



MONTHLY RECEIVING WATERS MONITORING REPORT FOR THE POINT LOMA OCEAN OUTFALL

**POINT LOMA METROPOLITAN WASTEWATER
TREATMENT PLANT**

NPDES PERMIT No. CA 0107409
SDRWQCB Order No. R9-2017-0007

DECEMBER 2017

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





Public Utilities Department

Environmental Monitoring & Technical Services Division

January 31, 2018

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 December 2017 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,

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

TS/asb

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

INTRODUCTION

Monthly reports of water quality and ocean conditions for the San Diego coastal region surrounding the Point Loma Ocean Outfall are submitted to the San Diego Regional Water Quality Control Board and U.S. EPA Region 9 in accordance with Order No. R9-2017-0007, NPDES Permit No. CA0107409 for the Point Loma Wastewater Treatment Plant (PLWTP), Point Loma Ocean Outfall (PLOO). This report includes receiving waters monitoring data collected from all shore, kelp and offshore stations specified in the above order. Data for influent and effluent monitoring activities for the PLWTP are presented in separate reports.

MATERIALS AND METHODS

Shore Stations

Water quality conditions are monitored at eight shore stations (D4, D5, D7–D12). These stations range from the tip of the Point Loma Peninsula to west of Mission Bay (see station locations map). Due to site inaccessibility, station D8 has been temporarily abandoned and replaced with station D8-A. This new location will be sampled until access is restored at the original location. Seawater samples are collected from the surf zone at each station five times during the month. These samples are 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 are also recorded at the time of sample collection. Wind speed and direction are measured using a hand-held anemometer with a compass.

Kelp Bed Stations

The eight kelp stations are sampled four times during the month 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 consists primarily of collecting seawater samples at discrete depths to determine concentrations of indicator bacteria (i.e., total coliforms, fecal coliforms, and *Enterococcus*). Additional samples for ammonium analysis are collected at these same sites and depths on a quarterly basis in order to correspond to sampling at the offshore stations located within State waters that is typically scheduled during the months of February, May, August and November. Water column profiles of various physical/chemical parameters are also generated during each sampling event, and visual observations of weather and water conditions are recorded at each station.

Seawater samples at the kelp bed stations are primarily collected using a CTD-integrated rosette sampler with Niskin bottles. Aliquots for ammonium and bacteriological analyses are then drawn from these bottles into sterile sample bottles for processing at the City's Toxicology Laboratory (ammonium) and Marine Microbiology Laboratory (bacteria), respectively. Water column profiles of temperature, transmissivity, dissolved oxygen, pH, salinity, density, chlorophyll *a* are generated using a Sea-Bird conductivity, temperature and depth instrument (CTD), which collects these data

at a rate of \geq four scans per second. These scans are then internally averaged to create water column profiles with data readings at a rate of one per meter. The CTD data are presented in both graphical and tabular form. Additionally, data for depths closest to those where bacteriological samples are collected are extracted from the CTD profiles and 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 are primarily 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. The CTD profile data are then presented in both graphical and tabular form. Additionally, data for depths closest to those at which bacteriological samples are collected are extracted from the CTD profiles and presented with the bacteriological data.

Bacteriological Reporting and Quality Assurance

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

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

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

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

^[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.

(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 2017 Quality Assurance Report, which will be completed in March 2018.

SUMMARY OF RESULTS

Shore Stations

- During November, the eight shore stations were in compliance with various California Ocean Plan (Ocean Plan) water-contact standards.
- Over the years, elevated bacteria levels at shore and kelp bed stations have tended to be associated with rainfall events, heavy recreational use, or the presence of seabirds or decaying kelp and surfgrass. See the City of San Diego's most recent *Point Loma Ocean Outfall Annual Receiving Waters Monitoring and Assessment Report* for details (<http://www.sandiego.gov/mwwd/environment/oceanmonitor/reports/index.shtml>).
- Nothing of sewage origin was observed at any of the shore stations.

Kelp Bed Stations

- The eight kelp bed water quality stations (A1, A6, A7, C4, C5, C6, C7, C8) were sampled four times during the month (i.e. December 4, 14 22, 26).
- During December, all of the kelp bed stations were in compliance with various water-contact standards specified in the Ocean Plan.
- Water column temperatures ranged from 13.40 to 16.75°C during the month. The difference between surface and bottom waters ranged from 0.02 to 2.66°C, indicating that the water column was stratified at most of the kelp bed stations during the month.
- Chlorophyll *a* concentrations ranged from 0.32 to 2.14 µg/L during December, suggesting the presence of phytoplankton during the month.
- There were no notable visual observations for December.

Offshore Stations

- Quarterly sampling was not conducted during December at the offshore stations. The next quarterly sampling is scheduled for February 2018.

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Shore Stations

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Kelp Stations

Total Coliform Compliance Summary, Geometric Mean Standard
Fecal Coliform Compliance Summary, Geometric Mean Standard
Enterococcus Bacteria Compliance Summary, Geometric Mean Standard
Total Coliform Single Sample Maximum
Fecal Coliform Single Sample Maximum
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Kelp Station Water Quality Summary Data
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APPENDIX A

Quality Assurance

Water Quality Summary Data



TABLES AND FIGURES

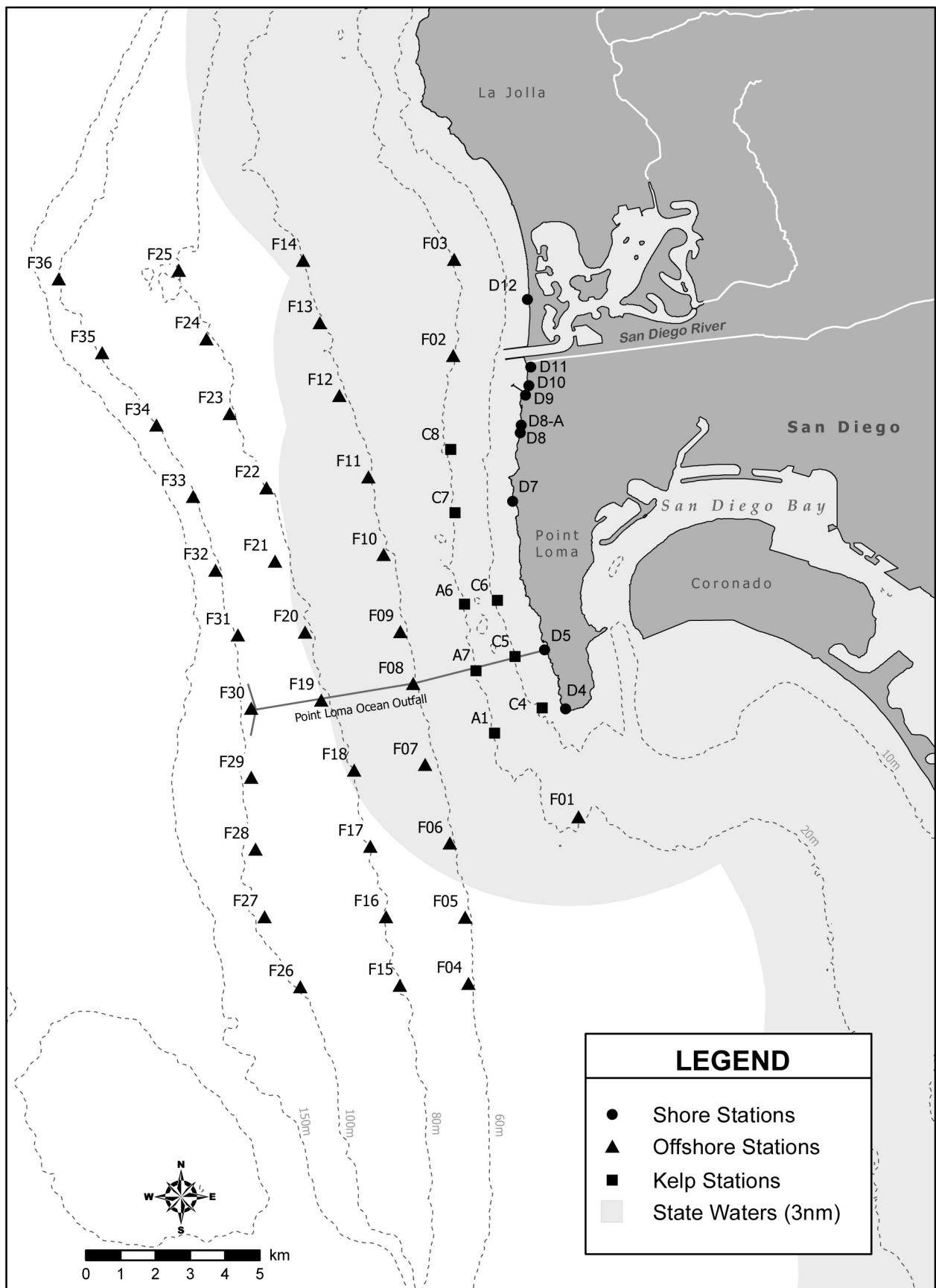


Figure 1.1 Station Map

Shore Stations

Table 2.1

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
01 Dec 2017	20*	26*	25*	126*	34*	40*	25*	13*
02 Dec 2017	20*	26*	25*	126*	34*	40*	25*	13*
03 Dec 2017	20*	26*	25*	126*	34*	40*	25*	13*
04 Dec 2017	20*	26*	25*	126*	34*	40*	25*	13*
05 Dec 2017	20*	26*	25*	126*	34*	40*	25*	13*
06 Dec 2017	20	25	17	87	25	35	17	11
07 Dec 2017	20	25	17	87	25	35	17	11
08 Dec 2017	20*	26*	12*	60*	22*	40*	17*	10*
09 Dec 2017	20*	26*	12*	60*	22*	40*	17*	10*
10 Dec 2017	20*	26*	12*	60*	22*	40*	17*	10*
11 Dec 2017	20*	26*	12*	60*	22*	40*	17*	10*
12 Dec 2017	20*	26*	12*	60*	22*	40*	17*	10*
13 Dec 2017	20	25	13	76	19	35	17	11
14 Dec 2017	20	25	13	76	19	35	17	11
15 Dec 2017	20*	20*	12*	42*	11*	22*	17*	10*
16 Dec 2017	20*	20*	12*	42*	11*	22*	17*	10*
17 Dec 2017	20*	20*	12*	42*	11*	22*	17*	10*
18 Dec 2017	20*	20*	12*	42*	11*	22*	17*	10*
19 Dec 2017	20*	20*	12*	42*	11*	22*	17*	10*
20 Dec 2017	11*	20*	8*	34*	9*	19*	9*	7*
21 Dec 2017	11*	20*	8*	34*	9*	19*	9*	7*
22 Dec 2017	11*	20*	8*	34*	9*	19*	9*	7*
23 Dec 2017	11*	20*	8*	34*	9*	19*	9*	7*
24 Dec 2017	11*	20*	8*	34*	9*	19*	9*	7*
25 Dec 2017	11*	20*	8*	34*	9*	19*	9*	7*
26 Dec 2017	11*	20*	8*	34*	9*	19*	9*	7*
27 Dec 2017	8	20	6	30	7	19	11	5
28 Dec 2017	8	20	6	30	7	19	11	5
29 Dec 2017	6*	20*	7*	50*	8*	20*	8*	6*
30 Dec 2017	6*	20*	7*	50*	8*	20*	8*	6*
31 Dec 2017	6*	20*	7*	50*	8*	20*	8*	6*

* Geometric mean calculated using n<5

ns = not sampled

Table 2.2

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
01 Dec 2017	3*	5*	9*	9*	2*	5*	4*	2*
02 Dec 2017	3*	5*	9*	9*	2*	5*	4*	2*
03 Dec 2017	3*	5*	9*	9*	2*	5*	4*	2*
04 Dec 2017	3*	5*	9*	9*	2*	5*	4*	2*
05 Dec 2017	3*	5*	9*	9*	2*	5*	4*	2*
06 Dec 2017	3	4	6	7	2	4	4	2
07 Dec 2017	3	4	6	7	2	4	4	2
08 Dec 2017	2*	5*	3*	7*	2*	4*	3*	2*
09 Dec 2017	2*	5*	3*	7*	2*	4*	3*	2*
10 Dec 2017	2*	5*	3*	7*	2*	4*	3*	2*
11 Dec 2017	2*	5*	3*	7*	2*	4*	3*	2*
12 Dec 2017	2*	5*	3*	7*	2*	4*	3*	2*
13 Dec 2017	2	4	3	5	2	3	3	2
14 Dec 2017	2	4	3	5	2	3	3	2
15 Dec 2017	2*	4*	3*	3*	2*	2*	3*	2*
16 Dec 2017	2*	4*	3*	3*	2*	2*	3*	2*
17 Dec 2017	2*	4*	3*	3*	2*	2*	3*	2*
18 Dec 2017	2*	4*	3*	3*	2*	2*	3*	2*
19 Dec 2017	2*	4*	3*	3*	2*	2*	3*	2*
20 Dec 2017	2*	4*	3*	3*	3*	2*	3*	2*
21 Dec 2017	2*	4*	3*	3*	3*	2*	3*	2*
22 Dec 2017	2*	4*	3*	3*	3*	2*	3*	2*
23 Dec 2017	2*	4*	3*	3*	3*	2*	3*	2*
24 Dec 2017	2*	4*	3*	3*	3*	2*	3*	2*
25 Dec 2017	2*	4*	3*	3*	3*	2*	3*	2*
26 Dec 2017	2*	4*	3*	3*	3*	2*	3*	2*
27 Dec 2017	2	3	3	3	2	2	2	2
28 Dec 2017	2	3	3	3	2	2	2	2
29 Dec 2017	2*	4*	3*	3*	3*	2*	2*	2*
30 Dec 2017	2*	4*	3*	3*	3*	2*	2*	2*
31 Dec 2017	2*	4*	3*	3*	3*	2*	2*	2*

* Geometric mean calculated using n<5

ns = not sampled

Table 2.3

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
01 Dec 2017	5*	2*	7*	9*	2*	4*	5*	2*
02 Dec 2017	5*	2*	7*	9*	2*	4*	5*	2*
03 Dec 2017	5*	2*	7*	9*	2*	4*	5*	2*
04 Dec 2017	5*	2*	7*	9*	2*	4*	5*	2*
05 Dec 2017	5*	2*	7*	9*	2*	4*	5*	2*
06 Dec 2017	4	2	6	7	2	3	4	2
07 Dec 2017	4	2	6	7	2	3	4	2
08 Dec 2017	4*	2*	3*	9*	2*	4*	4*	2*
09 Dec 2017	4*	2*	3*	9*	2*	4*	4*	2*
10 Dec 2017	4*	2*	3*	9*	2*	4*	4*	2*
11 Dec 2017	4*	2*	3*	9*	2*	4*	4*	2*
12 Dec 2017	4*	2*	3*	9*	2*	4*	4*	2*
13 Dec 2017	3	2	3	8	2	3	4	2
14 Dec 2017	3	2	3	8	2	3	4	2
15 Dec 2017	3*	2*	2*	4*	2*	3*	4*	2*
16 Dec 2017	3*	2*	2*	4*	2*	3*	4*	2*
17 Dec 2017	3*	2*	2*	4*	2*	3*	4*	2*
18 Dec 2017	3*	2*	2*	4*	2*	3*	4*	2*
19 Dec 2017	3*	2*	2*	4*	2*	3*	4*	2*
20 Dec 2017	2*	2*	2*	5*	2*	3*	5*	2*
21 Dec 2017	2*	2*	2*	5*	2*	3*	5*	2*
22 Dec 2017	2*	2*	2*	5*	2*	3*	5*	2*
23 Dec 2017	2*	2*	2*	5*	2*	3*	5*	2*
24 Dec 2017	2*	2*	2*	5*	2*	3*	5*	2*
25 Dec 2017	2*	2*	2*	5*	2*	3*	5*	2*
26 Dec 2017	2*	2*	2*	5*	2*	3*	5*	2*
27 Dec 2017	2	2	2	4	3	3	6	2
28 Dec 2017	2	2	2	4	3	3	6	2
29 Dec 2017	2*	2*	2*	5*	3*	2*	5*	2*
30 Dec 2017	2*	2*	2*	5*	3*	2*	5*	2*
31 Dec 2017	2*	2*	2*	5*	3*	2*	5*	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-A	D9	D10	D11	D12
06 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
13 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
20 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
27 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.5

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
06 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
13 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
20 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
27 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.6

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
06 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
13 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
20 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
27 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.7

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

Date	D4	D5	D7	D8-A	D9	D10	D11	D12
06 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
13 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
20 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC
27 Dec 2017	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.8

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

Station	Date	Time	Total	Fecal	Enter	F:T
D4	06 Dec 2017	851	<20	4e	<2	0.20
D4	13 Dec 2017	851	<20	<2	<2	0.10
D4	20 Dec 2017	825	2e	<2	<2	1.00
D4	27 Dec 2017	852	<2	<2	<2	1.00
D5	06 Dec 2017	837	<20	<2	<2	0.10
D5	13 Dec 2017	837	20e	<2	<2	0.10
D5	20 Dec 2017	813	20e	24e	<2	1.20
D5	27 Dec 2017	839	<20	<2	2e	0.10
D7	06 Dec 2017	925	4e	<2	<2	0.50
D7	13 Dec 2017	921	<20	<2	2e	0.10
D7	20 Dec 2017	859	14e	14e	<2	1.00
D7	27 Dec 2017	932	<2	<2	<2	1.00
D8-A	06 Dec 2017	934	<20	<2	2e	0.10
D8-A	13 Dec 2017	935	200e	<2	4e	0.01
D8-A	20 Dec 2017	912	80e	18e	42	0.22
D8-A	27 Dec 2017	958	<20	<2	<2	0.10
D9	06 Dec 2017	954	8e	<2	<2	0.25
D9	13 Dec 2017	1002	10e	<2	<2	0.20
D9	20 Dec 2017	934	20e	6e	4e	0.30
D9	27 Dec 2017	1013	2e	<2	8e	1.00
D10	06 Dec 2017	1003	20e	<2	2e	0.10
D10	13 Dec 2017	1023	20e	2e	<2	0.10
D10	20 Dec 2017	944	<20	<2	<2	0.10
D10	27 Dec 2017	1036	<20	<2	2e	0.10
D11	06 Dec 2017	1020	4e	<2	<2	0.50
D11	13 Dec 2017	1034	20e	<2	2e	0.10
D11	20 Dec 2017	955	2e	<2	10e	1.00
D11	27 Dec 2017	1103	<20	2e	14e	0.10
D12	06 Dec 2017	1059	6e	2e	4e	0.33
D12	13 Dec 2017	1115	<20	<2	<2	0.10
D12	20 Dec 2017	1014	4e	<2	2e	0.50
D12	27 Dec 2017	1127	2e	<2	<2	1.00

ns = not sampled

Table 2.9

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

Station	Date	Parameter	Value
D4	06 Dec 2017	Arrive Time	851
D4	06 Dec 2017	Weather	Sunny
D4	06 Dec 2017	Wind Speed (kts)	1.9
D4	06 Dec 2017	Wind Dir	W
D4	06 Dec 2017	Animal Life	None
D4	06 Dec 2017	Floatables	None
D4	06 Dec 2017	Water Color	Green
D4	06 Dec 2017	Current Direction	W
D4	06 Dec 2017	Water Temp (C)	12.6
D4	06 Dec 2017	Wave Height Low (ft)	2
D4	06 Dec 2017	High Tide (ft)	6.3
D4	06 Dec 2017	High Tide Time	1013
D4	06 Dec 2017	Low Tide (ft)	1.9
D4	06 Dec 2017	Low Tide Time	408
D4	06 Dec 2017	Comments	Kelp; Seagrass; Algae; Water clear
D4	13 Dec 2017	Arrive Time	851
D4	13 Dec 2017	Weather	Sunny
D4	13 Dec 2017	Wind Speed (kts)	3
D4	13 Dec 2017	Wind Dir	NW
D4	13 Dec 2017	Animal Life	None
D4	13 Dec 2017	Floatables	None
D4	13 Dec 2017	Water Color	Green
D4	13 Dec 2017	Current Direction	N
D4	13 Dec 2017	Water Temp (C)	10.8
D4	13 Dec 2017	Wave Height Low (ft)	3
D4	13 Dec 2017	High Tide (ft)	5.4
D4	13 Dec 2017	High Tide Time	549
D4	13 Dec 2017	Low Tide (ft)	0.4
D4	13 Dec 2017	Low Tide Time	1244
D4	13 Dec 2017	Comments	Kelp; Seagrass; 1 Boat; Water clear
D4	20 Dec 2017	Arrive Time	825
D4	20 Dec 2017	Weather	Partly Cloudy
D4	20 Dec 2017	Wind Speed (kts)	1.2
D4	20 Dec 2017	Wind Dir	NW
D4	20 Dec 2017	Animal Life	None
D4	20 Dec 2017	Floatables	None
D4	20 Dec 2017	Water Color	Green
D4	20 Dec 2017	Current Direction	NW
D4	20 Dec 2017	Water Temp (C)	13.1
D4	20 Dec 2017	Wave Height Low (ft)	1
D4	20 Dec 2017	High Tide (ft)	5.5
D4	20 Dec 2017	High Tide Time	919
D4	20 Dec 2017	Low Tide (ft)	2.1
D4	20 Dec 2017	Low Tide Time	316
D4	20 Dec 2017	Comments	Kelp; Seagrass; Algae; Water clear
D4	27 Dec 2017	Arrive Time	852
D4	27 Dec 2017	Weather	Overcast
D4	27 Dec 2017	Wind Speed (kts)	1.1

Station	Date	Parameter	Value
D4	27 Dec 2017	Wind Dir	W
D4	27 Dec 2017	Animal Life	None
D4	27 Dec 2017	Floatables	None
D4	27 Dec 2017	Water Color	Green
D4	27 Dec 2017	Current Direction	N
D4	27 Dec 2017	Water Temp (C)	12.2
D4	27 Dec 2017	Wave Height Low (ft)	3
D4	27 Dec 2017	High Tide (ft)	4.7
D4	27 Dec 2017	High Tide Time	405
D4	27 Dec 2017	Low Tide (ft)	1.4
D4	27 Dec 2017	Low Tide Time	1054
D4	27 Dec 2017	Comments	Kelp; Seagrass; Algae; Water clear
D5	06 Dec 2017	Arrive Time	837
D5	06 Dec 2017	Weather	Sunny
D5	06 Dec 2017	Wind Speed (kts)	0.1
D5	06 Dec 2017	Wind Dir	S
D5	06 Dec 2017	Animal Life	None
D5	06 Dec 2017	Floatables	None
D5	06 Dec 2017	Water Color	Green
D5	06 Dec 2017	Current Direction	S
D5	06 Dec 2017	Water Temp (C)	12
D5	06 Dec 2017	Wave Height Low (ft)	1
D5	06 Dec 2017	High Tide (ft)	6.3
D5	06 Dec 2017	High Tide Time	1013
D5	06 Dec 2017	Low Tide (ft)	1.9
D5	06 Dec 2017	Low Tide Time	408
D5	06 Dec 2017	Comments	Kelp; Seagrass; Water clear
D5	13 Dec 2017	Arrive Time	837
D5	13 Dec 2017	Weather	Sunny
D5	13 Dec 2017	Wind Speed (kts)	3.4
D5	13 Dec 2017	Wind Dir	NW
D5	13 Dec 2017	Animal Life	None
D5	13 Dec 2017	Floatables	None
D5	13 Dec 2017	Water Color	Green
D5	13 Dec 2017	Current Direction	N
D5	13 Dec 2017	Water Temp (C)	12.5
D5	13 Dec 2017	Wave Height Low (ft)	3
D5	13 Dec 2017	High Tide (ft)	5.4
D5	13 Dec 2017	High Tide Time	549
D5	13 Dec 2017	Low Tide (ft)	0.4
D5	13 Dec 2017	Low Tide Time	1244
D5	13 Dec 2017	Comments	Kelp; Seagrass; Algae; Water clear
D5	20 Dec 2017	Arrive Time	813
D5	20 Dec 2017	Weather	Partly Cloudy
D5	20 Dec 2017	Wind Speed (kts)	0.5
D5	20 Dec 2017	Wind Dir	N
D5	20 Dec 2017	Animal Life	None
D5	20 Dec 2017	Floatables	None
D5	20 Dec 2017	Water Color	Green
D5	20 Dec 2017	Current Direction	N
D5	20 Dec 2017	Water Temp (C)	12
D5	20 Dec 2017	Wave Height Low (ft)	1

Station	Date	Parameter	Value
D5	20 Dec 2017	High Tide (ft)	5.5
D5	20 Dec 2017	High Tide Time	919
D5	20 Dec 2017	Low Tide (ft)	2.1
D5	20 Dec 2017	Low Tide Time	316
D5	20 Dec 2017	Comments	Kelp; Seagrass; Water clear
D5	27 Dec 2017	Arrive Time	839
D5	27 Dec 2017	Weather	Overcast
D5	27 Dec 2017	Wind Speed (kts)	1.8
D5	27 Dec 2017	Wind Dir	SW
D5	27 Dec 2017	Animal Life	None
D5	27 Dec 2017	Floatables	None
D5	27 Dec 2017	Water Color	Green
D5	27 Dec 2017	Current Direction	N
D5	27 Dec 2017	Water Temp (C)	15.4
D5	27 Dec 2017	Wave Height Low (ft)	2
D5	27 Dec 2017	High Tide (ft)	4.7
D5	27 Dec 2017	High Tide Time	405
D5	27 Dec 2017	Low Tide (ft)	1.4
D5	27 Dec 2017	Low Tide Time	1054
D5	27 Dec 2017	Comments	Kelp; Seagrass; Algae; Water clear
D7	06 Dec 2017	Arrive Time	925
D7	06 Dec 2017	Weather	Sunny
D7	06 Dec 2017	Wind Speed (kts)	1.9
D7	06 Dec 2017	Wind Dir	W
D7	06 Dec 2017	Animal Life	None
D7	06 Dec 2017	Floatables	None
D7	06 Dec 2017	Water Color	Green
D7	06 Dec 2017	Current Direction	W
D7	06 Dec 2017	Water Temp (C)	12.8
D7	06 Dec 2017	Wave Height Low (ft)	2
D7	06 Dec 2017	High Tide (ft)	6.3
D7	06 Dec 2017	High Tide Time	1013
D7	06 Dec 2017	Low Tide (ft)	1.9
D7	06 Dec 2017	Low Tide Time	408
D7	06 Dec 2017	Comments	Seagrass; Water clear
D7	13 Dec 2017	Arrive Time	921
D7	13 Dec 2017	Weather	Sunny
D7	13 Dec 2017	Wind Speed (kts)	1.5
D7	13 Dec 2017	Wind Dir	W
D7	13 Dec 2017	Animal Life	None
D7	13 Dec 2017	Floatables	None
D7	13 Dec 2017	Water Color	Green
D7	13 Dec 2017	Current Direction	N
D7	13 Dec 2017	Water Temp (C)	12.4
D7	13 Dec 2017	Wave Height Low (ft)	3
D7	13 Dec 2017	High Tide (ft)	5.4
D7	13 Dec 2017	High Tide Time	549
D7	13 Dec 2017	Low Tide (ft)	0.4
D7	13 Dec 2017	Low Tide Time	1244
D7	13 Dec 2017	Comments	Kelp; Seagrass; Algae; 7 Surfers; Water clear
D7	20 Dec 2017	Arrive Time	859

Station	Date	Parameter	Value
D7	20 Dec 2017	Weather	Partly Cloudy
D7	20 Dec 2017	Wind Speed (kts)	1.5
D7	20 Dec 2017	Wind Dir	NW
D7	20 Dec 2017	Animal Life	None
D7	20 Dec 2017	Floatables	None
D7	20 Dec 2017	Water Color	Green
D7	20 Dec 2017	Current Direction	NW
D7	20 Dec 2017	Water Temp (C)	14
D7	20 Dec 2017	Wave Height Low (ft)	1
D7	20 Dec 2017	High Tide (ft)	5.5
D7	20 Dec 2017	High Tide Time	919
D7	20 Dec 2017	Low Tide (ft)	2.1
D7	20 Dec 2017	Low Tide Time	316
D7	20 Dec 2017	Comments	Kelp; Seagrass; Water clear
D7	27 Dec 2017	Arrive Time	932
D7	27 Dec 2017	Weather	Sunny
D7	27 Dec 2017	Wind Speed (kts)	0.7
D7	27 Dec 2017	Wind Dir	W
D7	27 Dec 2017	Animal Life	None
D7	27 Dec 2017	Floatables	None
D7	27 Dec 2017	Water Color	Green
D7	27 Dec 2017	Current Direction	N
D7	27 Dec 2017	Water Temp (C)	14.7
D7	27 Dec 2017	Wave Height Low (ft)	2
D7	27 Dec 2017	High Tide (ft)	4.7
D7	27 Dec 2017	High Tide Time	405
D7	27 Dec 2017	Low Tide (ft)	1.4
D7	27 Dec 2017	Low Tide Time	1054
D7	27 Dec 2017	Comments	Kelp; Seagrass; Algae; Water clear
D8-A	06 Dec 2017	Arrive Time	934
D8-A	06 Dec 2017	Weather	Sunny
D8-A	06 Dec 2017	Wind Speed (kts)	1.9
D8-A	06 Dec 2017	Wind Dir	W
D8-A	06 Dec 2017	Animal Life	None
D8-A	06 Dec 2017	Floatables	None
D8-A	06 Dec 2017	Water Color	Green
D8-A	06 Dec 2017	Current Direction	W
D8-A	06 Dec 2017	Water Temp (C)	12.2
D8-A	06 Dec 2017	Wave Height Low (ft)	2
D8-A	06 Dec 2017	High Tide (ft)	6.3
D8-A	06 Dec 2017	High Tide Time	1013
D8-A	06 Dec 2017	Low Tide (ft)	1.9
D8-A	06 Dec 2017	Low Tide Time	408
D8-A	06 Dec 2017	Comments	Kelp; Seagrass; Water clear
D8-A	13 Dec 2017	Arrive Time	935
D8-A	13 Dec 2017	Weather	Sunny
D8-A	13 Dec 2017	Wind Speed (kts)	0.6
D8-A	13 Dec 2017	Wind Dir	NW
D8-A	13 Dec 2017	Animal Life	None
D8-A	13 Dec 2017	Floatables	None
D8-A	13 Dec 2017	Water Color	Green
D8-A	13 Dec 2017	Current Direction	N

Station	Date	Parameter	Value
D8-A	13 Dec 2017	Water Temp (C)	10
D8-A	13 Dec 2017	Wave Height Low (ft)	3
D8-A	13 Dec 2017	High Tide (ft)	5.4
D8-A	13 Dec 2017	High Tide Time	549
D8-A	13 Dec 2017	Low Tide (ft)	0.4
D8-A	13 Dec 2017	Low Tide Time	1244
D8-A	13 Dec 2017	Comments	Kelp; Seagrass; 1 Surfer; Water clear
D8-A	20 Dec 2017	Arrive Time	912
D8-A	20 Dec 2017	Weather	Sunny
D8-A	20 Dec 2017	Wind Speed (kts)	2.1
D8-A	20 Dec 2017	Wind Dir	E
D8-A	20 Dec 2017	Animal Life	None
D8-A	20 Dec 2017	Floatables	None
D8-A	20 Dec 2017	Water Color	Green
D8-A	20 Dec 2017	Current Direction	E
D8-A	20 Dec 2017	Water Temp (C)	13.2
D8-A	20 Dec 2017	Wave Height Low (ft)	2
D8-A	20 Dec 2017	High Tide (ft)	5.5
D8-A	20 Dec 2017	High Tide Time	919
D8-A	20 Dec 2017	Low Tide (ft)	2.1
D8-A	20 Dec 2017	Low Tide Time	316
D8-A	20 Dec 2017	Comments	Seagrass; Algae; Water clear
D8-A	27 Dec 2017	Arrive Time	958
D8-A	27 Dec 2017	Weather	Sunny
D8-A	27 Dec 2017	Wind Speed (kts)	2.3
D8-A	27 Dec 2017	Wind Dir	W
D8-A	27 Dec 2017	Animal Life	None
D8-A	27 Dec 2017	Floatables	None
D8-A	27 Dec 2017	Water Color	Green
D8-A	27 Dec 2017	Current Direction	N
D8-A	27 Dec 2017	Water Temp (C)	8.3
D8-A	27 Dec 2017	Wave Height Low (ft)	4
D8-A	27 Dec 2017	High Tide (ft)	4.7
D8-A	27 Dec 2017	High Tide Time	405
D8-A	27 Dec 2017	Low Tide (ft)	1.4
D8-A	27 Dec 2017	Low Tide Time	1054
D8-A	27 Dec 2017	Comments	Kelp; Seagrass; 5 Surfers; Water clear
D9	06 Dec 2017	Arrive Time	954
D9	06 Dec 2017	Weather	Sunny
D9	06 Dec 2017	Wind Speed (kts)	1.2
D9	06 Dec 2017	Wind Dir	SW
D9	06 Dec 2017	Animal Life	None
D9	06 Dec 2017	Floatables	None
D9	06 Dec 2017	Water Color	Green
D9	06 Dec 2017	Current Direction	SW
D9	06 Dec 2017	Water Temp (C)	12.7
D9	06 Dec 2017	Wave Height Low (ft)	2
D9	06 Dec 2017	High Tide (ft)	6.3
D9	06 Dec 2017	High Tide Time	1013
D9	06 Dec 2017	Low Tide (ft)	1.9
D9	06 Dec 2017	Low Tide Time	408
D9	06 Dec 2017	Comments	Water clear

Station	Date	Parameter	Value
D9	13 Dec 2017	Arrive Time	1002
D9	13 Dec 2017	Weather	Sunny
D9	13 Dec 2017	Wind Speed (kts)	2.6
D9	13 Dec 2017	Wind Dir	W
D9	13 Dec 2017	Animal Life	None
D9	13 Dec 2017	Floatables	None
D9	13 Dec 2017	Water Color	Green
D9	13 Dec 2017	Current Direction	N
D9	13 Dec 2017	Water Temp (C)	12.6
D9	13 Dec 2017	Wave Height Low (ft)	4
D9	13 Dec 2017	High Tide (ft)	5.4
D9	13 Dec 2017	High Tide Time	549
D9	13 Dec 2017	Low Tide (ft)	0.4
D9	13 Dec 2017	Low Tide Time	1244
D9	13 Dec 2017	Comments	Kelp; Seagrass; Algae; 4 Surfers; Water clear
D9	20 Dec 2017	Arrive Time	934
D9	20 Dec 2017	Weather	Sunny
D9	20 Dec 2017	Wind Speed (kts)	1.1
D9	20 Dec 2017	Wind Dir	N
D9	20 Dec 2017	Animal Life	None
D9	20 Dec 2017	Floatables	None
D9	20 Dec 2017	Water Color	Green
D9	20 Dec 2017	Current Direction	N
D9	20 Dec 2017	Water Temp (C)	12.2
D9	20 Dec 2017	Wave Height Low (ft)	2
D9	20 Dec 2017	High Tide (ft)	5.5
D9	20 Dec 2017	High Tide Time	919
D9	20 Dec 2017	Low Tide (ft)	2.1
D9	20 Dec 2017	Low Tide Time	316
D9	20 Dec 2017	Comments	Kelp; Seagrass; Algae; 2 Persons; Water clear
D9	27 Dec 2017	Arrive Time	1013
D9	27 Dec 2017	Weather	Sunny
D9	27 Dec 2017	Wind Speed (kts)	2.3
D9	27 Dec 2017	Wind Dir	W
D9	27 Dec 2017	Animal Life	None
D9	27 Dec 2017	Floatables	None
D9	27 Dec 2017	Water Color	Green
D9	27 Dec 2017	Current Direction	N
D9	27 Dec 2017	Water Temp (C)	13.2
D9	27 Dec 2017	Wave Height Low (ft)	3
D9	27 Dec 2017	High Tide (ft)	4.7
D9	27 Dec 2017	High Tide Time	405
D9	27 Dec 2017	Low Tide (ft)	1.4
D9	27 Dec 2017	Low Tide Time	1054
D9	27 Dec 2017	Comments	Kelp; Seagrass; 1 Person; 2 Surfers; Water clear
D10	06 Dec 2017	Arrive Time	1003
D10	06 Dec 2017	Weather	Sunny
D10	06 Dec 2017	Wind Speed (kts)	4.2
D10	06 Dec 2017	Wind Dir	SW
D10	06 Dec 2017	Animal Life	None
D10	06 Dec 2017	Floatables	None

Station	Date	Parameter	Value
D10	06 Dec 2017	Water Color	Green
D10	06 Dec 2017	Current Direction	SW
D10	06 Dec 2017	Water Temp (C)	12.6
D10	06 Dec 2017	Wave Height Low (ft)	3
D10	06 Dec 2017	High Tide (ft)	6.3
D10	06 Dec 2017	High Tide Time	1013
D10	06 Dec 2017	Low Tide (ft)	1.9
D10	06 Dec 2017	Low Tide Time	408
D10	06 Dec 2017	Comments	Kelp; 3 Persons; 15 Surfers; Water clear
D10	13 Dec 2017	Arrive Time	1023
D10	13 Dec 2017	Weather	Sunny
D10	13 Dec 2017	Wind Speed (kts)	3.8
D10	13 Dec 2017	Wind Dir	W
D10	13 Dec 2017	Animal Life	None
D10	13 Dec 2017	Floatables	None
D10	13 Dec 2017	Water Color	Green
D10	13 Dec 2017	Current Direction	N
D10	13 Dec 2017	Water Temp (C)	13.8
D10	13 Dec 2017	Wave Height Low (ft)	4
D10	13 Dec 2017	High Tide (ft)	5.4
D10	13 Dec 2017	High Tide Time	549
D10	13 Dec 2017	Low Tide (ft)	0.4
D10	13 Dec 2017	Low Tide Time	1244
D10	13 Dec 2017	Comments	Kelp; Seagrass; 2 Persons; 3 Surfers; 1 Swimmer; Water clear
D10	20 Dec 2017	Arrive Time	944
D10	20 Dec 2017	Weather	Sunny
D10	20 Dec 2017	Wind Speed (kts)	2.3
D10	20 Dec 2017	Wind Dir	NE
D10	20 Dec 2017	Animal Life	None
D10	20 Dec 2017	Floatables	None
D10	20 Dec 2017	Water Color	Green
D10	20 Dec 2017	Current Direction	NE
D10	20 Dec 2017	Water Temp (C)	13.5
D10	20 Dec 2017	Wave Height Low (ft)	2
D10	20 Dec 2017	High Tide (ft)	5.5
D10	20 Dec 2017	High Tide Time	919
D10	20 Dec 2017	Low Tide (ft)	2.1
D10	20 Dec 2017	Low Tide Time	316
D10	20 Dec 2017	Comments	Seagrass; 15 Persons; 8 Surfers; Water clear
D10	27 Dec 2017	Arrive Time	1036
D10	27 Dec 2017	Weather	Sunny
D10	27 Dec 2017	Wind Speed (kts)	5.6
D10	27 Dec 2017	Wind Dir	W
D10	27 Dec 2017	Animal Life	None
D10	27 Dec 2017	Floatables	None
D10	27 Dec 2017	Water Color	Green
D10	27 Dec 2017	Current Direction	N
D10	27 Dec 2017	Water Temp (C)	12.6
D10	27 Dec 2017	Wave Height Low (ft)	4
D10	27 Dec 2017	High Tide (ft)	3.2
D10	27 Dec 2017	High Tide Time	1625
D10	27 Dec 2017	Low Tide (ft)	1.4

Station	Date	Parameter	Value
D10	27 Dec 2017	Low Tide Time	1054
D10	27 Dec 2017	Comments	Kelp; Seagrass; 4 Persons; 8 Surfers; Water clear
D11	06 Dec 2017	Arrive Time	1020
D11	06 Dec 2017	Weather	Sunny
D11	06 Dec 2017	Wind Speed (kts)	5.4
D11	06 Dec 2017	Wind Dir	SW
D11	06 Dec 2017	Animal Life	None
D11	06 Dec 2017	Floatables	None
D11	06 Dec 2017	Water Color	Green
D11	06 Dec 2017	Current Direction	SW
D11	06 Dec 2017	Water Temp (C)	12.1
D11	06 Dec 2017	Wave Height Low (ft)	3
D11	06 Dec 2017	High Tide (ft)	6.3
D11	06 Dec 2017	High Tide Time	1013
D11	06 Dec 2017	Low Tide (ft)	1.9
D11	06 Dec 2017	Low Tide Time	408
D11	06 Dec 2017	Comments	Seagrass; 15 Persons; 8 Surfers; Water clear
D11	13 Dec 2017	Arrive Time	1034
D11	13 Dec 2017	Weather	Sunny
D11	13 Dec 2017	Wind Speed (kts)	1.1
D11	13 Dec 2017	Wind Dir	W
D11	13 Dec 2017	Animal Life	None
D11	13 Dec 2017	Floatables	None
D11	13 Dec 2017	Water Color	Green
D11	13 Dec 2017	Current Direction	N
D11	13 Dec 2017	Water Temp (C)	13.8
D11	13 Dec 2017	Wave Height Low (ft)	4
D11	13 Dec 2017	High Tide (ft)	5.4
D11	13 Dec 2017	High Tide Time	549
D11	13 Dec 2017	Low Tide (ft)	0.4
D11	13 Dec 2017	Low Tide Time	1244
D11	13 Dec 2017	Comments	Kelp; Seagrass; 7 Persons; 4 Surfers; 1 Swimmer; Water clear
D11	20 Dec 2017	Arrive Time	955
D11	20 Dec 2017	Weather	Sunny
D11	20 Dec 2017	Wind Speed (kts)	2.1
D11	20 Dec 2017	Wind Dir	NW
D11	20 Dec 2017	Animal Life	None
D11	20 Dec 2017	Floatables	None
D11	20 Dec 2017	Water Color	Green
D11	20 Dec 2017	Current Direction	NW
D11	20 Dec 2017	Water Temp (C)	13.1
D11	20 Dec 2017	Wave Height Low (ft)	2
D11	20 Dec 2017	High Tide (ft)	5.5
D11	20 Dec 2017	High Tide Time	919
D11	20 Dec 2017	Low Tide (ft)	2.1
D11	20 Dec 2017	Low Tide Time	316
D11	20 Dec 2017	Comments	Seagrass; Algae; 5 Persons; 9 Surfers; Water clear
D11	27 Dec 2017	Arrive Time	1103
D11	27 Dec 2017	Weather	Sunny
D11	27 Dec 2017	Wind Speed (kts)	2.7
D11	27 Dec 2017	Wind Dir	W

Station	Date	Parameter	Value
D11	27 Dec 2017	Animal Life	None
D11	27 Dec 2017	Floatables	None
D11	27 Dec 2017	Water Color	Green
D11	27 Dec 2017	Current Direction	N
D11	27 Dec 2017	Water Temp (C)	14.1
D11	27 Dec 2017	Wave Height Low (ft)	3
D11	27 Dec 2017	High Tide (ft)	3.2
D11	27 Dec 2017	High Tide Time	1625
D11	27 Dec 2017	Low Tide (ft)	1.4
D11	27 Dec 2017	Low Tide Time	1054
D11	27 Dec 2017	Comments	Kelp; Seagrass; 6 Persons; 4 Surfers; Water clear
D12	06 Dec 2017	Arrive Time	1059
D12	06 Dec 2017	Weather	Sunny
D12	06 Dec 2017	Wind Speed (kts)	3.1
D12	06 Dec 2017	Wind Dir	SW
D12	06 Dec 2017	Animal Life	None
D12	06 Dec 2017	Floatables	None
D12	06 Dec 2017	Water Color	Green
D12	06 Dec 2017	Current Direction	SW
D12	06 Dec 2017	Water Temp (C)	12.6
D12	06 Dec 2017	Wave Height Low (ft)	2
D12	06 Dec 2017	High Tide (ft)	6.3
D12	06 Dec 2017	High Tide Time	1013
D12	06 Dec 2017	Low Tide (ft)	-1
D12	06 Dec 2017	Low Tide Time	1733
D12	06 Dec 2017	Comments	Seagrass; 3 Persons; 1 Surfer; Water clear
D12	13 Dec 2017	Arrive Time	1115
D12	13 Dec 2017	Weather	Sunny
D12	13 Dec 2017	Wind Speed (kts)	1.7
D12	13 Dec 2017	Wind Dir	W
D12	13 Dec 2017	Animal Life	None
D12	13 Dec 2017	Floatables	None
D12	13 Dec 2017	Water Color	Green
D12	13 Dec 2017	Current Direction	N
D12	13 Dec 2017	Water Temp (C)	17
D12	13 Dec 2017	Wave Height Low (ft)	3
D12	13 Dec 2017	High Tide (ft)	5.4
D12	13 Dec 2017	High Tide Time	549
D12	13 Dec 2017	Low Tide (ft)	0.4
D12	13 Dec 2017	Low Tide Time	1244
D12	13 Dec 2017	Comments	Kelp; Seagrass; 7 Persons; 3 Swimmers; Water clear
D12	20 Dec 2017	Arrive Time	1014
D12	20 Dec 2017	Weather	Partly Cloudy
D12	20 Dec 2017	Wind Speed (kts)	1.7
D12	20 Dec 2017	Wind Dir	N
D12	20 Dec 2017	Animal Life	None
D12	20 Dec 2017	Floatables	None
D12	20 Dec 2017	Water Color	Green
D12	20 Dec 2017	Current Direction	N
D12	20 Dec 2017	Water Temp (C)	13.5
D12	20 Dec 2017	Wave Height Low (ft)	3
D12	20 Dec 2017	High Tide (ft)	5.5

Station	Date	Parameter	Value
D12	20 Dec 2017	High Tide Time	919
D12	20 Dec 2017	Low Tide (ft)	-0.4
D12	20 Dec 2017	Low Tide Time	1639
D12	20 Dec 2017	Comments	Kelp; 9 Persons; Water clear
D12	27 Dec 2017	Arrive Time	1127
D12	27 Dec 2017	Weather	Sunny
D12	27 Dec 2017	Wind Speed (kts)	5.8
D12	27 Dec 2017	Wind Dir	W
D12	27 Dec 2017	Animal Life	None
D12	27 Dec 2017	Floatables	None
D12	27 Dec 2017	Water Color	Green
D12	27 Dec 2017	Current Direction	N
D12	27 Dec 2017	Water Temp (C)	15.4
D12	27 Dec 2017	Wave Height Low (ft)	3
D12	27 Dec 2017	High Tide (ft)	3.2
D12	27 Dec 2017	High Tide Time	1625
D12	27 Dec 2017	Low Tide (ft)	1.4
D12	27 Dec 2017	Low Tide Time	1054
D12	27 Dec 2017	Comments	Kelp; Seagrass; 11 Persons; 1 Boat; 8 Swimmers; 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 Dec 2017	3*	5*	4*	5*	4*	3*	4*	3*
02 Dec 2017	3*	5*	4*	5*	4*	3*	4*	3*
03 Dec 2017	3*	5*	4*	5*	4*	3*	4*	3*
04 Dec 2017	5	6	5	6	5	3	5	3
05 Dec 2017	5	6	5	6	5	3	5	3
06 Dec 2017	5	6	5	6	5	3	5	3
07 Dec 2017	5	6	5	6	5	3	5	3
08 Dec 2017	5	6	5	6	5	3	5	3
09 Dec 2017	5*	6*	6*	8*	6*	3*	7*	4*
10 Dec 2017	5*	6*	6*	8*	6*	3*	7*	4*
11 Dec 2017	5*	6*	6*	8*	6*	3*	7*	4*
12 Dec 2017	5*	6*	6*	8*	6*	3*	7*	4*
13 Dec 2017	5*	6*	6*	8*	6*	3*	7*	4*
14 Dec 2017	5*	3*	4*	8*	6*	5*	5*	3*
15 Dec 2017	5*	3*	4*	8*	6*	5*	5*	3*
16 Dec 2017	5*	3*	4*	8*	6*	5*	5*	3*
17 Dec 2017	5*	3*	4*	8*	6*	5*	5*	3*
18 Dec 2017	5*	3*	4*	8*	6*	5*	5*	3*
19 Dec 2017	5*	3*	4*	8*	6*	5*	5*	3*
20 Dec 2017	6*	4*	5*	13*	9*	7*	5*	3*
21 Dec 2017	6*	4*	5*	13*	9*	7*	5*	3*
22 Dec 2017	7*	5*	10*	15*	8*	6*	4*	3*
23 Dec 2017	7*	5*	10*	15*	8*	6*	4*	3*
24 Dec 2017	7*	5*	10*	15*	8*	6*	4*	3*
25 Dec 2017	7*	5*	10*	15*	8*	6*	4*	3*
26 Dec 2017	6	4	8	10	7	5	4	3
27 Dec 2017	6	4	8	10	7	5	4	3
28 Dec 2017	6	4	8	10	7	5	4	3
29 Dec 2017	7*	4*	12*	8*	5*	4*	4*	3*
30 Dec 2017	7*	4*	12*	8*	5*	4*	4*	3*
31 Dec 2017	7*	4*	12*	8*	5*	4*	4*	3*

* 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 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
02 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
03 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
04 Dec 2017	2	2	2	2	2	2	2	2
05 Dec 2017	2	2	2	2	2	2	2	2
06 Dec 2017	2	2	2	2	2	2	2	2
07 Dec 2017	2	2	2	2	2	2	2	2
08 Dec 2017	2	2	2	2	2	2	2	2
09 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
10 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
11 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
12 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
13 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
14 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
15 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
16 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
17 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
18 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
19 Dec 2017	3*	2*	2*	2*	2*	2*	2*	2*
20 Dec 2017	3*	2*	3*	2*	2*	2*	2*	2*
21 Dec 2017	3*	2*	3*	2*	2*	2*	2*	2*
22 Dec 2017	3*	2*	3*	2*	2*	2*	2*	2*
23 Dec 2017	3*	2*	3*	2*	2*	2*	2*	2*
24 Dec 2017	3*	2*	3*	2*	2*	2*	2*	2*
25 Dec 2017	3*	2*	3*	2*	2*	2*	2*	2*
26 Dec 2017	2	2	3	2	2	2	2	2
27 Dec 2017	2	2	3	2	2	2	2	2
28 Dec 2017	2	2	3	2	2	2	2	2
29 Dec 2017	3*	2*	3*	2*	2*	2*	2*	2*
30 Dec 2017	3*	2*	3*	2*	2*	2*	2*	2*
31 Dec 2017	3*	2*	3*	2*	2*	2*	2*	2*

* Geometric mean calculated using n<5

Table 3.3

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
02 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
03 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
04 Dec 2017	2	2	2	2	2	2	2	2
05 Dec 2017	2	2	2	2	2	2	2	2
06 Dec 2017	2	2	2	2	2	2	2	2
07 Dec 2017	2	2	2	2	2	2	2	2
08 Dec 2017	2	2	2	2	2	2	2	2
09 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
10 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
11 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
12 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
13 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
14 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
15 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
16 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
17 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
18 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
19 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
20 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
21 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
22 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
23 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
24 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
25 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
26 Dec 2017	2	2	2	2	2	2	2	2
27 Dec 2017	2	2	2	2	2	2	2	2
28 Dec 2017	2	2	2	2	2	2	2	2
29 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
30 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*
31 Dec 2017	2*	2*	2*	2*	2*	2*	2*	2*

* Geometric mean calculated using n<5

Table 3.4

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
04 Dec 2017	IC							
14 Dec 2017	IC							
22 Dec 2017	IC							
26 Dec 2017	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
04 Dec 2017	IC							
14 Dec 2017	IC							
22 Dec 2017	IC							
26 Dec 2017	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
04 Dec 2017	IC							
14 Dec 2017	IC							
22 Dec 2017	IC							
26 Dec 2017	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
04 Dec 2017	IC							
14 Dec 2017	IC							
22 Dec 2017	IC							
26 Dec 2017	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.8

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

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH	
A1	04 Dec 2017	759	1	<2	2e	<2	1.00	16.1	75.04	7.9	33.43	8.0	
A1	04 Dec 2017	759	12	8e	<2	<2	0.25	14.9	74.77	7.3	33.42	8.0	
A1	04 Dec 2017	759	18	120e	12e	4e	0.10	13.8	77.12	6.5	33.42	8.0	
A1	14 Dec 2017	758	1	<2	<2	<2	1.00	16.7	89.00	7.9	33.53	7.9	
A1	14 Dec 2017	758	12	<2	<2	<2	1.00	16.1	80.80	7.7	33.50	7.9	
A1	14 Dec 2017	758	18	<2	<2	<2	1.00	15.9	77.32	7.6	33.48	7.9	
A1	22 Dec 2017	755	1	<2	<2	<2	1.00	16.1	86.62	7.9	33.53	8.1	
A1	22 Dec 2017	755	12	10e	<2	<2	0.20	15.8	86.77	7.6	33.52	8.1	
A1	22 Dec 2017	755	18	24e	<2	<2	0.08	15.2	86.31	7.3	33.49	8.1	
A1	26 Dec 2017	759	1	<2	<2	<2	1.00	15.5	85.09	7.8	33.53	8.1	
A1	26 Dec 2017	759	12	2e	<2	<2	1.00	15.5	84.90	7.8	33.53	8.1	
A1	26 Dec 2017	759	18	2e	<2	<2	1.00	15.3	85.52	7.6	33.52	8.1	
C4	04 Dec 2017	933	1	<20	<2	<2	0.10	15.9	78.44	7.8	33.42	8.1	
C4	04 Dec 2017	933	3	2e	<2	<2	1.00	15.9	78.51	7.8	33.42	8.1	
C4	04 Dec 2017	933	9	<20	<2	<2	0.10	15.6	79.54	7.3	33.42	8.1	
C4	14 Dec 2017	919	1	<2	<2	<2	1.00	16.5	85.13	7.8	33.50	8.1	
C4	14 Dec 2017	919	3	<2	<2	<2	1.00	16.5	84.83	7.8	33.50	8.1	
C4	14 Dec 2017	919	9	<20	<2	<2	0.10	16.2	82.41	7.6	33.47	8.1	
C4	22 Dec 2017	926	1	<20	<2	<2	0.10	15.7	64.24	7.6	33.56	8.1	
C4	22 Dec 2017	926	3	<20	<2	<2	0.10	15.7	64.55	7.6	33.56	8.1	
C4	22 Dec 2017	926	9	<20	<2	<2	0.10	15.7	61.93	7.7	33.57	8.1	
C4	26 Dec 2017	939	1	<2	<2	<2	1.00	15.6	72.49	8.2	33.55	8.2	
C4	26 Dec 2017	939	3	2e	<2	<2	1.00	15.6	71.85	8.1	33.55	8.2	
C4	26 Dec 2017	939	9	<2	<2	<2	1.00	15.6	70.83	8.1	33.55	8.2	
C5	04 Dec 2017	921	1	<20	<2	<2	0.10	16.1	49.44	7.0	33.43	8.0	
C5	04 Dec 2017	921	3	<20	<2	<2	0.10	16.1	49.84	7.0	33.43	8.0	
C5	04 Dec 2017	921	9	<20	<2	<2	0.10	15.8	67.54	6.8	33.42	8.0	
C5	14 Dec 2017	908	1	<2	<2	<2	1.00	16.7	81.63	7.8	33.52	8.1	
C5	14 Dec 2017	908	3	<2	<2	<2	1.00	16.7	81.51	7.8	33.52	8.1	
C5	14 Dec 2017	908	9	<2	<2	<2	1.00	16.6	67.08	7.5	33.52	8.1	
C5	22 Dec 2017	916	1	4e	<2	<2	0.50	15.7	76.96	7.8	33.56	8.1	
C5	22 Dec 2017	916	3	8e	<2	<2	0.25	15.7	76.34	7.8	33.56	8.1	
C5	22 Dec 2017	916	9	6e	<2	<2	0.33	15.7	74.54	7.7	33.57	8.1	
C5	26 Dec 2017	923	1	6e	<2	<2	0.33	15.6	76.73	8.5	33.55	8.2	
C5	26 Dec 2017	923	3	<2	<2	<2	1.00	15.6	77.90	8.5	33.55	8.2	
C5	26 Dec 2017	923	9	<2	<2	<2	4e	1.00	15.5	72.27	8.6	33.58	8.2

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
A6	04 Dec 2017	823	1	2e	<2	<2	1.00	15.9	80.43	7.8	33.42	8.1
A6	04 Dec 2017	823	12	<20	<2	6e	0.10	14.8	79.82	7.3	33.41	8.0
A6	04 Dec 2017	823	18	<20	<2	<2	0.10	14.6	80.16	7.3	33.39	8.0
A6	14 Dec 2017	820	1	<2	<2	<2	1.00	16.6	81.10	7.8	33.53	8.1
A6	14 Dec 2017	820	12	<2	<2	<2	1.00	15.6	85.44	7.7	33.44	8.1
A6	14 Dec 2017	820	18	2e	<2	<2	1.00	15.0	85.39	7.5	33.42	8.0
A6	22 Dec 2017	819	1	2e	<2	<2	1.00	16.0	85.23	7.8	33.53	8.1
A6	22 Dec 2017	819	12	2e	<2	<2	1.00	16.0	85.46	7.7	33.53	8.1
A6	22 Dec 2017	819	18	16e	<2	<2	0.12	15.8	85.73	7.6	33.51	8.1
A6	26 Dec 2017	828	1	2e	<2	<2	1.00	15.6	84.27	8.1	33.52	8.2
A6	26 Dec 2017	828	12	<2	<2	<2	1.00	15.5	84.87	7.9	33.52	8.1
A6	26 Dec 2017	828	18	2e	<2	<2	1.00	15.1	85.40	7.3	33.49	8.1
C6	04 Dec 2017	911	1	2e	<2	<2	1.00	16.0	73.80	7.5	33.42	8.0
C6	04 Dec 2017	911	3	<2	<2	<2	1.00	16.0	74.51	7.4	33.42	8.0
C6	04 Dec 2017	911	9	2e	<2	<2	1.00	15.7	71.55	6.9	33.42	8.0
C6	14 Dec 2017	857	1	<20	<2	<2	0.10	16.7	71.05	7.7	33.57	8.1
C6	14 Dec 2017	857	3	20e	<2	<2	0.10	16.7	69.73	7.6	33.57	8.1
C6	14 Dec 2017	857	9	4e	<2	<2	0.50	15.8	71.99	7.4	33.50	8.1
C6	22 Dec 2017	904	1	2e	<2	<2	1.00	15.8	82.68	7.6	33.54	8.1
C6	22 Dec 2017	904	3	4e	<2	<2	0.50	15.8	82.82	7.6	33.54	8.1
C6	22 Dec 2017	904	9	2e	<2	<2	1.00	15.8	82.62	7.6	33.54	8.1
C6	26 Dec 2017	912	1	<2	<2	<2	1.00	15.7	79.33	7.5	33.56	8.2
C6	26 Dec 2017	912	3	<2	<2	<2	1.00	15.7	78.79	8.3	33.55	8.2
C6	26 Dec 2017	912	9	<2	<2	<2	1.00	15.7	79.55	8.2	33.55	8.2
A7	04 Dec 2017	811	1	<2	<2	<2	1.00	16.0	79.99	7.9	33.43	8.1
A7	04 Dec 2017	811	12	6e	<2	<2	0.33	14.7	78.53	7.2	33.40	8.0
A7	04 Dec 2017	811	18	60e	10e	6e	0.17	14.1	77.42	6.7	33.42	8.0
A7	14 Dec 2017	809	1	<2	<2	<2	1.00	16.7	88.54	7.8	33.52	8.1
A7	14 Dec 2017	809	12	<2	<2	<2	1.00	16.3	86.67	7.8	33.49	8.1
A7	14 Dec 2017	809	18	4e	<2	<2	0.50	15.4	85.85	7.5	33.45	8.0
A7	22 Dec 2017	806	1	4e	2e	<2	0.50	16.0	85.00	7.8	33.53	8.1
A7	22 Dec 2017	806	12	120	12e	<2	0.10	15.2	85.64	7.2	33.49	8.1
A7	22 Dec 2017	806	18	82	4e	4e	0.05	14.6	85.12	7.0	33.45	8.0
A7	26 Dec 2017	814	1	<2	<2	<2	1.00	15.5	84.99	7.8	33.51	8.1
A7	26 Dec 2017	814	12	2e	<2	<2	1.00	15.5	85.32	7.8	33.51	8.1
A7	26 Dec 2017	814	18	12e	<2	<2	0.17	15.1	85.60	7.1	33.50	8.1
C7	04 Dec 2017	838	1	<2	<2	<2	1.00	15.9	82.62	7.9	33.42	8.1
C7	04 Dec 2017	838	12	12e	2e	<2	0.17	15.1	84.68	7.4	33.40	8.1
C7	04 Dec 2017	838	18	22e	<2	<2	0.09	14.8	81.78	7.3	33.39	8.0
C7	14 Dec 2017	833	1	<2	<2	<2	1.00	16.8	78.64	7.7	33.55	8.1
C7	14 Dec 2017	833	12	12e	2e	<2	0.17	15.5	86.04	7.7	33.43	8.1

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	Temp	XMS	DO	Sal	pH
C7	14 Dec 2017	833	18	4e	<2	<2	0.50	15.0	86.11	7.7	33.40	8.1
C7	22 Dec 2017	833	1	2e	<2	2e	1.00	16.0	84.74	8.0	33.53	8.1
C7	22 Dec 2017	833	12	<2	<2	<2	1.00	16.0	84.00	7.9	33.53	8.1
C7	22 Dec 2017	833	18	2e	<2	<2	1.00	15.8	84.81	7.5	33.53	8.1
C7	26 Dec 2017	840	1	<2	<2	<2	1.00	15.7	83.35	8.0	33.51	8.1
C7	26 Dec 2017	840	12	<2	<2	<2	1.00	15.6	84.32	8.0	33.51	8.1
C7	26 Dec 2017	840	18	4e	<2	<2	0.50	15.1	84.38	7.3	33.47	8.1
C8	04 Dec 2017	849	1	<2	<2	<2	1.00	15.9	84.77	8.0	33.41	8.1
C8	04 Dec 2017	849	12	<2	<2	<2	1.00	15.5	85.34	7.9	33.39	8.1
C8	04 Dec 2017	849	18	8e	<2	<2	0.25	15.3	84.43	7.5	33.40	8.1
C8	14 Dec 2017	842	1	2e	<2	<2	1.00	16.7	83.89	8.0	33.53	8.1
C8	14 Dec 2017	842	12	6e	<2	<2	0.33	15.9	86.88	7.9	33.44	8.1
C8	14 Dec 2017	842	18	2e	<2	<2	1.00	15.6	86.57	7.8	33.42	8.1
C8	22 Dec 2017	844	1	4e	<2	<2	0.50	16.0	84.36	8.0	33.53	8.1
C8	22 Dec 2017	844	12	<2	2e	<2	1.00	15.9	83.15	7.9	33.53	8.1
C8	22 Dec 2017	844	18	<2	<2	<2	1.00	15.9	82.85	7.9	33.53	8.1
C8	26 Dec 2017	852	1	<2	<2	<2	1.00	15.6	82.37	8.1	33.52	8.2
C8	26 Dec 2017	852	12	<2	<2	<2	1.00	15.5	83.22	7.9	33.51	8.2
C8	26 Dec 2017	852	18	<2	<2	<2	1.00	15.0	76.81	7.3	33.47	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	04 Dec 2017	Depth (m)	21
A1	04 Dec 2017	Arrive Time	759
A1	04 Dec 2017	Depart Time	803
A1	04 Dec 2017	Air Temp (C)	13
A1	04 Dec 2017	Weather	Partly Cloudy
A1	04 Dec 2017	Visibility (mi)	8
A1	04 Dec 2017	Wind Speed (kts)	7
A1	04 Dec 2017	Wind Dir	W
A1	04 Dec 2017	Water Color	Greenish-Blue
A1	04 Dec 2017	Wave Ht Low (ft)	5
A1	04 Dec 2017	Wave Period (sec)	13
A1	04 Dec 2017	Sea State	Calm
A1	04 Dec 2017	High Tide (ft)	6.9
A1	04 Dec 2017	High Tide Time	839
A1	04 Dec 2017	Low Tide (ft)	-1.5
A1	04 Dec 2017	Low Tide Time	1550
A1	04 Dec 2017	Comments	Kelp
A1	14 Dec 2017	Depth (m)	20
A1	14 Dec 2017	Arrive Time	758
A1	14 Dec 2017	Depart Time	804
A1	14 Dec 2017	Air Temp (C)	14
A1	14 Dec 2017	Weather	Clear
A1	14 Dec 2017	Visibility (mi)	12
A1	14 Dec 2017	Wind Speed (kts)	9
A1	14 Dec 2017	Wind Dir	NE
A1	14 Dec 2017	Water Color	Bluish-Green
A1	14 Dec 2017	Wave Ht Low (ft)	3
A1	14 Dec 2017	Wave Period (sec)	11
A1	14 Dec 2017	Sea State	Light chop
A1	14 Dec 2017	High Tide (ft)	5.6
A1	14 Dec 2017	High Tide Time	623
A1	14 Dec 2017	Low Tide (ft)	0
A1	14 Dec 2017	Low Tide Time	1323
A1	14 Dec 2017	Comments	none
A1	22 Dec 2017	Depth (m)	19
A1	22 Dec 2017	Arrive Time	755
A1	22 Dec 2017	Depart Time	758
A1	22 Dec 2017	Air Temp (C)	11
A1	22 Dec 2017	Weather	Clear
A1	22 Dec 2017	Visibility (mi)	12
A1	22 Dec 2017	Wind Speed (kts)	8
A1	22 Dec 2017	Wind Dir	N
A1	22 Dec 2017	Water Color	Green
A1	22 Dec 2017	Wave Ht Low (ft)	4
A1	22 Dec 2017	Wave Period (sec)	9
A1	22 Dec 2017	Sea State	Calm
A1	22 Dec 2017	High Tide (ft)	4.9
A1	22 Dec 2017	High Tide Time	1023
A1	22 Dec 2017	Low Tide (ft)	2.4

Station	Date	Parameter	Value
A1	22 Dec 2017	Low Tide Time	429
A1	22 Dec 2017	Comments	Kelp; Lobster floats
A1	26 Dec 2017	Depth (m)	19
A1	26 Dec 2017	Arrive Time	759
A1	26 Dec 2017	Depart Time	809
A1	26 Dec 2017	Air Temp (C)	12
A1	26 Dec 2017	Weather	Fog
A1	26 Dec 2017	Visibility (mi)	5
A1	26 Dec 2017	Wind Speed (kts)	9
A1	26 Dec 2017	Wind Dir	W
A1	26 Dec 2017	Water Color	Bluish-Green
A1	26 Dec 2017	Wave Ht Low (ft)	4
A1	26 Dec 2017	Wave Period (sec)	13
A1	26 Dec 2017	Sea State	Wind ripples
A1	26 Dec 2017	High Tide (ft)	3.3
A1	26 Dec 2017	High Tide Time	1452
A1	26 Dec 2017	Low Tide (ft)	2.1
A1	26 Dec 2017	Low Tide Time	942
A1	26 Dec 2017	Comments	Lobster floats
C4	04 Dec 2017	Depth (m)	13
C4	04 Dec 2017	Arrive Time	933
C4	04 Dec 2017	Depart Time	935
C4	04 Dec 2017	Air Temp (C)	14
C4	04 Dec 2017	Weather	Partly Cloudy
C4	04 Dec 2017	Visibility (mi)	10
C4	04 Dec 2017	Wind Speed (kts)	5
C4	04 Dec 2017	Wind Dir	W
C4	04 Dec 2017	Water Color	Brown
C4	04 Dec 2017	Wave Ht Low (ft)	5
C4	04 Dec 2017	Wave Period (sec)	13
C4	04 Dec 2017	Sea State	Calm
C4	04 Dec 2017	High Tide (ft)	6.9
C4	04 Dec 2017	High Tide Time	839
C4	04 Dec 2017	Low Tide (ft)	-1.5
C4	04 Dec 2017	Low Tide Time	1550
C4	04 Dec 2017	Comments	none
C4	14 Dec 2017	Depth (m)	12
C4	14 Dec 2017	Arrive Time	919
C4	14 Dec 2017	Depart Time	923
C4	14 Dec 2017	Air Temp (C)	15
C4	14 Dec 2017	Weather	Clear
C4	14 Dec 2017	Visibility (mi)	12
C4	14 Dec 2017	Wind Speed (kts)	7
C4	14 Dec 2017	Wind Dir	N
C4	14 Dec 2017	Water Color	Bluish-Green
C4	14 Dec 2017	Wave Ht Low (ft)	3
C4	14 Dec 2017	Wave Period (sec)	11
C4	14 Dec 2017	Sea State	Light chop
C4	14 Dec 2017	High Tide (ft)	5.6
C4	14 Dec 2017	High Tide Time	623
C4	14 Dec 2017	Low Tide (ft)	0
C4	14 Dec 2017	Low Tide Time	1323

Station	Date	Parameter	Value
C4	14 Dec 2017	Comments	none
C4	22 Dec 2017	Depth (m)	12
C4	22 Dec 2017	Arrive Time	926
C4	22 Dec 2017	Depart Time	931
C4	22 Dec 2017	Air Temp (C)	13
C4	22 Dec 2017	Weather	Clear
C4	22 Dec 2017	Visibility (mi)	12
C4	22 Dec 2017	Wind Speed (kts)	1
C4	22 Dec 2017	Wind Dir	S
C4	22 Dec 2017	Water Color	Green
C4	22 Dec 2017	Wave Ht Low (ft)	2
C4	22 Dec 2017	Wave Period (sec)	9
C4	22 Dec 2017	Sea State	Calm
C4	22 Dec 2017	High Tide (ft)	4.9
C4	22 Dec 2017	High Tide Time	1023
C4	22 Dec 2017	Low Tide (ft)	2.4
C4	22 Dec 2017	Low Tide Time	429
C4	22 Dec 2017	Comments	Kelp; Seagrass
C4	26 Dec 2017	Depth (m)	10
C4	26 Dec 2017	Arrive Time	939
C4	26 Dec 2017	Depart Time	945
C4	26 Dec 2017	Air Temp (C)	15
C4	26 Dec 2017	Weather	Overcast
C4	26 Dec 2017	Visibility (mi)	10
C4	26 Dec 2017	Wind Speed (kts)	2
C4	26 Dec 2017	Wind Dir	NW
C4	26 Dec 2017	Water Color	Bluish-Green
C4	26 Dec 2017	Wave Ht Low (ft)	4
C4	26 Dec 2017	Wave Period (sec)	13
C4	26 Dec 2017	Sea State	Wind ripples
C4	26 Dec 2017	High Tide (ft)	3.3
C4	26 Dec 2017	High Tide Time	1452
C4	26 Dec 2017	Low Tide (ft)	2.1
C4	26 Dec 2017	Low Tide Time	942
C4	26 Dec 2017	Comments	Surfers; Boats
C5	04 Dec 2017	Depth (m)	13
C5	04 Dec 2017	Arrive Time	921
C5	04 Dec 2017	Depart Time	924
C5	04 Dec 2017	Air Temp (C)	15
C5	04 Dec 2017	Weather	Partly Cloudy
C5	04 Dec 2017	Visibility (mi)	10
C5	04 Dec 2017	Wind Speed (kts)	4
C5	04 Dec 2017	Wind Dir	NE
C5	04 Dec 2017	Water Color	Brown
C5	04 Dec 2017	Wave Ht Low (ft)	5
C5	04 Dec 2017	Wave Period (sec)	13
C5	04 Dec 2017	Sea State	Calm
C5	04 Dec 2017	High Tide (ft)	6.9
C5	04 Dec 2017	High Tide Time	839
C5	04 Dec 2017	Low Tide (ft)	-1.5
C5	04 Dec 2017	Low Tide Time	1550
C5	04 Dec 2017	Comments	Kelp; Kelp debris

Station	Date	Parameter	Value
C5	14 Dec 2017	Depth (m)	11
C5	14 Dec 2017	Arrive Time	908
C5	14 Dec 2017	Depart Time	912
C5	14 Dec 2017	Air Temp (C)	16
C5	14 Dec 2017	Weather	Clear
C5	14 Dec 2017	Visibility (mi)	12
C5	14 Dec 2017	Wind Speed (kts)	4
C5	14 Dec 2017	Wind Dir	N
C5	14 Dec 2017	Water Color	Green
C5	14 Dec 2017	Wave Ht Low (ft)	3
C5	14 Dec 2017	Wave Period (sec)	11
C5	14 Dec 2017	Sea State	Light chop
C5	14 Dec 2017	High Tide (ft)	5.6
C5	14 Dec 2017	High Tide Time	623
C5	14 Dec 2017	Low Tide (ft)	0
C5	14 Dec 2017	Low Tide Time	1323
C5	14 Dec 2017	Comments	none
C5	22 Dec 2017	Depth (m)	10
C5	22 Dec 2017	Arrive Time	916
C5	22 Dec 2017	Depart Time	920
C5	22 Dec 2017	Air Temp (C)	13
C5	22 Dec 2017	Weather	Clear
C5	22 Dec 2017	Visibility (mi)	12
C5	22 Dec 2017	Wind Speed (kts)	2
C5	22 Dec 2017	Wind Dir	N
C5	22 Dec 2017	Water Color	Green
C5	22 Dec 2017	Wave Ht Low (ft)	2
C5	22 Dec 2017	Wave Period (sec)	9
C5	22 Dec 2017	Sea State	Calm
C5	22 Dec 2017	High Tide (ft)	4.9
C5	22 Dec 2017	High Tide Time	1023
C5	22 Dec 2017	Low Tide (ft)	2.4
C5	22 Dec 2017	Low Tide Time	429
C5	22 Dec 2017	Comments	Kelp; Lobster floats
C5	26 Dec 2017	Depth (m)	10
C5	26 Dec 2017	Arrive Time	923
C5	26 Dec 2017	Depart Time	932
C5	26 Dec 2017	Air Temp (C)	14
C5	26 Dec 2017	Weather	Overcast
C5	26 Dec 2017	Visibility (mi)	10
C5	26 Dec 2017	Wind Speed (kts)	2
C5	26 Dec 2017	Wind Dir	S
C5	26 Dec 2017	Water Color	Bluish-Green
C5	26 Dec 2017	Wave Ht Low (ft)	4
C5	26 Dec 2017	Wave Period (sec)	13
C5	26 Dec 2017	Sea State	Wind ripples
C5	26 Dec 2017	High Tide (ft)	3.3
C5	26 Dec 2017	High Tide Time	1452
C5	26 Dec 2017	Low Tide (ft)	2.1
C5	26 Dec 2017	Low Tide Time	942
C5	26 Dec 2017	Comments	Lobster floats; Kelp

Station	Date	Parameter	Value
A6	04 Dec 2017	Depth (m)	19
A6	04 Dec 2017	Arrive Time	823
A6	04 Dec 2017	Depart Time	825
A6	04 Dec 2017	Air Temp (C)	14
A6	04 Dec 2017	Weather	Partly Cloudy
A6	04 Dec 2017	Visibility (mi)	8
A6	04 Dec 2017	Wind Speed (kts)	5
A6	04 Dec 2017	Wind Dir	NW
A6	04 Dec 2017	Water Color	Greenish-Blue
A6	04 Dec 2017	Wave Ht Low (ft)	5
A6	04 Dec 2017	Wave Period (sec)	13
A6	04 Dec 2017	Sea State	Calm
A6	04 Dec 2017	High Tide (ft)	6.9
A6	04 Dec 2017	High Tide Time	839
A6	04 Dec 2017	Low Tide (ft)	-1.5
A6	04 Dec 2017	Low Tide Time	1550
A6	04 Dec 2017	Comments	none
A6	14 Dec 2017	Depth (m)	18
A6	14 Dec 2017	Arrive Time	820
A6	14 Dec 2017	Depart Time	825
A6	14 Dec 2017	Air Temp (C)	15
A6	14 Dec 2017	Weather	Clear
A6	14 Dec 2017	Visibility (mi)	12
A6	14 Dec 2017	Wind Speed (kts)	5
A6	14 Dec 2017	Wind Dir	W
A6	14 Dec 2017	Water Color	Bluish-Green
A6	14 Dec 2017	Wave Ht Low (ft)	3
A6	14 Dec 2017	Wave Period (sec)	11
A6	14 Dec 2017	Sea State	Light chop
A6	14 Dec 2017	High Tide (ft)	5.6
A6	14 Dec 2017	High Tide Time	623
A6	14 Dec 2017	Low Tide (ft)	0
A6	14 Dec 2017	Low Tide Time	1323
A6	14 Dec 2017	Comments	none
A6	22 Dec 2017	Depth (m)	21
A6	22 Dec 2017	Arrive Time	819
A6	22 Dec 2017	Depart Time	822
A6	22 Dec 2017	Air Temp (C)	11
A6	22 Dec 2017	Weather	Clear
A6	22 Dec 2017	Visibility (mi)	12
A6	22 Dec 2017	Wind Speed (kts)	2
A6	22 Dec 2017	Wind Dir	NE
A6	22 Dec 2017	Water Color	Green
A6	22 Dec 2017	Wave Ht Low (ft)	4
A6	22 Dec 2017	Wave Period (sec)	9
A6	22 Dec 2017	Sea State	Calm
A6	22 Dec 2017	High Tide (ft)	4.9
A6	22 Dec 2017	High Tide Time	1023
A6	22 Dec 2017	Low Tide (ft)	2.4
A6	22 Dec 2017	Low Tide Time	429
A6	22 Dec 2017	Comments	Kelp; Lobster floats
A6	26 Dec 2017	Depth (m)	18

Station	Date	Parameter	Value
A6	26 Dec 2017	Arrive Time	828
A6	26 Dec 2017	Depart Time	833
A6	26 Dec 2017	Air Temp (C)	13
A6	26 Dec 2017	Weather	Overcast
A6	26 Dec 2017	Visibility (mi)	8
A6	26 Dec 2017	Wind Speed (kts)	3
A6	26 Dec 2017	Wind Dir	W
A6	26 Dec 2017	Water Color	Bluish-Green
A6	26 Dec 2017	Wave Ht Low (ft)	4
A6	26 Dec 2017	Wave Period (sec)	13
A6	26 Dec 2017	Sea State	Wind ripples
A6	26 Dec 2017	High Tide (ft)	3.3
A6	26 Dec 2017	High Tide Time	1452
A6	26 Dec 2017	Low Tide (ft)	2.1
A6	26 Dec 2017	Low Tide Time	942
A6	26 Dec 2017	Comments	Lobster floats
C6	04 Dec 2017	Depth (m)	12
C6	04 Dec 2017	Arrive Time	911
C6	04 Dec 2017	Depart Time	913
C6	04 Dec 2017	Air Temp (C)	15
C6	04 Dec 2017	Weather	Partly Cloudy
C6	04 Dec 2017	Visibility (mi)	9
C6	04 Dec 2017	Wind Speed (kts)	4
C6	04 Dec 2017	Wind Dir	W
C6	04 Dec 2017	Water Color	Greenish-Brown
C6	04 Dec 2017	Wave Ht Low (ft)	5
C6	04 Dec 2017	Wave Period (sec)	13
C6	04 Dec 2017	Sea State	Calm
C6	04 Dec 2017	High Tide (ft)	6.9
C6	04 Dec 2017	High Tide Time	839
C6	04 Dec 2017	Low Tide (ft)	-1.5
C6	04 Dec 2017	Low Tide Time	1550
C6	04 Dec 2017	Comments	none
C6	14 Dec 2017	Depth (m)	20
C6	14 Dec 2017	Arrive Time	857
C6	14 Dec 2017	Depart Time	902
C6	14 Dec 2017	Air Temp (C)	16
C6	14 Dec 2017	Weather	Clear
C6	14 Dec 2017	Visibility (mi)	12
C6	14 Dec 2017	Wind Speed (kts)	6
C6	14 Dec 2017	Wind Dir	E
C6	14 Dec 2017	Water Color	Green
C6	14 Dec 2017	Wave Ht Low (ft)	3
C6	14 Dec 2017	Wave Period (sec)	11
C6	14 Dec 2017	Sea State	Light chop
C6	14 Dec 2017	High Tide (ft)	5.6
C6	14 Dec 2017	High Tide Time	623
C6	14 Dec 2017	Low Tide (ft)	0
C6	14 Dec 2017	Low Tide Time	1323
C6	14 Dec 2017	Comments	none
C6	22 Dec 2017	Depth (m)	11
C6	22 Dec 2017	Arrive Time	904

Station	Date	Parameter	Value
C6	22 Dec 2017	Depart Time	908
C6	22 Dec 2017	Air Temp (C)	13
C6	22 Dec 2017	Weather	Clear
C6	22 Dec 2017	Visibility (mi)	12
C6	22 Dec 2017	Wind Speed (kts)	2
C6	22 Dec 2017	Wind Dir	N
C6	22 Dec 2017	Water Color	Green
C6	22 Dec 2017	Wave Ht Low (ft)	2
C6	22 Dec 2017	Wave Period (sec)	9
C6	22 Dec 2017	Sea State	Calm
C6	22 Dec 2017	High Tide (ft)	4.9
C6	22 Dec 2017	High Tide Time	1023
C6	22 Dec 2017	Low Tide (ft)	2.4
C6	22 Dec 2017	Low Tide Time	429
C6	22 Dec 2017	Comments	Kelp; Lobster floats
C6	26 Dec 2017	Depth (m)	10
C6	26 Dec 2017	Arrive Time	912
C6	26 Dec 2017	Depart Time	918
C6	26 Dec 2017	Air Temp (C)	14
C6	26 Dec 2017	Weather	Overcast
C6	26 Dec 2017	Visibility (mi)	10
C6	26 Dec 2017	Wind Speed (kts)	1
C6	26 Dec 2017	Wind Dir	E
C6	26 Dec 2017	Water Color	Bluish-Green
C6	26 Dec 2017	Wave Ht Low (ft)	4
C6	26 Dec 2017	Wave Period (sec)	13
C6	26 Dec 2017	Sea State	Wind ripples
C6	26 Dec 2017	High Tide (ft)	3.3
C6	26 Dec 2017	High Tide Time	1452
C6	26 Dec 2017	Low Tide (ft)	2.1
C6	26 Dec 2017	Low Tide Time	942
C6	26 Dec 2017	Comments	Lobster floats; CDOM sensor error at surface for 3 casts; Data removed
A7	04 Dec 2017	Depth (m)	21
A7	04 Dec 2017	Arrive Time	811
A7	04 Dec 2017	Depart Time	815
A7	04 Dec 2017	Air Temp (C)	14
A7	04 Dec 2017	Weather	Partly Cloudy
A7	04 Dec 2017	Visibility (mi)	8
A7	04 Dec 2017	Wind Speed (kts)	8
A7	04 Dec 2017	Wind Dir	N
A7	04 Dec 2017	Water Color	Greenish-Blue
A7	04 Dec 2017	Wave Ht Low (ft)	5
A7	04 Dec 2017	Wave Period (sec)	13
A7	04 Dec 2017	Sea State	Calm
A7	04 Dec 2017	High Tide (ft)	6.9
A7	04 Dec 2017	High Tide Time	839
A7	04 Dec 2017	Low Tide (ft)	-1.5
A7	04 Dec 2017	Low Tide Time	1550
A7	04 Dec 2017	Comments	Kelp
A7	14 Dec 2017	Depth (m)	19
A7	14 Dec 2017	Arrive Time	809

Station	Date	Parameter	Value
A7	14 Dec 2017	Depart Time	814
A7	14 Dec 2017	Air Temp (C)	14
A7	14 Dec 2017	Weather	Clear
A7	14 Dec 2017	Visibility (mi)	12
A7	14 Dec 2017	Wind Speed (kts)	11
A7	14 Dec 2017	Wind Dir	E
A7	14 Dec 2017	Water Color	Bluish-Green
A7	14 Dec 2017	Wave Ht Low (ft)	3
A7	14 Dec 2017	Wave Period (sec)	11
A7	14 Dec 2017	Sea State	Light chop
A7	14 Dec 2017	High Tide (ft)	5.6
A7	14 Dec 2017	High Tide Time	623
A7	14 Dec 2017	Low Tide (ft)	0
A7	14 Dec 2017	Low Tide Time	1323
A7	14 Dec 2017	Comments	none
A7	22 Dec 2017	Depth (m)	20
A7	22 Dec 2017	Arrive Time	806
A7	22 Dec 2017	Depart Time	811
A7	22 Dec 2017	Air Temp (C)	11
A7	22 Dec 2017	Weather	Clear
A7	22 Dec 2017	Visibility (mi)	12
A7	22 Dec 2017	Wind Speed (kts)	8
A7	22 Dec 2017	Wind Dir	NW
A7	22 Dec 2017	Water Color	Green
A7	22 Dec 2017	Wave Ht Low (ft)	4
A7	22 Dec 2017	Wave Period (sec)	9
A7	22 Dec 2017	Sea State	Calm
A7	22 Dec 2017	High Tide (ft)	4.9
A7	22 Dec 2017	High Tide Time	1023
A7	22 Dec 2017	Low Tide (ft)	2.4
A7	22 Dec 2017	Low Tide Time	429
A7	22 Dec 2017	Comments	Kelp; Lobster floats
A7	26 Dec 2017	Depth (m)	19
A7	26 Dec 2017	Arrive Time	814
A7	26 Dec 2017	Depart Time	821
A7	26 Dec 2017	Air Temp (C)	13
A7	26 Dec 2017	Weather	Overcast
A7	26 Dec 2017	Visibility (mi)	7
A7	26 Dec 2017	Wind Speed (kts)	2
A7	26 Dec 2017	Wind Dir	E
A7	26 Dec 2017	Water Color	Bluish-Green
A7	26 Dec 2017	Wave Ht Low (ft)	4
A7	26 Dec 2017	Wave Period (sec)	13
A7	26 Dec 2017	Sea State	Wind ripples
A7	26 Dec 2017	High Tide (ft)	3.3
A7	26 Dec 2017	High Tide Time	1452
A7	26 Dec 2017	Low Tide (ft)	2.1
A7	26 Dec 2017	Low Tide Time	942
A7	26 Dec 2017	Comments	Lobster floats; Kelp
C7	04 Dec 2017	Depth (m)	20
C7	04 Dec 2017	Arrive Time	838
C7	04 Dec 2017	Depart Time	840

Station	Date	Parameter	Value
C7	04 Dec 2017	Air Temp (C)	15
C7	04 Dec 2017	Weather	Partly Cloudy
C7	04 Dec 2017	Visibility (mi)	8
C7	04 Dec 2017	Wind Speed (kts)	6
C7	04 Dec 2017	Wind Dir	N
C7	04 Dec 2017	Water Color	Greenish-Blue
C7	04 Dec 2017	Wave Ht Low (ft)	5
C7	04 Dec 2017	Wave Period (sec)	13
C7	04 Dec 2017	Sea State	Calm
C7	04 Dec 2017	High Tide (ft)	6.9
C7	04 Dec 2017	High Tide Time	839
C7	04 Dec 2017	Low Tide (ft)	-1.5
C7	04 Dec 2017	Low Tide Time	1550
C7	04 Dec 2017	Comments	Kelp debris
C7	14 Dec 2017	Depth (m)	19
C7	14 Dec 2017	Arrive Time	833
C7	14 Dec 2017	Depart Time	836
C7	14 Dec 2017	Air Temp (C)	16
C7	14 Dec 2017	Weather	Clear
C7	14 Dec 2017	Visibility (mi)	12
C7	14 Dec 2017	Wind Speed (kts)	1
C7	14 Dec 2017	Wind Dir	E
C7	14 Dec 2017	Water Color	Bluish-Green
C7	14 Dec 2017	Wave Ht Low (ft)	3
C7	14 Dec 2017	Wave Period (sec)	11
C7	14 Dec 2017	Sea State	Light chop
C7	14 Dec 2017	High Tide (ft)	5.6
C7	14 Dec 2017	High Tide Time	623
C7	14 Dec 2017	Low Tide (ft)	0
C7	14 Dec 2017	Low Tide Time	1323
C7	14 Dec 2017	Comments	none
C7	22 Dec 2017	Depth (m)	19
C7	22 Dec 2017	Arrive Time	833
C7	22 Dec 2017	Depart Time	840
C7	22 Dec 2017	Air Temp (C)	12
C7	22 Dec 2017	Weather	Clear
C7	22 Dec 2017	Visibility (mi)	12
C7	22 Dec 2017	Wind Speed (kts)	0
C7	22 Dec 2017	Wind Dir	
C7	22 Dec 2017	Water Color	Green
C7	22 Dec 2017	Wave Ht Low (ft)	2
C7	22 Dec 2017	Wave Period (sec)	9
C7	22 Dec 2017	Sea State	Calm
C7	22 Dec 2017	High Tide (ft)	4.9
C7	22 Dec 2017	High Tide Time	1023
C7	22 Dec 2017	Low Tide (ft)	2.4
C7	22 Dec 2017	Low Tide Time	429
C7	22 Dec 2017	Comments	Kelp; Lobster floats
C7	26 Dec 2017	Depth (m)	19
C7	26 Dec 2017	Arrive Time	840
C7	26 Dec 2017	Depart Time	846
C7	26 Dec 2017	Air Temp (C)	14

Station	Date	Parameter	Value
C7	26 Dec 2017	Weather	Overcast
C7	26 Dec 2017	Visibility (mi)	9
C7	26 Dec 2017	Wind Speed (kts)	2
C7	26 Dec 2017	Wind Dir	S
C7	26 Dec 2017	Water Color	Bluish-Green
C7	26 Dec 2017	Wave Ht Low (ft)	4
C7	26 Dec 2017	Wave Period (sec)	13
C7	26 Dec 2017	Sea State	Wind ripples
C7	26 Dec 2017	High Tide (ft)	3.3
C7	26 Dec 2017	High Tide Time	1452
C7	26 Dec 2017	Low Tide (ft)	2.1
C7	26 Dec 2017	Low Tide Time	942
C7	26 Dec 2017	Comments	Lobster floats; Kelp debris
C8	04 Dec 2017	Depth (m)	21
C8	04 Dec 2017	Arrive Time	849
C8	04 Dec 2017	Depart Time	851
C8	04 Dec 2017	Air Temp (C)	15
C8	04 Dec 2017	Weather	Partly Cloudy
C8	04 Dec 2017	Visibility (mi)	8
C8	04 Dec 2017	Wind Speed (kts)	3
C8	04 Dec 2017	Wind Dir	NE
C8	04 Dec 2017	Water Color	Greenish-Blue
C8	04 Dec 2017	Wave Ht Low (ft)	5
C8	04 Dec 2017	Wave Period (sec)	13
C8	04 Dec 2017	Sea State	Calm
C8	04 Dec 2017	High Tide (ft)	6.9
C8	04 Dec 2017	High Tide Time	839
C8	04 Dec 2017	Low Tide (ft)	-1.5
C8	04 Dec 2017	Low Tide Time	1550
C8	04 Dec 2017	Comments	Kelp debris
C8	14 Dec 2017	Depth (m)	20
C8	14 Dec 2017	Arrive Time	842
C8	14 Dec 2017	Depart Time	845
C8	14 Dec 2017	Air Temp (C)	15
C8	14 Dec 2017	Weather	Clear
C8	14 Dec 2017	Visibility (mi)	12
C8	14 Dec 2017	Wind Speed (kts)	1
C8	14 Dec 2017	Wind Dir	SW
C8	14 Dec 2017	Water Color	Bluish-Green
C8	14 Dec 2017	Wave Ht Low (ft)	3
C8	14 Dec 2017	Wave Period (sec)	11
C8	14 Dec 2017	Sea State	Light chop
C8	14 Dec 2017	High Tide (ft)	5.6
C8	14 Dec 2017	High Tide Time	623
C8	14 Dec 2017	Low Tide (ft)	0
C8	14 Dec 2017	Low Tide Time	1323
C8	14 Dec 2017	Comments	none
C8	22 Dec 2017	Depth (m)	20
C8	22 Dec 2017	Arrive Time	844
C8	22 Dec 2017	Depart Time	850
C8	22 Dec 2017	Air Temp (C)	12
C8	22 Dec 2017	Weather	Clear

Station	Date	Parameter	Value
C8	22 Dec 2017	Visibility (mi)	12
C8	22 Dec 2017	Wind Speed (kts)	0
C8	22 Dec 2017	Wind Dir	
C8	22 Dec 2017	Water Color	Green
C8	22 Dec 2017	Wave Ht Low (ft)	2
C8	22 Dec 2017	Wave Period (sec)	9
C8	22 Dec 2017	Sea State	Calm
C8	22 Dec 2017	High Tide (ft)	4.9
C8	22 Dec 2017	High Tide Time	1023
C8	22 Dec 2017	Low Tide (ft)	2.4
C8	22 Dec 2017	Low Tide Time	429
C8	22 Dec 2017	Comments	Kelp debris; Seagrass
C8	26 Dec 2017	Depth (m)	19
C8	26 Dec 2017	Arrive Time	852
C8	26 Dec 2017	Depart Time	859
C8	26 Dec 2017	Air Temp (C)	14
C8	26 Dec 2017	Weather	Overcast
C8	26 Dec 2017	Visibility (mi)	9
C8	26 Dec 2017	Wind Speed (kts)	0
C8	26 Dec 2017	Wind Dir	
C8	26 Dec 2017	Water Color	Bluish-Green
C8	26 Dec 2017	Wave Ht Low (ft)	4
C8	26 Dec 2017	Wave Period (sec)	13
C8	26 Dec 2017	Sea State	Wind ripples
C8	26 Dec 2017	High Tide (ft)	3.3
C8	26 Dec 2017	High Tide Time	1452
C8	26 Dec 2017	Low Tide (ft)	2.1
C8	26 Dec 2017	Low Tide Time	942
C8	26 Dec 2017	Comments	Lobster floats

Table 3.10

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

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
A1	04 Dec 2017	1	16.06	75.04	7.9	33.43	8.0	24.5	1.16
A1	04 Dec 2017	2	16.06	74.47	8.0	33.43	8.0	24.5	1.21
A1	04 Dec 2017	3	16.05	78.26	7.9	33.43	8.0	24.5	1.27
A1	04 Dec 2017	4	15.97	79.26	7.8	33.44	8.0	24.6	1.48
A1	04 Dec 2017	5	15.86	77.92	7.8	33.43	8.0	24.6	1.59
A1	04 Dec 2017	6	15.81	76.98	7.8	33.42	8.0	24.6	1.63
A1	04 Dec 2017	7	15.70	75.25	7.7	33.42	8.0	24.6	1.67
A1	04 Dec 2017	8	15.58	74.37	7.6	33.42	8.0	24.6	1.58
A1	04 Dec 2017	9	15.26	74.21	7.5	33.42	8.0	24.7	1.46
A1	04 Dec 2017	10	15.22	74.39	7.4	33.40	8.0	24.7	1.42
A1	04 Dec 2017	11	15.13	74.38	7.4	33.41	8.0	24.7	1.40
A1	04 Dec 2017	12	14.90	74.77	7.3	33.42	8.0	24.8	1.39
A1	04 Dec 2017	13	14.62	75.94	7.2	33.40	8.0	24.8	1.38
A1	04 Dec 2017	14	14.55	76.93	7.1	33.40	8.0	24.8	1.41
A1	04 Dec 2017	15	14.42	77.23	7.1	33.40	8.0	24.9	1.41
A1	04 Dec 2017	16	14.32	77.46	6.9	33.40	8.0	24.9	1.35
A1	04 Dec 2017	17	14.09	76.96	6.8	33.42	8.0	25.0	1.24
A1	04 Dec 2017	18	13.84	77.12	6.5	33.42	8.0	25.0	1.06
A1	04 Dec 2017	19	13.48	75.98	6.3	33.45	7.9	25.1	0.84
A1	04 Dec 2017	20	13.40	76.09	6.2	33.43	7.9	25.1	0.65
A1	14 Dec 2017	1	16.72	89.00	7.9	33.53	7.9	24.5	0.48
A1	14 Dec 2017	2	16.71	88.27	7.9	33.53	8.0	24.5	0.50
A1	14 Dec 2017	3	16.71	88.51	7.9	33.53	8.0	24.5	0.53
A1	14 Dec 2017	4	16.70	88.95	7.9	33.53	8.0	24.5	0.54
A1	14 Dec 2017	5	16.68	88.68	7.8	33.53	8.0	24.5	0.59
A1	14 Dec 2017	6	16.66	88.32	7.8	33.52	8.0	24.5	0.68
A1	14 Dec 2017	7	16.64	88.08	7.9	33.52	8.0	24.5	0.79
A1	14 Dec 2017	8	16.63	87.04	7.8	33.52	8.0	24.5	0.82
A1	14 Dec 2017	9	16.51	87.24	7.8	33.52	8.0	24.5	0.89
A1	14 Dec 2017	10	16.29	85.71	7.8	33.51	8.0	24.5	1.09
A1	14 Dec 2017	11	16.17	82.16	7.7	33.51	8.0	24.6	1.25
A1	14 Dec 2017	12	16.05	80.80	7.7	33.50	7.9	24.6	1.23
A1	14 Dec 2017	13	16.02	79.68	7.7	33.49	7.9	24.6	1.18
A1	14 Dec 2017	14	15.97	78.29	7.7	33.49	7.9	24.6	1.14
A1	14 Dec 2017	15	15.97	78.09	7.6	33.49	7.9	24.6	1.11
A1	14 Dec 2017	16	15.95	78.00	7.6	33.49	7.9	24.6	1.08
A1	14 Dec 2017	17	15.91	77.51	7.6	33.49	7.9	24.6	1.04
A1	14 Dec 2017	18	15.91	77.32	7.6	33.48	7.9	24.6	1.00
A1	14 Dec 2017	19	15.91	76.89	7.6	33.48	7.9	24.6	0.98
A1	14 Dec 2017	20	15.91	76.66	7.6	33.48	7.9	24.6	0.95
A1	22 Dec 2017	1	16.06	86.62	7.9	33.53	8.1	24.6	1.01
A1	22 Dec 2017	2	16.06	86.65	7.9	33.53	8.1	24.6	1.03
A1	22 Dec 2017	3	16.05	86.74	7.8	33.53	8.1	24.6	1.07
A1	22 Dec 2017	4	16.05	86.57	7.8	33.53	8.1	24.6	1.11
A1	22 Dec 2017	5	16.06	86.69	7.8	33.53	8.1	24.6	1.16
A1	22 Dec 2017	6	16.03	86.71	7.7	33.53	8.1	24.6	1.16
A1	22 Dec 2017	7	15.94	86.61	7.7	33.52	8.1	24.6	1.12
A1	22 Dec 2017	8	15.98	86.37	7.7	33.52	8.1	24.6	1.06

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
A1	22 Dec 2017	9	15.97	86.73	7.7	33.52	8.1	24.6	1.07
A1	22 Dec 2017	10	15.93	86.82	7.7	33.53	8.1	24.6	1.04
A1	22 Dec 2017	11	15.88	86.90	7.7	33.52	8.1	24.6	1.03
A1	22 Dec 2017	12	15.84	86.77	7.6	33.52	8.1	24.6	1.00
A1	22 Dec 2017	13	15.79	86.91	7.6	33.52	8.1	24.7	0.94
A1	22 Dec 2017	14	15.77	86.87	7.6	33.51	8.1	24.7	0.91
A1	22 Dec 2017	15	15.74	86.90	7.6	33.51	8.1	24.7	0.90
A1	22 Dec 2017	16	15.63	86.90	7.5	33.51	8.1	24.7	0.86
A1	22 Dec 2017	17	15.47	86.65	7.3	33.50	8.1	24.7	0.85
A1	22 Dec 2017	18	15.21	86.31	7.3	33.49	8.1	24.8	0.79
A1	22 Dec 2017	19	15.16	86.41	7.3	33.47	8.0	24.8	0.74
A1	26 Dec 2017	1	15.47	85.09	7.8	33.53	8.1	24.7	1.20
A1	26 Dec 2017	2	15.47	84.95	7.8	33.53	8.1	24.7	1.26
A1	26 Dec 2017	3	15.47	84.76	7.8	33.53	8.1	24.7	1.30
A1	26 Dec 2017	4	15.47	84.82	7.8	33.53	8.1	24.7	1.31
A1	26 Dec 2017	5	15.48	84.76	7.8	33.53	8.1	24.7	1.32
A1	26 Dec 2017	6	15.48	84.73	7.8	33.53	8.1	24.7	1.33
A1	26 Dec 2017	7	15.48	84.91	7.8	33.53	8.1	24.7	1.33
A1	26 Dec 2017	8	15.48	84.80	7.8	33.53	8.1	24.7	1.31
A1	26 Dec 2017	9	15.48	84.88	7.8	33.53	8.1	24.7	1.32
A1	26 Dec 2017	10	15.48	84.84	7.7	33.53	8.1	24.7	1.33
A1	26 Dec 2017	11	15.48	84.82	7.7	33.53	8.1	24.7	1.32
A1	26 Dec 2017	12	15.48	84.90	7.8	33.53	8.1	24.7	1.31
A1	26 Dec 2017	13	15.48	84.74	7.7	33.53	8.1	24.7	1.33
A1	26 Dec 2017	14	15.47	84.81	7.7	33.53	8.1	24.7	1.31
A1	26 Dec 2017	15	15.47	84.93	7.7	33.53	8.1	24.7	1.30
A1	26 Dec 2017	16	15.43	85.18	7.7	33.53	8.1	24.7	1.27
A1	26 Dec 2017	17	15.37	85.34	7.6	33.52	8.1	24.8	1.21
A1	26 Dec 2017	18	15.35	85.52	7.6	33.52	8.1	24.8	1.18
A1	26 Dec 2017	19	15.29	85.63	7.5	33.52	8.1	24.8	1.13
A1	26 Dec 2017	20	15.18	85.92	7.4	33.51	8.1	24.8	1.09
C4	04 Dec 2017	1	15.89	78.44	7.8	33.42	8.1	24.6	1.17
C4	04 Dec 2017	2	15.89	75.73	7.8	33.42	8.1	24.6	1.20
C4	04 Dec 2017	3	15.89	78.51	7.8	33.42	8.1	24.6	1.21
C4	04 Dec 2017	4	15.88	78.58	7.8	33.42	8.1	24.6	1.27
C4	04 Dec 2017	5	15.88	78.59	7.8	33.42	8.1	24.6	1.35
C4	04 Dec 2017	6	15.86	78.54	7.8	33.42	8.1	24.6	1.43
C4	04 Dec 2017	7	15.81	78.51	7.7	33.42	8.1	24.6	1.50
C4	04 Dec 2017	8	15.73	79.04	7.5	33.42	8.1	24.6	1.26
C4	04 Dec 2017	9	15.64	79.54	7.3	33.42	8.1	24.6	1.00
C4	04 Dec 2017	10	15.52	78.38	7.1	33.41	8.0	24.6	0.78
C4	04 Dec 2017	11	15.44	71.66	6.9	33.41	8.0	24.6	0.64
C4	04 Dec 2017	12	15.43	33.54	6.7	33.40	8.0	24.6	0.65
C4	04 Dec 2017	13	15.43	12.56	6.6	33.40	8.0	24.6	0.80
C4	14 Dec 2017	1	16.50	85.13	7.8	33.50	8.1	24.5	0.40
C4	14 Dec 2017	2	16.50	84.86	7.8	33.50	8.1	24.5	0.37
C4	14 Dec 2017	3	16.48	84.83	7.8	33.50	8.1	24.5	0.37
C4	14 Dec 2017	4	16.45	84.91	7.8	33.49	8.1	24.5	0.42
C4	14 Dec 2017	5	16.41	85.24	7.8	33.49	8.1	24.5	0.45
C4	14 Dec 2017	6	16.43	84.98	7.8	33.48	8.1	24.5	0.49
C4	14 Dec 2017	7	16.37	85.01	7.7	33.49	8.1	24.5	0.53
C4	14 Dec 2017	8	16.26	85.12	7.7	33.48	8.1	24.5	0.58

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C4	14 Dec 2017	9	16.21	82.41	7.6	33.47	8.1	24.5	0.57
C4	14 Dec 2017	10	16.13	79.62	7.6	33.47	8.1	24.5	0.57
C4	14 Dec 2017	11	16.11	78.56	7.6	33.46	8.1	24.5	0.57
C4	14 Dec 2017	12	16.11	75.67	7.6	33.46	8.1	24.5	0.55
C4	22 Dec 2017	1	15.74	64.24	7.6	33.56	8.1	24.7	0.55
C4	22 Dec 2017	2	15.74	64.36	7.6	33.56	8.1	24.7	0.57
C4	22 Dec 2017	3	15.74	64.55	7.6	33.56	8.1	24.7	0.63
C4	22 Dec 2017	4	15.74	63.03	7.6	33.56	8.1	24.7	0.66
C4	22 Dec 2017	5	15.74	63.15	7.6	33.56	8.1	24.7	0.68
C4	22 Dec 2017	6	15.73	63.09	7.6	33.56	8.1	24.7	0.68
C4	22 Dec 2017	7	15.73	62.07	7.6	33.56	8.1	24.7	0.67
C4	22 Dec 2017	8	15.73	62.30	7.7	33.56	8.1	24.7	0.67
C4	22 Dec 2017	9	15.73	61.93	7.7	33.57	8.1	24.7	0.66
C4	22 Dec 2017	10	15.71	55.96	7.7	33.58	8.1	24.7	0.65
C4	22 Dec 2017	11	15.69	44.41	7.6	33.58	8.1	24.7	0.70
C4	26 Dec 2017	1	15.58	72.49	8.2	33.55	8.2	24.7	0.93
C4	26 Dec 2017	2	15.58	72.21	8.1	33.55	8.2	24.7	0.93
C4	26 Dec 2017	3	15.57	71.85	8.1	33.55	8.2	24.7	1.03
C4	26 Dec 2017	4	15.57	71.74	8.1	33.55	8.2	24.7	1.19
C4	26 Dec 2017	5	15.56	71.18	8.1	33.55	8.2	24.7	1.25
C4	26 Dec 2017	6	15.56	71.46	8.1	33.55	8.2	24.7	1.29
C4	26 Dec 2017	7	15.56	71.04	8.1	33.55	8.2	24.7	1.31
C4	26 Dec 2017	8	15.56	70.89	8.1	33.55	8.2	24.7	1.31
C4	26 Dec 2017	9	15.56	70.83	8.1	33.55	8.2	24.7	1.27
C4	26 Dec 2017	10	15.56	66.25	8.0	33.55	8.2	24.7	1.23
C4	26 Dec 2017	11	15.56	62.16	8.0	33.55	8.2	24.7	1.19
C5	04 Dec 2017	1	16.11	49.44	7.0	33.43	8.0	24.5	0.41
C5	04 Dec 2017	2	16.10	48.56	7.0	33.43	8.0	24.5	0.40
C5	04 Dec 2017	3	16.06	49.84	7.0	33.43	8.0	24.5	0.41
C5	04 Dec 2017	4	16.03	50.23	7.0	33.43	8.0	24.5	0.40
C5	04 Dec 2017	5	15.95	54.86	7.0	33.43	8.0	24.5	0.38
C5	04 Dec 2017	6	15.93	61.19	7.0	33.42	8.0	24.6	0.35
C5	04 Dec 2017	7	15.89	66.24	6.9	33.42	8.0	24.6	0.35
C5	04 Dec 2017	8	15.86	68.03	6.9	33.42	8.0	24.6	0.34
C5	04 Dec 2017	9	15.80	67.54	6.8	33.42	8.0	24.6	0.35
C5	04 Dec 2017	10	15.65	65.63	6.7	33.42	8.0	24.6	0.37
C5	04 Dec 2017	11	15.58	53.01	6.6	33.41	8.0	24.6	0.44
C5	14 Dec 2017	1	16.73	81.63	7.8	33.52	8.1	24.4	0.32
C5	14 Dec 2017	2	16.73	81.32	7.8	33.52	8.1	24.4	0.32
C5	14 Dec 2017	3	16.74	81.51	7.8	33.52	8.1	24.4	0.34
C5	14 Dec 2017	4	16.74	82.25	7.8	33.52	8.1	24.4	0.36
C5	14 Dec 2017	5	16.73	82.33	7.8	33.52	8.1	24.4	0.40
C5	14 Dec 2017	6	16.71	81.54	7.7	33.52	8.1	24.4	0.40
C5	14 Dec 2017	7	16.68	80.17	7.6	33.52	8.1	24.5	0.44
C5	14 Dec 2017	8	16.61	77.35	7.6	33.53	8.1	24.5	0.49
C5	14 Dec 2017	9	16.58	67.08	7.5	33.52	8.1	24.5	0.54
C5	14 Dec 2017	10	16.58	63.62	7.6	33.52	8.1	24.5	0.55
C5	22 Dec 2017	1	15.74	76.96	7.8	33.56	8.1	24.7	0.49
C5	22 Dec 2017	2	15.74	76.51	7.8	33.56	8.1	24.7	0.53
C5	22 Dec 2017	3	15.74	76.34	7.8	33.56	8.1	24.7	0.58

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C5	22 Dec 2017	4	15.73	76.29	7.8	33.56	8.1	24.7	0.60
C5	22 Dec 2017	5	15.72	75.72	7.8	33.56	8.1	24.7	0.62
C5	22 Dec 2017	6	15.72	75.20	7.7	33.56	8.1	24.7	0.62
C5	22 Dec 2017	7	15.72	75.32	7.7	33.56	8.1	24.7	0.65
C5	22 Dec 2017	8	15.72	75.41	7.7	33.56	8.1	24.7	0.67
C5	22 Dec 2017	9	15.71	74.54	7.7	33.57	8.1	24.7	0.64
C5	22 Dec 2017	10	15.71	70.21	7.7	33.57	8.1	24.7	0.62
C5	22 Dec 2017	11	15.71	53.44	7.6	33.57	8.1	24.7	0.64
C5	26 Dec 2017	1	15.64	76.73	8.5	33.55	8.2	24.7	0.80
C5	26 Dec 2017	2	15.64	76.78	8.5	33.55	8.2	24.7	0.86
C5	26 Dec 2017	3	15.64	77.90	8.5	33.55	8.2	24.7	0.91
C5	26 Dec 2017	4	15.62	78.06	8.5	33.55	8.2	24.7	0.92
C5	26 Dec 2017	5	15.61	77.56	8.5	33.55	8.2	24.7	0.90
C5	26 Dec 2017	6	15.58	77.67	8.5	33.56	8.2	24.7	0.87
C5	26 Dec 2017	7	15.51	76.80	8.6	33.58	8.2	24.8	0.85
C5	26 Dec 2017	8	15.47	74.71	8.6	33.58	8.2	24.8	0.77
C5	26 Dec 2017	9	15.47	72.27	8.6	33.58	8.2	24.8	0.73
C5	26 Dec 2017	10	15.47	69.95	8.6	33.58	8.2	24.8	0.72
A6	04 Dec 2017	1	15.88	80.43	7.8	33.42	8.1	24.6	0.89
A6	04 Dec 2017	2	15.88	79.84	7.8	33.42	8.1	24.6	0.90
A6	04 Dec 2017	3	15.87	79.99	7.8	33.42	8.1	24.6	0.93
A6	04 Dec 2017	4	15.84	80.40	7.8	33.42	8.1	24.6	1.00
A6	04 Dec 2017	5	15.83	80.62	7.7	33.42	8.1	24.6	1.05
A6	04 Dec 2017	6	15.80	81.37	7.7	33.42	8.1	24.6	1.08
A6	04 Dec 2017	7	15.79	81.58	7.7	33.42	8.1	24.6	1.08
A6	04 Dec 2017	8	15.76	81.67	7.6	33.42	8.1	24.6	1.06
A6	04 Dec 2017	9	15.58	81.87	7.5	33.43	8.1	24.6	1.00
A6	04 Dec 2017	10	15.22	81.79	7.4	33.42	8.1	24.7	0.93
A6	04 Dec 2017	11	15.02	80.90	7.3	33.41	8.0	24.7	0.94
A6	04 Dec 2017	12	14.79	79.82	7.3	33.41	8.0	24.8	1.03
A6	04 Dec 2017	13	14.65	79.81	7.3	33.39	8.0	24.8	1.17
A6	04 Dec 2017	14	14.58	80.44	7.3	33.39	8.0	24.8	1.20
A6	04 Dec 2017	15	14.57	80.29	7.3	33.39	8.0	24.8	1.27
A6	04 Dec 2017	16	14.56	80.00	7.3	33.38	8.0	24.8	1.31
A6	04 Dec 2017	17	14.56	80.04	7.3	33.38	8.0	24.8	1.32
A6	04 Dec 2017	18	14.56	80.16	7.3	33.39	8.0	24.8	1.29
A6	04 Dec 2017	19	14.56	80.34	7.3	33.39	8.0	24.8	1.27
A6	04 Dec 2017	20	14.57	67.76	7.2	33.39	8.0	24.8	1.26
A6	04 Dec 2017	21	14.57	52.06	7.2	33.39	8.0	24.8	1.16
A6	14 Dec 2017	1	16.61	81.10	7.8	33.53	8.1	24.5	0.42
A6	14 Dec 2017	2	16.60	81.41	7.8	33.54	8.1	24.5	0.45
A6	14 Dec 2017	3	16.60	81.43	7.8	33.54	8.1	24.5	0.44
A6	14 Dec 2017	4	16.49	81.63	7.8	33.57	8.1	24.5	0.45
A6	14 Dec 2017	5	16.21	82.02	7.8	33.56	8.1	24.6	0.47
A6	14 Dec 2017	6	15.97	83.10	7.7	33.53	8.1	24.6	0.53
A6	14 Dec 2017	7	15.84	84.17	7.7	33.48	8.1	24.6	0.62
A6	14 Dec 2017	8	15.75	84.67	7.7	33.47	8.1	24.6	0.72
A6	14 Dec 2017	9	15.71	85.13	7.7	33.45	8.1	24.6	0.87
A6	14 Dec 2017	10	15.69	85.37	7.7	33.44	8.1	24.6	0.90
A6	14 Dec 2017	11	15.61	85.43	7.7	33.45	8.1	24.6	0.95
A6	14 Dec 2017	12	15.56	85.44	7.7	33.44	8.1	24.6	0.98
A6	14 Dec 2017	13	15.49	85.30	7.7	33.43	8.1	24.7	1.03

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
A6	14 Dec 2017	14	15.44	85.15	7.6	33.44	8.1	24.7	1.07
A6	14 Dec 2017	15	15.19	85.13	7.6	33.42	8.0	24.7	1.05
A6	14 Dec 2017	16	15.27	85.19	7.6	33.41	8.0	24.7	1.06
A6	14 Dec 2017	17	15.21	85.06	7.6	33.42	8.0	24.7	1.04
A6	14 Dec 2017	18	15.00	85.39	7.5	33.42	8.0	24.8	1.07
A6	22 Dec 2017	1	16.02	85.23	7.8	33.53	8.1	24.6	1.00
A6	22 Dec 2017	2	16.03	85.31	7.8	33.53	8.1	24.6	1.04
A6	22 Dec 2017	3	16.04	85.04	7.8	33.53	8.1	24.6	1.09
A6	22 Dec 2017	4	16.04	85.26	7.8	33.53	8.1	24.6	1.13
A6	22 Dec 2017	5	16.04	85.29	7.8	33.53	8.1	24.6	1.20
A6	22 Dec 2017	6	16.03	85.28	7.8	33.53	8.1	24.6	1.19
A6	22 Dec 2017	7	16.02	85.22	7.8	33.53	8.1	24.6	1.19
A6	22 Dec 2017	8	16.02	85.40	7.8	33.53	8.1	24.6	1.20
A6	22 Dec 2017	9	16.01	85.32	7.8	33.53	8.1	24.6	1.18
A6	22 Dec 2017	10	16.01	85.36	7.8	33.53	8.1	24.6	1.18
A6	22 Dec 2017	11	16.01	85.44	7.8	33.53	8.1	24.6	1.18
A6	22 Dec 2017	12	15.98	85.46	7.7	33.53	8.1	24.6	1.15
A6	22 Dec 2017	13	15.97	85.62	7.7	33.52	8.1	24.6	1.12
A6	22 Dec 2017	14	15.94	85.53	7.7	33.52	8.1	24.6	1.08
A6	22 Dec 2017	15	15.89	85.63	7.6	33.52	8.1	24.6	0.99
A6	22 Dec 2017	16	15.87	85.80	7.6	33.52	8.1	24.6	0.94
A6	22 Dec 2017	17	15.84	85.84	7.6	33.51	8.1	24.6	0.93
A6	22 Dec 2017	18	15.83	85.73	7.6	33.51	8.1	24.6	0.92
A6	22 Dec 2017	19	15.82	85.65	7.6	33.51	8.1	24.6	0.92
A6	22 Dec 2017	20	15.81	85.71	7.6	33.51	8.1	24.6	0.91
A6	22 Dec 2017	21	15.81	85.76	7.6	33.51	8.1	24.6	0.91
A6	26 Dec 2017	1	15.57	84.27	8.1	33.52	8.2	24.7	1.23
A6	26 Dec 2017	2	15.56	84.19	8.1	33.52	8.2	24.7	1.26
A6	26 Dec 2017	3	15.57	84.22	8.1	33.52	8.2	24.7	1.31
A6	26 Dec 2017	4	15.56	84.23	8.1	33.52	8.2	24.7	1.34
A6	26 Dec 2017	5	15.54	84.29	8.0	33.52	8.2	24.7	1.38
A6	26 Dec 2017	6	15.54	84.49	8.0	33.52	8.2	24.7	1.41
A6	26 Dec 2017	7	15.52	84.62	8.0	33.52	8.2	24.7	1.45
A6	26 Dec 2017	8	15.52	84.67	8.0	33.52	8.2	24.7	1.47
A6	26 Dec 2017	9	15.52	84.78	8.0	33.52	8.2	24.7	1.48
A6	26 Dec 2017	10	15.51	84.81	8.0	33.52	8.1	24.7	1.51
A6	26 Dec 2017	11	15.51	84.81	8.0	33.52	8.1	24.7	1.50
A6	26 Dec 2017	12	15.51	84.87	7.9	33.52	8.1	24.7	1.49
A6	26 Dec 2017	13	15.49	84.96	7.9	33.52	8.1	24.7	1.46
A6	26 Dec 2017	14	15.43	85.27	7.7	33.51	8.1	24.7	1.32
A6	26 Dec 2017	15	15.36	85.79	7.6	33.50	8.1	24.7	1.13
A6	26 Dec 2017	16	15.33	86.11	7.5	33.50	8.1	24.7	1.00
A6	26 Dec 2017	17	15.24	86.15	7.4	33.50	8.1	24.8	0.92
A6	26 Dec 2017	18	15.12	85.40	7.3	33.49	8.1	24.8	0.79
C6	04 Dec 2017	1	16.00	73.80	7.5	33.42	8.0	24.5	0.61
C6	04 Dec 2017	2	15.99	73.28	7.5	33.42	8.0	24.5	0.57
C6	04 Dec 2017	3	15.98	74.51	7.4	33.42	8.0	24.5	0.61
C6	04 Dec 2017	4	15.96	74.63	7.4	33.42	8.0	24.5	0.63
C6	04 Dec 2017	5	15.95	73.35	7.4	33.42	8.0	24.5	0.67
C6	04 Dec 2017	6	15.93	73.26	7.3	33.42	8.0	24.5	0.64
C6	04 Dec 2017	7	15.89	72.46	7.2	33.42	8.0	24.6	0.64
C6	04 Dec 2017	8	15.83	73.21	7.0	33.42	8.0	24.6	0.50

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C6	04 Dec 2017	9	15.73	71.55	6.9	33.42	8.0	24.6	0.49
C6	04 Dec 2017	10	15.67	68.55	6.8	33.41	8.0	24.6	0.52
C6	04 Dec 2017	11	15.57	66.25	6.8	33.42	8.0	24.6	0.53
C6	14 Dec 2017	1	16.72	71.05	7.7	33.57	8.1	24.5	0.34
C6	14 Dec 2017	2	16.71	70.15	7.7	33.57	8.1	24.5	0.34
C6	14 Dec 2017	3	16.70	69.73	7.6	33.57	8.1	24.5	0.38
C6	14 Dec 2017	4	16.70	69.62	7.7	33.57	8.1	24.5	0.38
C6	14 Dec 2017	5	16.70	69.76	7.7	33.57	8.1	24.5	0.40
C6	14 Dec 2017	6	16.70	69.63	7.6	33.58	8.1	24.5	0.42
C6	14 Dec 2017	7	16.69	69.50	7.5	33.58	8.1	24.5	0.42
C6	14 Dec 2017	8	16.48	69.09	7.4	33.57	8.1	24.5	0.44
C6	14 Dec 2017	9	15.75	71.99	7.4	33.50	8.1	24.7	0.48
C6	14 Dec 2017	10	15.59	76.20	7.4	33.44	8.1	24.6	0.53
C6	22 Dec 2017	1	15.82	82.68	7.6	33.54	8.1	24.7	0.50
C6	22 Dec 2017	2	15.82	82.73	7.6	33.54	8.1	24.7	0.53
C6	22 Dec 2017	3	15.82	82.82	7.6	33.54	8.1	24.7	0.54
C6	22 Dec 2017	4	15.83	82.93	7.6	33.54	8.1	24.7	0.58
C6	22 Dec 2017	5	15.82	82.85	7.6	33.54	8.1	24.7	0.63
C6	22 Dec 2017	6	15.83	82.55	7.6	33.54	8.1	24.7	0.66
C6	22 Dec 2017	7	15.82	81.94	7.6	33.54	8.1	24.7	0.66
C6	22 Dec 2017	8	15.82	82.35	7.6	33.54	8.1	24.7	0.67
C6	22 Dec 2017	9	15.81	82.62	7.6	33.54	8.1	24.7	0.68
C6	22 Dec 2017	10	15.81	82.52	7.6	33.54	8.1	24.7	0.64
C6	26 Dec 2017	1	15.68	79.33	7.5	33.56	8.2	24.7	0.66
C6	26 Dec 2017	2	15.68	78.76	8.1	33.55	8.2	24.7	0.68
C6	26 Dec 2017	3	15.67	78.79	8.3	33.55	8.2	24.7	0.67
C6	26 Dec 2017	4	15.67	78.98	8.3	33.55	8.2	24.7	0.69
C6	26 Dec 2017	5	15.67	78.80	8.3	33.55	8.2	24.7	0.69
C6	26 Dec 2017	6	15.67	78.73	8.3	33.55	8.2	24.7	0.69
C6	26 Dec 2017	7	15.66	79.06	8.3	33.55	8.2	24.7	0.69
C6	26 Dec 2017	8	15.66	79.04	8.3	33.55	8.2	24.7	0.69
C6	26 Dec 2017	9	15.66	79.55	8.2	33.55	8.2	24.7	0.69
C6	26 Dec 2017	10	15.67	79.19	8.2	33.55	8.2	24.7	0.69
A7	04 Dec 2017	1	16.00	79.99	7.9	33.43	8.1	24.5	1.23
A7	04 Dec 2017	2	16.00	79.79	7.9	33.43	8.1	24.5	1.30
A7	04 Dec 2017	3	15.99	79.54	7.9	33.43	8.1	24.5	1.41
A7	04 Dec 2017	4	15.97	80.00	7.9	33.43	8.1	24.5	1.48
A7	04 Dec 2017	5	15.94	80.00	7.9	33.43	8.1	24.6	1.50
A7	04 Dec 2017	6	15.92	80.23	7.8	33.43	8.1	24.6	1.57
A7	04 Dec 2017	7	15.77	80.60	7.7	33.43	8.1	24.6	1.38
A7	04 Dec 2017	8	15.52	81.04	7.5	33.42	8.1	24.6	1.17
A7	04 Dec 2017	9	15.34	80.93	7.3	33.42	8.0	24.7	1.09
A7	04 Dec 2017	10	14.96	78.86	7.3	33.41	8.0	24.8	1.06
A7	04 Dec 2017	11	14.90	78.30	7.2	33.40	8.0	24.8	1.11
A7	04 Dec 2017	12	14.67	78.53	7.2	33.40	8.0	24.8	1.13
A7	04 Dec 2017	13	14.57	78.28	7.2	33.39	8.0	24.8	1.22
A7	04 Dec 2017	14	14.49	78.25	7.2	33.39	8.0	24.8	1.25
A7	04 Dec 2017	15	14.39	78.03	7.1	33.40	8.0	24.9	1.23
A7	04 Dec 2017	16	14.31	77.60	7.0	33.40	8.0	24.9	1.21
A7	04 Dec 2017	17	14.33	77.81	7.0	33.39	8.0	24.9	1.20
A7	04 Dec 2017	18	14.08	77.42	6.7	33.42	8.0	24.9	1.07

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
A7	04 Dec 2017	19	13.78	76.72	6.5	33.42	8.0	25.0	0.89
A7	04 Dec 2017	20	13.66	72.71	6.4	33.42	8.0	25.0	0.75
A7	14 Dec 2017	1	16.69	88.54	7.8	33.52	8.1	24.4	0.43
A7	14 Dec 2017	2	16.68	88.40	7.8	33.52	8.1	24.5	0.41
A7	14 Dec 2017	3	16.67	88.42	7.8	33.52	8.1	24.5	0.42
A7	14 Dec 2017	4	16.67	88.50	7.8	33.52	8.1	24.5	0.45
A7	14 Dec 2017	5	16.67	88.48	7.8	33.52	8.1	24.5	0.47
A7	14 Dec 2017	6	16.65	88.27	7.8	33.52	8.1	24.5	0.52
A7	14 Dec 2017	7	16.60	88.36	7.8	33.52	8.1	24.5	0.54
A7	14 Dec 2017	8	16.49	87.75	7.8	33.51	8.1	24.5	0.61
A7	14 Dec 2017	9	16.43	87.15	7.8	33.50	8.1	24.5	0.62
A7	14 Dec 2017	10	16.40	87.02	7.8	33.49	8.1	24.5	0.66
A7	14 Dec 2017	11	16.36	86.89	7.8	33.49	8.1	24.5	0.71
A7	14 Dec 2017	12	16.28	86.67	7.8	33.49	8.1	24.5	0.70
A7	14 Dec 2017	13	16.22	86.30	7.8	33.48	8.1	24.5	0.74
A7	14 Dec 2017	14	16.12	85.72	7.7	33.48	8.1	24.5	0.75
A7	14 Dec 2017	15	16.02	85.67	7.7	33.47	8.1	24.6	0.74
A7	14 Dec 2017	16	15.88	85.81	7.7	33.46	8.1	24.6	0.74
A7	14 Dec 2017	17	15.76	85.84	7.6	33.45	8.0	24.6	0.72
A7	14 Dec 2017	18	15.41	85.85	7.5	33.45	8.0	24.7	0.72
A7	14 Dec 2017	19	15.02	85.49	7.5	33.42	8.0	24.8	0.76
A7	14 Dec 2017	20	14.97	85.19	7.5	33.40	8.0	24.7	0.78
A7	22 Dec 2017	1	16.02	85.00	7.8	33.53	8.1	24.6	1.05
A7	22 Dec 2017	2	16.02	85.25	7.8	33.53	8.1	24.6	1.05
A7	22 Dec 2017	3	16.03	85.20	7.8	33.53	8.1	24.6	1.08
A7	22 Dec 2017	4	16.03	85.31	7.8	33.53	8.1	24.6	1.15
A7	22 Dec 2017	5	16.01	85.31	7.7	33.53	8.1	24.6	1.15
A7	22 Dec 2017	6	15.96	85.60	7.7	33.53	8.1	24.6	1.14
A7	22 Dec 2017	7	15.85	85.69	7.5	33.53	8.1	24.7	1.03
A7	22 Dec 2017	8	15.76	86.02	7.5	33.52	8.1	24.7	0.92
A7	22 Dec 2017	9	15.74	86.06	7.4	33.51	8.1	24.7	0.83
A7	22 Dec 2017	10	15.63	86.10	7.4	33.52	8.1	24.7	0.78
A7	22 Dec 2017	11	15.45	86.02	7.3	33.51	8.1	24.7	0.73
A7	22 Dec 2017	12	15.17	85.64	7.2	33.49	8.1	24.8	0.68
A7	22 Dec 2017	13	15.06	85.43	7.2	33.47	8.1	24.8	0.64
A7	22 Dec 2017	14	15.02	85.29	7.1	33.47	8.1	24.8	0.62
A7	22 Dec 2017	15	14.98	85.20	7.1	33.46	8.0	24.8	0.61
A7	22 Dec 2017	16	14.81	84.89	7.0	33.47	8.0	24.8	0.61
A7	22 Dec 2017	17	14.70	85.06	7.0	33.45	8.0	24.8	0.60
A7	22 Dec 2017	18	14.61	85.12	7.0	33.45	8.0	24.9	0.57
A7	22 Dec 2017	19	14.55	85.23	7.0	33.44	8.0	24.9	0.57
A7	22 Dec 2017	20	14.51	85.39	7.0	33.44	8.0	24.9	0.53
A7	26 Dec 2017	1	15.47	84.99	7.8	33.51	8.1	24.7	1.34
A7	26 Dec 2017	2	15.47	83.81	7.8	33.51	8.1	24.7	1.34
A7	26 Dec 2017	3	15.48	85.20	7.8	33.51	8.1	24.7	1.37
A7	26 Dec 2017	4	15.48	85.26	7.8	33.51	8.1	24.7	1.42
A7	26 Dec 2017	5	15.48	85.26	7.8	33.51	8.1	24.7	1.52
A7	26 Dec 2017	6	15.48	85.17	7.8	33.51	8.1	24.7	1.58
A7	26 Dec 2017	7	15.48	85.23	7.8	33.51	8.1	24.7	1.59
A7	26 Dec 2017	8	15.48	85.29	7.7	33.51	8.1	24.7	1.61
A7	26 Dec 2017	9	15.48	85.34	7.7	33.51	8.1	24.7	1.56
A7	26 Dec 2017	10	15.48	85.33	7.7	33.51	8.1	24.7	1.56

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
A7	26 Dec 2017	11	15.48	85.29	7.8	33.51	8.1	24.7	1.57
A7	26 Dec 2017	12	15.48	85.32	7.8	33.51	8.1	24.7	1.53
A7	26 Dec 2017	13	15.47	85.36	7.7	33.51	8.1	24.7	1.51
A7	26 Dec 2017	14	15.46	85.39	7.7	33.51	8.1	24.7	1.48
A7	26 Dec 2017	15	15.45	85.59	7.7	33.51	8.1	24.7	1.43
A7	26 Dec 2017	16	15.42	85.68	7.6	33.51	8.1	24.7	1.34
A7	26 Dec 2017	17	15.32	86.05	7.3	33.51	8.1	24.8	1.22
A7	26 Dec 2017	18	15.05	85.60	7.1	33.50	8.1	24.8	1.00
A7	26 Dec 2017	19	15.05	84.61	7.1	33.48	8.1	24.8	0.74
C7	04 Dec 2017	1	15.91	82.62	7.9	33.42	8.1	24.6	0.74
C7	04 Dec 2017	2	15.88	83.18	7.9	33.42	8.1	24.6	0.77
C7	04 Dec 2017	3	15.86	83.39	7.9	33.42	8.1	24.6	0.81
C7	04 Dec 2017	4	15.74	83.82	7.8	33.41	8.1	24.6	0.89
C7	04 Dec 2017	5	15.69	84.35	7.8	33.41	8.1	24.6	0.95
C7	04 Dec 2017	6	15.57	82.57	7.7	33.41	8.1	24.6	0.97
C7	04 Dec 2017	7	15.44	84.59	7.7	33.40	8.1	24.6	0.95
C7	04 Dec 2017	8	15.35	84.46	7.7	33.40	8.1	24.7	0.96
C7	04 Dec 2017	9	15.31	84.46	7.7	33.40	8.1	24.7	0.96
C7	04 Dec 2017	10	15.29	84.63	7.6	33.40	8.1	24.7	0.93
C7	04 Dec 2017	11	15.21	84.62	7.5	33.40	8.1	24.7	0.87
C7	04 Dec 2017	12	15.13	84.68	7.4	33.40	8.1	24.7	0.78
C7	04 Dec 2017	13	15.05	84.49	7.4	33.40	8.0	24.7	0.74
C7	04 Dec 2017	14	15.00	84.29	7.4	33.39	8.0	24.7	0.74
C7	04 Dec 2017	15	14.92	84.01	7.4	33.39	8.0	24.8	0.83
C7	04 Dec 2017	16	14.86	83.10	7.3	33.39	8.0	24.8	0.77
C7	04 Dec 2017	17	14.78	82.21	7.3	33.39	8.0	24.8	0.74
C7	04 Dec 2017	18	14.78	81.78	7.3	33.39	8.0	24.8	0.74
C7	04 Dec 2017	19	14.78	81.72	7.3	33.39	8.0	24.8	0.71
C7	04 Dec 2017	20	14.78	81.35	7.3	33.39	8.0	24.8	0.69
C7	14 Dec 2017	1	16.75	78.64	7.7	33.55	8.1	24.5	0.44
C7	14 Dec 2017	2	16.68	78.60	7.6	33.55	8.1	24.5	0.43
C7	14 Dec 2017	3	16.19	80.33	7.7	33.53	8.1	24.6	0.46
C7	14 Dec 2017	4	16.08	83.67	7.7	33.47	8.1	24.6	0.46
C7	14 Dec 2017	5	15.98	85.44	7.7	33.46	8.1	24.6	0.52
C7	14 Dec 2017	6	15.90	85.74	7.7	33.45	8.1	24.6	0.54
C7	14 Dec 2017	7	15.86	85.21	7.7	33.44	8.1	24.6	0.56
C7	14 Dec 2017	8	15.79	84.74	7.7	33.44	8.1	24.6	0.61
C7	14 Dec 2017	9	15.77	85.05	7.8	33.43	8.1	24.6	0.70
C7	14 Dec 2017	10	15.68	85.34	7.8	33.45	8.1	24.6	0.74
C7	14 Dec 2017	11	15.60	85.88	7.7	33.43	8.1	24.6	0.79
C7	14 Dec 2017	12	15.54	86.04	7.7	33.43	8.1	24.6	0.86
C7	14 Dec 2017	13	15.38	86.29	7.7	33.43	8.1	24.7	0.89
C7	14 Dec 2017	14	15.24	86.34	7.7	33.42	8.1	24.7	0.96
C7	14 Dec 2017	15	15.12	86.44	7.7	33.41	8.1	24.7	0.99
C7	14 Dec 2017	16	15.06	86.36	7.7	33.40	8.1	24.7	0.97
C7	14 Dec 2017	17	15.04	86.34	7.7	33.40	8.1	24.7	0.97
C7	14 Dec 2017	18	15.01	86.11	7.7	33.40	8.1	24.7	0.96
C7	14 Dec 2017	19	15.00	85.43	7.6	33.40	8.1	24.7	0.92
C7	22 Dec 2017	1	16.04	84.74	8.0	33.53	8.1	24.6	1.22
C7	22 Dec 2017	2	16.04	84.70	8.0	33.53	8.1	24.6	1.25
C7	22 Dec 2017	3	16.04	84.66	8.0	33.53	8.1	24.6	1.29
C7	22 Dec 2017	4	16.04	84.70	8.0	33.53	8.1	24.6	1.37

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C7	22 Dec 2017	5	16.04	84.58	8.0	33.53	8.1	24.6	1.45
C7	22 Dec 2017	6	16.04	84.37	7.9	33.53	8.1	24.6	1.44
C7	22 Dec 2017	7	16.04	84.30	7.9	33.53	8.1	24.6	1.42
C7	22 Dec 2017	8	16.03	84.10	7.9	33.53	8.1	24.6	1.39
C7	22 Dec 2017	9	16.03	83.99	7.9	33.53	8.1	24.6	1.38
C7	22 Dec 2017	10	16.03	84.10	7.9	33.53	8.1	24.6	1.34
C7	22 Dec 2017	11	16.03	84.00	7.9	33.53	8.1	24.6	1.29
C7	22 Dec 2017	12	16.03	84.00	7.9	33.53	8.1	24.6	1.28
C7	22 Dec 2017	13	16.03	84.10	7.9	33.53	8.1	24.6	1.29
C7	22 Dec 2017	14	16.03	84.11	7.9	33.53	8.1	24.6	1.26
C7	22 Dec 2017	15	16.02	84.25	7.9	33.53	8.1	24.6	1.25
C7	22 Dec 2017	16	16.02	84.27	7.8	33.53	8.1	24.6	1.23
C7	22 Dec 2017	17	15.99	84.33	7.7	33.53	8.1	24.6	1.13
C7	22 Dec 2017	18	15.78	84.81	7.5	33.53	8.1	24.7	0.85
C7	26 Dec 2017	1	15.66	83.35	8.0	33.51	8.1	24.7	1.44
C7	26 Dec 2017	2	15.66	83.29	8.0	33.51	8.1	24.7	1.46
C7	26 Dec 2017	3	15.65	83.64	8.0	33.51	8.1	24.7	1.49
C7	26 Dec 2017	4	15.65	83.95	8.0	33.51	8.1	24.7	1.53
C7	26 Dec 2017	5	15.64	84.14	8.0	33.51	8.1	24.7	1.62
C7	26 Dec 2017	6	15.64	84.17	8.0	33.51	8.1	24.7	1.81
C7	26 Dec 2017	7	15.64	84.22	8.0	33.51	8.1	24.7	1.95
C7	26 Dec 2017	8	15.63	84.25	8.0	33.51	8.1	24.7	2.07
C7	26 Dec 2017	9	15.63	84.17	8.0	33.51	8.1	24.7	2.12
C7	26 Dec 2017	10	15.63	84.24	8.0	33.51	8.1	24.7	2.12
C7	26 Dec 2017	11	15.63	84.33	8.0	33.51	8.1	24.7	2.12
C7	26 Dec 2017	12	15.63	84.32	8.0	33.51	8.1	24.7	2.13
C7	26 Dec 2017	13	15.60	84.27	7.9	33.51	8.1	24.7	2.08
C7	26 Dec 2017	14	15.45	84.99	7.8	33.50	8.1	24.7	1.89
C7	26 Dec 2017	15	15.38	85.59	7.6	33.49	8.1	24.7	1.63
C7	26 Dec 2017	16	15.22	85.92	7.4	33.49	8.1	24.8	1.33
C7	26 Dec 2017	17	15.07	85.63	7.3	33.47	8.1	24.8	0.99
C7	26 Dec 2017	18	15.07	84.38	7.3	33.47	8.1	24.8	0.83
C8	04 Dec 2017	1	15.95	84.77	8.0	33.41	8.1	24.5	0.76
C8	04 Dec 2017	2	15.95	84.71	8.0	33.41	8.1	24.5	0.78
C8	04 Dec 2017	3	15.94	84.73	8.0	33.41	8.1	24.5	0.87
C8	04 Dec 2017	4	15.93	84.56	8.0	33.41	8.1	24.5	0.94
C8	04 Dec 2017	5	15.91	84.81	7.9	33.41	8.1	24.5	1.01
C8	04 Dec 2017	6	15.70	84.99	7.9	33.41	8.1	24.6	1.06
C8	04 Dec 2017	7	15.58	85.32	7.9	33.39	8.1	24.6	1.14
C8	04 Dec 2017	8	15.54	85.44	8.0	33.39	8.1	24.6	1.16
C8	04 Dec 2017	9	15.53	85.24	7.9	33.39	8.1	24.6	1.24
C8	04 Dec 2017	10	15.52	85.45	7.9	33.39	8.1	24.6	1.32
C8	04 Dec 2017	11	15.51	85.57	7.9	33.39	8.1	24.6	1.36
C8	04 Dec 2017	12	15.50	85.34	7.9	33.39	8.1	24.6	1.38
C8	04 Dec 2017	13	15.49	85.31	7.9	33.39	8.1	24.6	1.38
C8	04 Dec 2017	14	15.49	85.43	7.9	33.39	8.1	24.6	1.39
C8	04 Dec 2017	15	15.47	85.55	7.9	33.39	8.1	24.6	1.35
C8	04 Dec 2017	16	15.43	85.90	7.8	33.39	8.1	24.6	1.28
C8	04 Dec 2017	17	15.36	85.08	7.6	33.40	8.1	24.7	1.09
C8	04 Dec 2017	18	15.30	84.43	7.5	33.40	8.1	24.7	0.95
C8	04 Dec 2017	19	15.22	83.59	7.4	33.40	8.1	24.7	0.81
C8	04 Dec 2017	20	15.08	82.15	7.3	33.40	8.1	24.7	0.73

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C8	14 Dec 2017	1	16.70	83.89	8.0	33.53	8.1	24.5	0.58
C8	14 Dec 2017	2	16.69	83.66	8.0	33.53	8.1	24.5	0.60
C8	14 Dec 2017	3	16.64	84.16	7.9	33.52	8.1	24.5	0.64
C8	14 Dec 2017	4	16.39	84.91	7.9	33.50	8.1	24.5	0.66
C8	14 Dec 2017	5	16.30	86.22	7.9	33.48	8.1	24.5	0.64
C8	14 Dec 2017	6	16.25	86.50	7.8	33.47	8.1	24.5	0.65
C8	14 Dec 2017	7	16.10	86.83	7.8	33.47	8.1	24.5	0.63
C8	14 Dec 2017	8	15.95	86.87	7.9	33.46	8.1	24.6	0.66
C8	14 Dec 2017	9	15.87	87.03	7.9	33.44	8.1	24.6	0.71
C8	14 Dec 2017	10	15.88	86.92	7.9	33.44	8.1	24.6	0.74
C8	14 Dec 2017	11	15.88	86.90	7.9	33.44	8.1	24.6	0.74
C8	14 Dec 2017	12	15.87	86.88	7.9	33.44	8.1	24.6	0.75
C8	14 Dec 2017	13	15.87	86.85	7.8	33.44	8.1	24.6	0.74
C8	14 Dec 2017	14	15.85	86.83	7.8	33.44	8.1	24.6	0.77
C8	14 Dec 2017	15	15.80	86.90	7.8	33.44	8.1	24.6	0.77
C8	14 Dec 2017	16	15.74	86.86	7.8	33.43	8.1	24.6	0.77
C8	14 Dec 2017	17	15.66	86.77	7.8	33.43	8.1	24.6	0.79
C8	14 Dec 2017	18	15.60	86.57	7.8	33.42	8.1	24.6	0.80
C8	14 Dec 2017	19	15.56	85.85	7.8	33.42	8.1	24.6	0.80
C8	22 Dec 2017	1	15.97	84.36	8.0	33.53	8.1	24.6	1.12
C8	22 Dec 2017	2	15.98	84.36	8.0	33.53	8.1	24.6	1.14
C8	22 Dec 2017	3	15.98	84.34	8.0	33.53	8.1	24.6	1.22
C8	22 Dec 2017	4	15.98	84.25	8.0	33.53	8.1	24.6	1.32
C8	22 Dec 2017	5	15.98	84.08	8.0	33.53	8.1	24.6	1.46
C8	22 Dec 2017	6	15.98	84.09	8.0	33.53	8.1	24.6	1.56
C8	22 Dec 2017	7	15.98	84.14	7.9	33.53	8.1	24.6	1.60
C8	22 Dec 2017	8	15.97	84.01	7.9	33.53	8.1	24.6	1.69
C8	22 Dec 2017	9	15.97	83.71	7.9	33.53	8.1	24.6	1.73
C8	22 Dec 2017	10	15.96	83.58	7.9	33.53	8.1	24.6	1.75
C8	22 Dec 2017	11	15.95	83.46	7.9	33.53	8.1	24.6	1.78
C8	22 Dec 2017	12	15.94	83.15	7.9	33.53	8.1	24.6	1.81
C8	22 Dec 2017	13	15.94	82.96	7.9	33.53	8.1	24.6	1.85
C8	22 Dec 2017	14	15.94	83.08	7.9	33.53	8.1	24.6	1.80
C8	22 Dec 2017	15	15.93	82.97	7.9	33.53	8.1	24.6	1.82
C8	22 Dec 2017	16	15.93	82.96	7.9	33.53	8.1	24.6	1.83
C8	22 Dec 2017	17	15.93	82.90	7.9	33.53	8.1	24.6	1.88
C8	22 Dec 2017	18	15.93	82.85	7.9	33.53	8.1	24.6	1.82
C8	22 Dec 2017	19	15.93	82.84	7.9	33.53	8.1	24.6	1.78
C8	22 Dec 2017	20	15.93	83.00	7.9	33.53	8.1	24.6	1.74
C8	26 Dec 2017	1	15.58	82.37	8.1	33.52	8.2	24.7	1.58
C8	26 Dec 2017	2	15.58	82.22	8.1	33.51	8.2	24.7	1.58
C8	26 Dec 2017	3	15.60	82.35	8.1	33.51	8.2	24.7	1.69
C8	26 Dec 2017	4	15.60	82.38	8.1	33.51	8.2	24.7	1.82
C8	26 Dec 2017	5	15.60	82.53	8.1	33.51	8.2	24.7	1.94
C8	26 Dec 2017	6	15.60	82.62	8.1	33.51	8.2	24.7	2.01
C8	26 Dec 2017	7	15.60	82.62	8.1	33.51	8.2	24.7	2.08
C8	26 Dec 2017	8	15.60	82.73	8.1	33.51	8.2	24.7	2.13
C8	26 Dec 2017	9	15.60	82.83	8.1	33.51	8.2	24.7	2.14
C8	26 Dec 2017	10	15.59	82.88	8.1	33.52	8.2	24.7	2.11
C8	26 Dec 2017	11	15.59	83.11	8.1	33.51	8.2	24.7	2.10
C8	26 Dec 2017	12	15.52	83.22	7.9	33.51	8.2	24.7	1.92
C8	26 Dec 2017	13	15.45	83.78	7.8	33.51	8.1	24.7	1.71
C8	26 Dec 2017	14	15.28	83.88	7.6	33.50	8.1	24.8	1.49

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ-t)	Chlor (μg/L)
C8	26 Dec 2017	15	15.15	82.85	7.5	33.48	8.1	24.8	1.20
C8	26 Dec 2017	16	15.09	81.96	7.4	33.48	8.1	24.8	1.10
C8	26 Dec 2017	17	15.07	80.25	7.3	33.47	8.1	24.8	1.04
C8	26 Dec 2017	18	15.04	76.81	7.3	33.47	8.1	24.8	1.03
C8	26 Dec 2017	19	15.04	76.01	7.3	33.47	8.1	24.8	1.03

NA = not available

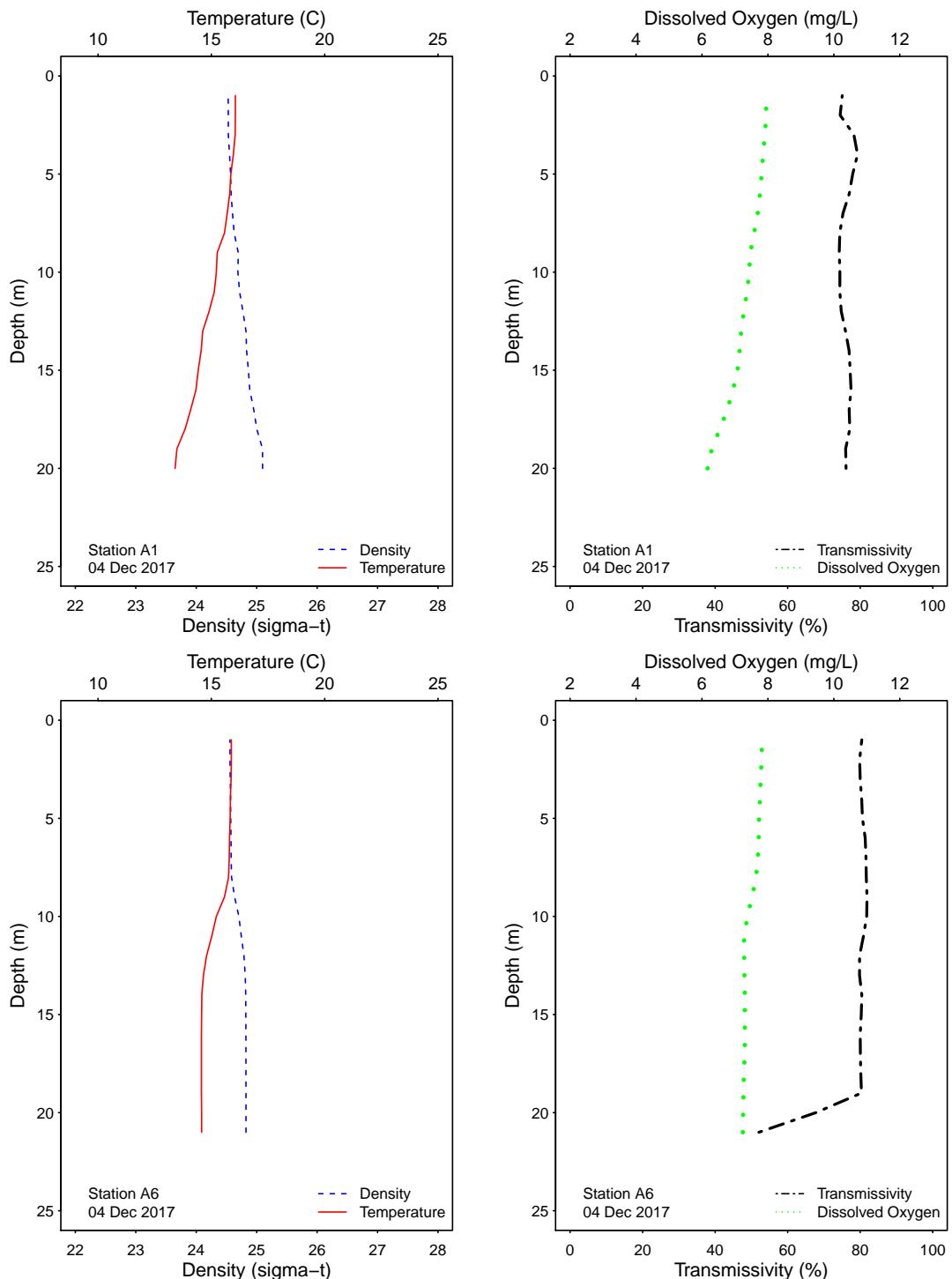


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

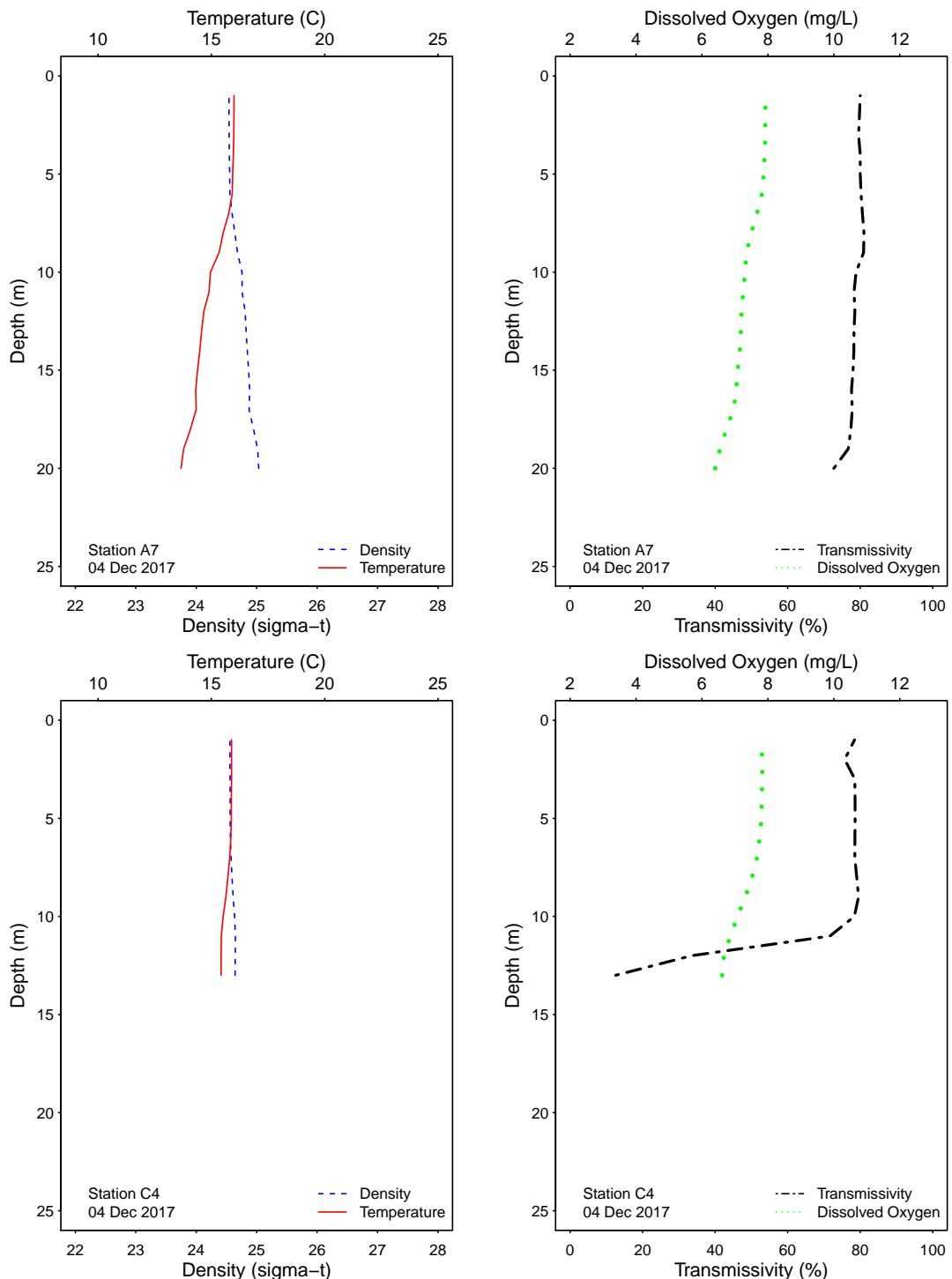


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

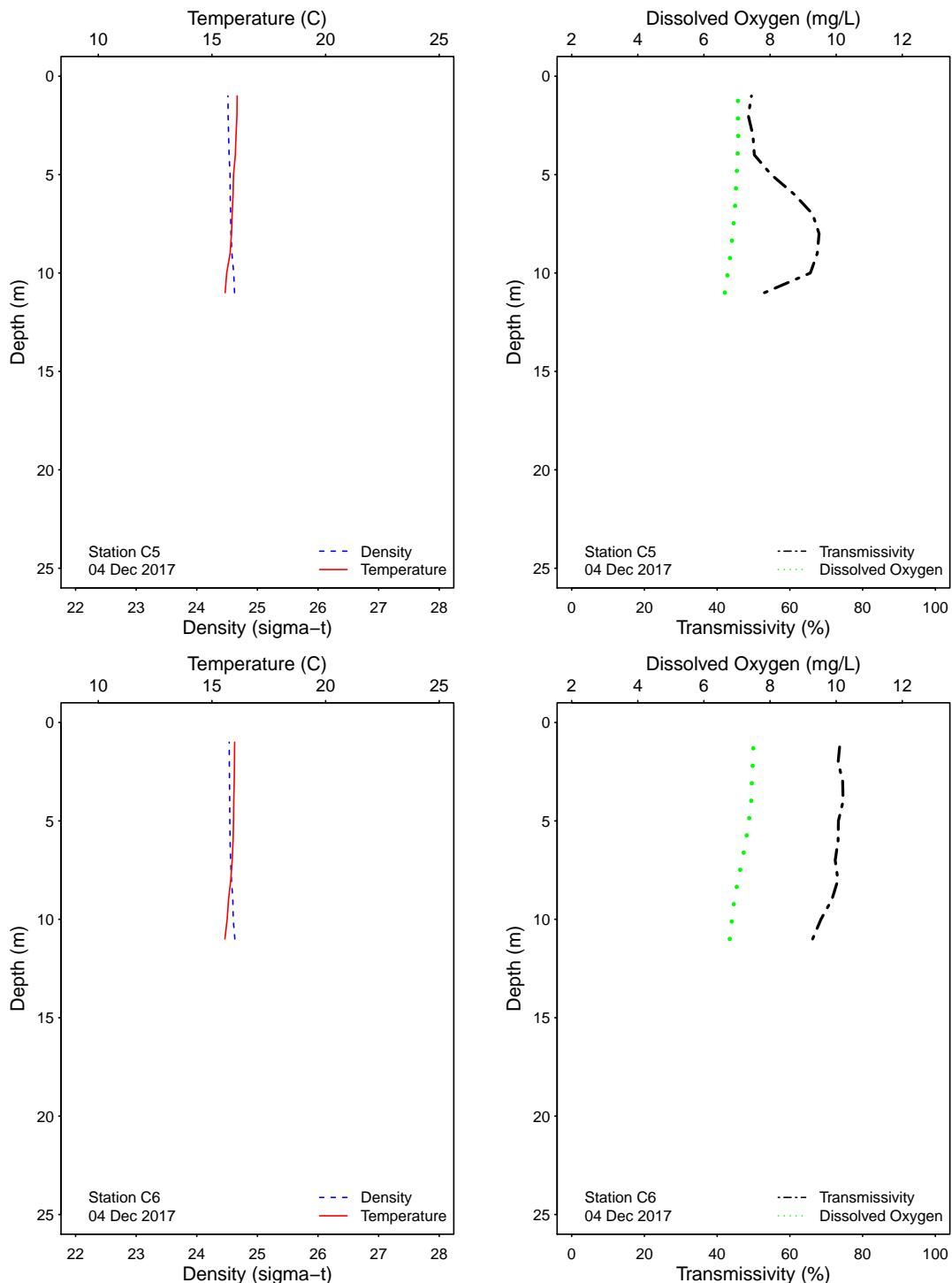


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

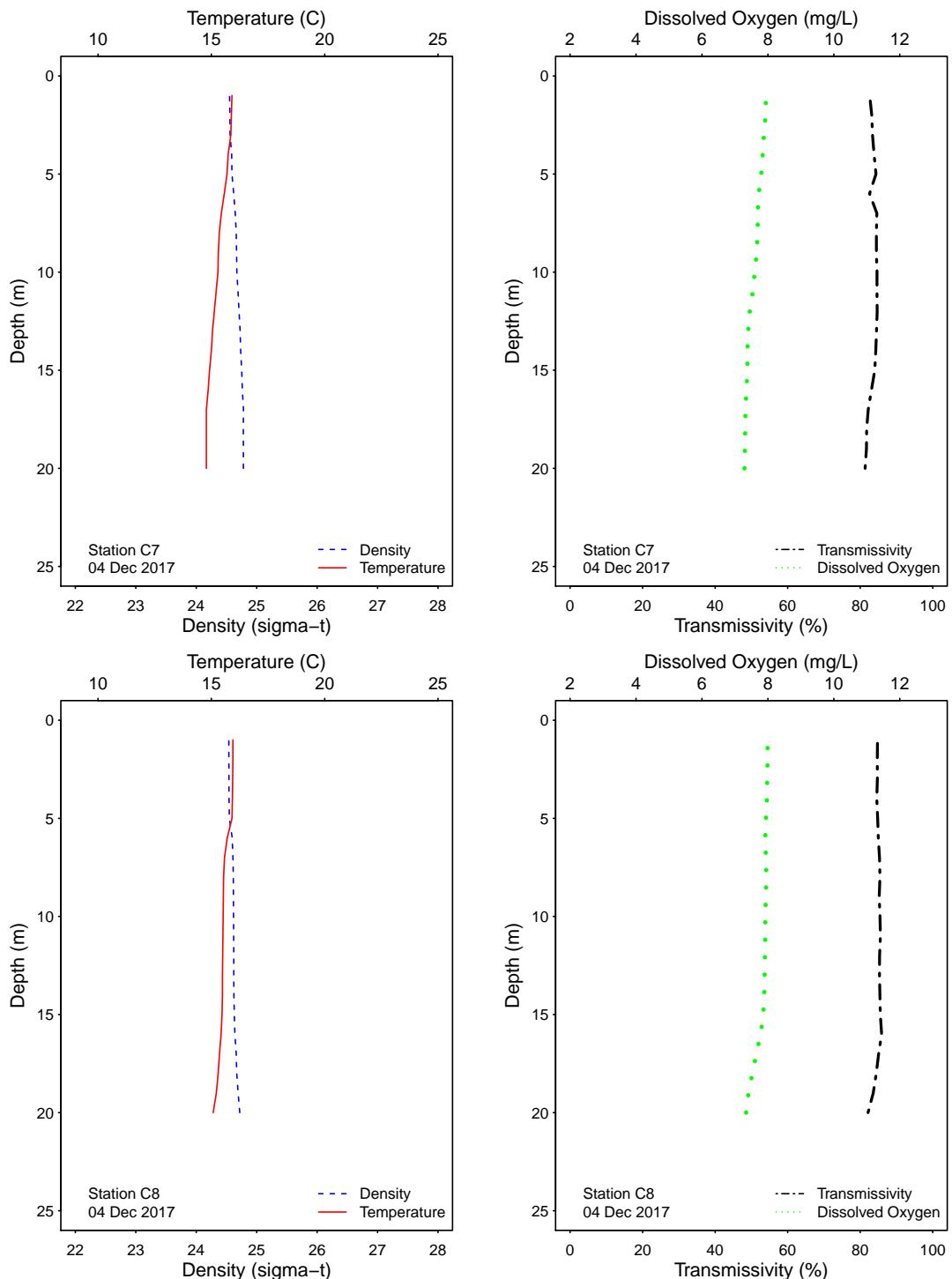


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

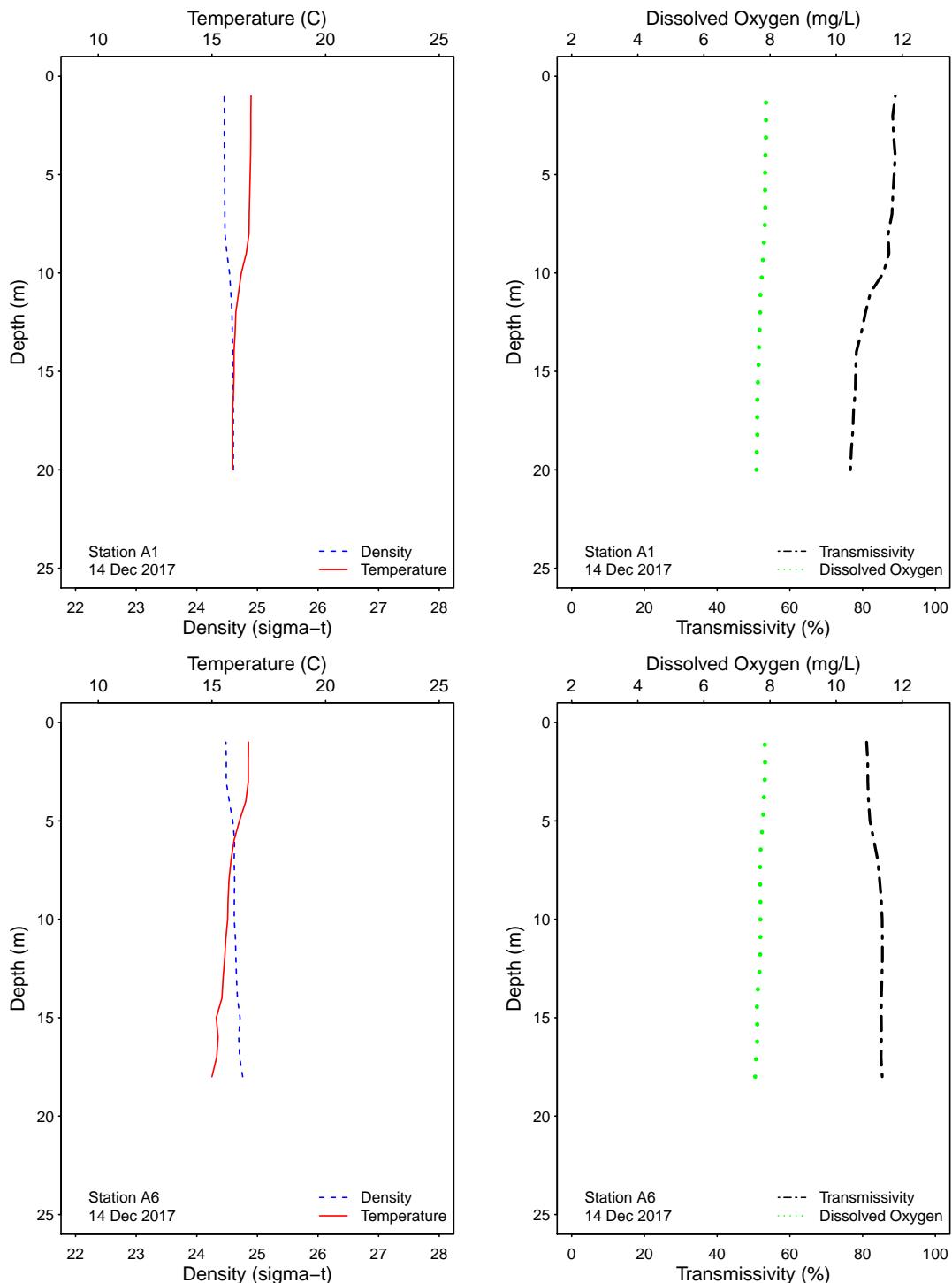


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

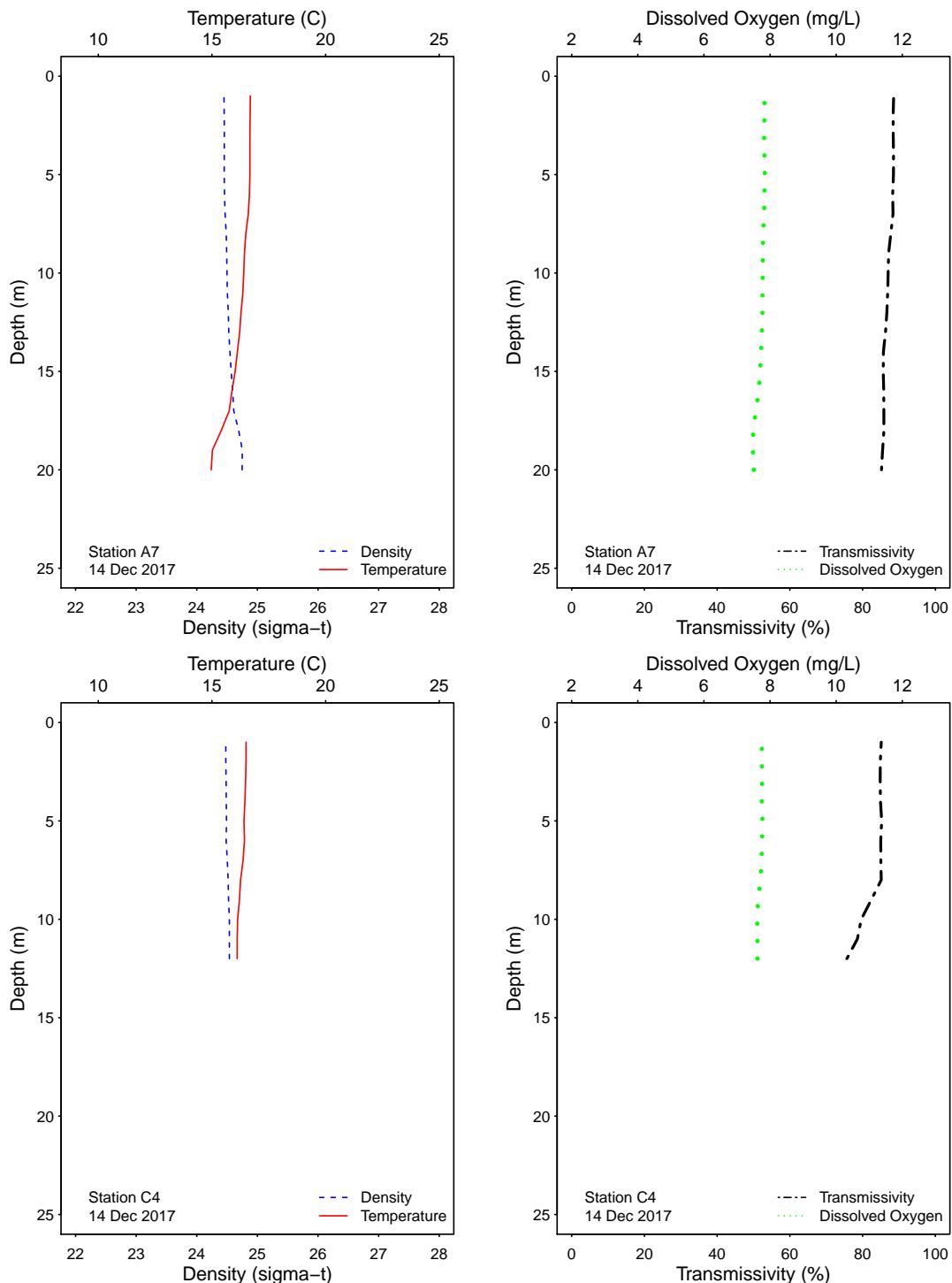


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

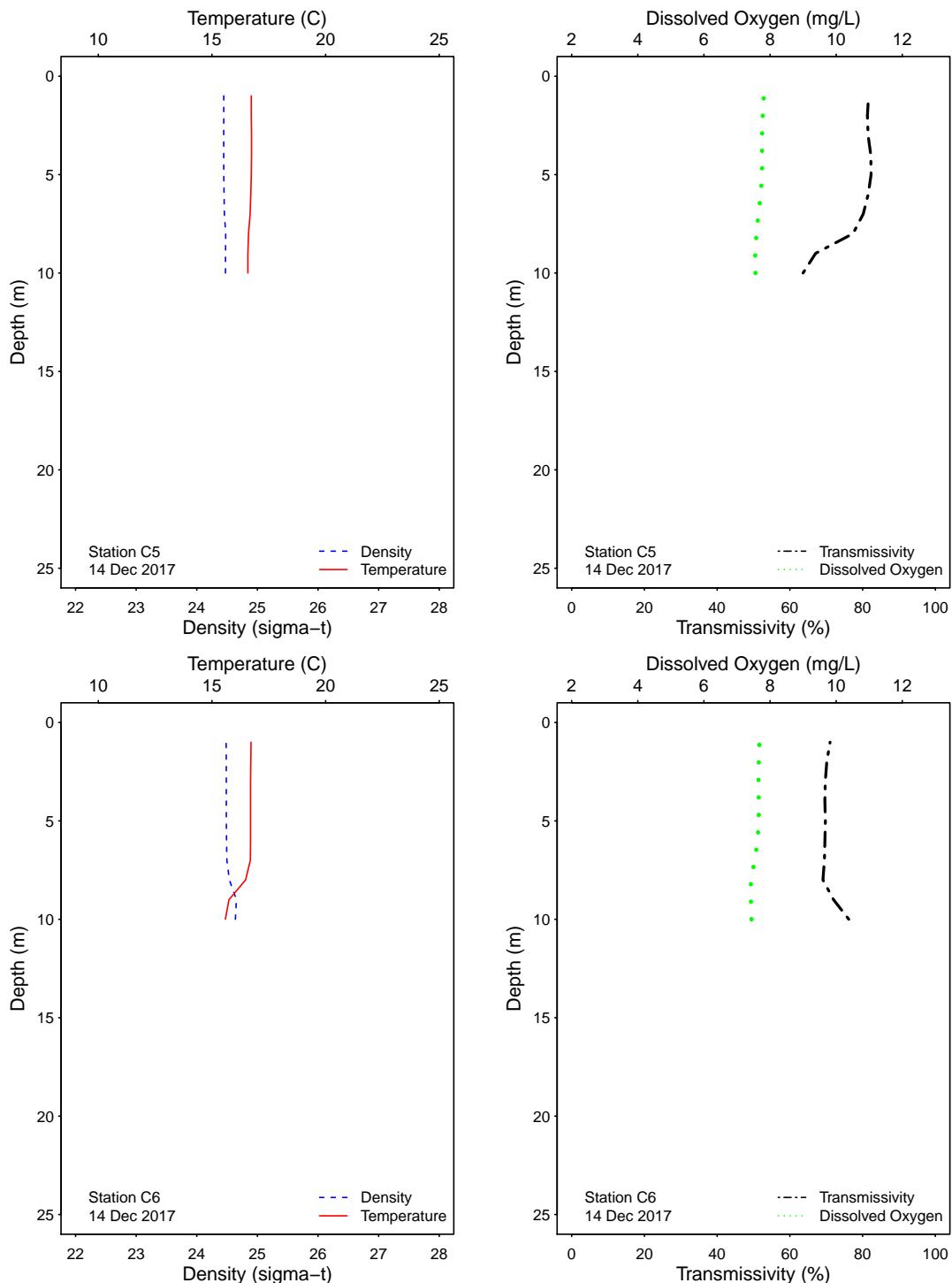


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

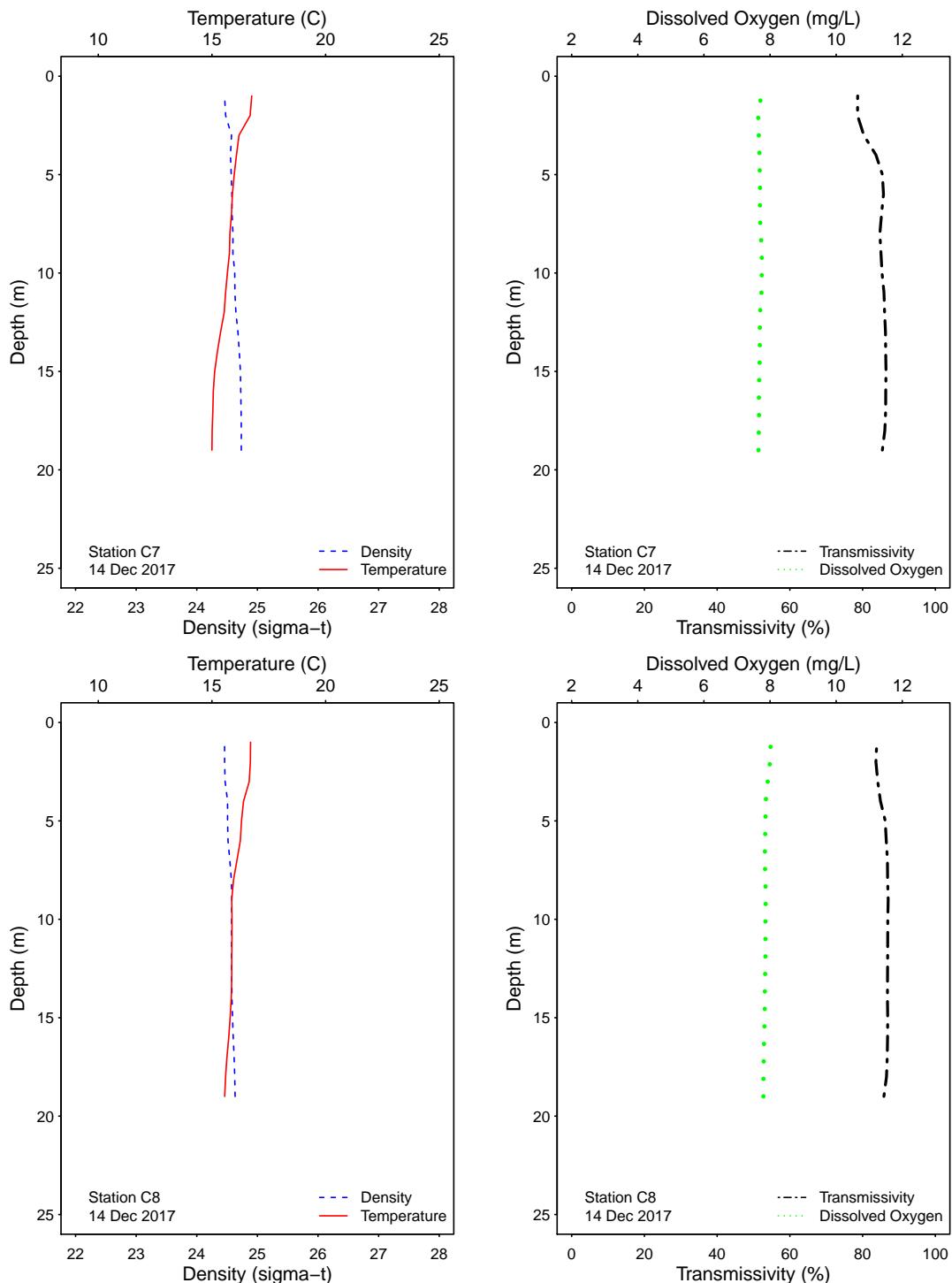


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

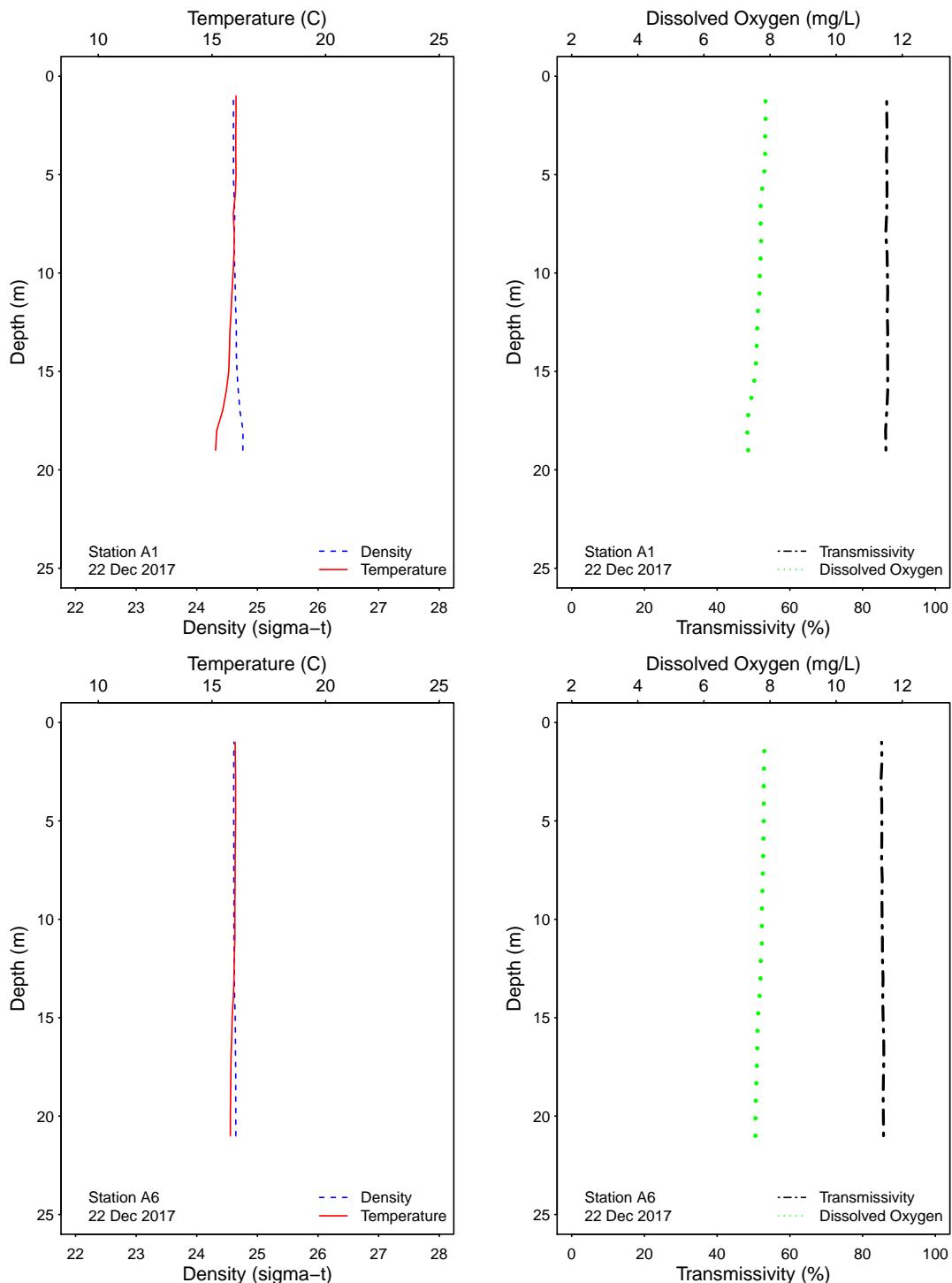


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

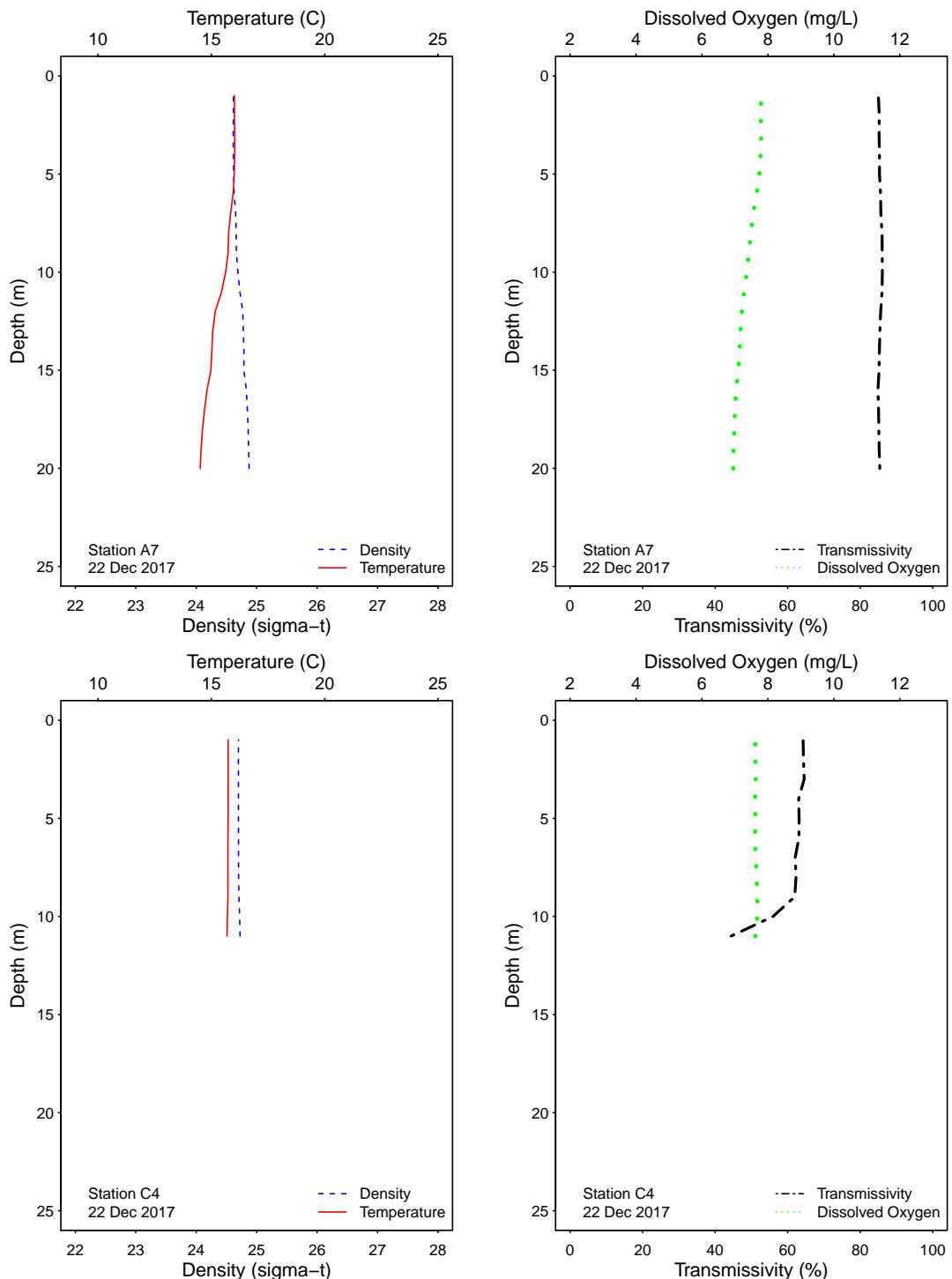


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

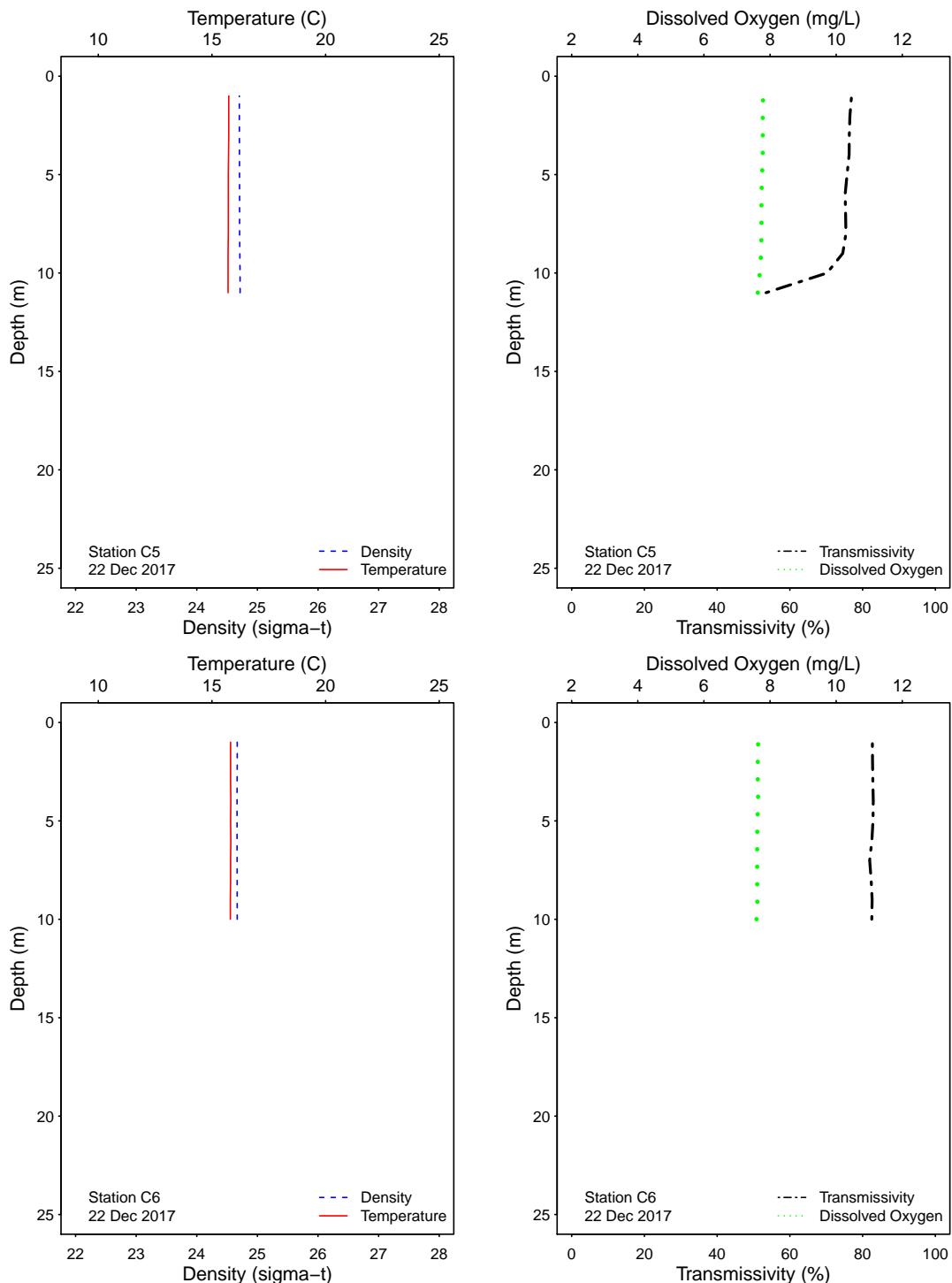


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

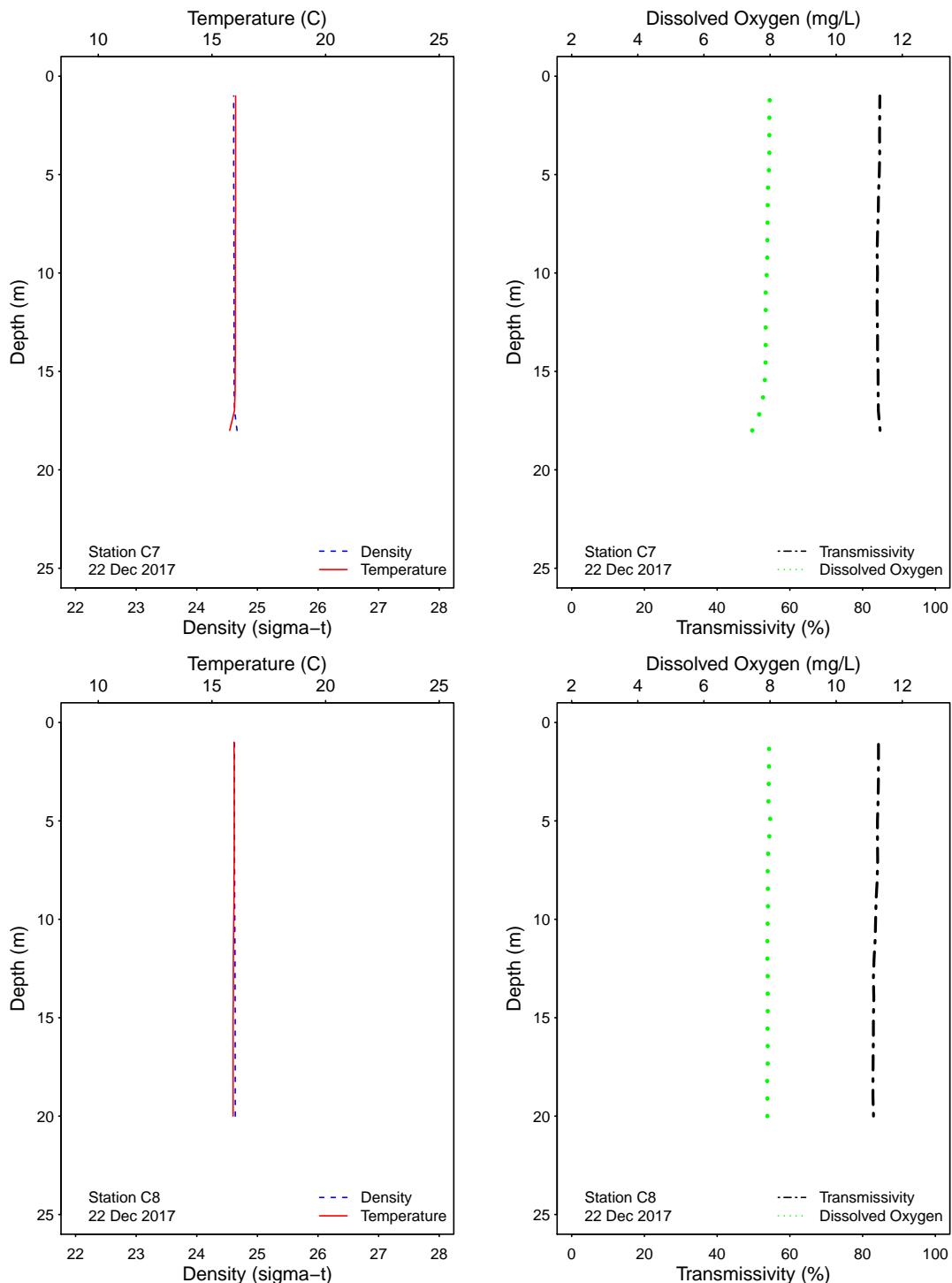


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

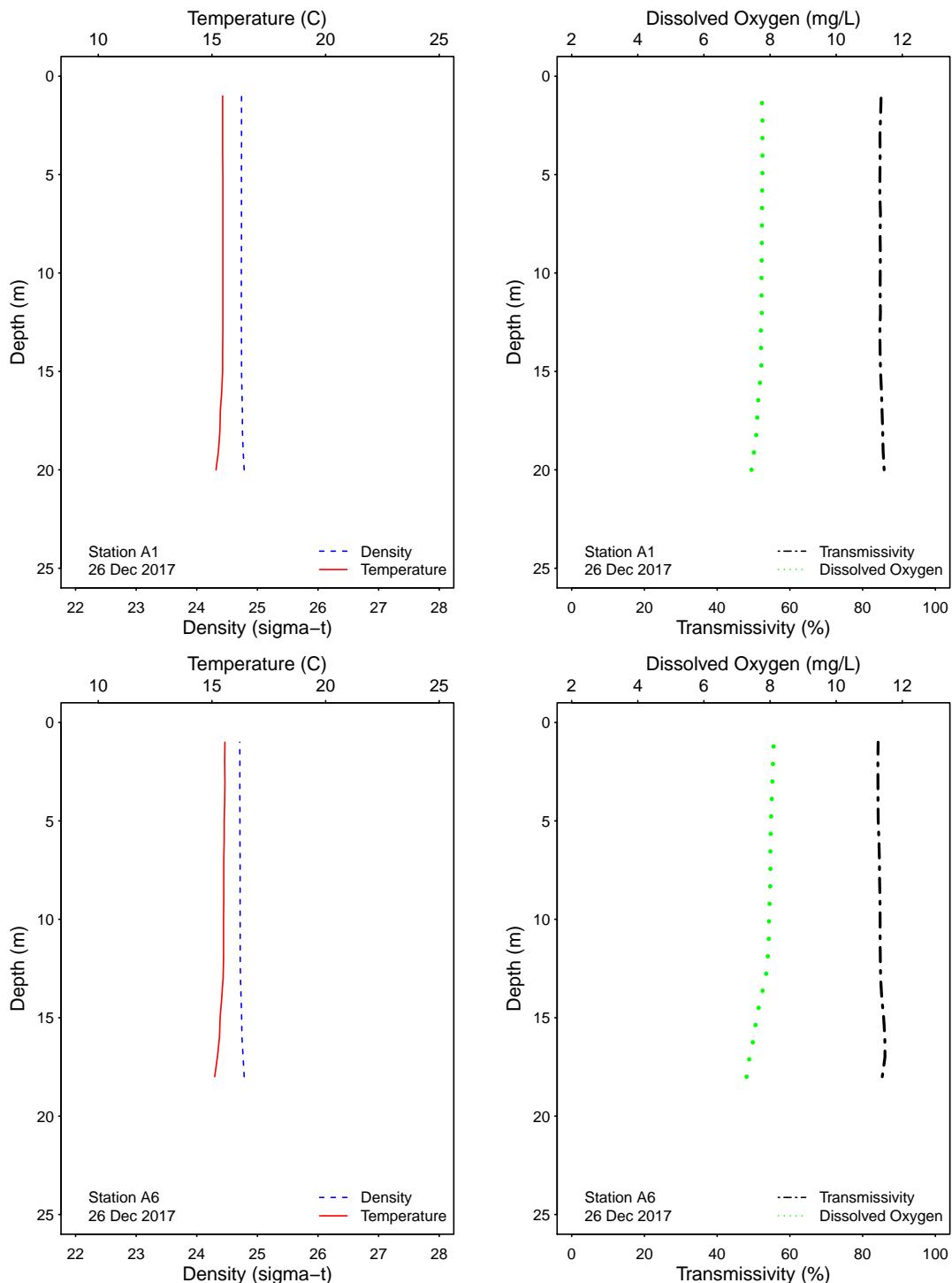


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

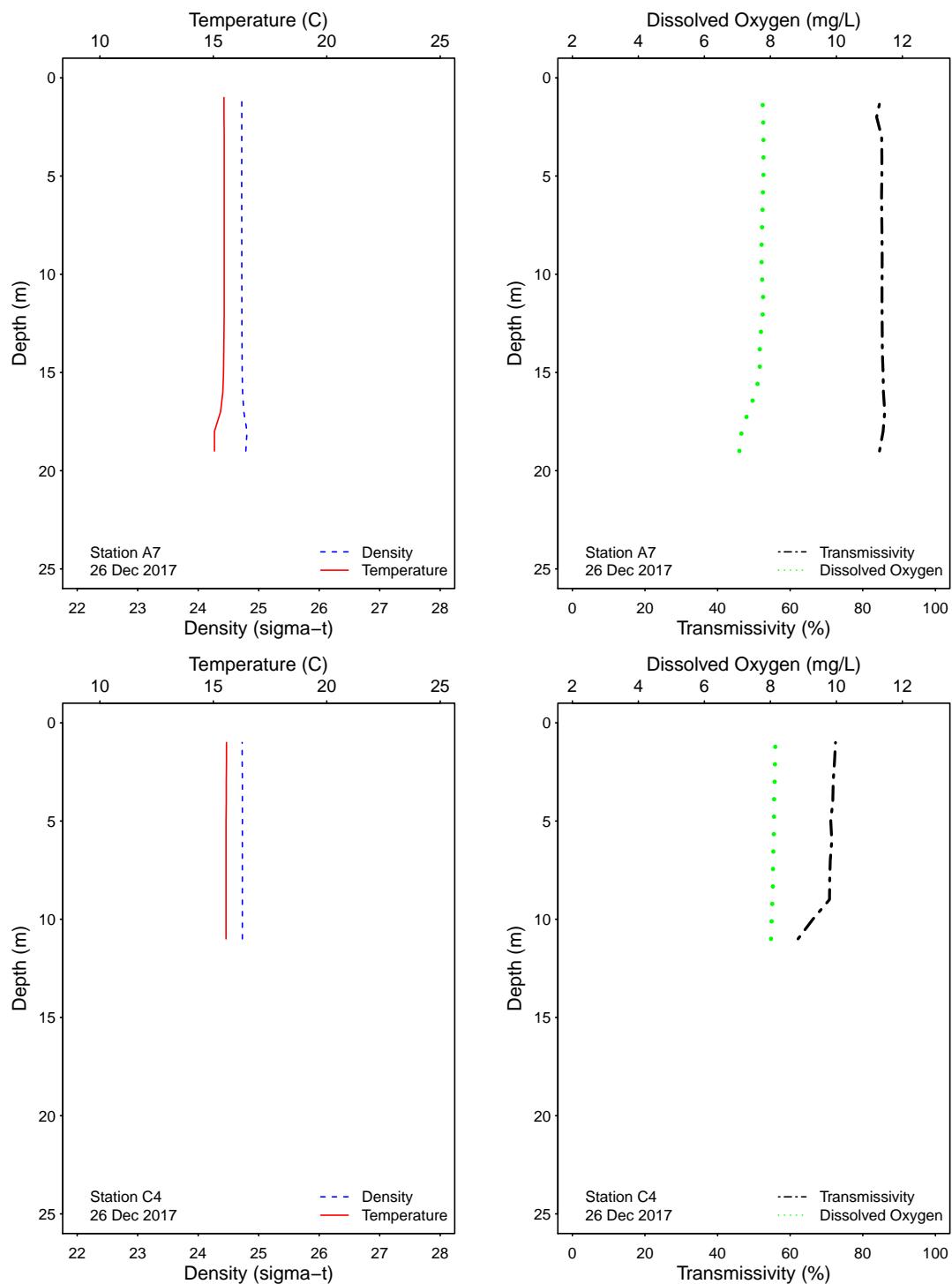


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

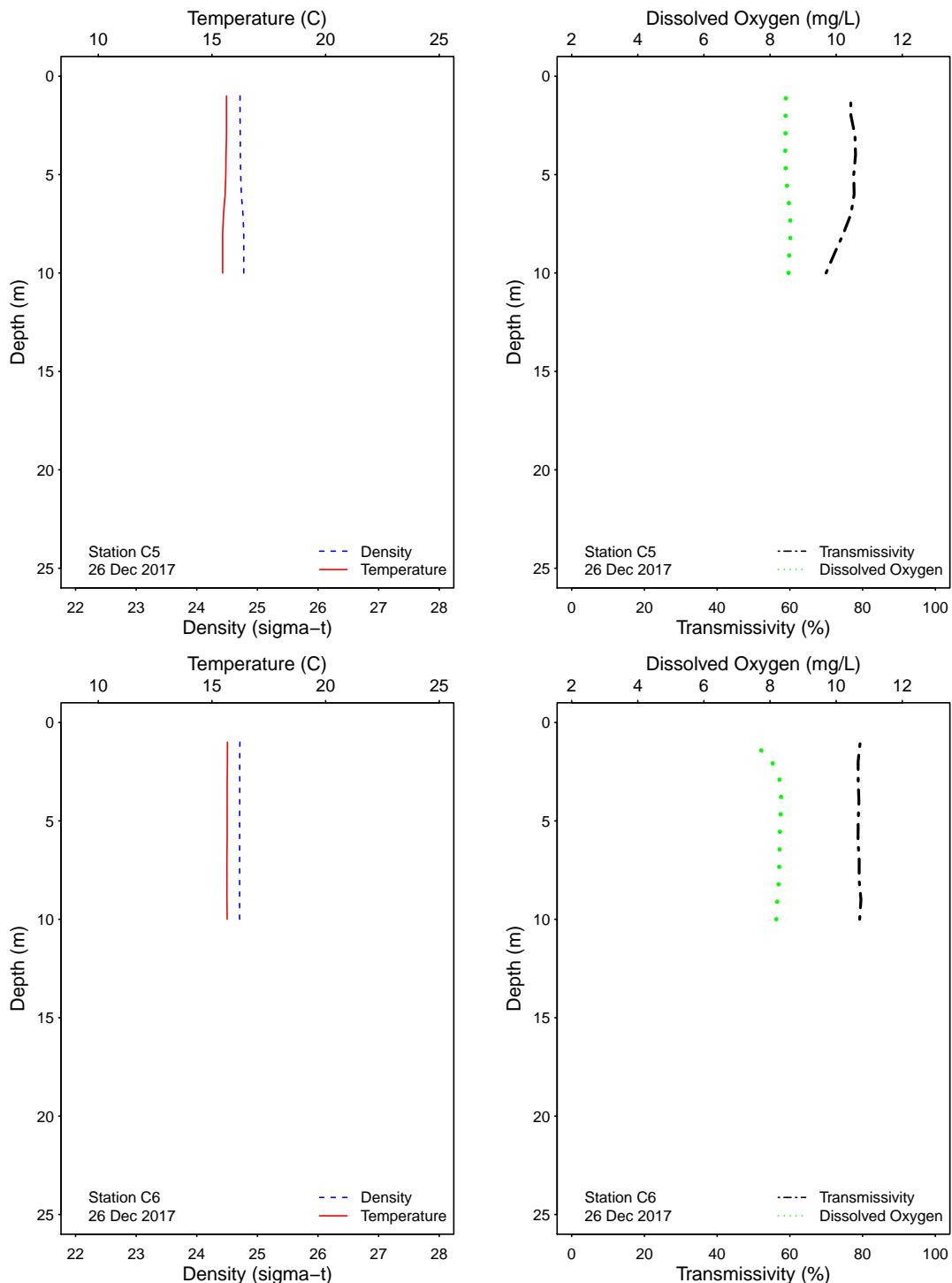


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

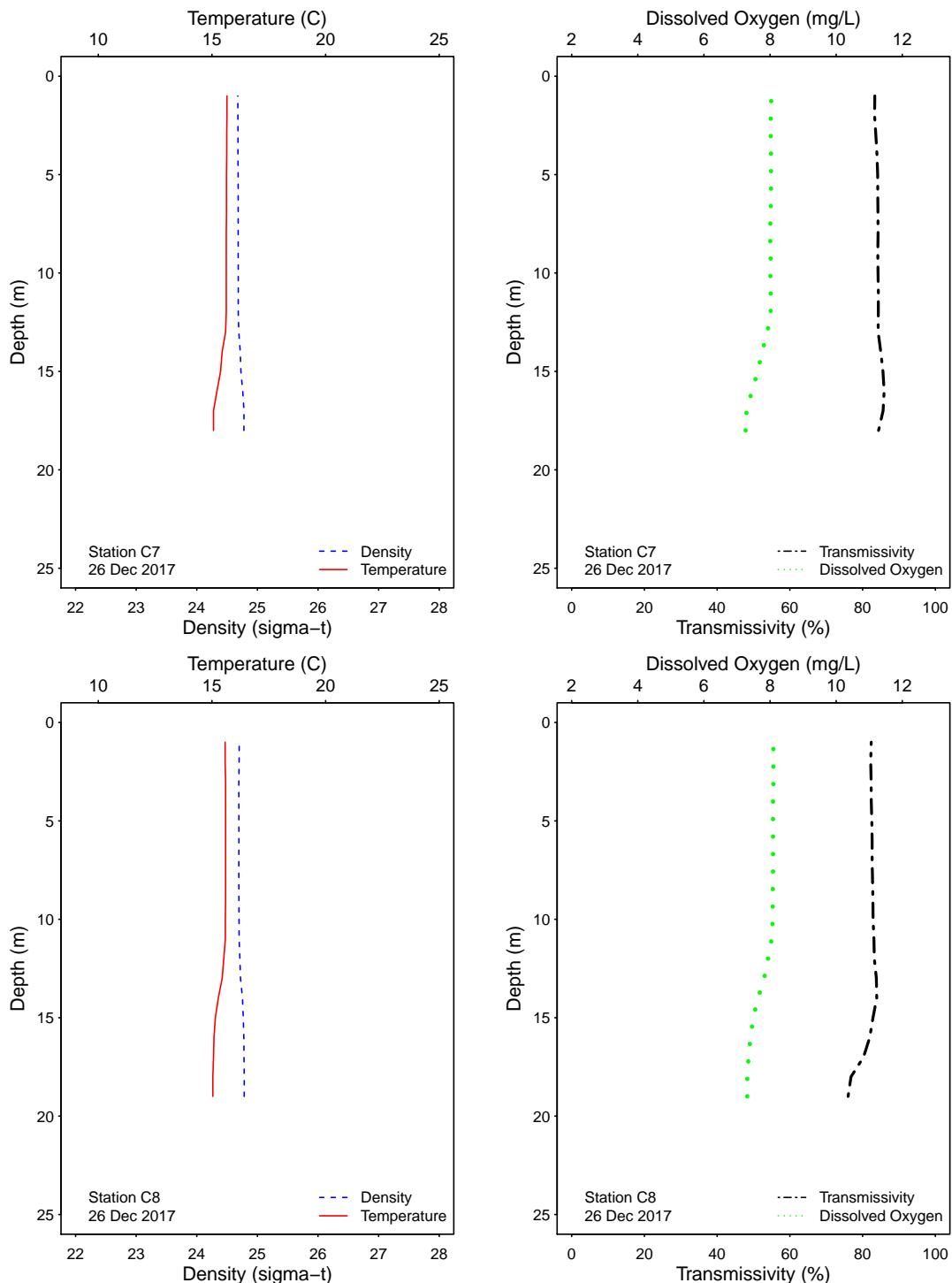


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

APPENDIX A

Quality Assurance

Table A.1

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

Station	Date	Depth	Analyst	Procedure	Total	Fecal	Enter
A7	04 Dec 2017	18	AR	LAB DUPLICATE	140e	6e	4e
A7	14 Dec 2017	18	AR	LAB DUPLICATE	20e	<2	<2
A7	22 Dec 2017	18	LMA	LAB DUPLICATE	84	<2	2e
A7	26 Dec 2017	18	ZV	LAB DUPLICATE	4e	<2	2e
C7	04 Dec 2017	18	AR	LAB DUPLICATE	12e	4e	<2
C7	14 Dec 2017	18	AR	LAB DUPLICATE	4e	<2	<2
C7	22 Dec 2017	18	ZV	LAB DUPLICATE	<2	<2	<2
C7	26 Dec 2017	18	AR	LAB DUPLICATE	8e	2e	<2
C8	04 Dec 2017	12	AR	LAB DUPLICATE	<2	<2	<2
C8	14 Dec 2017	12	AR	LAB DUPLICATE	14e	<2	<2
C8	22 Dec 2017	12	ZV	LAB DUPLICATE	<2	<2	<2
C8	26 Dec 2017	12	AE	LAB DUPLICATE	<2	<2	<2
D12	06 Dec 2017		JT	FIELD DUPLICATE	4e	2e	2e
D12	06 Dec 2017		JT	LAB DUPLICATE	4e	<2	<2
D12	13 Dec 2017		AE	FIELD DUPLICATE	<2	<2	<2
D12	13 Dec 2017		AE	LAB DUPLICATE	<2	<2	<2
D12	20 Dec 2017		AE	FIELD DUPLICATE	2e	<2	4e
D12	20 Dec 2017		AE	LAB DUPLICATE	2e	<2	2e
D12	27 Dec 2017		ZV	FIELD DUPLICATE	2e	<2	2e
D12	27 Dec 2017		ZV	LAB DUPLICATE	2e	<2	2e

ns = not sampled

ND = no data

