9	13 Jul 2022	Low Tide (ft)	-1.66
D9	13 Jul 2022	Low Tide Time	358
D9	13 Jul 2022	Comments	Water clear; Surfer/Paddle boarder-1; Trash-1; Seagrass; Algae; Kelp; Person/Walker/Jogger-2
D9	20 Jul 2022	Arrive Time	928
D9	20 Jul 2022	Weather	Partly cloudy
D9	20 Jul 2022	Wind Speed (kts)	1.6

Station	Date	Parameter	Value
D9	20 Jul 2022	Wind Dir	S
D9	20 Jul 2022	Animal Life	Seagull-1
D9	20 Jul 2022	Floatables	Foam
D9	20 Jul 2022	Water Color	Green
D9	20 Jul 2022	Current Direction	N
D9	20 Jul 2022	Water Temp (C)	23.4
D9	20 Jul 2022	Wave Height Low (ft)	2
D9	20 Jul 2022	High Tide (ft)	3.53
D9	20 Jul 2022	High Tide Time	304
D9	20 Jul 2022	Low Tide (ft)	1.3
D9	20 Jul 2022	Low Tide Time	914
D9	20 Jul 2022	Comments	Water turbid; Surfer/Paddle boarder-1; Trash-1; Seagrass; Algae; Kelp; Person/Walker/Jogger-1
D9	27 Jul 2022	Arrive Time	937
D9	27 Jul 2022	Weather	Sunny
D9	27 Jul 2022	Wind Speed (kts)	9.3
D9	27 Jul 2022	Wind Dir	W
D9	27 Jul 2022	Animal Life	
D9	27 Jul 2022	Floatables	Foam
D9	27 Jul 2022	Water Color	Green
D9	27 Jul 2022	Current Direction	S
D9	27 Jul 2022	Water Temp (C)	24.6
D9	27 Jul 2022	Wave Height Low (ft)	3
D9	27 Jul 2022	High Tide (ft)	3.74
D9	27 Jul 2022	High Tide Time	1012
D9	27 Jul 2022	Low Tide (ft)	-0.43
D9	27 Jul 2022	Low Tide Time	347
D9	27 Jul 2022	Comments	Water clear; Trash-1; Person/Walker/Jogger-5
D10	06 Jul 2022	Arrive Time	1125
D10	06 Jul 2022	Weather	Overcast
D10	06 Jul 2022	Wind Speed (kts)	7.9
D10	06 Jul 2022	Wind Dir	NW
D10	06 Jul 2022	Animal Life	
D10	06 Jul 2022	Floatables	None
D10	06 Jul 2022	Water Color	Green
D10	06 Jul 2022	Current Direction	S
D10	06 Jul 2022	Water Temp (C)	22.2
D10	06 Jul 2022	Wave Height Low (ft)	2
D10	06 Jul 2022	High Tide (ft)	3.81
D10	06 Jul 2022	High Tide Time	156
D10	06 Jul 2022	Low Tide (ft)	0.91
D10	06 Jul 2022	Low Tide Time	852
D10	06 Jul 2022	Comments	Water clear; Boogie boarder/Swimmer-14; Surfer/Paddle boarder-19; Trash-1; Person/Walker/Jogger-41
D10	13 Jul 2022	Arrive Time	958
D10	13 Jul 2022	Weather	Partly cloudy
D10	13 Jul 2022	Wind Speed (kts)	5.4
D10	13 Jul 2022	Wind Dir	W
D10	13 Jul 2022	Animal Life	
D10	13 Jul 2022	Floatables	None
D10	13 Jul 2022	Water Color	Green
D10	13 Jul 2022	Current Direction	S
D10	13 Jul 2022	Water Temp (C)	20.2
D10	13 Jul 2022	Wave Height Low (ft)	2
D10	13 Jul 2022	High Tide (ft)	3.96
D10	13 Jul 2022	High Tide Time	1020
D10	13 Jul 2022	Low Tide (ft)	-1.66
D10	13 Jul 2022	Low Tide Time	358

Station	Date	Parameter	Value
D10	13 Jul 2022	Comments	Water clear; Surfer/Paddle boarder-34; Trash-1; Seagrass; Kelp; Person/Walker/Jogger-16
D10	20 Jul 2022	Arrive Time	942
D10	20 Jul 2022	Weather	Partly cloudy
D10	20 Jul 2022	Wind Speed (kts)	4.8
D10	20 Jul 2022	Wind Dir	S
D10	20 Jul 2022	Animal Life	Seagull-315
D10	20 Jul 2022	Floatables	Foam
D10	20 Jul 2022	Water Color	Green
D10	20 Jul 2022	Current Direction	N
D10	20 Jul 2022	Water Temp (C)	23.4
D10	20 Jul 2022	Wave Height Low (ft)	4
D10	20 Jul 2022	High Tide (ft)	3.53
D10	20 Jul 2022	High Tide Time	304
D10	20 Jul 2022	Low Tide (ft)	1.3
D10	20 Jul 2022	Low Tide Time	914
D10	20 Jul 2022	Comments	Water turbid; Surfer/Paddle boarder-44; Trash-1; Seagrass; Kelp; Person/Walker/Jogger-15
D10	27 Jul 2022	Arrive Time	1019
D10	27 Jul 2022	Weather	Sunny
D10	27 Jul 2022	Wind Speed (kts)	6.2
D10	27 Jul 2022	Wind Dir	W
D10	27 Jul 2022	Animal Life	Dog-1
D10	27 Jul 2022	Floatables	None
D10	27 Jul 2022	Water Color	Green
D10	27 Jul 2022	Current Direction	S
D10	27 Jul 2022	Water Temp (C)	23.5
D10	27 Jul 2022	Wave Height Low (ft)	2
D10	27 Jul 2022	High Tide (ft)	3.74
D10	27 Jul 2022	High Tide Time	1012
D10	27 Jul 2022	Low Tide (ft)	-0.43
D10	27 Jul 2022	Low Tide Time	347
D10	27 Jul 2022	Comments	Water turbid; Boogie boarder/Swimmer-19; Surfer/Paddle boarder-24; Trash-1; Seagrass; Kelp; Person/Walker/Jogger-58
D11	06 Jul 2022	Arrive Time	1108
D11	06 Jul 2022	Weather	Overcast
D11	06 Jul 2022	Wind Speed (kts)	9.4
D11	06 Jul 2022	Wind Dir	NW
D11	06 Jul 2022	Animal Life	Dog-3
D11	06 Jul 2022	Floatables	None
D11	06 Jul 2022	Water Color	Green
D11	06 Jul 2022	Current Direction	S
D11	06 Jul 2022	Water Temp (C)	23.3
D11	06 Jul 2022	Wave Height Low (ft)	1
D11	06 Jul 2022	High Tide (ft)	3.81
D11	06 Jul 2022	High Tide Time	156
D11	06 Jul 2022	Low Tide (ft)	0.91
D11	06 Jul 2022	Low Tide Time	852
D11	06 Jul 2022	Comments	Water clear; Boogie boarder/Swimmer-10; Surfer/Paddle boarder-9; Trash-1; Seagrass; Algae; Person/Walker/Jogger-23
D11	07 Jul 2022	Arrive Time	1352
D11	07 Jul 2022	Weather	Cloudy
D11	07 Jul 2022	Wind Speed (kts)	6.7
D11	07 Jul 2022	Wind Dir	W
D11	07 Jul 2022	Animal Life	Dog-4

Station	Date	Parameter	Value
D11	07 Jul 2022	Floatables	None
D11	07 Jul 2022	Water Color	Green
D11	07 Jul 2022	Current Direction	S
D11	07 Jul 2022	Water Temp (C)	21.1
D11	07 Jul 2022	Wave Height Low (ft)	2
D11	07 Jul 2022	High Tide (ft)	3.33
D11	07 Jul 2022	High Tide Time	325
D11	07 Jul 2022	Low Tide (ft)	1.28
D11	07 Jul 2022	Low Tide Time	938
D11	07 Jul 2022	Comments	Resample; Water clear; Boogie boarder/Swimmer-2; Surfer/Paddle boarder-5; Trash-1; Kelp; Seagrass; Person/Walker/Jogger-49
D11	13 Jul 2022	Arrive Time	1012
D11	13 Jul 2022	Weather	Partly cloudy
D11	13 Jul 2022	Wind Speed (kts)	5.82
D11	13 Jul 2022	Wind Dir	W
D11	13 Jul 2022	Animal Life	Dog-3
D11	13 Jul 2022	Floatables	Foam
D11	13 Jul 2022	Water Color	Green
D11	13 Jul 2022	Current Direction	S
D11	13 Jul 2022	Water Temp (C)	19.3
D11	13 Jul 2022	Wave Height Low (ft)	2
D11	13 Jul 2022	High Tide (ft)	3.96
D11	13 Jul 2022	High Tide Time	1020
D11	13 Jul 2022	Low Tide (ft)	-1.66
D11	13 Jul 2022	Low Tide Time	358
D11	13 Jul 2022	Comments	Water clear; Surfer/Paddle boarder-12; Trash-1; Kelp; Seagrass; Person/Walker/Jogger-25
D11	20 Jul 2022	Arrive Time	1013
D11	20 Jul 2022	Weather	Partly cloudy
D11	20 Jul 2022	Wind Speed (kts)	7
D11	20 Jul 2022	Wind Dir	SW
D11	20 Jul 2022	Animal Life	Dog-5; Seagull-1
D11	20 Jul 2022	Floatables	Foam
D11	20 Jul 2022	Water Color	Green
D11	20 Jul 2022	Current Direction	N
D11	20 Jul 2022	Water Temp (C)	23.5
D11	20 Jul 2022	Wave Height Low (ft)	3
D11	20 Jul 2022	High Tide (ft)	3.53
D11	20 Jul 2022	High Tide Time	304
D11	20 Jul 2022	Low Tide (ft)	1.3
D11	20 Jul 2022	Low Tide Time	914
D11	20 Jul 2022	Comments	Water turbid; Surfer/Paddle boarder-4; Trash-1; Seagrass; Algae; Kelp; Person/Walker/Jogger-5
D11	27 Jul 2022	Arrive Time	1037
D11	27 Jul 2022	Weather	Sunny
D11	27 Jul 2022	Wind Speed (kts)	8.7
D11	27 Jul 2022	Wind Dir	NW
D11	27 Jul 2022	Animal Life	Dog-3
D11	27 Jul 2022	Floatables	None
D11	27 Jul 2022	Water Color	Green
D11	27 Jul 2022	Current Direction	S
D11	27 Jul 2022	Water Temp (C)	22.5
D11	27 Jul 2022	Wave Height Low (ft)	2
D11	27 Jul 2022	High Tide (ft)	3.74
D11	27 Jul 2022	High Tide Time	1012
D11	27 Jul 2022	Low Tide (ft)	-0.43
D11	27 Jul 2022	Low Tide Time	347

Station	Date	Parameter	Value
D11	27 Jul 2022	Comments	Water clear; Boogie boarder/Swimmer-5; Surfer/Paddle boarder-15; Trash-1; Seagrass; Algae; Kelp; Person/Walker/Jogger-19
D12	06 Jul 2022	Arrive Time	1155
D12	06 Jul 2022	Weather	Overcast
D12	06 Jul 2022	Wind Speed (kts)	5.7
D12	06 Jul 2022	Wind Dir	NW
D12	06 Jul 2022	Animal Life	
D12	06 Jul 2022	Floatables	None
D12	06 Jul 2022	Water Color	Green
D12	06 Jul 2022	Current Direction	S
D12	06 Jul 2022	Water Temp (C)	22.9
D12	06 Jul 2022	Wave Height Low (ft)	1
D12	06 Jul 2022	High Tide (ft)	3.81
D12	06 Jul 2022	High Tide Time	156
D12	06 Jul 2022	Low Tide (ft)	0.91
D12	06 Jul 2022	Low Tide Time	852
D12	06 Jul 2022	Comments	Water clear; Boogie boarder/Swimmer-12; Trash-1; Kelp; Seagrass; Algae; Person/Walker/Jogger-67
D12	13 Jul 2022	Arrive Time	1052
D12	13 Jul 2022	Weather	Partly cloudy
D12	13 Jul 2022	Wind Speed (kts)	5.1
D12	13 Jul 2022	Wind Dir	W
D12	13 Jul 2022	Animal Life	
D12	13 Jul 2022	Floatables	Foam
D12	13 Jul 2022	Water Color	Green
D12	13 Jul 2022	Current Direction	S
D12	13 Jul 2022	Water Temp (C)	21.4
D12	13 Jul 2022	Wave Height Low (ft)	1
D12	13 Jul 2022	High Tide (ft)	3.96
D12	13 Jul 2022	High Tide Time	1020
D12	13 Jul 2022	Low Tide (ft)	-1.66
D12	13 Jul 2022	Low Tide Time	358
D12	13 Jul 2022	Comments	Water turbid; Boogie boarder/Swimmer-20; Trash-1; Seagrass; Kelp; Person/Walker/Jogger-62
D12	20 Jul 2022	Arrive Time	1054
D12	20 Jul 2022	Weather	Sunny
D12	20 Jul 2022	Wind Speed (kts)	5.8
D12	20 Jul 2022	Wind Dir	SW
D12	20 Jul 2022	Animal Life	Bird-1; Seagull-3
D12	20 Jul 2022	Floatables	None
D12	20 Jul 2022	Water Color	Green
D12	20 Jul 2022	Current Direction	N
D12	20 Jul 2022	Water Temp (C)	22.5
D12	20 Jul 2022	Wave Height Low (ft)	2
D12	20 Jul 2022	High Tide (ft)	3.53
D12	20 Jul 2022	High Tide Time	304
D12	20 Jul 2022	Low Tide (ft)	1.3
D12	20 Jul 2022	Low Tide Time	914
D12	20 Jul 2022	Comments	Water clear; Boogie boarder/Swimmer-23; Trash-1; Seagrass; Kelp; Person/Walker/Jogger-52
D12	27 Jul 2022	Arrive Time	1110
D12	27 Jul 2022	Weather	Sunny
D12	27 Jul 2022	Wind Speed (kts)	8.5
D12	27 Jul 2022	Wind Dir	W
D12	27 Jul 2022	Animal Life	
D12	27 Jul 2022	Floatables	Foam

Station	Date	Parameter	Value
D12	27 Jul 2022	Water Color	Green
D12	27 Jul 2022	Current Direction	S
D12	27 Jul 2022	Water Temp (C)	23.5
D12	27 Jul 2022	Wave Height Low (ft)	2
D12	27 Jul 2022	High Tide (ft)	3.74
D12	27 Jul 2022	High Tide Time	1012
D12	27 Jul 2022	Low Tide (ft)	-0.43
D12	27 Jul 2022	Low Tide Time	347
D12	27 Jul 2022	Comments	Water clear; Boogie boarder/Swimmer-22; Trash-1; Seagrass; Kelp; Person/Walker/Jogger-66

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 Jul 2022	4	3	3	4	3	3	3	2
02 Jul 2022	4	3	3	4	3	3	3	2
03 Jul 2022	4	3	3	4	3	3	3	2
04 Jul 2022	4	3	3	4	3	3	3	2
05 Jul 2022	4	3	3	4	3	3	3	2
06 Jul 2022	4	3	3	4	3	3	3	2
07 Jul 2022	5	3	4	4	3	3	2	2
08 Jul 2022	5	3	4	4	3	3	2	2
09 Jul 2022	5	3	4	4	3	3	2	2
10 Jul 2022	5	3	4	4	3	3	2	2
11 Jul 2022	5	4	4	5	4	4	2	2
12 Jul 2022	5	4	4	5	4	4	2	2
13 Jul 2022	5	4	4	5	4	4	2	2
14 Jul 2022	6	3	3	5	3	3	2	2
15 Jul 2022	6	3	3	5	3	3	2	2
16 Jul 2022	6	3	3	5	3	3	2	2
17 Jul 2022	6	3	3	5	3	3	2	2
18 Jul 2022	6	3	3	5	3	3	2	2
19 Jul 2022	6	3	3	5	3	3	2	2
20 Jul 2022	5	3	3	4	3	3	2	2
21 Jul 2022	4	3	3	3	3	3	2	2
22 Jul 2022	4	3	3	3	3	3	2	2
23 Jul 2022	4	3	3	3	3	3	2	2
24 Jul 2022	4	3	3	3	3	3	2	2
25 Jul 2022	3	4	2	4	4	4	2	2
26 Jul 2022	3	4	2	4	4	4	2	2
27 Jul 2022	3	4	2	4	4	4	2	2
28 Jul 2022	4	5	3	5	5	5	2	2
29 Jul 2022	4	5	3	5	5	5	2	2
30 Jul 2022	4	5	3	5	5	5	2	2
31 Jul 2022	4	5	3	5	5	5	2	2

* 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 Jul 2022	2	2	2	2	2	2	2	2
02 Jul 2022	2	2	2	2	2	2	2	2
03 Jul 2022	2	2	2	2	2	2	2	2
04 Jul 2022	2	2	2	2	2	2	2	2
05 Jul 2022	2	2	2	2	2	2	2	2
06 Jul 2022	2	2	2	2	2	2	2	2
07 Jul 2022	2	2	2	2	2	2	2	2
08 Jul 2022	2	2	2	2	2	2	2	2
09 Jul 2022	2	2	2	2	2	2	2	2
10 Jul 2022	2	2	2	2	2	2	2	2
11 Jul 2022	2	2	2	2	2	3	2	2
12 Jul 2022	2	2	2	2	2	3	2	2
13 Jul 2022	2	2	2	2	2	3	2	2
14 Jul 2022	2	2	2	2	2	3	2	2
15 Jul 2022	2	2	2	2	2	3	2	2
16 Jul 2022	2	2	2	2	2	3	2	2
17 Jul 2022	2	2	2	2	2	3	2	2
18 Jul 2022	2	2	2	2	2	3	2	2
19 Jul 2022	2	2	2	2	2	3	2	2
20 Jul 2022	2	2	2	2	2	3	2	2
21 Jul 2022	2	2	2	2	2	3	2	2
22 Jul 2022	2	2	2	2	2	3	2	2
23 Jul 2022	2	2	2	2	2	3	2	2
24 Jul 2022	2	2	2	2	2	3	2	2
25 Jul 2022	2	2	2	3	2	3	2	2
26 Jul 2022	2	2	2	3	2	3	2	2
27 Jul 2022	2	2	2	3	2	3	2	2
28 Jul 2022	2	2	2	3	2	3	2	2
29 Jul 2022	2	2	2	3	2	3	2	2
30 Jul 2022	2	2	2	3	2	3	2	2
31 Jul 2022	2	2	2	3	2	3	2	2

* Geometric mean calculated using n<5

Table 3.3

Summary of compliance with the Ocean Plan's 30-day Geometric Mean standard for *Enterococcus* at the 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 Jul 2022	2	2	2	2	2	2	2	2
02 Jul 2022	2	2	2	2	2	2	2	2
03 Jul 2022	2	2	2	2	2	2	2	2
04 Jul 2022	2	2	2	2	2	2	2	2
05 Jul 2022	2	2	2	2	2	2	2	2
06 Jul 2022	2	2	2	2	2	2	2	2
07 Jul 2022	2	2	2	2	2	2	2	2
08 Jul 2022	2	2	2	2	2	2	2	2
09 Jul 2022	2	2	2	2	2	2	2	2
10 Jul 2022	2	2	2	2	2	2	2	2
11 Jul 2022	2	2	2	2	2	2	2	2
12 Jul 2022	2	2	2	2	2	2	2	2
13 Jul 2022	2	2	2	2	2	2	2	2
14 Jul 2022	2	2	2	2	2	2	2	2
15 Jul 2022	2	2	2	2	2	2	2	2
16 Jul 2022	2	2	2	2	2	2	2	2
17 Jul 2022	2	2	2	2	2	2	2	2
18 Jul 2022	2	2	2	2	2	2	2	2
19 Jul 2022	2	2	2	2	2	2	2	2
20 Jul 2022	2	2	2	2	2	2	2	2
21 Jul 2022	2	2	2	2	2	2	2	2
22 Jul 2022	2	2	2	2	2	2	2	2
23 Jul 2022	2	2	2	2	2	2	2	2
24 Jul 2022	2	2	2	2	2	2	2	2
25 Jul 2022	2	2	2	2	2	2	2	2
26 Jul 2022	2	2	2	2	2	2	2	2
27 Jul 2022	2	2	2	2	2	2	2	2
28 Jul 2022	2	2	2	2	2	2	2	2
29 Jul 2022	2	2	2	2	2	2	2	2
30 Jul 2022	2	2	2	2	2	2	2	2
31 Jul 2022	2	2	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 Jul 2022	IC							
11 Jul 2022	IC							
20 Jul 2022	IC							
25 Jul 2022	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 Jul 2022	IC							
11 Jul 2022	IC							
20 Jul 2022	IC							
25 Jul 2022	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 Jul 2022	IC							
11 Jul 2022	IC							
20 Jul 2022	IC							
25 Jul 2022	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 Jul 2022	IC							
11 Jul 2022	IC							
20 Jul 2022	IC							
25 Jul 2022	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 Jul 2022	819	1	<2	<2	<2	1.00	20.5	74.58	9.6	33.63	8.3
A1	05 Jul 2022	819	12	2e	<2	<2	1.00	12.6	86.32	6.0	33.51	8.0
A1	05 Jul 2022	819	18	22e	2e	<2	0.09	11.7	89.63	5.1	33.55	7.9
A1	11 Jul 2022	818	1	<2	<2	<2	1.00	15.0	77.43	7.7	33.56	8.0
A1	11 Jul 2022	818	12	2e	<2	<2	1.00	11.9	86.78	5.3	33.56	7.9
A1	11 Jul 2022	818	18	12e	2e	6e	0.17	11.7	89.00	5.0	33.57	7.8
A1	20 Jul 2022	803	1	<2	<2	<2	1.00	18.6	75.78	8.2	33.53	8.1
A1	20 Jul 2022	803	12	2e	<2	<2	1.00	15.4	78.45	7.7	33.50	8.1
A1	20 Jul 2022	803	18	<2	<2	<2	1.00	14.1	82.56	6.7	33.51	8.0
A1	25 Jul 2022	816	1	<2	<2	<2	1.00	20.3	73.34	9.0	33.56	8.2
A1	25 Jul 2022	816	12	<2	<2	<2	1.00	16.7	76.98	7.2	33.49	8.1
A1	25 Jul 2022	816	18	<2	<2	<2	1.00	13.2	88.06	5.1	33.50	7.9
A6	05 Jul 2022	853	1	<2	<2	<2	1.00	20.5	76.95	9.4	33.63	8.2
A6	05 Jul 2022	853	12	2e	<2	<2	1.00	13.3	80.41	5.8	33.49	8.0
A6	05 Jul 2022	853	18	4e	10e	<2	2.50	11.9	89.82	5.2	33.54	7.9
A6	11 Jul 2022	900	1	<20	<2	<2	0.10	16.6	75.60	9.3	33.57	8.2
A6	11 Jul 2022	900	12	<2	<2	<2	1.00	12.1	86.62	5.8	33.54	7.9
A6	11 Jul 2022	900	18	8e	2e	<2	0.25	11.5	90.64	5.1	33.57	7.9
A6	20 Jul 2022	824	1	<2	<2	<2	1.00	19.7	80.10	8.1	33.55	8.2
A6	20 Jul 2022	824	12	<2	<2	<2	1.00	15.7	82.85	7.4	33.51	8.1
A6	20 Jul 2022	824	18	<2	<2	<2	1.00	14.2	83.60	6.8	33.46	8.0
A6	25 Jul 2022	844	1	<20	<2	<2	0.10	20.9	74.78	9.0	33.59	8.2
A6	25 Jul 2022	844	12	<2	<2	<2	1.00	14.5	81.77	5.7	33.48	7.9
A6	25 Jul 2022	844	18	<20	2e	<2	0.10	13.2	86.89	4.5	33.51	7.8
A7	05 Jul 2022	839	1	<2	<2	<2	1.00	20.4	72.51	9.6	33.62	8.3
A7	05 Jul 2022	839	12	<2	<2	<2	1.00	13.1	86.91	5.9	33.50	8.0
A7	05 Jul 2022	839	18	6e	2e	<2	0.33	12.1	89.38	5.3	33.53	7.9
A7	11 Jul 2022	844	1	<2	<2	<2	1.00	16.7	78.61	8.2	33.56	8.1
A7	11 Jul 2022	844	12	<2	<2	<2	1.00	12.2	84.51	5.8	33.54	7.9
A7	11 Jul 2022	844	18	6e	<2	<2	0.33	11.8	89.10	5.2	33.56	7.9
A7	20 Jul 2022	812	1	<2	<2	<2	1.00	18.5	81.87	8.8	33.52	8.2
A7	20 Jul 2022	812	12	<2	<2	<2	1.00	15.2	83.59	8.6	33.47	8.1
A7	20 Jul 2022	812	18	<2	<2	<2	1.00	14.4	84.39	7.6	33.47	8.1
A7	25 Jul 2022	829	1	<2	<2	<2	1.00	20.8	77.50	8.8	33.58	8.2
A7	25 Jul 2022	829	12	<2	10e	2e	5.00	15.2	79.57	7.4	33.47	8.0
A7	25 Jul 2022	829	18	<2	<2	<2	1.00	12.6	87.91	4.5	33.51	7.8
C4	05 Jul 2022	1009	1	2e	<2	<2	1.00	20.7	73.37	9.6	33.63	8.3
C4	05 Jul 2022	1009	3	<2	<2	<2	1.00	20.3	72.97	9.2	33.60	8.3
C4	05 Jul 2022	1009	9	2e	<2	<2	1.00	14.5	81.16	5.5	33.48	8.1

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
C4	11 Jul 2022	1005	1	<20	<2	<2	0.10	16.5	77.72	8.4	33.57	8.2
C4	11 Jul 2022	1005	3	<20	<2	<2	0.10	15.2	75.94	8.1	33.58	8.2
C4	11 Jul 2022	1005	9	<2	<2	<2	1.00	13.2	78.71	5.8	33.54	8.0
C4	20 Jul 2022	929	1	<2	<2	<2	1.00	18.9	76.90	8.3	33.51	8.2
C4	20 Jul 2022	929	3	<2	<2	<2	1.00	18.6	73.96	8.3	33.49	8.2
C4	20 Jul 2022	929	9	<2	<2	<2	1.00	15.5	69.84	6.2	33.48	8.0
C4	25 Jul 2022	956	1	<2	<2	<2	1.00	20.6	79.74	9.0	33.58	8.3
C4	25 Jul 2022	956	3	<20	<20	<2	1.00	20.4	79.11	8.7	33.56	8.2
C4	25 Jul 2022	956	9	<2	2e	<2	1.00	16.4	83.74	5.7	33.49	8.0
C5	05 Jul 2022	959	1	<2	<2	<2	1.00	20.6	76.69	9.4	33.64	8.3
C5	05 Jul 2022	959	3	<2	<2	<2	1.00	20.1	74.75	9.3	33.63	8.3
C5	05 Jul 2022	959	9	<2	<2	<2	1.00	13.8	80.01	6.7	33.48	8.1
C5	11 Jul 2022	953	1	<20	<2	<2	0.10	16.9	74.56	8.3	33.57	8.1
C5	11 Jul 2022	953	3	<20	<2	<2	0.10	16.1	69.57	7.6	33.56	8.1
C5	11 Jul 2022	953	9	2e	<2	<2	1.00	12.6	85.06	5.7	33.53	7.9
C5	20 Jul 2022	919	1	<2	<2	<2	1.00	19.7	81.16	7.6	33.55	8.1
C5	20 Jul 2022	919	3	<2	<2	<2	1.00	18.8	79.64	7.6	33.51	8.1
C5	20 Jul 2022	919	9	<2	<2	<2	1.00	14.5	60.91	5.9	33.49	8.0
C5	25 Jul 2022	944	1	<2	<2	<2	1.00	21.0	79.84	8.6	33.59	8.2
C5	25 Jul 2022	944	3	<20	6e	<2	0.30	20.8	77.43	8.4	33.58	8.2
C5	25 Jul 2022	944	9	<2	<2	<2	1.00	15.8	87.04	6.1	33.48	8.0
C6	05 Jul 2022	948	1	<2	<2	<2	1.00	20.7	75.84	10.1	33.64	8.3
C6	05 Jul 2022	948	3	<2	<2	<2	1.00	20.3	75.84	9.2	33.62	8.3
C6	05 Jul 2022	948	9	<2	<2	<2	1.00	13.6	84.15	6.2	33.49	8.0
C6	11 Jul 2022	942	1	<20	<2	<2	0.10	17.0	74.30	8.7	33.56	8.2
C6	11 Jul 2022	942	3	<20	<20	<2	1.00	15.7	73.74	8.0	33.53	8.2
C6	11 Jul 2022	942	9	<2	<2	<2	1.00	12.6	84.77	5.4	33.53	7.9
C6	20 Jul 2022	907	1	<2	<2	<2	1.00	19.7	78.53	7.9	33.55	8.1
C6	20 Jul 2022	907	3	<2	<2	<2	1.00	19.6	78.29	7.6	33.54	8.1
C6	20 Jul 2022	907	9	<2	<2	<2	1.00	14.4	76.33	6.4	33.49	8.0
C6	25 Jul 2022	932	1	<20	<2	<2	0.10	21.1	71.50	8.8	33.59	8.2
C6	25 Jul 2022	932	3	<20	<2	<2	0.10	21.1	74.35	8.6	33.59	8.2
C6	25 Jul 2022	932	9	<2	<2	<2	1.00	16.1	87.59	5.8	33.49	8.0
C7	05 Jul 2022	908	1	<2	<2	<2	1.00	20.9	69.80	9.6	33.65	8.3
C7	05 Jul 2022	908	12	4e	<2	<2	0.50	12.8	79.77	6.4	33.49	8.1
C7	05 Jul 2022	908	18	<2	<2	<2	1.00	12.1	88.05	5.3	33.52	7.9
C7	11 Jul 2022	910	1	<2	<2	<2	1.00	15.4	72.66	8.5	33.52	8.1
C7	11 Jul 2022	910	12	<2	<2	<2	1.00	11.7	89.99	5.0	33.56	7.8
C7	11 Jul 2022	910	18	2e	<2	<2	1.00	11.7	89.96	4.9	33.57	7.8
C7	20 Jul 2022	838	1	<2	<2	<2	1.00	19.6	77.82	8.5	33.55	8.2
C7	20 Jul 2022	838	12	<2	<2	<2	1.00	14.4	79.14	9.1	33.46	8.2
C7	20 Jul 2022	838	18	<2	2e	<2	1.00	12.7	85.37	6.5	33.50	8.0
C7	25 Jul 2022	859	1	<2	<2	2e	1.00	20.7	61.30	8.9	33.59	8.2
C7	25 Jul 2022	859	12	<2	<2	<2	1.00	15.7	77.93	6.7	33.49	8.0
C7	25 Jul 2022	859	18	2e	6e	<2	3.00	13.9	83.58	5.0	33.49	7.9

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
C8	05 Jul 2022	927	1	<2	<2	<2	1.00	20.9	72.93	9.1	33.65	8.3
C8	05 Jul 2022	927	12	<2	<2	<2	1.00	13.1	79.11	7.5	33.47	8.2
C8	05 Jul 2022	927	18	<2	2e	<2	1.00	12.4	87.55	5.8	33.52	8.0
C8	11 Jul 2022	922	1	<2	<2	<2	1.00	15.3	73.51	7.0	33.37	8.2
C8	11 Jul 2022	922	12	<2	<2	<2	1.00	12.1	82.05	5.3	33.58	7.9
C8	11 Jul 2022	922	18	<2	<2	<2	1.00	11.8	88.59	4.9	33.57	7.8
C8	20 Jul 2022	850	1	2e	<2	<2	1.00	20.3	76.25	8.1	33.55	8.2
C8	20 Jul 2022	850	12	<2	<2	<2	1.00	14.3	84.44	9.6	33.45	8.2
C8	20 Jul 2022	850	18	<2	<2	<2	1.00	12.8	81.71	6.0	33.52	7.9
C8	25 Jul 2022	912	1	<2	<2	<2	1.00	21.6	76.18	8.6	33.62	8.2
C8	25 Jul 2022	912	12	<2	<2	<2	1.00	16.6	68.55	8.3	33.49	8.2
C8	25 Jul 2022	912	18	4e	<2	<2	0.50	13.8	82.77	5.4	33.49	7.9

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 Jul 2022	Depth (m)	19
A1	05 Jul 2022	Arrive Time	819
A1	05 Jul 2022	Depart Time	839
A1	05 Jul 2022	Air Temp (C)	18.9
A1	05 Jul 2022	Weather	Partly Cloudy
A1	05 Jul 2022	Visibility (mi)	9
A1	05 Jul 2022	Wind Speed (kts)	2
A1	05 Jul 2022	Wind Dir	E
A1	05 Jul 2022	Water Color	Greenish-Blue
A1	05 Jul 2022	Wave Ht Low (ft)	3.3
A1	05 Jul 2022	Wave Period (sec)	6
A1	05 Jul 2022	Sea State	Light Chop
A1	05 Jul 2022	High Tide (ft)	4.37
A1	05 Jul 2022	High Tide Time	754
A1	05 Jul 2022	Low Tide (ft)	0.67
A1	05 Jul 2022	Low Tide Time	1506
A1	05 Jul 2022	Comments	none
A1	11 Jul 2022	Depth (m)	18
A1	11 Jul 2022	Arrive Time	818
A1	11 Jul 2022	Depart Time	839
A1	11 Jul 2022	Air Temp (C)	17.1
A1	11 Jul 2022	Weather	Overcast
A1	11 Jul 2022	Visibility (mi)	5
A1	11 Jul 2022	Wind Speed (kts)	9.9
A1	11 Jul 2022	Wind Dir	W
A1	11 Jul 2022	Water Color	Green
A1	11 Jul 2022	Wave Ht Low (ft)	2
A1	11 Jul 2022	Wave Period (sec)	6
A1	11 Jul 2022	Sea State	Calm
A1	11 Jul 2022	High Tide (ft)	6.82
A1	11 Jul 2022	High Tide Time	242
A1	11 Jul 2022	Low Tide (ft)	-0.82
A1	11 Jul 2022	Low Tide Time	924
A1	11 Jul 2022	Comments	none
A1	20 Jul 2022	Depth (m)	19
A1	20 Jul 2022	Arrive Time	803
A1	20 Jul 2022	Depart Time	808
A1	20 Jul 2022	Air Temp (C)	19.7
A1	20 Jul 2022	Weather	Overcast
A1	20 Jul 2022	Visibility (mi)	8
A1	20 Jul 2022	Wind Speed (kts)	4.2
A1	20 Jul 2022	Wind Dir	E
A1	20 Jul 2022	Water Color	Green
A1	20 Jul 2022	Wave Ht Low (ft)	4
A1	20 Jul 2022	Wave Period (sec)	15
A1	20 Jul 2022	Sea State	Regular Swell
A1	20 Jul 2022	High Tide (ft)	4.95
A1	20 Jul 2022	High Tide Time	2312
A1	20 Jul 2022	Low Tide (ft)	1.44
A1	20 Jul 2022	Low Tide Time	1606
A1	20 Jul 2022	Comments	Kelp; Kelp Debris
A1	25 Jul 2022	Depth (m)	18
A1	25 Jul 2022	Arrive Time	816

Station	Date	Parameter	Value
A1	25 Jul 2022	Depart Time	824
A1	25 Jul 2022	Air Temp (C)	19.4
A1	25 Jul 2022	Weather	Overcast
A1	25 Jul 2022	Visibility (mi)	10
A1	25 Jul 2022	Wind Speed (kts)	7.4
A1	25 Jul 2022	Wind Dir	NW
A1	25 Jul 2022	Water Color	Blueish-Green
A1	25 Jul 2022	Wave Ht Low (ft)	3.3
A1	25 Jul 2022	Wave Period (sec)	6
A1	25 Jul 2022	Sea State	Regular Swell
A1	25 Jul 2022	High Tide (ft)	5.78
A1	25 Jul 2022	High Tide Time	248
A1	25 Jul 2022	Low Tide (ft)	-0.09
A1	25 Jul 2022	Low Tide Time	942
A1	25 Jul 2022	Comments	Fishing boat; Kelp Debris
A6	05 Jul 2022	Depth (m)	1
A6	05 Jul 2022	Arrive Time	853
A6	05 Jul 2022	Depart Time	855
A6	05 Jul 2022	Air Temp (C)	18.9
A6	05 Jul 2022	Weather	Partly Cloudy
A6	05 Jul 2022	Visibility (mi)	9
A6	05 Jul 2022	Wind Speed (kts)	6.3
A6	05 Jul 2022	Wind Dir	SW
A6	05 Jul 2022	Water Color	Greenish-Blue
A6	05 Jul 2022	Wave Ht Low (ft)	3.3
A6	05 Jul 2022	Wave Period (sec)	6
A6	05 Jul 2022	Sea State	Light Chop
A6	05 Jul 2022	High Tide (ft)	4.37
A6	05 Jul 2022	High Tide Time	754
A6	05 Jul 2022	Low Tide (ft)	0.67
A6	05 Jul 2022	Low Tide Time	1506
A6	05 Jul 2022	Comments	Positioned to make depth
A6	11 Jul 2022	Depth (m)	19
A6	11 Jul 2022	Arrive Time	900
A6	11 Jul 2022	Depart Time	903
A6	11 Jul 2022	Air Temp (C)	17.7
A6	11 Jul 2022	Weather	Overcast
A6	11 Jul 2022	Visibility (mi)	5
A6	11 Jul 2022	Wind Speed (kts)	0
A6	11 Jul 2022	Wind Dir	E
A6	11 Jul 2022	Water Color	Green
A6	11 Jul 2022	Wave Ht Low (ft)	2
A6	11 Jul 2022	Wave Period (sec)	6
A6	11 Jul 2022	Sea State	Calm
A6	11 Jul 2022	High Tide (ft)	6.82
A6	11 Jul 2022	High Tide Time	242
A6	11 Jul 2022	Low Tide (ft)	-0.82
A6	11 Jul 2022	Low Tide Time	924
A6	11 Jul 2022	Comments	none
A6	20 Jul 2022	Depth (m)	18
A6	20 Jul 2022	Arrive Time	824
A6	20 Jul 2022	Depart Time	828
A6	20 Jul 2022	Air Temp (C)	19.9
A6	20 Jul 2022	Weather	Overcast
A6	20 Jul 2022	Visibility (mi)	8
A6	20 Jul 2022	Wind Speed (kts)	3.9
A6	20 Jul 2022	Wind Dir	SE
A6	20 Jul 2022	Water Color	Green

Station	Date	Parameter	Value
A6	20 Jul 2022	Wave Ht Low (ft)	4
A6	20 Jul 2022	Wave Period (sec)	15
A6	20 Jul 2022	Sea State	Regular Swell
A6	20 Jul 2022	High Tide (ft)	4.95
A6	20 Jul 2022	High Tide Time	2312
A6	20 Jul 2022	Low Tide (ft)	1.44
A6	20 Jul 2022	Low Tide Time	1606
A6	20 Jul 2022	Comments	none
A6	25 Jul 2022	Depth (m)	19
A6	25 Jul 2022	Arrive Time	844
A6	25 Jul 2022	Depart Time	847
A6	25 Jul 2022	Air Temp (C)	19.4
A6	25 Jul 2022	Weather	Overcast
A6	25 Jul 2022	Visibility (mi)	10
A6	25 Jul 2022	Wind Speed (kts)	7.4
A6	25 Jul 2022	Wind Dir	NW
A6	25 Jul 2022	Water Color	Blueish-Green
A6	25 Jul 2022	Wave Ht Low (ft)	3.3
A6	25 Jul 2022	Wave Period (sec)	6
A6	25 Jul 2022	Sea State	Regular Swell
A6	25 Jul 2022	High Tide (ft)	5.78
A6	25 Jul 2022	High Tide Time	248
A6	25 Jul 2022	Low Tide (ft)	-0.09
A6	25 Jul 2022	Low Tide Time	942
A6	25 Jul 2022	Comments	Kelp; Kelp Debris
A7	05 Jul 2022	Depth (m)	19
A7	05 Jul 2022	Arrive Time	839
A7	05 Jul 2022	Depart Time	844
A7	05 Jul 2022	Air Temp (C)	18.8
A7	05 Jul 2022	Weather	Partly Cloudy
A7	05 Jul 2022	Visibility (mi)	9
A7	05 Jul 2022	Wind Speed (kts)	7.9
A7	05 Jul 2022	Wind Dir	SW
A7	05 Jul 2022	Water Color	Greenish-Blue
A7	05 Jul 2022	Wave Ht Low (ft)	3.3
A7	05 Jul 2022	Wave Period (sec)	6
A7	05 Jul 2022	Sea State	Light Chop
A7	05 Jul 2022	High Tide (ft)	4.37
A7	05 Jul 2022	High Tide Time	754
A7	05 Jul 2022	Low Tide (ft)	0.67
A7	05 Jul 2022	Low Tide Time	1506
A7	05 Jul 2022	Comments	none
A7	11 Jul 2022	Depth (m)	20
A7	11 Jul 2022	Arrive Time	844
A7	11 Jul 2022	Depart Time	856
A7	11 Jul 2022	Air Temp (C)	17.6
A7	11 Jul 2022	Weather	Overcast
A7	11 Jul 2022	Visibility (mi)	5
A7	11 Jul 2022	Wind Speed (kts)	2.4
A7	11 Jul 2022	Wind Dir	E
A7	11 Jul 2022	Water Color	Green
A7	11 Jul 2022	Wave Ht Low (ft)	2
A7	11 Jul 2022	Wave Period (sec)	6
A7	11 Jul 2022	Sea State	Calm
A7	11 Jul 2022	High Tide (ft)	6.82
A7	11 Jul 2022	High Tide Time	242
A7	11 Jul 2022	Low Tide (ft)	-0.82
A7	11 Jul 2022	Low Tide Time	924

Station	Date	Parameter	Value
A7	11 Jul 2022	Comments	none
A7	20 Jul 2022	Depth (m)	18
A7	20 Jul 2022	Arrive Time	812
A7	20 Jul 2022	Depart Time	816
A7	20 Jul 2022	Air Temp (C)	19.7
A7	20 Jul 2022	Weather	Overcast
A7	20 Jul 2022	Visibility (mi)	8
A7	20 Jul 2022	Wind Speed (kts)	0.4
A7	20 Jul 2022	Wind Dir	NW
A7	20 Jul 2022	Water Color	Green
A7	20 Jul 2022	Wave Ht Low (ft)	4
A7	20 Jul 2022	Wave Period (sec)	15
A7	20 Jul 2022	Sea State	Regular Swell
A7	20 Jul 2022	High Tide (ft)	4.95
A7	20 Jul 2022	High Tide Time	2312
A7	20 Jul 2022	Low Tide (ft)	1.44
A7	20 Jul 2022	Low Tide Time	1606
A7	20 Jul 2022	Comments	Kelp
A7	25 Jul 2022	Depth (m)	19
A7	25 Jul 2022	Arrive Time	829
A7	25 Jul 2022	Depart Time	834
A7	25 Jul 2022	Air Temp (C)	19.6
A7	25 Jul 2022	Weather	Overcast
A7	25 Jul 2022	Visibility (mi)	10
A7	25 Jul 2022	Wind Speed (kts)	6.7
A7	25 Jul 2022	Wind Dir	NW
A7	25 Jul 2022	Water Color	Blueish-Green
A7	25 Jul 2022	Wave Ht Low (ft)	3.3
A7	25 Jul 2022	Wave Period (sec)	6
A7	25 Jul 2022	Sea State	Regular Swell
A7	25 Jul 2022	High Tide (ft)	5.78
A7	25 Jul 2022	High Tide Time	248
A7	25 Jul 2022	Low Tide (ft)	-0.09
A7	25 Jul 2022	Low Tide Time	942
A7	25 Jul 2022	Comments	none
C4	05 Jul 2022	Depth (m)	11
C4	05 Jul 2022	Arrive Time	1009
C4	05 Jul 2022	Depart Time	1057
C4	05 Jul 2022	Air Temp (C)	18.9
C4	05 Jul 2022	Weather	Partly Cloudy
C4	05 Jul 2022	Visibility (mi)	9
C4	05 Jul 2022	Wind Speed (kts)	1.7
C4	05 Jul 2022	Wind Dir	S
C4	05 Jul 2022	Water Color	Blueish-Green
C4	05 Jul 2022	Wave Ht Low (ft)	3.3
C4	05 Jul 2022	Wave Period (sec)	6
C4	05 Jul 2022	Sea State	Light Chop
C4	05 Jul 2022	High Tide (ft)	4.37
C4	05 Jul 2022	High Tide Time	754
C4	05 Jul 2022	Low Tide (ft)	0.67
C4	05 Jul 2022	Low Tide Time	1506
C4	05 Jul 2022	Comments	none
C4	11 Jul 2022	Depth (m)	12
C4	11 Jul 2022	Arrive Time	1005
C4	11 Jul 2022	Depart Time	1016
C4	11 Jul 2022	Air Temp (C)	17.7
C4	11 Jul 2022	Weather	Overcast

Station	Date	Parameter	Value
C4	11 Jul 2022	Visibility (mi)	5
C4	11 Jul 2022	Wind Speed (kts)	2.1
C4	11 Jul 2022	Wind Dir	NW
C4	11 Jul 2022	Water Color	Green
C4	11 Jul 2022	Wave Ht Low (ft)	3
C4	11 Jul 2022	Wave Period (sec)	6
C4	11 Jul 2022	Sea State	Calm
C4	11 Jul 2022	High Tide (ft)	6.82
C4	11 Jul 2022	High Tide Time	242
C4	11 Jul 2022	Low Tide (ft)	-0.82
C4	11 Jul 2022	Low Tide Time	924
C4	11 Jul 2022	Comments	none
C4	20 Jul 2022	Depth (m)	11
C4	20 Jul 2022	Arrive Time	929
C4	20 Jul 2022	Depart Time	932
C4	20 Jul 2022	Air Temp (C)	19.6
C4	20 Jul 2022	Weather	Overcast
C4	20 Jul 2022	Visibility (mi)	8
C4	20 Jul 2022	Wind Speed (kts)	1.6
C4	20 Jul 2022	Wind Dir	SE
C4	20 Jul 2022	Water Color	Green
C4	20 Jul 2022	Wave Ht Low (ft)	4
C4	20 Jul 2022	Wave Period (sec)	15
C4	20 Jul 2022	Sea State	Regular Swell
C4	20 Jul 2022	High Tide (ft)	4.95
C4	20 Jul 2022	High Tide Time	2312
C4	20 Jul 2022	Low Tide (ft)	1.44
C4	20 Jul 2022	Low Tide Time	1606
C4	20 Jul 2022	Comments	Kelp
C4	25 Jul 2022	Depth (m)	11
C4	25 Jul 2022	Arrive Time	956
C4	25 Jul 2022	Depart Time	959
C4	25 Jul 2022	Air Temp (C)	19.3
C4	25 Jul 2022	Weather	Overcast
C4	25 Jul 2022	Visibility (mi)	10
C4	25 Jul 2022	Wind Speed (kts)	8.5
C4	25 Jul 2022	Wind Dir	NW
C4	25 Jul 2022	Water Color	Brownish-Green
C4	25 Jul 2022	Wave Ht Low (ft)	3.3
C4	25 Jul 2022	Wave Period (sec)	6
C4	25 Jul 2022	Sea State	Regular Swell
C4	25 Jul 2022	High Tide (ft)	5.78
C4	25 Jul 2022	High Tide Time	248
C4	25 Jul 2022	Low Tide (ft)	-0.09
C4	25 Jul 2022	Low Tide Time	942
C4	25 Jul 2022	Comments	Kelp; Kelp Debris
C5	05 Jul 2022	Depth (m)	11
C5	05 Jul 2022	Arrive Time	959
C5	05 Jul 2022	Depart Time	1002
C5	05 Jul 2022	Air Temp (C)	18.9
C5	05 Jul 2022	Weather	Partly Cloudy
C5	05 Jul 2022	Visibility (mi)	9
C5	05 Jul 2022	Wind Speed (kts)	3.9
C5	05 Jul 2022	Wind Dir	SW
C5	05 Jul 2022	Water Color	Greenish-Blue
C5	05 Jul 2022	Wave Ht Low (ft)	3.3
C5	05 Jul 2022	Wave Period (sec)	6
C5	05 Jul 2022	Sea State	Light Chop

Station	Date	Parameter	Value
C5	05 Jul 2022	High Tide (ft)	4.37
C5	05 Jul 2022	High Tide Time	754
C5	05 Jul 2022	Low Tide (ft)	0.67
C5	05 Jul 2022	Low Tide Time	1506
C5	05 Jul 2022	Comments	none
C5	11 Jul 2022	Depth (m)	11
C5	11 Jul 2022	Arrive Time	953
C5	11 Jul 2022	Depart Time	959
C5	11 Jul 2022	Air Temp (C)	17.7
C5	11 Jul 2022	Weather	Overcast
C5	11 Jul 2022	Visibility (mi)	5
C5	11 Jul 2022	Wind Speed (kts)	0
C5	11 Jul 2022	Wind Dir	S
C5	11 Jul 2022	Water Color	Green
C5	11 Jul 2022	Wave Ht Low (ft)	3
C5	11 Jul 2022	Wave Period (sec)	6
C5	11 Jul 2022	Sea State	Calm
C5	11 Jul 2022	High Tide (ft)	6.82
C5	11 Jul 2022	High Tide Time	242
C5	11 Jul 2022	Low Tide (ft)	-0.82
C5	11 Jul 2022	Low Tide Time	924
C5	11 Jul 2022	Comments	none
C5	20 Jul 2022	Depth (m)	12
C5	20 Jul 2022	Arrive Time	919
C5	20 Jul 2022	Depart Time	923
C5	20 Jul 2022	Air Temp (C)	19.7
C5	20 Jul 2022	Weather	Overcast
C5	20 Jul 2022	Visibility (mi)	8
C5	20 Jul 2022	Wind Speed (kts)	4.3
C5	20 Jul 2022	Wind Dir	SE
C5	20 Jul 2022	Water Color	Green
C5	20 Jul 2022	Wave Ht Low (ft)	4
C5	20 Jul 2022	Wave Period (sec)	15
C5	20 Jul 2022	Sea State	Regular Swell
C5	20 Jul 2022	High Tide (ft)	4.95
C5	20 Jul 2022	High Tide Time	2312
C5	20 Jul 2022	Low Tide (ft)	1.44
C5	20 Jul 2022	Low Tide Time	1606
C5	20 Jul 2022	Comments	Kelp
C5	25 Jul 2022	Depth (m)	10
C5	25 Jul 2022	Arrive Time	944
C5	25 Jul 2022	Depart Time	949
C5	25 Jul 2022	Air Temp (C)	19.4
C5	25 Jul 2022	Weather	Overcast
C5	25 Jul 2022	Visibility (mi)	10
C5	25 Jul 2022	Wind Speed (kts)	6.6
C5	25 Jul 2022	Wind Dir	NW
C5	25 Jul 2022	Water Color	Brownish-Green
C5	25 Jul 2022	Wave Ht Low (ft)	3.3
C5	25 Jul 2022	Wave Period (sec)	6
C5	25 Jul 2022	Sea State	Regular Swell
C5	25 Jul 2022	High Tide (ft)	5.78
C5	25 Jul 2022	High Tide Time	248
C5	25 Jul 2022	Low Tide (ft)	-0.09
C5	25 Jul 2022	Low Tide Time	942
C5	25 Jul 2022	Comments	none
C6	05 Jul 2022	Depth (m)	10

Station	Date	Parameter	Value
C6	05 Jul 2022	Arrive Time	948
C6	05 Jul 2022	Depart Time	951
C6	05 Jul 2022	Air Temp (C)	18.8
C6	05 Jul 2022	Weather	Partly Cloudy
C6	05 Jul 2022	Visibility (mi)	9
C6	05 Jul 2022	Wind Speed (kts)	4.3
C6	05 Jul 2022	Wind Dir	W
C6	05 Jul 2022	Water Color	Greenish-Blue
C6	05 Jul 2022	Wave Ht Low (ft)	3.3
C6	05 Jul 2022	Wave Period (sec)	6
C6	05 Jul 2022	Sea State	Light Chop
C6	05 Jul 2022	High Tide (ft)	4.37
C6	05 Jul 2022	High Tide Time	754
C6	05 Jul 2022	Low Tide (ft)	0.67
C6	05 Jul 2022	Low Tide Time	1506
C6	05 Jul 2022	Comments	none
C6	11 Jul 2022	Depth (m)	10
C6	11 Jul 2022	Arrive Time	942
C6	11 Jul 2022	Depart Time	948
C6	11 Jul 2022	Air Temp (C)	17.6
C6	11 Jul 2022	Weather	Overcast
C6	11 Jul 2022	Visibility (mi)	5
C6	11 Jul 2022	Wind Speed (kts)	0
C6	11 Jul 2022	Wind Dir	S
C6	11 Jul 2022	Water Color	Green
C6	11 Jul 2022	Wave Ht Low (ft)	3
C6	11 Jul 2022	Wave Period (sec)	6
C6	11 Jul 2022	Sea State	Calm
C6	11 Jul 2022	High Tide (ft)	6.82
C6	11 Jul 2022	High Tide Time	242
C6	11 Jul 2022	Low Tide (ft)	-0.82
C6	11 Jul 2022	Low Tide Time	924
C6	11 Jul 2022	Comments	none
C6	20 Jul 2022	Depth (m)	9
C6	20 Jul 2022	Arrive Time	907
C6	20 Jul 2022	Depart Time	912
C6	20 Jul 2022	Air Temp (C)	19.8
C6	20 Jul 2022	Weather	Overcast
C6	20 Jul 2022	Visibility (mi)	8
C6	20 Jul 2022	Wind Speed (kts)	8.7
C6	20 Jul 2022	Wind Dir	SE
C6	20 Jul 2022	Water Color	Green
C6	20 Jul 2022	Wave Ht Low (ft)	4
C6	20 Jul 2022	Wave Period (sec)	15
C6	20 Jul 2022	Sea State	Regular Swell
C6	20 Jul 2022	High Tide (ft)	4.95
C6	20 Jul 2022	High Tide Time	2312
C6	20 Jul 2022	Low Tide (ft)	1.44
C6	20 Jul 2022	Low Tide Time	1606
C6	20 Jul 2022	Comments	Kelp
C6	25 Jul 2022	Depth (m)	9
C6	25 Jul 2022	Arrive Time	932
C6	25 Jul 2022	Depart Time	937
C6	25 Jul 2022	Air Temp (C)	19.3
C6	25 Jul 2022	Weather	Overcast
C6	25 Jul 2022	Visibility (mi)	10
C6	25 Jul 2022	Wind Speed (kts)	7.8
C6	25 Jul 2022	Wind Dir	NW

Station	Date	Parameter	Value
C6	25 Jul 2022	Water Color	Brownish-Green
C6	25 Jul 2022	Wave Ht Low (ft)	3.3
C6	25 Jul 2022	Wave Period (sec)	6
C6	25 Jul 2022	Sea State	Regular Swell
C6	25 Jul 2022	High Tide (ft)	5.78
C6	25 Jul 2022	High Tide Time	248
C6	25 Jul 2022	Low Tide (ft)	-0.09
C6	25 Jul 2022	Low Tide Time	942
C6	25 Jul 2022	Comments	Kelp Debris
C7	05 Jul 2022	Depth (m)	17
C7	05 Jul 2022	Arrive Time	908
C7	05 Jul 2022	Depart Time	916
C7	05 Jul 2022	Air Temp (C)	18.7
C7	05 Jul 2022	Weather	Partly Cloudy
C7	05 Jul 2022	Visibility (mi)	9
C7	05 Jul 2022	Wind Speed (kts)	6.3
C7	05 Jul 2022	Wind Dir	SW
C7	05 Jul 2022	Water Color	Greenish-Blue
C7	05 Jul 2022	Wave Ht Low (ft)	3.3
C7	05 Jul 2022	Wave Period (sec)	6
C7	05 Jul 2022	Sea State	Light Chop
C7	05 Jul 2022	High Tide (ft)	4.37
C7	05 Jul 2022	High Tide Time	754
C7	05 Jul 2022	Low Tide (ft)	0.67
C7	05 Jul 2022	Low Tide Time	1506
C7	05 Jul 2022	Comments	Didnt get depth on 1st cast
C7	11 Jul 2022	Depth (m)	17
C7	11 Jul 2022	Arrive Time	910
C7	11 Jul 2022	Depart Time	920
C7	11 Jul 2022	Air Temp (C)	17.8
C7	11 Jul 2022	Weather	Overcast
C7	11 Jul 2022	Visibility (mi)	5
C7	11 Jul 2022	Wind Speed (kts)	5.8
C7	11 Jul 2022	Wind Dir	NW
C7	11 Jul 2022	Water Color	Green
C7	11 Jul 2022	Wave Ht Low (ft)	2
C7	11 Jul 2022	Wave Period (sec)	6
C7	11 Jul 2022	Sea State	Calm
C7	11 Jul 2022	High Tide (ft)	6.82
C7	11 Jul 2022	High Tide Time	242
C7	11 Jul 2022	Low Tide (ft)	-0.82
C7	11 Jul 2022	Low Tide Time	924
C7	11 Jul 2022	Comments	none
C7	20 Jul 2022	Depth (m)	18
C7	20 Jul 2022	Arrive Time	838
C7	20 Jul 2022	Depart Time	844
C7	20 Jul 2022	Air Temp (C)	20
C7	20 Jul 2022	Weather	Overcast
C7	20 Jul 2022	Visibility (mi)	8
C7	20 Jul 2022	Wind Speed (kts)	1
C7	20 Jul 2022	Wind Dir	W
C7	20 Jul 2022	Water Color	Green
C7	20 Jul 2022	Wave Ht Low (ft)	4
C7	20 Jul 2022	Wave Period (sec)	15
C7	20 Jul 2022	Sea State	Regular Swell
C7	20 Jul 2022	High Tide (ft)	4.95
C7	20 Jul 2022	High Tide Time	2312
C7	20 Jul 2022	Low Tide (ft)	1.44

Station	Date	Parameter	Value
C7	20 Jul 2022	Low Tide Time	1606
C7	20 Jul 2022	Comments	none
C7	25 Jul 2022	Depth (m)	18
C7	25 Jul 2022	Arrive Time	859
C7	25 Jul 2022	Depart Time	903
C7	25 Jul 2022	Air Temp (C)	19.3
C7	25 Jul 2022	Weather	Overcast
C7	25 Jul 2022	Visibility (mi)	10
C7	25 Jul 2022	Wind Speed (kts)	8.1
C7	25 Jul 2022	Wind Dir	NW
C7	25 Jul 2022	Water Color	Blueish-Green
C7	25 Jul 2022	Wave Ht Low (ft)	3.3
C7	25 Jul 2022	Wave Period (sec)	6
C7	25 Jul 2022	Sea State	Regular Swell
C7	25 Jul 2022	High Tide (ft)	5.78
C7	25 Jul 2022	High Tide Time	248
C7	25 Jul 2022	Low Tide (ft)	-0.09
C7	25 Jul 2022	Low Tide Time	942
C7	25 Jul 2022	Comments	none
C8	05 Jul 2022	Depth (m)	
C8	05 Jul 2022	Arrive Time	927
C8	05 Jul 2022	Depart Time	931
C8	05 Jul 2022	Air Temp (C)	18.9
C8	05 Jul 2022	Weather	Partly Cloudy
C8	05 Jul 2022	Visibility (mi)	9
C8	05 Jul 2022	Wind Speed (kts)	5.2
C8	05 Jul 2022	Wind Dir	SW
C8	05 Jul 2022	Water Color	Greenish-Blue
C8	05 Jul 2022	Wave Ht Low (ft)	3.3
C8	05 Jul 2022	Wave Period (sec)	6
C8	05 Jul 2022	Sea State	Light Chop
C8	05 Jul 2022	High Tide (ft)	4.37
C8	05 Jul 2022	High Tide Time	754
C8	05 Jul 2022	Low Tide (ft)	0.67
C8	05 Jul 2022	Low Tide Time	1506
C8	05 Jul 2022	Comments	none
C8	11 Jul 2022	Depth (m)	19
C8	11 Jul 2022	Arrive Time	922
C8	11 Jul 2022	Depart Time	932
C8	11 Jul 2022	Air Temp (C)	17.8
C8	11 Jul 2022	Weather	Overcast
C8	11 Jul 2022	Visibility (mi)	5
C8	11 Jul 2022	Wind Speed (kts)	4.1
C8	11 Jul 2022	Wind Dir	NW
C8	11 Jul 2022	Water Color	Green
C8	11 Jul 2022	Wave Ht Low (ft)	3
C8	11 Jul 2022	Wave Period (sec)	6
C8	11 Jul 2022	Sea State	Calm
C8	11 Jul 2022	High Tide (ft)	6.82
C8	11 Jul 2022	High Tide Time	242
C8	11 Jul 2022	Low Tide (ft)	-0.82
C8	11 Jul 2022	Low Tide Time	924
C8	11 Jul 2022	Comments	none
C8	20 Jul 2022	Depth (m)	18
C8	20 Jul 2022	Arrive Time	850
C8	20 Jul 2022	Depart Time	855
C8	20 Jul 2022	Air Temp (C)	20.1

Station	Date	Parameter	Value
C8	20 Jul 2022	Weather	Overcast
C8	20 Jul 2022	Visibility (mi)	8
C8	20 Jul 2022	Wind Speed (kts)	6.3
C8	20 Jul 2022	Wind Dir	E
C8	20 Jul 2022	Water Color	Green
C8	20 Jul 2022	Wave Ht Low (ft)	4
C8	20 Jul 2022	Wave Period (sec)	15
C8	20 Jul 2022	Sea State	Regular Swell
C8	20 Jul 2022	High Tide (ft)	4.95
C8	20 Jul 2022	High Tide Time	2312
C8	20 Jul 2022	Low Tide (ft)	1.44
C8	20 Jul 2022	Low Tide Time	1606
C8	20 Jul 2022	Comments	none
C8	25 Jul 2022	Depth (m)	19
C8	25 Jul 2022	Arrive Time	912
C8	25 Jul 2022	Depart Time	917
C8	25 Jul 2022	Air Temp (C)	19.3
C8	25 Jul 2022	Weather	Overcast
C8	25 Jul 2022	Visibility (mi)	10
C8	25 Jul 2022	Wind Speed (kts)	7.7
C8	25 Jul 2022	Wind Dir	W
C8	25 Jul 2022	Water Color	Blueish-Green
C8	25 Jul 2022	Wave Ht Low (ft)	3.3
C8	25 Jul 2022	Wave Period (sec)	6
C8	25 Jul 2022	Sea State	Regular Swell
C8	25 Jul 2022	High Tide (ft)	5.78
C8	25 Jul 2022	High Tide Time	248
C8	25 Jul 2022	Low Tide (ft)	-0.09
C8	25 Jul 2022	Low Tide Time	942
C8	25 Jul 2022	Comments	none

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 Jul 2022	1	20.53	74.58	9.6	33.63	8.3	23.6	2.58
A1	05 Jul 2022	2	20.29	73.58	9.6	33.63	8.3	23.6	3.23
A1	05 Jul 2022	3	20.05	74.71	9.6	33.62	8.3	23.7	4.83
A1	05 Jul 2022	4	19.79	72.11	9.5	33.62	8.3	23.8	5.55
A1	05 Jul 2022	5	19.57	73.17	9.0	33.60	8.3	23.8	5.51
A1	05 Jul 2022	6	18.25	73.50	8.5	33.53	8.3	24.1	5.48
A1	05 Jul 2022	7	16.98	73.70	8.6	33.56	8.2	24.4	5.68
A1	05 Jul 2022	8	16.17	74.92	8.2	33.50	8.2	24.6	5.86
A1	05 Jul 2022	9	15.39	75.54	7.8	33.51	8.2	24.7	5.46
A1	05 Jul 2022	10	13.68	78.26	7.0	33.50	8.2	25.1	4.84
A1	05 Jul 2022	11	13.17	82.84	6.4	33.49	8.1	25.2	3.34
A1	05 Jul 2022	12	12.58	86.32	6.0	33.51	8.0	25.3	2.28
A1	05 Jul 2022	13	12.49	87.29	5.8	33.50	8.0	25.3	1.75
A1	05 Jul 2022	14	12.31	87.95	5.6	33.51	8.0	25.4	1.39
A1	05 Jul 2022	15	12.19	88.42	5.5	33.52	8.0	25.4	1.06
A1	05 Jul 2022	16	12.10	89.02	5.4	33.53	8.0	25.4	0.80
A1	05 Jul 2022	17	11.89	89.56	5.2	33.54	7.9	25.5	0.68
A1	05 Jul 2022	18	11.67	89.63	5.1	33.55	7.9	25.5	0.45
A1	05 Jul 2022	19	11.59	89.45	5.0	33.56	7.9	25.5	0.39
A1	11 Jul 2022	1	15.03	77.43	7.7	33.56	8.0	24.9	4.96
A1	11 Jul 2022	2	14.86	77.25	7.8	33.60	8.0	24.9	4.02
A1	11 Jul 2022	3	14.32	75.36	7.7	33.59	8.0	25.0	4.09
A1	11 Jul 2022	4	13.74	74.17	7.4	33.62	8.0	25.2	5.67
A1	11 Jul 2022	5	13.29	73.92	6.9	33.58	8.0	25.2	7.99
A1	11 Jul 2022	6	12.87	78.22	6.4	33.58	8.0	25.3	8.80
A1	11 Jul 2022	7	12.51	82.91	5.9	33.56	7.9	25.4	6.31
A1	11 Jul 2022	8	12.41	85.72	5.6	33.55	7.9	25.4	3.74
A1	11 Jul 2022	9	12.27	86.64	5.3	33.56	7.9	25.4	2.41
A1	11 Jul 2022	10	12.23	86.95	5.3	33.55	7.9	25.4	1.81
A1	11 Jul 2022	11	12.13	86.51	5.3	33.55	7.9	25.4	2.00
A1	11 Jul 2022	12	11.92	86.78	5.3	33.56	7.9	25.5	2.20
A1	11 Jul 2022	13	11.71	87.45	5.2	33.57	7.9	25.5	1.81
A1	11 Jul 2022	14	11.65	88.20	5.1	33.57	7.8	25.5	1.24
A1	11 Jul 2022	15	11.50	88.73	5.0	33.59	7.8	25.6	1.05
A1	11 Jul 2022	16	11.34	88.91	4.9	33.60	7.8	25.6	0.88
A1	11 Jul 2022	17	11.33	89.05	4.8	33.60	7.8	25.6	0.66
A1	11 Jul 2022	18	11.68	89.00	5.0	33.57	7.8	25.5	0.73
A1	11 Jul 2022	19	11.56	88.99	4.9	33.59	7.8	25.6	1.08
A1	20 Jul 2022	1	18.65	75.78	8.2	33.53	8.1	24.0	2.47
A1	20 Jul 2022	2	18.44	75.96	8.1	33.51	8.1	24.0	2.62
A1	20 Jul 2022	3	17.76	75.39	8.0	33.51	8.1	24.2	2.89
A1	20 Jul 2022	4	16.92	74.93	8.0	33.51	8.1	24.4	2.90
A1	20 Jul 2022	5	16.52	74.76	8.1	33.49	8.1	24.5	2.92
A1	20 Jul 2022	6	16.02	76.27	8.2	33.50	8.1	24.6	3.10
A1	20 Jul 2022	7	15.88	76.96	8.1	33.50	8.1	24.6	3.17
A1	20 Jul 2022	8	15.78	77.50	8.1	33.50	8.1	24.6	3.41
A1	20 Jul 2022	9	15.71	77.61	8.1	33.50	8.1	24.7	3.53
A1	20 Jul 2022	10	15.55	77.96	8.0	33.50	8.1	24.7	3.65
A1	20 Jul 2022	11	15.47	78.09	7.9	33.51	8.1	24.7	3.82
A1	20 Jul 2022	12	15.37	78.45	7.7	33.50	8.1	24.7	3.74
A1	20 Jul 2022	13	14.89	78.94	7.5	33.49	8.0	24.8	3.39
A1	20 Jul 2022	14	14.61	79.99	7.2	33.51	8.0	24.9	2.83
A1	20 Jul 2022	15	14.46	80.84	7.1	33.51	8.0	24.9	2.54

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
A1	20 Jul 2022	16	14.41	81.44	7.0	33.51	8.0	24.9	2.24
A1	20 Jul 2022	17	14.19	81.95	6.8	33.51	8.0	25.0	1.94
A1	20 Jul 2022	18	14.12	82.56	6.7	33.51	8.0	25.0	1.61
A1	20 Jul 2022	19	14.14	82.79	6.7	33.51	8.0	25.0	1.48
A1	25 Jul 2022	1	20.33	73.34	9.0	33.56	8.2	23.6	5.11
A1	25 Jul 2022	2	20.32	72.14	9.0	33.56	8.2	23.6	5.62
A1	25 Jul 2022	3	20.17	72.41	8.9	33.55	8.2	23.6	6.18
A1	25 Jul 2022	4	19.77	71.07	9.0	33.54	8.2	23.7	6.78
A1	25 Jul 2022	5	19.80	70.95	8.9	33.53	8.2	23.7	6.67
A1	25 Jul 2022	6	19.63	71.05	8.8	33.53	8.2	23.7	6.57
A1	25 Jul 2022	7	19.55	70.50	8.8	33.53	8.2	23.8	6.66
A1	25 Jul 2022	8	18.91	70.84	8.4	33.51	8.2	23.9	6.46
A1	25 Jul 2022	9	18.42	72.64	8.2	33.52	8.2	24.0	6.04
A1	25 Jul 2022	10	18.01	73.50	8.0	33.50	8.2	24.1	5.75
A1	25 Jul 2022	11	17.32	75.01	7.6	33.50	8.1	24.3	5.27
A1	25 Jul 2022	12	16.74	76.98	7.2	33.49	8.1	24.4	4.51
A1	25 Jul 2022	13	16.17	80.39	6.9	33.49	8.0	24.5	3.68
A1	25 Jul 2022	14	15.11	81.83	6.8	33.48	8.0	24.8	3.27
A1	25 Jul 2022	15	14.26	82.40	6.3	33.47	8.0	24.9	2.68
A1	25 Jul 2022	16	13.68	84.27	5.6	33.48	7.9	25.1	2.00
A1	25 Jul 2022	17	13.43	87.23	5.2	33.48	7.9	25.1	1.34
A1	25 Jul 2022	18	13.19	88.06	5.1	33.50	7.9	25.2	1.01
A6	05 Jul 2022	1	20.52	76.95	9.4	33.63	8.2	23.6	2.78
A6	05 Jul 2022	2	20.51	77.02	9.2	33.63	8.2	23.6	3.07
A6	05 Jul 2022	3	20.43	76.81	8.4	33.59	8.2	23.6	3.74
A6	05 Jul 2022	4	18.07	75.53	8.1	33.42	8.3	24.0	4.65
A6	05 Jul 2022	5	15.40	74.62	7.9	33.54	8.3	24.8	5.91
A6	05 Jul 2022	6	14.97	74.10	7.7	33.49	8.2	24.8	7.72
A6	05 Jul 2022	7	14.36	73.37	7.6	33.48	8.2	24.9	10.39
A6	05 Jul 2022	8	14.41	70.89	7.2	33.48	8.1	24.9	13.62
A6	05 Jul 2022	9	13.92	69.94	6.6	33.47	8.1	25.0	12.89
A6	05 Jul 2022	10	13.57	75.07	6.1	33.49	8.1	25.1	10.18
A6	05 Jul 2022	11	13.46	78.96	5.8	33.48	8.0	25.1	7.41
A6	05 Jul 2022	12	13.28	80.41	5.8	33.49	8.0	25.2	5.56
A6	05 Jul 2022	13	13.10	81.91	5.7	33.49	8.0	25.2	4.07
A6	05 Jul 2022	14	13.01	85.38	5.4	33.50	7.9	25.2	2.53
A6	05 Jul 2022	15	12.89	88.19	5.2	33.50	7.9	25.3	1.51
A6	05 Jul 2022	16	12.47	89.05	5.1	33.50	7.9	25.3	1.02
A6	05 Jul 2022	17	12.11	89.61	5.1	33.52	7.9	25.4	0.70
A6	05 Jul 2022	18	11.95	89.82	5.2	33.54	7.9	25.5	0.48
A6	11 Jul 2022	1	16.58	75.60	9.3	33.57	8.2	24.5	3.70
A6	11 Jul 2022	2	16.16	72.91	9.1	33.57	8.2	24.6	3.96
A6	11 Jul 2022	3	15.80	72.90	8.9	33.55	8.2	24.7	4.20
A6	11 Jul 2022	4	15.29	74.64	8.8	33.56	8.1	24.8	4.39
A6	11 Jul 2022	5	14.80	74.19	8.6	33.55	8.1	24.9	5.40
A6	11 Jul 2022	6	14.20	72.89	8.1	33.53	8.1	25.0	8.56
A6	11 Jul 2022	7	13.51	69.10	7.4	33.53	8.1	25.2	12.79
A6	11 Jul 2022	8	12.97	72.32	6.8	33.53	8.1	25.3	13.67
A6	11 Jul 2022	9	12.41	80.71	6.3	33.53	8.0	25.4	10.14
A6	11 Jul 2022	10	12.19	84.31	6.0	33.53	8.0	25.4	6.42
A6	11 Jul 2022	11	12.11	85.28	5.9	33.53	8.0	25.4	4.74
A6	11 Jul 2022	12	12.11	86.62	5.8	33.54	7.9	25.4	3.48
A6	11 Jul 2022	13	12.04	87.48	5.7	33.54	7.9	25.4	2.99
A6	11 Jul 2022	14	11.89	87.75	5.6	33.55	7.9	25.5	2.43
A6	11 Jul 2022	15	11.73	88.66	5.4	33.55	7.9	25.5	1.65
A6	11 Jul 2022	16	11.61	90.04	5.3	33.56	7.9	25.5	1.17
A6	11 Jul 2022	17	11.57	90.48	5.2	33.57	7.9	25.6	0.97
A6	11 Jul 2022	18	11.49	90.64	5.1	33.57	7.9	25.6	0.77

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
A6	11 Jul 2022	19	11.46	90.72	5.0	33.58	7.9	25.6	0.61
A6	20 Jul 2022	1	19.72	80.10	8.1	33.55	8.2	23.7	1.24
A6	20 Jul 2022	2	19.31	78.25	7.7	33.52	8.1	23.8	1.28
A6	20 Jul 2022	3	18.15	79.87	7.6	33.47	8.1	24.1	1.42
A6	20 Jul 2022	4	17.08	79.08	8.0	33.49	8.1	24.3	2.02
A6	20 Jul 2022	5	16.55	79.70	8.1	33.49	8.1	24.5	2.86
A6	20 Jul 2022	6	16.26	80.02	7.9	33.49	8.1	24.5	3.49
A6	20 Jul 2022	7	16.13	79.64	7.9	33.50	8.1	24.6	3.74
A6	20 Jul 2022	8	16.06	79.92	7.8	33.49	8.1	24.6	3.88
A6	20 Jul 2022	9	15.86	80.69	7.6	33.50	8.1	24.6	3.28
A6	20 Jul 2022	10	15.77	82.10	7.5	33.50	8.1	24.6	2.78
A6	20 Jul 2022	11	15.73	82.69	7.5	33.51	8.1	24.7	2.45
A6	20 Jul 2022	12	15.74	82.85	7.4	33.51	8.1	24.7	2.29
A6	20 Jul 2022	13	15.71	83.11	7.4	33.51	8.0	24.7	2.29
A6	20 Jul 2022	14	15.71	82.86	7.3	33.51	8.0	24.7	2.28
A6	20 Jul 2022	15	15.59	82.89	7.3	33.51	8.0	24.7	2.26
A6	20 Jul 2022	16	15.45	83.04	7.2	33.52	8.0	24.7	2.10
A6	20 Jul 2022	17	15.17	83.30	6.9	33.46	8.0	24.7	2.03
A6	20 Jul 2022	18	14.17	83.60	6.8	33.46	8.0	25.0	1.81
A6	25 Jul 2022	1	20.92	74.78	9.0	33.59	8.2	23.4	3.93
A6	25 Jul 2022	2	20.92	74.15	8.7	33.58	8.2	23.4	4.22
A6	25 Jul 2022	3	19.07	71.24	8.3	33.52	8.2	23.9	5.55
A6	25 Jul 2022	4	17.52	71.11	7.8	33.48	8.2	24.2	6.31
A6	25 Jul 2022	5	16.60	73.08	7.4	33.49	8.1	24.5	5.58
A6	25 Jul 2022	6	16.52	76.14	7.2	33.48	8.1	24.5	5.07
A6	25 Jul 2022	7	16.08	78.53	6.8	33.48	8.0	24.6	4.39
A6	25 Jul 2022	8	15.61	79.82	6.6	33.48	8.0	24.7	3.63
A6	25 Jul 2022	9	15.53	80.77	6.5	33.48	8.0	24.7	3.13
A6	25 Jul 2022	10	15.20	81.04	6.4	33.49	8.0	24.8	2.86
A6	25 Jul 2022	11	15.04	81.24	6.2	33.48	8.0	24.8	2.59
A6	25 Jul 2022	12	14.46	81.77	5.7	33.48	7.9	24.9	2.24
A6	25 Jul 2022	13	14.02	84.42	5.3	33.49	7.9	25.0	1.68
A6	25 Jul 2022	14	13.84	85.33	5.0	33.49	7.8	25.1	1.30
A6	25 Jul 2022	15	13.54	86.29	4.8	33.50	7.8	25.1	1.05
A6	25 Jul 2022	16	13.58	86.61	4.8	33.50	7.8	25.1	0.97
A6	25 Jul 2022	17	13.28	86.88	4.6	33.50	7.8	25.2	1.01
A6	25 Jul 2022	18	13.17	86.89	4.5	33.51	7.8	25.2	0.84
A7	05 Jul 2022	1	20.36	72.51	9.6	33.62	8.3	23.6	4.35
A7	05 Jul 2022	2	20.36	72.41	9.4	33.62	8.3	23.6	4.63
A7	05 Jul 2022	3	20.14	72.34	8.8	33.56	8.3	23.6	5.39
A7	05 Jul 2022	4	18.30	71.41	8.6	33.50	8.3	24.0	6.12
A7	05 Jul 2022	5	17.24	70.68	8.1	33.57	8.2	24.4	7.35
A7	05 Jul 2022	6	16.25	70.79	7.3	33.41	8.2	24.5	7.89
A7	05 Jul 2022	7	14.47	71.85	7.0	33.51	8.2	24.9	7.62
A7	05 Jul 2022	8	14.16	77.09	6.7	33.50	8.1	25.0	6.50
A7	05 Jul 2022	9	13.92	81.62	6.4	33.49	8.1	25.0	4.85
A7	05 Jul 2022	10	13.49	83.05	6.1	33.49	8.0	25.1	3.78
A7	05 Jul 2022	11	13.20	85.06	6.0	33.49	8.0	25.2	2.55
A7	05 Jul 2022	12	13.11	86.91	5.9	33.50	8.0	25.2	1.97
A7	05 Jul 2022	13	13.05	86.88	5.9	33.49	8.0	25.2	1.85
A7	05 Jul 2022	14	12.87	87.05	5.8	33.49	8.0	25.3	1.92
A7	05 Jul 2022	15	12.73	87.38	5.7	33.51	8.0	25.3	1.63
A7	05 Jul 2022	16	12.56	87.90	5.5	33.51	7.9	25.3	1.35
A7	05 Jul 2022	17	12.33	88.88	5.3	33.52	7.9	25.4	1.10
A7	05 Jul 2022	18	12.14	89.38	5.3	33.53	7.9	25.4	0.99
A7	05 Jul 2022	19	12.03	89.70	5.2	33.53	7.9	25.4	0.62
A7	05 Jul 2022	20	11.73	89.87	5.2	33.57	7.9	25.5	0.50

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
A7	11 Jul 2022	1	16.68	78.61	8.2	33.56	8.1	24.5	2.54
A7	11 Jul 2022	2	15.69	79.13	7.8	33.53	8.1	24.7	3.23
A7	11 Jul 2022	3	14.30	78.21	7.7	33.54	8.1	25.0	4.68
A7	11 Jul 2022	4	13.80	76.38	7.4	33.53	8.1	25.1	6.38
A7	11 Jul 2022	5	13.29	75.77	6.9	33.53	8.1	25.2	7.96
A7	11 Jul 2022	6	13.01	76.52	6.5	33.53	8.0	25.2	8.12
A7	11 Jul 2022	7	12.80	78.02	6.3	33.53	8.0	25.3	7.57
A7	11 Jul 2022	8	12.66	79.52	6.1	33.52	8.0	25.3	7.02
A7	11 Jul 2022	9	12.48	80.84	6.0	33.52	8.0	25.4	6.42
A7	11 Jul 2022	10	12.32	82.51	5.9	33.53	7.9	25.4	5.33
A7	11 Jul 2022	11	12.21	83.67	5.8	33.53	7.9	25.4	4.71
A7	11 Jul 2022	12	12.25	84.51	5.8	33.54	7.9	25.4	4.37
A7	11 Jul 2022	13	12.04	85.21	5.6	33.55	7.9	25.5	4.02
A7	11 Jul 2022	14	11.98	85.83	5.5	33.54	7.9	25.5	3.52
A7	11 Jul 2022	15	11.89	86.44	5.5	33.55	7.9	25.5	3.01
A7	11 Jul 2022	16	11.92	87.82	5.4	33.55	7.9	25.5	2.29
A7	11 Jul 2022	17	11.80	88.99	5.3	33.56	7.9	25.5	2.00
A7	11 Jul 2022	18	11.78	89.10	5.2	33.56	7.9	25.5	1.50
A7	11 Jul 2022	19	11.67	89.31	5.2	33.56	7.9	25.5	1.17
A7	11 Jul 2022	20	11.50	89.95	5.0	33.57	7.8	25.6	0.79
A7	11 Jul 2022	21	11.45	90.67	5.0	33.57	7.8	25.6	0.53
A7	20 Jul 2022	1	18.52	81.87	8.8	33.52	8.2	24.0	1.66
A7	20 Jul 2022	2	18.36	81.82	8.8	33.51	8.2	24.0	1.76
A7	20 Jul 2022	3	18.15	82.11	8.8	33.51	8.2	24.1	1.76
A7	20 Jul 2022	4	17.59	82.44	8.9	33.51	8.2	24.2	1.72
A7	20 Jul 2022	5	17.51	83.55	8.9	33.50	8.2	24.2	1.60
A7	20 Jul 2022	6	17.13	84.00	9.2	33.48	8.2	24.3	1.55
A7	20 Jul 2022	7	16.81	84.50	9.4	33.48	8.2	24.4	1.52
A7	20 Jul 2022	8	16.57	84.65	9.3	33.47	8.2	24.4	1.57
A7	20 Jul 2022	9	16.03	84.70	9.4	33.47	8.2	24.6	1.67
A7	20 Jul 2022	10	15.80	84.71	9.2	33.45	8.2	24.6	1.83
A7	20 Jul 2022	11	15.44	84.06	8.8	33.48	8.1	24.7	2.21
A7	20 Jul 2022	12	15.23	83.59	8.6	33.47	8.1	24.7	2.45
A7	20 Jul 2022	13	15.11	83.75	8.6	33.48	8.1	24.8	2.46
A7	20 Jul 2022	14	15.07	83.82	8.4	33.48	8.1	24.8	2.53
A7	20 Jul 2022	15	15.02	83.54	8.3	33.49	8.1	24.8	2.77
A7	20 Jul 2022	16	14.94	83.49	8.1	33.49	8.1	24.8	2.68
A7	20 Jul 2022	17	14.91	83.46	7.9	33.49	8.1	24.8	2.57
A7	20 Jul 2022	18	14.45	84.39	7.6	33.47	8.1	24.9	2.32
A7	20 Jul 2022	19	14.10	85.21	7.4	33.49	8.0	25.0	1.76
A7	25 Jul 2022	1	20.76	77.50	8.8	33.58	8.2	23.5	4.50
A7	25 Jul 2022	2	20.37	74.98	8.8	33.57	8.2	23.6	5.49
A7	25 Jul 2022	3	20.19	71.56	8.5	33.56	8.2	23.6	6.91
A7	25 Jul 2022	4	19.66	70.27	8.3	33.55	8.2	23.7	8.11
A7	25 Jul 2022	5	19.32	68.14	8.2	33.53	8.2	23.8	8.70
A7	25 Jul 2022	6	18.77	70.66	8.0	33.52	8.2	23.9	7.38
A7	25 Jul 2022	7	17.81	72.32	7.8	33.50	8.1	24.2	6.67
A7	25 Jul 2022	8	16.84	73.27	7.7	33.50	8.1	24.4	6.20
A7	25 Jul 2022	9	16.50	74.65	7.8	33.49	8.1	24.5	5.76
A7	25 Jul 2022	10	16.06	76.52	7.6	33.47	8.1	24.6	5.22
A7	25 Jul 2022	11	15.45	78.13	7.5	33.47	8.1	24.7	4.46
A7	25 Jul 2022	12	15.21	79.57	7.4	33.47	8.0	24.7	3.68
A7	25 Jul 2022	13	15.16	81.07	7.0	33.46	8.0	24.7	3.19
A7	25 Jul 2022	14	14.25	81.77	6.2	33.47	8.0	25.0	2.76
A7	25 Jul 2022	15	13.60	83.98	5.7	33.49	7.9	25.1	1.95
A7	25 Jul 2022	16	13.80	86.31	5.4	33.49	7.9	25.1	1.47
A7	25 Jul 2022	17	12.81	87.27	4.8	33.51	7.8	25.3	1.18
A7	25 Jul 2022	18	12.63	87.91	4.5	33.51	7.8	25.3	0.97
A7	25 Jul 2022	19	12.60	87.83	4.5	33.51	7.8	25.3	0.88

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
C4	05 Jul 2022	1	20.70	73.37	9.6	33.63	8.3	23.5	1.65
	05 Jul 2022	2	20.62	73.44	9.5	33.62	8.3	23.5	1.77
	05 Jul 2022	3	20.31	72.97	9.2	33.60	8.3	23.6	2.28
	05 Jul 2022	4	19.79	72.81	8.8	33.58	8.3	23.7	3.39
	05 Jul 2022	5	18.70	71.48	8.4	33.56	8.3	24.0	4.96
	05 Jul 2022	6	17.35	70.90	7.8	33.51	8.3	24.3	6.52
	05 Jul 2022	7	16.22	70.39	7.1	33.49	8.2	24.5	6.77
	05 Jul 2022	8	15.20	73.69	6.2	33.48	8.2	24.8	4.60
	05 Jul 2022	9	14.51	81.16	5.5	33.48	8.1	24.9	2.72
	05 Jul 2022	10	13.99	83.78	5.1	33.49	8.0	25.0	1.34
	05 Jul 2022	11	13.80	82.07	5.0	33.50	8.0	25.1	0.65
C4	11 Jul 2022	1	16.48	77.72	8.4	33.57	8.2	24.5	1.75
	11 Jul 2022	2	15.92	77.13	8.2	33.58	8.2	24.7	2.08
	11 Jul 2022	3	15.16	75.94	8.1	33.58	8.2	24.8	2.99
	11 Jul 2022	4	14.47	73.93	7.8	33.57	8.1	25.0	5.00
	11 Jul 2022	5	14.16	70.16	7.7	33.55	8.1	25.0	9.53
	11 Jul 2022	6	13.82	67.58	7.3	33.55	8.1	25.1	13.69
	11 Jul 2022	7	13.53	68.39	6.9	33.55	8.1	25.2	14.42
	11 Jul 2022	8	13.37	72.61	6.4	33.54	8.0	25.2	11.78
	11 Jul 2022	9	13.16	78.71	5.8	33.54	8.0	25.2	5.92
	11 Jul 2022	10	12.87	75.58	5.4	33.56	8.0	25.3	3.57
	20 Jul 2022	1	18.88	76.90	8.3	33.51	8.2	23.9	1.88
C4	20 Jul 2022	2	18.73	75.67	8.4	33.50	8.2	23.9	2.38
	20 Jul 2022	3	18.60	73.96	8.3	33.49	8.2	24.0	2.96
	20 Jul 2022	4	18.38	71.13	8.2	33.50	8.2	24.0	3.29
	20 Jul 2022	5	18.15	70.85	8.0	33.50	8.2	24.1	3.29
	20 Jul 2022	6	17.75	71.79	7.7	33.52	8.1	24.2	3.58
	20 Jul 2022	7	17.37	73.36	7.3	33.51	8.1	24.3	3.23
	20 Jul 2022	8	16.63	75.86	6.6	33.49	8.1	24.4	2.02
	20 Jul 2022	9	15.50	69.84	6.2	33.48	8.0	24.7	1.21
	20 Jul 2022	10	15.16	69.06	6.0	33.51	8.0	24.8	0.79
	25 Jul 2022	1	20.55	79.74	9.0	33.58	8.3	23.5	2.44
	25 Jul 2022	2	20.53	79.39	8.9	33.57	8.3	23.5	2.79
C4	25 Jul 2022	3	20.35	79.11	8.7	33.56	8.2	23.6	4.17
	25 Jul 2022	4	19.68	72.69	8.4	33.54	8.2	23.7	8.48
	25 Jul 2022	5	18.87	67.11	8.0	33.51	8.2	23.9	8.60
	25 Jul 2022	6	18.21	71.48	7.7	33.50	8.2	24.1	6.29
	25 Jul 2022	7	17.87	77.08	7.2	33.49	8.1	24.1	4.74
	25 Jul 2022	8	17.05	82.60	6.5	33.49	8.1	24.3	3.12
	25 Jul 2022	9	16.43	83.74	5.7	33.49	8.0	24.5	1.62
	25 Jul 2022	10	16.06	83.06	4.8	33.48	7.9	24.6	0.83
	25 Jul 2022	11	15.44	81.00	4.1	33.49	7.8	24.7	0.53
	25 Jul 2022	12	15.38	79.96	3.9	33.49	7.8	24.7	0.46
	05 Jul 2022	1	20.63	76.69	9.4	33.64	8.3	23.6	1.32
C5	05 Jul 2022	2	20.59	76.23	9.3	33.63	8.3	23.6	1.51
	05 Jul 2022	3	20.11	74.75	9.3	33.63	8.3	23.7	3.03
	05 Jul 2022	4	19.87	72.58	8.9	33.61	8.3	23.7	4.73
	05 Jul 2022	5	19.02	72.98	8.2	33.56	8.3	23.9	6.16
	05 Jul 2022	6	17.64	70.67	7.1	33.51	8.3	24.2	4.89
	05 Jul 2022	7	15.25	72.18	6.7	33.52	8.2	24.8	2.91
	05 Jul 2022	8	14.15	75.92	6.7	33.50	8.2	25.0	1.70
	05 Jul 2022	9	13.79	80.01	6.7	33.48	8.1	25.1	1.18
	05 Jul 2022	10	13.59	83.58	6.7	33.47	8.1	25.1	0.85
	05 Jul 2022	11	13.48	84.17	6.6	33.49	8.1	25.1	0.61
C5	11 Jul 2022	1	16.85	74.56	8.3	33.57	8.1	24.5	4.12

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
C5	11 Jul 2022	2	16.70	74.61	8.2	33.56	8.1	24.5	4.34
C5	11 Jul 2022	3	16.09	69.57	7.6	33.56	8.1	24.6	7.20
C5	11 Jul 2022	4	15.12	73.40	6.6	33.55	8.1	24.8	3.74
C5	11 Jul 2022	5	14.08	79.18	5.9	33.52	8.1	25.0	2.15
C5	11 Jul 2022	6	13.01	81.49	5.5	33.54	8.0	25.3	2.99
C5	11 Jul 2022	7	12.91	82.04	5.4	33.53	8.0	25.3	3.94
C5	11 Jul 2022	8	12.62	83.60	5.6	33.53	8.0	25.3	3.59
C5	11 Jul 2022	9	12.57	85.06	5.7	33.53	7.9	25.3	2.89
C5	11 Jul 2022	10	12.51	85.44	5.6	33.53	7.9	25.4	2.34
C5	11 Jul 2022	11	12.48	86.16	5.4	33.54	7.9	25.4	1.56
C5	20 Jul 2022	1	19.73	81.16	7.6	33.55	8.1	23.7	0.81
C5	20 Jul 2022	2	19.40	80.86	7.5	33.52	8.1	23.8	0.85
C5	20 Jul 2022	3	18.75	79.64	7.6	33.51	8.1	23.9	1.08
C5	20 Jul 2022	4	17.42	80.89	7.9	33.49	8.1	24.3	1.52
C5	20 Jul 2022	5	17.00	81.21	7.8	33.51	8.1	24.4	1.83
C5	20 Jul 2022	6	16.77	81.83	7.3	33.50	8.1	24.4	1.91
C5	20 Jul 2022	7	16.32	81.61	6.4	33.49	8.0	24.5	1.57
C5	20 Jul 2022	8	15.59	74.47	5.8	33.47	8.0	24.7	0.91
C5	20 Jul 2022	9	14.54	60.91	5.9	33.49	8.0	24.9	0.77
C5	20 Jul 2022	10	14.36	48.46	6.0	33.49	8.0	24.9	0.86
C5	20 Jul 2022	11	14.37	41.47	6.1	33.50	7.9	25.0	0.92
C5	25 Jul 2022	1	20.96	79.84	8.6	33.59	8.2	23.4	2.41
C5	25 Jul 2022	2	20.96	79.83	8.6	33.59	8.2	23.4	2.59
C5	25 Jul 2022	3	20.75	77.43	8.4	33.58	8.2	23.5	4.56
C5	25 Jul 2022	4	19.70	65.27	8.0	33.56	8.2	23.7	9.92
C5	25 Jul 2022	5	18.74	71.50	7.2	33.53	8.2	24.0	7.75
C5	25 Jul 2022	6	18.06	76.44	6.3	33.52	8.1	24.1	5.07
C5	25 Jul 2022	7	16.89	81.29	5.8	33.50	8.0	24.4	3.22
C5	25 Jul 2022	8	16.38	85.37	5.8	33.49	8.0	24.5	1.79
C5	25 Jul 2022	9	15.85	87.04	6.1	33.48	8.0	24.6	1.28
C5	25 Jul 2022	10	15.58	86.87	6.3	33.48	8.0	24.7	0.99
C5	25 Jul 2022	11	15.57	86.82	6.3	33.49	8.0	24.7	0.88
C6	05 Jul 2022	1	20.73	75.84	10.1	33.64	8.3	23.5	2.00
C6	05 Jul 2022	2	20.69	75.93	9.8	33.63	8.3	23.5	2.29
C6	05 Jul 2022	3	20.30	75.84	9.2	33.62	8.3	23.6	3.58
C6	05 Jul 2022	4	19.03	74.12	7.8	33.57	8.3	23.9	5.29
C6	05 Jul 2022	5	16.84	71.92	6.4	33.53	8.2	24.4	4.16
C6	05 Jul 2022	6	15.02	76.25	5.9	33.51	8.2	24.8	2.36
C6	05 Jul 2022	7	13.99	81.29	6.1	33.48	8.1	25.0	1.37
C6	05 Jul 2022	8	13.70	83.97	6.2	33.49	8.1	25.1	0.80
C6	05 Jul 2022	9	13.61	84.15	6.2	33.49	8.0	25.1	0.49
C6	11 Jul 2022	1	17.02	74.30	8.7	33.56	8.2	24.4	1.81
C6	11 Jul 2022	2	16.97	73.97	8.4	33.56	8.2	24.4	2.02
C6	11 Jul 2022	3	15.69	73.74	8.0	33.53	8.2	24.7	3.15
C6	11 Jul 2022	4	14.87	75.39	7.6	33.53	8.1	24.9	2.95
C6	11 Jul 2022	5	13.36	83.72	6.7	33.53	8.1	25.2	2.89
C6	11 Jul 2022	6	12.75	84.59	5.9	33.55	8.0	25.3	1.90
C6	11 Jul 2022	7	12.92	87.25	5.7	33.51	8.0	25.3	1.49
C6	11 Jul 2022	8	12.60	87.03	5.5	33.53	8.0	25.3	1.16
C6	11 Jul 2022	9	12.60	84.77	5.4	33.53	7.9	25.3	0.78
C6	11 Jul 2022	10	12.72	82.93	5.5	33.54	7.9	25.3	0.67
C6	20 Jul 2022	1	19.74	78.53	7.9	33.55	8.1	23.7	0.96
C6	20 Jul 2022	2	19.73	78.41	7.9	33.55	8.1	23.7	1.03
C6	20 Jul 2022	3	19.64	78.29	7.6	33.54	8.1	23.7	1.08
C6	20 Jul 2022	4	19.47	77.02	7.2	33.54	8.1	23.8	1.05
C6	20 Jul 2022	5	19.07	74.96	7.0	33.53	8.1	23.9	0.89

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C6	20 Jul 2022	6	18.37	75.49	6.7	33.49	8.1	24.0	0.80
C6	20 Jul 2022	7	16.21	76.48	6.5	33.47	8.1	24.5	0.66
C6	20 Jul 2022	8	14.65	79.13	6.5	33.48	8.0	24.9	0.54
C6	20 Jul 2022	9	14.45	76.33	6.4	33.49	8.0	24.9	0.52
C6	25 Jul 2022	1	21.08	71.50	8.8	33.59	8.2	23.4	4.04
C6	25 Jul 2022	2	21.09	71.76	8.8	33.59	8.2	23.4	4.15
C6	25 Jul 2022	3	21.05	74.35	8.6	33.59	8.2	23.4	4.55
C6	25 Jul 2022	4	20.51	71.88	8.4	33.57	8.2	23.5	8.20
C6	25 Jul 2022	5	19.15	66.38	8.0	33.53	8.2	23.9	9.57
C6	25 Jul 2022	6	18.25	72.93	7.7	33.51	8.1	24.1	7.21
C6	25 Jul 2022	7	17.51	76.65	7.0	33.49	8.1	24.2	5.45
C6	25 Jul 2022	8	16.22	83.60	6.0	33.50	8.0	24.5	3.17
C6	25 Jul 2022	9	16.12	87.59	5.8	33.49	8.0	24.6	1.25
C7	05 Jul 2022	1	20.86	69.80	9.6	33.65	8.3	23.5	4.03
C7	05 Jul 2022	2	20.86	69.80	9.4	33.64	8.3	23.5	4.23
C7	05 Jul 2022	3	20.31	69.77	8.9	33.61	8.3	23.6	5.19
C7	05 Jul 2022	4	18.83	68.54	8.6	33.52	8.3	23.9	6.16
C7	05 Jul 2022	5	16.23	69.03	9.1	33.52	8.3	24.6	6.14
C7	05 Jul 2022	6	15.08	72.12	9.4	33.48	8.3	24.8	6.24
C7	05 Jul 2022	7	14.37	73.27	9.2	33.46	8.2	24.9	7.10
C7	05 Jul 2022	8	13.90	74.23	8.8	33.46	8.2	25.0	7.26
C7	05 Jul 2022	9	13.57	74.92	8.2	33.46	8.2	25.1	7.36
C7	05 Jul 2022	10	13.24	75.84	7.5	33.47	8.2	25.2	6.96
C7	05 Jul 2022	11	13.01	76.94	7.0	33.48	8.1	25.2	6.13
C7	05 Jul 2022	12	12.84	79.77	6.4	33.49	8.1	25.3	4.86
C7	05 Jul 2022	13	12.72	82.93	6.0	33.49	8.0	25.3	3.64
C7	05 Jul 2022	14	12.64	84.08	5.7	33.50	8.0	25.3	3.69
C7	05 Jul 2022	15	12.59	83.12	5.5	33.50	8.0	25.3	4.08
C7	05 Jul 2022	16	12.50	84.80	5.4	33.51	8.0	25.3	3.52
C7	05 Jul 2022	17	12.12	88.05	5.3	33.52	7.9	25.4	1.94
C7	11 Jul 2022	1	15.38	72.66	8.5	33.52	8.1	24.8	5.06
C7	11 Jul 2022	2	14.52	67.94	7.7	33.50	8.1	24.9	6.03
C7	11 Jul 2022	3	12.89	60.47	6.8	33.53	8.1	25.3	6.61
C7	11 Jul 2022	4	12.48	75.57	6.0	33.54	8.0	25.4	5.40
C7	11 Jul 2022	5	12.05	81.26	5.5	33.54	8.0	25.4	3.76
C7	11 Jul 2022	6	11.93	86.85	5.3	33.54	7.9	25.5	2.28
C7	11 Jul 2022	7	11.85	89.04	5.2	33.54	7.9	25.5	1.68
C7	11 Jul 2022	8	11.74	89.43	5.2	33.55	7.9	25.5	1.15
C7	11 Jul 2022	9	11.74	89.83	5.1	33.55	7.9	25.5	1.00
C7	11 Jul 2022	10	11.72	89.90	5.1	33.55	7.9	25.5	0.81
C7	11 Jul 2022	11	11.74	89.96	5.1	33.56	7.9	25.5	0.76
C7	11 Jul 2022	12	11.72	89.99	5.0	33.56	7.8	25.5	0.77
C7	11 Jul 2022	13	11.70	89.98	5.0	33.56	7.8	25.5	0.69
C7	11 Jul 2022	14	11.70	90.05	5.0	33.57	7.8	25.5	0.61
C7	11 Jul 2022	15	11.71	90.12	5.0	33.57	7.8	25.5	0.62
C7	11 Jul 2022	16	11.72	90.01	5.0	33.57	7.8	25.5	0.61
C7	11 Jul 2022	17	11.73	90.03	5.0	33.57	7.8	25.5	0.64
C7	11 Jul 2022	18	11.74	89.96	4.9	33.57	7.8	25.5	0.64
C7	20 Jul 2022	1	19.63	77.82	8.5	33.55	8.2	23.8	1.88
C7	20 Jul 2022	2	19.77	78.40	8.4	33.55	8.2	23.7	1.97
C7	20 Jul 2022	3	19.88	79.34	8.2	33.55	8.2	23.7	2.13
C7	20 Jul 2022	4	18.97	79.75	8.3	33.49	8.2	23.9	2.06
C7	20 Jul 2022	5	18.46	80.76	8.3	33.50	8.2	24.0	1.84
C7	20 Jul 2022	6	17.45	81.07	8.4	33.45	8.2	24.2	1.92
C7	20 Jul 2022	7	16.61	81.26	8.8	33.47	8.2	24.4	2.08
C7	20 Jul 2022	8	15.66	82.39	8.9	33.42	8.2	24.6	2.35
C7	20 Jul 2022	9	14.91	83.12	9.3	33.42	8.2	24.8	3.48

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
C7	20 Jul 2022	10	14.67	81.04	9.6	33.45	8.2	24.8	6.02
C7	20 Jul 2022	11	14.57	79.42	9.5	33.42	8.2	24.8	7.40
C7	20 Jul 2022	12	14.41	79.14	9.1	33.46	8.2	24.9	8.53
C7	20 Jul 2022	13	14.35	76.98	8.8	33.46	8.1	24.9	10.22
C7	20 Jul 2022	14	14.28	74.27	8.6	33.47	8.1	24.9	12.39
C7	20 Jul 2022	15	14.19	75.79	8.1	33.46	8.1	25.0	12.88
C7	20 Jul 2022	16	13.49	80.37	7.3	33.46	8.1	25.1	9.89
C7	20 Jul 2022	17	12.80	85.11	6.6	33.48	8.0	25.3	5.05
C7	20 Jul 2022	18	12.72	85.37	6.5	33.50	8.0	25.3	2.89
C7	25 Jul 2022	1	20.71	61.30	8.9	33.59	8.2	23.5	5.19
C7	25 Jul 2022	2	20.21	67.36	8.9	33.56	8.2	23.6	5.49
C7	25 Jul 2022	3	19.61	67.74	9.1	33.54	8.2	23.8	6.22
C7	25 Jul 2022	4	19.34	69.08	9.1	33.53	8.2	23.8	6.64
C7	25 Jul 2022	5	19.27	68.92	9.1	33.53	8.2	23.8	6.90
C7	25 Jul 2022	6	19.19	67.85	9.0	33.53	8.2	23.9	7.24
C7	25 Jul 2022	7	18.94	67.52	8.7	33.53	8.2	23.9	7.43
C7	25 Jul 2022	8	18.30	67.19	8.4	33.52	8.2	24.1	7.56
C7	25 Jul 2022	9	17.50	67.74	7.8	33.51	8.1	24.2	7.13
C7	25 Jul 2022	10	16.54	71.85	7.2	33.51	8.1	24.5	5.69
C7	25 Jul 2022	11	16.35	76.03	6.9	33.49	8.1	24.5	4.69
C7	25 Jul 2022	12	15.69	77.93	6.7	33.49	8.0	24.7	4.19
C7	25 Jul 2022	13	15.55	78.85	6.6	33.49	8.0	24.7	3.76
C7	25 Jul 2022	14	15.18	78.92	6.4	33.48	8.0	24.8	3.79
C7	25 Jul 2022	15	14.81	79.57	6.1	33.48	8.0	24.8	3.57
C7	25 Jul 2022	16	14.10	81.47	5.7	33.49	7.9	25.0	3.20
C7	25 Jul 2022	17	13.86	83.58	5.0	33.49	7.9	25.1	2.54
C8	05 Jul 2022	1	20.89	72.93	9.1	33.65	8.3	23.5	2.57
C8	05 Jul 2022	2	20.82	71.54	9.1	33.65	8.3	23.5	2.83
C8	05 Jul 2022	3	20.86	72.46	9.0	33.65	8.3	23.5	3.03
C8	05 Jul 2022	4	20.75	73.19	9.0	33.63	8.3	23.5	3.23
C8	05 Jul 2022	5	19.82	73.13	9.2	33.61	8.3	23.7	3.54
C8	05 Jul 2022	6	18.24	72.94	8.8	33.53	8.3	24.1	4.11
C8	05 Jul 2022	7	15.41	72.67	9.0	33.51	8.3	24.7	5.15
C8	05 Jul 2022	8	14.18	73.31	9.4	33.48	8.3	25.0	6.54
C8	05 Jul 2022	9	13.87	74.42	9.3	33.47	8.2	25.0	7.10
C8	05 Jul 2022	10	13.67	75.79	8.9	33.46	8.2	25.1	7.06
C8	05 Jul 2022	11	13.39	77.77	8.2	33.46	8.2	25.1	6.66
C8	05 Jul 2022	12	13.06	79.11	7.5	33.47	8.2	25.2	6.76
C8	05 Jul 2022	13	12.87	79.29	7.0	33.49	8.1	25.2	6.66
C8	05 Jul 2022	14	12.75	80.43	6.5	33.49	8.1	25.3	5.74
C8	05 Jul 2022	15	12.66	83.02	6.3	33.49	8.0	25.3	4.75
C8	05 Jul 2022	16	12.53	84.60	6.1	33.50	8.0	25.3	3.66
C8	05 Jul 2022	17	12.41	86.26	5.9	33.51	8.0	25.4	2.84
C8	05 Jul 2022	18	12.39	87.55	5.8	33.52	8.0	25.4	2.09
C8	11 Jul 2022	1	15.29	73.51	7.0	33.37	8.2	24.7	1.36
C8	11 Jul 2022	2	14.73	71.43	8.7	33.71	8.2	25.0	2.66
C8	11 Jul 2022	3	14.21	64.71	8.9	33.71	8.2	25.1	8.97
C8	11 Jul 2022	4	13.64	60.98	8.8	33.75	8.2	25.3	7.58
C8	11 Jul 2022	5	13.36	64.06	8.4	33.69	8.1	25.3	6.64
C8	11 Jul 2022	6	13.01	69.38	8.0	33.71	8.1	25.4	12.33
C8	11 Jul 2022	7	12.77	71.43	7.3	33.65	8.1	25.4	16.14
C8	11 Jul 2022	8	12.40	73.20	6.5	33.63	8.0	25.4	16.61
C8	11 Jul 2022	9	12.45	76.49	6.2	33.60	8.0	25.4	18.44
C8	11 Jul 2022	10	12.06	79.16	5.9	33.62	8.0	25.5	15.74
C8	11 Jul 2022	11	11.96	81.96	5.5	33.60	7.9	25.5	14.52
C8	11 Jul 2022	12	12.06	82.05	5.3	33.58	7.9	25.5	9.86
C8	11 Jul 2022	13	11.90	84.01	5.2	33.59	7.9	25.5	7.23
C8	11 Jul 2022	14	11.92	86.80	5.1	33.58	7.9	25.5	5.52

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
C8	11 Jul 2022	15	11.90	87.75	5.1	33.58	7.9	25.5	3.53
C8	11 Jul 2022	16	11.86	88.13	5.0	33.57	7.9	25.5	2.64
C8	11 Jul 2022	17	11.83	88.31	5.0	33.57	7.8	25.5	2.09
C8	11 Jul 2022	18	11.81	88.59	4.9	33.57	7.8	25.5	1.56
C8	11 Jul 2022	19	11.81	88.62	4.9	33.57	7.8	25.5	1.06
C8	11 Jul 2022	20	11.81	88.35	4.8	33.57	7.8	25.5	0.85
C8	20 Jul 2022	1	20.34	76.25	8.1	33.55	8.2	23.6	1.71
C8	20 Jul 2022	2	20.12	77.06	8.1	33.55	8.2	23.6	1.98
C8	20 Jul 2022	3	19.30	77.71	8.0	33.52	8.2	23.8	2.03
C8	20 Jul 2022	4	17.41	81.24	8.8	33.37	8.2	24.2	1.89
C8	20 Jul 2022	5	15.37	85.17	10.0	33.46	8.2	24.7	1.65
C8	20 Jul 2022	6	15.25	85.67	10.0	33.44	8.2	24.7	1.62
C8	20 Jul 2022	7	15.08	84.69	9.9	33.44	8.2	24.8	2.25
C8	20 Jul 2022	8	15.02	84.73	9.8	33.44	8.2	24.8	2.56
C8	20 Jul 2022	9	14.68	85.34	9.9	33.42	8.2	24.8	2.45
C8	20 Jul 2022	10	14.43	85.71	9.9	33.43	8.2	24.9	2.49
C8	20 Jul 2022	11	14.31	85.30	9.8	33.44	8.2	24.9	2.81
C8	20 Jul 2022	12	14.27	84.44	9.6	33.45	8.2	24.9	4.02
C8	20 Jul 2022	13	14.14	77.81	9.3	33.46	8.2	25.0	10.58
C8	20 Jul 2022	14	13.95	71.89	8.7	33.46	8.1	25.0	15.77
C8	20 Jul 2022	15	13.54	79.41	7.8	33.47	8.1	25.1	11.29
C8	20 Jul 2022	16	13.08	82.83	6.7	33.50	8.0	25.2	5.97
C8	20 Jul 2022	17	12.82	83.53	6.1	33.51	8.0	25.3	2.81
C8	20 Jul 2022	18	12.77	81.71	6.0	33.52	7.9	25.3	1.54
C8	20 Jul 2022	19	12.77	81.70	6.0	33.52	7.9	25.3	1.16
C8	25 Jul 2022	1	21.62	76.18	8.6	33.62	8.2	23.3	3.66
C8	25 Jul 2022	2	21.62	76.09	8.6	33.62	8.2	23.3	3.75
C8	25 Jul 2022	3	21.40	75.88	8.7	33.59	8.2	23.3	4.35
C8	25 Jul 2022	4	20.57	72.42	9.1	33.57	8.2	23.5	5.42
C8	25 Jul 2022	5	19.66	71.24	9.3	33.54	8.3	23.7	5.90
C8	25 Jul 2022	6	19.42	67.61	9.2	33.53	8.2	23.8	7.01
C8	25 Jul 2022	7	18.96	66.25	9.0	33.51	8.2	23.9	7.66
C8	25 Jul 2022	8	18.51	65.79	9.0	33.51	8.2	24.0	7.98
C8	25 Jul 2022	9	18.44	64.91	9.0	33.51	8.2	24.0	8.38
C8	25 Jul 2022	10	18.03	65.19	8.9	33.51	8.2	24.1	8.31
C8	25 Jul 2022	11	17.71	67.90	8.8	33.50	8.2	24.2	7.64
C8	25 Jul 2022	12	16.62	68.55	8.3	33.49	8.2	24.4	7.17
C8	25 Jul 2022	13	15.77	73.73	7.9	33.48	8.1	24.6	5.59
C8	25 Jul 2022	14	15.85	76.69	7.7	33.48	8.1	24.6	4.70
C8	25 Jul 2022	15	15.05	75.56	7.5	33.48	8.1	24.8	4.61
C8	25 Jul 2022	16	14.68	77.42	7.0	33.47	8.0	24.9	4.07
C8	25 Jul 2022	17	14.40	79.73	6.2	33.48	8.0	24.9	3.78
C8	25 Jul 2022	18	13.84	82.77	5.4	33.49	7.9	25.1	3.30
C8	25 Jul 2022	19	13.50	86.02	5.0	33.50	7.8	25.1	2.41

NA = not available

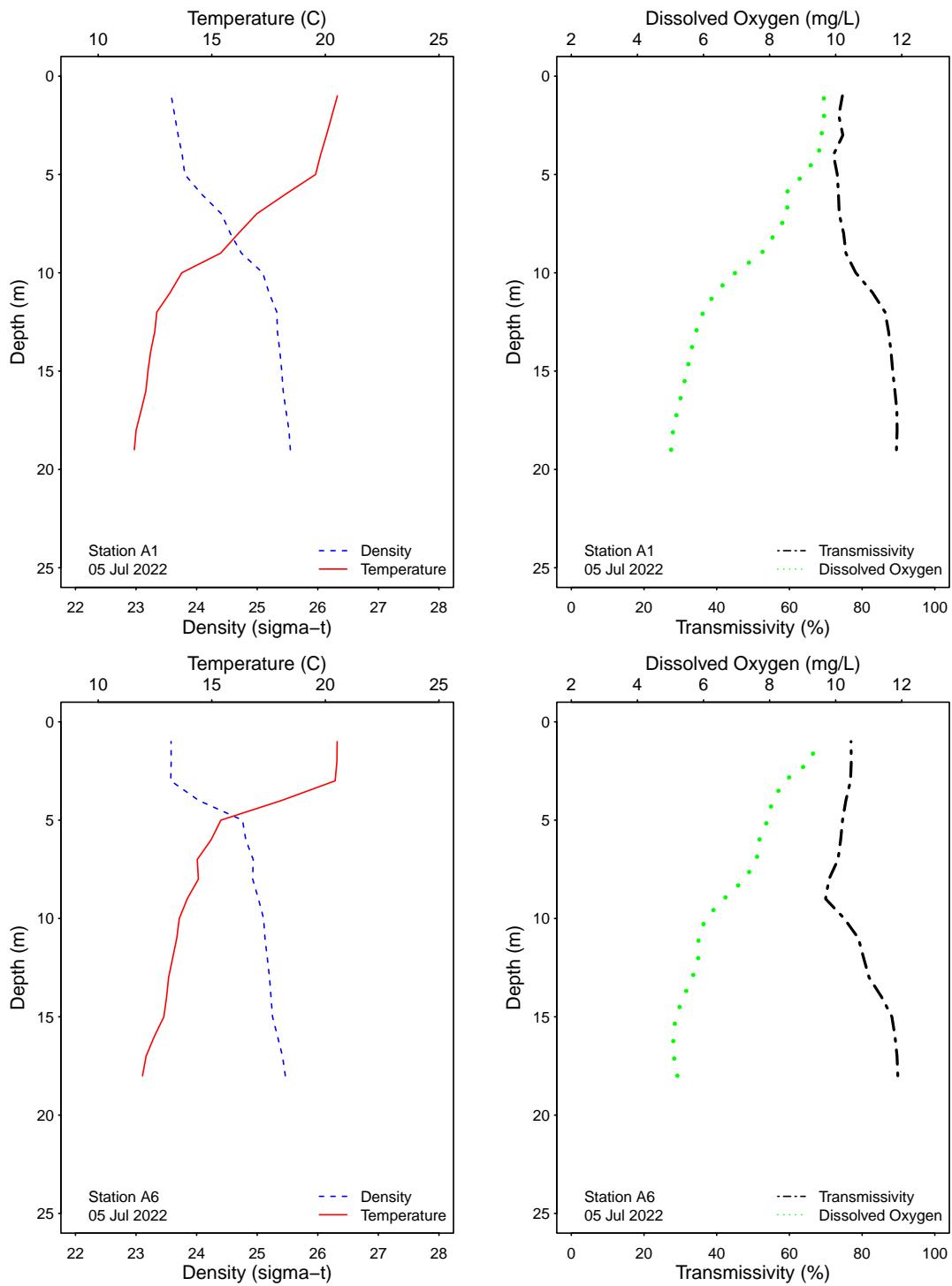


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

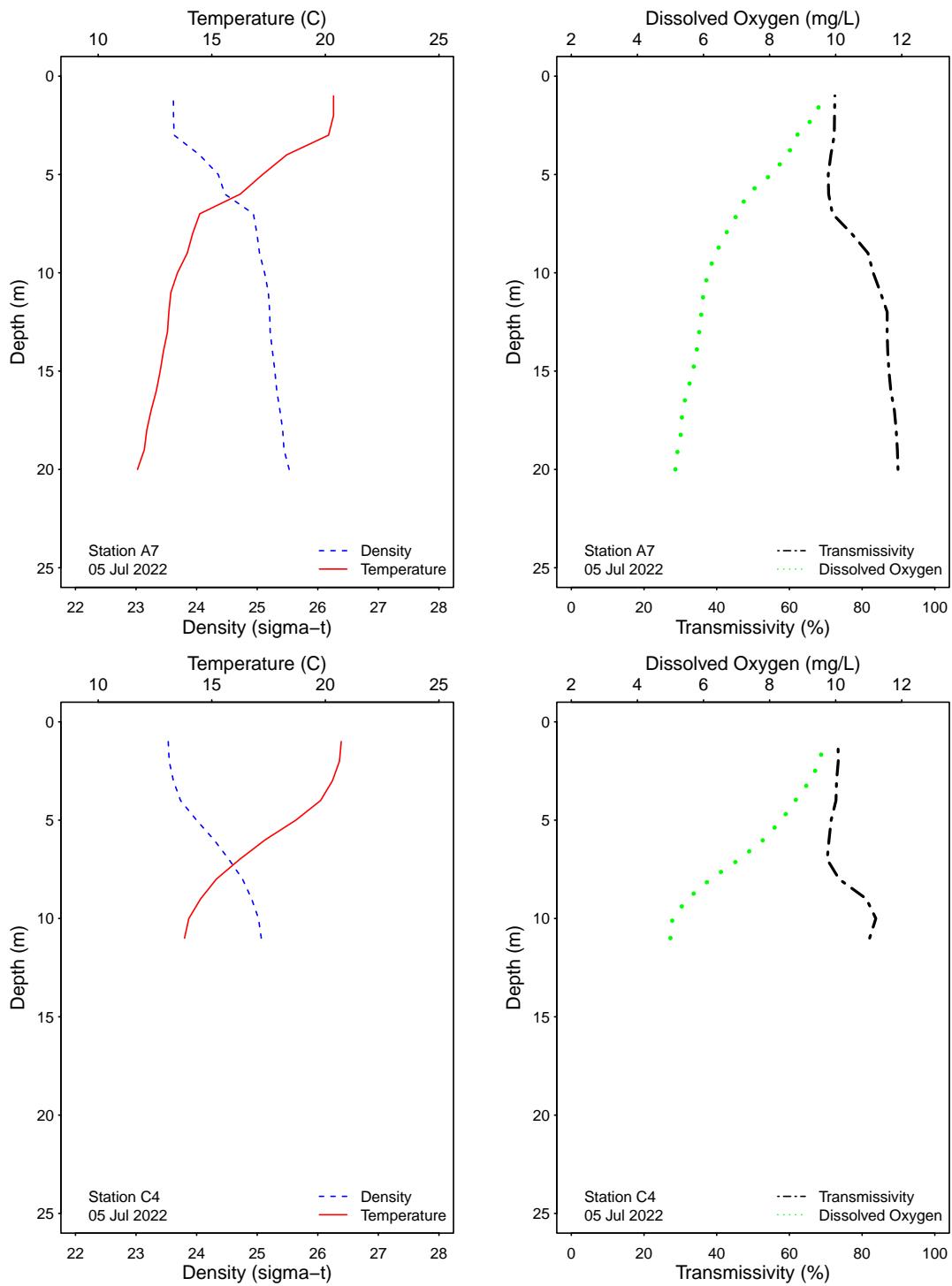


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

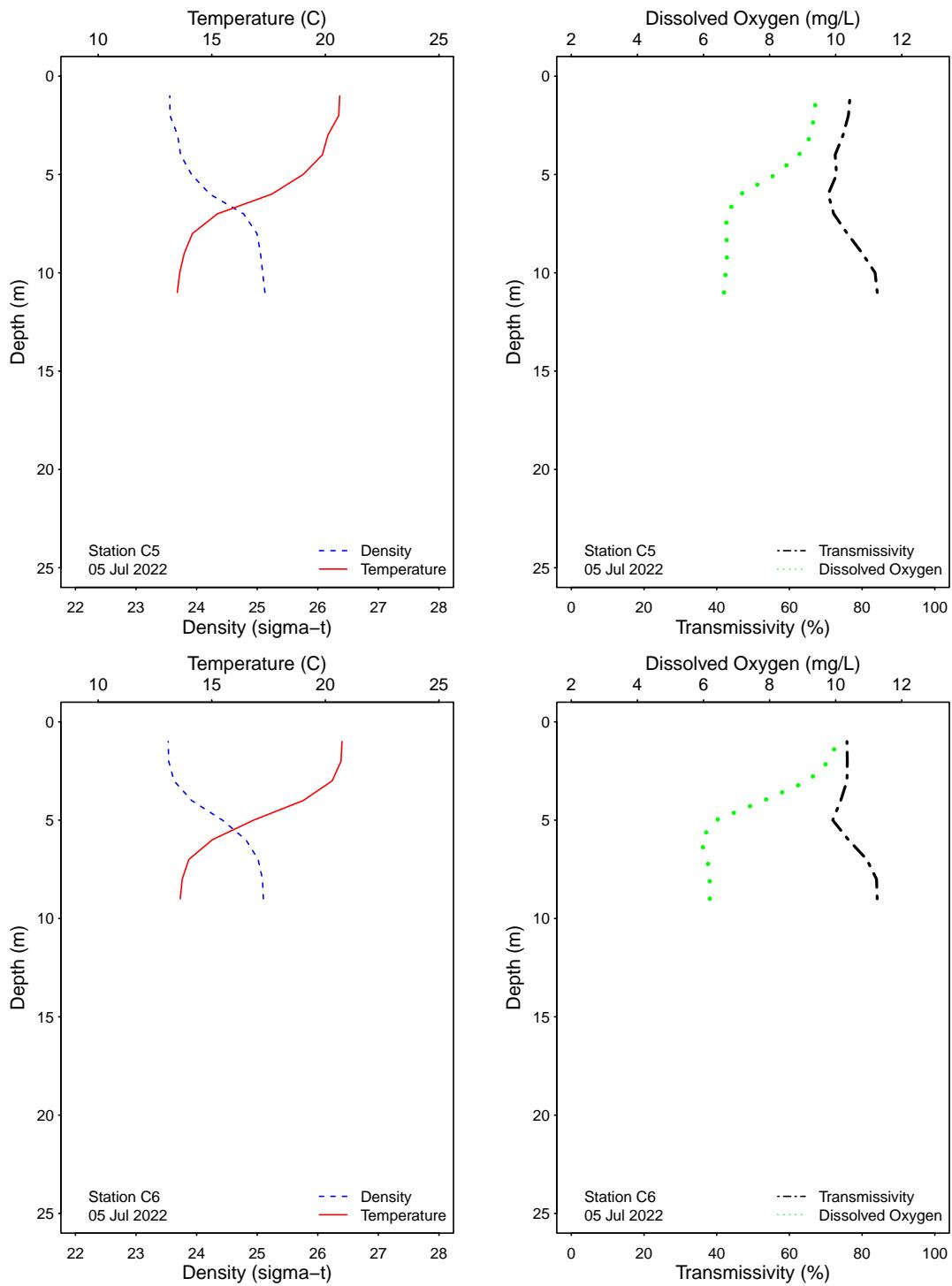


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

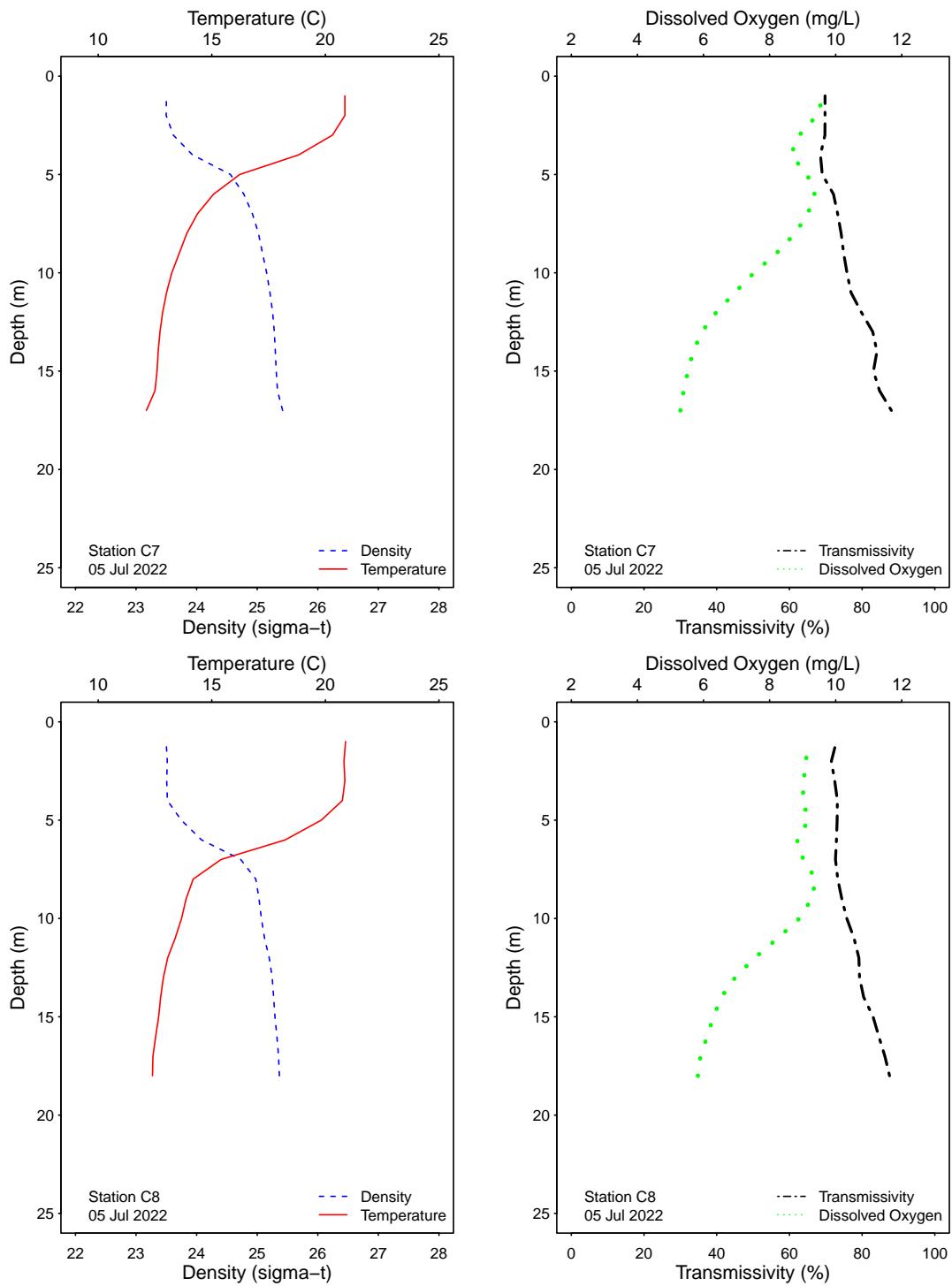


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

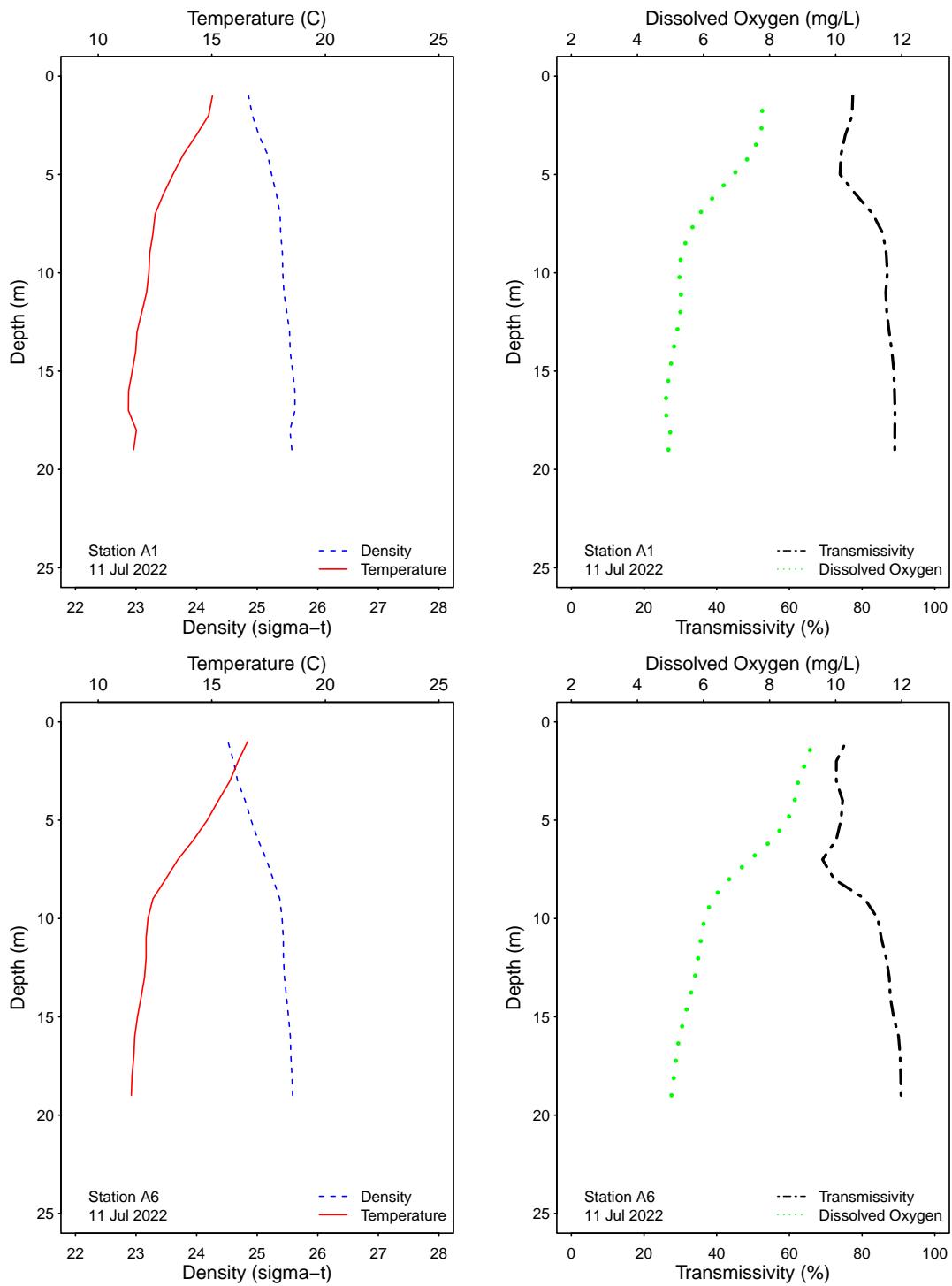


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

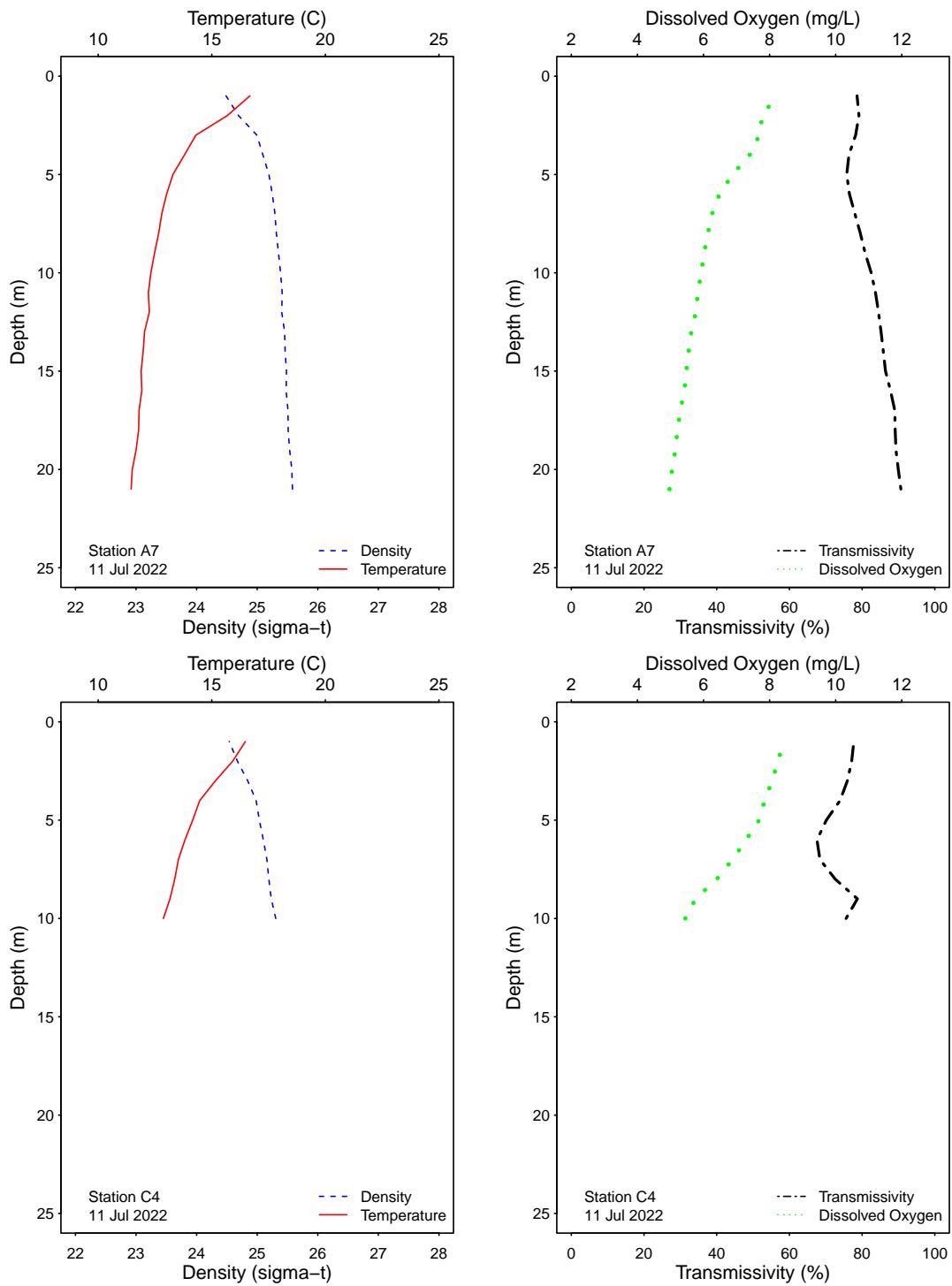


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

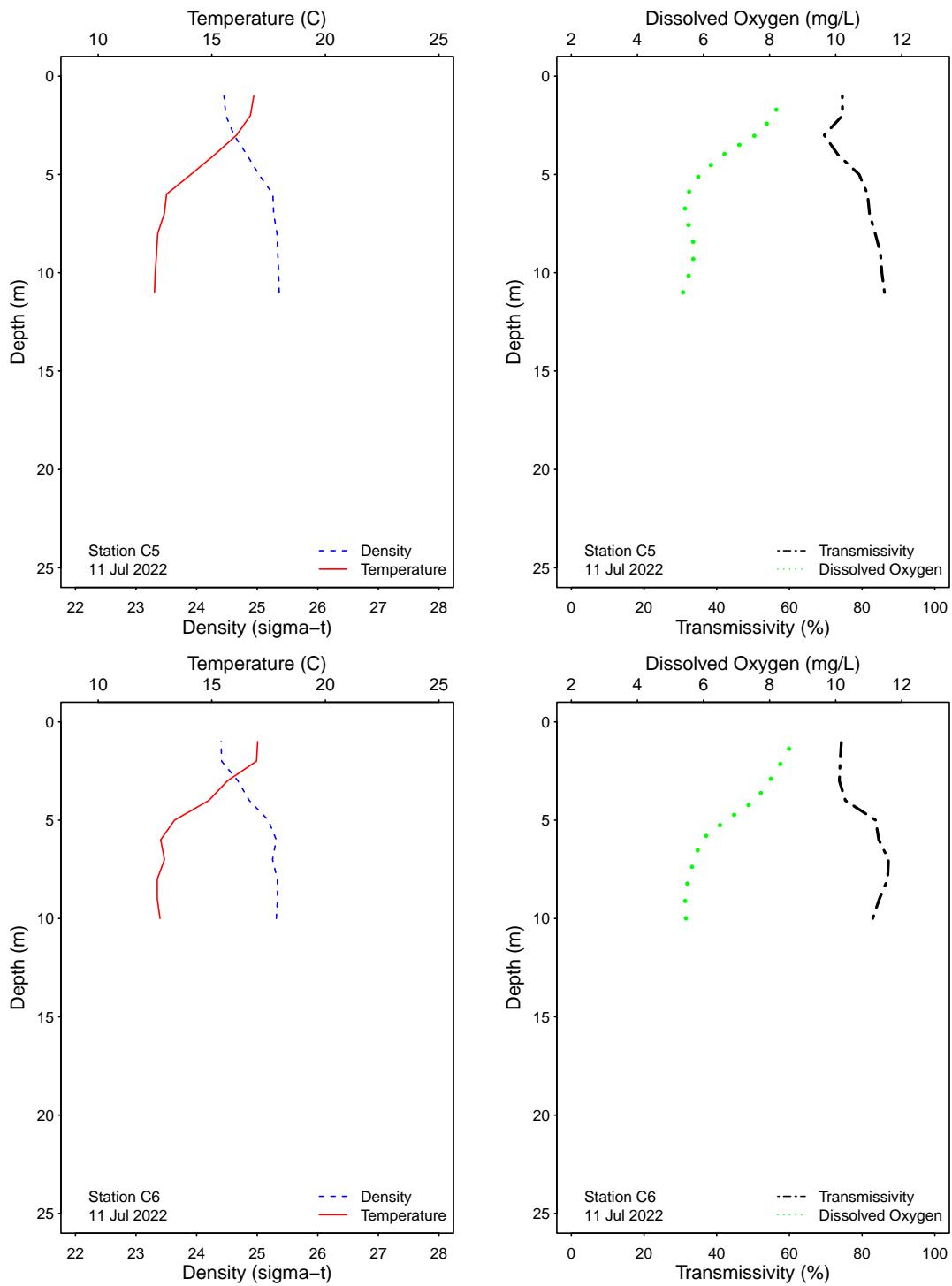


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

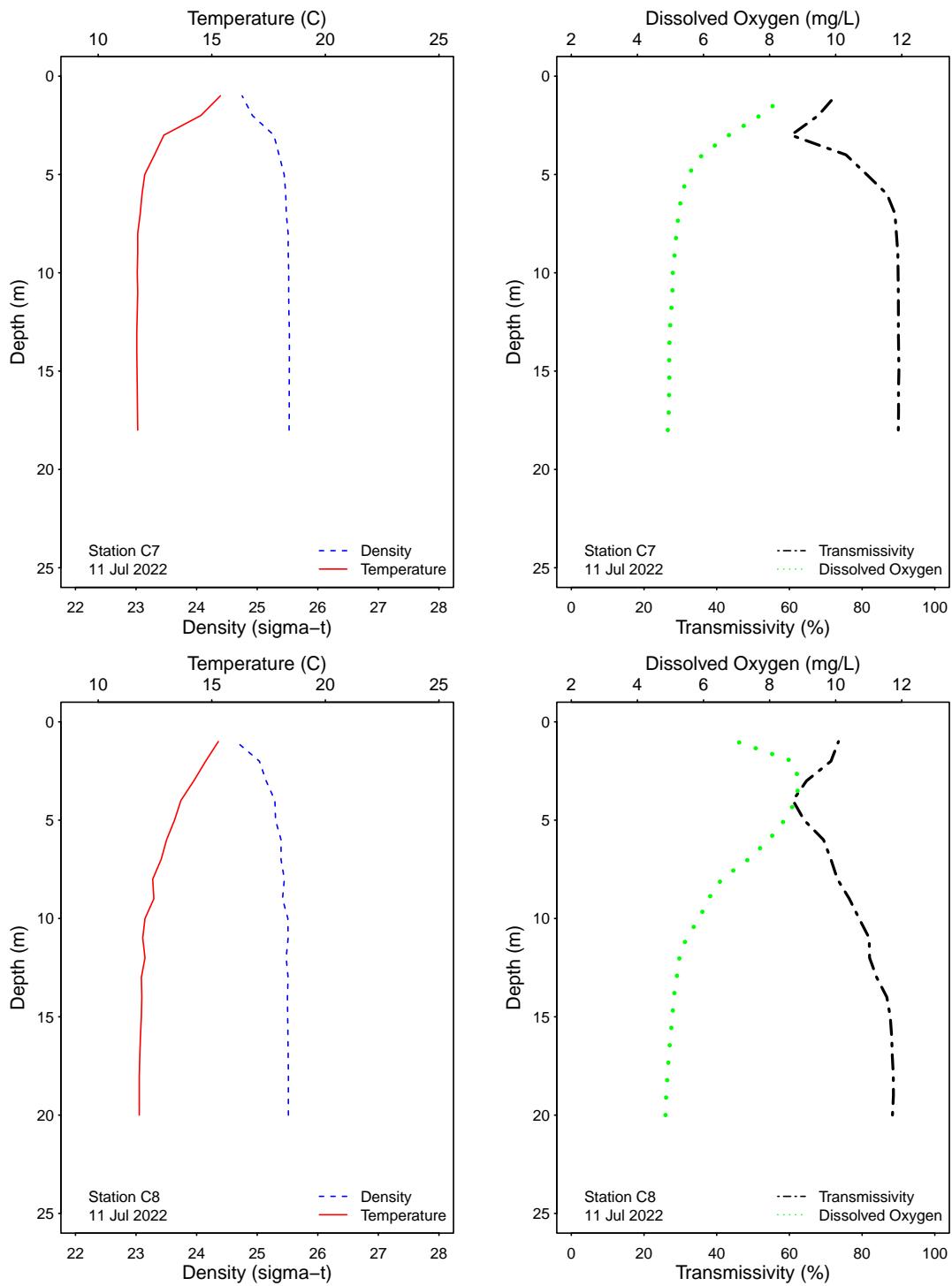


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

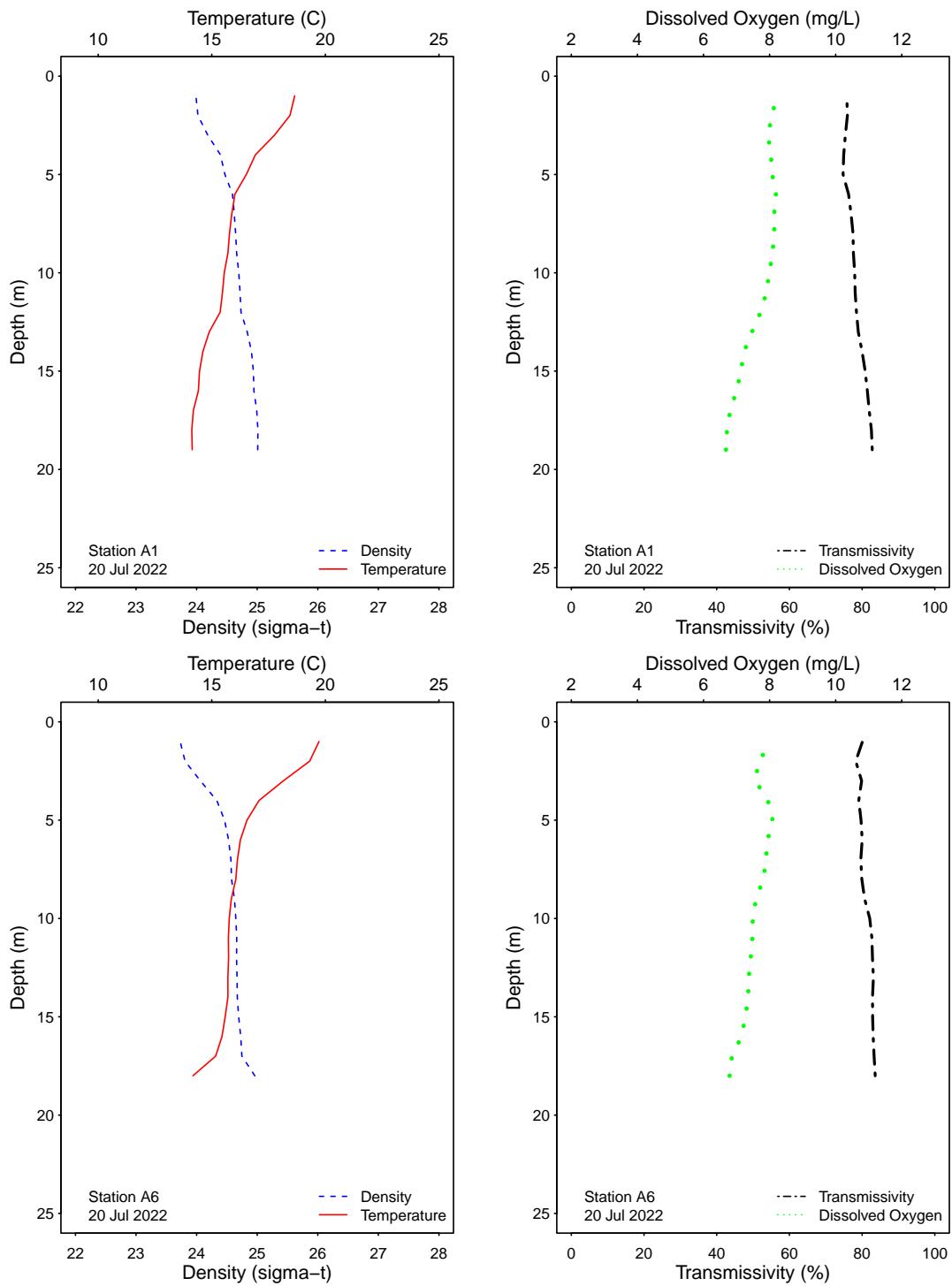


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

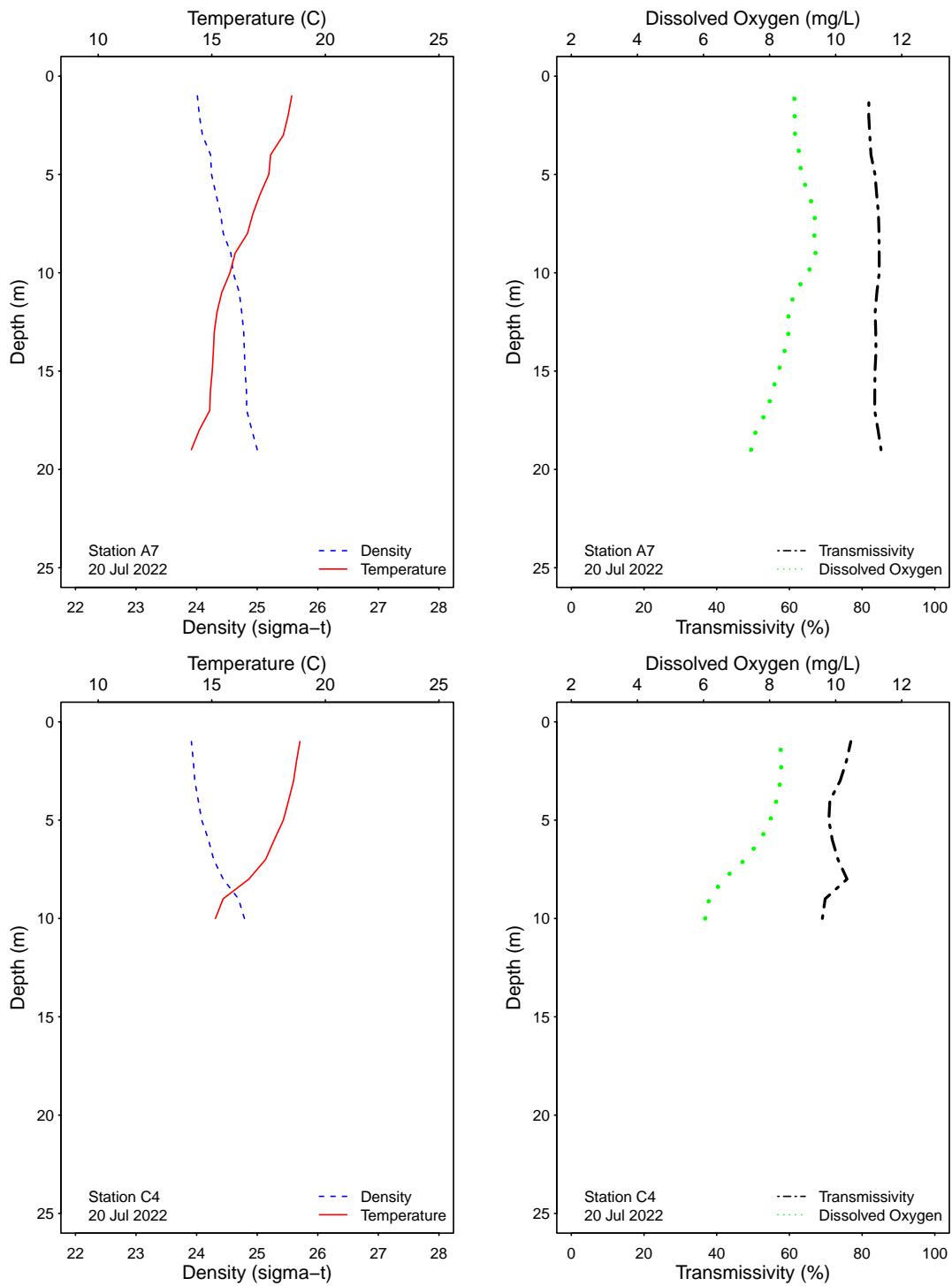


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

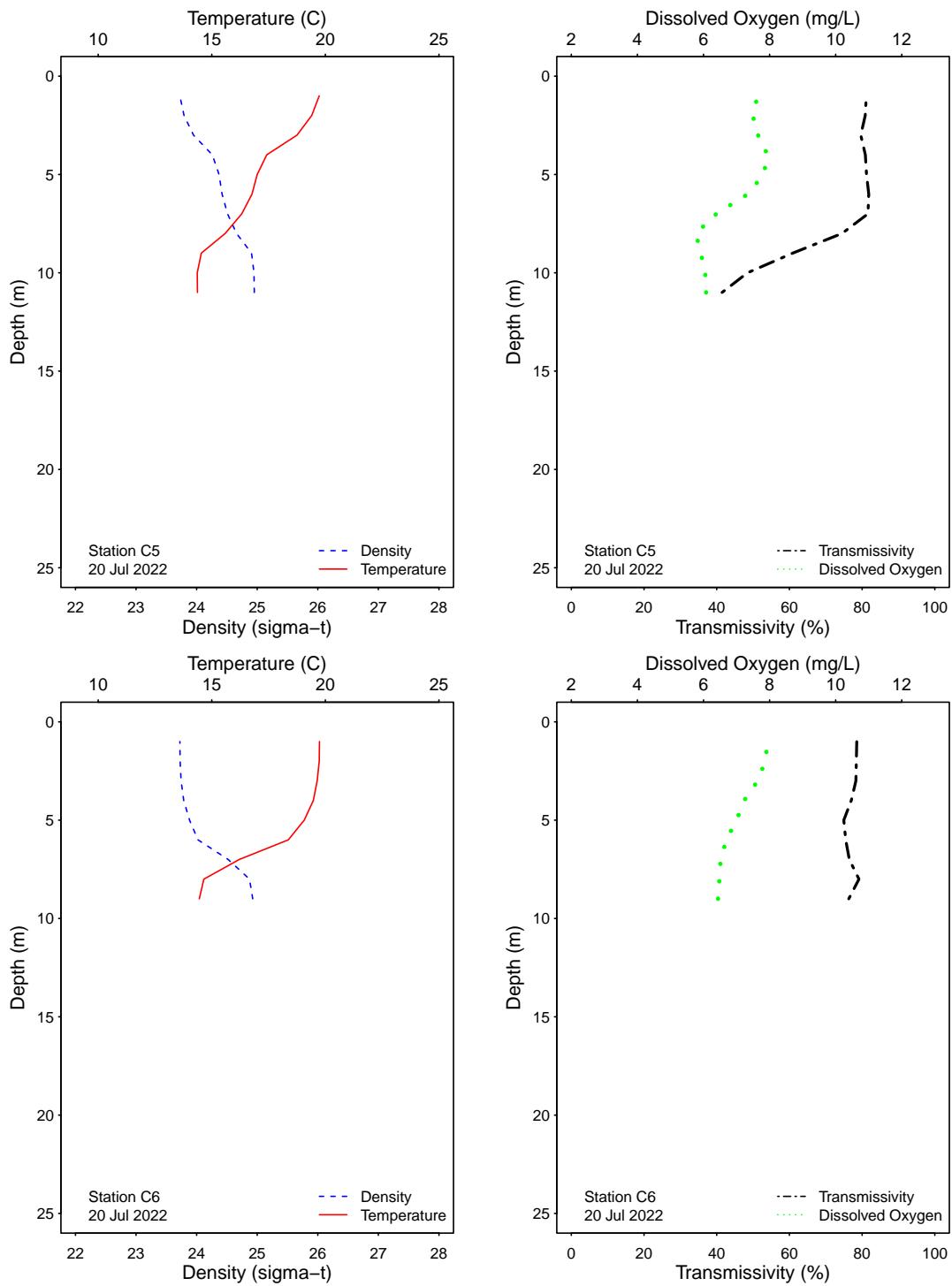


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

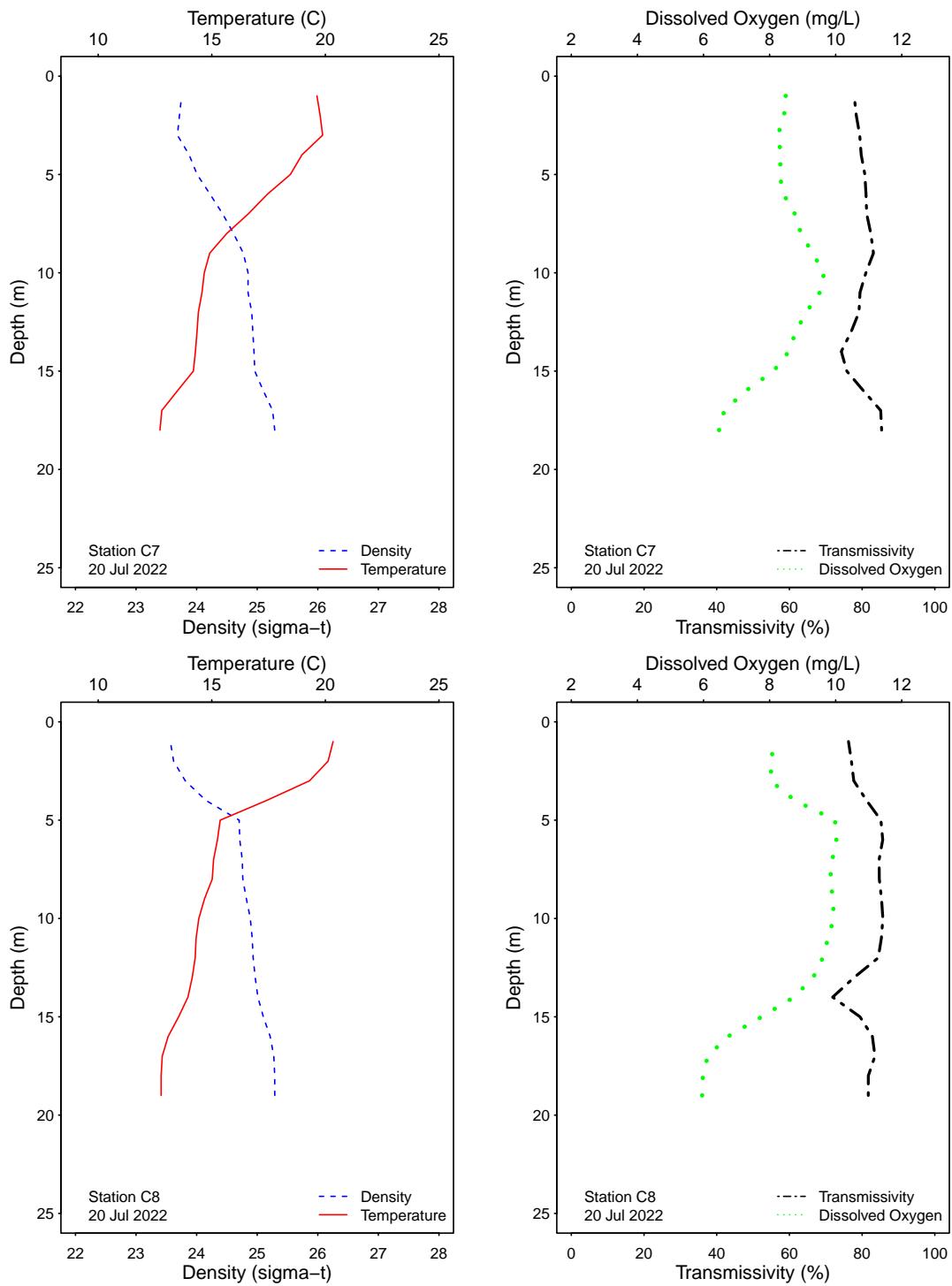


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

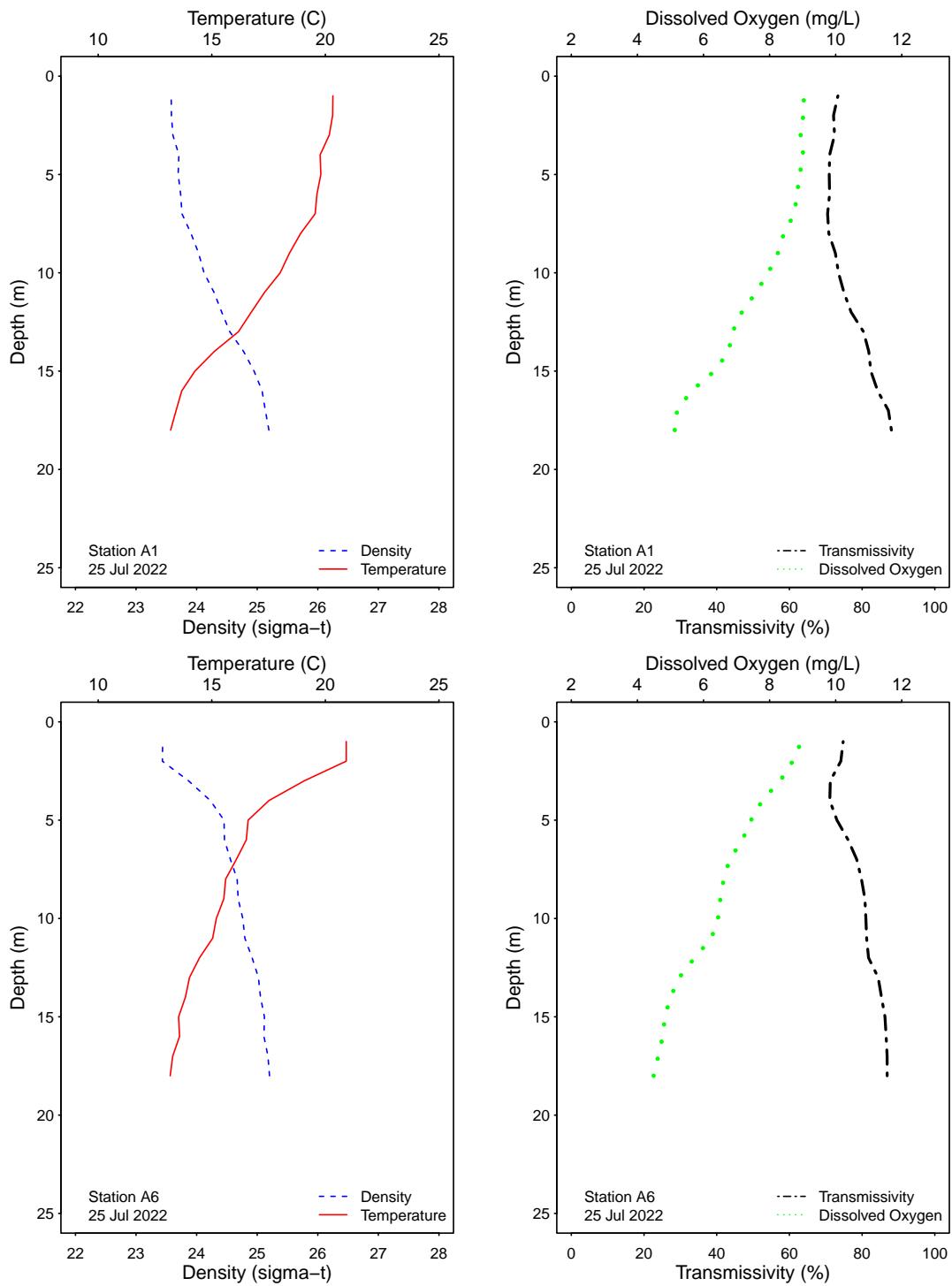


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

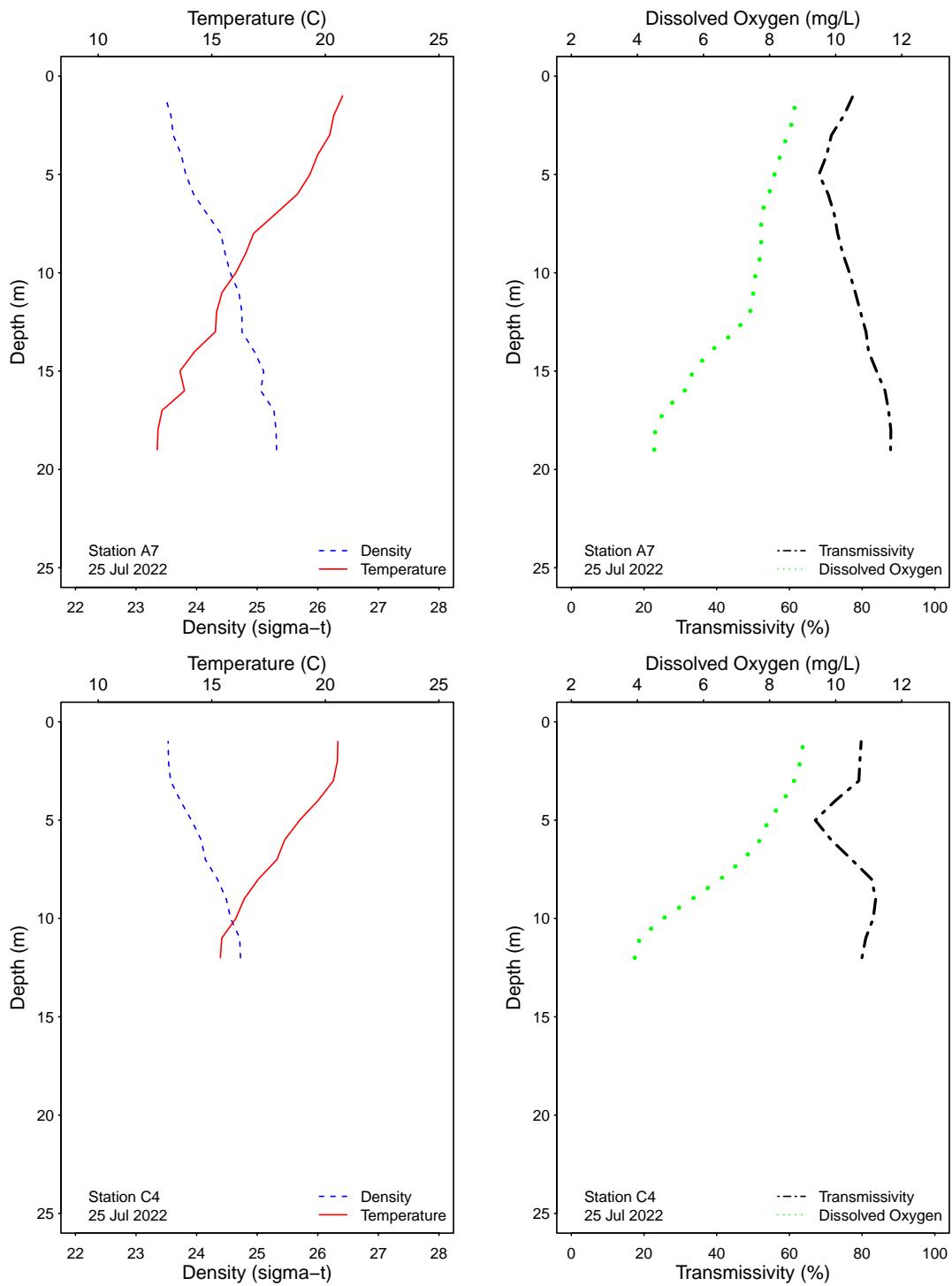


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

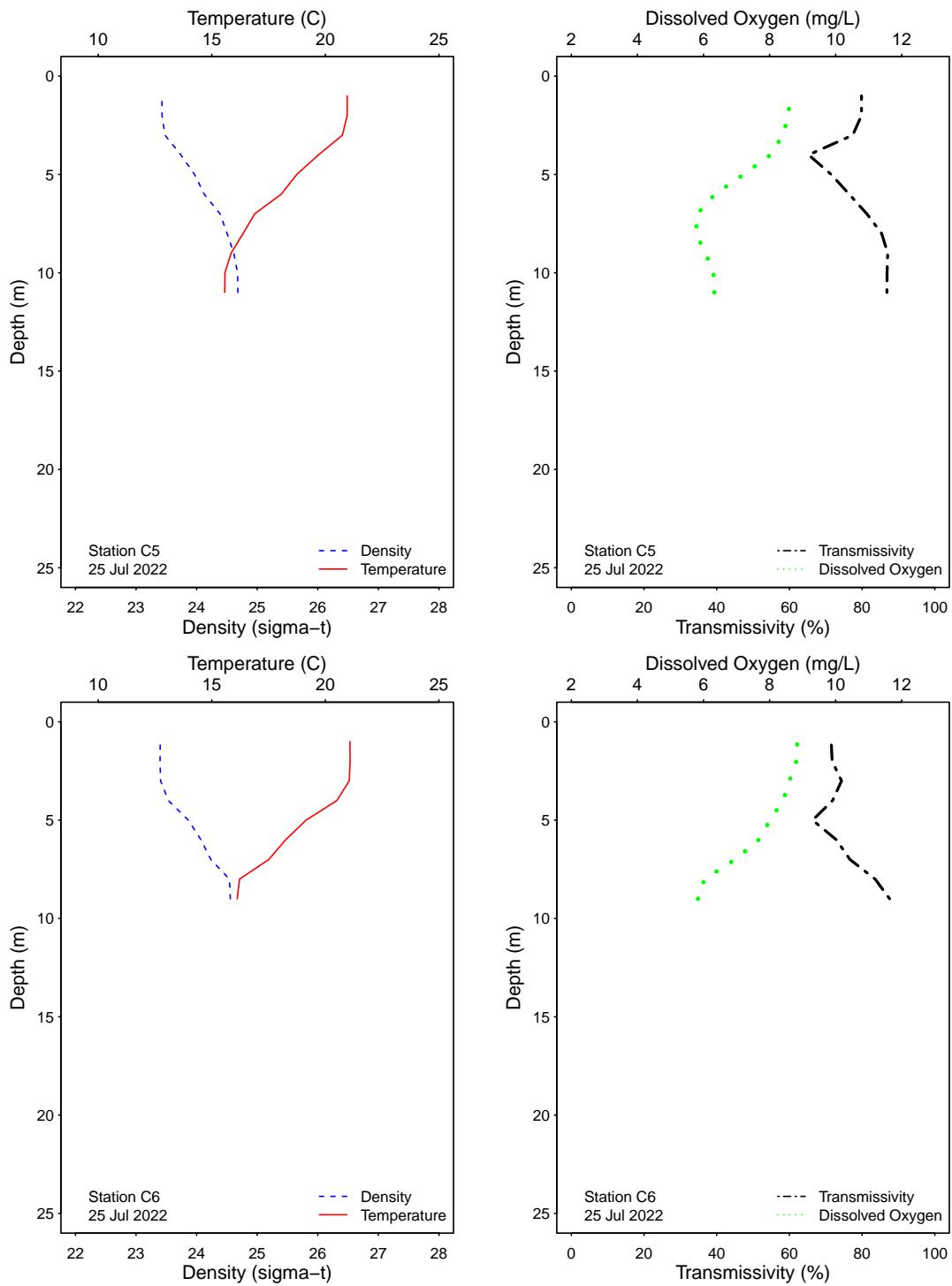


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

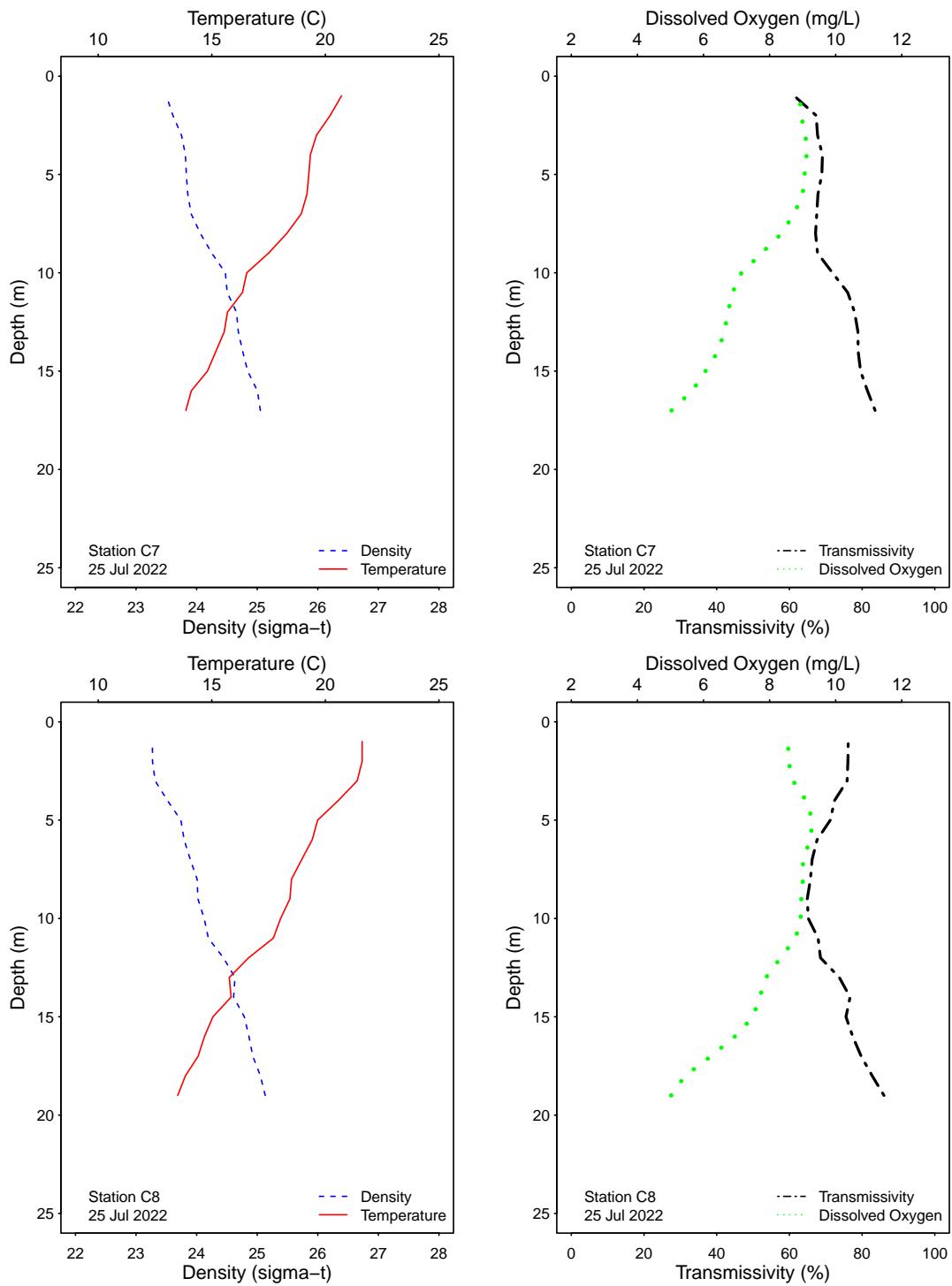


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

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

Station	Date	Depth	Analyst	Procedure	Total	Fecal	Enter
A7	05 Jul 2022	18	BS	LAB DUPLICATE	10e	<2	<2
A7	11 Jul 2022	18	BS	LAB DUPLICATE	8e	<2	<2
A7	20 Jul 2022	18	BS	LAB DUPLICATE	<2	<2	<2
A7	25 Jul 2022	18	BS	LAB DUPLICATE	<2	<2	<2
C7	05 Jul 2022	18	BS	LAB DUPLICATE	2e	<2	<2
C7	11 Jul 2022	18	BS	LAB DUPLICATE	4e	<2	2e
C7	20 Jul 2022	18	BS	LAB DUPLICATE	<2	<2	<2
C7	25 Jul 2022	18	BS	LAB DUPLICATE	2e	<2	<2
C8	05 Jul 2022	12	BS	LAB DUPLICATE	<2	<2	<2
C8	11 Jul 2022	12	BS	LAB DUPLICATE	<2	<2	<2
C8	20 Jul 2022	12	BS	LAB DUPLICATE	<2	<2	<2
C8	25 Jul 2022	12	BS	LAB DUPLICATE	<2	<2	<2
D12	06 Jul 2022		BS	FIELD DUPLICATE	<20	2e	10e
D12	06 Jul 2022		BS	LAB DUPLICATE	<20	2e	<2
D12	13 Jul 2022		BS	FIELD DUPLICATE	<20	4e	2e
D12	13 Jul 2022		BS	LAB DUPLICATE	<20	<2	2e
D12	20 Jul 2022		KA	FIELD DUPLICATE	2e	<2	<2
D12	20 Jul 2022		KA	LAB DUPLICATE	<2	2e	<2
D12	27 Jul 2022		HF	FIELD DUPLICATE	20e	<2	<2
D12	27 Jul 2022		HF	LAB DUPLICATE	<20	<2	<2

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-B	D9	D10	D11	D12
01 Jul 2022	2	2	2	4	2	2	6	2
02 Jul 2022	2	2	2	4	2	2	6	2
03 Jul 2022	2	2	2	4	2	2	6	2
04 Jul 2022	2	2	2	4	2	2	6	2
05 Jul 2022	2	2	2	4	2	2	6	2
06 Jul 2022	2	2	2	4	2	2	11	2
07 Jul 2022	2	2	2	4	2	2	10	2
08 Jul 2022	2	2	2	4	2	2	10	2
09 Jul 2022	2	2	2	4	2	2	10	2
10 Jul 2022	2	2	2	4	2	2	10	2
11 Jul 2022	2	2	2	4	2	2	10	2
12 Jul 2022	2	2	2	4	2	2	10	2
13 Jul 2022	3	2	4	3	2	2	12	2
14 Jul 2022	3	2	4	3	2	2	12	2
15 Jul 2022	3	2	4	3	2	2	12	2
16 Jul 2022	3	2	4	3	2	2	12	2
17 Jul 2022	3	2	4	3	2	2	12	2
18 Jul 2022	3	2	4	3	2	2	12	2
19 Jul 2022	3	2	4	3	2	2	12	2
20 Jul 2022	3	2	4	3	2	2	7	2
21 Jul 2022	3	2	4	3	2	2	7	2
22 Jul 2022	3	2	4	3	2	2	6	2
23 Jul 2022	3	2	4	3	2	2	6	2
24 Jul 2022	3	2	4	3	2	2	6	2
25 Jul 2022	3	2	4	3	2	2	6	2
26 Jul 2022	3	2	4	3	2	2	6	2
27 Jul 2022	3	2	5	2	2	2	6	3
28 Jul 2022	3	2	5	2	2	2	6	3
29 Jul 2022	3	2	5	2	2	2	6	3
30 Jul 2022	3	2	5	2	2	2	6	3
31 Jul 2022	3	2	5	2	2	2	6	3

* 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-B	D9	D10	D11	D12
July	IC	IC	IC	IC	IC	IC	E	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table B.3

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
01 Jul 2022	8	20	20	20	20	70	30	12
02 Jul 2022	8	20	20	20	20	70	30	12
03 Jul 2022	8	20	20	20	20	70	30	12
04 Jul 2022	8	20	20	20	20	70	30	12
05 Jul 2022	8	20	20	20	20	70	30	12
06 Jul 2022	14	20	20	20	20	60	40	20
07 Jul 2022	14	20	20	20	20	60	40	20
08 Jul 2022	14	11	20	20	20	54	30	20
09 Jul 2022	14	11	20	20	20	54	30	20
10 Jul 2022	14	11	20	20	20	54	30	20
11 Jul 2022	14	11	20	20	20	54	30	20
12 Jul 2022	14	11	20	20	20	54	30	20
13 Jul 2022	14	20	20	20	20	48	20	20
14 Jul 2022	14	20	20	20	20	48	20	20
15 Jul 2022	17	11	40	20	16	34	30	20
16 Jul 2022	17	11	40	20	16	34	30	20
17 Jul 2022	17	11	40	20	16	34	30	20
18 Jul 2022	17	11	40	20	16	34	30	20
19 Jul 2022	17	11	40	20	16	34	30	20
20 Jul 2022	20	20	20	20	16	20	28	20
21 Jul 2022	20	20	20	20	16	20	28	20
22 Jul 2022	20	11	40	20	14	34	24	12
23 Jul 2022	20	11	40	20	14	34	24	12
24 Jul 2022	20	11	40	20	14	34	24	12
25 Jul 2022	20	11	40	20	14	34	24	12
26 Jul 2022	20	11	40	20	14	34	24	12
27 Jul 2022	20	20	60	20	16	20	20	20
28 Jul 2022	20	20	60	20	16	20	20	20
29 Jul 2022	20	20	110	30	14	20	24	20
30 Jul 2022	20	20	110	30	14	20	24	20
31 Jul 2022	20	20	110	30	14	20	24	20

* Median calculated using n<5

Table B.4

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
July	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Kelp Stations

Table B.5

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 Jul 2022	2	2	2	2	2	2	2	2
02 Jul 2022	2	2	2	2	2	2	2	2
03 Jul 2022	2	2	2	2	2	2	2	2
04 Jul 2022	2	2	2	2	2	2	2	2
05 Jul 2022	2	2	2	2	2	2	2	2
06 Jul 2022	2	2	2	2	2	2	2	2
07 Jul 2022	2	2	2	2	2	2	2	2
08 Jul 2022	2	2	2	2	2	2	2	2
09 Jul 2022	2	2	2	2	2	2	2	2
10 Jul 2022	2	2	2	2	2	2	2	2
11 Jul 2022	2	2	2	2	2	2	2	2
12 Jul 2022	2	2	2	2	2	2	2	2
13 Jul 2022	2	2	2	2	2	2	2	2
14 Jul 2022	2	2	2	2	2	2	2	2
15 Jul 2022	2	2	2	2	2	2	2	2
16 Jul 2022	2	2	2	2	2	2	2	2
17 Jul 2022	2	2	2	2	2	2	2	2
18 Jul 2022	2	2	2	2	2	2	2	2
19 Jul 2022	2	2	2	2	2	2	2	2
20 Jul 2022	2	2	2	2	2	2	2	2
21 Jul 2022	2	2	2	2	2	2	2	2
22 Jul 2022	2	2	2	2	2	2	2	2
23 Jul 2022	2	2	2	2	2	2	2	2
24 Jul 2022	2	2	2	2	2	2	2	2
25 Jul 2022	2	2	2	2	2	2	2	2
26 Jul 2022	2	2	2	2	2	2	2	2
27 Jul 2022	2	2	2	2	2	2	2	2
28 Jul 2022	2	2	2	2	2	2	2	2
29 Jul 2022	2	2	2	2	2	2	2	2
30 Jul 2022	2	2	2	2	2	2	2	2
31 Jul 2022	2	2	2	2	2	2	2	2

* Geometric mean calculated using n<5

Table B.6

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
July	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table B.7

Summary of compliance with the Ocean Plan's 30-day Median standard for total coliform bacteria at the PLCO kelp stations. Data are based on the median of the five most recent samples from each site and depth over the previous 30 days unless otherwise noted (*). Values >70 CFU/100 mL exceed the standard. Median calculated using $n \leq 5$

Table B.8

Summary of compliance at the PLOO kelp stations with the Ocean Plan's Statistical Threshold Value for total coliform bacteria, which states that total coliform density shall not exceed 230 CFU/100 mL in more than 10 IC = In Compliance E = Exceedance ns = not sampled ND = no data