



POINT LOMA OCEAN OUTFALL MONTHLY RECEIVING WATERS MONITORING REPORT

**POINT LOMA
WASTEWATER TREATMENT PLANT**

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

OCTOBER 2019

REVISED MARCH 2021

Environmental Monitoring and Technical Services
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Public Utilities Department

Environmental Monitoring & Technical Services Division

April 1, 2021

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

Attention: POTW Compliance Unit

Dear Mr. Gibson:

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

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

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

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

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

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. However, due to increasing instability, City staff have been unable to safely access and sample station D8-A since February 7, 2018. During March 2018, the City identified an alternate location for stations D8/D8-A. This new station, designated D8-B, is located about 150 feet north of D8-A.

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

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

Single Sample Maximums:

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

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 2019 Quality Assurance Report, which will be completed in March 2020.

SUMMARY OF RESULTS

Shore Stations

- The eight shore stations (D4, D5, D7, D8-B, D9, D10, D11, D12) were sampled on October 2, 9, 16, 23, and 30. Subsequent to initial reporting, the samples collected at stations D4, D7 and D8-B on October 2, and stations D7, D8-B and D10 on October 30, were determined to be problematic. The results from these samples have been removed from this report.
- During October, one of the eight shore stations was out of compliance with various water-contact standards specified in the Ocean Plan as follows:
 - o The single sample maximum (SSM) standards for fecal coliform, *Enterococcus*, and the standard that states total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/total coliform ratio exceeds 0.1, were exceeded on October 16 at station D7.
 - o Per permit requirements, a resample was collected in response to these SSM exceedances (see Table 2.8 for details), and the resample did not exceed water-contact standards.
- 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>).
- Notable observations for October included a sewage-like odor on October 23 at station D5.

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

Kelp Bed Stations

- The eight kelp bed water quality stations (A1, A6, A7, C4, C5, C6, C7, C8) were sampled on October 9, 15, 22, and 29.
- All eight of these stations complied with various water-contact standards specified in the Ocean Plan.
- Water column temperatures ranged from 12.99 to 19.96°C. The difference between surface and bottom waters ranged from 0 to 6.15°C.
- Chlorophyll *a* concentrations ranged from 0.46 to 5.88 µg/L.
- Nothing of sewage origin was observed at any of the kelp stations.

Offshore Stations

- Quarterly offshore water quality sampling was not conducted during October. The next quarterly sampling is scheduled for November 2019.



TABLES AND FIGURES



Figure 1.1 Station Map

Shore Stations

Table 2.1

Summary of compliance with the Ocean Plan's 30-day Geometric Mean standard for total coliform bacteria at the 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 Oct 2019	35	15	68	43	48	40	24	8
02 Oct 2019	35	10	68	43	62	35	29	7
03 Oct 2019	35	10	68	43	62	35	29	7
04 Oct 2019	35	15	57	43	63	34	31	6
05 Oct 2019	35	15	57	43	63	34	31	6
06 Oct 2019	35	15	57	43	63	34	31	6
07 Oct 2019	35	15	57	43	63	34	31	6
08 Oct 2019	35	15	57	43	63	34	31	6
09 Oct 2019	62	16	86	63	50	40	29	7
10 Oct 2019	62	16	86	63	50	40	29	7
11 Oct 2019	110	11	179	93	35	48	26	10
12 Oct 2019	110	11	179	93	35	48	26	10
13 Oct 2019	110	11	179	93	35	48	26	10
14 Oct 2019	110	11	179	93	35	48	26	10
15 Oct 2019	110	11	179	93	35	48	26	10
16 Oct 2019	78	14	371	134	28	40	31	7
17 Oct 2019	78	14	371	134	28	40	31	7
18 Oct 2019	78	13	371	252	29	34	35	6
19 Oct 2019	78	13	371	252	29	34	35	6
20 Oct 2019	78	13	371	252	29	34	35	6
21 Oct 2019	78	13	371	252	29	34	35	6
22 Oct 2019	78	13	371	252	29	34	35	6
23 Oct 2019	31	11	235	134	26	30	31	5
24 Oct 2019	31	11	235	134	26	30	31	5
25 Oct 2019	25	10	268	117	28	28	35	4
26 Oct 2019	25	10	268	117	28	28	35	4
27 Oct 2019	25	10	268	117	28	28	35	4
28 Oct 2019	25	10	268	117	28	28	35	4
29 Oct 2019	25	10	268	117	28	28	35	4
30 Oct 2019	42	18	268	117	42	28	31	6
31 Oct 2019	42	18	268	117	42	28	31	6

* 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 Oct 2019	2	3	4	2	5	6	5	2
02 Oct 2019	2	3	4	2	8	5	4	2
03 Oct 2019	2	3	4	2	8	5	4	2
04 Oct 2019	2	3	5	2	12	4	5	2
05 Oct 2019	2	3	5	2	12	4	5	2
06 Oct 2019	2	3	5	2	12	4	5	2
07 Oct 2019	2	3	5	2	12	4	5	2
08 Oct 2019	2	3	5	2	12	4	5	2
09 Oct 2019	2	4	6	2	8	3	5	2
10 Oct 2019	2	4	6	2	8	3	5	2
11 Oct 2019	2	4	3	2	6	4	4	2
12 Oct 2019	2	4	3	2	6	4	4	2
13 Oct 2019	2	4	3	2	6	4	4	2
14 Oct 2019	2	4	3	2	6	4	4	2
15 Oct 2019	2	4	3	2	6	4	4	2
16 Oct 2019	3	3	19	2	5	4	4	2
17 Oct 2019	3	3	19	2	5	4	4	2
18 Oct 2019	3	4	19	2	6	4	3	2
19 Oct 2019	3	4	19	2	6	4	3	2
20 Oct 2019	3	4	19	2	6	4	3	2
21 Oct 2019	3	4	19	2	6	4	3	2
22 Oct 2019	3	4	19	2	6	4	3	2
23 Oct 2019	2	3	15	2	5	3	3	2
24 Oct 2019	2	3	15	2	5	3	3	2
25 Oct 2019	3	4	31	3	5	3	2	2
26 Oct 2019	3	4	31	3	5	3	2	2
27 Oct 2019	3	4	31	3	5	3	2	2
28 Oct 2019	3	4	31	3	5	3	2	2
29 Oct 2019	3	4	31	3	5	3	2	2
30 Oct 2019	3	3	31	3	4	3	3	2
31 Oct 2019	3	3	31	3	4	3	3	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 Oct 2019	3	2	3	2	3	8	6	3
02 Oct 2019	3	2	3	2	2	6	5	3
03 Oct 2019	3	2	3	2	2	6	5	3
04 Oct 2019	3	2	3	2	3	2	3	3
05 Oct 2019	3	2	3	2	3	2	3	3
06 Oct 2019	3	2	3	2	3	2	3	3
07 Oct 2019	3	2	3	2	3	2	3	3
08 Oct 2019	3	2	3	2	3	2	3	3
09 Oct 2019	3	2	4	2	3	2	3	3
10 Oct 2019	3	2	4	2	3	2	3	3
11 Oct 2019	3	2	3	2	3	2	2	3
12 Oct 2019	3	2	3	2	3	2	2	3
13 Oct 2019	3	2	3	2	3	2	2	3
14 Oct 2019	3	2	3	2	3	2	2	3
15 Oct 2019	3	2	3	2	3	2	2	3
16 Oct 2019	6	2	22	3	3	3	2	3
17 Oct 2019	6	2	22	3	3	3	2	3
18 Oct 2019	6	3	22	4	3	3	2	2
19 Oct 2019	6	3	22	4	3	3	2	2
20 Oct 2019	6	3	22	4	3	3	2	2
21 Oct 2019	6	3	22	4	3	3	2	2
22 Oct 2019	6	3	22	4	3	3	2	2
23 Oct 2019	5	3	16	3	3	3	2	2
24 Oct 2019	5	3	16	3	3	3	2	2
25 Oct 2019	4	3	32	4	2	4	2	2
26 Oct 2019	4	3	32	4	2	4	2	2
27 Oct 2019	4	3	32	4	2	4	2	2
28 Oct 2019	4	3	32	4	2	4	2	2
29 Oct 2019	4	3	32	4	2	4	2	2
30 Oct 2019	5	4	32	4	3	4	2	3
31 Oct 2019	5	4	32	4	3	4	2	3

* 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
02 Oct 2019	ns	IC	ns	ns	IC	IC	IC	IC
09 Oct 2019	IC	IC	IC	IC	IC	IC	IC	IC
16 Oct 2019	IC	IC	IC	IC	IC	IC	IC	IC
23 Oct 2019	IC	IC	IC	IC	IC	IC	IC	IC
30 Oct 2019	IC	IC	ns	ns	IC	ns	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
02 Oct 2019	ns	IC	ns	ns	IC	IC	IC	IC
09 Oct 2019	IC	IC	IC	IC	IC	IC	IC	IC
16 Oct 2019	IC	IC	E	IC	IC	IC	IC	IC
17 Oct 2019	ns	ns	IC	ns	ns	ns	ns	ns
23 Oct 2019	IC	IC	IC	IC	IC	IC	IC	IC
30 Oct 2019	IC	IC	ns	ns	IC	ns	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
02 Oct 2019	ns	IC	ns	ns	IC	IC	IC	IC
09 Oct 2019	IC	IC	IC	IC	IC	IC	IC	IC
16 Oct 2019	IC	IC	E	IC	IC	IC	IC	IC
17 Oct 2019	ns	ns	IC	ns	ns	ns	ns	ns
23 Oct 2019	IC	IC	IC	IC	IC	IC	IC	IC
30 Oct 2019	IC	IC	ns	ns	IC	ns	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
02 Oct 2019	ns	IC	ns	ns	IC	IC	IC	IC
09 Oct 2019	IC	IC	IC	IC	IC	IC	IC	IC
16 Oct 2019	IC	IC	E	IC	IC	IC	IC	IC
17 Oct 2019	ns	ns	E	ns	ns	ns	ns	ns
23 Oct 2019	IC	IC	IC	IC	IC	IC	IC	IC
30 Oct 2019	IC	IC	ns	ns	IC	ns	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	09 Oct 2019	1016	<200	<2	2e	0.010
D4	16 Oct 2019	1030	40e	4e	18e	0.100
D4	23 Oct 2019	806	<2	<2	2e	1.000
D4	30 Oct 2019	816	<200	4e	6e	0.020
D5	02 Oct 2019	1000	<2	<2	<2	1.000
D5	09 Oct 2019	959	<20	<20	<2	1.000
D5	16 Oct 2019	1017	40e	2e	6e	0.050
D5	23 Oct 2019	755	6e	<2	4e	0.333
D5	30 Oct 2019	828	<200	2e	12e	0.010
D7	09 Oct 2019	933	<200	6e	6e	0.030
D7	16 Oct 2019	946	1600e	600	920	0.375
D7	17 Oct 2019	1221	600	32	24	0.053
D7	23 Oct 2019	832	60e	8e	6e	0.133
D8-B	09 Oct 2019	914	<200	2e	<2	0.010
D8-B	16 Oct 2019	923	400e	<2	12e	0.005
D8-B	23 Oct 2019	858	20e	4e	<2	0.200
D9	02 Oct 2019	916	180e	80e	2e	0.444
D9	09 Oct 2019	859	20e	<2	4e	0.100
D9	16 Oct 2019	911	10e	2e	2e	0.200
D9	23 Oct 2019	915	18e	<2	<2	0.111
D9	30 Oct 2019	718	<200	<2	4e	0.010
D10	02 Oct 2019	906	<20	2e	<2	0.100
D10	09 Oct 2019	838	80e	<2	2e	0.025
D10	16 Oct 2019	845	20e	6e	10e	0.300
D10	23 Oct 2019	929	<20	<2	4e	0.100
D11	02 Oct 2019	850	60e	2e	2e	0.033
D11	09 Oct 2019	823	20e	4e	<2	0.200
D11	16 Oct 2019	822	60e	<2	<2	0.033
D11	23 Oct 2019	948	<20	<2	<2	0.100
D11	30 Oct 2019	621	<20	8e	4e	0.400
D12	02 Oct 2019	824	4e	4e	2e	1.000
D12	09 Oct 2019	758	<20	<2	<2	0.100
D12	16 Oct 2019	759	<2	<2	4e	1.000
D12	23 Oct 2019	1018	<2	<2	<2	1.000
D12	30 Oct 2019	601	<20	<2	6e	0.100

ns = not sampled

ND = no data

Comments

Station	Date	Depth	Parameter	Comments
D7	17 Oct 2019			Resample

Table 2.9

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

Station	Date	Parameter	Value
D4	09 Oct 2019	Arrive Time	1016
D4	09 Oct 2019	Weather	Sunny
D4	09 Oct 2019	Wind Speed (kts)	2.1
D4	09 Oct 2019	Wind Dir	NE
D4	09 Oct 2019	Animal Life	None
D4	09 Oct 2019	Floatables	None
D4	09 Oct 2019	Water Color	Green
D4	09 Oct 2019	Current Direction	N
D4	09 Oct 2019	Water Temp (C)	22.1
D4	09 Oct 2019	Wave Height Low (ft)	3
D4	09 Oct 2019	High Tide (ft)	4.6
D4	09 Oct 2019	High Tide Time	758
D4	09 Oct 2019	Low Tide (ft)	1.8
D4	09 Oct 2019	Low Tide Time	1343
D4	09 Oct 2019	Comments	Kelp; Seagrass; Algae; 1 Surfer; 9 Boats; Water clear; 1 Jet ski
D4	16 Oct 2019	Arrive Time	1030
D4	16 Oct 2019	Weather	Sunny
D4	16 Oct 2019	Wind Speed (kts)	3.1
D4	16 Oct 2019	Wind Dir	E
D4	16 Oct 2019	Animal Life	None
D4	16 Oct 2019	Floatables	Foam; Film
D4	16 Oct 2019	Water Color	Green
D4	16 Oct 2019	Current Direction	S
D4	16 Oct 2019	Water Temp (C)	22.2
D4	16 Oct 2019	Wave Height Low (ft)	4
D4	16 Oct 2019	High Tide (ft)	5.5
D4	16 Oct 2019	High Tide Time	1032
D4	16 Oct 2019	Low Tide (ft)	1.6
D4	16 Oct 2019	Low Tide Time	426
D4	16 Oct 2019	Comments	Kelp; Seagrass; Algae; 1 Boat; Water clear
D4	23 Oct 2019	Arrive Time	806
D4	23 Oct 2019	Weather	Sunny
D4	23 Oct 2019	Wind Speed (kts)	9.3
D4	23 Oct 2019	Wind Dir	NW
D4	23 Oct 2019	Animal Life	1 Cormorant; 1 Seagull
D4	23 Oct 2019	Floatables	None
D4	23 Oct 2019	Water Color	Green
D4	23 Oct 2019	Current Direction	N
D4	23 Oct 2019	Water Temp (C)	20.9
D4	23 Oct 2019	Wave Height Low (ft)	5
D4	23 Oct 2019	High Tide (ft)	4.5
D4	23 Oct 2019	High Tide Time	645
D4	23 Oct 2019	Low Tide (ft)	2.1
D4	23 Oct 2019	Low Tide Time	1219
D4	23 Oct 2019	Comments	Kelp; Seagrass; Algae; 2 Surfers; 5 Boats; Water clear
D4	30 Oct 2019	Arrive Time	816
D4	30 Oct 2019	Weather	Partly Cloudy
D4	30 Oct 2019	Wind Speed (kts)	2.4
D4	30 Oct 2019	Wind Dir	SW
D4	30 Oct 2019	Animal Life	None
D4	30 Oct 2019	Floatables	None
D4	30 Oct 2019	Water Color	Green

Station	Date	Parameter	Value
D4	30 Oct 2019	Current Direction	N
D4	30 Oct 2019	Water Temp (C)	17.2
D4	30 Oct 2019	Wave Height Low (ft)	2
D4	30 Oct 2019	High Tide (ft)	6.2
D4	30 Oct 2019	High Tide Time	1041
D4	30 Oct 2019	Low Tide (ft)	1.5
D4	30 Oct 2019	Low Tide Time	433
D4	30 Oct 2019	Comments	Kelp; Seagrass; Algae; Water clear
D5	02 Oct 2019	Arrive Time	1000
D5	02 Oct 2019	Weather	Sunny
D5	02 Oct 2019	Wind Speed (kts)	2.2
D5	02 Oct 2019	Wind Dir	W
D5	02 Oct 2019	Animal Life	None
D5	02 Oct 2019	Floatables	None
D5	02 Oct 2019	Water Color	Green
D5	02 Oct 2019	Current Direction	N
D5	02 Oct 2019	Water Temp (C)	20.1
D5	02 Oct 2019	Wave Height Low (ft)	3
D5	02 Oct 2019	High Tide (ft)	5.7
D5	02 Oct 2019	High Tide Time	1159
D5	02 Oct 2019	Low Tide (ft)	1.5
D5	02 Oct 2019	Low Tide Time	547
D5	02 Oct 2019	Comments	Kelp; Seagrass; Algae; 1 Boat; Water clear
D5	09 Oct 2019	Arrive Time	959
D5	09 Oct 2019	Weather	Partly Cloudy
D5	09 Oct 2019	Wind Speed (kts)	2.7
D5	09 Oct 2019	Wind Dir	NE
D5	09 Oct 2019	Animal Life	6 Seagulls
D5	09 Oct 2019	Floatables	Foam; Film
D5	09 Oct 2019	Water Color	Green
D5	09 Oct 2019	Current Direction	N
D5	09 Oct 2019	Water Temp (C)	21.8
D5	09 Oct 2019	Wave Height Low (ft)	2
D5	09 Oct 2019	High Tide (ft)	4.6
D5	09 Oct 2019	High Tide Time	758
D5	09 Oct 2019	Low Tide (ft)	1.8
D5	09 Oct 2019	Low Tide Time	1343
D5	09 Oct 2019	Comments	Kelp; Seagrass; Algae; 13 Boats; Water clear
D5	16 Oct 2019	Arrive Time	1017
D5	16 Oct 2019	Weather	Sunny
D5	16 Oct 2019	Wind Speed (kts)	2.3
D5	16 Oct 2019	Wind Dir	E
D5	16 Oct 2019	Animal Life	9 Seagulls
D5	16 Oct 2019	Floatables	Foam; Film
D5	16 Oct 2019	Water Color	Green
D5	16 Oct 2019	Current Direction	S
D5	16 Oct 2019	Water Temp (C)	22.4
D5	16 Oct 2019	Wave Height Low (ft)	4
D5	16 Oct 2019	High Tide (ft)	5.5
D5	16 Oct 2019	High Tide Time	1032
D5	16 Oct 2019	Low Tide (ft)	1.6
D5	16 Oct 2019	Low Tide Time	426
D5	16 Oct 2019	Comments	Kelp; Seagrass; Algae; 3 Boats; Water clear
D5	23 Oct 2019	Arrive Time	755
D5	23 Oct 2019	Weather	Sunny
D5	23 Oct 2019	Wind Speed (kts)	5.2
D5	23 Oct 2019	Wind Dir	W

Station	Date	Parameter	Value
D5	23 Oct 2019	Animal Life	8 Cormorants
D5	23 Oct 2019	Floatables	Foam
D5	23 Oct 2019	Water Color	Green
D5	23 Oct 2019	Current Direction	N
D5	23 Oct 2019	Water Temp (C)	18.1
D5	23 Oct 2019	Wave Height Low (ft)	3
D5	23 Oct 2019	High Tide (ft)	4.5
D5	23 Oct 2019	High Tide Time	645
D5	23 Oct 2019	Low Tide (ft)	2.1
D5	23 Oct 2019	Low Tide Time	1219
D5	23 Oct 2019	Comments	Kelp; Seagrass; Algae; Sewage-like odor; 1 Boat; Water clear
D5	30 Oct 2019	Arrive Time	828
D5	30 Oct 2019	Weather	Partly Cloudy
D5	30 Oct 2019	Wind Speed (kts)	0
D5	30 Oct 2019	Wind Dir	
D5	30 Oct 2019	Animal Life	None
D5	30 Oct 2019	Floatables	None
D5	30 Oct 2019	Water Color	Green
D5	30 Oct 2019	Current Direction	N
D5	30 Oct 2019	Water Temp (C)	17.8
D5	30 Oct 2019	Wave Height Low (ft)	3
D5	30 Oct 2019	High Tide (ft)	6.2
D5	30 Oct 2019	High Tide Time	1041
D5	30 Oct 2019	Low Tide (ft)	1.5
D5	30 Oct 2019	Low Tide Time	433
D5	30 Oct 2019	Comments	Kelp; Seagrass; Algae; Water clear
D7	09 Oct 2019	Arrive Time	933
D7	09 Oct 2019	Weather	Sunny
D7	09 Oct 2019	Wind Speed (kts)	1.3
D7	09 Oct 2019	Wind Dir	NE
D7	09 Oct 2019	Animal Life	20 Seagulls
D7	09 Oct 2019	Floatables	Foam; Film
D7	09 Oct 2019	Water Color	Green
D7	09 Oct 2019	Current Direction	S
D7	09 Oct 2019	Water Temp (C)	21.9
D7	09 Oct 2019	Wave Height Low (ft)	3
D7	09 Oct 2019	High Tide (ft)	4.6
D7	09 Oct 2019	High Tide Time	758
D7	09 Oct 2019	Low Tide (ft)	1.8
D7	09 Oct 2019	Low Tide Time	1343
D7	09 Oct 2019	Comments	Kelp; Seagrass; 2 Surfers; 7 Boats; Water clear; 1 Helicopter
D7	16 Oct 2019	Arrive Time	946
D7	16 Oct 2019	Weather	Sunny
D7	16 Oct 2019	Wind Speed (kts)	0
D7	16 Oct 2019	Wind Dir	
D7	16 Oct 2019	Animal Life	4 Seagulls
D7	16 Oct 2019	Floatables	Foam; Film
D7	16 Oct 2019	Water Color	Green
D7	16 Oct 2019	Current Direction	S
D7	16 Oct 2019	Water Temp (C)	21.2
D7	16 Oct 2019	Wave Height Low (ft)	4
D7	16 Oct 2019	High Tide (ft)	5.5
D7	16 Oct 2019	High Tide Time	1032
D7	16 Oct 2019	Low Tide (ft)	1.6
D7	16 Oct 2019	Low Tide Time	426
D7	16 Oct 2019	Comments	Kelp; Seagrass; Algae; 1 Surfer; 1 Boat; Water clear
D7	23 Oct 2019	Arrive Time	832

Station	Date	Parameter	Value
D7	23 Oct 2019	Weather	Sunny
D7	23 Oct 2019	Wind Speed (kts)	10.3
D7	23 Oct 2019	Wind Dir	W
D7	23 Oct 2019	Animal Life	None
D7	23 Oct 2019	Floatables	None
D7	23 Oct 2019	Water Color	Green
D7	23 Oct 2019	Current Direction	N
D7	23 Oct 2019	Water Temp (C)	19
D7	23 Oct 2019	Wave Height Low (ft)	4
D7	23 Oct 2019	High Tide (ft)	4.5
D7	23 Oct 2019	High Tide Time	645
D7	23 Oct 2019	Low Tide (ft)	2.1
D7	23 Oct 2019	Low Tide Time	1219
D7	23 Oct 2019	Comments	Kelp; Seagrass; Algae; Water clear
D8-B	09 Oct 2019	Arrive Time	914
D8-B	09 Oct 2019	Weather	Partly Cloudy
D8-B	09 Oct 2019	Wind Speed (kts)	6.8
D8-B	09 Oct 2019	Wind Dir	NE
D8-B	09 Oct 2019	Animal Life	12 Seagulls
D8-B	09 Oct 2019	Floatables	Foam; Film
D8-B	09 Oct 2019	Water Color	Green
D8-B	09 Oct 2019	Current Direction	N
D8-B	09 Oct 2019	Water Temp (C)	21.6
D8-B	09 Oct 2019	Wave Height Low (ft)	1
D8-B	09 Oct 2019	High Tide (ft)	4.6
D8-B	09 Oct 2019	High Tide Time	758
D8-B	09 Oct 2019	Low Tide (ft)	1.8
D8-B	09 Oct 2019	Low Tide Time	1343
D8-B	09 Oct 2019	Comments	Kelp; Seagrass; Algae; 5 Boats; Water clear
D8-B	16 Oct 2019	Arrive Time	923
D8-B	16 Oct 2019	Weather	Sunny
D8-B	16 Oct 2019	Wind Speed (kts)	1.9
D8-B	16 Oct 2019	Wind Dir	NE
D8-B	16 Oct 2019	Animal Life	None
D8-B	16 Oct 2019	Floatables	Foam
D8-B	16 Oct 2019	Water Color	Green
D8-B	16 Oct 2019	Current Direction	N
D8-B	16 Oct 2019	Water Temp (C)	21.7
D8-B	16 Oct 2019	Wave Height Low (ft)	3
D8-B	16 Oct 2019	High Tide (ft)	5.5
D8-B	16 Oct 2019	High Tide Time	1032
D8-B	16 Oct 2019	Low Tide (ft)	1.6
D8-B	16 Oct 2019	Low Tide Time	426
D8-B	16 Oct 2019	Comments	Kelp; Seagrass; Algae; 1 Boat; Water clear
D8-B	23 Oct 2019	Arrive Time	858
D8-B	23 Oct 2019	Weather	Sunny
D8-B	23 Oct 2019	Wind Speed (kts)	2.3
D8-B	23 Oct 2019	Wind Dir	NE
D8-B	23 Oct 2019	Animal Life	10 Seagulls
D8-B	23 Oct 2019	Floatables	Foam; Film
D8-B	23 Oct 2019	Water Color	Green
D8-B	23 Oct 2019	Current Direction	N
D8-B	23 Oct 2019	Water Temp (C)	19.3
D8-B	23 Oct 2019	Wave Height Low (ft)	3
D8-B	23 Oct 2019	High Tide (ft)	4.5
D8-B	23 Oct 2019	High Tide Time	645
D8-B	23 Oct 2019	Low Tide (ft)	2.1
D8-B	23 Oct 2019	Low Tide Time	1219

Station	Date	Parameter	Value
D8-B	23 Oct 2019	Comments	Kelp; Seagrass; Algae; 1 Boat; Water clear
D9	02 Oct 2019	Arrive Time	916
D9	02 Oct 2019	Weather	Sunny
D9	02 Oct 2019	Wind Speed (kts)	1.2
D9	02 Oct 2019	Wind Dir	W
D9	02 Oct 2019	Animal Life	None
D9	02 Oct 2019	Floatables	None
D9	02 Oct 2019	Water Color	Green
D9	02 Oct 2019	Current Direction	N
D9	02 Oct 2019	Water Temp (C)	20.3
D9	02 Oct 2019	Wave Height Low (ft)	3
D9	02 Oct 2019	High Tide (ft)	5.7
D9	02 Oct 2019	High Tide Time	1159
D9	02 Oct 2019	Low Tide (ft)	1.5
D9	02 Oct 2019	Low Tide Time	547
D9	02 Oct 2019	Comments	Kelp; Seagrass; Algae; 1 Person; 2 Surfers; Water clear
D9	09 Oct 2019	Arrive Time	859
D9	09 Oct 2019	Weather	Partly Cloudy
D9	09 Oct 2019	Wind Speed (kts)	1.1
D9	09 Oct 2019	Wind Dir	W
D9	09 Oct 2019	Animal Life	None
D9	09 Oct 2019	Floatables	Foam
D9	09 Oct 2019	Water Color	Green
D9	09 Oct 2019	Current Direction	N
D9	09 Oct 2019	Water Temp (C)	21.4
D9	09 Oct 2019	Wave Height Low (ft)	2
D9	09 Oct 2019	High Tide (ft)	4.6
D9	09 Oct 2019	High Tide Time	758
D9	09 Oct 2019	Low Tide (ft)	1.8
D9	09 Oct 2019	Low Tide Time	1343
D9	09 Oct 2019	Comments	Kelp; Seagrass; Algae; 1 Person; 1 Boat; Water clear
D9	16 Oct 2019	Arrive Time	911
D9	16 Oct 2019	Weather	Sunny
D9	16 Oct 2019	Wind Speed (kts)	0
D9	16 Oct 2019	Wind Dir	
D9	16 Oct 2019	Animal Life	None
D9	16 Oct 2019	Floatables	Foam
D9	16 Oct 2019	Water Color	Green
D9	16 Oct 2019	Current Direction	N
D9	16 Oct 2019	Water Temp (C)	20
D9	16 Oct 2019	Wave Height Low (ft)	4
D9	16 Oct 2019	High Tide (ft)	5.5
D9	16 Oct 2019	High Tide Time	1032
D9	16 Oct 2019	Low Tide (ft)	1.6
D9	16 Oct 2019	Low Tide Time	426
D9	16 Oct 2019	Comments	Kelp; Seagrass; Algae; Water clear
D9	23 Oct 2019	Arrive Time	915
D9	23 Oct 2019	Weather	Sunny
D9	23 Oct 2019	Wind Speed (kts)	1.1
D9	23 Oct 2019	Wind Dir	W
D9	23 Oct 2019	Animal Life	1 Seagull
D9	23 Oct 2019	Floatables	Foam; Film
D9	23 Oct 2019	Water Color	Green
D9	23 Oct 2019	Current Direction	N
D9	23 Oct 2019	Water Temp (C)	20.1
D9	23 Oct 2019	Wave Height Low (ft)	4
D9	23 Oct 2019	High Tide (ft)	4.5

Station	Date	Parameter	Value
D9	23 Oct 2019	High Tide Time	645
D9	23 Oct 2019	Low Tide (ft)	2.1
D9	23 Oct 2019	Low Tide Time	1219
D9	23 Oct 2019	Comments	Kelp; Seagrass; Algae; 1 Person; 1 Boat; Water clear
D9	30 Oct 2019	Arrive Time	718
D9	30 Oct 2019	Weather	Sunny
D9	30 Oct 2019	Wind Speed (kts)	0.8
D9	30 Oct 2019	Wind Dir	E
D9	30 Oct 2019	Animal Life	None
D9	30 Oct 2019	Floatables	None
D9	30 Oct 2019	Water Color	Green
D9	30 Oct 2019	Current Direction	N
D9	30 Oct 2019	Water Temp (C)	17.5
D9	30 Oct 2019	Wave Height Low (ft)	4
D9	30 Oct 2019	High Tide (ft)	6.2
D9	30 Oct 2019	High Tide Time	1041
D9	30 Oct 2019	Low Tide (ft)	1.5
D9	30 Oct 2019	Low Tide Time	433
D9	30 Oct 2019	Comments	Kelp; Seagrass; Algae; Water clear
D10	02 Oct 2019	Arrive Time	906
D10	02 Oct 2019	Weather	Sunny
D10	02 Oct 2019	Wind Speed (kts)	2.5
D10	02 Oct 2019	Wind Dir	W
D10	02 Oct 2019	Animal Life	1 Dog
D10	02 Oct 2019	Floatables	None
D10	02 Oct 2019	Water Color	Green
D10	02 Oct 2019	Current Direction	N
D10	02 Oct 2019	Water Temp (C)	19.6
D10	02 Oct 2019	Wave Height Low (ft)	3
D10	02 Oct 2019	High Tide (ft)	5.7
D10	02 Oct 2019	High Tide Time	1159
D10	02 Oct 2019	Low Tide (ft)	1.5
D10	02 Oct 2019	Low Tide Time	547
D10	02 Oct 2019	Comments	Kelp; Seagrass; 1 Jogger; 3 Persons; 13 Surfers; Water clear
D10	09 Oct 2019	Arrive Time	838
D10	09 Oct 2019	Weather	Partly Cloudy
D10	09 Oct 2019	Wind Speed (kts)	1.1
D10	09 Oct 2019	Wind Dir	W
D10	09 Oct 2019	Animal Life	2 Dogs
D10	09 Oct 2019	Floatables	Foam; Film
D10	09 Oct 2019	Water Color	Green
D10	09 Oct 2019	Current Direction	N
D10	09 Oct 2019	Water Temp (C)	21.8
D10	09 Oct 2019	Wave Height Low (ft)	3
D10	09 Oct 2019	High Tide (ft)	4.6
D10	09 Oct 2019	High Tide Time	758
D10	09 Oct 2019	Low Tide (ft)	1.8
D10	09 Oct 2019	Low Tide Time	1343
D10	09 Oct 2019	Comments	Kelp; Seagrass; 1 Jogger; 16 Persons; 16 Surfers; 2 Boats; Water clear
D10	16 Oct 2019	Arrive Time	845
D10	16 Oct 2019	Weather	Sunny
D10	16 Oct 2019	Wind Speed (kts)	0
D10	16 Oct 2019	Wind Dir	
D10	16 Oct 2019	Animal Life	None
D10	16 Oct 2019	Floatables	Foam
D10	16 Oct 2019	Water Color	Green

Station	Date	Parameter	Value
D10	16 Oct 2019	Current Direction	N
D10	16 Oct 2019	Water Temp (C)	20.6
D10	16 Oct 2019	Wave Height Low (ft)	3
D10	16 Oct 2019	High Tide (ft)	5.5
D10	16 Oct 2019	High Tide Time	1032
D10	16 Oct 2019	Low Tide (ft)	1.6
D10	16 Oct 2019	Low Tide Time	426
D10	16 Oct 2019	Comments	Kelp; Seagrass; 23 Surfers; Water clear
D10	23 Oct 2019	Arrive Time	929
D10	23 Oct 2019	Weather	Sunny
D10	23 Oct 2019	Wind Speed (kts)	0
D10	23 Oct 2019	Wind Dir	
D10	23 Oct 2019	Animal Life	12 Seagulls
D10	23 Oct 2019	Floatables	Foam; Film
D10	23 Oct 2019	Water Color	Green
D10	23 Oct 2019	Current Direction	N
D10	23 Oct 2019	Water Temp (C)	20.1
D10	23 Oct 2019	Wave Height Low (ft)	4
D10	23 Oct 2019	High Tide (ft)	4.5
D10	23 Oct 2019	High Tide Time	645
D10	23 Oct 2019	Low Tide (ft)	2.1
D10	23 Oct 2019	Low Tide Time	1219
D10	23 Oct 2019	Comments	Kelp; Seagrass; 9 Persons; 34 Surfers; 1 Swimmer; Water clear
D11	02 Oct 2019	Arrive Time	850
D11	02 Oct 2019	Weather	Sunny
D11	02 Oct 2019	Wind Speed (kts)	1.8
D11	02 Oct 2019	Wind Dir	W
D11	02 Oct 2019	Animal Life	None
D11	02 Oct 2019	Floatables	None
D11	02 Oct 2019	Water Color	Green
D11	02 Oct 2019	Current Direction	N
D11	02 Oct 2019	Water Temp (C)	19.8
D11	02 Oct 2019	Wave Height Low (ft)	4
D11	02 Oct 2019	High Tide (ft)	5.7
D11	02 Oct 2019	High Tide Time	1159
D11	02 Oct 2019	Low Tide (ft)	1.5
D11	02 Oct 2019	Low Tide Time	547
D11	02 Oct 2019	Comments	Kelp; Seagrass; 2 Persons; 8 Surfers; Water clear
D11	09 Oct 2019	Arrive Time	823
D11	09 Oct 2019	Weather	Partly Cloudy
D11	09 Oct 2019	Wind Speed (kts)	2.3
D11	09 Oct 2019	Wind Dir	W
D11	09 Oct 2019	Animal Life	1 Dog
D11	09 Oct 2019	Floatables	None
D11	09 Oct 2019	Water Color	Green
D11	09 Oct 2019	Current Direction	N
D11	09 Oct 2019	Water Temp (C)	21.7
D11	09 Oct 2019	Wave Height Low (ft)	3
D11	09 Oct 2019	High Tide (ft)	4.6
D11	09 Oct 2019	High Tide Time	758
D11	09 Oct 2019	Low Tide (ft)	1.8
D11	09 Oct 2019	Low Tide Time	1343
D11	09 Oct 2019	Comments	Kelp; Seagrass; 1 Jogger; 11 Persons; 25 Surfers; 3 Boats; 1 Tractor; Water clear; 2 Kayakers
D11	16 Oct 2019	Arrive Time	822
D11	16 Oct 2019	Weather	Sunny

Station	Date	Parameter	Value
D11	16 Oct 2019	Wind Speed (kts)	0.3
D11	16 Oct 2019	Wind Dir	W
D11	16 Oct 2019	Animal Life	2 Dogs; 13 Seagulls
D11	16 Oct 2019	Floatables	Foam; Film
D11	16 Oct 2019	Water Color	Green
D11	16 Oct 2019	Current Direction	N
D11	16 Oct 2019	Water Temp (C)	20
D11	16 Oct 2019	Wave Height Low (ft)	3
D11	16 Oct 2019	High Tide (ft)	5.5
D11	16 Oct 2019	High Tide Time	1032
D11	16 Oct 2019	Low Tide (ft)	1.6
D11	16 Oct 2019	Low Tide Time	426
D11	16 Oct 2019	Comments	Kelp; Seagrass; 16 Persons; 19 Surfers; 1 Tractor; Water clear
D11	23 Oct 2019	Arrive Time	948
D11	23 Oct 2019	Weather	Sunny
D11	23 Oct 2019	Wind Speed (kts)	0
D11	23 Oct 2019	Wind Dir	
D11	23 Oct 2019	Animal Life	10 Seagulls
D11	23 Oct 2019	Floatables	Foam; Film
D11	23 Oct 2019	Water Color	Green
D11	23 Oct 2019	Current Direction	S
D11	23 Oct 2019	Water Temp (C)	20.8
D11	23 Oct 2019	Wave Height Low (ft)	4
D11	23 Oct 2019	High Tide (ft)	4.5
D11	23 Oct 2019	High Tide Time	645
D11	23 Oct 2019	Low Tide (ft)	2.1
D11	23 Oct 2019	Low Tide Time	1219
D11	23 Oct 2019	Comments	Kelp; Seagrass; 15 Persons; 55 Surfers; Water clear
D11	30 Oct 2019	Arrive Time	621
D11	30 Oct 2019	Weather	Overcast
D11	30 Oct 2019	Wind Speed (kts)	3.2
D11	30 Oct 2019	Wind Dir	E
D11	30 Oct 2019	Animal Life	None
D11	30 Oct 2019	Floatables	None
D11	30 Oct 2019	Water Color	Green
D11	30 Oct 2019	Current Direction	N
D11	30 Oct 2019	Water Temp (C)	17.8
D11	30 Oct 2019	Wave Height Low (ft)	3
D11	30 Oct 2019	High Tide (ft)	6.2
D11	30 Oct 2019	High Tide Time	1041
D11	30 Oct 2019	Low Tide (ft)	1.5
D11	30 Oct 2019	Low Tide Time	433
D11	30 Oct 2019	Comments	Kelp; Seagrass; Water clear
D12	02 Oct 2019	Arrive Time	824
D12	02 Oct 2019	Weather	Sunny
D12	02 Oct 2019	Wind Speed (kts)	2.3
D12	02 Oct 2019	Wind Dir	W
D12	02 Oct 2019	Animal Life	None
D12	02 Oct 2019	Floatables	None
D12	02 Oct 2019	Water Color	Green
D12	02 Oct 2019	Current Direction	N
D12	02 Oct 2019	Water Temp (C)	20.1
D12	02 Oct 2019	Wave Height Low (ft)	4
D12	02 Oct 2019	High Tide (ft)	5.7
D12	02 Oct 2019	High Tide Time	1159
D12	02 Oct 2019	Low Tide (ft)	1.5
D12	02 Oct 2019	Low Tide Time	547

Station	Date	Parameter	Value
D12	02 Oct 2019	Comments	Kelp; Seagrass; 1 Jogger; 1 Person; 3 Surfers; Water clear
D12	09 Oct 2019	Arrive Time	758
D12	09 Oct 2019	Weather	Partly Cloudy
D12	09 Oct 2019	Wind Speed (kts)	1.3
D12	09 Oct 2019	Wind Dir	W
D12	09 Oct 2019	Animal Life	5 Pelicans; 35 Seagulls
D12	09 Oct 2019	Floatables	None
D12	09 Oct 2019	Water Color	Green
D12	09 Oct 2019	Current Direction	S
D12	09 Oct 2019	Water Temp (C)	21.4
D12	09 Oct 2019	Wave Height Low (ft)	3
D12	09 Oct 2019	High Tide (ft)	4.6
D12	09 Oct 2019	High Tide Time	758
D12	09 Oct 2019	Low Tide (ft)	1.8
D12	09 Oct 2019	Low Tide Time	1343
D12	09 Oct 2019	Comments	Kelp; Seagrass; 13 Persons; 10 Surfers; 3 Boats; Water clear
D12	16 Oct 2019	Arrive Time	759
D12	16 Oct 2019	Weather	Sunny
D12	16 Oct 2019	Wind Speed (kts)	1.9
D12	16 Oct 2019	Wind Dir	W
D12	16 Oct 2019	Animal Life	2 Dogs; 48 Seagulls
D12	16 Oct 2019	Floatables	Foam
D12	16 Oct 2019	Water Color	Green
D12	16 Oct 2019	Current Direction	N
D12	16 Oct 2019	Water Temp (C)	20.4
D12	16 Oct 2019	Wave Height Low (ft)	2
D12	16 Oct 2019	High Tide (ft)	5.5
D12	16 Oct 2019	High Tide Time	1032
D12	16 Oct 2019	Low Tide (ft)	1.6
D12	16 Oct 2019	Low Tide Time	426
D12	16 Oct 2019	Comments	Kelp; Seagrass; 14 Persons; 2 Surfers; 1 Swimmer; Water clear; 3 Kayaks
D12	23 Oct 2019	Arrive Time	1018
D12	23 Oct 2019	Weather	Sunny
D12	23 Oct 2019	Wind Speed (kts)	1.5
D12	23 Oct 2019	Wind Dir	W
D12	23 Oct 2019	Animal Life	1 Godwit; 50 Seagulls
D12	23 Oct 2019	Floatables	None
D12	23 Oct 2019	Water Color	Green
D12	23 Oct 2019	Current Direction	N
D12	23 Oct 2019	Water Temp (C)	20
D12	23 Oct 2019	Wave Height Low (ft)	4
D12	23 Oct 2019	High Tide (ft)	4.5
D12	23 Oct 2019	High Tide Time	645
D12	23 Oct 2019	Low Tide (ft)	2.1
D12	23 Oct 2019	Low Tide Time	1219
D12	23 Oct 2019	Comments	Kelp; Seagrass; 30 Persons; 9 Surfers; 4 Swimmers; Water clear
D12	30 Oct 2019	Arrive Time	601
D12	30 Oct 2019	Weather	Overcast
D12	30 Oct 2019	Wind Speed (kts)	2.1
D12	30 Oct 2019	Wind Dir	E
D12	30 Oct 2019	Animal Life	None
D12	30 Oct 2019	Floatables	None
D12	30 Oct 2019	Water Color	Green
D12	30 Oct 2019	Current Direction	N
D12	30 Oct 2019	Water Temp (C)	18

Station	Date	Parameter	Value
D12	30 Oct 2019	Wave Height Low (ft)	2
D12	30 Oct 2019	High Tide (ft)	6.2
D12	30 Oct 2019	High Tide Time	1041
D12	30 Oct 2019	Low Tide (ft)	1.5
D12	30 Oct 2019	Low Tide Time	433
D12	30 Oct 2019	Comments	Kelp; Seagrass; 1 Tractor; Water clear

Kelp Stations

Table 3.1

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Oct 2019	18	13	11	13	8	9	5	7
02 Oct 2019	18	13	11	13	8	9	5	7
03 Oct 2019	19	12	11	11	7	7	4	6
04 Oct 2019	19	12	11	11	7	7	4	6
05 Oct 2019	19	12	11	11	7	7	4	6
06 Oct 2019	19	12	11	11	7	7	4	6
07 Oct 2019	19	12	11	11	7	7	4	6
08 Oct 2019	19	12	11	11	7	7	4	6
09 Oct 2019	12	9	8	8	5	6	3	5
10 Oct 2019	14	9	9	6	4	5	4	4
11 Oct 2019	14	9	9	6	4	5	4	4
12 Oct 2019	14	9	9	6	4	5	4	4
13 Oct 2019	14	9	9	6	4	5	4	4
14 Oct 2019	14	9	9	6	4	5	4	4
15 Oct 2019	12	9	9	7	5	5	6	6
16 Oct 2019	12	9	9	7	5	5	6	6
17 Oct 2019	14	8	8	9	6	5	8	6
18 Oct 2019	14	8	8	9	6	5	8	6
19 Oct 2019	14	8	8	9	6	5	8	6
20 Oct 2019	14	8	8	9	6	5	8	6
21 Oct 2019	14	8	8	9	6	5	8	6
22 Oct 2019	10	6	7	7	5	5	6	5
23 Oct 2019	10	6	7	7	5	5	6	5
24 Oct 2019	12	7	9	5	5	7	8	5
25 Oct 2019	12	7	9	5	5	7	8	5
26 Oct 2019	12	7	9	5	5	7	8	5
27 Oct 2019	12	7	9	5	5	7	8	5
28 Oct 2019	12	7	9	5	5	7	8	5
29 Oct 2019	9	7	8	6	6	5	8	7
30 Oct 2019	3	4	4	4	4	4	7	6
31 Oct 2019	3	4	4	4	4	4	7	6

* 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 Oct 2019	4	3	3	2	2	2	2	2
02 Oct 2019	4	3	3	2	2	2	2	2
03 Oct 2019	5	3	3	2	2	2	2	2
04 Oct 2019	5	3	3	2	2	2	2	2
05 Oct 2019	5	3	3	2	2	2	2	2
06 Oct 2019	5	3	3	2	2	2	2	2
07 Oct 2019	5	3	3	2	2	2	2	2
08 Oct 2019	5	3	3	2	2	2	2	2
09 Oct 2019	4	3	3	2	2	2	2	2
10 Oct 2019	5	3	3	2	2	2	2	2
11 Oct 2019	5	3	3	2	2	2	2	2
12 Oct 2019	5	3	3	2	2	2	2	2
13 Oct 2019	5	3	3	2	2	2	2	2
14 Oct 2019	5	3	3	2	2	2	2	2
15 Oct 2019	4	3	3	2	2	2	2	2
16 Oct 2019	4	3	3	2	2	2	2	2
17 Oct 2019	5	3	3	2	2	2	2	2
18 Oct 2019	5	3	3	2	2	2	2	2
19 Oct 2019	5	3	3	2	2	2	2	2
20 Oct 2019	5	3	3	2	2	2	2	2
21 Oct 2019	5	3	3	2	2	2	2	2
22 Oct 2019	4	2	3	2	2	2	2	2
23 Oct 2019	4	2	3	2	2	2	2	2
24 Oct 2019	5	3	3	2	2	2	2	2
25 Oct 2019	5	3	3	2	2	2	2	2
26 Oct 2019	5	3	3	2	2	2	2	2
27 Oct 2019	5	3	3	2	2	2	2	2
28 Oct 2019	5	3	3	2	2	2	2	2
29 Oct 2019	4	2	3	2	2	2	2	2
30 Oct 2019	2	2	2	2	2	2	2	2
31 Oct 2019	2	2	2	2	2	2	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 Oct 2019	2	2	3	2	2	2	2	2
02 Oct 2019	2	2	3	2	2	2	2	2
03 Oct 2019	3	2	2	2	2	2	2	2
04 Oct 2019	3	2	2	2	2	2	2	2
05 Oct 2019	3	2	2	2	2	2	2	2
06 Oct 2019	3	2	2	2	2	2	2	2
07 Oct 2019	3	2	2	2	2	2	2	2
08 Oct 2019	3	2	2	2	2	2	2	2
09 Oct 2019	2	2	2	2	2	2	2	2
10 Oct 2019	3	2	2	2	2	2	2	2
11 Oct 2019	3	2	2	2	2	2	2	2
12 Oct 2019	3	2	2	2	2	2	2	2
13 Oct 2019	3	2	2	2	2	2	2	2
14 Oct 2019	3	2	2	2	2	2	2	2
15 Oct 2019	2	2	2	2	2	2	2	2
16 Oct 2019	2	2	2	2	2	2	2	2
17 Oct 2019	3	2	2	2	2	2	2	2
18 Oct 2019	3	2	2	2	2	2	2	2
19 Oct 2019	3	2	2	2	2	2	2	2
20 Oct 2019	3	2	2	2	2	2	2	2
21 Oct 2019	3	2	2	2	2	2	2	2
22 Oct 2019	2	2	2	2	2	2	2	2
23 Oct 2019	2	2	2	2	2	2	2	2
24 Oct 2019	3	2	2	2	2	2	2	2
25 Oct 2019	3	2	2	2	2	2	2	2
26 Oct 2019	3	2	2	2	2	2	2	2
27 Oct 2019	3	2	2	2	2	2	2	2
28 Oct 2019	3	2	2	2	2	2	2	2
29 Oct 2019	2	2	2	2	2	2	2	2
30 Oct 2019	2	2	2	2	2	2	2	2
31 Oct 2019	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
09 Oct 2019	IC							
15 Oct 2019	IC							
22 Oct 2019	IC							
29 Oct 2019	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
09 Oct 2019	IC							
15 Oct 2019	IC							
22 Oct 2019	IC							
29 Oct 2019	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
09 Oct 2019	IC							
15 Oct 2019	IC							
22 Oct 2019	IC							
29 Oct 2019	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
09 Oct 2019	IC							
15 Oct 2019	IC							
22 Oct 2019	IC							
29 Oct 2019	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	09 Oct 2019	808	1	2e	<2	<2	1.00	17.7	71.78	8.7	33.61	8.1
A1	09 Oct 2019	808	12	<2	<2	<2	1.00	15.8	73.32	7.3	33.59	8.1
A1	09 Oct 2019	808	18	2e	<2	<2	1.00	13.6	83.99	6.5	33.55	8.0
A1	15 Oct 2019	803	1	<20	<2	<2	0.10	18.5	76.96	8.8	33.63	8.2
A1	15 Oct 2019	803	12	<2	<2	<2	1.00	13.9	81.97	6.8	33.54	8.0
A1	15 Oct 2019	803	18	2e	<2	<2	1.00	13.3	85.24	6.3	33.58	7.9
A1	22 Oct 2019	757	1	<2	<2	<2	1.00	19.4	83.66	8.4	33.64	8.1
A1	22 Oct 2019	757	12	<2	<2	<2	1.00	15.6	82.44	8.3	33.54	8.1
A1	22 Oct 2019	757	18	<2	<2	<2	1.00	14.7	83.87	7.3	33.53	8.0
A1	29 Oct 2019	751	1	<2	<2	<2	1.00	17.8	77.83	8.0	33.62	8.1
A1	29 Oct 2019	751	12	2e	<2	2e	1.00	17.2	78.23	8.0	33.59	8.1
A1	29 Oct 2019	751	18	4e	<2	2e	0.50	15.5	82.50	7.5	33.57	8.0
A6	09 Oct 2019	840	1	2e	<2	<2	1.00	19.6	79.19	8.8	33.65	8.2
A6	09 Oct 2019	840	12	<2	<2	<2	1.00	16.8	77.93	8.2	33.60	8.2
A6	09 Oct 2019	840	18	2e	<2	<2	1.00	15.2	82.17	7.5	33.55	8.1
A6	15 Oct 2019	831	1	<20	<2	<2	0.10	19.1	80.56	9.0	33.66	8.2
A6	15 Oct 2019	831	12	8e	<2	<2	0.25	13.6	84.45	6.4	33.56	8.0
A6	15 Oct 2019	831	18	2e	2e	<2	1.00	13.2	85.24	6.1	33.59	7.9
A6	22 Oct 2019	831	1	<2	<2	2e	1.00	18.9	76.63	8.4	33.62	8.1
A6	22 Oct 2019	831	12	2e	<2	<2	1.00	16.8	81.12	7.4	33.56	8.1
A6	22 Oct 2019	831	18	<2	<2	<2	1.00	13.9	82.53	6.8	33.56	8.0
A6	29 Oct 2019	814	1	2e	<2	<2	1.00	18.3	80.90	7.8	33.64	8.1
A6	29 Oct 2019	814	12	6e	<2	<2	0.33	16.6	78.26	8.1	33.57	8.1
A6	29 Oct 2019	814	18	10e	<2	<2	0.20	15.6	81.58	7.5	33.55	8.1
A7	09 Oct 2019	821	1	<2	<2	<2	1.00	19.3	79.00	8.8	33.65	8.2
A7	09 Oct 2019	821	12	2e	<2	<2	1.00	17.0	76.42	8.3	33.58	8.1
A7	09 Oct 2019	821	18	<2	<2	<2	1.00	15.2	76.47	7.3	33.58	8.1
A7	15 Oct 2019	818	1	<20	<2	<2	0.10	19.0	80.59	8.5	33.65	8.2
A7	15 Oct 2019	818	12	4e	<2	<2	0.50	13.9	82.46	6.8	33.57	8.0
A7	15 Oct 2019	818	18	<2	<2	<2	1.00	13.3	84.99	6.2	33.58	7.9
A7	22 Oct 2019	814	1	4e	<2	2e	0.50	19.1	80.58	8.4	33.63	8.2
A7	22 Oct 2019	814	12	<2	<2	<2	1.00	17.8	81.72	8.3	33.61	8.1
A7	22 Oct 2019	814	18	2e	<2	<2	1.00	14.6	83.25	6.9	33.56	8.0
A7	29 Oct 2019	804	1	2e	<2	<2	1.00	18.2	81.75	7.8	33.64	8.1
A7	29 Oct 2019	804	12	2e	<2	<2	1.00	16.9	79.87	7.9	33.58	8.1
A7	29 Oct 2019	804	18	10e	<2	<2	0.20	16.2	82.62	7.6	33.58	8.1
C4	09 Oct 2019	1000	1	<2	<2	<2	1.00	19.8	65.26	7.6	33.66	8.2
C4	09 Oct 2019	1000	3	2e	<2	<2	1.00	19.5	63.23	7.3	33.66	8.1
C4	09 Oct 2019	1000	9	<2	<2	<2	1.00	15.5	74.60	2.9	33.60	7.8

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
C4	15 Oct 2019	948	1	<20	<2	<2	0.10	17.9	75.41	7.6	33.62	8.1
C4	15 Oct 2019	948	3	<2	<2	<2	1.00	17.9	75.16	7.5	33.62	8.1
C4	15 Oct 2019	948	9	2e	2e	<2	1.00	15.4	79.80	5.1	33.57	7.9
C4	22 Oct 2019	936	1	<2	2e	<2	1.00	18.6	75.82	8.2	33.62	8.1
C4	22 Oct 2019	936	3	<2	<2	<2	1.00	18.5	78.49	8.2	33.62	8.1
C4	22 Oct 2019	936	9	<2	<2	<2	1.00	16.7	70.18	6.3	33.67	8.0
C4	29 Oct 2019	921	1	<20	<2	<2	0.10	17.9	74.32	7.8	33.64	8.1
C4	29 Oct 2019	921	3	<2	<2	<2	1.00	17.9	74.50	7.7	33.64	8.1
C4	29 Oct 2019	921	9	2e	<2	<2	1.00	17.9	74.04	7.7	33.64	8.1
C5	09 Oct 2019	945	1	<2	<2	<2	1.00	20.0	80.59	8.8	33.66	8.2
C5	09 Oct 2019	945	3	<2	<2	<2	1.00	19.6	78.72	8.6	33.66	8.2
C5	09 Oct 2019	945	9	2e	<2	<2	1.00	15.3	82.49	7.1	33.55	8.1
C5	15 Oct 2019	938	1	<20	<2	<2	0.10	19.4	79.39	8.5	33.66	8.2
C5	15 Oct 2019	938	3	2e	<2	<2	1.00	19.2	79.49	8.4	33.68	8.2
C5	15 Oct 2019	938	9	6e	<2	<2	0.33	15.2	82.96	6.4	33.57	8.0
C5	22 Oct 2019	927	1	<2	<2	<2	1.00	18.6	78.48	8.1	33.62	8.1
C5	22 Oct 2019	927	3	<2	<2	<2	1.00	18.5	78.73	8.2	33.62	8.1
C5	22 Oct 2019	927	9	<2	<2	<2	1.00	16.1	76.29	6.2	33.59	8.0
C5	29 Oct 2019	911	1	4e	<2	<2	0.50	18.4	74.90	7.1	33.65	8.1
C5	29 Oct 2019	911	3	<2	<2	<2	1.00	18.4	74.75	7.1	33.65	8.1
C5	29 Oct 2019	911	9	<20	<2	<2	0.10	17.0	75.69	7.2	33.58	8.1
C6	09 Oct 2019	930	1	<2	<2	<2	1.00	20.0	80.63	8.7	33.66	8.2
C6	09 Oct 2019	930	3	<2	<2	<2	1.00	19.8	80.41	8.6	33.66	8.2
C6	09 Oct 2019	930	9	4e	<2	<2	0.50	15.3	80.03	6.6	33.55	8.0
C6	15 Oct 2019	924	1	<20	<2	<2	0.10	19.6	79.80	8.5	33.67	8.2
C6	15 Oct 2019	924	3	2e	<2	<2	1.00	19.1	79.29	8.1	33.71	8.2
C6	15 Oct 2019	924	9	<2	<2	<2	1.00	15.5	82.03	6.3	33.57	8.0
C6	22 Oct 2019	917	1	<2	<2	4e	1.00	18.7	79.51	8.4	33.62	8.2
C6	22 Oct 2019	917	3	4e	<2	<2	0.50	18.7	79.44	8.4	33.62	8.2
C6	22 Oct 2019	917	9	12e	<2	<2	0.17	16.5	75.38	6.2	33.70	8.0
C6	29 Oct 2019	859	1	2e	<2	<2	1.00	18.3	82.39	7.6	33.65	8.1
C6	29 Oct 2019	859	3	<2	<2	<2	1.00	18.3	82.47	7.6	33.65	8.1
C6	29 Oct 2019	859	9	<2	<2	<2	1.00	17.1	82.91	7.2	33.57	8.1
C7	09 Oct 2019	855	1	<2	<2	<2	1.00	19.9	79.78	8.3	33.65	8.2
C7	09 Oct 2019	855	12	2e	<2	<2	1.00	15.7	80.15	8.3	33.53	8.1
C7	09 Oct 2019	855	18	<2	<2	<2	1.00	14.1	83.24	6.7	33.55	8.0
C7	15 Oct 2019	850	1	<2	<2	<2	1.00	19.0	77.39	8.5	33.65	8.2
C7	15 Oct 2019	850	12	2e	<2	2e	1.00	14.2	82.26	6.8	33.53	8.0
C7	15 Oct 2019	850	18	140e	6e	<2	0.04	13.3	84.98	6.3	33.57	8.0
C7	22 Oct 2019	850	1	<2	<2	<2	1.00	18.4	77.96	8.5	33.62	8.2
C7	22 Oct 2019	850	12	<2	<2	<2	1.00	16.6	78.94	8.1	33.57	8.1
C7	22 Oct 2019	850	18	4e	<2	<2	0.50	14.5	81.83	6.5	33.63	8.0
C7	29 Oct 2019	828	1	<2	<2	<2	1.00	18.2	80.37	8.0	33.63	8.1
C7	29 Oct 2019	828	12	2e	<2	<2	1.00	15.8	82.12	7.8	33.54	8.1
C7	29 Oct 2019	828	18	<20	<2	4e	0.10	15.3	83.26	7.6	33.53	8.1
C8	09 Oct 2019	907	1	<2	<2	<2	1.00	20.0	80.82	8.3	33.67	8.2

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
C8	09 Oct 2019	907	12	<2	<2	<2	1.00	15.9	81.88	8.6	33.50	8.2
C8	09 Oct 2019	907	18	<2	2e	<2	1.00	14.0	83.26	6.8	33.57	8.0
C8	15 Oct 2019	904	1	<20	<2	<2	0.10	19.3	79.15	8.3	33.65	8.2
C8	15 Oct 2019	904	12	2e	<2	<2	1.00	14.7	82.22	6.6	33.55	8.0
C8	15 Oct 2019	904	18	<20	<2	<2	0.10	14.2	83.75	6.3	33.56	8.0
C8	22 Oct 2019	900	1	<2	2e	<2	1.00	18.2	77.15	8.5	33.62	8.1
C8	22 Oct 2019	900	12	2e	<2	<2	1.00	16.1	76.81	7.8	33.56	8.1
C8	22 Oct 2019	900	18	2e	<2	<2	1.00	14.6	79.49	6.7	33.62	8.0
C8	29 Oct 2019	842	1	<20	<2	<2	0.10	18.1	82.19	7.9	33.62	8.1
C8	29 Oct 2019	842	12	10e	2e	2e	0.20	16.1	81.38	8.0	33.55	8.1
C8	29 Oct 2019	842	18	<20	<2	2e	0.10	16.0	81.98	7.9	33.55	8.1

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	09 Oct 2019	Depth (m)	19
A1	09 Oct 2019	Arrive Time	808
A1	09 Oct 2019	Depart Time	814
A1	09 Oct 2019	Air Temp (C)	18
A1	09 Oct 2019	Weather	Fog
A1	09 Oct 2019	Visibility (mi)	8
A1	09 Oct 2019	Wind Speed (kts)	6
A1	09 Oct 2019	Wind Dir	E
A1	09 Oct 2019	Water Color	Bluish-Green
A1	09 Oct 2019	Wave Ht Low (ft)	3
A1	09 Oct 2019	Wave Period (sec)	13
A1	09 Oct 2019	Sea State	Wind ripples
A1	09 Oct 2019	High Tide (ft)	4.59
A1	09 Oct 2019	High Tide Time	758
A1	09 Oct 2019	Low Tide (ft)	1.76
A1	09 Oct 2019	Low Tide Time	1343
A1	09 Oct 2019	Comments	Lobster floats
A1	15 Oct 2019	Depth (m)	18
A1	15 Oct 2019	Arrive Time	803
A1	15 Oct 2019	Depart Time	809
A1	15 Oct 2019	Air Temp (C)	17
A1	15 Oct 2019	Weather	Clear
A1	15 Oct 2019	Visibility (mi)	10
A1	15 Oct 2019	Wind Speed (kts)	4
A1	15 Oct 2019	Wind Dir	NW
A1	15 Oct 2019	Water Color	Greenish-Blue
A1	15 Oct 2019	Wave Ht Low (ft)	1
A1	15 Oct 2019	Wave Period (sec)	13
A1	15 Oct 2019	Sea State	Calm
A1	15 Oct 2019	High Tide (ft)	6.33
A1	15 Oct 2019	High Tide Time	2106
A1	15 Oct 2019	Low Tide (ft)	-0.71
A1	15 Oct 2019	Low Tide Time	405
A1	15 Oct 2019	Comments	Kelp
A1	22 Oct 2019	Depth (m)	18
A1	22 Oct 2019	Arrive Time	757
A1	22 Oct 2019	Depart Time	800
A1	22 Oct 2019	Air Temp (C)	20
A1	22 Oct 2019	Weather	Haze
A1	22 Oct 2019	Visibility (mi)	12
A1	22 Oct 2019	Wind Speed (kts)	0
A1	22 Oct 2019	Wind Dir	
A1	22 Oct 2019	Water Color	Greenish-Blue
A1	22 Oct 2019	Wave Ht Low (ft)	2
A1	22 Oct 2019	Wave Period (sec)	13
A1	22 Oct 2019	Sea State	Calm
A1	22 Oct 2019	High Tide (ft)	6.33
A1	22 Oct 2019	High Tide Time	2106
A1	22 Oct 2019	Low Tide (ft)	-0.71
A1	22 Oct 2019	Low Tide Time	405
A1	22 Oct 2019	Comments	Kelp
A1	29 Oct 2019	Depth (m)	20
A1	29 Oct 2019	Arrive Time	751

Station	Date	Parameter	Value
A1	29 Oct 2019	Depart Time	758
A1	29 Oct 2019	Air Temp (C)	15
A1	29 Oct 2019	Weather	Clear
A1	29 Oct 2019	Visibility (mi)	9
A1	29 Oct 2019	Wind Speed (kts)	12
A1	29 Oct 2019	Wind Dir	N
A1	29 Oct 2019	Water Color	Bluish-Green
A1	29 Oct 2019	Wave Ht Low (ft)	3
A1	29 Oct 2019	Wave Period (sec)	9
A1	29 Oct 2019	Sea State	Wind ripples
A1	29 Oct 2019	High Tide (ft)	6.33
A1	29 Oct 2019	High Tide Time	2106
A1	29 Oct 2019	Low Tide (ft)	-0.71
A1	29 Oct 2019	Low Tide Time	405
A1	29 Oct 2019	Comments	Lobster floats
A6	09 Oct 2019	Depth (m)	20
A6	09 Oct 2019	Arrive Time	840
A6	09 Oct 2019	Depart Time	845
A6	09 Oct 2019	Air Temp (C)	19
A6	09 Oct 2019	Weather	Fog
A6	09 Oct 2019	Visibility (mi)	8
A6	09 Oct 2019	Wind Speed (kts)	2
A6	09 Oct 2019	Wind Dir	SE
A6	09 Oct 2019	Water Color	Bluish-Green
A6	09 Oct 2019	Wave Ht Low (ft)	3
A6	09 Oct 2019	Wave Period (sec)	13
A6	09 Oct 2019	Sea State	Wind ripples
A6	09 Oct 2019	High Tide (ft)	4.59
A6	09 Oct 2019	High Tide Time	758
A6	09 Oct 2019	Low Tide (ft)	1.76
A6	09 Oct 2019	Low Tide Time	1343
A6	09 Oct 2019	Comments	Lobster floats; Kelp
A6	15 Oct 2019	Depth (m)	20
A6	15 Oct 2019	Arrive Time	831
A6	15 Oct 2019	Depart Time	837
A6	15 Oct 2019	Air Temp (C)	17
A6	15 Oct 2019	Weather	Clear
A6	15 Oct 2019	Visibility (mi)	10
A6	15 Oct 2019	Wind Speed (kts)	6
A6	15 Oct 2019	Wind Dir	NW
A6	15 Oct 2019	Water Color	Greenish-Blue
A6	15 Oct 2019	Wave Ht Low (ft)	1
A6	15 Oct 2019	Wave Period (sec)	13
A6	15 Oct 2019	Sea State	Calm
A6	15 Oct 2019	High Tide (ft)	6.33
A6	15 Oct 2019	High Tide Time	2106
A6	15 Oct 2019	Low Tide (ft)	-0.71
A6	15 Oct 2019	Low Tide Time	405
A6	15 Oct 2019	Comments	Kelp; Kelp debris
A6	22 Oct 2019	Depth (m)	19
A6	22 Oct 2019	Arrive Time	831
A6	22 Oct 2019	Depart Time	833
A6	22 Oct 2019	Air Temp (C)	20
A6	22 Oct 2019	Weather	Haze
A6	22 Oct 2019	Visibility (mi)	12
A6	22 Oct 2019	Wind Speed (kts)	3
A6	22 Oct 2019	Wind Dir	E
A6	22 Oct 2019	Water Color	Greenish-Blue

Station	Date	Parameter	Value
A6	22 Oct 2019	Wave Ht Low (ft)	2
A6	22 Oct 2019	Wave Period (sec)	13
A6	22 Oct 2019	Sea State	Calm
A6	22 Oct 2019	High Tide (ft)	6.33
A6	22 Oct 2019	High Tide Time	2106
A6	22 Oct 2019	Low Tide (ft)	-0.71
A6	22 Oct 2019	Low Tide Time	405
A6	22 Oct 2019	Comments	Kelp; Kelp debris
A6	29 Oct 2019	Depth (m)	18
A6	29 Oct 2019	Arrive Time	814
A6	29 Oct 2019	Depart Time	821
A6	29 Oct 2019	Air Temp (C)	15
A6	29 Oct 2019	Weather	Clear
A6	29 Oct 2019	Visibility (mi)	9
A6	29 Oct 2019	Wind Speed (kts)	7
A6	29 Oct 2019	Wind Dir	NE
A6	29 Oct 2019	Water Color	Bluish-Green
A6	29 Oct 2019	Wave Ht Low (ft)	3
A6	29 Oct 2019	Wave Period (sec)	9
A6	29 Oct 2019	Sea State	Wind ripples
A6	29 Oct 2019	High Tide (ft)	6.33
A6	29 Oct 2019	High Tide Time	2106
A6	29 Oct 2019	Low Tide (ft)	-0.71
A6	29 Oct 2019	Low Tide Time	405
A6	29 Oct 2019	Comments	Lobster floats; Kelp
A7	09 Oct 2019	Depth (m)	18
A7	09 Oct 2019	Arrive Time	821
A7	09 Oct 2019	Depart Time	831
A7	09 Oct 2019	Air Temp (C)	18
A7	09 Oct 2019	Weather	Fog
A7	09 Oct 2019	Visibility (mi)	8
A7	09 Oct 2019	Wind Speed (kts)	4
A7	09 Oct 2019	Wind Dir	SE
A7	09 Oct 2019	Water Color	Bluish-Green
A7	09 Oct 2019	Wave Ht Low (ft)	3
A7	09 Oct 2019	Wave Period (sec)	13
A7	09 Oct 2019	Sea State	Wind ripples
A7	09 Oct 2019	High Tide (ft)	4.59
A7	09 Oct 2019	High Tide Time	758
A7	09 Oct 2019	Low Tide (ft)	1.76
A7	09 Oct 2019	Low Tide Time	1343
A7	09 Oct 2019	Comments	Lobster floats; Kelp
A7	15 Oct 2019	Depth (m)	21
A7	15 Oct 2019	Arrive Time	818
A7	15 Oct 2019	Depart Time	821
A7	15 Oct 2019	Air Temp (C)	18
A7	15 Oct 2019	Weather	Clear
A7	15 Oct 2019	Visibility (mi)	10
A7	15 Oct 2019	Wind Speed (kts)	4
A7	15 Oct 2019	Wind Dir	W
A7	15 Oct 2019	Water Color	Greenish-Blue
A7	15 Oct 2019	Wave Ht Low (ft)	1
A7	15 Oct 2019	Wave Period (sec)	13
A7	15 Oct 2019	Sea State	Calm
A7	15 Oct 2019	High Tide (ft)	6.33
A7	15 Oct 2019	High Tide Time	2106
A7	15 Oct 2019	Low Tide (ft)	-0.71
A7	15 Oct 2019	Low Tide Time	405

Station	Date	Parameter	Value
A7	15 Oct 2019	Comments	none
A7	22 Oct 2019	Depth (m)	18
A7	22 Oct 2019	Arrive Time	814
A7	22 Oct 2019	Depart Time	819
A7	22 Oct 2019	Air Temp (C)	20
A7	22 Oct 2019	Weather	Haze
A7	22 Oct 2019	Visibility (mi)	12
A7	22 Oct 2019	Wind Speed (kts)	2
A7	22 Oct 2019	Wind Dir	E
A7	22 Oct 2019	Water Color	Greenish-Blue
A7	22 Oct 2019	Wave Ht Low (ft)	2
A7	22 Oct 2019	Wave Period (sec)	13
A7	22 Oct 2019	Sea State	Calm
A7	22 Oct 2019	High Tide (ft)	6.33
A7	22 Oct 2019	High Tide Time	2106
A7	22 Oct 2019	Low Tide (ft)	-0.71
A7	22 Oct 2019	Low Tide Time	405
A7	22 Oct 2019	Comments	none
A7	29 Oct 2019	Depth (m)	19
A7	29 Oct 2019	Arrive Time	804
A7	29 Oct 2019	Depart Time	809
A7	29 Oct 2019	Air Temp (C)	16
A7	29 Oct 2019	Weather	Clear
A7	29 Oct 2019	Visibility (mi)	9
A7	29 Oct 2019	Wind Speed (kts)	4
A7	29 Oct 2019	Wind Dir	NE
A7	29 Oct 2019	Water Color	Bluish-Green
A7	29 Oct 2019	Wave Ht Low (ft)	3
A7	29 Oct 2019	Wave Period (sec)	9
A7	29 Oct 2019	Sea State	Wind ripples
A7	29 Oct 2019	High Tide (ft)	6.33
A7	29 Oct 2019	High Tide Time	2106
A7	29 Oct 2019	Low Tide (ft)	-0.71
A7	29 Oct 2019	Low Tide Time	405
A7	29 Oct 2019	Comments	Lobster floats; Kelp
C4	09 Oct 2019	Depth (m)	11
C4	09 Oct 2019	Arrive Time	1000
C4	09 Oct 2019	Depart Time	1004
C4	09 Oct 2019	Air Temp (C)	18
C4	09 Oct 2019	Weather	Partly Cloudy
C4	09 Oct 2019	Visibility (mi)	9
C4	09 Oct 2019	Wind Speed (kts)	4
C4	09 Oct 2019	Wind Dir	SE
C4	09 Oct 2019	Water Color	Bluish-Green
C4	09 Oct 2019	Wave Ht Low (ft)	3
C4	09 Oct 2019	Wave Period (sec)	13
C4	09 Oct 2019	Sea State	Wind ripples
C4	09 Oct 2019	High Tide (ft)	4.59
C4	09 Oct 2019	High Tide Time	758
C4	09 Oct 2019	Low Tide (ft)	1.76
C4	09 Oct 2019	Low Tide Time	1343
C4	09 Oct 2019	Comments	Lobster floats; Kelp
C4	15 Oct 2019	Depth (m)	11
C4	15 Oct 2019	Arrive Time	948
C4	15 Oct 2019	Depart Time	951
C4	15 Oct 2019	Air Temp (C)	18
C4	15 Oct 2019	Weather	Clear

Station	Date	Parameter	Value
C4	15 Oct 2019	Visibility (mi)	11
C4	15 Oct 2019	Wind Speed (kts)	2
C4	15 Oct 2019	Wind Dir	W
C4	15 Oct 2019	Water Color	Green
C4	15 Oct 2019	Wave Ht Low (ft)	1
C4	15 Oct 2019	Wave Period (sec)	13
C4	15 Oct 2019	Sea State	Calm
C4	15 Oct 2019	High Tide (ft)	6.33
C4	15 Oct 2019	High Tide Time	2106
C4	15 Oct 2019	Low Tide (ft)	-0.71
C4	15 Oct 2019	Low Tide Time	405
C4	15 Oct 2019	Comments	none
C4	22 Oct 2019	Depth (m)	9
C4	22 Oct 2019	Arrive Time	936
C4	22 Oct 2019	Depart Time	938
C4	22 Oct 2019	Air Temp (C)	21
C4	22 Oct 2019	Weather	Haze
C4	22 Oct 2019	Visibility (mi)	12
C4	22 Oct 2019	Wind Speed (kts)	1
C4	22 Oct 2019	Wind Dir	W
C4	22 Oct 2019	Water Color	Greenish-Brown
C4	22 Oct 2019	Wave Ht Low (ft)	2
C4	22 Oct 2019	Wave Period (sec)	13
C4	22 Oct 2019	Sea State	Calm
C4	22 Oct 2019	High Tide (ft)	6.33
C4	22 Oct 2019	High Tide Time	2106
C4	22 Oct 2019	Low Tide (ft)	-0.71
C4	22 Oct 2019	Low Tide Time	405
C4	22 Oct 2019	Comments	Kelp
C4	29 Oct 2019	Depth (m)	12
C4	29 Oct 2019	Arrive Time	921
C4	29 Oct 2019	Depart Time	930
C4	29 Oct 2019	Air Temp (C)	16
C4	29 Oct 2019	Weather	Clear
C4	29 Oct 2019	Visibility (mi)	11
C4	29 Oct 2019	Wind Speed (kts)	10
C4	29 Oct 2019	Wind Dir	NE
C4	29 Oct 2019	Water Color	Green
C4	29 Oct 2019	Wave Ht Low (ft)	3
C4	29 Oct 2019	Wave Period (sec)	9
C4	29 Oct 2019	Sea State	Wind ripples
C4	29 Oct 2019	High Tide (ft)	6.33
C4	29 Oct 2019	High Tide Time	2106
C4	29 Oct 2019	Low Tide (ft)	-0.71
C4	29 Oct 2019	Low Tide Time	405
C4	29 Oct 2019	Comments	Lobster floats; Kelp debris
C5	09 Oct 2019	Depth (m)	11
C5	09 Oct 2019	Arrive Time	945
C5	09 Oct 2019	Depart Time	951
C5	09 Oct 2019	Air Temp (C)	18
C5	09 Oct 2019	Weather	Partly Cloudy
C5	09 Oct 2019	Visibility (mi)	9
C5	09 Oct 2019	Wind Speed (kts)	6
C5	09 Oct 2019	Wind Dir	SE
C5	09 Oct 2019	Water Color	Bluish-Green
C5	09 Oct 2019	Wave Ht Low (ft)	3
C5	09 Oct 2019	Wave Period (sec)	13
C5	09 Oct 2019	Sea State	Wind ripples

Station	Date	Parameter	Value
C5	09 Oct 2019	High Tide (ft)	4.59
C5	09 Oct 2019	High Tide Time	758
C5	09 Oct 2019	Low Tide (ft)	1.76
C5	09 Oct 2019	Low Tide Time	1343
C5	09 Oct 2019	Comments	Lobster floats; Kelp debris
C5	15 Oct 2019	Depth (m)	12
C5	15 Oct 2019	Arrive Time	938
C5	15 Oct 2019	Depart Time	940
C5	15 Oct 2019	Air Temp (C)	18
C5	15 Oct 2019	Weather	Clear
C5	15 Oct 2019	Visibility (mi)	11
C5	15 Oct 2019	Wind Speed (kts)	9
C5	15 Oct 2019	Wind Dir	W
C5	15 Oct 2019	Water Color	Green
C5	15 Oct 2019	Wave Ht Low (ft)	1
C5	15 Oct 2019	Wave Period (sec)	13
C5	15 Oct 2019	Sea State	Calm
C5	15 Oct 2019	High Tide (ft)	6.33
C5	15 Oct 2019	High Tide Time	2106
C5	15 Oct 2019	Low Tide (ft)	-0.71
C5	15 Oct 2019	Low Tide Time	405
C5	15 Oct 2019	Comments	Kelp
C5	22 Oct 2019	Depth (m)	11
C5	22 Oct 2019	Arrive Time	927
C5	22 Oct 2019	Depart Time	930
C5	22 Oct 2019	Air Temp (C)	20
C5	22 Oct 2019	Weather	Haze
C5	22 Oct 2019	Visibility (mi)	12
C5	22 Oct 2019	Wind Speed (kts)	1
C5	22 Oct 2019	Wind Dir	W
C5	22 Oct 2019	Water Color	Greenish-Brown
C5	22 Oct 2019	Wave Ht Low (ft)	2
C5	22 Oct 2019	Wave Period (sec)	13
C5	22 Oct 2019	Sea State	Calm
C5	22 Oct 2019	High Tide (ft)	6.33
C5	22 Oct 2019	High Tide Time	2106
C5	22 Oct 2019	Low Tide (ft)	-0.71
C5	22 Oct 2019	Low Tide Time	405
C5	22 Oct 2019	Comments	none
C5	29 Oct 2019	Depth (m)	11
C5	29 Oct 2019	Arrive Time	911
C5	29 Oct 2019	Depart Time	914
C5	29 Oct 2019	Air Temp (C)	17
C5	29 Oct 2019	Weather	Clear
C5	29 Oct 2019	Visibility (mi)	11
C5	29 Oct 2019	Wind Speed (kts)	3
C5	29 Oct 2019	Wind Dir	NE
C5	29 Oct 2019	Water Color	Green
C5	29 Oct 2019	Wave Ht Low (ft)	3
C5	29 Oct 2019	Wave Period (sec)	9
C5	29 Oct 2019	Sea State	Wind ripples
C5	29 Oct 2019	High Tide (ft)	6.33
C5	29 Oct 2019	High Tide Time	2106
C5	29 Oct 2019	Low Tide (ft)	-0.71
C5	29 Oct 2019	Low Tide Time	405
C5	29 Oct 2019	Comments	Lobster floats; Kelp debris
C6	09 Oct 2019	Depth (m)	10

Station	Date	Parameter	Value
C6	09 Oct 2019	Arrive Time	930
C6	09 Oct 2019	Depart Time	940
C6	09 Oct 2019	Air Temp (C)	18
C6	09 Oct 2019	Weather	Partly Cloudy
C6	09 Oct 2019	Visibility (mi)	9
C6	09 Oct 2019	Wind Speed (kts)	14
C6	09 Oct 2019	Wind Dir	S
C6	09 Oct 2019	Water Color	Bluish-Green
C6	09 Oct 2019	Wave Ht Low (ft)	3
C6	09 Oct 2019	Wave Period (sec)	13
C6	09 Oct 2019	Sea State	Wind ripples
C6	09 Oct 2019	High Tide (ft)	4.59
C6	09 Oct 2019	High Tide Time	758
C6	09 Oct 2019	Low Tide (ft)	1.76
C6	09 Oct 2019	Low Tide Time	1343
C6	09 Oct 2019	Comments	Lobster floats; Kelp debris
C6	15 Oct 2019	Depth (m)	10
C6	15 Oct 2019	Arrive Time	924
C6	15 Oct 2019	Depart Time	928
C6	15 Oct 2019	Air Temp (C)	18
C6	15 Oct 2019	Weather	Clear
C6	15 Oct 2019	Visibility (mi)	10
C6	15 Oct 2019	Wind Speed (kts)	6
C6	15 Oct 2019	Wind Dir	W
C6	15 Oct 2019	Water Color	Greenish-Blue
C6	15 Oct 2019	Wave Ht Low (ft)	1
C6	15 Oct 2019	Wave Period (sec)	13
C6	15 Oct 2019	Sea State	Calm
C6	15 Oct 2019	High Tide (ft)	6.33
C6	15 Oct 2019	High Tide Time	2106
C6	15 Oct 2019	Low Tide (ft)	-0.71
C6	15 Oct 2019	Low Tide Time	405
C6	15 Oct 2019	Comments	none
C6	22 Oct 2019	Depth (m)	9
C6	22 Oct 2019	Arrive Time	917
C6	22 Oct 2019	Depart Time	919
C6	22 Oct 2019	Air Temp (C)	20
C6	22 Oct 2019	Weather	Haze
C6	22 Oct 2019	Visibility (mi)	12
C6	22 Oct 2019	Wind Speed (kts)	2
C6	22 Oct 2019	Wind Dir	W
C6	22 Oct 2019	Water Color	Greenish-Brown
C6	22 Oct 2019	Wave Ht Low (ft)	2
C6	22 Oct 2019	Wave Period (sec)	13
C6	22 Oct 2019	Sea State	Calm
C6	22 Oct 2019	High Tide (ft)	6.33
C6	22 Oct 2019	High Tide Time	2106
C6	22 Oct 2019	Low Tide (ft)	-0.71
C6	22 Oct 2019	Low Tide Time	405
C6	22 Oct 2019	Comments	Kelp; Kelp debris
C6	29 Oct 2019	Depth (m)	10
C6	29 Oct 2019	Arrive Time	859
C6	29 Oct 2019	Depart Time	903
C6	29 Oct 2019	Air Temp (C)	16
C6	29 Oct 2019	Weather	Clear
C6	29 Oct 2019	Visibility (mi)	11
C6	29 Oct 2019	Wind Speed (kts)	6
C6	29 Oct 2019	Wind Dir	NE

Station	Date	Parameter	Value
C6	29 Oct 2019	Water Color	Green
C6	29 Oct 2019	Wave Ht Low (ft)	3
C6	29 Oct 2019	Wave Period (sec)	9
C6	29 Oct 2019	Sea State	Wind ripples
C6	29 Oct 2019	High Tide (ft)	6.33
C6	29 Oct 2019	High Tide Time	2106
C6	29 Oct 2019	Low Tide (ft)	-0.71
C6	29 Oct 2019	Low Tide Time	405
C6	29 Oct 2019	Comments	Lobster floats; Kelp
C7	09 Oct 2019	Depth (m)	19
C7	09 Oct 2019	Arrive Time	855
C7	09 Oct 2019	Depart Time	900
C7	09 Oct 2019	Air Temp (C)	19
C7	09 Oct 2019	Weather	Fog
C7	09 Oct 2019	Visibility (mi)	8
C7	09 Oct 2019	Wind Speed (kts)	4
C7	09 Oct 2019	Wind Dir	SE
C7	09 Oct 2019	Water Color	Bluish-Green
C7	09 Oct 2019	Wave Ht Low (ft)	3
C7	09 Oct 2019	Wave Period (sec)	13
C7	09 Oct 2019	Sea State	Wind ripples
C7	09 Oct 2019	High Tide (ft)	4.59
C7	09 Oct 2019	High Tide Time	758
C7	09 Oct 2019	Low Tide (ft)	1.76
C7	09 Oct 2019	Low Tide Time	1343
C7	09 Oct 2019	Comments	Lobster floats; Kelp
C7	15 Oct 2019	Depth (m)	18
C7	15 Oct 2019	Arrive Time	850
C7	15 Oct 2019	Depart Time	853
C7	15 Oct 2019	Air Temp (C)	17
C7	15 Oct 2019	Weather	Clear
C7	15 Oct 2019	Visibility (mi)	10
C7	15 Oct 2019	Wind Speed (kts)	2
C7	15 Oct 2019	Wind Dir	W
C7	15 Oct 2019	Water Color	Greenish-Blue
C7	15 Oct 2019	Wave Ht Low (ft)	1
C7	15 Oct 2019	Wave Period (sec)	13
C7	15 Oct 2019	Sea State	Calm
C7	15 Oct 2019	High Tide (ft)	6.33
C7	15 Oct 2019	High Tide Time	2106
C7	15 Oct 2019	Low Tide (ft)	-0.71
C7	15 Oct 2019	Low Tide Time	405
C7	15 Oct 2019	Comments	none
C7	22 Oct 2019	Depth (m)	18
C7	22 Oct 2019	Arrive Time	850
C7	22 Oct 2019	Depart Time	852
C7	22 Oct 2019	Air Temp (C)	20
C7	22 Oct 2019	Weather	Haze
C7	22 Oct 2019	Visibility (mi)	12
C7	22 Oct 2019	Wind Speed (kts)	3
C7	22 Oct 2019	Wind Dir	S
C7	22 Oct 2019	Water Color	Greenish-Blue
C7	22 Oct 2019	Wave Ht Low (ft)	2
C7	22 Oct 2019	Wave Period (sec)	13
C7	22 Oct 2019	Sea State	Calm
C7	22 Oct 2019	High Tide (ft)	6.33
C7	22 Oct 2019	High Tide Time	2106
C7	22 Oct 2019	Low Tide (ft)	-0.71

Station	Date	Parameter	Value
C7	22 Oct 2019	Low Tide Time	405
C7	22 Oct 2019	Comments	Kelp
C7	29 Oct 2019	Depth (m)	19
C7	29 Oct 2019	Arrive Time	828
C7	29 Oct 2019	Depart Time	835
C7	29 Oct 2019	Air Temp (C)	16
C7	29 Oct 2019	Weather	Clear
C7	29 Oct 2019	Visibility (mi)	9
C7	29 Oct 2019	Wind Speed (kts)	8
C7	29 Oct 2019	Wind Dir	NE
C7	29 Oct 2019	Water Color	Bluish-Green
C7	29 Oct 2019	Wave Ht Low (ft)	3
C7	29 Oct 2019	Wave Period (sec)	9
C7	29 Oct 2019	Sea State	Wind ripples
C7	29 Oct 2019	High Tide (ft)	6.33
C7	29 Oct 2019	High Tide Time	2106
C7	29 Oct 2019	Low Tide (ft)	-0.71
C7	29 Oct 2019	Low Tide Time	405
C7	29 Oct 2019	Comments	Lobster floats; Kelp debris
C8	09 Oct 2019	Depth (m)	20
C8	09 Oct 2019	Arrive Time	907
C8	09 Oct 2019	Depart Time	913
C8	09 Oct 2019	Air Temp (C)	19
C8	09 Oct 2019	Weather	Partly Cloudy
C8	09 Oct 2019	Visibility (mi)	9
C8	09 Oct 2019	Wind Speed (kts)	4
C8	09 Oct 2019	Wind Dir	S
C8	09 Oct 2019	Water Color	Bluish-Green
C8	09 Oct 2019	Wave Ht Low (ft)	3
C8	09 Oct 2019	Wave Period (sec)	13
C8	09 Oct 2019	Sea State	Wind ripples
C8	09 Oct 2019	High Tide (ft)	4.59
C8	09 Oct 2019	High Tide Time	758
C8	09 Oct 2019	Low Tide (ft)	1.76
C8	09 Oct 2019	Low Tide Time	1343
C8	09 Oct 2019	Comments	Lobster floats; Kelp debris
C8	15 Oct 2019	Depth (m)	18
C8	15 Oct 2019	Arrive Time	904
C8	15 Oct 2019	Depart Time	907
C8	15 Oct 2019	Air Temp (C)	18
C8	15 Oct 2019	Weather	Clear
C8	15 Oct 2019	Visibility (mi)	10
C8	15 Oct 2019	Wind Speed (kts)	6
C8	15 Oct 2019	Wind Dir	W
C8	15 Oct 2019	Water Color	Greenish-Blue
C8	15 Oct 2019	Wave Ht Low (ft)	1
C8	15 Oct 2019	Wave Period (sec)	13
C8	15 Oct 2019	Sea State	Calm
C8	15 Oct 2019	High Tide (ft)	6.33
C8	15 Oct 2019	High Tide Time	2106
C8	15 Oct 2019	Low Tide (ft)	-0.71
C8	15 Oct 2019	Low Tide Time	405
C8	15 Oct 2019	Comments	none
C8	22 Oct 2019	Depth (m)	20
C8	22 Oct 2019	Arrive Time	900
C8	22 Oct 2019	Depart Time	902
C8	22 Oct 2019	Air Temp (C)	20

Station	Date	Parameter	Value
C8	22 Oct 2019	Weather	Haze
C8	22 Oct 2019	Visibility (mi)	12
C8	22 Oct 2019	Wind Speed (kts)	1
C8	22 Oct 2019	Wind Dir	S
C8	22 Oct 2019	Water Color	Greenish-Blue
C8	22 Oct 2019	Wave Ht Low (ft)	2
C8	22 Oct 2019	Wave Period (sec)	13
C8	22 Oct 2019	Sea State	Calm
C8	22 Oct 2019	High Tide (ft)	6.33
C8	22 Oct 2019	High Tide Time	2106
C8	22 Oct 2019	Low Tide (ft)	-0.71
C8	22 Oct 2019	Low Tide Time	405
C8	22 Oct 2019	Comments	none
C8	29 Oct 2019	Depth (m)	20
C8	29 Oct 2019	Arrive Time	842
C8	29 Oct 2019	Depart Time	847
C8	29 Oct 2019	Air Temp (C)	16
C8	29 Oct 2019	Weather	Clear
C8	29 Oct 2019	Visibility (mi)	9
C8	29 Oct 2019	Wind Speed (kts)	10
C8	29 Oct 2019	Wind Dir	E
C8	29 Oct 2019	Water Color	Bluish-Green
C8	29 Oct 2019	Wave Ht Low (ft)	3
C8	29 Oct 2019	Wave Period (sec)	9
C8	29 Oct 2019	Sea State	Wind ripples
C8	29 Oct 2019	High Tide (ft)	6.33
C8	29 Oct 2019	High Tide Time	2106
C8	29 Oct 2019	Low Tide (ft)	-0.71
C8	29 Oct 2019	Low Tide Time	405
C8	29 Oct 2019	Comments	Lobster floats

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	09 Oct 2019	1	17.71	71.78	8.7	33.61	8.1	24.3	2.32
A1	09 Oct 2019	2	17.55	70.69	8.7	33.60	8.1	24.3	2.94
A1	09 Oct 2019	3	17.44	70.93	8.6	33.59	8.1	24.3	3.36
A1	09 Oct 2019	4	17.38	70.63	8.6	33.59	8.1	24.3	3.77
A1	09 Oct 2019	5	17.29	70.83	8.5	33.59	8.1	24.4	4.04
A1	09 Oct 2019	6	17.15	71.02	8.4	33.59	8.1	24.4	4.25
A1	09 Oct 2019	7	17.11	71.52	8.3	33.59	8.1	24.4	4.29
A1	09 Oct 2019	8	17.09	71.96	8.3	33.59	8.1	24.4	4.31
A1	09 Oct 2019	9	17.08	71.54	8.2	33.59	8.1	24.4	4.37
A1	09 Oct 2019	10	17.03	71.73	7.9	33.59	8.1	24.4	4.52
A1	09 Oct 2019	11	16.59	72.23	7.6	33.60	8.1	24.5	4.44
A1	09 Oct 2019	12	15.82	73.32	7.3	33.59	8.1	24.7	4.42
A1	09 Oct 2019	13	15.28	74.23	7.1	33.57	8.0	24.8	4.47
A1	09 Oct 2019	14	14.95	75.51	7.1	33.55	8.0	24.9	4.30
A1	09 Oct 2019	15	14.52	77.45	6.8	33.56	8.0	25.0	3.57
A1	09 Oct 2019	16	13.99	81.23	6.5	33.56	8.0	25.1	2.53
A1	09 Oct 2019	17	13.55	83.39	6.4	33.56	8.0	25.2	1.67
A1	09 Oct 2019	18	13.56	83.99	6.5	33.55	8.0	25.2	1.38
A1	15 Oct 2019	1	18.47	76.96	8.8	33.63	8.2	24.1	1.96
A1	15 Oct 2019	2	17.57	75.09	8.0	33.65	8.1	24.3	2.76
A1	15 Oct 2019	3	16.40	75.74	7.7	33.60	8.1	24.6	3.26
A1	15 Oct 2019	4	16.17	77.13	7.7	33.55	8.1	24.6	3.25
A1	15 Oct 2019	5	15.54	77.90	7.7	33.56	8.0	24.7	3.13
A1	15 Oct 2019	6	15.42	77.94	7.7	33.52	8.0	24.7	3.08
A1	15 Oct 2019	7	15.34	78.14	7.7	33.52	8.0	24.8	3.06
A1	15 Oct 2019	8	15.21	78.42	7.6	33.53	8.0	24.8	3.04
A1	15 Oct 2019	9	14.91	79.25	7.2	33.55	8.0	24.9	2.76
A1	15 Oct 2019	10	14.32	81.74	6.9	33.57	8.0	25.0	2.04
A1	15 Oct 2019	11	14.12	82.29	6.8	33.55	8.0	25.0	1.97
A1	15 Oct 2019	12	13.91	81.97	6.8	33.54	8.0	25.1	2.34
A1	15 Oct 2019	13	13.79	82.08	6.8	33.54	8.0	25.1	2.48
A1	15 Oct 2019	14	13.66	82.92	6.7	33.55	8.0	25.1	2.23
A1	15 Oct 2019	15	13.53	84.23	6.5	33.55	8.0	25.2	1.80
A1	15 Oct 2019	16	13.45	84.71	6.4	33.57	7.9	25.2	1.49
A1	15 Oct 2019	17	13.33	85.04	6.3	33.57	7.9	25.2	1.13
A1	15 Oct 2019	18	13.27	85.24	6.3	33.58	7.9	25.2	0.94
A1	15 Oct 2019	19	13.24	84.97	6.2	33.58	7.9	25.2	0.84
A1	22 Oct 2019	1	19.37	83.66	8.4	33.64	8.1	23.9	0.76
A1	22 Oct 2019	2	19.34	83.55	8.3	33.64	8.1	23.9	0.79
A1	22 Oct 2019	3	19.16	83.34	8.4	33.64	8.1	23.9	0.91
A1	22 Oct 2019	4	19.12	82.96	8.4	33.63	8.1	23.9	0.95
A1	22 Oct 2019	5	18.99	82.89	8.3	33.63	8.1	24.0	0.99
A1	22 Oct 2019	6	18.51	82.57	8.4	33.64	8.1	24.1	1.14
A1	22 Oct 2019	7	18.13	82.05	8.3	33.62	8.1	24.2	1.35
A1	22 Oct 2019	8	17.69	81.45	8.2	33.61	8.1	24.3	1.55
A1	22 Oct 2019	9	17.23	80.93	8.2	33.60	8.1	24.4	1.69
A1	22 Oct 2019	10	16.99	80.59	8.1	33.59	8.1	24.4	1.76
A1	22 Oct 2019	11	16.30	81.57	8.0	33.58	8.1	24.6	1.80
A1	22 Oct 2019	12	15.59	82.44	8.3	33.54	8.1	24.7	1.67
A1	22 Oct 2019	13	15.38	82.65	8.1	33.53	8.1	24.8	1.67
A1	22 Oct 2019	14	15.18	82.68	7.8	33.55	8.1	24.8	1.63
A1	22 Oct 2019	15	15.09	83.22	7.7	33.54	8.0	24.8	1.49
A1	22 Oct 2019	16	15.01	83.71	7.5	33.55	8.0	24.8	1.24
A1	22 Oct 2019	17	14.76	84.04	7.3	33.56	8.0	24.9	1.03

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
A1	22 Oct 2019	18	14.70	83.87	7.3	33.53	8.0	24.9	0.91
A1	29 Oct 2019	1	17.76	77.83	8.0	33.62	8.1	24.3	1.95
A1	29 Oct 2019	2	17.75	77.82	8.0	33.62	8.1	24.3	2.10
A1	29 Oct 2019	3	17.74	77.87	8.0	33.62	8.1	24.3	2.24
A1	29 Oct 2019	4	17.64	77.81	8.0	33.62	8.1	24.3	2.34
A1	29 Oct 2019	5	17.61	77.79	8.0	33.61	8.1	24.3	2.34
A1	29 Oct 2019	6	17.55	77.66	8.0	33.61	8.1	24.3	2.36
A1	29 Oct 2019	7	17.51	77.53	8.0	33.61	8.1	24.3	2.56
A1	29 Oct 2019	8	17.46	77.29	8.0	33.61	8.1	24.3	2.57
A1	29 Oct 2019	9	17.35	77.68	8.0	33.61	8.1	24.4	2.60
A1	29 Oct 2019	10	17.31	77.90	8.0	33.60	8.1	24.4	2.55
A1	29 Oct 2019	11	17.27	77.94	8.0	33.60	8.1	24.4	2.55
A1	29 Oct 2019	12	17.23	78.23	8.0	33.59	8.1	24.4	2.47
A1	29 Oct 2019	13	17.20	78.18	7.9	33.59	8.1	24.4	2.41
A1	29 Oct 2019	14	17.16	78.46	7.9	33.60	8.1	24.4	2.36
A1	29 Oct 2019	15	16.81	79.52	7.7	33.62	8.1	24.5	2.27
A1	29 Oct 2019	16	16.30	80.91	7.6	33.60	8.1	24.6	1.86
A1	29 Oct 2019	17	15.90	82.04	7.5	33.59	8.1	24.7	1.49
A1	29 Oct 2019	18	15.49	82.50	7.5	33.57	8.0	24.8	1.32
A1	29 Oct 2019	19	15.30	82.50	7.4	33.56	8.0	24.8	1.20
A1	29 Oct 2019	20	15.23	82.35	7.4	33.55	8.0	24.8	1.15
A6	09 Oct 2019	1	19.59	79.19	8.8	33.65	8.2	23.8	1.05
A6	09 Oct 2019	2	19.59	79.87	8.8	33.66	8.2	23.8	1.08
A6	09 Oct 2019	3	19.55	80.95	8.8	33.66	8.2	23.9	1.14
A6	09 Oct 2019	4	19.49	80.97	8.8	33.65	8.2	23.9	1.26
A6	09 Oct 2019	5	19.36	80.86	8.8	33.65	8.2	23.9	1.42
A6	09 Oct 2019	6	19.28	80.64	8.8	33.65	8.2	23.9	1.48
A6	09 Oct 2019	7	19.10	80.54	8.7	33.65	8.2	24.0	1.58
A6	09 Oct 2019	8	18.82	80.34	8.6	33.64	8.2	24.0	1.74
A6	09 Oct 2019	9	18.17	79.95	8.4	33.65	8.2	24.2	1.94
A6	09 Oct 2019	10	17.59	79.72	8.5	33.58	8.2	24.3	2.34
A6	09 Oct 2019	11	17.35	79.11	8.3	33.61	8.2	24.4	2.45
A6	09 Oct 2019	12	16.81	77.93	8.2	33.60	8.2	24.5	2.88
A6	09 Oct 2019	13	16.49	78.38	8.1	33.57	8.1	24.5	3.12
A6	09 Oct 2019	14	16.04	77.93	7.9	33.57	8.1	24.6	2.98
A6	09 Oct 2019	15	15.69	79.20	7.8	33.55	8.1	24.7	2.83
A6	09 Oct 2019	16	15.49	79.65	7.8	33.54	8.1	24.7	2.64
A6	09 Oct 2019	17	15.59	80.74	7.8	33.52	8.1	24.7	2.62
A6	09 Oct 2019	18	15.22	82.17	7.5	33.55	8.1	24.8	2.38
A6	15 Oct 2019	1	19.10	80.56	9.0	33.66	8.2	24.0	1.29
A6	15 Oct 2019	2	18.94	80.44	8.8	33.66	8.2	24.0	1.45
A6	15 Oct 2019	3	17.65	79.55	8.0	33.72	8.2	24.4	1.78
A6	15 Oct 2019	4	15.85	78.52	7.6	33.59	8.1	24.7	2.36
A6	15 Oct 2019	5	15.59	78.16	7.4	33.55	8.1	24.7	2.56
A6	15 Oct 2019	6	15.15	78.41	7.4	33.53	8.0	24.8	2.62
A6	15 Oct 2019	7	15.01	79.40	7.1	33.54	8.0	24.8	2.61
A6	15 Oct 2019	8	14.06	81.60	6.8	33.58	8.0	25.1	1.85
A6	15 Oct 2019	9	13.85	83.11	6.7	33.54	8.0	25.1	1.54
A6	15 Oct 2019	10	13.74	83.64	6.6	33.55	8.0	25.1	1.37
A6	15 Oct 2019	11	13.65	84.09	6.5	33.55	8.0	25.1	1.23
A6	15 Oct 2019	12	13.55	84.45	6.4	33.56	8.0	25.2	1.08
A6	15 Oct 2019	13	13.55	84.55	6.4	33.57	8.0	25.2	1.04
A6	15 Oct 2019	14	13.44	84.74	6.3	33.58	8.0	25.2	0.95
A6	15 Oct 2019	15	13.41	84.99	6.3	33.58	8.0	25.2	0.94
A6	15 Oct 2019	16	13.28	85.14	6.2	33.59	8.0	25.2	0.82
A6	15 Oct 2019	17	13.25	85.01	6.2	33.59	7.9	25.2	0.75
A6	15 Oct 2019	18	13.24	85.24	6.1	33.59	7.9	25.3	0.75
A6	15 Oct 2019	19	13.11	85.38	6.0	33.60	7.9	25.3	0.65

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
A6	15 Oct 2019	20	13.09	85.43	6.0	33.59	7.9	25.3	0.63
A6	15 Oct 2019	21	12.99	85.48	6.0	33.60	7.9	25.3	0.60
A6	22 Oct 2019	1	18.86	76.63	8.4	33.62	8.1	24.0	1.32
A6	22 Oct 2019	2	18.83	76.98	8.4	33.63	8.1	24.0	1.37
A6	22 Oct 2019	3	18.80	77.17	8.4	33.63	8.1	24.0	1.43
A6	22 Oct 2019	4	18.78	77.14	8.4	33.62	8.1	24.0	1.52
A6	22 Oct 2019	5	18.77	77.44	8.3	33.62	8.1	24.0	1.47
A6	22 Oct 2019	6	18.73	77.36	8.0	33.62	8.1	24.0	1.48
A6	22 Oct 2019	7	18.70	76.76	8.2	33.63	8.1	24.0	1.68
A6	22 Oct 2019	8	18.70	77.06	8.3	33.62	8.1	24.0	2.02
A6	22 Oct 2019	9	18.47	78.36	8.2	33.63	8.1	24.1	1.75
A6	22 Oct 2019	10	17.75	79.02	8.1	33.63	8.1	24.3	1.53
A6	22 Oct 2019	11	17.41	80.40	7.8	33.58	8.1	24.3	1.33
A6	22 Oct 2019	12	16.77	81.12	7.4	33.56	8.1	24.5	1.11
A6	22 Oct 2019	13	15.94	81.96	7.1	33.60	8.0	24.7	0.91
A6	22 Oct 2019	14	15.38	82.45	6.9	33.52	8.0	24.7	0.90
A6	22 Oct 2019	15	14.91	82.36	6.8	33.55	8.0	24.9	0.97
A6	22 Oct 2019	16	14.62	82.29	6.8	33.56	8.0	24.9	1.08
A6	22 Oct 2019	17	14.32	82.56	6.8	33.54	8.0	25.0	1.20
A6	22 Oct 2019	18	13.94	82.53	6.8	33.56	8.0	25.1	1.29
A6	22 Oct 2019	19	13.81	82.88	6.9	33.56	8.0	25.1	1.35
A6	22 Oct 2019	20	13.74	83.07	6.8	33.55	8.0	25.1	1.41
A6	22 Oct 2019	21	13.81	82.97	6.8	33.56	8.0	25.1	1.47
A6	29 Oct 2019	1	18.34	80.90	7.8	33.64	8.1	24.1	1.25
A6	29 Oct 2019	2	18.33	82.80	7.8	33.65	8.1	24.2	1.23
A6	29 Oct 2019	3	18.11	82.71	7.8	33.66	8.1	24.2	1.32
A6	29 Oct 2019	4	17.95	81.46	7.9	33.62	8.1	24.2	1.80
A6	29 Oct 2019	5	17.66	80.89	7.9	33.67	8.1	24.3	2.09
A6	29 Oct 2019	6	17.11	77.33	8.1	33.61	8.1	24.4	2.57
A6	29 Oct 2019	7	16.99	74.90	8.2	33.57	8.1	24.4	2.92
A6	29 Oct 2019	8	17.06	74.50	8.2	33.58	8.1	24.4	3.09
A6	29 Oct 2019	9	16.90	73.04	8.2	33.57	8.1	24.4	3.13
A6	29 Oct 2019	10	16.82	72.44	8.2	33.58	8.1	24.5	3.14
A6	29 Oct 2019	11	16.72	76.62	8.1	33.57	8.1	24.5	3.01
A6	29 Oct 2019	12	16.56	78.26	8.1	33.57	8.1	24.5	2.81
A6	29 Oct 2019	13	16.47	78.56	8.0	33.57	8.1	24.5	2.56
A6	29 Oct 2019	14	16.29	79.00	7.9	33.58	8.1	24.6	2.33
A6	29 Oct 2019	15	16.05	80.25	7.8	33.57	8.1	24.6	1.95
A6	29 Oct 2019	16	15.86	80.82	7.7	33.57	8.1	24.7	1.67
A6	29 Oct 2019	17	15.70	81.05	7.6	33.56	8.1	24.7	1.46
A6	29 Oct 2019	18	15.55	81.58	7.5	33.55	8.1	24.7	1.32
A6	29 Oct 2019	19	15.53	82.02	7.5	33.55	8.1	24.7	1.24
A7	09 Oct 2019	1	19.28	79.00	8.8	33.65	8.2	23.9	1.59
A7	09 Oct 2019	2	19.30	79.07	8.8	33.66	8.2	23.9	1.66
A7	09 Oct 2019	3	19.19	79.15	8.8	33.66	8.2	24.0	1.92
A7	09 Oct 2019	4	19.08	78.93	8.8	33.65	8.2	24.0	2.16
A7	09 Oct 2019	5	19.03	78.02	8.7	33.65	8.2	24.0	2.31
A7	09 Oct 2019	6	18.94	77.81	8.6	33.65	8.2	24.0	2.39
A7	09 Oct 2019	7	18.44	77.70	8.4	33.67	8.2	24.1	2.54
A7	09 Oct 2019	8	17.77	77.39	8.3	33.65	8.2	24.3	2.78
A7	09 Oct 2019	9	17.23	76.52	8.3	33.61	8.2	24.4	3.03
A7	09 Oct 2019	10	17.16	76.17	8.3	33.58	8.2	24.4	3.05
A7	09 Oct 2019	11	17.07	76.27	8.3	33.58	8.2	24.4	3.16
A7	09 Oct 2019	12	17.02	76.42	8.3	33.58	8.1	24.4	3.17
A7	09 Oct 2019	13	17.02	76.53	8.3	33.57	8.1	24.4	3.13
A7	09 Oct 2019	14	16.83	76.53	8.2	33.58	8.1	24.5	3.16
A7	09 Oct 2019	15	16.61	76.61	8.1	33.57	8.1	24.5	3.15
A7	09 Oct 2019	16	16.35	76.58	7.8	33.58	8.1	24.6	3.28

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
A7	09 Oct 2019	17	15.63	76.52	7.5	33.58	8.1	24.7	3.58
A7	09 Oct 2019	18	15.16	76.47	7.3	33.58	8.1	24.8	3.73
A7	09 Oct 2019	19	14.57	77.16	7.0	33.56	8.0	25.0	3.00
A7	15 Oct 2019	1	19.01	80.59	8.5	33.65	8.2	24.0	1.24
A7	15 Oct 2019	2	18.68	80.35	8.2	33.67	8.2	24.1	1.60
A7	15 Oct 2019	3	17.63	78.63	7.8	33.65	8.1	24.3	2.50
A7	15 Oct 2019	4	16.39	76.68	7.5	33.61	8.1	24.6	3.04
A7	15 Oct 2019	5	15.97	76.42	7.4	33.55	8.1	24.6	3.29
A7	15 Oct 2019	6	15.49	77.24	7.3	33.58	8.1	24.8	3.15
A7	15 Oct 2019	7	14.90	79.05	7.5	33.53	8.0	24.9	2.93
A7	15 Oct 2019	8	14.91	79.24	7.6	33.51	8.1	24.8	2.89
A7	15 Oct 2019	9	14.76	79.32	7.5	33.52	8.1	24.9	2.82
A7	15 Oct 2019	10	14.63	80.23	7.4	33.52	8.0	24.9	2.60
A7	15 Oct 2019	11	14.51	80.82	7.1	33.55	8.0	25.0	2.45
A7	15 Oct 2019	12	13.90	82.46	6.8	33.57	8.0	25.1	1.82
A7	15 Oct 2019	13	13.95	83.07	6.6	33.55	8.0	25.1	1.54
A7	15 Oct 2019	14	13.41	84.46	6.4	33.59	8.0	25.2	1.32
A7	15 Oct 2019	15	13.38	84.91	6.3	33.56	8.0	25.2	1.02
A7	15 Oct 2019	16	13.34	85.04	6.3	33.58	8.0	25.2	0.96
A7	15 Oct 2019	17	13.30	84.99	6.2	33.58	8.0	25.2	0.85
A7	15 Oct 2019	18	13.28	84.99	6.2	33.58	7.9	25.2	0.75
A7	15 Oct 2019	19	13.18	85.09	6.1	33.59	7.9	25.3	0.69
A7	15 Oct 2019	20	13.06	85.10	6.1	33.60	7.9	25.3	0.67
A7	22 Oct 2019	1	19.08	80.58	8.4	33.63	8.2	24.0	1.05
A7	22 Oct 2019	2	19.08	80.55	8.4	33.63	8.2	24.0	1.12
A7	22 Oct 2019	3	19.03	80.46	8.4	33.63	8.2	24.0	1.19
A7	22 Oct 2019	4	18.97	80.43	8.4	33.63	8.2	24.0	1.21
A7	22 Oct 2019	5	18.82	80.31	8.4	33.63	8.2	24.0	1.23
A7	22 Oct 2019	6	18.74	80.51	8.4	33.62	8.2	24.0	1.25
A7	22 Oct 2019	7	18.72	80.70	8.4	33.62	8.2	24.0	1.28
A7	22 Oct 2019	8	18.54	80.92	8.4	33.62	8.2	24.1	1.30
A7	22 Oct 2019	9	18.47	81.00	8.4	33.61	8.2	24.1	1.34
A7	22 Oct 2019	10	18.29	80.05	8.4	33.62	8.1	24.1	1.51
A7	22 Oct 2019	11	18.07	81.03	8.4	33.60	8.1	24.2	1.36
A7	22 Oct 2019	12	17.84	81.72	8.3	33.61	8.1	24.2	1.45
A7	22 Oct 2019	13	17.43	82.26	8.0	33.59	8.1	24.3	1.39
A7	22 Oct 2019	14	16.74	83.06	7.5	33.62	8.1	24.5	1.26
A7	22 Oct 2019	15	15.66	83.32	7.3	33.62	8.1	24.8	1.11
A7	22 Oct 2019	16	15.40	83.55	7.2	33.56	8.0	24.8	1.00
A7	22 Oct 2019	17	14.87	83.33	7.0	33.58	8.0	24.9	0.94
A7	22 Oct 2019	18	14.63	83.25	6.9	33.56	8.0	24.9	0.89
A7	22 Oct 2019	19	14.45	83.13	6.9	33.56	8.0	25.0	0.89
A7	29 Oct 2019	1	18.18	81.75	7.8	33.64	8.1	24.2	1.19
A7	29 Oct 2019	2	18.06	81.34	7.7	33.64	8.1	24.2	1.34
A7	29 Oct 2019	3	17.62	80.59	7.8	33.62	8.1	24.3	1.82
A7	29 Oct 2019	4	17.15	79.59	7.9	33.61	8.1	24.4	2.26
A7	29 Oct 2019	5	17.02	79.45	8.0	33.58	8.1	24.4	2.41
A7	29 Oct 2019	6	17.02	79.48	8.0	33.58	8.1	24.4	2.51
A7	29 Oct 2019	7	16.99	79.66	8.0	33.58	8.1	24.4	2.52
A7	29 Oct 2019	8	16.99	79.73	7.9	33.58	8.1	24.4	2.48
A7	29 Oct 2019	9	16.98	79.72	7.9	33.58	8.1	24.4	2.47
A7	29 Oct 2019	10	16.97	79.77	7.9	33.58	8.1	24.4	2.43
A7	29 Oct 2019	11	16.95	79.69	7.9	33.58	8.1	24.4	2.46
A7	29 Oct 2019	12	16.93	79.87	7.9	33.58	8.1	24.4	2.39
A7	29 Oct 2019	13	16.89	80.01	7.9	33.58	8.1	24.4	2.36
A7	29 Oct 2019	14	16.86	80.07	7.9	33.58	8.1	24.5	2.32
A7	29 Oct 2019	15	16.77	80.40	7.9	33.58	8.1	24.5	2.24
A7	29 Oct 2019	16	16.68	80.79	7.9	33.57	8.1	24.5	2.09

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
A7	29 Oct 2019	17	16.52	81.22	7.7	33.58	8.1	24.5	1.90
A7	29 Oct 2019	18	16.17	82.62	7.6	33.58	8.1	24.6	1.45
C4	09 Oct 2019	1	19.75	65.26	7.6	33.66	8.2	23.8	0.84
C4	09 Oct 2019	2	19.64	64.60	7.4	33.66	8.2	23.8	0.99
C4	09 Oct 2019	3	19.50	63.23	7.3	33.66	8.1	23.9	1.51
C4	09 Oct 2019	4	18.82	62.92	7.3	33.70	8.2	24.1	2.50
C4	09 Oct 2019	5	17.94	68.87	6.9	33.67	8.2	24.3	4.13
C4	09 Oct 2019	6	16.99	71.99	6.3	33.65	8.1	24.5	5.88
C4	09 Oct 2019	7	16.44	71.94	5.0	33.62	8.1	24.6	4.28
C4	09 Oct 2019	8	15.92	74.66	3.6	33.62	8.0	24.7	2.52
C4	09 Oct 2019	9	15.52	74.60	2.9	33.60	7.8	24.8	1.25
C4	09 Oct 2019	10	15.46	71.14	2.8	33.58	7.8	24.8	0.84
C4	15 Oct 2019	1	17.92	75.41	7.6	33.62	8.1	24.2	1.26
C4	15 Oct 2019	2	17.89	75.35	7.5	33.62	8.1	24.2	1.35
C4	15 Oct 2019	3	17.87	75.16	7.5	33.62	8.1	24.2	1.61
C4	15 Oct 2019	4	17.84	75.23	7.5	33.62	8.1	24.3	2.09
C4	15 Oct 2019	5	17.76	75.36	7.1	33.62	8.1	24.3	2.40
C4	15 Oct 2019	6	16.82	75.90	6.0	33.64	8.0	24.5	2.50
C4	15 Oct 2019	7	16.30	78.47	5.4	33.61	8.0	24.6	2.03
C4	15 Oct 2019	8	15.70	79.66	5.1	33.59	7.9	24.7	1.14
C4	15 Oct 2019	9	15.42	79.80	5.1	33.57	7.9	24.8	0.75
C4	15 Oct 2019	10	15.32	78.69	5.1	33.56	7.9	24.8	0.57
C4	15 Oct 2019	11	15.31	77.81	5.1	33.56	7.9	24.8	0.51
C4	22 Oct 2019	1	18.65	75.82	8.2	33.62	8.1	24.1	1.00
C4	22 Oct 2019	2	18.59	77.70	8.2	33.63	8.1	24.1	1.12
C4	22 Oct 2019	3	18.48	78.49	8.2	33.62	8.1	24.1	1.33
C4	22 Oct 2019	4	18.39	78.59	8.1	33.63	8.1	24.1	1.42
C4	22 Oct 2019	5	18.33	77.75	8.0	33.62	8.1	24.1	1.50
C4	22 Oct 2019	6	18.25	77.25	7.8	33.63	8.1	24.2	1.51
C4	22 Oct 2019	7	18.13	75.59	7.6	33.62	8.1	24.2	1.43
C4	22 Oct 2019	8	17.93	74.43	7.0	33.63	8.1	24.2	1.31
C4	22 Oct 2019	9	16.66	70.18	6.3	33.67	8.0	24.6	0.93
C4	22 Oct 2019	10	15.69	68.60	5.9	33.61	8.0	24.7	0.62
C4	22 Oct 2019	11	15.07	64.48	5.7	33.57	7.9	24.9	0.51
C4	29 Oct 2019	1	17.89	74.32	7.8	33.64	8.1	24.3	1.45
C4	29 Oct 2019	2	17.89	74.34	7.8	33.64	8.1	24.3	1.52
C4	29 Oct 2019	3	17.89	74.50	7.7	33.64	8.1	24.3	1.61
C4	29 Oct 2019	4	17.89	74.40	7.7	33.64	8.1	24.3	1.70
C4	29 Oct 2019	5	17.89	74.45	7.7	33.64	8.1	24.3	1.74
C4	29 Oct 2019	6	17.89	74.55	7.7	33.64	8.1	24.3	1.79
C4	29 Oct 2019	7	17.89	74.47	7.7	33.64	8.1	24.3	1.77
C4	29 Oct 2019	8	17.89	74.67	7.7	33.64	8.1	24.3	1.88
C4	29 Oct 2019	9	17.89	74.04	7.7	33.64	8.1	24.3	1.81
C4	29 Oct 2019	10	17.89	64.10	7.5	33.62	8.1	24.2	1.83
C4	29 Oct 2019	11	17.89	54.53	7.6	33.62	8.1	24.2	1.77
C5	09 Oct 2019	1	19.96	80.59	8.8	33.66	8.2	23.8	0.61
C5	09 Oct 2019	2	19.89	80.15	8.7	33.66	8.2	23.8	0.68
C5	09 Oct 2019	3	19.62	78.72	8.6	33.66	8.2	23.8	1.06
C5	09 Oct 2019	4	18.61	77.98	8.6	33.66	8.2	24.1	1.68
C5	09 Oct 2019	5	18.01	77.96	8.6	33.62	8.2	24.2	1.99
C5	09 Oct 2019	6	17.37	77.79	8.1	33.62	8.2	24.4	2.53
C5	09 Oct 2019	7	16.17	77.15	7.6	33.62	8.1	24.6	2.80
C5	09 Oct 2019	8	15.55	80.20	7.2	33.58	8.1	24.8	1.99
C5	09 Oct 2019	9	15.33	82.49	7.1	33.55	8.1	24.8	1.29
C5	09 Oct 2019	10	15.04	82.48	6.9	33.57	8.1	24.9	1.07
C5	09 Oct 2019	11	14.74	82.33	6.9	33.55	8.0	24.9	1.00

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
C5	15 Oct 2019	1	19.35	79.39	8.5	33.66	8.2	23.9	0.75
	15 Oct 2019	2	19.38	79.72	8.4	33.66	8.2	23.9	0.75
	15 Oct 2019	3	19.21	79.49	8.4	33.68	8.2	24.0	0.86
	15 Oct 2019	4	18.99	79.04	8.2	33.66	8.2	24.0	1.22
	15 Oct 2019	5	17.89	79.61	7.7	33.66	8.1	24.3	1.60
	15 Oct 2019	6	17.01	81.00	7.1	33.65	8.1	24.5	1.49
	15 Oct 2019	7	16.01	82.24	6.5	33.61	8.0	24.7	0.98
	15 Oct 2019	8	15.70	83.35	6.3	33.56	8.0	24.7	0.61
	15 Oct 2019	9	15.20	82.96	6.4	33.57	8.0	24.8	0.59
	15 Oct 2019	10	14.88	82.63	6.4	33.56	8.0	24.9	0.59
	15 Oct 2019	11	14.84	82.44	6.4	33.55	8.0	24.9	0.58
C5	22 Oct 2019	1	18.57	78.48	8.1	33.62	8.1	24.1	1.30
	22 Oct 2019	2	18.55	78.56	8.1	33.63	8.1	24.1	1.35
	22 Oct 2019	3	18.48	78.73	8.2	33.62	8.1	24.1	1.52
	22 Oct 2019	4	18.38	79.39	8.2	33.62	8.1	24.1	1.61
	22 Oct 2019	5	18.15	80.23	8.1	33.63	8.1	24.2	1.60
	22 Oct 2019	6	17.81	80.54	7.6	33.62	8.1	24.3	1.63
	22 Oct 2019	7	17.37	79.34	6.9	33.63	8.1	24.4	1.37
	22 Oct 2019	8	16.59	77.19	6.3	33.62	8.0	24.6	0.92
	22 Oct 2019	9	16.08	76.29	6.2	33.59	8.0	24.6	0.70
	22 Oct 2019	10	15.27	75.41	6.1	33.60	8.0	24.8	0.55
	22 Oct 2019	11	14.90	69.13	6.3	33.56	8.0	24.9	0.56
C5	29 Oct 2019	1	18.44	74.90	7.1	33.65	8.1	24.1	0.59
	29 Oct 2019	2	18.40	74.88	7.1	33.65	8.1	24.1	0.64
	29 Oct 2019	3	18.38	74.75	7.1	33.65	8.1	24.1	0.66
	29 Oct 2019	4	18.34	74.70	7.1	33.65	8.1	24.2	0.71
	29 Oct 2019	5	18.25	74.83	7.0	33.65	8.1	24.2	0.68
	29 Oct 2019	6	17.74	75.80	7.0	33.67	8.1	24.3	0.68
	29 Oct 2019	7	17.31	79.16	7.1	33.62	8.1	24.4	0.62
	29 Oct 2019	8	17.04	81.15	7.3	33.59	8.1	24.4	0.60
	29 Oct 2019	9	17.01	75.69	7.2	33.58	8.1	24.4	0.61
	29 Oct 2019	10	16.96	72.80	7.2	33.58	8.1	24.4	0.62
	C6	09 Oct 2019	1	19.96	80.63	8.7	33.66	8.2	23.8
	C6	09 Oct 2019	2	19.94	80.32	8.7	33.66	8.2	23.8
	C6	09 Oct 2019	3	19.79	80.41	8.6	33.66	8.2	23.8
	C6	09 Oct 2019	4	19.29	79.07	8.5	33.67	8.2	23.9
	C6	09 Oct 2019	5	18.19	78.98	8.6	33.66	8.2	24.2
	C6	09 Oct 2019	6	17.55	79.19	8.4	33.61	8.2	24.3
	C6	09 Oct 2019	7	16.79	78.85	7.8	33.62	8.2	24.5
	C6	09 Oct 2019	8	15.71	78.27	7.0	33.60	8.1	24.7
	C6	09 Oct 2019	9	15.34	80.03	6.6	33.55	8.0	24.8
	C6	09 Oct 2019	10	15.32	80.09	6.6	33.54	8.0	24.8
C6	15 Oct 2019	1	19.55	79.80	8.5	33.67	8.2	23.9	0.66
	15 Oct 2019	2	19.54	79.59	8.5	33.67	8.2	23.9	0.74
	15 Oct 2019	3	19.05	79.29	8.1	33.71	8.2	24.0	1.19
	15 Oct 2019	4	17.49	78.46	7.7	33.69	8.2	24.4	1.88
	15 Oct 2019	5	16.78	79.41	7.3	33.61	8.1	24.5	2.01
	15 Oct 2019	6	16.30	80.67	7.0	33.60	8.1	24.6	1.75
	15 Oct 2019	7	15.87	81.69	6.8	33.58	8.0	24.7	1.29
	15 Oct 2019	8	15.79	82.20	6.6	33.55	8.0	24.7	0.90
	15 Oct 2019	9	15.50	82.03	6.3	33.57	8.0	24.8	0.70
	15 Oct 2019	10	15.44	80.78	6.2	33.55	8.0	24.8	0.54
C6	22 Oct 2019	1	18.73	79.51	8.4	33.62	8.2	24.0	0.92
	22 Oct 2019	2	18.71	79.55	8.4	33.62	8.2	24.0	0.94
	22 Oct 2019	3	18.67	79.44	8.4	33.62	8.2	24.1	0.97

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
C6	22 Oct 2019	4	18.63	79.49	8.4	33.62	8.2	24.1	1.16
C6	22 Oct 2019	5	18.57	79.45	8.3	33.63	8.1	24.1	1.37
C6	22 Oct 2019	6	18.35	79.48	8.1	33.63	8.1	24.1	1.71
C6	22 Oct 2019	7	18.12	78.13	7.8	33.63	8.1	24.2	2.18
C6	22 Oct 2019	8	17.96	76.94	7.1	33.62	8.1	24.2	2.13
C6	22 Oct 2019	9	16.52	75.38	6.2	33.70	8.0	24.6	1.49
C6	22 Oct 2019	10	15.82	74.80	6.0	33.59	8.0	24.7	0.94
C6	29 Oct 2019	1	18.33	82.39	7.6	33.65	8.1	24.2	0.46
C6	29 Oct 2019	2	18.33	82.41	7.6	33.65	8.1	24.2	0.49
C6	29 Oct 2019	3	18.27	82.47	7.6	33.65	8.1	24.2	0.58
C6	29 Oct 2019	4	17.84	82.56	7.6	33.64	8.1	24.3	0.92
C6	29 Oct 2019	5	17.49	82.55	7.6	33.60	8.1	24.3	1.35
C6	29 Oct 2019	6	17.36	82.36	7.6	33.59	8.1	24.3	1.40
C6	29 Oct 2019	7	17.24	82.54	7.5	33.58	8.1	24.4	1.20
C6	29 Oct 2019	8	17.14	82.98	7.3	33.58	8.1	24.4	0.84
C6	29 Oct 2019	9	17.07	82.91	7.2	33.57	8.1	24.4	0.64
C6	29 Oct 2019	10	17.06	81.82	7.1	33.57	8.1	24.4	0.51
C6	29 Oct 2019	11	17.06	80.81	7.0	33.57	8.1	24.4	0.46
C7	09 Oct 2019	1	19.92	79.78	8.3	33.65	8.2	23.8	1.02
C7	09 Oct 2019	2	19.91	79.82	8.3	33.67	8.2	23.8	1.05
C7	09 Oct 2019	3	19.69	80.49	8.3	33.67	8.2	23.8	1.15
C7	09 Oct 2019	4	19.07	80.58	8.3	33.70	8.2	24.0	1.39
C7	09 Oct 2019	5	18.05	80.46	8.4	33.65	8.2	24.2	1.70
C7	09 Oct 2019	6	17.47	80.18	8.6	33.59	8.2	24.3	1.90
C7	09 Oct 2019	7	17.30	80.09	8.6	33.57	8.2	24.3	2.03
C7	09 Oct 2019	8	17.19	80.17	8.6	33.56	8.2	24.4	2.12
C7	09 Oct 2019	9	17.12	80.14	8.6	33.55	8.2	24.4	2.13
C7	09 Oct 2019	10	17.05	80.33	8.5	33.55	8.2	24.4	2.14
C7	09 Oct 2019	11	16.31	80.16	8.3	33.58	8.2	24.6	2.25
C7	09 Oct 2019	12	15.74	80.15	8.3	33.53	8.1	24.7	2.64
C7	09 Oct 2019	13	15.38	80.12	8.1	33.53	8.1	24.8	2.84
C7	09 Oct 2019	14	14.97	80.13	7.8	33.53	8.1	24.8	2.97
C7	09 Oct 2019	15	14.77	80.65	7.7	33.51	8.1	24.9	2.91
C7	09 Oct 2019	16	14.70	81.24	7.4	33.52	8.1	24.9	2.55
C7	09 Oct 2019	17	14.49	82.27	7.0	33.54	8.1	25.0	1.90
C7	09 Oct 2019	18	14.09	83.24	6.7	33.55	8.0	25.1	1.32
C7	15 Oct 2019	1	19.01	77.39	8.5	33.65	8.2	24.0	1.86
C7	15 Oct 2019	2	19.00	77.28	8.4	33.66	8.2	24.0	2.02
C7	15 Oct 2019	3	18.35	76.90	8.0	33.66	8.2	24.2	2.37
C7	15 Oct 2019	4	16.94	77.69	7.6	33.63	8.1	24.5	2.55
C7	15 Oct 2019	5	16.43	77.93	7.7	33.57	8.1	24.6	2.63
C7	15 Oct 2019	6	16.23	78.22	7.8	33.55	8.1	24.6	2.60
C7	15 Oct 2019	7	15.91	78.04	7.7	33.55	8.1	24.7	2.61
C7	15 Oct 2019	8	15.19	78.10	7.6	33.55	8.1	24.8	2.73
C7	15 Oct 2019	9	14.86	79.17	7.4	33.52	8.1	24.9	2.57
C7	15 Oct 2019	10	14.63	80.06	7.2	33.53	8.0	24.9	2.50
C7	15 Oct 2019	11	14.14	80.99	7.0	33.55	8.0	25.0	2.18
C7	15 Oct 2019	12	14.22	82.26	6.8	33.53	8.0	25.0	2.01
C7	15 Oct 2019	13	13.63	83.09	6.5	33.56	8.0	25.2	1.63
C7	15 Oct 2019	14	13.57	83.77	6.4	33.55	8.0	25.2	1.33
C7	15 Oct 2019	15	13.41	84.41	6.4	33.56	8.0	25.2	1.10
C7	15 Oct 2019	16	13.41	84.87	6.4	33.56	8.0	25.2	1.01
C7	15 Oct 2019	17	13.37	84.87	6.3	33.57	8.0	25.2	0.97
C7	15 Oct 2019	18	13.35	84.98	6.3	33.57	8.0	25.2	0.89
C7	15 Oct 2019	19	13.35	84.86	6.3	33.57	8.0	25.2	0.85
C7	22 Oct 2019	1	18.44	77.96	8.5	33.62	8.2	24.1	1.10
C7	22 Oct 2019	2	18.44	77.98	8.5	33.62	8.2	24.1	1.11

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C7	22 Oct 2019	3	18.43	77.94	8.5	33.62	8.2	24.1	1.23
C7	22 Oct 2019	4	18.40	78.11	8.4	33.63	8.2	24.1	1.38
C7	22 Oct 2019	5	18.25	77.99	8.5	33.62	8.2	24.2	1.52
C7	22 Oct 2019	6	18.15	77.85	8.5	33.61	8.1	24.2	1.72
C7	22 Oct 2019	7	18.05	77.68	8.5	33.61	8.1	24.2	1.87
C7	22 Oct 2019	8	17.83	77.75	8.4	33.61	8.1	24.2	2.02
C7	22 Oct 2019	9	17.30	77.56	8.4	33.61	8.1	24.4	2.20
C7	22 Oct 2019	10	16.92	77.13	8.3	33.58	8.1	24.4	2.49
C7	22 Oct 2019	11	16.78	78.27	8.2	33.57	8.1	24.5	2.64
C7	22 Oct 2019	12	16.64	78.94	8.1	33.57	8.1	24.5	2.62
C7	22 Oct 2019	13	16.61	79.26	8.1	33.56	8.1	24.5	2.57
C7	22 Oct 2019	14	16.54	79.57	8.0	33.56	8.1	24.5	2.54
C7	22 Oct 2019	15	16.33	79.73	7.8	33.58	8.1	24.6	2.41
C7	22 Oct 2019	16	16.16	80.65	7.5	33.57	8.1	24.6	1.94
C7	22 Oct 2019	17	15.97	80.74	7.0	33.59	8.0	24.7	1.60
C7	22 Oct 2019	18	14.52	81.83	6.5	33.63	8.0	25.0	1.09
C7	29 Oct 2019	1	18.18	80.37	8.0	33.63	8.1	24.2	1.35
C7	29 Oct 2019	2	18.02	80.06	7.9	33.62	8.1	24.2	1.59
C7	29 Oct 2019	3	17.31	80.20	7.8	33.64	8.1	24.4	1.99
C7	29 Oct 2019	4	16.68	80.10	7.9	33.58	8.1	24.5	2.44
C7	29 Oct 2019	5	16.49	80.68	7.9	33.56	8.1	24.5	2.58
C7	29 Oct 2019	6	16.42	80.96	7.9	33.55	8.1	24.5	2.50
C7	29 Oct 2019	7	16.33	81.17	7.9	33.55	8.1	24.6	2.54
C7	29 Oct 2019	8	16.26	81.23	8.0	33.55	8.1	24.6	2.34
C7	29 Oct 2019	9	16.20	81.58	7.9	33.55	8.1	24.6	2.16
C7	29 Oct 2019	10	16.01	81.92	7.9	33.56	8.1	24.6	2.00
C7	29 Oct 2019	11	15.77	82.11	7.9	33.55	8.1	24.7	1.80
C7	29 Oct 2019	12	15.78	82.12	7.8	33.54	8.1	24.7	1.86
C7	29 Oct 2019	13	15.66	82.12	7.8	33.55	8.1	24.7	1.72
C7	29 Oct 2019	14	15.55	82.35	7.8	33.54	8.1	24.7	1.67
C7	29 Oct 2019	15	15.48	82.58	7.8	33.54	8.1	24.7	1.60
C7	29 Oct 2019	16	15.44	82.85	7.7	33.54	8.1	24.7	1.60
C7	29 Oct 2019	17	15.33	82.98	7.7	33.54	8.1	24.8	1.53
C7	29 Oct 2019	18	15.27	83.26	7.6	33.53	8.1	24.8	1.39
C7	29 Oct 2019	19	15.27	83.33	7.6	33.53	8.1	24.8	1.30
C8	09 Oct 2019	1	19.96	80.82	8.3	33.67	8.2	23.8	0.74
C8	09 Oct 2019	2	19.94	80.59	8.3	33.67	8.2	23.8	0.78
C8	09 Oct 2019	3	19.91	80.33	8.3	33.67	8.2	23.8	0.85
C8	09 Oct 2019	4	19.88	80.56	8.3	33.67	8.2	23.8	0.96
C8	09 Oct 2019	5	19.46	80.43	8.4	33.67	8.2	23.9	1.12
C8	09 Oct 2019	6	18.90	80.53	8.6	33.66	8.2	24.0	1.30
C8	09 Oct 2019	7	18.59	80.39	8.6	33.62	8.2	24.1	1.48
C8	09 Oct 2019	8	18.24	80.48	8.5	33.62	8.2	24.2	1.57
C8	09 Oct 2019	9	17.00	80.67	8.6	33.59	8.2	24.4	1.67
C8	09 Oct 2019	10	16.32	81.33	8.8	33.53	8.2	24.5	1.65
C8	09 Oct 2019	11	16.08	81.81	8.7	33.49	8.2	24.6	1.71
C8	09 Oct 2019	12	15.89	81.88	8.6	33.50	8.2	24.6	1.84
C8	09 Oct 2019	13	15.39	81.75	8.3	33.51	8.2	24.7	2.09
C8	09 Oct 2019	14	15.10	80.85	7.8	33.52	8.1	24.8	2.73
C8	09 Oct 2019	15	14.73	80.56	7.6	33.52	8.1	24.9	2.95
C8	09 Oct 2019	16	14.56	80.92	7.4	33.51	8.1	24.9	2.88
C8	09 Oct 2019	17	14.50	81.98	7.1	33.52	8.1	24.9	2.44
C8	09 Oct 2019	18	13.99	83.26	6.8	33.57	8.0	25.1	1.79
C8	09 Oct 2019	19	13.81	84.10	6.8	33.58	8.0	25.1	1.69
C8	15 Oct 2019	1	19.30	79.15	8.3	33.65	8.2	23.9	1.23
C8	15 Oct 2019	2	19.09	78.83	8.1	33.66	8.2	24.0	1.43
C8	15 Oct 2019	3	18.44	78.22	7.9	33.64	8.2	24.1	1.80
C8	15 Oct 2019	4	17.55	78.21	7.8	33.65	8.1	24.3	2.00

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C8	15 Oct 2019	5	16.86	77.83	7.9	33.60	8.1	24.5	2.21
C8	15 Oct 2019	6	16.58	77.59	7.9	33.56	8.1	24.5	2.34
C8	15 Oct 2019	7	16.36	77.63	7.7	33.56	8.1	24.6	2.66
C8	15 Oct 2019	8	16.10	77.46	7.5	33.56	8.1	24.6	2.86
C8	15 Oct 2019	9	15.66	77.88	7.3	33.57	8.1	24.7	2.91
C8	15 Oct 2019	10	15.13	78.75	7.1	33.56	8.1	24.8	2.68
C8	15 Oct 2019	11	14.82	80.26	6.8	33.55	8.0	24.9	2.16
C8	15 Oct 2019	12	14.73	82.22	6.6	33.55	8.0	24.9	1.55
C8	15 Oct 2019	13	14.40	82.89	6.5	33.56	8.0	25.0	1.37
C8	15 Oct 2019	14	14.34	83.05	6.5	33.54	8.0	25.0	1.28
C8	15 Oct 2019	15	14.33	83.35	6.5	33.55	8.0	25.0	1.21
C8	15 Oct 2019	16	14.30	83.41	6.4	33.55	8.0	25.0	1.12
C8	15 Oct 2019	17	14.29	83.57	6.4	33.55	8.0	25.0	1.06
C8	15 Oct 2019	18	14.15	83.75	6.3	33.56	8.0	25.0	0.98
C8	15 Oct 2019	19	13.82	84.28	6.2	33.57	8.0	25.1	0.79
C8	15 Oct 2019	20	13.79	84.51	6.2	33.59	8.0	25.1	0.72
C8	22 Oct 2019	1	18.25	77.15	8.5	33.62	8.1	24.2	1.76
C8	22 Oct 2019	2	18.21	77.10	8.4	33.62	8.1	24.2	1.90
C8	22 Oct 2019	3	18.07	76.65	8.3	33.62	8.1	24.2	2.11
C8	22 Oct 2019	4	17.62	76.39	8.3	33.62	8.1	24.3	2.42
C8	22 Oct 2019	5	17.56	76.02	8.3	33.59	8.1	24.3	2.63
C8	22 Oct 2019	6	17.50	75.78	8.3	33.59	8.1	24.3	2.91
C8	22 Oct 2019	7	17.38	75.25	8.2	33.59	8.1	24.3	3.02
C8	22 Oct 2019	8	17.07	74.47	8.2	33.59	8.1	24.4	3.08
C8	22 Oct 2019	9	16.85	74.68	8.1	33.58	8.1	24.5	3.19
C8	22 Oct 2019	10	16.62	75.05	8.0	33.58	8.1	24.5	3.32
C8	22 Oct 2019	11	16.22	75.99	7.9	33.57	8.1	24.6	3.30
C8	22 Oct 2019	12	16.11	76.81	7.8	33.56	8.1	24.6	3.14
C8	22 Oct 2019	13	16.07	77.37	7.8	33.56	8.1	24.6	2.97
C8	22 Oct 2019	14	16.06	78.03	7.7	33.56	8.1	24.6	2.78
C8	22 Oct 2019	15	15.97	78.44	7.6	33.56	8.1	24.6	2.71
C8	22 Oct 2019	16	15.88	78.59	7.5	33.56	8.1	24.7	2.64
C8	22 Oct 2019	17	15.39	78.77	7.3	33.58	8.0	24.8	2.43
C8	22 Oct 2019	18	14.55	79.49	6.7	33.62	8.0	25.0	1.82
C8	22 Oct 2019	19	13.61	81.10	6.4	33.58	8.0	25.2	1.03
C8	29 Oct 2019	1	18.15	82.19	7.9	33.62	8.1	24.2	1.07
C8	29 Oct 2019	2	17.81	81.62	7.9	33.66	8.1	24.3	1.16
C8	29 Oct 2019	3	16.94	79.87	8.0	33.64	8.1	24.5	1.64
C8	29 Oct 2019	4	16.70	79.48	8.1	33.58	8.1	24.5	2.27
C8	29 Oct 2019	5	16.55	80.06	8.1	33.57	8.1	24.5	2.64
C8	29 Oct 2019	6	16.39	80.52	8.0	33.57	8.1	24.6	2.53
C8	29 Oct 2019	7	16.34	80.71	8.0	33.56	8.1	24.6	2.36
C8	29 Oct 2019	8	16.27	80.90	8.0	33.56	8.1	24.6	2.37
C8	29 Oct 2019	9	16.19	81.18	8.0	33.56	8.1	24.6	2.30
C8	29 Oct 2019	10	16.16	81.29	8.0	33.55	8.1	24.6	2.24
C8	29 Oct 2019	11	16.14	81.30	8.0	33.55	8.1	24.6	2.14
C8	29 Oct 2019	12	16.12	81.38	8.0	33.55	8.1	24.6	2.21
C8	29 Oct 2019	13	16.10	81.28	8.0	33.56	8.1	24.6	2.13
C8	29 Oct 2019	14	16.07	81.40	8.0	33.55	8.1	24.6	2.09
C8	29 Oct 2019	15	16.04	81.67	8.0	33.55	8.1	24.6	2.02
C8	29 Oct 2019	16	15.99	81.78	7.9	33.55	8.1	24.6	1.88
C8	29 Oct 2019	17	15.97	81.90	7.9	33.55	8.1	24.6	1.79
C8	29 Oct 2019	18	15.96	81.98	7.9	33.55	8.1	24.6	1.68
C8	29 Oct 2019	19	15.96	81.89	7.9	33.55	8.1	24.6	1.67
C8	29 Oct 2019	20	15.96	81.84	7.9	33.55	8.1	24.6	1.69

NA = not available

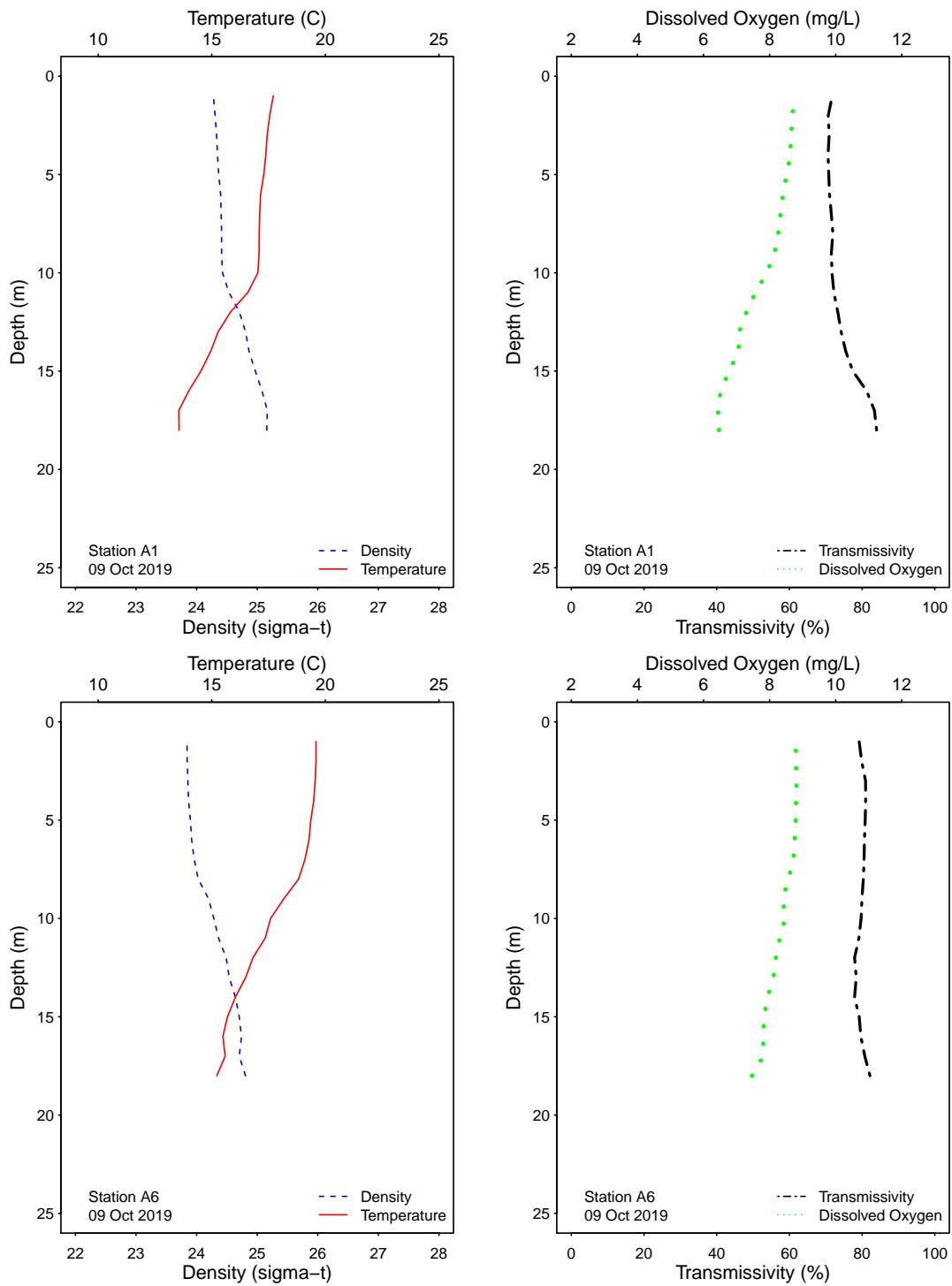


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

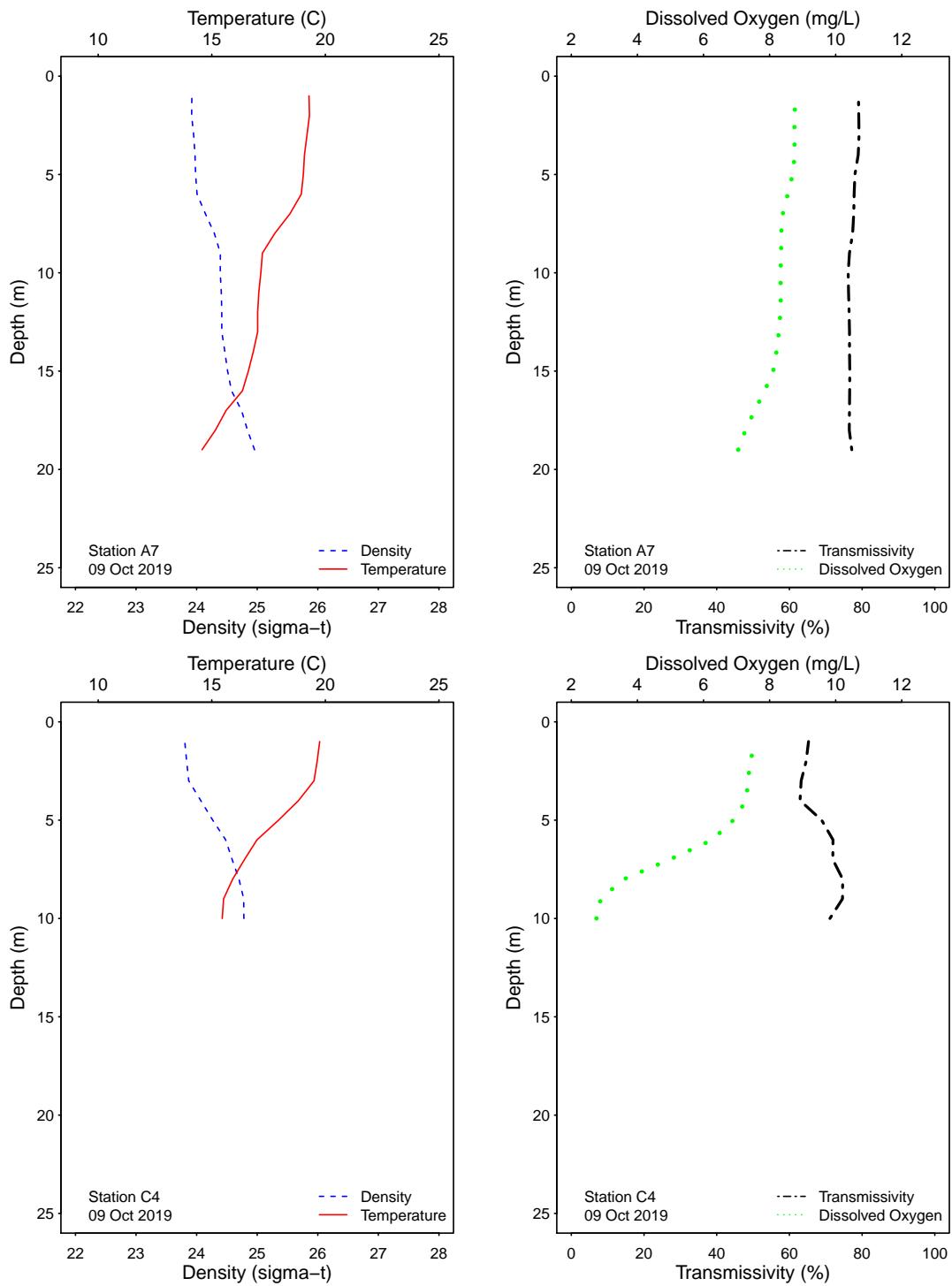


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

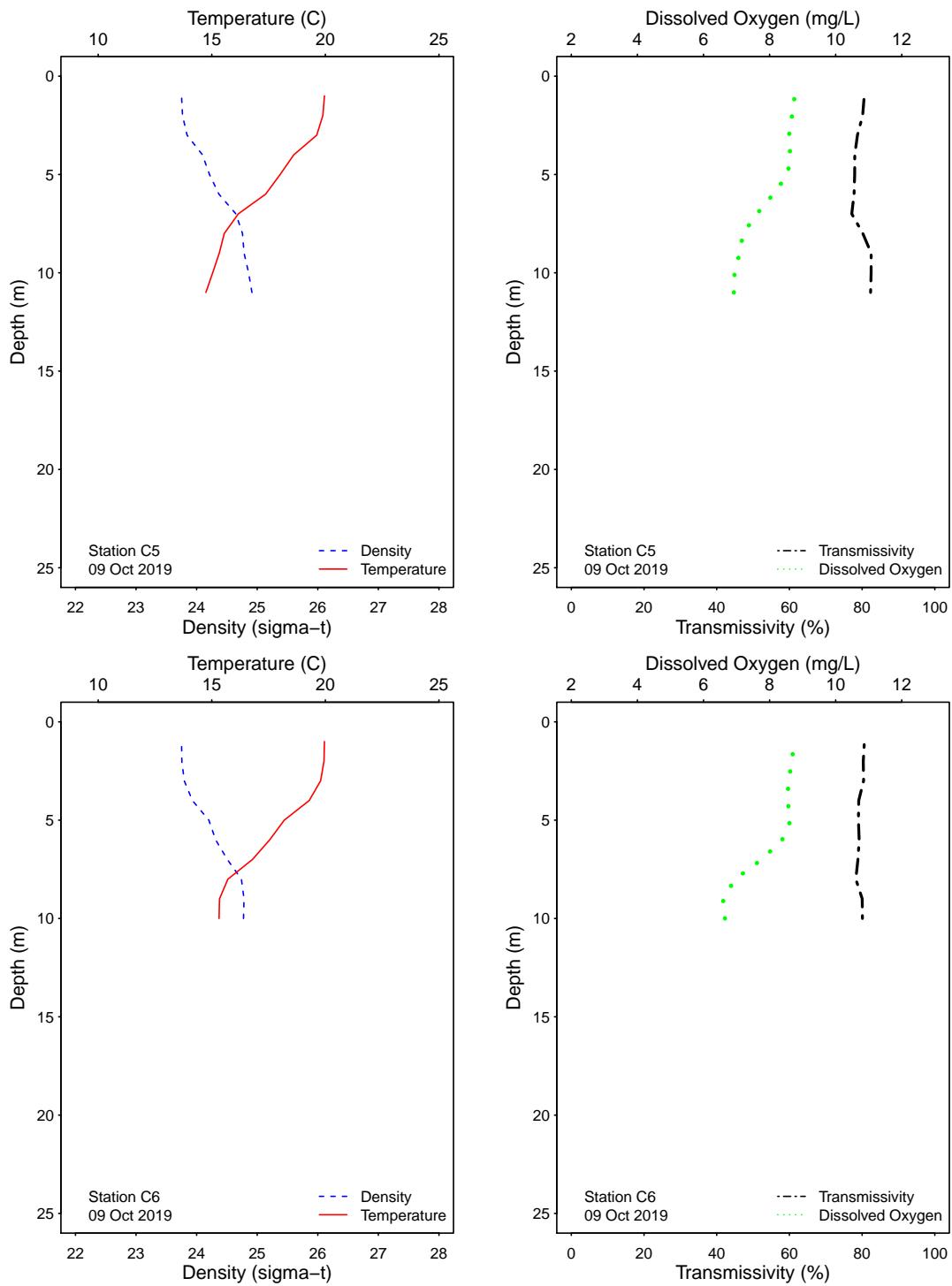


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

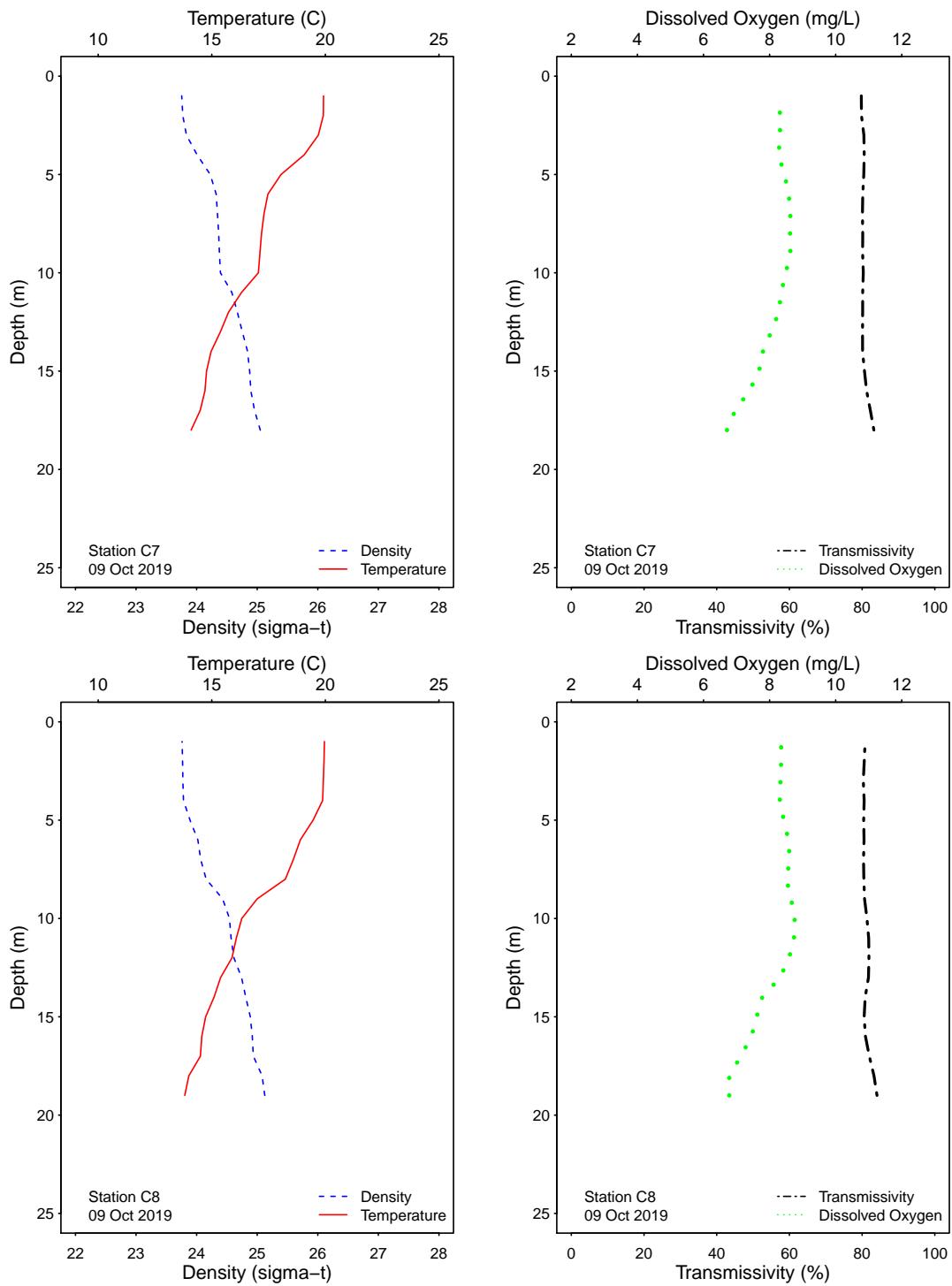


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

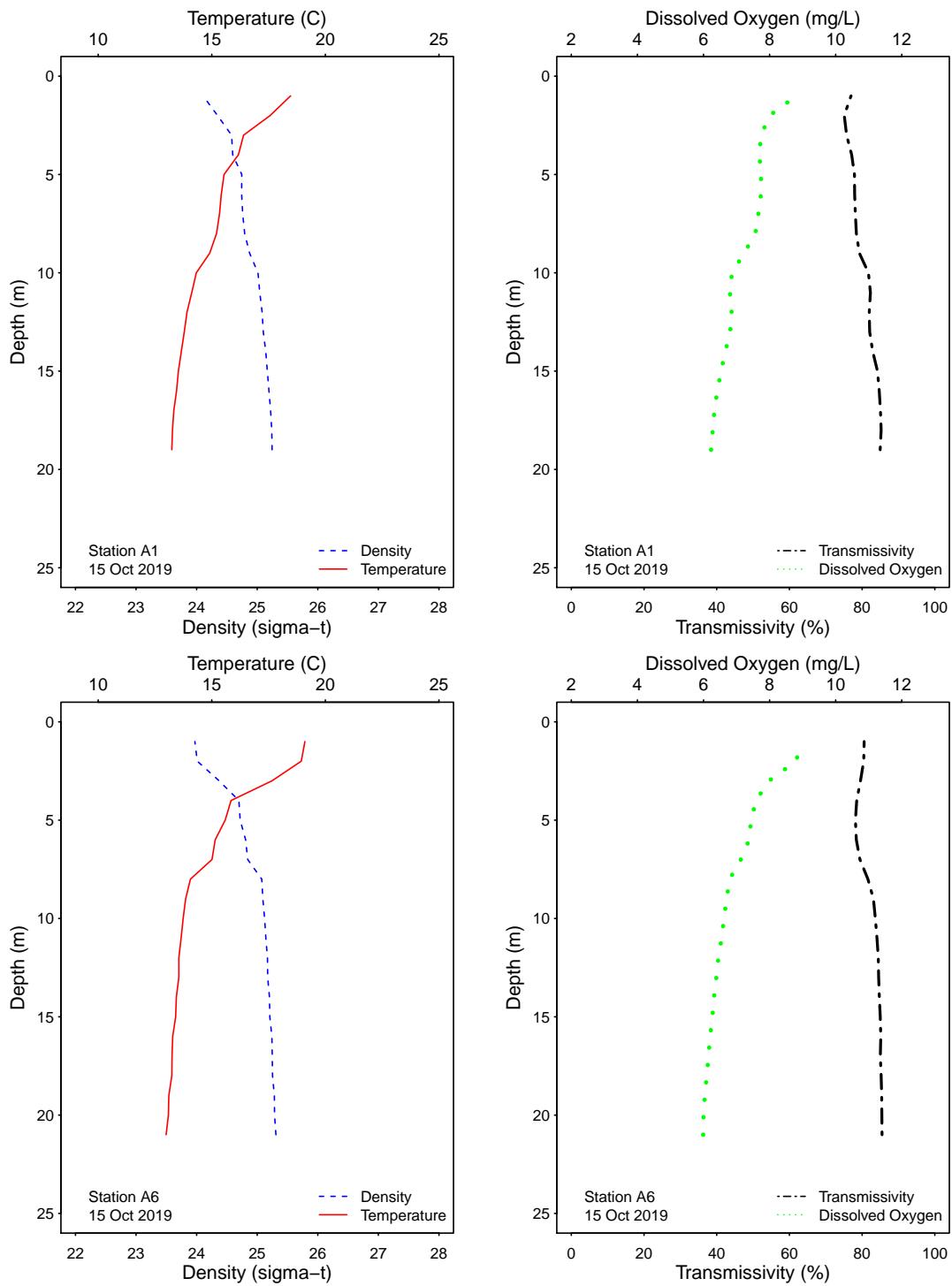


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

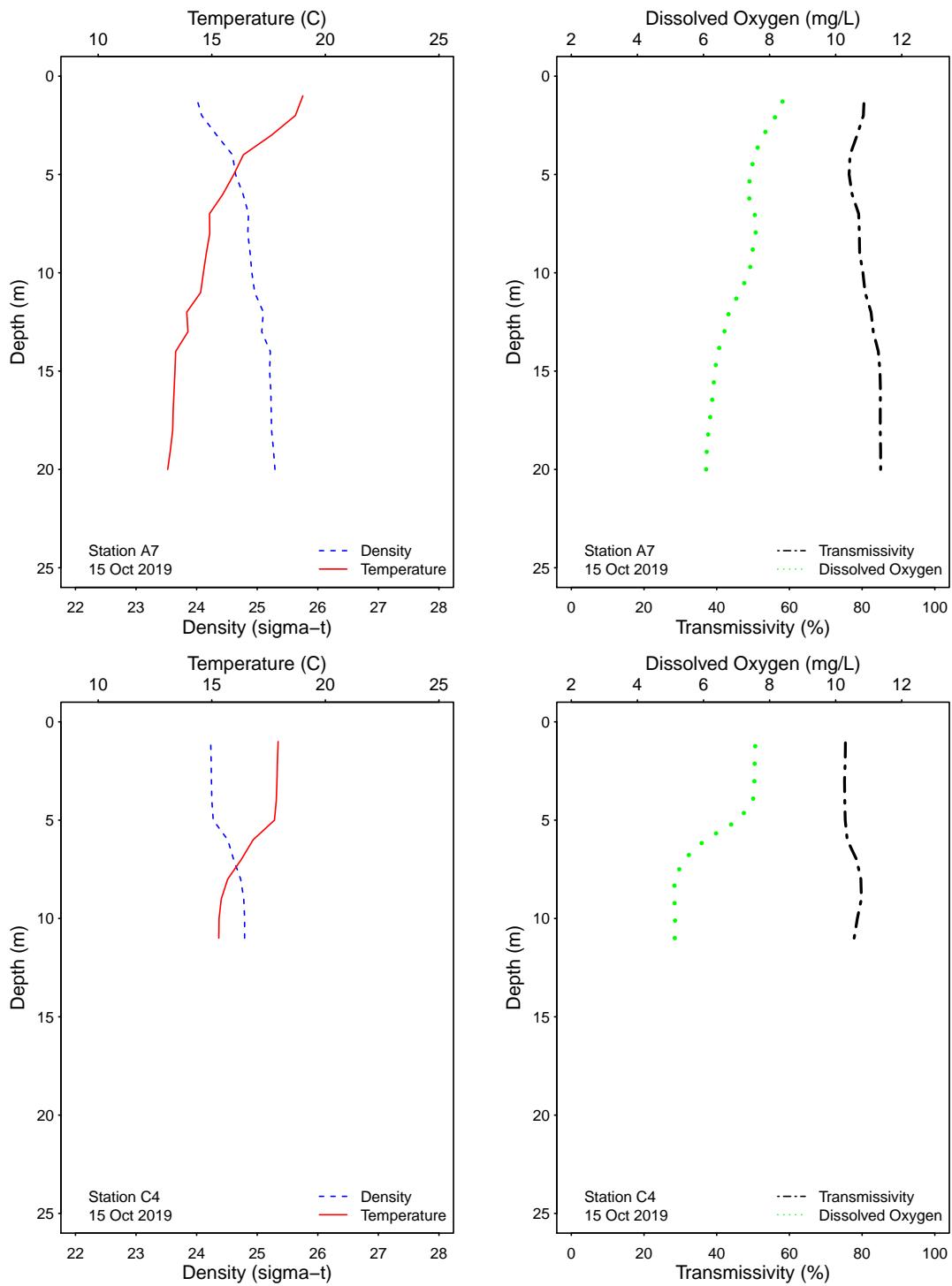


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

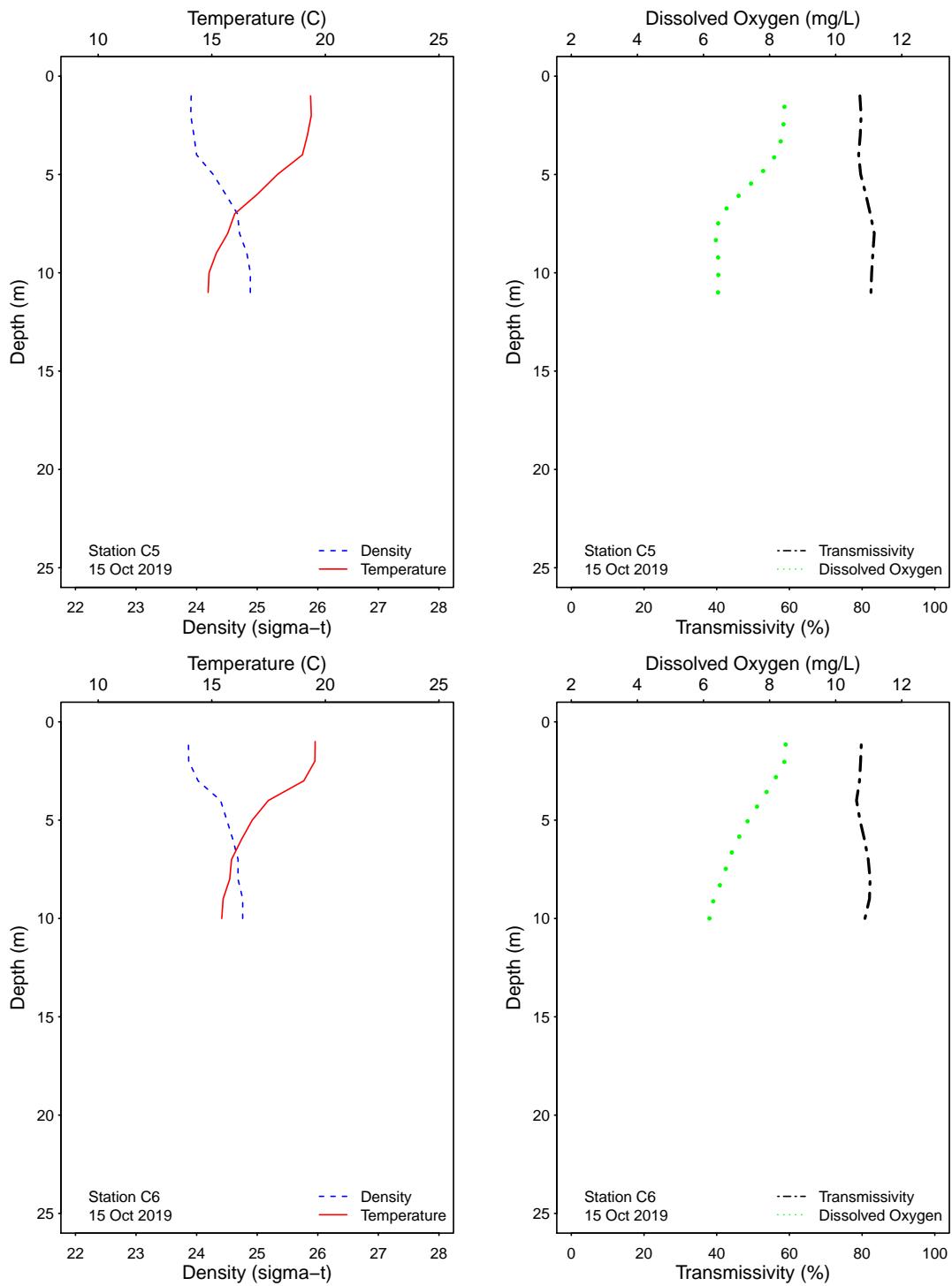


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

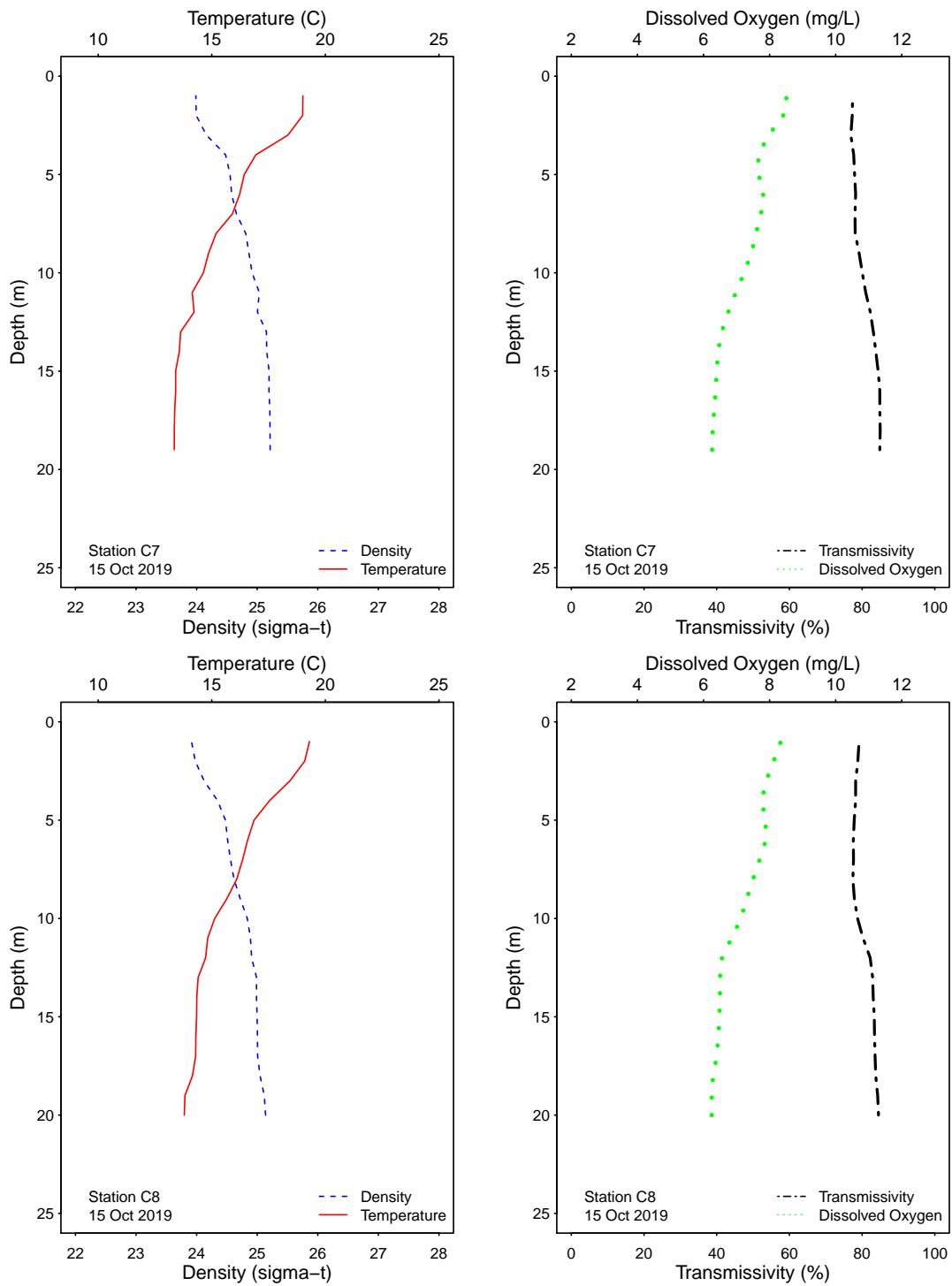


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

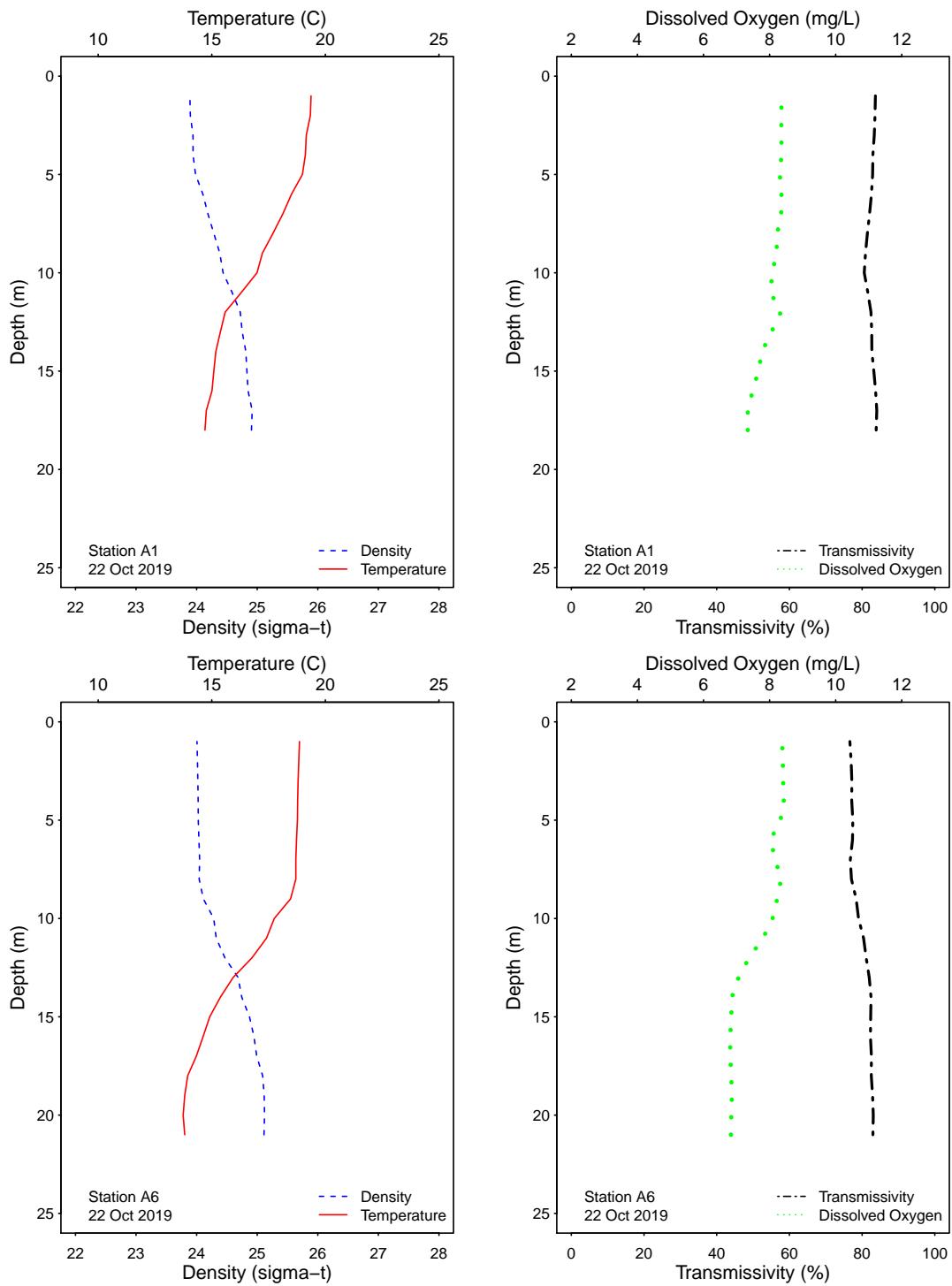


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

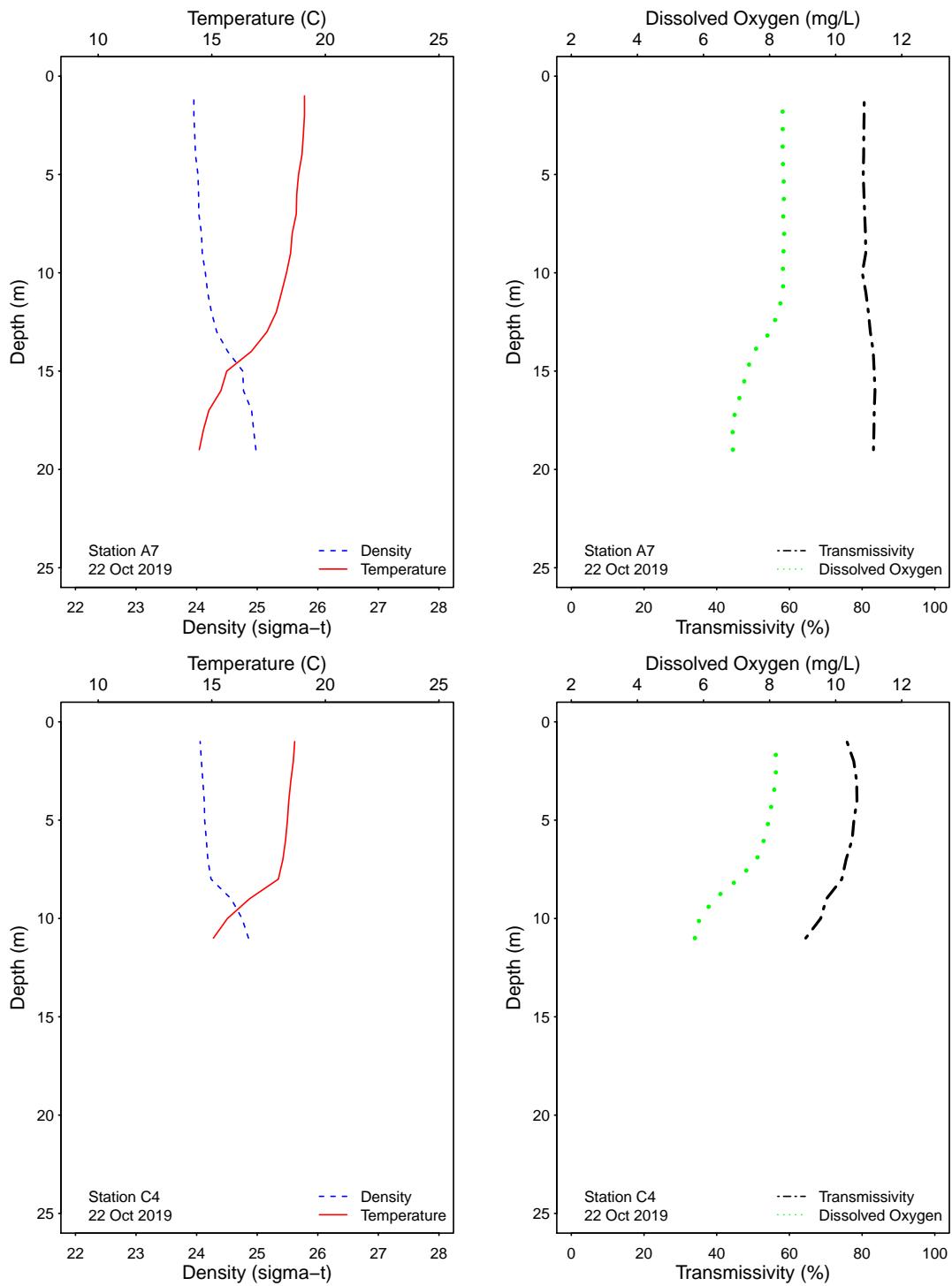


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

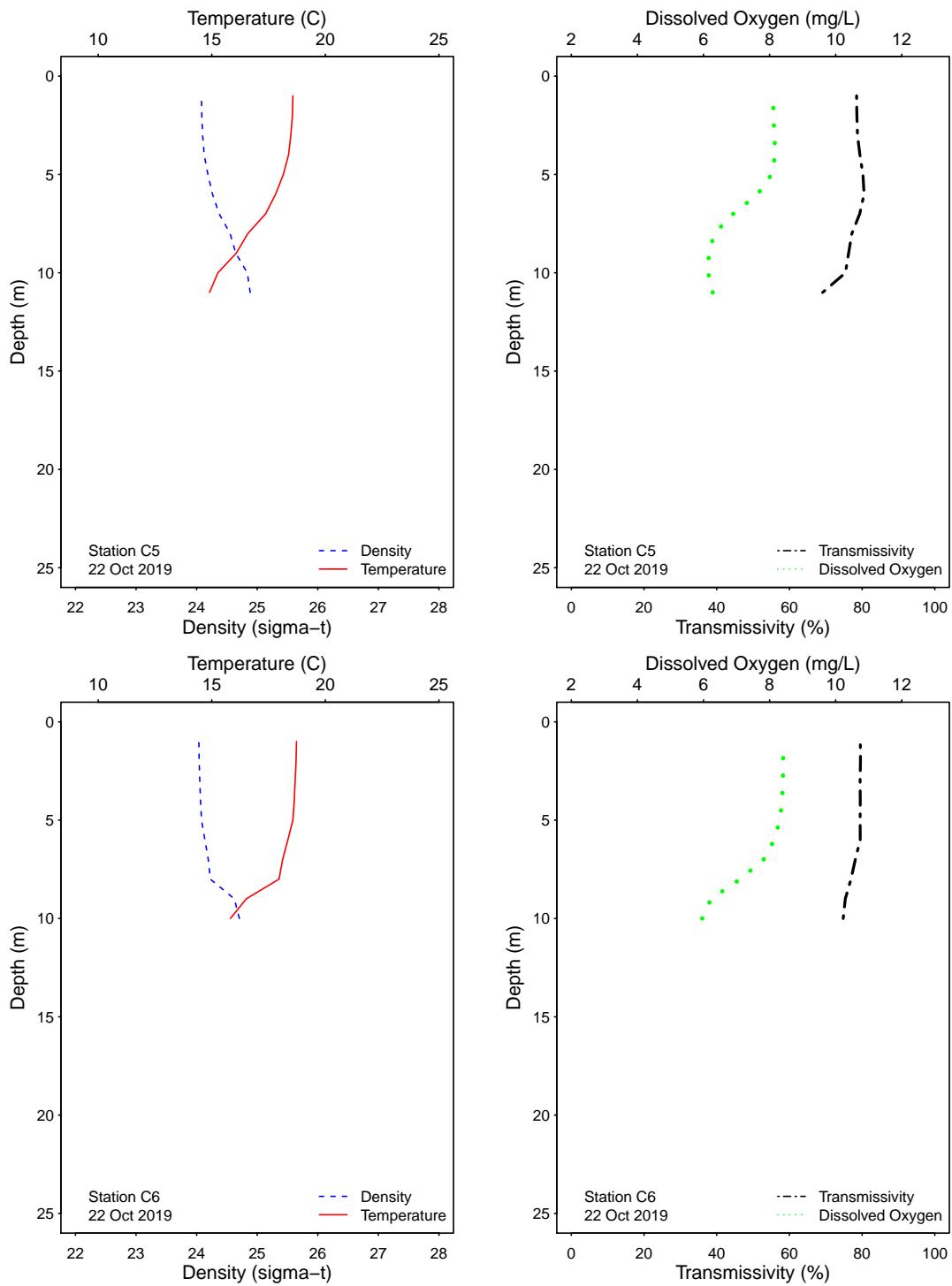


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

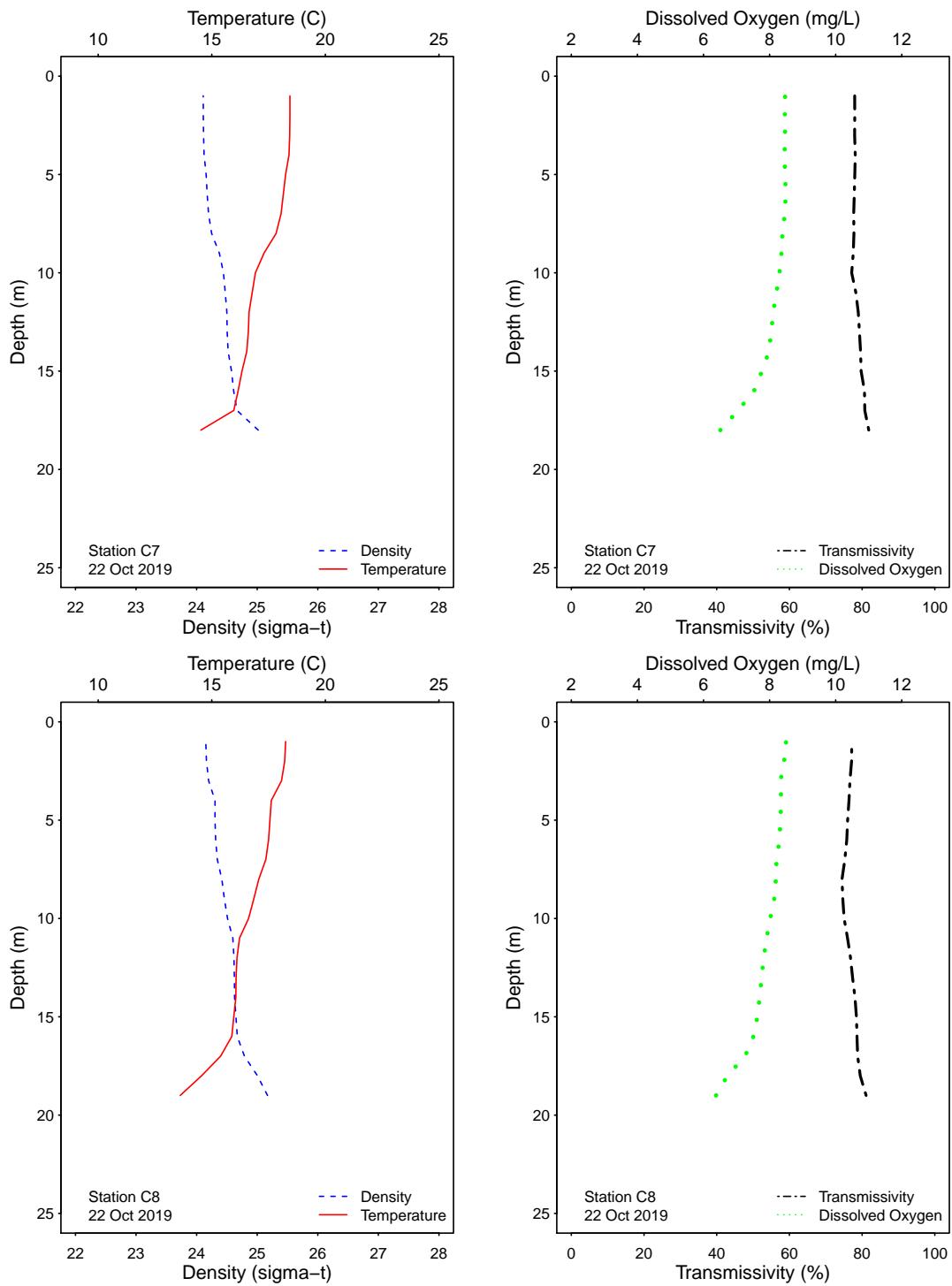


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

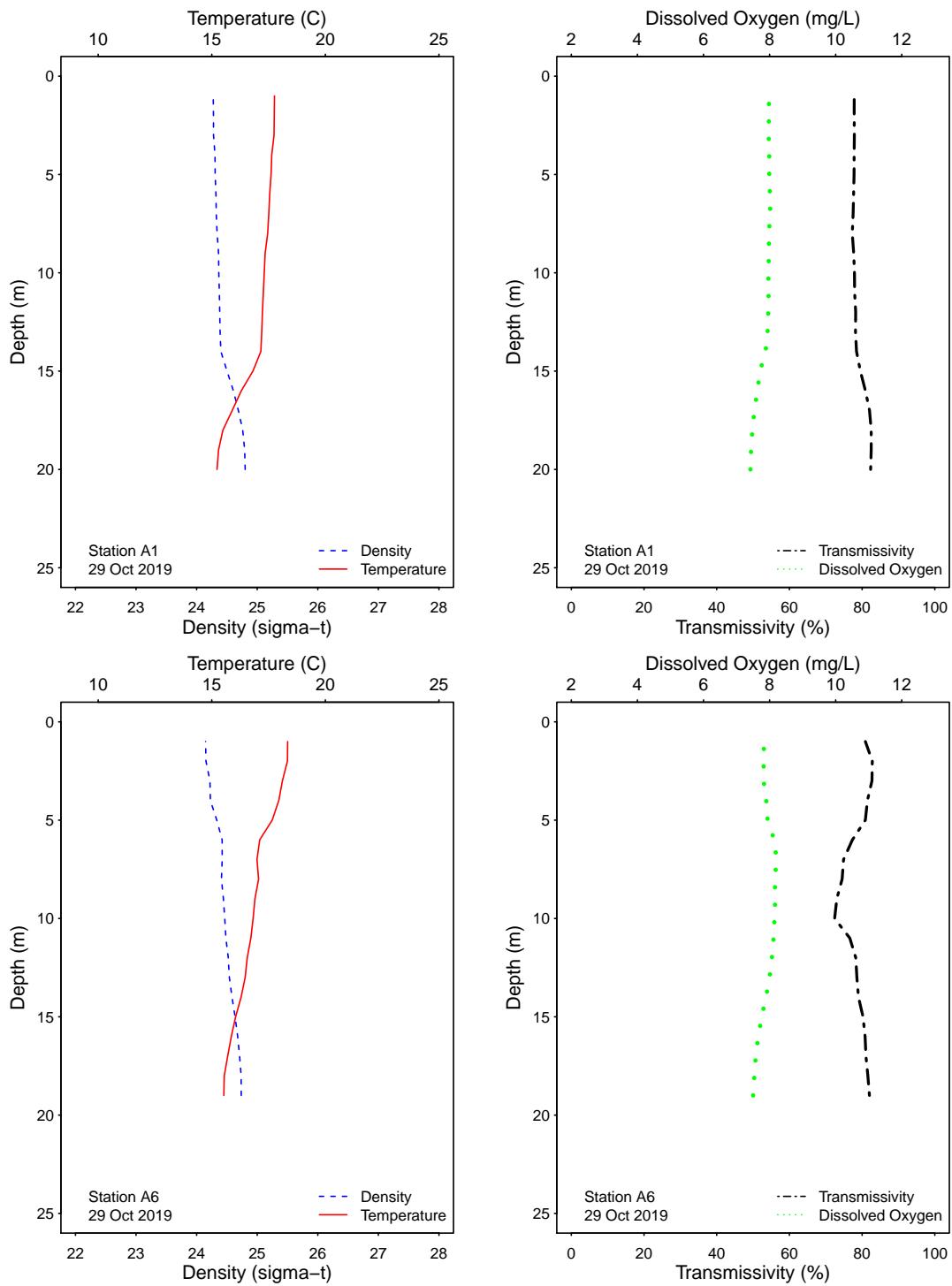


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

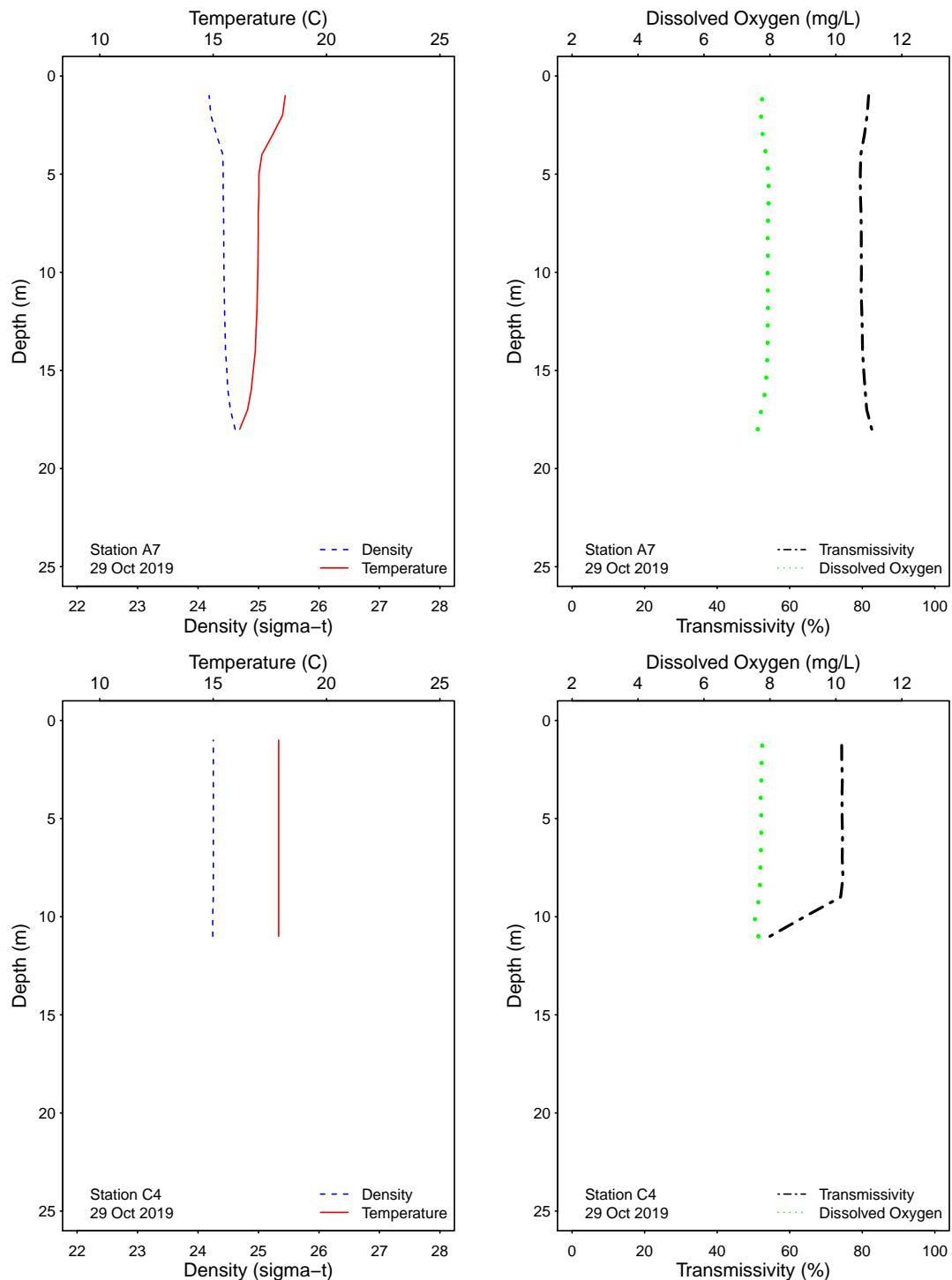


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

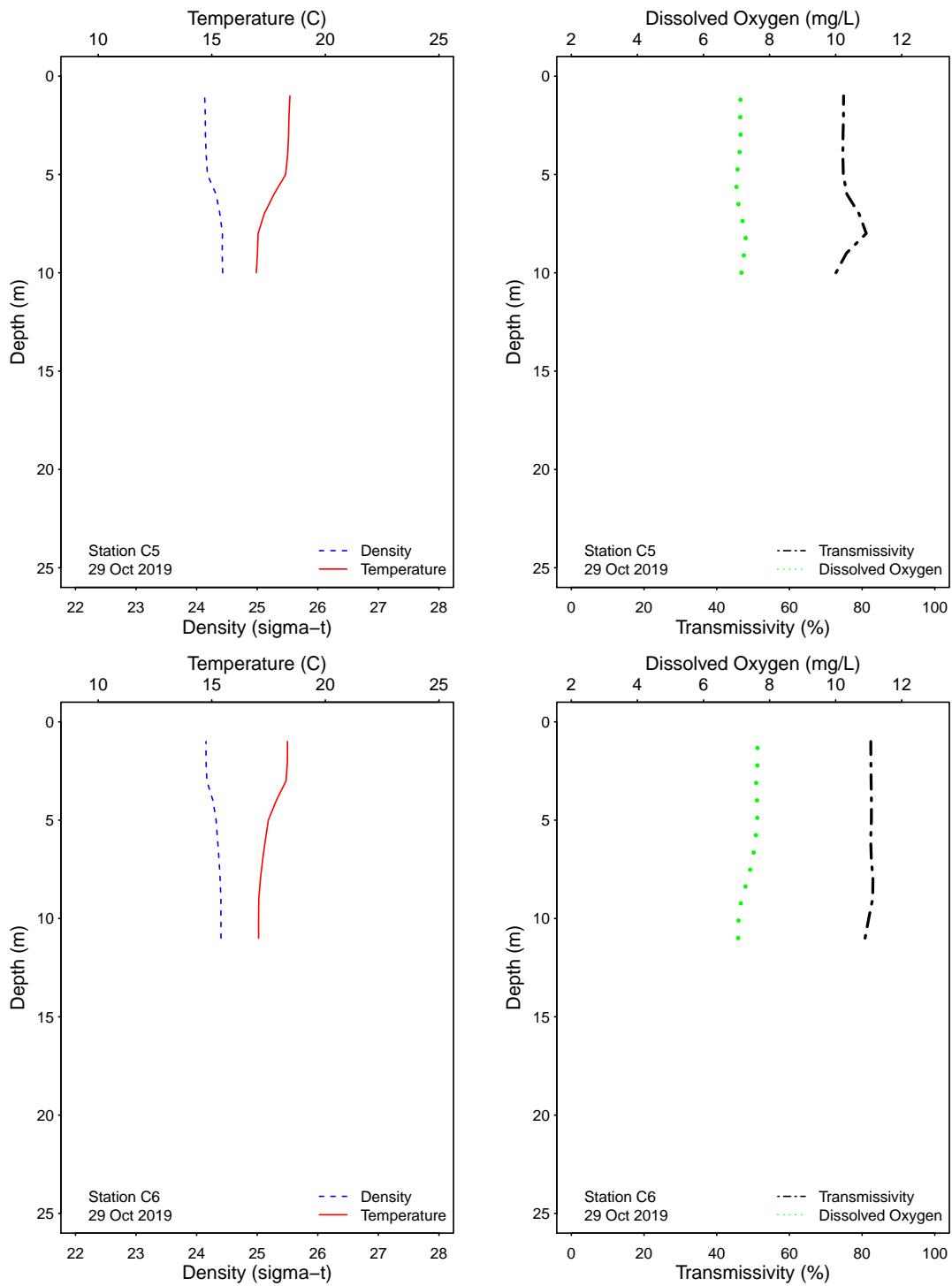


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

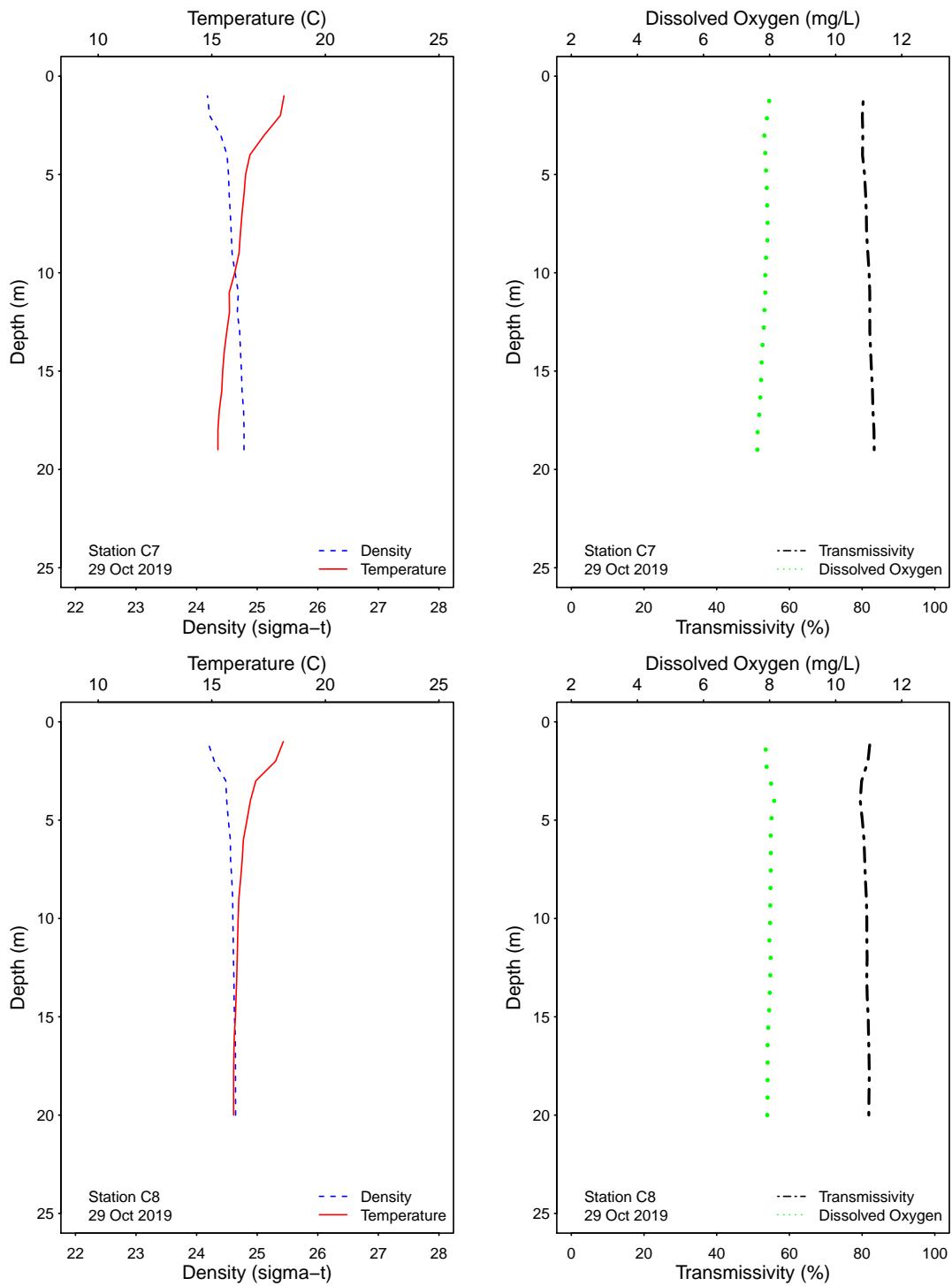


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

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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	09 Oct 2019	18	BS	LAB DUPLICATE	<2	<2	<2
A7	15 Oct 2019	18	BS	LAB DUPLICATE	<2	<2	2e
A7	22 Oct 2019	18	AE	LAB DUPLICATE	2e	<2	<2
A7	29 Oct 2019	18	JT	LAB DUPLICATE	4e	<2	<2
C7	09 Oct 2019	18	AE	LAB DUPLICATE	2e	2e	<2
C7	15 Oct 2019	18	JF	LAB DUPLICATE	40e	8e	<2
C7	22 Oct 2019	18	JT	LAB DUPLICATE	2e	<2	<2
C7	29 Oct 2019	18	AE	LAB DUPLICATE	4e	4e	2e
C8	09 Oct 2019	12	AE	LAB DUPLICATE	<2	<2	<2
C8	15 Oct 2019	12	JF	LAB DUPLICATE	<2	<2	<2
C8	22 Oct 2019	12	JT	LAB DUPLICATE	4e	2e	<2
C8	29 Oct 2019	12	JT	LAB DUPLICATE	4e	2e	<2
D12	02 Oct 2019		BS	FIELD DUPLICATE	ns	<2	2e
D12	02 Oct 2019		JF	FIELD DUPLICATE	<2	ns	ns
D12	02 Oct 2019		BS	LAB DUPLICATE	2e	2e	<2
D12	09 Oct 2019		JF	FIELD DUPLICATE	<20	<2	6e
D12	09 Oct 2019		JF	LAB DUPLICATE	<20	<2	6e
D12	16 Oct 2019		JF	FIELD DUPLICATE	2e	<2	4e
D12	16 Oct 2019		JF	LAB DUPLICATE	2e	<2	<2
D12	23 Oct 2019		BS	FIELD DUPLICATE	<2	<2	<2
D12	23 Oct 2019		BS	LAB DUPLICATE	2e	<2	<2
D12	30 Oct 2019		BS	FIELD DUPLICATE	<20	<2	<2
D12	30 Oct 2019		BS	LAB DUPLICATE	<20	<2	4e

ns = not sampled

ND = no data

