



# **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. R9-2009-0001

## **DECEMBER 2016**

Environmental Monitoring and Technical Services  
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**Public Utilities Department**

Environmental Monitoring & Technical Services Division

January 30, 2017

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 2016 Monthly Receiving Waters Monitoring Report for the Point Loma Ocean Outfall, Point Loma Wastewater Treatment Plant as required per Order No. R9-2009-0001, NPDES Permit No. CA0107409.

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

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

Sincerely,

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

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

TDS/asb

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



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## INTRODUCTION

Monthly reports of water quality and ocean conditions for the San Diego coastal region surrounding the Point Loma Ocean Outfall are submitted to the San Diego Regional Water Quality Control Board and U.S. EPA Region 9 in accordance with Order No. R9-2009-0001, 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 five 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 eight 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. Monitoring at sites within State waters also include the collection of discrete grab samples for ammonium analysis (see Table 4.2).

Seawater samples for ammonium and 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)<sup>[1]</sup>. 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;

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<sup>[1]</sup>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.

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

**Single Sample Maximums:**

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

Quality controls of bacteriological data include laboratory and field duplicate analyses. Laboratory duplicates are performed on approximately 10% of the water quality samples, while field duplicates are performed six times a month (see Appendix A). Laboratory duplicates represent two aliquots of the original sample that are split in the laboratory and analyzed by the same analyst using identical procedures within the same analytical run. The results of these analyses provide a measure of intra-analyst precision. In contrast, field duplicates represent two separate samples collected at the same time from the same site, which are handled under identical circumstances and treated exactly the same throughout field and lab procedures. The results of these analyses provide a measure of precision associated with sample collection, preservation, storage, and lab procedures. The sign test (see Gilbert, 1987) is used to statistically compare both the results from the laboratory duplicates, as well as the results from the field duplicates. These data will be further analyzed in the City's 2016 Quality Assurance Report, which will be completed in March 2017.

## SUMMARY OF RESULTS

***Shore Stations***

- During December 2016, three of the eight shore stations were out of compliance with various water-contact standards specified in the Ocean Plan as follows:
  - o The single sample maximum (SSM) standard for total coliform bacteria was exceeded at station D11 on December 24.
  - o The SSM standard for fecal coliform bacteria was exceeded at station D10 on December 12.
  - o The SSM standard for *Enterococcus* was exceeded at stations D10, D11, and D12 on December 24.
- Per permit requirements, resamples were collected in response to these SSM exceedances (see Table 2.8 for details).
- Over the years, elevated bacteria levels at shore and kelp bed stations have tended to be associated with rainfall events, heavy recreational use, or the presence of seabirds or decaying kelp and surfgrass. See the City of San Diego's most recent *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 five times during December (i.e. December 1, 5, 13, 17, 20).
- During December, each of the kelp bed stations was in compliance with various water-contact standards specified in the Ocean Plan.
- Water column temperatures ranged from 12.64 to 16.11°C during the month. The difference between surface and bottom waters ranged from 0.01 to 3.11°C, indicating that the water column was stratified at some of the kelp bed stations during the month.
- Chlorophyll *a* concentrations ranged from 0.43 to 4.04 µg/L during December, suggesting the absence of phytoplankton blooms during the month.
- There were no notable visual observations for December.

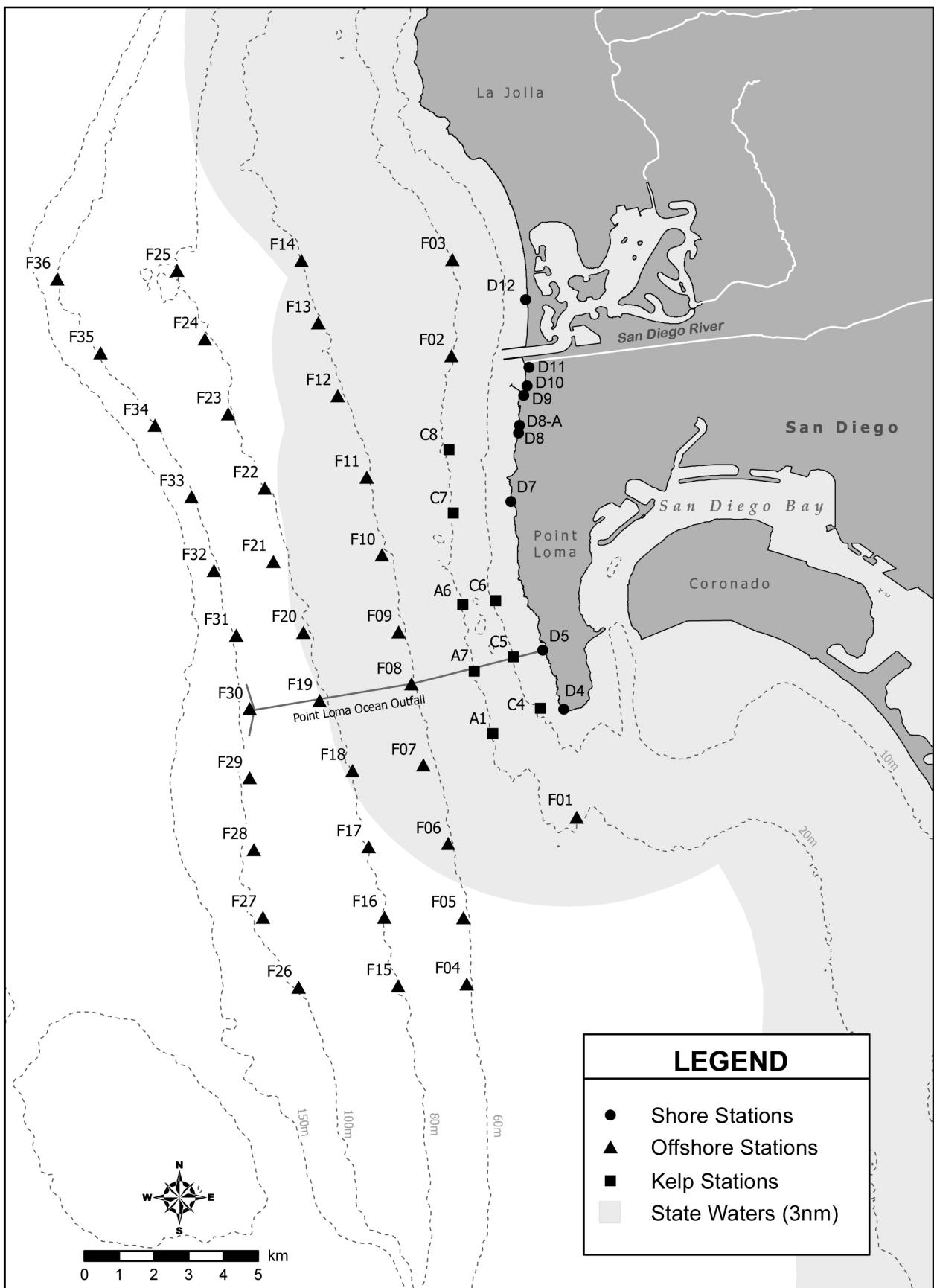
#### ***Offshore Stations***

- Quarterly sampling was not conducted during December at the offshore stations. The next quarterly sampling is scheduled for February 2017.



## TABLES AND FIGURES







# 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 2016	11	23	5	46	17	33	15	7
02 Dec 2016	11	23	5	46	17	33	15	7
03 Dec 2016	11	23	5	46	17	33	15	7
04 Dec 2016	11	23	5	46	17	33	15	7
05 Dec 2016	11	23	5	46	17	33	15	7
06 Dec 2016	7	14	5	33	17	38	13	5
07 Dec 2016	7	14	5	33	17	38	13	5
08 Dec 2016	7	14	5	33	17	38	13	5
09 Dec 2016	7	14	5	33	17	38	13	5
10 Dec 2016	7	14	5	33	17	38	13	5
11 Dec 2016	7	14	5	33	17	38	13	5
12 Dec 2016	5	5	5	37	20	107	20	5
13 Dec 2016	5	5	5	37	20	107	20	5
14 Dec 2016	5	5	5	37	20	107	20	5
15 Dec 2016	5	5	5	37	20	107	20	5
16 Dec 2016	5	5	5	37	20	107	20	5
17 Dec 2016	5	5	5	37	20	107	20	5
18 Dec 2016	5	5	3	56	30	129	27	4
19 Dec 2016	5	5	3	56	30	129	27	4
20 Dec 2016	5	5	3	56	30	129	27	4
21 Dec 2016	5	5	3	56	30	129	27	4
22 Dec 2016	5	5	3	56	30	129	27	4
23 Dec 2016	5	5	3	56	30	129	27	4
24 Dec 2016	5	11	4	50	30	209	109	9
25 Dec 2016	5	11	4	50	30	209	109	9
26 Dec 2016	5	11	4	50	30	209	129	9
27 Dec 2016	5	11	4	50	30	209	129	9
28 Dec 2016	5	11	4	50	30	209	129	9
29 Dec 2016	5	11	4	50	30	209	129	9
30 Dec 2016	8	11	7	50	25	132	155	14
31 Dec 2016	8	11	7	50	25	132	155	14

\* 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 2016	2	4	3	4	2	5	2	3
02 Dec 2016	2	4	3	4	2	5	2	3
03 Dec 2016	2	4	3	4	2	5	2	3
04 Dec 2016	2	4	3	4	2	5	2	3
05 Dec 2016	2	4	3	4	2	5	2	3
06 Dec 2016	2	4	3	3	2	4	4	3
07 Dec 2016	2	4	3	3	2	4	4	3
08 Dec 2016	2	4	3	3	2	4	4	3
09 Dec 2016	2	4	3	3	2	4	4	3
10 Dec 2016	2	4	3	3	2	4	4	3
11 Dec 2016	2	4	3	3	2	4	4	3
12 Dec 2016	2	3	3	5	2	13	4	3
13 Dec 2016	2	3	3	5	2	13	4	3
14 Dec 2016	2	3	3	5	2	15	4	3
15 Dec 2016	2	3	3	5	2	15	4	3
16 Dec 2016	2	3	3	5	2	15	4	3
17 Dec 2016	2	3	3	5	2	15	4	3
18 Dec 2016	2	3	2	7	4	15	3	3
19 Dec 2016	2	3	2	7	4	15	3	3
20 Dec 2016	2	3	2	7	4	15	3	3
21 Dec 2016	2	3	2	7	4	15	3	3
22 Dec 2016	2	3	2	7	4	15	3	3
23 Dec 2016	2	3	2	7	4	15	3	3
24 Dec 2016	3	4	2	5	4	17	8	6
25 Dec 2016	3	4	2	5	4	17	8	6
26 Dec 2016	3	4	2	5	4	17	8	6
27 Dec 2016	3	4	2	5	4	17	8	6
28 Dec 2016	3	4	2	5	4	17	8	6
29 Dec 2016	3	4	2	5	4	17	8	6
30 Dec 2016	3	3	3	8	4	21	8	8
31 Dec 2016	3	3	3	8	4	21	8	8

\* 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 2016	2	5	3	8	4	3	4	5
02 Dec 2016	2	5	3	8	4	3	4	5
03 Dec 2016	2	5	3	8	4	3	4	5
04 Dec 2016	2	5	3	8	4	3	4	5
05 Dec 2016	2	5	3	8	4	3	4	5
06 Dec 2016	2	4	3	7	3	3	5	4
07 Dec 2016	2	4	3	7	3	3	5	4
08 Dec 2016	2	4	3	7	3	3	5	4
09 Dec 2016	2	4	3	7	3	3	5	4
10 Dec 2016	2	4	3	7	3	3	5	4
11 Dec 2016	2	4	3	7	3	3	5	4
12 Dec 2016	2	2	2	4	3	5	5	3
13 Dec 2016	2	2	2	4	3	5	5	3
14 Dec 2016	2	2	2	4	3	5	5	3
15 Dec 2016	2	2	2	4	3	5	5	3
16 Dec 2016	2	2	2	4	3	5	5	3
17 Dec 2016	2	2	2	4	3	5	5	3
18 Dec 2016	2	2	2	4	4	6	6	3
19 Dec 2016	2	2	2	4	4	6	6	3
20 Dec 2016	2	2	2	4	4	6	6	3
21 Dec 2016	2	2	2	4	4	6	6	3
22 Dec 2016	2	2	2	4	4	6	6	3
23 Dec 2016	2	2	2	4	4	6	6	3
24 Dec 2016	2	2	3	5	3	15	25	6
25 Dec 2016	2	2	3	5	3	15	25	6
26 Dec 2016	2	2	3	5	3	19	25	6
27 Dec 2016	2	2	3	5	3	19	25	6
28 Dec 2016	2	2	3	5	3	19	25	6
29 Dec 2016	2	2	3	5	3	19	25	6
30 Dec 2016	2	2	4	7	3	20	35	4
31 Dec 2016	2	2	4	7	3	20	35	4

\* 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 2016	IC	IC	IC	IC	IC	IC	IC	IC
12 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC
18 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC
24 Dec 2016	IC	IC	IC	IC	IC	IC	E	IC
26 Dec 2016	ns	ns	ns	ns	ns	ns	IC	ns
30 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

**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 2016	IC	IC	IC	IC	IC	IC	IC	IC
12 Dec 2016	IC	IC	IC	IC	IC	E	IC	IC
14 Dec 2016	ns	ns	ns	ns	ns	IC	ns	ns
18 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC
24 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC
30 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

**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 2016	IC	IC	IC	IC	IC	IC	IC	IC
12 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC
18 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC
24 Dec 2016	IC	IC	IC	IC	IC	E	E	E
26 Dec 2016	ns	ns	ns	ns	ns	IC	IC	IC
30 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

**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 2016	IC	IC	IC	IC	IC	IC	IC	IC
12 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC
18 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC
24 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC
30 Dec 2016	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

**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.

<b>Station</b>	<b>Date</b>	<b>Time</b>	<b>Total</b>	<b>Fecal</b>	<b>Enter</b>	<b>F:T</b>
D4	06 Dec 2016	946	<2	<2	<2	1.00
	12 Dec 2016	1009	2e	2e	6e	1.00
	18 Dec 2016	910	<20	4e	<2	0.20
	24 Dec 2016	1205	20e	4e	2e	0.20
	30 Dec 2016	802	<20	<2	<2	0.10
D5	06 Dec 2016	1010	2e	2e	<2	1.00
	12 Dec 2016	954	<2	<2	<2	1.00
	18 Dec 2016	928	<20	<2	<2	0.10
	24 Dec 2016	1145	100e	10e	2e	0.10
	30 Dec 2016	748	<20	<2	<2	0.10
D7	06 Dec 2016	921	2e	<2	<2	1.00
	12 Dec 2016	1036	<2	<2	<2	1.00
	18 Dec 2016	846	10e	<2	<2	0.20
	24 Dec 2016	1120	<20	<2	8e	0.10
	30 Dec 2016	836	20e	30e	10e	1.50
D8-A	06 Dec 2016	848	4e	<2	<2	0.50
	12 Dec 2016	1114	100e	20e	<2	0.20
	18 Dec 2016	830	160e	10e	4e	0.06
	24 Dec 2016	1109	80e	4e	34e	0.05
	30 Dec 2016	854	60e	20e	24e	0.33
D9	06 Dec 2016	828	<20	<2	<2	0.10
	12 Dec 2016	1126	<20	<2	<2	0.10
	18 Dec 2016	1101	160e	<20	8e	0.12
	24 Dec 2016	1100	<20	4e	2e	0.20
	30 Dec 2016	910	8e	2e	6e	0.25
D10	06 Dec 2016	815	40e	4e	<2	0.10
	12 Dec 2016	1137	740	500	30e	0.68
	14 Dec 2016	934	ns	22e	ns	ns
	18 Dec 2016	838	100e	4e	8e	0.04
	24 Dec 2016	1052	680	40e	220e	0.06
	26 Dec 2016	1231	ns	ns	56	ns
	30 Dec 2016	924	20e	12e	12e	0.60
D11	06 Dec 2016	804	10e	12e	8e	1.20
	12 Dec 2016	1148	60e	2e	24e	0.03
	18 Dec 2016	1025	80e	2e	6e	0.02
	24 Dec 2016	1042	>16000	400e	2000e	0.02

<b>Station</b>	<b>Date</b>	<b>Time</b>	<b>Total</b>	<b>Fecal</b>	<b>Enter</b>	<b>F:T</b>
D11	26 Dec 2016	1220	300e	ns	28e	ns
D11	30 Dec 2016	938	60e	2e	30e	0.03
D12	06 Dec 2016	744	<2	<2	<2	1.00
D12	12 Dec 2016	1225	<2	<2	2e	1.00
D12	18 Dec 2016	1004	16e	8e	<2	0.50
D12	24 Dec 2016	1025	400e	60e	120	0.15
D12	26 Dec 2016	1203	ns	ns	4e	ns
D12	30 Dec 2016	1003	18e	20e	2e	1.11

ns = not sampled

ND = no data

**Comments**

Station	Date	Depth	Parameter	Comments
D10	14 Dec 2016			Resample
D12	26 Dec 2016			Resample
D11	26 Dec 2016			Resample
D10	26 Dec 2016			Resample

**Table 2.9**

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

Station	Date	Parameter	Value
D4	06 Dec 2016	Arrive Time	946
D4	06 Dec 2016	Weather	Partly Cloudy
D4	06 Dec 2016	Wind Speed (kts)	5
D4	06 Dec 2016	Wind Dir	SW
D4	06 Dec 2016	Animal Life	None
D4	06 Dec 2016	Floatables	None
D4	06 Dec 2016	Water Color	Colorless
D4	06 Dec 2016	Current Direction	SW
D4	06 Dec 2016	Wave Height Low (ft)	3
D4	06 Dec 2016	High Tide (ft)	4
D4	06 Dec 2016	High Tide Time	1309
D4	06 Dec 2016	Low Tide (ft)	2.7
D4	06 Dec 2016	Low Tide Time	754
D4	06 Dec 2016	Comments	Kelp; Seagrass; Algae; Water clear
D4	12 Dec 2016	Arrive Time	1009
D4	12 Dec 2016	Weather	Partly Cloudy
D4	12 Dec 2016	Wind Speed (kts)	1.5
D4	12 Dec 2016	Wind Dir	W
D4	12 Dec 2016	Animal Life	None
D4	12 Dec 2016	Floatables	None
D4	12 Dec 2016	Water Color	Green
D4	12 Dec 2016	Current Direction	N
D4	12 Dec 2016	Wave Height Low (ft)	3
D4	12 Dec 2016	High Tide (ft)	6.7
D4	12 Dec 2016	High Tide Time	702
D4	12 Dec 2016	Low Tide (ft)	-1.2
D4	12 Dec 2016	Low Tide Time	1406
D4	12 Dec 2016	Comments	Water clear
D4	18 Dec 2016	Arrive Time	910
D4	18 Dec 2016	Weather	Sunny
D4	18 Dec 2016	Wind Speed (kts)	2
D4	18 Dec 2016	Wind Dir	SW
D4	18 Dec 2016	Animal Life	None
D4	18 Dec 2016	Floatables	None
D4	18 Dec 2016	Water Color	Green
D4	18 Dec 2016	Current Direction	SW
D4	18 Dec 2016	Wave Height Low (ft)	3
D4	18 Dec 2016	High Tide (ft)	4.9
D4	18 Dec 2016	High Tide Time	1140
D4	18 Dec 2016	Low Tide (ft)	2.2
D4	18 Dec 2016	Low Tide Time	556
D4	18 Dec 2016	Comments	Kelp; Seagrass; Algae; Water turbid
D4	24 Dec 2016	Arrive Time	1205
D4	24 Dec 2016	Weather	Cloudy
D4	24 Dec 2016	Wind Speed (kts)	7.6
D4	24 Dec 2016	Wind Dir	W
D4	24 Dec 2016	Animal Life	None
D4	24 Dec 2016	Floatables	None

Station	Date	Parameter	Value
D4	24 Dec 2016	Water Color	Green
D4	24 Dec 2016	Current Direction	N
D4	24 Dec 2016	Wave Height Low (ft)	3
D4	24 Dec 2016	High Tide (ft)	5.2
D4	24 Dec 2016	High Tide Time	548
D4	24 Dec 2016	Low Tide (ft)	0.4
D4	24 Dec 2016	Low Tide Time	1256
D4	24 Dec 2016	Comments	Water clear
D4	30 Dec 2016	Arrive Time	802
D4	30 Dec 2016	Weather	Moderate Rain
D4	30 Dec 2016	Wind Speed (kts)	3.3
D4	30 Dec 2016	Wind Dir	W
D4	30 Dec 2016	Animal Life	None
D4	30 Dec 2016	Floatables	None
D4	30 Dec 2016	Water Color	Green
D4	30 Dec 2016	Current Direction	N
D4	30 Dec 2016	Wave Height Low (ft)	3
D4	30 Dec 2016	High Tide (ft)	5.8
D4	30 Dec 2016	High Tide Time	855
D4	30 Dec 2016	Low Tide (ft)	1.8
D4	30 Dec 2016	Low Tide Time	251
D4	30 Dec 2016	Comments	Kelp; Seagrass; Algae; Water clear
D5	06 Dec 2016	Arrive Time	1010
D5	06 Dec 2016	Weather	Partly Cloudy
D5	06 Dec 2016	Wind Speed (kts)	5
D5	06 Dec 2016	Wind Dir	SW
D5	06 Dec 2016	Animal Life	None
D5	06 Dec 2016	Floatables	None
D5	06 Dec 2016	Water Color	Green
D5	06 Dec 2016	Current Direction	SW
D5	06 Dec 2016	Wave Height Low (ft)	3
D5	06 Dec 2016	High Tide (ft)	4
D5	06 Dec 2016	High Tide Time	1309
D5	06 Dec 2016	Low Tide (ft)	2.7
D5	06 Dec 2016	Low Tide Time	754
D5	06 Dec 2016	Comments	Kelp; Seagrass; Water turbid
D5	12 Dec 2016	Arrive Time	954
D5	12 Dec 2016	Weather	Partly Cloudy
D5	12 Dec 2016	Wind Speed (kts)	1.5
D5	12 Dec 2016	Wind Dir	W
D5	12 Dec 2016	Animal Life	None
D5	12 Dec 2016	Floatables	None
D5	12 Dec 2016	Water Color	Green
D5	12 Dec 2016	Current Direction	N
D5	12 Dec 2016	Wave Height Low (ft)	2
D5	12 Dec 2016	High Tide (ft)	6.7
D5	12 Dec 2016	High Tide Time	702
D5	12 Dec 2016	Low Tide (ft)	-1.2
D5	12 Dec 2016	Low Tide Time	1406
D5	12 Dec 2016	Comments	Water clear
D5	18 Dec 2016	Arrive Time	928

Station	Date	Parameter	Value
D5	18 Dec 2016	Weather	Sunny
D5	18 Dec 2016	Wind Speed (kts)	2
D5	18 Dec 2016	Wind Dir	SW
D5	18 Dec 2016	Animal Life	None
D5	18 Dec 2016	Floatables	None
D5	18 Dec 2016	Water Color	Green
D5	18 Dec 2016	Current Direction	SW
D5	18 Dec 2016	Wave Height Low (ft)	3
D5	18 Dec 2016	High Tide (ft)	4.9
D5	18 Dec 2016	High Tide Time	1140
D5	18 Dec 2016	Low Tide (ft)	2.2
D5	18 Dec 2016	Low Tide Time	556
D5	18 Dec 2016	Comments	Kelp; Seagrass; Water turbid
D5	24 Dec 2016	Arrive Time	1145
D5	24 Dec 2016	Weather	Cloudy
D5	24 Dec 2016	Wind Speed (kts)	8.2
D5	24 Dec 2016	Wind Dir	W
D5	24 Dec 2016	Animal Life	None
D5	24 Dec 2016	Floatables	None
D5	24 Dec 2016	Water Color	Green
D5	24 Dec 2016	Current Direction	N
D5	24 Dec 2016	Wave Height Low (ft)	4
D5	24 Dec 2016	High Tide (ft)	5.2
D5	24 Dec 2016	High Tide Time	548
D5	24 Dec 2016	Low Tide (ft)	0.4
D5	24 Dec 2016	Low Tide Time	1256
D5	24 Dec 2016	Comments	Water clear
D5	30 Dec 2016	Arrive Time	748
D5	30 Dec 2016	Weather	Moderate Rain
D5	30 Dec 2016	Wind Speed (kts)	0.3
D5	30 Dec 2016	Wind Dir	W
D5	30 Dec 2016	Animal Life	None
D5	30 Dec 2016	Floatables	None
D5	30 Dec 2016	Water Color	Green
D5	30 Dec 2016	Current Direction	N
D5	30 Dec 2016	Wave Height Low (ft)	3
D5	30 Dec 2016	High Tide (ft)	5.8
D5	30 Dec 2016	High Tide Time	855
D5	30 Dec 2016	Low Tide (ft)	1.8
D5	30 Dec 2016	Low Tide Time	251
D5	30 Dec 2016	Comments	Kelp; Seagrass; Algae; Water clear
D7	06 Dec 2016	Arrive Time	921
D7	06 Dec 2016	Weather	Sunny
D7	06 Dec 2016	Wind Speed (kts)	3
D7	06 Dec 2016	Wind Dir	SW
D7	06 Dec 2016	Animal Life	None
D7	06 Dec 2016	Floatables	None
D7	06 Dec 2016	Water Color	Green
D7	06 Dec 2016	Current Direction	SW
D7	06 Dec 2016	Wave Height Low (ft)	3
D7	06 Dec 2016	High Tide (ft)	4
D7	06 Dec 2016	High Tide Time	1309

Station	Date	Parameter	Value
D7	06 Dec 2016	Low Tide (ft)	2.7
D7	06 Dec 2016	Low Tide Time	754
D7	06 Dec 2016	Comments	Kelp; Seagrass; 1 Surfer; Water turbid
D7	12 Dec 2016	Arrive Time	1036
D7	12 Dec 2016	Weather	Partly Cloudy
D7	12 Dec 2016	Wind Speed (kts)	2.1
D7	12 Dec 2016	Wind Dir	W
D7	12 Dec 2016	Animal Life	None
D7	12 Dec 2016	Floatables	None
D7	12 Dec 2016	Water Color	Green
D7	12 Dec 2016	Current Direction	N
D7	12 Dec 2016	Wave Height Low (ft)	3
D7	12 Dec 2016	High Tide (ft)	6.7
D7	12 Dec 2016	High Tide Time	702
D7	12 Dec 2016	Low Tide (ft)	-1.2
D7	12 Dec 2016	Low Tide Time	1406
D7	12 Dec 2016	Comments	Water clear
D7	18 Dec 2016	Arrive Time	846
D7	18 Dec 2016	Weather	Sunny
D7	18 Dec 2016	Wind Speed (kts)	1
D7	18 Dec 2016	Wind Dir	SW
D7	18 Dec 2016	Animal Life	None
D7	18 Dec 2016	Floatables	None
D7	18 Dec 2016	Water Color	Green
D7	18 Dec 2016	Current Direction	SW
D7	18 Dec 2016	Wave Height Low (ft)	3
D7	18 Dec 2016	High Tide (ft)	4.9
D7	18 Dec 2016	High Tide Time	1140
D7	18 Dec 2016	Low Tide (ft)	2.2
D7	18 Dec 2016	Low Tide Time	556
D7	18 Dec 2016	Comments	Kelp; Seagrass; Water turbid
D7	24 Dec 2016	Arrive Time	1120
D7	24 Dec 2016	Weather	Cloudy
D7	24 Dec 2016	Wind Speed (kts)	11.8
D7	24 Dec 2016	Wind Dir	W
D7	24 Dec 2016	Animal Life	None
D7	24 Dec 2016	Floatables	None
D7	24 Dec 2016	Water Color	Green
D7	24 Dec 2016	Current Direction	N
D7	24 Dec 2016	Wave Height Low (ft)	3
D7	24 Dec 2016	High Tide (ft)	5.2
D7	24 Dec 2016	High Tide Time	548
D7	24 Dec 2016	Low Tide (ft)	0.4
D7	24 Dec 2016	Low Tide Time	1256
D7	24 Dec 2016	Comments	Water clear
D7	30 Dec 2016	Arrive Time	836
D7	30 Dec 2016	Weather	Moderate Rain
D7	30 Dec 2016	Wind Speed (kts)	5.2
D7	30 Dec 2016	Wind Dir	W
D7	30 Dec 2016	Animal Life	None
D7	30 Dec 2016	Floatables	None

Station	Date	Parameter	Value
D7	30 Dec 2016	Water Color	Green
D7	30 Dec 2016	Current Direction	N
D7	30 Dec 2016	Wave Height Low (ft)	5
D7	30 Dec 2016	High Tide (ft)	5.8
D7	30 Dec 2016	High Tide Time	855
D7	30 Dec 2016	Low Tide (ft)	1.8
D7	30 Dec 2016	Low Tide Time	251
D7	30 Dec 2016	Comments	Kelp; Seagrass; Water clear
D8-A	06 Dec 2016	Arrive Time	848
D8-A	06 Dec 2016	Weather	Partly Cloudy
D8-A	06 Dec 2016	Wind Speed (kts)	2
D8-A	06 Dec 2016	Wind Dir	SW
D8-A	06 Dec 2016	Animal Life	None
D8-A	06 Dec 2016	Floatables	None
D8-A	06 Dec 2016	Water Color	Green
D8-A	06 Dec 2016	Current Direction	SW
D8-A	06 Dec 2016	Wave Height Low (ft)	4
D8-A	06 Dec 2016	High Tide (ft)	4
D8-A	06 Dec 2016	High Tide Time	1309
D8-A	06 Dec 2016	Low Tide (ft)	2.7
D8-A	06 Dec 2016	Low Tide Time	754
D8-A	06 Dec 2016	Comments	Kelp; Seagrass; Water turbid
D8-A	12 Dec 2016	Arrive Time	1114
D8-A	12 Dec 2016	Weather	Partly Cloudy
D8-A	12 Dec 2016	Wind Speed (kts)	1.5
D8-A	12 Dec 2016	Wind Dir	W
D8-A	12 Dec 2016	Animal Life	None
D8-A	12 Dec 2016	Floatables	None
D8-A	12 Dec 2016	Water Color	Green
D8-A	12 Dec 2016	Current Direction	N
D8-A	12 Dec 2016	Wave Height Low (ft)	3
D8-A	12 Dec 2016	High Tide (ft)	6.7
D8-A	12 Dec 2016	High Tide Time	702
D8-A	12 Dec 2016	Low Tide (ft)	-1.2
D8-A	12 Dec 2016	Low Tide Time	1406
D8-A	12 Dec 2016	Comments	Water clear
D8-A	18 Dec 2016	Arrive Time	830
D8-A	18 Dec 2016	Weather	Sunny
D8-A	18 Dec 2016	Wind Speed (kts)	1
D8-A	18 Dec 2016	Wind Dir	SW
D8-A	18 Dec 2016	Animal Life	None
D8-A	18 Dec 2016	Floatables	None
D8-A	18 Dec 2016	Water Color	Green
D8-A	18 Dec 2016	Current Direction	SW
D8-A	18 Dec 2016	Wave Height Low (ft)	3
D8-A	18 Dec 2016	High Tide (ft)	4.9
D8-A	18 Dec 2016	High Tide Time	1140
D8-A	18 Dec 2016	Low Tide (ft)	2.2
D8-A	18 Dec 2016	Low Tide Time	556
D8-A	18 Dec 2016	Comments	Kelp; Seagrass; Algae; Water turbid
D8-A	24 Dec 2016	Arrive Time	1109

Station	Date	Parameter	Value
D8-A	24 Dec 2016	Weather	Cloudy
D8-A	24 Dec 2016	Wind Speed (kts)	11.1
D8-A	24 Dec 2016	Wind Dir	W
D8-A	24 Dec 2016	Animal Life	None
D8-A	24 Dec 2016	Floatables	None
D8-A	24 Dec 2016	Water Color	Green
D8-A	24 Dec 2016	Current Direction	N
D8-A	24 Dec 2016	Wave Height Low (ft)	4
D8-A	24 Dec 2016	High Tide (ft)	5.2
D8-A	24 Dec 2016	High Tide Time	548
D8-A	24 Dec 2016	Low Tide (ft)	0.4
D8-A	24 Dec 2016	Low Tide Time	1256
D8-A	24 Dec 2016	Comments	Water clear
D8-A	30 Dec 2016	Arrive Time	854
D8-A	30 Dec 2016	Weather	Moderate Rain
D8-A	30 Dec 2016	Wind Speed (kts)	6.6
D8-A	30 Dec 2016	Wind Dir	W
D8-A	30 Dec 2016	Animal Life	None
D8-A	30 Dec 2016	Floatables	None
D8-A	30 Dec 2016	Water Color	Green
D8-A	30 Dec 2016	Current Direction	N
D8-A	30 Dec 2016	Wave Height Low (ft)	5
D8-A	30 Dec 2016	High Tide (ft)	5.8
D8-A	30 Dec 2016	High Tide Time	855
D8-A	30 Dec 2016	Low Tide (ft)	1.8
D8-A	30 Dec 2016	Low Tide Time	251
D8-A	30 Dec 2016	Comments	Kelp; Seagrass; Water clear
D9	06 Dec 2016	Arrive Time	828
D9	06 Dec 2016	Weather	Partly Cloudy
D9	06 Dec 2016	Wind Speed (kts)	2
D9	06 Dec 2016	Wind Dir	SW
D9	06 Dec 2016	Animal Life	None
D9	06 Dec 2016	Floatables	None
D9	06 Dec 2016	Water Color	Green
D9	06 Dec 2016	Current Direction	SW
D9	06 Dec 2016	Wave Height Low (ft)	3
D9	06 Dec 2016	High Tide (ft)	4
D9	06 Dec 2016	High Tide Time	1309
D9	06 Dec 2016	Low Tide (ft)	2.7
D9	06 Dec 2016	Low Tide Time	754
D9	06 Dec 2016	Comments	Kelp; Seagrass; 3 Surfers; 1 Boat; Water turbid
D9	12 Dec 2016	Arrive Time	1126
D9	12 Dec 2016	Weather	Partly Cloudy
D9	12 Dec 2016	Wind Speed (kts)	0.5
D9	12 Dec 2016	Wind Dir	W
D9	12 Dec 2016	Animal Life	None
D9	12 Dec 2016	Floatables	None
D9	12 Dec 2016	Water Color	Green
D9	12 Dec 2016	Current Direction	N
D9	12 Dec 2016	Wave Height Low (ft)	2
D9	12 Dec 2016	High Tide (ft)	6.7
D9	12 Dec 2016	High Tide Time	702

Station	Date	Parameter	Value
D9	12 Dec 2016	Low Tide (ft)	-1.2
D9	12 Dec 2016	Low Tide Time	1406
D9	12 Dec 2016	Comments	Water clear
D9	18 Dec 2016	Arrive Time	1101
D9	18 Dec 2016	Weather	Sunny
D9	18 Dec 2016	Wind Speed (kts)	3
D9	18 Dec 2016	Wind Dir	SW
D9	18 Dec 2016	Animal Life	None
D9	18 Dec 2016	Floatables	None
D9	18 Dec 2016	Water Color	Green
D9	18 Dec 2016	Current Direction	SW
D9	18 Dec 2016	Wave Height Low (ft)	3
D9	18 Dec 2016	High Tide (ft)	4.9
D9	18 Dec 2016	High Tide Time	1140
D9	18 Dec 2016	Low Tide (ft)	2.2
D9	18 Dec 2016	Low Tide Time	556
D9	18 Dec 2016	Comments	Kelp; Seagrass; Algae; Water turbid
D9	24 Dec 2016	Arrive Time	1100
D9	24 Dec 2016	Weather	Cloudy
D9	24 Dec 2016	Wind Speed (kts)	21.1
D9	24 Dec 2016	Wind Dir	W
D9	24 Dec 2016	Animal Life	None
D9	24 Dec 2016	Floatables	None
D9	24 Dec 2016	Water Color	Green
D9	24 Dec 2016	Current Direction	N
D9	24 Dec 2016	Wave Height Low (ft)	4
D9	24 Dec 2016	High Tide (ft)	5.2
D9	24 Dec 2016	High Tide Time	548
D9	24 Dec 2016	Low Tide (ft)	0.4
D9	24 Dec 2016	Low Tide Time	1256
D9	24 Dec 2016	Comments	Water clear
D9	30 Dec 2016	Arrive Time	910
D9	30 Dec 2016	Weather	Moderate Rain
D9	30 Dec 2016	Wind Speed (kts)	3.4
D9	30 Dec 2016	Wind Dir	W
D9	30 Dec 2016	Animal Life	None
D9	30 Dec 2016	Floatables	None
D9	30 Dec 2016	Water Color	Green
D9	30 Dec 2016	Current Direction	N
D9	30 Dec 2016	Wave Height Low (ft)	4
D9	30 Dec 2016	High Tide (ft)	5.8
D9	30 Dec 2016	High Tide Time	855
D9	30 Dec 2016	Low Tide (ft)	1.8
D9	30 Dec 2016	Low Tide Time	251
D9	30 Dec 2016	Comments	Kelp; Seagrass; Water clear
D10	06 Dec 2016	Arrive Time	815
D10	06 Dec 2016	Weather	Partly Cloudy
D10	06 Dec 2016	Wind Speed (kts)	2
D10	06 Dec 2016	Wind Dir	SW
D10	06 Dec 2016	Animal Life	None
D10	06 Dec 2016	Floatables	None

Station	Date	Parameter	Value
D10	06 Dec 2016	Water Color	Green
D10	06 Dec 2016	Current Direction	SW
D10	06 Dec 2016	Wave Height Low (ft)	3
D10	06 Dec 2016	High Tide (ft)	4
D10	06 Dec 2016	High Tide Time	1309
D10	06 Dec 2016	Low Tide (ft)	2.7
D10	06 Dec 2016	Low Tide Time	754
D10	06 Dec 2016	Comments	Kelp; Seagrass; Water turbid
D10	12 Dec 2016	Arrive Time	1137
D10	12 Dec 2016	Weather	Partly Cloudy
D10	12 Dec 2016	Wind Speed (kts)	1.1
D10	12 Dec 2016	Wind Dir	W
D10	12 Dec 2016	Animal Life	None
D10	12 Dec 2016	Floatables	None
D10	12 Dec 2016	Water Color	Green
D10	12 Dec 2016	Current Direction	N
D10	12 Dec 2016	Wave Height Low (ft)	3
D10	12 Dec 2016	High Tide (ft)	6.7
D10	12 Dec 2016	High Tide Time	702
D10	12 Dec 2016	Low Tide (ft)	-1.2
D10	12 Dec 2016	Low Tide Time	1406
D10	12 Dec 2016	Comments	Kelp; Algae; Water clear
D10	14 Dec 2016	Arrive Time	934
D10	14 Dec 2016	Weather	Hazy
D10	14 Dec 2016	Wind Speed (kts)	2.1
D10	14 Dec 2016	Wind Dir	W
D10	14 Dec 2016	Animal Life	None
D10	14 Dec 2016	Floatables	None
D10	14 Dec 2016	Water Color	Green
D10	14 Dec 2016	Current Direction	N
D10	14 Dec 2016	Wave Height Low (ft)	3
D10	14 Dec 2016	High Tide (ft)	6.9
D10	14 Dec 2016	High Tide Time	828
D10	14 Dec 2016	Low Tide (ft)	-1.6
D10	14 Dec 2016	Low Tide Time	1537
D10	14 Dec 2016	Comments	Kelp; Algae; Water clear
D10	18 Dec 2016	Arrive Time	838
D10	18 Dec 2016	Weather	Sunny
D10	18 Dec 2016	Wind Speed (kts)	3
D10	18 Dec 2016	Wind Dir	SW
D10	18 Dec 2016	Animal Life	None
D10	18 Dec 2016	Floatables	None
D10	18 Dec 2016	Water Color	Green
D10	18 Dec 2016	Current Direction	SW
D10	18 Dec 2016	Wave Height Low (ft)	4
D10	18 Dec 2016	High Tide (ft)	4.9
D10	18 Dec 2016	High Tide Time	1140
D10	18 Dec 2016	Low Tide (ft)	2.2
D10	18 Dec 2016	Low Tide Time	556
D10	18 Dec 2016	Comments	Kelp; Seagrass; 5 Surfers; Water turbid
D10	24 Dec 2016	Arrive Time	1052

Station	Date	Parameter	Value
D10	24 Dec 2016	Weather	Cloudy
D10	24 Dec 2016	Wind Speed (kts)	11
D10	24 Dec 2016	Wind Dir	W
D10	24 Dec 2016	Animal Life	None
D10	24 Dec 2016	Floatables	None
D10	24 Dec 2016	Water Color	Green
D10	24 Dec 2016	Current Direction	N
D10	24 Dec 2016	Wave Height Low (ft)	3
D10	24 Dec 2016	High Tide (ft)	5.2
D10	24 Dec 2016	High Tide Time	548
D10	24 Dec 2016	Low Tide (ft)	0.4
D10	24 Dec 2016	Low Tide Time	1256
D10	24 Dec 2016	Comments	Water clear
D10	26 Dec 2016	Arrive Time	1231
D10	26 Dec 2016	Weather	Sunny
D10	26 Dec 2016	Wind Speed (kts)	5
D10	26 Dec 2016	Wind Dir	NW
D10	26 Dec 2016	Animal Life	None
D10	26 Dec 2016	Floatables	None
D10	26 Dec 2016	Water Color	Green
D10	26 Dec 2016	Current Direction	NW
D10	26 Dec 2016	Wave Height Low (ft)	2
D10	26 Dec 2016	High Tide (ft)	5.6
D10	26 Dec 2016	High Tide Time	651
D10	26 Dec 2016	Low Tide (ft)	-0.3
D10	26 Dec 2016	Low Tide Time	1400
D10	26 Dec 2016	Comments	Kelp; Seagrass; Water turbid
D10	30 Dec 2016	Arrive Time	924
D10	30 Dec 2016	Weather	Moderate Rain
D10	30 Dec 2016	Wind Speed (kts)	1.7
D10	30 Dec 2016	Wind Dir	W
D10	30 Dec 2016	Animal Life	None
D10	30 Dec 2016	Floatables	None
D10	30 Dec 2016	Water Color	Green
D10	30 Dec 2016	Current Direction	N
D10	30 Dec 2016	Wave Height Low (ft)	5
D10	30 Dec 2016	High Tide (ft)	5.8
D10	30 Dec 2016	High Tide Time	855
D10	30 Dec 2016	Low Tide (ft)	1.8
D10	30 Dec 2016	Low Tide Time	251
D10	30 Dec 2016	Comments	Kelp; Seagrass; 6 Persons; Water clear
D11	06 Dec 2016	Arrive Time	804
D11	06 Dec 2016	Weather	Partly Cloudy
D11	06 Dec 2016	Wind Speed (kts)	2
D11	06 Dec 2016	Wind Dir	SW
D11	06 Dec 2016	Animal Life	None
D11	06 Dec 2016	Floatables	None
D11	06 Dec 2016	Water Color	Green
D11	06 Dec 2016	Current Direction	SW
D11	06 Dec 2016	Wave Height Low (ft)	3
D11	06 Dec 2016	High Tide (ft)	4
D11	06 Dec 2016	High Tide Time	1309

Station	Date	Parameter	Value
D11	06 Dec 2016	Low Tide (ft)	2.7
D11	06 Dec 2016	Low Tide Time	754
D11	06 Dec 2016	Comments	Seagrass; 2 Surfers; Water turbid
D11	12 Dec 2016	Arrive Time	1148
D11	12 Dec 2016	Weather	Partly Cloudy
D11	12 Dec 2016	Wind Speed (kts)	2.3
D11	12 Dec 2016	Wind Dir	W
D11	12 Dec 2016	Animal Life	None
D11	12 Dec 2016	Floatables	None
D11	12 Dec 2016	Water Color	Green
D11	12 Dec 2016	Current Direction	N
D11	12 Dec 2016	Wave Height Low (ft)	2
D11	12 Dec 2016	High Tide (ft)	6.7
D11	12 Dec 2016	High Tide Time	702
D11	12 Dec 2016	Low Tide (ft)	-1.2
D11	12 Dec 2016	Low Tide Time	1406
D11	12 Dec 2016	Comments	Water clear
D11	18 Dec 2016	Arrive Time	1025
D11	18 Dec 2016	Weather	Sunny
D11	18 Dec 2016	Wind Speed (kts)	3
D11	18 Dec 2016	Wind Dir	SW
D11	18 Dec 2016	Animal Life	None
D11	18 Dec 2016	Floatables	None
D11	18 Dec 2016	Water Color	Green
D11	18 Dec 2016	Current Direction	SW
D11	18 Dec 2016	Wave Height Low (ft)	4
D11	18 Dec 2016	High Tide (ft)	4.9
D11	18 Dec 2016	High Tide Time	1140
D11	18 Dec 2016	Low Tide (ft)	2.2
D11	18 Dec 2016	Low Tide Time	556
D11	18 Dec 2016	Comments	Kelp; Seagrass; 4 Surfers; Water turbid
D11	24 Dec 2016	Arrive Time	1042
D11	24 Dec 2016	Weather	Cloudy
D11	24 Dec 2016	Wind Speed (kts)	12.4
D11	24 Dec 2016	Wind Dir	W
D11	24 Dec 2016	Animal Life	None
D11	24 Dec 2016	Floatables	None
D11	24 Dec 2016	Water Color	Green
D11	24 Dec 2016	Current Direction	N
D11	24 Dec 2016	Wave Height Low (ft)	3
D11	24 Dec 2016	High Tide (ft)	5.2
D11	24 Dec 2016	High Tide Time	548
D11	24 Dec 2016	Low Tide (ft)	0.4
D11	24 Dec 2016	Low Tide Time	1256
D11	24 Dec 2016	Comments	Water clear
D11	26 Dec 2016	Arrive Time	1220
D11	26 Dec 2016	Weather	Sunny
D11	26 Dec 2016	Wind Speed (kts)	5
D11	26 Dec 2016	Wind Dir	NW
D11	26 Dec 2016	Animal Life	None
D11	26 Dec 2016	Floatables	None

Station	Date	Parameter	Value
D11	26 Dec 2016	Water Color	Green
D11	26 Dec 2016	Current Direction	NW
D11	26 Dec 2016	Wave Height Low (ft)	2
D11	26 Dec 2016	High Tide (ft)	5.6
D11	26 Dec 2016	High Tide Time	651
D11	26 Dec 2016	Low Tide (ft)	-0.3
D11	26 Dec 2016	Low Tide Time	1400
D11	26 Dec 2016	Comments	Kelp; Seagrass; Algae; 10 Surfers; Water turbid
D11	30 Dec 2016	Arrive Time	938
D11	30 Dec 2016	Weather	Moderate Rain
D11	30 Dec 2016	Wind Speed (kts)	2.1
D11	30 Dec 2016	Wind Dir	E
D11	30 Dec 2016	Animal Life	None
D11	30 Dec 2016	Floatables	None
D11	30 Dec 2016	Water Color	Green
D11	30 Dec 2016	Current Direction	N
D11	30 Dec 2016	Wave Height Low (ft)	4
D11	30 Dec 2016	High Tide (ft)	5.8
D11	30 Dec 2016	High Tide Time	855
D11	30 Dec 2016	Low Tide (ft)	-0.7
D11	30 Dec 2016	Low Tide Time	1607
D11	30 Dec 2016	Comments	Kelp; Seagrass; 3 Persons; 5 Surfers; Water clear
D12	06 Dec 2016	Arrive Time	744
D12	06 Dec 2016	Weather	Partly Cloudy
D12	06 Dec 2016	Wind Speed (kts)	2
D12	06 Dec 2016	Wind Dir	SW
D12	06 Dec 2016	Animal Life	None
D12	06 Dec 2016	Floatables	None
D12	06 Dec 2016	Water Color	Grey
D12	06 Dec 2016	Current Direction	SW
D12	06 Dec 2016	Wave Height Low (ft)	3
D12	06 Dec 2016	High Tide (ft)	3.9
D12	06 Dec 2016	High Tide Time	231
D12	06 Dec 2016	Low Tide (ft)	2.7
D12	06 Dec 2016	Low Tide Time	754
D12	06 Dec 2016	Comments	1 Person; Water turbid
D12	12 Dec 2016	Arrive Time	1225
D12	12 Dec 2016	Weather	Partly Cloudy
D12	12 Dec 2016	Wind Speed (kts)	6.2
D12	12 Dec 2016	Wind Dir	W
D12	12 Dec 2016	Animal Life	None
D12	12 Dec 2016	Floatables	None
D12	12 Dec 2016	Water Color	Green
D12	12 Dec 2016	Current Direction	N
D12	12 Dec 2016	Wave Height Low (ft)	2
D12	12 Dec 2016	High Tide (ft)	6.7
D12	12 Dec 2016	High Tide Time	702
D12	12 Dec 2016	Low Tide (ft)	-1.2
D12	12 Dec 2016	Low Tide Time	1406
D12	12 Dec 2016	Comments	Water clear
D12	18 Dec 2016	Arrive Time	1004

Station	Date	Parameter	Value
D12	18 Dec 2016	Weather	Sunny
D12	18 Dec 2016	Wind Speed (kts)	3
D12	18 Dec 2016	Wind Dir	SW
D12	18 Dec 2016	Animal Life	None
D12	18 Dec 2016	Floatables	None
D12	18 Dec 2016	Water Color	Green
D12	18 Dec 2016	Current Direction	SW
D12	18 Dec 2016	Wave Height Low (ft)	4
D12	18 Dec 2016	High Tide (ft)	4.9
D12	18 Dec 2016	High Tide Time	1140
D12	18 Dec 2016	Low Tide (ft)	2.2
D12	18 Dec 2016	Low Tide Time	556
D12	18 Dec 2016	Comments	Kelp; Seagrass; 4 Surfers; Water turbid
D12	24 Dec 2016	Arrive Time	1025
D12	24 Dec 2016	Weather	Cloudy
D12	24 Dec 2016	Wind Speed (kts)	13.2
D12	24 Dec 2016	Wind Dir	W
D12	24 Dec 2016	Animal Life	None
D12	24 Dec 2016	Floatables	None
D12	24 Dec 2016	Water Color	Green
D12	24 Dec 2016	Current Direction	N
D12	24 Dec 2016	Wave Height Low (ft)	3
D12	24 Dec 2016	High Tide (ft)	5.2
D12	24 Dec 2016	High Tide Time	548
D12	24 Dec 2016	Low Tide (ft)	0.4
D12	24 Dec 2016	Low Tide Time	1256
D12	24 Dec 2016	Comments	Water clear
D12	26 Dec 2016	Arrive Time	1203
D12	26 Dec 2016	Weather	Sunny
D12	26 Dec 2016	Wind Speed (kts)	5
D12	26 Dec 2016	Wind Dir	NW
D12	26 Dec 2016	Animal Life	None
D12	26 Dec 2016	Floatables	None
D12	26 Dec 2016	Water Color	Green
D12	26 Dec 2016	Current Direction	NW
D12	26 Dec 2016	Wave Height Low (ft)	2
D12	26 Dec 2016	High Tide (ft)	5.6
D12	26 Dec 2016	High Tide Time	651
D12	26 Dec 2016	Low Tide (ft)	-0.3
D12	26 Dec 2016	Low Tide Time	1400
D12	26 Dec 2016	Comments	Kelp; Seagrass; Water turbid
D12	30 Dec 2016	Arrive Time	1003
D12	30 Dec 2016	Weather	Moderate Rain
D12	30 Dec 2016	Wind Speed (kts)	3.1
D12	30 Dec 2016	Wind Dir	W
D12	30 Dec 2016	Animal Life	None
D12	30 Dec 2016	Floatables	None
D12	30 Dec 2016	Water Color	Green
D12	30 Dec 2016	Current Direction	N
D12	30 Dec 2016	Wave Height Low (ft)	4
D12	30 Dec 2016	High Tide (ft)	5.8
D12	30 Dec 2016	High Tide Time	855

Station	Date	Parameter	Value
D12	30 Dec 2016	Low Tide (ft)	-0.7
D12	30 Dec 2016	Low Tide Time	1607
D12	30 Dec 2016	Comments	Kelp; Seagrass; 3 Persons; 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 2016	4	13	19	3	4	2	6	5
02 Dec 2016	4	13	19	3	4	2	6	5
03 Dec 2016	4	13	19	3	4	2	6	5
04 Dec 2016	4	11	21	4	4	2	5	4
05 Dec 2016	4	10	16	3	4	2	5	4
06 Dec 2016	4	10	16	3	4	2	5	4
07 Dec 2016	4	10	16	3	4	2	5	4
08 Dec 2016	4	10	16	3	4	2	5	4
09 Dec 2016	4	10	16	3	4	2	5	4
10 Dec 2016	5	15	24	2	3	2	6	5
11 Dec 2016	5	15	24	2	3	2	6	5
12 Dec 2016	5	15	24	2	3	2	6	5
13 Dec 2016	4	17	19	2	3	2	7	6
14 Dec 2016	4	17	19	2	3	2	7	6
15 Dec 2016	4	17	19	2	3	2	7	6
16 Dec 2016	4	12	16	2	3	2	6	7
17 Dec 2016	4	13	17	3	3	2	9	10
18 Dec 2016	4	13	17	3	3	2	9	10
19 Dec 2016	4	13	17	3	3	2	9	10
20 Dec 2016	4	18	20	3	3	2	9	9
21 Dec 2016	4	18	20	3	3	2	9	9
22 Dec 2016	4	18	20	3	3	2	9	9
23 Dec 2016	4	18	20	3	3	2	9	9
24 Dec 2016	4	18	20	3	3	2	9	9
25 Dec 2016	4	18	20	3	3	2	9	9
26 Dec 2016	4	18	20	3	3	2	9	9
27 Dec 2016	4	18	20	3	3	2	9	9
28 Dec 2016	4	18	20	3	3	2	9	9
29 Dec 2016	4	22	29	3	3	2	11	10
30 Dec 2016	4	22	29	3	3	2	11	10
31 Dec 2016	4*	22*	14*	4*	3*	2*	11*	9*

\* 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 2016	2	3	5	2	2	2	2	2
02 Dec 2016	2	3	5	2	2	2	2	2
03 Dec 2016	2	3	5	2	2	2	2	2
04 Dec 2016	2	3	6	2	2	2	2	2
05 Dec 2016	2	3	5	2	2	2	2	2
06 Dec 2016	2	3	5	2	2	2	2	2
07 Dec 2016	2	3	5	2	2	2	2	2
08 Dec 2016	2	3	5	2	2	2	2	2
09 Dec 2016	2	3	5	2	2	2	2	2
10 Dec 2016	2	3	6	2	2	2	2	2
11 Dec 2016	2	3	6	2	2	2	2	2
12 Dec 2016	2	3	6	2	2	2	2	2
13 Dec 2016	2	3	5	2	2	2	2	2
14 Dec 2016	2	3	5	2	2	2	2	2
15 Dec 2016	2	3	5	2	2	2	2	2
16 Dec 2016	2	3	5	2	2	2	2	2
17 Dec 2016	2	3	5	2	2	2	2	2
18 Dec 2016	2	3	5	2	2	2	2	2
19 Dec 2016	2	3	5	2	2	2	2	2
20 Dec 2016	2	3	5	2	2	2	2	2
21 Dec 2016	2	3	5	2	2	2	2	2
22 Dec 2016	2	3	5	2	2	2	2	2
23 Dec 2016	2	3	5	2	2	2	2	2
24 Dec 2016	2	3	5	2	2	2	2	2
25 Dec 2016	2	3	5	2	2	2	2	2
26 Dec 2016	2	3	5	2	2	2	2	2
27 Dec 2016	2	3	5	2	2	2	2	2
28 Dec 2016	2	3	5	2	2	2	2	2
29 Dec 2016	2	3	6	2	2	2	2	2
30 Dec 2016	2	3	6	2	2	2	2	2
31 Dec 2016	2*	3*	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 2016	2	3	3	2	2	2	3	2
02 Dec 2016	2	3	3	2	2	2	3	2
03 Dec 2016	2	3	3	2	2	2	3	2
04 Dec 2016	2	2	3	2	2	2	3	2
05 Dec 2016	2	2	3	2	2	2	3	2
06 Dec 2016	2	2	3	2	2	2	3	2
07 Dec 2016	2	2	3	2	2	2	3	2
08 Dec 2016	2	2	3	2	2	2	3	2
09 Dec 2016	2	2	3	2	2	2	3	2
10 Dec 2016	2	2	3	2	2	2	3	2
11 Dec 2016	2	2	3	2	2	2	3	2
12 Dec 2016	2	2	3	2	2	2	3	2
13 Dec 2016	2	2	3	2	2	2	3	2
14 Dec 2016	2	2	3	2	2	2	3	2
15 Dec 2016	2	2	3	2	2	2	3	2
16 Dec 2016	2	2	3	2	2	2	3	2
17 Dec 2016	2	2	3	2	2	2	3	2
18 Dec 2016	2	2	3	2	2	2	3	2
19 Dec 2016	2	2	3	2	2	2	3	2
20 Dec 2016	2	2	3	2	2	2	4	2
21 Dec 2016	2	2	3	2	2	2	4	2
22 Dec 2016	2	2	3	2	2	2	4	2
23 Dec 2016	2	2	3	2	2	2	4	2
24 Dec 2016	2	2	3	2	2	2	4	2
25 Dec 2016	2	2	3	2	2	2	4	2
26 Dec 2016	2	2	3	2	2	2	4	2
27 Dec 2016	2	2	3	2	2	2	4	2
28 Dec 2016	2	2	3	2	2	2	4	2
29 Dec 2016	2	2	4	2	2	2	5	2
30 Dec 2016	2	2	4	2	2	2	5	2
31 Dec 2016	2*	2*	3*	2*	2*	2*	5*	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
01 Dec 2016	IC							
05 Dec 2016	IC							
13 Dec 2016	IC							
17 Dec 2016	IC							
20 Dec 2016	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

**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
01 Dec 2016	IC							
05 Dec 2016	IC							
13 Dec 2016	IC							
17 Dec 2016	IC							
20 Dec 2016	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

**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
01 Dec 2016	IC							
05 Dec 2016	IC							
13 Dec 2016	IC							
17 Dec 2016	IC							
20 Dec 2016	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

**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
01 Dec 2016	IC							
05 Dec 2016	IC							
13 Dec 2016	IC							
17 Dec 2016	IC							
20 Dec 2016	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

**Table 3.8**

Summary of water quality parameters at the PLOO kelp stations for each sample date. Densities of total coliform (Total), fecal coliform (Fecal) and *Enterococcus* (Enter) bacteria are reported as CFU/100 mL; the fecal:total coliform ratio (F:T) is unitless; ammonium (N-NH<sub>3</sub>) values are reported as mg/L; values for temperature (Temp, °C), transmissivity (XMS, %), dissolved oxygen (DO, mg/L), salinity (Sal, ppt) and pH were extracted from CTD profile data for depths closest to those at which the bacteriological samples were collected. Comments follow the data summary.

Station	Date	Time	Depth	Total	Fecal	Enter	F:T	N-NH <sub>3</sub>	Temp	XMS	DO	Sal	pH
A1	01 Dec 2016	752	1	2e	<2	<2	1.00	ns	15.2	82.08	7.7	33.32	8.1
A1	01 Dec 2016	752	12	<2	<2	<2	1.00	ns	13.4	83.30	6.0	33.28	8.0
A1	01 Dec 2016	752	18	12e	<2	<2	0.17	ns	13.1	78.17	5.8	33.29	8.0
A1	05 Dec 2016	748	1	<2	<2	<2	1.00	ns	14.8	79.47	7.9	33.32	8.1
A1	05 Dec 2016	748	12	4e	<2	2e	0.50	ns	14.5	81.90	7.0	33.30	8.1
A1	05 Dec 2016	748	18	<2	<2	<2	1.00	ns	13.9	82.41	6.9	33.29	8.0
A1	13 Dec 2016	752	1	<2	<2	<2	1.00	ns	15.6	84.75	8.3	33.34	8.2
A1	13 Dec 2016	752	12	2e	<2	<2	1.00	ns	15.3	85.54	7.1	33.29	8.2
A1	13 Dec 2016	752	18	2e	<2	<2	1.00	ns	13.1	86.94	5.9	33.30	8.1
A1	17 Dec 2016	744	1	4e	<2	<2	0.50	ns	14.9	77.04	7.4	33.27	8.0
A1	17 Dec 2016	744	12	4e	<2	<2	0.50	ns	13.2	79.38	5.9	33.31	8.0
A1	17 Dec 2016	744	18	<2	<2	<2	1.00	ns	12.8	79.18	5.7	33.33	7.9
A1	20 Dec 2016	802	1	<2	<2	<2	1.00	ns	15.4	81.82	8.0	33.34	8.2
A1	20 Dec 2016	802	12	24e	<2	<2	0.08	ns	13.4	88.19	6.7	33.26	8.1
A1	20 Dec 2016	802	18	<2	<2	<2	1.00	ns	13.0	88.40	6.8	33.28	8.0
C4	01 Dec 2016	945	1	<2	<2	<2	1.00	ns	15.2	77.88	7.7	33.34	8.1
C4	01 Dec 2016	945	3	<2	<2	<2	1.00	ns	15.2	77.73	7.6	33.34	8.1
C4	01 Dec 2016	945	9	<2	<2	<2	1.00	ns	15.0	79.73	6.5	33.33	8.1
C4	05 Dec 2016	1018	1	<2	<2	<2	1.00	ns	14.6	77.79	7.9	33.35	8.1
C4	05 Dec 2016	1018	3	<2	<2	<2	1.00	ns	14.6	77.58	7.7	33.35	8.1
C4	05 Dec 2016	1018	9	4e	<2	<2	0.50	ns	13.8	72.48	6.4	33.30	8.0
C4	13 Dec 2016	941	1	<2	<2	<2	1.00	ns	16.1	82.82	8.3	33.35	8.2
C4	13 Dec 2016	941	3	2e	<2	<2	1.00	ns	15.9	81.38	7.3	33.34	8.2
C4	13 Dec 2016	941	9	2e	<2	<2	1.00	ns	13.8	84.52	6.5	33.26	8.1
C4	17 Dec 2016	922	1	20e	<2	<2	0.10	ns	14.8	54.86	8.1	33.20	8.1
C4	17 Dec 2016	922	3	8e	<2	2e	0.25	ns	14.8	54.41	8.0	33.21	8.1
C4	17 Dec 2016	922	9	20e	2e	<2	0.10	ns	14.8	54.01	8.1	33.20	8.1
C4	20 Dec 2016	940	1	<2	<2	<2	1.00	ns	14.6	82.25	8.2	33.33	8.2
C4	20 Dec 2016	940	3	<2	<2	<2	1.00	ns	14.6	82.09	8.2	33.33	8.2
C4	20 Dec 2016	940	9	2e	<2	<2	1.00	ns	14.4	77.33	8.1	33.31	8.1
C5	01 Dec 2016	931	1	14e	<2	<2	0.14	ns	15.2	71.81	7.4	33.36	8.1
C5	01 Dec 2016	931	3	<2	<2	<2	1.00	ns	15.2	71.61	7.4	33.36	8.1
C5	01 Dec 2016	931	9	6e	<2	<2	0.33	ns	15.1	74.11	5.8	33.34	8.1
C5	05 Dec 2016	1007	1	<2	<2	<2	1.00	ns	15.0	53.43	7.8	33.38	8.1
C5	05 Dec 2016	1007	3	2e	2e	<2	1.00	ns	15.0	48.11	7.8	33.38	8.1

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	N-NH3	Temp	XMS	DO	Sal	pH
C5	05 Dec 2016	1007	9	<2	<2	<2	1.00	ns	14.7	49.70	6.8	33.35	8.1
C5	13 Dec 2016	922	1	<2	<2	<2	1.00	ns	16.1	81.63	8.4	33.35	8.2
C5	13 Dec 2016	922	3	<2	<2	<2	1.00	ns	16.0	82.55	7.6	33.34	8.2
C5	13 Dec 2016	922	9	4e	<2	2e	0.50	ns	13.8	84.75	6.5	33.27	8.1
C5	17 Dec 2016	911	1	2e	<2	<2	1.00	ns	14.9	62.28	7.9	33.23	8.1
C5	17 Dec 2016	911	3	10e	<2	<2	0.20	ns	14.9	63.78	7.9	33.23	8.1
C5	17 Dec 2016	911	9	6e	<2	<2	0.33	ns	14.8	62.12	6.4	33.24	8.1
C5	20 Dec 2016	928	1	<2	<2	2e	1.00	ns	14.7	83.28	8.3	33.33	8.2
C5	20 Dec 2016	928	3	<2	<2	<2	1.00	ns	14.6	83.35	8.2	33.33	8.2
C5	20 Dec 2016	928	9	<2	<2	<2	1.00	ns	14.3	82.12	7.5	33.31	8.1
A6	01 Dec 2016	825	1	4e	2e	<2	0.50	ns	15.2	83.09	7.4	33.34	8.1
A6	01 Dec 2016	825	12	22e	2e	<2	0.09	ns	13.6	83.65	6.3	33.28	8.0
A6	01 Dec 2016	825	18	38e	4e	2e	0.11	ns	13.4	83.72	6.2	33.29	8.0
A6	05 Dec 2016	821	1	2e	<2	<2	1.00	ns	14.7	79.79	8.0	33.32	8.1
A6	05 Dec 2016	821	12	6e	<2	<2	0.33	ns	14.6	81.31	6.8	33.32	8.1
A6	05 Dec 2016	821	18	16e	2e	2e	0.12	ns	13.8	79.93	6.6	33.31	8.0
A6	13 Dec 2016	818	1	2e	<2	<2	1.00	ns	15.8	85.67	7.7	33.34	8.1
A6	13 Dec 2016	818	12	36e	10e	<2	0.28	ns	13.0	87.46	5.7	33.28	8.0
A6	13 Dec 2016	818	18	70	2e	2e	0.03	ns	12.8	86.74	5.8	33.30	8.0
A6	17 Dec 2016	811	1	2e	<2	<2	1.00	ns	15.1	75.68	7.6	33.27	8.1
A6	17 Dec 2016	811	12	<2	<2	<2	1.00	ns	13.1	80.36	6.0	33.29	8.0
A6	17 Dec 2016	811	18	78	<2	<2	0.03	ns	12.8	80.20	5.8	33.31	8.0
A6	20 Dec 2016	830	1	<2	<2	<2	1.00	ns	15.3	86.03	8.0	33.34	8.2
A6	20 Dec 2016	830	12	46	2e	<2	0.04	ns	13.3	87.30	6.6	33.27	8.0
A6	20 Dec 2016	830	18	38e	10e	<2	0.26	ns	13.0	87.07	6.7	33.28	8.0
C6	01 Dec 2016	915	1	<2	<2	<2	1.00	ns	15.2	80.07	7.6	33.34	8.1
C6	01 Dec 2016	915	3	<2	2e	<2	1.00	ns	15.2	80.52	7.6	33.34	8.1
C6	01 Dec 2016	915	9	2e	<2	<2	1.00	ns	14.9	80.88	6.0	33.33	8.1
C6	05 Dec 2016	956	1	<2	<2	<2	1.00	ns	14.8	73.76	7.5	33.35	8.1
C6	05 Dec 2016	956	3	<2	<2	<2	1.00	ns	14.7	74.37	7.3	33.35	8.1
C6	05 Dec 2016	956	9	<2	<2	<2	1.00	ns	14.6	75.08	7.1	33.34	8.1
C6	13 Dec 2016	907	1	<2	<2	2e	1.00	ns	16.1	81.98	8.4	33.35	8.2
C6	13 Dec 2016	907	3	2e	<2	<2	1.00	ns	16.1	82.23	7.7	33.35	8.2
C6	13 Dec 2016	907	9	2e	<2	<2	1.00	ns	14.6	85.96	6.3	33.30	8.1
C6	17 Dec 2016	859	1	<2	<2	<2	1.00	ns	15.2	71.38	7.6	33.25	8.1
C6	17 Dec 2016	859	3	2e	<2	<2	1.00	ns	15.2	71.84	7.6	33.28	8.1
C6	17 Dec 2016	859	9	<2	<2	<2	1.00	ns	15.2	71.41	7.6	33.27	8.1
C6	20 Dec 2016	917	1	<2	<2	<2	1.00	ns	14.9	84.55	8.1	33.33	8.2
C6	20 Dec 2016	917	3	2e	2e	<2	1.00	ns	14.9	84.40	8.1	33.33	8.2
C6	20 Dec 2016	917	9	<2	<2	<2	1.00	ns	14.5	84.80	7.5	33.31	8.1
A7	01 Dec 2016	808	1	2e	<2	<2	1.00	ns	15.1	82.26	7.3	33.33	8.1

Station	Date	Time	Depth	Total	Fecal	Enter	F:T	N-NH3	Temp	XMS	DO	Sal	pH
A7	01 Dec 2016	808	12	660	74	4e	0.11	ns	13.2	80.41	5.9	33.29	8.0
A7	01 Dec 2016	808	18	920	300e	20e	0.33	ns	13.0	78.49	5.8	33.31	8.0
A7	05 Dec 2016	808	1	<2	<2	<2	1.00	ns	14.8	81.76	7.8	33.32	8.1
A7	05 Dec 2016	808	12	4e	<2	<2	0.50	ns	14.1	82.96	6.8	33.30	8.0
A7	05 Dec 2016	808	18	6e	<2	<2	0.33	ns	13.9	80.55	6.6	33.30	8.0
A7	13 Dec 2016	806	1	<2	<2	<2	1.00	ns	15.6	85.89	7.9	33.34	8.1
A7	13 Dec 2016	806	12	2e	<2	<2	1.00	ns	14.8	85.95	6.7	33.30	8.1
A7	13 Dec 2016	806	18	14e	<2	<2	0.14	ns	12.9	87.40	5.7	33.29	8.0
A7	17 Dec 2016	757	1	2e	<2	2e	1.00	ns	15.1	75.41	7.3	33.26	8.1
A7	17 Dec 2016	757	12	12e	4e	<2	0.33	ns	13.1	80.11	5.7	33.30	8.0
A7	17 Dec 2016	757	18	58	<2	<2	0.03	ns	12.7	84.75	5.9	33.31	8.0
A7	20 Dec 2016	816	1	<2	<2	<2	1.00	ns	15.3	85.86	7.9	33.34	8.2
A7	20 Dec 2016	816	12	16e	2e	2e	0.12	ns	14.2	86.51	6.7	33.30	8.1
A7	20 Dec 2016	816	18	180e	16e	20e	0.09	ns	13.4	87.54	6.9	33.28	8.0
C7	01 Dec 2016	841	1	2e	<2	<2	1.00	ns	15.3	80.80	7.7	33.34	8.1
C7	01 Dec 2016	841	12	4e	<2	<2	0.50	ns	14.5	83.37	6.3	33.30	8.1
C7	01 Dec 2016	841	18	24e	<2	20e	0.08	ns	13.6	83.81	6.1	33.29	8.0
C7	05 Dec 2016	835	1	<2	<2	<2	1.00	ns	14.8	79.70	8.1	33.33	8.1
C7	05 Dec 2016	835	12	<2	<2	<2	1.00	ns	14.6	80.61	7.3	33.33	8.1
C7	05 Dec 2016	835	18	12e	<2	2e	0.17	ns	13.6	78.03	6.2	33.31	8.0
C7	13 Dec 2016	833	1	2e	2e	8e	1.00	ns	15.9	83.75	8.5	33.34	8.2
C7	13 Dec 2016	833	12	10e	2e	<2	0.20	ns	13.8	86.06	6.2	33.28	8.1
C7	13 Dec 2016	833	18	48	<2	2e	0.04	ns	12.9	87.11	6.2	33.28	8.0
C7	17 Dec 2016	825	1	200e	8e	16e	0.04	ns	14.9	72.85	8.0	33.09	8.1
C7	17 Dec 2016	825	12	2e	<2	<2	1.00	ns	13.3	77.67	6.2	33.29	8.0
C7	17 Dec 2016	825	18	26e	4e	<2	0.15	ns	13.1	76.24	6.0	33.30	8.0
C7	20 Dec 2016	845	1	<2	<2	<2	1.00	ns	15.2	85.56	8.0	33.33	8.2
C7	20 Dec 2016	845	12	<2	<2	<2	1.00	ns	14.6	85.66	6.8	33.30	8.1
C7	20 Dec 2016	845	18	2e	2e	<20	1.00	ns	13.6	85.66	6.6	33.28	8.0
C8	01 Dec 2016	853	1	2e	<2	<2	1.00	ns	15.2	79.42	7.6	33.33	8.1
C8	01 Dec 2016	853	12	10e	2e	<2	0.20	ns	14.3	83.32	6.3	33.28	8.1
C8	01 Dec 2016	853	18	22e	<2	<2	0.09	ns	14.0	83.07	6.3	33.30	8.0
C8	05 Dec 2016	846	1	<2	<2	<2	1.00	ns	14.7	79.25	7.8	33.32	8.1
C8	05 Dec 2016	846	12	<2	<2	<2	1.00	ns	14.3	78.49	6.4	33.32	8.0
C8	05 Dec 2016	846	18	10e	2e	<2	0.20	ns	13.7	75.10	6.0	33.31	8.0
C8	13 Dec 2016	847	1	40	<2	<2	0.05	ns	15.5	82.42	7.5	33.33	8.1
C8	13 Dec 2016	847	12	8e	<2	<2	0.25	ns	13.6	86.07	6.3	33.27	8.0
C8	13 Dec 2016	847	18	<2	<2	<2	1.00	ns	13.3	86.54	6.3	33.28	8.0
C8	17 Dec 2016	837	1	140e	<2	4e	0.01	ns	14.9	72.85	8.0	33.16	8.1
C8	17 Dec 2016	837	12	<2	<2	<2	1.00	ns	13.6	75.35	6.2	33.30	8.1
C8	17 Dec 2016	837	18	8e	<2	<2	0.25	ns	13.3	72.29	6.2	33.29	8.0

<b>Station</b>	<b>Date</b>	<b>Time</b>	<b>Depth</b>	<b>Total</b>	<b>Fecal</b>	<b>Enter</b>	<b>F:T</b>	<b>N-NH3</b>	<b>Temp</b>	<b>XMS</b>	<b>DO</b>	<b>Sal</b>	<b>pH</b>
C8	20 Dec 2016	856	1	<2	<2	2e	1.00	ns	15.1	85.49	8.0	33.33	8.1
C8	20 Dec 2016	856	12	<2	<2	<2	1.00	ns	15.0	85.52	7.9	33.32	8.1
C8	20 Dec 2016	856	18	2e	<2	<2	1.00	ns	14.5	85.39	6.8	33.27	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	01 Dec 2016	Depth (m)	20
A1	01 Dec 2016	Arrive Time	752
A1	01 Dec 2016	Depart Time	802
A1	01 Dec 2016	Air Temp (C)	13
A1	01 Dec 2016	Weather	Clear
A1	01 Dec 2016	Visibility (mi)	10
A1	01 Dec 2016	Wind Speed (kts)	7
A1	01 Dec 2016	Wind Dir	S
A1	01 Dec 2016	Water Color	Greenish-Blue
A1	01 Dec 2016	Wave Ht Low (ft)	5
A1	01 Dec 2016	Wave Period (sec)	13
A1	01 Dec 2016	Sea State	Confused swell
A1	01 Dec 2016	High Tide (ft)	5.63
A1	01 Dec 2016	High Tide Time	906
A1	01 Dec 2016	Low Tide (ft)	-0.27
A1	01 Dec 2016	Low Tide Time	1625
A1	01 Dec 2016	Comments	
A1	05 Dec 2016	Depth (m)	19
A1	05 Dec 2016	Arrive Time	748
A1	05 Dec 2016	Depart Time	800
A1	05 Dec 2016	Air Temp (C)	13
A1	05 Dec 2016	Weather	Partly Cloudy
A1	05 Dec 2016	Visibility (mi)	7
A1	05 Dec 2016	Wind Speed (kts)	8
A1	05 Dec 2016	Wind Dir	E
A1	05 Dec 2016	Water Color	Green
A1	05 Dec 2016	Wave Ht Low (ft)	3
A1	05 Dec 2016	Wave Period (sec)	9
A1	05 Dec 2016	Sea State	Calm
A1	05 Dec 2016	High Tide (ft)	4.38
A1	05 Dec 2016	High Tide Time	1147
A1	05 Dec 2016	Low Tide (ft)	2.81
A1	05 Dec 2016	Low Tide Time	611
A1	05 Dec 2016	Comments	Kelp; Lobster floats
A1	13 Dec 2016	Depth (m)	18
A1	13 Dec 2016	Arrive Time	752
A1	13 Dec 2016	Depart Time	756
A1	13 Dec 2016	Air Temp (C)	14
A1	13 Dec 2016	Weather	Partly Cloudy
A1	13 Dec 2016	Visibility (mi)	8
A1	13 Dec 2016	Wind Speed (kts)	7
A1	13 Dec 2016	Wind Dir	S
A1	13 Dec 2016	Water Color	Green
A1	13 Dec 2016	Wave Ht Low (ft)	2
A1	13 Dec 2016	Wave Period (sec)	11
A1	13 Dec 2016	Sea State	Calm
A1	13 Dec 2016	High Tide (ft)	6.92
A1	13 Dec 2016	High Tide Time	744
A1	13 Dec 2016	Low Tide (ft)	-1.52

Station	Date	Parameter	Value
A1	13 Dec 2016	Low Tide Time	1452
A1	13 Dec 2016	Comments	Kelp
A1	17 Dec 2016	Depth (m)	20
A1	17 Dec 2016	Arrive Time	744
A1	17 Dec 2016	Depart Time	747
A1	17 Dec 2016	Air Temp (C)	12
A1	17 Dec 2016	Weather	Clear
A1	17 Dec 2016	Visibility (mi)	9
A1	17 Dec 2016	Wind Speed (kts)	10
A1	17 Dec 2016	Wind Dir	S
A1	17 Dec 2016	Water Color	Green
A1	17 Dec 2016	Wave Ht Low (ft)	10
A1	17 Dec 2016	Wave Period (sec)	9
A1	17 Dec 2016	Sea State	Confused swell
A1	17 Dec 2016	High Tide (ft)	5.62
A1	17 Dec 2016	High Tide Time	1047
A1	17 Dec 2016	Low Tide (ft)	1.97
A1	17 Dec 2016	Low Tide Time	452
A1	17 Dec 2016	Comments	Kelp
A1	20 Dec 2016	Depth (m)	18
A1	20 Dec 2016	Arrive Time	802
A1	20 Dec 2016	Depart Time	805
A1	20 Dec 2016	Air Temp (C)	17
A1	20 Dec 2016	Weather	Clear
A1	20 Dec 2016	Visibility (mi)	18
A1	20 Dec 2016	Wind Speed (kts)	4
A1	20 Dec 2016	Wind Dir	N
A1	20 Dec 2016	Water Color	Brownish-Green
A1	20 Dec 2016	Wave Ht Low (ft)	2
A1	20 Dec 2016	Wave Period (sec)	9
A1	20 Dec 2016	Sea State	Calm
A1	20 Dec 2016	High Tide (ft)	3.63
A1	20 Dec 2016	High Tide Time	1401
A1	20 Dec 2016	Low Tide (ft)	2.24
A1	20 Dec 2016	Low Tide Time	847
A1	20 Dec 2016	Comments	Lobster floats
C4	01 Dec 2016	Depth (m)	9
C4	01 Dec 2016	Arrive Time	945
C4	01 Dec 2016	Depart Time	948
C4	01 Dec 2016	Air Temp (C)	14
C4	01 Dec 2016	Weather	Clear
C4	01 Dec 2016	Visibility (mi)	12
C4	01 Dec 2016	Wind Speed (kts)	3
C4	01 Dec 2016	Wind Dir	N
C4	01 Dec 2016	Water Color	Green
C4	01 Dec 2016	Wave Ht Low (ft)	5
C4	01 Dec 2016	Wave Period (sec)	13
C4	01 Dec 2016	Sea State	Confused swell
C4	01 Dec 2016	High Tide (ft)	5.63
C4	01 Dec 2016	High Tide Time	906
C4	01 Dec 2016	Low Tide (ft)	-0.27
C4	01 Dec 2016	Low Tide Time	1625

Station	Date	Parameter	Value
C4	01 Dec 2016	Comments	
C4	05 Dec 2016	Depth (m)	10
C4	05 Dec 2016	Arrive Time	1018
C4	05 Dec 2016	Depart Time	1022
C4	05 Dec 2016	Air Temp (C)	15
C4	05 Dec 2016	Weather	Partly Cloudy
C4	05 Dec 2016	Visibility (mi)	8
C4	05 Dec 2016	Wind Speed (kts)	8
C4	05 Dec 2016	Wind Dir	NE
C4	05 Dec 2016	Water Color	Brownish-Green
C4	05 Dec 2016	Wave Ht Low (ft)	5
C4	05 Dec 2016	Wave Period (sec)	9
C4	05 Dec 2016	Sea State	Light chop
C4	05 Dec 2016	High Tide (ft)	4.38
C4	05 Dec 2016	High Tide Time	1147
C4	05 Dec 2016	Low Tide (ft)	2.81
C4	05 Dec 2016	Low Tide Time	611
C4	05 Dec 2016	Comments	Kelp; lobster traps; Boats
C4	13 Dec 2016	Depth (m)	12
C4	13 Dec 2016	Arrive Time	941
C4	13 Dec 2016	Depart Time	945
C4	13 Dec 2016	Air Temp (C)	16
C4	13 Dec 2016	Weather	Partly Cloudy
C4	13 Dec 2016	Visibility (mi)	8
C4	13 Dec 2016	Wind Speed (kts)	5
C4	13 Dec 2016	Wind Dir	NE
C4	13 Dec 2016	Water Color	Green
C4	13 Dec 2016	Wave Ht Low (ft)	2
C4	13 Dec 2016	Wave Period (sec)	11
C4	13 Dec 2016	Sea State	Calm
C4	13 Dec 2016	High Tide (ft)	6.92
C4	13 Dec 2016	High Tide Time	744
C4	13 Dec 2016	Low Tide (ft)	-1.52
C4	13 Dec 2016	Low Tide Time	1452
C4	13 Dec 2016	Comments	Kelp; Lobster floats
C4	17 Dec 2016	Depth (m)	12
C4	17 Dec 2016	Arrive Time	922
C4	17 Dec 2016	Depart Time	925
C4	17 Dec 2016	Air Temp (C)	12
C4	17 Dec 2016	Weather	Clear
C4	17 Dec 2016	Visibility (mi)	9
C4	17 Dec 2016	Wind Speed (kts)	5
C4	17 Dec 2016	Wind Dir	W
C4	17 Dec 2016	Water Color	Green
C4	17 Dec 2016	Wave Ht Low (ft)	9
C4	17 Dec 2016	Wave Period (sec)	9
C4	17 Dec 2016	Sea State	Confused swell
C4	17 Dec 2016	High Tide (ft)	5.62
C4	17 Dec 2016	High Tide Time	1047
C4	17 Dec 2016	Low Tide (ft)	1.97
C4	17 Dec 2016	Low Tide Time	452
C4	17 Dec 2016	Comments	Lobster floats; Kelp

Station	Date	Parameter	Value
C4	20 Dec 2016	Depth (m)	9
C4	20 Dec 2016	Arrive Time	940
C4	20 Dec 2016	Depart Time	943
C4	20 Dec 2016	Air Temp (C)	20
C4	20 Dec 2016	Weather	Clear
C4	20 Dec 2016	Visibility (mi)	18
C4	20 Dec 2016	Wind Speed (kts)	9
C4	20 Dec 2016	Wind Dir	SW
C4	20 Dec 2016	Water Color	Brownish-Green
C4	20 Dec 2016	Wave Ht Low (ft)	2
C4	20 Dec 2016	Wave Period (sec)	9
C4	20 Dec 2016	Sea State	Calm
C4	20 Dec 2016	High Tide (ft)	3.63
C4	20 Dec 2016	High Tide Time	1401
C4	20 Dec 2016	Low Tide (ft)	2.24
C4	20 Dec 2016	Low Tide Time	847
C4	20 Dec 2016	Comments	Kelp; Lobster floats
C5	01 Dec 2016	Depth (m)	10
C5	01 Dec 2016	Arrive Time	931
C5	01 Dec 2016	Depart Time	934
C5	01 Dec 2016	Air Temp (C)	15
C5	01 Dec 2016	Weather	Clear
C5	01 Dec 2016	Visibility (mi)	12
C5	01 Dec 2016	Wind Speed (kts)	5
C5	01 Dec 2016	Wind Dir	NE
C5	01 Dec 2016	Water Color	Green
C5	01 Dec 2016	Wave Ht Low (ft)	5
C5	01 Dec 2016	Wave Period (sec)	13
C5	01 Dec 2016	Sea State	Confused swell
C5	01 Dec 2016	High Tide (ft)	5.63
C5	01 Dec 2016	High Tide Time	906
C5	01 Dec 2016	Low Tide (ft)	-0.27
C5	01 Dec 2016	Low Tide Time	1625
C5	01 Dec 2016	Comments	
C5	05 Dec 2016	Depth (m)	9
C5	05 Dec 2016	Arrive Time	1007
C5	05 Dec 2016	Depart Time	1010
C5	05 Dec 2016	Air Temp (C)	15
C5	05 Dec 2016	Weather	Partly Cloudy
C5	05 Dec 2016	Visibility (mi)	8
C5	05 Dec 2016	Wind Speed (kts)	7
C5	05 Dec 2016	Wind Dir	SW
C5	05 Dec 2016	Water Color	Brownish-Green
C5	05 Dec 2016	Wave Ht Low (ft)	3
C5	05 Dec 2016	Wave Period (sec)	9
C5	05 Dec 2016	Sea State	Light chop
C5	05 Dec 2016	High Tide (ft)	4.38
C5	05 Dec 2016	High Tide Time	1147
C5	05 Dec 2016	Low Tide (ft)	2.81
C5	05 Dec 2016	Low Tide Time	611
C5	05 Dec 2016	Comments	Kelp; Lobster floats

Station	Date	Parameter	Value
C5	13 Dec 2016	Depth (m)	10
C5	13 Dec 2016	Arrive Time	922
C5	13 Dec 2016	Depart Time	934
C5	13 Dec 2016	Air Temp (C)	16
C5	13 Dec 2016	Weather	Partly Cloudy
C5	13 Dec 2016	Visibility (mi)	8
C5	13 Dec 2016	Wind Speed (kts)	5
C5	13 Dec 2016	Wind Dir	SW
C5	13 Dec 2016	Water Color	Green
C5	13 Dec 2016	Wave Ht Low (ft)	2
C5	13 Dec 2016	Wave Period (sec)	11
C5	13 Dec 2016	Sea State	Calm
C5	13 Dec 2016	High Tide (ft)	6.92
C5	13 Dec 2016	High Tide Time	744
C5	13 Dec 2016	Low Tide (ft)	-1.52
C5	13 Dec 2016	Low Tide Time	1452
C5	13 Dec 2016	Comments	Kelp
C5	17 Dec 2016	Depth (m)	11
C5	17 Dec 2016	Arrive Time	911
C5	17 Dec 2016	Depart Time	914
C5	17 Dec 2016	Air Temp (C)	12
C5	17 Dec 2016	Weather	Clear
C5	17 Dec 2016	Visibility (mi)	9
C5	17 Dec 2016	Wind Speed (kts)	7
C5	17 Dec 2016	Wind Dir	SE
C5	17 Dec 2016	Water Color	Green
C5	17 Dec 2016	Wave Ht Low (ft)	9
C5	17 Dec 2016	Wave Period (sec)	9
C5	17 Dec 2016	Sea State	Confused swell
C5	17 Dec 2016	High Tide (ft)	5.62
C5	17 Dec 2016	High Tide Time	1047
C5	17 Dec 2016	Low Tide (ft)	1.97
C5	17 Dec 2016	Low Tide Time	452
C5	17 Dec 2016	Comments	Kelp; Lobster floats
C5	20 Dec 2016	Depth (m)	10
C5	20 Dec 2016	Arrive Time	928
C5	20 Dec 2016	Depart Time	932
C5	20 Dec 2016	Air Temp (C)	20
C5	20 Dec 2016	Weather	Clear
C5	20 Dec 2016	Visibility (mi)	18
C5	20 Dec 2016	Wind Speed (kts)	8
C5	20 Dec 2016	Wind Dir	S
C5	20 Dec 2016	Water Color	Brownish-Green
C5	20 Dec 2016	Wave Ht Low (ft)	2
C5	20 Dec 2016	Wave Period (sec)	9
C5	20 Dec 2016	Sea State	Calm
C5	20 Dec 2016	High Tide (ft)	3.63
C5	20 Dec 2016	High Tide Time	1401
C5	20 Dec 2016	Low Tide (ft)	2.24
C5	20 Dec 2016	Low Tide Time	847
C5	20 Dec 2016	Comments	Kelp; Lobster floats
A6	01 Dec 2016	Depth (m)	18

Station	Date	Parameter	Value
A6	01 Dec 2016	Arrive Time	825
A6	01 Dec 2016	Depart Time	829
A6	01 Dec 2016	Air Temp (C)	14
A6	01 Dec 2016	Weather	Clear
A6	01 Dec 2016	Visibility (mi)	10
A6	01 Dec 2016	Wind Speed (kts)	4
A6	01 Dec 2016	Wind Dir	NE
A6	01 Dec 2016	Water Color	Greenish-Blue
A6	01 Dec 2016	Wave Ht Low (ft)	5
A6	01 Dec 2016	Wave Period (sec)	13
A6	01 Dec 2016	Sea State	Confused swell
A6	01 Dec 2016	High Tide (ft)	5.63
A6	01 Dec 2016	High Tide Time	906
A6	01 Dec 2016	Low Tide (ft)	-0.27
A6	01 Dec 2016	Low Tide Time	1625
A6	01 Dec 2016	Comments	
A6	05 Dec 2016	Depth (m)	18
A6	05 Dec 2016	Arrive Time	821
A6	05 Dec 2016	Depart Time	825
A6	05 Dec 2016	Air Temp (C)	14
A6	05 Dec 2016	Weather	Partly Cloudy
A6	05 Dec 2016	Visibility (mi)	7
A6	05 Dec 2016	Wind Speed (kts)	7
A6	05 Dec 2016	Wind Dir	NW
A6	05 Dec 2016	Water Color	Green
A6	05 Dec 2016	Wave Ht Low (ft)	3
A6	05 Dec 2016	Wave Period (sec)	9
A6	05 Dec 2016	Sea State	Calm
A6	05 Dec 2016	High Tide (ft)	4.38
A6	05 Dec 2016	High Tide Time	1147
A6	05 Dec 2016	Low Tide (ft)	2.81
A6	05 Dec 2016	Low Tide Time	611
A6	05 Dec 2016	Comments	Kelp; Lobster floats
A6	13 Dec 2016	Depth (m)	17
A6	13 Dec 2016	Arrive Time	818
A6	13 Dec 2016	Depart Time	821
A6	13 Dec 2016	Air Temp (C)	15
A6	13 Dec 2016	Weather	Partly Cloudy
A6	13 Dec 2016	Visibility (mi)	8
A6	13 Dec 2016	Wind Speed (kts)	2
A6	13 Dec 2016	Wind Dir	E
A6	13 Dec 2016	Water Color	Green
A6	13 Dec 2016	Wave Ht Low (ft)	2
A6	13 Dec 2016	Wave Period (sec)	11
A6	13 Dec 2016	Sea State	Calm
A6	13 Dec 2016	High Tide (ft)	6.92
A6	13 Dec 2016	High Tide Time	744
A6	13 Dec 2016	Low Tide (ft)	-1.52
A6	13 Dec 2016	Low Tide Time	1452
A6	13 Dec 2016	Comments	Lobster floats; Kelp
A6	17 Dec 2016	Depth (m)	18
A6	17 Dec 2016	Arrive Time	811

Station	Date	Parameter	Value
A6	17 Dec 2016	Depart Time	815
A6	17 Dec 2016	Air Temp (C)	12
A6	17 Dec 2016	Weather	Clear
A6	17 Dec 2016	Visibility (mi)	9
A6	17 Dec 2016	Wind Speed (kts)	9
A6	17 Dec 2016	Wind Dir	NE
A6	17 Dec 2016	Water Color	Green
A6	17 Dec 2016	Wave Ht Low (ft)	10
A6	17 Dec 2016	Wave Period (sec)	9
A6	17 Dec 2016	Sea State	Confused swell
A6	17 Dec 2016	High Tide (ft)	5.62
A6	17 Dec 2016	High Tide Time	1047
A6	17 Dec 2016	Low Tide (ft)	1.97
A6	17 Dec 2016	Low Tide Time	452
A6	17 Dec 2016	Comments	Kelp; Lobster floats
A6	20 Dec 2016	Depth (m)	18
A6	20 Dec 2016	Arrive Time	830
A6	20 Dec 2016	Depart Time	832
A6	20 Dec 2016	Air Temp (C)	18
A6	20 Dec 2016	Weather	Clear
A6	20 Dec 2016	Visibility (mi)	18
A6	20 Dec 2016	Wind Speed (kts)	4
A6	20 Dec 2016	Wind Dir	NW
A6	20 Dec 2016	Water Color	Brownish-Green
A6	20 Dec 2016	Wave Ht Low (ft)	2
A6	20 Dec 2016	Wave Period (sec)	9
A6	20 Dec 2016	Sea State	Calm
A6	20 Dec 2016	High Tide (ft)	3.63
A6	20 Dec 2016	High Tide Time	1401
A6	20 Dec 2016	Low Tide (ft)	2.24
A6	20 Dec 2016	Low Tide Time	847
A6	20 Dec 2016	Comments	Lobster floats
C6	01 Dec 2016	Depth (m)	9
C6	01 Dec 2016	Arrive Time	915
C6	01 Dec 2016	Depart Time	922
C6	01 Dec 2016	Air Temp (C)	14
C6	01 Dec 2016	Weather	Clear
C6	01 Dec 2016	Visibility (mi)	12
C6	01 Dec 2016	Wind Speed (kts)	5
C6	01 Dec 2016	Wind Dir	NW
C6	01 Dec 2016	Water Color	Green
C6	01 Dec 2016	Wave Ht Low (ft)	5
C6	01 Dec 2016	Wave Period (sec)	13
C6	01 Dec 2016	Sea State	Confused swell
C6	01 Dec 2016	High Tide (ft)	5.63
C6	01 Dec 2016	High Tide Time	906
C6	01 Dec 2016	Low Tide (ft)	-0.27
C6	01 Dec 2016	Low Tide Time	1625
C6	01 Dec 2016	Comments	
C6	05 Dec 2016	Depth (m)	10
C6	05 Dec 2016	Arrive Time	956
C6	05 Dec 2016	Depart Time	958

Station	Date	Parameter	Value
C6	05 Dec 2016	Air Temp (C)	15
C6	05 Dec 2016	Weather	Partly Cloudy
C6	05 Dec 2016	Visibility (mi)	7
C6	05 Dec 2016	Wind Speed (kts)	7
C6	05 Dec 2016	Wind Dir	SE
C6	05 Dec 2016	Water Color	Green
C6	05 Dec 2016	Wave Ht Low (ft)	3
C6	05 Dec 2016	Wave Period (sec)	9
C6	05 Dec 2016	Sea State	Calm
C6	05 Dec 2016	High Tide (ft)	4.38
C6	05 Dec 2016	High Tide Time	1147
C6	05 Dec 2016	Low Tide (ft)	2.81
C6	05 Dec 2016	Low Tide Time	611
C6	05 Dec 2016	Comments	B8 sampling after C8; Kelp; Lobster floats; Boats
C6	13 Dec 2016	Depth (m)	10
C6	13 Dec 2016	Arrive Time	907
C6	13 Dec 2016	Depart Time	912
C6	13 Dec 2016	Air Temp (C)	15
C6	13 Dec 2016	Weather	Partly Cloudy
C6	13 Dec 2016	Visibility (mi)	8
C6	13 Dec 2016	Wind Speed (kts)	4
C6	13 Dec 2016	Wind Dir	W
C6	13 Dec 2016	Water Color	Green
C6	13 Dec 2016	Wave Ht Low (ft)	2
C6	13 Dec 2016	Wave Period (sec)	11
C6	13 Dec 2016	Sea State	Calm
C6	13 Dec 2016	High Tide (ft)	6.92
C6	13 Dec 2016	High Tide Time	744
C6	13 Dec 2016	Low Tide (ft)	-1.52
C6	13 Dec 2016	Low Tide Time	1452
C6	13 Dec 2016	Comments	Kelp; Lobster floats
C6	17 Dec 2016	Depth (m)	9
C6	17 Dec 2016	Arrive Time	859
C6	17 Dec 2016	Depart Time	905
C6	17 Dec 2016	Air Temp (C)	12
C6	17 Dec 2016	Weather	Clear
C6	17 Dec 2016	Visibility (mi)	9
C6	17 Dec 2016	Wind Speed (kts)	9
C6	17 Dec 2016	Wind Dir	E
C6	17 Dec 2016	Water Color	Green
C6	17 Dec 2016	Wave Ht Low (ft)	8
C6	17 Dec 2016	Wave Period (sec)	9
C6	17 Dec 2016	Sea State	Confused swell
C6	17 Dec 2016	High Tide (ft)	5.62
C6	17 Dec 2016	High Tide Time	1047
C6	17 Dec 2016	Low Tide (ft)	1.97
C6	17 Dec 2016	Low Tide Time	452
C6	17 Dec 2016	Comments	Kelp
C6	20 Dec 2016	Depth (m)	9
C6	20 Dec 2016	Arrive Time	917
C6	20 Dec 2016	Depart Time	920
C6	20 Dec 2016	Air Temp (C)	19

Station	Date	Parameter	Value
C6	20 Dec 2016	Weather	Clear
C6	20 Dec 2016	Visibility (mi)	18
C6	20 Dec 2016	Wind Speed (kts)	9
C6	20 Dec 2016	Wind Dir	E
C6	20 Dec 2016	Water Color	Brownish-Green
C6	20 Dec 2016	Wave Ht Low (ft)	2
C6	20 Dec 2016	Wave Period (sec)	9
C6	20 Dec 2016	Sea State	Calm
C6	20 Dec 2016	High Tide (ft)	3.63
C6	20 Dec 2016	High Tide Time	1401
C6	20 Dec 2016	Low Tide (ft)	2.24
C6	20 Dec 2016	Low Tide Time	847
C6	20 Dec 2016	Comments	Kelp; Lobster floats
A7	01 Dec 2016	Depth (m)	18
A7	01 Dec 2016	Arrive Time	808
A7	01 Dec 2016	Depart Time	815
A7	01 Dec 2016	Air Temp (C)	14
A7	01 Dec 2016	Weather	Clear
A7	01 Dec 2016	Visibility (mi)	10
A7	01 Dec 2016	Wind Speed (kts)	0
A7	01 Dec 2016	Wind Dir	
A7	01 Dec 2016	Water Color	Greenish-Blue
A7	01 Dec 2016	Wave Ht Low (ft)	5
A7	01 Dec 2016	Wave Period (sec)	13
A7	01 Dec 2016	Sea State	Confused swell
A7	01 Dec 2016	High Tide (ft)	5.63
A7	01 Dec 2016	High Tide Time	906
A7	01 Dec 2016	Low Tide (ft)	-0.27
A7	01 Dec 2016	Low Tide Time	1625
A7	01 Dec 2016	Comments	
A7	05 Dec 2016	Depth (m)	19
A7	05 Dec 2016	Arrive Time	808
A7	05 Dec 2016	Depart Time	811
A7	05 Dec 2016	Air Temp (C)	14
A7	05 Dec 2016	Weather	Partly Cloudy
A7	05 Dec 2016	Visibility (mi)	7
A7	05 Dec 2016	Wind Speed (kts)	7
A7	05 Dec 2016	Wind Dir	W
A7	05 Dec 2016	Water Color	Green
A7	05 Dec 2016	Wave Ht Low (ft)	3
A7	05 Dec 2016	Wave Period (sec)	9
A7	05 Dec 2016	Sea State	Calm
A7	05 Dec 2016	High Tide (ft)	4.38
A7	05 Dec 2016	High Tide Time	1147
A7	05 Dec 2016	Low Tide (ft)	2.81
A7	05 Dec 2016	Low Tide Time	611
A7	05 Dec 2016	Comments	Kelp; Lobster floats
A7	13 Dec 2016	Depth (m)	20
A7	13 Dec 2016	Arrive Time	806
A7	13 Dec 2016	Depart Time	808
A7	13 Dec 2016	Air Temp (C)	15
A7	13 Dec 2016	Weather	Partly Cloudy

Station	Date	Parameter	Value
A7	13 Dec 2016	Visibility (mi)	8
A7	13 Dec 2016	Wind Speed (kts)	2
A7	13 Dec 2016	Wind Dir	E
A7	13 Dec 2016	Water Color	Green
A7	13 Dec 2016	Wave Ht Low (ft)	2
A7	13 Dec 2016	Wave Period (sec)	11
A7	13 Dec 2016	Sea State	Calm
A7	13 Dec 2016	High Tide (ft)	6.92
A7	13 Dec 2016	High Tide Time	744
A7	13 Dec 2016	Low Tide (ft)	-1.52
A7	13 Dec 2016	Low Tide Time	1452
A7	13 Dec 2016	Comments	
A7	17 Dec 2016	Depth (m)	19
A7	17 Dec 2016	Arrive Time	757
A7	17 Dec 2016	Depart Time	800
A7	17 Dec 2016	Air Temp (C)	12
A7	17 Dec 2016	Weather	Clear
A7	17 Dec 2016	Visibility (mi)	9
A7	17 Dec 2016	Wind Speed (kts)	9
A7	17 Dec 2016	Wind Dir	NE
A7	17 Dec 2016	Water Color	Green
A7	17 Dec 2016	Wave Ht Low (ft)	10
A7	17 Dec 2016	Wave Period (sec)	9
A7	17 Dec 2016	Sea State	Confused swell
A7	17 Dec 2016	High Tide (ft)	5.62
A7	17 Dec 2016	High Tide Time	1047
A7	17 Dec 2016	Low Tide (ft)	1.97
A7	17 Dec 2016	Low Tide Time	452
A7	17 Dec 2016	Comments	Lobster floats; Kelp
A7	20 Dec 2016	Depth (m)	19
A7	20 Dec 2016	Arrive Time	816
A7	20 Dec 2016	Depart Time	818
A7	20 Dec 2016	Air Temp (C)	18
A7	20 Dec 2016	Weather	Clear
A7	20 Dec 2016	Visibility (mi)	18
A7	20 Dec 2016	Wind Speed (kts)	4
A7	20 Dec 2016	Wind Dir	NW
A7	20 Dec 2016	Water Color	Brownish-Green
A7	20 Dec 2016	Wave Ht Low (ft)	2
A7	20 Dec 2016	Wave Period (sec)	9
A7	20 Dec 2016	Sea State	Calm
A7	20 Dec 2016	High Tide (ft)	3.63
A7	20 Dec 2016	High Tide Time	1401
A7	20 Dec 2016	Low Tide (ft)	2.24
A7	20 Dec 2016	Low Tide Time	847
A7	20 Dec 2016	Comments	Lobster floats
C7	01 Dec 2016	Depth (m)	18
C7	01 Dec 2016	Arrive Time	841
C7	01 Dec 2016	Depart Time	844
C7	01 Dec 2016	Air Temp (C)	14
C7	01 Dec 2016	Weather	Clear
C7	01 Dec 2016	Visibility (mi)	10

Station	Date	Parameter	Value
C7	01 Dec 2016	Wind Speed (kts)	8
C7	01 Dec 2016	Wind Dir	E
C7	01 Dec 2016	Water Color	Greenish-Blue
C7	01 Dec 2016	Wave Ht Low (ft)	5
C7	01 Dec 2016	Wave Period (sec)	13
C7	01 Dec 2016	Sea State	Confused swell
C7	01 Dec 2016	High Tide (ft)	5.63
C7	01 Dec 2016	High Tide Time	906
C7	01 Dec 2016	Low Tide (ft)	-0.27
C7	01 Dec 2016	Low Tide Time	1625
C7	01 Dec 2016	Comments	
C7	05 Dec 2016	Depth (m)	19
C7	05 Dec 2016	Arrive Time	835
C7	05 Dec 2016	Depart Time	839
C7	05 Dec 2016	Air Temp (C)	15
C7	05 Dec 2016	Weather	Partly Cloudy
C7	05 Dec 2016	Visibility (mi)	7
C7	05 Dec 2016	Wind Speed (kts)	5
C7	05 Dec 2016	Wind Dir	W
C7	05 Dec 2016	Water Color	Green
C7	05 Dec 2016	Wave Ht Low (ft)	3
C7	05 Dec 2016	Wave Period (sec)	9
C7	05 Dec 2016	Sea State	Calm
C7	05 Dec 2016	High Tide (ft)	4.38
C7	05 Dec 2016	High Tide Time	1147
C7	05 Dec 2016	Low Tide (ft)	2.81
C7	05 Dec 2016	Low Tide Time	611
C7	05 Dec 2016	Comments	Lobster floats; Kelp
C7	13 Dec 2016	Depth (m)	18
C7	13 Dec 2016	Arrive Time	833
C7	13 Dec 2016	Depart Time	836
C7	13 Dec 2016	Air Temp (C)	15
C7	13 Dec 2016	Weather	Partly Cloudy
C7	13 Dec 2016	Visibility (mi)	8
C7	13 Dec 2016	Wind Speed (kts)	4
C7	13 Dec 2016	Wind Dir	SE
C7	13 Dec 2016	Water Color	Green
C7	13 Dec 2016	Wave Ht Low (ft)	2
C7	13 Dec 2016	Wave Period (sec)	11
C7	13 Dec 2016	Sea State	Calm
C7	13 Dec 2016	High Tide (ft)	6.92
C7	13 Dec 2016	High Tide Time	744
C7	13 Dec 2016	Low Tide (ft)	-1.52
C7	13 Dec 2016	Low Tide Time	1452
C7	13 Dec 2016	Comments	Kelp; Lobster floats
C7	17 Dec 2016	Depth (m)	19
C7	17 Dec 2016	Arrive Time	825
C7	17 Dec 2016	Depart Time	829
C7	17 Dec 2016	Air Temp (C)	12
C7	17 Dec 2016	Weather	Clear
C7	17 Dec 2016	Visibility (mi)	9
C7	17 Dec 2016	Wind Speed (kts)	6

Station	Date	Parameter	Value
C7	17 Dec 2016	Wind Dir	NE
C7	17 Dec 2016	Water Color	Green
C7	17 Dec 2016	Wave Ht Low (ft)	10
C7	17 Dec 2016	Wave Period (sec)	9
C7	17 Dec 2016	Sea State	Confused swell
C7	17 Dec 2016	High Tide (ft)	5.62
C7	17 Dec 2016	High Tide Time	1047
C7	17 Dec 2016	Low Tide (ft)	1.97
C7	17 Dec 2016	Low Tide Time	452
C7	17 Dec 2016	Comments	Kelp; Lobster floats
C7	20 Dec 2016	Depth (m)	18
C7	20 Dec 2016	Arrive Time	845
C7	20 Dec 2016	Depart Time	847
C7	20 Dec 2016	Air Temp (C)	19
C7	20 Dec 2016	Weather	Clear
C7	20 Dec 2016	Visibility (mi)	18
C7	20 Dec 2016	Wind Speed (kts)	4
C7	20 Dec 2016	Wind Dir	SW
C7	20 Dec 2016	Water Color	Brownish-Green
C7	20 Dec 2016	Wave Ht Low (ft)	2
C7	20 Dec 2016	Wave Period (sec)	9
C7	20 Dec 2016	Sea State	Calm
C7	20 Dec 2016	High Tide (ft)	3.63
C7	20 Dec 2016	High Tide Time	1401
C7	20 Dec 2016	Low Tide (ft)	2.24
C7	20 Dec 2016	Low Tide Time	847
C7	20 Dec 2016	Comments	Kelp; Lobster floats
C8	01 Dec 2016	Depth (m)	19
C8	01 Dec 2016	Arrive Time	853
C8	01 Dec 2016	Depart Time	901
C8	01 Dec 2016	Air Temp (C)	14
C8	01 Dec 2016	Weather	Clear
C8	01 Dec 2016	Visibility (mi)	8
C8	01 Dec 2016	Wind Speed (kts)	5
C8	01 Dec 2016	Wind Dir	E
C8	01 Dec 2016	Water Color	Bluish-Green
C8	01 Dec 2016	Wave Ht Low (ft)	6
C8	01 Dec 2016	Wave Period (sec)	11
C8	01 Dec 2016	Sea State	Confused swell
C8	01 Dec 2016	High Tide (ft)	5.63
C8	01 Dec 2016	High Tide Time	906
C8	01 Dec 2016	Low Tide (ft)	-0.27
C8	01 Dec 2016	Low Tide Time	1625
C8	01 Dec 2016	Comments	
C8	05 Dec 2016	Depth (m)	19
C8	05 Dec 2016	Arrive Time	846
C8	05 Dec 2016	Depart Time	849
C8	05 Dec 2016	Air Temp (C)	15
C8	05 Dec 2016	Weather	Partly Cloudy
C8	05 Dec 2016	Visibility (mi)	7
C8	05 Dec 2016	Wind Speed (kts)	6
C8	05 Dec 2016	Wind Dir	W

Station	Date	Parameter	Value
C8	05 Dec 2016	Water Color	Green
C8	05 Dec 2016	Wave Ht Low (ft)	3
C8	05 Dec 2016	Wave Period (sec)	9
C8	05 Dec 2016	Sea State	Calm
C8	05 Dec 2016	High Tide (ft)	4.38
C8	05 Dec 2016	High Tide Time	1147
C8	05 Dec 2016	Low Tide (ft)	2.81
C8	05 Dec 2016	Low Tide Time	611
C8	05 Dec 2016	Comments	Kelp
C8	13 Dec 2016	Depth (m)	19
C8	13 Dec 2016	Arrive Time	847
C8	13 Dec 2016	Depart Time	850
C8	13 Dec 2016	Air Temp (C)	14
C8	13 Dec 2016	Weather	Partly Cloudy
C8	13 Dec 2016	Visibility (mi)	8
C8	13 Dec 2016	Wind Speed (kts)	3
C8	13 Dec 2016	Wind Dir	NE
C8	13 Dec 2016	Water Color	Green
C8	13 Dec 2016	Wave Ht Low (ft)	2
C8	13 Dec 2016	Wave Period (sec)	11
C8	13 Dec 2016	Sea State	Calm
C8	13 Dec 2016	High Tide (ft)	6.92
C8	13 Dec 2016	High Tide Time	744
C8	13 Dec 2016	Low Tide (ft)	-1.52
C8	13 Dec 2016	Low Tide Time	1452
C8	13 Dec 2016	Comments	Lobster floats
C8	17 Dec 2016	Depth (m)	19
C8	17 Dec 2016	Arrive Time	837
C8	17 Dec 2016	Depart Time	842
C8	17 Dec 2016	Air Temp (C)	12
C8	17 Dec 2016	Weather	Clear
C8	17 Dec 2016	Visibility (mi)	9
C8	17 Dec 2016	Wind Speed (kts)	7
C8	17 Dec 2016	Wind Dir	SW
C8	17 Dec 2016	Water Color	Green
C8	17 Dec 2016	Wave Ht Low (ft)	8
C8	17 Dec 2016	Wave Period (sec)	9
C8	17 Dec 2016	Sea State	Confused swell
C8	17 Dec 2016	High Tide (ft)	5.62
C8	17 Dec 2016	High Tide Time	1047
C8	17 Dec 2016	Low Tide (ft)	1.97
C8	17 Dec 2016	Low Tide Time	452
C8	17 Dec 2016	Comments	Kelp debris
C8	20 Dec 2016	Depth (m)	19
C8	20 Dec 2016	Arrive Time	856
C8	20 Dec 2016	Depart Time	859
C8	20 Dec 2016	Air Temp (C)	14
C8	20 Dec 2016	Weather	Clear
C8	20 Dec 2016	Visibility (mi)	18
C8	20 Dec 2016	Wind Speed (kts)	7
C8	20 Dec 2016	Wind Dir	SW
C8	20 Dec 2016	Water Color	Brownish-Green

Station	Date	Parameter	Value
C8	20 Dec 2016	Wave Ht Low (ft)	2
C8	20 Dec 2016	Wave Period (sec)	9
C8	20 Dec 2016	Sea State	Calm
C8	20 Dec 2016	High Tide (ft)	3.63
C8	20 Dec 2016	High Tide Time	1401
C8	20 Dec 2016	Low Tide (ft)	2.24
C8	20 Dec 2016	Low Tide Time	847
C8	20 Dec 2016	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	01 Dec 2016	1	15.23	82.08	7.7	33.32	8.1	24.6	2.19
A1	01 Dec 2016	2	15.23	81.98	7.7	33.32	8.1	24.6	2.28
A1	01 Dec 2016	3	15.23	82.08	7.5	33.32	8.1	24.6	2.08
A1	01 Dec 2016	4	15.23	82.26	7.1	33.32	8.1	24.6	1.77
A1	01 Dec 2016	5	15.16	82.32	6.7	33.31	8.1	24.6	1.52
A1	01 Dec 2016	6	14.90	82.75	6.3	33.30	8.1	24.7	1.34
A1	01 Dec 2016	7	14.62	83.24	6.1	33.28	8.1	24.7	1.12
A1	01 Dec 2016	8	13.99	82.97	6.1	33.28	8.1	24.9	0.84
A1	01 Dec 2016	9	13.82	83.18	6.1	33.28	8.1	24.9	0.68
A1	01 Dec 2016	10	13.59	83.45	6.1	33.27	8.0	24.9	0.61
A1	01 Dec 2016	11	13.45	83.92	6.1	33.28	8.0	25.0	0.55
A1	01 Dec 2016	12	13.41	83.30	6.0	33.28	8.0	25.0	0.50
A1	01 Dec 2016	13	13.34	82.10	6.0	33.28	8.0	25.0	0.50
A1	01 Dec 2016	14	13.28	80.86	6.0	33.28	8.0	25.0	0.49
A1	01 Dec 2016	15	13.24	80.18	6.0	33.28	8.0	25.0	0.48
A1	01 Dec 2016	16	13.20	79.37	5.9	33.29	8.0	25.0	0.45
A1	01 Dec 2016	17	13.19	79.08	5.9	33.29	8.0	25.0	0.44
A1	01 Dec 2016	18	13.12	78.17	5.8	33.29	8.0	25.0	0.43
A1	01 Dec 2016	19	13.06	75.74	5.8	33.30	8.0	25.1	0.43
A1	05 Dec 2016	1	14.78	79.47	7.9	33.32	8.1	24.7	3.78
A1	05 Dec 2016	2	14.78	79.17	7.9	33.32	8.1	24.7	3.93
A1	05 Dec 2016	3	14.78	79.49	7.9	33.32	8.1	24.7	4.04
A1	05 Dec 2016	4	14.79	79.57	7.9	33.32	8.1	24.7	3.96
A1	05 Dec 2016	5	14.79	79.62	7.8	33.32	8.1	24.7	3.48
A1	05 Dec 2016	6	14.79	79.56	7.7	33.32	8.1	24.7	2.87
A1	05 Dec 2016	7	14.78	79.64	7.5	33.32	8.1	24.7	2.73
A1	05 Dec 2016	8	14.74	80.42	7.4	33.31	8.1	24.7	2.78
A1	05 Dec 2016	9	14.65	81.85	7.4	33.31	8.1	24.7	2.63
A1	05 Dec 2016	10	14.58	81.91	7.3	33.31	8.1	24.8	2.24
A1	05 Dec 2016	11	14.56	81.55	7.2	33.31	8.1	24.8	1.88
A1	05 Dec 2016	12	14.52	81.90	7.0	33.30	8.1	24.8	1.89
A1	05 Dec 2016	13	14.38	82.46	7.0	33.29	8.1	24.8	1.59
A1	05 Dec 2016	14	14.24	83.10	6.9	33.29	8.1	24.8	1.21
A1	05 Dec 2016	15	14.26	83.02	6.7	33.30	8.1	24.8	0.99
A1	05 Dec 2016	16	14.07	83.02	6.6	33.28	8.0	24.8	0.94
A1	05 Dec 2016	17	13.94	82.43	6.8	33.29	8.0	24.9	1.06
A1	05 Dec 2016	18	13.93	82.41	6.9	33.29	8.0	24.9	1.09
A1	13 Dec 2016	1	15.63	84.75	8.3	33.34	8.2	24.6	1.23
A1	13 Dec 2016	2	15.63	83.16	8.2	33.34	8.2	24.6	1.25
A1	13 Dec 2016	3	15.64	84.99	8.2	33.34	8.2	24.6	1.27
A1	13 Dec 2016	4	15.63	85.34	8.2	33.34	8.2	24.6	1.20
A1	13 Dec 2016	5	15.63	85.33	8.2	33.34	8.2	24.6	1.28
A1	13 Dec 2016	6	15.65	85.29	8.2	33.34	8.2	24.5	1.27
A1	13 Dec 2016	7	15.65	85.46	8.2	33.34	8.2	24.5	1.26
A1	13 Dec 2016	8	15.64	85.63	8.2	33.34	8.2	24.5	1.30
A1	13 Dec 2016	9	15.64	85.42	8.2	33.34	8.2	24.5	1.27
A1	13 Dec 2016	10	15.65	85.53	7.8	33.34	8.2	24.5	1.32
A1	13 Dec 2016	11	15.64	85.51	7.3	33.34	8.2	24.5	1.36

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
A1	13 Dec 2016	12	15.26	85.54	7.1	33.29	8.2	24.6	1.37
A1	13 Dec 2016	13	14.84	86.00	7.0	33.30	8.1	24.7	1.31
A1	13 Dec 2016	14	14.71	86.17	6.8	33.29	8.1	24.7	1.21
A1	13 Dec 2016	15	14.56	86.19	6.3	33.28	8.1	24.7	1.04
A1	13 Dec 2016	16	14.15	86.40	5.8	33.28	8.1	24.8	0.96
A1	13 Dec 2016	17	13.69	86.62	5.6	33.25	8.1	24.9	0.91
A1	13 Dec 2016	18	13.07	86.94	5.9	33.30	8.1	25.1	0.94
A1	13 Dec 2016	19	13.05	86.20	6.0	33.30	8.1	25.1	0.91
A1	17 Dec 2016	1	14.93	77.04	7.4	33.27	8.0	24.7	0.98
A1	17 Dec 2016	2	14.91	77.07	7.0	33.27	8.0	24.7	1.09
A1	17 Dec 2016	3	14.81	77.93	6.6	33.26	8.0	24.7	1.14
A1	17 Dec 2016	4	14.25	80.65	6.6	33.28	8.0	24.8	1.16
A1	17 Dec 2016	5	14.32	81.52	6.2	33.28	8.0	24.8	1.13
A1	17 Dec 2016	6	13.86	82.56	6.0	33.25	8.0	24.9	1.11
A1	17 Dec 2016	7	13.54	82.75	6.0	33.30	8.0	25.0	1.10
A1	17 Dec 2016	8	13.50	80.16	6.1	33.30	8.0	25.0	1.10
A1	17 Dec 2016	9	13.34	78.87	6.1	33.30	8.0	25.0	1.07
A1	17 Dec 2016	10	13.34	80.07	6.0	33.30	8.0	25.0	1.09
A1	17 Dec 2016	11	13.23	79.55	6.0	33.30	8.0	25.0	1.06
A1	17 Dec 2016	12	13.21	79.38	5.9	33.31	8.0	25.0	0.96
A1	17 Dec 2016	13	13.18	79.14	5.7	33.29	8.0	25.0	0.94
A1	17 Dec 2016	14	12.89	79.99	5.8	33.31	8.0	25.1	0.91
A1	17 Dec 2016	15	12.83	80.88	5.8	33.32	7.9	25.1	0.86
A1	17 Dec 2016	16	12.87	80.50	5.7	33.31	7.9	25.1	0.88
A1	17 Dec 2016	17	12.79	79.79	5.7	33.32	7.9	25.1	0.86
A1	17 Dec 2016	18	12.77	79.18	5.7	33.33	7.9	25.1	0.89
A1	17 Dec 2016	19	12.77	77.41	5.8	33.33	7.9	25.1	0.87
A1	20 Dec 2016	1	15.38	81.82	8.0	33.34	8.2	24.6	1.24
A1	20 Dec 2016	2	15.39	84.41	7.9	33.35	8.2	24.6	1.26
A1	20 Dec 2016	3	15.39	85.98	7.8	33.34	8.2	24.6	1.26
A1	20 Dec 2016	4	15.35	86.00	7.6	33.34	8.2	24.6	1.19
A1	20 Dec 2016	5	15.28	86.11	7.4	33.33	8.2	24.6	1.13
A1	20 Dec 2016	6	15.19	86.18	7.2	33.33	8.2	24.6	1.08
A1	20 Dec 2016	7	14.83	86.22	7.1	33.30	8.1	24.7	1.03
A1	20 Dec 2016	8	14.49	86.41	7.0	33.30	8.1	24.8	0.92
A1	20 Dec 2016	9	14.36	86.60	6.7	33.30	8.1	24.8	0.89
A1	20 Dec 2016	10	14.12	86.78	6.6	33.27	8.1	24.8	0.85
A1	20 Dec 2016	11	13.68	87.36	6.7	33.26	8.1	24.9	0.80
A1	20 Dec 2016	12	13.41	88.19	6.7	33.26	8.1	25.0	0.78
A1	20 Dec 2016	13	13.27	88.39	6.7	33.27	8.1	25.0	0.81
A1	20 Dec 2016	14	13.19	88.36	6.7	33.27	8.1	25.0	0.78
A1	20 Dec 2016	15	13.10	88.58	6.7	33.27	8.1	25.0	0.75
A1	20 Dec 2016	16	13.06	88.35	6.7	33.27	8.1	25.0	0.77
A1	20 Dec 2016	17	13.04	88.30	6.8	33.28	8.0	25.1	0.79
A1	20 Dec 2016	18	13.04	88.40	6.8	33.28	8.0	25.1	0.78
A1	20 Dec 2016	19	13.05	87.76	6.8	33.28	8.0	25.1	0.79
C4	01 Dec 2016	1	15.17	77.88	7.7	33.34	8.1	24.7	1.59
C4	01 Dec 2016	2	15.18	77.65	7.7	33.34	8.1	24.7	1.85
C4	01 Dec 2016	3	15.19	77.73	7.6	33.34	8.1	24.6	1.87
C4	01 Dec 2016	4	15.16	77.82	7.5	33.34	8.1	24.7	1.60
C4	01 Dec 2016	5	15.14	78.35	7.2	33.34	8.1	24.7	1.31
C4	01 Dec 2016	6	15.12	78.73	7.0	33.34	8.1	24.7	1.14

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
C4	01 Dec 2016	7	15.10	79.27	6.8	33.33	8.1	24.7	0.91
C4	01 Dec 2016	8	15.07	79.86	6.6	33.33	8.1	24.7	0.77
C4	01 Dec 2016	9	15.01	79.73	6.5	33.33	8.1	24.7	0.75
C4	01 Dec 2016	10	14.95	78.59	6.7	33.33	8.1	24.7	0.76
C4	01 Dec 2016	11	14.95	76.56	6.8	33.33	8.1	24.7	0.70
C4	05 Dec 2016	1	14.65	77.79	7.9	33.35	8.1	24.8	1.33
C4	05 Dec 2016	2	14.65	77.68	7.8	33.35	8.1	24.8	1.60
C4	05 Dec 2016	3	14.64	77.58	7.7	33.35	8.1	24.8	1.57
C4	05 Dec 2016	4	14.61	77.72	7.3	33.34	8.1	24.8	1.43
C4	05 Dec 2016	5	14.56	77.84	6.9	33.34	8.1	24.8	1.11
C4	05 Dec 2016	6	14.42	77.96	6.5	33.33	8.1	24.8	0.83
C4	05 Dec 2016	7	14.30	78.23	6.1	33.32	8.1	24.8	0.84
C4	05 Dec 2016	8	13.94	77.36	6.2	33.29	8.1	24.9	0.83
C4	05 Dec 2016	9	13.81	72.48	6.4	33.30	8.0	24.9	0.71
C4	05 Dec 2016	10	13.93	68.80	6.2	33.29	8.0	24.9	0.73
C4	05 Dec 2016	11	13.77	67.12	6.3	33.30	8.0	24.9	0.71
C4	13 Dec 2016	1	16.09	82.82	8.3	33.35	8.2	24.5	0.82
C4	13 Dec 2016	2	16.07	82.48	8.1	33.34	8.2	24.5	0.88
C4	13 Dec 2016	3	15.95	81.38	7.3	33.34	8.2	24.5	0.76
C4	13 Dec 2016	4	15.65	82.61	6.7	33.31	8.2	24.5	0.68
C4	13 Dec 2016	5	15.11	84.11	6.3	33.30	8.2	24.6	0.60
C4	13 Dec 2016	6	14.66	85.25	6.2	33.28	8.1	24.7	0.53
C4	13 Dec 2016	7	14.21	85.83	6.2	33.27	8.1	24.8	0.50
C4	13 Dec 2016	8	13.91	85.68	6.3	33.26	8.1	24.9	0.51
C4	13 Dec 2016	9	13.79	84.52	6.5	33.26	8.1	24.9	0.53
C4	13 Dec 2016	10	13.75	82.67	6.6	33.26	8.1	24.9	0.53
C4	13 Dec 2016	11	13.71	84.01	6.6	33.26	8.0	24.9	0.52
C4	17 Dec 2016	1	14.75	54.86	8.1	33.20	8.1	24.6	1.22
C4	17 Dec 2016	2	14.75	54.45	8.1	33.21	8.1	24.6	1.25
C4	17 Dec 2016	3	14.75	54.41	8.0	33.21	8.1	24.6	1.28
C4	17 Dec 2016	4	14.76	54.87	8.0	33.21	8.1	24.6	1.28
C4	17 Dec 2016	5	14.76	55.03	8.0	33.21	8.1	24.6	1.28
C4	17 Dec 2016	6	14.77	55.00	8.0	33.21	8.1	24.6	1.25
C4	17 Dec 2016	7	14.77	54.24	8.0	33.20	8.1	24.6	1.23
C4	17 Dec 2016	8	14.77	54.49	8.1	33.20	8.1	24.6	1.18
C4	17 Dec 2016	9	14.75	54.01	8.1	33.20	8.1	24.6	1.19
C4	17 Dec 2016	10	14.74	50.92	8.1	33.21	8.1	24.6	1.22
C4	17 Dec 2016	11	14.73	48.66	8.1	33.21	8.1	24.6	1.21
C4	17 Dec 2016	12	14.73	47.60	8.1	33.21	8.1	24.6	1.21
C4	20 Dec 2016	1	14.57	82.25	8.2	33.33	8.2	24.8	1.09
C4	20 Dec 2016	2	14.57	82.23	8.2	33.33	8.2	24.8	1.25
C4	20 Dec 2016	3	14.57	82.09	8.2	33.33	8.2	24.8	1.34
C4	20 Dec 2016	4	14.57	82.00	8.2	33.33	8.2	24.8	1.29
C4	20 Dec 2016	5	14.56	81.99	8.1	33.33	8.2	24.8	1.12
C4	20 Dec 2016	6	14.55	81.95	8.1	33.32	8.2	24.8	0.95
C4	20 Dec 2016	7	14.49	81.77	8.1	33.32	8.2	24.8	0.88
C4	20 Dec 2016	8	14.42	80.33	8.1	33.32	8.1	24.8	0.87
C4	20 Dec 2016	9	14.37	77.33	8.1	33.31	8.1	24.8	0.89
C4	20 Dec 2016	10	14.37	74.51	8.2	33.31	8.1	24.8	0.96
C5	01 Dec 2016	1	15.24	71.81	7.4	33.36	8.1	24.7	1.18

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
C5	01 Dec 2016	2	15.24	71.50	7.4	33.36	8.1	24.7	1.30
C5	01 Dec 2016	3	15.21	71.61	7.4	33.36	8.1	24.7	1.31
C5	01 Dec 2016	4	15.20	72.21	7.3	33.36	8.1	24.7	1.28
C5	01 Dec 2016	5	15.19	72.64	7.3	33.36	8.1	24.7	1.20
C5	01 Dec 2016	6	15.19	72.73	7.2	33.36	8.1	24.7	1.08
C5	01 Dec 2016	7	15.18	72.79	6.9	33.35	8.1	24.7	0.93
C5	01 Dec 2016	8	15.17	73.41	6.2	33.35	8.1	24.7	0.91
C5	01 Dec 2016	9	15.11	74.11	5.8	33.34	8.1	24.7	0.94
C5	01 Dec 2016	10	14.87	72.23	5.8	33.32	8.1	24.7	0.94
C5	01 Dec 2016	11	14.68	57.85	6.2	33.33	8.0	24.8	1.00
C5	05 Dec 2016	1	14.96	53.43	7.8	33.38	8.1	24.7	1.66
C5	05 Dec 2016	2	14.98	51.92	7.8	33.38	8.1	24.7	1.40
C5	05 Dec 2016	3	14.96	48.11	7.8	33.38	8.1	24.7	1.23
C5	05 Dec 2016	4	14.91	51.11	7.7	33.38	8.1	24.7	1.21
C5	05 Dec 2016	5	14.89	46.12	7.5	33.37	8.1	24.7	1.16
C5	05 Dec 2016	6	14.83	51.19	7.3	33.37	8.1	24.8	1.17
C5	05 Dec 2016	7	14.80	54.40	7.0	33.37	8.1	24.8	1.20
C5	05 Dec 2016	8	14.74	56.61	6.8	33.36	8.1	24.8	1.28
C5	05 Dec 2016	9	14.66	49.70	6.8	33.35	8.1	24.8	1.31
C5	05 Dec 2016	10	14.66	49.01	6.9	33.35	8.0	24.8	1.25
C5	13 Dec 2016	1	16.07	81.63	8.4	33.35	8.2	24.5	0.74
C5	13 Dec 2016	2	16.08	82.57	8.3	33.35	8.2	24.5	0.86
C5	13 Dec 2016	3	16.03	82.55	7.6	33.34	8.2	24.5	0.58
C5	13 Dec 2016	4	15.95	82.63	6.3	33.34	8.2	24.5	0.48
C5	13 Dec 2016	5	15.59	83.44	5.8	33.29	8.2	24.5	0.57
C5	13 Dec 2016	6	14.68	85.04	6.0	33.28	8.1	24.7	0.65
C5	13 Dec 2016	7	14.18	85.65	6.4	33.28	8.1	24.8	0.70
C5	13 Dec 2016	8	13.94	84.95	6.5	33.27	8.1	24.9	0.70
C5	13 Dec 2016	9	13.83	84.75	6.5	33.27	8.1	24.9	0.70
C5	13 Dec 2016	10	13.81	84.93	6.6	33.27	8.1	24.9	0.68
C5	17 Dec 2016	1	14.90	62.28	7.9	33.23	8.1	24.6	0.87
C5	17 Dec 2016	2	14.91	62.71	7.9	33.23	8.1	24.6	1.02
C5	17 Dec 2016	3	14.91	63.78	7.9	33.23	8.1	24.6	1.04
C5	17 Dec 2016	4	14.91	63.92	7.8	33.23	8.1	24.6	1.05
C5	17 Dec 2016	5	14.91	63.45	7.9	33.23	8.1	24.6	1.07
C5	17 Dec 2016	6	14.91	63.74	7.9	33.23	8.1	24.6	1.03
C5	17 Dec 2016	7	14.91	64.14	7.4	33.23	8.1	24.6	1.07
C5	17 Dec 2016	8	14.91	63.99	6.7	33.23	8.1	24.6	1.16
C5	17 Dec 2016	9	14.79	62.12	6.4	33.24	8.1	24.7	1.17
C5	17 Dec 2016	10	14.37	56.20	6.6	33.29	8.1	24.8	1.19
C5	17 Dec 2016	11	14.35	33.83	7.0	33.29	8.1	24.8	1.18
C5	20 Dec 2016	1	14.67	83.28	8.3	33.33	8.2	24.8	1.34
C5	20 Dec 2016	2	14.63	83.15	8.3	33.33	8.2	24.8	1.38
C5	20 Dec 2016	3	14.62	83.35	8.2	33.33	8.2	24.8	1.38
C5	20 Dec 2016	4	14.55	83.39	8.2	33.32	8.2	24.8	1.33
C5	20 Dec 2016	5	14.50	83.10	8.2	33.32	8.2	24.8	1.26
C5	20 Dec 2016	6	14.48	82.89	8.1	33.32	8.2	24.8	0.99
C5	20 Dec 2016	7	14.46	82.78	7.7	33.32	8.2	24.8	0.81
C5	20 Dec 2016	8	14.43	82.51	7.4	33.32	8.2	24.8	0.73
C5	20 Dec 2016	9	14.33	82.12	7.5	33.31	8.1	24.8	0.79
C5	20 Dec 2016	10	14.29	80.96	7.9	33.31	8.1	24.8	0.93

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
A6	01 Dec 2016	1	15.19	83.09	7.4	33.34	8.1	24.6	1.43
A6	01 Dec 2016	2	15.17	82.93	7.3	33.33	8.1	24.6	1.58
A6	01 Dec 2016	3	15.15	82.85	7.2	33.33	8.1	24.7	1.63
A6	01 Dec 2016	4	15.14	82.78	6.8	33.33	8.1	24.7	1.43
A6	01 Dec 2016	5	14.96	82.80	6.4	33.30	8.1	24.7	1.24
A6	01 Dec 2016	6	14.62	82.43	6.2	33.30	8.1	24.7	1.01
A6	01 Dec 2016	7	14.33	81.86	6.1	33.29	8.1	24.8	0.90
A6	01 Dec 2016	8	14.00	80.98	6.1	33.29	8.0	24.9	0.85
A6	01 Dec 2016	9	13.74	81.07	6.2	33.28	8.0	24.9	0.83
A6	01 Dec 2016	10	13.57	82.80	6.3	33.28	8.0	24.9	0.79
A6	01 Dec 2016	11	13.56	83.63	6.3	33.28	8.0	24.9	0.74
A6	01 Dec 2016	12	13.55	83.65	6.3	33.28	8.0	24.9	0.74
A6	01 Dec 2016	13	13.48	84.06	6.2	33.28	8.0	25.0	0.67
A6	01 Dec 2016	14	13.46	84.60	6.2	33.28	8.0	25.0	0.66
A6	01 Dec 2016	15	13.42	84.18	6.2	33.28	8.0	25.0	0.63
A6	01 Dec 2016	16	13.41	84.09	6.2	33.28	8.0	25.0	0.64
A6	01 Dec 2016	17	13.39	83.73	6.2	33.28	8.0	25.0	0.68
A6	01 Dec 2016	18	13.39	83.72	6.2	33.29	8.0	25.0	0.64
A6	05 Dec 2016	1	14.69	79.79	8.0	33.32	8.1	24.7	3.35
A6	05 Dec 2016	2	14.69	79.63	7.9	33.32	8.1	24.7	3.50
A6	05 Dec 2016	3	14.69	79.39	7.9	33.32	8.1	24.7	3.57
A6	05 Dec 2016	4	14.69	79.25	7.9	33.32	8.1	24.7	3.67
A6	05 Dec 2016	5	14.69	79.25	7.8	33.32	8.1	24.7	3.03
A6	05 Dec 2016	6	14.69	79.31	7.7	33.32	8.1	24.7	2.79
A6	05 Dec 2016	7	14.67	79.53	7.6	33.32	8.1	24.7	2.83
A6	05 Dec 2016	8	14.66	80.29	7.7	33.32	8.1	24.8	2.87
A6	05 Dec 2016	9	14.67	80.46	7.7	33.32	8.1	24.8	2.33
A6	05 Dec 2016	10	14.67	80.51	7.5	33.32	8.1	24.8	1.84
A6	05 Dec 2016	11	14.65	80.66	7.2	33.32	8.1	24.8	1.36
A6	05 Dec 2016	12	14.57	81.31	6.8	33.32	8.1	24.8	1.17
A6	05 Dec 2016	13	14.44	81.47	6.7	33.31	8.1	24.8	1.13
A6	05 Dec 2016	14	14.21	81.16	6.8	33.31	8.1	24.8	1.05
A6	05 Dec 2016	15	14.19	80.99	6.6	33.31	8.0	24.8	0.93
A6	05 Dec 2016	16	14.10	81.16	6.4	33.30	8.0	24.9	0.90
A6	05 Dec 2016	17	13.88	80.52	6.5	33.30	8.0	24.9	0.89
A6	05 Dec 2016	18	13.85	79.93	6.6	33.31	8.0	24.9	0.96
A6	13 Dec 2016	1	15.75	85.67	7.7	33.34	8.1	24.5	1.03
A6	13 Dec 2016	2	15.79	85.68	7.3	33.34	8.1	24.5	1.09
A6	13 Dec 2016	3	15.56	85.67	7.0	33.32	8.1	24.6	1.13
A6	13 Dec 2016	4	15.32	85.78	6.8	33.32	8.1	24.6	1.03
A6	13 Dec 2016	5	15.10	85.96	6.6	33.31	8.1	24.6	0.98
A6	13 Dec 2016	6	15.01	85.67	6.2	33.32	8.1	24.7	0.96
A6	13 Dec 2016	7	14.91	85.41	6.1	33.28	8.1	24.7	0.92
A6	13 Dec 2016	8	14.01	85.33	6.1	33.22	8.1	24.8	0.86
A6	13 Dec 2016	9	13.51	86.41	6.0	33.27	8.1	24.9	0.80
A6	13 Dec 2016	10	13.42	86.56	5.8	33.26	8.1	25.0	0.74
A6	13 Dec 2016	11	13.21	87.20	5.7	33.25	8.1	25.0	0.70
A6	13 Dec 2016	12	13.03	87.46	5.7	33.28	8.0	25.1	0.69
A6	13 Dec 2016	13	12.92	87.65	5.8	33.29	8.0	25.1	0.70
A6	13 Dec 2016	14	12.86	87.46	5.8	33.29	8.0	25.1	0.70
A6	13 Dec 2016	15	12.84	87.03	5.8	33.30	8.0	25.1	0.71
A6	13 Dec 2016	16	12.83	86.83	5.8	33.30	8.0	25.1	0.68

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
A6	13 Dec 2016	17	12.81	86.72	5.8	33.30	8.0	25.1	0.66
A6	13 Dec 2016	18	12.80	86.74	5.8	33.30	8.0	25.1	0.67
A6	13 Dec 2016	19	12.79	86.73	5.7	33.30	8.0	25.1	0.68
A6	13 Dec 2016	20	12.72	86.65	5.7	33.31	8.0	25.1	0.64
A6	13 Dec 2016	21	12.68	86.53	5.7	33.32	8.0	25.2	0.64
A6	17 Dec 2016	1	15.07	75.68	7.6	33.27	8.1	24.6	1.06
A6	17 Dec 2016	2	15.09	75.43	7.5	33.27	8.1	24.6	1.12
A6	17 Dec 2016	3	15.09	75.38	7.0	33.27	8.1	24.6	1.12
A6	17 Dec 2016	4	15.09	75.33	6.4	33.27	8.1	24.6	1.13
A6	17 Dec 2016	5	15.05	75.33	6.0	33.26	8.1	24.6	1.14
A6	17 Dec 2016	6	14.53	76.40	6.1	33.21	8.1	24.7	1.15
A6	17 Dec 2016	7	13.84	80.17	6.4	33.30	8.1	24.9	1.16
A6	17 Dec 2016	8	13.78	80.61	6.4	33.30	8.1	24.9	1.18
A6	17 Dec 2016	9	14.07	80.19	6.0	33.26	8.1	24.8	1.13
A6	17 Dec 2016	10	13.55	79.84	5.8	33.28	8.0	25.0	1.05
A6	17 Dec 2016	11	13.20	80.65	5.9	33.28	8.0	25.0	1.07
A6	17 Dec 2016	12	13.11	80.36	6.0	33.29	8.0	25.0	1.10
A6	17 Dec 2016	13	12.98	80.68	6.0	33.30	8.0	25.1	1.01
A6	17 Dec 2016	14	13.13	80.68	5.8	33.29	8.0	25.0	0.93
A6	17 Dec 2016	15	12.98	80.87	5.7	33.29	8.0	25.1	0.89
A6	17 Dec 2016	16	12.87	81.14	5.8	33.31	8.0	25.1	0.92
A6	17 Dec 2016	17	12.82	80.86	5.8	33.31	8.0	25.1	0.88
A6	17 Dec 2016	18	12.82	80.20	5.8	33.31	8.0	25.1	0.89
A6	20 Dec 2016	1	15.33	86.03	8.0	33.34	8.2	24.6	1.32
A6	20 Dec 2016	2	15.34	86.01	7.9	33.34	8.2	24.6	1.32
A6	20 Dec 2016	3	15.34	85.78	7.8	33.34	8.2	24.6	1.12
A6	20 Dec 2016	4	15.33	86.01	7.5	33.34	8.2	24.6	0.96
A6	20 Dec 2016	5	15.28	86.05	7.2	33.33	8.2	24.6	0.92
A6	20 Dec 2016	6	15.02	86.12	7.0	33.31	8.1	24.7	0.94
A6	20 Dec 2016	7	14.75	86.49	6.8	33.31	8.1	24.7	0.91
A6	20 Dec 2016	8	14.53	86.58	6.7	33.30	8.1	24.8	0.88
A6	20 Dec 2016	9	14.17	86.65	6.6	33.30	8.1	24.8	0.82
A6	20 Dec 2016	10	13.82	86.67	6.6	33.27	8.1	24.9	0.78
A6	20 Dec 2016	11	13.41	86.95	6.6	33.28	8.1	25.0	0.74
A6	20 Dec 2016	12	13.28	87.30	6.6	33.27	8.0	25.0	0.72
A6	20 Dec 2016	13	13.11	87.85	6.6	33.26	8.0	25.0	0.69
A6	20 Dec 2016	14	13.01	88.26	6.6	33.28	8.0	25.1	0.67
A6	20 Dec 2016	15	12.99	88.00	6.6	33.28	8.0	25.1	0.66
A6	20 Dec 2016	16	13.01	87.75	6.6	33.28	8.0	25.1	0.64
A6	20 Dec 2016	17	13.01	87.75	6.6	33.28	8.0	25.1	0.67
A6	20 Dec 2016	18	13.02	87.07	6.7	33.28	8.0	25.1	0.68
C6	01 Dec 2016	1	15.19	80.07	7.6	33.34	8.1	24.7	1.28
C6	01 Dec 2016	2	15.18	80.44	7.6	33.34	8.1	24.7	1.42
C6	01 Dec 2016	3	15.18	80.52	7.6	33.34	8.1	24.7	1.59
C6	01 Dec 2016	4	15.18	80.43	7.6	33.34	8.1	24.7	1.68
C6	01 Dec 2016	5	15.18	80.47	7.4	33.34	8.1	24.7	1.52
C6	01 Dec 2016	6	15.16	80.37	7.2	33.34	8.1	24.7	1.26
C6	01 Dec 2016	7	15.11	80.43	6.9	33.34	8.1	24.7	0.95
C6	01 Dec 2016	8	15.07	80.95	6.3	33.34	8.1	24.7	0.72
C6	01 Dec 2016	9	14.95	80.88	6.0	33.33	8.1	24.7	0.66
C6	01 Dec 2016	10	14.77	80.85	6.1	33.32	8.1	24.7	0.64
C6	01 Dec 2016	11	14.69	80.31	6.2	33.32	8.1	24.7	0.65

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
C6	05 Dec 2016	1	14.77	73.76	7.5	33.35	8.1	24.7	0.91
	05 Dec 2016	2	14.77	74.00	7.4	33.35	8.1	24.7	1.01
	05 Dec 2016	3	14.72	74.37	7.3	33.35	8.1	24.8	1.04
	05 Dec 2016	4	14.70	74.84	7.3	33.35	8.1	24.8	1.05
	05 Dec 2016	5	14.68	74.53	7.2	33.34	8.1	24.8	1.00
	05 Dec 2016	6	14.68	74.91	7.1	33.34	8.1	24.8	1.02
	05 Dec 2016	7	14.65	75.35	7.1	33.34	8.1	24.8	1.03
	05 Dec 2016	8	14.65	75.51	7.1	33.34	8.1	24.8	1.00
	05 Dec 2016	9	14.64	75.08	7.1	33.34	8.1	24.8	1.01
	13 Dec 2016	1	16.09	81.98	8.4	33.35	8.2	24.5	0.99
C6	13 Dec 2016	2	16.11	82.20	8.3	33.35	8.2	24.5	0.90
	13 Dec 2016	3	16.09	82.23	7.7	33.35	8.2	24.5	0.69
	13 Dec 2016	4	16.07	81.84	6.8	33.35	8.2	24.5	0.56
	13 Dec 2016	5	15.89	81.86	6.2	33.32	8.2	24.5	0.49
	13 Dec 2016	6	15.46	83.61	6.0	33.31	8.2	24.6	0.46
	13 Dec 2016	7	15.08	85.78	6.0	33.32	8.1	24.7	0.46
	13 Dec 2016	8	14.89	86.07	6.1	33.31	8.1	24.7	0.44
	13 Dec 2016	9	14.62	85.96	6.3	33.30	8.1	24.7	0.43
	13 Dec 2016	10	14.56	85.74	6.4	33.31	8.1	24.8	0.43
	17 Dec 2016	1	15.18	71.38	7.6	33.25	8.1	24.6	0.83
C6	17 Dec 2016	2	15.18	72.02	7.6	33.27	8.1	24.6	0.92
	17 Dec 2016	3	15.18	71.84	7.6	33.28	8.1	24.6	1.05
	17 Dec 2016	4	15.18	72.43	7.6	33.28	8.1	24.6	1.10
	17 Dec 2016	5	15.18	72.50	7.6	33.27	8.1	24.6	1.13
	17 Dec 2016	6	15.18	72.27	7.6	33.27	8.1	24.6	1.11
	17 Dec 2016	7	15.17	72.22	7.6	33.27	8.1	24.6	1.04
	17 Dec 2016	8	15.17	72.03	7.6	33.27	8.1	24.6	1.05
	17 Dec 2016	9	15.17	71.41	7.6	33.27	8.1	24.6	1.06
	17 Dec 2016	10	15.17	70.51	7.5	33.27	8.1	24.6	1.04
	20 Dec 2016	1	14.94	84.55	8.1	33.33	8.2	24.7	1.44
C6	20 Dec 2016	2	14.94	84.46	8.1	33.33	8.2	24.7	1.61
	20 Dec 2016	3	14.93	84.40	8.1	33.33	8.2	24.7	1.58
	20 Dec 2016	4	14.90	84.25	8.0	33.32	8.2	24.7	1.44
	20 Dec 2016	5	14.86	83.82	7.9	33.32	8.2	24.7	1.12
	20 Dec 2016	6	14.79	83.84	7.6	33.32	8.2	24.7	0.81
	20 Dec 2016	7	14.74	84.30	7.2	33.32	8.2	24.7	0.77
	20 Dec 2016	8	14.62	84.84	7.2	33.30	8.1	24.7	0.77
	20 Dec 2016	9	14.50	84.80	7.5	33.31	8.1	24.8	0.84
	20 Dec 2016	10	14.53	84.87	7.6	33.31	8.1	24.8	0.83
	A7	01 Dec 2016	1	15.13	82.26	7.3	33.33	8.1	24.7
A7	01 Dec 2016	2	15.17	81.91	6.8	33.33	8.1	24.6	1.10
	01 Dec 2016	3	15.12	82.19	6.0	33.31	8.1	24.6	0.91
	01 Dec 2016	4	14.34	82.87	5.8	33.26	8.1	24.8	0.71
	01 Dec 2016	5	13.84	83.13	5.9	33.28	8.1	24.9	0.63
	01 Dec 2016	6	13.51	82.88	6.0	33.27	8.0	25.0	0.60
	01 Dec 2016	7	13.34	82.93	6.1	33.28	8.0	25.0	0.59
	01 Dec 2016	8	13.32	82.64	6.1	33.28	8.0	25.0	0.58
	01 Dec 2016	9	13.29	81.65	6.1	33.28	8.0	25.0	0.57
	01 Dec 2016	10	13.27	81.19	6.0	33.28	8.0	25.0	0.53
	01 Dec 2016	11	13.23	81.04	5.9	33.28	8.0	25.0	0.52

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
A7	01 Dec 2016	12	13.18	80.41	5.9	33.29	8.0	25.0	0.51
A7	01 Dec 2016	13	13.17	80.52	5.9	33.30	8.0	25.0	0.47
A7	01 Dec 2016	14	13.15	79.97	5.9	33.29	8.0	25.0	0.48
A7	01 Dec 2016	15	13.08	79.92	5.9	33.30	8.0	25.1	0.47
A7	01 Dec 2016	16	13.11	79.98	5.8	33.30	8.0	25.1	0.45
A7	01 Dec 2016	17	13.03	77.87	5.8	33.31	8.0	25.1	0.44
A7	01 Dec 2016	18	13.02	78.49	5.8	33.31	8.0	25.1	0.46
A7	01 Dec 2016	19	12.99	78.31	5.8	33.32	8.0	25.1	0.47
A7	05 Dec 2016	1	14.79	81.76	7.8	33.32	8.1	24.7	2.34
A7	05 Dec 2016	2	14.79	81.79	7.7	33.32	8.1	24.7	2.47
A7	05 Dec 2016	3	14.79	81.81	7.7	33.32	8.1	24.7	2.45
A7	05 Dec 2016	4	14.78	81.73	7.6	33.32	8.1	24.7	2.27
A7	05 Dec 2016	5	14.76	81.92	7.5	33.32	8.1	24.7	2.03
A7	05 Dec 2016	6	14.75	81.66	7.2	33.32	8.1	24.7	1.87
A7	05 Dec 2016	7	14.69	82.00	7.0	33.32	8.1	24.7	1.40
A7	05 Dec 2016	8	14.56	82.42	6.7	33.31	8.1	24.8	1.10
A7	05 Dec 2016	9	14.38	82.35	6.6	33.30	8.1	24.8	1.09
A7	05 Dec 2016	10	14.24	82.41	6.6	33.31	8.1	24.8	1.14
A7	05 Dec 2016	11	14.17	82.82	6.8	33.30	8.0	24.8	1.20
A7	05 Dec 2016	12	14.13	82.96	6.8	33.30	8.0	24.9	1.18
A7	05 Dec 2016	13	14.11	82.44	6.8	33.30	8.0	24.9	1.12
A7	05 Dec 2016	14	14.07	82.39	6.7	33.30	8.0	24.9	0.94
A7	05 Dec 2016	15	14.04	82.51	6.5	33.30	8.0	24.9	0.86
A7	05 Dec 2016	16	13.93	82.86	6.5	33.29	8.0	24.9	0.95
A7	05 Dec 2016	17	13.82	82.18	6.7	33.30	8.0	24.9	1.05
A7	05 Dec 2016	18	13.86	80.55	6.6	33.30	8.0	24.9	0.91
A7	05 Dec 2016	19	13.85	80.29	6.6	33.30	8.0	24.9	0.91
A7	13 Dec 2016	1	15.59	85.89	7.9	33.34	8.1	24.6	1.14
A7	13 Dec 2016	2	15.59	85.79	7.8	33.34	8.1	24.6	1.23
A7	13 Dec 2016	3	15.58	85.72	7.7	33.34	8.1	24.6	1.33
A7	13 Dec 2016	4	15.57	86.01	7.6	33.34	8.1	24.6	1.39
A7	13 Dec 2016	5	15.52	86.03	7.6	33.32	8.1	24.6	1.39
A7	13 Dec 2016	6	15.34	85.91	7.5	33.32	8.1	24.6	1.39
A7	13 Dec 2016	7	15.29	85.89	7.3	33.32	8.1	24.6	1.39
A7	13 Dec 2016	8	15.23	85.79	7.3	33.31	8.1	24.6	1.42
A7	13 Dec 2016	9	14.93	85.78	7.4	33.30	8.1	24.7	1.38
A7	13 Dec 2016	10	14.86	85.83	7.3	33.31	8.1	24.7	1.25
A7	13 Dec 2016	11	14.89	85.75	7.0	33.31	8.1	24.7	1.18
A7	13 Dec 2016	12	14.85	85.95	6.7	33.30	8.1	24.7	1.17
A7	13 Dec 2016	13	14.48	86.03	6.6	33.27	8.1	24.8	1.16
A7	13 Dec 2016	14	14.11	86.38	6.4	33.28	8.1	24.8	1.11
A7	13 Dec 2016	15	13.96	86.52	6.0	33.27	8.1	24.9	0.98
A7	13 Dec 2016	16	13.62	86.49	5.7	33.25	8.1	24.9	0.81
A7	13 Dec 2016	17	13.23	86.97	5.5	33.28	8.0	25.0	0.77
A7	13 Dec 2016	18	12.92	87.40	5.7	33.29	8.0	25.1	0.76
A7	13 Dec 2016	19	12.76	87.03	6.0	33.31	8.0	25.1	0.86
A7	13 Dec 2016	20	12.77	86.93	6.2	33.31	8.0	25.1	0.90
A7	17 Dec 2016	1	15.08	75.41	7.3	33.26	8.1	24.6	0.98
A7	17 Dec 2016	2	15.07	77.43	6.7	33.26	8.1	24.6	1.03
A7	17 Dec 2016	3	14.90	77.77	6.4	33.29	8.1	24.7	1.05
A7	17 Dec 2016	4	14.32	78.99	6.3	33.30	8.1	24.8	1.10
A7	17 Dec 2016	5	14.06	80.11	6.3	33.29	8.1	24.9	1.11

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
A7	17 Dec 2016	6	13.77	81.17	6.3	33.29	8.1	24.9	1.15
A7	17 Dec 2016	7	13.61	82.59	6.4	33.28	8.0	24.9	1.15
A7	17 Dec 2016	8	13.57	83.90	6.3	33.29	8.0	25.0	1.17
A7	17 Dec 2016	9	13.59	84.02	6.0	33.28	8.0	24.9	1.12
A7	17 Dec 2016	10	13.44	82.05	5.9	33.29	8.0	25.0	1.09
A7	17 Dec 2016	11	13.35	78.81	5.8	33.29	8.0	25.0	1.02
A7	17 Dec 2016	12	13.09	80.11	5.7	33.30	8.0	25.1	0.94
A7	17 Dec 2016	13	13.01	81.44	5.7	33.30	8.0	25.1	0.91
A7	17 Dec 2016	14	12.77	83.07	5.8	33.32	8.0	25.1	0.87
A7	17 Dec 2016	15	12.83	83.43	5.9	33.31	8.0	25.1	0.87
A7	17 Dec 2016	16	12.74	83.58	6.0	33.31	8.0	25.1	0.83
A7	17 Dec 2016	17	12.68	84.07	6.0	33.31	8.0	25.1	0.87
A7	17 Dec 2016	18	12.67	84.75	5.9	33.31	8.0	25.1	0.84
A7	17 Dec 2016	19	12.67	84.78	5.7	33.31	8.0	25.2	0.82
A7	17 Dec 2016	20	12.67	83.72	5.6	33.32	8.0	25.2	0.78
A7	17 Dec 2016	21	12.64	79.71	5.6	33.33	8.0	25.2	0.78
A7	20 Dec 2016	1	15.34	85.86	7.9	33.34	8.2	24.6	1.32
A7	20 Dec 2016	2	15.34	85.83	7.8	33.34	8.2	24.6	1.30
A7	20 Dec 2016	3	15.31	85.88	7.6	33.34	8.2	24.6	1.21
A7	20 Dec 2016	4	15.17	85.86	7.4	33.33	8.1	24.6	1.11
A7	20 Dec 2016	5	15.06	85.91	7.2	33.32	8.1	24.7	1.13
A7	20 Dec 2016	6	14.85	86.00	7.2	33.31	8.1	24.7	1.16
A7	20 Dec 2016	7	14.63	86.10	7.3	33.30	8.1	24.7	1.22
A7	20 Dec 2016	8	14.43	86.28	7.3	33.31	8.1	24.8	1.18
A7	20 Dec 2016	9	14.38	86.38	7.2	33.30	8.1	24.8	1.09
A7	20 Dec 2016	10	14.31	86.43	7.1	33.29	8.1	24.8	1.01
A7	20 Dec 2016	11	14.25	86.54	6.9	33.29	8.1	24.8	0.96
A7	20 Dec 2016	12	14.17	86.51	6.7	33.30	8.1	24.8	0.91
A7	20 Dec 2016	13	14.09	86.50	6.7	33.29	8.1	24.8	0.89
A7	20 Dec 2016	14	13.64	86.67	6.7	33.26	8.1	24.9	0.90
A7	20 Dec 2016	15	13.41	87.18	6.8	33.28	8.1	25.0	0.87
A7	20 Dec 2016	16	13.40	87.55	6.9	33.28	8.1	25.0	0.85
A7	20 Dec 2016	17	13.39	87.54	6.8	33.28	8.0	25.0	0.86
A7	20 Dec 2016	18	13.39	87.54	6.9	33.28	8.0	25.0	0.87
A7	20 Dec 2016	19	13.39	86.70	6.9	33.28	8.0	25.0	0.88
C7	01 Dec 2016	1	15.31	80.80	7.7	33.34	8.1	24.6	1.57
C7	01 Dec 2016	2	15.30	80.64	7.6	33.34	8.1	24.6	1.75
C7	01 Dec 2016	3	15.30	80.71	7.6	33.34	8.1	24.6	1.82
C7	01 Dec 2016	4	15.30	80.70	7.7	33.34	8.1	24.6	1.88
C7	01 Dec 2016	5	15.30	80.71	7.6	33.34	8.1	24.6	1.89
C7	01 Dec 2016	6	15.30	80.65	7.5	33.34	8.1	24.6	1.87
C7	01 Dec 2016	7	15.29	80.69	7.4	33.33	8.1	24.6	1.68
C7	01 Dec 2016	8	15.28	81.13	6.8	33.33	8.1	24.6	1.28
C7	01 Dec 2016	9	15.14	81.84	6.4	33.31	8.1	24.6	1.10
C7	01 Dec 2016	10	14.75	83.08	6.5	33.31	8.1	24.7	0.92
C7	01 Dec 2016	11	14.67	83.44	6.4	33.31	8.1	24.7	0.80
C7	01 Dec 2016	12	14.52	83.37	6.3	33.30	8.1	24.8	0.73
C7	01 Dec 2016	13	14.37	83.90	6.3	33.30	8.1	24.8	0.72
C7	01 Dec 2016	14	14.25	83.66	6.2	33.30	8.0	24.8	0.72
C7	01 Dec 2016	15	14.12	83.75	6.1	33.30	8.0	24.9	0.62
C7	01 Dec 2016	16	13.94	83.47	6.1	33.29	8.0	24.9	0.59
C7	01 Dec 2016	17	13.71	83.59	6.1	33.29	8.0	24.9	0.58
C7	01 Dec 2016	18	13.65	83.81	6.1	33.29	8.0	24.9	0.59

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
C7	01 Dec 2016	19	13.62	83.76	6.2	33.29	8.0	24.9	0.55
C7	05 Dec 2016	1	14.78	79.70	8.1	33.33	8.1	24.7	2.75
C7	05 Dec 2016	2	14.78	79.63	8.1	33.33	8.1	24.7	2.96
C7	05 Dec 2016	3	14.76	79.65	8.1	33.33	8.1	24.7	3.17
C7	05 Dec 2016	4	14.75	79.45	8.1	33.33	8.1	24.7	3.23
C7	05 Dec 2016	5	14.75	79.76	8.1	33.33	8.1	24.7	3.41
C7	05 Dec 2016	6	14.75	79.76	8.1	33.33	8.1	24.7	3.36
C7	05 Dec 2016	7	14.75	79.61	8.1	33.33	8.1	24.7	3.33
C7	05 Dec 2016	8	14.74	79.58	8.0	33.33	8.1	24.7	3.23
C7	05 Dec 2016	9	14.73	79.36	7.9	33.33	8.1	24.7	2.98
C7	05 Dec 2016	10	14.73	79.52	7.5	33.33	8.1	24.7	2.50
C7	05 Dec 2016	11	14.67	79.70	7.3	33.33	8.1	24.8	2.31
C7	05 Dec 2016	12	14.57	80.61	7.3	33.33	8.1	24.8	2.22
C7	05 Dec 2016	13	14.55	81.25	7.3	33.33	8.1	24.8	1.86
C7	05 Dec 2016	14	14.53	81.65	6.8	33.33	8.1	24.8	1.42
C7	05 Dec 2016	15	14.42	81.94	6.2	33.31	8.1	24.8	1.13
C7	05 Dec 2016	16	14.08	82.32	6.0	33.32	8.1	24.9	0.81
C7	05 Dec 2016	17	13.92	81.81	5.8	33.31	8.0	24.9	0.72
C7	05 Dec 2016	18	13.64	78.03	6.2	33.31	8.0	25.0	1.00
C7	13 Dec 2016	1	15.88	83.75	8.5	33.34	8.2	24.5	1.35
C7	13 Dec 2016	2	15.88	83.99	7.6	33.34	8.2	24.5	1.17
C7	13 Dec 2016	3	15.76	83.98	6.8	33.33	8.2	24.5	1.10
C7	13 Dec 2016	4	15.51	84.66	6.5	33.32	8.2	24.6	1.12
C7	13 Dec 2016	5	15.16	84.92	6.4	33.30	8.2	24.6	1.11
C7	13 Dec 2016	6	14.78	85.54	6.4	33.30	8.1	24.7	1.09
C7	13 Dec 2016	7	14.56	85.76	6.3	33.30	8.1	24.8	0.94
C7	13 Dec 2016	8	14.39	85.60	6.2	33.29	8.1	24.8	0.80
C7	13 Dec 2016	9	14.16	85.37	6.2	33.27	8.1	24.8	0.78
C7	13 Dec 2016	10	13.98	85.21	6.2	33.28	8.1	24.9	0.80
C7	13 Dec 2016	11	13.90	85.39	6.2	33.28	8.1	24.9	0.91
C7	13 Dec 2016	12	13.82	86.06	6.2	33.28	8.1	24.9	0.87
C7	13 Dec 2016	13	13.71	86.32	6.1	33.28	8.0	24.9	0.84
C7	13 Dec 2016	14	13.53	86.46	6.0	33.26	8.0	24.9	0.83
C7	13 Dec 2016	15	13.26	86.49	6.0	33.25	8.0	25.0	0.80
C7	13 Dec 2016	16	13.06	86.65	6.1	33.26	8.0	25.0	0.79
C7	13 Dec 2016	17	12.92	87.10	6.1	33.28	8.0	25.1	0.80
C7	13 Dec 2016	18	12.91	87.11	6.2	33.28	8.0	25.1	0.82
C7	13 Dec 2016	19	12.92	86.90	6.2	33.28	8.0	25.1	0.83
C7	17 Dec 2016	1	14.88	72.85	8.0	33.09	8.1	24.5	1.10
C7	17 Dec 2016	2	14.89	72.47	7.3	33.09	8.1	24.5	1.22
C7	17 Dec 2016	3	15.04	74.12	6.8	33.22	8.1	24.6	1.19
C7	17 Dec 2016	4	15.01	76.83	6.4	33.26	8.1	24.6	1.21
C7	17 Dec 2016	5	14.77	74.65	6.1	33.26	8.1	24.7	1.21
C7	17 Dec 2016	6	14.31	71.84	6.0	33.24	8.1	24.8	1.18
C7	17 Dec 2016	7	13.76	74.79	6.1	33.27	8.1	24.9	1.14
C7	17 Dec 2016	8	13.60	77.36	6.1	33.29	8.1	24.9	1.10
C7	17 Dec 2016	9	13.54	79.43	6.1	33.28	8.1	25.0	1.12
C7	17 Dec 2016	10	13.46	78.70	6.2	33.28	8.0	25.0	1.12
C7	17 Dec 2016	11	13.37	77.29	6.2	33.28	8.0	25.0	1.10
C7	17 Dec 2016	12	13.35	77.67	6.2	33.29	8.0	25.0	1.09
C7	17 Dec 2016	13	13.42	78.02	6.0	33.28	8.0	25.0	1.09
C7	17 Dec 2016	14	13.25	77.61	6.0	33.28	8.0	25.0	1.05

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
C7	17 Dec 2016	15	13.13	77.85	6.0	33.30	8.0	25.1	1.05
C7	17 Dec 2016	16	13.14	77.76	6.0	33.30	8.0	25.0	1.08
C7	17 Dec 2016	17	13.09	77.76	6.0	33.30	8.0	25.1	1.07
C7	17 Dec 2016	18	13.10	76.24	6.0	33.30	8.0	25.1	1.07
C7	20 Dec 2016	1	15.20	85.56	8.0	33.33	8.2	24.6	1.46
C7	20 Dec 2016	2	15.21	85.71	8.0	33.33	8.2	24.6	1.52
C7	20 Dec 2016	3	15.18	85.82	7.9	33.33	8.2	24.6	1.58
C7	20 Dec 2016	4	15.16	85.48	7.9	33.33	8.2	24.6	1.62
C7	20 Dec 2016	5	15.14	85.64	7.9	33.33	8.2	24.7	1.67
C7	20 Dec 2016	6	15.10	85.62	7.9	33.33	8.2	24.7	1.65
C7	20 Dec 2016	7	15.09	85.64	7.9	33.33	8.2	24.7	1.60
C7	20 Dec 2016	8	15.08	85.52	7.8	33.33	8.2	24.7	1.47
C7	20 Dec 2016	9	15.07	85.52	7.6	33.33	8.2	24.7	1.33
C7	20 Dec 2016	10	15.03	85.57	7.4	33.32	8.2	24.7	1.14
C7	20 Dec 2016	11	14.86	85.52	7.0	33.31	8.1	24.7	0.98
C7	20 Dec 2016	12	14.63	85.66	6.8	33.30	8.1	24.7	0.86
C7	20 Dec 2016	13	14.33	85.64	6.7	33.28	8.1	24.8	0.73
C7	20 Dec 2016	14	14.14	85.63	6.5	33.29	8.1	24.8	0.66
C7	20 Dec 2016	15	13.98	85.54	6.4	33.27	8.1	24.9	0.62
C7	20 Dec 2016	16	13.76	85.63	6.4	33.28	8.1	24.9	0.58
C7	20 Dec 2016	17	13.68	85.74	6.5	33.28	8.0	24.9	0.60
C7	20 Dec 2016	18	13.64	85.66	6.6	33.28	8.0	24.9	0.64
C8	01 Dec 2016	1	15.25	79.42	7.6	33.33	8.1	24.6	1.69
C8	01 Dec 2016	2	15.25	79.47	7.6	33.32	8.1	24.6	2.23
C8	01 Dec 2016	3	15.24	79.33	7.3	33.32	8.1	24.6	1.91
C8	01 Dec 2016	4	15.24	79.44	7.0	33.32	8.1	24.6	1.69
C8	01 Dec 2016	5	15.16	79.66	6.7	33.32	8.1	24.6	1.47
C8	01 Dec 2016	6	15.00	81.45	6.6	33.31	8.1	24.7	1.47
C8	01 Dec 2016	7	14.83	82.22	6.6	33.31	8.1	24.7	1.25
C8	01 Dec 2016	8	14.72	82.88	6.5	33.30	8.1	24.7	1.15
C8	01 Dec 2016	9	14.59	82.98	6.6	33.30	8.1	24.7	1.12
C8	01 Dec 2016	10	14.51	83.26	6.5	33.30	8.1	24.8	1.02
C8	01 Dec 2016	11	14.49	83.30	6.4	33.29	8.1	24.8	0.93
C8	01 Dec 2016	12	14.33	83.32	6.3	33.28	8.1	24.8	0.87
C8	01 Dec 2016	13	14.17	83.49	6.3	33.29	8.0	24.8	0.81
C8	01 Dec 2016	14	14.14	83.72	6.3	33.29	8.0	24.8	0.78
C8	01 Dec 2016	15	14.03	83.48	6.3	33.29	8.0	24.9	0.77
C8	01 Dec 2016	16	14.00	83.43	6.3	33.30	8.0	24.9	0.74
C8	01 Dec 2016	17	13.99	83.27	6.3	33.30	8.0	24.9	0.75
C8	01 Dec 2016	18	13.97	83.07	6.3	33.30	8.0	24.9	0.75
C8	01 Dec 2016	19	13.97	83.11	6.3	33.30	8.0	24.9	0.79
C8	01 Dec 2016	20	13.98	82.89	6.3	33.30	8.0	24.9	0.77
C8	05 Dec 2016	1	14.71	79.25	7.8	33.32	8.1	24.7	2.30
C8	05 Dec 2016	2	14.72	79.59	7.7	33.32	8.1	24.7	2.66
C8	05 Dec 2016	3	14.71	79.53	7.7	33.32	8.1	24.7	2.95
C8	05 Dec 2016	4	14.70	79.49	7.7	33.32	8.1	24.7	3.05
C8	05 Dec 2016	5	14.69	79.44	7.6	33.32	8.1	24.7	3.07
C8	05 Dec 2016	6	14.68	79.45	7.5	33.32	8.1	24.7	3.11
C8	05 Dec 2016	7	14.67	79.35	7.4	33.32	8.1	24.8	3.01
C8	05 Dec 2016	8	14.64	79.30	7.2	33.32	8.1	24.8	2.83
C8	05 Dec 2016	9	14.60	79.23	7.0	33.32	8.1	24.8	2.53
C8	05 Dec 2016	10	14.50	79.23	6.8	33.32	8.1	24.8	2.14

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma-t$ )	Chlor ( $\mu\text{g/L}$ )
C8	05 Dec 2016	11	14.39	78.50	6.6	33.31	8.1	24.8	1.94
C8	05 Dec 2016	12	14.31	78.49	6.4	33.32	8.0	24.8	1.68
C8	05 Dec 2016	13	14.29	78.78	6.2	33.32	8.0	24.8	1.52
C8	05 Dec 2016	14	14.11	78.35	6.1	33.31	8.0	24.9	1.49
C8	05 Dec 2016	15	13.98	75.86	6.2	33.31	8.0	24.9	1.30
C8	05 Dec 2016	16	13.98	75.06	6.0	33.31	8.0	24.9	1.16
C8	05 Dec 2016	17	13.86	75.29	5.9	33.30	8.0	24.9	1.19
C8	05 Dec 2016	18	13.70	75.10	6.0	33.31	8.0	24.9	1.22
C8	05 Dec 2016	19	13.64	73.39	6.1	33.31	8.0	25.0	1.28
C8	13 Dec 2016	1	15.51	82.42	7.5	33.33	8.1	24.6	1.59
C8	13 Dec 2016	2	15.47	82.41	7.2	33.32	8.1	24.6	1.47
C8	13 Dec 2016	3	15.22	82.36	7.0	33.30	8.1	24.6	1.42
C8	13 Dec 2016	4	14.94	82.74	6.8	33.32	8.1	24.7	1.19
C8	13 Dec 2016	5	14.87	83.70	6.6	33.31	8.1	24.7	1.13
C8	13 Dec 2016	6	14.77	83.85	6.5	33.31	8.1	24.7	1.02
C8	13 Dec 2016	7	14.54	84.42	6.4	33.29	8.1	24.8	0.92
C8	13 Dec 2016	8	14.31	84.99	6.2	33.30	8.1	24.8	0.87
C8	13 Dec 2016	9	14.20	85.11	6.2	33.29	8.1	24.8	0.93
C8	13 Dec 2016	10	13.86	85.57	6.2	33.28	8.1	24.9	0.92
C8	13 Dec 2016	11	13.76	85.85	6.2	33.29	8.0	24.9	0.89
C8	13 Dec 2016	12	13.63	86.07	6.3	33.27	8.0	24.9	0.89
C8	13 Dec 2016	13	13.38	86.19	6.3	33.27	8.0	25.0	0.91
C8	13 Dec 2016	14	13.32	86.19	6.3	33.28	8.0	25.0	0.90
C8	13 Dec 2016	15	13.32	86.42	6.3	33.28	8.0	25.0	0.93
C8	13 Dec 2016	16	13.31	86.54	6.3	33.28	8.0	25.0	0.90
C8	13 Dec 2016	17	13.31	86.48	6.3	33.28	8.0	25.0	0.91
C8	13 Dec 2016	18	13.31	86.54	6.3	33.28	8.0	25.0	0.93
C8	13 Dec 2016	19	13.31	86.52	6.3	33.28	8.0	25.0	0.91
C8	13 Dec 2016	20	13.31	86.42	6.3	33.28	8.0	25.0	0.90
C8	17 Dec 2016	1	14.95	72.85	8.0	33.16	8.1	24.6	1.43
C8	17 Dec 2016	2	15.00	72.75	7.9	33.17	8.1	24.6	1.78
C8	17 Dec 2016	3	15.12	73.06	7.8	33.21	8.1	24.6	1.94
C8	17 Dec 2016	4	15.20	76.53	7.8	33.25	8.1	24.6	1.98
C8	17 Dec 2016	5	15.20	77.22	7.8	33.26	8.1	24.6	1.97
C8	17 Dec 2016	6	15.18	76.99	7.4	33.25	8.1	24.6	1.84
C8	17 Dec 2016	7	15.18	77.26	7.0	33.26	8.1	24.6	1.81
C8	17 Dec 2016	8	15.08	76.08	6.9	33.24	8.1	24.6	1.75
C8	17 Dec 2016	9	14.42	74.18	6.8	33.27	8.1	24.8	1.53
C8	17 Dec 2016	10	14.74	75.43	6.2	33.25	8.1	24.7	1.45
C8	17 Dec 2016	11	14.03	74.27	6.2	33.25	8.1	24.8	1.38
C8	17 Dec 2016	12	13.58	75.35	6.2	33.30	8.1	25.0	1.25
C8	17 Dec 2016	13	13.76	74.91	6.0	33.25	8.1	24.9	1.18
C8	17 Dec 2016	14	13.31	72.95	6.1	33.29	8.0	25.0	1.20
C8	17 Dec 2016	15	13.29	72.13	6.2	33.29	8.0	25.0	1.17
C8	17 Dec 2016	16	13.29	72.44	6.3	33.29	8.0	25.0	1.24
C8	17 Dec 2016	17	13.29	72.93	6.3	33.29	8.0	25.0	1.34
C8	17 Dec 2016	18	13.30	72.29	6.2	33.29	8.0	25.0	1.35
C8	17 Dec 2016	19	13.32	65.31	6.2	33.29	8.0	25.0	1.33
C8	17 Dec 2016	20	13.32	60.44	6.3	33.29	8.0	25.0	1.31
C8	20 Dec 2016	1	15.09	85.49	8.0	33.33	8.1	24.7	1.48
C8	20 Dec 2016	2	15.09	85.54	8.0	33.33	8.2	24.7	1.56
C8	20 Dec 2016	3	15.09	85.60	8.0	33.33	8.2	24.7	1.62

<b>Station</b>	<b>Date</b>	<b>Depth (m)</b>	<b>Temp (°C)</b>	<b>XMS (%)</b>	<b>DO (mg/L)</b>	<b>Sal (ppt)</b>	<b>pH</b>	<b>Dens (<math>\sigma-t</math>)</b>	<b>Chlor (<math>\mu\text{g/L}</math>)</b>
C8	20 Dec 2016	4	15.09	85.61	8.0	33.33	8.2	24.7	1.63
C8	20 Dec 2016	5	15.09	85.57	8.0	33.33	8.2	24.7	1.66
C8	20 Dec 2016	6	15.09	85.59	7.9	33.33	8.2	24.7	1.67
C8	20 Dec 2016	7	15.08	85.48	7.9	33.33	8.2	24.7	1.68
C8	20 Dec 2016	8	15.07	85.54	7.9	33.33	8.2	24.7	1.72
C8	20 Dec 2016	9	15.05	85.55	7.9	33.33	8.1	24.7	1.72
C8	20 Dec 2016	10	15.05	85.57	7.9	33.33	8.1	24.7	1.73
C8	20 Dec 2016	11	15.03	85.53	7.9	33.32	8.1	24.7	1.73
C8	20 Dec 2016	12	15.03	85.52	7.9	33.32	8.1	24.7	1.71
C8	20 Dec 2016	13	15.03	85.61	7.9	33.32	8.1	24.7	1.69
C8	20 Dec 2016	14	15.03	85.53	7.9	33.32	8.1	24.7	1.67
C8	20 Dec 2016	15	15.02	85.50	7.7	33.32	8.1	24.7	1.42
C8	20 Dec 2016	16	15.01	85.62	7.2	33.32	8.1	24.7	1.15
C8	20 Dec 2016	17	14.98	85.63	6.7	33.32	8.1	24.7	1.13
C8	20 Dec 2016	18	14.51	85.39	6.8	33.27	8.1	24.7	1.17
C8	20 Dec 2016	19	14.18	84.22	7.2	33.30	8.1	24.8	1.17

NA = not available

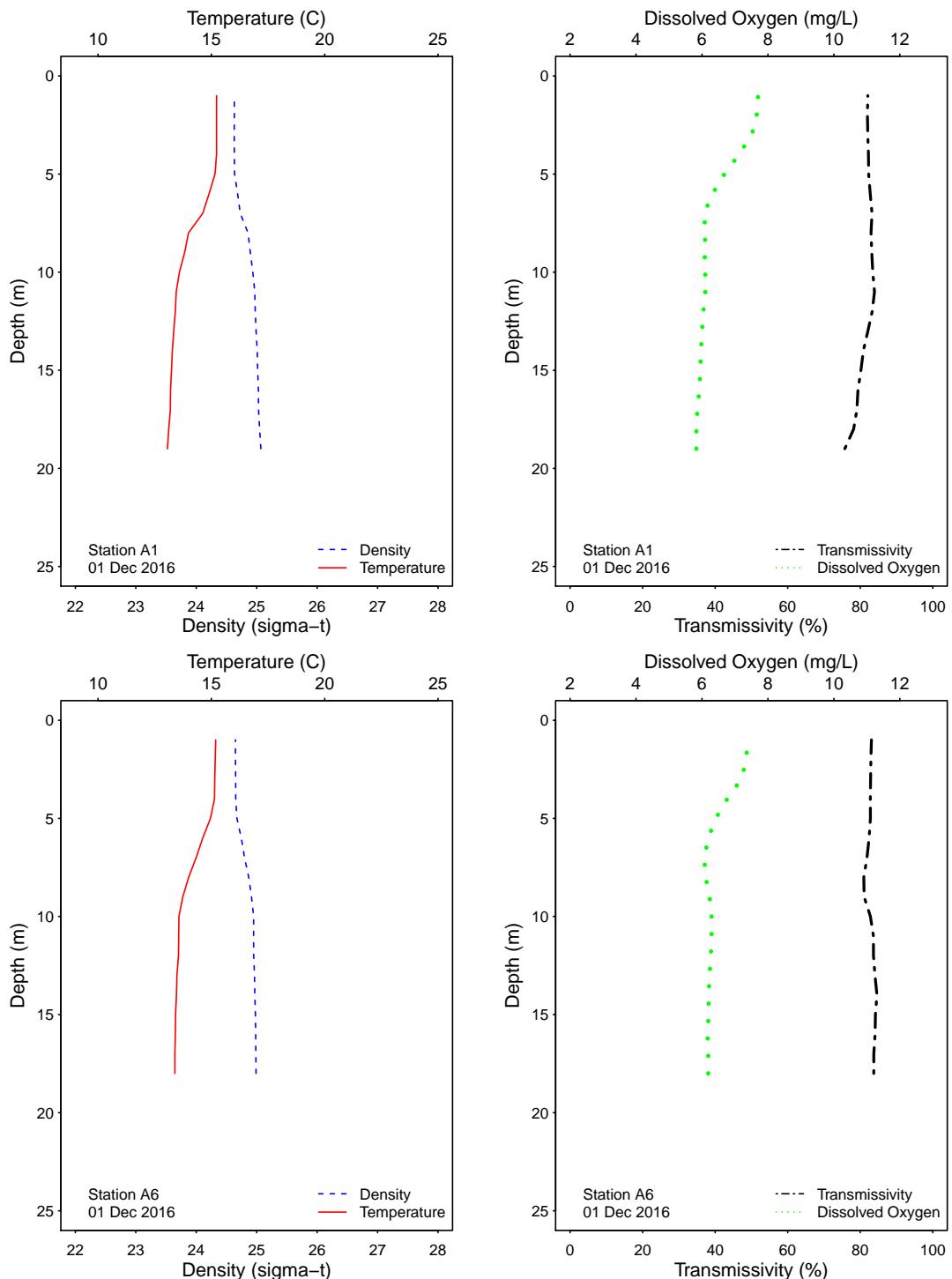


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

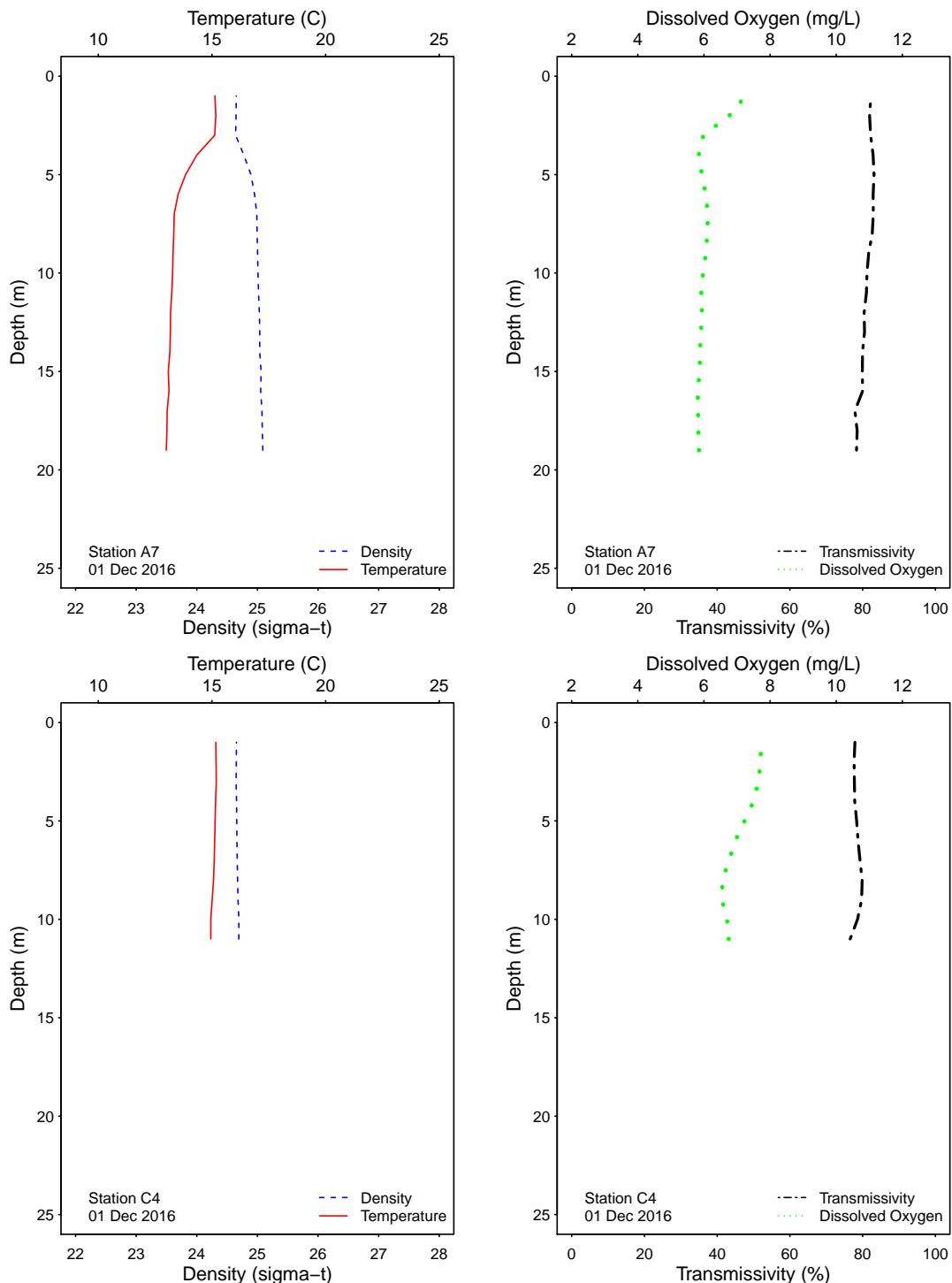


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

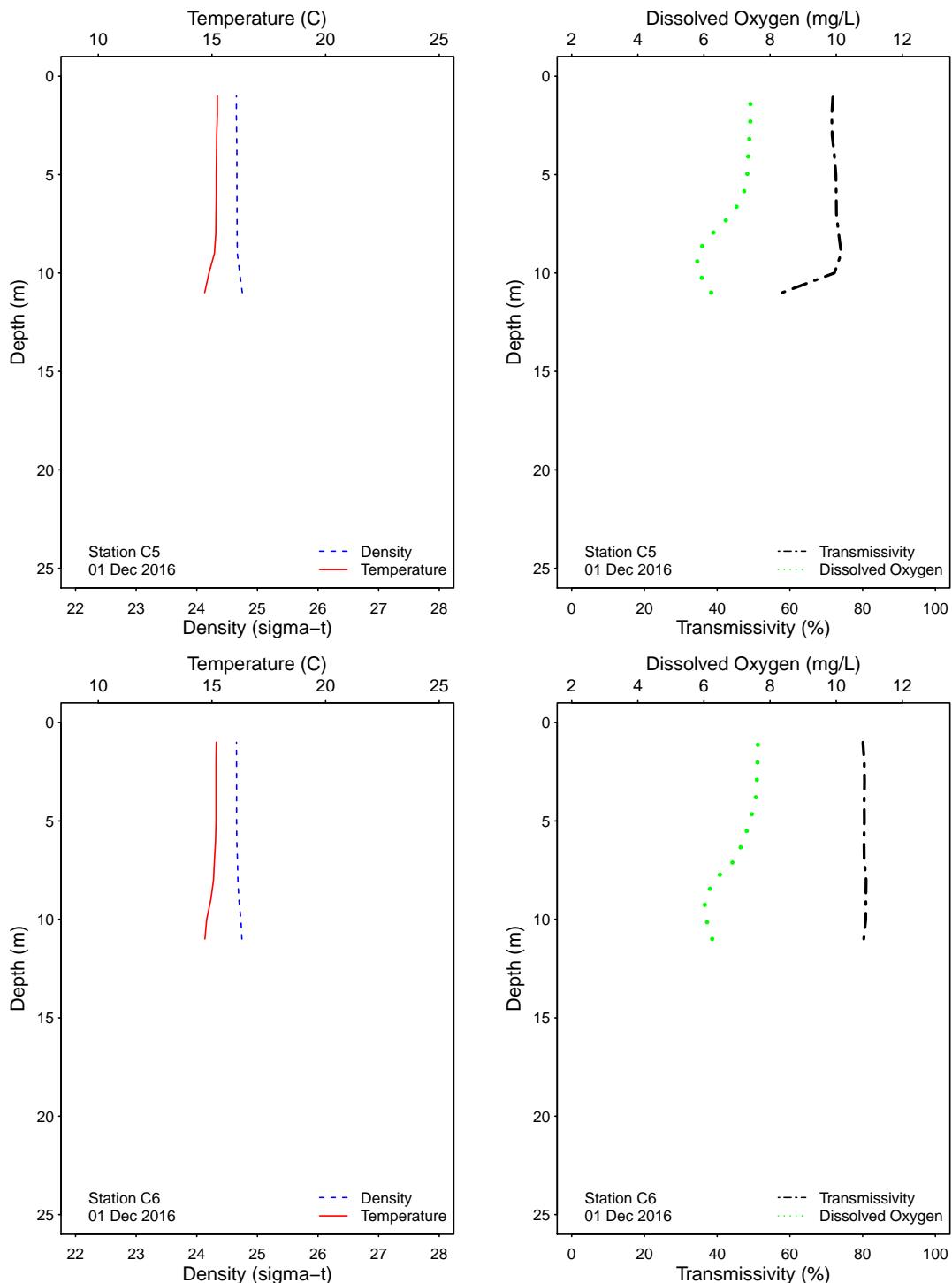


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

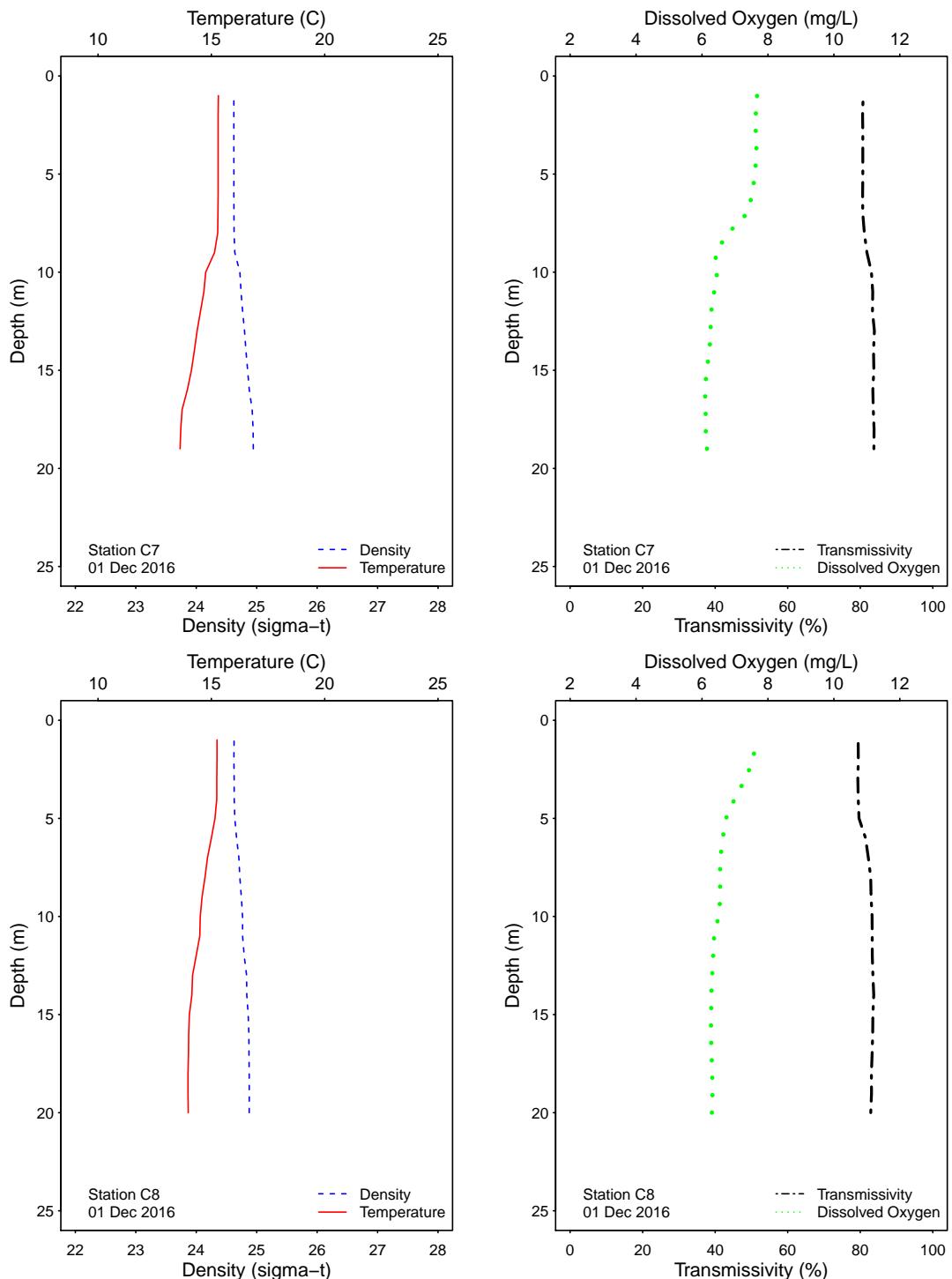


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

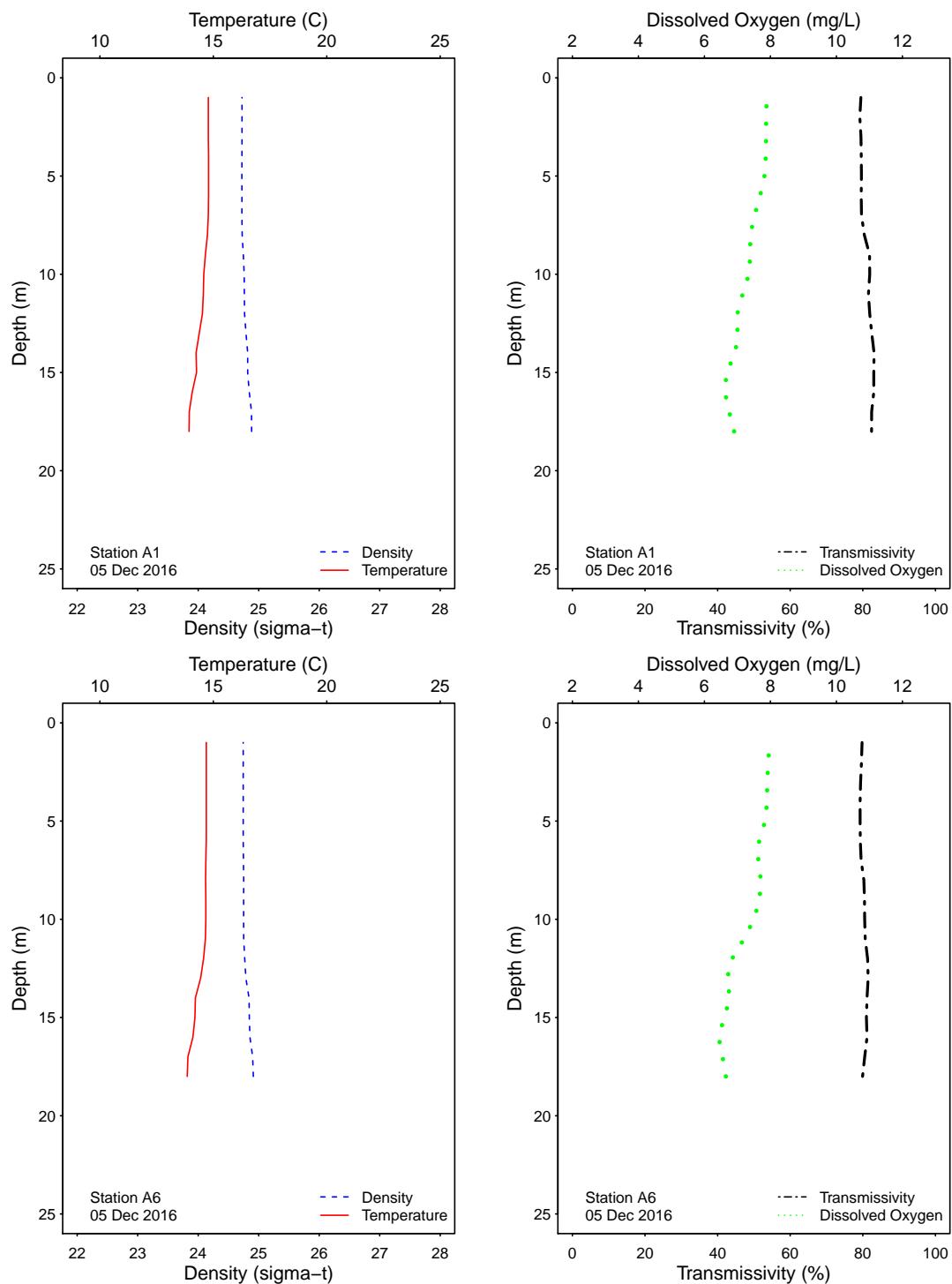


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

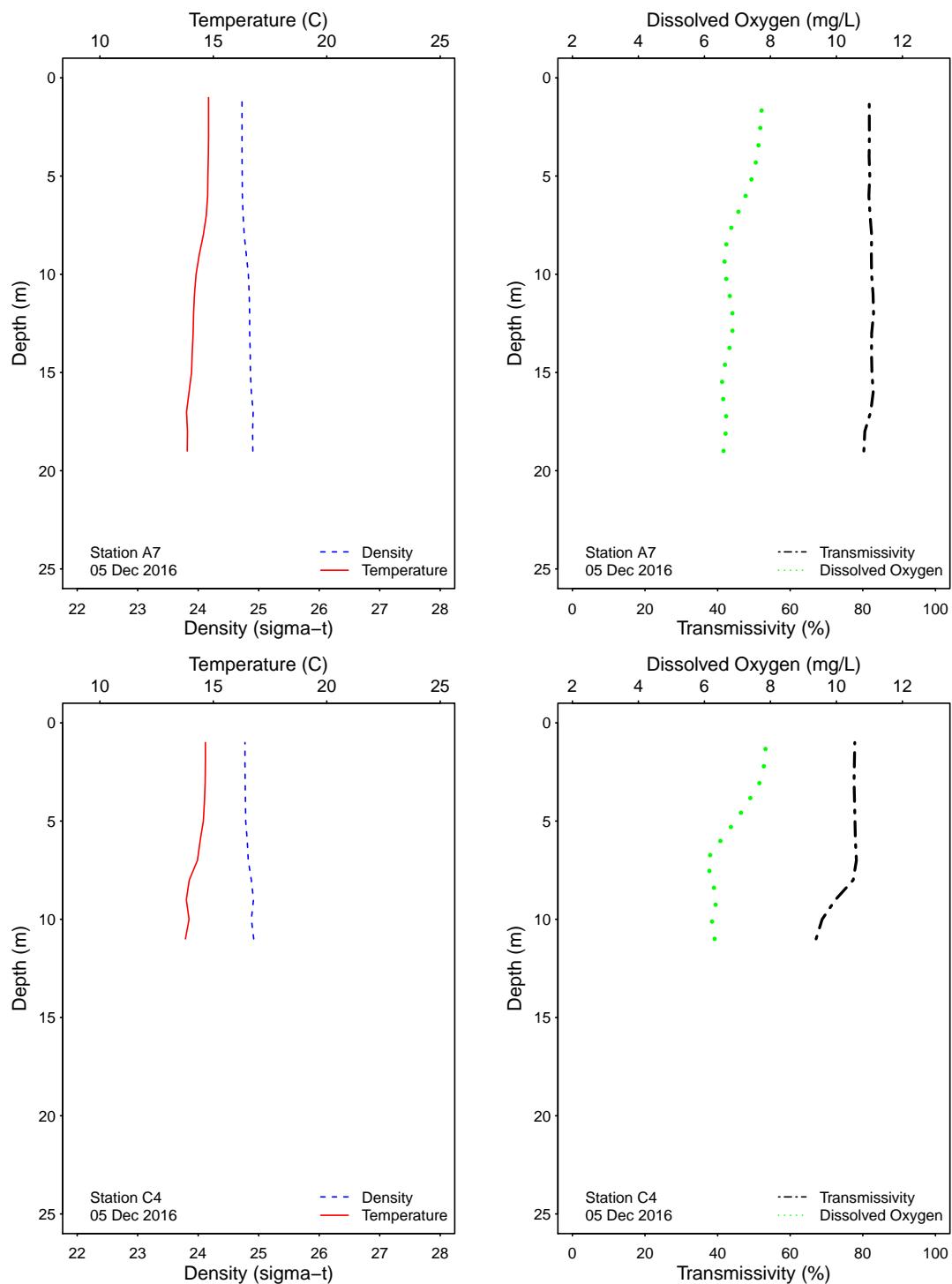


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

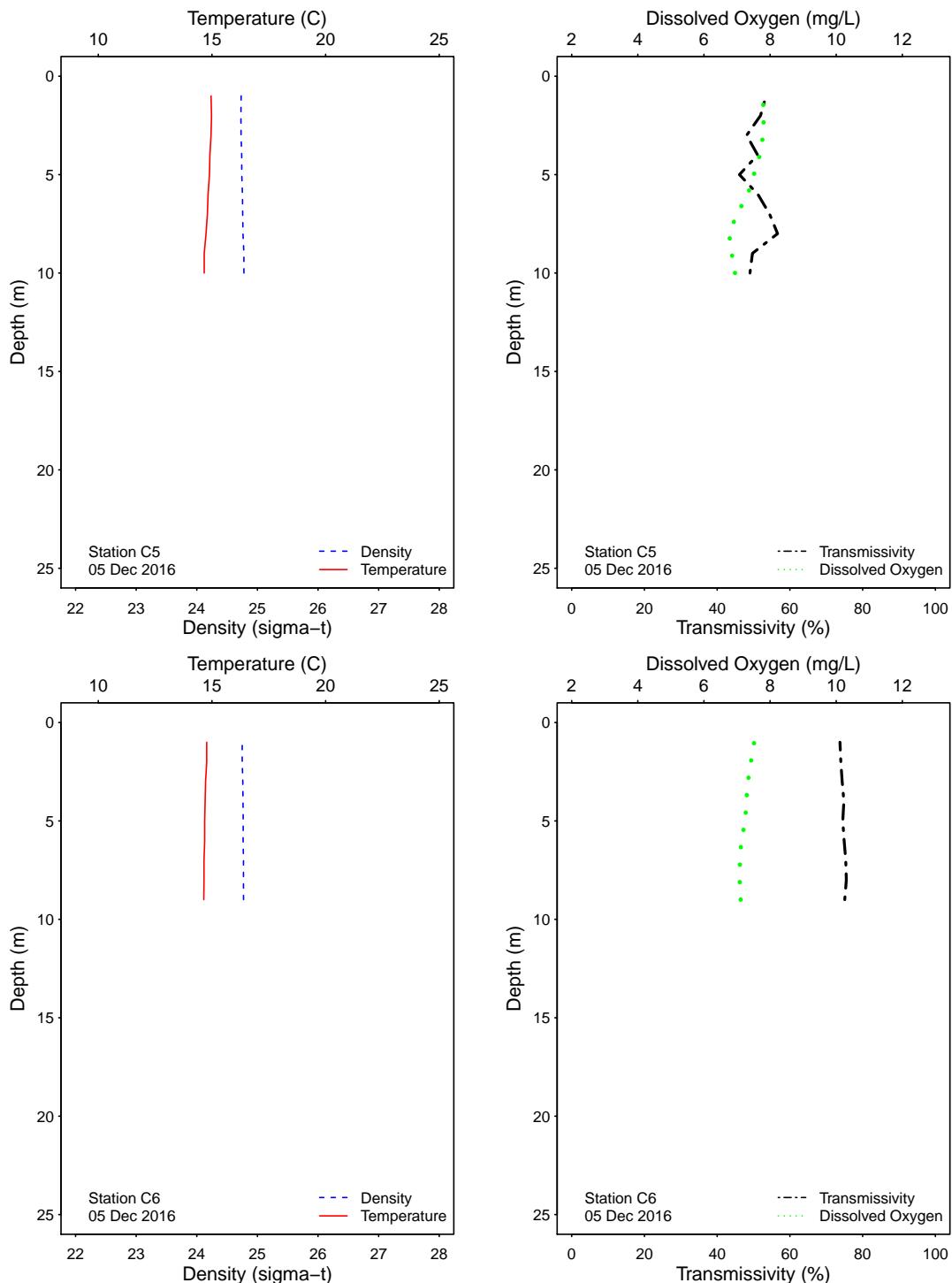


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

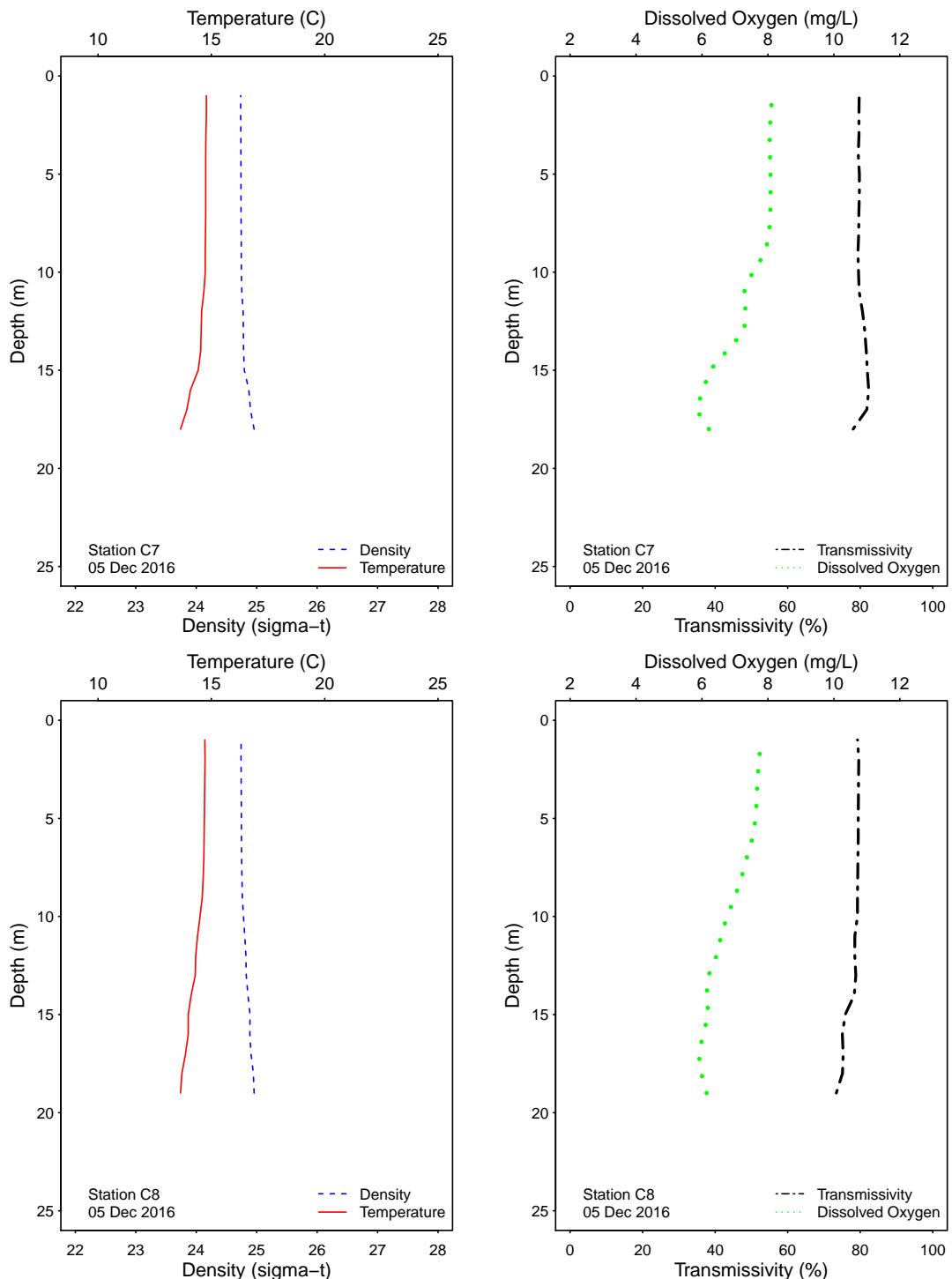


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

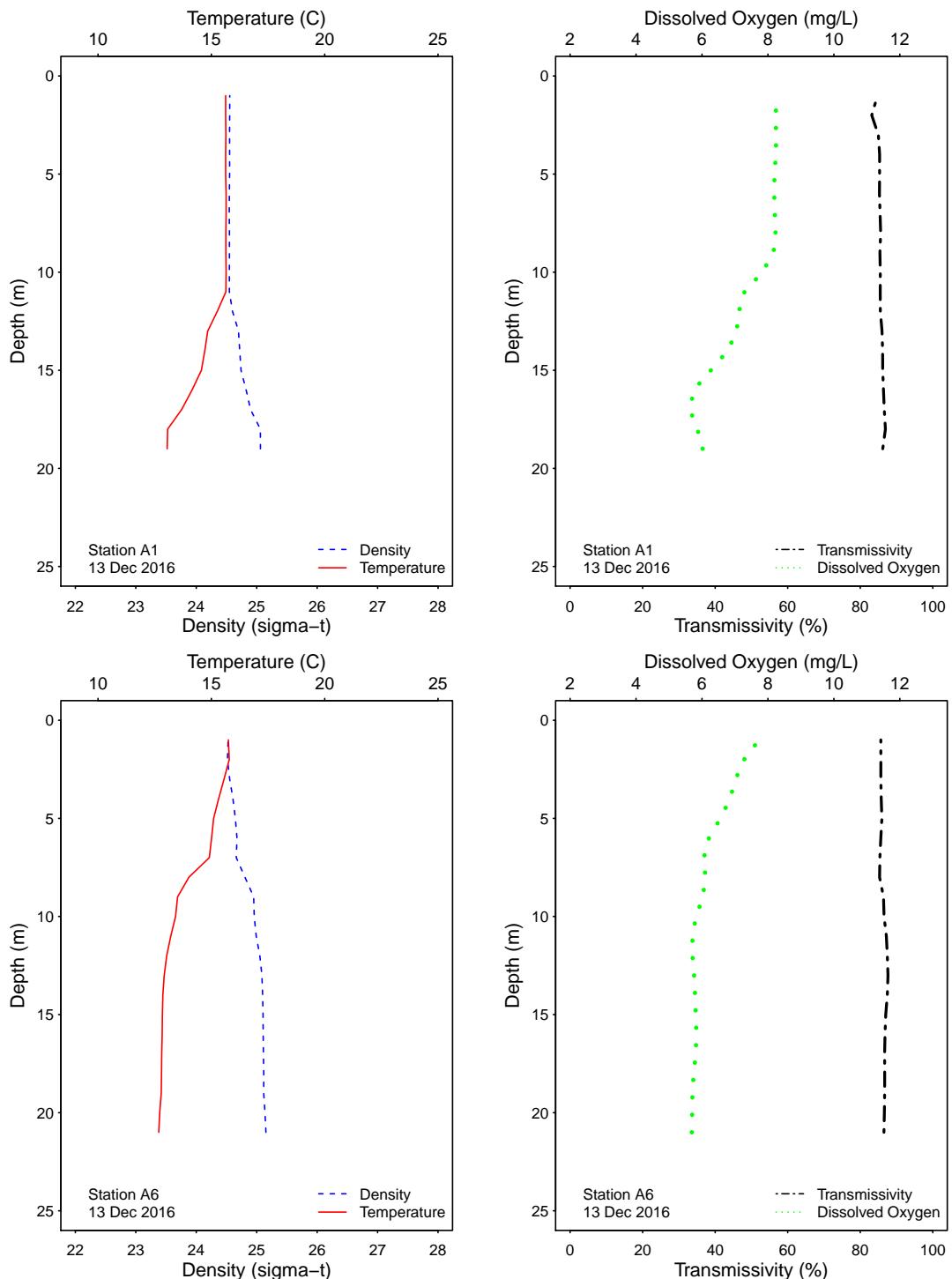


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

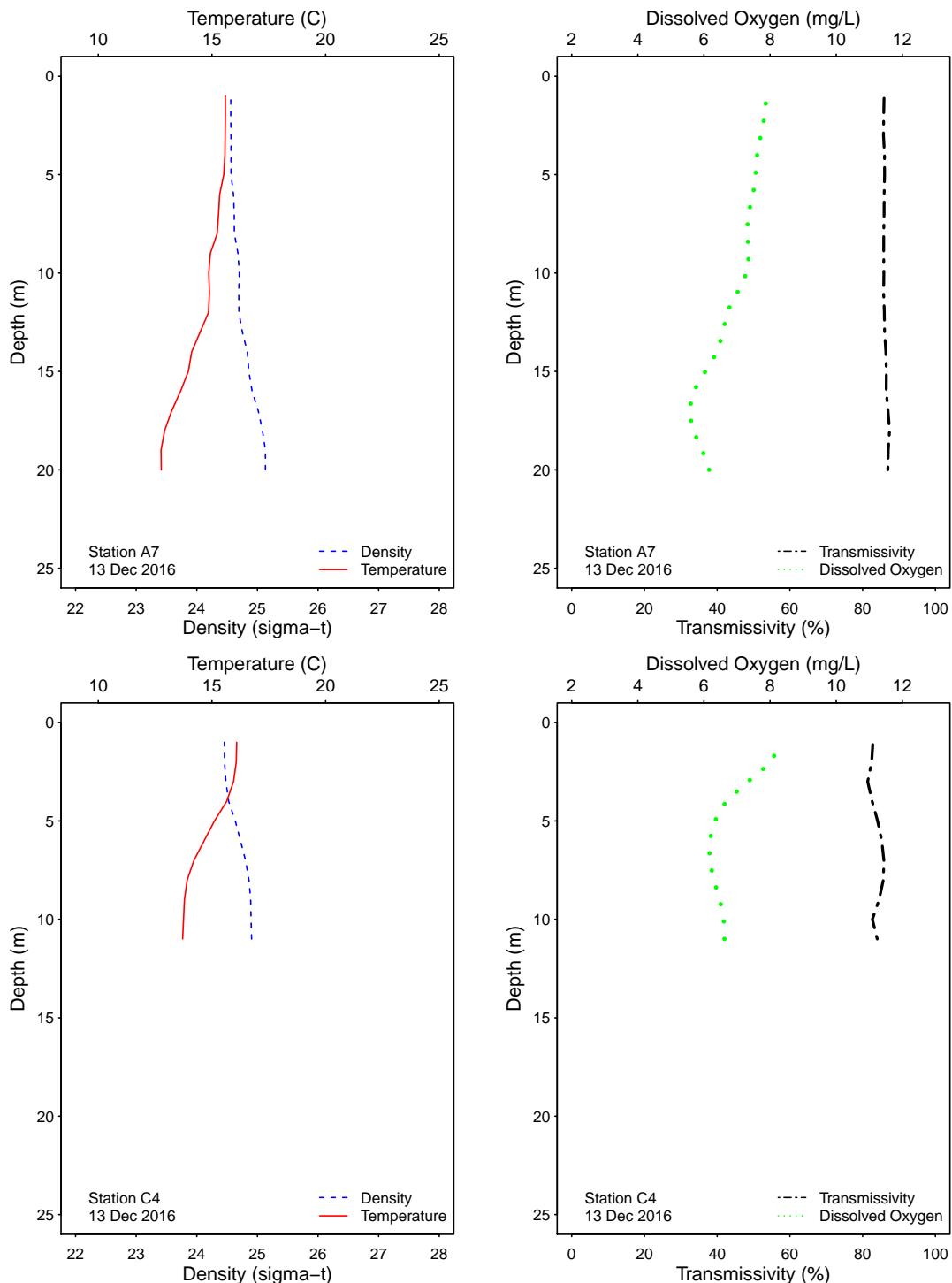


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

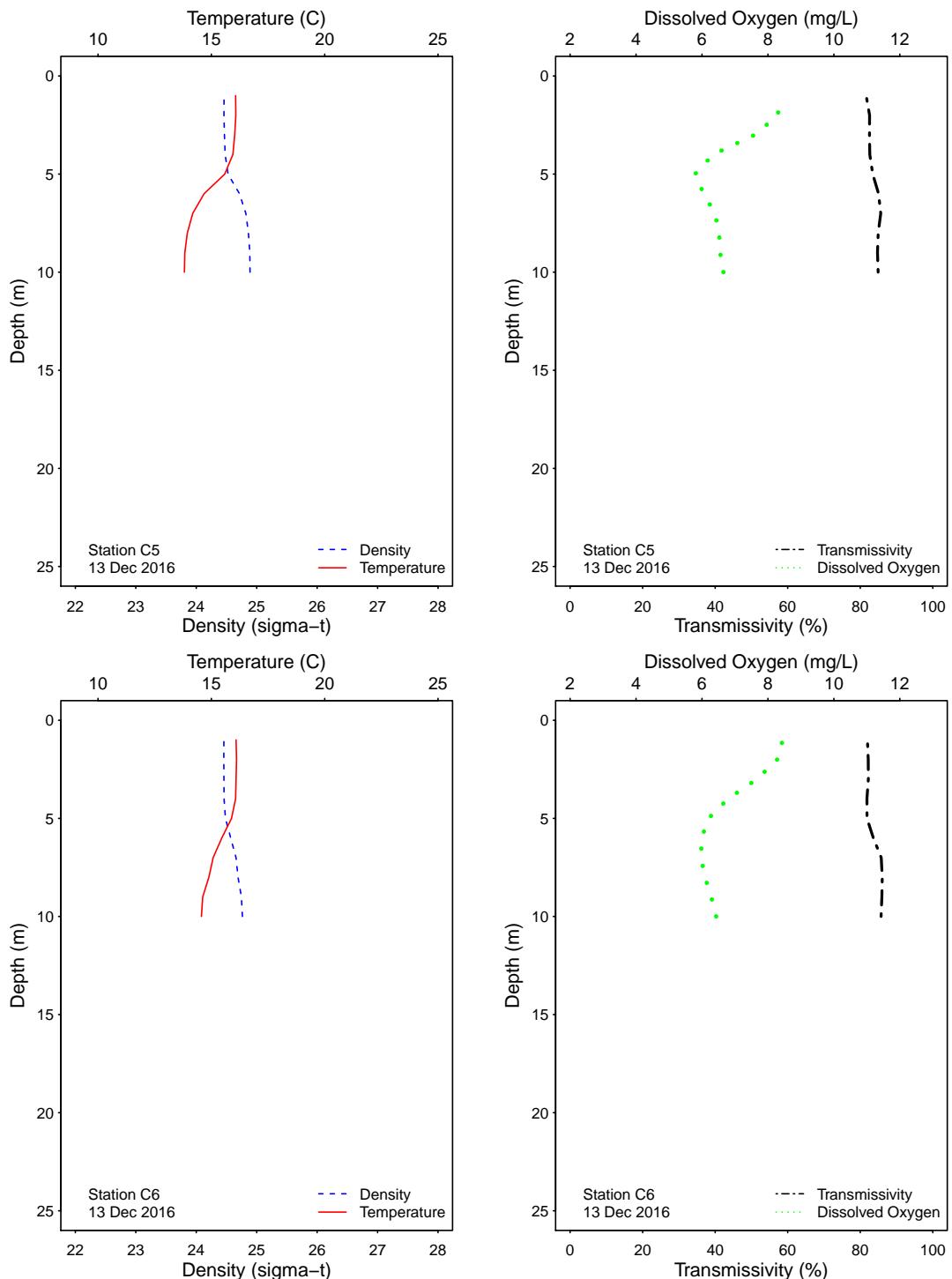


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

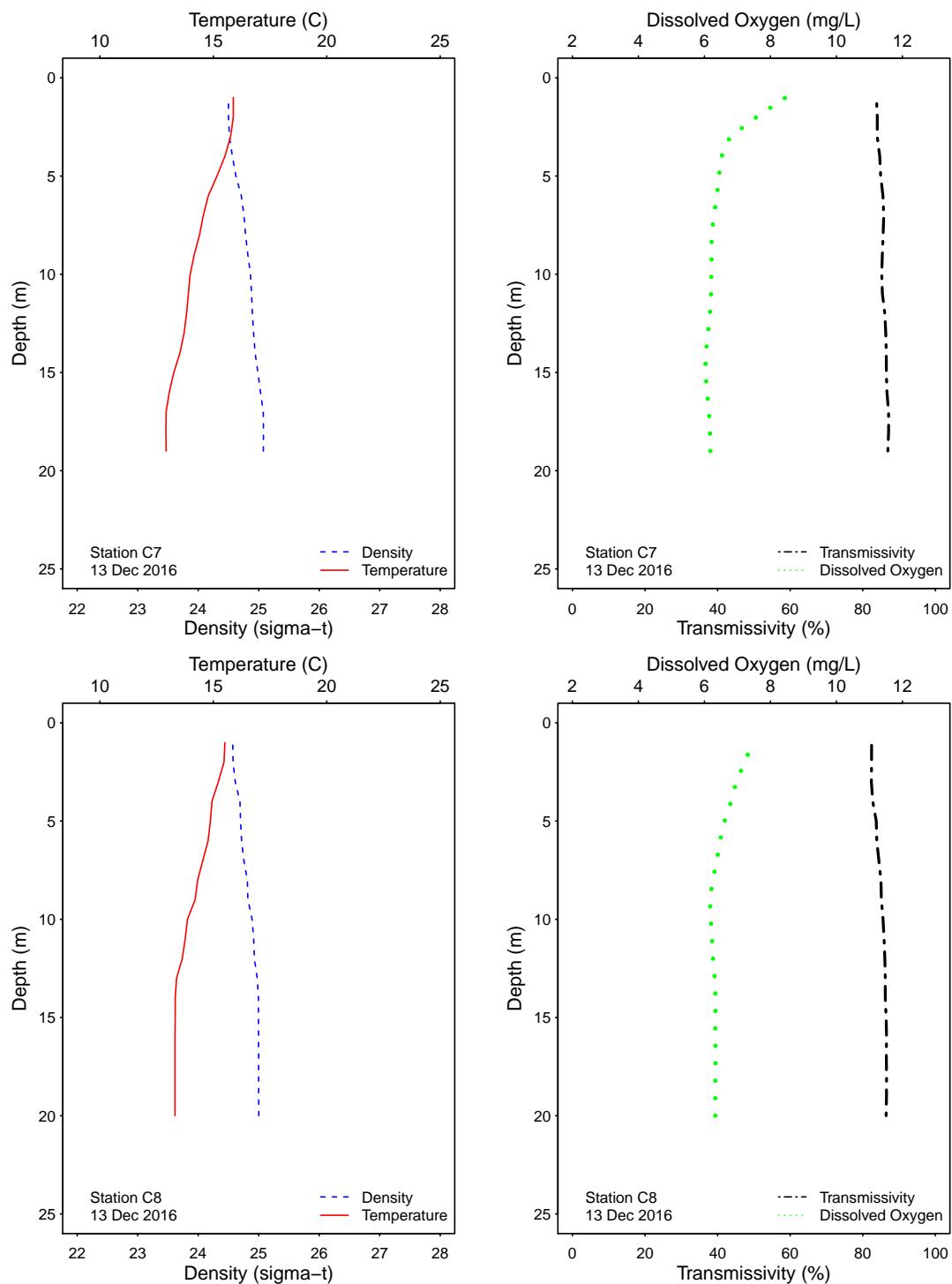


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

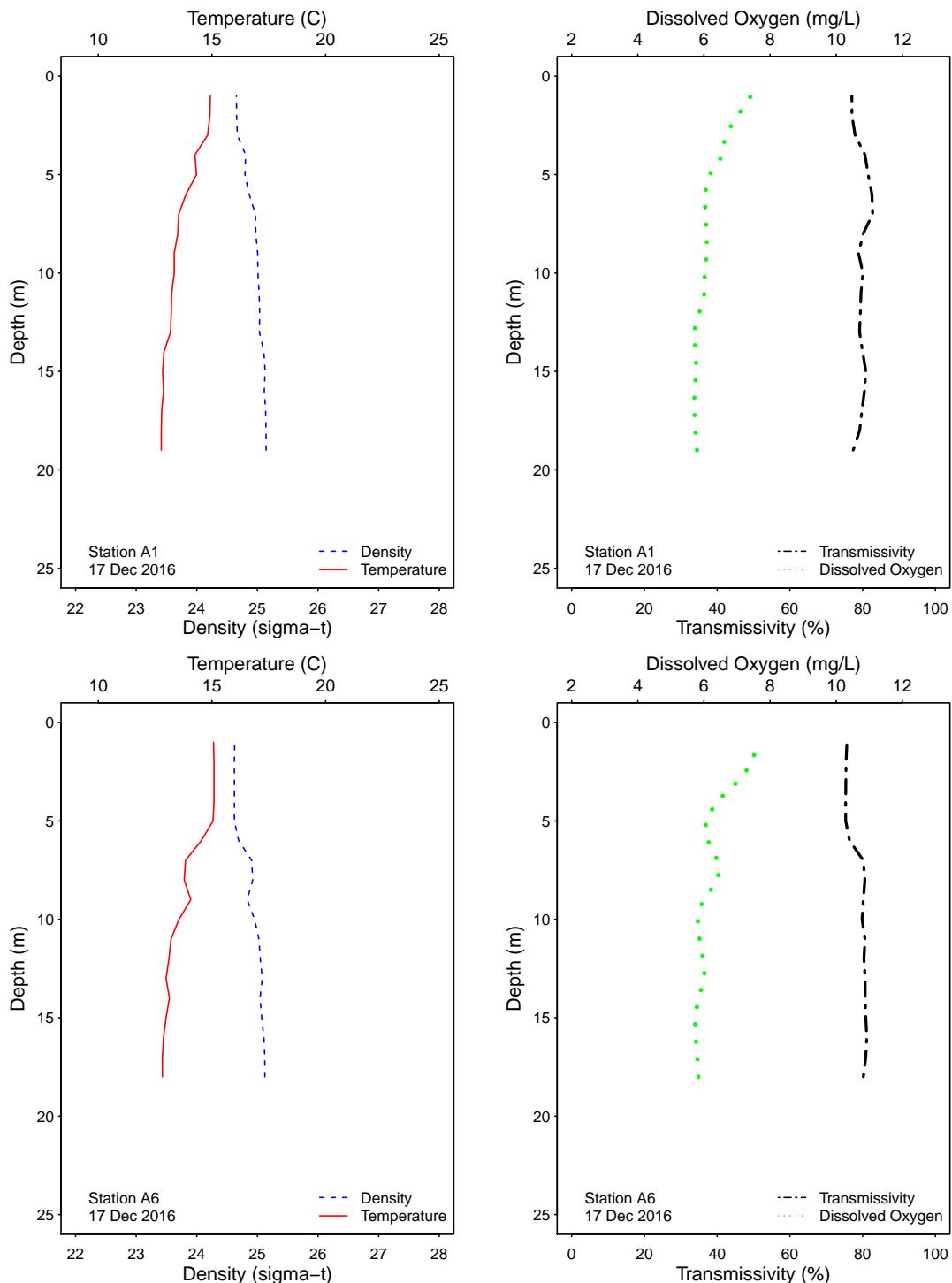


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

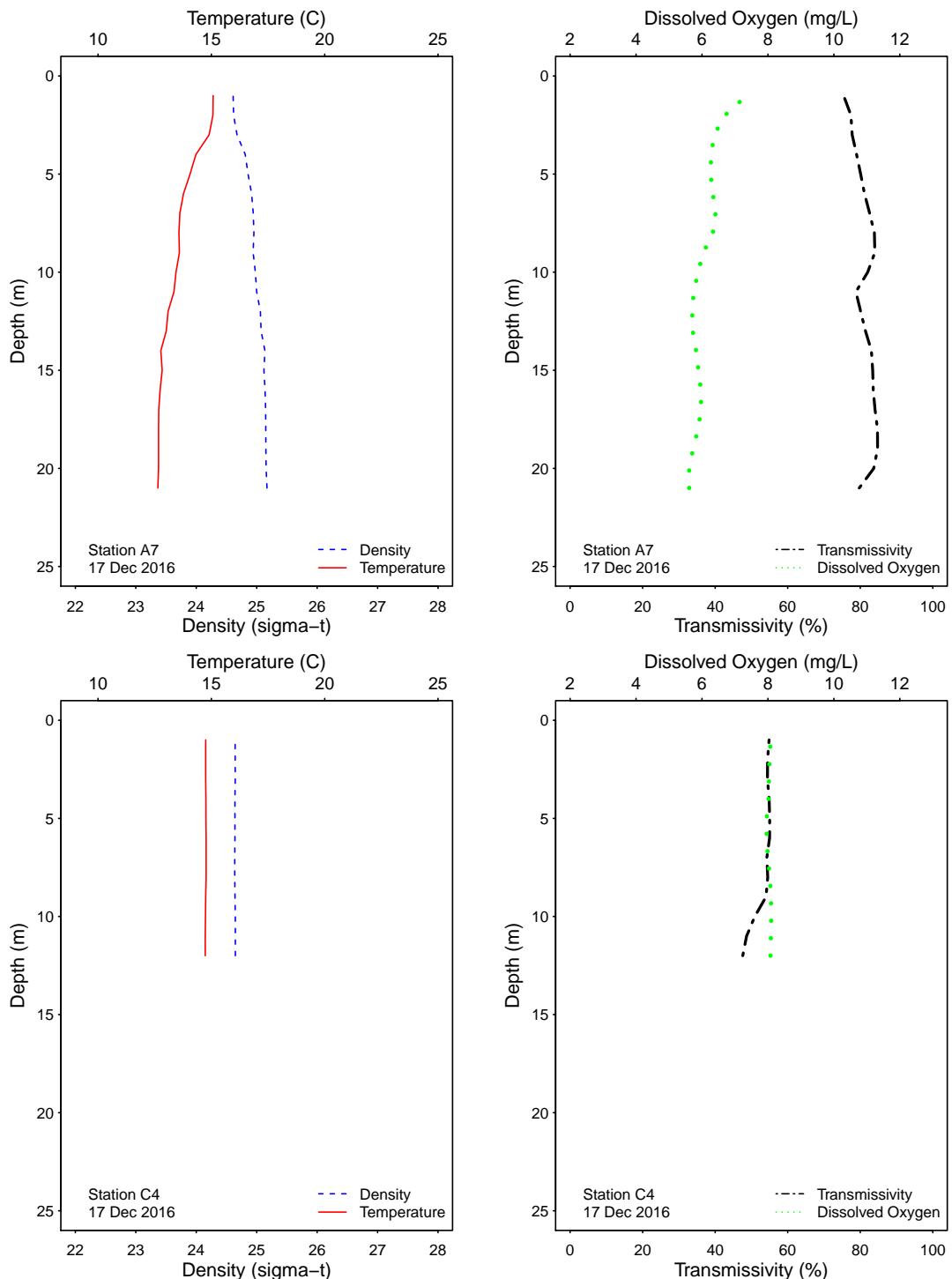


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

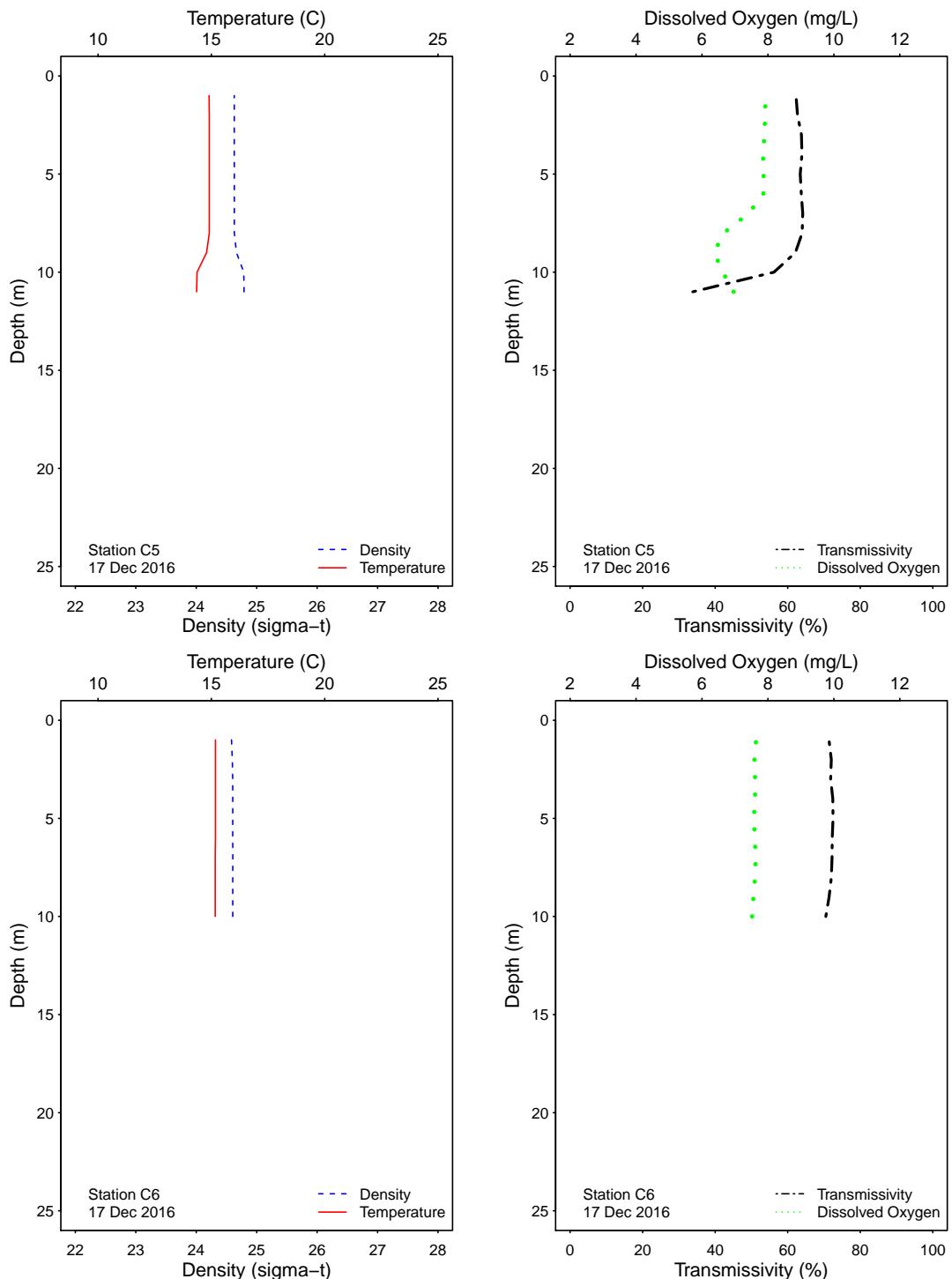


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

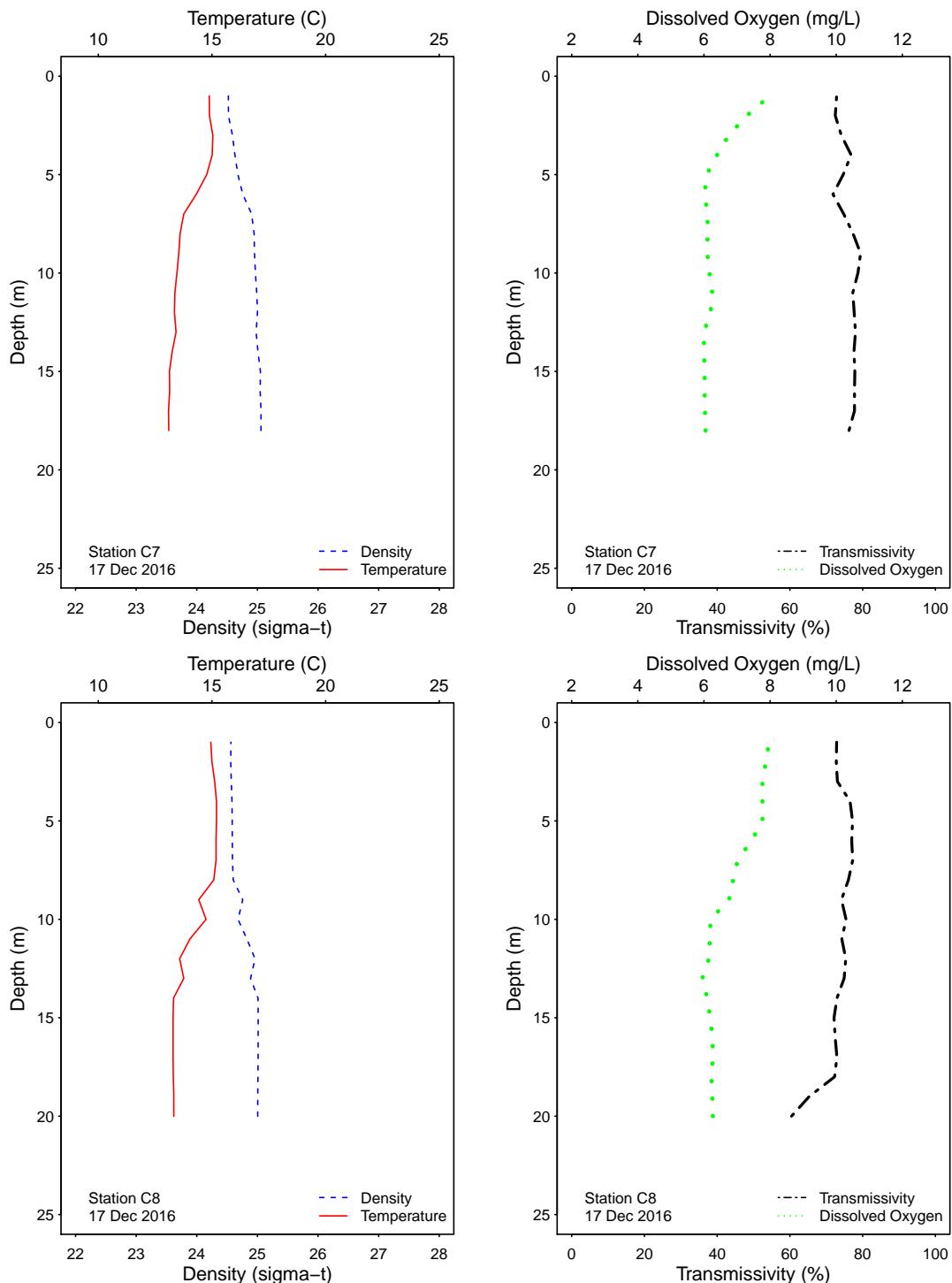


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

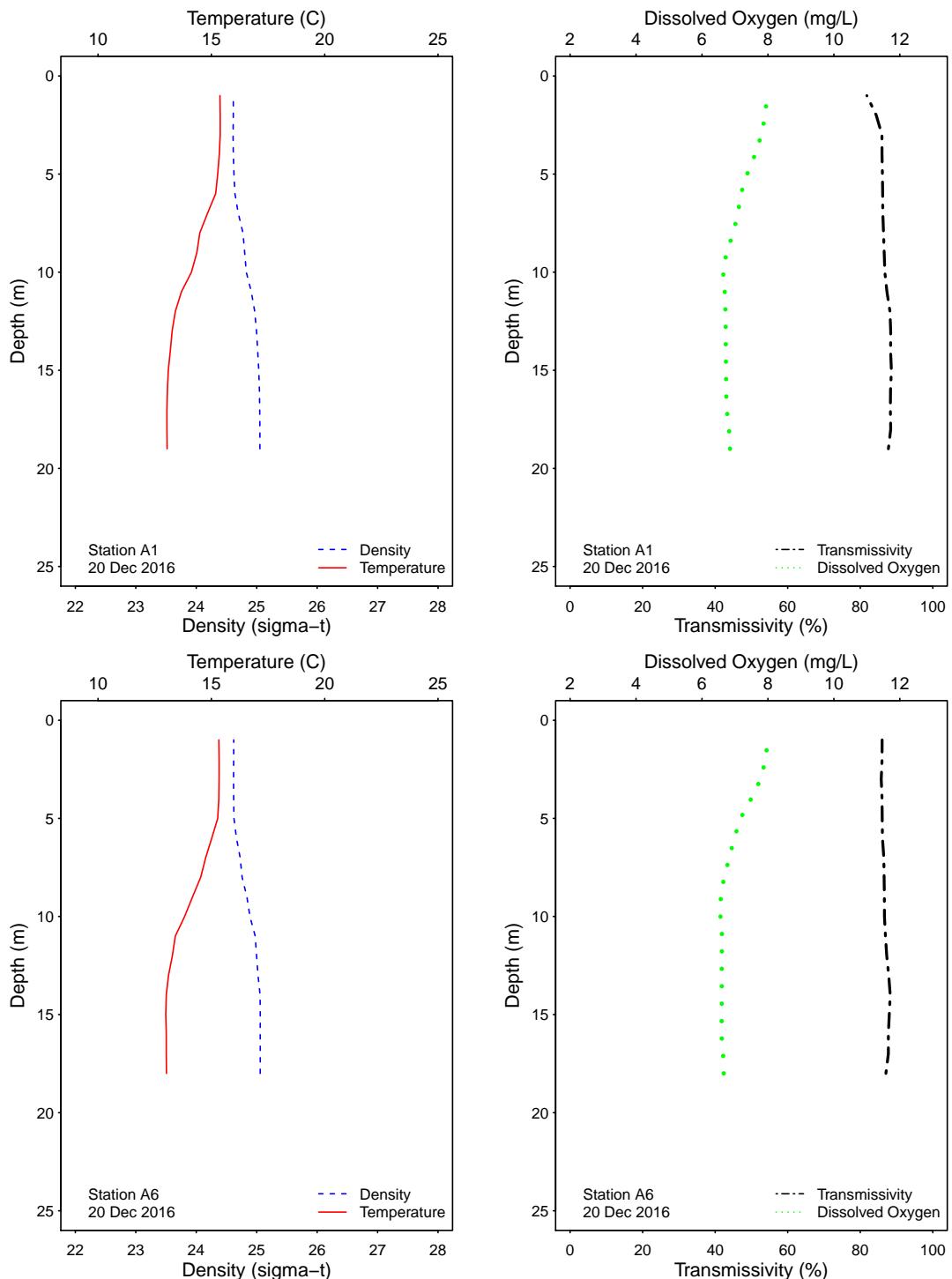


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

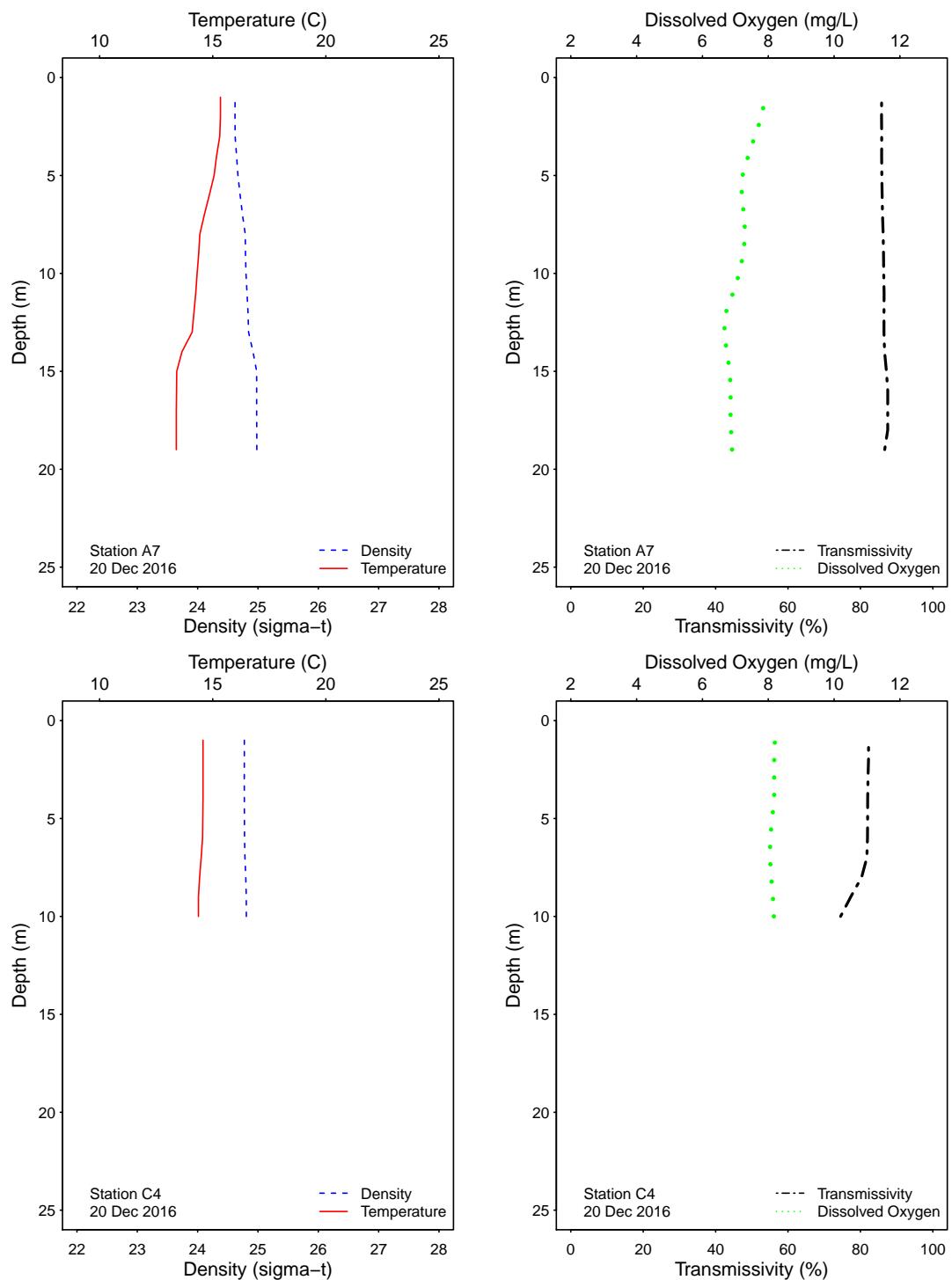


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

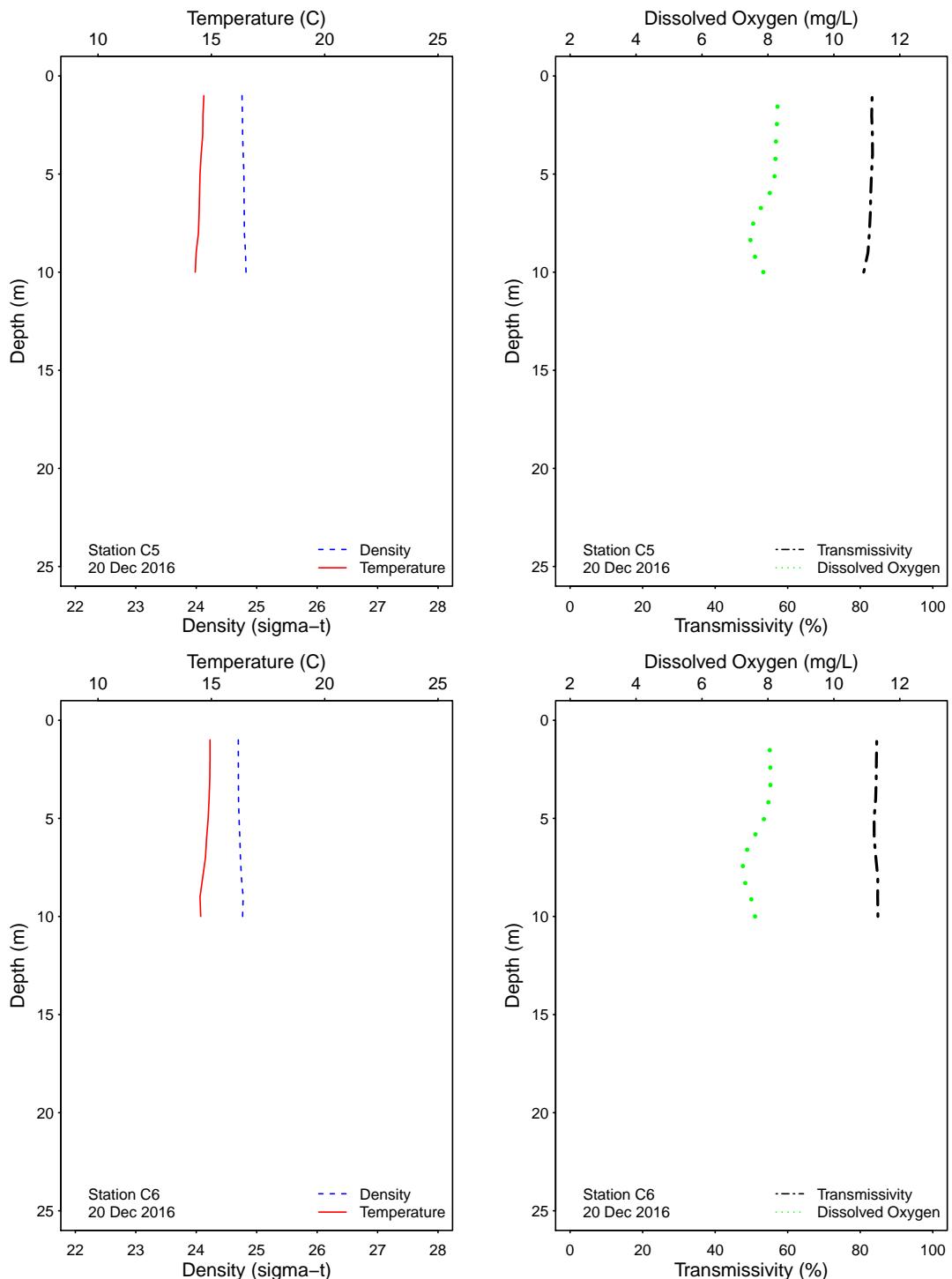


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

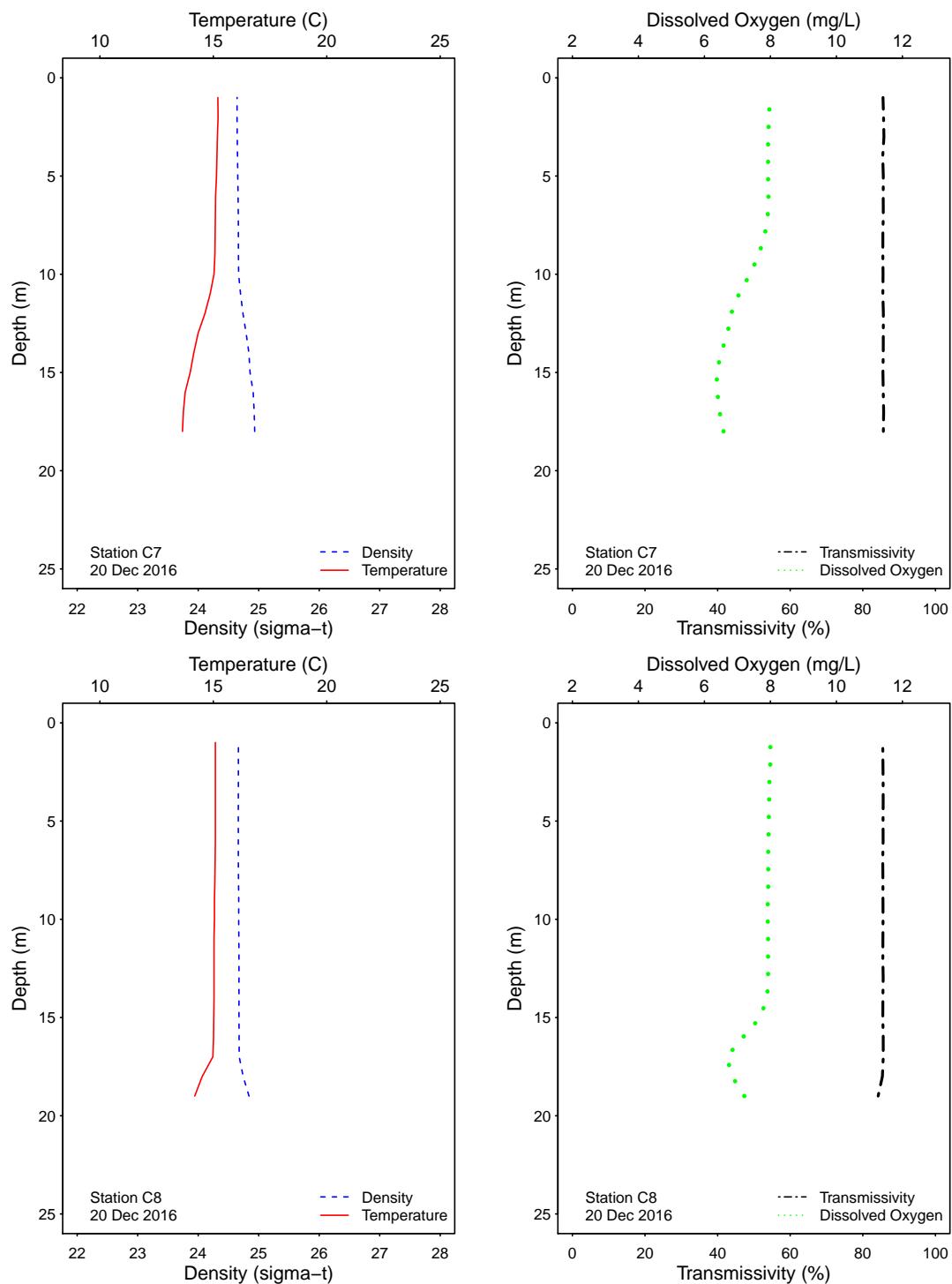


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

# **APPENDIX A**

## Quality Assurance



**Table A.1**

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

<b>Station</b>	<b>Date</b>	<b>Depth</b>	<b>Analyst</b>	<b>Procedure</b>	<b>Total</b>	<b>Fecal</b>	<b>Enter</b>
A7	01 Dec 2016	18	ZV	LAB DUPLICATE	1000	240e	<20
A7	05 Dec 2016	18	LMA	LAB DUPLICATE	18e	<2	<2
A7	13 Dec 2016	18	AR	LAB DUPLICATE	ns	<2	<2
A7	13 Dec 2016	18	ZV	LAB DUPLICATE	12e	ns	ns
A7	17 Dec 2016	18	LMA	LAB DUPLICATE	68	4e	<2
A7	20 Dec 2016	18	JT	LAB DUPLICATE	110	8e	<20
C7	01 Dec 2016	18	ZV	LAB DUPLICATE	32e	4e	<20
C7	05 Dec 2016	18	SR	LAB DUPLICATE	6e	2e	<2
C7	13 Dec 2016	18	AR	LAB DUPLICATE	ns	<2	4e
C7	13 Dec 2016	18	ZV	LAB DUPLICATE	30e	ns	ns
C7	17 Dec 2016	18	LMA	LAB DUPLICATE	26e	4e	<2
C7	20 Dec 2016	18	JT	LAB DUPLICATE	<2	<2	<20
C8	01 Dec 2016	12	AR	LAB DUPLICATE	14e	<2	<2
C8	05 Dec 2016	12	SR	LAB DUPLICATE	<2	<2	2e
C8	13 Dec 2016	12	AR	LAB DUPLICATE	ns	<2	2e
C8	13 Dec 2016	12	ZV	LAB DUPLICATE	10e	ns	ns
C8	17 Dec 2016	12	SR	LAB DUPLICATE	12e	2e	2e
C8	20 Dec 2016	12	JT	LAB DUPLICATE	<2	<2	<2
D12	06 Dec 2016		AR	FIELD DUPLICATE	<2	2e	<2
D12	06 Dec 2016		AR	LAB DUPLICATE	<2	2e	<2
D12	12 Dec 2016		ZV	FIELD DUPLICATE	<2	<2	<2
D12	12 Dec 2016		ZV	LAB DUPLICATE	4e	<2	<2
D12	18 Dec 2016		AR	FIELD DUPLICATE	8e	2e	<2
D12	18 Dec 2016		AR	LAB DUPLICATE	12e	2e	<2
D12	24 Dec 2016		LMA	FIELD DUPLICATE	300e	32e	120e
D12	24 Dec 2016		LMA	LAB DUPLICATE	320e	44	100e
D12	26 Dec 2016		LMA	LAB DUPLICATE	ns	ns	2e
D12	30 Dec 2016		LMA	FIELD DUPLICATE	30e	14e	2e
D12	30 Dec 2016		LMA	LAB DUPLICATE	18e	14e	2e

ns = not sampled

ND = no data

