



POINT LOMA OCEAN OUTFALL MONTHLY RECEIVING WATERS MONITORING REPORT

**POINT LOMA
WASTEWATER TREATMENT PLANT**

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

MARCH 2020

Environmental Monitoring and Technical Services
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Environmental Monitoring & Technical Services Division

April 30, 2020

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 March 2020 Monthly Receiving Waters Monitoring Report for the Point Loma Ocean Outfall, Point Loma Wastewater Treatment Plant as required per Order No. R9-2017-0007, NPDES Permit No. CA0107409.

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

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

Sincerely,

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

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

RK:rg

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

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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 and if there is little evidence of typical or indicator bacteria colonies.

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 2020 Quality Assurance Report, which will be completed in March 2021.

SUMMARY OF RESULTS

Shore Stations

- During March, two of the eight shore stations were out of compliance with California Ocean Plan (Ocean Plan) water contact standards on one or more days as follows:
 - o The single sample maximum (SSM) standard for *Enterococcus* was exceeded at stations D8-B and D11.
 - o Per permit requirements, resamples were collected in response to these SSM exceedances (see Table 2.8 for details).
- Notable observations included a sewage-like odor at the shore station D5 on March 11.
- 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>).

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 March 5, 9, 16, and 24.
- During March, all eight stations were in compliance with the various Ocean Plan water contact standards.
- Water column temperatures ranged from 12.64 to 16.86°C. The difference between surface and bottom waters ranged from 0.27 to 3.3°C.
- Chlorophyll a concentration ranged from 0.31 to 3.91 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 March. The next quarterly sampling is scheduled for May 2020.



TABLES AND FIGURES

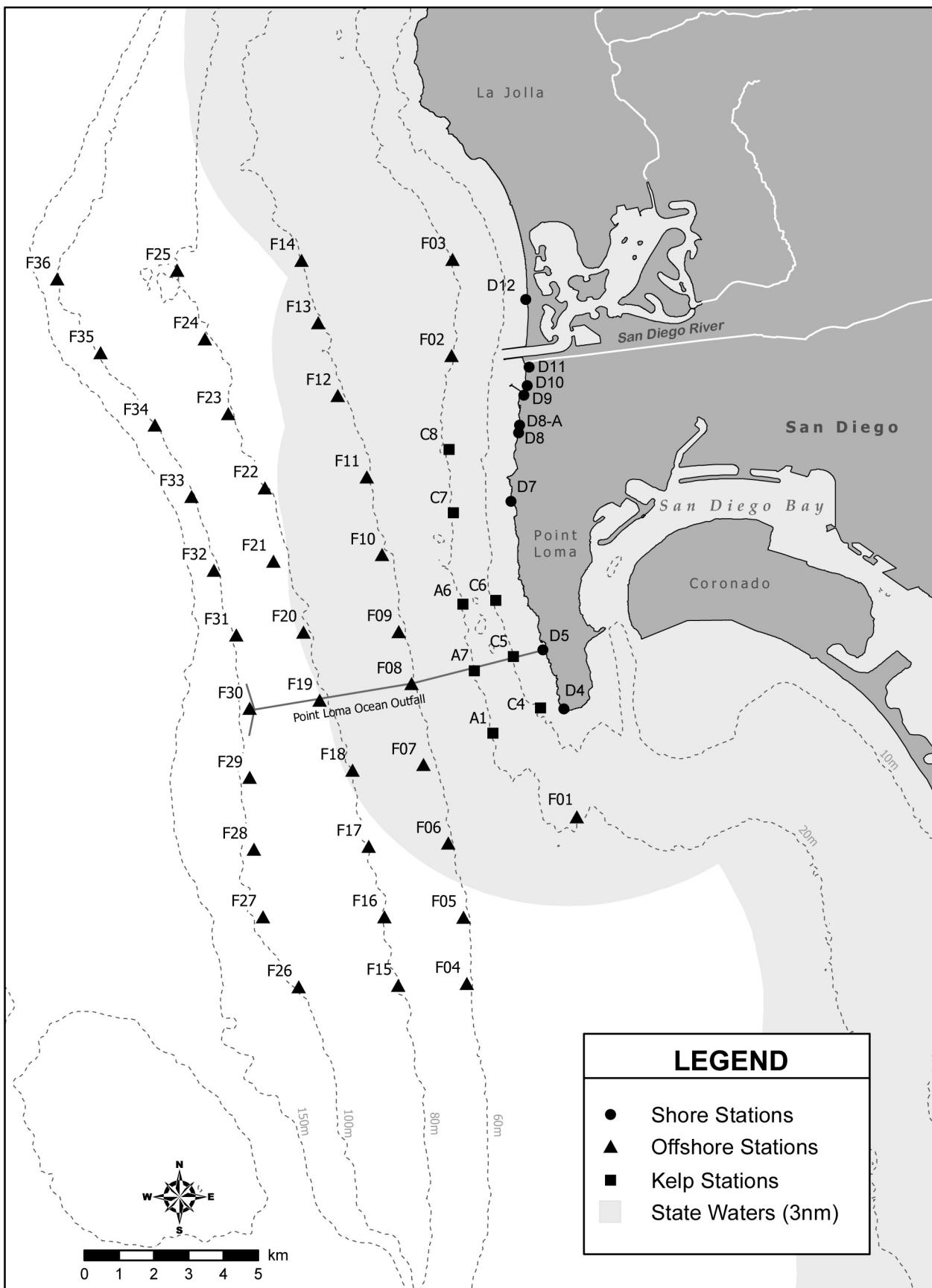


Figure 1.1 Station Map

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 Mar 2020	3*	4*	17*	8*	3*	11*	13*	2*
02 Mar 2020	3*	4*	17*	8*	3*	11*	13*	2*
03 Mar 2020	3*	4*	17*	8*	3*	11*	13*	2*
04 Mar 2020	3	3	13	10	4	13	11	2
05 Mar 2020	3	3	13	10	4	13	11	2
06 Mar 2020	3*	2*	20*	14*	5*	13*	14*	2*
07 Mar 2020	3*	2*	20*	14*	5*	13*	14*	2*
08 Mar 2020	3*	2*	20*	14*	5*	13*	14*	2*
09 Mar 2020	3*	2*	20*	14*	5*	13*	14*	2*
10 Mar 2020	3*	2*	20*	14*	5*	13*	14*	2*
11 Mar 2020	3	4	20	18	5	22	28	2
12 Mar 2020	3	4	20	18	5	22	28	2
13 Mar 2020	4*	4*	15*	18*	5*	26*	32*	3*
14 Mar 2020	4*	4*	15*	18*	5*	26*	32*	3*
15 Mar 2020	4*	4*	15*	18*	5*	26*	32*	3*
16 Mar 2020	4*	4*	15*	18*	5*	26*	32*	3*
17 Mar 2020	4*	4*	15*	18*	5*	26*	32*	3*
18 Mar 2020	7	7	23	29	8	38	90	2
19 Mar 2020	7	7	23	29	8	38	90	2
20 Mar 2020	7*	9*	22*	31*	11*	44*	131*	3*
21 Mar 2020	7*	9*	22*	31*	11*	44*	131*	3*
22 Mar 2020	7*	9*	22*	31*	11*	44*	131*	3*
23 Mar 2020	7*	9*	22*	31*	11*	44*	131*	3*
24 Mar 2020	7*	9*	22*	31*	11*	44*	131*	3*
25 Mar 2020	7	11	17	24	12	38	86	2
26 Mar 2020	7	11	17	24	12	38	86	2
27 Mar 2020	10*	16*	16*	34*	14*	60*	124*	3*
28 Mar 2020	10*	16*	16*	34*	14*	60*	124*	3*
29 Mar 2020	10*	16*	16*	34*	14*	60*	124*	3*
30 Mar 2020	10*	16*	16*	34*	14*	60*	124*	3*
31 Mar 2020	10*	16*	16*	34*	14*	60*	124*	3*

* 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 Mar 2020	5*	2*	16*	4*	2*	2*	4*	2*
02 Mar 2020	5*	2*	16*	4*	2*	2*	4*	2*
03 Mar 2020	5*	2*	16*	4*	2*	2*	4*	2*
04 Mar 2020	4	2	10	3	2	2	4	2
05 Mar 2020	4	2	10	3	2	2	4	2
06 Mar 2020	5*	2*	16*	2*	2*	2*	5*	2*
07 Mar 2020	5*	2*	16*	2*	2*	2*	5*	2*
08 Mar 2020	5*	2*	16*	2*	2*	2*	5*	2*
09 Mar 2020	5*	2*	16*	2*	2*	2*	5*	2*
10 Mar 2020	5*	2*	16*	2*	2*	2*	5*	2*
11 Mar 2020	4	4	10	3	2	4	6	2
12 Mar 2020	4	4	10	3	2	4	6	2
13 Mar 2020	4*	4*	7*	4*	2*	4*	8*	3*
14 Mar 2020	4*	4*	7*	4*	2*	4*	8*	3*
15 Mar 2020	4*	4*	7*	4*	2*	4*	8*	3*
16 Mar 2020	4*	4*	7*	4*	2*	4*	8*	3*
17 Mar 2020	4*	4*	7*	4*	2*	4*	8*	3*
18 Mar 2020	3	5	8	7	3	6	16	2
19 Mar 2020	3	5	8	7	3	6	16	2
20 Mar 2020	2*	5*	6*	10*	4*	6*	13*	3*
21 Mar 2020	2*	5*	6*	10*	4*	6*	13*	3*
22 Mar 2020	2*	5*	6*	10*	4*	6*	13*	3*
23 Mar 2020	2*	5*	6*	10*	4*	6*	13*	3*
24 Mar 2020	2*	5*	6*	10*	4*	6*	13*	3*
25 Mar 2020	2	8	5	9	3	5	11	2
26 Mar 2020	2	8	5	9	3	5	11	2
27 Mar 2020	2*	11*	4*	12*	4*	6*	17*	3*
28 Mar 2020	2*	11*	4*	12*	4*	6*	17*	3*
29 Mar 2020	2*	11*	4*	12*	4*	6*	17*	3*
30 Mar 2020	2*	11*	4*	12*	4*	6*	17*	3*
31 Mar 2020	2*	11*	4*	12*	4*	6*	17*	3*

* 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 Mar 2020	3*	2*	2*	3*	2*	2*	4*	2*
02 Mar 2020	3*	2*	2*	3*	2*	2*	4*	2*
03 Mar 2020	3*	2*	2*	3*	2*	2*	4*	2*
04 Mar 2020	3	2	2	3	2	2	6	2
05 Mar 2020	3	2	2	3	2	2	6	2
06 Mar 2020	3*	2*	2*	2*	2*	2*	7*	2*
07 Mar 2020	3*	2*	2*	2*	2*	2*	7*	2*
08 Mar 2020	3*	2*	2*	2*	2*	2*	7*	2*
09 Mar 2020	3*	2*	2*	2*	2*	2*	7*	2*
10 Mar 2020	3*	2*	2*	2*	2*	2*	7*	2*
11 Mar 2020	3	2	2	4	3	2	9	2
12 Mar 2020	3	2	2	4	3	2	9	2
13 Mar 2020	3*	2*	2*	4*	3*	2*	14*	2*
14 Mar 2020	3*	2*	2*	4*	3*	2*	14*	2*
15 Mar 2020	3*	2*	2*	4*	3*	2*	14*	2*
16 Mar 2020	3*	2*	2*	4*	3*	2*	14*	2*
17 Mar 2020	3*	2*	2*	4*	3*	2*	14*	2*
18 Mar 2020	4	3	4	8	5	4	32	2
19 Mar 2020	4	3	4	8	5	4	32	2
20 Mar 2020	3*	3*	5*	8	6*	5*	18	2*
21 Mar 2020	3*	3*	5*	8	6*	5*	18	2*
22 Mar 2020	3*	3*	5*	8	6*	5*	18	2*
23 Mar 2020	3*	3*	5*	8	6*	5*	18	2*
24 Mar 2020	3*	3*	5*	8	6*	5*	18	2*
25 Mar 2020	3	3	4	7	5	4	12	2
26 Mar 2020	3	3	4	7	5	4	12	2
27 Mar 2020	3*	3*	5*	8	6*	5*	18	2*
28 Mar 2020	3*	3*	5*	8	6*	5*	18	2*
29 Mar 2020	3*	3*	5*	8	6*	5*	18	2*
30 Mar 2020	3*	3*	5*	8	6*	5*	18	2*
31 Mar 2020	3*	3*	5*	8	6*	5*	18	2*

* Geometric mean calculated using n<5

ns = not sampled

Table 2.4

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
04 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
11 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
18 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
25 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.5

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
04 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
11 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
18 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
25 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.6

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
04 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
11 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
18 Mar 2020	IC	IC	IC	E	IC	IC	E	IC
20 Mar 2020	ns	ns	ns	IC	ns	ns	IC	ns
25 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.7

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
04 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
11 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
18 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC
25 Mar 2020	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.8

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

Station	Date	Time	Total	Fecal	Enter	F:T
D4	04 Mar 2020	945	<2	<2	2e	1.00
	11 Mar 2020	743	4e	2e	<2	0.50
	18 Mar 2020	940	120e	2e	10e	0.02
	25 Mar 2020	817	10e	4e	<2	0.40
D5	04 Mar 2020	934	<2	2e	<2	1.00
	11 Mar 2020	731	40e	20e	2e	0.50
	18 Mar 2020	956	40e	6e	10e	0.15
	25 Mar 2020	736	20e	64	<2	3.20
D7	04 Mar 2020	905	4e	<2	<2	0.50
	11 Mar 2020	805	<20	2e	2e	0.10
	18 Mar 2020	1056	140e	24e	52	0.17
	25 Mar 2020	840	6e	<2	2e	0.33
D8-B	04 Mar 2020	852	<20	<2	<2	0.10
	11 Mar 2020	818	40e	10e	20e	0.25
	18 Mar 2020	1123	200e	120	260e	0.60
	20 Mar 2020	1118	ns	ns	<2	ns
	25 Mar 2020	900	8e	8e	<2	1.00
D9	04 Mar 2020	841	10e	<2	<2	0.20
	11 Mar 2020	830	6e	2e	8e	0.33
	18 Mar 2020	1135	40e	20e	32e	0.50
	25 Mar 2020	915	18e	2e	2e	0.11
D10	04 Mar 2020	831	<20	<2	<2	0.10
	11 Mar 2020	913	180e	20e	4e	0.11
	18 Mar 2020	1149	180e	20e	52	0.11
	25 Mar 2020	931	20e	2e	<2	0.10
D11	04 Mar 2020	821	6e	4e	16e	0.67
	11 Mar 2020	925	460	16e	26e	0.03
	18 Mar 2020	1207	5400	200e	1000	0.04
	20 Mar 2020	1053	ns	ns	2e	ns
	25 Mar 2020	955	16e	6e	2e	0.38
D12	04 Mar 2020	802	<2	<2	<2	1.00
	11 Mar 2020	948	6e	6e	2e	1.00
	18 Mar 2020	1234	<2	<2	2e	1.00
	25 Mar 2020	1020	<2	2e	<2	1.00

Comments

Station	Date	Depth	Parameter	Comments
D8-B	20 Mar 2020			Resample
D11	20 Mar 2020			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	04 Mar 2020	Arrive Time	945
D4	04 Mar 2020	Weather	Partly Cloudy
D4	04 Mar 2020	Wind Speed (kts)	1.3
D4	04 Mar 2020	Wind Dir	W
D4	04 Mar 2020	Animal Life	1 Godwit; 2 Seagulls
D4	04 Mar 2020	Floatables	None
D4	04 Mar 2020	Water Color	Green
D4	04 Mar 2020	Current Direction	N
D4	04 Mar 2020	Water Temp (C)	17.2
D4	04 Mar 2020	Wave Height Low (ft)	2
D4	04 Mar 2020	High Tide (ft)	4.5
D4	04 Mar 2020	High Tide Time	412
D4	04 Mar 2020	Low Tide (ft)	0
D4	04 Mar 2020	Low Tide Time	1202
D4	04 Mar 2020	Comments	Seagrass; Algae; 2 Surfers; 3 Boats; Water clear
D4	11 Mar 2020	Arrive Time	743
D4	11 Mar 2020	Weather	Drizzle
D4	11 Mar 2020	Wind Speed (kts)	2.5
D4	11 Mar 2020	Wind Dir	S
D4	11 Mar 2020	Animal Life	4 Cormorants; 1 Pelican; 2 Seagulls; 2 Seals
D4	11 Mar 2020	Floatables	None
D4	11 Mar 2020	Water Color	Green
D4	11 Mar 2020	Current Direction	N
D4	11 Mar 2020	Water Temp (C)	17.4
D4	11 Mar 2020	Wave Height Low (ft)	2
D4	11 Mar 2020	High Tide (ft)	5.4
D4	11 Mar 2020	High Tide Time	1058
D4	11 Mar 2020	Low Tide (ft)	-0.1
D4	11 Mar 2020	Low Tide Time	459
D4	11 Mar 2020	Comments	Water clear
D4	18 Mar 2020	Arrive Time	940
D4	18 Mar 2020	Weather	Moderate Rain
D4	18 Mar 2020	Wind Speed (kts)	2.1
D4	18 Mar 2020	Wind Dir	W
D4	18 Mar 2020	Animal Life	None
D4	18 Mar 2020	Floatables	None
D4	18 Mar 2020	Water Color	Green
D4	18 Mar 2020	Current Direction	N
D4	18 Mar 2020	Water Temp (C)	16.4
D4	18 Mar 2020	Wave Height Low (ft)	2
D4	18 Mar 2020	High Tide (ft)	4.6
D4	18 Mar 2020	High Tide Time	556
D4	18 Mar 2020	Low Tide (ft)	-0.3
D4	18 Mar 2020	Low Tide Time	1323
D4	18 Mar 2020	Comments	Kelp; Seagrass; Algae; Water clear
D4	25 Mar 2020	Arrive Time	817
D4	25 Mar 2020	Weather	Cloudy
D4	25 Mar 2020	Wind Speed (kts)	3.6

Station	Date	Parameter	Value
D4	25 Mar 2020	Wind Dir	N
D4	25 Mar 2020	Animal Life	4 Cormorants; 1 Pelican
D4	25 Mar 2020	Floatables	None
D4	25 Mar 2020	Water Color	Green
D4	25 Mar 2020	Current Direction	S
D4	25 Mar 2020	Water Temp (C)	17.5
D4	25 Mar 2020	Wave Height Low (ft)	1
D4	25 Mar 2020	High Tide (ft)	4.5
D4	25 Mar 2020	High Tide Time	1022
D4	25 Mar 2020	Low Tide (ft)	0.4
D4	25 Mar 2020	Low Tide Time	426
D4	25 Mar 2020	Comments	2 Boats; Water clear
D5	04 Mar 2020	Arrive Time	934
D5	04 Mar 2020	Weather	Partly Cloudy
D5	04 Mar 2020	Wind Speed (kts)	3.2
D5	04 Mar 2020	Wind Dir	W
D5	04 Mar 2020	Animal Life	14 Cormorants; 2 Pelicans; 1 Seagull
D5	04 Mar 2020	Floatables	None
D5	04 Mar 2020	Water Color	Green
D5	04 Mar 2020	Current Direction	N
D5	04 Mar 2020	Water Temp (C)	17.7
D5	04 Mar 2020	Wave Height Low (ft)	2
D5	04 Mar 2020	High Tide (ft)	4.5
D5	04 Mar 2020	High Tide Time	412
D5	04 Mar 2020	Low Tide (ft)	0
D5	04 Mar 2020	Low Tide Time	1202
D5	04 Mar 2020	Comments	Kelp; Algae; 2 Boats; Water clear
D5	11 Mar 2020	Arrive Time	731
D5	11 Mar 2020	Weather	Cloudy
D5	11 Mar 2020	Wind Speed (kts)	0
D5	11 Mar 2020	Wind Dir	
D5	11 Mar 2020	Animal Life	4 Cormorants; 1 Pelican
D5	11 Mar 2020	Floatables	None
D5	11 Mar 2020	Water Color	Green
D5	11 Mar 2020	Current Direction	N
D5	11 Mar 2020	Water Temp (C)	17.4
D5	11 Mar 2020	Wave Height Low (ft)	1
D5	11 Mar 2020	High Tide (ft)	5.4
D5	11 Mar 2020	High Tide Time	1058
D5	11 Mar 2020	Low Tide (ft)	-0.1
D5	11 Mar 2020	Low Tide Time	459
D5	11 Mar 2020	Comments	Kelp; Algae; Sewage-like odor; Water clear
D5	18 Mar 2020	Arrive Time	956
D5	18 Mar 2020	Weather	Drizzle
D5	18 Mar 2020	Wind Speed (kts)	2.4
D5	18 Mar 2020	Wind Dir	W
D5	18 Mar 2020	Animal Life	None
D5	18 Mar 2020	Floatables	None
D5	18 Mar 2020	Water Color	Green
D5	18 Mar 2020	Current Direction	W
D5	18 Mar 2020	Water Temp (C)	16.9
D5	18 Mar 2020	Wave Height Low (ft)	2

Station	Date	Parameter	Value
D5	18 Mar 2020	High Tide (ft)	4.6
D5	18 Mar 2020	High Tide Time	556
D5	18 Mar 2020	Low Tide (ft)	-0.3
D5	18 Mar 2020	Low Tide Time	1323
D5	18 Mar 2020	Comments	Kelp; Seagrass; Algae; Water clear
D5	25 Mar 2020	Arrive Time	736
D5	25 Mar 2020	Weather	Cloudy
D5	25 Mar 2020	Wind Speed (kts)	7.9
D5	25 Mar 2020	Wind Dir	NW
D5	25 Mar 2020	Animal Life	1 Cormorant; 1 Seagull; 1 Seal
D5	25 Mar 2020	Floatables	None
D5	25 Mar 2020	Water Color	Green
D5	25 Mar 2020	Current Direction	S
D5	25 Mar 2020	Water Temp (C)	16.9
D5	25 Mar 2020	Wave Height Low (ft)	1
D5	25 Mar 2020	High Tide (ft)	4.5
D5	25 Mar 2020	High Tide Time	1022
D5	25 Mar 2020	Low Tide (ft)	0.4
D5	25 Mar 2020	Low Tide Time	426
D5	25 Mar 2020	Comments	Water clear
D7	04 Mar 2020	Arrive Time	905
D7	04 Mar 2020	Weather	Partly Cloudy
D7	04 Mar 2020	Wind Speed (kts)	1.5
D7	04 Mar 2020	Wind Dir	W
D7	04 Mar 2020	Animal Life	5 Seagulls
D7	04 Mar 2020	Floatables	None
D7	04 Mar 2020	Water Color	Green
D7	04 Mar 2020	Current Direction	N
D7	04 Mar 2020	Water Temp (C)	17
D7	04 Mar 2020	Wave Height Low (ft)	3
D7	04 Mar 2020	High Tide (ft)	4.5
D7	04 Mar 2020	High Tide Time	412
D7	04 Mar 2020	Low Tide (ft)	0
D7	04 Mar 2020	Low Tide Time	1202
D7	04 Mar 2020	Comments	Kelp; Seagrass; Algae; 4 Surfers; 1 Boat; Water clear
D7	11 Mar 2020	Arrive Time	805
D7	11 Mar 2020	Weather	Cloudy
D7	11 Mar 2020	Wind Speed (kts)	3.6
D7	11 Mar 2020	Wind Dir	S
D7	11 Mar 2020	Animal Life	15 Cormorants; 2 Seagulls
D7	11 Mar 2020	Floatables	None
D7	11 Mar 2020	Water Color	Green
D7	11 Mar 2020	Current Direction	S
D7	11 Mar 2020	Water Temp (C)	17.4
D7	11 Mar 2020	Wave Height Low (ft)	2
D7	11 Mar 2020	High Tide (ft)	5.4
D7	11 Mar 2020	High Tide Time	1058
D7	11 Mar 2020	Low Tide (ft)	-0.1
D7	11 Mar 2020	Low Tide Time	459
D7	11 Mar 2020	Comments	Kelp; 2 Surfers; Water clear
D7	18 Mar 2020	Arrive Time	1056

Station	Date	Parameter	Value
D7	18 Mar 2020	Weather	Moderate Rain
D7	18 Mar 2020	Wind Speed (kts)	4.2
D7	18 Mar 2020	Wind Dir	NW
D7	18 Mar 2020	Animal Life	None
D7	18 Mar 2020	Floatables	None
D7	18 Mar 2020	Water Color	Green
D7	18 Mar 2020	Current Direction	NW
D7	18 Mar 2020	Water Temp (C)	16.1
D7	18 Mar 2020	Wave Height Low (ft)	4
D7	18 Mar 2020	High Tide (ft)	4.6
D7	18 Mar 2020	High Tide Time	556
D7	18 Mar 2020	Low Tide (ft)	-0.3
D7	18 Mar 2020	Low Tide Time	1323
D7	18 Mar 2020	Comments	Kelp; Seagrass; Algae; 2 Surfers; Water clear
D7	25 Mar 2020	Arrive Time	840
D7	25 Mar 2020	Weather	Cloudy
D7	25 Mar 2020	Wind Speed (kts)	2.7
D7	25 Mar 2020	Wind Dir	N
D7	25 Mar 2020	Animal Life	9 Seagulls
D7	25 Mar 2020	Floatables	None
D7	25 Mar 2020	Water Color	Green
D7	25 Mar 2020	Current Direction	S
D7	25 Mar 2020	Water Temp (C)	17.5
D7	25 Mar 2020	Wave Height Low (ft)	17.5
D7	25 Mar 2020	High Tide (ft)	4.5
D7	25 Mar 2020	High Tide Time	1022
D7	25 Mar 2020	Low Tide (ft)	0.4
D7	25 Mar 2020	Low Tide Time	426
D7	25 Mar 2020	Comments	Kelp; Algae; Water clear
D8-B	04 Mar 2020	Arrive Time	852
D8-B	04 Mar 2020	Weather	Partly Cloudy
D8-B	04 Mar 2020	Wind Speed (kts)	5
D8-B	04 Mar 2020	Wind Dir	W
D8-B	04 Mar 2020	Animal Life	2 Seagulls
D8-B	04 Mar 2020	Floatables	Film
D8-B	04 Mar 2020	Water Color	Brown
D8-B	04 Mar 2020	Current Direction	N
D8-B	04 Mar 2020	Water Temp (C)	17.3
D8-B	04 Mar 2020	Wave Height Low (ft)	4
D8-B	04 Mar 2020	High Tide (ft)	4.5
D8-B	04 Mar 2020	High Tide Time	412
D8-B	04 Mar 2020	Low Tide (ft)	0
D8-B	04 Mar 2020	Low Tide Time	1202
D8-B	04 Mar 2020	Comments	Algae; Water clear
D8-B	11 Mar 2020	Arrive Time	818
D8-B	11 Mar 2020	Weather	Cloudy
D8-B	11 Mar 2020	Wind Speed (kts)	2.9
D8-B	11 Mar 2020	Wind Dir	W
D8-B	11 Mar 2020	Animal Life	1 Cormorant; 2 Seagulls
D8-B	11 Mar 2020	Floatables	None
D8-B	11 Mar 2020	Water Color	Green
D8-B	11 Mar 2020	Current Direction	N

Station	Date	Parameter	Value
D8-B	11 Mar 2020	Water Temp (C)	17.7
D8-B	11 Mar 2020	Wave Height Low (ft)	3
D8-B	11 Mar 2020	High Tide (ft)	5.4
D8-B	11 Mar 2020	High Tide Time	1058
D8-B	11 Mar 2020	Low Tide (ft)	-0.1
D8-B	11 Mar 2020	Low Tide Time	459
D8-B	11 Mar 2020	Comments	Algae; Water turbid
D8-B	18 Mar 2020	Arrive Time	1123
D8-B	18 Mar 2020	Weather	Moderate Rain
D8-B	18 Mar 2020	Wind Speed (kts)	5.5
D8-B	18 Mar 2020	Wind Dir	NW
D8-B	18 Mar 2020	Animal Life	None
D8-B	18 Mar 2020	Floatables	None
D8-B	18 Mar 2020	Water Color	Green
D8-B	18 Mar 2020	Current Direction	NW
D8-B	18 Mar 2020	Water Temp (C)	15.8
D8-B	18 Mar 2020	Wave Height Low (ft)	4
D8-B	18 Mar 2020	High Tide (ft)	4.6
D8-B	18 Mar 2020	High Tide Time	556
D8-B	18 Mar 2020	Low Tide (ft)	-0.3
D8-B	18 Mar 2020	Low Tide Time	1323
D8-B	18 Mar 2020	Comments	Kelp; Seagrass; Algae; Water clear
D8-B	20 Mar 2020	Arrive Time	1118
D8-B	20 Mar 2020	Weather	Partly Cloudy
D8-B	20 Mar 2020	Wind Speed (kts)	3
D8-B	20 Mar 2020	Wind Dir	W
D8-B	20 Mar 2020	Animal Life	None
D8-B	20 Mar 2020	Floatables	None
D8-B	20 Mar 2020	Water Color	Green
D8-B	20 Mar 2020	Current Direction	W
D8-B	20 Mar 2020	Water Temp (C)	18.6
D8-B	20 Mar 2020	Wave Height Low (ft)	3
D8-B	20 Mar 2020	High Tide (ft)	5
D8-B	20 Mar 2020	High Tide Time	740
D8-B	20 Mar 2020	Low Tide (ft)	-0.5
D8-B	20 Mar 2020	Low Tide Time	1435
D8-B	20 Mar 2020	Comments	Resample; Kelp; Seagrass; Algae; 3 Persons
D8-B	25 Mar 2020	Arrive Time	900
D8-B	25 Mar 2020	Weather	Cloudy
D8-B	25 Mar 2020	Wind Speed (kts)	2.9
D8-B	25 Mar 2020	Wind Dir	W
D8-B	25 Mar 2020	Animal Life	5 Seagulls
D8-B	25 Mar 2020	Floatables	None
D8-B	25 Mar 2020	Water Color	Green
D8-B	25 Mar 2020	Current Direction	S
D8-B	25 Mar 2020	Water Temp (C)	17
D8-B	25 Mar 2020	Wave Height Low (ft)	1
D8-B	25 Mar 2020	High Tide (ft)	4.5
D8-B	25 Mar 2020	High Tide Time	1022
D8-B	25 Mar 2020	Low Tide (ft)	0.4
D8-B	25 Mar 2020	Low Tide Time	426
D8-B	25 Mar 2020	Comments	Kelp; Water clear

Station	Date	Parameter	Value
D9	04 Mar 2020	Arrive Time	841
D9	04 Mar 2020	Weather	Sunny
D9	04 Mar 2020	Wind Speed (kts)	0.9
D9	04 Mar 2020	Wind Dir	W
D9	04 Mar 2020	Animal Life	3 Seagulls
D9	04 Mar 2020	Floatables	Film
D9	04 Mar 2020	Water Color	Green
D9	04 Mar 2020	Current Direction	N
D9	04 Mar 2020	Water Temp (C)	17.2
D9	04 Mar 2020	Wave Height Low (ft)	3
D9	04 Mar 2020	High Tide (ft)	4.5
D9	04 Mar 2020	High Tide Time	412
D9	04 Mar 2020	Low Tide (ft)	0
D9	04 Mar 2020	Low Tide Time	1202
D9	04 Mar 2020	Comments	Algae; Water clear
D9	11 Mar 2020	Arrive Time	830
D9	11 Mar 2020	Weather	Cloudy
D9	11 Mar 2020	Wind Speed (kts)	1.5
D9	11 Mar 2020	Wind Dir	S
D9	11 Mar 2020	Animal Life	1 Seagull
D9	11 Mar 2020	Floatables	None
D9	11 Mar 2020	Water Color	Green
D9	11 Mar 2020	Current Direction	N
D9	11 Mar 2020	Water Temp (C)	17.9
D9	11 Mar 2020	Wave Height Low (ft)	2
D9	11 Mar 2020	High Tide (ft)	5.4
D9	11 Mar 2020	High Tide Time	1058
D9	11 Mar 2020	Low Tide (ft)	-0.1
D9	11 Mar 2020	Low Tide Time	459
D9	11 Mar 2020	Comments	Algae; Water clear
D9	18 Mar 2020	Arrive Time	1135
D9	18 Mar 2020	Weather	Moderate Rain
D9	18 Mar 2020	Wind Speed (kts)	5.2
D9	18 Mar 2020	Wind Dir	W
D9	18 Mar 2020	Animal Life	None
D9	18 Mar 2020	Floatables	None
D9	18 Mar 2020	Water Color	Green
D9	18 Mar 2020	Current Direction	W
D9	18 Mar 2020	Water Temp (C)	14.8
D9	18 Mar 2020	Wave Height Low (ft)	3
D9	18 Mar 2020	High Tide (ft)	4.6
D9	18 Mar 2020	High Tide Time	556
D9	18 Mar 2020	Low Tide (ft)	-0.3
D9	18 Mar 2020	Low Tide Time	1323
D9	18 Mar 2020	Comments	Kelp; Seagrass; Algae; 1 Person; Water clear
D9	25 Mar 2020	Arrive Time	915
D9	25 Mar 2020	Weather	Cloudy
D9	25 Mar 2020	Wind Speed (kts)	2.5
D9	25 Mar 2020	Wind Dir	W
D9	25 Mar 2020	Animal Life	6 Seagulls
D9	25 Mar 2020	Floatables	None

Station	Date	Parameter	Value
D9	25 Mar 2020	Water Color	Green
D9	25 Mar 2020	Current Direction	S
D9	25 Mar 2020	Water Temp (C)	16.9
D9	25 Mar 2020	Wave Height Low (ft)	2
D9	25 Mar 2020	High Tide (ft)	4.5
D9	25 Mar 2020	High Tide Time	1022
D9	25 Mar 2020	Low Tide (ft)	0.4
D9	25 Mar 2020	Low Tide Time	426
D9	25 Mar 2020	Comments	Algae; Water clear
D10	04 Mar 2020	Arrive Time	831
D10	04 Mar 2020	Weather	Sunny
D10	04 Mar 2020	Wind Speed (kts)	5.2
D10	04 Mar 2020	Wind Dir	W
D10	04 Mar 2020	Animal Life	12 Seagulls
D10	04 Mar 2020	Floatables	Foam
D10	04 Mar 2020	Water Color	Green
D10	04 Mar 2020	Current Direction	N
D10	04 Mar 2020	Water Temp (C)	17.1
D10	04 Mar 2020	Wave Height Low (ft)	3
D10	04 Mar 2020	High Tide (ft)	4.5
D10	04 Mar 2020	High Tide Time	412
D10	04 Mar 2020	Low Tide (ft)	0
D10	04 Mar 2020	Low Tide Time	1202
D10	04 Mar 2020	Comments	Kelp; 1 Jogger; 4 Persons; 10 Surfers; Water clear
D10	11 Mar 2020	Arrive Time	913
D10	11 Mar 2020	Weather	Cloudy
D10	11 Mar 2020	Wind Speed (kts)	3.8
D10	11 Mar 2020	Wind Dir	SW
D10	11 Mar 2020	Animal Life	1 Shorebird; 6 Seagulls
D10	11 Mar 2020	Floatables	None
D10	11 Mar 2020	Water Color	Green
D10	11 Mar 2020	Current Direction	N
D10	11 Mar 2020	Water Temp (C)	17.9
D10	11 Mar 2020	Wave Height Low (ft)	3
D10	11 Mar 2020	High Tide (ft)	5.4
D10	11 Mar 2020	High Tide Time	1058
D10	11 Mar 2020	Low Tide (ft)	-0.1
D10	11 Mar 2020	Low Tide Time	459
D10	11 Mar 2020	Comments	6 Persons; 15 Surfers; Water clear
D10	18 Mar 2020	Arrive Time	1149
D10	18 Mar 2020	Weather	Drizzle
D10	18 Mar 2020	Wind Speed (kts)	5.6
D10	18 Mar 2020	Wind Dir	W
D10	18 Mar 2020	Animal Life	None
D10	18 Mar 2020	Floatables	None
D10	18 Mar 2020	Water Color	Green
D10	18 Mar 2020	Current Direction	W
D10	18 Mar 2020	Water Temp (C)	14.1
D10	18 Mar 2020	Wave Height Low (ft)	3
D10	18 Mar 2020	High Tide (ft)	4.6
D10	18 Mar 2020	High Tide Time	556
D10	18 Mar 2020	Low Tide (ft)	-0.3

Station	Date	Parameter	Value
D10	18 Mar 2020	Low Tide Time	1323
D10	18 Mar 2020	Comments	Water clear
D10	25 Mar 2020	Arrive Time	931
D10	25 Mar 2020	Weather	Cloudy
D10	25 Mar 2020	Wind Speed (kts)	1.9
D10	25 Mar 2020	Wind Dir	W
D10	25 Mar 2020	Animal Life	None
D10	25 Mar 2020	Floatables	None
D10	25 Mar 2020	Water Color	Green
D10	25 Mar 2020	Current Direction	S
D10	25 Mar 2020	Water Temp (C)	17.4
D10	25 Mar 2020	Wave Height Low (ft)	2
D10	25 Mar 2020	High Tide (ft)	4.5
D10	25 Mar 2020	High Tide Time	1022
D10	25 Mar 2020	Low Tide (ft)	0.4
D10	25 Mar 2020	Low Tide Time	426
D10	25 Mar 2020	Comments	Water clear
D11	04 Mar 2020	Arrive Time	821
D11	04 Mar 2020	Weather	Sunny
D11	04 Mar 2020	Wind Speed (kts)	0.7
D11	04 Mar 2020	Wind Dir	E
D11	04 Mar 2020	Animal Life	1 Dog
D11	04 Mar 2020	Floatables	Foam
D11	04 Mar 2020	Water Color	Green
D11	04 Mar 2020	Current Direction	N
D11	04 Mar 2020	Water Temp (C)	17.2
D11	04 Mar 2020	Wave Height Low (ft)	2
D11	04 Mar 2020	High Tide (ft)	4.5
D11	04 Mar 2020	High Tide Time	412
D11	04 Mar 2020	Low Tide (ft)	0
D11	04 Mar 2020	Low Tide Time	1202
D11	04 Mar 2020	Comments	Kelp; 11 Persons; 17 Surfers; 1 Boat; Water clear
D11	11 Mar 2020	Arrive Time	925
D11	11 Mar 2020	Weather	Cloudy
D11	11 Mar 2020	Wind Speed (kts)	3.1
D11	11 Mar 2020	Wind Dir	W
D11	11 Mar 2020	Animal Life	1 Dog; 5 Seagulls
D11	11 Mar 2020	Floatables	None
D11	11 Mar 2020	Water Color	Green
D11	11 Mar 2020	Current Direction	N
D11	11 Mar 2020	Water Temp (C)	18
D11	11 Mar 2020	Wave Height Low (ft)	3
D11	11 Mar 2020	High Tide (ft)	5.4
D11	11 Mar 2020	High Tide Time	1058
D11	11 Mar 2020	Low Tide (ft)	-0.1
D11	11 Mar 2020	Low Tide Time	459
D11	11 Mar 2020	Comments	6 Persons; 4 Surfers; Water clear
D11	18 Mar 2020	Arrive Time	1207
D11	18 Mar 2020	Weather	Drizzle
D11	18 Mar 2020	Wind Speed (kts)	6
D11	18 Mar 2020	Wind Dir	W

Station	Date	Parameter	Value
D11	18 Mar 2020	Animal Life	None
D11	18 Mar 2020	Floatables	None
D11	18 Mar 2020	Water Color	Green
D11	18 Mar 2020	Current Direction	W
D11	18 Mar 2020	Water Temp (C)	14.3
D11	18 Mar 2020	Wave Height Low (ft)	3
D11	18 Mar 2020	High Tide (ft)	4.6
D11	18 Mar 2020	High Tide Time	556
D11	18 Mar 2020	Low Tide (ft)	-0.3
D11	18 Mar 2020	Low Tide Time	1323
D11	18 Mar 2020	Comments	Water clear
D11	20 Mar 2020	Arrive Time	1053
D11	20 Mar 2020	Weather	Partly Cloudy
D11	20 Mar 2020	Wind Speed (kts)	3.3
D11	20 Mar 2020	Wind Dir	W
D11	20 Mar 2020	Animal Life	None
D11	20 Mar 2020	Floatables	None
D11	20 Mar 2020	Water Color	Green
D11	20 Mar 2020	Current Direction	W
D11	20 Mar 2020	Water Temp (C)	18.1
D11	20 Mar 2020	Wave Height Low (ft)	4
D11	20 Mar 2020	High Tide (ft)	5
D11	20 Mar 2020	High Tide Time	740
D11	20 Mar 2020	Low Tide (ft)	-0.5
D11	20 Mar 2020	Low Tide Time	1435
D11	20 Mar 2020	Comments	Resample; Kelp; Seagrass; 8 Persons; 4 Surfers; 2 Swimmers; Water clear
D11	25 Mar 2020	Arrive Time	955
D11	25 Mar 2020	Weather	Drizzle
D11	25 Mar 2020	Wind Speed (kts)	1.7
D11	25 Mar 2020	Wind Dir	N
D11	25 Mar 2020	Animal Life	1 Seagull
D11	25 Mar 2020	Floatables	None
D11	25 Mar 2020	Water Color	Green
D11	25 Mar 2020	Current Direction	S
D11	25 Mar 2020	Water Temp (C)	18.5
D11	25 Mar 2020	Wave Height Low (ft)	2
D11	25 Mar 2020	High Tide (ft)	4.5
D11	25 Mar 2020	High Tide Time	1022
D11	25 Mar 2020	Low Tide (ft)	0.4
D11	25 Mar 2020	Low Tide Time	426
D11	25 Mar 2020	Comments	none
D12	04 Mar 2020	Arrive Time	802
D12	04 Mar 2020	Weather	Sunny
D12	04 Mar 2020	Wind Speed (kts)	0.7
D12	04 Mar 2020	Wind Dir	E
D12	04 Mar 2020	Animal Life	10 Seagulls
D12	04 Mar 2020	Floatables	None
D12	04 Mar 2020	Water Color	Green
D12	04 Mar 2020	Current Direction	N
D12	04 Mar 2020	Water Temp (C)	17.2
D12	04 Mar 2020	Wave Height Low (ft)	2

Station	Date	Parameter	Value
D12	04 Mar 2020	High Tide (ft)	4.5
D12	04 Mar 2020	High Tide Time	412
D12	04 Mar 2020	Low Tide (ft)	0
D12	04 Mar 2020	Low Tide Time	1202
D12	04 Mar 2020	Comments	Kelp; 1 Jogger; 3 Persons; 7 Surfers; 3 Fishermen
D12	11 Mar 2020	Arrive Time	948
D12	11 Mar 2020	Weather	Partly Cloudy
D12	11 Mar 2020	Wind Speed (kts)	3.4
D12	11 Mar 2020	Wind Dir	W
D12	11 Mar 2020	Animal Life	12 Seagulls
D12	11 Mar 2020	Floatables	None
D12	11 Mar 2020	Water Color	Green
D12	11 Mar 2020	Current Direction	N
D12	11 Mar 2020	Water Temp (C)	18.5
D12	11 Mar 2020	Wave Height Low (ft)	2
D12	11 Mar 2020	High Tide (ft)	5.4
D12	11 Mar 2020	High Tide Time	1058
D12	11 Mar 2020	Low Tide (ft)	-0.1
D12	11 Mar 2020	Low Tide Time	459
D12	11 Mar 2020	Comments	4 Joggers; 21 Persons; 2 Surfers; 2 Swimmers; 1 Fisherman; Water clear
D12	18 Mar 2020	Arrive Time	1234
D12	18 Mar 2020	Weather	Drizzle
D12	18 Mar 2020	Wind Speed (kts)	6.2
D12	18 Mar 2020	Wind Dir	W
D12	18 Mar 2020	Animal Life	None
D12	18 Mar 2020	Floatables	None
D12	18 Mar 2020	Water Color	Green
D12	18 Mar 2020	Current Direction	W
D12	18 Mar 2020	Water Temp (C)	16.1
D12	18 Mar 2020	Wave Height Low (ft)	3
D12	18 Mar 2020	High Tide (ft)	4.6
D12	18 Mar 2020	High Tide Time	556
D12	18 Mar 2020	Low Tide (ft)	-0.3
D12	18 Mar 2020	Low Tide Time	1323
D12	18 Mar 2020	Comments	Water clear
D12	25 Mar 2020	Arrive Time	1020
D12	25 Mar 2020	Weather	Partly Cloudy
D12	25 Mar 2020	Wind Speed (kts)	1.7
D12	25 Mar 2020	Wind Dir	W
D12	25 Mar 2020	Animal Life	400 Cormorants
D12	25 Mar 2020	Floatables	None
D12	25 Mar 2020	Water Color	Green
D12	25 Mar 2020	Current Direction	S
D12	25 Mar 2020	Water Temp (C)	19
D12	25 Mar 2020	Wave Height Low (ft)	1
D12	25 Mar 2020	High Tide (ft)	4.5
D12	25 Mar 2020	High Tide Time	1022
D12	25 Mar 2020	Low Tide (ft)	0.4
D12	25 Mar 2020	Low Tide Time	426
D12	25 Mar 2020	Comments	Kelp; Water clear

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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 Mar 2020	16*	7*	14*	4*	2*	2*	4*	7*
02 Mar 2020	16*	7*	14*	4*	2*	2*	4*	7*
03 Mar 2020	16*	7*	14*	4*	2*	2*	4*	7*
04 Mar 2020	16*	7*	14*	4*	2*	2*	4*	7*
05 Mar 2020	11	8	13	4	2	2	3	5
06 Mar 2020	10*	9*	15*	5*	2*	2*	2*	5*
07 Mar 2020	10*	9*	15*	5*	2*	2*	2*	5*
08 Mar 2020	10*	9*	15*	5*	2*	2*	2*	5*
09 Mar 2020	9	16	14	5	3	2	4	6
10 Mar 2020	9	16	14	5	3	2	4	6
11 Mar 2020	6*	27*	16*	4*	3*	2*	5*	9*
12 Mar 2020	6*	27*	16*	4*	3*	2*	5*	9*
13 Mar 2020	6*	27*	16*	4*	3*	2*	5*	9*
14 Mar 2020	6*	27*	16*	4*	3*	2*	5*	9*
15 Mar 2020	6*	27*	16*	4*	3*	2*	5*	9*
16 Mar 2020	6	18	12	4	3	2	4	6
17 Mar 2020	6	18	12	4	3	2	4	6
18 Mar 2020	6	18	12	4	3	2	4	6
19 Mar 2020	7*	22*	15*	5*	3*	2*	5*	9*
20 Mar 2020	7*	22*	15*	5*	3*	2*	5*	9*
21 Mar 2020	7*	22*	15*	5*	3*	2*	5*	9*
22 Mar 2020	7*	22*	15*	5*	3*	2*	5*	9*
23 Mar 2020	7*	22*	15*	5*	3*	2*	5*	9*
24 Mar 2020	6	14	10	4	3	2	4	6
25 Mar 2020	6	14	10	4	3	2	4	6
26 Mar 2020	4*	11*	5*	5*	3*	2*	4*	4*
27 Mar 2020	4*	11*	5*	5*	3*	2*	4*	4*
28 Mar 2020	4*	11*	5*	5*	3*	2*	4*	4*
29 Mar 2020	4*	11*	5*	5*	3*	2*	4*	4*
30 Mar 2020	4*	11*	5*	5*	3*	2*	4*	4*
31 Mar 2020	4*	11*	5*	5*	3*	2*	4*	4*

* 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 Mar 2020	5*	4*	5*	2*	2*	2*	2*	2*
02 Mar 2020	5*	4*	5*	2*	2*	2*	2*	2*
03 Mar 2020	5*	4*	5*	2*	2*	2*	2*	2*
04 Mar 2020	5*	4*	5*	2*	2*	2*	2*	2*
05 Mar 2020	4	3	4	2	2	2	2	2
06 Mar 2020	5*	3*	5*	2*	2*	2*	2*	2*
07 Mar 2020	5*	3*	5*	2*	2*	2*	2*	2*
08 Mar 2020	5*	3*	5*	2*	2*	2*	2*	2*
09 Mar 2020	5	5	4	2	2	2	3	2
10 Mar 2020	5	5	4	2	2	2	3	2
11 Mar 2020	3*	6*	5*	2*	2*	2*	3*	3*
12 Mar 2020	3*	6*	5*	2*	2*	2*	3*	3*
13 Mar 2020	3*	6*	5*	2*	2*	2*	3*	3*
14 Mar 2020	3*	6*	5*	2*	2*	2*	3*	3*
15 Mar 2020	3*	6*	5*	2*	2*	2*	3*	3*
16 Mar 2020	3	5	5	2	2	2	3	2
17 Mar 2020	3	5	5	2	2	2	3	2
18 Mar 2020	3	5	5	2	2	2	3	2
19 Mar 2020	3*	6*	6*	2*	2*	2*	3*	3*
20 Mar 2020	3*	6*	6*	2*	2*	2*	3*	3*
21 Mar 2020	3*	6*	6*	2*	2*	2*	3*	3*
22 Mar 2020	3*	6*	6*	2*	2*	2*	3*	3*
23 Mar 2020	3*	6*	6*	2*	2*	2*	3*	3*
24 Mar 2020	3	5	5	2	2	2	3	2
25 Mar 2020	3	5	5	2	2	2	3	2
26 Mar 2020	2*	4*	2*	2*	2*	2*	3*	3*
27 Mar 2020	2*	4*	2*	2*	2*	2*	3*	3*
28 Mar 2020	2*	4*	2*	2*	2*	2*	3*	3*
29 Mar 2020	2*	4*	2*	2*	2*	2*	3*	3*
30 Mar 2020	2*	4*	2*	2*	2*	2*	3*	3*
31 Mar 2020	2*	4*	2*	2*	2*	2*	3*	3*

* Geometric mean calculated using n<5

Table 3.3

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
02 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
03 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
04 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
05 Mar 2020	2	2	2	2	2	2	2	2
06 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
07 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
08 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
09 Mar 2020	2	2	2	2	2	2	2	2
10 Mar 2020	2	2	2	2	2	2	2	2
11 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
12 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
13 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
14 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
15 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
16 Mar 2020	2	2	2	2	2	2	2	2
17 Mar 2020	2	2	2	2	2	2	2	2
18 Mar 2020	2	2	2	2	2	2	2	2
19 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
20 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
21 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
22 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
23 Mar 2020	2*	2*	3*	2*	2*	2*	2*	2*
24 Mar 2020	2	2	2	2	2	2	2	2
25 Mar 2020	2	2	2	2	2	2	2	2
26 Mar 2020	2*	2*	2*	2*	2*	2*	2*	2*
27 Mar 2020	2*	2*	2*	2*	2*	2*	2*	2*
28 Mar 2020	2*	2*	2*	2*	2*	2*	2*	2*
29 Mar 2020	2*	2*	2*	2*	2*	2*	2*	2*
30 Mar 2020	2*	2*	2*	2*	2*	2*	2*	2*
31 Mar 2020	2*	2*	2*	2*	2*	2*	2*	2*

* Geometric mean calculated using n<5

Table 3.4

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
05 Mar 2020	IC							
09 Mar 2020	IC							
16 Mar 2020	IC							
24 Mar 2020	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.5

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
05 Mar 2020	IC							
09 Mar 2020	IC							
16 Mar 2020	IC							
24 Mar 2020	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.6

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
05 Mar 2020	IC							
09 Mar 2020	IC							
16 Mar 2020	IC							
24 Mar 2020	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.7

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
05 Mar 2020	IC							
09 Mar 2020	IC							
16 Mar 2020	IC							
24 Mar 2020	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* (Entero) bacteria are reported as CFU/100 mL; the fecal:total coliform ratio (F:T) is unitless; values for temperature (Temp, °C), transmissivity (XMS, %), dissolved oxygen (DO, mg/L), salinity (Sal, ppt) and pH were extracted from CTD profile data for depths closest to those at which the bacteriological samples were collected. Comments follow the data summary.

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
A1	05 Mar 2020	801	1	<2	<2	<2	1.00	15.8	85.98	8.2	33.51	8.0
A1	05 Mar 2020	801	12	<2	<2	<2	1.00	15.6	86.13	8.1	33.51	8.0
A1	05 Mar 2020	801	18	2e	<2	<2	1.00	15.3	85.11	7.9	33.51	8.0
A1	09 Mar 2020	734	1	<2	<2	2e	1.00	15.5	82.30	8.0	33.51	7.9
A1	09 Mar 2020	734	12	10e	4e	<2	0.40	13.6	88.49	6.8	33.55	7.8
A1	09 Mar 2020	734	18	6e	2e	2e	0.33	13.2	89.47	6.4	33.55	7.8
A1	16 Mar 2020	759	1	2e	<2	<2	1.00	16.4	81.63	8.4	33.42	8.0
A1	16 Mar 2020	759	12	10e	2e	<2	0.20	15.7	84.99	7.7	33.50	8.0
A1	16 Mar 2020	759	18	8e	<2	<2	0.25	15.2	87.67	7.6	33.52	8.0
A1	24 Mar 2020	745	1	<2	<2	<2	1.00	16.4	81.43	8.3	33.38	8.0
A1	24 Mar 2020	745	12	<2	<2	<2	1.00	15.9	83.31	8.1	33.49	8.0
A1	24 Mar 2020	745	18	4e	2e	<2	0.50	14.5	87.04	6.9	33.50	7.9
A6	05 Mar 2020	836	1	<2	<2	<2	1.00	16.0	86.86	8.8	33.53	8.1
A6	05 Mar 2020	836	12	<20	<2	<2	0.10	15.2	85.14	7.9	33.52	8.0
A6	05 Mar 2020	836	18	14e	<2	2e	0.14	14.8	86.96	7.5	33.52	8.0
A6	09 Mar 2020	803	1	<2	<2	<2	1.00	15.9	84.53	8.2	33.52	8.1
A6	09 Mar 2020	803	12	100e	22e	<2	0.22	12.9	89.99	6.2	33.57	7.9
A6	09 Mar 2020	803	18	440	76	4e	0.17	12.6	89.50	6.0	33.58	7.8
A6	16 Mar 2020	827	1	<2	<2	<2	1.00	16.4	84.59	8.2	33.44	8.0
A6	16 Mar 2020	827	12	6e	<2	<2	0.33	16.1	85.39	8.1	33.49	8.0
A6	16 Mar 2020	827	18	4e	<2	<2	0.50	15.9	87.82	7.8	33.50	8.0
A6	24 Mar 2020	813	1	<2	<2	<2	1.00	16.6	83.04	8.2	33.37	8.1
A6	24 Mar 2020	813	12	2e	<2	<2	1.00	14.5	88.05	7.1	33.58	8.0
A6	24 Mar 2020	813	18	<2	<2	<2	1.00	13.6	89.22	6.4	33.56	7.9
A7	05 Mar 2020	816	1	<2	<2	<2	1.00	16.0	82.31	8.2	33.53	8.0
A7	05 Mar 2020	816	12	8e	2e	<2	0.25	15.5	84.28	7.5	33.53	8.0
A7	05 Mar 2020	816	18	<20	<2	<2	0.10	14.7	84.70	7.4	33.57	8.0
A7	09 Mar 2020	747	1	<2	<2	<2	1.00	15.7	84.94	8.3	33.52	8.1
A7	09 Mar 2020	747	12	10e	<2	<2	0.20	13.8	88.07	7.0	33.56	7.9
A7	09 Mar 2020	747	18	14e	6e	<2	0.43	13.0	89.50	6.2	33.57	7.9
A7	16 Mar 2020	811	1	<2	<2	<2	1.00	16.5	84.18	8.1	33.40	8.0
A7	16 Mar 2020	811	12	2e	<2	<2	1.00	15.8	86.30	7.9	33.51	8.0
A7	16 Mar 2020	811	18	6e	4e	<2	0.67	15.5	87.63	7.6	33.52	8.0
A7	24 Mar 2020	757	1	<2	<2	<2	1.00	16.6	83.78	8.4	33.41	8.1
A7	24 Mar 2020	757	12	<2	<2	<2	1.00	14.2	86.84	7.0	33.56	8.0
A7	24 Mar 2020	757	18	<2	2e	<2	1.00	13.8	88.23	6.4	33.55	7.9

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
C4	05 Mar 2020	953	1	6e	<2	<2	0.33	16.2	65.79	7.4	33.53	8.0
C4	05 Mar 2020	953	3	10e	<2	<2	0.20	16.1	64.54	7.5	33.54	8.0
C4	05 Mar 2020	953	9	<2	<2	<2	1.00	15.6	84.40	7.7	33.53	8.0
C4	09 Mar 2020	859	1	<2	<2	<2	1.00	15.6	82.15	8.2	33.52	8.1
C4	09 Mar 2020	859	3	<2	<2	<2	1.00	15.6	82.07	8.2	33.52	8.1
C4	09 Mar 2020	859	9	<20	<2	<2	0.10	15.0	82.99	7.3	33.55	8.0
C4	16 Mar 2020	955	1	2e	<2	<2	1.00	16.5	77.64	8.3	33.34	8.1
C4	16 Mar 2020	955	3	6e	<2	<2	0.33	16.5	77.80	8.3	33.34	8.1
C4	16 Mar 2020	955	9	8e	<2	<2	0.25	16.3	84.25	7.0	33.45	8.0
C4	24 Mar 2020	942	1	<2	<2	<2	1.00	16.6	81.26	8.0	33.42	8.1
C4	24 Mar 2020	942	3	<2	<2	<2	1.00	16.7	80.95	8.1	33.42	8.1
C4	24 Mar 2020	942	9	2e	<2	<2	1.00	15.8	81.67	6.3	33.46	8.0
C5	05 Mar 2020	940	1	<2	<2	<2	1.00	16.2	79.77	7.9	33.55	8.0
C5	05 Mar 2020	940	3	<2	<2	<2	1.00	16.1	79.31	7.9	33.55	8.0
C5	05 Mar 2020	940	9	2e	<2	<2	1.00	15.5	73.97	6.8	33.55	8.0
C5	09 Mar 2020	851	1	<2	<2	<2	1.00	16.0	77.07	7.9	33.54	8.1
C5	09 Mar 2020	851	3	<20	<2	<2	0.10	16.0	77.28	7.9	33.54	8.1
C5	09 Mar 2020	851	9	<2	<2	<2	1.00	15.0	84.03	7.3	33.54	8.0
C5	16 Mar 2020	943	1	<2	<2	<2	1.00	16.7	82.31	8.3	33.37	8.1
C5	16 Mar 2020	943	3	<2	<2	<2	1.00	16.6	82.29	8.2	33.38	8.1
C5	16 Mar 2020	943	9	<2	<2	<2	1.00	16.1	85.65	7.1	33.45	8.0
C5	24 Mar 2020	925	1	2e	<2	<2	1.00	16.9	79.60	8.1	33.41	8.1
C5	24 Mar 2020	925	3	2e	<2	<2	1.00	16.8	79.85	8.3	33.43	8.1
C5	24 Mar 2020	925	9	<2	<2	<2	1.00	16.1	85.61	7.5	33.45	8.1
C6	05 Mar 2020	930	1	<2	<2	<2	1.00	16.1	83.21	8.1	33.54	8.1
C6	05 Mar 2020	930	3	<2	<2	<2	1.00	16.1	83.30	8.1	33.54	8.1
C6	05 Mar 2020	930	9	<2	<2	<2	1.00	15.7	86.78	7.9	33.52	8.0
C6	09 Mar 2020	842	1	<2	<2	<2	1.00	16.2	80.15	8.0	33.53	8.1
C6	09 Mar 2020	842	3	<2	<2	<2	1.00	16.0	80.69	8.0	33.55	8.1
C6	09 Mar 2020	842	9	<2	<2	<2	1.00	15.1	86.35	7.2	33.55	8.0
C6	16 Mar 2020	926	1	<2	<2	<2	1.00	16.5	86.64	7.8	33.42	8.0
C6	16 Mar 2020	926	3	2e	<2	<2	1.00	16.5	86.61	7.8	33.42	8.0
C6	16 Mar 2020	926	9	<2	<2	<2	1.00	16.0	88.18	7.4	33.47	8.0
C6	24 Mar 2020	909	1	2e	<2	<2	1.00	16.9	81.16	7.9	33.42	8.1
C6	24 Mar 2020	909	3	<2	<2	<2	1.00	16.8	81.19	7.9	33.43	8.1
C6	24 Mar 2020	909	9	<2	2e	<2	1.00	16.1	86.84	7.5	33.44	8.1
C7	05 Mar 2020	854	1	<2	<2	<2	1.00	16.0	88.29	8.0	33.52	8.0
C7	05 Mar 2020	854	12	<2	<2	<2	1.00	15.6	87.48	8.0	33.52	8.0
C7	05 Mar 2020	854	18	<2	<2	<2	1.00	14.9	87.09	7.5	33.55	8.0
C7	09 Mar 2020	816	1	2e	<2	<2	1.00	16.0	86.07	8.4	33.52	8.1
C7	09 Mar 2020	816	12	60e	4e	2e	0.07	13.4	89.51	6.5	33.58	7.9

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
C7	09 Mar 2020	816	18	40e	30e	2e	0.75	12.8	90.11	6.2	33.56	7.9
C7	16 Mar 2020	847	1	4e	<2	<2	0.50	16.4	84.83	8.3	33.46	8.1
C7	16 Mar 2020	847	12	<2	<2	<2	1.00	16.2	86.43	8.2	33.49	8.1
C7	16 Mar 2020	847	18	2e	<2	<2	1.00	15.6	88.82	7.6	33.51	8.0
C7	24 Mar 2020	834	1	<2	<2	<2	1.00	16.5	86.79	8.2	33.44	8.1
C7	24 Mar 2020	834	12	<2	<2	<2	1.00	15.5	87.11	7.8	33.51	8.1
C7	24 Mar 2020	834	18	<2	<2	<2	1.00	13.8	89.60	6.5	33.55	7.9
C8	05 Mar 2020	908	1	<2	<2	2e	1.00	16.0	83.90	8.1	33.52	8.1
C8	05 Mar 2020	908	12	<2	<2	<2	1.00	15.6	87.11	8.1	33.52	8.1
C8	05 Mar 2020	908	18	<2	<2	<2	1.00	15.2	86.05	7.8	33.53	8.0
C8	09 Mar 2020	827	1	<2	<2	<2	1.00	15.9	87.21	8.4	33.54	8.1
C8	09 Mar 2020	827	12	40e	8e	<2	0.20	13.4	89.33	6.6	33.56	7.9
C8	09 Mar 2020	827	18	20e	8e	<2	0.40	13.3	90.04	6.4	33.54	7.9
C8	16 Mar 2020	903	1	<2	<2	<2	1.00	16.5	83.49	8.4	33.39	8.1
C8	16 Mar 2020	903	12	2e	<2	<2	1.00	16.0	86.37	7.9	33.49	8.0
C8	16 Mar 2020	903	18	<2	<2	<2	1.00	15.4	88.82	7.4	33.51	8.0
C8	24 Mar 2020	848	1	<2	<2	<2	1.00	16.5	84.75	8.2	33.38	8.1
C8	24 Mar 2020	848	12	<2	<2	<2	1.00	15.1	86.94	7.6	33.52	8.0
C8	24 Mar 2020	848	18	<2	<2	<2	1.00	14.6	88.50	7.1	33.52	8.0

ns = not sampled

ND = no data

Table 3.9

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

Station	Date	Parameter	Value
A1	05 Mar 2020	Depth (m)	19
A1	05 Mar 2020	Arrive Time	801
A1	05 Mar 2020	Depart Time	806
A1	05 Mar 2020	Air Temp (C)	13
A1	05 Mar 2020	Weather	Overcast
A1	05 Mar 2020	Visibility (mi)	9
A1	05 Mar 2020	Wind Speed (kts)	2
A1	05 Mar 2020	Wind Dir	N
A1	05 Mar 2020	Water Color	Bluish-Green
A1	05 Mar 2020	Wave Ht Low (ft)	3
A1	05 Mar 2020	Wave Period (sec)	11
A1	05 Mar 2020	Sea State	Calm
A1	05 Mar 2020	High Tide (ft)	5
A1	05 Mar 2020	High Tide Time	515
A1	05 Mar 2020	Low Tide (ft)	-0.55
A1	05 Mar 2020	Low Tide Time	1244
A1	05 Mar 2020	Comments	Lobster floats; Kelp debris
A1	09 Mar 2020	Depth (m)	19
A1	09 Mar 2020	Arrive Time	734
A1	09 Mar 2020	Depart Time	738
A1	09 Mar 2020	Air Temp (C)	14
A1	09 Mar 2020	Weather	Partly Cloudy
A1	09 Mar 2020	Visibility (mi)	12
A1	09 Mar 2020	Wind Speed (kts)	6
A1	09 Mar 2020	Wind Dir	N
A1	09 Mar 2020	Water Color	Greenish-Blue
A1	09 Mar 2020	Wave Ht Low (ft)	3
A1	09 Mar 2020	Wave Period (sec)	13
A1	09 Mar 2020	Sea State	Light chop
A1	09 Mar 2020	High Tide (ft)	6.22
A1	09 Mar 2020	High Tide Time	926
A1	09 Mar 2020	Low Tide (ft)	-1.29
A1	09 Mar 2020	Low Tide Time	1608
A1	09 Mar 2020	Comments	Kelp
A1	16 Mar 2020	Depth (m)	18
A1	16 Mar 2020	Arrive Time	759
A1	16 Mar 2020	Depart Time	806
A1	16 Mar 2020	Air Temp (C)	14
A1	16 Mar 2020	Weather	Cloudy
A1	16 Mar 2020	Visibility (mi)	10
A1	16 Mar 2020	Wind Speed (kts)	9
A1	16 Mar 2020	Wind Dir	E
A1	16 Mar 2020	Water Color	Green
A1	16 Mar 2020	Wave Ht Low (ft)	3
A1	16 Mar 2020	Wave Period (sec)	13
A1	16 Mar 2020	Sea State	Calm
A1	16 Mar 2020	High Tide (ft)	4.56
A1	16 Mar 2020	High Tide Time	306
A1	16 Mar 2020	Low Tide (ft)	0.23

Station	Date	Parameter	Value
A1	16 Mar 2020	Low Tide Time	1110
A1	16 Mar 2020	Comments	none
A1	24 Mar 2020	Depth (m)	21
A1	24 Mar 2020	Arrive Time	745
A1	24 Mar 2020	Depart Time	750
A1	24 Mar 2020	Air Temp (C)	14
A1	24 Mar 2020	Weather	Partly Cloudy
A1	24 Mar 2020	Visibility (mi)	12
A1	24 Mar 2020	Wind Speed (kts)	5
A1	24 Mar 2020	Wind Dir	NE
A1	24 Mar 2020	Water Color	Bluish-Green
A1	24 Mar 2020	Wave Ht Low (ft)	4
A1	24 Mar 2020	Wave Period (sec)	13
A1	24 Mar 2020	Sea State	Calm
A1	24 Mar 2020	High Tide (ft)	4.82
A1	24 Mar 2020	High Tide Time	952
A1	24 Mar 2020	Low Tide (ft)	0.52
A1	24 Mar 2020	Low Tide Time	355
A1	24 Mar 2020	Comments	Kelp
A6	05 Mar 2020	Depth (m)	18
A6	05 Mar 2020	Arrive Time	836
A6	05 Mar 2020	Depart Time	843
A6	05 Mar 2020	Air Temp (C)	14
A6	05 Mar 2020	Weather	Overcast
A6	05 Mar 2020	Visibility (mi)	9
A6	05 Mar 2020	Wind Speed (kts)	2
A6	05 Mar 2020	Wind Dir	W
A6	05 Mar 2020	Water Color	Bluish-Green
A6	05 Mar 2020	Wave Ht Low (ft)	3
A6	05 Mar 2020	Wave Period (sec)	11
A6	05 Mar 2020	Sea State	Calm
A6	05 Mar 2020	High Tide (ft)	5
A6	05 Mar 2020	High Tide Time	515
A6	05 Mar 2020	Low Tide (ft)	-0.55
A6	05 Mar 2020	Low Tide Time	1244
A6	05 Mar 2020	Comments	Kelp
A6	09 Mar 2020	Depth (m)	18
A6	09 Mar 2020	Arrive Time	803
A6	09 Mar 2020	Depart Time	807
A6	09 Mar 2020	Air Temp (C)	14
A6	09 Mar 2020	Weather	Partly Cloudy
A6	09 Mar 2020	Visibility (mi)	12
A6	09 Mar 2020	Wind Speed (kts)	1
A6	09 Mar 2020	Wind Dir	SW
A6	09 Mar 2020	Water Color	Greenish-Blue
A6	09 Mar 2020	Wave Ht Low (ft)	3
A6	09 Mar 2020	Wave Period (sec)	13
A6	09 Mar 2020	Sea State	Light chop
A6	09 Mar 2020	High Tide (ft)	6.22
A6	09 Mar 2020	High Tide Time	926
A6	09 Mar 2020	Low Tide (ft)	-1.29
A6	09 Mar 2020	Low Tide Time	1608

Station	Date	Parameter	Value
A6	09 Mar 2020	Comments	Kelp
A6	16 Mar 2020	Depth (m)	18
A6	16 Mar 2020	Arrive Time	827
A6	16 Mar 2020	Depart Time	833
A6	16 Mar 2020	Air Temp (C)	14
A6	16 Mar 2020	Weather	Cloudy
A6	16 Mar 2020	Visibility (mi)	10
A6	16 Mar 2020	Wind Speed (kts)	8
A6	16 Mar 2020	Wind Dir	E
A6	16 Mar 2020	Water Color	Green
A6	16 Mar 2020	Wave Ht Low (ft)	3
A6	16 Mar 2020	Wave Period (sec)	13
A6	16 Mar 2020	Sea State	Calm
A6	16 Mar 2020	High Tide (ft)	4.56
A6	16 Mar 2020	High Tide Time	306
A6	16 Mar 2020	Low Tide (ft)	0.23
A6	16 Mar 2020	Low Tide Time	1110
A6	16 Mar 2020	Comments	Kelp
A6	24 Mar 2020	Depth (m)	21
A6	24 Mar 2020	Arrive Time	813
A6	24 Mar 2020	Depart Time	820
A6	24 Mar 2020	Air Temp (C)	15
A6	24 Mar 2020	Weather	Partly Cloudy
A6	24 Mar 2020	Visibility (mi)	15
A6	24 Mar 2020	Wind Speed (kts)	1
A6	24 Mar 2020	Wind Dir	N
A6	24 Mar 2020	Water Color	Bluish-Green
A6	24 Mar 2020	Wave Ht Low (ft)	4
A6	24 Mar 2020	Wave Period (sec)	13
A6	24 Mar 2020	Sea State	Calm
A6	24 Mar 2020	High Tide (ft)	4.82
A6	24 Mar 2020	High Tide Time	952
A6	24 Mar 2020	Low Tide (ft)	0.52
A6	24 Mar 2020	Low Tide Time	355
A6	24 Mar 2020	Comments	Kelp
A7	05 Mar 2020	Depth (m)	17
A7	05 Mar 2020	Arrive Time	816
A7	05 Mar 2020	Depart Time	827
A7	05 Mar 2020	Air Temp (C)	13
A7	05 Mar 2020	Weather	Overcast
A7	05 Mar 2020	Visibility (mi)	9
A7	05 Mar 2020	Wind Speed (kts)	0
A7	05 Mar 2020	Wind Dir	
A7	05 Mar 2020	Water Color	Bluish-Green
A7	05 Mar 2020	Wave Ht Low (ft)	3
A7	05 Mar 2020	Wave Period (sec)	11
A7	05 Mar 2020	Sea State	Calm
A7	05 Mar 2020	High Tide (ft)	5
A7	05 Mar 2020	High Tide Time	515
A7	05 Mar 2020	Low Tide (ft)	-0.55
A7	05 Mar 2020	Low Tide Time	1244
A7	05 Mar 2020	Comments	Kelp debris; Lobster floats

Station	Date	Parameter	Value
A7	09 Mar 2020	Depth (m)	18
A7	09 Mar 2020	Arrive Time	747
A7	09 Mar 2020	Depart Time	753
A7	09 Mar 2020	Air Temp (C)	13
A7	09 Mar 2020	Weather	Partly Cloudy
A7	09 Mar 2020	Visibility (mi)	12
A7	09 Mar 2020	Wind Speed (kts)	2
A7	09 Mar 2020	Wind Dir	W
A7	09 Mar 2020	Water Color	Greenish-Blue
A7	09 Mar 2020	Wave Ht Low (ft)	3
A7	09 Mar 2020	Wave Period (sec)	13
A7	09 Mar 2020	Sea State	Light chop
A7	09 Mar 2020	High Tide (ft)	6.22
A7	09 Mar 2020	High Tide Time	926
A7	09 Mar 2020	Low Tide (ft)	-1.29
A7	09 Mar 2020	Low Tide Time	1608
A7	09 Mar 2020	Comments	none
A7	16 Mar 2020	Depth (m)	18
A7	16 Mar 2020	Arrive Time	811
A7	16 Mar 2020	Depart Time	819
A7	16 Mar 2020	Air Temp (C)	15
A7	16 Mar 2020	Weather	Cloudy
A7	16 Mar 2020	Visibility (mi)	10
A7	16 Mar 2020	Wind Speed (kts)	4
A7	16 Mar 2020	Wind Dir	NE
A7	16 Mar 2020	Water Color	Green
A7	16 Mar 2020	Wave Ht Low (ft)	3
A7	16 Mar 2020	Wave Period (sec)	13
A7	16 Mar 2020	Sea State	Calm
A7	16 Mar 2020	High Tide (ft)	4.56
A7	16 Mar 2020	High Tide Time	306
A7	16 Mar 2020	Low Tide (ft)	0.23
A7	16 Mar 2020	Low Tide Time	1110
A7	16 Mar 2020	Comments	none
A7	24 Mar 2020	Depth (m)	20
A7	24 Mar 2020	Arrive Time	757
A7	24 Mar 2020	Depart Time	803
A7	24 Mar 2020	Air Temp (C)	14
A7	24 Mar 2020	Weather	Partly Cloudy
A7	24 Mar 2020	Visibility (mi)	12
A7	24 Mar 2020	Wind Speed (kts)	2
A7	24 Mar 2020	Wind Dir	NE
A7	24 Mar 2020	Water Color	Bluish-Green
A7	24 Mar 2020	Wave Ht Low (ft)	4
A7	24 Mar 2020	Wave Period (sec)	13
A7	24 Mar 2020	Sea State	Calm
A7	24 Mar 2020	High Tide (ft)	4.82
A7	24 Mar 2020	High Tide Time	952
A7	24 Mar 2020	Low Tide (ft)	0.52
A7	24 Mar 2020	Low Tide Time	355
A7	24 Mar 2020	Comments	Kelp

Station	Date	Parameter	Value
C4	05 Mar 2020	Depth (m)	9
C4	05 Mar 2020	Arrive Time	953
C4	05 Mar 2020	Depart Time	958
C4	05 Mar 2020	Air Temp (C)	14
C4	05 Mar 2020	Weather	Overcast
C4	05 Mar 2020	Visibility (mi)	9
C4	05 Mar 2020	Wind Speed (kts)	6
C4	05 Mar 2020	Wind Dir	W
C4	05 Mar 2020	Water Color	Green
C4	05 Mar 2020	Wave Ht Low (ft)	3
C4	05 Mar 2020	Wave Period (sec)	11
C4	05 Mar 2020	Sea State	Calm
C4	05 Mar 2020	High Tide (ft)	5
C4	05 Mar 2020	High Tide Time	515
C4	05 Mar 2020	Low Tide (ft)	-0.55
C4	05 Mar 2020	Low Tide Time	1244
C4	05 Mar 2020	Comments	Lobster floats
C4	09 Mar 2020	Depth (m)	10
C4	09 Mar 2020	Arrive Time	859
C4	09 Mar 2020	Depart Time	902
C4	09 Mar 2020	Air Temp (C)	13
C4	09 Mar 2020	Weather	Partly Cloudy
C4	09 Mar 2020	Visibility (mi)	14
C4	09 Mar 2020	Wind Speed (kts)	13
C4	09 Mar 2020	Wind Dir	NE
C4	09 Mar 2020	Water Color	Green
C4	09 Mar 2020	Wave Ht Low (ft)	3
C4	09 Mar 2020	Wave Period (sec)	13
C4	09 Mar 2020	Sea State	Light chop
C4	09 Mar 2020	High Tide (ft)	6.22
C4	09 Mar 2020	High Tide Time	926
C4	09 Mar 2020	Low Tide (ft)	-1.29
C4	09 Mar 2020	Low Tide Time	1608
C4	09 Mar 2020	Comments	Kelp; Kelp debris
C4	16 Mar 2020	Depth (m)	9
C4	16 Mar 2020	Arrive Time	955
C4	16 Mar 2020	Depart Time	959
C4	16 Mar 2020	Air Temp (C)	15
C4	16 Mar 2020	Weather	Cloudy
C4	16 Mar 2020	Visibility (mi)	10
C4	16 Mar 2020	Wind Speed (kts)	4
C4	16 Mar 2020	Wind Dir	E
C4	16 Mar 2020	Water Color	Bluish-Green
C4	16 Mar 2020	Wave Ht Low (ft)	3
C4	16 Mar 2020	Wave Period (sec)	13
C4	16 Mar 2020	Sea State	Calm
C4	16 Mar 2020	High Tide (ft)	4.56
C4	16 Mar 2020	High Tide Time	306
C4	16 Mar 2020	Low Tide (ft)	0.23
C4	16 Mar 2020	Low Tide Time	1110
C4	16 Mar 2020	Comments	Kelp
C4	24 Mar 2020	Depth (m)	10

Station	Date	Parameter	Value
C4	24 Mar 2020	Arrive Time	942
C4	24 Mar 2020	Depart Time	947
C4	24 Mar 2020	Air Temp (C)	15
C4	24 Mar 2020	Weather	Partly Cloudy
C4	24 Mar 2020	Visibility (mi)	18
C4	24 Mar 2020	Wind Speed (kts)	1
C4	24 Mar 2020	Wind Dir	SW
C4	24 Mar 2020	Water Color	Bluish-Green
C4	24 Mar 2020	Wave Ht Low (ft)	4
C4	24 Mar 2020	Wave Period (sec)	13
C4	24 Mar 2020	Sea State	Calm
C4	24 Mar 2020	High Tide (ft)	4.82
C4	24 Mar 2020	High Tide Time	952
C4	24 Mar 2020	Low Tide (ft)	0.52
C4	24 Mar 2020	Low Tide Time	355
C4	24 Mar 2020	Comments	Kelp debris
C5	05 Mar 2020	Depth (m)	11
C5	05 Mar 2020	Arrive Time	940
C5	05 Mar 2020	Depart Time	947
C5	05 Mar 2020	Air Temp (C)	13
C5	05 Mar 2020	Weather	Overcast
C5	05 Mar 2020	Visibility (mi)	9
C5	05 Mar 2020	Wind Speed (kts)	9
C5	05 Mar 2020	Wind Dir	W
C5	05 Mar 2020	Water Color	Bluish-Green
C5	05 Mar 2020	Wave Ht Low (ft)	3
C5	05 Mar 2020	Wave Period (sec)	11
C5	05 Mar 2020	Sea State	Calm
C5	05 Mar 2020	High Tide (ft)	5
C5	05 Mar 2020	High Tide Time	515
C5	05 Mar 2020	Low Tide (ft)	-0.55
C5	05 Mar 2020	Low Tide Time	1244
C5	05 Mar 2020	Comments	Kelp
C5	09 Mar 2020	Depth (m)	9
C5	09 Mar 2020	Arrive Time	851
C5	09 Mar 2020	Depart Time	853
C5	09 Mar 2020	Air Temp (C)	14
C5	09 Mar 2020	Weather	Partly Cloudy
C5	09 Mar 2020	Visibility (mi)	14
C5	09 Mar 2020	Wind Speed (kts)	13
C5	09 Mar 2020	Wind Dir	N
C5	09 Mar 2020	Water Color	Green
C5	09 Mar 2020	Wave Ht Low (ft)	3
C5	09 Mar 2020	Wave Period (sec)	13
C5	09 Mar 2020	Sea State	Light chop
C5	09 Mar 2020	High Tide (ft)	6.22
C5	09 Mar 2020	High Tide Time	926
C5	09 Mar 2020	Low Tide (ft)	-1.29
C5	09 Mar 2020	Low Tide Time	1608
C5	09 Mar 2020	Comments	Kelp
C5	16 Mar 2020	Depth (m)	9
C5	16 Mar 2020	Arrive Time	943

Station	Date	Parameter	Value
C5	16 Mar 2020	Depart Time	946
C5	16 Mar 2020	Air Temp (C)	15
C5	16 Mar 2020	Weather	Cloudy
C5	16 Mar 2020	Visibility (mi)	10
C5	16 Mar 2020	Wind Speed (kts)	5
C5	16 Mar 2020	Wind Dir	E
C5	16 Mar 2020	Water Color	Bluish-Green
C5	16 Mar 2020	Wave Ht Low (ft)	3
C5	16 Mar 2020	Wave Period (sec)	13
C5	16 Mar 2020	Sea State	Calm
C5	16 Mar 2020	High Tide (ft)	4.56
C5	16 Mar 2020	High Tide Time	306
C5	16 Mar 2020	Low Tide (ft)	0.23
C5	16 Mar 2020	Low Tide Time	1110
C5	16 Mar 2020	Comments	none
C5	24 Mar 2020	Depth (m)	13
C5	24 Mar 2020	Arrive Time	925
C5	24 Mar 2020	Depart Time	931
C5	24 Mar 2020	Air Temp (C)	14
C5	24 Mar 2020	Weather	Partly Cloudy
C5	24 Mar 2020	Visibility (mi)	18
C5	24 Mar 2020	Wind Speed (kts)	3
C5	24 Mar 2020	Wind Dir	SE
C5	24 Mar 2020	Water Color	Bluish-Green
C5	24 Mar 2020	Wave Ht Low (ft)	4
C5	24 Mar 2020	Wave Period (sec)	13
C5	24 Mar 2020	Sea State	Calm
C5	24 Mar 2020	High Tide (ft)	4.82
C5	24 Mar 2020	High Tide Time	952
C5	24 Mar 2020	Low Tide (ft)	0.52
C5	24 Mar 2020	Low Tide Time	355
C5	24 Mar 2020	Comments	Kelp debris
C6	05 Mar 2020	Depth (m)	9
C6	05 Mar 2020	Arrive Time	930
C6	05 Mar 2020	Depart Time	934
C6	05 Mar 2020	Air Temp (C)	13
C6	05 Mar 2020	Weather	Overcast
C6	05 Mar 2020	Visibility (mi)	9
C6	05 Mar 2020	Wind Speed (kts)	4
C6	05 Mar 2020	Wind Dir	W
C6	05 Mar 2020	Water Color	Bluish-Green
C6	05 Mar 2020	Wave Ht Low (ft)	3
C6	05 Mar 2020	Wave Period (sec)	11
C6	05 Mar 2020	Sea State	Calm
C6	05 Mar 2020	High Tide (ft)	5
C6	05 Mar 2020	High Tide Time	515
C6	05 Mar 2020	Low Tide (ft)	-0.55
C6	05 Mar 2020	Low Tide Time	1244
C6	05 Mar 2020	Comments	Kelp debris; Lobster floats
C6	09 Mar 2020	Depth (m)	10
C6	09 Mar 2020	Arrive Time	842
C6	09 Mar 2020	Depart Time	845

Station	Date	Parameter	Value
C6	09 Mar 2020	Air Temp (C)	14
C6	09 Mar 2020	Weather	Partly Cloudy
C6	09 Mar 2020	Visibility (mi)	14
C6	09 Mar 2020	Wind Speed (kts)	14
C6	09 Mar 2020	Wind Dir	NE
C6	09 Mar 2020	Water Color	Green
C6	09 Mar 2020	Wave Ht Low (ft)	3
C6	09 Mar 2020	Wave Period (sec)	13
C6	09 Mar 2020	Sea State	Light chop
C6	09 Mar 2020	High Tide (ft)	6.22
C6	09 Mar 2020	High Tide Time	926
C6	09 Mar 2020	Low Tide (ft)	-1.29
C6	09 Mar 2020	Low Tide Time	1608
C6	09 Mar 2020	Comments	none
C6	16 Mar 2020	Depth (m)	9
C6	16 Mar 2020	Arrive Time	926
C6	16 Mar 2020	Depart Time	932
C6	16 Mar 2020	Air Temp (C)	15
C6	16 Mar 2020	Weather	Cloudy
C6	16 Mar 2020	Visibility (mi)	10
C6	16 Mar 2020	Wind Speed (kts)	3
C6	16 Mar 2020	Wind Dir	SE
C6	16 Mar 2020	Water Color	Bluish-Green
C6	16 Mar 2020	Wave Ht Low (ft)	3
C6	16 Mar 2020	Wave Period (sec)	13
C6	16 Mar 2020	Sea State	Calm
C6	16 Mar 2020	High Tide (ft)	4.56
C6	16 Mar 2020	High Tide Time	306
C6	16 Mar 2020	Low Tide (ft)	0.23
C6	16 Mar 2020	Low Tide Time	1110
C6	16 Mar 2020	Comments	Kelp
C6	24 Mar 2020	Depth (m)	10
C6	24 Mar 2020	Arrive Time	909
C6	24 Mar 2020	Depart Time	914
C6	24 Mar 2020	Air Temp (C)	14
C6	24 Mar 2020	Weather	Partly Cloudy
C6	24 Mar 2020	Visibility (mi)	18
C6	24 Mar 2020	Wind Speed (kts)	0
C6	24 Mar 2020	Wind Dir	
C6	24 Mar 2020	Water Color	Bluish-Green
C6	24 Mar 2020	Wave Ht Low (ft)	4
C6	24 Mar 2020	Wave Period (sec)	13
C6	24 Mar 2020	Sea State	Calm
C6	24 Mar 2020	High Tide (ft)	4.82
C6	24 Mar 2020	High Tide Time	952
C6	24 Mar 2020	Low Tide (ft)	0.52
C6	24 Mar 2020	Low Tide Time	355
C6	24 Mar 2020	Comments	Kelp
C7	05 Mar 2020	Depth (m)	18
C7	05 Mar 2020	Arrive Time	854
C7	05 Mar 2020	Depart Time	859
C7	05 Mar 2020	Air Temp (C)	13

Station	Date	Parameter	Value
C7	05 Mar 2020	Weather	Overcast
C7	05 Mar 2020	Visibility (mi)	9
C7	05 Mar 2020	Wind Speed (kts)	2
C7	05 Mar 2020	Wind Dir	W
C7	05 Mar 2020	Water Color	Bluish-Green
C7	05 Mar 2020	Wave Ht Low (ft)	3
C7	05 Mar 2020	Wave Period (sec)	11
C7	05 Mar 2020	Sea State	Calm
C7	05 Mar 2020	High Tide (ft)	5
C7	05 Mar 2020	High Tide Time	515
C7	05 Mar 2020	Low Tide (ft)	-0.55
C7	05 Mar 2020	Low Tide Time	1244
C7	05 Mar 2020	Comments	none
C7	09 Mar 2020	Depth (m)	18
C7	09 Mar 2020	Arrive Time	816
C7	09 Mar 2020	Depart Time	819
C7	09 Mar 2020	Air Temp (C)	14
C7	09 Mar 2020	Weather	Partly Cloudy
C7	09 Mar 2020	Visibility (mi)	12
C7	09 Mar 2020	Wind Speed (kts)	0
C7	09 Mar 2020	Wind Dir	
C7	09 Mar 2020	Water Color	Greenish-Blue
C7	09 Mar 2020	Wave Ht Low (ft)	3
C7	09 Mar 2020	Wave Period (sec)	13
C7	09 Mar 2020	Sea State	Light chop
C7	09 Mar 2020	High Tide (ft)	6.22
C7	09 Mar 2020	High Tide Time	926
C7	09 Mar 2020	Low Tide (ft)	-1.29
C7	09 Mar 2020	Low Tide Time	1608
C7	09 Mar 2020	Comments	none
C7	16 Mar 2020	Depth (m)	18
C7	16 Mar 2020	Arrive Time	847
C7	16 Mar 2020	Depart Time	854
C7	16 Mar 2020	Air Temp (C)	14
C7	16 Mar 2020	Weather	Cloudy
C7	16 Mar 2020	Visibility (mi)	10
C7	16 Mar 2020	Wind Speed (kts)	8
C7	16 Mar 2020	Wind Dir	NE
C7	16 Mar 2020	Water Color	Green
C7	16 Mar 2020	Wave Ht Low (ft)	3
C7	16 Mar 2020	Wave Period (sec)	13
C7	16 Mar 2020	Sea State	Calm
C7	16 Mar 2020	High Tide (ft)	4.56
C7	16 Mar 2020	High Tide Time	306
C7	16 Mar 2020	Low Tide (ft)	0.23
C7	16 Mar 2020	Low Tide Time	1110
C7	16 Mar 2020	Comments	none
C7	24 Mar 2020	Depth (m)	20
C7	24 Mar 2020	Arrive Time	834
C7	24 Mar 2020	Depart Time	838
C7	24 Mar 2020	Air Temp (C)	14
C7	24 Mar 2020	Weather	Partly Cloudy

Station	Date	Parameter	Value
C7	24 Mar 2020	Visibility (mi)	15
C7	24 Mar 2020	Wind Speed (kts)	3
C7	24 Mar 2020	Wind Dir	NE
C7	24 Mar 2020	Water Color	Bluish-Green
C7	24 Mar 2020	Wave Ht Low (ft)	4
C7	24 Mar 2020	Wave Period (sec)	13
C7	24 Mar 2020	Sea State	Calm
C7	24 Mar 2020	High Tide (ft)	4.82
C7	24 Mar 2020	High Tide Time	952
C7	24 Mar 2020	Low Tide (ft)	0.52
C7	24 Mar 2020	Low Tide Time	355
C7	24 Mar 2020	Comments	Kelp debris
C8	05 Mar 2020	Depth (m)	19
C8	05 Mar 2020	Arrive Time	908
C8	05 Mar 2020	Depart Time	914
C8	05 Mar 2020	Air Temp (C)	13
C8	05 Mar 2020	Weather	Overcast
C8	05 Mar 2020	Visibility (mi)	9
C8	05 Mar 2020	Wind Speed (kts)	5
C8	05 Mar 2020	Wind Dir	W
C8	05 Mar 2020	Water Color	Bluish-Green
C8	05 Mar 2020	Wave Ht Low (ft)	3
C8	05 Mar 2020	Wave Period (sec)	11
C8	05 Mar 2020	Sea State	Calm
C8	05 Mar 2020	High Tide (ft)	5
C8	05 Mar 2020	High Tide Time	515
C8	05 Mar 2020	Low Tide (ft)	-0.55
C8	05 Mar 2020	Low Tide Time	1244
C8	05 Mar 2020	Comments	none
C8	09 Mar 2020	Depth (m)	18
C8	09 Mar 2020	Arrive Time	827
C8	09 Mar 2020	Depart Time	830
C8	09 Mar 2020	Air Temp (C)	13
C8	09 Mar 2020	Weather	Partly Cloudy
C8	09 Mar 2020	Visibility (mi)	14
C8	09 Mar 2020	Wind Speed (kts)	2
C8	09 Mar 2020	Wind Dir	N
C8	09 Mar 2020	Water Color	Greenish-Blue
C8	09 Mar 2020	Wave Ht Low (ft)	3
C8	09 Mar 2020	Wave Period (sec)	13
C8	09 Mar 2020	Sea State	Light chop
C8	09 Mar 2020	High Tide (ft)	6.22
C8	09 Mar 2020	High Tide Time	926
C8	09 Mar 2020	Low Tide (ft)	-1.29
C8	09 Mar 2020	Low Tide Time	1608
C8	09 Mar 2020	Comments	Kelp debris
C8	16 Mar 2020	Depth (m)	18
C8	16 Mar 2020	Arrive Time	903
C8	16 Mar 2020	Depart Time	909
C8	16 Mar 2020	Air Temp (C)	15
C8	16 Mar 2020	Weather	Cloudy
C8	16 Mar 2020	Visibility (mi)	10

Station	Date	Parameter	Value
C8	16 Mar 2020	Wind Speed (kts)	6
C8	16 Mar 2020	Wind Dir	NE
C8	16 Mar 2020	Water Color	Bluish-Green
C8	16 Mar 2020	Wave Ht Low (ft)	3
C8	16 Mar 2020	Wave Period (sec)	13
C8	16 Mar 2020	Sea State	Calm
C8	16 Mar 2020	High Tide (ft)	4.56
C8	16 Mar 2020	High Tide Time	306
C8	16 Mar 2020	Low Tide (ft)	0.23
C8	16 Mar 2020	Low Tide Time	1110
C8	16 Mar 2020	Comments	none
C8	24 Mar 2020	Depth (m)	19
C8	24 Mar 2020	Arrive Time	848
C8	24 Mar 2020	Depart Time	855
C8	24 Mar 2020	Air Temp (C)	14
C8	24 Mar 2020	Weather	Partly Cloudy
C8	24 Mar 2020	Visibility (mi)	15
C8	24 Mar 2020	Wind Speed (kts)	0
C8	24 Mar 2020	Wind Dir	
C8	24 Mar 2020	Water Color	Bluish-Green
C8	24 Mar 2020	Wave Ht Low (ft)	4
C8	24 Mar 2020	Wave Period (sec)	13
C8	24 Mar 2020	Sea State	Calm
C8	24 Mar 2020	High Tide (ft)	4.82
C8	24 Mar 2020	High Tide Time	952
C8	24 Mar 2020	Low Tide (ft)	0.52
C8	24 Mar 2020	Low Tide Time	355
C8	24 Mar 2020	Comments	none

Table 3.10

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

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
A1	05 Mar 2020	1	15.77	85.98	8.2	33.51	8.0	24.7	0.79
A1	05 Mar 2020	2	15.77	85.96	8.1	33.51	8.0	24.7	0.78
A1	05 Mar 2020	3	15.75	85.99	8.1	33.51	8.0	24.7	0.83
A1	05 Mar 2020	4	15.75	86.47	8.1	33.52	8.0	24.7	0.87
A1	05 Mar 2020	5	15.71	86.48	8.1	33.52	8.0	24.7	0.87
A1	05 Mar 2020	6	15.70	86.57	8.1	33.51	8.0	24.7	0.91
A1	05 Mar 2020	7	15.69	86.57	8.1	33.51	8.0	24.7	0.93
A1	05 Mar 2020	8	15.68	86.45	8.1	33.51	8.0	24.7	0.95
A1	05 Mar 2020	9	15.67	86.47	8.1	33.51	8.0	24.7	1.04
A1	05 Mar 2020	10	15.66	86.39	8.1	33.51	8.0	24.7	1.08
A1	05 Mar 2020	11	15.65	86.31	8.1	33.51	8.0	24.7	1.10
A1	05 Mar 2020	12	15.63	86.13	8.1	33.51	8.0	24.7	1.15
A1	05 Mar 2020	13	15.59	85.99	8.1	33.51	8.0	24.7	1.20
A1	05 Mar 2020	14	15.51	85.73	8.1	33.52	8.0	24.7	1.30
A1	05 Mar 2020	15	15.43	84.94	8.1	33.51	8.0	24.7	1.42
A1	05 Mar 2020	16	15.36	84.62	8.0	33.52	8.0	24.8	1.56
A1	05 Mar 2020	17	15.29	84.60	7.9	33.51	8.0	24.8	1.55
A1	05 Mar 2020	18	15.30	85.11	7.9	33.51	8.0	24.8	1.55
A1	05 Mar 2020	19	15.17	85.48	7.7	33.52	8.0	24.8	1.50
A1	05 Mar 2020	20	14.97	85.57	7.5	33.52	8.0	24.8	1.45
A1	09 Mar 2020	1	15.51	82.30	8.0	33.51	7.9	24.7	2.15
A1	09 Mar 2020	2	15.52	82.32	8.0	33.51	7.9	24.7	2.14
A1	09 Mar 2020	3	15.52	82.14	7.9	33.51	7.9	24.7	2.26
A1	09 Mar 2020	4	15.52	82.18	7.9	33.51	7.9	24.7	2.27
A1	09 Mar 2020	5	15.50	82.20	7.9	33.52	7.9	24.7	2.30
A1	09 Mar 2020	6	15.40	82.29	7.9	33.53	7.9	24.8	2.40
A1	09 Mar 2020	7	15.23	82.53	7.8	33.54	7.9	24.8	2.51
A1	09 Mar 2020	8	14.88	83.41	7.7	33.57	7.9	24.9	2.50
A1	09 Mar 2020	9	14.53	85.17	7.4	33.58	7.9	25.0	2.32
A1	09 Mar 2020	10	14.09	86.36	7.2	33.61	7.9	25.1	1.87
A1	09 Mar 2020	11	13.69	87.42	6.9	33.56	7.8	25.1	1.59
A1	09 Mar 2020	12	13.61	88.49	6.8	33.55	7.8	25.1	1.34
A1	09 Mar 2020	13	13.45	88.90	6.7	33.57	7.8	25.2	1.13
A1	09 Mar 2020	14	13.26	89.24	6.5	33.57	7.8	25.2	1.03
A1	09 Mar 2020	15	13.24	89.52	6.5	33.55	7.8	25.2	1.04
A1	09 Mar 2020	16	13.24	89.58	6.4	33.55	7.8	25.2	0.92
A1	09 Mar 2020	17	13.23	89.35	6.4	33.55	7.8	25.2	0.91
A1	09 Mar 2020	18	13.23	89.47	6.4	33.55	7.8	25.2	0.91
A1	09 Mar 2020	19	13.24	89.50	6.4	33.55	7.8	25.2	0.87
A1	16 Mar 2020	1	16.42	81.63	8.4	33.42	8.0	24.4	2.62
A1	16 Mar 2020	2	16.41	81.78	8.4	33.42	8.0	24.4	2.71
A1	16 Mar 2020	3	16.41	81.56	8.4	33.42	8.0	24.4	2.83
A1	16 Mar 2020	4	16.40	81.98	8.3	33.42	8.0	24.4	2.90
A1	16 Mar 2020	5	16.40	82.00	8.3	33.43	8.0	24.4	2.90
A1	16 Mar 2020	6	16.40	82.15	8.3	33.43	8.0	24.5	2.94
A1	16 Mar 2020	7	16.37	82.46	8.2	33.45	8.0	24.5	2.87
A1	16 Mar 2020	8	16.33	82.95	8.2	33.45	8.0	24.5	2.97
A1	16 Mar 2020	9	16.27	82.91	8.0	33.45	8.0	24.5	3.12

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
A1	16 Mar 2020	10	15.95	82.99	7.9	33.50	8.0	24.6	3.13
A1	16 Mar 2020	11	15.76	84.01	7.8	33.50	8.0	24.6	2.94
A1	16 Mar 2020	12	15.68	84.99	7.7	33.50	8.0	24.7	2.61
A1	16 Mar 2020	13	15.55	85.66	7.7	33.51	8.0	24.7	2.42
A1	16 Mar 2020	14	15.33	86.57	7.7	33.53	8.0	24.8	2.30
A1	16 Mar 2020	15	15.30	87.25	7.7	33.52	8.0	24.8	2.02
A1	16 Mar 2020	16	15.27	87.30	7.6	33.52	8.0	24.8	1.87
A1	16 Mar 2020	17	15.27	87.54	7.6	33.52	8.0	24.8	1.75
A1	16 Mar 2020	18	15.22	87.67	7.6	33.52	8.0	24.8	1.67
A1	16 Mar 2020	19	15.20	87.82	7.5	33.52	8.0	24.8	1.62
A1	24 Mar 2020	1	16.40	81.43	8.3	33.38	8.0	24.4	1.93
A1	24 Mar 2020	2	16.41	81.44	8.3	33.39	8.0	24.4	2.00
A1	24 Mar 2020	3	16.40	81.62	8.3	33.39	8.0	24.4	2.07
A1	24 Mar 2020	4	16.41	81.56	8.3	33.39	8.0	24.4	2.14
A1	24 Mar 2020	5	16.40	81.62	8.3	33.39	8.0	24.4	2.14
A1	24 Mar 2020	6	16.40	81.52	8.3	33.39	8.0	24.4	2.19
A1	24 Mar 2020	7	16.40	81.47	8.3	33.39	8.1	24.4	2.26
A1	24 Mar 2020	8	16.39	81.60	8.3	33.39	8.1	24.4	2.26
A1	24 Mar 2020	9	16.32	81.73	8.3	33.41	8.1	24.5	2.31
A1	24 Mar 2020	10	16.14	81.98	8.2	33.45	8.0	24.5	2.42
A1	24 Mar 2020	11	16.14	81.71	8.2	33.44	8.0	24.5	3.00
A1	24 Mar 2020	12	15.89	83.31	8.1	33.49	8.0	24.6	3.24
A1	24 Mar 2020	13	15.77	84.53	7.9	33.48	8.0	24.6	3.27
A1	24 Mar 2020	14	15.66	85.03	7.8	33.48	8.0	24.7	3.00
A1	24 Mar 2020	15	15.32	86.01	7.6	33.53	8.0	24.8	2.78
A1	24 Mar 2020	16	15.04	86.33	7.4	33.54	8.0	24.8	2.70
A1	24 Mar 2020	17	13.99	87.02	7.0	33.60	7.9	25.1	2.48
A1	24 Mar 2020	18	14.46	87.04	6.9	33.50	7.9	24.9	2.02
A1	24 Mar 2020	19	13.65	88.03	6.6	33.60	7.9	25.2	1.88
A1	24 Mar 2020	20	13.63	88.01	6.4	33.56	7.9	25.2	1.40
A6	05 Mar 2020	1	15.96	86.86	8.8	33.53	8.1	24.6	0.71
A6	05 Mar 2020	2	15.95	86.86	8.7	33.53	8.1	24.6	0.72
A6	05 Mar 2020	3	15.89	86.74	8.6	33.53	8.1	24.6	0.72
A6	05 Mar 2020	4	15.88	86.66	8.6	33.52	8.1	24.6	0.87
A6	05 Mar 2020	5	15.85	86.63	8.5	33.53	8.1	24.7	0.99
A6	05 Mar 2020	6	15.66	86.53	8.3	33.54	8.1	24.7	1.18
A6	05 Mar 2020	7	15.50	85.99	8.2	33.53	8.0	24.7	1.59
A6	05 Mar 2020	8	15.39	85.17	8.1	33.53	8.0	24.8	2.09
A6	05 Mar 2020	9	15.30	84.95	8.0	33.52	8.0	24.8	2.19
A6	05 Mar 2020	10	15.27	84.82	8.0	33.52	8.0	24.8	2.29
A6	05 Mar 2020	11	15.24	84.96	7.9	33.52	8.0	24.8	2.31
A6	05 Mar 2020	12	15.21	85.14	7.9	33.52	8.0	24.8	2.13
A6	05 Mar 2020	13	15.16	85.30	7.9	33.52	8.0	24.8	2.05
A6	05 Mar 2020	14	15.12	85.28	7.9	33.52	8.0	24.8	2.04
A6	05 Mar 2020	15	15.09	85.33	7.8	33.52	8.0	24.8	1.97
A6	05 Mar 2020	16	15.05	85.26	7.8	33.52	8.0	24.8	1.97
A6	05 Mar 2020	17	14.87	85.66	7.6	33.54	8.0	24.9	1.70
A6	05 Mar 2020	18	14.75	86.96	7.5	33.52	8.0	24.9	1.29
A6	05 Mar 2020	19	14.85	87.75	7.5	33.52	8.0	24.9	1.18
A6	09 Mar 2020	1	15.87	84.53	8.2	33.52	8.1	24.6	1.29
A6	09 Mar 2020	2	15.85	84.68	8.1	33.54	8.1	24.7	1.30
A6	09 Mar 2020	3	15.53	84.63	8.0	33.58	8.0	24.8	1.27

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
A6	09 Mar 2020	4	15.31	85.62	7.8	33.56	8.0	24.8	1.42
A6	09 Mar 2020	5	15.16	85.61	7.6	33.54	8.0	24.8	1.58
A6	09 Mar 2020	6	14.98	86.31	7.5	33.56	8.0	24.9	1.52
A6	09 Mar 2020	7	14.29	88.24	7.2	33.68	8.0	25.1	1.31
A6	09 Mar 2020	8	13.56	88.83	6.8	33.63	7.9	25.2	1.22
A6	09 Mar 2020	9	13.27	89.05	6.6	33.62	7.9	25.3	1.22
A6	09 Mar 2020	10	13.01	89.64	6.4	33.59	7.9	25.3	0.97
A6	09 Mar 2020	11	12.96	89.89	6.3	33.57	7.9	25.3	0.89
A6	09 Mar 2020	12	12.90	89.99	6.2	33.57	7.9	25.3	0.84
A6	09 Mar 2020	13	12.84	89.91	6.2	33.57	7.9	25.3	0.82
A6	09 Mar 2020	14	12.80	89.92	6.2	33.57	7.9	25.3	0.77
A6	09 Mar 2020	15	12.77	89.41	6.1	33.57	7.9	25.3	0.79
A6	09 Mar 2020	16	12.77	89.52	6.1	33.57	7.9	25.3	0.75
A6	09 Mar 2020	17	12.70	89.73	6.0	33.58	7.9	25.4	0.77
A6	09 Mar 2020	18	12.64	89.50	6.0	33.58	7.8	25.4	0.76
A6	09 Mar 2020	19	12.64	89.36	6.0	33.58	7.8	25.4	0.79
A6	16 Mar 2020	1	16.39	84.59	8.2	33.44	8.0	24.5	1.66
A6	16 Mar 2020	2	16.39	84.33	8.2	33.44	8.0	24.5	1.71
A6	16 Mar 2020	3	16.38	84.12	8.2	33.44	8.0	24.5	1.79
A6	16 Mar 2020	4	16.35	83.90	8.2	33.45	8.0	24.5	1.95
A6	16 Mar 2020	5	16.29	84.36	8.2	33.47	8.0	24.5	2.13
A6	16 Mar 2020	6	16.27	84.47	8.2	33.48	8.0	24.5	2.26
A6	16 Mar 2020	7	16.24	84.98	8.1	33.48	8.0	24.5	2.36
A6	16 Mar 2020	8	16.20	85.28	8.1	33.49	8.0	24.5	2.34
A6	16 Mar 2020	9	16.19	85.73	8.1	33.49	8.0	24.5	2.32
A6	16 Mar 2020	10	16.16	86.06	8.0	33.50	8.0	24.6	2.21
A6	16 Mar 2020	11	16.13	86.27	8.1	33.50	8.0	24.6	2.13
A6	16 Mar 2020	12	16.13	85.39	8.1	33.49	8.0	24.6	2.25
A6	16 Mar 2020	13	16.09	86.62	8.0	33.50	8.0	24.6	2.20
A6	16 Mar 2020	14	16.07	86.98	8.0	33.50	8.0	24.6	1.97
A6	16 Mar 2020	15	16.07	87.24	8.0	33.50	8.0	24.6	1.88
A6	16 Mar 2020	16	16.05	87.35	8.0	33.50	8.0	24.6	1.87
A6	16 Mar 2020	17	16.01	87.49	7.9	33.50	8.0	24.6	1.75
A6	16 Mar 2020	18	15.95	87.82	7.8	33.50	8.0	24.6	1.66
A6	16 Mar 2020	19	15.83	88.13	7.7	33.52	8.0	24.6	1.52
A6	24 Mar 2020	1	16.60	83.04	8.2	33.37	8.1	24.4	1.33
A6	24 Mar 2020	2	16.64	83.09	8.2	33.38	8.1	24.4	1.13
A6	24 Mar 2020	3	16.64	83.19	8.3	33.40	8.1	24.4	1.01
A6	24 Mar 2020	4	16.61	83.13	8.3	33.41	8.1	24.4	0.97
A6	24 Mar 2020	5	16.47	83.01	8.2	33.44	8.1	24.4	1.08
A6	24 Mar 2020	6	16.21	83.27	8.1	33.48	8.1	24.5	1.30
A6	24 Mar 2020	7	15.91	84.13	7.8	33.48	8.1	24.6	1.83
A6	24 Mar 2020	8	15.69	85.53	7.7	33.50	8.0	24.7	2.27
A6	24 Mar 2020	9	15.47	86.51	7.6	33.50	8.0	24.7	2.14
A6	24 Mar 2020	10	15.37	87.26	7.5	33.51	8.0	24.7	2.09
A6	24 Mar 2020	11	15.05	87.74	7.3	33.54	8.0	24.8	1.96
A6	24 Mar 2020	12	14.49	88.05	7.1	33.58	8.0	25.0	1.81
A6	24 Mar 2020	13	14.34	88.34	6.9	33.53	8.0	25.0	1.49
A6	24 Mar 2020	14	14.22	88.16	6.8	33.58	8.0	25.0	1.27
A6	24 Mar 2020	15	13.87	89.09	6.7	33.56	7.9	25.1	1.19
A6	24 Mar 2020	16	13.83	89.04	6.6	33.56	7.9	25.1	1.04
A6	24 Mar 2020	17	13.71	89.47	6.4	33.55	7.9	25.1	0.98
A6	24 Mar 2020	18	13.64	89.22	6.4	33.56	7.9	25.1	0.87

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
A6	24 Mar 2020	19	13.58	88.91	6.3	33.56	7.9	25.2	0.79
A7	05 Mar 2020	1	16.00	82.31	8.2	33.53	8.0	24.6	0.86
A7	05 Mar 2020	2	16.00	82.24	8.2	33.53	8.0	24.6	0.85
A7	05 Mar 2020	3	15.98	82.26	8.2	33.54	8.0	24.6	0.88
A7	05 Mar 2020	4	15.95	82.24	8.2	33.54	8.0	24.6	0.90
A7	05 Mar 2020	5	15.92	82.79	8.1	33.54	8.0	24.6	0.94
A7	05 Mar 2020	6	15.87	82.99	8.0	33.54	8.0	24.7	1.00
A7	05 Mar 2020	7	15.74	83.08	7.9	33.55	8.0	24.7	1.11
A7	05 Mar 2020	8	15.57	83.55	7.7	33.54	8.0	24.7	1.13
A7	05 Mar 2020	9	15.54	84.14	7.6	33.53	8.0	24.7	1.21
A7	05 Mar 2020	10	15.52	84.37	7.6	33.53	8.0	24.7	1.22
A7	05 Mar 2020	11	15.53	84.44	7.6	33.53	8.0	24.7	1.19
A7	05 Mar 2020	12	15.52	84.28	7.5	33.53	8.0	24.7	1.25
A7	05 Mar 2020	13	15.44	84.33	7.4	33.53	8.0	24.7	1.13
A7	05 Mar 2020	14	15.38	84.51	7.4	33.53	8.0	24.8	1.01
A7	05 Mar 2020	15	15.32	84.61	7.4	33.53	8.0	24.8	0.99
A7	05 Mar 2020	16	15.32	84.71	7.4	33.53	8.0	24.8	1.09
A7	05 Mar 2020	17	15.17	84.55	7.4	33.54	8.0	24.8	1.10
A7	05 Mar 2020	18	14.66	84.70	7.4	33.57	8.0	24.9	1.24
A7	05 Mar 2020	19	14.02	86.32	7.1	33.56	7.9	25.1	1.26
A7	09 Mar 2020	1	15.70	84.94	8.3	33.52	8.1	24.7	1.54
A7	09 Mar 2020	2	15.71	84.89	8.3	33.52	8.1	24.7	1.57
A7	09 Mar 2020	3	15.71	84.98	8.3	33.52	8.1	24.7	1.59
A7	09 Mar 2020	4	15.71	84.95	8.3	33.52	8.1	24.7	1.69
A7	09 Mar 2020	5	15.71	84.99	8.3	33.53	8.1	24.7	1.68
A7	09 Mar 2020	6	15.66	84.97	8.2	33.53	8.1	24.7	1.68
A7	09 Mar 2020	7	15.57	84.91	8.1	33.53	8.0	24.7	1.74
A7	09 Mar 2020	8	15.24	84.79	7.9	33.60	8.0	24.8	1.76
A7	09 Mar 2020	9	14.74	84.75	7.6	33.60	8.0	24.9	1.88
A7	09 Mar 2020	10	14.19	85.54	7.3	33.64	8.0	25.1	2.00
A7	09 Mar 2020	11	13.87	86.86	7.0	33.60	7.9	25.1	1.90
A7	09 Mar 2020	12	13.78	88.07	7.0	33.56	7.9	25.1	1.71
A7	09 Mar 2020	13	13.68	88.54	6.8	33.57	7.9	25.1	1.49
A7	09 Mar 2020	14	13.41	88.83	6.7	33.59	7.9	25.2	1.24
A7	09 Mar 2020	15	13.30	89.05	6.5	33.58	7.9	25.2	1.15
A7	09 Mar 2020	16	13.10	89.16	6.4	33.60	7.9	25.3	1.08
A7	09 Mar 2020	17	12.97	89.34	6.3	33.58	7.9	25.3	0.92
A7	09 Mar 2020	18	12.96	89.50	6.2	33.57	7.9	25.3	0.90
A7	09 Mar 2020	19	12.95	89.87	6.2	33.57	7.9	25.3	0.90
A7	09 Mar 2020	20	12.96	89.79	6.1	33.56	7.9	25.3	0.81
A7	16 Mar 2020	1	16.49	84.18	8.1	33.40	8.0	24.4	1.45
A7	16 Mar 2020	2	16.49	84.09	8.1	33.40	8.0	24.4	1.43
A7	16 Mar 2020	3	16.48	84.06	8.1	33.40	8.0	24.4	1.53
A7	16 Mar 2020	4	16.43	84.16	7.9	33.42	8.0	24.4	1.59
A7	16 Mar 2020	5	16.29	83.99	7.8	33.45	8.0	24.5	1.70
A7	16 Mar 2020	6	16.14	84.04	7.8	33.47	8.0	24.5	1.91
A7	16 Mar 2020	7	16.09	84.57	7.8	33.48	8.0	24.6	2.07
A7	16 Mar 2020	8	16.08	85.06	7.8	33.48	8.0	24.6	2.20
A7	16 Mar 2020	9	16.06	85.12	7.9	33.48	8.0	24.6	2.36
A7	16 Mar 2020	10	15.93	85.46	7.9	33.51	8.0	24.6	2.49
A7	16 Mar 2020	11	15.82	86.07	7.9	33.51	8.0	24.6	2.50
A7	16 Mar 2020	12	15.77	86.30	7.9	33.51	8.0	24.7	2.56

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
A7	16 Mar 2020	13	15.72	86.48	7.8	33.51	8.0	24.7	2.40
A7	16 Mar 2020	14	15.68	86.65	7.8	33.51	8.0	24.7	2.32
A7	16 Mar 2020	15	15.65	86.92	7.8	33.51	8.0	24.7	2.26
A7	16 Mar 2020	16	15.64	87.01	7.8	33.51	8.0	24.7	2.12
A7	16 Mar 2020	17	15.54	87.11	7.7	33.52	8.0	24.7	2.05
A7	16 Mar 2020	18	15.46	87.63	7.6	33.52	8.0	24.7	1.85
A7	16 Mar 2020	19	15.00	88.43	7.3	33.57	8.0	24.9	1.61
A7	16 Mar 2020	20	14.92	88.76	7.2	33.52	7.9	24.9	1.33
A7	24 Mar 2020	1	16.57	83.78	8.4	33.41	8.1	24.4	1.43
A7	24 Mar 2020	2	16.56	83.82	8.4	33.41	8.1	24.4	1.44
A7	24 Mar 2020	3	16.45	83.62	8.3	33.43	8.1	24.4	2.05
A7	24 Mar 2020	4	16.29	82.59	8.1	33.45	8.1	24.5	3.37
A7	24 Mar 2020	5	16.20	81.69	8.1	33.45	8.1	24.5	3.87
A7	24 Mar 2020	6	16.07	82.52	8.0	33.47	8.1	24.6	3.91
A7	24 Mar 2020	7	15.84	83.99	8.0	33.48	8.1	24.6	3.58
A7	24 Mar 2020	8	15.83	84.92	7.9	33.48	8.0	24.6	2.91
A7	24 Mar 2020	9	15.48	85.93	7.7	33.50	8.0	24.7	2.62
A7	24 Mar 2020	10	15.21	86.08	7.4	33.53	8.0	24.8	2.44
A7	24 Mar 2020	11	14.57	86.08	7.2	33.56	8.0	25.0	2.22
A7	24 Mar 2020	12	14.18	86.84	7.0	33.56	8.0	25.0	1.95
A7	24 Mar 2020	13	14.10	87.95	6.9	33.54	7.9	25.0	1.78
A7	24 Mar 2020	14	14.02	88.25	6.8	33.55	7.9	25.1	1.62
A7	24 Mar 2020	15	13.96	88.52	6.7	33.54	7.9	25.1	1.47
A7	24 Mar 2020	16	13.89	88.51	6.6	33.55	7.9	25.1	1.35
A7	24 Mar 2020	17	13.84	88.36	6.5	33.55	7.9	25.1	1.25
A7	24 Mar 2020	18	13.75	88.23	6.4	33.55	7.9	25.1	1.08
A7	24 Mar 2020	19	13.72	88.00	6.4	33.55	7.9	25.1	0.92
A7	24 Mar 2020	20	13.65	87.83	6.3	33.56	7.9	25.1	0.88
C4	05 Mar 2020	1	16.18	65.79	7.4	33.53	8.0	24.6	0.39
C4	05 Mar 2020	2	16.17	64.90	7.4	33.54	8.0	24.6	0.41
C4	05 Mar 2020	3	16.15	64.54	7.5	33.54	8.0	24.6	0.43
C4	05 Mar 2020	4	16.06	65.63	7.6	33.55	8.0	24.6	0.50
C4	05 Mar 2020	5	15.85	72.28	8.0	33.54	8.0	24.7	0.61
C4	05 Mar 2020	6	15.81	82.10	8.1	33.52	8.1	24.7	0.92
C4	05 Mar 2020	7	15.79	83.45	8.0	33.52	8.1	24.7	1.26
C4	05 Mar 2020	8	15.74	84.74	7.9	33.52	8.0	24.7	1.34
C4	05 Mar 2020	9	15.65	84.40	7.7	33.53	8.0	24.7	1.04
C4	05 Mar 2020	10	15.51	83.73	7.5	33.52	8.0	24.7	0.76
C4	05 Mar 2020	11	15.51	84.14	7.5	33.52	8.0	24.7	0.56
C4	09 Mar 2020	1	15.57	82.15	8.2	33.52	8.1	24.7	1.36
C4	09 Mar 2020	2	15.57	82.14	8.2	33.52	8.1	24.7	1.36
C4	09 Mar 2020	3	15.57	82.07	8.2	33.52	8.1	24.7	1.41
C4	09 Mar 2020	4	15.55	82.14	8.1	33.52	8.1	24.7	1.55
C4	09 Mar 2020	5	15.52	82.28	8.1	33.52	8.1	24.7	1.69
C4	09 Mar 2020	6	15.45	82.57	8.1	33.53	8.1	24.7	1.93
C4	09 Mar 2020	7	15.37	82.56	8.0	33.53	8.1	24.8	2.13
C4	09 Mar 2020	8	15.24	82.61	7.8	33.55	8.0	24.8	2.30
C4	09 Mar 2020	9	15.01	82.99	7.3	33.55	8.0	24.9	2.45
C4	09 Mar 2020	10	14.82	83.57	6.8	33.55	8.0	24.9	2.06
C4	09 Mar 2020	11	14.79	83.21	6.6	33.53	7.9	24.9	1.51
C4	16 Mar 2020	1	16.54	77.64	8.3	33.34	8.1	24.3	2.72

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
C4	16 Mar 2020	2	16.54	77.73	8.3	33.34	8.1	24.3	2.76
C4	16 Mar 2020	3	16.54	77.80	8.3	33.34	8.1	24.3	2.92
C4	16 Mar 2020	4	16.54	77.90	8.2	33.34	8.1	24.4	3.01
C4	16 Mar 2020	5	16.51	78.29	8.0	33.36	8.1	24.4	3.10
C4	16 Mar 2020	6	16.48	79.82	7.8	33.38	8.0	24.4	3.02
C4	16 Mar 2020	7	16.42	81.46	7.6	33.40	8.0	24.4	2.60
C4	16 Mar 2020	8	16.32	82.99	7.3	33.44	8.0	24.5	2.16
C4	16 Mar 2020	9	16.28	84.25	7.0	33.45	8.0	24.5	1.69
C4	16 Mar 2020	10	16.27	84.68	6.8	33.45	8.0	24.5	1.15
C4	16 Mar 2020	11	16.29	84.49	6.9	33.45	8.0	24.5	0.75
C4	24 Mar 2020	1	16.64	81.26	8.0	33.42	8.1	24.4	1.08
C4	24 Mar 2020	2	16.64	80.61	8.0	33.42	8.1	24.4	1.12
C4	24 Mar 2020	3	16.69	80.95	8.1	33.42	8.1	24.4	1.13
C4	24 Mar 2020	4	16.66	81.72	8.1	33.42	8.1	24.4	1.07
C4	24 Mar 2020	5	16.62	81.72	8.0	33.42	8.1	24.4	1.09
C4	24 Mar 2020	6	16.50	81.69	7.7	33.44	8.1	24.4	1.17
C4	24 Mar 2020	7	16.24	82.27	7.1	33.46	8.1	24.5	1.16
C4	24 Mar 2020	8	15.94	82.63	6.6	33.47	8.0	24.6	0.91
C4	24 Mar 2020	9	15.79	81.67	6.3	33.46	8.0	24.6	0.64
C4	24 Mar 2020	10	15.72	80.70	6.2	33.46	8.0	24.6	0.55
C5	05 Mar 2020	1	16.17	79.77	7.9	33.55	8.0	24.6	0.38
C5	05 Mar 2020	2	16.16	79.44	7.9	33.54	8.0	24.6	0.39
C5	05 Mar 2020	3	16.13	79.31	7.9	33.55	8.0	24.6	0.40
C5	05 Mar 2020	4	16.07	78.79	7.8	33.55	8.0	24.6	0.44
C5	05 Mar 2020	5	15.95	77.74	7.7	33.56	8.0	24.7	0.47
C5	05 Mar 2020	6	15.82	78.15	7.5	33.56	8.0	24.7	0.51
C5	05 Mar 2020	7	15.69	80.00	7.2	33.56	8.0	24.7	0.55
C5	05 Mar 2020	8	15.55	80.27	7.0	33.57	8.0	24.7	0.57
C5	05 Mar 2020	9	15.51	73.97	6.8	33.55	8.0	24.7	0.57
C5	09 Mar 2020	1	16.04	77.07	7.9	33.54	8.1	24.6	0.66
C5	09 Mar 2020	2	16.02	77.32	7.9	33.54	8.1	24.6	0.68
C5	09 Mar 2020	3	16.02	77.28	7.9	33.54	8.1	24.6	0.75
C5	09 Mar 2020	4	15.96	77.72	7.9	33.55	8.1	24.6	0.77
C5	09 Mar 2020	5	15.81	79.32	7.8	33.55	8.1	24.7	0.81
C5	09 Mar 2020	6	15.43	82.40	7.5	33.57	8.0	24.8	0.84
C5	09 Mar 2020	7	15.24	83.46	7.3	33.55	8.0	24.8	0.75
C5	09 Mar 2020	8	15.06	82.71	7.3	33.55	8.0	24.8	0.58
C5	09 Mar 2020	9	14.97	84.03	7.3	33.54	8.0	24.9	0.57
C5	09 Mar 2020	10	14.85	83.68	7.2	33.54	8.0	24.9	0.61
C5	16 Mar 2020	1	16.70	82.31	8.3	33.37	8.1	24.3	1.13
C5	16 Mar 2020	2	16.70	82.49	8.3	33.37	8.1	24.3	1.11
C5	16 Mar 2020	3	16.63	82.29	8.2	33.38	8.1	24.4	1.20
C5	16 Mar 2020	4	16.56	82.35	8.1	33.39	8.1	24.4	1.34
C5	16 Mar 2020	5	16.49	82.06	7.9	33.41	8.0	24.4	1.69
C5	16 Mar 2020	6	16.44	82.35	7.8	33.42	8.0	24.4	1.82
C5	16 Mar 2020	7	16.31	83.38	7.7	33.44	8.0	24.5	1.72
C5	16 Mar 2020	8	16.21	84.81	7.4	33.45	8.0	24.5	1.47
C5	16 Mar 2020	9	16.12	85.65	7.1	33.45	8.0	24.5	1.17
C5	16 Mar 2020	10	16.08	82.94	7.0	33.45	8.0	24.5	0.82
C5	16 Mar 2020	11	16.19	78.88	7.1	33.42	8.0	24.5	0.66

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
C5	24 Mar 2020	1	16.86	79.60	8.1	33.41	8.1	24.3	0.74
	24 Mar 2020	2	16.83	78.57	8.2	33.42	8.1	24.3	0.78
	24 Mar 2020	3	16.75	79.85	8.3	33.43	8.1	24.4	0.85
	24 Mar 2020	4	16.71	81.22	8.3	33.42	8.1	24.4	0.94
	24 Mar 2020	5	16.59	81.77	8.2	33.44	8.1	24.4	1.02
	24 Mar 2020	6	16.42	82.84	8.0	33.44	8.1	24.5	1.25
	24 Mar 2020	7	16.35	83.37	7.8	33.43	8.1	24.5	1.33
	24 Mar 2020	8	16.24	84.83	7.6	33.44	8.1	24.5	1.05
	24 Mar 2020	9	16.14	85.61	7.5	33.45	8.1	24.5	0.78
	24 Mar 2020	10	15.97	85.56	7.3	33.46	8.0	24.6	0.67
	24 Mar 2020	11	15.77	84.66	7.3	33.47	8.0	24.6	0.73
C6	05 Mar 2020	1	16.09	83.21	8.1	33.54	8.1	24.6	0.31
	05 Mar 2020	2	16.08	83.38	8.1	33.54	8.1	24.6	0.31
	05 Mar 2020	3	16.07	83.30	8.1	33.54	8.1	24.6	0.32
	05 Mar 2020	4	16.07	83.32	8.1	33.54	8.1	24.6	0.34
	05 Mar 2020	5	16.05	83.37	8.1	33.54	8.1	24.6	0.37
	05 Mar 2020	6	16.02	83.46	8.1	33.54	8.1	24.6	0.40
	05 Mar 2020	7	15.98	83.69	8.1	33.55	8.1	24.6	0.44
	05 Mar 2020	8	15.73	84.87	7.9	33.56	8.0	24.7	0.45
	05 Mar 2020	9	15.67	86.78	7.9	33.52	8.0	24.7	0.41
	09 Mar 2020	1	16.24	80.15	8.0	33.53	8.1	24.6	0.60
	09 Mar 2020	2	16.14	80.31	8.0	33.55	8.1	24.6	0.63
C6	09 Mar 2020	3	16.01	80.69	8.0	33.55	8.1	24.6	0.80
	09 Mar 2020	4	15.72	81.84	8.1	33.54	8.1	24.7	1.12
	09 Mar 2020	5	15.72	83.19	8.2	33.53	8.1	24.7	1.55
	09 Mar 2020	6	15.68	83.66	8.1	33.53	8.1	24.7	1.85
	09 Mar 2020	7	15.58	83.99	8.0	33.54	8.1	24.7	1.98
	09 Mar 2020	8	15.27	84.59	7.6	33.58	8.0	24.8	1.85
	09 Mar 2020	9	15.07	86.35	7.2	33.55	8.0	24.8	1.62
	16 Mar 2020	1	16.50	86.64	7.8	33.42	8.0	24.4	0.57
	16 Mar 2020	2	16.49	86.63	7.8	33.42	8.0	24.4	0.59
	16 Mar 2020	3	16.48	86.61	7.8	33.42	8.0	24.4	0.58
C6	16 Mar 2020	4	16.46	86.65	7.8	33.43	8.0	24.4	0.62
	16 Mar 2020	5	16.41	86.63	7.7	33.44	8.0	24.5	0.66
	16 Mar 2020	6	16.21	86.42	7.5	33.47	8.0	24.5	0.72
	16 Mar 2020	7	16.09	86.46	7.4	33.47	8.0	24.6	0.83
	16 Mar 2020	8	16.04	87.32	7.4	33.47	8.0	24.6	0.91
	16 Mar 2020	9	16.03	88.18	7.4	33.47	8.0	24.6	0.82
	24 Mar 2020	1	16.85	81.16	7.9	33.42	8.1	24.3	0.47
	24 Mar 2020	2	16.82	80.89	7.9	33.42	8.1	24.3	0.48
	24 Mar 2020	3	16.75	81.19	7.9	33.43	8.1	24.4	0.49
	24 Mar 2020	4	16.58	81.23	7.8	33.43	8.1	24.4	0.53
C6	24 Mar 2020	5	16.44	81.33	7.8	33.44	8.1	24.4	0.68
	24 Mar 2020	6	16.23	82.19	7.9	33.45	8.1	24.5	0.95
	24 Mar 2020	7	16.14	84.60	7.8	33.44	8.1	24.5	1.22
	24 Mar 2020	8	16.11	85.68	7.6	33.44	8.1	24.5	1.38
	24 Mar 2020	9	16.07	86.84	7.5	33.44	8.1	24.5	1.28
	24 Mar 2020	10	16.04	87.18	7.3	33.44	8.0	24.5	1.06
C7	05 Mar 2020	1	15.97	88.29	8.0	33.52	8.0	24.6	0.38
	05 Mar 2020	2	15.96	87.86	8.0	33.52	8.0	24.6	0.38

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C7	05 Mar 2020	3	15.94	88.22	8.0	33.52	8.0	24.6	0.38
C7	05 Mar 2020	4	15.92	88.26	8.0	33.52	8.0	24.6	0.39
C7	05 Mar 2020	5	15.87	88.22	8.0	33.52	8.0	24.6	0.44
C7	05 Mar 2020	6	15.73	88.29	8.1	33.53	8.0	24.7	0.48
C7	05 Mar 2020	7	15.67	88.17	8.1	33.52	8.0	24.7	0.53
C7	05 Mar 2020	8	15.66	87.97	8.1	33.51	8.0	24.7	0.59
C7	05 Mar 2020	9	15.65	87.96	8.1	33.51	8.0	24.7	0.59
C7	05 Mar 2020	10	15.63	87.99	8.1	33.52	8.0	24.7	0.65
C7	05 Mar 2020	11	15.60	87.84	8.1	33.52	8.0	24.7	0.75
C7	05 Mar 2020	12	15.56	87.48	8.0	33.52	8.0	24.7	0.94
C7	05 Mar 2020	13	15.50	87.48	8.0	33.52	8.0	24.7	1.14
C7	05 Mar 2020	14	15.37	87.48	7.9	33.53	8.0	24.8	1.20
C7	05 Mar 2020	15	15.33	87.33	7.9	33.52	8.0	24.8	1.23
C7	05 Mar 2020	16	15.25	87.21	7.8	33.53	8.0	24.8	1.33
C7	05 Mar 2020	17	15.14	87.17	7.6	33.54	8.0	24.8	1.33
C7	05 Mar 2020	18	14.87	87.09	7.5	33.55	8.0	24.9	1.27
C7	09 Mar 2020	1	16.03	86.07	8.4	33.52	8.1	24.6	1.67
C7	09 Mar 2020	2	16.11	85.88	8.4	33.54	8.1	24.6	1.60
C7	09 Mar 2020	3	15.75	86.03	8.2	33.57	8.1	24.7	1.59
C7	09 Mar 2020	4	15.49	85.47	8.1	33.55	8.1	24.8	1.85
C7	09 Mar 2020	5	15.35	84.69	8.0	33.55	8.0	24.8	2.48
C7	09 Mar 2020	6	15.05	84.71	7.8	33.56	8.0	24.9	2.66
C7	09 Mar 2020	7	14.78	84.69	7.6	33.58	8.0	24.9	2.81
C7	09 Mar 2020	8	14.12	85.61	7.1	33.60	8.0	25.1	2.62
C7	09 Mar 2020	9	13.86	88.14	6.8	33.58	7.9	25.1	2.06
C7	09 Mar 2020	10	13.61	88.72	6.7	33.57	7.9	25.2	1.13
C7	09 Mar 2020	11	13.51	89.33	6.6	33.56	7.9	25.2	0.94
C7	09 Mar 2020	12	13.36	89.51	6.5	33.58	7.9	25.2	0.82
C7	09 Mar 2020	13	13.08	89.61	6.4	33.58	7.9	25.3	0.83
C7	09 Mar 2020	14	12.89	89.91	6.3	33.58	7.9	25.3	0.80
C7	09 Mar 2020	15	12.86	90.03	6.2	33.56	7.9	25.3	0.75
C7	09 Mar 2020	16	12.82	90.02	6.2	33.56	7.9	25.3	0.78
C7	09 Mar 2020	17	12.81	90.11	6.2	33.56	7.9	25.3	0.73
C7	09 Mar 2020	18	12.82	90.11	6.2	33.56	7.9	25.3	0.77
C7	16 Mar 2020	1	16.39	84.83	8.3	33.46	8.1	24.5	1.60
C7	16 Mar 2020	2	16.39	84.89	8.3	33.46	8.1	24.5	1.56
C7	16 Mar 2020	3	16.39	84.65	8.3	33.46	8.1	24.5	1.68
C7	16 Mar 2020	4	16.39	84.94	8.3	33.47	8.1	24.5	1.80
C7	16 Mar 2020	5	16.38	84.95	8.3	33.47	8.1	24.5	1.93
C7	16 Mar 2020	6	16.33	85.22	8.2	33.50	8.1	24.5	2.01
C7	16 Mar 2020	7	16.30	86.06	8.2	33.50	8.1	24.5	2.05
C7	16 Mar 2020	8	16.27	86.49	8.2	33.50	8.1	24.5	1.90
C7	16 Mar 2020	9	16.26	86.66	8.2	33.50	8.1	24.5	2.00
C7	16 Mar 2020	10	16.22	86.58	8.2	33.50	8.1	24.5	2.09
C7	16 Mar 2020	11	16.19	86.50	8.2	33.49	8.1	24.5	2.01
C7	16 Mar 2020	12	16.16	86.43	8.2	33.49	8.1	24.6	2.03
C7	16 Mar 2020	13	16.10	86.65	8.1	33.50	8.0	24.6	2.05
C7	16 Mar 2020	14	15.96	86.74	8.0	33.51	8.0	24.6	2.03
C7	16 Mar 2020	15	15.85	86.97	7.9	33.51	8.0	24.6	2.06
C7	16 Mar 2020	16	15.72	86.88	7.7	33.51	8.0	24.7	2.12
C7	16 Mar 2020	17	15.60	87.82	7.6	33.51	8.0	24.7	1.73
C7	16 Mar 2020	18	15.60	88.82	7.6	33.51	8.0	24.7	1.47

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C7	24 Mar 2020	1	16.47	86.79	8.2	33.44	8.1	24.4	0.73
C7	24 Mar 2020	2	16.49	86.94	8.2	33.43	8.1	24.4	0.75
C7	24 Mar 2020	3	16.39	86.80	8.2	33.46	8.1	24.5	0.74
C7	24 Mar 2020	4	16.36	86.86	8.2	33.46	8.1	24.5	0.74
C7	24 Mar 2020	5	16.33	87.70	8.2	33.46	8.1	24.5	0.82
C7	24 Mar 2020	6	16.26	87.69	8.1	33.47	8.1	24.5	0.95
C7	24 Mar 2020	7	16.22	87.37	8.2	33.46	8.1	24.5	1.13
C7	24 Mar 2020	8	16.14	87.20	8.1	33.47	8.1	24.5	1.34
C7	24 Mar 2020	9	16.06	87.08	8.1	33.47	8.1	24.6	1.45
C7	24 Mar 2020	10	15.90	87.04	8.0	33.49	8.1	24.6	1.50
C7	24 Mar 2020	11	15.67	87.20	7.9	33.50	8.1	24.7	1.55
C7	24 Mar 2020	12	15.49	87.11	7.8	33.51	8.1	24.7	1.75
C7	24 Mar 2020	13	15.23	86.91	7.6	33.51	8.0	24.8	1.98
C7	24 Mar 2020	14	14.88	86.91	7.3	33.56	8.0	24.9	1.99
C7	24 Mar 2020	15	14.06	87.66	7.0	33.58	8.0	25.1	1.95
C7	24 Mar 2020	16	14.60	88.09	7.0	33.48	7.9	24.9	1.68
C7	24 Mar 2020	17	13.88	89.32	6.7	33.60	7.9	25.1	1.73
C7	24 Mar 2020	18	13.85	89.60	6.5	33.55	7.9	25.1	1.33
C7	24 Mar 2020	19	13.85	89.55	6.5	33.55	7.9	25.1	1.05
C8	05 Mar 2020	1	16.03	83.90	8.1	33.52	8.1	24.6	0.78
C8	05 Mar 2020	2	16.03	83.91	8.1	33.52	8.1	24.6	0.76
C8	05 Mar 2020	3	16.00	83.93	8.1	33.53	8.1	24.6	0.78
C8	05 Mar 2020	4	15.89	84.08	8.1	33.54	8.1	24.7	0.86
C8	05 Mar 2020	5	15.79	84.77	8.1	33.53	8.1	24.7	0.93
C8	05 Mar 2020	6	15.70	85.98	8.1	33.53	8.1	24.7	1.09
C8	05 Mar 2020	7	15.63	86.85	8.1	33.53	8.1	24.7	1.21
C8	05 Mar 2020	8	15.57	87.24	8.1	33.52	8.1	24.7	1.19
C8	05 Mar 2020	9	15.57	87.26	8.2	33.52	8.1	24.7	1.25
C8	05 Mar 2020	10	15.57	87.09	8.1	33.52	8.1	24.7	1.28
C8	05 Mar 2020	11	15.57	87.12	8.1	33.52	8.1	24.7	1.35
C8	05 Mar 2020	12	15.57	87.11	8.1	33.52	8.1	24.7	1.49
C8	05 Mar 2020	13	15.55	86.88	8.1	33.52	8.1	24.7	1.60
C8	05 Mar 2020	14	15.50	86.70	8.1	33.53	8.0	24.7	1.60
C8	05 Mar 2020	15	15.38	86.49	8.0	33.54	8.0	24.8	1.71
C8	05 Mar 2020	16	15.31	86.01	8.0	33.53	8.0	24.8	1.75
C8	05 Mar 2020	17	15.26	85.88	7.9	33.53	8.0	24.8	1.60
C8	05 Mar 2020	18	15.20	86.05	7.8	33.53	8.0	24.8	1.52
C8	05 Mar 2020	19	15.12	86.44	7.6	33.54	8.0	24.8	1.30
C8	09 Mar 2020	1	15.93	87.21	8.4	33.54	8.1	24.6	1.05
C8	09 Mar 2020	2	15.93	87.08	8.4	33.54	8.1	24.6	1.07
C8	09 Mar 2020	3	15.93	86.97	8.3	33.54	8.1	24.6	1.06
C8	09 Mar 2020	4	15.62	87.11	8.2	33.59	8.1	24.7	1.09
C8	09 Mar 2020	5	15.16	86.45	8.0	33.57	8.0	24.8	1.33
C8	09 Mar 2020	6	14.79	85.75	7.8	33.58	8.0	24.9	1.84
C8	09 Mar 2020	7	14.31	85.09	7.4	33.60	8.0	25.0	2.37
C8	09 Mar 2020	8	14.04	87.06	7.1	33.56	8.0	25.1	2.47
C8	09 Mar 2020	9	13.99	88.01	6.9	33.56	8.0	25.1	1.74
C8	09 Mar 2020	10	13.84	88.51	6.8	33.56	7.9	25.1	1.27
C8	09 Mar 2020	11	13.61	88.89	6.7	33.58	7.9	25.2	0.94
C8	09 Mar 2020	12	13.42	89.33	6.6	33.56	7.9	25.2	0.86
C8	09 Mar 2020	13	13.39	89.53	6.5	33.55	7.9	25.2	0.76
C8	09 Mar 2020	14	13.38	89.70	6.5	33.55	7.9	25.2	0.78
C8	09 Mar 2020	15	13.35	89.82	6.4	33.55	7.9	25.2	0.72

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C8	09 Mar 2020	16	13.31	89.93	6.4	33.55	7.9	25.2	0.70
C8	09 Mar 2020	17	13.31	90.04	6.4	33.55	7.9	25.2	0.74
C8	09 Mar 2020	18	13.33	90.04	6.4	33.54	7.9	25.2	0.76
C8	09 Mar 2020	19	13.35	89.99	6.4	33.54	7.9	25.2	0.78
C8	09 Mar 2020	20	13.34	89.83	6.4	33.55	7.9	25.2	0.75
C8	16 Mar 2020	1	16.47	83.49	8.4	33.39	8.1	24.4	1.60
C8	16 Mar 2020	2	16.48	83.64	8.3	33.40	8.1	24.4	1.59
C8	16 Mar 2020	3	16.43	83.58	8.3	33.47	8.1	24.5	1.68
C8	16 Mar 2020	4	16.31	84.03	8.2	33.49	8.1	24.5	1.83
C8	16 Mar 2020	5	16.21	84.67	8.2	33.49	8.1	24.5	2.05
C8	16 Mar 2020	6	16.20	85.09	8.2	33.48	8.1	24.5	2.18
C8	16 Mar 2020	7	16.19	85.08	8.2	33.48	8.1	24.5	2.33
C8	16 Mar 2020	8	16.18	85.26	8.2	33.48	8.1	24.5	2.40
C8	16 Mar 2020	9	16.17	85.30	8.2	33.48	8.1	24.5	2.43
C8	16 Mar 2020	10	16.14	85.58	8.1	33.49	8.1	24.6	2.37
C8	16 Mar 2020	11	16.04	85.82	8.0	33.49	8.0	24.6	2.35
C8	16 Mar 2020	12	15.97	86.37	7.9	33.49	8.0	24.6	2.12
C8	16 Mar 2020	13	15.91	86.73	7.9	33.49	8.0	24.6	2.01
C8	16 Mar 2020	14	15.83	86.65	7.8	33.50	8.0	24.6	1.94
C8	16 Mar 2020	15	15.77	86.68	7.8	33.51	8.0	24.7	2.06
C8	16 Mar 2020	16	15.62	86.80	7.6	33.52	8.0	24.7	2.07
C8	16 Mar 2020	17	15.43	87.71	7.5	33.52	8.0	24.7	1.94
C8	16 Mar 2020	18	15.42	88.82	7.4	33.51	8.0	24.7	1.36
C8	16 Mar 2020	19	15.42	88.97	7.4	33.51	8.0	24.7	1.06
C8	24 Mar 2020	1	16.46	84.75	8.2	33.38	8.1	24.4	1.12
C8	24 Mar 2020	2	16.38	85.57	8.3	33.42	8.1	24.4	1.12
C8	24 Mar 2020	3	16.27	86.45	8.4	33.45	8.1	24.5	1.18
C8	24 Mar 2020	4	16.22	86.73	8.3	33.45	8.1	24.5	1.22
C8	24 Mar 2020	5	16.21	86.74	8.3	33.45	8.1	24.5	1.31
C8	24 Mar 2020	6	16.20	86.85	8.3	33.45	8.1	24.5	1.49
C8	24 Mar 2020	7	16.16	86.78	8.3	33.46	8.1	24.5	1.56
C8	24 Mar 2020	8	16.03	86.62	8.2	33.48	8.1	24.6	1.69
C8	24 Mar 2020	9	15.91	86.61	8.0	33.48	8.1	24.6	1.75
C8	24 Mar 2020	10	15.61	86.46	7.9	33.52	8.1	24.7	1.79
C8	24 Mar 2020	11	15.31	86.51	7.7	33.52	8.0	24.8	1.94
C8	24 Mar 2020	12	15.13	86.94	7.6	33.52	8.0	24.8	2.11
C8	24 Mar 2020	13	15.03	86.97	7.5	33.52	8.0	24.8	2.07
C8	24 Mar 2020	14	14.85	86.98	7.4	33.52	8.0	24.9	2.05
C8	24 Mar 2020	15	14.70	87.27	7.2	33.53	8.0	24.9	1.94
C8	24 Mar 2020	16	14.60	87.89	7.1	33.52	8.0	24.9	1.77
C8	24 Mar 2020	17	14.58	88.42	7.1	33.52	8.0	24.9	1.45
C8	24 Mar 2020	18	14.59	88.50	7.1	33.52	8.0	24.9	1.37
C8	24 Mar 2020	19	14.59	88.50	7.0	33.52	8.0	24.9	1.34
C8	24 Mar 2020	20	14.60	88.62	7.0	33.52	8.0	24.9	1.32

NA = not available

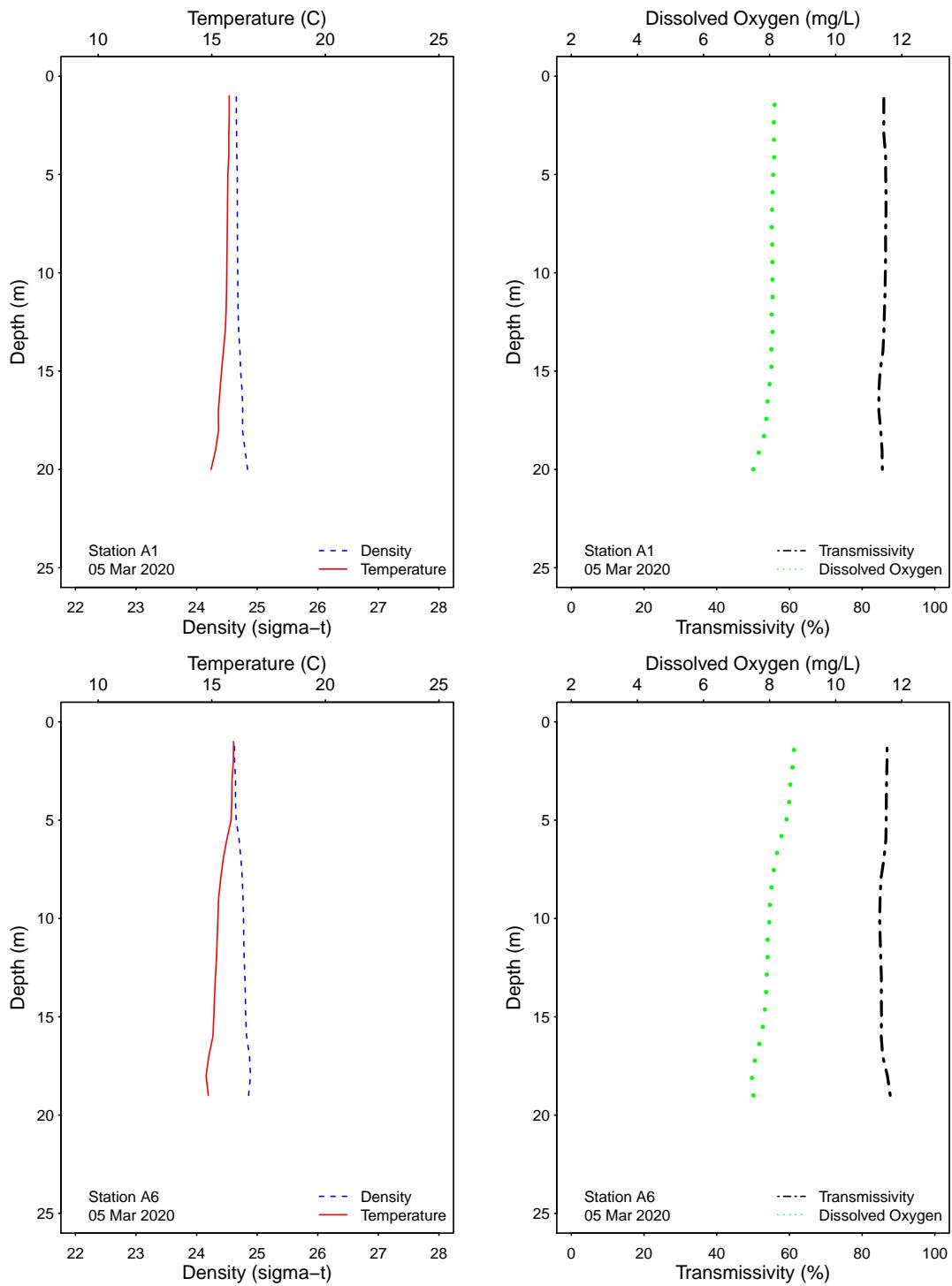


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

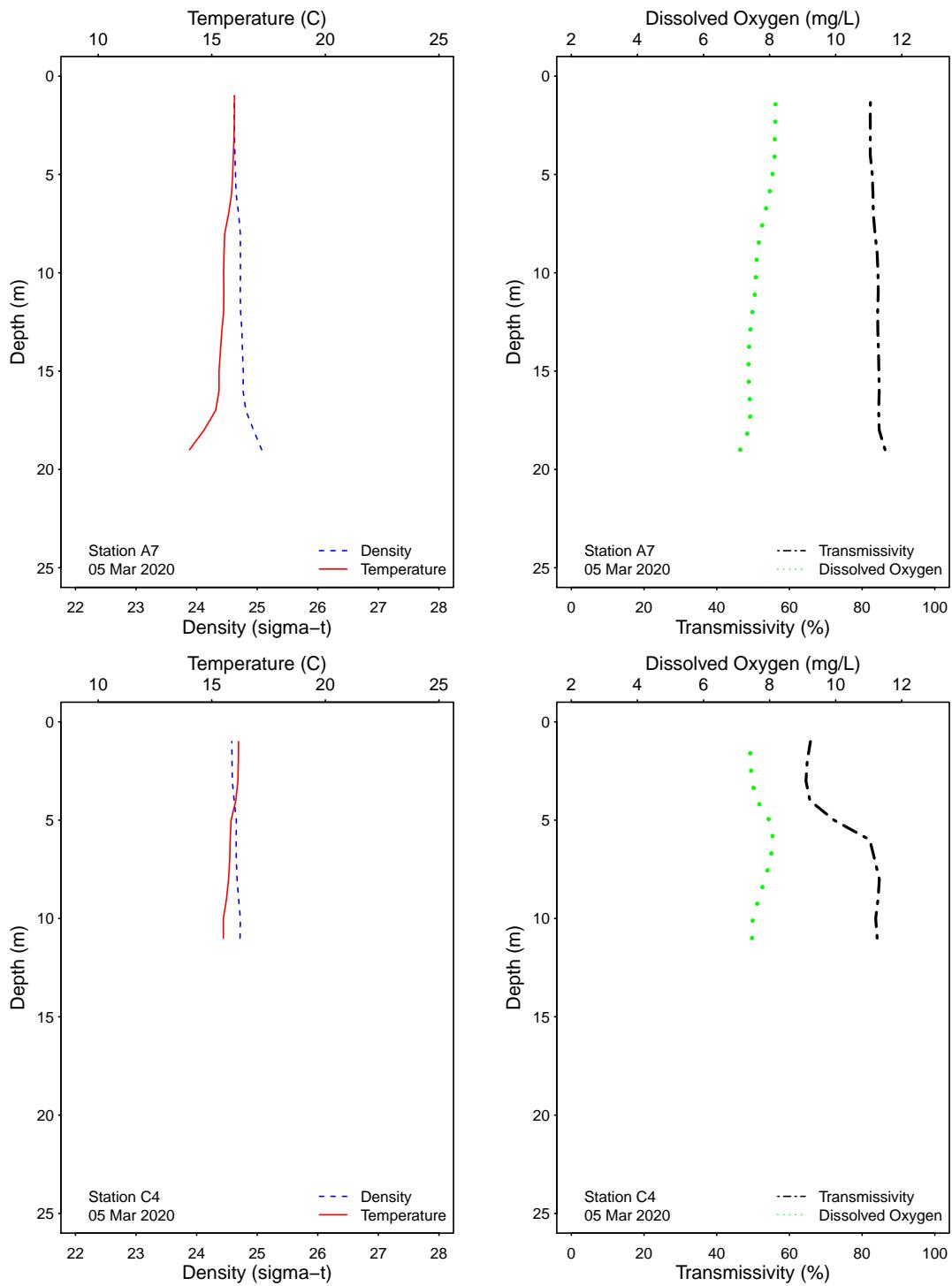


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

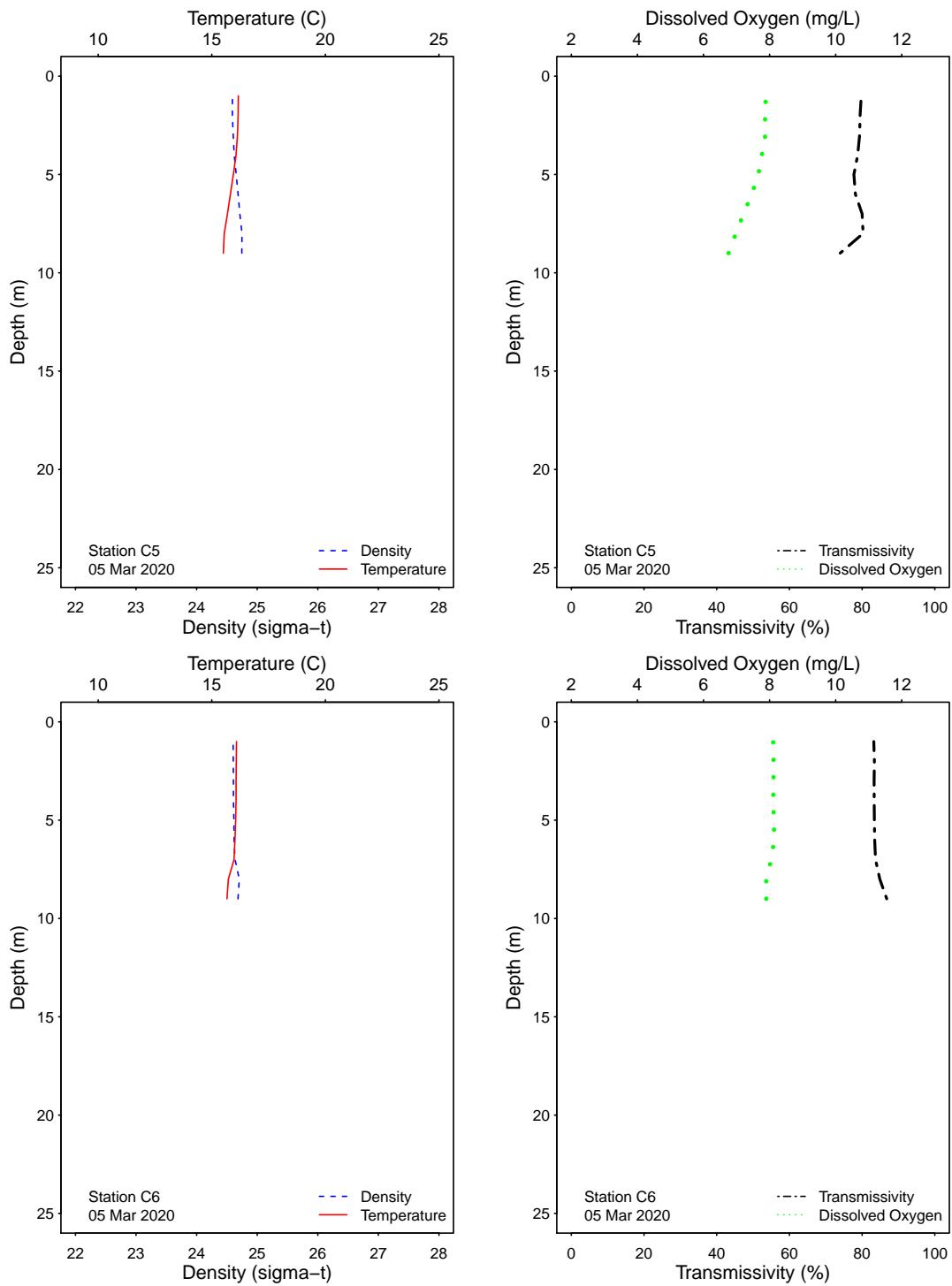


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

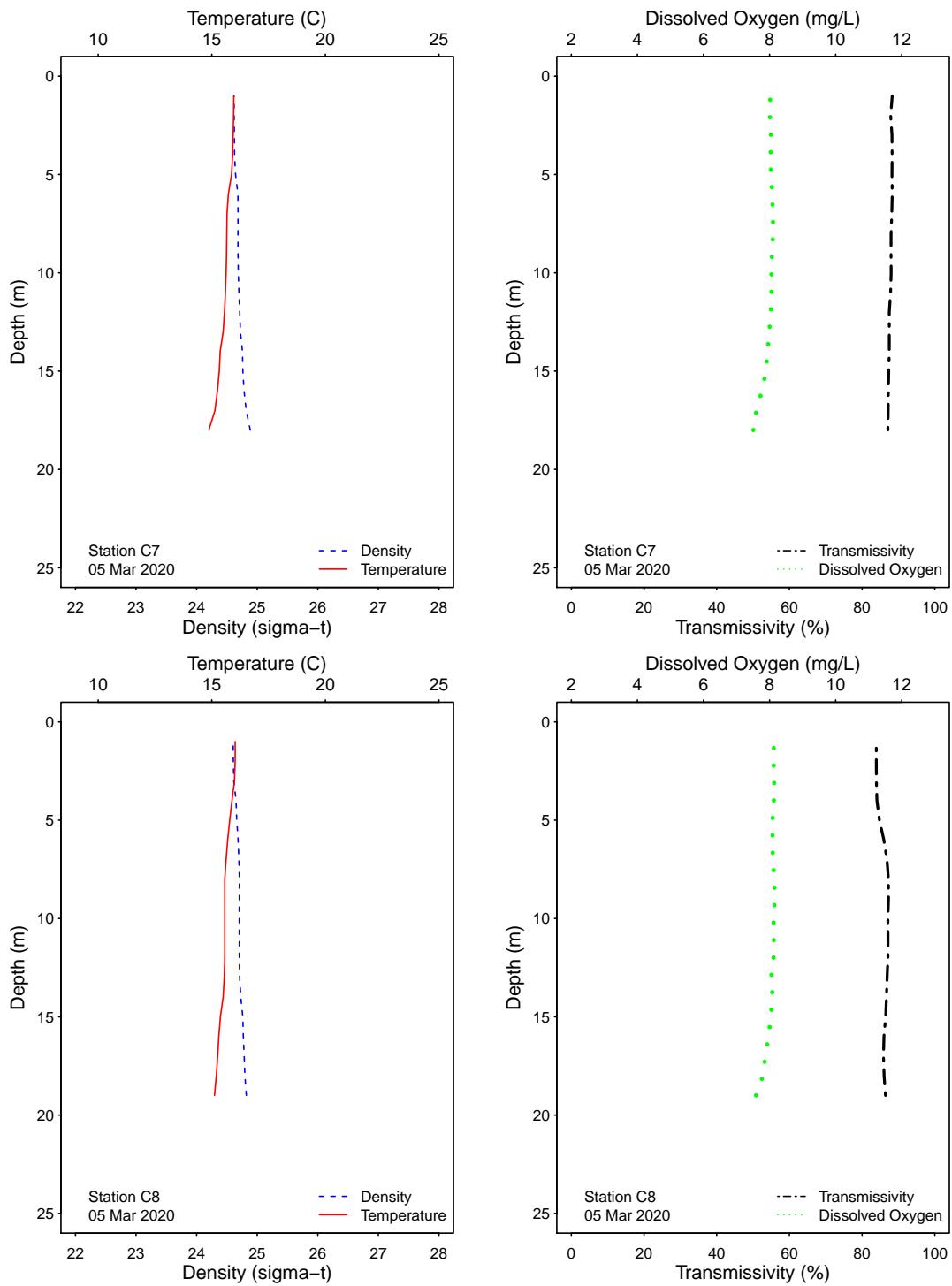


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

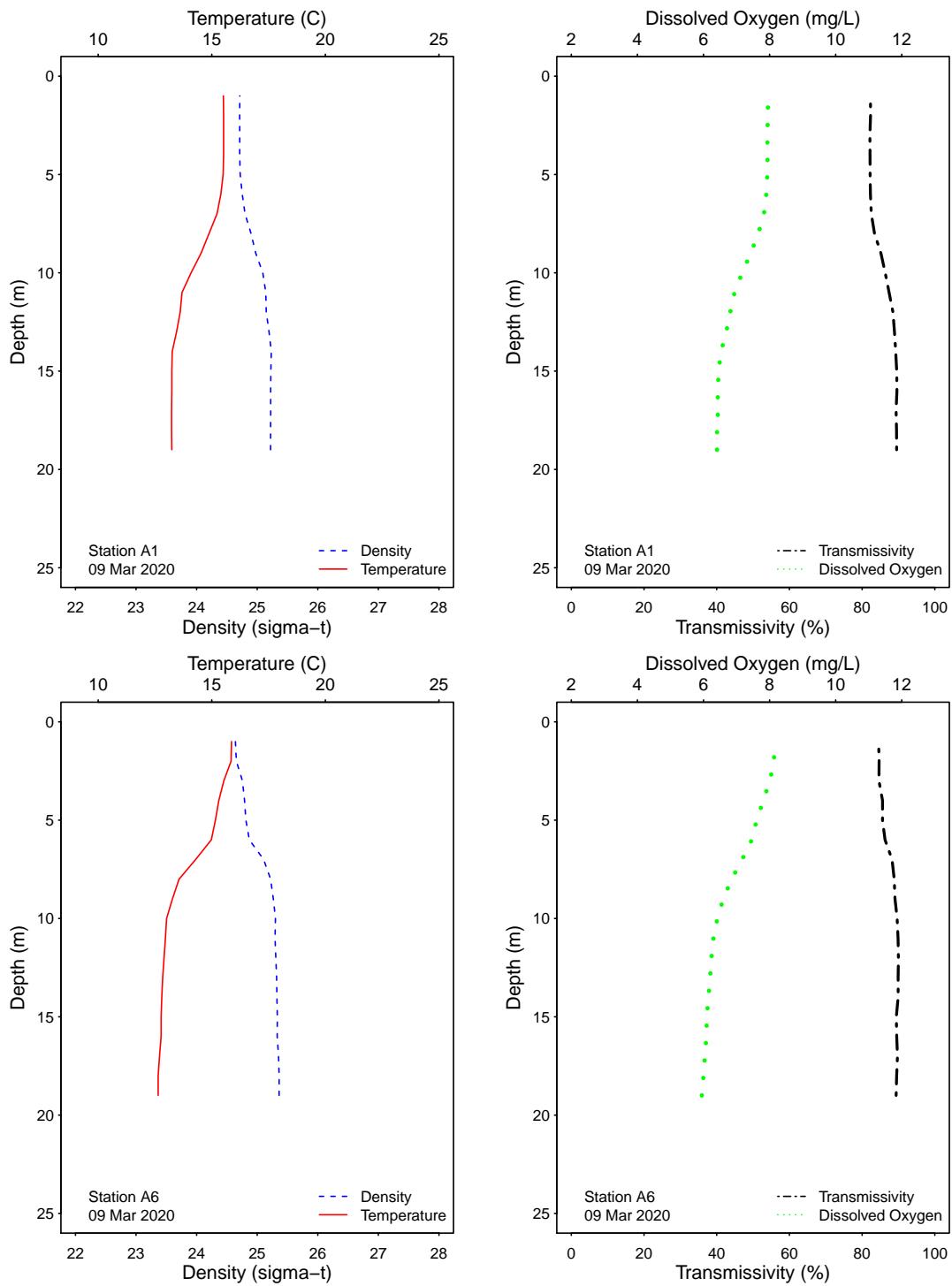


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

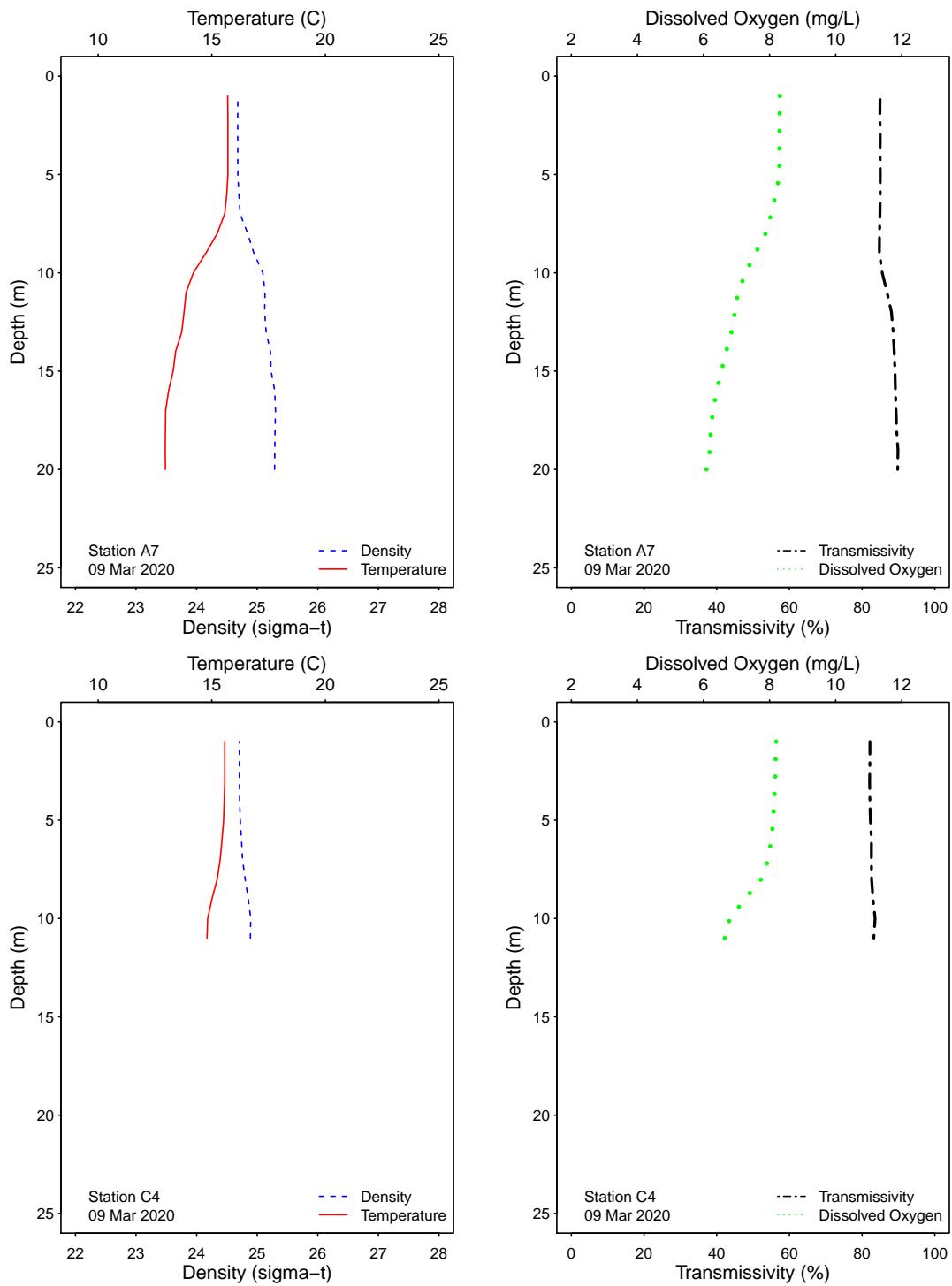


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

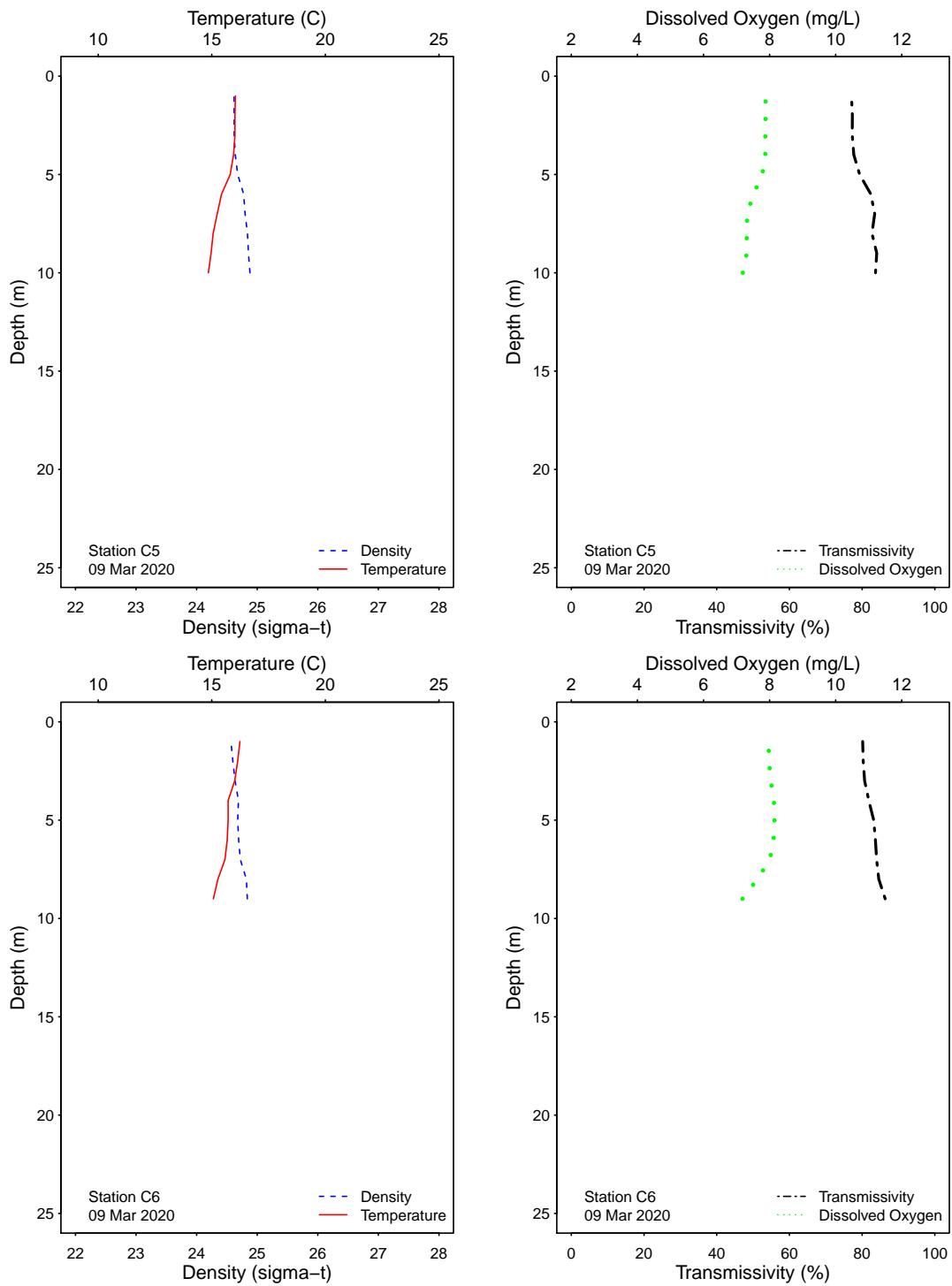


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

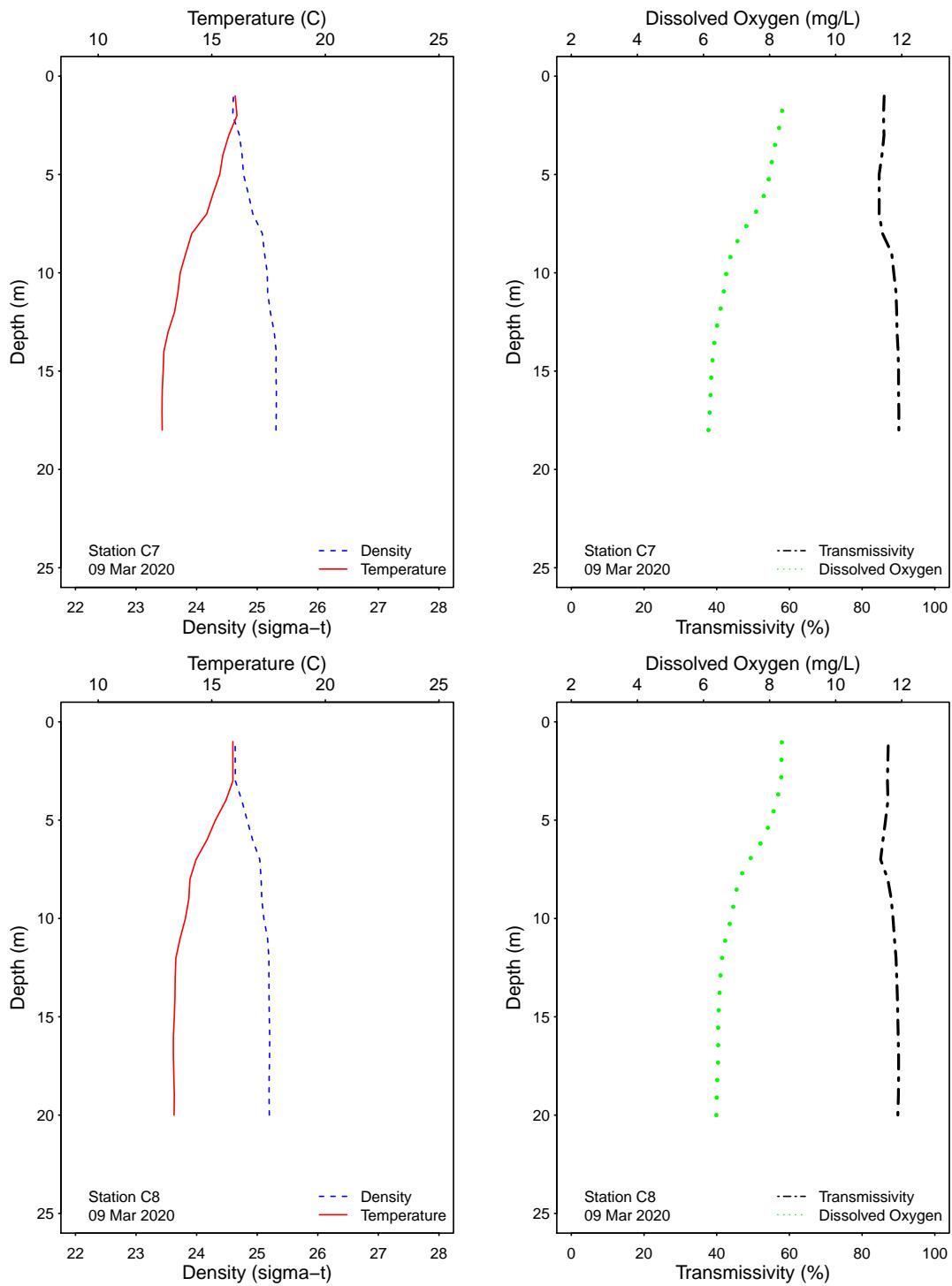


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

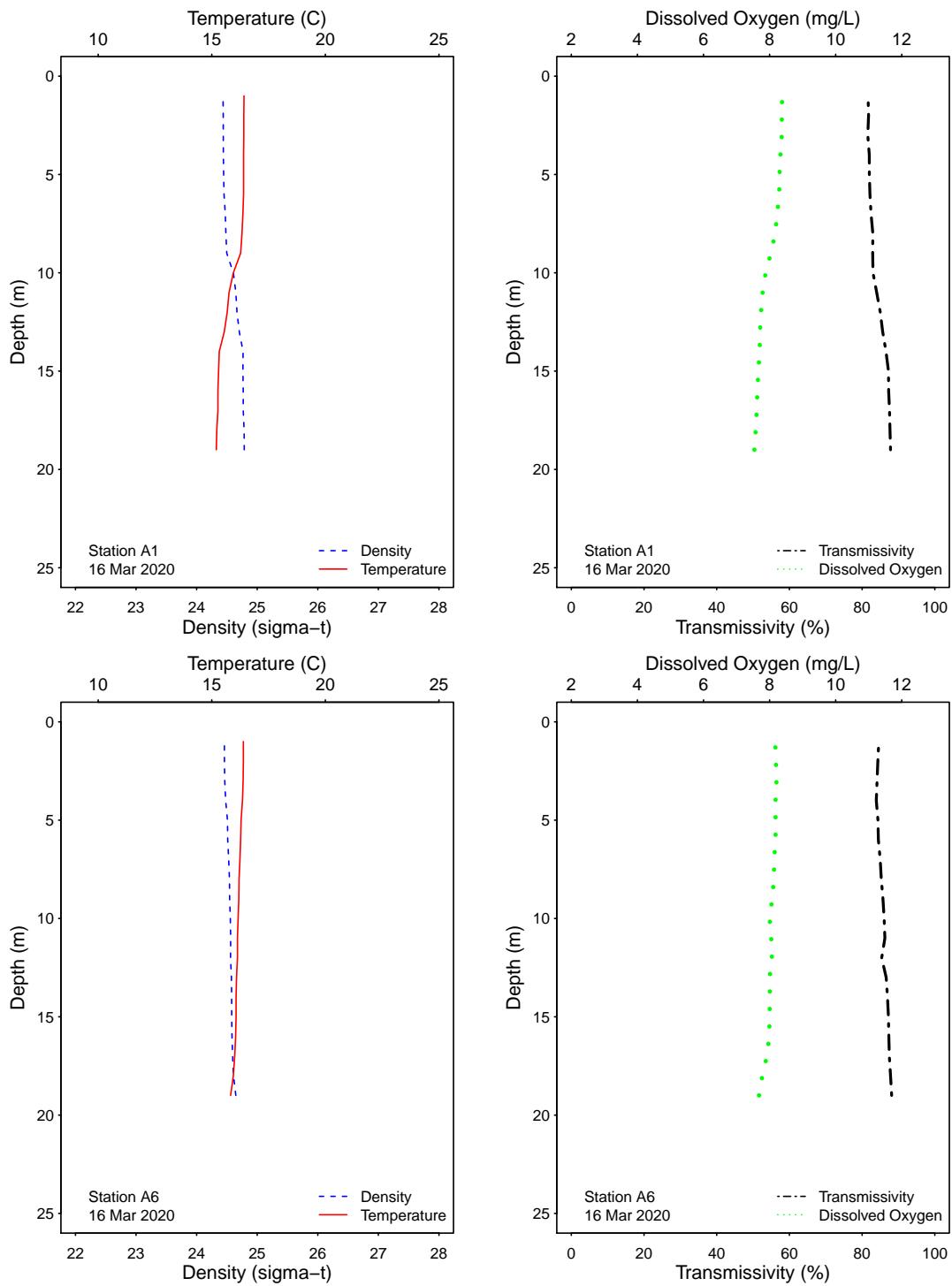


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

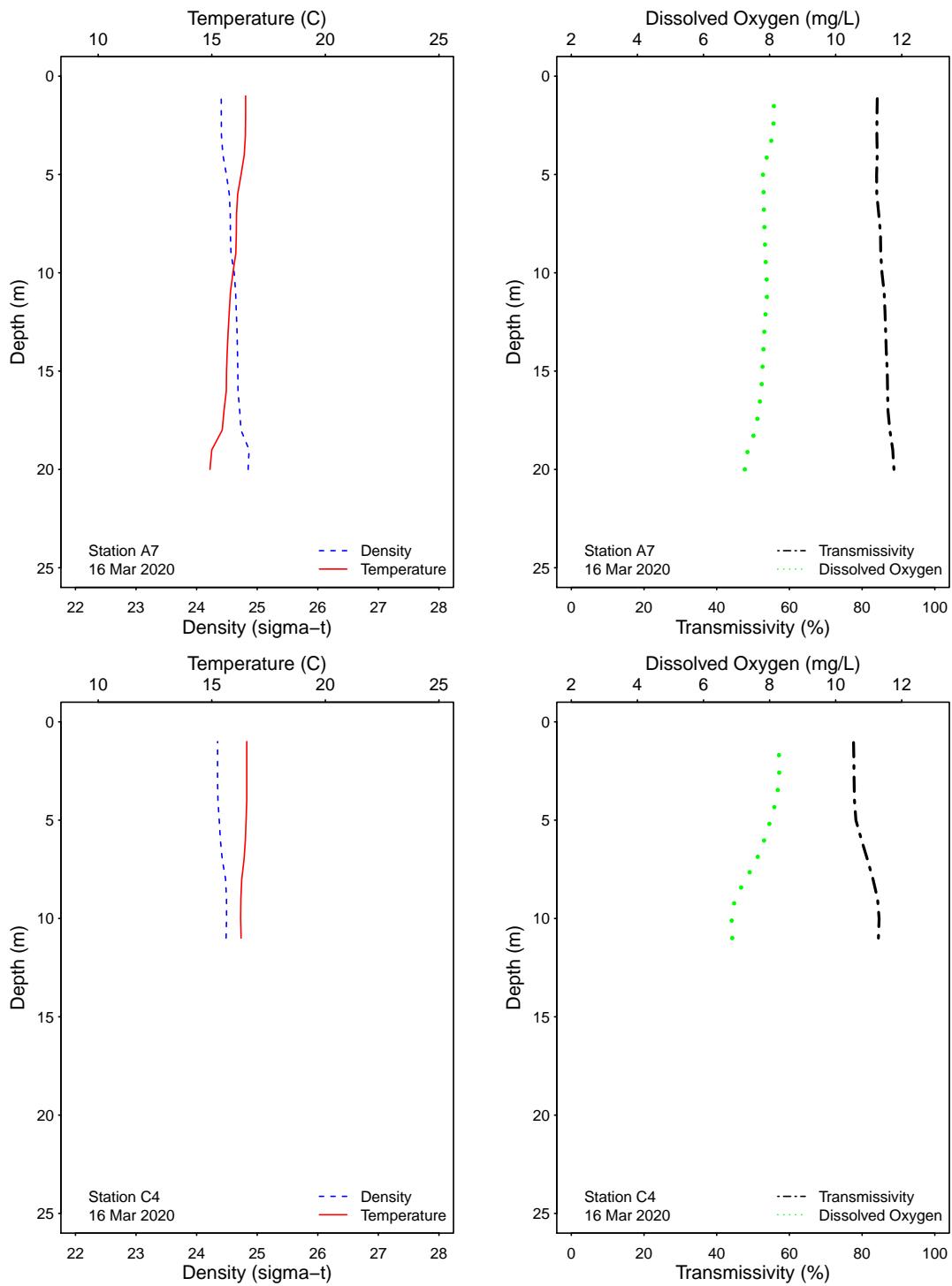


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

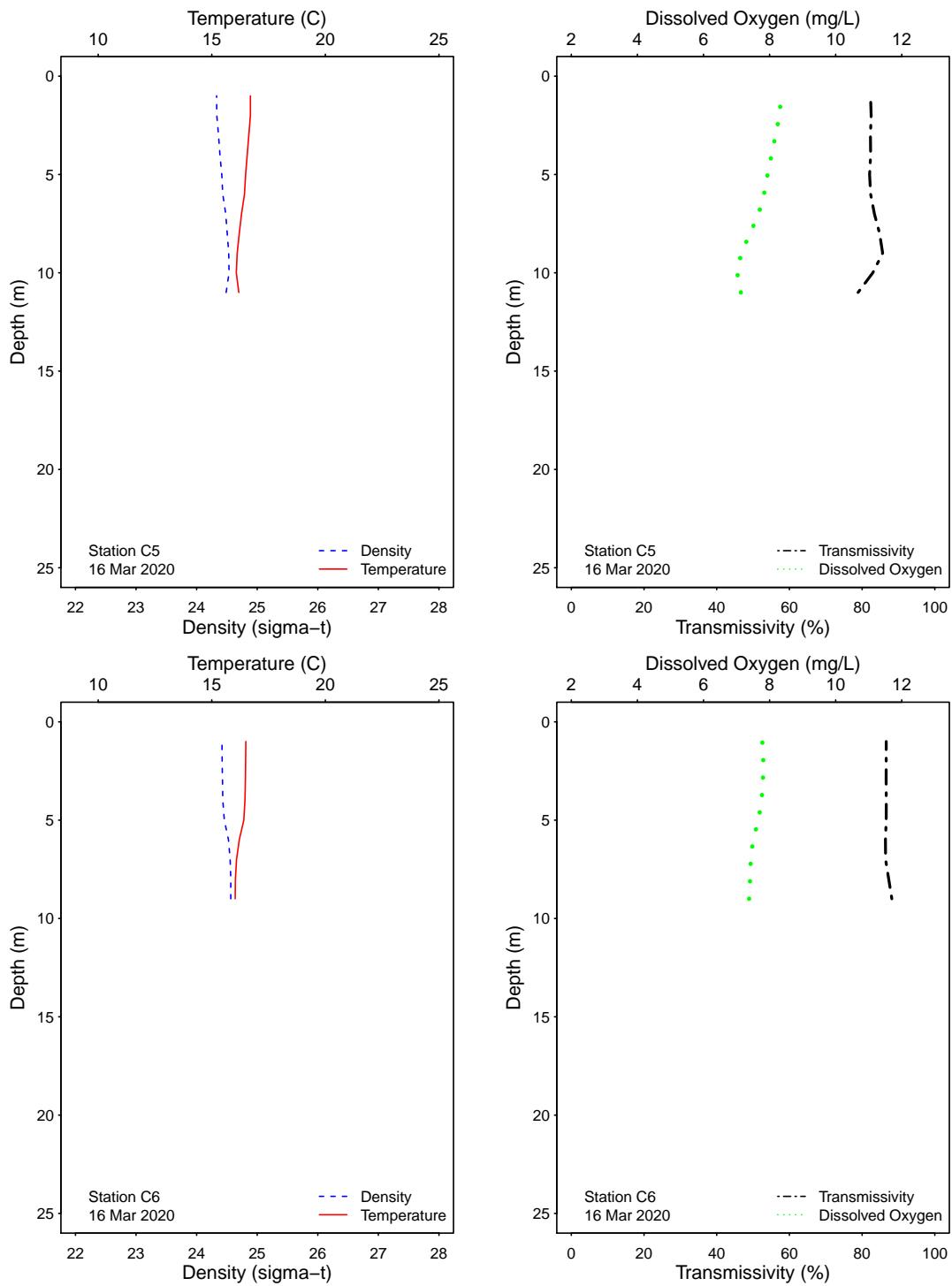


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

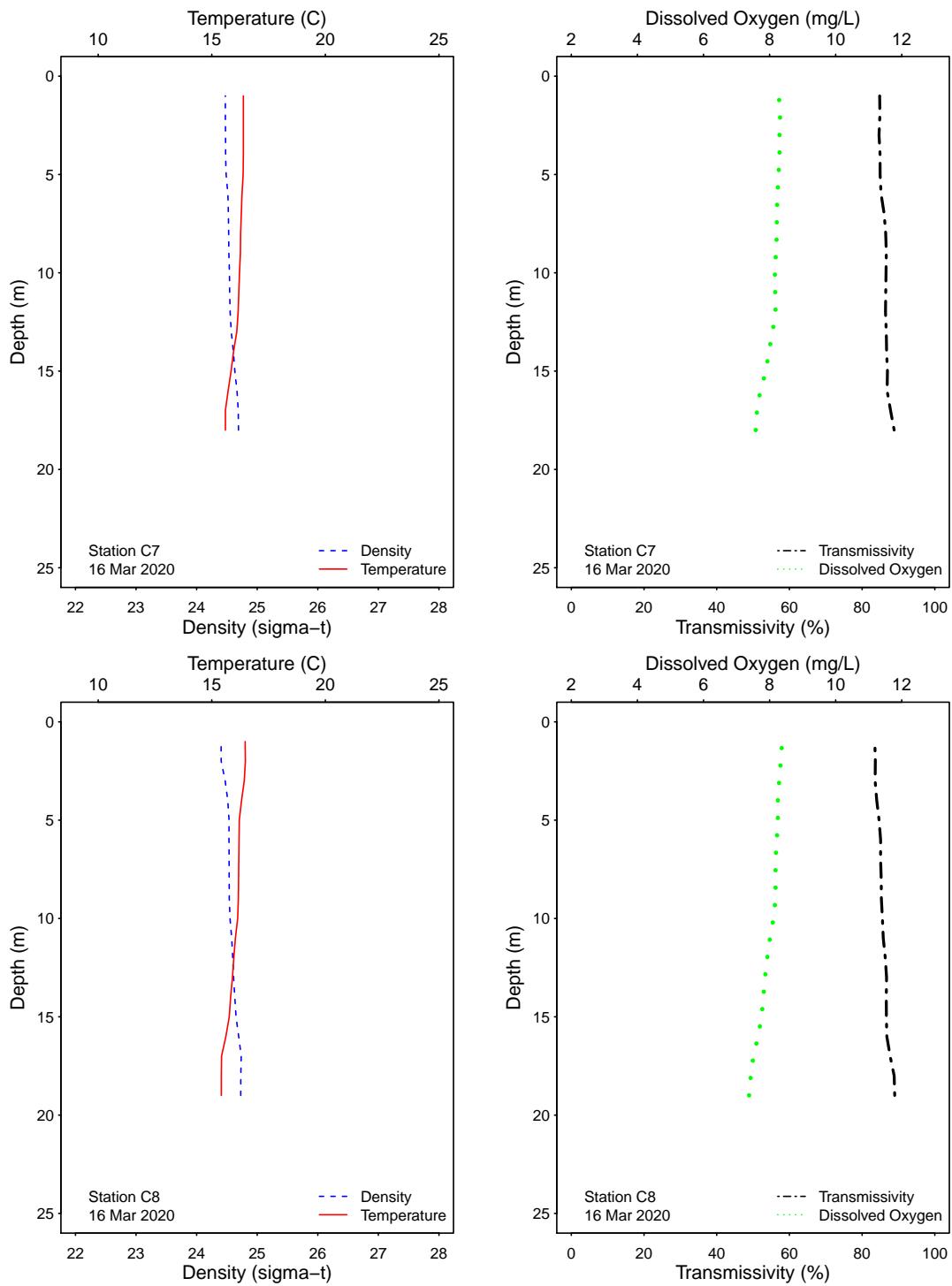


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

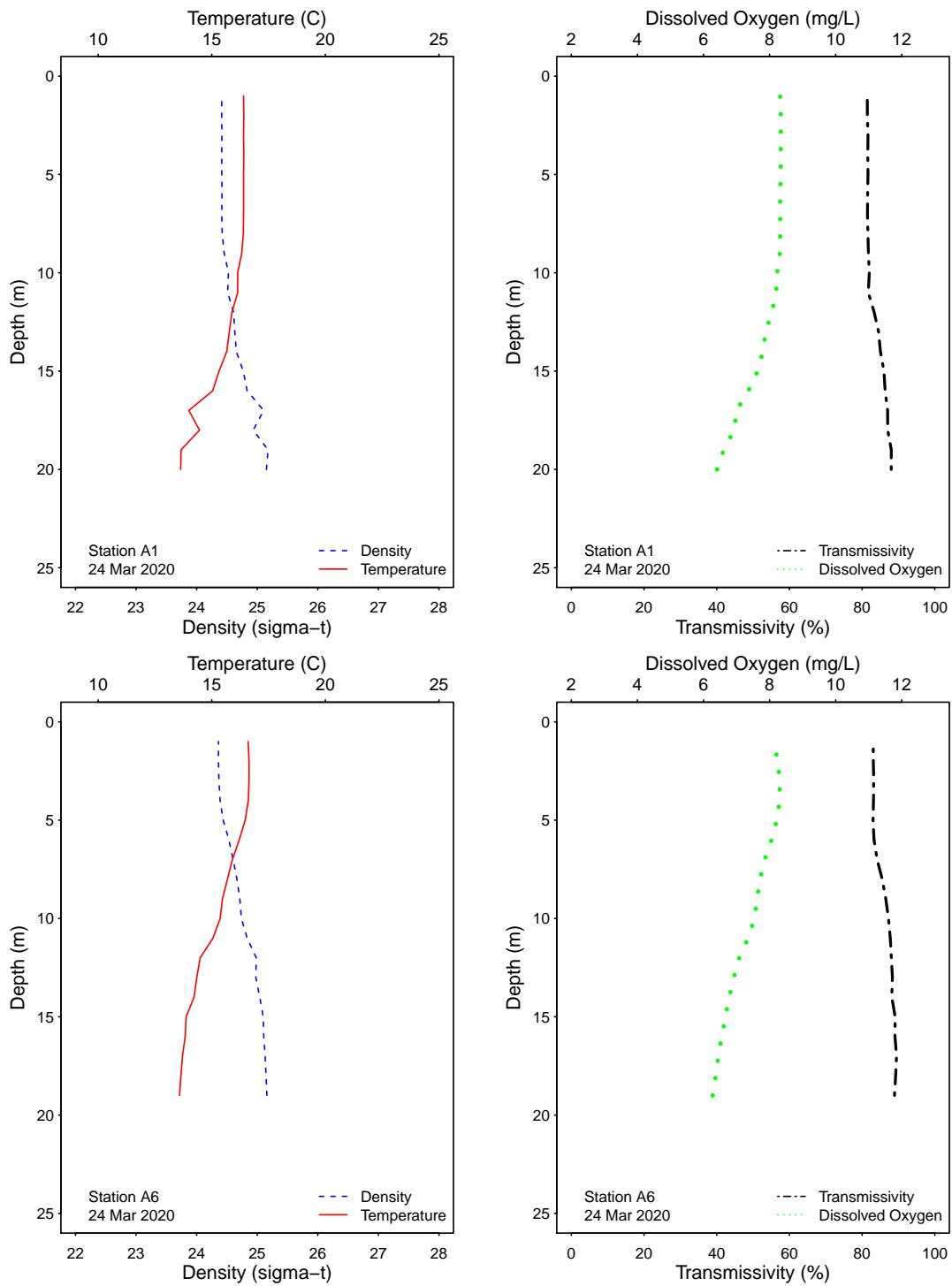


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

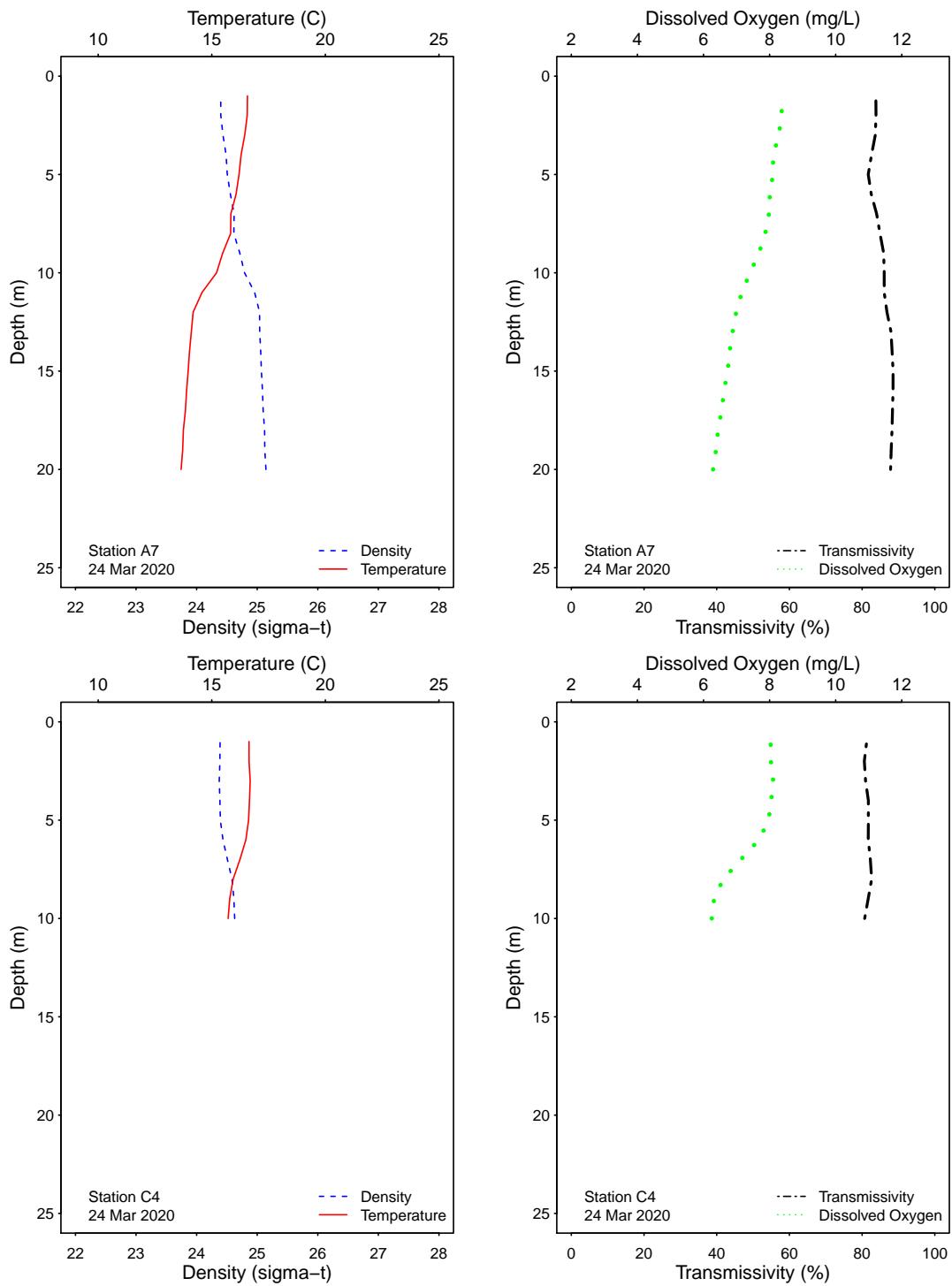


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

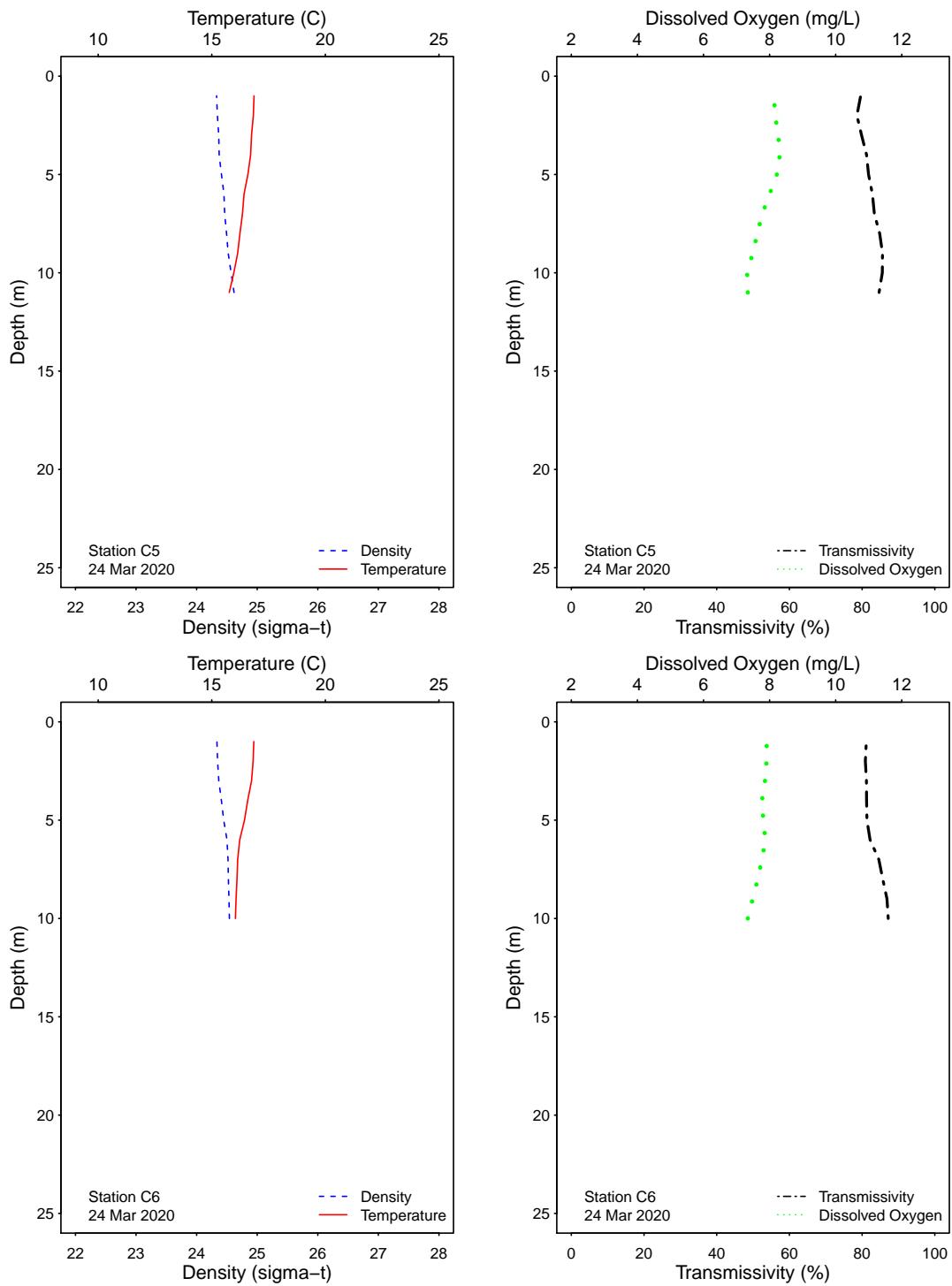


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

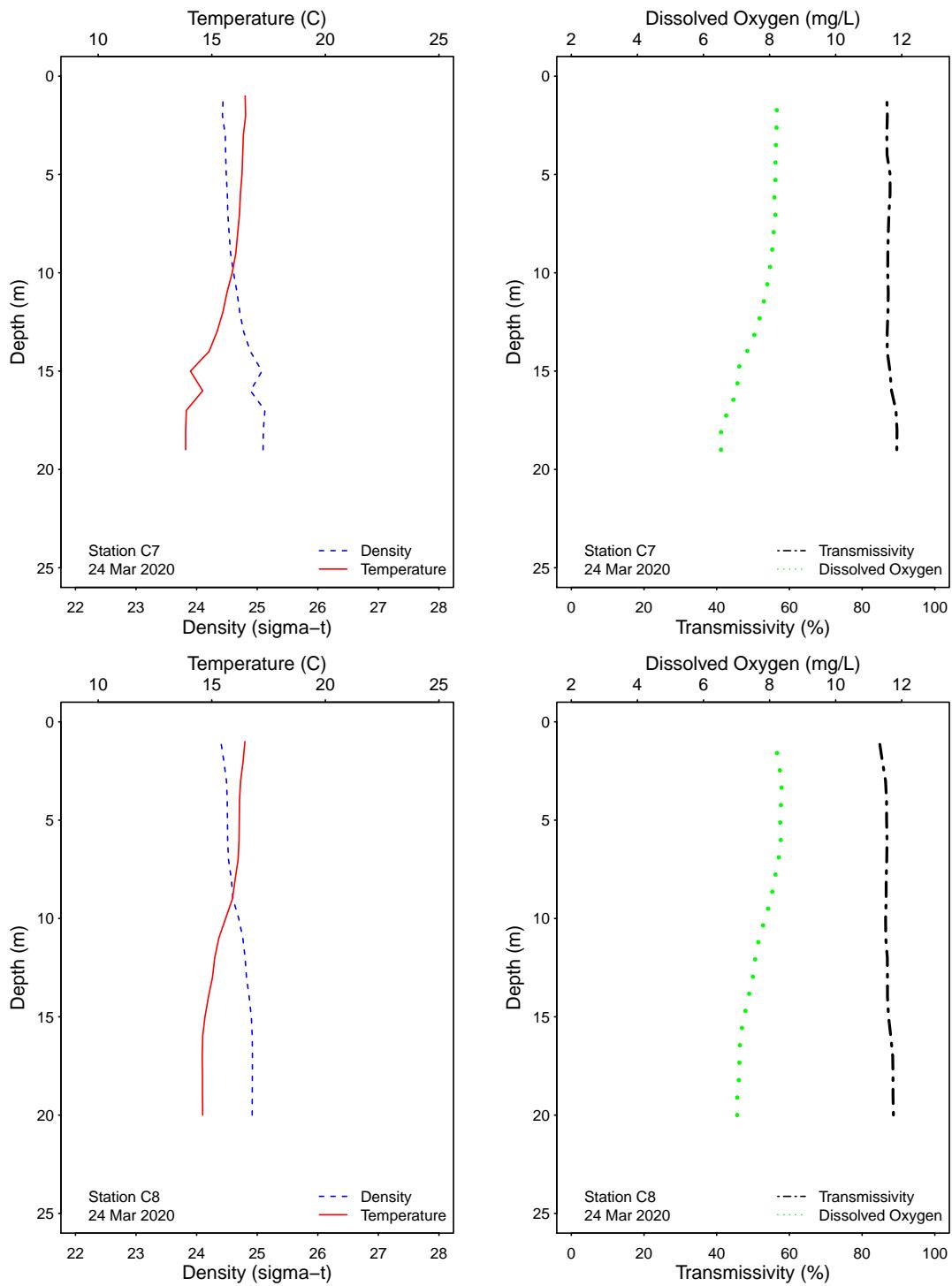


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

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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	05 Mar 2020	18	BS	LAB DUPLICATE	6e	6e	<2
A7	09 Mar 2020	18	AR	LAB DUPLICATE	18e	6e	<2
A7	16 Mar 2020	18	JF	LAB DUPLICATE	16e	4e	<2
A7	24 Mar 2020	18	MF	LAB DUPLICATE	8e	<2	<2
C7	05 Mar 2020	18	JF	LAB DUPLICATE	2e	<2	<2
C7	09 Mar 2020	18	AR	LAB DUPLICATE	130	12e	<2
C7	16 Mar 2020	18	JF	LAB DUPLICATE	2e	<2	<2
C7	24 Mar 2020	18	JF	LAB DUPLICATE	<2	<2	2e
C8	05 Mar 2020	12	JF	LAB DUPLICATE	<2	<2	<2
C8	09 Mar 2020	12	AR	LAB DUPLICATE	24e	10e	<2
C8	16 Mar 2020	12	JF	LAB DUPLICATE	2e	<2	<2
C8	24 Mar 2020	12	BS	LAB DUPLICATE	<2	<2	<2
D12	04 Mar 2020		BS	FIELD DUPLICATE	<2	<2	<2
D12	04 Mar 2020		BS	LAB DUPLICATE	<2	<2	<2
D12	11 Mar 2020		BS	FIELD DUPLICATE	4e	<2	<2
D12	11 Mar 2020		BS	LAB DUPLICATE	4e	4e	<2
D12	18 Mar 2020		JF	FIELD DUPLICATE	<2	<2	2e
D12	18 Mar 2020		JF	LAB DUPLICATE	<2	<2	<2
D12	25 Mar 2020		BS	FIELD DUPLICATE	<2	<2	2e
D12	25 Mar 2020		BS	LAB DUPLICATE	2e	<2	<2

ns = not sampled

ND = no data

