



POINT LOMA OCEAN OUTFALL MONTHLY RECEIVING WATERS MONITORING REPORT

POINT LOMA WASTEWATER TREATMENT PLANT

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

JANUARY 2019

Environmental Monitoring and Technical Services
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Public Utilities Department

Environmental Monitoring & Technical Services Division

February 28, 2019

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

Attention: POTW Compliance Unit

Dear Mr. Gibson:

Enclosed is the January 2019 Monthly Receiving Waters Monitoring Report for the Point Loma Ocean Outfall, Point Loma Wastewater Treatment Plant as required per Order No. R9-2017-0007, NPDES Permit No. CA0107409.

This 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

TS/amw

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 lack of access has resulted in the following modifications:

- Station D7 was not sampled between February and October 2018, except for the recording of visual observations. This station became accessible again and has been successfully sampled since October 31, 2018.
- Station D8 was replaced by alternate station D8-A during June 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.
- Station D9 has been inaccessible since October 31, 2018 due to construction.

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

Kelp Bed Stations

The eight kelp stations were sampled weekly according to permit specifications in order 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 consisted primarily of collecting seawater samples at discrete depths to determine concentrations of indicator bacteria (i.e., total coliforms,

fecal coliforms, and *Enterococcus*). Water column profiles of various physical/chemical parameters were also generated during each sampling event, and visual observations of weather and water conditions were recorded at each station.

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

Bacteriological Reporting and Quality Assurance

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

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

^[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.

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

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

Single Sample Maximums:

- (1) 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 exactly the same throughout field and lab procedures. The results of these analyses provide a measure of precision associated with sample collection, preservation, storage, and lab procedures. The sign test (see Gilbert, 1987) is used to statistically compare both the results from the laboratory duplicates, as well as the results from the field duplicates. These data will be further analyzed in the City's 2019 Quality Assurance Report, which will be completed in March 2020.

SUMMARY OF RESULTS

Shore Stations

- During January, one of the eight shore stations was out of compliance with one of the California Ocean Plan (Ocean Plan) water-contact standards.
 - o The single sample maximum (SSM) standard for *Enterococcus* was exceeded at station D11 on one or more days during the month.
 - o Per permit requirements, resamples were collected in response to SSM exceedances (see Table 2.8 for details).
- 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 surfgrass. 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* details (<http://www.sandiego.gov/mwwd/environment/oceanmonitor/reports/index.shtml>).
- Notable observations for January included a sewage-like odor at station D11 on January 9.

Kelp Bed Stations

- The eight kelp bed water quality stations (A1, A6, A7, C4, C5, C6, C7, C8) were sampled five times during the month (i.e. January 2, 7, 14, 23, 28).
- During January, two of the kelp bed stations were out of compliance with one or more water-contact standards specified in the Ocean Plan.
 - o The SSM standard for *Enterococcus* was exceeded at station A1 on January 23.
 - o The SSM standard that states total coliform densities shall not exceed 1000 CFU/100 mL when the fecal:total ratio exceeds 0.1 was exceeded at stations A1 and A7 on January 23.
- Water column temperatures ranged from 13.01 to 15.83°C during the month. The difference between surface and bottom waters ranged from 0.01 to 2.24°C, indicating that the water column was stratified at some of the kelp bed stations during the month.
- Chlorophyll *a* concentrations ranged from 0 to 20.83 µg/L during January, suggesting the presence of phytoplankton blooms during the month.
- Nothing of sewage origin was observed at any of the kelp stations.

Offshore Stations

- Quarterly sampling was not conducted during January at the offshore stations. The next quarterly sampling is scheduled for February 2019.



TABLES AND FIGURES

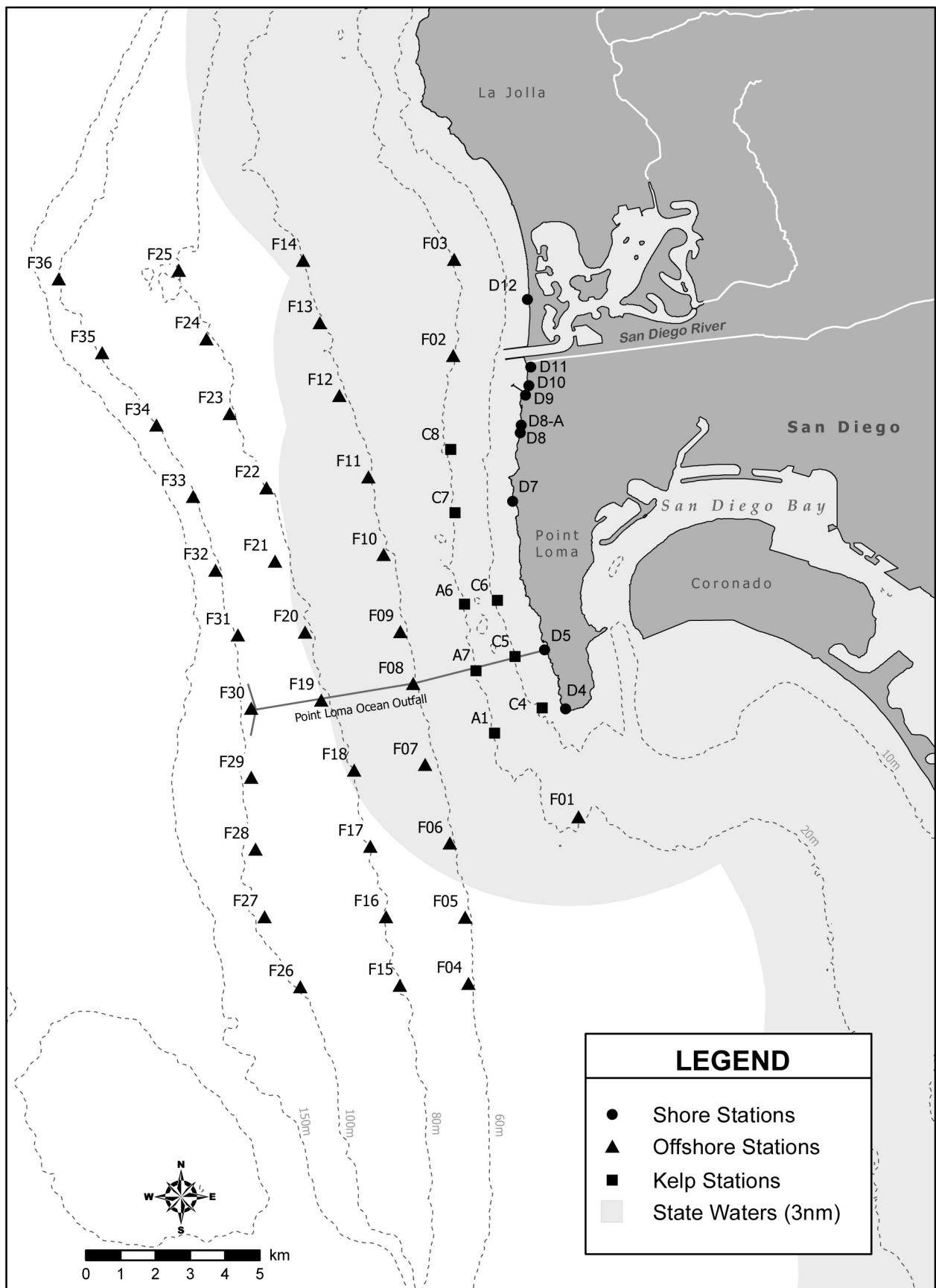


Figure 1.1 Station Map

Shore Stations

Table 2.1

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
01 Jan 2019	11*	30*	5*	52*	ns	24*	34*	24*
02 Jan 2019	11*	30*	5*	52*	ns	24*	34*	24*
03 Jan 2019	8	17	5	64	ns	17	48	14
04 Jan 2019	6*	17*	3*	64*	ns	13*	60*	13*
05 Jan 2019	6*	17*	3*	64*	ns	13*	60*	13*
06 Jan 2019	6*	17*	3*	64*	ns	13*	60*	13*
07 Jan 2019	6*	17*	3*	64*	ns	13*	60*	13*
08 Jan 2019	6*	17*	3*	64*	ns	13*	60*	13*
09 Jan 2019	10	17	5	67	ns	17	48	13
10 Jan 2019	10	17	5	67	ns	17	48	13
11 Jan 2019	10	17	5	67	ns	17	48	13
12 Jan 2019	8*	17*	6*	77*	ns	16*	60*	11*
13 Jan 2019	8*	17*	6*	77*	ns	16*	60*	11*
14 Jan 2019	8*	17*	6*	77*	ns	16*	60*	11*
15 Jan 2019	8*	17*	6*	77*	ns	16*	60*	11*
16 Jan 2019	8*	17*	6*	77*	ns	16*	60*	11*
17 Jan 2019	9	15	6	73	ns	17	63	11
18 Jan 2019	10*	9*	7*	77*	ns	16*	85*	8*
19 Jan 2019	10*	9*	7*	77*	ns	16*	85*	8*
20 Jan 2019	10*	9*	7*	77*	ns	16*	85*	8*
21 Jan 2019	10*	9*	7*	77*	ns	16*	85*	8*
22 Jan 2019	10*	9*	7*	77*	ns	16*	85*	8*
23 Jan 2019	7	9	7	59	ns	14	53	9
24 Jan 2019	7	9	7	59	ns	14	53	9
25 Jan 2019	7	9	7	59	ns	14	53	9
26 Jan 2019	7*	8*	8*	58*	ns	13*	40*	8*
27 Jan 2019	7*	8*	8*	58*	ns	13*	40*	8*
28 Jan 2019	7*	8*	8*	58*	ns	13*	40*	8*
29 Jan 2019	7*	8*	8*	58*	ns	13*	40*	8*
30 Jan 2019	6	9	7	47	ns	13	25	8
31 Jan 2019	6	9	7	47	ns	13	25	8

* 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 Jan 2019	3*	2*	3*	11*	ns	6*	7*	2*
02 Jan 2019	3*	2*	3*	11*	ns	6*	7*	2*
03 Jan 2019	3	2	2	9	ns	5	10	2
04 Jan 2019	3*	2*	3*	9*	ns	3*	15*	2*
05 Jan 2019	3*	2*	3*	9*	ns	3*	15*	2*
06 Jan 2019	3*	2*	3*	9*	ns	3*	15*	2*
07 Jan 2019	3*	2*	3*	9*	ns	3*	15*	2*
08 Jan 2019	3*	2*	3*	9*	ns	3*	15*	2*
09 Jan 2019	3	2	3	6	ns	3	13	2
10 Jan 2019	3	2	3	6	ns	3	13	2
11 Jan 2019	3	2	3	6	ns	3	13	2
12 Jan 2019	3*	2*	3*	5*	ns	4*	16*	2*
13 Jan 2019	3*	2*	3*	5*	ns	4*	16*	2*
14 Jan 2019	3*	2*	3*	5*	ns	4*	16*	2*
15 Jan 2019	3*	2*	3*	5*	ns	4*	16*	2*
16 Jan 2019	3*	2*	3*	5*	ns	4*	16*	2*
17 Jan 2019	3	3	4	6	ns	4	12	2
18 Jan 2019	2*	3*	3*	4*	ns	5*	15*	2*
19 Jan 2019	2*	3*	3*	4*	ns	5*	15*	2*
20 Jan 2019	2*	3*	3*	4*	ns	5*	15*	2*
21 Jan 2019	2*	3*	3*	4*	ns	5*	15*	2*
22 Jan 2019	2*	3*	3*	4*	ns	5*	15*	2*
23 Jan 2019	2	3	3	4	ns	4	10	2
24 Jan 2019	2	3	3	4	ns	4	10	2
25 Jan 2019	2	3	3	4	ns	4	10	2
26 Jan 2019	2*	3*	3*	4*	ns	3*	8*	2*
27 Jan 2019	2*	3*	3*	4*	ns	3*	8*	2*
28 Jan 2019	2*	3*	3*	4*	ns	3*	8*	2*
29 Jan 2019	2*	3*	3*	4*	ns	3*	8*	2*
30 Jan 2019	2	3	4	3	ns	3	6	3
31 Jan 2019	2	3	4	3	ns	3	6	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 Jan 2019	3*	4*	2*	24*	ns	9*	8*	5*
02 Jan 2019	3*	4*	2*	24*	ns	9*	8*	5*
03 Jan 2019	3	4	2	13	ns	7	15	4
04 Jan 2019	3*	4*	2*	13*	ns	6*	29	5*
05 Jan 2019	3*	4*	2*	13*	ns	6*	29	5*
06 Jan 2019	3*	4*	2*	13*	ns	6*	29	5*
07 Jan 2019	3*	4*	2*	13*	ns	6*	29	5*
08 Jan 2019	3*	4*	2*	13*	ns	6*	29	5*
09 Jan 2019	5	4	2	10	ns	6	19	4
10 Jan 2019	5	4	2	10	ns	6	19	4
11 Jan 2019	5	4	2	10	ns	6	19	4
12 Jan 2019	6*	2*	2*	7*	ns	6*	22	5*
13 Jan 2019	6*	2*	2*	7*	ns	6*	22	5*
14 Jan 2019	6*	2*	2*	7*	ns	6*	22	5*
15 Jan 2019	6*	2*	2*	7*	ns	6*	22	5*
16 Jan 2019	6*	2*	2*	7*	ns	6*	22	5*
17 Jan 2019	5	2	2	9	ns	6	24	4
18 Jan 2019	4*	2*	2*	7*	ns	6*	25	2*
19 Jan 2019	4*	2*	2*	7*	ns	6*	25	2*
20 Jan 2019	4*	2*	2*	7*	ns	6*	25	2*
21 Jan 2019	4*	2*	2*	7*	ns	6*	25	2*
22 Jan 2019	4*	2*	2*	7*	ns	6*	25	2*
23 Jan 2019	4	2	2	5	ns	5	23	2
24 Jan 2019	4	2	2	5	ns	5	23	2
25 Jan 2019	4	2	2	5	ns	5	23	2
26 Jan 2019	4*	2*	2*	4*	ns	4*	26	2*
27 Jan 2019	4*	2*	2*	4*	ns	4*	26	2*
28 Jan 2019	4*	2*	2*	4*	ns	4*	26	2*
29 Jan 2019	4*	2*	2*	4*	ns	4*	26	2*
30 Jan 2019	3	2	2	4	ns	4	17	2
31 Jan 2019	3	2	2	4	ns	4	17	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
03 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
09 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
17 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
23 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
30 Jan 2019	IC	IC	IC	IC	ns	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
03 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
09 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
17 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
23 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
30 Jan 2019	IC	IC	IC	IC	ns	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
03 Jan 2019	IC	IC	IC	IC	ns	IC	E	IC
04 Jan 2019	ns	ns	ns	ns	ns	ns	IC	ns
09 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
17 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
23 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
30 Jan 2019	IC	IC	IC	IC	ns	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
03 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
09 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
17 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
23 Jan 2019	IC	IC	IC	IC	ns	IC	IC	IC
30 Jan 2019	IC	IC	IC	IC	ns	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	03 Jan 2019	801	<2	2e	<2	1.00
	09 Jan 2019	825	60e	2e	24e	0.03
	17 Jan 2019	809	12e	<2	<2	0.17
	23 Jan 2019	821	<2	<2	<2	1.00
	30 Jan 2019	818	2e	<2	<2	1.00
D5	03 Jan 2019	746	2e	<2	<2	1.00
	09 Jan 2019	808	<20	<2	<2	0.10
	17 Jan 2019	750	10e	8e	<2	0.80
	23 Jan 2019	803	8e	2e	<2	0.25
	30 Jan 2019	756	14e	2e	<2	0.14
D7	03 Jan 2019	828	4e	<2	<2	0.50
	09 Jan 2019	855	20e	6e	2e	0.30
	17 Jan 2019	912	8e	4e	<2	0.50
	23 Jan 2019	853	6e	<2	<2	0.33
	30 Jan 2019	845	6e	6e	<2	1.00
D8-B	03 Jan 2019	845	120e	4e	2e	0.03
	09 Jan 2019	918	80e	2e	4e	0.02
	17 Jan 2019	856	60e	12e	24e	0.20
	23 Jan 2019	913	<20	<2	<2	0.10
	30 Jan 2019	904	<20	<2	<2	0.10
D9	03 Jan 2019	853	ns	ns	ns	ns
	09 Jan 2019	926	ns	ns	ns	ns
	17 Jan 2019	825	ns	ns	ns	ns
	23 Jan 2019	922	ns	ns	ns	ns
	30 Jan 2019	912	ns	ns	ns	ns
D10	03 Jan 2019	902	4e	<2	<2	0.50
	09 Jan 2019	942	40e	4e	6e	0.10
	17 Jan 2019	813	20e	6e	8e	0.30
	23 Jan 2019	939	10e	2e	4e	0.20
	30 Jan 2019	930	14e	4e	<2	0.29
D11	03 Jan 2019	921	200e	58	160e	0.29
	04 Jan 2019	929	ns	ns	52	ns
	09 Jan 2019	959	20e	8e	2e	0.40
	17 Jan 2019	800	80e	4e	40	0.05
	23 Jan 2019	954	8e	2e	18e	0.25

Station	Date	Time	Total	Fecal	Enteric	F:T
D11	30 Jan 2019	951	4e	<2	<2	0.50
D12	03 Jan 2019	947	<2	<2	2e	1.00
D12	09 Jan 2019	1025	10e	<2	<2	0.20
D12	17 Jan 2019	748	8e	<2	<2	0.25
D12	23 Jan 2019	1021	<20	<2	<2	0.10
D12	30 Jan 2019	1019	12e	14e	2e	1.17

ns = not sampled

ND = no data

Comments

Station	Date	Depth	Parameter	Comments
D9	03 Jan 2019			Site inaccessible due to construction
D11	04 Jan 2019			Resample
D9	09 Jan 2019			Site inaccessible due to construction
D9	17 Jan 2019			Site inaccessible due to construction
D9	23 Jan 2019			Site inaccessible due to construction
D9	30 Jan 2019			Site inaccessible due to construction

Table 2.9

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

Station	Date	Parameter	Value
D4	03 Jan 2019	Arrive Time	801
D4	03 Jan 2019	Weather	Sunny
D4	03 Jan 2019	Wind Speed (kts)	5.3
D4	03 Jan 2019	Wind Dir	S
D4	03 Jan 2019	Animal Life	None
D4	03 Jan 2019	Floatables	None
D4	03 Jan 2019	Water Color	Green
D4	03 Jan 2019	Current Direction	N
D4	03 Jan 2019	Water Temp (C)	10
D4	03 Jan 2019	Wave Height Low (ft)	2
D4	03 Jan 2019	High Tide (ft)	5.9
D4	03 Jan 2019	High Tide Time	654
D4	03 Jan 2019	Low Tide (ft)	-0.7
D4	03 Jan 2019	Low Tide Time	1410
D4	03 Jan 2019	Comments	Kelp; Water clear
D4	09 Jan 2019	Arrive Time	825
D4	09 Jan 2019	Weather	Partly Cloudy
D4	09 Jan 2019	Wind Speed (kts)	2.7
D4	09 Jan 2019	Wind Dir	W
D4	09 Jan 2019	Animal Life	1 Shorebird; 5 Pelicans
D4	09 Jan 2019	Floatables	None
D4	09 Jan 2019	Water Color	Green
D4	09 Jan 2019	Current Direction	W
D4	09 Jan 2019	Water Temp (C)	14
D4	09 Jan 2019	Wave Height Low (ft)	4
D4	09 Jan 2019	High Tide (ft)	5.1
D4	09 Jan 2019	High Tide Time	1008
D4	09 Jan 2019	Low Tide (ft)	2.2
D4	09 Jan 2019	Low Tide Time	410
D4	09 Jan 2019	Comments	Kelp; Seagrass; 3 Surfers; 3 Boats; Water clear
D4	17 Jan 2019	Arrive Time	809
D4	17 Jan 2019	Weather	Cloudy
D4	17 Jan 2019	Wind Speed (kts)	4.2
D4	17 Jan 2019	Wind Dir	W
D4	17 Jan 2019	Animal Life	None
D4	17 Jan 2019	Floatables	None
D4	17 Jan 2019	Water Color	Green
D4	17 Jan 2019	Current Direction	N
D4	17 Jan 2019	Water Temp (C)	17
D4	17 Jan 2019	Wave Height Low (ft)	3
D4	17 Jan 2019	High Tide (ft)	5.5
D4	17 Jan 2019	High Tide Time	531
D4	17 Jan 2019	Low Tide (ft)	-0.4
D4	17 Jan 2019	Low Tide Time	1253
D4	17 Jan 2019	Comments	Kelp; Seagrass; Algae; Water clear
D4	23 Jan 2019	Arrive Time	821
D4	23 Jan 2019	Weather	Sunny
D4	23 Jan 2019	Wind Speed (kts)	7.1

Station	Date	Parameter	Value
D4	23 Jan 2019	Wind Dir	W
D4	23 Jan 2019	Animal Life	4 Shorebirds; 2 Cormorants; 1 Pelican
D4	23 Jan 2019	Floatables	None
D4	23 Jan 2019	Water Color	Green
D4	23 Jan 2019	Current Direction	W
D4	23 Jan 2019	Water Temp (C)	12
D4	23 Jan 2019	Wave Height Low (ft)	1
D4	23 Jan 2019	High Tide (ft)	6.2
D4	23 Jan 2019	High Tide Time	1005
D4	23 Jan 2019	Low Tide (ft)	1.2
D4	23 Jan 2019	Low Tide Time	405
D4	23 Jan 2019	Comments	2 Boats; Water clear
D4	30 Jan 2019	Arrive Time	818
D4	30 Jan 2019	Weather	Partly Cloudy
D4	30 Jan 2019	Wind Speed (kts)	2.3
D4	30 Jan 2019	Wind Dir	S
D4	30 Jan 2019	Animal Life	7 Cormorants
D4	30 Jan 2019	Floatables	None
D4	30 Jan 2019	Water Color	Green
D4	30 Jan 2019	Current Direction	S
D4	30 Jan 2019	Water Temp (C)	16.6
D4	30 Jan 2019	Wave Height Low (ft)	1
D4	30 Jan 2019	High Tide (ft)	5.1
D4	30 Jan 2019	High Tide Time	514
D4	30 Jan 2019	Low Tide (ft)	-0.1
D4	30 Jan 2019	Low Tide Time	1244
D4	30 Jan 2019	Comments	1 Boat; Water clear
D5	03 Jan 2019	Arrive Time	746
D5	03 Jan 2019	Weather	Sunny
D5	03 Jan 2019	Wind Speed (kts)	1.5
D5	03 Jan 2019	Wind Dir	S
D5	03 Jan 2019	Animal Life	None
D5	03 Jan 2019	Floatables	None
D5	03 Jan 2019	Water Color	Green
D5	03 Jan 2019	Current Direction	S
D5	03 Jan 2019	Water Temp (C)	9
D5	03 Jan 2019	Wave Height Low (ft)	1
D5	03 Jan 2019	High Tide (ft)	5.9
D5	03 Jan 2019	High Tide Time	654
D5	03 Jan 2019	Low Tide (ft)	-0.7
D5	03 Jan 2019	Low Tide Time	1410
D5	03 Jan 2019	Comments	Seagrass; Water clear
D5	09 Jan 2019	Arrive Time	808
D5	09 Jan 2019	Weather	Partly Cloudy
D5	09 Jan 2019	Wind Speed (kts)	3.1
D5	09 Jan 2019	Wind Dir	W
D5	09 Jan 2019	Animal Life	4 Shorebirds
D5	09 Jan 2019	Floatables	None
D5	09 Jan 2019	Water Color	Green
D5	09 Jan 2019	Current Direction	W
D5	09 Jan 2019	Water Temp (C)	13
D5	09 Jan 2019	Wave Height Low (ft)	2

Station	Date	Parameter	Value
D5	09 Jan 2019	High Tide (ft)	5.1
D5	09 Jan 2019	High Tide Time	1008
D5	09 Jan 2019	Low Tide (ft)	2.2
D5	09 Jan 2019	Low Tide Time	410
D5	09 Jan 2019	Comments	Algae; Water clear
D5	17 Jan 2019	Arrive Time	750
D5	17 Jan 2019	Weather	Cloudy
D5	17 Jan 2019	Wind Speed (kts)	3.2
D5	17 Jan 2019	Wind Dir	W
D5	17 Jan 2019	Animal Life	None
D5	17 Jan 2019	Floatables	None
D5	17 Jan 2019	Water Color	Green
D5	17 Jan 2019	Current Direction	N
D5	17 Jan 2019	Water Temp (C)	17.2
D5	17 Jan 2019	Wave Height Low (ft)	5
D5	17 Jan 2019	High Tide (ft)	5.5
D5	17 Jan 2019	High Tide Time	531
D5	17 Jan 2019	Low Tide (ft)	-0.4
D5	17 Jan 2019	Low Tide Time	1253
D5	17 Jan 2019	Comments	Kelp; Seagrass; Algae; Water clear
D5	23 Jan 2019	Arrive Time	803
D5	23 Jan 2019	Weather	Sunny
D5	23 Jan 2019	Wind Speed (kts)	3.4
D5	23 Jan 2019	Wind Dir	E
D5	23 Jan 2019	Animal Life	2 Shorebirds
D5	23 Jan 2019	Floatables	None
D5	23 Jan 2019	Water Color	Green
D5	23 Jan 2019	Current Direction	E
D5	23 Jan 2019	Water Temp (C)	11
D5	23 Jan 2019	Wave Height Low (ft)	1
D5	23 Jan 2019	High Tide (ft)	6.2
D5	23 Jan 2019	High Tide Time	1005
D5	23 Jan 2019	Low Tide (ft)	1.2
D5	23 Jan 2019	Low Tide Time	405
D5	23 Jan 2019	Comments	2 Boats; Water clear
D5	30 Jan 2019	Arrive Time	756
D5	30 Jan 2019	Weather	Partly Cloudy
D5	30 Jan 2019	Wind Speed (kts)	0
D5	30 Jan 2019	Wind Dir	
D5	30 Jan 2019	Animal Life	200 Cormorants; 2 Pelicans; 3 Seagulls
D5	30 Jan 2019	Floatables	None
D5	30 Jan 2019	Water Color	Green
D5	30 Jan 2019	Current Direction	
D5	30 Jan 2019	Water Temp (C)	16.7
D5	30 Jan 2019	Wave Height Low (ft)	2
D5	30 Jan 2019	High Tide (ft)	5.1
D5	30 Jan 2019	High Tide Time	514
D5	30 Jan 2019	Low Tide (ft)	-0.1
D5	30 Jan 2019	Low Tide Time	1244
D5	30 Jan 2019	Comments	Kelp; Water clear
D7	03 Jan 2019	Arrive Time	828

Station	Date	Parameter	Value
D7	03 Jan 2019	Weather	Sunny
D7	03 Jan 2019	Wind Speed (kts)	1.3
D7	03 Jan 2019	Wind Dir	N
D7	03 Jan 2019	Animal Life	None
D7	03 Jan 2019	Floatables	None
D7	03 Jan 2019	Water Color	Green
D7	03 Jan 2019	Current Direction	N
D7	03 Jan 2019	Water Temp (C)	11
D7	03 Jan 2019	Wave Height Low (ft)	2
D7	03 Jan 2019	High Tide (ft)	5.9
D7	03 Jan 2019	High Tide Time	654
D7	03 Jan 2019	Low Tide (ft)	-0.7
D7	03 Jan 2019	Low Tide Time	1410
D7	03 Jan 2019	Comments	Kelp; Seagrass; Water clear
D7	09 Jan 2019	Arrive Time	855
D7	09 Jan 2019	Weather	Partly Cloudy
D7	09 Jan 2019	Wind Speed (kts)	2.9
D7	09 Jan 2019	Wind Dir	S
D7	09 Jan 2019	Animal Life	None
D7	09 Jan 2019	Floatables	None
D7	09 Jan 2019	Water Color	Green
D7	09 Jan 2019	Current Direction	S
D7	09 Jan 2019	Water Temp (C)	14
D7	09 Jan 2019	Wave Height Low (ft)	5
D7	09 Jan 2019	High Tide (ft)	5.1
D7	09 Jan 2019	High Tide Time	1008
D7	09 Jan 2019	Low Tide (ft)	2.2
D7	09 Jan 2019	Low Tide Time	410
D7	09 Jan 2019	Comments	2 Persons; 6 Surfers; Water clear
D7	17 Jan 2019	Arrive Time	912
D7	17 Jan 2019	Weather	Cloudy
D7	17 Jan 2019	Wind Speed (kts)	7
D7	17 Jan 2019	Wind Dir	SW
D7	17 Jan 2019	Animal Life	None
D7	17 Jan 2019	Floatables	None
D7	17 Jan 2019	Water Color	Green
D7	17 Jan 2019	Current Direction	SW
D7	17 Jan 2019	Water Temp (C)	15
D7	17 Jan 2019	Wave Height Low (ft)	5
D7	17 Jan 2019	High Tide (ft)	5.5
D7	17 Jan 2019	High Tide Time	531
D7	17 Jan 2019	Low Tide (ft)	-0.4
D7	17 Jan 2019	Low Tide Time	1253
D7	17 Jan 2019	Comments	Kelp; Seagrass; 1 Person; Water turbid
D7	23 Jan 2019	Arrive Time	853
D7	23 Jan 2019	Weather	Sunny
D7	23 Jan 2019	Wind Speed (kts)	1.3
D7	23 Jan 2019	Wind Dir	E
D7	23 Jan 2019	Animal Life	16 Shorebirds
D7	23 Jan 2019	Floatables	None
D7	23 Jan 2019	Water Color	Green
D7	23 Jan 2019	Current Direction	E

Station	Date	Parameter	Value
D7	23 Jan 2019	Water Temp (C)	12
D7	23 Jan 2019	Wave Height Low (ft)	3
D7	23 Jan 2019	High Tide (ft)	6.2
D7	23 Jan 2019	High Tide Time	1005
D7	23 Jan 2019	Low Tide (ft)	1.2
D7	23 Jan 2019	Low Tide Time	405
D7	23 Jan 2019	Comments	1 Person; Water clear
D7	30 Jan 2019	Arrive Time	845
D7	30 Jan 2019	Weather	Partly Cloudy
D7	30 Jan 2019	Wind Speed (kts)	2.6
D7	30 Jan 2019	Wind Dir	W
D7	30 Jan 2019	Animal Life	1 Seagull
D7	30 Jan 2019	Floatables	None
D7	30 Jan 2019	Water Color	Green
D7	30 Jan 2019	Current Direction	W
D7	30 Jan 2019	Water Temp (C)	17.1
D7	30 Jan 2019	Wave Height Low (ft)	2
D7	30 Jan 2019	High Tide (ft)	5.1
D7	30 Jan 2019	High Tide Time	514
D7	30 Jan 2019	Low Tide (ft)	-0.1
D7	30 Jan 2019	Low Tide Time	1244
D7	30 Jan 2019	Comments	1 Person; 6 Surfers; 1 Boat; Water clear
D8-B	03 Jan 2019	Arrive Time	845
D8-B	03 Jan 2019	Weather	Sunny
D8-B	03 Jan 2019	Wind Speed (kts)	1.2
D8-B	03 Jan 2019	Wind Dir	N
D8-B	03 Jan 2019	Animal Life	None
D8-B	03 Jan 2019	Floatables	None
D8-B	03 Jan 2019	Water Color	Green
D8-B	03 Jan 2019	Current Direction	N
D8-B	03 Jan 2019	Water Temp (C)	11
D8-B	03 Jan 2019	Wave Height Low (ft)	2
D8-B	03 Jan 2019	High Tide (ft)	5.9
D8-B	03 Jan 2019	High Tide Time	654
D8-B	03 Jan 2019	Low Tide (ft)	-0.7
D8-B	03 Jan 2019	Low Tide Time	1410
D8-B	03 Jan 2019	Comments	Algae; 3 Persons; Water clear
D8-B	09 Jan 2019	Arrive Time	918
D8-B	09 Jan 2019	Weather	Partly Cloudy
D8-B	09 Jan 2019	Wind Speed (kts)	1.1
D8-B	09 Jan 2019	Wind Dir	W
D8-B	09 Jan 2019	Animal Life	2 Cormorants
D8-B	09 Jan 2019	Floatables	None
D8-B	09 Jan 2019	Water Color	Green
D8-B	09 Jan 2019	Current Direction	W
D8-B	09 Jan 2019	Water Temp (C)	14
D8-B	09 Jan 2019	Wave Height Low (ft)	3
D8-B	09 Jan 2019	High Tide (ft)	5.1
D8-B	09 Jan 2019	High Tide Time	1008
D8-B	09 Jan 2019	Low Tide (ft)	2.2
D8-B	09 Jan 2019	Low Tide Time	410
D8-B	09 Jan 2019	Comments	Water clear

Station	Date	Parameter	Value
D8-B	17 Jan 2019	Arrive Time	856
D8-B	17 Jan 2019	Weather	Cloudy
D8-B	17 Jan 2019	Wind Speed (kts)	7
D8-B	17 Jan 2019	Wind Dir	SW
D8-B	17 Jan 2019	Animal Life	None
D8-B	17 Jan 2019	Floatables	None
D8-B	17 Jan 2019	Water Color	Green
D8-B	17 Jan 2019	Current Direction	SW
D8-B	17 Jan 2019	Water Temp (C)	15
D8-B	17 Jan 2019	Wave Height Low (ft)	5
D8-B	17 Jan 2019	High Tide (ft)	5.5
D8-B	17 Jan 2019	High Tide Time	531
D8-B	17 Jan 2019	Low Tide (ft)	-0.4
D8-B	17 Jan 2019	Low Tide Time	1253
D8-B	17 Jan 2019	Comments	Kelp; Seagrass; Water turbid
D8-B	23 Jan 2019	Arrive Time	913
D8-B	23 Jan 2019	Weather	Sunny
D8-B	23 Jan 2019	Wind Speed (kts)	3.8
D8-B	23 Jan 2019	Wind Dir	SW
D8-B	23 Jan 2019	Animal Life	40 Shorebirds
D8-B	23 Jan 2019	Floatables	None
D8-B	23 Jan 2019	Water Color	Green
D8-B	23 Jan 2019	Current Direction	SW
D8-B	23 Jan 2019	Water Temp (C)	13
D8-B	23 Jan 2019	Wave Height Low (ft)	2
D8-B	23 Jan 2019	High Tide (ft)	6.2
D8-B	23 Jan 2019	High Tide Time	1005
D8-B	23 Jan 2019	Low Tide (ft)	1.2
D8-B	23 Jan 2019	Low Tide Time	405
D8-B	23 Jan 2019	Comments	Water clear
D8-B	30 Jan 2019	Arrive Time	904
D8-B	30 Jan 2019	Weather	Sunny
D8-B	30 Jan 2019	Wind Speed (kts)	5.4
D8-B	30 Jan 2019	Wind Dir	E
D8-B	30 Jan 2019	Animal Life	40 Shorebirds
D8-B	30 Jan 2019	Floatables	None
D8-B	30 Jan 2019	Water Color	Green
D8-B	30 Jan 2019	Current Direction	E
D8-B	30 Jan 2019	Water Temp (C)	17.1
D8-B	30 Jan 2019	Wave Height Low (ft)	2
D8-B	30 Jan 2019	High Tide (ft)	5.1
D8-B	30 Jan 2019	High Tide Time	514
D8-B	30 Jan 2019	Low Tide (ft)	-0.1
D8-B	30 Jan 2019	Low Tide Time	1244
D8-B	30 Jan 2019	Comments	Water clear
D9	03 Jan 2019	Arrive Time	853
D9	03 Jan 2019	Weather	Sunny
D9	03 Jan 2019	Wind Speed (kts)	1
D9	03 Jan 2019	Wind Dir	N
D9	03 Jan 2019	Animal Life	None
D9	03 Jan 2019	Floatables	None

Station	Date	Parameter	Value
D9	03 Jan 2019	Water Color	Green
D9	03 Jan 2019	Current Direction	N
D9	03 Jan 2019	Water Temp (C)	0
D9	03 Jan 2019	Wave Height Low (ft)	1
D9	03 Jan 2019	High Tide (ft)	5.9
D9	03 Jan 2019	High Tide Time	654
D9	03 Jan 2019	Low Tide (ft)	-0.7
D9	03 Jan 2019	Low Tide Time	1410
D9	03 Jan 2019	Comments	Water clear; Site inaccessible due to construction
D9	09 Jan 2019	Arrive Time	926
D9	09 Jan 2019	Weather	Sunny
D9	09 Jan 2019	Wind Speed (kts)	0
D9	09 Jan 2019	Wind Dir	
D9	09 Jan 2019	Animal Life	2 Shorebirds
D9	09 Jan 2019	Floatables	None
D9	09 Jan 2019	Water Color	Green
D9	09 Jan 2019	Current Direction	
D9	09 Jan 2019	Water Temp (C)	0
D9	09 Jan 2019	Wave Height Low (ft)	3
D9	09 Jan 2019	High Tide (ft)	5.1
D9	09 Jan 2019	High Tide Time	1008
D9	09 Jan 2019	Low Tide (ft)	2.2
D9	09 Jan 2019	Low Tide Time	410
D9	09 Jan 2019	Comments	Water clear; Site inaccessible due to construction
D9	17 Jan 2019	Arrive Time	825
D9	17 Jan 2019	Weather	Cloudy
D9	17 Jan 2019	Wind Speed (kts)	5
D9	17 Jan 2019	Wind Dir	SW
D9	17 Jan 2019	Animal Life	None
D9	17 Jan 2019	Floatables	None
D9	17 Jan 2019	Water Color	Green
D9	17 Jan 2019	Current Direction	SW
D9	17 Jan 2019	Water Temp (C)	15
D9	17 Jan 2019	Wave Height Low (ft)	4
D9	17 Jan 2019	High Tide (ft)	5.5
D9	17 Jan 2019	High Tide Time	531
D9	17 Jan 2019	Low Tide (ft)	-0.4
D9	17 Jan 2019	Low Tide Time	1253
D9	17 Jan 2019	Comments	Kelp; Seagrass; Water turbid; Disregard the 10 oclock entry. 0825 is the correct time.
D9	23 Jan 2019	Arrive Time	922
D9	23 Jan 2019	Weather	Sunny
D9	23 Jan 2019	Wind Speed (kts)	2.1
D9	23 Jan 2019	Wind Dir	E
D9	23 Jan 2019	Animal Life	None
D9	23 Jan 2019	Floatables	None
D9	23 Jan 2019	Water Color	Green
D9	23 Jan 2019	Current Direction	E
D9	23 Jan 2019	Water Temp (C)	0
D9	23 Jan 2019	Wave Height Low (ft)	3
D9	23 Jan 2019	High Tide (ft)	6.2
D9	23 Jan 2019	High Tide Time	1005

Station	Date	Parameter	Value
D9	23 Jan 2019	Low Tide (ft)	1.2
D9	23 Jan 2019	Low Tide Time	405
D9	23 Jan 2019	Comments	Water clear; Site inaccessible due to construction
D9	30 Jan 2019	Arrive Time	912
D9	30 Jan 2019	Weather	Sunny
D9	30 Jan 2019	Wind Speed (kts)	0
D9	30 Jan 2019	Wind Dir	
D9	30 Jan 2019	Animal Life	None
D9	30 Jan 2019	Floatables	None
D9	30 Jan 2019	Water Color	Green
D9	30 Jan 2019	Current Direction	
D9	30 Jan 2019	Water Temp (C)	0
D9	30 Jan 2019	Wave Height Low (ft)	2
D9	30 Jan 2019	High Tide (ft)	5.1
D9	30 Jan 2019	High Tide Time	514
D9	30 Jan 2019	Low Tide (ft)	-0.1
D9	30 Jan 2019	Low Tide Time	1244
D9	30 Jan 2019	Comments	Water clear; Site inaccessible due to construction
D10	03 Jan 2019	Arrive Time	902
D10	03 Jan 2019	Weather	Sunny
D10	03 Jan 2019	Wind Speed (kts)	0.3
D10	03 Jan 2019	Wind Dir	N
D10	03 Jan 2019	Animal Life	None
D10	03 Jan 2019	Floatables	None
D10	03 Jan 2019	Water Color	Green
D10	03 Jan 2019	Current Direction	N
D10	03 Jan 2019	Water Temp (C)	11
D10	03 Jan 2019	Wave Height Low (ft)	3
D10	03 Jan 2019	High Tide (ft)	5.9
D10	03 Jan 2019	High Tide Time	654
D10	03 Jan 2019	Low Tide (ft)	-0.7
D10	03 Jan 2019	Low Tide Time	1410
D10	03 Jan 2019	Comments	Kelp; Seagrass; 6 Persons; 12 Surfers; 4 Boats; Water clear
D10	09 Jan 2019	Arrive Time	942
D10	09 Jan 2019	Weather	Sunny
D10	09 Jan 2019	Wind Speed (kts)	1.7
D10	09 Jan 2019	Wind Dir	E
D10	09 Jan 2019	Animal Life	5 Shorebirds; 1 Sand Piper
D10	09 Jan 2019	Floatables	None
D10	09 Jan 2019	Water Color	Green
D10	09 Jan 2019	Current Direction	E
D10	09 Jan 2019	Water Temp (C)	14
D10	09 Jan 2019	Wave Height Low (ft)	8
D10	09 Jan 2019	High Tide (ft)	5.1
D10	09 Jan 2019	High Tide Time	1008
D10	09 Jan 2019	Low Tide (ft)	2.2
D10	09 Jan 2019	Low Tide Time	410
D10	09 Jan 2019	Comments	Kelp; Seagrass; 9 Persons; 14 Surfers; Water clear
D10	17 Jan 2019	Arrive Time	813
D10	17 Jan 2019	Weather	Cloudy
D10	17 Jan 2019	Wind Speed (kts)	5

Station	Date	Parameter	Value
D10	17 Jan 2019	Wind Dir	SW
D10	17 Jan 2019	Animal Life	None
D10	17 Jan 2019	Floatables	None
D10	17 Jan 2019	Water Color	Green
D10	17 Jan 2019	Current Direction	SW
D10	17 Jan 2019	Water Temp (C)	15
D10	17 Jan 2019	Wave Height Low (ft)	4
D10	17 Jan 2019	High Tide (ft)	5.5
D10	17 Jan 2019	High Tide Time	531
D10	17 Jan 2019	Low Tide (ft)	-0.4
D10	17 Jan 2019	Low Tide Time	1253
D10	17 Jan 2019	Comments	Kelp; Seagrass; Water turbid
D10	23 Jan 2019	Arrive Time	939
D10	23 Jan 2019	Weather	Sunny
D10	23 Jan 2019	Wind Speed (kts)	1.3
D10	23 Jan 2019	Wind Dir	E
D10	23 Jan 2019	Animal Life	16 Shorebirds; 1 Bird
D10	23 Jan 2019	Floatables	None
D10	23 Jan 2019	Water Color	Green
D10	23 Jan 2019	Current Direction	E
D10	23 Jan 2019	Water Temp (C)	13
D10	23 Jan 2019	Wave Height Low (ft)	2
D10	23 Jan 2019	High Tide (ft)	6.2
D10	23 Jan 2019	High Tide Time	1005
D10	23 Jan 2019	Low Tide (ft)	1.2
D10	23 Jan 2019	Low Tide Time	405
D10	23 Jan 2019	Comments	Kelp; Seagrass; 4 Persons; 29 Surfers; Water clear
D10	30 Jan 2019	Arrive Time	930
D10	30 Jan 2019	Weather	Sunny
D10	30 Jan 2019	Wind Speed (kts)	1.5
D10	30 Jan 2019	Wind Dir	NE
D10	30 Jan 2019	Animal Life	1 Sand Piper; 30 Seagulls
D10	30 Jan 2019	Floatables	None
D10	30 Jan 2019	Water Color	Green
D10	30 Jan 2019	Current Direction	NE
D10	30 Jan 2019	Water Temp (C)	17.8
D10	30 Jan 2019	Wave Height Low (ft)	3
D10	30 Jan 2019	High Tide (ft)	5.1
D10	30 Jan 2019	High Tide Time	514
D10	30 Jan 2019	Low Tide (ft)	-0.1
D10	30 Jan 2019	Low Tide Time	1244
D10	30 Jan 2019	Comments	12 Persons; 25 Surfers; Water clear
D11	03 Jan 2019	Arrive Time	921
D11	03 Jan 2019	Weather	Sunny
D11	03 Jan 2019	Wind Speed (kts)	0.1
D11	03 Jan 2019	Wind Dir	N
D11	03 Jan 2019	Animal Life	None
D11	03 Jan 2019	Floatables	None
D11	03 Jan 2019	Water Color	Green
D11	03 Jan 2019	Current Direction	N
D11	03 Jan 2019	Water Temp (C)	12
D11	03 Jan 2019	Wave Height Low (ft)	2

Station	Date	Parameter	Value
D11	03 Jan 2019	High Tide (ft)	5.9
D11	03 Jan 2019	High Tide Time	654
D11	03 Jan 2019	Low Tide (ft)	-0.7
D11	03 Jan 2019	Low Tide Time	1410
D11	03 Jan 2019	Comments	Kelp; Seagrass; 7 Persons; 9 Surfers; 2 Tractor; Water clear
D11	04 Jan 2019	Arrive Time	929
D11	04 Jan 2019	Weather	Sunny
D11	04 Jan 2019	Wind Speed (kts)	1.3
D11	04 Jan 2019	Wind Dir	E
D11	04 Jan 2019	Animal Life	None
D11	04 Jan 2019	Floatables	None
D11	04 Jan 2019	Water Color	Green
D11	04 Jan 2019	Current Direction	N
D11	04 Jan 2019	Water Temp (C)	12
D11	04 Jan 2019	Wave Height Low (ft)	2
D11	04 Jan 2019	High Tide (ft)	6
D11	04 Jan 2019	High Tide Time	728
D11	04 Jan 2019	Low Tide (ft)	-0.8
D11	04 Jan 2019	Low Tide Time	1444
D11	04 Jan 2019	Comments	Resample; Kelp; 3 Persons; 10 Surfers; 2 Tractor; Water clear; Site saturated with kelp
D11	09 Jan 2019	Arrive Time	959
D11	09 Jan 2019	Weather	Sunny
D11	09 Jan 2019	Wind Speed (kts)	1.9
D11	09 Jan 2019	Wind Dir	E
D11	09 Jan 2019	Animal Life	None
D11	09 Jan 2019	Floatables	None
D11	09 Jan 2019	Water Color	Green
D11	09 Jan 2019	Current Direction	E
D11	09 Jan 2019	Water Temp (C)	17
D11	09 Jan 2019	Wave Height Low (ft)	10
D11	09 Jan 2019	High Tide (ft)	5.1
D11	09 Jan 2019	High Tide Time	1008
D11	09 Jan 2019	Low Tide (ft)	2.2
D11	09 Jan 2019	Low Tide Time	410
D11	09 Jan 2019	Comments	Kelp; Seagrass; Sewage-like odor; 6 Persons; 6 Surfers; 1 Boat; Water clear
D11	17 Jan 2019	Arrive Time	800
D11	17 Jan 2019	Weather	Cloudy
D11	17 Jan 2019	Wind Speed (kts)	4
D11	17 Jan 2019	Wind Dir	SW
D11	17 Jan 2019	Animal Life	2 Dogs
D11	17 Jan 2019	Floatables	None
D11	17 Jan 2019	Water Color	Green
D11	17 Jan 2019	Current Direction	SW
D11	17 Jan 2019	Water Temp (C)	15
D11	17 Jan 2019	Wave Height Low (ft)	4
D11	17 Jan 2019	High Tide (ft)	5.5
D11	17 Jan 2019	High Tide Time	531
D11	17 Jan 2019	Low Tide (ft)	-0.4
D11	17 Jan 2019	Low Tide Time	1253
D11	17 Jan 2019	Comments	Kelp; Seagrass; Water turbid

Station	Date	Parameter	Value
D11	23 Jan 2019	Arrive Time	954
D11	23 Jan 2019	Weather	Sunny
D11	23 Jan 2019	Wind Speed (kts)	1.1
D11	23 Jan 2019	Wind Dir	E
D11	23 Jan 2019	Animal Life	1 Bird; 1 Dog
D11	23 Jan 2019	Floatables	None
D11	23 Jan 2019	Water Color	Green
D11	23 Jan 2019	Current Direction	E
D11	23 Jan 2019	Water Temp (C)	13
D11	23 Jan 2019	Wave Height Low (ft)	3
D11	23 Jan 2019	High Tide (ft)	6.2
D11	23 Jan 2019	High Tide Time	1005
D11	23 Jan 2019	Low Tide (ft)	1.2
D11	23 Jan 2019	Low Tide Time	405
D11	23 Jan 2019	Comments	Kelp; Seagrass; 1 Jogger; 15 Persons; 14 Surfers; Water clear
D11	30 Jan 2019	Arrive Time	951
D11	30 Jan 2019	Weather	Sunny
D11	30 Jan 2019	Wind Speed (kts)	5.6
D11	30 Jan 2019	Wind Dir	N
D11	30 Jan 2019	Animal Life	5 Shorebirds
D11	30 Jan 2019	Floatables	None
D11	30 Jan 2019	Water Color	Green
D11	30 Jan 2019	Current Direction	N
D11	30 Jan 2019	Water Temp (C)	18.7
D11	30 Jan 2019	Wave Height Low (ft)	3
D11	30 Jan 2019	High Tide (ft)	5.1
D11	30 Jan 2019	High Tide Time	514
D11	30 Jan 2019	Low Tide (ft)	-0.1
D11	30 Jan 2019	Low Tide Time	1244
D11	30 Jan 2019	Comments	5 Persons; 20 Surfers; Water clear
D12	03 Jan 2019	Arrive Time	947
D12	03 Jan 2019	Weather	Sunny
D12	03 Jan 2019	Wind Speed (kts)	0.3
D12	03 Jan 2019	Wind Dir	N
D12	03 Jan 2019	Animal Life	None
D12	03 Jan 2019	Floatables	None
D12	03 Jan 2019	Water Color	Green
D12	03 Jan 2019	Current Direction	N
D12	03 Jan 2019	Water Temp (C)	12
D12	03 Jan 2019	Wave Height Low (ft)	2
D12	03 Jan 2019	High Tide (ft)	5.9
D12	03 Jan 2019	High Tide Time	654
D12	03 Jan 2019	Low Tide (ft)	-0.7
D12	03 Jan 2019	Low Tide Time	1410
D12	03 Jan 2019	Comments	22 Persons; 4 Surfers; Water clear
D12	09 Jan 2019	Arrive Time	1025
D12	09 Jan 2019	Weather	Sunny
D12	09 Jan 2019	Wind Speed (kts)	5
D12	09 Jan 2019	Wind Dir	E
D12	09 Jan 2019	Animal Life	23 Shorebirds
D12	09 Jan 2019	Floatables	None

Station	Date	Parameter	Value
D12	09 Jan 2019	Water Color	Green
D12	09 Jan 2019	Current Direction	E
D12	09 Jan 2019	Water Temp (C)	15
D12	09 Jan 2019	Wave Height Low (ft)	6
D12	09 Jan 2019	High Tide (ft)	5.1
D12	09 Jan 2019	High Tide Time	1008
D12	09 Jan 2019	Low Tide (ft)	2.2
D12	09 Jan 2019	Low Tide Time	410
D12	09 Jan 2019	Comments	Kelp; Seagrass; Debris; 11 Persons; 1 Swimmer; Water clear
D12	17 Jan 2019	Arrive Time	748
D12	17 Jan 2019	Weather	Cloudy
D12	17 Jan 2019	Wind Speed (kts)	4
D12	17 Jan 2019	Wind Dir	SW
D12	17 Jan 2019	Animal Life	None
D12	17 Jan 2019	Floatables	None
D12	17 Jan 2019	Water Color	Colorless
D12	17 Jan 2019	Current Direction	SW
D12	17 Jan 2019	Water Temp (C)	15
D12	17 Jan 2019	Wave Height Low (ft)	4
D12	17 Jan 2019	High Tide (ft)	5.5
D12	17 Jan 2019	High Tide Time	531
D12	17 Jan 2019	Low Tide (ft)	-0.4
D12	17 Jan 2019	Low Tide Time	1253
D12	17 Jan 2019	Comments	Kelp; Seagrass; 1 Person; Water turbid; Beach being cleaned
D12	23 Jan 2019	Arrive Time	1021
D12	23 Jan 2019	Weather	Sunny
D12	23 Jan 2019	Wind Speed (kts)	2.1
D12	23 Jan 2019	Wind Dir	E
D12	23 Jan 2019	Animal Life	4 Shorebirds
D12	23 Jan 2019	Floatables	None
D12	23 Jan 2019	Water Color	Green
D12	23 Jan 2019	Current Direction	E
D12	23 Jan 2019	Water Temp (C)	14
D12	23 Jan 2019	Wave Height Low (ft)	2
D12	23 Jan 2019	High Tide (ft)	6.2
D12	23 Jan 2019	High Tide Time	1005
D12	23 Jan 2019	Low Tide (ft)	1.2
D12	23 Jan 2019	Low Tide Time	405
D12	23 Jan 2019	Comments	Kelp; Seagrass; 16 Persons; 11 Surfers; Water clear
D12	30 Jan 2019	Arrive Time	1019
D12	30 Jan 2019	Weather	Sunny
D12	30 Jan 2019	Wind Speed (kts)	5.4
D12	30 Jan 2019	Wind Dir	NE
D12	30 Jan 2019	Animal Life	16 Shorebirds
D12	30 Jan 2019	Floatables	None
D12	30 Jan 2019	Water Color	Other
D12	30 Jan 2019	Current Direction	NE
D12	30 Jan 2019	Water Temp (C)	18.5
D12	30 Jan 2019	Wave Height Low (ft)	3
D12	30 Jan 2019	High Tide (ft)	5.1
D12	30 Jan 2019	High Tide Time	514
D12	30 Jan 2019	Low Tide (ft)	-0.1

Station	Date	Parameter	Value
D12	30 Jan 2019	Low Tide Time	1244
D12	30 Jan 2019	Comments	1 Jogger; 14 Persons; 10 Surfers; 2 Fishermen; Water clear

Kelp Stations

Table 3.1

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Jan 2019	11*	10*	19*	3*	4*	4*	16*	6*
02 Jan 2019	7*	6*	11*	2*	2*	2*	6*	3*
03 Jan 2019	7*	6*	11*	2*	2*	2*	6*	3*
04 Jan 2019	7*	6*	11*	2*	2*	2*	6*	3*
05 Jan 2019	7*	6*	11*	2*	2*	2*	6*	3*
06 Jan 2019	7*	6*	11*	2*	2*	2*	6*	3*
07 Jan 2019	7	8	12	2	2	3	7	3
08 Jan 2019	7	8	12	2	2	3	7	3
09 Jan 2019	5*	8*	12*	2*	2*	3*	7*	3*
10 Jan 2019	5*	8*	12*	2*	2*	3*	7*	3*
11 Jan 2019	5*	8*	12*	2*	2*	3*	7*	3*
12 Jan 2019	5*	8*	12*	2*	2*	3*	7*	3*
13 Jan 2019	5*	8*	12*	2*	2*	3*	7*	3*
14 Jan 2019	5	9	8	3	3	3	9	4
15 Jan 2019	5	9	8	3	3	3	9	4
16 Jan 2019	6*	13*	12*	3*	4*	3*	13*	5*
17 Jan 2019	6*	13*	12*	3*	4*	3*	13*	5*
18 Jan 2019	6*	13*	12*	3*	4*	3*	13*	5*
19 Jan 2019	6*	13*	12*	3*	4*	3*	13*	5*
20 Jan 2019	6*	13*	12*	3*	4*	3*	13*	5*
21 Jan 2019	6*	13*	12*	3*	4*	3*	13*	5*
22 Jan 2019	6*	13*	12*	3*	4*	3*	13*	5*
23 Jan 2019	18	19	27	3	3	3	17	5
24 Jan 2019	18	19	27	3	3	3	17	5
25 Jan 2019	18	19	27	3	3	3	17	5
26 Jan 2019	22*	25*	17*	3*	4*	3*	14*	6*
27 Jan 2019	22*	25*	17*	3*	4*	3*	14*	6*
28 Jan 2019	14	16	15	3	4	3	9	5
29 Jan 2019	14	16	15	3	4	3	9	5
30 Jan 2019	14	16	15	3	4	3	9	5
31 Jan 2019	14	16	15	3	4	3	9	5

* Geometric mean calculated using n<5

Table 3.2

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Jan 2019	3*	4*	4*	2*	2*	2*	4*	2*
02 Jan 2019	2*	2*	4*	2*	2*	2*	2*	2*
03 Jan 2019	2*	2*	4*	2*	2*	2*	2*	2*
04 Jan 2019	2*	2*	4*	2*	2*	2*	2*	2*
05 Jan 2019	2*	2*	4*	2*	2*	2*	2*	2*
06 Jan 2019	2*	2*	4*	2*	2*	2*	2*	2*
07 Jan 2019	2	2	4	2	2	2	2	2
08 Jan 2019	2	2	4	2	2	2	2	2
09 Jan 2019	2*	2*	4*	2*	2*	2*	2*	2*
10 Jan 2019	2*	2*	4*	2*	2*	2*	2*	2*
11 Jan 2019	2*	2*	4*	2*	2*	2*	2*	2*
12 Jan 2019	2*	2*	4*	2*	2*	2*	2*	2*
13 Jan 2019	2*	2*	4*	2*	2*	2*	2*	2*
14 Jan 2019	2	2	4	2	3	2	2	2
15 Jan 2019	2	2	4	2	3	2	2	2
16 Jan 2019	2*	2*	4*	2*	3*	2*	2*	2*
17 Jan 2019	2*	2*	4*	2*	3*	2*	2*	2*
18 Jan 2019	2*	2*	4*	2*	3*	2*	2*	2*
19 Jan 2019	2*	2*	4*	2*	3*	2*	2*	2*
20 Jan 2019	2*	2*	4*	2*	3*	2*	2*	2*
21 Jan 2019	2*	2*	4*	2*	3*	2*	2*	2*
22 Jan 2019	2*	2*	4*	2*	3*	2*	2*	2*
23 Jan 2019	5	4	8	2	3	2	3	2
24 Jan 2019	5	4	8	2	3	2	3	2
25 Jan 2019	5	4	8	2	3	2	3	2
26 Jan 2019	6*	4*	6*	2*	3*	2*	3*	2*
27 Jan 2019	6*	4*	6*	2*	3*	2*	3*	2*
28 Jan 2019	5	3	6	2	3	2	3	2
29 Jan 2019	5	3	6	2	3	2	3	2
30 Jan 2019	5	3	6	2	3	2	3	2
31 Jan 2019	5	3	6	2	3	2	3	2

* Geometric mean calculated using n<5

Table 3.3

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Jan 2019	3*	3*	3*	2*	2*	2*	2*	2*
02 Jan 2019	3*	3*	3*	2*	2*	2*	3*	2*
03 Jan 2019	3*	3*	3*	2*	2*	2*	3*	2*
04 Jan 2019	3*	3*	3*	2*	2*	2*	3*	2*
05 Jan 2019	3*	3*	3*	2*	2*	2*	3*	2*
06 Jan 2019	3*	3*	3*	2*	2*	2*	3*	2*
07 Jan 2019	3	3	3	2	2	2	3	2
08 Jan 2019	3	3	3	2	2	2	3	2
09 Jan 2019	2*	2*	2*	2*	2*	2*	3*	2*
10 Jan 2019	2*	2*	2*	2*	2*	2*	3*	2*
11 Jan 2019	2*	2*	2*	2*	2*	2*	3*	2*
12 Jan 2019	2*	2*	2*	2*	2*	2*	3*	2*
13 Jan 2019	2*	2*	2*	2*	2*	2*	3*	2*
14 Jan 2019	2	2	2	2	2	3	3	2
15 Jan 2019	2	2	2	2	2	3	3	2
16 Jan 2019	2*	2*	2*	2*	2*	3*	3*	2*
17 Jan 2019	2*	2*	2*	2*	2*	3*	3*	2*
18 Jan 2019	2*	2*	2*	2*	2*	3*	3*	2*
19 Jan 2019	2*	2*	2*	2*	2*	3*	3*	2*
20 Jan 2019	2*	2*	2*	2*	2*	3*	3*	2*
21 Jan 2019	2*	2*	2*	2*	2*	3*	3*	2*
22 Jan 2019	2*	2*	2*	2*	2*	3*	3*	2*
23 Jan 2019	5	3	4	2	2	3	3	2
24 Jan 2019	5	3	4	2	2	3	3	2
25 Jan 2019	5	3	4	2	2	3	3	2
26 Jan 2019	6*	3*	4*	2*	2*	3*	3*	2*
27 Jan 2019	6*	3*	4*	2*	2*	3*	3*	2*
28 Jan 2019	5	3	4	2	2	3	3	2
29 Jan 2019	5	3	4	2	2	3	3	2
30 Jan 2019	5	3	4	2	2	3	3	2
31 Jan 2019	5	3	4	2	2	3	3	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
02 Jan 2019	IC							
07 Jan 2019	IC							
14 Jan 2019	IC							
23 Jan 2019	IC							
28 Jan 2019	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.5

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
02 Jan 2019	IC							
07 Jan 2019	IC							
14 Jan 2019	IC							
23 Jan 2019	IC							
28 Jan 2019	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.6

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
02 Jan 2019	IC							
07 Jan 2019	IC							
14 Jan 2019	IC							
23 Jan 2019	E	IC						
28 Jan 2019	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.7

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
02 Jan 2019	IC							
07 Jan 2019	IC							
14 Jan 2019	IC							
23 Jan 2019	E	IC	E	IC	IC	IC	IC	IC
28 Jan 2019	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.8

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

Station	Date	Time	Depth	Total	Fecal	Enter	F:T	Temp	XMS	DO	Sal	pH
A1	02 Jan 2019	750	1	<2	<2	<2	1.00	15.3	85.05	7.8	33.65	8.1
A1	02 Jan 2019	750	12	<2	<2	<2	1.00	15.3	85.40	7.8	33.65	8.1
A1	02 Jan 2019	750	18	12e	<2	<2	0.17	15.3	85.48	7.8	33.65	8.1
A1	07 Jan 2019	805	1	4e	<2	<2	0.50	15.8	87.63	7.8	33.68	8.1
A1	07 Jan 2019	805	12	4e	<2	<2	0.50	15.8	87.37	7.8	33.68	8.1
A1	07 Jan 2019	805	18	10e	2e	<2	0.20	15.6	85.15	7.7	33.67	8.1
A1	14 Jan 2019	812	1	2e	<2	<2	1.00	15.4	79.85	7.7	33.63	8.2
A1	14 Jan 2019	812	12	2e	<2	<2	1.00	15.4	80.26	7.6	33.63	8.2
A1	14 Jan 2019	812	18	6e	<2	<2	0.33	15.3	79.01	7.5	33.63	8.1
A1	23 Jan 2019	750	1	14e	4e	8e	0.29	15.2	80.97	7.7	33.62	8.2
A1	23 Jan 2019	750	12	4800	300e	160e	0.06	13.1	85.56	5.9	33.55	8.1
A1	23 Jan 2019	750	18	1600e	320e	280e	0.20	13.1	84.98	5.8	33.55	8.1
A1	28 Jan 2019	801	1	<2	<2	<2	1.00	14.6	82.77	8.0	33.58	8.1
A1	28 Jan 2019	801	12	<2	<2	<2	1.00	14.4	82.88	7.4	33.59	8.1
A1	28 Jan 2019	801	18	2e	<2	<2	1.00	14.4	82.91	7.3	33.59	8.1
A6	02 Jan 2019	814	1	8e	<2	2e	0.25	15.2	85.54	7.7	33.66	8.1
A6	02 Jan 2019	814	12	20e	<2	<2	0.10	15.2	85.43	7.6	33.66	8.1
A6	02 Jan 2019	814	18	10e	<2	<2	0.20	15.2	86.38	7.6	33.66	8.1
A6	07 Jan 2019	828	1	14e	2e	<2	0.14	15.6	83.51	7.7	33.67	8.1
A6	07 Jan 2019	828	12	26e	<2	<2	0.08	15.6	83.28	7.7	33.67	8.1
A6	07 Jan 2019	828	18	38e	2e	2e	0.05	15.5	82.71	7.6	33.66	8.1
A6	14 Jan 2019	843	1	10e	2e	<2	0.20	15.6	83.81	7.7	33.65	8.2
A6	14 Jan 2019	843	12	10e	<2	<2	0.20	15.6	84.29	7.6	33.66	8.2
A6	14 Jan 2019	843	18	16e	4e	2e	0.25	15.6	84.36	7.6	33.65	8.2
A6	23 Jan 2019	825	1	26e	4e	2e	0.15	15.1	83.40	7.7	33.62	8.2
A6	23 Jan 2019	825	12	120e	30e	8e	0.25	14.8	82.90	7.2	33.62	8.2
A6	23 Jan 2019	825	18	130	26e	10e	0.20	13.6	84.94	6.4	33.60	8.1
A6	28 Jan 2019	826	1	<2	<2	<2	1.00	14.6	82.83	7.9	33.60	8.2
A6	28 Jan 2019	826	12	<2	<2	<2	1.00	14.6	83.83	7.8	33.60	8.2
A6	28 Jan 2019	826	18	4e	<2	<2	0.50	14.5	84.48	7.6	33.60	8.1
A7	02 Jan 2019	802	1	2e	<2	<2	1.00	15.2	82.24	7.8	33.65	8.1
A7	02 Jan 2019	802	12	2e	<2	<2	1.00	15.1	82.44	7.9	33.66	8.1
A7	02 Jan 2019	802	18	4e	<2	<2	0.50	14.8	82.91	7.9	33.69	8.1
A7	07 Jan 2019	816	1	<2	<2	<2	1.00	15.8	88.01	7.8	33.68	8.1
A7	07 Jan 2019	816	12	8e	<2	<2	0.25	15.8	87.03	7.8	33.68	8.1
A7	07 Jan 2019	816	18	46	6e	<2	0.13	15.5	82.51	7.6	33.66	8.1

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
A7	14 Jan 2019	825	1	2e	<2	<2	1.00	15.5	82.05	7.7	33.65	8.2
	14 Jan 2019	825	12	<2	<2	<2	1.00	15.5	82.14	7.6	33.65	8.2
	14 Jan 2019	825	18	<2	2e	<2	1.00	15.5	81.98	7.5	33.64	8.2
A7	23 Jan 2019	805	1	8e	2e	2e	0.25	15.2	81.79	7.7	33.62	8.2
	23 Jan 2019	805	12	560	120e	34e	0.21	14.4	84.81	6.9	33.61	8.1
	23 Jan 2019	805	18	1800e	220e	80e	0.12	13.0	84.71	5.8	33.55	8.1
A7	28 Jan 2019	818	1	<2	<2	<2	1.00	14.7	82.70	7.9	33.60	8.2
	28 Jan 2019	818	12	8e	<2	<2	0.25	14.4	83.52	7.6	33.60	8.1
	28 Jan 2019	818	18	16e	6e	<2	0.38	14.1	83.91	7.1	33.60	8.1
C4	02 Jan 2019	925	1	<2	<2	<2	1.00	15.1	82.01	7.8	33.66	8.1
	02 Jan 2019	925	3	<2	<2	<2	1.00	15.1	81.83	7.8	33.65	8.1
	02 Jan 2019	925	9	<2	<2	<2	1.00	15.1	82.73	7.7	33.66	8.1
C4	07 Jan 2019	951	1	<2	<2	<2	1.00	15.3	71.69	7.9	33.64	8.1
	07 Jan 2019	951	3	2e	<2	<2	1.00	15.3	71.63	7.9	33.64	8.1
	07 Jan 2019	951	9	<2	<2	<2	1.00	15.3	70.68	7.8	33.65	8.1
C4	14 Jan 2019	1018	1	<2	<2	<2	1.00	15.2	73.68	7.6	33.55	8.2
	14 Jan 2019	1018	3	<20	<2	<2	0.10	15.2	75.57	7.7	33.60	8.2
	14 Jan 2019	1018	9	4e	<2	2e	0.50	15.2	74.40	7.7	33.60	8.2
C4	23 Jan 2019	940	1	2e	<2	<2	1.00	15.4	78.44	8.1	33.62	8.2
	23 Jan 2019	940	3	<2	<2	<2	1.00	15.3	78.12	8.0	33.61	8.2
	23 Jan 2019	940	9	<2	<2	<2	1.00	15.3	75.81	7.8	33.61	8.2
C4	28 Jan 2019	949	1	<2	<2	<2	1.00	14.5	82.17	8.2	33.60	8.2
	28 Jan 2019	949	3	<2	<2	<2	1.00	14.5	82.12	8.1	33.60	8.2
	28 Jan 2019	949	9	<2	<2	<2	1.00	14.4	81.97	8.0	33.60	8.2
C5	02 Jan 2019	915	1	2e	<2	<2	1.00	14.7	78.78	8.0	33.69	8.1
	02 Jan 2019	915	3	<2	<2	<2	1.00	14.7	78.57	8.0	33.69	8.1
	02 Jan 2019	915	9	<2	<2	<2	1.00	14.4	77.52	8.1	33.70	8.1
C5	07 Jan 2019	939	1	<2	<2	<2	1.00	15.4	75.69	8.0	33.63	8.1
	07 Jan 2019	939	3	<2	<2	<2	1.00	15.5	75.61	7.8	33.63	8.1
	07 Jan 2019	939	9	<2	<2	<2	1.00	15.4	75.06	7.9	33.63	8.1
C5	14 Jan 2019	950	1	<20	<2	<2	0.10	15.4	59.96	7.8	33.60	8.1
	14 Jan 2019	950	3	20e	16e	6e	0.80	15.4	59.13	7.8	33.64	8.1
	14 Jan 2019	950	9	<20	6e	<2	0.30	15.4	66.80	7.7	33.64	8.1
C5	23 Jan 2019	930	1	4e	<2	<2	0.50	15.3	80.76	7.8	33.61	8.2
	23 Jan 2019	930	3	2e	<2	<2	1.00	15.3	80.05	7.7	33.61	8.2
	23 Jan 2019	930	9	2e	<2	<2	1.00	15.1	80.68	6.9	33.61	8.2
C5	28 Jan 2019	935	1	<2	<2	<2	1.00	15.1	73.52	8.2	33.65	8.2
	28 Jan 2019	935	3	10e	<2	<2	0.20	15.0	71.25	7.9	33.64	8.2
	28 Jan 2019	935	9	<2	<2	<2	1.00	14.6	68.22	7.0	33.61	8.1
C6	02 Jan 2019	904	1	<2	<2	<2	1.00	15.1	87.05	7.9	33.69	8.1
	02 Jan 2019	904	3	<2	<2	<2	1.00	15.1	87.00	7.9	33.69	8.1

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
C6	02 Jan 2019	904	9	<2	<2	<2	1.00	15.0	87.09	8.0	33.69	8.1
C6	07 Jan 2019	928	1	<2	<2	<2	1.00	15.7	80.83	7.7	33.66	8.1
C6	07 Jan 2019	928	3	6e	4e	6e	0.67	15.7	80.68	7.7	33.66	8.1
C6	07 Jan 2019	928	9	14e	6e	2e	0.43	15.4	77.39	7.9	33.63	8.1
C6	14 Jan 2019	936	1	2e	<2	12e	1.00	15.4	72.92	7.6	33.64	8.1
C6	14 Jan 2019	936	3	2e	<2	4e	1.00	15.4	72.99	7.4	33.64	8.1
C6	14 Jan 2019	936	9	<2	<2	8e	1.00	15.5	72.60	7.5	33.65	8.1
C6	23 Jan 2019	918	1	<2	<2	<2	1.00	15.4	79.92	7.5	33.60	8.2
C6	23 Jan 2019	918	3	2e	<2	<2	1.00	15.3	79.22	7.6	33.61	8.2
C6	23 Jan 2019	918	9	2e	<2	<2	1.00	15.3	81.19	7.5	33.61	8.2
C6	28 Jan 2019	913	1	<2	<2	<2	1.00	14.9	78.80	8.2	33.63	8.2
C6	28 Jan 2019	913	3	<2	<2	<2	1.00	14.8	77.90	8.1	33.63	8.2
C6	28 Jan 2019	913	9	4e	<2	<2	0.50	14.6	82.07	7.2	33.61	8.2
C7	02 Jan 2019	831	1	<2	<2	<2	1.00	15.3	86.46	7.8	33.67	8.1
C7	02 Jan 2019	831	12	<2	<2	<2	1.00	15.3	86.61	7.8	33.67	8.1
C7	02 Jan 2019	831	18	2e	2e	<20	1.00	15.3	86.42	7.8	33.68	8.1
C7	07 Jan 2019	855	1	12e	<2	<2	0.17	15.6	77.09	8.0	33.65	8.1
C7	07 Jan 2019	855	12	12e	2e	2e	0.17	15.5	75.91	8.0	33.65	8.1
C7	07 Jan 2019	855	18	6e	<2	2e	0.33	15.4	65.19	8.2	33.63	8.1
C7	14 Jan 2019	901	1	12e	2e	<2	0.17	15.6	81.17	7.7	33.64	8.2
C7	14 Jan 2019	901	12	46	8e	2e	0.17	15.6	80.90	7.6	33.64	8.2
C7	14 Jan 2019	901	18	44	2e	<2	0.05	15.2	81.40	7.4	33.64	8.1
C7	23 Jan 2019	839	1	4e	<2	<2	0.50	15.3	83.11	7.8	33.63	8.2
C7	23 Jan 2019	839	12	10e	<2	<2	0.20	14.9	84.89	7.3	33.62	8.2
C7	23 Jan 2019	839	18	140	8e	6e	0.06	13.8	85.69	6.6	33.61	8.1
C7	28 Jan 2019	841	1	<2	<2	2e	1.00	14.6	82.13	7.8	33.60	8.2
C7	28 Jan 2019	841	12	2e	<2	<2	1.00	14.4	83.92	7.5	33.60	8.1
C7	28 Jan 2019	841	18	<2	<2	<2	1.00	14.0	84.35	6.6	33.59	8.1
C8	02 Jan 2019	844	1	<2	<2	<2	1.00	15.2	85.54	7.7	33.66	8.1
C8	02 Jan 2019	844	12	2e	<2	<2	1.00	15.2	85.45	7.7	33.67	8.1
C8	02 Jan 2019	844	18	6e	<2	<2	0.33	15.2	84.61	7.9	33.68	8.1
C8	07 Jan 2019	906	1	4e	<2	2e	0.50	15.7	83.65	7.9	33.69	8.1
C8	07 Jan 2019	906	12	2e	<2	<2	1.00	15.7	83.79	7.9	33.67	8.1
C8	07 Jan 2019	906	18	14e	<2	<2	0.14	15.6	82.56	7.6	33.66	8.1
C8	14 Jan 2019	912	1	<20	<2	<2	0.10	15.7	75.42	7.8	33.62	8.2
C8	14 Jan 2019	912	12	2e	<2	<2	1.00	15.7	76.16	7.8	33.62	8.2
C8	14 Jan 2019	912	18	<20	<2	<2	0.10	15.2	63.57	7.4	33.63	8.2
C8	23 Jan 2019	852	1	<2	<2	<2	1.00	15.3	82.79	7.9	33.63	8.2
C8	23 Jan 2019	852	12	2e	<2	<2	1.00	15.2	83.00	7.8	33.63	8.2
C8	23 Jan 2019	852	18	10e	<2	<2	0.20	14.1	85.50	6.7	33.61	8.1
C8	28 Jan 2019	853	1	<2	<2	<2	1.00	14.6	81.67	7.9	33.60	8.2

Station	Date	Time	Depth	Total	Fecal	Enter	F:T	Temp	XMS	DO	Sal	pH
C8	28 Jan 2019	853	12	<2	<2	<2	1.00	14.2	84.13	7.1	33.60	8.1
C8	28 Jan 2019	853	18	<2	<2	<2	1.00	14.0	84.32	6.8	33.60	8.1

ns = not sampled

ND = no data

Table 3.9

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

Station	Date	Parameter	Value
A1	02 Jan 2019	Depth (m)	20
A1	02 Jan 2019	Arrive Time	750
A1	02 Jan 2019	Depart Time	755
A1	02 Jan 2019	Air Temp (C)	10
A1	02 Jan 2019	Weather	Clear
A1	02 Jan 2019	Visibility (mi)	10
A1	02 Jan 2019	Wind Speed (kts)	6
A1	02 Jan 2019	Wind Dir	E
A1	02 Jan 2019	Water Color	Bluish-Green
A1	02 Jan 2019	Wave Ht Low (ft)	3
A1	02 Jan 2019	Wave Period (sec)	13
A1	02 Jan 2019	Sea State	Confused swell
A1	02 Jan 2019	High Tide (ft)	5.79
A1	02 Jan 2019	High Tide Time	618
A1	02 Jan 2019	Low Tide (ft)	-0.42
A1	02 Jan 2019	Low Tide Time	1333
A1	02 Jan 2019	Comments	Lobster floats; Kelp
A1	07 Jan 2019	Depth (m)	19
A1	07 Jan 2019	Arrive Time	805
A1	07 Jan 2019	Depart Time	810
A1	07 Jan 2019	Air Temp (C)	11
A1	07 Jan 2019	Weather	Clear
A1	07 Jan 2019	Visibility (mi)	11
A1	07 Jan 2019	Wind Speed (kts)	10
A1	07 Jan 2019	Wind Dir	NE
A1	07 Jan 2019	Water Color	Bluish-Green
A1	07 Jan 2019	Wave Ht Low (ft)	6
A1	07 Jan 2019	Wave Period (sec)	13
A1	07 Jan 2019	Sea State	Wind ripples
A1	07 Jan 2019	High Tide (ft)	5.66
A1	07 Jan 2019	High Tide Time	904
A1	07 Jan 2019	Low Tide (ft)	-0.6
A1	07 Jan 2019	Low Tide Time	1621
A1	07 Jan 2019	Comments	Lobster floats; Kelp debris
A1	14 Jan 2019	Depth (m)	20
A1	14 Jan 2019	Arrive Time	812
A1	14 Jan 2019	Depart Time	815
A1	14 Jan 2019	Air Temp (C)	15
A1	14 Jan 2019	Weather	Continuous layer of clouds
A1	14 Jan 2019	Visibility (mi)	2
A1	14 Jan 2019	Wind Speed (kts)	16
A1	14 Jan 2019	Wind Dir	SE
A1	14 Jan 2019	Water Color	Greenish-Blue
A1	14 Jan 2019	Wave Ht Low (ft)	5
A1	14 Jan 2019	Wave Period (sec)	9
A1	14 Jan 2019	Sea State	Heavy chop
A1	14 Jan 2019	High Tide (ft)	2.82
A1	14 Jan 2019	High Tide Time	1522
A1	14 Jan 2019	Low Tide (ft)	1.81

Station	Date	Parameter	Value
A1	14 Jan 2019	Low Tide Time	1006
A1	14 Jan 2019	Comments	none
A1	23 Jan 2019	Depth (m)	20
A1	23 Jan 2019	Arrive Time	750
A1	23 Jan 2019	Depart Time	758
A1	23 Jan 2019	Air Temp (C)	13
A1	23 Jan 2019	Weather	Clear
A1	23 Jan 2019	Visibility (mi)	10
A1	23 Jan 2019	Wind Speed (kts)	4
A1	23 Jan 2019	Wind Dir	NE
A1	23 Jan 2019	Water Color	Bluish-Green
A1	23 Jan 2019	Wave Ht Low (ft)	3
A1	23 Jan 2019	Wave Period (sec)	11
A1	23 Jan 2019	Sea State	Calm
A1	23 Jan 2019	High Tide (ft)	6.21
A1	23 Jan 2019	High Tide Time	1005
A1	23 Jan 2019	Low Tide (ft)	1.24
A1	23 Jan 2019	Low Tide Time	405
A1	23 Jan 2019	Comments	Lobster floats; Kelp
A1	28 Jan 2019	Depth (m)	18
A1	28 Jan 2019	Arrive Time	801
A1	28 Jan 2019	Depart Time	804
A1	28 Jan 2019	Air Temp (C)	14
A1	28 Jan 2019	Weather	Partly Cloudy
A1	28 Jan 2019	Visibility (mi)	10
A1	28 Jan 2019	Wind Speed (kts)	3
A1	28 Jan 2019	Wind Dir	E
A1	28 Jan 2019	Water Color	Green
A1	28 Jan 2019	Wave Ht Low (ft)	3
A1	28 Jan 2019	Wave Period (sec)	13
A1	28 Jan 2019	Sea State	Calm
A1	28 Jan 2019	High Tide (ft)	2.9
A1	28 Jan 2019	High Tide Time	1624
A1	28 Jan 2019	Low Tide (ft)	0.92
A1	28 Jan 2019	Low Tide Time	1035
A1	28 Jan 2019	Comments	Kelp; Lobster floats
A6	02 Jan 2019	Depth (m)	17
A6	02 Jan 2019	Arrive Time	814
A6	02 Jan 2019	Depart Time	820
A6	02 Jan 2019	Air Temp (C)	11
A6	02 Jan 2019	Weather	Clear
A6	02 Jan 2019	Visibility (mi)	10
A6	02 Jan 2019	Wind Speed (kts)	7
A6	02 Jan 2019	Wind Dir	E
A6	02 Jan 2019	Water Color	Bluish-Green
A6	02 Jan 2019	Wave Ht Low (ft)	3
A6	02 Jan 2019	Wave Period (sec)	13
A6	02 Jan 2019	Sea State	Confused swell
A6	02 Jan 2019	High Tide (ft)	5.79
A6	02 Jan 2019	High Tide Time	618
A6	02 Jan 2019	Low Tide (ft)	-0.42
A6	02 Jan 2019	Low Tide Time	1333

Station	Date	Parameter	Value
A6	02 Jan 2019	Comments	Lobster floats; Kelp debris
A6	07 Jan 2019	Depth (m)	17
A6	07 Jan 2019	Arrive Time	828
A6	07 Jan 2019	Depart Time	843
A6	07 Jan 2019	Air Temp (C)	13
A6	07 Jan 2019	Weather	Clear
A6	07 Jan 2019	Visibility (mi)	11
A6	07 Jan 2019	Wind Speed (kts)	7
A6	07 Jan 2019	Wind Dir	E
A6	07 Jan 2019	Water Color	Bluish-Green
A6	07 Jan 2019	Wave Ht Low (ft)	6
A6	07 Jan 2019	Wave Period (sec)	13
A6	07 Jan 2019	Sea State	Wind ripples
A6	07 Jan 2019	High Tide (ft)	5.66
A6	07 Jan 2019	High Tide Time	904
A6	07 Jan 2019	Low Tide (ft)	-0.6
A6	07 Jan 2019	Low Tide Time	1621
A6	07 Jan 2019	Comments	Lobster floats; Kelp
A6	14 Jan 2019	Depth (m)	20
A6	14 Jan 2019	Arrive Time	843
A6	14 Jan 2019	Depart Time	854
A6	14 Jan 2019	Air Temp (C)	15
A6	14 Jan 2019	Weather	Continuous layer of clouds
A6	14 Jan 2019	Visibility (mi)	2
A6	14 Jan 2019	Wind Speed (kts)	24
A6	14 Jan 2019	Wind Dir	SE
A6	14 Jan 2019	Water Color	Greenish-Blue
A6	14 Jan 2019	Wave Ht Low (ft)	5
A6	14 Jan 2019	Wave Period (sec)	9
A6	14 Jan 2019	Sea State	Heavy chop
A6	14 Jan 2019	High Tide (ft)	2.82
A6	14 Jan 2019	High Tide Time	1522
A6	14 Jan 2019	Low Tide (ft)	1.81
A6	14 Jan 2019	Low Tide Time	1006
A6	14 Jan 2019	Comments	none
A6	23 Jan 2019	Depth (m)	18
A6	23 Jan 2019	Arrive Time	825
A6	23 Jan 2019	Depart Time	830
A6	23 Jan 2019	Air Temp (C)	14
A6	23 Jan 2019	Weather	Clear
A6	23 Jan 2019	Visibility (mi)	10
A6	23 Jan 2019	Wind Speed (kts)	2
A6	23 Jan 2019	Wind Dir	NW
A6	23 Jan 2019	Water Color	Bluish-Green
A6	23 Jan 2019	Wave Ht Low (ft)	3
A6	23 Jan 2019	Wave Period (sec)	11
A6	23 Jan 2019	Sea State	Calm
A6	23 Jan 2019	High Tide (ft)	6.21
A6	23 Jan 2019	High Tide Time	1005
A6	23 Jan 2019	Low Tide (ft)	1.24
A6	23 Jan 2019	Low Tide Time	405
A6	23 Jan 2019	Comments	Lobster floats

Station	Date	Parameter	Value
A6	28 Jan 2019	Depth (m)	19
A6	28 Jan 2019	Arrive Time	826
A6	28 Jan 2019	Depart Time	832
A6	28 Jan 2019	Air Temp (C)	15
A6	28 Jan 2019	Weather	Partly Cloudy
A6	28 Jan 2019	Visibility (mi)	14
A6	28 Jan 2019	Wind Speed (kts)	4
A6	28 Jan 2019	Wind Dir	NW
A6	28 Jan 2019	Water Color	Green
A6	28 Jan 2019	Wave Ht Low (ft)	3
A6	28 Jan 2019	Wave Period (sec)	13
A6	28 Jan 2019	Sea State	Calm
A6	28 Jan 2019	High Tide (ft)	2.9
A6	28 Jan 2019	High Tide Time	1624
A6	28 Jan 2019	Low Tide (ft)	0.92
A6	28 Jan 2019	Low Tide Time	1035
A6	28 Jan 2019	Comments	Kelp; Lobster floats
A7	02 Jan 2019	Depth (m)	16
A7	02 Jan 2019	Arrive Time	802
A7	02 Jan 2019	Depart Time	807
A7	02 Jan 2019	Air Temp (C)	10
A7	02 Jan 2019	Weather	Clear
A7	02 Jan 2019	Visibility (mi)	10
A7	02 Jan 2019	Wind Speed (kts)	6
A7	02 Jan 2019	Wind Dir	E
A7	02 Jan 2019	Water Color	Bluish-Green
A7	02 Jan 2019	Wave Ht Low (ft)	3
A7	02 Jan 2019	Wave Period (sec)	13
A7	02 Jan 2019	Sea State	Confused swell
A7	02 Jan 2019	High Tide (ft)	5.79
A7	02 Jan 2019	High Tide Time	618
A7	02 Jan 2019	Low Tide (ft)	-0.42
A7	02 Jan 2019	Low Tide Time	1333
A7	02 Jan 2019	Comments	Lobster floats; Bubbles affecting xms at surface; Unable to obtain station depth
A7	07 Jan 2019	Depth (m)	18
A7	07 Jan 2019	Arrive Time	816
A7	07 Jan 2019	Depart Time	821
A7	07 Jan 2019	Air Temp (C)	12
A7	07 Jan 2019	Weather	Clear
A7	07 Jan 2019	Visibility (mi)	11
A7	07 Jan 2019	Wind Speed (kts)	10
A7	07 Jan 2019	Wind Dir	E
A7	07 Jan 2019	Water Color	Bluish-Green
A7	07 Jan 2019	Wave Ht Low (ft)	6
A7	07 Jan 2019	Wave Period (sec)	13
A7	07 Jan 2019	Sea State	Wind ripples
A7	07 Jan 2019	High Tide (ft)	5.66
A7	07 Jan 2019	High Tide Time	904
A7	07 Jan 2019	Low Tide (ft)	-0.6
A7	07 Jan 2019	Low Tide Time	1621
A7	07 Jan 2019	Comments	Large flock of birds on station; Lobster floats; Kelp

Station	Date	Parameter	Value
A7	14 Jan 2019	Depth (m)	18
A7	14 Jan 2019	Arrive Time	825
A7	14 Jan 2019	Depart Time	829
A7	14 Jan 2019	Air Temp (C)	15
A7	14 Jan 2019	Weather	Continuous layer of clouds
A7	14 Jan 2019	Visibility (mi)	2
A7	14 Jan 2019	Wind Speed (kts)	18
A7	14 Jan 2019	Wind Dir	SE
A7	14 Jan 2019	Water Color	Greenish-Blue
A7	14 Jan 2019	Wave Ht Low (ft)	5
A7	14 Jan 2019	Wave Period (sec)	9
A7	14 Jan 2019	Sea State	Heavy chop
A7	14 Jan 2019	High Tide (ft)	2.82
A7	14 Jan 2019	High Tide Time	1522
A7	14 Jan 2019	Low Tide (ft)	1.81
A7	14 Jan 2019	Low Tide Time	1006
A7	14 Jan 2019	Comments	none
A7	23 Jan 2019	Depth (m)	19
A7	23 Jan 2019	Arrive Time	805
A7	23 Jan 2019	Depart Time	816
A7	23 Jan 2019	Air Temp (C)	13
A7	23 Jan 2019	Weather	Clear
A7	23 Jan 2019	Visibility (mi)	10
A7	23 Jan 2019	Wind Speed (kts)	3
A7	23 Jan 2019	Wind Dir	E
A7	23 Jan 2019	Water Color	Bluish-Green
A7	23 Jan 2019	Wave Ht Low (ft)	3
A7	23 Jan 2019	Wave Period (sec)	11
A7	23 Jan 2019	Sea State	Calm
A7	23 Jan 2019	High Tide (ft)	6.21
A7	23 Jan 2019	High Tide Time	1005
A7	23 Jan 2019	Low Tide (ft)	1.24
A7	23 Jan 2019	Low Tide Time	405
A7	23 Jan 2019	Comments	Lobster floats; Kelp
A7	28 Jan 2019	Depth (m)	18
A7	28 Jan 2019	Arrive Time	818
A7	28 Jan 2019	Depart Time	818
A7	28 Jan 2019	Air Temp (C)	15
A7	28 Jan 2019	Weather	Partly Cloudy
A7	28 Jan 2019	Visibility (mi)	10
A7	28 Jan 2019	Wind Speed (kts)	4
A7	28 Jan 2019	Wind Dir	NW
A7	28 Jan 2019	Water Color	Green
A7	28 Jan 2019	Wave Ht Low (ft)	3
A7	28 Jan 2019	Wave Period (sec)	13
A7	28 Jan 2019	Sea State	Calm
A7	28 Jan 2019	High Tide (ft)	2.9
A7	28 Jan 2019	High Tide Time	1624
A7	28 Jan 2019	Low Tide (ft)	0.92
A7	28 Jan 2019	Low Tide Time	1035
A7	28 Jan 2019	Comments	Kelp; Lobster floats

Station	Date	Parameter	Value
C4	02 Jan 2019	Depth (m)	10
C4	02 Jan 2019	Arrive Time	925
C4	02 Jan 2019	Depart Time	929
C4	02 Jan 2019	Air Temp (C)	11
C4	02 Jan 2019	Weather	Clear
C4	02 Jan 2019	Visibility (mi)	12
C4	02 Jan 2019	Wind Speed (kts)	5
C4	02 Jan 2019	Wind Dir	NE
C4	02 Jan 2019	Water Color	Bluish-Green
C4	02 Jan 2019	Wave Ht Low (ft)	3
C4	02 Jan 2019	Wave Period (sec)	13
C4	02 Jan 2019	Sea State	Confused swell
C4	02 Jan 2019	High Tide (ft)	5.79
C4	02 Jan 2019	High Tide Time	618
C4	02 Jan 2019	Low Tide (ft)	-0.42
C4	02 Jan 2019	Low Tide Time	1333
C4	02 Jan 2019	Comments	Lobster floats; Kelp debris
C4	07 Jan 2019	Depth (m)	12
C4	07 Jan 2019	Arrive Time	951
C4	07 Jan 2019	Depart Time	956
C4	07 Jan 2019	Air Temp (C)	13
C4	07 Jan 2019	Weather	Clear
C4	07 Jan 2019	Visibility (mi)	11
C4	07 Jan 2019	Wind Speed (kts)	6
C4	07 Jan 2019	Wind Dir	E
C4	07 Jan 2019	Water Color	Bluish-Green
C4	07 Jan 2019	Wave Ht Low (ft)	6
C4	07 Jan 2019	Wave Period (sec)	13
C4	07 Jan 2019	Sea State	Light chop
C4	07 Jan 2019	High Tide (ft)	5.66
C4	07 Jan 2019	High Tide Time	904
C4	07 Jan 2019	Low Tide (ft)	-0.6
C4	07 Jan 2019	Low Tide Time	1621
C4	07 Jan 2019	Comments	Lobster floats; Kelp
C4	14 Jan 2019	Depth (m)	10
C4	14 Jan 2019	Arrive Time	1018
C4	14 Jan 2019	Depart Time	1022
C4	14 Jan 2019	Air Temp (C)	13
C4	14 Jan 2019	Weather	Rain
C4	14 Jan 2019	Visibility (mi)	1
C4	14 Jan 2019	Wind Speed (kts)	18
C4	14 Jan 2019	Wind Dir	E
C4	14 Jan 2019	Water Color	Brownish-Green
C4	14 Jan 2019	Wave Ht Low (ft)	5
C4	14 Jan 2019	Wave Period (sec)	7
C4	14 Jan 2019	Sea State	Heavy chop
C4	14 Jan 2019	High Tide (ft)	2.82
C4	14 Jan 2019	High Tide Time	1522
C4	14 Jan 2019	Low Tide (ft)	1.81
C4	14 Jan 2019	Low Tide Time	1006
C4	14 Jan 2019	Comments	none
C4	23 Jan 2019	Depth (m)	12

Station	Date	Parameter	Value
C4	23 Jan 2019	Arrive Time	940
C4	23 Jan 2019	Depart Time	945
C4	23 Jan 2019	Air Temp (C)	14
C4	23 Jan 2019	Weather	Clear
C4	23 Jan 2019	Visibility (mi)	11
C4	23 Jan 2019	Wind Speed (kts)	5
C4	23 Jan 2019	Wind Dir	NW
C4	23 Jan 2019	Water Color	Bluish-Green
C4	23 Jan 2019	Wave Ht Low (ft)	3
C4	23 Jan 2019	Wave Period (sec)	11
C4	23 Jan 2019	Sea State	Calm
C4	23 Jan 2019	High Tide (ft)	6.21
C4	23 Jan 2019	High Tide Time	1005
C4	23 Jan 2019	Low Tide (ft)	1.24
C4	23 Jan 2019	Low Tide Time	405
C4	23 Jan 2019	Comments	Lobster floats; Kelp
C4	28 Jan 2019	Depth (m)	11
C4	28 Jan 2019	Arrive Time	949
C4	28 Jan 2019	Depart Time	953
C4	28 Jan 2019	Air Temp (C)	15
C4	28 Jan 2019	Weather	Partly Cloudy
C4	28 Jan 2019	Visibility (mi)	12
C4	28 Jan 2019	Wind Speed (kts)	2
C4	28 Jan 2019	Wind Dir	NW
C4	28 Jan 2019	Water Color	Green
C4	28 Jan 2019	Wave Ht Low (ft)	3
C4	28 Jan 2019	Wave Period (sec)	13
C4	28 Jan 2019	Sea State	Calm
C4	28 Jan 2019	High Tide (ft)	2.9
C4	28 Jan 2019	High Tide Time	1624
C4	28 Jan 2019	Low Tide (ft)	0.92
C4	28 Jan 2019	Low Tide Time	1035
C4	28 Jan 2019	Comments	Kelp
C5	02 Jan 2019	Depth (m)	10
C5	02 Jan 2019	Arrive Time	915
C5	02 Jan 2019	Depart Time	917
C5	02 Jan 2019	Air Temp (C)	11
C5	02 Jan 2019	Weather	Clear
C5	02 Jan 2019	Visibility (mi)	12
C5	02 Jan 2019	Wind Speed (kts)	2
C5	02 Jan 2019	Wind Dir	E
C5	02 Jan 2019	Water Color	Bluish-Green
C5	02 Jan 2019	Wave Ht Low (ft)	3
C5	02 Jan 2019	Wave Period (sec)	13
C5	02 Jan 2019	Sea State	Confused swell
C5	02 Jan 2019	High Tide (ft)	5.79
C5	02 Jan 2019	High Tide Time	618
C5	02 Jan 2019	Low Tide (ft)	-0.42
C5	02 Jan 2019	Low Tide Time	1333
C5	02 Jan 2019	Comments	Lobster floats; Kelp debris
C5	07 Jan 2019	Depth (m)	12
C5	07 Jan 2019	Arrive Time	939

Station	Date	Parameter	Value
C5	07 Jan 2019	Depart Time	945
C5	07 Jan 2019	Air Temp (C)	14
C5	07 Jan 2019	Weather	Clear
C5	07 Jan 2019	Visibility (mi)	11
C5	07 Jan 2019	Wind Speed (kts)	5
C5	07 Jan 2019	Wind Dir	E
C5	07 Jan 2019	Water Color	Bluish-Green
C5	07 Jan 2019	Wave Ht Low (ft)	6
C5	07 Jan 2019	Wave Period (sec)	13
C5	07 Jan 2019	Sea State	Wind ripples
C5	07 Jan 2019	High Tide (ft)	5.66
C5	07 Jan 2019	High Tide Time	904
C5	07 Jan 2019	Low Tide (ft)	-0.6
C5	07 Jan 2019	Low Tide Time	1621
C5	07 Jan 2019	Comments	Lobster floats
C5	14 Jan 2019	Depth (m)	12
C5	14 Jan 2019	Arrive Time	950
C5	14 Jan 2019	Depart Time	1007
C5	14 Jan 2019	Air Temp (C)	14
C5	14 Jan 2019	Weather	Rain
C5	14 Jan 2019	Visibility (mi)	1
C5	14 Jan 2019	Wind Speed (kts)	25
C5	14 Jan 2019	Wind Dir	E
C5	14 Jan 2019	Water Color	Brownish-Green
C5	14 Jan 2019	Wave Ht Low (ft)	5
C5	14 Jan 2019	Wave Period (sec)	7
C5	14 Jan 2019	Sea State	Heavy chop
C5	14 Jan 2019	High Tide (ft)	2.82
C5	14 Jan 2019	High Tide Time	1522
C5	14 Jan 2019	Low Tide (ft)	1.81
C5	14 Jan 2019	Low Tide Time	1006
C5	14 Jan 2019	Comments	none
C5	23 Jan 2019	Depth (m)	11
C5	23 Jan 2019	Arrive Time	930
C5	23 Jan 2019	Depart Time	934
C5	23 Jan 2019	Air Temp (C)	14
C5	23 Jan 2019	Weather	Clear
C5	23 Jan 2019	Visibility (mi)	11
C5	23 Jan 2019	Wind Speed (kts)	5
C5	23 Jan 2019	Wind Dir	N
C5	23 Jan 2019	Water Color	Bluish-Green
C5	23 Jan 2019	Wave Ht Low (ft)	3
C5	23 Jan 2019	Wave Period (sec)	11
C5	23 Jan 2019	Sea State	Calm
C5	23 Jan 2019	High Tide (ft)	6.21
C5	23 Jan 2019	High Tide Time	1005
C5	23 Jan 2019	Low Tide (ft)	1.24
C5	23 Jan 2019	Low Tide Time	405
C5	23 Jan 2019	Comments	Boats; Lobster floats
C5	28 Jan 2019	Depth (m)	10
C5	28 Jan 2019	Arrive Time	935
C5	28 Jan 2019	Depart Time	943

Station	Date	Parameter	Value
C5	28 Jan 2019	Air Temp (C)	15
C5	28 Jan 2019	Weather	Partly Cloudy
C5	28 Jan 2019	Visibility (mi)	14
C5	28 Jan 2019	Wind Speed (kts)	2
C5	28 Jan 2019	Wind Dir	NE
C5	28 Jan 2019	Water Color	Green
C5	28 Jan 2019	Wave Ht Low (ft)	3
C5	28 Jan 2019	Wave Period (sec)	13
C5	28 Jan 2019	Sea State	Calm
C5	28 Jan 2019	High Tide (ft)	2.9
C5	28 Jan 2019	High Tide Time	1624
C5	28 Jan 2019	Low Tide (ft)	0.92
C5	28 Jan 2019	Low Tide Time	1035
C5	28 Jan 2019	Comments	Kelp
C6	02 Jan 2019	Depth (m)	9
C6	02 Jan 2019	Arrive Time	904
C6	02 Jan 2019	Depart Time	909
C6	02 Jan 2019	Air Temp (C)	11
C6	02 Jan 2019	Weather	Clear
C6	02 Jan 2019	Visibility (mi)	12
C6	02 Jan 2019	Wind Speed (kts)	3
C6	02 Jan 2019	Wind Dir	E
C6	02 Jan 2019	Water Color	Bluish-Green
C6	02 Jan 2019	Wave Ht Low (ft)	3
C6	02 Jan 2019	Wave Period (sec)	13
C6	02 Jan 2019	Sea State	Confused swell
C6	02 Jan 2019	High Tide (ft)	5.79
C6	02 Jan 2019	High Tide Time	618
C6	02 Jan 2019	Low Tide (ft)	-0.42
C6	02 Jan 2019	Low Tide Time	1333
C6	02 Jan 2019	Comments	Kelp debris; Lobster floats
C6	07 Jan 2019	Depth (m)	10
C6	07 Jan 2019	Arrive Time	928
C6	07 Jan 2019	Depart Time	932
C6	07 Jan 2019	Air Temp (C)	14
C6	07 Jan 2019	Weather	Clear
C6	07 Jan 2019	Visibility (mi)	11
C6	07 Jan 2019	Wind Speed (kts)	4
C6	07 Jan 2019	Wind Dir	E
C6	07 Jan 2019	Water Color	Bluish-Green
C6	07 Jan 2019	Wave Ht Low (ft)	6
C6	07 Jan 2019	Wave Period (sec)	13
C6	07 Jan 2019	Sea State	Wind ripples
C6	07 Jan 2019	High Tide (ft)	5.66
C6	07 Jan 2019	High Tide Time	904
C6	07 Jan 2019	Low Tide (ft)	-0.6
C6	07 Jan 2019	Low Tide Time	1621
C6	07 Jan 2019	Comments	Lobster floats
C6	14 Jan 2019	Depth (m)	9
C6	14 Jan 2019	Arrive Time	936
C6	14 Jan 2019	Depart Time	940
C6	14 Jan 2019	Air Temp (C)	14

Station	Date	Parameter	Value
C6	14 Jan 2019	Weather	Rain
C6	14 Jan 2019	Visibility (mi)	1
C6	14 Jan 2019	Wind Speed (kts)	22
C6	14 Jan 2019	Wind Dir	SE
C6	14 Jan 2019	Water Color	Brownish-Green
C6	14 Jan 2019	Wave Ht Low (ft)	5
C6	14 Jan 2019	Wave Period (sec)	7
C6	14 Jan 2019	Sea State	Heavy chop
C6	14 Jan 2019	High Tide (ft)	2.82
C6	14 Jan 2019	High Tide Time	1522
C6	14 Jan 2019	Low Tide (ft)	1.81
C6	14 Jan 2019	Low Tide Time	1006
C6	14 Jan 2019	Comments	none
C6	23 Jan 2019	Depth (m)	10
C6	23 Jan 2019	Arrive Time	918
C6	23 Jan 2019	Depart Time	923
C6	23 Jan 2019	Air Temp (C)	14
C6	23 Jan 2019	Weather	Clear
C6	23 Jan 2019	Visibility (mi)	10
C6	23 Jan 2019	Wind Speed (kts)	4
C6	23 Jan 2019	Wind Dir	N
C6	23 Jan 2019	Water Color	Bluish-Green
C6	23 Jan 2019	Wave Ht Low (ft)	3
C6	23 Jan 2019	Wave Period (sec)	11
C6	23 Jan 2019	Sea State	Calm
C6	23 Jan 2019	High Tide (ft)	6.21
C6	23 Jan 2019	High Tide Time	1005
C6	23 Jan 2019	Low Tide (ft)	1.24
C6	23 Jan 2019	Low Tide Time	405
C6	23 Jan 2019	Comments	none
C6	28 Jan 2019	Depth (m)	9
C6	28 Jan 2019	Arrive Time	913
C6	28 Jan 2019	Depart Time	921
C6	28 Jan 2019	Air Temp (C)	16
C6	28 Jan 2019	Weather	Partly Cloudy
C6	28 Jan 2019	Visibility (mi)	14
C6	28 Jan 2019	Wind Speed (kts)	2
C6	28 Jan 2019	Wind Dir	NE
C6	28 Jan 2019	Water Color	Green
C6	28 Jan 2019	Wave Ht Low (ft)	3
C6	28 Jan 2019	Wave Period (sec)	13
C6	28 Jan 2019	Sea State	Calm
C6	28 Jan 2019	High Tide (ft)	2.9
C6	28 Jan 2019	High Tide Time	1624
C6	28 Jan 2019	Low Tide (ft)	0.92
C6	28 Jan 2019	Low Tide Time	1035
C6	28 Jan 2019	Comments	Kelp
C7	02 Jan 2019	Depth (m)	18
C7	02 Jan 2019	Arrive Time	831
C7	02 Jan 2019	Depart Time	836
C7	02 Jan 2019	Air Temp (C)	11
C7	02 Jan 2019	Weather	Clear

Station	Date	Parameter	Value
C7	02 Jan 2019	Visibility (mi)	10
C7	02 Jan 2019	Wind Speed (kts)	5
C7	02 Jan 2019	Wind Dir	NE
C7	02 Jan 2019	Water Color	Bluish-Green
C7	02 Jan 2019	Wave Ht Low (ft)	3
C7	02 Jan 2019	Wave Period (sec)	13
C7	02 Jan 2019	Sea State	Confused swell
C7	02 Jan 2019	High Tide (ft)	5.79
C7	02 Jan 2019	High Tide Time	618
C7	02 Jan 2019	Low Tide (ft)	-0.42
C7	02 Jan 2019	Low Tide Time	1333
C7	02 Jan 2019	Comments	Lobster floats; Kelp debris
C7	07 Jan 2019	Depth (m)	19
C7	07 Jan 2019	Arrive Time	855
C7	07 Jan 2019	Depart Time	859
C7	07 Jan 2019	Air Temp (C)	14
C7	07 Jan 2019	Weather	Clear
C7	07 Jan 2019	Visibility (mi)	11
C7	07 Jan 2019	Wind Speed (kts)	6
C7	07 Jan 2019	Wind Dir	E
C7	07 Jan 2019	Water Color	Bluish-Green
C7	07 Jan 2019	Wave Ht Low (ft)	6
C7	07 Jan 2019	Wave Period (sec)	13
C7	07 Jan 2019	Sea State	Wind ripples
C7	07 Jan 2019	High Tide (ft)	5.66
C7	07 Jan 2019	High Tide Time	904
C7	07 Jan 2019	Low Tide (ft)	-0.6
C7	07 Jan 2019	Low Tide Time	1621
C7	07 Jan 2019	Comments	Lobster floats; Boats
C7	14 Jan 2019	Depth (m)	18
C7	14 Jan 2019	Arrive Time	901
C7	14 Jan 2019	Depart Time	904
C7	14 Jan 2019	Air Temp (C)	14
C7	14 Jan 2019	Weather	Continuous layer of clouds
C7	14 Jan 2019	Visibility (mi)	2
C7	14 Jan 2019	Wind Speed (kts)	15
C7	14 Jan 2019	Wind Dir	SE
C7	14 Jan 2019	Water Color	Greenish-Blue
C7	14 Jan 2019	Wave Ht Low (ft)	5
C7	14 Jan 2019	Wave Period (sec)	9
C7	14 Jan 2019	Sea State	Heavy chop
C7	14 Jan 2019	High Tide (ft)	2.82
C7	14 Jan 2019	High Tide Time	1522
C7	14 Jan 2019	Low Tide (ft)	1.81
C7	14 Jan 2019	Low Tide Time	1006
C7	14 Jan 2019	Comments	none
C7	23 Jan 2019	Depth (m)	19
C7	23 Jan 2019	Arrive Time	839
C7	23 Jan 2019	Depart Time	846
C7	23 Jan 2019	Air Temp (C)	13
C7	23 Jan 2019	Weather	Clear
C7	23 Jan 2019	Visibility (mi)	10

Station	Date	Parameter	Value
C7	23 Jan 2019	Wind Speed (kts)	2
C7	23 Jan 2019	Wind Dir	NW
C7	23 Jan 2019	Water Color	Bluish-Green
C7	23 Jan 2019	Wave Ht Low (ft)	3
C7	23 Jan 2019	Wave Period (sec)	11
C7	23 Jan 2019	Sea State	Calm
C7	23 Jan 2019	High Tide (ft)	6.21
C7	23 Jan 2019	High Tide Time	1005
C7	23 Jan 2019	Low Tide (ft)	1.24
C7	23 Jan 2019	Low Tide Time	405
C7	23 Jan 2019	Comments	none
C7	28 Jan 2019	Depth (m)	18
C7	28 Jan 2019	Arrive Time	841
C7	28 Jan 2019	Depart Time	843
C7	28 Jan 2019	Air Temp (C)	15
C7	28 Jan 2019	Weather	Partly Cloudy
C7	28 Jan 2019	Visibility (mi)	14
C7	28 Jan 2019	Wind Speed (kts)	1
C7	28 Jan 2019	Wind Dir	N
C7	28 Jan 2019	Water Color	Green
C7	28 Jan 2019	Wave Ht Low (ft)	3
C7	28 Jan 2019	Wave Period (sec)	13
C7	28 Jan 2019	Sea State	Calm
C7	28 Jan 2019	High Tide (ft)	2.9
C7	28 Jan 2019	High Tide Time	1624
C7	28 Jan 2019	Low Tide (ft)	0.92
C7	28 Jan 2019	Low Tide Time	1035
C7	28 Jan 2019	Comments	Kelp
C8	02 Jan 2019	Depth (m)	20
C8	02 Jan 2019	Arrive Time	844
C8	02 Jan 2019	Depart Time	849
C8	02 Jan 2019	Air Temp (C)	11
C8	02 Jan 2019	Weather	Clear
C8	02 Jan 2019	Visibility (mi)	10
C8	02 Jan 2019	Wind Speed (kts)	7
C8	02 Jan 2019	Wind Dir	NE
C8	02 Jan 2019	Water Color	Bluish-Green
C8	02 Jan 2019	Wave Ht Low (ft)	3
C8	02 Jan 2019	Wave Period (sec)	13
C8	02 Jan 2019	Sea State	Confused swell
C8	02 Jan 2019	High Tide (ft)	5.79
C8	02 Jan 2019	High Tide Time	618
C8	02 Jan 2019	Low Tide (ft)	-0.42
C8	02 Jan 2019	Low Tide Time	1333
C8	02 Jan 2019	Comments	Kelp debris; Lobster floats
C8	07 Jan 2019	Depth (m)	20
C8	07 Jan 2019	Arrive Time	906
C8	07 Jan 2019	Depart Time	911
C8	07 Jan 2019	Air Temp (C)	14
C8	07 Jan 2019	Weather	Clear
C8	07 Jan 2019	Visibility (mi)	11
C8	07 Jan 2019	Wind Speed (kts)	4

Station	Date	Parameter	Value
C8	07 Jan 2019	Wind Dir	E
C8	07 Jan 2019	Water Color	Bluish-Green
C8	07 Jan 2019	Wave Ht Low (ft)	6
C8	07 Jan 2019	Wave Period (sec)	13
C8	07 Jan 2019	Sea State	Wind ripples
C8	07 Jan 2019	High Tide (ft)	5.66
C8	07 Jan 2019	High Tide Time	904
C8	07 Jan 2019	Low Tide (ft)	-0.6
C8	07 Jan 2019	Low Tide Time	1621
C8	07 Jan 2019	Comments	Kelp debris
C8	14 Jan 2019	Depth (m)	21
C8	14 Jan 2019	Arrive Time	912
C8	14 Jan 2019	Depart Time	916
C8	14 Jan 2019	Air Temp (C)	14
C8	14 Jan 2019	Weather	Rain
C8	14 Jan 2019	Visibility (mi)	2
C8	14 Jan 2019	Wind Speed (kts)	18
C8	14 Jan 2019	Wind Dir	SE
C8	14 Jan 2019	Water Color	Greenish-Blue
C8	14 Jan 2019	Wave Ht Low (ft)	5
C8	14 Jan 2019	Wave Period (sec)	9
C8	14 Jan 2019	Sea State	Heavy chop
C8	14 Jan 2019	High Tide (ft)	2.82
C8	14 Jan 2019	High Tide Time	1522
C8	14 Jan 2019	Low Tide (ft)	1.81
C8	14 Jan 2019	Low Tide Time	1006
C8	14 Jan 2019	Comments	none
C8	23 Jan 2019	Depth (m)	21
C8	23 Jan 2019	Arrive Time	852
C8	23 Jan 2019	Depart Time	855
C8	23 Jan 2019	Air Temp (C)	13
C8	23 Jan 2019	Weather	Clear
C8	23 Jan 2019	Visibility (mi)	10
C8	23 Jan 2019	Wind Speed (kts)	4
C8	23 Jan 2019	Wind Dir	NE
C8	23 Jan 2019	Water Color	Bluish-Green
C8	23 Jan 2019	Wave Ht Low (ft)	3
C8	23 Jan 2019	Wave Period (sec)	11
C8	23 Jan 2019	Sea State	Calm
C8	23 Jan 2019	High Tide (ft)	6.21
C8	23 Jan 2019	High Tide Time	1005
C8	23 Jan 2019	Low Tide (ft)	1.24
C8	23 Jan 2019	Low Tide Time	405
C8	23 Jan 2019	Comments	Boats
C8	28 Jan 2019	Depth (m)	19
C8	28 Jan 2019	Arrive Time	853
C8	28 Jan 2019	Depart Time	855
C8	28 Jan 2019	Air Temp (C)	15
C8	28 Jan 2019	Weather	Partly Cloudy
C8	28 Jan 2019	Visibility (mi)	14
C8	28 Jan 2019	Wind Speed (kts)	0
C8	28 Jan 2019	Wind Dir	

Station	Date	Parameter	Value
C8	28 Jan 2019	Water Color	Green
C8	28 Jan 2019	Wave Ht Low (ft)	3
C8	28 Jan 2019	Wave Period (sec)	13
C8	28 Jan 2019	Sea State	Calm
C8	28 Jan 2019	High Tide (ft)	2.9
C8	28 Jan 2019	High Tide Time	1624
C8	28 Jan 2019	Low Tide (ft)	0.92
C8	28 Jan 2019	Low Tide Time	1035
C8	28 Jan 2019	Comments	Kelp; Boats

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 (σ-t)	Chlor (μg/L)
A1	02 Jan 2019	1	15.32	85.05	7.8	33.65	8.1	24.9	0.85
A1	02 Jan 2019	2	15.32	84.52	7.8	33.65	8.1	24.9	0.86
A1	02 Jan 2019	3	15.31	84.87	7.8	33.65	8.1	24.9	0.87
A1	02 Jan 2019	4	15.32	85.35	7.8	33.65	8.1	24.9	0.89
A1	02 Jan 2019	5	15.32	85.50	7.8	33.65	8.1	24.9	0.92
A1	02 Jan 2019	6	15.33	85.37	7.8	33.65	8.1	24.9	0.97
A1	02 Jan 2019	7	15.33	85.45	7.8	33.65	8.1	24.9	1.02
A1	02 Jan 2019	8	15.33	85.33	7.8	33.65	8.1	24.9	1.01
A1	02 Jan 2019	9	15.33	85.36	7.8	33.65	8.1	24.9	1.01
A1	02 Jan 2019	10	15.33	85.50	7.8	33.65	8.1	24.9	1.04
A1	02 Jan 2019	11	15.34	85.43	7.8	33.65	8.1	24.9	1.03
A1	02 Jan 2019	12	15.34	85.40	7.8	33.65	8.1	24.9	1.03
A1	02 Jan 2019	13	15.34	85.44	7.8	33.65	8.1	24.9	1.01
A1	02 Jan 2019	14	15.34	85.34	7.8	33.65	8.1	24.9	1.01
A1	02 Jan 2019	15	15.34	85.46	7.8	33.65	8.1	24.9	1.02
A1	02 Jan 2019	16	15.34	85.46	7.8	33.65	8.1	24.9	1.04
A1	02 Jan 2019	17	15.34	85.39	7.8	33.65	8.1	24.9	0.99
A1	02 Jan 2019	18	15.34	85.48	7.8	33.65	8.1	24.9	1.00
A1	02 Jan 2019	19	15.34	85.36	7.8	33.65	8.1	24.9	1.00
A1	02 Jan 2019	20	15.34	85.57	7.8	33.65	8.1	24.9	0.98
A1	07 Jan 2019	1	15.83	87.63	7.8	33.68	8.1	24.8	0.48
A1	07 Jan 2019	2	15.82	87.19	7.8	33.68	8.1	24.8	0.48
A1	07 Jan 2019	3	15.81	87.06	7.8	33.68	8.1	24.8	0.47
A1	07 Jan 2019	4	15.82	87.84	7.8	33.68	8.1	24.8	0.49
A1	07 Jan 2019	5	15.82	88.05	7.8	33.68	8.1	24.8	0.50
A1	07 Jan 2019	6	15.83	88.03	7.8	33.68	8.1	24.8	0.53
A1	07 Jan 2019	7	15.82	88.00	7.8	33.68	8.1	24.8	0.54
A1	07 Jan 2019	8	15.82	88.02	7.8	33.68	8.1	24.8	0.56
A1	07 Jan 2019	9	15.82	88.05	7.8	33.68	8.1	24.8	0.59
A1	07 Jan 2019	10	15.82	87.86	7.8	33.68	8.1	24.8	0.64
A1	07 Jan 2019	11	15.81	87.67	7.8	33.68	8.1	24.8	0.66
A1	07 Jan 2019	12	15.78	87.37	7.8	33.68	8.1	24.8	0.68
A1	07 Jan 2019	13	15.74	86.63	7.8	33.67	8.1	24.8	0.68
A1	07 Jan 2019	14	15.69	85.96	7.7	33.67	8.1	24.8	0.66
A1	07 Jan 2019	15	15.68	85.81	7.7	33.67	8.1	24.8	0.66
A1	07 Jan 2019	16	15.67	85.69	7.7	33.67	8.1	24.8	0.68
A1	07 Jan 2019	17	15.67	85.58	7.7	33.67	8.1	24.8	0.65
A1	07 Jan 2019	18	15.65	85.15	7.7	33.67	8.1	24.8	0.65
A1	07 Jan 2019	19	15.63	84.87	7.7	33.67	8.1	24.8	0.65
A1	14 Jan 2019	1	15.41	79.85	7.7	33.63	8.2	24.8	0.87
A1	14 Jan 2019	2	15.41	80.51	7.7	33.63	8.2	24.8	0.88
A1	14 Jan 2019	3	15.41	80.67	7.6	33.63	8.2	24.8	0.90
A1	14 Jan 2019	4	15.41	81.35	7.7	33.63	8.2	24.8	0.89
A1	14 Jan 2019	5	15.41	81.53	7.7	33.63	8.2	24.8	0.91
A1	14 Jan 2019	6	15.41	81.45	7.6	33.63	8.2	24.8	0.90
A1	14 Jan 2019	7	15.41	81.36	7.6	33.63	8.2	24.8	0.86
A1	14 Jan 2019	8	15.41	81.56	7.6	33.63	8.2	24.8	0.89
A1	14 Jan 2019	9	15.40	81.39	7.6	33.63	8.2	24.8	0.90

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
A1	14 Jan 2019	10	15.38	80.42	7.6	33.63	8.2	24.8	0.91
A1	14 Jan 2019	11	15.38	80.35	7.6	33.63	8.2	24.8	0.91
A1	14 Jan 2019	12	15.37	80.26	7.6	33.63	8.2	24.8	0.90
A1	14 Jan 2019	13	15.37	80.22	7.6	33.63	8.2	24.8	0.92
A1	14 Jan 2019	14	15.38	80.25	7.6	33.63	8.2	24.8	0.89
A1	14 Jan 2019	15	15.37	80.23	7.5	33.63	8.2	24.8	0.90
A1	14 Jan 2019	16	15.34	79.43	7.6	33.63	8.2	24.8	0.88
A1	14 Jan 2019	17	15.32	79.16	7.5	33.63	8.1	24.8	0.89
A1	14 Jan 2019	18	15.32	79.01	7.5	33.63	8.1	24.8	0.86
A1	14 Jan 2019	19	15.32	79.16	7.5	33.63	8.1	24.8	0.94
A1	23 Jan 2019	1	15.20	80.97	7.7	33.62	8.2	24.9	0.73
A1	23 Jan 2019	2	15.22	80.66	7.7	33.62	8.2	24.9	0.84
A1	23 Jan 2019	3	15.22	80.83	7.7	33.62	8.2	24.9	0.86
A1	23 Jan 2019	4	15.19	81.01	7.6	33.62	8.2	24.9	0.94
A1	23 Jan 2019	5	15.13	81.35	7.5	33.62	8.2	24.9	0.89
A1	23 Jan 2019	6	15.07	82.14	7.3	33.62	8.2	24.9	0.84
A1	23 Jan 2019	7	14.75	83.19	7.0	33.63	8.2	25.0	0.67
A1	23 Jan 2019	8	14.43	84.50	6.7	33.61	8.2	25.0	0.51
A1	23 Jan 2019	9	13.51	85.36	6.2	33.61	8.2	25.2	0.36
A1	23 Jan 2019	10	13.28	85.63	6.0	33.57	8.1	25.2	0.24
A1	23 Jan 2019	11	13.18	85.70	6.0	33.56	8.1	25.2	0.20
A1	23 Jan 2019	12	13.13	85.56	5.9	33.55	8.1	25.2	0.19
A1	23 Jan 2019	13	13.11	85.36	5.9	33.55	8.1	25.2	0.18
A1	23 Jan 2019	14	13.09	85.12	5.9	33.55	8.1	25.3	0.18
A1	23 Jan 2019	15	13.09	84.82	5.8	33.55	8.1	25.3	0.17
A1	23 Jan 2019	16	13.10	84.97	5.8	33.55	8.1	25.3	0.18
A1	23 Jan 2019	17	13.09	85.03	5.8	33.55	8.1	25.3	0.17
A1	23 Jan 2019	18	13.09	84.98	5.8	33.55	8.1	25.3	0.18
A1	23 Jan 2019	19	13.09	84.86	5.8	33.56	8.1	25.3	0.18
A1	28 Jan 2019	1	14.55	82.77	8.0	33.58	8.1	25.0	1.11
A1	28 Jan 2019	2	14.55	82.56	8.0	33.58	8.1	25.0	1.23
A1	28 Jan 2019	3	14.53	82.48	7.9	33.58	8.1	25.0	1.24
A1	28 Jan 2019	4	14.52	82.60	7.8	33.59	8.1	25.0	1.23
A1	28 Jan 2019	5	14.50	82.58	7.8	33.59	8.1	25.0	1.21
A1	28 Jan 2019	6	14.50	82.73	7.7	33.59	8.1	25.0	1.23
A1	28 Jan 2019	7	14.48	82.81	7.6	33.59	8.1	25.0	1.13
A1	28 Jan 2019	8	14.43	82.94	7.5	33.59	8.1	25.0	1.12
A1	28 Jan 2019	9	14.42	83.05	7.4	33.59	8.1	25.0	1.00
A1	28 Jan 2019	10	14.41	83.10	7.4	33.59	8.1	25.0	0.97
A1	28 Jan 2019	11	14.40	83.08	7.4	33.59	8.1	25.0	0.99
A1	28 Jan 2019	12	14.40	82.88	7.4	33.59	8.1	25.0	1.00
A1	28 Jan 2019	13	14.40	82.78	7.4	33.59	8.1	25.0	1.01
A1	28 Jan 2019	14	14.40	82.71	7.5	33.59	8.1	25.0	1.04
A1	28 Jan 2019	15	14.41	82.49	7.5	33.59	8.1	25.0	1.08
A1	28 Jan 2019	16	14.39	82.52	7.5	33.59	8.1	25.0	1.10
A1	28 Jan 2019	17	14.38	82.62	7.4	33.59	8.1	25.0	1.04
A1	28 Jan 2019	18	14.36	82.91	7.3	33.59	8.1	25.0	0.98
A6	02 Jan 2019	1	15.17	85.54	7.7	33.66	8.1	24.9	0.68
A6	02 Jan 2019	2	15.17	85.53	7.7	33.66	8.1	24.9	0.71
A6	02 Jan 2019	3	15.17	85.44	7.7	33.66	8.1	24.9	0.76
A6	02 Jan 2019	4	15.18	85.47	7.7	33.66	8.1	24.9	0.78
A6	02 Jan 2019	5	15.18	85.63	7.6	33.66	8.1	24.9	0.80

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
A6	02 Jan 2019	6	15.17	85.57	7.6	33.66	8.1	24.9	0.79
A6	02 Jan 2019	7	15.18	85.65	7.7	33.66	8.1	24.9	0.81
A6	02 Jan 2019	8	15.18	85.61	7.7	33.66	8.1	24.9	0.79
A6	02 Jan 2019	9	15.18	85.59	7.7	33.66	8.1	24.9	0.83
A6	02 Jan 2019	10	15.18	85.28	7.6	33.66	8.1	24.9	0.89
A6	02 Jan 2019	11	15.17	83.85	7.6	33.66	8.1	24.9	0.96
A6	02 Jan 2019	12	15.17	85.43	7.6	33.66	8.1	24.9	0.87
A6	02 Jan 2019	13	15.16	85.60	7.6	33.66	8.1	24.9	0.78
A6	02 Jan 2019	14	15.16	85.37	7.6	33.66	8.1	24.9	0.76
A6	02 Jan 2019	15	15.16	85.49	7.6	33.66	8.1	24.9	0.77
A6	02 Jan 2019	16	15.15	86.36	7.5	33.66	8.1	24.9	0.71
A6	02 Jan 2019	17	15.15	86.38	7.6	33.66	8.1	24.9	0.68
A6	07 Jan 2019	1	15.56	83.51	7.7	33.67	8.1	24.8	0.53
A6	07 Jan 2019	2	15.56	83.53	7.7	33.67	8.1	24.8	0.51
A6	07 Jan 2019	3	15.56	83.61	7.7	33.67	8.1	24.8	0.53
A6	07 Jan 2019	4	15.56	83.49	7.7	33.67	8.1	24.8	0.57
A6	07 Jan 2019	5	15.56	83.49	7.7	33.67	8.1	24.8	0.62
A6	07 Jan 2019	6	15.56	83.35	7.7	33.67	8.1	24.8	0.69
A6	07 Jan 2019	7	15.56	83.39	7.7	33.67	8.1	24.8	0.73
A6	07 Jan 2019	8	15.56	83.45	7.7	33.67	8.1	24.8	0.77
A6	07 Jan 2019	9	15.56	83.35	7.7	33.67	8.1	24.8	0.79
A6	07 Jan 2019	10	15.56	83.38	7.7	33.67	8.1	24.8	0.81
A6	07 Jan 2019	11	15.56	83.32	7.7	33.67	8.1	24.8	0.79
A6	07 Jan 2019	12	15.55	83.28	7.7	33.67	8.1	24.8	0.79
A6	07 Jan 2019	13	15.56	83.40	7.7	33.67	8.1	24.8	0.80
A6	07 Jan 2019	14	15.56	83.42	7.7	33.67	8.1	24.8	0.80
A6	07 Jan 2019	15	15.56	83.36	7.7	33.67	8.1	24.8	0.81
A6	07 Jan 2019	16	15.55	83.29	7.7	33.67	8.1	24.8	0.82
A6	07 Jan 2019	17	15.55	83.23	7.7	33.67	8.1	24.8	0.81
A6	07 Jan 2019	18	15.53	82.71	7.6	33.66	8.1	24.8	0.75
A6	07 Jan 2019	19	15.54	82.64	7.6	33.66	8.1	24.8	0.75
A6	14 Jan 2019	1	15.63	83.81	7.7	33.65	8.2	24.8	0.67
A6	14 Jan 2019	2	15.62	84.43	7.7	33.66	8.2	24.8	0.65
A6	14 Jan 2019	3	15.63	84.44	7.7	33.66	8.2	24.8	0.67
A6	14 Jan 2019	4	15.63	84.37	7.6	33.66	8.2	24.8	0.69
A6	14 Jan 2019	5	15.63	84.45	7.6	33.66	8.2	24.8	0.69
A6	14 Jan 2019	6	15.63	84.41	7.7	33.66	8.2	24.8	0.70
A6	14 Jan 2019	7	15.63	84.41	7.7	33.66	8.2	24.8	0.72
A6	14 Jan 2019	8	15.63	84.32	7.6	33.66	8.2	24.8	0.74
A6	14 Jan 2019	9	15.63	84.36	7.6	33.66	8.2	24.8	0.70
A6	14 Jan 2019	10	15.63	84.28	7.6	33.66	8.2	24.8	0.69
A6	14 Jan 2019	11	15.63	84.29	7.6	33.66	8.2	24.8	0.69
A6	14 Jan 2019	12	15.63	84.29	7.6	33.66	8.2	24.8	0.70
A6	14 Jan 2019	13	15.63	84.23	7.5	33.66	8.2	24.8	0.70
A6	14 Jan 2019	14	15.62	84.25	7.6	33.66	8.2	24.8	0.71
A6	14 Jan 2019	15	15.62	84.28	7.6	33.66	8.2	24.8	0.69
A6	14 Jan 2019	16	15.62	84.36	7.5	33.66	8.2	24.8	0.68
A6	14 Jan 2019	17	15.61	84.35	7.6	33.65	8.2	24.8	0.64
A6	14 Jan 2019	18	15.61	84.36	7.6	33.65	8.2	24.8	0.26
A6	14 Jan 2019	19	15.61	84.26	7.6	33.65	8.2	24.8	0.00
A6	14 Jan 2019	20	15.60	84.04	NA	33.65	8.2	24.8	0.00
A6	14 Jan 2019	21	15.60	84.18	NA	33.65	8.2	24.8	0.00

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
A6	23 Jan 2019	1	15.13	83.40	7.7	33.62	8.2	24.9	0.71
A6	23 Jan 2019	2	15.13	83.33	7.7	33.62	8.2	24.9	0.74
A6	23 Jan 2019	3	15.14	83.24	7.7	33.62	8.2	24.9	0.71
A6	23 Jan 2019	4	15.14	83.37	7.7	33.62	8.2	24.9	0.74
A6	23 Jan 2019	5	15.10	83.40	7.6	33.62	8.2	24.9	0.75
A6	23 Jan 2019	6	15.05	83.51	7.5	33.62	8.2	24.9	0.73
A6	23 Jan 2019	7	15.01	83.80	7.5	33.62	8.2	24.9	0.70
A6	23 Jan 2019	8	14.97	84.10	7.4	33.62	8.2	24.9	0.65
A6	23 Jan 2019	9	14.95	84.02	7.3	33.62	8.2	24.9	0.63
A6	23 Jan 2019	10	14.93	84.04	7.3	33.62	8.2	24.9	0.65
A6	23 Jan 2019	11	14.90	84.02	7.3	33.62	8.2	24.9	0.61
A6	23 Jan 2019	12	14.80	82.90	7.2	33.62	8.2	25.0	0.57
A6	23 Jan 2019	13	14.72	84.10	7.2	33.61	8.2	25.0	0.51
A6	23 Jan 2019	14	14.61	84.75	7.1	33.62	8.2	25.0	0.48
A6	23 Jan 2019	15	14.38	85.14	6.8	33.62	8.2	25.0	0.42
A6	23 Jan 2019	16	14.07	85.31	6.6	33.61	8.1	25.1	0.38
A6	23 Jan 2019	17	13.88	85.16	6.5	33.60	8.1	25.1	0.36
A6	23 Jan 2019	18	13.58	84.94	6.4	33.60	8.1	25.2	0.32
A6	28 Jan 2019	1	14.63	82.83	7.9	33.60	8.2	25.0	1.06
A6	28 Jan 2019	2	14.63	82.87	7.9	33.61	8.2	25.0	1.12
A6	28 Jan 2019	3	14.62	82.84	7.9	33.61	8.2	25.0	1.27
A6	28 Jan 2019	4	14.61	82.77	7.9	33.61	8.2	25.0	1.40
A6	28 Jan 2019	5	14.61	82.69	7.9	33.61	8.2	25.0	1.43
A6	28 Jan 2019	6	14.61	82.67	7.8	33.60	8.2	25.0	1.50
A6	28 Jan 2019	7	14.60	82.92	7.8	33.60	8.2	25.0	1.57
A6	28 Jan 2019	8	14.60	82.96	7.8	33.60	8.2	25.0	1.57
A6	28 Jan 2019	9	14.60	83.02	7.8	33.60	8.2	25.0	1.61
A6	28 Jan 2019	10	14.59	83.06	7.8	33.60	8.2	25.0	1.49
A6	28 Jan 2019	11	14.57	83.51	7.8	33.60	8.2	25.0	1.46
A6	28 Jan 2019	12	14.57	83.83	7.8	33.60	8.2	25.0	1.41
A6	28 Jan 2019	13	14.57	83.65	7.8	33.60	8.2	25.0	1.45
A6	28 Jan 2019	14	14.56	83.94	7.8	33.60	8.2	25.0	1.42
A6	28 Jan 2019	15	14.55	84.05	7.8	33.60	8.2	25.0	1.37
A6	28 Jan 2019	16	14.55	83.95	7.8	33.60	8.2	25.0	1.33
A6	28 Jan 2019	17	14.52	84.03	7.7	33.60	8.2	25.0	1.33
A6	28 Jan 2019	18	14.48	84.48	7.6	33.60	8.1	25.0	1.17
A6	28 Jan 2019	19	14.46	84.67	7.6	33.60	8.1	25.0	1.05
A6	28 Jan 2019	20	14.44	84.91	7.5	33.60	8.1	25.0	0.96
A6	28 Jan 2019	21	14.44	84.80	7.5	33.60	8.1	25.0	0.93
A7	02 Jan 2019	1	15.19	82.24	7.8	33.65	8.1	24.9	1.01
A7	02 Jan 2019	2	15.19	77.50	7.8	33.65	8.1	24.9	1.00
A7	02 Jan 2019	3	15.19	82.28	7.8	33.65	8.1	24.9	1.06
A7	02 Jan 2019	4	15.19	82.50	7.8	33.65	8.1	24.9	1.11
A7	02 Jan 2019	5	15.19	82.47	7.8	33.65	8.1	24.9	1.13
A7	02 Jan 2019	6	15.19	82.63	7.8	33.65	8.1	24.9	1.16
A7	02 Jan 2019	7	15.19	82.52	7.8	33.65	8.1	24.9	1.14
A7	02 Jan 2019	8	15.19	82.51	7.8	33.65	8.1	24.9	1.13
A7	02 Jan 2019	9	15.18	82.59	7.8	33.65	8.1	24.9	1.15
A7	02 Jan 2019	10	15.17	82.64	7.8	33.65	8.1	24.9	1.14
A7	02 Jan 2019	11	15.13	82.56	7.8	33.66	8.1	24.9	1.10
A7	02 Jan 2019	12	15.08	82.44	7.9	33.66	8.1	24.9	1.03
A7	02 Jan 2019	13	15.07	82.51	7.8	33.66	8.1	24.9	1.03
A7	02 Jan 2019	14	15.06	82.71	7.9	33.66	8.1	24.9	0.98

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
A7	02 Jan 2019	15	14.95	82.81	7.9	33.68	8.1	25.0	0.82
A7	02 Jan 2019	16	14.95	83.02	7.9	33.68	8.1	25.0	0.78
A7	02 Jan 2019	17	14.85	82.91	7.9	33.69	8.1	25.0	0.68
A7	07 Jan 2019	1	15.83	88.01	7.8	33.68	8.1	24.8	0.47
A7	07 Jan 2019	2	15.83	87.49	7.8	33.68	8.1	24.8	0.47
A7	07 Jan 2019	3	15.83	88.08	7.8	33.68	8.1	24.8	0.50
A7	07 Jan 2019	4	15.83	87.10	7.8	33.68	8.1	24.8	0.57
A7	07 Jan 2019	5	15.83	77.66	7.8	33.68	8.1	24.8	0.63
A7	07 Jan 2019	6	15.83	78.67	7.8	33.68	8.1	24.8	0.67
A7	07 Jan 2019	7	15.83	79.63	7.8	33.68	8.1	24.8	0.65
A7	07 Jan 2019	8	15.83	81.55	7.8	33.68	8.1	24.8	0.66
A7	07 Jan 2019	9	15.83	85.52	7.8	33.68	8.1	24.8	0.69
A7	07 Jan 2019	10	15.82	85.83	7.8	33.68	8.1	24.8	0.66
A7	07 Jan 2019	11	15.81	84.83	7.8	33.68	8.1	24.8	0.68
A7	07 Jan 2019	12	15.80	87.03	7.8	33.68	8.1	24.8	0.69
A7	07 Jan 2019	13	15.79	87.21	7.8	33.68	8.1	24.8	0.67
A7	07 Jan 2019	14	15.76	87.28	7.8	33.68	8.1	24.8	0.70
A7	07 Jan 2019	15	15.68	85.91	7.8	33.67	8.1	24.8	0.68
A7	07 Jan 2019	16	15.63	84.76	7.7	33.67	8.1	24.8	0.70
A7	07 Jan 2019	17	15.59	83.71	7.7	33.67	8.1	24.8	0.68
A7	07 Jan 2019	18	15.54	82.51	7.6	33.66	8.1	24.8	0.64
A7	07 Jan 2019	19	15.52	82.08	7.6	33.66	8.1	24.8	0.61
A7	14 Jan 2019	1	15.52	82.05	7.7	33.65	8.2	24.8	0.87
A7	14 Jan 2019	2	15.53	82.17	7.7	33.65	8.2	24.8	0.86
A7	14 Jan 2019	3	15.53	82.42	7.7	33.65	8.2	24.8	0.86
A7	14 Jan 2019	4	15.53	82.25	7.6	33.65	8.2	24.8	0.87
A7	14 Jan 2019	5	15.53	82.27	7.6	33.65	8.2	24.8	0.88
A7	14 Jan 2019	6	15.53	82.31	7.6	33.65	8.2	24.8	0.87
A7	14 Jan 2019	7	15.53	82.19	7.6	33.65	8.2	24.8	0.89
A7	14 Jan 2019	8	15.53	82.22	7.6	33.65	8.2	24.8	0.88
A7	14 Jan 2019	9	15.53	82.22	7.6	33.65	8.2	24.8	0.90
A7	14 Jan 2019	10	15.53	82.23	7.6	33.65	8.2	24.8	0.91
A7	14 Jan 2019	11	15.53	82.28	7.6	33.65	8.2	24.8	0.91
A7	14 Jan 2019	12	15.52	82.14	7.6	33.65	8.2	24.8	0.90
A7	14 Jan 2019	13	15.51	81.96	7.6	33.65	8.2	24.8	0.91
A7	14 Jan 2019	14	15.51	82.04	7.6	33.64	8.2	24.8	0.90
A7	14 Jan 2019	15	15.52	82.14	7.6	33.65	8.2	24.8	0.89
A7	14 Jan 2019	16	15.52	82.16	7.6	33.65	8.2	24.8	0.87
A7	14 Jan 2019	17	15.51	82.08	7.5	33.65	8.2	24.8	0.91
A7	14 Jan 2019	18	15.51	81.98	7.5	33.64	8.2	24.8	0.90
A7	14 Jan 2019	19	15.46	81.93	7.5	33.65	8.2	24.8	0.89
A7	14 Jan 2019	20	15.42	81.72	7.6	33.64	8.2	24.8	0.86
A7	14 Jan 2019	21	15.43	81.63	7.6	33.63	8.2	24.8	0.85
A7	23 Jan 2019	1	15.25	81.79	7.7	33.62	8.2	24.9	0.88
A7	23 Jan 2019	2	15.25	81.74	7.7	33.62	8.2	24.9	0.93
A7	23 Jan 2019	3	15.25	81.75	7.7	33.62	8.2	24.9	0.98
A7	23 Jan 2019	4	15.24	81.83	7.7	33.62	8.2	24.9	1.11
A7	23 Jan 2019	5	15.24	81.86	7.7	33.62	8.2	24.9	1.02
A7	23 Jan 2019	6	15.23	82.18	7.7	33.62	8.2	24.9	1.10
A7	23 Jan 2019	7	15.22	82.33	7.6	33.62	8.2	24.9	1.09
A7	23 Jan 2019	8	15.21	82.46	7.5	33.62	8.2	24.9	1.09
A7	23 Jan 2019	9	14.97	82.74	7.3	33.65	8.2	24.9	0.89

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
A7	23 Jan 2019	10	14.53	83.48	7.0	33.63	8.2	25.0	0.61
A7	23 Jan 2019	11	14.50	84.63	7.0	33.61	8.2	25.0	0.49
A7	23 Jan 2019	12	14.45	84.81	6.9	33.61	8.1	25.0	0.44
A7	23 Jan 2019	13	14.36	84.87	6.8	33.61	8.1	25.0	0.43
A7	23 Jan 2019	14	14.28	84.88	6.6	33.61	8.1	25.1	0.39
A7	23 Jan 2019	15	13.77	84.90	6.2	33.63	8.1	25.2	0.36
A7	23 Jan 2019	16	13.09	85.04	5.9	33.59	8.1	25.3	0.26
A7	23 Jan 2019	17	13.01	84.71	5.8	33.55	8.1	25.3	0.22
A7	28 Jan 2019	1	14.67	82.70	7.9	33.60	8.2	25.0	1.14
A7	28 Jan 2019	2	14.65	83.01	7.8	33.60	8.1	25.0	1.25
A7	28 Jan 2019	3	14.64	83.05	7.8	33.60	8.1	25.0	1.27
A7	28 Jan 2019	4	14.63	83.42	7.7	33.60	8.1	25.0	1.28
A7	28 Jan 2019	5	14.63	83.50	7.7	33.60	8.1	25.0	1.36
A7	28 Jan 2019	6	14.57	83.66	7.6	33.60	8.1	25.0	1.19
A7	28 Jan 2019	7	14.49	83.91	7.6	33.60	8.1	25.0	1.28
A7	28 Jan 2019	8	14.45	83.75	7.7	33.60	8.1	25.0	1.39
A7	28 Jan 2019	9	14.43	83.63	7.6	33.60	8.1	25.0	1.53
A7	28 Jan 2019	10	14.42	83.60	7.7	33.60	8.1	25.0	1.41
A7	28 Jan 2019	11	14.41	83.51	7.7	33.60	8.1	25.0	1.55
A7	28 Jan 2019	12	14.40	83.52	7.6	33.60	8.1	25.0	1.51
A7	28 Jan 2019	13	14.37	83.59	7.6	33.60	8.1	25.0	1.44
A7	28 Jan 2019	14	14.36	83.61	7.6	33.60	8.1	25.0	1.33
A7	28 Jan 2019	15	14.33	83.72	7.5	33.60	8.1	25.0	1.32
A7	28 Jan 2019	16	14.28	83.72	7.4	33.60	8.1	25.0	1.23
A7	28 Jan 2019	17	14.19	83.88	7.3	33.60	8.1	25.1	1.17
A7	28 Jan 2019	18	14.14	83.91	7.1	33.60	8.1	25.1	1.05
C4	02 Jan 2019	1	15.06	82.01	7.8	33.66	8.1	24.9	0.57
C4	02 Jan 2019	2	15.06	81.92	7.8	33.66	8.1	24.9	0.59
C4	02 Jan 2019	3	15.05	81.83	7.8	33.65	8.1	24.9	0.65
C4	02 Jan 2019	4	15.05	81.80	7.8	33.66	8.1	24.9	0.75
C4	02 Jan 2019	5	15.05	81.90	7.8	33.66	8.1	24.9	0.85
C4	02 Jan 2019	6	15.05	82.04	7.7	33.66	8.1	24.9	0.87
C4	02 Jan 2019	7	15.05	82.38	7.7	33.66	8.1	24.9	0.86
C4	02 Jan 2019	8	15.05	82.56	7.7	33.66	8.1	24.9	0.79
C4	02 Jan 2019	9	15.05	82.73	7.7	33.66	8.1	24.9	0.74
C4	02 Jan 2019	10	15.05	83.11	7.7	33.66	8.1	24.9	0.68
C4	07 Jan 2019	1	15.32	71.69	7.9	33.64	8.1	24.9	0.29
C4	07 Jan 2019	2	15.32	71.73	7.9	33.64	8.1	24.9	0.31
C4	07 Jan 2019	3	15.31	71.63	7.9	33.64	8.1	24.9	0.38
C4	07 Jan 2019	4	15.30	71.05	7.9	33.64	8.1	24.9	0.46
C4	07 Jan 2019	5	15.30	70.79	7.8	33.65	8.1	24.9	0.52
C4	07 Jan 2019	6	15.30	70.76	7.8	33.65	8.1	24.9	0.55
C4	07 Jan 2019	7	15.29	70.69	7.8	33.65	8.1	24.9	0.56
C4	07 Jan 2019	8	15.29	70.80	7.8	33.65	8.1	24.9	0.55
C4	07 Jan 2019	9	15.29	70.68	7.8	33.65	8.1	24.9	0.55
C4	07 Jan 2019	10	15.29	70.22	7.8	33.65	8.1	24.9	0.53
C4	07 Jan 2019	11	15.28	69.81	7.8	33.65	8.1	24.9	0.51
C4	07 Jan 2019	12	15.28	69.67	7.8	33.65	8.1	24.9	0.51
C4	07 Jan 2019	13	15.29	70.63	7.8	33.65	8.1	24.9	0.49
C4	14 Jan 2019	1	15.25	73.68	7.6	33.55	8.2	24.8	0.62
C4	14 Jan 2019	2	15.25	75.47	7.7	33.60	8.2	24.8	0.61

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
C4	14 Jan 2019	3	15.25	75.57	7.7	33.60	8.2	24.8	0.62
C4	14 Jan 2019	4	15.25	75.13	7.7	33.60	8.2	24.8	0.64
C4	14 Jan 2019	5	15.25	75.12	7.6	33.60	8.2	24.8	0.67
C4	14 Jan 2019	6	15.25	75.37	7.7	33.60	8.2	24.8	0.67
C4	14 Jan 2019	7	15.25	74.72	7.6	33.60	8.2	24.8	0.70
C4	14 Jan 2019	8	15.25	74.81	7.6	33.60	8.2	24.8	0.71
C4	14 Jan 2019	9	15.25	74.40	7.7	33.60	8.2	24.8	0.68
C4	14 Jan 2019	10	15.26	73.53	7.7	33.60	8.2	24.8	0.66
C4	14 Jan 2019	11	15.26	72.87	7.7	33.60	8.2	24.8	0.66
C4	23 Jan 2019	1	15.36	78.44	8.1	33.62	8.2	24.8	0.51
C4	23 Jan 2019	2	15.35	78.35	8.0	33.62	8.2	24.8	0.57
C4	23 Jan 2019	3	15.33	78.12	8.0	33.61	8.2	24.8	0.69
C4	23 Jan 2019	4	15.31	77.39	7.9	33.61	8.2	24.8	0.80
C4	23 Jan 2019	5	15.30	76.79	7.9	33.61	8.2	24.8	0.85
C4	23 Jan 2019	6	15.30	76.92	8.0	33.61	8.2	24.8	0.83
C4	23 Jan 2019	7	15.29	76.95	7.9	33.61	8.2	24.8	0.81
C4	23 Jan 2019	8	15.28	76.52	7.9	33.61	8.2	24.8	0.76
C4	23 Jan 2019	9	15.26	75.81	7.8	33.61	8.2	24.8	0.71
C4	23 Jan 2019	10	15.24	75.02	7.6	33.61	8.2	24.8	0.67
C4	23 Jan 2019	11	15.15	74.82	7.3	33.62	8.2	24.9	0.62
C4	28 Jan 2019	1	14.50	82.17	8.2	33.60	8.2	25.0	1.01
C4	28 Jan 2019	2	14.50	82.14	8.2	33.60	8.2	25.0	1.09
C4	28 Jan 2019	3	14.50	82.12	8.1	33.60	8.2	25.0	1.11
C4	28 Jan 2019	4	14.48	82.18	8.1	33.60	8.2	25.0	1.02
C4	28 Jan 2019	5	14.46	82.10	8.0	33.60	8.2	25.0	1.18
C4	28 Jan 2019	6	14.44	82.06	8.0	33.60	8.2	25.0	1.30
C4	28 Jan 2019	7	14.42	81.89	8.0	33.60	8.2	25.0	1.30
C4	28 Jan 2019	8	14.42	81.84	8.0	33.60	8.2	25.0	1.38
C4	28 Jan 2019	9	14.42	81.97	8.0	33.60	8.2	25.0	1.28
C4	28 Jan 2019	10	14.43	82.11	8.0	33.60	8.2	25.0	1.23
C5	02 Jan 2019	1	14.66	78.78	8.0	33.69	8.1	25.0	0.46
C5	02 Jan 2019	2	14.67	78.78	8.0	33.69	8.1	25.0	0.47
C5	02 Jan 2019	3	14.66	78.57	8.0	33.69	8.1	25.0	0.47
C5	02 Jan 2019	4	14.59	77.56	8.0	33.69	8.1	25.1	0.54
C5	02 Jan 2019	5	14.53	77.24	8.1	33.70	8.1	25.1	0.57
C5	02 Jan 2019	6	14.50	77.37	8.1	33.70	8.1	25.1	0.57
C5	02 Jan 2019	7	14.45	77.26	8.1	33.70	8.1	25.1	0.55
C5	02 Jan 2019	8	14.41	77.30	8.1	33.70	8.1	25.1	0.56
C5	02 Jan 2019	9	14.42	77.52	8.1	33.70	8.1	25.1	0.52
C5	02 Jan 2019	10	14.43	77.29	8.1	33.70	8.1	25.1	0.50
C5	07 Jan 2019	1	15.42	75.69	8.0	33.63	8.1	24.8	0.25
C5	07 Jan 2019	2	15.44	75.51	7.9	33.63	8.1	24.8	0.25
C5	07 Jan 2019	3	15.46	75.61	7.8	33.63	8.1	24.8	0.28
C5	07 Jan 2019	4	15.43	75.45	7.9	33.63	8.1	24.8	0.35
C5	07 Jan 2019	5	15.42	75.36	7.9	33.63	8.1	24.8	0.44
C5	07 Jan 2019	6	15.42	75.62	7.9	33.63	8.1	24.8	0.51
C5	07 Jan 2019	7	15.42	75.81	7.9	33.63	8.1	24.8	0.52
C5	07 Jan 2019	8	15.41	75.67	7.9	33.63	8.1	24.8	0.51
C5	07 Jan 2019	9	15.40	75.06	7.9	33.63	8.1	24.8	0.50
C5	07 Jan 2019	10	15.38	73.35	7.9	33.63	8.1	24.8	0.48
C5	07 Jan 2019	11	15.38	72.26	7.9	33.63	8.1	24.8	0.45

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
C5	14 Jan 2019	1	15.39	59.96	7.8	33.60	8.1	24.8	0.49
C5	14 Jan 2019	2	15.39	65.99	7.8	33.62	8.1	24.8	0.50
C5	14 Jan 2019	3	15.39	59.13	7.8	33.64	8.1	24.8	0.51
C5	14 Jan 2019	4	15.40	68.23	7.7	33.64	8.1	24.8	0.51
C5	14 Jan 2019	5	15.40	68.93	7.7	33.64	8.1	24.8	0.50
C5	14 Jan 2019	6	15.40	68.77	7.7	33.64	8.1	24.8	0.50
C5	14 Jan 2019	7	15.40	69.01	7.7	33.64	8.1	24.8	0.52
C5	14 Jan 2019	8	15.39	67.51	7.7	33.64	8.1	24.8	0.51
C5	14 Jan 2019	9	15.38	66.80	7.7	33.64	8.1	24.8	0.54
C5	14 Jan 2019	10	15.38	67.65	7.8	33.64	8.1	24.8	0.54
C5	14 Jan 2019	11	15.39	66.81	7.8	33.64	8.1	24.8	0.52
C5	23 Jan 2019	1	15.31	80.76	7.8	33.61	8.2	24.8	0.55
C5	23 Jan 2019	2	15.30	80.67	7.7	33.61	8.2	24.8	0.58
C5	23 Jan 2019	3	15.29	80.05	7.7	33.61	8.2	24.8	0.69
C5	23 Jan 2019	4	15.28	79.85	7.8	33.61	8.2	24.8	0.78
C5	23 Jan 2019	5	15.28	79.88	7.7	33.61	8.2	24.8	0.91
C5	23 Jan 2019	6	15.27	79.77	7.7	33.61	8.2	24.8	1.02
C5	23 Jan 2019	7	15.23	79.94	7.4	33.62	8.2	24.9	0.88
C5	23 Jan 2019	8	15.18	80.84	7.2	33.61	8.2	24.9	0.68
C5	23 Jan 2019	9	15.12	80.68	6.9	33.61	8.2	24.9	0.54
C5	23 Jan 2019	10	15.05	77.53	6.8	33.61	8.2	24.9	0.46
C5	28 Jan 2019	1	15.12	73.52	8.2	33.65	8.2	24.9	0.46
C5	28 Jan 2019	2	15.03	72.71	8.0	33.65	8.2	24.9	0.51
C5	28 Jan 2019	3	14.98	71.25	7.9	33.64	8.2	24.9	0.60
C5	28 Jan 2019	4	14.94	68.97	7.9	33.64	8.2	24.9	0.69
C5	28 Jan 2019	5	14.90	68.72	7.8	33.63	8.2	24.9	0.74
C5	28 Jan 2019	6	14.84	69.79	7.6	33.63	8.2	25.0	0.72
C5	28 Jan 2019	7	14.77	71.27	7.4	33.63	8.2	25.0	0.71
C5	28 Jan 2019	8	14.67	70.39	7.2	33.62	8.2	25.0	0.73
C5	28 Jan 2019	9	14.63	68.22	7.0	33.61	8.1	25.0	0.71
C6	02 Jan 2019	1	15.05	87.05	7.9	33.69	8.1	24.9	0.32
C6	02 Jan 2019	2	15.06	86.97	7.9	33.69	8.1	24.9	0.32
C6	02 Jan 2019	3	15.06	87.00	7.9	33.69	8.1	24.9	0.34
C6	02 Jan 2019	4	15.05	87.01	7.9	33.69	8.1	24.9	0.36
C6	02 Jan 2019	5	15.04	87.07	8.0	33.69	8.1	24.9	0.35
C6	02 Jan 2019	6	15.05	87.06	8.0	33.69	8.1	24.9	0.38
C6	02 Jan 2019	7	15.05	87.03	7.9	33.69	8.1	24.9	0.39
C6	02 Jan 2019	8	15.04	87.09	8.0	33.69	8.1	24.9	0.39
C6	07 Jan 2019	1	15.67	80.83	7.7	33.66	8.1	24.8	0.31
C6	07 Jan 2019	2	15.67	80.70	7.7	33.66	8.1	24.8	0.30
C6	07 Jan 2019	3	15.67	80.68	7.7	33.66	8.1	24.8	0.32
C6	07 Jan 2019	4	15.66	80.50	7.7	33.66	8.1	24.8	0.38
C6	07 Jan 2019	5	15.64	80.34	7.7	33.65	8.1	24.8	0.42
C6	07 Jan 2019	6	15.58	79.77	7.7	33.65	8.1	24.8	0.49
C6	07 Jan 2019	7	15.49	79.20	7.8	33.64	8.1	24.8	0.50
C6	07 Jan 2019	8	15.42	77.78	7.9	33.63	8.1	24.8	0.47
C6	07 Jan 2019	9	15.42	77.39	7.9	33.63	8.1	24.8	0.45
C6	07 Jan 2019	10	15.42	77.52	7.9	33.63	8.1	24.8	0.44
C6	07 Jan 2019	11	15.42	77.00	7.9	33.63	8.1	24.8	0.42

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
C6	14 Jan 2019	1	15.44	72.92	7.6	33.64	8.1	24.8	0.43
C6	14 Jan 2019	2	15.44	72.99	7.5	33.64	8.1	24.8	0.45
C6	14 Jan 2019	3	15.45	72.99	7.4	33.64	8.1	24.8	0.46
C6	14 Jan 2019	4	15.45	73.13	7.5	33.64	8.1	24.8	0.45
C6	14 Jan 2019	5	15.46	72.88	7.5	33.65	8.1	24.8	0.44
C6	14 Jan 2019	6	15.46	72.63	7.5	33.65	8.1	24.8	0.44
C6	14 Jan 2019	7	15.46	72.88	7.5	33.65	8.1	24.8	0.46
C6	14 Jan 2019	8	15.46	72.55	7.6	33.65	8.1	24.8	0.45
C6	14 Jan 2019	9	15.46	72.60	7.5	33.65	8.1	24.8	0.46
C6	14 Jan 2019	10	15.46	73.00	7.4	33.65	8.1	24.8	0.45
C6	23 Jan 2019	1	15.36	79.92	7.5	33.60	8.2	24.8	0.49
C6	23 Jan 2019	2	15.35	79.78	7.6	33.61	8.2	24.8	0.53
C6	23 Jan 2019	3	15.34	79.22	7.6	33.61	8.2	24.8	0.64
C6	23 Jan 2019	4	15.34	79.52	7.6	33.61	8.2	24.8	0.65
C6	23 Jan 2019	5	15.34	80.38	7.5	33.61	8.2	24.8	0.68
C6	23 Jan 2019	6	15.34	80.90	7.5	33.61	8.2	24.8	0.67
C6	23 Jan 2019	7	15.34	80.80	7.5	33.61	8.2	24.8	0.72
C6	23 Jan 2019	8	15.34	80.95	7.5	33.61	8.2	24.8	0.67
C6	23 Jan 2019	9	15.34	81.19	7.5	33.61	8.2	24.8	0.61
C6	28 Jan 2019	1	14.89	78.80	8.2	33.63	8.2	24.9	0.48
C6	28 Jan 2019	2	14.89	76.48	8.2	33.63	8.2	24.9	0.51
C6	28 Jan 2019	3	14.85	77.90	8.1	33.63	8.2	24.9	4.03
C6	28 Jan 2019	4	14.82	79.40	7.9	33.60	8.2	24.9	20.83
C6	28 Jan 2019	5	14.81	79.82	7.8	33.62	8.2	24.9	13.39
C6	28 Jan 2019	6	14.78	80.28	7.7	33.62	8.2	25.0	4.47
C6	28 Jan 2019	7	14.73	80.62	7.5	33.62	8.2	25.0	2.89
C6	28 Jan 2019	8	14.63	81.29	7.3	33.62	8.2	25.0	0.95
C6	28 Jan 2019	9	14.58	82.07	7.2	33.61	8.2	25.0	0.59
C6	28 Jan 2019	10	14.57	82.26	7.3	33.61	8.2	25.0	0.90
C7	02 Jan 2019	1	15.27	86.46	7.8	33.67	8.1	24.9	0.53
C7	02 Jan 2019	2	15.28	86.45	7.8	33.67	8.1	24.9	0.53
C7	02 Jan 2019	3	15.28	86.57	7.8	33.67	8.1	24.9	0.56
C7	02 Jan 2019	4	15.29	86.56	7.8	33.67	8.1	24.9	0.61
C7	02 Jan 2019	5	15.28	86.60	7.8	33.67	8.1	24.9	0.62
C7	02 Jan 2019	6	15.28	86.53	7.8	33.67	8.1	24.9	0.65
C7	02 Jan 2019	7	15.28	86.55	7.8	33.67	8.1	24.9	0.65
C7	02 Jan 2019	8	15.29	86.52	7.8	33.67	8.1	24.9	0.68
C7	02 Jan 2019	9	15.29	86.54	7.8	33.67	8.1	24.9	0.69
C7	02 Jan 2019	10	15.29	86.57	7.8	33.67	8.1	24.9	0.72
C7	02 Jan 2019	11	15.29	86.55	7.7	33.67	8.1	24.9	0.71
C7	02 Jan 2019	12	15.29	86.61	7.8	33.67	8.1	24.9	0.73
C7	02 Jan 2019	13	15.29	86.51	7.8	33.68	8.1	24.9	0.68
C7	02 Jan 2019	14	15.29	86.50	7.8	33.68	8.1	24.9	0.65
C7	02 Jan 2019	15	15.29	86.51	7.8	33.68	8.1	24.9	0.65
C7	02 Jan 2019	16	15.29	86.56	7.8	33.68	8.1	24.9	0.63
C7	02 Jan 2019	17	15.30	86.53	7.8	33.68	8.1	24.9	0.56
C7	02 Jan 2019	18	15.30	86.42	7.8	33.68	8.1	24.9	0.52
C7	07 Jan 2019	1	15.57	77.09	8.0	33.65	8.1	24.8	0.48
C7	07 Jan 2019	2	15.56	76.95	8.0	33.65	8.1	24.8	0.49
C7	07 Jan 2019	3	15.56	76.84	8.0	33.65	8.1	24.8	0.51
C7	07 Jan 2019	4	15.55	76.64	8.0	33.65	8.1	24.8	0.58

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
C7	07 Jan 2019	5	15.55	76.65	8.0	33.65	8.1	24.8	0.67
C7	07 Jan 2019	6	15.55	76.61	8.0	33.65	8.1	24.8	0.69
C7	07 Jan 2019	7	15.55	76.32	8.0	33.65	8.1	24.8	0.70
C7	07 Jan 2019	8	15.54	76.19	8.0	33.65	8.1	24.8	0.70
C7	07 Jan 2019	9	15.54	76.21	8.0	33.65	8.1	24.8	0.71
C7	07 Jan 2019	10	15.54	76.02	8.0	33.65	8.1	24.8	0.71
C7	07 Jan 2019	11	15.54	75.90	8.0	33.65	8.1	24.8	0.71
C7	07 Jan 2019	12	15.53	75.91	8.0	33.65	8.1	24.8	0.70
C7	07 Jan 2019	13	15.52	75.03	8.0	33.65	8.1	24.8	0.68
C7	07 Jan 2019	14	15.50	73.91	8.0	33.64	8.1	24.8	0.66
C7	07 Jan 2019	15	15.49	72.98	8.1	33.64	8.1	24.8	0.63
C7	07 Jan 2019	16	15.40	69.54	8.2	33.63	8.1	24.8	0.56
C7	07 Jan 2019	17	15.38	66.53	8.2	33.63	8.1	24.8	0.50
C7	07 Jan 2019	18	15.38	65.19	8.2	33.63	8.1	24.8	0.48
C7	07 Jan 2019	19	15.38	63.34	8.2	33.63	8.1	24.8	0.46
C7	14 Jan 2019	1	15.60	81.17	7.7	33.64	8.2	24.8	0.89
C7	14 Jan 2019	2	15.60	81.21	7.8	33.64	8.2	24.8	0.95
C7	14 Jan 2019	3	15.60	81.18	7.7	33.64	8.2	24.8	0.97
C7	14 Jan 2019	4	15.60	81.27	7.8	33.64	8.2	24.8	0.97
C7	14 Jan 2019	5	15.60	81.27	7.7	33.64	8.2	24.8	0.99
C7	14 Jan 2019	6	15.61	81.04	7.6	33.64	8.2	24.8	1.00
C7	14 Jan 2019	7	15.61	80.93	7.6	33.64	8.2	24.8	0.93
C7	14 Jan 2019	8	15.61	81.00	7.7	33.64	8.2	24.8	0.91
C7	14 Jan 2019	9	15.61	80.98	7.6	33.64	8.2	24.8	0.90
C7	14 Jan 2019	10	15.61	80.94	7.6	33.64	8.2	24.8	0.89
C7	14 Jan 2019	11	15.61	80.92	7.7	33.64	8.2	24.8	0.89
C7	14 Jan 2019	12	15.61	80.90	7.6	33.64	8.2	24.8	0.89
C7	14 Jan 2019	13	15.60	80.88	7.7	33.65	8.2	24.8	0.87
C7	14 Jan 2019	14	15.60	80.91	7.6	33.64	8.2	24.8	0.85
C7	14 Jan 2019	15	15.57	80.78	7.5	33.65	8.2	24.8	0.83
C7	14 Jan 2019	16	15.46	81.15	7.4	33.66	8.2	24.8	0.82
C7	14 Jan 2019	17	15.28	81.57	7.3	33.66	8.2	24.9	0.80
C7	14 Jan 2019	18	15.24	81.40	7.4	33.64	8.1	24.9	0.73
C7	23 Jan 2019	1	15.29	83.11	7.8	33.63	8.2	24.9	1.01
C7	23 Jan 2019	2	15.28	83.04	7.9	33.63	8.2	24.9	1.04
C7	23 Jan 2019	3	15.27	83.02	7.8	33.63	8.2	24.9	1.07
C7	23 Jan 2019	4	15.26	83.15	7.8	33.63	8.2	24.9	1.09
C7	23 Jan 2019	5	15.26	83.15	7.8	33.63	8.2	24.9	1.09
C7	23 Jan 2019	6	15.21	83.20	7.7	33.63	8.2	24.9	1.04
C7	23 Jan 2019	7	15.14	83.44	7.6	33.63	8.2	24.9	0.93
C7	23 Jan 2019	8	15.10	83.55	7.5	33.62	8.2	24.9	0.86
C7	23 Jan 2019	9	15.03	84.01	7.4	33.63	8.2	24.9	0.74
C7	23 Jan 2019	10	14.94	84.41	7.4	33.62	8.2	24.9	0.61
C7	23 Jan 2019	11	14.90	84.71	7.3	33.62	8.2	24.9	0.52
C7	23 Jan 2019	12	14.88	84.89	7.3	33.62	8.2	24.9	0.50
C7	23 Jan 2019	13	14.84	84.95	7.2	33.62	8.2	24.9	0.47
C7	23 Jan 2019	14	14.74	85.02	7.2	33.62	8.2	25.0	0.45
C7	23 Jan 2019	15	14.68	85.10	7.2	33.62	8.2	25.0	0.42
C7	23 Jan 2019	16	14.56	85.35	7.1	33.61	8.2	25.0	0.42
C7	23 Jan 2019	17	14.36	85.45	6.8	33.62	8.2	25.0	0.40
C7	23 Jan 2019	18	13.83	85.69	6.6	33.61	8.1	25.1	0.33
C7	23 Jan 2019	19	13.75	85.79	6.6	33.58	8.1	25.1	0.30

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (µg/L)
C7	28 Jan 2019	1	14.58	82.13	7.8	33.60	8.2	25.0	1.18
C7	28 Jan 2019	2	14.59	82.13	7.8	33.60	8.2	25.0	1.31
C7	28 Jan 2019	3	14.58	82.11	7.8	33.60	8.2	25.0	1.34
C7	28 Jan 2019	4	14.57	82.13	7.7	33.60	8.2	25.0	1.45
C7	28 Jan 2019	5	14.56	82.16	7.7	33.61	8.2	25.0	1.49
C7	28 Jan 2019	6	14.51	82.51	7.6	33.61	8.2	25.0	1.69
C7	28 Jan 2019	7	14.47	82.81	7.6	33.60	8.1	25.0	1.69
C7	28 Jan 2019	8	14.46	83.15	7.6	33.60	8.1	25.0	1.75
C7	28 Jan 2019	9	14.45	83.47	7.6	33.60	8.1	25.0	1.66
C7	28 Jan 2019	10	14.44	83.66	7.5	33.60	8.1	25.0	1.70
C7	28 Jan 2019	11	14.44	83.82	7.5	33.60	8.1	25.0	1.61
C7	28 Jan 2019	12	14.43	83.92	7.5	33.60	8.1	25.0	1.56
C7	28 Jan 2019	13	14.38	83.66	7.4	33.60	8.1	25.0	1.55
C7	28 Jan 2019	14	14.31	83.34	7.2	33.61	8.1	25.0	1.51
C7	28 Jan 2019	15	14.21	83.14	6.9	33.60	8.1	25.1	1.27
C7	28 Jan 2019	16	14.03	83.53	6.7	33.61	8.1	25.1	1.00
C7	28 Jan 2019	17	14.00	84.19	6.6	33.60	8.1	25.1	0.75
C7	28 Jan 2019	18	14.00	84.35	6.6	33.59	8.1	25.1	0.63
C8	02 Jan 2019	1	15.23	85.54	7.7	33.66	8.1	24.9	0.52
C8	02 Jan 2019	2	15.23	85.09	7.7	33.66	8.1	24.9	0.53
C8	02 Jan 2019	3	15.23	85.24	7.7	33.66	8.1	24.9	0.58
C8	02 Jan 2019	4	15.23	85.56	7.7	33.66	8.1	24.9	0.57
C8	02 Jan 2019	5	15.23	85.51	7.7	33.66	8.1	24.9	0.62
C8	02 Jan 2019	6	15.23	85.58	7.7	33.66	8.1	24.9	0.64
C8	02 Jan 2019	7	15.23	85.57	7.7	33.66	8.1	24.9	0.66
C8	02 Jan 2019	8	15.23	85.64	7.7	33.66	8.1	24.9	0.67
C8	02 Jan 2019	9	15.23	85.57	7.7	33.66	8.1	24.9	0.72
C8	02 Jan 2019	10	15.23	85.54	7.7	33.67	8.1	24.9	0.71
C8	02 Jan 2019	11	15.23	85.55	7.7	33.67	8.1	24.9	0.75
C8	02 Jan 2019	12	15.23	85.45	7.7	33.67	8.1	24.9	0.78
C8	02 Jan 2019	13	15.23	85.53	7.8	33.67	8.1	24.9	0.78
C8	02 Jan 2019	14	15.22	85.38	7.8	33.67	8.1	24.9	0.74
C8	02 Jan 2019	15	15.22	85.37	7.8	33.67	8.1	24.9	0.77
C8	02 Jan 2019	16	15.22	85.29	7.8	33.67	8.1	24.9	0.77
C8	02 Jan 2019	17	15.20	84.94	7.8	33.67	8.1	24.9	0.75
C8	02 Jan 2019	18	15.20	84.61	7.9	33.68	8.1	24.9	0.71
C8	02 Jan 2019	19	15.20	84.43	7.9	33.68	8.1	24.9	0.68
C8	02 Jan 2019	20	15.20	84.34	7.9	33.68	8.1	24.9	0.67
C8	07 Jan 2019	1	15.71	83.65	7.9	33.69	8.1	24.8	0.49
C8	07 Jan 2019	2	15.71	83.52	7.9	33.67	8.1	24.8	0.49
C8	07 Jan 2019	3	15.71	83.39	7.9	33.67	8.1	24.8	0.50
C8	07 Jan 2019	4	15.71	83.54	7.9	33.67	8.1	24.8	0.51
C8	07 Jan 2019	5	15.71	83.37	7.8	33.67	8.1	24.8	0.56
C8	07 Jan 2019	6	15.71	83.26	7.8	33.67	8.1	24.8	0.64
C8	07 Jan 2019	7	15.71	83.35	7.8	33.67	8.1	24.8	0.72
C8	07 Jan 2019	8	15.70	83.32	7.8	33.67	8.1	24.8	0.77
C8	07 Jan 2019	9	15.71	83.37	7.8	33.67	8.1	24.8	0.78
C8	07 Jan 2019	10	15.71	83.53	7.8	33.67	8.1	24.8	0.81
C8	07 Jan 2019	11	15.71	83.71	7.8	33.67	8.1	24.8	0.80
C8	07 Jan 2019	12	15.71	83.79	7.9	33.67	8.1	24.8	0.81
C8	07 Jan 2019	13	15.70	83.72	7.9	33.67	8.1	24.8	0.81
C8	07 Jan 2019	14	15.70	83.58	7.9	33.67	8.1	24.8	0.81
C8	07 Jan 2019	15	15.70	83.70	7.8	33.67	8.1	24.8	0.83

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C8	07 Jan 2019	16	15.69	83.49	7.8	33.67	8.1	24.8	0.80
C8	07 Jan 2019	17	15.63	82.94	7.7	33.66	8.1	24.8	0.73
C8	07 Jan 2019	18	15.60	82.56	7.6	33.66	8.1	24.8	0.70
C8	07 Jan 2019	19	15.53	79.77	7.6	33.66	8.1	24.8	0.73
C8	07 Jan 2019	20	15.52	68.37	7.5	33.65	8.1	24.8	0.72
C8	14 Jan 2019	1	15.70	75.42	7.8	33.62	8.2	24.8	1.18
C8	14 Jan 2019	2	15.70	75.41	7.8	33.62	8.2	24.8	1.18
C8	14 Jan 2019	3	15.70	75.60	7.8	33.62	8.2	24.8	1.22
C8	14 Jan 2019	4	15.71	75.86	7.8	33.62	8.2	24.8	1.22
C8	14 Jan 2019	5	15.71	76.00	7.8	33.62	8.2	24.8	1.22
C8	14 Jan 2019	6	15.72	76.25	7.8	33.62	8.2	24.8	1.19
C8	14 Jan 2019	7	15.72	76.17	7.8	33.62	8.2	24.8	1.19
C8	14 Jan 2019	8	15.72	76.01	7.8	33.62	8.2	24.8	1.17
C8	14 Jan 2019	9	15.72	75.89	7.7	33.62	8.2	24.8	1.18
C8	14 Jan 2019	10	15.72	76.23	7.8	33.62	8.2	24.8	1.20
C8	14 Jan 2019	11	15.72	76.18	7.8	33.62	8.2	24.8	1.20
C8	14 Jan 2019	12	15.71	76.16	7.8	33.62	8.2	24.8	1.20
C8	14 Jan 2019	13	15.70	76.00	7.7	33.63	8.2	24.8	1.14
C8	14 Jan 2019	14	15.69	75.44	7.6	33.63	8.2	24.8	1.11
C8	14 Jan 2019	15	15.50	73.39	7.4	33.66	8.2	24.8	0.94
C8	14 Jan 2019	16	15.38	73.01	7.3	33.65	8.2	24.8	0.84
C8	14 Jan 2019	17	15.28	72.38	7.3	33.64	8.2	24.9	0.80
C8	14 Jan 2019	18	15.24	63.57	7.4	33.63	8.2	24.9	0.76
C8	23 Jan 2019	1	15.27	82.79	7.9	33.63	8.2	24.9	0.81
C8	23 Jan 2019	2	15.27	82.81	7.9	33.63	8.2	24.9	0.85
C8	23 Jan 2019	3	15.27	82.83	7.9	33.63	8.2	24.9	0.88
C8	23 Jan 2019	4	15.27	82.86	7.9	33.63	8.2	24.9	0.92
C8	23 Jan 2019	5	15.27	82.88	7.9	33.63	8.2	24.9	1.02
C8	23 Jan 2019	6	15.27	82.84	7.9	33.63	8.2	24.9	1.11
C8	23 Jan 2019	7	15.27	82.71	7.9	33.63	8.2	24.9	1.15
C8	23 Jan 2019	8	15.27	82.82	7.9	33.63	8.2	24.9	1.19
C8	23 Jan 2019	9	15.27	82.78	7.9	33.63	8.2	24.9	1.21
C8	23 Jan 2019	10	15.26	82.83	7.9	33.63	8.2	24.9	1.19
C8	23 Jan 2019	11	15.25	83.00	7.8	33.63	8.2	24.9	1.17
C8	23 Jan 2019	12	15.24	83.00	7.8	33.63	8.2	24.9	1.16
C8	23 Jan 2019	13	15.19	83.28	7.7	33.63	8.2	24.9	1.07
C8	23 Jan 2019	14	15.12	83.61	7.5	33.63	8.2	24.9	0.95
C8	23 Jan 2019	15	14.97	84.03	7.3	33.63	8.2	24.9	0.72
C8	23 Jan 2019	16	14.68	84.59	7.1	33.63	8.2	25.0	0.55
C8	23 Jan 2019	17	14.36	84.83	6.9	33.62	8.2	25.0	0.46
C8	23 Jan 2019	18	14.06	85.50	6.7	33.61	8.1	25.1	0.39
C8	23 Jan 2019	19	13.58	86.08	6.5	33.60	8.1	25.2	0.32
C8	23 Jan 2019	20	13.56	85.86	6.5	33.58	8.1	25.2	0.29
C8	28 Jan 2019	1	14.63	81.67	7.9	33.60	8.2	25.0	1.05
C8	28 Jan 2019	2	14.60	81.38	7.8	33.61	8.2	25.0	1.14
C8	28 Jan 2019	3	14.45	82.51	7.6	33.61	8.2	25.0	1.29
C8	28 Jan 2019	4	14.39	83.59	7.5	33.61	8.2	25.0	1.36
C8	28 Jan 2019	5	14.35	84.10	7.5	33.61	8.1	25.0	1.37
C8	28 Jan 2019	6	14.32	84.29	7.4	33.60	8.1	25.0	1.36
C8	28 Jan 2019	7	14.32	84.14	7.4	33.60	8.1	25.0	1.32
C8	28 Jan 2019	8	14.30	84.31	7.3	33.60	8.1	25.0	1.34
C8	28 Jan 2019	9	14.26	84.11	7.2	33.60	8.1	25.1	1.45

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C8	28 Jan 2019	10	14.18	84.03	7.1	33.60	8.1	25.1	1.32
C8	28 Jan 2019	11	14.17	84.11	7.1	33.60	8.1	25.1	1.25
C8	28 Jan 2019	12	14.16	84.13	7.1	33.60	8.1	25.1	1.21
C8	28 Jan 2019	13	14.15	84.18	7.1	33.60	8.1	25.1	1.27
C8	28 Jan 2019	14	14.15	84.10	7.2	33.60	8.1	25.1	1.30
C8	28 Jan 2019	15	14.12	84.34	7.2	33.60	8.1	25.1	1.37
C8	28 Jan 2019	16	14.11	84.33	7.0	33.60	8.1	25.1	1.27
C8	28 Jan 2019	17	14.09	84.39	6.9	33.60	8.1	25.1	1.18
C8	28 Jan 2019	18	14.04	84.32	6.8	33.60	8.1	25.1	1.06
C8	28 Jan 2019	19	14.03	84.03	6.8	33.60	8.1	25.1	0.95

NA = not available

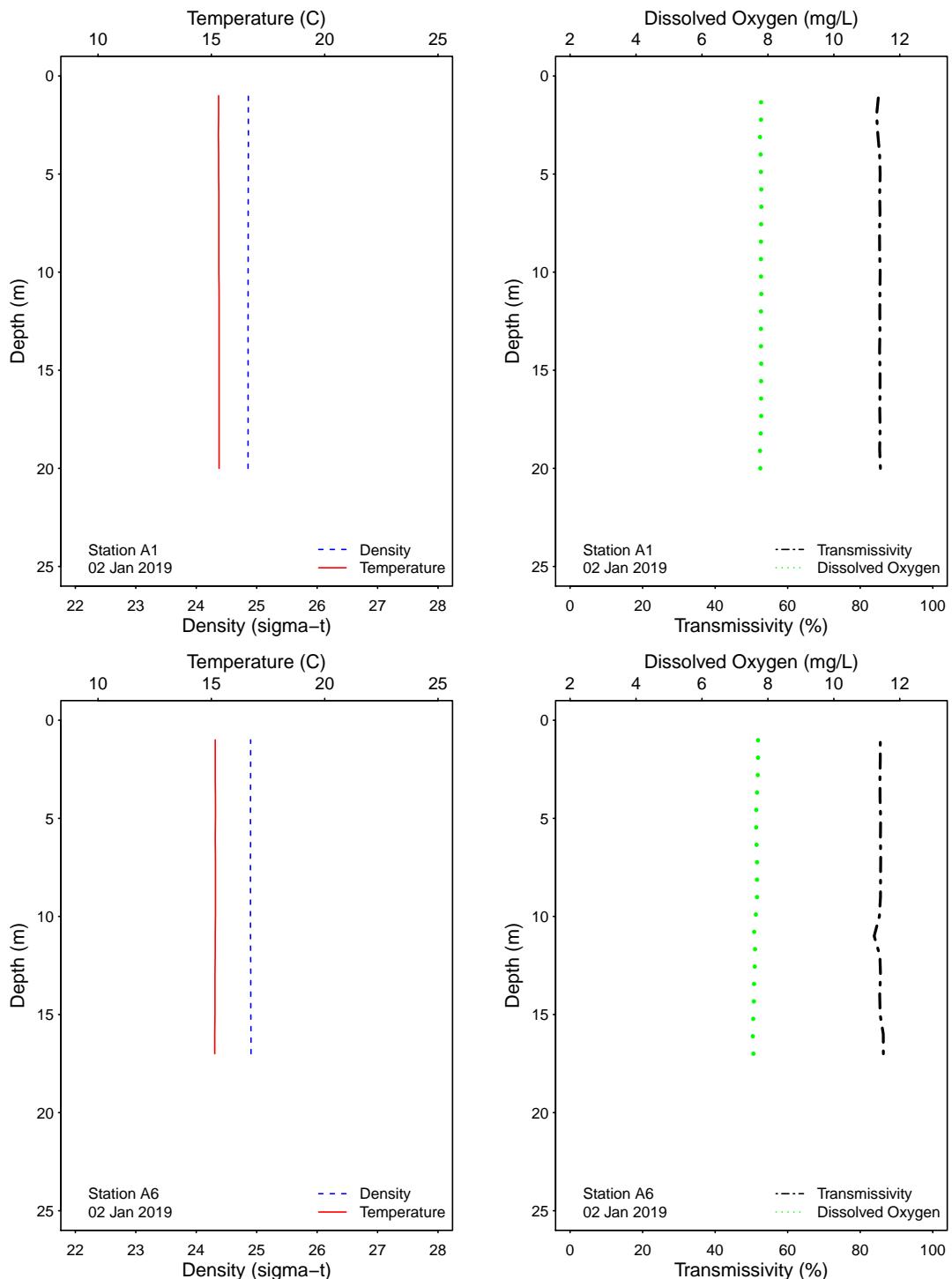


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

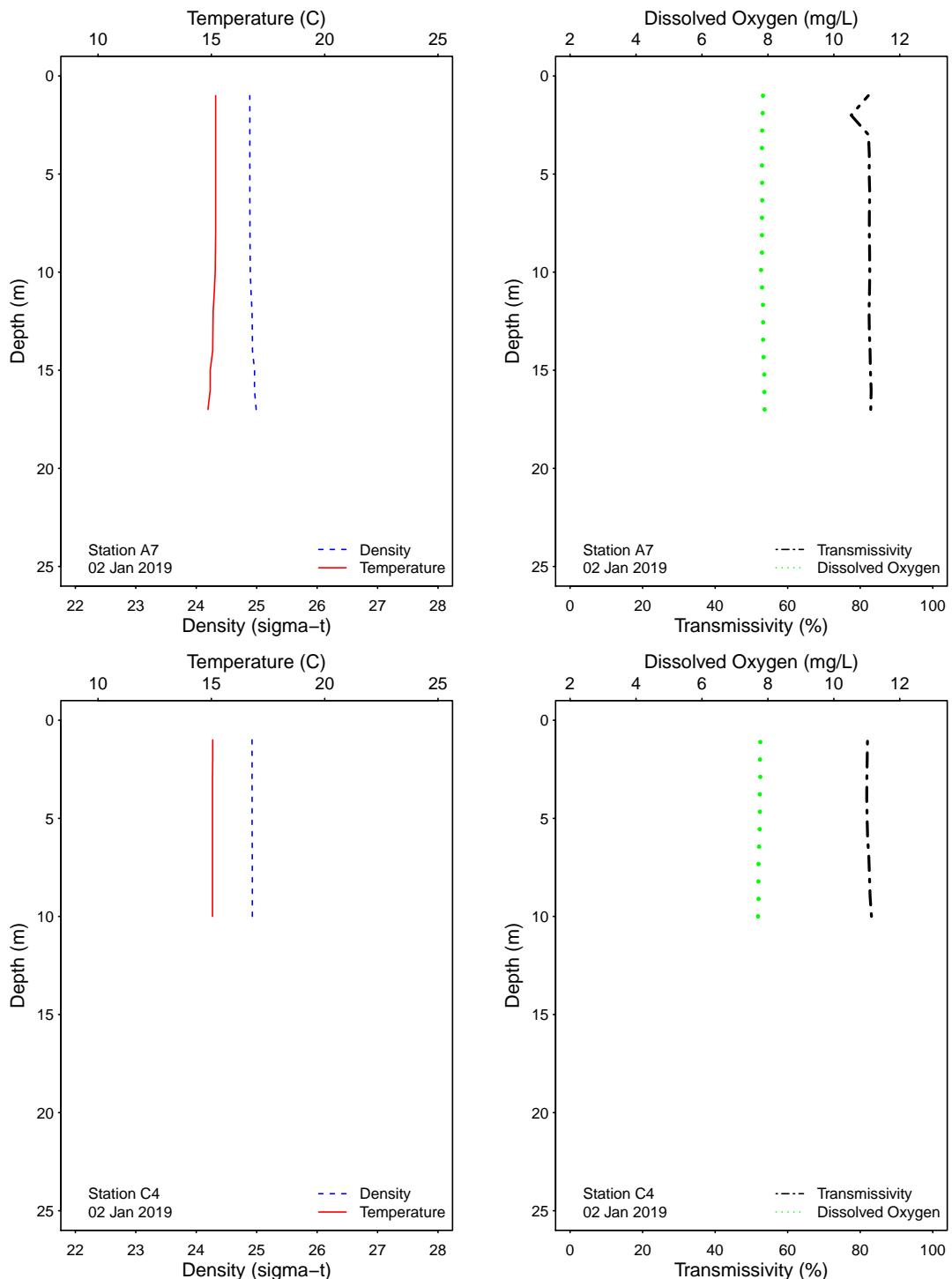


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

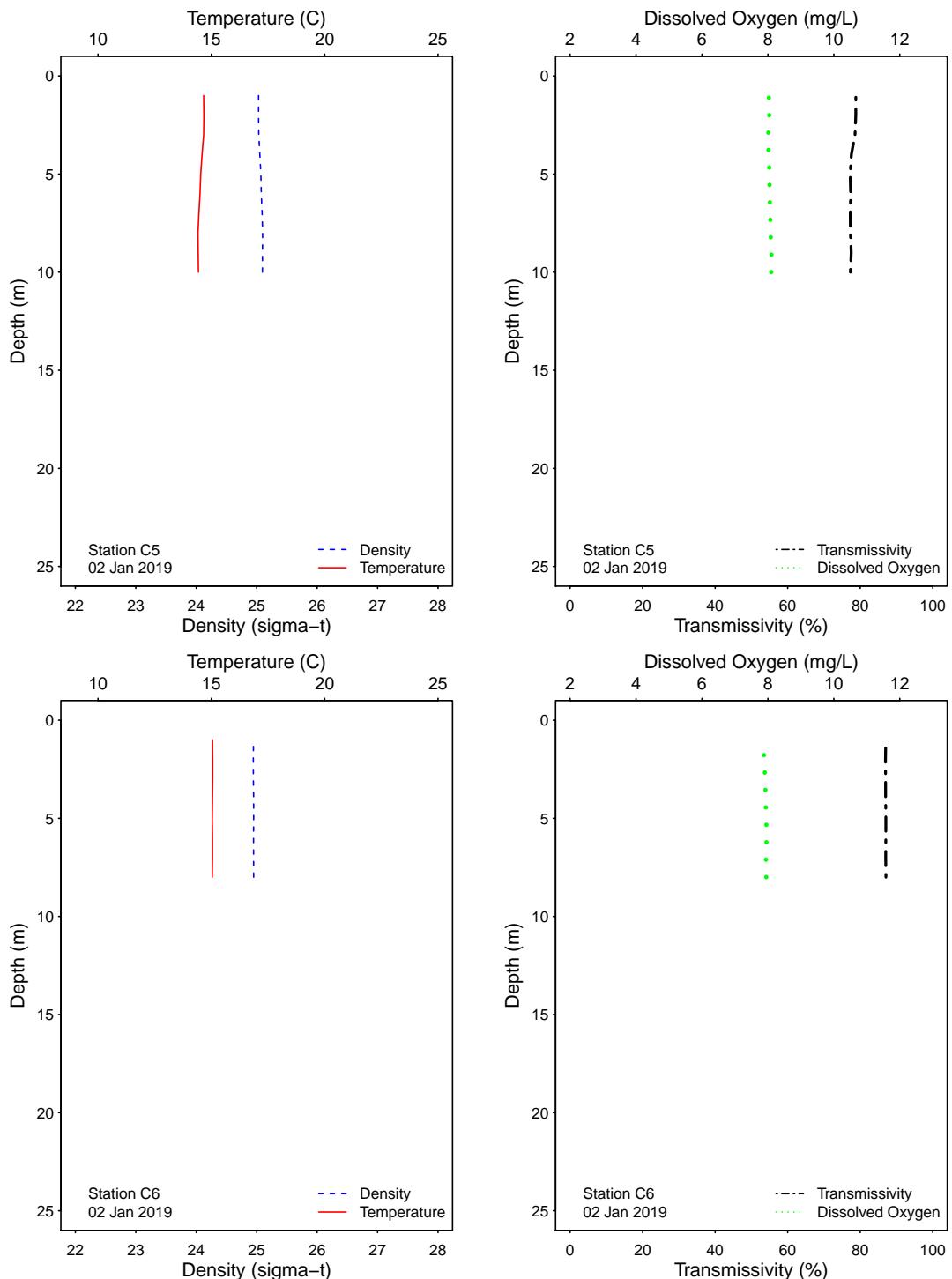


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

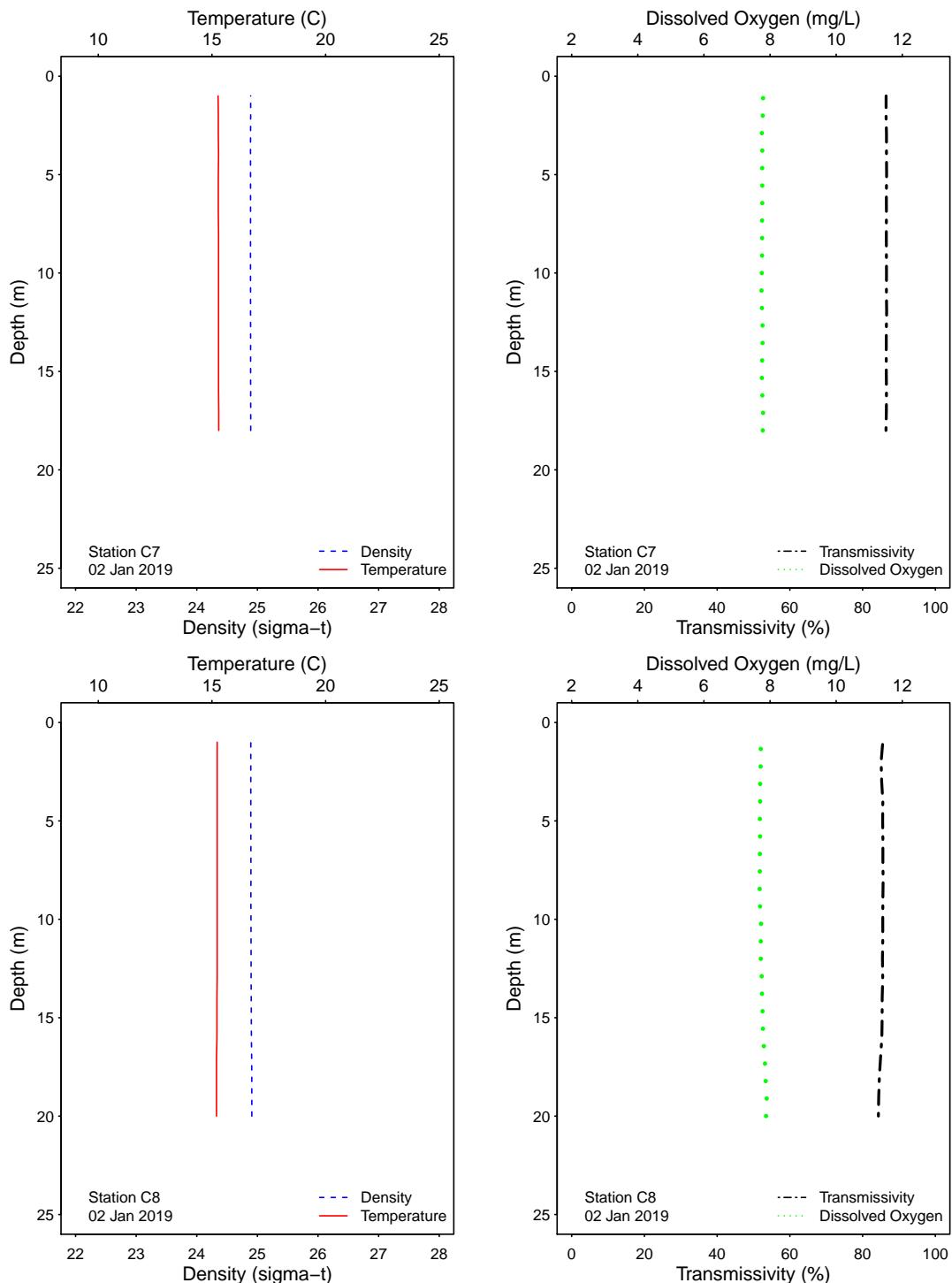


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

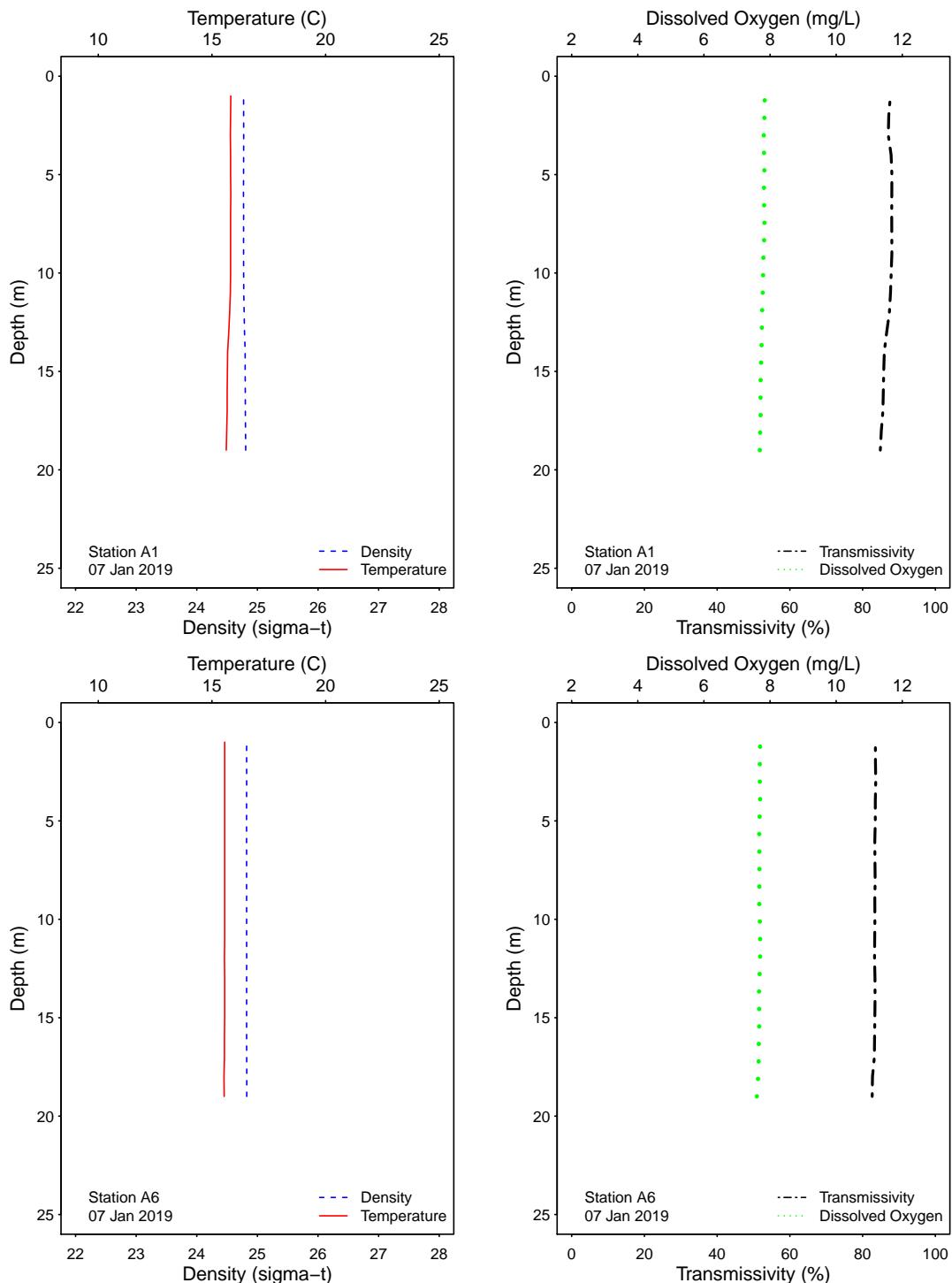


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

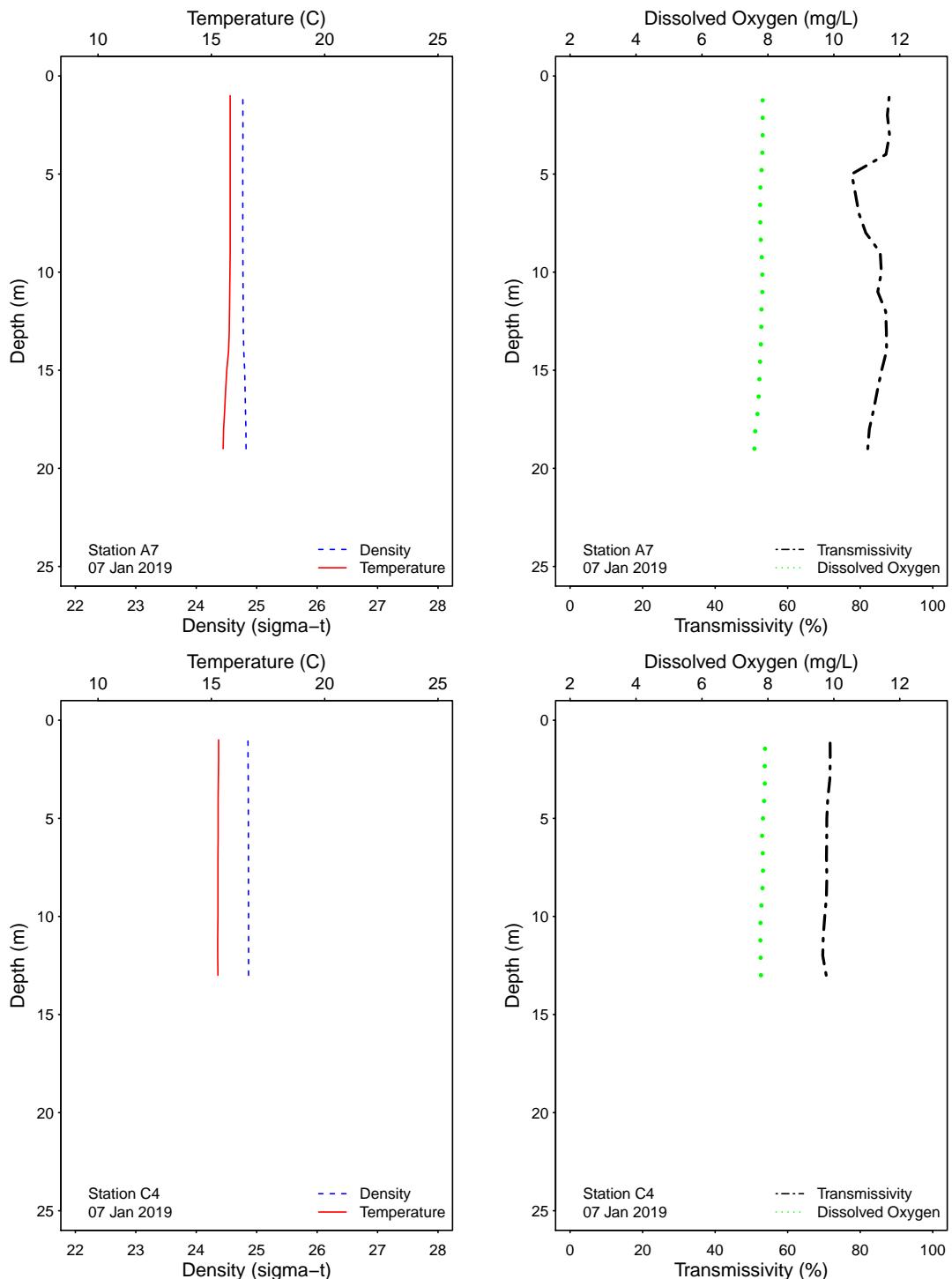


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

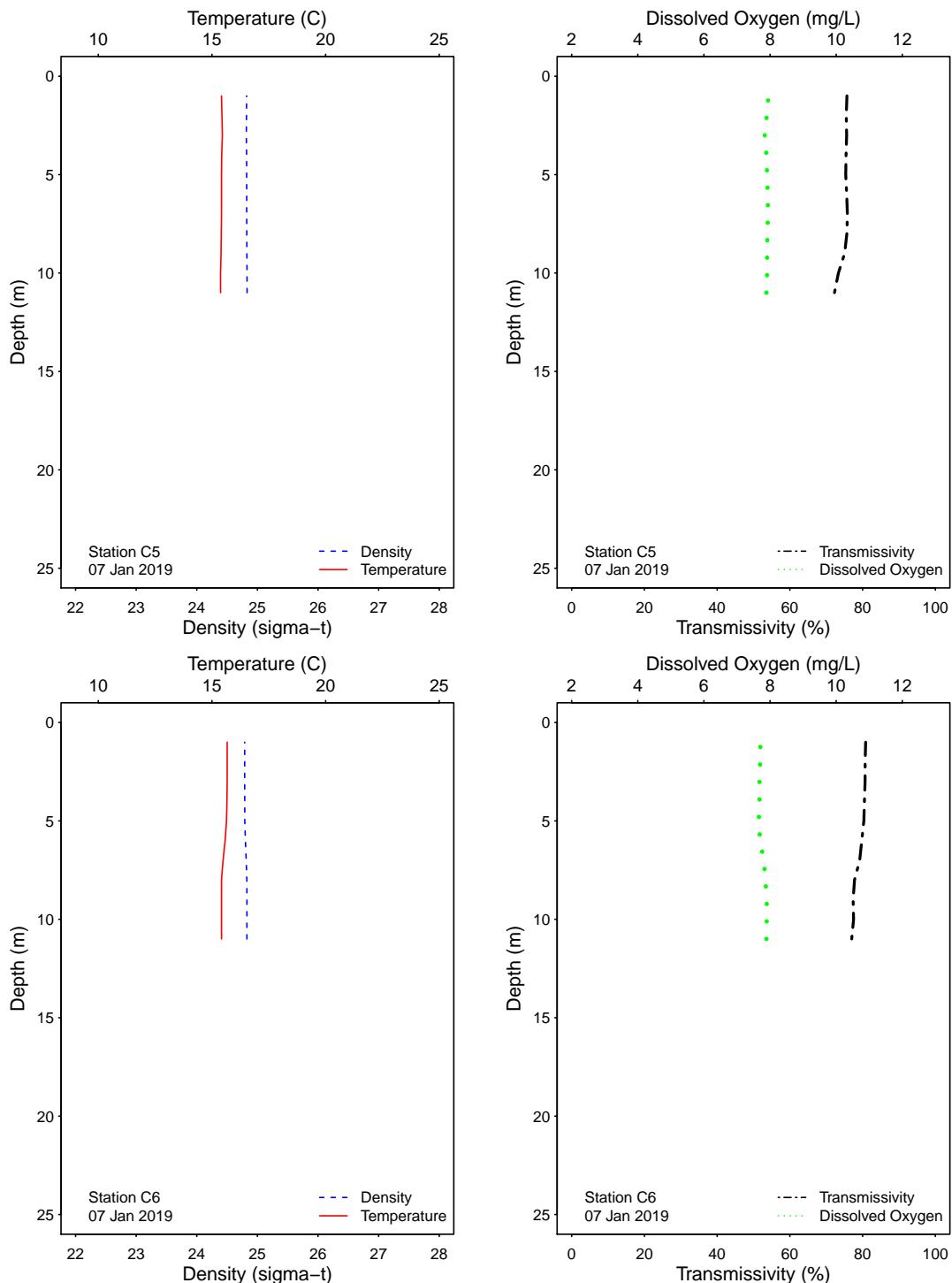


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

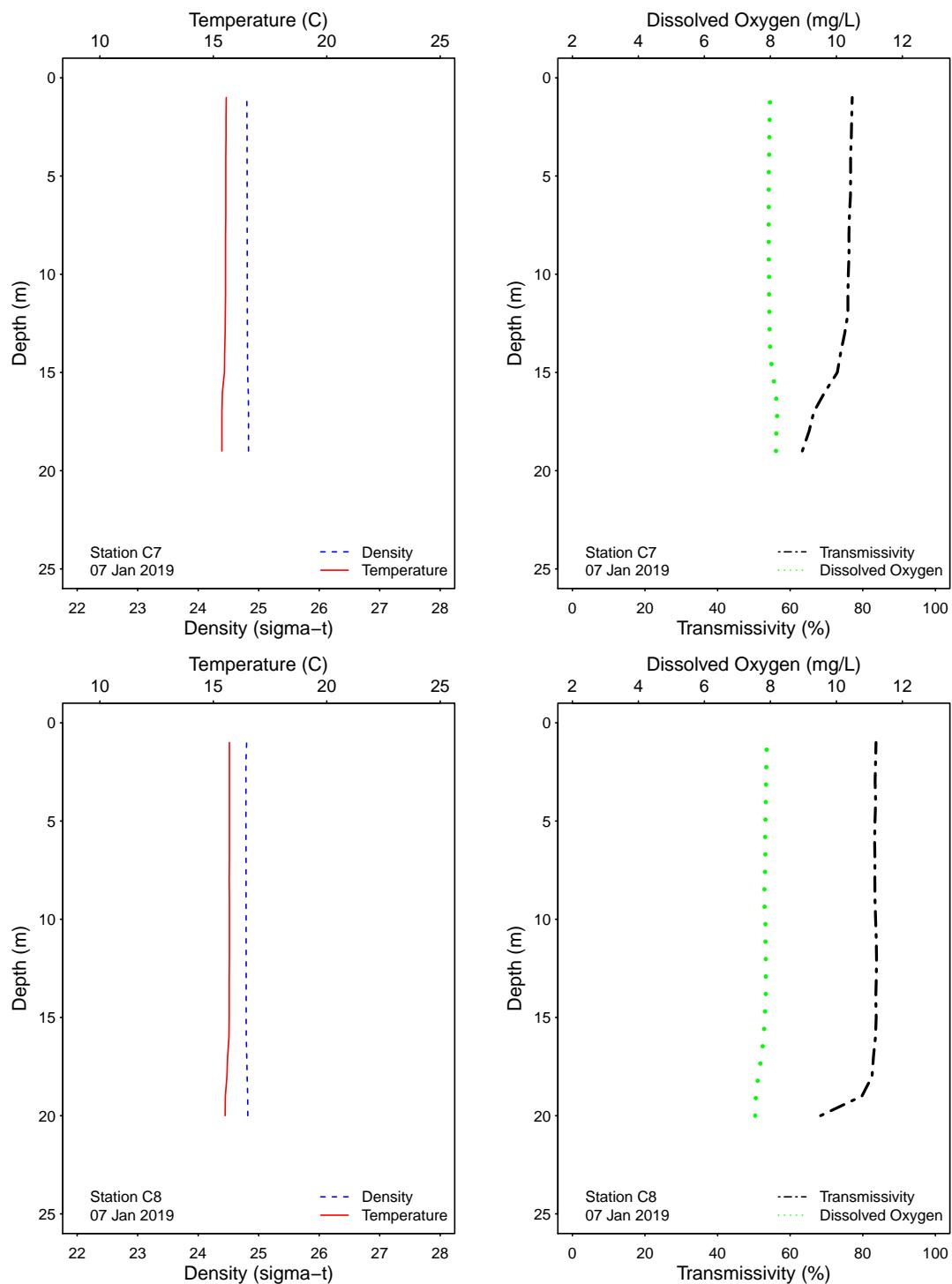


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

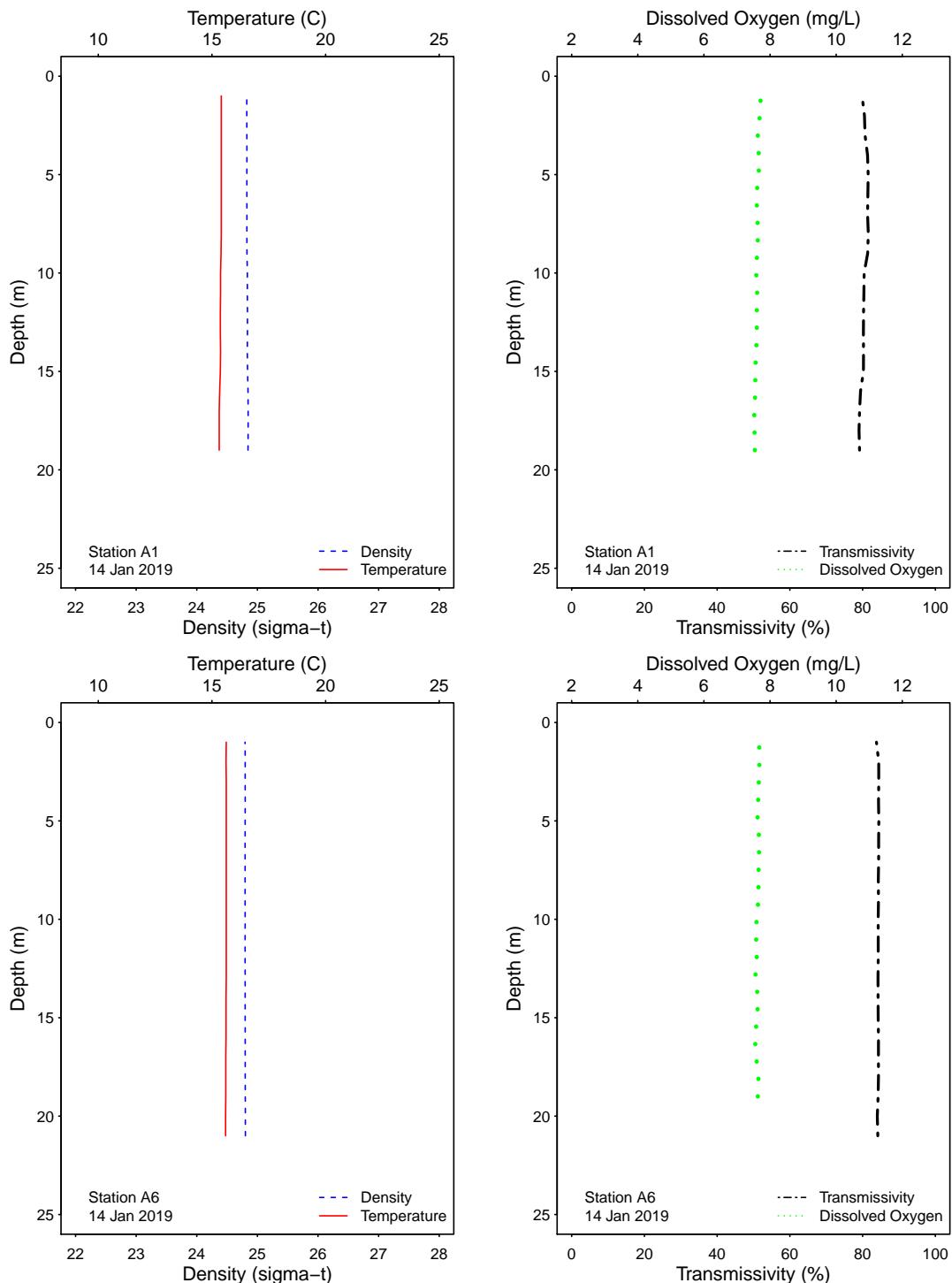


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

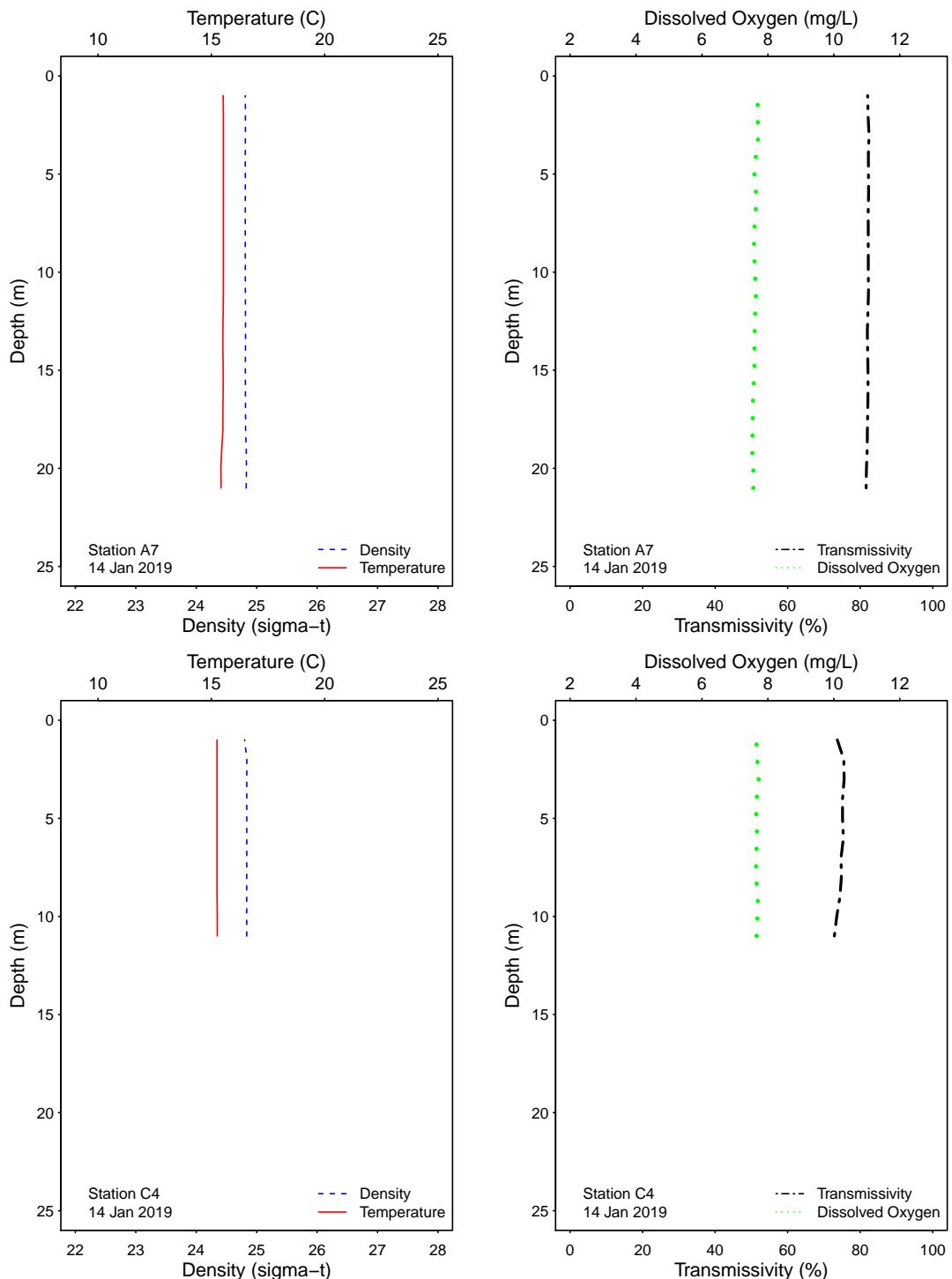


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

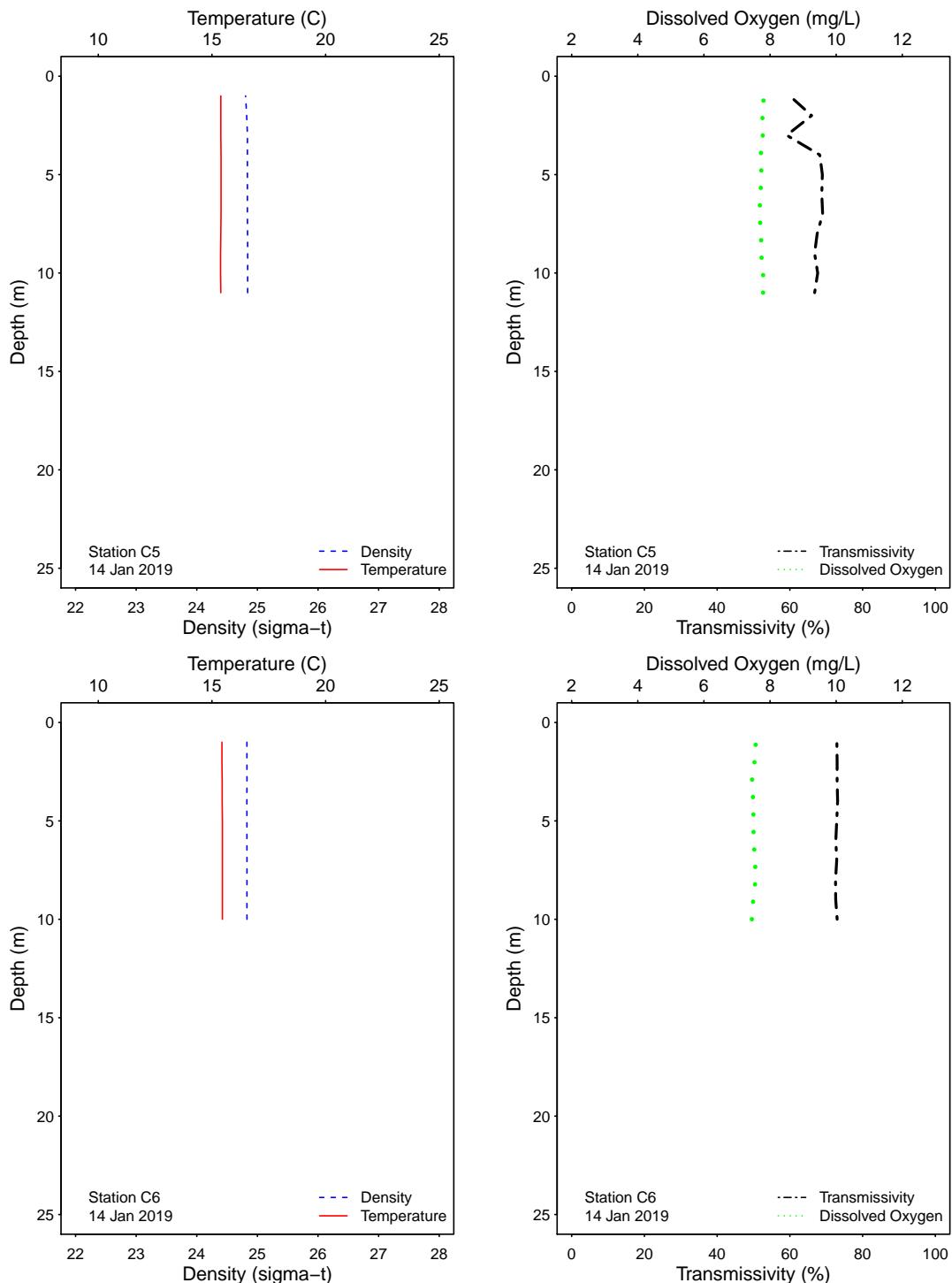


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

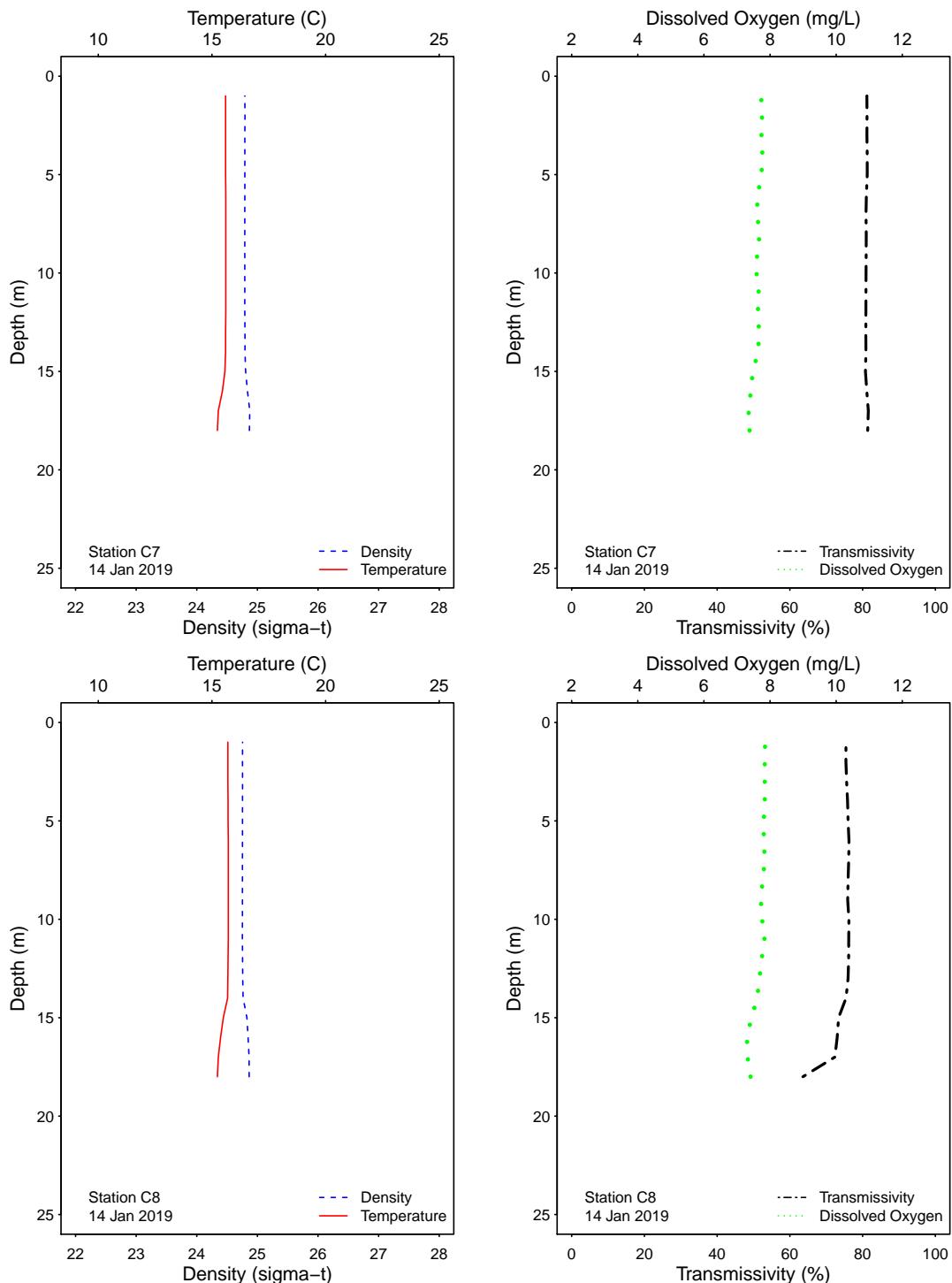


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

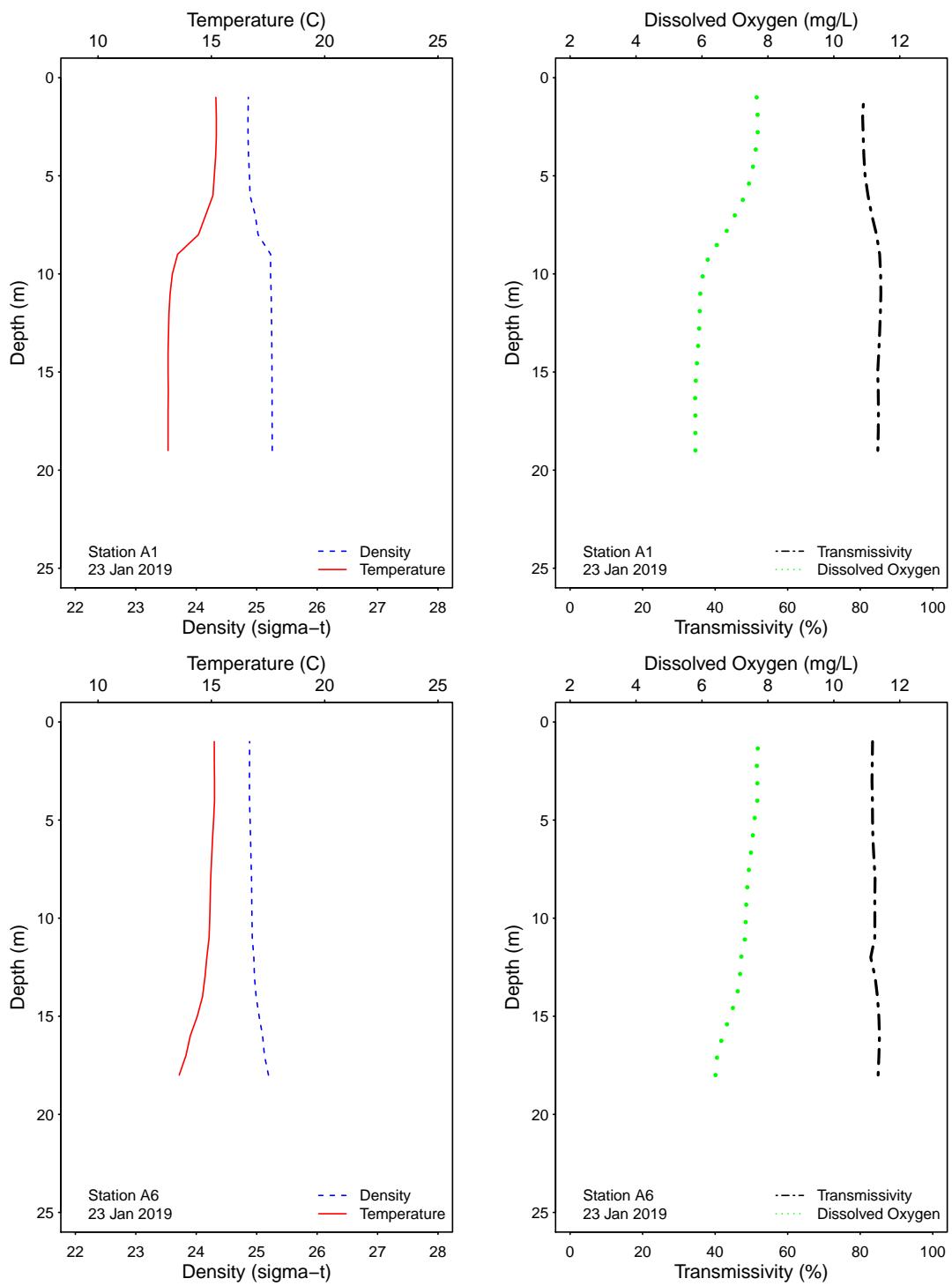


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

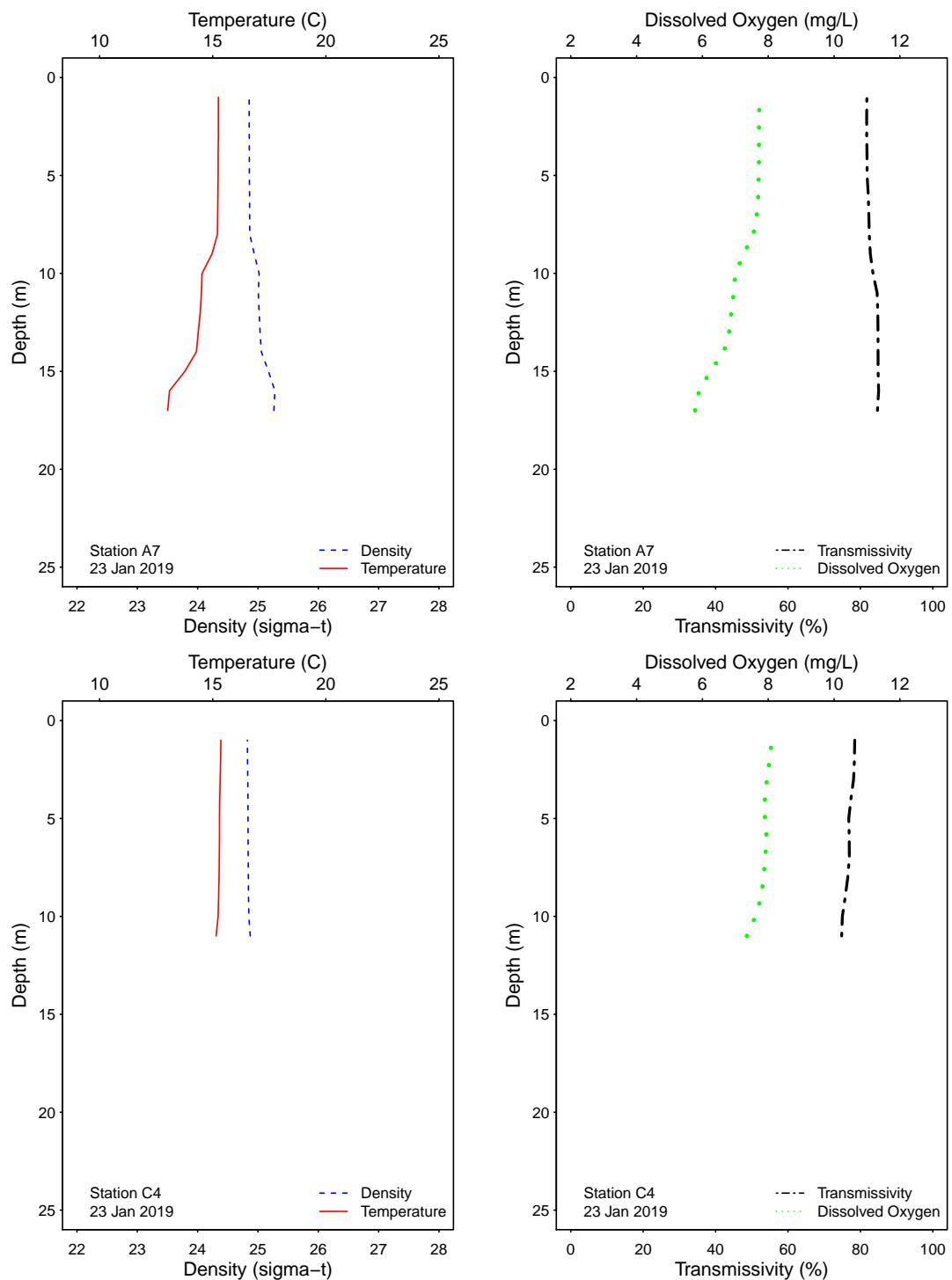


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

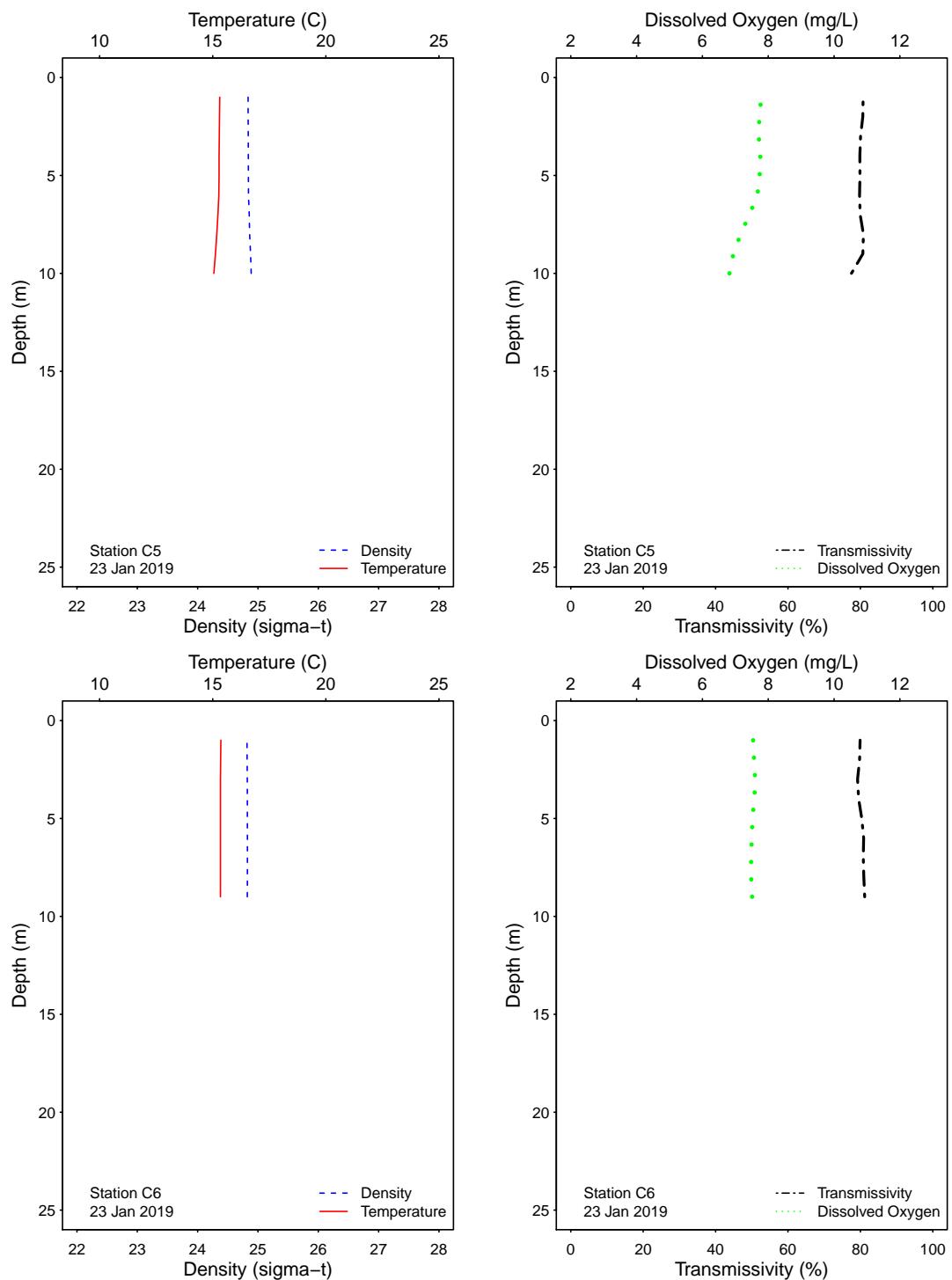


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

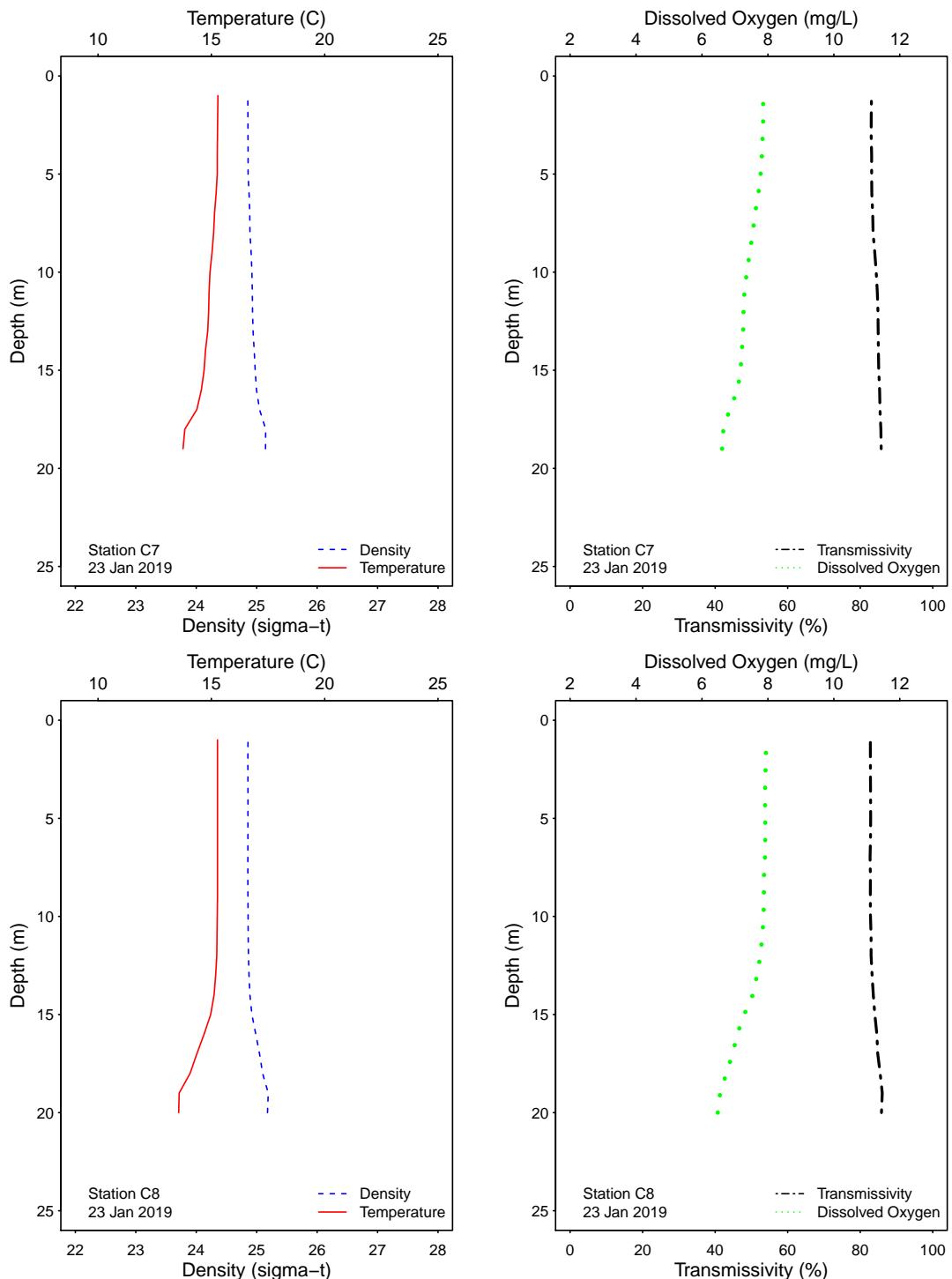


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

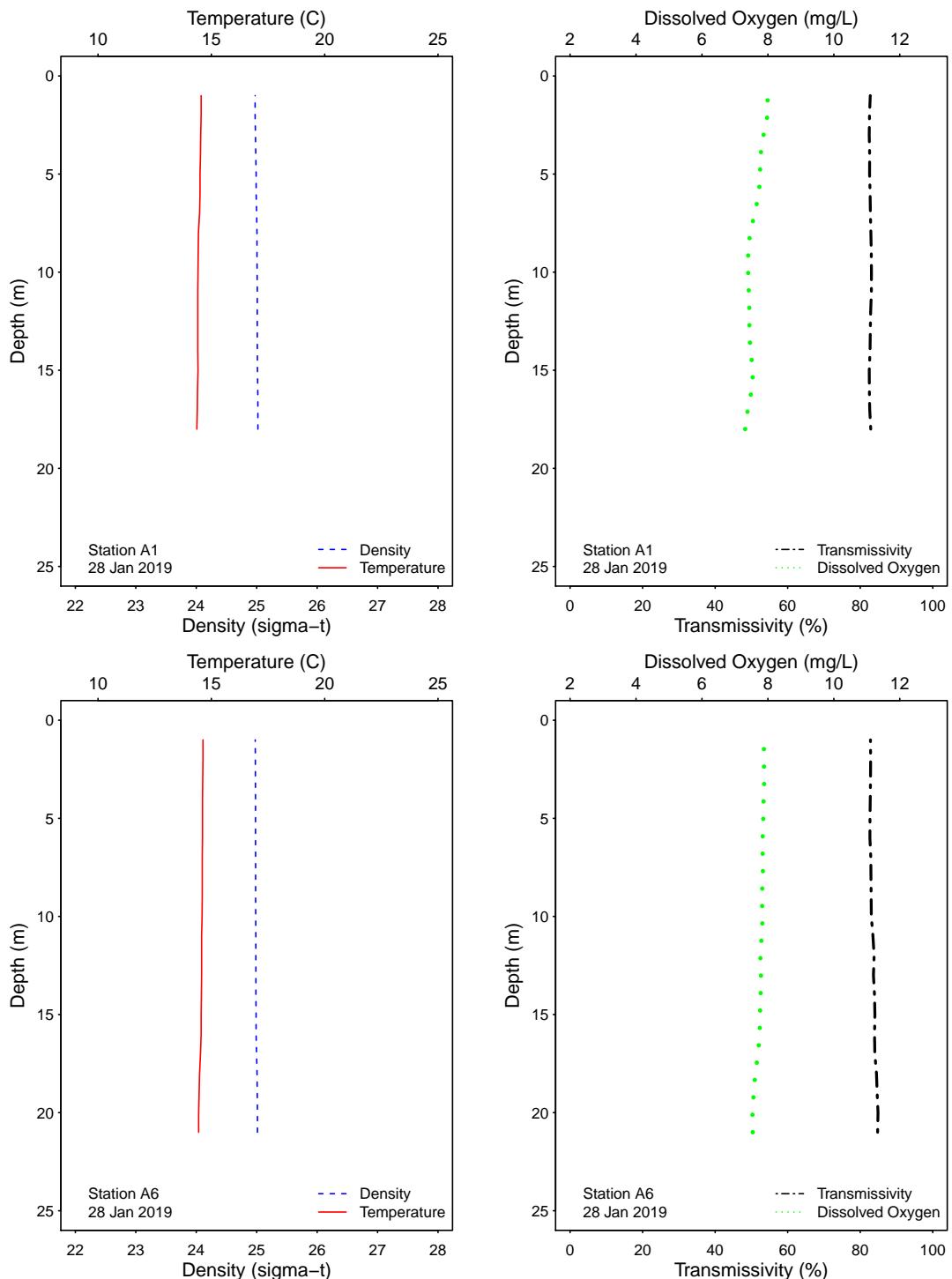


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

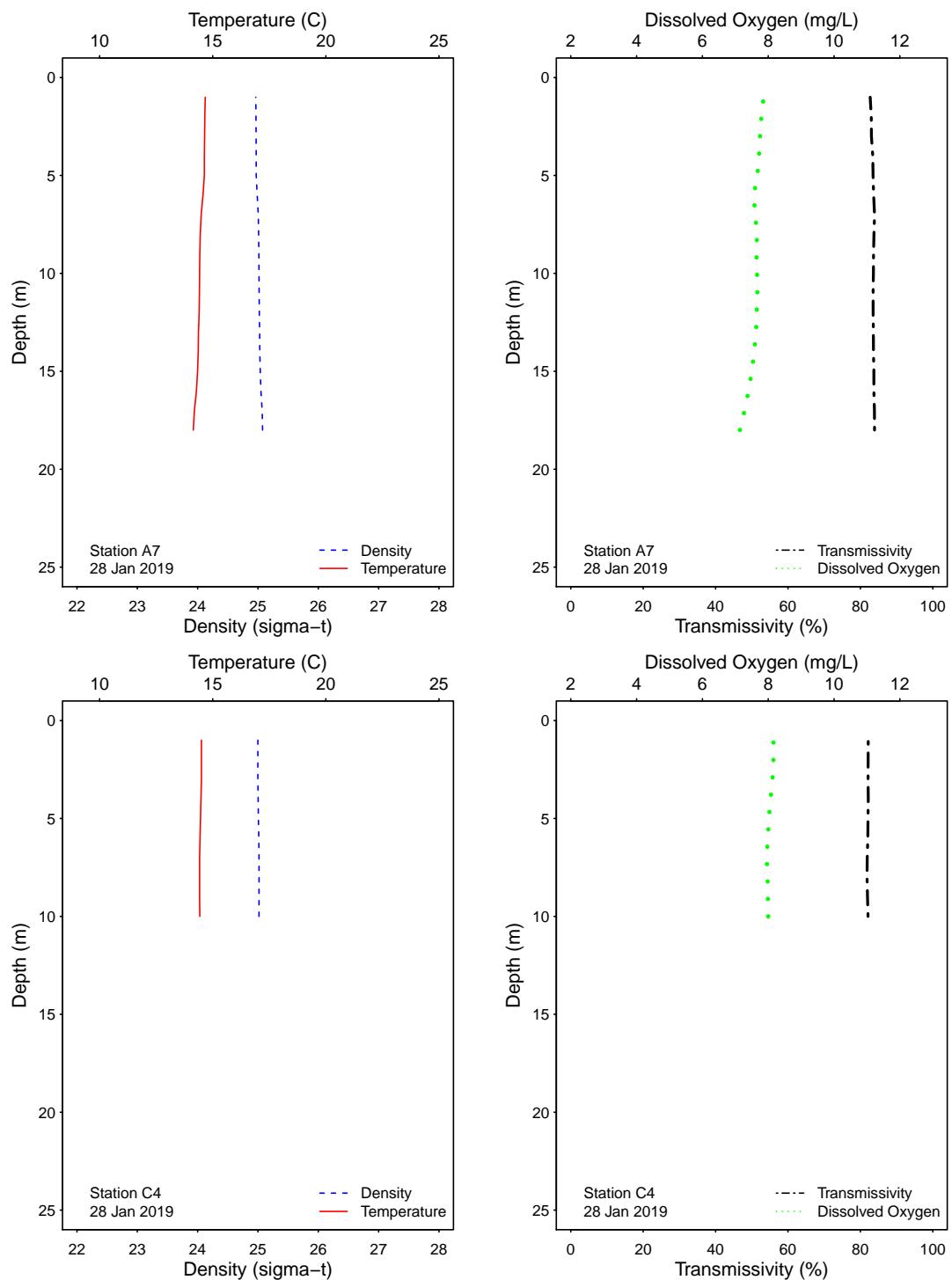


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

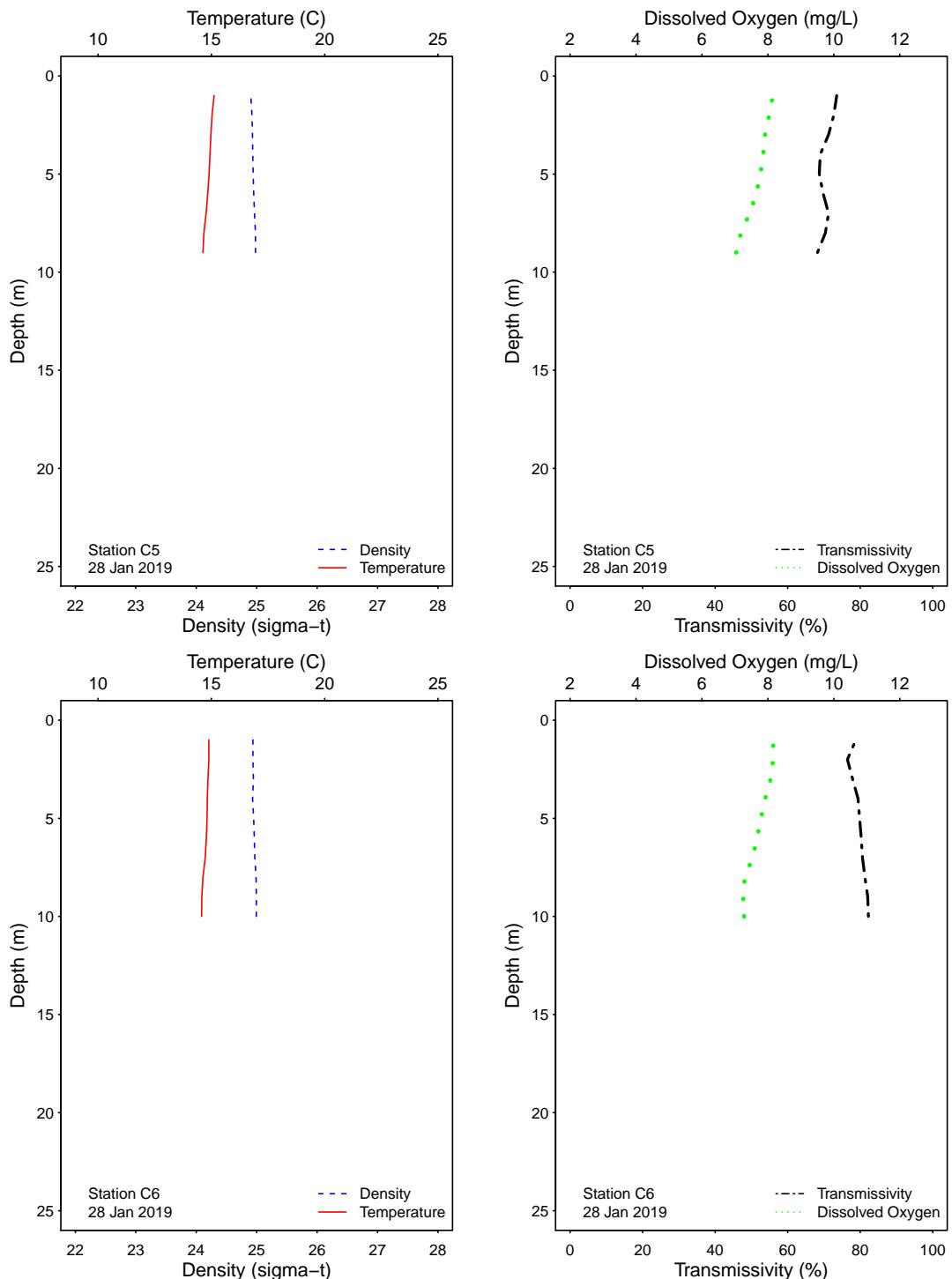


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

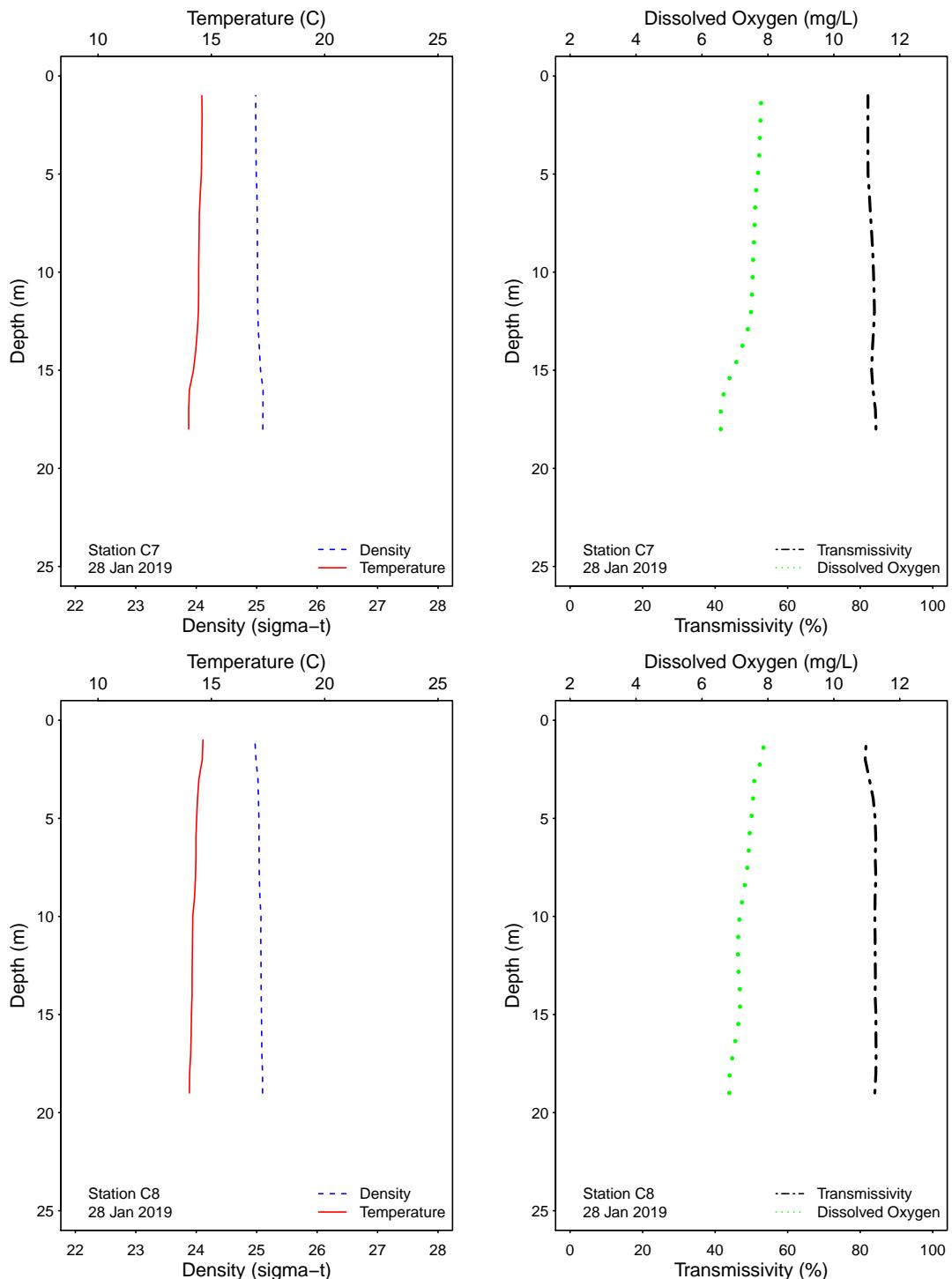


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

APPENDIX A

Quality Assurance

Table A.1

Summary of bacteriological quality assurance field and lab duplicate sample analyses at selected PLOO stations. Densities of total coliform (Total), fecal coliform (Fecal), and *Enterococcus* (Enter) are reported as CFU/100 mL.

Station	Date	Depth	Analyst	Procedure	Total	Fecal	Enter
A7	02 Jan 2019	18	AE	LAB DUPLICATE	ns	2e	ns
A7	02 Jan 2019	18	JLT	LAB DUPLICATE	8e	ns	<2
A7	07 Jan 2019	18	AR	LAB DUPLICATE	ns	8e	ns
A7	07 Jan 2019	18	JLT	LAB DUPLICATE	50	ns	4e
A7	14 Jan 2019	18	JT	LAB DUPLICATE	<2	<2	<2
A7	23 Jan 2019	18	AR	LAB DUPLICATE	1400e	240e	80e
A7	28 Jan 2019	18	AE	LAB DUPLICATE	14e	4e	<2
C7	02 Jan 2019	18	AE	LAB DUPLICATE	ns	<2	ns
C7	02 Jan 2019	18	JLT	LAB DUPLICATE	2e	ns	<20
C7	07 Jan 2019	18	AR	LAB DUPLICATE	ns	2e	ns
C7	07 Jan 2019	18	JLT	LAB DUPLICATE	6e	ns	4e
C7	14 Jan 2019	18	AR	LAB DUPLICATE	40	<2	<2
C7	23 Jan 2019	18	AE	LAB DUPLICATE	100	14e	8e
C7	28 Jan 2019	18	AE	LAB DUPLICATE	4e	<2	<2
C8	02 Jan 2019	12	AE	LAB DUPLICATE	ns	<2	ns
C8	02 Jan 2019	12	JLT	LAB DUPLICATE	2e	ns	<2
C8	07 Jan 2019	12	AR	LAB DUPLICATE	ns	<2	ns
C8	07 Jan 2019	12	JLT	LAB DUPLICATE	2e	ns	2e
C8	14 Jan 2019	12	AR	LAB DUPLICATE	2e	<2	<2
C8	23 Jan 2019	12	JT	LAB DUPLICATE	2e	2e	<2
C8	28 Jan 2019	12	AE	LAB DUPLICATE	<2	<2	<2
D12	03 Jan 2019		JT	FIELD DUPLICATE	4e	<2	2e
D12	03 Jan 2019		JT	LAB DUPLICATE	4e	<2	2e
D12	09 Jan 2019		JT	FIELD DUPLICATE	6e	2e	<2
D12	09 Jan 2019		JT	LAB DUPLICATE	12e	4e	2e
D12	17 Jan 2019		AE	FIELD DUPLICATE	10e	4e	4e
D12	17 Jan 2019		AE	LAB DUPLICATE	6e	<2	<2
D12	23 Jan 2019		AE	FIELD DUPLICATE	<20	<2	6e
D12	23 Jan 2019		AE	LAB DUPLICATE	<20	4e	<2
D12	30 Jan 2019		AE	FIELD DUPLICATE	<2	2e	<2
D12	30 Jan 2019		AE	LAB DUPLICATE	26e	12e	12e

ns = not sampled

ND = no data

