



Monthly Receiving Waters Monitoring Report for the Point Loma Ocean Outfall

(Point Loma Metropolitan Wastewater Treatment Plant)

NPDES Permit No. CA0107409

December 2015



City of San Diego
Ocean Monitoring Program
Public Utilities Department
Environmental Monitoring and Technical Services Division



THE CITY OF SAN DIEGO

January 31, 2016

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 2015 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,

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

TDS:ger

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

Environmental Monitoring and Technical Services Division • Public Utilities

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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). 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.

Van Dorn bottles are used to collect seawater samples from discrete depths at the kelp bed stations. The bottles are arrayed at the required depths and messenger-tripped in series. 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. However, it should be noted that the CTD measurements and bacteriological samples are taken from separate hydrocasts.

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)^[1]. This document defines membrane filtration limits of 20–80 colonies per plate for total coliforms and 20–60 colonies per plate for fecal coliforms and *Enterococcus*. No Data (ND) is reported if plate counts from all dilutions have a total colony count of >200 per plate.

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

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

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

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

Single Sample Maximums:

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

Quality controls of bacteriological data include laboratory and field duplicate analyses. Laboratory duplicates are performed on approximately 10% of the water quality samples, while field duplicates are performed six times a month (see Appendix A). Laboratory duplicates represent two aliquots of the original sample that are split in the laboratory and analyzed by the same analyst using identical procedures within the same analytical run. The results of these analyses provide a measure of intra-analyst precision. In contrast, field duplicates represent two separate samples collected at the same time from the same site, which are handled under identical circumstances and treated exactly the same throughout field and lab procedures. The results of these analyses provide a measure of precision associated with sample collection, preservation, storage, and lab procedures. The sign test (see Gilbert, 1987) is used to statistically compare both the results from the laboratory duplicates, as well as the results from the field duplicates. These data will be further analyzed in the City's 2015 Quality Assurance Report, which will be completed in March 2016.

SUMMARY OF RESULTS

Shore Stations

- During December 2015, one of the eight shore stations was out of compliance with various water-contact standards specified in the Ocean Plan as follows:
 - o The single sample maximum (SSM) standard for *Enterococcus* was exceeded at station D12 on December 23.
- Per permit requirements, a resample was collected in response to this SSM exceedance (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>).
- Notable visual observations for December included: a sewage-like odor at station D5 on December 1.

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 4, 9, 15, 17, 21).
- During December, each of the kelp bed stations was in compliance with all of the water-contact standards specified in the Ocean Plan for total coliform, fecal coliform, and *Enterococcus* bacteria.
- Water column temperatures ranged from 16.12 to 19.19°C during the month. The difference between surface and bottom waters ranged from 0.01 to 1.39°C, indicating that the water column was stratified at some kelp bed stations during the month.
- Chlorophyll *a* concentrations ranged from 0.39 to 2.06 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 2016.



TABLES AND FIGURES

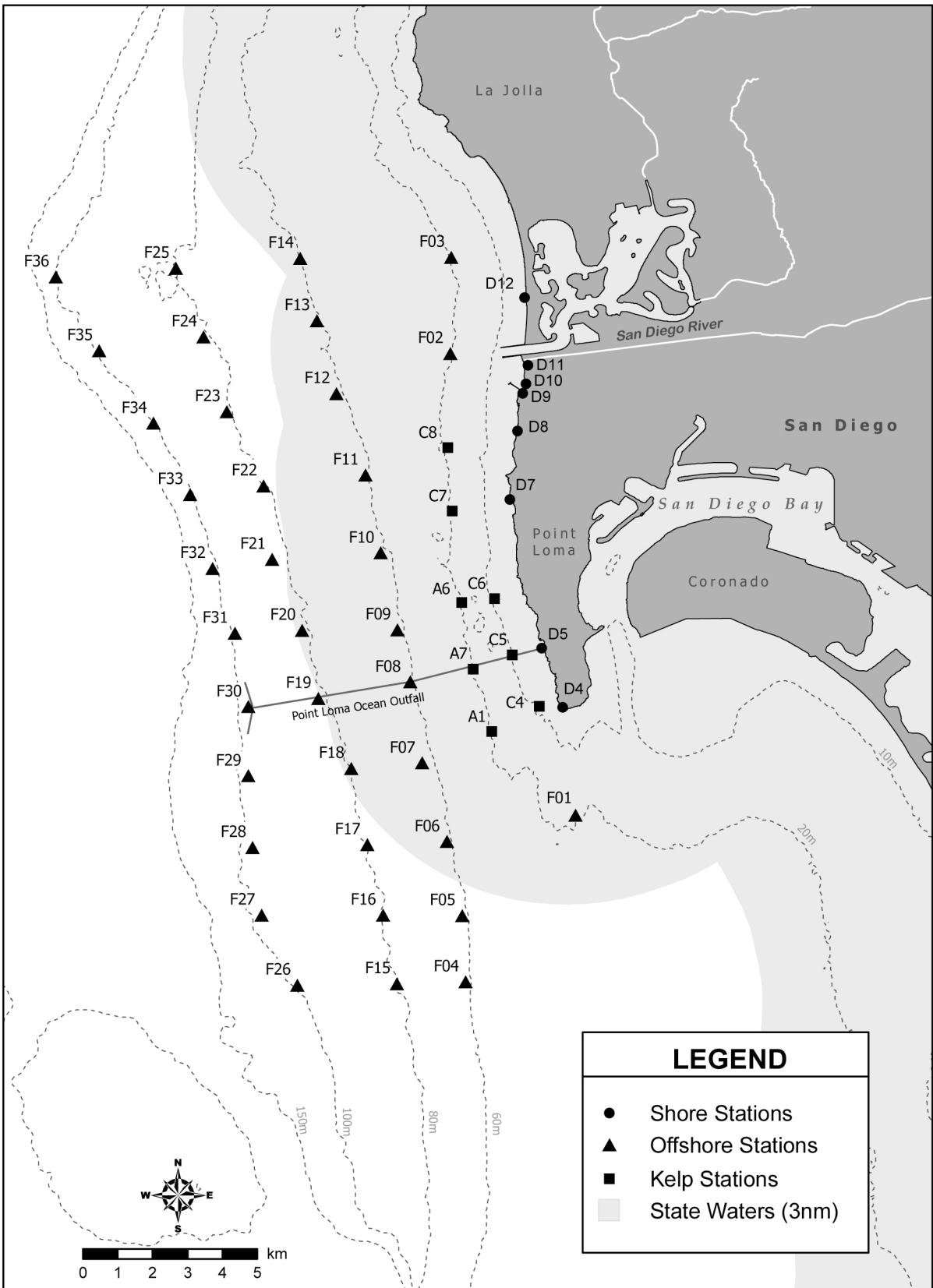


Figure 1.1 Station Map

Shore Stations

Table 2.1

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

Date	D4	D5	D7	D8	D9	D10	D11	D12
01 Dec 2015	6	20	19	68	11	49	24	10
02 Dec 2015	6	20	19	68	11	49	24	10
03 Dec 2015	6	20	19	68	11	49	24	10
04 Dec 2015	6	20	19	68	11	49	24	10
05 Dec 2015	6	20	19	68	11	49	24	10
06 Dec 2015	5	20	13	57	13	42	16	8
07 Dec 2015	6	20	13	56	11	37	15	10
08 Dec 2015	6	20	13	56	11	37	15	10
09 Dec 2015	6	20	13	56	11	37	15	10
10 Dec 2015	6	20	13	56	11	37	15	10
11 Dec 2015	9	25	14	68	13	37	23	11
12 Dec 2015	9	25	14	68	13	37	23	11
13 Dec 2015	7	26	13	56	16	34	21	8
14 Dec 2015	7	26	13	56	16	34	21	8
15 Dec 2015	7	26	13	56	16	34	21	8
16 Dec 2015	7	26	13	56	16	34	21	8
17 Dec 2015	6	17	9	49	11	29	18	7
18 Dec 2015	6	17	9	49	11	29	18	7
19 Dec 2015	7	17	8	56	10	31	18	9
20 Dec 2015	7	17	8	56	10	31	18	9
21 Dec 2015	7	17	8	56	10	31	18	9
22 Dec 2015	7	17	8	56	10	31	18	9
23 Dec 2015	13	17	10	68	13	29	22	13
24 Dec 2015	13	17	10	68	13	29	22	13
25 Dec 2015	10	17	9	43	12	19	17	8
26 Dec 2015	10	17	9	43	12	19	17	8
27 Dec 2015	10	17	9	50	12	19	17	8
28 Dec 2015	10	17	9	50	12	19	17	8
29 Dec 2015	11	17	9	43	11	25	22	8
30 Dec 2015	11	17	9	43	11	25	22	8
31 Dec 2015	16	17	8	50	13	29	29	11

* Geometric mean calculated using n<5

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	D9	D10	D11	D12
01 Dec 2015	2	3	10	18	3	8	6	6
02 Dec 2015	2	3	10	18	3	8	6	6
03 Dec 2015	2	3	10	18	3	8	6	6
04 Dec 2015	2	3	10	18	3	8	6	6
05 Dec 2015	2	3	10	18	3	8	6	6
06 Dec 2015	2	3	7	13	3	6	5	6
07 Dec 2015	2	2	7	15	4	6	5	7
08 Dec 2015	2	2	7	15	4	6	5	7
09 Dec 2015	2	2	7	15	4	6	5	7
10 Dec 2015	2	2	7	15	4	6	5	7
11 Dec 2015	3	4	6	13	3	6	4	7
12 Dec 2015	3	4	6	13	3	6	4	7
13 Dec 2015	3	4	5	9	4	6	4	6
14 Dec 2015	3	4	5	9	4	6	4	6
15 Dec 2015	3	4	5	9	4	6	4	6
16 Dec 2015	3	4	5	9	4	6	4	6
17 Dec 2015	3	4	4	8	3	5	4	5
18 Dec 2015	3	4	4	8	3	5	4	5
19 Dec 2015	3	4	5	10	4	4	3	6
20 Dec 2015	3	4	5	10	4	4	3	6
21 Dec 2015	3	4	5	10	4	4	3	6
22 Dec 2015	3	4	5	10	4	4	3	6
23 Dec 2015	4	4	4	13	4	7	5	7
24 Dec 2015	4	4	4	13	4	7	5	7
25 Dec 2015	4	4	3	8	3	5	3	5
26 Dec 2015	4	4	3	8	3	5	3	5
27 Dec 2015	4	4	3	6	3	5	3	5
28 Dec 2015	4	4	3	6	3	5	3	5
29 Dec 2015	3	3	3	7	3	6	4	4
30 Dec 2015	3	3	3	7	3	6	4	4
31 Dec 2015	4	4	2	8	3	8	4	5

* Geometric mean calculated using n<5

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	D9	D10	D11	D12
01 Dec 2015	4	6	4	28	3	11	6	9
02 Dec 2015	4	6	4	28	3	11	6	9
03 Dec 2015	4	6	4	28	3	11	6	9
04 Dec 2015	4	6	4	28	3	11	6	9
05 Dec 2015	4	6	4	28	3	11	6	9
06 Dec 2015	4	6	4	21	3	8	6	7
07 Dec 2015	4	7	4	19	3	11	6	9
08 Dec 2015	4	7	4	19	3	11	6	9
09 Dec 2015	4	7	4	19	3	11	6	9
10 Dec 2015	4	7	4	19	3	11	6	9
11 Dec 2015	4	7	4	19	4	12	9	10
12 Dec 2015	4	7	4	19	4	12	9	10
13 Dec 2015	4	9	4	17	5	11	10	10
14 Dec 2015	4	9	4	17	5	11	10	10
15 Dec 2015	4	9	4	17	5	11	10	10
16 Dec 2015	4	9	4	17	5	11	10	10
17 Dec 2015	3	7	4	13	4	9	9	8
18 Dec 2015	3	7	4	13	4	9	9	8
19 Dec 2015	4	9	4	15	5	10	12	10
20 Dec 2015	4	9	4	15	5	10	12	10
21 Dec 2015	4	9	4	15	5	10	12	10
22 Dec 2015	4	9	4	15	5	10	12	10
23 Dec 2015	5	8	5	19	6	13	16	14
24 Dec 2015	5	8	5	19	6	13	16	18
25 Dec 2015	3	3	2	11	4	9	12	13
26 Dec 2015	3	3	2	11	4	9	12	13
27 Dec 2015	3	4	2	10	4	7	12	12
28 Dec 2015	3	4	2	10	4	7	12	12
29 Dec 2015	3	4	2	13	4	9	15	11
30 Dec 2015	3	4	2	13	4	9	15	11
31 Dec 2015	3	5	2	14	4	11	19	15

* Geometric mean calculated using n<5

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	D9	D10	D11	D12
01 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
06 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
11 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
17 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
23 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
29 Dec 2015	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	D9	D10	D11	D12
01 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
06 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
11 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
17 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
23 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
29 Dec 2015	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	D9	D10	D11	D12
01 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
06 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
11 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
17 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
23 Dec 2015	IC	IC	IC	IC	IC	IC	IC	E
24 Dec 2015	ns	ns	ns	ns	ns	ns	ns	IC
29 Dec 2015	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	D9	D10	D11	D12
01 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
06 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
11 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
17 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
23 Dec 2015	IC	IC	IC	IC	IC	IC	IC	IC
29 Dec 2015	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.

Station	Date	Time	Total	Fecal	Enter	F:T
D4	01 Dec 2015	825	2e	<2	<2	1.00
	06 Dec 2015	937	<2	<2	<2	1.00
	11 Dec 2015	857	60e	4e	2e	0.07
	17 Dec 2015	808	2e	<2	<2	1.00
	23 Dec 2015	958	240e	26e	18e	0.11
	29 Dec 2015	1011	20e	<2	2e	0.10
D5	01 Dec 2015	805	<20	<2	2e	0.10
	06 Dec 2015	1005	<20	<2	6e	0.10
	11 Dec 2015	842	80e	34e	6e	0.42
	17 Dec 2015	753	<2	<2	<2	1.00
	23 Dec 2015	945	20e	2e	4e	0.10
	29 Dec 2015	1022	20e	2e	8e	0.10
D7	01 Dec 2015	853	20e	8e	<2	0.40
	06 Dec 2015	1036	<2	<2	<2	1.00
	11 Dec 2015	919	<20	2e	<2	0.10
	17 Dec 2015	832	2e	<2	<2	1.00
	23 Dec 2015	923	40e	<2	6e	0.05
	29 Dec 2015	947	10e	<2	2e	0.20
D8	01 Dec 2015	909	20e	4e	8e	0.20
	06 Dec 2015	1055	<20	<2	4e	0.10
	11 Dec 2015	929	<200	4e	18e	0.02
	17 Dec 2015	843	<20	6e	2e	0.30
	23 Dec 2015	912	200e	60e	80e	0.30
	29 Dec 2015	931	<20	12e	54	0.60
D9	01 Dec 2015	936	6e	<2	2e	0.33
	06 Dec 2015	1117	<20	4e	<2	0.20
	11 Dec 2015	940	20e	2e	14e	0.10
	17 Dec 2015	853	<2	<2	<2	1.00
	23 Dec 2015	859	60e	4e	8e	0.07
	29 Dec 2015	922	8e	<2	4e	0.25
D10	01 Dec 2015	938	14e	2e	4e	0.14
	06 Dec 2015	905	<20	<2	2e	0.10
	11 Dec 2015	950	40e	8e	18e	0.20
	17 Dec 2015	903	12e	2e	<2	0.17
	23 Dec 2015	849	20e	44e	60	2.20
	29 Dec 2015	909	100e	20e	36e	0.20

Station	Date	Time	Total	Fecal	Enterο	F:T
D11	01 Dec 2015	951	6e	2e	4e	0.33
D11	06 Dec 2015	848	<2	<2	4e	1.00
D11	11 Dec 2015	1002	<200	<2	48	0.01
D11	17 Dec 2015	913	10e	2e	4e	0.20
D11	23 Dec 2015	841	60e	32e	68	0.53
D11	29 Dec 2015	859	80e	6e	46	0.07
D12	01 Dec 2015	1110	<2	<2	<2	1.00
D12	06 Dec 2015	825	<2	4e	<2	2.00
D12	11 Dec 2015	1025	20e	4e	24e	0.20
D12	17 Dec 2015	933	4e	<2	<2	0.50
D12	23 Dec 2015	828	80e	30e	140e	0.38
D12	24 Dec 2015	850	ns	ns	90	ns
D12	29 Dec 2015	844	10e	<2	10e	0.20

ns = not sampled

Comments

Station	Date	Depth	Parameter	Comments
D12	24 Dec 2015			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	01 Dec 2015	Arrive Time	825
D4	01 Dec 2015	Weather	Sunny
D4	01 Dec 2015	Wind Speed (kts)	3
D4	01 Dec 2015	Wind Dir	W
D4	01 Dec 2015	Animal Life	None
D4	01 Dec 2015	Floatables	None
D4	01 Dec 2015	Water Color	Green
D4	01 Dec 2015	Current Direction	W
D4	01 Dec 2015	Wave Height Low (ft)	3
D4	01 Dec 2015	High Tide (ft)	4.3
D4	01 Dec 2015	High Tide Time	1222
D4	01 Dec 2015	Low Tide (ft)	2.7
D4	01 Dec 2015	Low Tide Time	651
D4	01 Dec 2015	Comments	Kelp; Seagrass; 15 Surfers; 7 Boats; Water turbid
D4	06 Dec 2015	Arrive Time	937
D4	06 Dec 2015	Weather	Partly Cloudy
D4	06 Dec 2015	Wind Speed (kts)	3
D4	06 Dec 2015	Wind Dir	SW
D4	06 Dec 2015	Animal Life	None
D4	06 Dec 2015	Floatables	None
D4	06 Dec 2015	Water Color	Green
D4	06 Dec 2015	Current Direction	SW
D4	06 Dec 2015	Wave Height Low (ft)	2
D4	06 Dec 2015	High Tide (ft)	5
D4	06 Dec 2015	High Tide Time	541
D4	06 Dec 2015	Low Tide (ft)	0.8
D4	06 Dec 2015	Low Tide Time	1234
D4	06 Dec 2015	Comments	Kelp; Seagrass; Water turbid; Many small boats: Two surfers.
D4	11 Dec 2015	Arrive Time	857
D4	11 Dec 2015	Weather	Cloudy
D4	11 Dec 2015	Wind Speed (kts)	7.3
D4	11 Dec 2015	Wind Dir	W
D4	11 Dec 2015	Animal Life	None
D4	11 Dec 2015	Floatables	None
D4	11 Dec 2015	Water Color	Green
D4	11 Dec 2015	Current Direction	S
D4	11 Dec 2015	Wave Height Low (ft)	3
D4	11 Dec 2015	High Tide (ft)	6
D4	11 Dec 2015	High Tide Time	811
D4	11 Dec 2015	Low Tide (ft)	-0.7
D4	11 Dec 2015	Low Tide Time	1522
D4	11 Dec 2015	Comments	Kelp; Seagrass; Water clear
D4	17 Dec 2015	Arrive Time	808
D4	17 Dec 2015	Weather	Sunny
D4	17 Dec 2015	Wind Speed (kts)	4.2
D4	17 Dec 2015	Wind Dir	NW
D4	17 Dec 2015	Animal Life	None
D4	17 Dec 2015	Floatables	None

Station	Date	Parameter	Value
D4	17 Dec 2015	Water Color	Green
D4	17 Dec 2015	Current Direction	NW
D4	17 Dec 2015	Wave Height Low (ft)	2
D4	17 Dec 2015	High Tide (ft)	4.1
D4	17 Dec 2015	High Tide Time	1253
D4	17 Dec 2015	Low Tide (ft)	2.3
D4	17 Dec 2015	Low Tide Time	724
D4	17 Dec 2015	Comments	Kelp; Seagrass; Algae; Water clear
D4	23 Dec 2015	Arrive Time	958
D4	23 Dec 2015	Weather	Drizzle
D4	23 Dec 2015	Wind Speed (kts)	6.8
D4	23 Dec 2015	Wind Dir	NW
D4	23 Dec 2015	Animal Life	None
D4	23 Dec 2015	Floatables	None
D4	23 Dec 2015	Water Color	Green
D4	23 Dec 2015	Current Direction	NW
D4	23 Dec 2015	Wave Height Low (ft)	3
D4	23 Dec 2015	High Tide (ft)	6.5
D4	23 Dec 2015	High Tide Time	651
D4	23 Dec 2015	Low Tide (ft)	-1.1
D4	23 Dec 2015	Low Tide Time	1401
D4	23 Dec 2015	Comments	Algae; Water clear
D4	29 Dec 2015	Arrive Time	1011
D4	29 Dec 2015	Weather	Sunny
D4	29 Dec 2015	Wind Speed (kts)	3.1
D4	29 Dec 2015	Wind Dir	SW
D4	29 Dec 2015	Animal Life	None
D4	29 Dec 2015	Floatables	None
D4	29 Dec 2015	Water Color	Green
D4	29 Dec 2015	Current Direction	SW
D4	29 Dec 2015	Wave Height Low (ft)	3
D4	29 Dec 2015	High Tide (ft)	4.9
D4	29 Dec 2015	High Tide Time	1053
D4	29 Dec 2015	Low Tide (ft)	2.1
D4	29 Dec 2015	Low Tide Time	507
D4	29 Dec 2015	Comments	Algae; Water clear
D5	01 Dec 2015	Arrive Time	805
D5	01 Dec 2015	Weather	Sunny
D5	01 Dec 2015	Wind Speed (kts)	3
D5	01 Dec 2015	Wind Dir	W
D5	01 Dec 2015	Animal Life	None
D5	01 Dec 2015	Floatables	None
D5	01 Dec 2015	Water Color	Green
D5	01 Dec 2015	Current Direction	W
D5	01 Dec 2015	Wave Height Low (ft)	3
D5	01 Dec 2015	High Tide (ft)	4.3
D5	01 Dec 2015	High Tide Time	1222
D5	01 Dec 2015	Low Tide (ft)	2.7
D5	01 Dec 2015	Low Tide Time	651
D5	01 Dec 2015	Comments	Kelp; Seagrass; Sewage-like odor; Water turbid
D5	06 Dec 2015	Arrive Time	1005

Station	Date	Parameter	Value
D5	06 Dec 2015	Weather	Partly Cloudy
D5	06 Dec 2015	Wind Speed (kts)	2
D5	06 Dec 2015	Wind Dir	SW
D5	06 Dec 2015	Animal Life	None
D5	06 Dec 2015	Floatables	None
D5	06 Dec 2015	Water Color	Green
D5	06 Dec 2015	Current Direction	SW
D5	06 Dec 2015	Wave Height Low (ft)	3
D5	06 Dec 2015	High Tide (ft)	5
D5	06 Dec 2015	High Tide Time	541
D5	06 Dec 2015	Low Tide (ft)	0.8
D5	06 Dec 2015	Low Tide Time	1234
D5	06 Dec 2015	Comments	Kelp; Seagrass; 1 Person; Water turbid; Plant worker covering sampler
D5	11 Dec 2015	Arrive Time	842
D5	11 Dec 2015	Weather	Partly Cloudy
D5	11 Dec 2015	Wind Speed (kts)	6.6
D5	11 Dec 2015	Wind Dir	W
D5	11 Dec 2015	Animal Life	None
D5	11 Dec 2015	Floatables	None
D5	11 Dec 2015	Water Color	Green
D5	11 Dec 2015	Current Direction	S
D5	11 Dec 2015	Wave Height Low (ft)	5
D5	11 Dec 2015	High Tide (ft)	6
D5	11 Dec 2015	High Tide Time	811
D5	11 Dec 2015	Low Tide (ft)	1.7
D5	11 Dec 2015	Low Tide Time	202
D5	11 Dec 2015	Comments	Kelp; Seagrass; Water clear
D5	17 Dec 2015	Arrive Time	753
D5	17 Dec 2015	Weather	Sunny
D5	17 Dec 2015	Wind Speed (kts)	3.3
D5	17 Dec 2015	Wind Dir	W
D5	17 Dec 2015	Animal Life	None
D5	17 Dec 2015	Floatables	None
D5	17 Dec 2015	Water Color	Green
D5	17 Dec 2015	Current Direction	W
D5	17 Dec 2015	Wave Height Low (ft)	2
D5	17 Dec 2015	High Tide (ft)	4.1
D5	17 Dec 2015	High Tide Time	1253
D5	17 Dec 2015	Low Tide (ft)	2.3
D5	17 Dec 2015	Low Tide Time	724
D5	17 Dec 2015	Comments	Kelp; Seagrass; Water clear
D5	23 Dec 2015	Arrive Time	945
D5	23 Dec 2015	Weather	Drizzle
D5	23 Dec 2015	Wind Speed (kts)	4
D5	23 Dec 2015	Wind Dir	NW
D5	23 Dec 2015	Animal Life	None
D5	23 Dec 2015	Floatables	None
D5	23 Dec 2015	Water Color	Green
D5	23 Dec 2015	Current Direction	NW
D5	23 Dec 2015	Wave Height Low (ft)	4
D5	23 Dec 2015	High Tide (ft)	6.5

Station	Date	Parameter	Value
D5	23 Dec 2015	High Tide Time	651
D5	23 Dec 2015	Low Tide (ft)	-1.1
D5	23 Dec 2015	Low Tide Time	1401
D5	23 Dec 2015	Comments	Algae; Water clear
D5	29 Dec 2015	Arrive Time	1022
D5	29 Dec 2015	Weather	Sunny
D5	29 Dec 2015	Wind Speed (kts)	0.1
D5	29 Dec 2015	Wind Dir	N
D5	29 Dec 2015	Animal Life	None
D5	29 Dec 2015	Floatables	None
D5	29 Dec 2015	Water Color	Green
D5	29 Dec 2015	Current Direction	N
D5	29 Dec 2015	Wave Height Low (ft)	2
D5	29 Dec 2015	High Tide (ft)	4.9
D5	29 Dec 2015	High Tide Time	1053
D5	29 Dec 2015	Low Tide (ft)	2.1
D5	29 Dec 2015	Low Tide Time	507
D5	29 Dec 2015	Comments	Algae; Water clear
D7	01 Dec 2015	Arrive Time	853
D7	01 Dec 2015	Weather	Sunny
D7	01 Dec 2015	Wind Speed (kts)	3
D7	01 Dec 2015	Wind Dir	W
D7	01 Dec 2015	Animal Life	None
D7	01 Dec 2015	Floatables	None
D7	01 Dec 2015	Water Color	Green
D7	01 Dec 2015	Current Direction	W
D7	01 Dec 2015	Wave Height Low (ft)	4
D7	01 Dec 2015	High Tide (ft)	4.3
D7	01 Dec 2015	High Tide Time	1222
D7	01 Dec 2015	Low Tide (ft)	2.7
D7	01 Dec 2015	Low Tide Time	651
D7	01 Dec 2015	Comments	Kelp; Seagrass; 5 Surfers; Water turbid
D7	06 Dec 2015	Arrive Time	1036
D7	06 Dec 2015	Weather	Sunny
D7	06 Dec 2015	Wind Speed (kts)	4
D7	06 Dec 2015	Wind Dir	W
D7	06 Dec 2015	Animal Life	None
D7	06 Dec 2015	Floatables	None
D7	06 Dec 2015	Water Color	Green
D7	06 Dec 2015	Current Direction	W
D7	06 Dec 2015	Wave Height Low (ft)	4
D7	06 Dec 2015	High Tide (ft)	5
D7	06 Dec 2015	High Tide Time	541
D7	06 Dec 2015	Low Tide (ft)	0.8
D7	06 Dec 2015	Low Tide Time	1234
D7	06 Dec 2015	Comments	Kelp; Seagrass; 11 Surfers; Water clear; Green hair-like moss at the bottom of stairs
D7	11 Dec 2015	Arrive Time	919
D7	11 Dec 2015	Weather	Cloudy
D7	11 Dec 2015	Wind Speed (kts)	7.2
D7	11 Dec 2015	Wind Dir	W

Station	Date	Parameter	Value
D7	11 Dec 2015	Animal Life	None
D7	11 Dec 2015	Floatables	None
D7	11 Dec 2015	Water Color	Green
D7	11 Dec 2015	Current Direction	S
D7	11 Dec 2015	Wave Height Low (ft)	4
D7	11 Dec 2015	High Tide (ft)	6
D7	11 Dec 2015	High Tide Time	811
D7	11 Dec 2015	Low Tide (ft)	-0.7
D7	11 Dec 2015	Low Tide Time	1522
D7	11 Dec 2015	Comments	Kelp; Seagrass; Algae; Water clear
D7	17 Dec 2015	Arrive Time	832
D7	17 Dec 2015	Weather	Sunny
D7	17 Dec 2015	Wind Speed (kts)	0.3
D7	17 Dec 2015	Wind Dir	W
D7	17 Dec 2015	Animal Life	None
D7	17 Dec 2015	Floatables	None
D7	17 Dec 2015	Water Color	Green
D7	17 Dec 2015	Current Direction	W
D7	17 Dec 2015	Wave Height Low (ft)	3
D7	17 Dec 2015	High Tide (ft)	4.1
D7	17 Dec 2015	High Tide Time	1253
D7	17 Dec 2015	Low Tide (ft)	2.3
D7	17 Dec 2015	Low Tide Time	724
D7	17 Dec 2015	Comments	Kelp; Seagrass; Water clear
D7	23 Dec 2015	Arrive Time	923
D7	23 Dec 2015	Weather	Drizzle
D7	23 Dec 2015	Wind Speed (kts)	8.3
D7	23 Dec 2015	Wind Dir	NW
D7	23 Dec 2015	Animal Life	None
D7	23 Dec 2015	Floatables	None
D7	23 Dec 2015	Water Color	Green
D7	23 Dec 2015	Current Direction	NW
D7	23 Dec 2015	Wave Height Low (ft)	4
D7	23 Dec 2015	High Tide (ft)	6.5
D7	23 Dec 2015	High Tide Time	651
D7	23 Dec 2015	Low Tide (ft)	-1.1
D7	23 Dec 2015	Low Tide Time	1401
D7	23 Dec 2015	Comments	Seagrass; Algae; Water clear
D7	29 Dec 2015	Arrive Time	947
D7	29 Dec 2015	Weather	Sunny
D7	29 Dec 2015	Wind Speed (kts)	0.1
D7	29 Dec 2015	Wind Dir	W
D7	29 Dec 2015	Animal Life	None
D7	29 Dec 2015	Floatables	None
D7	29 Dec 2015	Water Color	Green
D7	29 Dec 2015	Current Direction	W
D7	29 Dec 2015	Wave Height Low (ft)	2
D7	29 Dec 2015	High Tide (ft)	4.9
D7	29 Dec 2015	High Tide Time	1053
D7	29 Dec 2015	Low Tide (ft)	2.1
D7	29 Dec 2015	Low Tide Time	507
D7	29 Dec 2015	Comments	Algae; Water clear

Station	Date	Parameter	Value
D8	01 Dec 2015	Arrive Time	909
D8	01 Dec 2015	Weather	Sunny
D8	01 Dec 2015	Wind Speed (kts)	3
D8	01 Dec 2015	Wind Dir	W
D8	01 Dec 2015	Animal Life	None
D8	01 Dec 2015	Floatables	None
D8	01 Dec 2015	Water Color	Green
D8	01 Dec 2015	Current Direction	W
D8	01 Dec 2015	Wave Height Low (ft)	2
D8	01 Dec 2015	High Tide (ft)	4.3
D8	01 Dec 2015	High Tide Time	1222
D8	01 Dec 2015	Low Tide (ft)	2.7
D8	01 Dec 2015	Low Tide Time	651
D8	01 Dec 2015	Comments	Kelp; Seagrass; Algae; Water turbid
D8	06 Dec 2015	Arrive Time	1055
D8	06 Dec 2015	Weather	Sunny
D8	06 Dec 2015	Wind Speed (kts)	3
D8	06 Dec 2015	Wind Dir	W
D8	06 Dec 2015	Animal Life	None
D8	06 Dec 2015	Floatables	None
D8	06 Dec 2015	Water Color	Green
D8	06 Dec 2015	Current Direction	W
D8	06 Dec 2015	Wave Height Low (ft)	3
D8	06 Dec 2015	High Tide (ft)	5
D8	06 Dec 2015	High Tide Time	541
D8	06 Dec 2015	Low Tide (ft)	0.8
D8	06 Dec 2015	Low Tide Time	1234
D8	06 Dec 2015	Comments	Kelp; Seagrass; 2 Persons; Water clear; Appears shedded skins of tube worms
D8	11 Dec 2015	Arrive Time	929
D8	11 Dec 2015	Weather	Cloudy
D8	11 Dec 2015	Wind Speed (kts)	13.8
D8	11 Dec 2015	Wind Dir	W
D8	11 Dec 2015	Animal Life	None
D8	11 Dec 2015	Floatables	None
D8	11 Dec 2015	Water Color	Green
D8	11 Dec 2015	Current Direction	S
D8	11 Dec 2015	Wave Height Low (ft)	3
D8	11 Dec 2015	High Tide (ft)	6
D8	11 Dec 2015	High Tide Time	811
D8	11 Dec 2015	Low Tide (ft)	-0.7
D8	11 Dec 2015	Low Tide Time	1522
D8	11 Dec 2015	Comments	Kelp; Seagrass; Water clear
D8	17 Dec 2015	Arrive Time	843
D8	17 Dec 2015	Weather	Sunny
D8	17 Dec 2015	Wind Speed (kts)	1.1
D8	17 Dec 2015	Wind Dir	NW
D8	17 Dec 2015	Animal Life	None
D8	17 Dec 2015	Floatables	None
D8	17 Dec 2015	Water Color	Green
D8	17 Dec 2015	Current Direction	NW

Station	Date	Parameter	Value
D8	17 Dec 2015	Wave Height Low (ft)	3
D8	17 Dec 2015	High Tide (ft)	4.1
D8	17 Dec 2015	High Tide Time	1253
D8	17 Dec 2015	Low Tide (ft)	2.3
D8	17 Dec 2015	Low Tide Time	724
D8	17 Dec 2015	Comments	Kelp; Seagrass; Water clear
D8	23 Dec 2015	Arrive Time	912
D8	23 Dec 2015	Weather	Drizzle
D8	23 Dec 2015	Wind Speed (kts)	5.8
D8	23 Dec 2015	Wind Dir	W
D8	23 Dec 2015	Animal Life	None
D8	23 Dec 2015	Floatables	None
D8	23 Dec 2015	Water Color	Green
D8	23 Dec 2015	Current Direction	W
D8	23 Dec 2015	Wave Height Low (ft)	4
D8	23 Dec 2015	High Tide (ft)	6.5
D8	23 Dec 2015	High Tide Time	651
D8	23 Dec 2015	Low Tide (ft)	-1.1
D8	23 Dec 2015	Low Tide Time	1401
D8	23 Dec 2015	Comments	Kelp; Seagrass; Water clear
D8	29 Dec 2015	Arrive Time	931
D8	29 Dec 2015	Weather	Sunny
D8	29 Dec 2015	Wind Speed (kts)	0.3
D8	29 Dec 2015	Wind Dir	NW
D8	29 Dec 2015	Animal Life	None
D8	29 Dec 2015	Floatables	None
D8	29 Dec 2015	Water Color	Green
D8	29 Dec 2015	Current Direction	NW
D8	29 Dec 2015	Wave Height Low (ft)	4
D8	29 Dec 2015	High Tide (ft)	4.9
D8	29 Dec 2015	High Tide Time	1053
D8	29 Dec 2015	Low Tide (ft)	2.1
D8	29 Dec 2015	Low Tide Time	507
D8	29 Dec 2015	Comments	Kelp; Seagrass; Water clear
D9	01 Dec 2015	Arrive Time	936
D9	01 Dec 2015	Weather	Sunny
D9	01 Dec 2015	Wind Speed (kts)	2
D9	01 Dec 2015	Wind Dir	W
D9	01 Dec 2015	Animal Life	5 Seagulls
D9	01 Dec 2015	Floatables	None
D9	01 Dec 2015	Water Color	Green
D9	01 Dec 2015	Current Direction	W
D9	01 Dec 2015	Wave Height Low (ft)	3
D9	01 Dec 2015	High Tide (ft)	4.3
D9	01 Dec 2015	High Tide Time	1222
D9	01 Dec 2015	Low Tide (ft)	2.7
D9	01 Dec 2015	Low Tide Time	651
D9	01 Dec 2015	Comments	Kelp; Seagrass; 5 Surfers; Water turbid
D9	06 Dec 2015	Arrive Time	1117
D9	06 Dec 2015	Weather	Partly Cloudy
D9	06 Dec 2015	Wind Speed (kts)	3

Station	Date	Parameter	Value
D9	06 Dec 2015	Wind Dir	W
D9	06 Dec 2015	Animal Life	None
D9	06 Dec 2015	Floatables	None
D9	06 Dec 2015	Water Color	Green
D9	06 Dec 2015	Current Direction	W
D9	06 Dec 2015	Wave Height Low (ft)	3
D9	06 Dec 2015	High Tide (ft)	5
D9	06 Dec 2015	High Tide Time	541
D9	06 Dec 2015	Low Tide (ft)	0.8
D9	06 Dec 2015	Low Tide Time	1234
D9	06 Dec 2015	Comments	Kelp; Seagrass; Algae; 5 Surfers; Water turbid; Brown and green hair-like algae at bottom of stairs on the rocks
D9	11 Dec 2015	Arrive Time	940
D9	11 Dec 2015	Weather	Cloudy
D9	11 Dec 2015	Wind Speed (kts)	16.1
D9	11 Dec 2015	Wind Dir	W
D9	11 Dec 2015	Animal Life	None
D9	11 Dec 2015	Floatables	None
D9	11 Dec 2015	Water Color	Green
D9	11 Dec 2015	Current Direction	S
D9	11 Dec 2015	Wave Height Low (ft)	4
D9	11 Dec 2015	High Tide (ft)	6
D9	11 Dec 2015	High Tide Time	811
D9	11 Dec 2015	Low Tide (ft)	-0.7
D9	11 Dec 2015	Low Tide Time	1522
D9	11 Dec 2015	Comments	Kelp; Seagrass; Water clear; Possible fecal matter on staircase to sampling point
D9	17 Dec 2015	Arrive Time	853
D9	17 Dec 2015	Weather	Sunny
D9	17 Dec 2015	Wind Speed (kts)	0.3
D9	17 Dec 2015	Wind Dir	NW
D9	17 Dec 2015	Animal Life	None
D9	17 Dec 2015	Floatables	None
D9	17 Dec 2015	Water Color	Green
D9	17 Dec 2015	Current Direction	NW
D9	17 Dec 2015	Wave Height Low (ft)	3
D9	17 Dec 2015	High Tide (ft)	4.1
D9	17 Dec 2015	High Tide Time	1253
D9	17 Dec 2015	Low Tide (ft)	2.3
D9	17 Dec 2015	Low Tide Time	724
D9	17 Dec 2015	Comments	Seagrass; Algae; Water clear
D9	23 Dec 2015	Arrive Time	859
D9	23 Dec 2015	Weather	Moderate Rain
D9	23 Dec 2015	Wind Speed (kts)	3.8
D9	23 Dec 2015	Wind Dir	W
D9	23 Dec 2015	Animal Life	None
D9	23 Dec 2015	Floatables	None
D9	23 Dec 2015	Water Color	Green
D9	23 Dec 2015	Current Direction	W
D9	23 Dec 2015	Wave Height Low (ft)	4
D9	23 Dec 2015	High Tide (ft)	6.5
D9	23 Dec 2015	High Tide Time	651

Station	Date	Parameter	Value
D9	23 Dec 2015	Low Tide (ft)	-1.1
D9	23 Dec 2015	Low Tide Time	1401
D9	23 Dec 2015	Comments	Kelp; Seagrass; Algae; Water clear
D9	29 Dec 2015	Arrive Time	922
D9	29 Dec 2015	Weather	Sunny
D9	29 Dec 2015	Wind Speed (kts)	1.1
D9	29 Dec 2015	Wind Dir	N
D9	29 Dec 2015	Animal Life	None
D9	29 Dec 2015	Floatables	None
D9	29 Dec 2015	Water Color	Green
D9	29 Dec 2015	Current Direction	N
D9	29 Dec 2015	Wave Height Low (ft)	3
D9	29 Dec 2015	High Tide (ft)	4.9
D9	29 Dec 2015	High Tide Time	1053
D9	29 Dec 2015	Low Tide (ft)	2.1
D9	29 Dec 2015	Low Tide Time	507
D9	29 Dec 2015	Comments	Algae; Water clear
D10	01 Dec 2015	Arrive Time	938
D10	01 Dec 2015	Weather	Sunny
D10	01 Dec 2015	Wind Speed (kts)	2
D10	01 Dec 2015	Wind Dir	W
D10	01 Dec 2015	Animal Life	None
D10	01 Dec 2015	Floatables	None
D10	01 Dec 2015	Water Color	Green
D10	01 Dec 2015	Current Direction	W
D10	01 Dec 2015	Wave Height Low (ft)	2
D10	01 Dec 2015	High Tide (ft)	4.3
D10	01 Dec 2015	High Tide Time	1222
D10	01 Dec 2015	Low Tide (ft)	2.7
D10	01 Dec 2015	Low Tide Time	651
D10	01 Dec 2015	Comments	Kelp; Seagrass; Water turbid
D10	06 Dec 2015	Arrive Time	905
D10	06 Dec 2015	Weather	Sunny
D10	06 Dec 2015	Wind Speed (kts)	3
D10	06 Dec 2015	Wind Dir	SW
D10	06 Dec 2015	Animal Life	None
D10	06 Dec 2015	Floatables	None
D10	06 Dec 2015	Water Color	Green
D10	06 Dec 2015	Current Direction	SW
D10	06 Dec 2015	Wave Height Low (ft)	3
D10	06 Dec 2015	High Tide (ft)	5
D10	06 Dec 2015	High Tide Time	541
D10	06 Dec 2015	Low Tide (ft)	0.8
D10	06 Dec 2015	Low Tide Time	1234
D10	06 Dec 2015	Comments	Kelp; Seagrass; 2 Swimmers; Water turbid
D10	11 Dec 2015	Arrive Time	950
D10	11 Dec 2015	Weather	Partly Cloudy
D10	11 Dec 2015	Wind Speed (kts)	15.9
D10	11 Dec 2015	Wind Dir	W
D10	11 Dec 2015	Animal Life	None
D10	11 Dec 2015	Floatables	None

Station	Date	Parameter	Value
D10	11 Dec 2015	Water Color	Green
D10	11 Dec 2015	Current Direction	S
D10	11 Dec 2015	Wave Height Low (ft)	5
D10	11 Dec 2015	High Tide (ft)	6
D10	11 Dec 2015	High Tide Time	811
D10	11 Dec 2015	Low Tide (ft)	-0.7
D10	11 Dec 2015	Low Tide Time	1522
D10	11 Dec 2015	Comments	Kelp; Seagrass; 1 Surfer; Water clear
D10	17 Dec 2015	Arrive Time	903
D10	17 Dec 2015	Weather	Sunny
D10	17 Dec 2015	Wind Speed (kts)	0.7
D10	17 Dec 2015	Wind Dir	NW
D10	17 Dec 2015	Animal Life	None
D10	17 Dec 2015	Floatables	None
D10	17 Dec 2015	Water Color	Green
D10	17 Dec 2015	Current Direction	NW
D10	17 Dec 2015	Wave Height Low (ft)	3
D10	17 Dec 2015	High Tide (ft)	4.1
D10	17 Dec 2015	High Tide Time	1253
D10	17 Dec 2015	Low Tide (ft)	2.3
D10	17 Dec 2015	Low Tide Time	724
D10	17 Dec 2015	Comments	Seagrass; 2 Surfers; Water clear
D10	23 Dec 2015	Arrive Time	849
D10	23 Dec 2015	Weather	Moderate Rain
D10	23 Dec 2015	Wind Speed (kts)	4.8
D10	23 Dec 2015	Wind Dir	W
D10	23 Dec 2015	Animal Life	None
D10	23 Dec 2015	Floatables	None
D10	23 Dec 2015	Water Color	Green
D10	23 Dec 2015	Current Direction	W
D10	23 Dec 2015	Wave Height Low (ft)	3
D10	23 Dec 2015	High Tide (ft)	6.5
D10	23 Dec 2015	High Tide Time	651
D10	23 Dec 2015	Low Tide (ft)	-1.1
D10	23 Dec 2015	Low Tide Time	1401
D10	23 Dec 2015	Comments	Kelp; Seagrass; Water clear
D10	29 Dec 2015	Arrive Time	909
D10	29 Dec 2015	Weather	Sunny
D10	29 Dec 2015	Wind Speed (kts)	2.1
D10	29 Dec 2015	Wind Dir	SE
D10	29 Dec 2015	Animal Life	None
D10	29 Dec 2015	Floatables	None
D10	29 Dec 2015	Water Color	Green
D10	29 Dec 2015	Current Direction	SE
D10	29 Dec 2015	Wave Height Low (ft)	4
D10	29 Dec 2015	High Tide (ft)	4.9
D10	29 Dec 2015	High Tide Time	1053
D10	29 Dec 2015	Low Tide (ft)	2.1
D10	29 Dec 2015	Low Tide Time	507
D10	29 Dec 2015	Comments	Seagrass; Water clear
D11	01 Dec 2015	Arrive Time	951

Station	Date	Parameter	Value
D11	01 Dec 2015	Weather	Sunny
D11	01 Dec 2015	Wind Speed (kts)	2
D11	01 Dec 2015	Wind Dir	W
D11	01 Dec 2015	Animal Life	None
D11	01 Dec 2015	Floatables	None
D11	01 Dec 2015	Water Color	Green
D11	01 Dec 2015	Current Direction	W
D11	01 Dec 2015	Wave Height Low (ft)	2
D11	01 Dec 2015	High Tide (ft)	4.3
D11	01 Dec 2015	High Tide Time	1222
D11	01 Dec 2015	Low Tide (ft)	2.7
D11	01 Dec 2015	Low Tide Time	651
D11	01 Dec 2015	Comments	Kelp; Seagrass; 1 Surfer; Water turbid
D11	06 Dec 2015	Arrive Time	848
D11	06 Dec 2015	Weather	Partly Cloudy
D11	06 Dec 2015	Wind Speed (kts)	3
D11	06 Dec 2015	Wind Dir	SW
D11	06 Dec 2015	Animal Life	None
D11	06 Dec 2015	Floatables	None
D11	06 Dec 2015	Water Color	Green
D11	06 Dec 2015	Current Direction	SW
D11	06 Dec 2015	Wave Height Low (ft)	3
D11	06 Dec 2015	High Tide (ft)	5
D11	06 Dec 2015	High Tide Time	541
D11	06 Dec 2015	Low Tide (ft)	0.8
D11	06 Dec 2015	Low Tide Time	1234
D11	06 Dec 2015	Comments	Kelp; Seagrass; Algae; 8 Surfers; Water turbid; Dogs across the jetty
D11	11 Dec 2015	Arrive Time	1002
D11	11 Dec 2015	Weather	Cloudy
D11	11 Dec 2015	Wind Speed (kts)	15.1
D11	11 Dec 2015	Wind Dir	W
D11	11 Dec 2015	Animal Life	None
D11	11 Dec 2015	Floatables	None
D11	11 Dec 2015	Water Color	Green
D11	11 Dec 2015	Current Direction	S
D11	11 Dec 2015	Wave Height Low (ft)	5
D11	11 Dec 2015	High Tide (ft)	6
D11	11 Dec 2015	High Tide Time	811
D11	11 Dec 2015	Low Tide (ft)	-0.7
D11	11 Dec 2015	Low Tide Time	1522
D11	11 Dec 2015	Comments	Kelp; Seagrass; 1 Surfer; Water clear
D11	17 Dec 2015	Arrive Time	913
D11	17 Dec 2015	Weather	Sunny
D11	17 Dec 2015	Wind Speed (kts)	1.3
D11	17 Dec 2015	Wind Dir	NW
D11	17 Dec 2015	Animal Life	None
D11	17 Dec 2015	Floatables	None
D11	17 Dec 2015	Water Color	Green
D11	17 Dec 2015	Current Direction	NW
D11	17 Dec 2015	Wave Height Low (ft)	3
D11	17 Dec 2015	High Tide (ft)	4.1

Station	Date	Parameter	Value
D11	17 Dec 2015	High Tide Time	1253
D11	17 Dec 2015	Low Tide (ft)	2.3
D11	17 Dec 2015	Low Tide Time	724
D11	17 Dec 2015	Comments	Seagrass; 2 Persons; 1 Surfer; Water clear
D11	23 Dec 2015	Arrive Time	841
D11	23 Dec 2015	Weather	Moderate Rain
D11	23 Dec 2015	Wind Speed (kts)	8.1
D11	23 Dec 2015	Wind Dir	NW
D11	23 Dec 2015	Animal Life	None
D11	23 Dec 2015	Floatables	None
D11	23 Dec 2015	Water Color	Green
D11	23 Dec 2015	Current Direction	NW
D11	23 Dec 2015	Wave Height Low (ft)	4
D11	23 Dec 2015	High Tide (ft)	6.5
D11	23 Dec 2015	High Tide Time	651
D11	23 Dec 2015	Low Tide (ft)	-1.1
D11	23 Dec 2015	Low Tide Time	1401
D11	23 Dec 2015	Comments	Seagrass; Water clear
D11	29 Dec 2015	Arrive Time	859
D11	29 Dec 2015	Weather	Sunny
D11	29 Dec 2015	Wind Speed (kts)	2.7
D11	29 Dec 2015	Wind Dir	S
D11	29 Dec 2015	Animal Life	None
D11	29 Dec 2015	Floatables	None
D11	29 Dec 2015	Water Color	Green
D11	29 Dec 2015	Current Direction	S
D11	29 Dec 2015	Wave Height Low (ft)	4
D11	29 Dec 2015	High Tide (ft)	4.9
D11	29 Dec 2015	High Tide Time	1053
D11	29 Dec 2015	Low Tide (ft)	2.1
D11	29 Dec 2015	Low Tide Time	507
D11	29 Dec 2015	Comments	Kelp; 1 Person; 2 Surfers; Water clear
D12	01 Dec 2015	Arrive Time	1110
D12	01 Dec 2015	Weather	Sunny
D12	01 Dec 2015	Wind Speed (kts)	4
D12	01 Dec 2015	Wind Dir	W
D12	01 Dec 2015	Animal Life	None
D12	01 Dec 2015	Floatables	None
D12	01 Dec 2015	Water Color	Green
D12	01 Dec 2015	Current Direction	W
D12	01 Dec 2015	Wave Height Low (ft)	2
D12	01 Dec 2015	High Tide (ft)	4.3
D12	01 Dec 2015	High Tide Time	1222
D12	01 Dec 2015	Low Tide (ft)	2.7
D12	01 Dec 2015	Low Tide Time	651
D12	01 Dec 2015	Comments	Kelp; Seagrass; 1 Surfer; Water turbid
D12	06 Dec 2015	Arrive Time	825
D12	06 Dec 2015	Weather	Partly Cloudy
D12	06 Dec 2015	Wind Speed (kts)	2
D12	06 Dec 2015	Wind Dir	SW
D12	06 Dec 2015	Animal Life	20 Seagulls

Station	Date	Parameter	Value
D12	06 Dec 2015	Floatables	None
D12	06 Dec 2015	Water Color	Green
D12	06 Dec 2015	Current Direction	SW
D12	06 Dec 2015	Wave Height Low (ft)	2
D12	06 Dec 2015	High Tide (ft)	5
D12	06 Dec 2015	High Tide Time	541
D12	06 Dec 2015	Low Tide (ft)	0.8
D12	06 Dec 2015	Low Tide Time	1234
D12	06 Dec 2015	Comments	Kelp; Seagrass; 1 Surfer; Water turbid
D12	11 Dec 2015	Arrive Time	1025
D12	11 Dec 2015	Weather	Cloudy
D12	11 Dec 2015	Wind Speed (kts)	11.6
D12	11 Dec 2015	Wind Dir	W
D12	11 Dec 2015	Animal Life	None
D12	11 Dec 2015	Floatables	None
D12	11 Dec 2015	Water Color	Green
D12	11 Dec 2015	Current Direction	S
D12	11 Dec 2015	Wave Height Low (ft)	3
D12	11 Dec 2015	High Tide (ft)	6
D12	11 Dec 2015	High Tide Time	811
D12	11 Dec 2015	Low Tide (ft)	-0.7
D12	11 Dec 2015	Low Tide Time	1522
D12	11 Dec 2015	Comments	Kelp; Seagrass; Water clear
D12	17 Dec 2015	Arrive Time	933
D12	17 Dec 2015	Weather	Sunny
D12	17 Dec 2015	Wind Speed (kts)	0.3
D12	17 Dec 2015	Wind Dir	NW
D12	17 Dec 2015	Animal Life	None
D12	17 Dec 2015	Floatables	None
D12	17 Dec 2015	Water Color	Green
D12	17 Dec 2015	Current Direction	NW
D12	17 Dec 2015	Wave Height Low (ft)	2
D12	17 Dec 2015	High Tide (ft)	4.1
D12	17 Dec 2015	High Tide Time	1253
D12	17 Dec 2015	Low Tide (ft)	2.3
D12	17 Dec 2015	Low Tide Time	724
D12	17 Dec 2015	Comments	Seagrass; Water clear
D12	23 Dec 2015	Arrive Time	828
D12	23 Dec 2015	Weather	Moderate Rain
D12	23 Dec 2015	Wind Speed (kts)	2.1
D12	23 Dec 2015	Wind Dir	N
D12	23 Dec 2015	Animal Life	None
D12	23 Dec 2015	Floatables	None
D12	23 Dec 2015	Water Color	Green
D12	23 Dec 2015	Current Direction	N
D12	23 Dec 2015	Wave Height Low (ft)	4
D12	23 Dec 2015	High Tide (ft)	6.5
D12	23 Dec 2015	High Tide Time	651
D12	23 Dec 2015	Low Tide (ft)	-1.1
D12	23 Dec 2015	Low Tide Time	1401
D12	23 Dec 2015	Comments	Seagrass; Water clear

Station	Date	Parameter	Value
D12	24 Dec 2015	Arrive Time	850
D12	24 Dec 2015	Weather	Sunny
D12	24 Dec 2015	Wind Speed (kts)	1.2
D12	24 Dec 2015	Wind Dir	SW
D12	24 Dec 2015	Animal Life	None
D12	24 Dec 2015	Floatables	None
D12	24 Dec 2015	Water Color	Green
D12	24 Dec 2015	Current Direction	SW
D12	24 Dec 2015	Wave Height Low (ft)	4
D12	24 Dec 2015	High Tide (ft)	6.6
D12	24 Dec 2015	High Tide Time	733
D12	24 Dec 2015	Low Tide (ft)	-1.3
D12	24 Dec 2015	Low Tide Time	1443
D12	24 Dec 2015	Comments	Kelp; Seagrass; Water clear
D12	29 Dec 2015	Arrive Time	844
D12	29 Dec 2015	Weather	Sunny
D12	29 Dec 2015	Wind Speed (kts)	1.3
D12	29 Dec 2015	Wind Dir	NE
D12	29 Dec 2015	Animal Life	None
D12	29 Dec 2015	Floatables	None
D12	29 Dec 2015	Water Color	Green
D12	29 Dec 2015	Current Direction	NE
D12	29 Dec 2015	Wave Height Low (ft)	3
D12	29 Dec 2015	High Tide (ft)	4.9
D12	29 Dec 2015	High Tide Time	1053
D12	29 Dec 2015	Low Tide (ft)	2.1
D12	29 Dec 2015	Low Tide Time	507
D12	29 Dec 2015	Comments	Seagrass; 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 2015	8	5	8	5	4	4	5	6
02 Dec 2015	8	5	8	5	4	4	5	6
03 Dec 2015	8	5	8	5	4	4	5	6
04 Dec 2015	6	5	6	6	6	4	5	6
05 Dec 2015	6	5	6	6	6	4	5	6
06 Dec 2015	6	5	6	6	6	4	5	6
07 Dec 2015	8	6	6	7	7	4	6	8
08 Dec 2015	8	6	6	7	7	4	6	8
09 Dec 2015	6	6	6	7	6	5	6	8
10 Dec 2015	6	6	6	7	6	5	6	8
11 Dec 2015	6	6	6	7	6	5	6	8
12 Dec 2015	6	7	5	9	7	5	6	7
13 Dec 2015	6	7	5	9	7	5	6	7
14 Dec 2015	6	7	5	9	7	5	6	7
15 Dec 2015	9	10	8	9	10	8	9	10
16 Dec 2015	9	10	8	9	10	8	9	10
17 Dec 2015	11	8	10	7	10	7	11	11
18 Dec 2015	11	8	10	7	10	7	11	11
19 Dec 2015	11	8	10	7	10	7	11	11
20 Dec 2015	8	5	7	5	8	5	8	8
21 Dec 2015	10	5	7	4	6	4	6	7
22 Dec 2015	10	5	7	4	6	4	6	7
23 Dec 2015	10	5	7	4	6	4	6	7
24 Dec 2015	13	6	9	5	8	5	8	8
25 Dec 2015	13	6	9	5	8	5	8	8
26 Dec 2015	13	6	9	5	8	5	8	8
27 Dec 2015	13	6	9	5	8	5	8	8
28 Dec 2015	13	6	9	5	8	5	8	8
29 Dec 2015	13	6	9	5	8	5	8	8
30 Dec 2015	14	8	12	5	10	5	10	11
31 Dec 2015	14	8	12	5	10	5	10	11

* 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 2015	2	3	2	2	2	2	2	2
02 Dec 2015	2	3	2	2	2	2	2	2
03 Dec 2015	2	3	2	2	2	2	2	2
04 Dec 2015	2	3	2	2	2	2	2	2
05 Dec 2015	2	3	2	2	2	2	2	2
06 Dec 2015	2	3	2	2	2	2	2	2
07 Dec 2015	2	3	2	2	2	2	2	2
08 Dec 2015	2	3	2	2	2	2	2	2
09 Dec 2015	2	3	2	2	2	2	2	2
10 Dec 2015	2	3	2	2	2	2	2	2
11 Dec 2015	2	3	2	2	2	2	2	2
12 Dec 2015	2	3	2	2	2	2	2	2
13 Dec 2015	2	3	2	2	2	2	2	2
14 Dec 2015	2	3	2	2	2	2	2	2
15 Dec 2015	2	3	2	2	2	2	2	2
16 Dec 2015	2	3	2	2	2	2	2	2
17 Dec 2015	2	3	2	2	2	2	2	2
18 Dec 2015	2	3	2	2	2	2	2	2
19 Dec 2015	2	3	2	2	2	2	2	2
20 Dec 2015	2	2	2	2	2	2	2	2
21 Dec 2015	2	2	2	2	2	2	2	2
22 Dec 2015	2	2	2	2	2	2	2	2
23 Dec 2015	2	2	2	2	2	2	2	2
24 Dec 2015	2	2	2	2	2	2	2	2
25 Dec 2015	2	2	2	2	2	2	2	2
26 Dec 2015	2	2	2	2	2	2	2	2
27 Dec 2015	2	2	2	2	2	2	2	2
28 Dec 2015	2	2	2	2	2	2	2	2
29 Dec 2015	2	2	2	2	2	2	2	2
30 Dec 2015	2	2	2	2	2	2	2	2
31 Dec 2015	2	2	2	2	2	2	2	2

* Geometric mean calculated using n<5

Table 3.3

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Dec 2015	2	2	2	2	2	2	2	2
02 Dec 2015	2	2	2	2	2	2	2	2
03 Dec 2015	2	2	2	2	2	2	2	2
04 Dec 2015	2	2	2	2	2	2	2	2
05 Dec 2015	2	2	2	2	2	2	2	2
06 Dec 2015	2	2	2	2	2	2	2	2
07 Dec 2015	2	2	2	2	2	2	2	2
08 Dec 2015	2	2	2	2	2	2	2	2
09 Dec 2015	3	2	2	2	2	2	2	2
10 Dec 2015	3	2	2	2	2	2	2	2
11 Dec 2015	3	2	2	2	2	2	2	2
12 Dec 2015	3	2	2	2	2	2	2	2
13 Dec 2015	3	2	2	2	2	2	2	2
14 Dec 2015	3	2	2	2	2	2	2	2
15 Dec 2015	3	2	2	2	2	2	2	2
16 Dec 2015	3	2	2	2	2	2	2	2
17 Dec 2015	3	2	2	2	2	2	2	2
18 Dec 2015	3	2	2	2	2	2	2	2
19 Dec 2015	3	2	2	2	2	2	2	2
20 Dec 2015	3	2	2	2	2	2	2	2
21 Dec 2015	3	2	2	2	2	2	2	2
22 Dec 2015	3	2	2	2	2	2	2	2
23 Dec 2015	3	2	2	2	2	2	2	2
24 Dec 2015	3	2	2	2	2	2	2	2
25 Dec 2015	3	2	2	2	2	2	2	2
26 Dec 2015	3	2	2	2	2	2	2	2
27 Dec 2015	3	2	2	2	2	2	2	2
28 Dec 2015	3	2	2	2	2	2	2	2
29 Dec 2015	3	2	2	2	2	2	2	2
30 Dec 2015	3	2	2	2	2	2	2	2
31 Dec 2015	3	2	2	2	2	2	2	2

* Geometric mean calculated using n<5

Table 3.4

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
04 Dec 2015	IC							
09 Dec 2015	IC							
15 Dec 2015	IC							
17 Dec 2015	IC							
21 Dec 2015	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
04 Dec 2015	IC							
09 Dec 2015	IC							
15 Dec 2015	IC							
17 Dec 2015	IC							
21 Dec 2015	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
04 Dec 2015	IC							
09 Dec 2015	IC							
15 Dec 2015	IC							
17 Dec 2015	IC							
21 Dec 2015	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
04 Dec 2015	IC							
09 Dec 2015	IC							
15 Dec 2015	IC							
17 Dec 2015	IC							
21 Dec 2015	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-NH₃) 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 ₃	Temp	XMS	DO	Sal	pH
A1	04 Dec 2015	745	1	<2	<2	<2	1.00	ns	19.2	88.70	7.2	33.76	8.2
A1	04 Dec 2015	745	12	<2	<2	<2	1.00	ns	18.8	88.62	7.2	33.68	8.2
A1	04 Dec 2015	745	18	<2	<2	<2	1.00	ns	18.1	82.84	6.7	33.64	8.1
A1	09 Dec 2015	813	1	<2	<2	2e	1.00	ns	18.8	93.26	7.1	33.70	8.2
A1	09 Dec 2015	813	12	ns	<2	<2	ns	ns	18.7	91.27	7.0	33.71	8.2
A1	09 Dec 2015	813	18	<2	<2	<20	1.00	ns	18.6	88.01	7.0	33.71	8.2
A1	15 Dec 2015	816	1	<200	<2	<2	0.01	ns	17.5	83.98	6.9	33.67	8.1
A1	15 Dec 2015	816	12	16e	<2	4e	0.12	ns	17.4	84.08	6.6	33.65	8.1
A1	15 Dec 2015	816	18	180e	8e	4e	0.04	ns	16.1	77.02	5.4	33.61	8.1
A1	17 Dec 2015	836	1	6e	<2	4e	0.33	ns	17.0	88.39	6.8	33.66	8.1
A1	17 Dec 2015	836	12	18e	<2	2e	0.11	ns	16.6	89.00	6.5	33.65	8.1
A1	17 Dec 2015	836	18	46	<2	8e	0.04	ns	16.5	89.04	6.3	33.64	8.1
A1	21 Dec 2015	800	1	16e	<2	<2	0.12	ns	17.1	90.19	7.0	33.66	8.1
A1	21 Dec 2015	800	12	4e	<2	<2	0.50	ns	17.0	90.89	6.8	33.65	8.1
A1	21 Dec 2015	800	18	94	2e	2e	0.02	ns	16.6	85.89	6.3	33.63	8.1
C4	04 Dec 2015	917	1	<2	<2	<2	1.00	ns	18.6	86.66	7.3	33.69	8.2
C4	04 Dec 2015	917	3	2e	<2	<2	1.00	ns	18.5	86.71	7.3	33.68	8.2
C4	04 Dec 2015	917	9	<20	<2	<2	0.10	ns	17.9	76.62	6.7	33.64	8.1
C4	09 Dec 2015	1007	1	<2	<2	<2	1.00	ns	18.7	85.32	7.0	33.69	8.2
C4	09 Dec 2015	1007	3	<2	<2	<2	1.00	ns	18.6	84.74	6.9	33.69	8.2
C4	09 Dec 2015	1007	9	<20	<2	<2	0.10	ns	18.5	60.15	6.8	33.70	8.2
C4	15 Dec 2015	1030	1	<2	<2	<2	1.00	ns	17.3	80.58	7.0	33.69	8.2
C4	15 Dec 2015	1030	3	<2	<2	<2	1.00	ns	17.3	81.60	7.0	33.69	8.2
C4	15 Dec 2015	1030	9	<20	<2	<2	0.10	ns	16.4	59.18	7.5	33.73	8.2
C4	17 Dec 2015	1021	1	<2	<2	<2	1.00	ns	16.8	83.58	7.0	33.72	8.1
C4	17 Dec 2015	1021	3	<2	<2	<2	1.00	ns	16.7	83.27	6.9	33.72	8.1
C4	17 Dec 2015	1021	9	2e	<2	<2	1.00	ns	16.6	81.69	6.9	33.72	8.1
C4	21 Dec 2015	958	1	<2	<2	<2	1.00	ns	16.9	88.74	7.1	33.67	8.1
C4	21 Dec 2015	958	3	<2	<2	<2	1.00	ns	16.9	88.43	7.1	33.67	8.1
C4	21 Dec 2015	958	9	<2	<2	<2	1.00	ns	16.9	85.90	7.2	33.67	8.1
C5	04 Dec 2015	907	1	20e	<2	<2	0.10	ns	18.6	85.49	7.2	33.67	8.2
C5	04 Dec 2015	907	3	20e	<2	<2	0.10	ns	18.6	85.80	7.2	33.68	8.2
C5	04 Dec 2015	907	9	40e	<2	<2	0.05	ns	18.3	28.81	7.0	33.65	8.2
C5	09 Dec 2015	954	1	<2	<2	<2	1.00	ns	18.8	90.71	7.1	33.70	8.2
C5	09 Dec 2015	954	3	4e	<2	<2	0.50	ns	18.7	90.80	7.1	33.70	8.2

Station	Date	Time	Depth	Total	Fecal	Enteroto	F:T	N-NH3	Temp	XMS	DO	Sal	pH
C5	09 Dec 2015	954	9	<2	<2	<2	1.00	ns	18.3	69.21	6.9	33.70	8.2
C5	15 Dec 2015	1014	1	<2	<2	<2	1.00	ns	17.3	82.97	7.0	33.68	8.2
C5	15 Dec 2015	1014	3	<2	<2	<2	1.00	ns	17.3	81.86	6.9	33.68	8.2
C5	15 Dec 2015	1014	9	<200	<2	<2	0.01	ns	16.8	75.39	7.3	33.71	8.2
C5	17 Dec 2015	1009	1	4e	<2	<2	0.50	ns	16.9	86.97	6.8	33.69	8.1
C5	17 Dec 2015	1009	3	24e	<2	<2	0.08	ns	16.9	86.57	6.8	33.69	8.1
C5	17 Dec 2015	1009	9	4e	<2	<2	0.50	ns	16.9	85.95	6.8	33.69	8.1
C5	21 Dec 2015	942	1	<2	<2	<2	1.00	ns	16.3	69.72	7.2	33.70	8.1
C5	21 Dec 2015	942	3	<2	<2	<2	1.00	ns	16.3	68.54	7.3	33.71	8.1
C5	21 Dec 2015	942	9	<2	<2	<2	1.00	ns	16.2	62.97	7.3	33.70	8.1
A6	04 Dec 2015	808	1	<2	<2	<2	1.00	ns	18.9	87.74	7.2	33.70	8.2
A6	04 Dec 2015	808	12	<2	<2	<2	1.00	ns	18.6	87.23	7.1	33.67	8.2
A6	04 Dec 2015	808	18	4e	<2	<2	0.50	ns	18.6	86.85	7.0	33.66	8.2
A6	09 Dec 2015	845	1	<20	<2	<2	0.10	ns	18.8	91.02	7.1	33.69	8.2
A6	09 Dec 2015	845	12	2e	<2	<2	1.00	ns	18.7	89.45	6.9	33.70	8.2
A6	09 Dec 2015	845	18	<2	<2	<2	1.00	ns	18.7	84.72	6.9	33.70	8.2
A6	15 Dec 2015	847	1	<200	<2	2e	0.01	ns	17.4	83.92	6.8	33.66	8.2
A6	15 Dec 2015	847	12	18e	<2	<2	0.11	ns	17.4	84.41	6.7	33.66	8.2
A6	15 Dec 2015	847	18	<20	<2	4e	0.10	ns	17.3	83.16	6.4	33.65	8.2
A6	17 Dec 2015	905	1	<2	<2	<2	1.00	ns	17.2	87.96	6.5	33.65	8.1
A6	17 Dec 2015	905	12	4e	<2	<2	0.50	ns	16.9	88.11	6.9	33.71	8.1
A6	17 Dec 2015	905	18	<2	<2	<2	1.00	ns	16.8	88.92	7.1	33.72	8.1
A6	21 Dec 2015	830	1	2e	<2	<2	1.00	ns	17.1	91.17	7.1	33.67	8.1
A6	21 Dec 2015	830	12	<20	<2	<2	0.10	ns	17.0	90.71	7.0	33.67	8.1
A6	21 Dec 2015	830	18	<2	<2	<2	1.00	ns	17.0	91.11	7.1	33.67	8.1
C6	04 Dec 2015	856	1	<2	<2	<2	1.00	ns	18.6	86.82	7.3	33.68	8.2
C6	04 Dec 2015	856	3	2e	<2	<2	1.00	ns	18.5	86.92	7.3	33.67	8.2
C6	04 Dec 2015	856	9	<2	<2	<2	1.00	ns	18.2	79.47	7.1	33.65	8.2
C6	09 Dec 2015	941	1	<20	<2	<2	0.10	ns	18.8	92.71	7.1	33.70	8.2
C6	09 Dec 2015	941	3	<2	<2	<2	1.00	ns	18.7	92.65	7.0	33.70	8.2
C6	09 Dec 2015	941	9	2e	<2	<2	1.00	ns	18.4	76.89	7.0	33.70	8.2
C6	15 Dec 2015	943	1	<200	<2	<2	0.01	ns	17.0	80.81	7.2	33.70	8.2
C6	15 Dec 2015	943	3	<2	<2	<2	1.00	ns	17.0	80.61	7.2	33.70	8.2
C6	15 Dec 2015	943	9	<2	<2	<2	1.00	ns	17.0	79.26	7.2	33.71	8.2
C6	17 Dec 2015	957	1	<2	<2	<2	1.00	ns	16.7	87.40	7.3	33.72	8.1
C6	17 Dec 2015	957	3	<2	<2	<2	1.00	ns	16.7	87.53	7.3	33.72	8.1
C6	17 Dec 2015	957	9	<2	<2	<2	1.00	ns	16.5	86.55	7.5	33.73	8.1
C6	21 Dec 2015	929	1	<2	<2	<2	1.00	ns	16.6	85.15	7.3	33.69	8.1
C6	21 Dec 2015	929	3	<2	<2	<2	1.00	ns	16.5	84.67	7.3	33.69	8.1
C6	21 Dec 2015	929	9	<2	<2	<2	1.00	ns	16.4	83.46	7.3	33.69	8.1
A7	04 Dec 2015	757	1	<2	<2	<2	1.00	ns	19.1	88.74	7.3	33.73	8.2

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	N-NH3	Temp	XMS	DO	Sal	pH
A7	04 Dec 2015	757	12	2e	<2	<2	1.00	ns	18.6	87.71	7.1	33.66	8.2
A7	04 Dec 2015	757	18	<2	<2	2e	1.00	ns	18.2	83.57	6.8	33.62	8.1
A7	09 Dec 2015	840	1	<20	<2	<2	0.10	ns	18.9	93.74	7.1	33.70	8.2
A7	09 Dec 2015	840	12	2e	<2	<2	1.00	ns	18.8	93.80	7.0	33.70	8.2
A7	09 Dec 2015	840	18	<2	<2	<2	1.00	ns	18.6	89.27	6.8	33.70	8.2
A7	15 Dec 2015	831	1	<200	<2	4e	0.01	ns	17.5	84.24	6.9	33.66	8.2
A7	15 Dec 2015	831	12	6e	<2	2e	0.33	ns	17.1	81.97	6.1	33.63	8.2
A7	15 Dec 2015	831	18	40e	2e	4e	0.05	ns	16.8	75.85	5.8	33.62	8.1
A7	17 Dec 2015	849	1	2e	<2	<2	1.00	ns	17.2	88.61	6.9	33.65	8.1
A7	17 Dec 2015	849	12	30e	<2	2e	0.07	ns	16.6	88.23	6.4	33.66	8.1
A7	17 Dec 2015	849	18	40	<2	<2	0.05	ns	16.5	85.09	6.3	33.66	8.0
A7	21 Dec 2015	816	1	2e	<2	<2	1.00	ns	17.1	91.23	7.2	33.67	8.1
A7	21 Dec 2015	816	12	8e	<2	<2	0.25	ns	17.0	89.85	6.8	33.65	8.1
A7	21 Dec 2015	816	18	14e	<2	<2	0.14	ns	16.8	87.95	6.4	33.64	8.1
C7	04 Dec 2015	827	1	<2	<2	<2	1.00	ns	18.4	87.51	7.4	33.64	8.2
C7	04 Dec 2015	827	12	2e	<2	4e	1.00	ns	18.3	85.22	7.5	33.64	8.2
C7	04 Dec 2015	827	18	6e	<2	<2	0.33	ns	18.2	69.65	7.2	33.64	8.2
C7	09 Dec 2015	902	1	<20	<2	<2	0.10	ns	18.8	89.04	7.2	33.70	8.2
C7	09 Dec 2015	902	12	<2	<2	<2	1.00	ns	18.6	93.56	7.0	33.69	8.2
C7	09 Dec 2015	902	18	<2	<2	<2	1.00	ns	18.4	77.85	6.7	33.68	8.2
C7	15 Dec 2015	906	1	<200	<2	<2	0.01	ns	17.8	86.22	7.1	33.68	8.2
C7	15 Dec 2015	906	12	<20	<2	<2	0.10	ns	17.7	87.81	7.0	33.67	8.2
C7	15 Dec 2015	906	18	<2	<2	<2	1.00	ns	17.4	86.00	6.7	33.66	8.2
C7	17 Dec 2015	922	1	4e	<2	<2	0.50	ns	17.0	87.67	6.8	33.68	8.1
C7	17 Dec 2015	922	12	24e	2e	<2	0.08	ns	17.0	87.88	6.9	33.68	8.1
C7	17 Dec 2015	922	18	62	2e	<2	0.03	ns	16.8	89.17	6.0	33.65	8.0
C7	21 Dec 2015	846	1	<2	<2	<2	1.00	ns	17.2	91.83	7.3	33.67	8.1
C7	21 Dec 2015	846	12	<2	<2	2e	1.00	ns	17.2	91.76	6.8	33.66	8.1
C7	21 Dec 2015	846	18	<2	<2	<2	1.00	ns	16.9	90.58	7.1	33.67	8.1
C8	04 Dec 2015	839	1	<2	<2	<2	1.00	ns	18.3	85.57	7.3	33.64	8.2
C8	04 Dec 2015	839	12	<2	<2	<2	1.00	ns	18.3	84.16	7.3	33.64	8.2
C8	04 Dec 2015	839	18	20e	2e	2e	0.10	ns	17.9	77.65	6.8	33.60	8.1
C8	09 Dec 2015	917	1	<20	<2	<2	0.10	ns	18.7	93.79	7.1	33.70	8.2
C8	09 Dec 2015	917	12	<2	<2	<2	1.00	ns	18.5	91.45	7.0	33.69	8.2
C8	09 Dec 2015	917	18	2e	<2	<2	1.00	ns	18.3	82.93	6.7	33.67	8.2
C8	15 Dec 2015	921	1	6e	<2	2e	0.33	ns	17.8	85.17	7.0	33.68	8.2
C8	15 Dec 2015	921	12	<20	<2	<2	0.10	ns	17.7	87.20	7.0	33.67	8.2
C8	15 Dec 2015	921	18	<200	<2	<2	0.01	ns	17.2	84.53	6.2	33.63	8.2
C8	17 Dec 2015	936	1	<2	<2	<2	1.00	ns	17.0	86.93	6.9	33.67	8.1
C8	17 Dec 2015	936	12	8e	<2	<2	0.25	ns	17.0	86.95	6.9	33.67	8.1
C8	17 Dec 2015	936	18	40e	6e	10e	0.15	ns	16.5	88.66	5.9	33.62	8.0

Station	Date	Time	Depth	Total	Fecal	Enter	F:T	N-NH3	Temp	XMS	DO	Sal	pH
C8	21 Dec 2015	901	1	<2	<2	<2	1.00	ns	17.6	92.87	7.2	33.67	8.2
C8	21 Dec 2015	901	12	<2	<2	<2	1.00	ns	17.4	92.39	7.3	33.66	8.2
C8	21 Dec 2015	901	18	<2	<2	<2	1.00	ns	17.1	89.86	7.3	33.66	8.1

NA = not available

ns = not sampled

Table 3.9

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

Station	Date	Parameter	Value
A1	04 Dec 2015	Depth (m)	19
A1	04 Dec 2015	Arrive Time	745
A1	04 Dec 2015	Depart Time	749
A1	04 Dec 2015	Air Temp (C)	14
A1	04 Dec 2015	Weather	Overcast
A1	04 Dec 2015	Visibility (mi)	9
A1	04 Dec 2015	Wind Speed (kts)	8
A1	04 Dec 2015	Wind Dir	SE
A1	04 Dec 2015	Water Color	Greenish-Blue
A1	04 Dec 2015	Wave Ht Low (ft)	5
A1	04 Dec 2015	Wave Period (sec)	16
A1	04 Dec 2015	Sea State	Light chop
A1	04 Dec 2015	High Tide (ft)	4.46
A1	04 Dec 2015	High Tide Time	435
A1	04 Dec 2015	Low Tide (ft)	1.86
A1	04 Dec 2015	Low Tide Time	1109
A1	04 Dec 2015	Comments	Kelp
A1	09 Dec 2015	Depth (m)	18
A1	09 Dec 2015	Arrive Time	813
A1	09 Dec 2015	Depart Time	821
A1	09 Dec 2015	Air Temp (C)	17
A1	09 Dec 2015	Weather	Partly Cloudy
A1	09 Dec 2015	Visibility (mi)	12
A1	09 Dec 2015	Wind Speed (kts)	3
A1	09 Dec 2015	Wind Dir	S
A1	09 Dec 2015	Water Color	Green
A1	09 Dec 2015	Wave Ht Low (ft)	6
A1	09 Dec 2015	Wave Period (sec)	9
A1	09 Dec 2015	Sea State	Calm
A1	09 Dec 2015	High Tide (ft)	5.8
A1	09 Dec 2015	High Tide Time	709
A1	09 Dec 2015	Low Tide (ft)	-0.34
A1	09 Dec 2015	Low Tide Time	1413
A1	09 Dec 2015	Comments	Kelp
A1	15 Dec 2015	Depth (m)	18
A1	15 Dec 2015	Arrive Time	816
A1	15 Dec 2015	Depart Time	820
A1	15 Dec 2015	Air Temp (C)	11
A1	15 Dec 2015	Weather	Clear
A1	15 Dec 2015	Visibility (mi)	10
A1	15 Dec 2015	Wind Speed (kts)	8
A1	15 Dec 2015	Wind Dir	E
A1	15 Dec 2015	Water Color	Greenish-Blue
A1	15 Dec 2015	Wave Ht Low (ft)	6
A1	15 Dec 2015	Wave Period (sec)	11
A1	15 Dec 2015	Sea State	Calm
A1	15 Dec 2015	High Tide (ft)	5.23
A1	15 Dec 2015	High Tide Time	1044
A1	15 Dec 2015	Low Tide (ft)	2.24

Station	Date	Parameter	Value
A1	15 Dec 2015	Low Tide Time	448
A1	15 Dec 2015	Comments	
A1	17 Dec 2015	Depth (m)	19
A1	17 Dec 2015	Arrive Time	835
A1	17 Dec 2015	Depart Time	842
A1	17 Dec 2015	Air Temp (C)	11
A1	17 Dec 2015	Weather	Clear
A1	17 Dec 2015	Visibility (mi)	9
A1	17 Dec 2015	Wind Speed (kts)	7
A1	17 Dec 2015	Wind Dir	NW
A1	17 Dec 2015	Water Color	Greenish-Brown
A1	17 Dec 2015	Wave Ht Low (ft)	3
A1	17 Dec 2015	Wave Period (sec)	7
A1	17 Dec 2015	Sea State	Calm
A1	17 Dec 2015	High Tide (ft)	4.14
A1	17 Dec 2015	High Tide Time	1253
A1	17 Dec 2015	Low Tide (ft)	2.32
A1	17 Dec 2015	Low Tide Time	724
A1	17 Dec 2015	Comments	Kelp; Lobster floats
A1	21 Dec 2015	Depth (m)	20
A1	21 Dec 2015	Arrive Time	800
A1	21 Dec 2015	Depart Time	809
A1	21 Dec 2015	Air Temp (C)	11
A1	21 Dec 2015	Weather	Clear
A1	21 Dec 2015	Visibility (mi)	10
A1	21 Dec 2015	Wind Speed (kts)	9
A1	21 Dec 2015	Wind Dir	NE
A1	21 Dec 2015	Water Color	Brownish-Green
A1	21 Dec 2015	Wave Ht Low (ft)	4
A1	21 Dec 2015	Wave Period (sec)	7
A1	21 Dec 2015	Sea State	Light chop
A1	21 Dec 2015	High Tide (ft)	5.85
A1	21 Dec 2015	High Tide Time	523
A1	21 Dec 2015	Low Tide (ft)	-0.12
A1	21 Dec 2015	Low Tide Time	1229
A1	21 Dec 2015	Comments	Kelp; Lobster floats
C4	04 Dec 2015	Depth (m)	12
C4	04 Dec 2015	Arrive Time	917
C4	04 Dec 2015	Depart Time	920
C4	04 Dec 2015	Air Temp (C)	16
C4	04 Dec 2015	Weather	Overcast
C4	04 Dec 2015	Visibility (mi)	12
C4	04 Dec 2015	Wind Speed (kts)	9
C4	04 Dec 2015	Wind Dir	NE
C4	04 Dec 2015	Water Color	Green
C4	04 Dec 2015	Wave Ht Low (ft)	5
C4	04 Dec 2015	Wave Period (sec)	16
C4	04 Dec 2015	Sea State	Light chop
C4	04 Dec 2015	High Tide (ft)	4.46
C4	04 Dec 2015	High Tide Time	435
C4	04 Dec 2015	Low Tide (ft)	1.86
C4	04 Dec 2015	Low Tide Time	1109

Station	Date	Parameter	Value
C4	04 Dec 2015	Comments	Surfers
C4	09 Dec 2015	Depth (m)	12
C4	09 Dec 2015	Arrive Time	1007
C4	09 Dec 2015	Depart Time	1015
C4	09 Dec 2015	Air Temp (C)	17
C4	09 Dec 2015	Weather	Partly Cloudy
C4	09 Dec 2015	Visibility (mi)	12
C4	09 Dec 2015	Wind Speed (kts)	3
C4	09 Dec 2015	Wind Dir	E
C4	09 Dec 2015	Water Color	Green
C4	09 Dec 2015	Wave Ht Low (ft)	6
C4	09 Dec 2015	Wave Period (sec)	9
C4	09 Dec 2015	Sea State	Calm
C4	09 Dec 2015	High Tide (ft)	5.8
C4	09 Dec 2015	High Tide Time	709
C4	09 Dec 2015	Low Tide (ft)	-0.34
C4	09 Dec 2015	Low Tide Time	1413
C4	09 Dec 2015	Comments	Kelp; Boats
C4	15 Dec 2015	Depth (m)	12
C4	15 Dec 2015	Arrive Time	1030
C4	15 Dec 2015	Depart Time	1034
C4	15 Dec 2015	Air Temp (C)	12
C4	15 Dec 2015	Weather	Clear
C4	15 Dec 2015	Visibility (mi)	12
C4	15 Dec 2015	Wind Speed (kts)	7
C4	15 Dec 2015	Wind Dir	SW
C4	15 Dec 2015	Water Color	Green
C4	15 Dec 2015	Wave Ht Low (ft)	6
C4	15 Dec 2015	Wave Period (sec)	11
C4	15 Dec 2015	Sea State	Confused swell
C4	15 Dec 2015	High Tide (ft)	5.23
C4	15 Dec 2015	High Tide Time	1044
C4	15 Dec 2015	Low Tide (ft)	2.24
C4	15 Dec 2015	Low Tide Time	448
C4	15 Dec 2015	Comments	Boats
C4	17 Dec 2015	Depth (m)	10
C4	17 Dec 2015	Arrive Time	1021
C4	17 Dec 2015	Depart Time	1028
C4	17 Dec 2015	Air Temp (C)	14
C4	17 Dec 2015	Weather	Clear
C4	17 Dec 2015	Visibility (mi)	9
C4	17 Dec 2015	Wind Speed (kts)	4
C4	17 Dec 2015	Wind Dir	SE
C4	17 Dec 2015	Water Color	Green
C4	17 Dec 2015	Wave Ht Low (ft)	3
C4	17 Dec 2015	Wave Period (sec)	7
C4	17 Dec 2015	Sea State	Calm
C4	17 Dec 2015	High Tide (ft)	4.14
C4	17 Dec 2015	High Tide Time	1253
C4	17 Dec 2015	Low Tide (ft)	2.32
C4	17 Dec 2015	Low Tide Time	724
C4	17 Dec 2015	Comments	Kelp; Boats on Station; Lobster floats

Station	Date	Parameter	Value
C4	21 Dec 2015	Depth (m)	10
C4	21 Dec 2015	Arrive Time	958
C4	21 Dec 2015	Depart Time	1004
C4	21 Dec 2015	Air Temp (C)	13
C4	21 Dec 2015	Weather	Clear
C4	21 Dec 2015	Visibility (mi)	10
C4	21 Dec 2015	Wind Speed (kts)	8
C4	21 Dec 2015	Wind Dir	SE
C4	21 Dec 2015	Water Color	Green
C4	21 Dec 2015	Wave Ht Low (ft)	4
C4	21 Dec 2015	Wave Period (sec)	7
C4	21 Dec 2015	Sea State	Light chop
C4	21 Dec 2015	High Tide (ft)	5.85
C4	21 Dec 2015	High Tide Time	523
C4	21 Dec 2015	Low Tide (ft)	-0.12
C4	21 Dec 2015	Low Tide Time	1229
C4	21 Dec 2015	Comments	Lobster floats
C5	04 Dec 2015	Depth (m)	9
C5	04 Dec 2015	Arrive Time	907
C5	04 Dec 2015	Depart Time	910
C5	04 Dec 2015	Air Temp (C)	16
C5	04 Dec 2015	Weather	Overcast
C5	04 Dec 2015	Visibility (mi)	12
C5	04 Dec 2015	Wind Speed (kts)	6
C5	04 Dec 2015	Wind Dir	SW
C5	04 Dec 2015	Water Color	Green
C5	04 Dec 2015	Wave Ht Low (ft)	5
C5	04 Dec 2015	Wave Period (sec)	16
C5	04 Dec 2015	Sea State	Light chop
C5	04 Dec 2015	High Tide (ft)	4.46
C5	04 Dec 2015	High Tide Time	435
C5	04 Dec 2015	Low Tide (ft)	1.86
C5	04 Dec 2015	Low Tide Time	1109
C5	04 Dec 2015	Comments	
C5	09 Dec 2015	Depth (m)	11
C5	09 Dec 2015	Arrive Time	954
C5	09 Dec 2015	Depart Time	1001
C5	09 Dec 2015	Air Temp (C)	17
C5	09 Dec 2015	Weather	Partly Cloudy
C5	09 Dec 2015	Visibility (mi)	12
C5	09 Dec 2015	Wind Speed (kts)	2
C5	09 Dec 2015	Wind Dir	E
C5	09 Dec 2015	Water Color	Green
C5	09 Dec 2015	Wave Ht Low (ft)	6
C5	09 Dec 2015	Wave Period (sec)	9
C5	09 Dec 2015	Sea State	Calm
C5	09 Dec 2015	High Tide (ft)	5.8
C5	09 Dec 2015	High Tide Time	709
C5	09 Dec 2015	Low Tide (ft)	-0.34
C5	09 Dec 2015	Low Tide Time	1413
C5	09 Dec 2015	Comments	Kelp

Station	Date	Parameter	Value
C5	15 Dec 2015	Depth (m)	11
C5	15 Dec 2015	Arrive Time	1014
C5	15 Dec 2015	Depart Time	1018
C5	15 Dec 2015	Air Temp (C)	12
C5	15 Dec 2015	Weather	Clear
C5	15 Dec 2015	Visibility (mi)	12
C5	15 Dec 2015	Wind Speed (kts)	3
C5	15 Dec 2015	Wind Dir	NW
C5	15 Dec 2015	Water Color	Green
C5	15 Dec 2015	Wave Ht Low (ft)	6
C5	15 Dec 2015	Wave Period (sec)	11
C5	15 Dec 2015	Sea State	Confused swell
C5	15 Dec 2015	High Tide (ft)	5.23
C5	15 Dec 2015	High Tide Time	1044
C5	15 Dec 2015	Low Tide (ft)	2.24
C5	15 Dec 2015	Low Tide Time	448
C5	15 Dec 2015	Comments	
C5	17 Dec 2015	Depth (m)	9
C5	17 Dec 2015	Arrive Time	1009
C5	17 Dec 2015	Depart Time	1015
C5	17 Dec 2015	Air Temp (C)	14
C5	17 Dec 2015	Weather	Clear
C5	17 Dec 2015	Visibility (mi)	9
C5	17 Dec 2015	Wind Speed (kts)	3
C5	17 Dec 2015	Wind Dir	W
C5	17 Dec 2015	Water Color	Green
C5	17 Dec 2015	Wave Ht Low (ft)	3
C5	17 Dec 2015	Wave Period (sec)	7
C5	17 Dec 2015	Sea State	Calm
C5	17 Dec 2015	High Tide (ft)	4.14
C5	17 Dec 2015	High Tide Time	1253
C5	17 Dec 2015	Low Tide (ft)	2.32
C5	17 Dec 2015	Low Tide Time	724
C5	17 Dec 2015	Comments	Kelp; Lobster floats
C5	21 Dec 2015	Depth (m)	9
C5	21 Dec 2015	Arrive Time	942
C5	21 Dec 2015	Depart Time	952
C5	21 Dec 2015	Air Temp (C)	14
C5	21 Dec 2015	Weather	Clear
C5	21 Dec 2015	Visibility (mi)	10
C5	21 Dec 2015	Wind Speed (kts)	5
C5	21 Dec 2015	Wind Dir	S
C5	21 Dec 2015	Water Color	Green
C5	21 Dec 2015	Wave Ht Low (ft)	4
C5	21 Dec 2015	Wave Period (sec)	7
C5	21 Dec 2015	Sea State	Light chop
C5	21 Dec 2015	High Tide (ft)	5.85
C5	21 Dec 2015	High Tide Time	523
C5	21 Dec 2015	Low Tide (ft)	-0.12
C5	21 Dec 2015	Low Tide Time	1229
C5	21 Dec 2015	Comments	Kelp debris; Water is milky; Lots of particulates; Lobster floats
A6	04 Dec 2015	Depth (m)	18

Station	Date	Parameter	Value
A6	04 Dec 2015	Arrive Time	808
A6	04 Dec 2015	Depart Time	820
A6	04 Dec 2015	Air Temp (C)	16
A6	04 Dec 2015	Weather	Overcast
A6	04 Dec 2015	Visibility (mi)	9
A6	04 Dec 2015	Wind Speed (kts)	6
A6	04 Dec 2015	Wind Dir	E
A6	04 Dec 2015	Water Color	Greenish-Blue
A6	04 Dec 2015	Wave Ht Low (ft)	5
A6	04 Dec 2015	Wave Period (sec)	16
A6	04 Dec 2015	Sea State	Light chop
A6	04 Dec 2015	High Tide (ft)	4.46
A6	04 Dec 2015	High Tide Time	435
A6	04 Dec 2015	Low Tide (ft)	1.86
A6	04 Dec 2015	Low Tide Time	1109
A6	04 Dec 2015	Comments	Kelp; Kelp debris
A6	09 Dec 2015	Depth (m)	19
A6	09 Dec 2015	Arrive Time	845
A6	09 Dec 2015	Depart Time	850
A6	09 Dec 2015	Air Temp (C)	18
A6	09 Dec 2015	Weather	Partly Cloudy
A6	09 Dec 2015	Visibility (mi)	12
A6	09 Dec 2015	Wind Speed (kts)	3
A6	09 Dec 2015	Wind Dir	S
A6	09 Dec 2015	Water Color	Green
A6	09 Dec 2015	Wave Ht Low (ft)	6
A6	09 Dec 2015	Wave Period (sec)	9
A6	09 Dec 2015	Sea State	Calm
A6	09 Dec 2015	High Tide (ft)	5.8
A6	09 Dec 2015	High Tide Time	709
A6	09 Dec 2015	Low Tide (ft)	-0.34
A6	09 Dec 2015	Low Tide Time	1413
A6	09 Dec 2015	Comments	Kelp
A6	15 Dec 2015	Depth (m)	18
A6	15 Dec 2015	Arrive Time	847
A6	15 Dec 2015	Depart Time	852
A6	15 Dec 2015	Air Temp (C)	11
A6	15 Dec 2015	Weather	Clear
A6	15 Dec 2015	Visibility (mi)	10
A6	15 Dec 2015	Wind Speed (kts)	6
A6	15 Dec 2015	Wind Dir	NE
A6	15 Dec 2015	Water Color	Greenish-Brown
A6	15 Dec 2015	Wave Ht Low (ft)	6
A6	15 Dec 2015	Wave Period (sec)	11
A6	15 Dec 2015	Sea State	Confused swell
A6	15 Dec 2015	High Tide (ft)	5.23
A6	15 Dec 2015	High Tide Time	1044
A6	15 Dec 2015	Low Tide (ft)	2.24
A6	15 Dec 2015	Low Tide Time	448
A6	15 Dec 2015	Comments	Kelp
A6	17 Dec 2015	Depth (m)	18
A6	17 Dec 2015	Arrive Time	905

Station	Date	Parameter	Value
A6	17 Dec 2015	Depart Time	912
A6	17 Dec 2015	Air Temp (C)	13
A6	17 Dec 2015	Weather	Clear
A6	17 Dec 2015	Visibility (mi)	9
A6	17 Dec 2015	Wind Speed (kts)	2
A6	17 Dec 2015	Wind Dir	NE
A6	17 Dec 2015	Water Color	Greenish-Brown
A6	17 Dec 2015	Wave Ht Low (ft)	3
A6	17 Dec 2015	Wave Period (sec)	7
A6	17 Dec 2015	Sea State	Calm
A6	17 Dec 2015	High Tide (ft)	4.14
A6	17 Dec 2015	High Tide Time	1253
A6	17 Dec 2015	Low Tide (ft)	2.32
A6	17 Dec 2015	Low Tide Time	724
A6	17 Dec 2015	Comments	Kelp; Lobster floats
A6	21 Dec 2015	Depth (m)	18
A6	21 Dec 2015	Arrive Time	830
A6	21 Dec 2015	Depart Time	838
A6	21 Dec 2015	Air Temp (C)	12
A6	21 Dec 2015	Weather	Clear
A6	21 Dec 2015	Visibility (mi)	10
A6	21 Dec 2015	Wind Speed (kts)	10
A6	21 Dec 2015	Wind Dir	N
A6	21 Dec 2015	Water Color	Brownish-Green
A6	21 Dec 2015	Wave Ht Low (ft)	4
A6	21 Dec 2015	Wave Period (sec)	7
A6	21 Dec 2015	Sea State	Light chop
A6	21 Dec 2015	High Tide (ft)	5.85
A6	21 Dec 2015	High Tide Time	523
A6	21 Dec 2015	Low Tide (ft)	-0.12
A6	21 Dec 2015	Low Tide Time	1229
A6	21 Dec 2015	Comments	Kelp; Lobster floats
C6	04 Dec 2015	Depth (m)	9
C6	04 Dec 2015	Arrive Time	856
C6	04 Dec 2015	Depart Time	900
C6	04 Dec 2015	Air Temp (C)	16
C6	04 Dec 2015	Weather	Overcast
C6	04 Dec 2015	Visibility (mi)	12
C6	04 Dec 2015	Wind Speed (kts)	2
C6	04 Dec 2015	Wind Dir	W
C6	04 Dec 2015	Water Color	Green
C6	04 Dec 2015	Wave Ht Low (ft)	5
C6	04 Dec 2015	Wave Period (sec)	16
C6	04 Dec 2015	Sea State	Light chop
C6	04 Dec 2015	High Tide (ft)	4.46
C6	04 Dec 2015	High Tide Time	435
C6	04 Dec 2015	Low Tide (ft)	1.86
C6	04 Dec 2015	Low Tide Time	1109
C6	04 Dec 2015	Comments	
C6	09 Dec 2015	Depth (m)	9
C6	09 Dec 2015	Arrive Time	941
C6	09 Dec 2015	Depart Time	948

Station	Date	Parameter	Value
C6	09 Dec 2015	Air Temp (C)	17
C6	09 Dec 2015	Weather	Partly Cloudy
C6	09 Dec 2015	Visibility (mi)	12
C6	09 Dec 2015	Wind Speed (kts)	6
C6	09 Dec 2015	Wind Dir	W
C6	09 Dec 2015	Water Color	Green
C6	09 Dec 2015	Wave Ht Low (ft)	6
C6	09 Dec 2015	Wave Period (sec)	9
C6	09 Dec 2015	Sea State	Calm
C6	09 Dec 2015	High Tide (ft)	5.8
C6	09 Dec 2015	High Tide Time	709
C6	09 Dec 2015	Low Tide (ft)	-0.34
C6	09 Dec 2015	Low Tide Time	1413
C6	09 Dec 2015	Comments	Kelp
C6	15 Dec 2015	Depth (m)	9
C6	15 Dec 2015	Arrive Time	943
C6	15 Dec 2015	Depart Time	1002
C6	15 Dec 2015	Air Temp (C)	12
C6	15 Dec 2015	Weather	Clear
C6	15 Dec 2015	Visibility (mi)	12
C6	15 Dec 2015	Wind Speed (kts)	1
C6	15 Dec 2015	Wind Dir	N
C6	15 Dec 2015	Water Color	Greenish-Brown
C6	15 Dec 2015	Wave Ht Low (ft)	6
C6	15 Dec 2015	Wave Period (sec)	11
C6	15 Dec 2015	Sea State	Confused swell
C6	15 Dec 2015	High Tide (ft)	5.23
C6	15 Dec 2015	High Tide Time	1044
C6	15 Dec 2015	Low Tide (ft)	2.24
C6	15 Dec 2015	Low Tide Time	448
C6	15 Dec 2015	Comments	Kelp debris
C6	17 Dec 2015	Depth (m)	9
C6	17 Dec 2015	Arrive Time	957
C6	17 Dec 2015	Depart Time	1002
C6	17 Dec 2015	Air Temp (C)	14
C6	17 Dec 2015	Weather	Clear
C6	17 Dec 2015	Visibility (mi)	9
C6	17 Dec 2015	Wind Speed (kts)	3
C6	17 Dec 2015	Wind Dir	S
C6	17 Dec 2015	Water Color	Green
C6	17 Dec 2015	Wave Ht Low (ft)	3
C6	17 Dec 2015	Wave Period (sec)	7
C6	17 Dec 2015	Sea State	Calm
C6	17 Dec 2015	High Tide (ft)	4.14
C6	17 Dec 2015	High Tide Time	1253
C6	17 Dec 2015	Low Tide (ft)	2.32
C6	17 Dec 2015	Low Tide Time	724
C6	17 Dec 2015	Comments	Kelp; Lobster floats
C6	21 Dec 2015	Depth (m)	10
C6	21 Dec 2015	Arrive Time	929
C6	21 Dec 2015	Depart Time	935
C6	21 Dec 2015	Air Temp (C)	15

Station	Date	Parameter	Value
C6	21 Dec 2015	Weather	Clear
C6	21 Dec 2015	Visibility (mi)	10
C6	21 Dec 2015	Wind Speed (kts)	2
C6	21 Dec 2015	Wind Dir	E
C6	21 Dec 2015	Water Color	Brownish-Green
C6	21 Dec 2015	Wave Ht Low (ft)	4
C6	21 Dec 2015	Wave Period (sec)	7
C6	21 Dec 2015	Sea State	Light chop
C6	21 Dec 2015	High Tide (ft)	5.85
C6	21 Dec 2015	High Tide Time	523
C6	21 Dec 2015	Low Tide (ft)	-0.12
C6	21 Dec 2015	Low Tide Time	1229
C6	21 Dec 2015	Comments	Kelp debris; Lobster floats
A7	04 Dec 2015	Depth (m)	18
A7	04 Dec 2015	Arrive Time	757
A7	04 Dec 2015	Depart Time	802
A7	04 Dec 2015	Air Temp (C)	16
A7	04 Dec 2015	Weather	Overcast
A7	04 Dec 2015	Visibility (mi)	9
A7	04 Dec 2015	Wind Speed (kts)	7
A7	04 Dec 2015	Wind Dir	W
A7	04 Dec 2015	Water Color	Greenish-Blue
A7	04 Dec 2015	Wave Ht Low (ft)	5
A7	04 Dec 2015	Wave Period (sec)	16
A7	04 Dec 2015	Sea State	Light chop
A7	04 Dec 2015	High Tide (ft)	4.46
A7	04 Dec 2015	High Tide Time	435
A7	04 Dec 2015	Low Tide (ft)	1.86
A7	04 Dec 2015	Low Tide Time	1109
A7	04 Dec 2015	Comments	Kelp
A7	09 Dec 2015	Depth (m)	18
A7	09 Dec 2015	Arrive Time	840
A7	09 Dec 2015	Depart Time	845
A7	09 Dec 2015	Air Temp (C)	18
A7	09 Dec 2015	Weather	Partly Cloudy
A7	09 Dec 2015	Visibility (mi)	12
A7	09 Dec 2015	Wind Speed (kts)	1
A7	09 Dec 2015	Wind Dir	S
A7	09 Dec 2015	Water Color	Green
A7	09 Dec 2015	Wave Ht Low (ft)	6
A7	09 Dec 2015	Wave Period (sec)	9
A7	09 Dec 2015	Sea State	Calm
A7	09 Dec 2015	High Tide (ft)	5.8
A7	09 Dec 2015	High Tide Time	709
A7	09 Dec 2015	Low Tide (ft)	-0.34
A7	09 Dec 2015	Low Tide Time	1413
A7	09 Dec 2015	Comments	none
A7	15 Dec 2015	Depth (m)	18
A7	15 Dec 2015	Arrive Time	831
A7	15 Dec 2015	Depart Time	835
A7	15 Dec 2015	Air Temp (C)	11
A7	15 Dec 2015	Weather	Clear

Station	Date	Parameter	Value
A7	15 Dec 2015	Visibility (mi)	10
A7	15 Dec 2015	Wind Speed (kts)	13
A7	15 Dec 2015	Wind Dir	NE
A7	15 Dec 2015	Water Color	Greenish-Brown
A7	15 Dec 2015	Wave Ht Low (ft)	6
A7	15 Dec 2015	Wave Period (sec)	11
A7	15 Dec 2015	Sea State	Calm
A7	15 Dec 2015	High Tide (ft)	5.23
A7	15 Dec 2015	High Tide Time	1044
A7	15 Dec 2015	Low Tide (ft)	2.24
A7	15 Dec 2015	Low Tide Time	448
A7	15 Dec 2015	Comments	
A7	17 Dec 2015	Depth (m)	19
A7	17 Dec 2015	Arrive Time	849
A7	17 Dec 2015	Depart Time	857
A7	17 Dec 2015	Air Temp (C)	12
A7	17 Dec 2015	Weather	Clear
A7	17 Dec 2015	Visibility (mi)	9
A7	17 Dec 2015	Wind Speed (kts)	7
A7	17 Dec 2015	Wind Dir	NW
A7	17 Dec 2015	Water Color	Greenish-Brown
A7	17 Dec 2015	Wave Ht Low (ft)	3
A7	17 Dec 2015	Wave Period (sec)	7
A7	17 Dec 2015	Sea State	Calm
A7	17 Dec 2015	High Tide (ft)	4.14
A7	17 Dec 2015	High Tide Time	1253
A7	17 Dec 2015	Low Tide (ft)	2.32
A7	17 Dec 2015	Low Tide Time	724
A7	17 Dec 2015	Comments	Kelp; Lobster floats
A7	21 Dec 2015	Depth (m)	18
A7	21 Dec 2015	Arrive Time	816
A7	21 Dec 2015	Depart Time	822
A7	21 Dec 2015	Air Temp (C)	12
A7	21 Dec 2015	Weather	Clear
A7	21 Dec 2015	Visibility (mi)	10
A7	21 Dec 2015	Wind Speed (kts)	5
A7	21 Dec 2015	Wind Dir	W
A7	21 Dec 2015	Water Color	Brownish-Green
A7	21 Dec 2015	Wave Ht Low (ft)	4
A7	21 Dec 2015	Wave Period (sec)	7
A7	21 Dec 2015	Sea State	Light chop
A7	21 Dec 2015	High Tide (ft)	5.85
A7	21 Dec 2015	High Tide Time	523
A7	21 Dec 2015	Low Tide (ft)	-0.12
A7	21 Dec 2015	Low Tide Time	1229
A7	21 Dec 2015	Comments	Kelp; Lobster floats
C7	04 Dec 2015	Depth (m)	18
C7	04 Dec 2015	Arrive Time	827
C7	04 Dec 2015	Depart Time	832
C7	04 Dec 2015	Air Temp (C)	16
C7	04 Dec 2015	Weather	Overcast
C7	04 Dec 2015	Visibility (mi)	9

Station	Date	Parameter	Value
C7	04 Dec 2015	Wind Speed (kts)	7
C7	04 Dec 2015	Wind Dir	SE
C7	04 Dec 2015	Water Color	Greenish-Blue
C7	04 Dec 2015	Wave Ht Low (ft)	5
C7	04 Dec 2015	Wave Period (sec)	16
C7	04 Dec 2015	Sea State	Light chop
C7	04 Dec 2015	High Tide (ft)	4.46
C7	04 Dec 2015	High Tide Time	435
C7	04 Dec 2015	Low Tide (ft)	1.86
C7	04 Dec 2015	Low Tide Time	1109
C7	04 Dec 2015	Comments	Kelp debris
C7	09 Dec 2015	Depth (m)	19
C7	09 Dec 2015	Arrive Time	902
C7	09 Dec 2015	Depart Time	910
C7	09 Dec 2015	Air Temp (C)	18
C7	09 Dec 2015	Weather	Partly Cloudy
C7	09 Dec 2015	Visibility (mi)	12
C7	09 Dec 2015	Wind Speed (kts)	3
C7	09 Dec 2015	Wind Dir	SE
C7	09 Dec 2015	Water Color	Bluish-Green
C7	09 Dec 2015	Wave Ht Low (ft)	6
C7	09 Dec 2015	Wave Period (sec)	9
C7	09 Dec 2015	Sea State	Calm
C7	09 Dec 2015	High Tide (ft)	5.8
C7	09 Dec 2015	High Tide Time	709
C7	09 Dec 2015	Low Tide (ft)	-0.34
C7	09 Dec 2015	Low Tide Time	1413
C7	09 Dec 2015	Comments	Kelp
C7	15 Dec 2015	Depth (m)	19
C7	15 Dec 2015	Arrive Time	906
C7	15 Dec 2015	Depart Time	921
C7	15 Dec 2015	Air Temp (C)	12
C7	15 Dec 2015	Weather	Clear
C7	15 Dec 2015	Visibility (mi)	10
C7	15 Dec 2015	Wind Speed (kts)	9
C7	15 Dec 2015	Wind Dir	SE
C7	15 Dec 2015	Water Color	Greenish-Brown
C7	15 Dec 2015	Wave Ht Low (ft)	6
C7	15 Dec 2015	Wave Period (sec)	11
C7	15 Dec 2015	Sea State	Confused swell
C7	15 Dec 2015	High Tide (ft)	5.23
C7	15 Dec 2015	High Tide Time	1044
C7	15 Dec 2015	Low Tide (ft)	2.24
C7	15 Dec 2015	Low Tide Time	448
C7	15 Dec 2015	Comments	
C7	17 Dec 2015	Depth (m)	18
C7	17 Dec 2015	Arrive Time	922
C7	17 Dec 2015	Depart Time	929
C7	17 Dec 2015	Air Temp (C)	14
C7	17 Dec 2015	Weather	Clear
C7	17 Dec 2015	Visibility (mi)	9
C7	17 Dec 2015	Wind Speed (kts)	0

Station	Date	Parameter	Value
C7	17 Dec 2015	Wind Dir	
C7	17 Dec 2015	Water Color	Green
C7	17 Dec 2015	Wave Ht Low (ft)	3
C7	17 Dec 2015	Wave Period (sec)	7
C7	17 Dec 2015	Sea State	Calm
C7	17 Dec 2015	High Tide (ft)	4.14
C7	17 Dec 2015	High Tide Time	1253
C7	17 Dec 2015	Low Tide (ft)	2.32
C7	17 Dec 2015	Low Tide Time	724
C7	17 Dec 2015	Comments	Kelp; Lobster floats
C7	21 Dec 2015	Depth (m)	18
C7	21 Dec 2015	Arrive Time	846
C7	21 Dec 2015	Depart Time	855
C7	21 Dec 2015	Air Temp (C)	12
C7	21 Dec 2015	Weather	Clear
C7	21 Dec 2015	Visibility (mi)	10
C7	21 Dec 2015	Wind Speed (kts)	9
C7	21 Dec 2015	Wind Dir	E
C7	21 Dec 2015	Water Color	Brownish-Green
C7	21 Dec 2015	Wave Ht Low (ft)	4
C7	21 Dec 2015	Wave Period (sec)	7
C7	21 Dec 2015	Sea State	Light chop
C7	21 Dec 2015	High Tide (ft)	5.85
C7	21 Dec 2015	High Tide Time	523
C7	21 Dec 2015	Low Tide (ft)	-0.12
C7	21 Dec 2015	Low Tide Time	1229
C7	21 Dec 2015	Comments	Kelp; Lobster floats
C8	04 Dec 2015	Depth (m)	19
C8	04 Dec 2015	Arrive Time	839
C8	04 Dec 2015	Depart Time	843
C8	04 Dec 2015	Air Temp (C)	16
C8	04 Dec 2015	Weather	Overcast
C8	04 Dec 2015	Visibility (mi)	9
C8	04 Dec 2015	Wind Speed (kts)	6
C8	04 Dec 2015	Wind Dir	SE
C8	04 Dec 2015	Water Color	Greenish-Blue
C8	04 Dec 2015	Wave Ht Low (ft)	5
C8	04 Dec 2015	Wave Period (sec)	16
C8	04 Dec 2015	Sea State	Light chop
C8	04 Dec 2015	High Tide (ft)	4.46
C8	04 Dec 2015	High Tide Time	435
C8	04 Dec 2015	Low Tide (ft)	1.86
C8	04 Dec 2015	Low Tide Time	1109
C8	04 Dec 2015	Comments	Kelp
C8	09 Dec 2015	Depth (m)	20
C8	09 Dec 2015	Arrive Time	917
C8	09 Dec 2015	Depart Time	929
C8	09 Dec 2015	Air Temp (C)	18
C8	09 Dec 2015	Weather	Partly Cloudy
C8	09 Dec 2015	Visibility (mi)	12
C8	09 Dec 2015	Wind Speed (kts)	1
C8	09 Dec 2015	Wind Dir	SW

Station	Date	Parameter	Value
C8	09 Dec 2015	Water Color	Bluish-Green
C8	09 Dec 2015	Wave Ht Low (ft)	6
C8	09 Dec 2015	Wave Period (sec)	9
C8	09 Dec 2015	Sea State	Calm
C8	09 Dec 2015	High Tide (ft)	5.8
C8	09 Dec 2015	High Tide Time	709
C8	09 Dec 2015	Low Tide (ft)	-0.34
C8	09 Dec 2015	Low Tide Time	1413
C8	09 Dec 2015	Comments	Kelp
C8	15 Dec 2015	Depth (m)	20
C8	15 Dec 2015	Arrive Time	921
C8	15 Dec 2015	Depart Time	929
C8	15 Dec 2015	Air Temp (C)	12
C8	15 Dec 2015	Weather	Clear
C8	15 Dec 2015	Visibility (mi)	12
C8	15 Dec 2015	Wind Speed (kts)	6
C8	15 Dec 2015	Wind Dir	W
C8	15 Dec 2015	Water Color	Green
C8	15 Dec 2015	Wave Ht Low (ft)	6
C8	15 Dec 2015	Wave Period (sec)	11
C8	15 Dec 2015	Sea State	Confused swell
C8	15 Dec 2015	High Tide (ft)	5.23
C8	15 Dec 2015	High Tide Time	1044
C8	15 Dec 2015	Low Tide (ft)	2.24
C8	15 Dec 2015	Low Tide Time	448
C8	15 Dec 2015	Comments	
C8	17 Dec 2015	Depth (m)	19
C8	17 Dec 2015	Arrive Time	936
C8	17 Dec 2015	Depart Time	943
C8	17 Dec 2015	Air Temp (C)	13
C8	17 Dec 2015	Weather	Clear
C8	17 Dec 2015	Visibility (mi)	9
C8	17 Dec 2015	Wind Speed (kts)	0
C8	17 Dec 2015	Wind Dir	
C8	17 Dec 2015	Water Color	Green
C8	17 Dec 2015	Wave Ht Low (ft)	3
C8	17 Dec 2015	Wave Period (sec)	7
C8	17 Dec 2015	Sea State	Calm
C8	17 Dec 2015	High Tide (ft)	4.14
C8	17 Dec 2015	High Tide Time	1253
C8	17 Dec 2015	Low Tide (ft)	2.32
C8	17 Dec 2015	Low Tide Time	724
C8	17 Dec 2015	Comments	Kelp; Lobster floats
C8	21 Dec 2015	Depth (m)	20
C8	21 Dec 2015	Arrive Time	901
C8	21 Dec 2015	Depart Time	914
C8	21 Dec 2015	Air Temp (C)	12
C8	21 Dec 2015	Weather	Clear
C8	21 Dec 2015	Visibility (mi)	10
C8	21 Dec 2015	Wind Speed (kts)	5
C8	21 Dec 2015	Wind Dir	SE
C8	21 Dec 2015	Water Color	Brownish-Green

Station	Date	Parameter	Value
C8	21 Dec 2015	Wave Ht Low (ft)	4
C8	21 Dec 2015	Wave Period (sec)	7
C8	21 Dec 2015	Sea State	Light chop
C8	21 Dec 2015	High Tide (ft)	5.85
C8	21 Dec 2015	High Tide Time	523
C8	21 Dec 2015	Low Tide (ft)	-0.12
C8	21 Dec 2015	Low Tide Time	1229
C8	21 Dec 2015	Comments	Kelp; Lobster floats

Table 3.10

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

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma\text{-t}$)	Chlor ($\mu\text{g/L}$)
A1	04 Dec 2015	1	19.18	88.70	7.2	33.76	8.2	24.0	0.70
A1	04 Dec 2015	2	19.19	89.15	7.2	33.76	8.2	24.0	0.72
A1	04 Dec 2015	3	19.19	89.18	7.2	33.76	8.2	24.0	0.76
A1	04 Dec 2015	4	19.19	89.12	7.1	33.75	8.2	24.0	0.80
A1	04 Dec 2015	5	19.18	89.14	7.2	33.75	8.2	24.0	0.81
A1	04 Dec 2015	6	19.15	89.13	7.2	33.74	8.2	24.0	0.84
A1	04 Dec 2015	7	19.11	89.09	7.2	33.74	8.2	24.0	0.86
A1	04 Dec 2015	8	19.09	89.07	7.2	33.73	8.2	24.0	0.87
A1	04 Dec 2015	9	19.04	89.04	7.2	33.72	8.2	24.0	0.87
A1	04 Dec 2015	10	18.95	88.91	7.2	33.71	8.2	24.0	0.90
A1	04 Dec 2015	11	18.85	88.78	7.2	33.69	8.2	24.1	0.92
A1	04 Dec 2015	12	18.77	88.62	7.2	33.68	8.2	24.1	0.97
A1	04 Dec 2015	13	18.65	88.33	7.2	33.66	8.2	24.1	0.97
A1	04 Dec 2015	14	18.58	88.11	7.1	33.65	8.2	24.1	1.00
A1	04 Dec 2015	15	18.38	87.55	6.9	33.64	8.1	24.1	1.01
A1	04 Dec 2015	16	18.19	86.08	6.8	33.63	8.1	24.2	0.98
A1	04 Dec 2015	17	18.09	84.29	6.7	33.64	8.1	24.2	0.93
A1	04 Dec 2015	18	18.09	82.84	6.7	33.64	8.1	24.2	0.91
A1	09 Dec 2015	1	18.83	93.26	7.1	33.70	8.2	24.1	0.76
A1	09 Dec 2015	2	18.83	93.18	7.1	33.70	8.2	24.1	0.77
A1	09 Dec 2015	3	18.83	93.37	7.1	33.70	8.2	24.1	0.80
A1	09 Dec 2015	4	18.84	93.19	7.1	33.70	8.2	24.1	0.79
A1	09 Dec 2015	5	18.84	93.18	7.1	33.70	8.2	24.1	0.83
A1	09 Dec 2015	6	18.84	93.58	7.1	33.70	8.2	24.1	0.85
A1	09 Dec 2015	7	18.84	93.53	7.1	33.70	8.2	24.1	0.85
A1	09 Dec 2015	8	18.83	93.56	7.1	33.70	8.2	24.1	0.88
A1	09 Dec 2015	9	18.82	93.31	7.1	33.70	8.2	24.1	0.90
A1	09 Dec 2015	10	18.78	93.09	7.0	33.70	8.2	24.1	0.90
A1	09 Dec 2015	11	18.71	92.55	7.0	33.70	8.2	24.1	0.90
A1	09 Dec 2015	12	18.69	91.27	7.0	33.71	8.2	24.1	0.93
A1	09 Dec 2015	13	18.68	89.83	7.0	33.71	8.2	24.1	0.93
A1	09 Dec 2015	14	18.67	89.94	7.0	33.71	8.2	24.1	0.94
A1	09 Dec 2015	15	18.66	88.91	7.0	33.71	8.2	24.1	0.93
A1	09 Dec 2015	16	18.66	88.56	7.0	33.71	8.2	24.1	0.94
A1	09 Dec 2015	17	18.65	88.04	7.0	33.71	8.2	24.1	0.94
A1	09 Dec 2015	18	18.65	88.01	7.0	33.71	8.2	24.1	0.92
A1	09 Dec 2015	19	18.65	87.81	7.0	33.71	8.2	24.1	0.90
A1	15 Dec 2015	1	17.50	83.98	6.9	33.67	8.1	24.4	1.02
A1	15 Dec 2015	2	17.51	84.36	6.9	33.67	8.1	24.4	1.12
A1	15 Dec 2015	3	17.50	84.01	6.9	33.67	8.2	24.4	1.23
A1	15 Dec 2015	4	17.50	84.40	6.9	33.67	8.1	24.4	1.26
A1	15 Dec 2015	5	17.49	84.39	6.8	33.66	8.2	24.4	1.31
A1	15 Dec 2015	6	17.48	84.43	6.8	33.66	8.1	24.4	1.32
A1	15 Dec 2015	7	17.45	84.41	6.8	33.66	8.2	24.4	1.28
A1	15 Dec 2015	8	17.43	84.41	6.7	33.66	8.1	24.4	1.23
A1	15 Dec 2015	9	17.41	84.02	6.7	33.65	8.1	24.4	1.21
A1	15 Dec 2015	10	17.40	83.48	6.7	33.65	8.1	24.4	1.18
A1	15 Dec 2015	11	17.38	83.95	6.6	33.65	8.1	24.4	1.15
A1	15 Dec 2015	12	17.36	84.08	6.6	33.65	8.1	24.4	1.13

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
A1	15 Dec 2015	13	17.30	84.26	6.4	33.64	8.1	24.4	1.04
A1	15 Dec 2015	14	17.15	83.71	6.2	33.64	8.1	24.4	0.93
A1	15 Dec 2015	15	16.89	82.89	5.8	33.61	8.1	24.5	0.72
A1	15 Dec 2015	16	16.34	81.81	5.5	33.61	8.1	24.6	0.51
A1	15 Dec 2015	17	16.16	80.76	5.4	33.60	8.1	24.6	0.44
A1	15 Dec 2015	18	16.12	77.02	5.4	33.61	8.1	24.6	0.42
A1	15 Dec 2015	19	16.12	72.75	5.3	33.61	8.0	24.6	0.40
A1	15 Dec 2015	20	16.13	72.14	5.3	33.61	8.0	24.7	0.40
A1	17 Dec 2015	1	16.96	88.39	6.8	33.66	8.1	24.5	1.40
A1	17 Dec 2015	2	16.94	88.12	6.8	33.66	8.1	24.5	1.51
A1	17 Dec 2015	3	16.93	88.48	6.8	33.66	8.1	24.5	1.56
A1	17 Dec 2015	4	16.82	88.74	6.8	33.65	8.1	24.5	1.57
A1	17 Dec 2015	5	16.79	88.77	6.8	33.65	8.1	24.5	1.52
A1	17 Dec 2015	6	16.70	88.96	6.7	33.65	8.1	24.5	1.50
A1	17 Dec 2015	7	16.64	88.86	6.6	33.65	8.1	24.6	1.47
A1	17 Dec 2015	8	16.61	89.06	6.6	33.65	8.1	24.6	1.45
A1	17 Dec 2015	9	16.58	88.98	6.6	33.65	8.1	24.6	1.42
A1	17 Dec 2015	10	16.56	88.89	6.5	33.65	8.1	24.6	1.39
A1	17 Dec 2015	11	16.56	88.89	6.5	33.64	8.1	24.6	1.37
A1	17 Dec 2015	12	16.55	89.00	6.5	33.65	8.1	24.6	1.34
A1	17 Dec 2015	13	16.55	88.92	6.5	33.65	8.1	24.6	1.30
A1	17 Dec 2015	14	16.54	88.95	6.4	33.64	8.1	24.6	1.24
A1	17 Dec 2015	15	16.52	88.94	6.4	33.64	8.1	24.6	1.18
A1	17 Dec 2015	16	16.51	88.94	6.4	33.64	8.1	24.6	1.15
A1	17 Dec 2015	17	16.50	88.95	6.3	33.64	8.1	24.6	1.12
A1	17 Dec 2015	18	16.48	89.04	6.3	33.64	8.1	24.6	1.09
A1	21 Dec 2015	1	17.05	90.19	7.0	33.66	8.1	24.5	0.76
A1	21 Dec 2015	2	17.05	90.93	7.0	33.66	8.1	24.5	0.82
A1	21 Dec 2015	3	17.06	91.49	7.0	33.66	8.1	24.5	0.87
A1	21 Dec 2015	4	17.06	91.52	7.0	33.66	8.1	24.5	0.88
A1	21 Dec 2015	5	17.06	91.45	6.9	33.66	8.1	24.5	0.93
A1	21 Dec 2015	6	17.06	91.42	7.0	33.66	8.1	24.5	0.95
A1	21 Dec 2015	7	17.05	91.45	6.9	33.66	8.1	24.5	0.89
A1	21 Dec 2015	8	17.06	91.37	7.0	33.66	8.1	24.5	0.90
A1	21 Dec 2015	9	17.06	91.43	7.0	33.66	8.1	24.5	0.91
A1	21 Dec 2015	10	17.05	91.45	6.9	33.66	8.1	24.5	0.91
A1	21 Dec 2015	11	17.01	91.46	6.8	33.66	8.1	24.5	0.89
A1	21 Dec 2015	12	16.97	90.89	6.8	33.65	8.1	24.5	0.90
A1	21 Dec 2015	13	16.95	90.31	6.8	33.65	8.1	24.5	0.92
A1	21 Dec 2015	14	16.91	89.85	6.7	33.64	8.1	24.5	0.90
A1	21 Dec 2015	15	16.81	88.70	6.6	33.64	8.1	24.5	0.94
A1	21 Dec 2015	16	16.78	87.35	6.6	33.64	8.1	24.5	0.92
A1	21 Dec 2015	17	16.70	86.59	6.4	33.63	8.1	24.5	0.89
A1	21 Dec 2015	18	16.61	85.89	6.3	33.63	8.1	24.6	0.79
A1	21 Dec 2015	19	16.56	85.50	6.2	33.62	8.1	24.6	0.73
C4	04 Dec 2015	1	18.57	86.66	7.3	33.69	8.2	24.1	0.65
C4	04 Dec 2015	2	18.56	86.72	7.3	33.68	8.2	24.1	0.68
C4	04 Dec 2015	3	18.54	86.71	7.3	33.68	8.2	24.1	0.72
C4	04 Dec 2015	4	18.51	86.32	7.3	33.68	8.2	24.1	0.78
C4	04 Dec 2015	5	18.40	85.13	7.3	33.67	8.2	24.2	0.83
C4	04 Dec 2015	6	18.30	82.99	7.3	33.66	8.2	24.2	0.86
C4	04 Dec 2015	7	18.27	83.62	7.3	33.66	8.2	24.2	0.89

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
C4	04 Dec 2015	8	18.08	80.49	7.1	33.65	8.2	24.2	0.86
C4	04 Dec 2015	9	17.95	76.62	6.7	33.64	8.1	24.2	0.85
C4	04 Dec 2015	10	17.88	57.59	6.5	33.65	8.1	24.3	1.12
C4	09 Dec 2015	1	18.70	85.32	7.0	33.69	8.2	24.1	0.53
C4	09 Dec 2015	2	18.69	85.32	6.9	33.69	8.2	24.1	0.60
C4	09 Dec 2015	3	18.61	84.74	6.9	33.69	8.2	24.1	0.68
C4	09 Dec 2015	4	18.55	82.81	6.9	33.69	8.2	24.1	0.78
C4	09 Dec 2015	5	18.48	79.30	6.9	33.70	8.2	24.2	0.80
C4	09 Dec 2015	6	18.46	70.46	6.9	33.70	8.2	24.2	0.82
C4	09 Dec 2015	7	18.46	63.81	6.9	33.70	8.2	24.2	0.77
C4	09 Dec 2015	8	18.47	61.52	6.9	33.70	8.2	24.2	0.74
C4	09 Dec 2015	9	18.47	60.15	6.8	33.70	8.2	24.2	0.75
C4	09 Dec 2015	10	18.47	57.76	6.8	33.70	8.2	24.2	0.78
C4	09 Dec 2015	11	18.47	55.51	6.9	33.70	8.2	24.2	0.78
C4	15 Dec 2015	1	17.30	80.58	7.0	33.69	8.2	24.4	0.95
C4	15 Dec 2015	2	17.26	81.88	7.0	33.69	8.2	24.4	1.02
C4	15 Dec 2015	3	17.29	81.60	7.0	33.69	8.2	24.4	1.02
C4	15 Dec 2015	4	17.11	81.65	7.2	33.69	8.2	24.5	1.13
C4	15 Dec 2015	5	17.01	80.44	7.2	33.70	8.2	24.5	1.19
C4	15 Dec 2015	6	16.82	74.01	7.2	33.71	8.2	24.6	1.23
C4	15 Dec 2015	7	16.64	68.95	7.3	33.71	8.2	24.6	1.26
C4	15 Dec 2015	8	16.43	60.47	7.4	33.73	8.2	24.7	1.14
C4	15 Dec 2015	9	16.43	59.18	7.5	33.73	8.2	24.7	1.07
C4	15 Dec 2015	10	16.43	58.77	7.5	33.73	8.2	24.7	1.08
C4	15 Dec 2015	11	16.43	58.14	7.5	33.73	8.2	24.7	1.06
C4	15 Dec 2015	12	16.43	57.96	7.5	33.73	8.2	24.7	1.05
C4	17 Dec 2015	1	16.76	83.58	7.0	33.72	8.1	24.6	0.89
C4	17 Dec 2015	2	16.76	83.21	6.9	33.72	8.1	24.6	1.01
C4	17 Dec 2015	3	16.74	83.27	6.9	33.72	8.1	24.6	1.09
C4	17 Dec 2015	4	16.69	83.11	6.9	33.72	8.1	24.6	1.17
C4	17 Dec 2015	5	16.66	82.83	6.9	33.72	8.1	24.6	1.22
C4	17 Dec 2015	6	16.64	82.59	6.9	33.72	8.1	24.6	1.23
C4	17 Dec 2015	7	16.64	82.09	7.0	33.72	8.1	24.6	1.23
C4	17 Dec 2015	8	16.63	81.25	6.9	33.72	8.1	24.6	1.16
C4	17 Dec 2015	9	16.63	81.69	6.9	33.72	8.1	24.6	1.14
C4	17 Dec 2015	10	16.63	81.34	6.8	33.72	8.1	24.6	1.13
C4	21 Dec 2015	1	16.95	88.74	7.1	33.67	8.1	24.5	0.54
C4	21 Dec 2015	2	16.94	88.69	7.2	33.67	8.1	24.5	0.58
C4	21 Dec 2015	3	16.94	88.43	7.1	33.67	8.1	24.5	0.63
C4	21 Dec 2015	4	16.94	88.02	7.1	33.67	8.1	24.5	0.70
C4	21 Dec 2015	5	16.93	87.92	7.1	33.67	8.1	24.5	0.75
C4	21 Dec 2015	6	16.91	87.42	7.1	33.67	8.1	24.5	0.79
C4	21 Dec 2015	7	16.91	86.50	7.1	33.67	8.1	24.5	0.81
C4	21 Dec 2015	8	16.91	86.21	7.1	33.67	8.1	24.5	0.78
C4	21 Dec 2015	9	16.91	85.90	7.2	33.67	8.1	24.5	0.75
C5	04 Dec 2015	1	18.56	85.49	7.2	33.67	8.2	24.1	0.59
C5	04 Dec 2015	2	18.56	85.81	7.2	33.68	8.2	24.1	0.62
C5	04 Dec 2015	3	18.57	85.80	7.2	33.68	8.2	24.1	0.66
C5	04 Dec 2015	4	18.56	85.83	7.2	33.67	8.2	24.1	0.67
C5	04 Dec 2015	5	18.43	79.96	7.0	33.65	8.2	24.1	0.77

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
C5	04 Dec 2015	6	18.36	56.66	7.0	33.66	8.2	24.2	0.82
C5	04 Dec 2015	7	18.33	40.94	7.0	33.65	8.2	24.2	0.91
C5	04 Dec 2015	8	18.29	31.80	7.0	33.65	8.2	24.2	0.96
C5	04 Dec 2015	9	18.28	28.81	7.0	33.65	8.2	24.2	1.00
C5	04 Dec 2015	10	18.26	23.82	7.0	33.65	8.2	24.2	0.97
C5	09 Dec 2015	1	18.78	90.71	7.1	33.70	8.2	24.1	0.54
C5	09 Dec 2015	2	18.77	90.79	7.1	33.69	8.2	24.1	0.57
C5	09 Dec 2015	3	18.74	90.80	7.1	33.70	8.2	24.1	0.62
C5	09 Dec 2015	4	18.69	90.55	7.1	33.69	8.2	24.1	0.70
C5	09 Dec 2015	5	18.59	89.26	7.1	33.70	8.2	24.1	0.76
C5	09 Dec 2015	6	18.52	84.47	7.0	33.70	8.2	24.1	0.80
C5	09 Dec 2015	7	18.47	79.26	7.0	33.70	8.2	24.2	0.77
C5	09 Dec 2015	8	18.41	74.89	6.9	33.69	8.2	24.2	0.74
C5	09 Dec 2015	9	18.34	69.21	6.9	33.70	8.2	24.2	0.74
C5	09 Dec 2015	10	18.34	60.62	6.9	33.70	8.2	24.2	0.72
C5	09 Dec 2015	11	18.33	59.25	6.9	33.70	8.2	24.2	0.73
C5	15 Dec 2015	1	17.30	82.97	7.0	33.68	8.2	24.4	0.86
C5	15 Dec 2015	2	17.29	82.49	6.9	33.68	8.2	24.4	0.92
C5	15 Dec 2015	3	17.29	81.86	6.9	33.68	8.2	24.4	1.00
C5	15 Dec 2015	4	17.29	82.36	7.0	33.68	8.2	24.4	1.08
C5	15 Dec 2015	5	17.26	82.95	7.0	33.68	8.2	24.4	1.24
C5	15 Dec 2015	6	17.15	83.02	7.1	33.69	8.2	24.5	1.34
C5	15 Dec 2015	7	16.98	82.20	7.1	33.69	8.2	24.5	1.30
C5	15 Dec 2015	8	16.82	80.61	7.2	33.70	8.2	24.6	1.22
C5	15 Dec 2015	9	16.78	75.39	7.3	33.71	8.2	24.6	1.15
C5	15 Dec 2015	10	16.79	71.70	7.3	33.71	8.2	24.6	1.12
C5	15 Dec 2015	11	16.79	70.44	7.3	33.71	8.2	24.6	1.06
C5	17 Dec 2015	1	16.86	86.97	6.8	33.69	8.1	24.5	0.68
C5	17 Dec 2015	2	16.85	86.88	6.8	33.69	8.1	24.5	0.73
C5	17 Dec 2015	3	16.85	86.57	6.8	33.69	8.1	24.5	0.85
C5	17 Dec 2015	4	16.85	86.55	6.8	33.69	8.1	24.5	0.95
C5	17 Dec 2015	5	16.85	86.33	6.8	33.69	8.1	24.5	0.98
C5	17 Dec 2015	6	16.85	86.26	6.8	33.69	8.1	24.5	0.98
C5	17 Dec 2015	7	16.85	86.46	6.8	33.69	8.1	24.5	0.95
C5	17 Dec 2015	8	16.85	86.07	6.7	33.69	8.1	24.5	0.91
C5	17 Dec 2015	9	16.85	85.95	6.8	33.69	8.1	24.5	0.91
C5	21 Dec 2015	1	16.33	69.72	7.2	33.70	8.1	24.7	0.54
C5	21 Dec 2015	2	16.30	69.90	7.2	33.71	8.1	24.7	0.62
C5	21 Dec 2015	3	16.27	68.54	7.3	33.71	8.1	24.7	0.62
C5	21 Dec 2015	4	16.24	66.38	7.4	33.71	8.1	24.7	0.65
C5	21 Dec 2015	5	16.23	65.80	7.3	33.70	8.1	24.7	0.70
C5	21 Dec 2015	6	16.23	65.31	7.3	33.70	8.1	24.7	0.71
C5	21 Dec 2015	7	16.23	65.50	7.3	33.70	8.1	24.7	0.70
C5	21 Dec 2015	8	16.23	64.28	7.3	33.70	8.1	24.7	0.72
C5	21 Dec 2015	9	16.23	62.97	7.3	33.70	8.1	24.7	0.72
A6	04 Dec 2015	1	18.90	87.74	7.2	33.70	8.2	24.1	0.73
A6	04 Dec 2015	2	18.89	88.03	7.2	33.70	8.2	24.1	0.77
A6	04 Dec 2015	3	18.89	88.00	7.2	33.70	8.2	24.1	0.79
A6	04 Dec 2015	4	18.87	88.38	7.2	33.70	8.2	24.1	0.84
A6	04 Dec 2015	5	18.85	88.41	7.2	33.70	8.2	24.1	0.87

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
A6	04 Dec 2015	6	18.84	88.38	7.2	33.70	8.2	24.1	0.91
A6	04 Dec 2015	7	18.80	88.32	7.2	33.69	8.2	24.1	0.94
A6	04 Dec 2015	8	18.71	88.13	7.2	33.68	8.2	24.1	0.94
A6	04 Dec 2015	9	18.66	87.87	7.2	33.67	8.2	24.1	0.94
A6	04 Dec 2015	10	18.61	87.63	7.2	33.67	8.2	24.1	0.92
A6	04 Dec 2015	11	18.60	87.59	7.1	33.67	8.2	24.1	0.89
A6	04 Dec 2015	12	18.58	87.23	7.1	33.67	8.2	24.1	0.87
A6	04 Dec 2015	13	18.57	86.98	7.1	33.67	8.2	24.1	0.86
A6	04 Dec 2015	14	18.58	87.22	7.1	33.67	8.2	24.1	0.87
A6	04 Dec 2015	15	18.57	87.05	7.1	33.67	8.2	24.1	0.83
A6	04 Dec 2015	16	18.56	86.70	7.1	33.66	8.2	24.1	0.82
A6	04 Dec 2015	17	18.56	86.88	7.1	33.67	8.2	24.1	0.84
A6	04 Dec 2015	18	18.57	86.85	7.0	33.66	8.2	24.1	0.82
A6	04 Dec 2015	19	18.55	86.29	7.0	33.66	8.2	24.1	0.81
A6	04 Dec 2015	20	18.55	86.17	7.0	33.66	8.2	24.1	0.82
A6	04 Dec 2015	21	18.54	86.02	7.0	33.66	8.2	24.1	0.80
A6	09 Dec 2015	1	18.83	91.02	7.1	33.69	8.2	24.1	0.48
A6	09 Dec 2015	2	18.83	92.88	7.1	33.69	8.2	24.1	0.49
A6	09 Dec 2015	3	18.84	93.50	7.1	33.69	8.2	24.1	0.53
A6	09 Dec 2015	4	18.84	93.63	7.1	33.69	8.2	24.1	0.57
A6	09 Dec 2015	5	18.84	93.74	7.1	33.69	8.2	24.1	0.63
A6	09 Dec 2015	6	18.84	93.86	7.0	33.70	8.2	24.1	0.67
A6	09 Dec 2015	7	18.84	93.86	7.1	33.70	8.2	24.1	0.70
A6	09 Dec 2015	8	18.83	93.83	7.1	33.70	8.2	24.1	0.68
A6	09 Dec 2015	9	18.81	93.57	7.0	33.70	8.2	24.1	0.69
A6	09 Dec 2015	10	18.77	93.06	7.0	33.70	8.2	24.1	0.70
A6	09 Dec 2015	11	18.74	91.62	6.9	33.70	8.2	24.1	0.70
A6	09 Dec 2015	12	18.73	89.45	6.9	33.70	8.2	24.1	0.73
A6	09 Dec 2015	13	18.70	87.89	6.9	33.70	8.2	24.1	0.76
A6	09 Dec 2015	14	18.68	87.41	6.9	33.70	8.2	24.1	0.80
A6	09 Dec 2015	15	18.68	86.45	6.9	33.70	8.2	24.1	0.81
A6	09 Dec 2015	16	18.68	85.45	6.9	33.70	8.2	24.1	0.82
A6	09 Dec 2015	17	18.67	84.85	6.9	33.70	8.2	24.1	0.83
A6	09 Dec 2015	18	18.66	84.72	6.9	33.70	8.2	24.1	0.85
A6	09 Dec 2015	19	18.65	84.75	6.9	33.70	8.2	24.1	0.87
A6	09 Dec 2015	20	18.65	84.91	6.9	33.70	8.2	24.1	0.88
A6	15 Dec 2015	1	17.39	83.92	6.8	33.66	8.2	24.4	0.90
A6	15 Dec 2015	2	17.39	84.93	6.8	33.66	8.2	24.4	0.98
A6	15 Dec 2015	3	17.40	84.68	6.9	33.66	8.2	24.4	1.05
A6	15 Dec 2015	4	17.41	84.98	6.8	33.66	8.2	24.4	1.17
A6	15 Dec 2015	5	17.42	84.87	6.8	33.66	8.2	24.4	1.25
A6	15 Dec 2015	6	17.42	84.58	6.8	33.66	8.2	24.4	1.28
A6	15 Dec 2015	7	17.42	84.77	6.8	33.66	8.2	24.4	1.30
A6	15 Dec 2015	8	17.41	84.65	6.8	33.66	8.2	24.4	1.32
A6	15 Dec 2015	9	17.41	84.65	6.8	33.66	8.2	24.4	1.30
A6	15 Dec 2015	10	17.41	84.58	6.8	33.66	8.2	24.4	1.28
A6	15 Dec 2015	11	17.40	84.31	6.8	33.66	8.2	24.4	1.26
A6	15 Dec 2015	12	17.38	84.41	6.7	33.66	8.2	24.4	1.19
A6	15 Dec 2015	13	17.36	84.48	6.7	33.65	8.2	24.4	1.13
A6	15 Dec 2015	14	17.36	84.16	6.7	33.66	8.2	24.4	1.11
A6	15 Dec 2015	15	17.36	83.73	6.6	33.65	8.2	24.4	1.07
A6	15 Dec 2015	16	17.33	83.81	6.6	33.65	8.2	24.4	1.04
A6	15 Dec 2015	17	17.31	83.81	6.5	33.65	8.2	24.4	0.99

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
A6	15 Dec 2015	18	17.26	83.16	6.4	33.65	8.2	24.4	0.95
A6	15 Dec 2015	19	17.25	81.93	6.4	33.65	8.2	24.4	0.92
A6	17 Dec 2015	1	17.24	87.96	6.5	33.65	8.1	24.4	1.41
A6	17 Dec 2015	2	17.24	87.63	6.8	33.66	8.1	24.4	1.52
A6	17 Dec 2015	3	17.24	88.49	6.9	33.66	8.1	24.4	1.59
A6	17 Dec 2015	4	17.23	88.51	7.0	33.66	8.1	24.4	1.73
A6	17 Dec 2015	5	17.23	88.45	7.0	33.66	8.1	24.4	1.82
A6	17 Dec 2015	6	17.23	88.44	7.0	33.66	8.1	24.4	1.89
A6	17 Dec 2015	7	17.22	88.44	7.0	33.66	8.1	24.4	2.06
A6	17 Dec 2015	8	17.18	88.30	6.9	33.67	8.1	24.5	1.98
A6	17 Dec 2015	9	17.15	88.10	6.8	33.67	8.1	24.5	1.95
A6	17 Dec 2015	10	17.08	87.92	6.9	33.69	8.1	24.5	1.86
A6	17 Dec 2015	11	16.99	87.79	6.9	33.71	8.1	24.5	1.82
A6	17 Dec 2015	12	16.92	88.11	6.9	33.71	8.1	24.5	1.84
A6	17 Dec 2015	13	16.91	88.50	7.0	33.70	8.1	24.5	1.65
A6	17 Dec 2015	14	16.91	88.67	7.0	33.70	8.1	24.5	1.63
A6	17 Dec 2015	15	16.89	88.80	6.9	33.71	8.1	24.5	1.52
A6	17 Dec 2015	16	16.89	88.85	7.0	33.71	8.1	24.6	1.39
A6	17 Dec 2015	17	16.84	88.84	6.9	33.72	8.1	24.6	1.33
A6	17 Dec 2015	18	16.84	88.92	7.1	33.72	8.1	24.6	1.32
A6	17 Dec 2015	19	16.84	88.93	7.0	33.72	8.1	24.6	1.28
A6	21 Dec 2015	1	17.10	91.17	7.1	33.67	8.1	24.5	0.75
A6	21 Dec 2015	2	17.11	91.20	7.1	33.67	8.1	24.5	0.84
A6	21 Dec 2015	3	17.10	91.50	7.2	33.67	8.1	24.5	0.85
A6	21 Dec 2015	4	17.11	91.47	7.1	33.67	8.1	24.5	0.82
A6	21 Dec 2015	5	17.11	91.46	7.1	33.67	8.1	24.5	0.83
A6	21 Dec 2015	6	17.10	91.47	7.1	33.67	8.1	24.5	0.85
A6	21 Dec 2015	7	17.10	91.35	7.0	33.67	8.1	24.5	0.84
A6	21 Dec 2015	8	17.08	91.33	7.1	33.67	8.1	24.5	0.79
A6	21 Dec 2015	9	17.06	91.07	7.0	33.67	8.1	24.5	0.73
A6	21 Dec 2015	10	17.03	91.15	7.0	33.67	8.1	24.5	0.72
A6	21 Dec 2015	11	17.02	90.73	7.0	33.67	8.1	24.5	0.68
A6	21 Dec 2015	12	17.01	90.71	7.0	33.67	8.1	24.5	0.69
A6	21 Dec 2015	13	17.01	90.92	7.0	33.67	8.1	24.5	0.72
A6	21 Dec 2015	14	17.00	90.90	7.1	33.67	8.1	24.5	0.75
A6	21 Dec 2015	15	16.98	90.94	7.1	33.67	8.1	24.5	0.73
A6	21 Dec 2015	16	16.98	91.16	7.1	33.67	8.1	24.5	0.73
A6	21 Dec 2015	17	16.98	91.17	7.1	33.67	8.1	24.5	0.73
A6	21 Dec 2015	18	16.98	91.11	7.1	33.67	8.1	24.5	0.71
A6	21 Dec 2015	19	16.98	91.18	7.1	33.67	8.1	24.5	0.70
C6	04 Dec 2015	1	18.55	86.82	7.3	33.68	8.2	24.1	0.59
C6	04 Dec 2015	2	18.55	87.11	7.3	33.68	8.2	24.1	0.63
C6	04 Dec 2015	3	18.54	86.92	7.3	33.67	8.2	24.1	0.65
C6	04 Dec 2015	4	18.53	87.00	7.3	33.67	8.2	24.1	0.70
C6	04 Dec 2015	5	18.47	86.97	7.3	33.67	8.2	24.1	0.72
C6	04 Dec 2015	6	18.37	85.85	7.2	33.66	8.2	24.2	0.71
C6	04 Dec 2015	7	18.28	82.31	7.2	33.65	8.2	24.2	0.69
C6	04 Dec 2015	8	18.28	83.36	7.2	33.65	8.2	24.2	0.70
C6	04 Dec 2015	9	18.23	79.47	7.1	33.65	8.2	24.2	0.71
C6	04 Dec 2015	10	18.23	65.32	7.1	33.65	8.2	24.2	0.72
C6	09 Dec 2015	1	18.75	92.71	7.1	33.70	8.2	24.1	0.39

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
C6	09 Dec 2015	2	18.74	92.81	7.0	33.70	8.2	24.1	0.41
C6	09 Dec 2015	3	18.70	92.65	7.0	33.70	8.2	24.1	0.45
C6	09 Dec 2015	4	18.65	92.49	7.0	33.69	8.2	24.1	0.51
C6	09 Dec 2015	5	18.55	91.60	7.0	33.70	8.2	24.1	0.57
C6	09 Dec 2015	6	18.50	88.53	7.0	33.70	8.2	24.2	0.64
C6	09 Dec 2015	7	18.46	82.07	6.9	33.70	8.2	24.2	0.70
C6	09 Dec 2015	8	18.43	78.52	7.0	33.70	8.2	24.2	0.71
C6	09 Dec 2015	9	18.43	76.89	7.0	33.70	8.2	24.2	0.70
C6	15 Dec 2015	1	17.01	80.81	7.2	33.70	8.2	24.5	0.83
C6	15 Dec 2015	2	17.02	80.64	7.2	33.70	8.2	24.5	0.93
C6	15 Dec 2015	3	17.01	80.61	7.2	33.70	8.2	24.5	1.07
C6	15 Dec 2015	4	17.01	80.41	7.2	33.70	8.2	24.5	1.23
C6	15 Dec 2015	5	17.00	80.32	6.8	33.70	8.2	24.5	1.22
C6	15 Dec 2015	6	17.00	80.47	6.8	33.70	8.2	24.5	1.22
C6	15 Dec 2015	7	17.00	80.07	7.2	33.70	8.2	24.5	1.24
C6	15 Dec 2015	8	16.99	79.59	7.3	33.71	8.2	24.5	1.26
C6	15 Dec 2015	9	16.97	79.26	7.2	33.71	8.2	24.5	1.21
C6	15 Dec 2015	10	16.96	79.26	7.2	33.70	8.2	24.5	1.16
C6	17 Dec 2015	1	16.73	87.40	7.3	33.72	8.1	24.6	0.90
C6	17 Dec 2015	2	16.72	87.66	7.3	33.72	8.1	24.6	1.04
C6	17 Dec 2015	3	16.71	87.53	7.3	33.72	8.1	24.6	1.17
C6	17 Dec 2015	4	16.70	87.37	7.2	33.72	8.1	24.6	1.18
C6	17 Dec 2015	5	16.62	87.33	7.3	33.72	8.1	24.6	1.08
C6	17 Dec 2015	6	16.51	87.30	7.3	33.73	8.1	24.7	0.91
C6	17 Dec 2015	7	16.48	87.13	7.4	33.73	8.1	24.7	0.79
C6	17 Dec 2015	8	16.47	87.02	7.5	33.73	8.1	24.7	0.77
C6	17 Dec 2015	9	16.46	86.55	7.5	33.73	8.1	24.7	0.78
C6	21 Dec 2015	1	16.55	85.15	7.3	33.69	8.1	24.6	0.44
C6	21 Dec 2015	2	16.55	85.05	7.3	33.69	8.1	24.6	0.47
C6	21 Dec 2015	3	16.53	84.67	7.3	33.69	8.1	24.6	0.54
C6	21 Dec 2015	4	16.51	84.23	7.3	33.69	8.1	24.6	0.56
C6	21 Dec 2015	5	16.51	83.62	7.3	33.69	8.1	24.6	0.60
C6	21 Dec 2015	6	16.51	83.40	7.3	33.69	8.1	24.6	0.60
C6	21 Dec 2015	7	16.50	83.50	7.3	33.69	8.1	24.6	0.62
C6	21 Dec 2015	8	16.48	83.59	7.3	33.69	8.1	24.6	0.59
C6	21 Dec 2015	9	16.45	83.46	7.3	33.69	8.1	24.6	0.59
A7	04 Dec 2015	1	19.07	88.74	7.3	33.73	8.2	24.0	0.85
A7	04 Dec 2015	2	19.07	88.86	7.2	33.73	8.2	24.0	0.86
A7	04 Dec 2015	3	19.07	88.82	7.2	33.73	8.2	24.0	0.85
A7	04 Dec 2015	4	19.07	88.86	7.2	33.73	8.2	24.0	0.86
A7	04 Dec 2015	5	19.06	88.87	7.2	33.73	8.2	24.0	0.90
A7	04 Dec 2015	6	19.03	88.83	7.2	33.72	8.2	24.0	0.89
A7	04 Dec 2015	7	19.01	88.81	7.2	33.72	8.2	24.0	0.89
A7	04 Dec 2015	8	18.94	88.77	7.2	33.71	8.2	24.0	0.93
A7	04 Dec 2015	9	18.86	88.67	7.2	33.69	8.2	24.1	0.98
A7	04 Dec 2015	10	18.77	88.25	7.1	33.69	8.2	24.1	0.99
A7	04 Dec 2015	11	18.71	88.19	7.1	33.67	8.2	24.1	1.05
A7	04 Dec 2015	12	18.61	87.71	7.1	33.66	8.2	24.1	1.05
A7	04 Dec 2015	13	18.57	87.51	7.1	33.66	8.2	24.1	1.03
A7	04 Dec 2015	14	18.50	86.85	7.0	33.65	8.2	24.1	1.00
A7	04 Dec 2015	15	18.36	85.51	6.9	33.63	8.2	24.1	0.93

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
A7	04 Dec 2015	16	18.25	84.44	6.9	33.62	8.1	24.2	0.88
A7	04 Dec 2015	17	18.23	83.90	6.8	33.62	8.1	24.2	0.84
A7	04 Dec 2015	18	18.22	83.57	6.8	33.62	8.1	24.2	0.84
A7	09 Dec 2015	1	18.86	93.74	7.1	33.70	8.2	24.1	0.54
A7	09 Dec 2015	2	18.86	94.09	7.1	33.70	8.2	24.1	0.54
A7	09 Dec 2015	3	18.85	94.14	7.2	33.70	8.2	24.1	0.57
A7	09 Dec 2015	4	18.86	94.21	7.1	33.70	8.2	24.1	0.60
A7	09 Dec 2015	5	18.86	94.22	7.1	33.70	8.2	24.1	0.62
A7	09 Dec 2015	6	18.85	94.22	7.2	33.70	8.2	24.1	0.63
A7	09 Dec 2015	7	18.85	94.21	7.1	33.70	8.2	24.1	0.65
A7	09 Dec 2015	8	18.85	94.23	7.1	33.70	8.2	24.1	0.67
A7	09 Dec 2015	9	18.85	94.14	7.1	33.70	8.2	24.1	0.70
A7	09 Dec 2015	10	18.84	94.15	7.1	33.70	8.2	24.1	0.75
A7	09 Dec 2015	11	18.83	94.02	7.1	33.70	8.2	24.1	0.75
A7	09 Dec 2015	12	18.79	93.80	7.0	33.70	8.2	24.1	0.73
A7	09 Dec 2015	13	18.76	93.39	7.0	33.70	8.2	24.1	0.69
A7	09 Dec 2015	14	18.71	92.57	7.0	33.70	8.2	24.1	0.68
A7	09 Dec 2015	15	18.69	91.55	6.9	33.70	8.2	24.1	0.65
A7	09 Dec 2015	16	18.67	90.55	6.9	33.70	8.2	24.1	0.64
A7	09 Dec 2015	17	18.66	89.82	6.9	33.70	8.2	24.1	0.63
A7	09 Dec 2015	18	18.65	89.27	6.8	33.70	8.2	24.1	0.63
A7	09 Dec 2015	19	18.65	88.79	6.8	33.70	8.2	24.1	0.64
A7	15 Dec 2015	1	17.48	84.24	6.9	33.66	8.2	24.4	1.05
A7	15 Dec 2015	2	17.48	84.34	6.8	33.66	8.2	24.4	1.11
A7	15 Dec 2015	3	17.49	84.59	6.8	33.66	8.2	24.4	1.18
A7	15 Dec 2015	4	17.49	84.64	6.9	33.66	8.2	24.4	1.25
A7	15 Dec 2015	5	17.49	84.60	6.8	33.66	8.2	24.4	1.26
A7	15 Dec 2015	6	17.49	84.57	6.8	33.66	8.2	24.4	1.27
A7	15 Dec 2015	7	17.48	84.49	6.8	33.66	8.2	24.4	1.26
A7	15 Dec 2015	8	17.48	84.46	6.7	33.66	8.2	24.4	1.23
A7	15 Dec 2015	9	17.44	84.42	6.6	33.66	8.2	24.4	1.14
A7	15 Dec 2015	10	17.34	84.46	6.4	33.64	8.2	24.4	0.98
A7	15 Dec 2015	11	17.15	84.12	6.2	33.63	8.2	24.4	0.84
A7	15 Dec 2015	12	17.13	81.97	6.1	33.63	8.2	24.4	0.78
A7	15 Dec 2015	13	17.01	78.89	6.1	33.62	8.2	24.5	0.74
A7	15 Dec 2015	14	16.96	76.85	6.0	33.63	8.1	24.5	0.70
A7	15 Dec 2015	15	16.98	76.86	6.0	33.63	8.1	24.5	0.70
A7	15 Dec 2015	16	16.95	76.67	6.0	33.63	8.1	24.5	0.67
A7	15 Dec 2015	17	16.89	76.02	5.9	33.62	8.1	24.5	0.64
A7	15 Dec 2015	18	16.79	75.85	5.8	33.62	8.1	24.5	0.62
A7	15 Dec 2015	19	16.75	75.86	5.8	33.62	8.1	24.5	0.59
A7	15 Dec 2015	20	16.75	76.01	5.7	33.62	8.1	24.5	0.58
A7	17 Dec 2015	1	17.24	88.61	6.9	33.65	8.1	24.4	1.39
A7	17 Dec 2015	2	17.23	88.11	6.9	33.65	8.1	24.4	1.54
A7	17 Dec 2015	3	17.24	88.65	7.0	33.65	8.1	24.4	1.66
A7	17 Dec 2015	4	17.23	89.37	7.0	33.65	8.1	24.4	1.72
A7	17 Dec 2015	5	17.23	89.44	6.9	33.65	8.1	24.4	1.81
A7	17 Dec 2015	6	17.23	89.48	6.9	33.65	8.1	24.4	1.83
A7	17 Dec 2015	7	17.22	89.46	6.9	33.65	8.1	24.4	1.82
A7	17 Dec 2015	8	17.19	89.29	6.9	33.65	8.1	24.4	1.76
A7	17 Dec 2015	9	17.11	88.77	6.8	33.65	8.1	24.5	1.56
A7	17 Dec 2015	10	16.89	88.92	6.6	33.65	8.1	24.5	1.47

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
A7	17 Dec 2015	11	16.70	88.78	6.5	33.66	8.1	24.6	1.44
A7	17 Dec 2015	12	16.55	88.23	6.4	33.66	8.1	24.6	1.24
A7	17 Dec 2015	13	16.51	87.44	6.4	33.66	8.0	24.6	1.14
A7	17 Dec 2015	14	16.50	86.17	6.3	33.66	8.0	24.6	1.10
A7	17 Dec 2015	15	16.49	85.60	6.3	33.66	8.0	24.6	1.07
A7	17 Dec 2015	16	16.49	85.42	6.3	33.66	8.0	24.6	1.01
A7	17 Dec 2015	17	16.48	85.16	6.2	33.66	8.0	24.6	1.02
A7	17 Dec 2015	18	16.49	85.09	6.3	33.66	8.0	24.6	1.01
A7	17 Dec 2015	19	16.49	85.08	6.3	33.66	8.0	24.6	1.01
A7	21 Dec 2015	1	17.15	91.23	7.2	33.67	8.1	24.5	0.89
A7	21 Dec 2015	2	17.15	91.38	7.2	33.67	8.1	24.5	0.92
A7	21 Dec 2015	3	17.15	91.37	7.2	33.67	8.1	24.5	0.98
A7	21 Dec 2015	4	17.14	91.35	7.1	33.66	8.1	24.5	0.97
A7	21 Dec 2015	5	17.13	91.46	7.0	33.66	8.1	24.5	0.95
A7	21 Dec 2015	6	17.13	91.51	7.1	33.66	8.1	24.5	1.01
A7	21 Dec 2015	7	17.13	91.52	7.0	33.66	8.1	24.5	0.95
A7	21 Dec 2015	8	17.11	91.50	7.0	33.66	8.1	24.5	0.91
A7	21 Dec 2015	9	17.06	91.19	6.8	33.65	8.1	24.5	0.85
A7	21 Dec 2015	10	17.03	90.89	6.8	33.65	8.1	24.5	0.79
A7	21 Dec 2015	11	17.02	90.17	6.7	33.65	8.1	24.5	0.78
A7	21 Dec 2015	12	17.00	89.85	6.8	33.65	8.1	24.5	0.80
A7	21 Dec 2015	13	17.00	89.68	6.7	33.65	8.1	24.5	0.77
A7	21 Dec 2015	14	16.98	89.49	6.7	33.65	8.1	24.5	0.77
A7	21 Dec 2015	15	16.97	89.34	6.7	33.65	8.1	24.5	0.78
A7	21 Dec 2015	16	16.92	89.06	6.5	33.64	8.1	24.5	0.80
A7	21 Dec 2015	17	16.85	88.33	6.4	33.64	8.1	24.5	0.77
A7	21 Dec 2015	18	16.79	87.95	6.4	33.64	8.1	24.5	0.75
A7	21 Dec 2015	19	16.79	87.02	6.4	33.64	8.1	24.5	0.74
C7	04 Dec 2015	1	18.44	87.51	7.4	33.64	8.2	24.1	0.85
C7	04 Dec 2015	2	18.44	87.81	7.4	33.64	8.2	24.1	0.88
C7	04 Dec 2015	3	18.44	87.81	7.4	33.64	8.2	24.1	0.91
C7	04 Dec 2015	4	18.44	87.85	7.4	33.64	8.2	24.1	0.95
C7	04 Dec 2015	5	18.44	87.81	7.4	33.64	8.2	24.1	0.98
C7	04 Dec 2015	6	18.43	87.89	7.4	33.64	8.2	24.1	1.02
C7	04 Dec 2015	7	18.43	87.81	7.4	33.64	8.2	24.1	1.02
C7	04 Dec 2015	8	18.42	87.34	7.4	33.64	8.2	24.1	1.05
C7	04 Dec 2015	9	18.41	86.57	7.4	33.64	8.2	24.1	1.16
C7	04 Dec 2015	10	18.40	86.32	7.5	33.64	8.2	24.1	1.09
C7	04 Dec 2015	11	18.37	86.48	7.4	33.64	8.2	24.1	1.08
C7	04 Dec 2015	12	18.34	85.22	7.5	33.64	8.2	24.1	1.10
C7	04 Dec 2015	13	18.31	84.43	7.4	33.64	8.2	24.2	1.01
C7	04 Dec 2015	14	18.26	81.97	7.3	33.64	8.2	24.2	0.91
C7	04 Dec 2015	15	18.24	79.89	7.3	33.64	8.2	24.2	0.83
C7	04 Dec 2015	16	18.23	75.13	7.2	33.64	8.2	24.2	0.77
C7	04 Dec 2015	17	18.22	73.83	7.2	33.64	8.2	24.2	0.75
C7	04 Dec 2015	18	18.22	69.65	7.2	33.64	8.2	24.2	0.75
C7	09 Dec 2015	1	18.76	89.04	7.2	33.70	8.2	24.1	0.41
C7	09 Dec 2015	2	18.75	93.20	7.2	33.70	8.2	24.1	0.48
C7	09 Dec 2015	3	18.75	94.08	7.1	33.70	8.2	24.1	0.50
C7	09 Dec 2015	4	18.75	93.85	7.1	33.70	8.2	24.1	0.53
C7	09 Dec 2015	5	18.75	94.05	7.2	33.70	8.2	24.1	0.57
C7	09 Dec 2015	6	18.75	94.12	7.2	33.70	8.2	24.1	0.56

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
C7	09 Dec 2015	7	18.75	94.17	7.2	33.70	8.2	24.1	0.61
C7	09 Dec 2015	8	18.74	94.16	7.1	33.70	8.2	24.1	0.60
C7	09 Dec 2015	9	18.73	94.01	7.1	33.70	8.2	24.1	0.65
C7	09 Dec 2015	10	18.72	93.94	7.1	33.70	8.2	24.1	0.67
C7	09 Dec 2015	11	18.70	93.77	7.0	33.70	8.2	24.1	0.72
C7	09 Dec 2015	12	18.62	93.56	7.0	33.69	8.2	24.1	0.84
C7	09 Dec 2015	13	18.53	92.44	7.0	33.69	8.2	24.1	0.83
C7	09 Dec 2015	14	18.48	89.74	6.9	33.69	8.2	24.1	0.82
C7	09 Dec 2015	15	18.46	86.62	6.8	33.68	8.2	24.1	0.73
C7	09 Dec 2015	16	18.45	84.30	6.8	33.68	8.2	24.2	0.69
C7	09 Dec 2015	17	18.45	80.67	6.7	33.68	8.2	24.2	0.68
C7	09 Dec 2015	18	18.45	77.85	6.7	33.68	8.2	24.2	0.66
C7	15 Dec 2015	1	17.76	86.22	7.1	33.68	8.2	24.3	0.96
C7	15 Dec 2015	2	17.77	87.51	7.1	33.68	8.2	24.3	1.03
C7	15 Dec 2015	3	17.77	87.86	7.1	33.68	8.2	24.3	1.09
C7	15 Dec 2015	4	17.76	88.15	7.1	33.68	8.2	24.3	1.24
C7	15 Dec 2015	5	17.77	88.09	7.1	33.68	8.2	24.3	1.36
C7	15 Dec 2015	6	17.77	88.01	7.1	33.68	8.2	24.3	1.42
C7	15 Dec 2015	7	17.77	88.07	7.1	33.68	8.2	24.3	1.44
C7	15 Dec 2015	8	17.77	88.08	7.1	33.68	8.2	24.3	1.50
C7	15 Dec 2015	9	17.77	88.08	7.1	33.68	8.2	24.3	1.53
C7	15 Dec 2015	10	17.77	88.05	7.0	33.68	8.2	24.3	1.53
C7	15 Dec 2015	11	17.73	87.99	7.0	33.68	8.2	24.3	1.54
C7	15 Dec 2015	12	17.68	87.81	7.0	33.67	8.2	24.3	1.50
C7	15 Dec 2015	13	17.64	87.46	7.0	33.67	8.2	24.3	1.44
C7	15 Dec 2015	14	17.59	87.13	6.9	33.66	8.2	24.3	1.35
C7	15 Dec 2015	15	17.54	86.86	6.9	33.66	8.2	24.4	1.31
C7	15 Dec 2015	16	17.53	86.76	6.8	33.66	8.2	24.4	1.23
C7	15 Dec 2015	17	17.45	86.64	6.7	33.66	8.2	24.4	1.08
C7	15 Dec 2015	18	17.43	86.00	6.7	33.66	8.2	24.4	0.98
C7	17 Dec 2015	1	17.04	87.67	6.8	33.68	8.1	24.5	1.19
C7	17 Dec 2015	2	17.04	87.34	6.8	33.68	8.1	24.5	1.25
C7	17 Dec 2015	3	17.04	87.19	6.8	33.68	8.1	24.5	1.40
C7	17 Dec 2015	4	17.04	87.99	6.9	33.68	8.1	24.5	1.55
C7	17 Dec 2015	5	17.04	87.89	6.9	33.68	8.1	24.5	1.67
C7	17 Dec 2015	6	17.04	87.88	6.9	33.68	8.1	24.5	1.81
C7	17 Dec 2015	7	17.03	87.68	6.9	33.68	8.1	24.5	1.86
C7	17 Dec 2015	8	17.03	87.73	6.9	33.68	8.1	24.5	1.89
C7	17 Dec 2015	9	17.03	87.71	6.9	33.68	8.1	24.5	1.92
C7	17 Dec 2015	10	17.03	87.27	6.9	33.68	8.1	24.5	1.91
C7	17 Dec 2015	11	17.03	87.47	6.9	33.68	8.1	24.5	1.90
C7	17 Dec 2015	12	17.03	87.88	6.9	33.68	8.1	24.5	1.81
C7	17 Dec 2015	13	17.02	87.90	6.8	33.68	8.1	24.5	1.68
C7	17 Dec 2015	14	16.99	87.97	6.7	33.67	8.1	24.5	1.26
C7	17 Dec 2015	15	16.88	88.26	6.3	33.66	8.1	24.5	0.95
C7	17 Dec 2015	16	16.77	88.71	6.1	33.65	8.0	24.5	0.79
C7	17 Dec 2015	17	16.77	89.30	6.0	33.65	8.0	24.5	0.76
C7	17 Dec 2015	18	16.76	89.17	6.0	33.65	8.0	24.5	0.75
C7	21 Dec 2015	1	17.21	91.83	7.3	33.67	8.1	24.4	0.90
C7	21 Dec 2015	2	17.22	91.78	7.3	33.67	8.1	24.4	0.92
C7	21 Dec 2015	3	17.21	91.83	7.2	33.67	8.1	24.4	0.93
C7	21 Dec 2015	4	17.21	91.86	7.2	33.67	8.1	24.4	0.98

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
C7	21 Dec 2015	5	17.21	91.91	7.2	33.67	8.1	24.4	1.02
C7	21 Dec 2015	6	17.22	92.01	7.2	33.67	8.1	24.4	1.12
C7	21 Dec 2015	7	17.22	91.89	7.2	33.67	8.1	24.4	1.15
C7	21 Dec 2015	8	17.22	91.87	7.1	33.67	8.1	24.4	1.29
C7	21 Dec 2015	9	17.22	91.90	6.8	33.67	8.1	24.4	1.34
C7	21 Dec 2015	10	17.21	91.81	6.2	33.67	8.1	24.4	1.26
C7	21 Dec 2015	11	17.21	91.78	5.9	33.67	8.1	24.4	1.12
C7	21 Dec 2015	12	17.21	91.76	6.8	33.66	8.1	24.4	1.15
C7	21 Dec 2015	13	17.20	91.69	7.2	33.66	8.1	24.4	1.14
C7	21 Dec 2015	14	17.18	91.67	7.2	33.67	8.1	24.4	1.11
C7	21 Dec 2015	15	17.16	91.64	7.2	33.66	8.1	24.5	1.07
C7	21 Dec 2015	16	17.08	91.44	7.1	33.66	8.1	24.5	0.92
C7	21 Dec 2015	17	16.98	91.25	7.1	33.66	8.1	24.5	0.73
C7	21 Dec 2015	18	16.94	90.58	7.1	33.67	8.1	24.5	0.64
C8	04 Dec 2015	1	18.32	85.57	7.3	33.64	8.2	24.1	0.69
C8	04 Dec 2015	2	18.32	85.79	7.3	33.64	8.2	24.1	0.75
C8	04 Dec 2015	3	18.32	85.20	7.3	33.64	8.2	24.1	0.77
C8	04 Dec 2015	4	18.32	85.31	7.3	33.64	8.2	24.1	0.79
C8	04 Dec 2015	5	18.32	85.14	7.3	33.64	8.2	24.1	0.81
C8	04 Dec 2015	6	18.32	85.30	7.3	33.64	8.2	24.1	0.85
C8	04 Dec 2015	7	18.32	85.26	7.3	33.64	8.2	24.1	0.90
C8	04 Dec 2015	8	18.31	84.85	7.3	33.64	8.2	24.2	0.95
C8	04 Dec 2015	9	18.31	84.57	7.3	33.64	8.2	24.2	0.95
C8	04 Dec 2015	10	18.30	83.89	7.3	33.64	8.2	24.2	0.98
C8	04 Dec 2015	11	18.31	84.09	7.3	33.64	8.2	24.2	0.97
C8	04 Dec 2015	12	18.31	84.16	7.3	33.64	8.2	24.2	0.99
C8	04 Dec 2015	13	18.30	83.97	7.3	33.64	8.2	24.2	1.00
C8	04 Dec 2015	14	18.28	83.72	7.2	33.63	8.2	24.2	1.02
C8	04 Dec 2015	15	18.26	82.74	7.2	33.63	8.2	24.2	1.03
C8	04 Dec 2015	16	18.21	82.12	7.2	33.62	8.2	24.2	1.05
C8	04 Dec 2015	17	18.07	80.63	7.0	33.60	8.2	24.2	1.05
C8	04 Dec 2015	18	17.90	77.65	6.8	33.60	8.1	24.2	1.05
C8	04 Dec 2015	19	17.88	73.76	6.8	33.59	8.1	24.2	1.07
C8	09 Dec 2015	1	18.67	93.79	7.1	33.70	8.2	24.1	0.39
C8	09 Dec 2015	2	18.66	93.85	7.1	33.70	8.2	24.1	0.41
C8	09 Dec 2015	3	18.64	93.88	7.1	33.70	8.2	24.1	0.41
C8	09 Dec 2015	4	18.64	93.91	7.1	33.70	8.2	24.1	0.43
C8	09 Dec 2015	5	18.63	93.87	7.0	33.70	8.2	24.1	0.49
C8	09 Dec 2015	6	18.62	93.80	7.1	33.70	8.2	24.1	0.53
C8	09 Dec 2015	7	18.58	93.78	7.0	33.69	8.2	24.1	0.57
C8	09 Dec 2015	8	18.56	93.46	7.1	33.69	8.2	24.1	0.62
C8	09 Dec 2015	9	18.56	92.99	7.1	33.69	8.2	24.1	0.66
C8	09 Dec 2015	10	18.52	92.67	7.0	33.69	8.2	24.1	0.71
C8	09 Dec 2015	11	18.49	92.30	7.0	33.69	8.2	24.1	0.82
C8	09 Dec 2015	12	18.47	91.45	7.0	33.69	8.2	24.1	0.87
C8	09 Dec 2015	13	18.47	91.45	7.0	33.69	8.2	24.2	0.90
C8	09 Dec 2015	14	18.46	91.18	7.0	33.69	8.2	24.2	1.02
C8	09 Dec 2015	15	18.45	90.94	7.0	33.69	8.2	24.2	0.98
C8	09 Dec 2015	16	18.42	90.65	6.8	33.68	8.2	24.2	0.99
C8	09 Dec 2015	17	18.35	89.92	6.7	33.67	8.2	24.2	0.98
C8	09 Dec 2015	18	18.29	82.93	6.7	33.67	8.2	24.2	1.03
C8	09 Dec 2015	19	18.25	70.88	6.6	33.66	8.2	24.2	1.27

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g/L}$)
C8	15 Dec 2015	1	17.75	85.17	7.0	33.68	8.2	24.3	0.93
C8	15 Dec 2015	2	17.75	86.17	7.0	33.68	8.2	24.3	0.97
C8	15 Dec 2015	3	17.74	86.56	7.0	33.68	8.2	24.3	1.10
C8	15 Dec 2015	4	17.73	86.12	7.0	33.68	8.2	24.3	1.18
C8	15 Dec 2015	5	17.73	87.38	7.0	33.68	8.2	24.3	1.24
C8	15 Dec 2015	6	17.73	87.42	7.0	33.68	8.2	24.3	1.32
C8	15 Dec 2015	7	17.73	87.40	7.0	33.68	8.2	24.3	1.36
C8	15 Dec 2015	8	17.71	87.37	7.0	33.68	8.2	24.3	1.42
C8	15 Dec 2015	9	17.71	87.31	7.0	33.68	8.2	24.3	1.45
C8	15 Dec 2015	10	17.73	87.25	7.0	33.68	8.2	24.3	1.46
C8	15 Dec 2015	11	17.70	87.22	7.0	33.67	8.2	24.3	1.47
C8	15 Dec 2015	12	17.67	87.20	7.0	33.67	8.2	24.3	1.49
C8	15 Dec 2015	13	17.65	87.07	7.0	33.67	8.2	24.3	1.50
C8	15 Dec 2015	14	17.63	86.99	6.9	33.67	8.2	24.3	1.47
C8	15 Dec 2015	15	17.57	86.92	6.8	33.66	8.2	24.4	1.38
C8	15 Dec 2015	16	17.47	86.80	6.5	33.64	8.2	24.4	1.21
C8	15 Dec 2015	17	17.27	86.24	6.4	33.64	8.2	24.4	1.04
C8	15 Dec 2015	18	17.25	84.53	6.2	33.63	8.2	24.4	0.95
C8	15 Dec 2015	19	17.18	79.41	6.2	33.63	8.2	24.4	0.91
C8	15 Dec 2015	20	17.17	77.19	6.2	33.63	8.2	24.4	0.89
C8	17 Dec 2015	1	17.02	86.93	6.9	33.67	8.1	24.5	0.96
C8	17 Dec 2015	2	17.02	86.64	6.9	33.67	8.1	24.5	1.07
C8	17 Dec 2015	3	17.01	87.07	6.8	33.67	8.1	24.5	1.17
C8	17 Dec 2015	4	17.00	86.82	6.8	33.67	8.1	24.5	1.32
C8	17 Dec 2015	5	17.00	86.80	6.9	33.67	8.1	24.5	1.50
C8	17 Dec 2015	6	17.00	86.85	6.9	33.67	8.1	24.5	1.61
C8	17 Dec 2015	7	17.00	86.86	6.9	33.67	8.1	24.5	1.67
C8	17 Dec 2015	8	17.00	86.84	6.9	33.67	8.1	24.5	1.82
C8	17 Dec 2015	9	17.00	86.82	6.9	33.67	8.1	24.5	1.89
C8	17 Dec 2015	10	17.00	86.82	6.9	33.67	8.1	24.5	1.89
C8	17 Dec 2015	11	17.00	86.84	6.9	33.67	8.1	24.5	1.85
C8	17 Dec 2015	12	17.00	86.95	6.9	33.67	8.1	24.5	1.76
C8	17 Dec 2015	13	17.00	86.88	6.9	33.67	8.1	24.5	1.71
C8	17 Dec 2015	14	16.95	87.10	6.8	33.67	8.1	24.5	1.52
C8	17 Dec 2015	15	16.91	87.51	6.7	33.67	8.1	24.5	1.20
C8	17 Dec 2015	16	16.75	87.84	6.4	33.65	8.1	24.5	0.94
C8	17 Dec 2015	17	16.56	88.21	6.0	33.63	8.1	24.6	0.84
C8	17 Dec 2015	18	16.46	88.66	5.9	33.62	8.0	24.6	0.80
C8	21 Dec 2015	1	17.55	92.87	7.2	33.67	8.2	24.4	0.67
C8	21 Dec 2015	2	17.55	92.86	7.2	33.67	8.2	24.4	0.66
C8	21 Dec 2015	3	17.55	92.80	7.2	33.67	8.2	24.4	0.70
C8	21 Dec 2015	4	17.55	92.84	7.2	33.67	8.2	24.4	0.74
C8	21 Dec 2015	5	17.55	92.82	7.2	33.67	8.2	24.4	0.78
C8	21 Dec 2015	6	17.54	92.86	7.2	33.67	8.2	24.4	0.85
C8	21 Dec 2015	7	17.53	92.81	7.3	33.67	8.2	24.4	0.92
C8	21 Dec 2015	8	17.52	92.74	7.2	33.67	8.2	24.4	0.97
C8	21 Dec 2015	9	17.52	92.57	7.2	33.67	8.2	24.4	0.99
C8	21 Dec 2015	10	17.52	92.56	7.2	33.66	8.2	24.4	1.05
C8	21 Dec 2015	11	17.46	92.54	7.2	33.66	8.2	24.4	1.14
C8	21 Dec 2015	12	17.40	92.39	7.3	33.66	8.2	24.4	1.25
C8	21 Dec 2015	13	17.37	92.12	7.2	33.66	8.2	24.4	1.25
C8	21 Dec 2015	14	17.31	91.83	7.3	33.66	8.2	24.4	1.29
C8	21 Dec 2015	15	17.23	91.40	7.3	33.66	8.2	24.4	1.33

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ($\sigma-t$)	Chlor ($\mu\text{g}/\text{L}$)
C8	21 Dec 2015	16	17.19	91.32	7.3	33.66	8.2	24.4	1.34
C8	21 Dec 2015	17	17.11	90.79	7.3	33.66	8.1	24.5	1.27
C8	21 Dec 2015	18	17.07	89.86	7.3	33.66	8.1	24.5	1.20
C8	21 Dec 2015	19	17.06	87.92	7.4	33.66	8.1	24.5	1.17

NA = not available

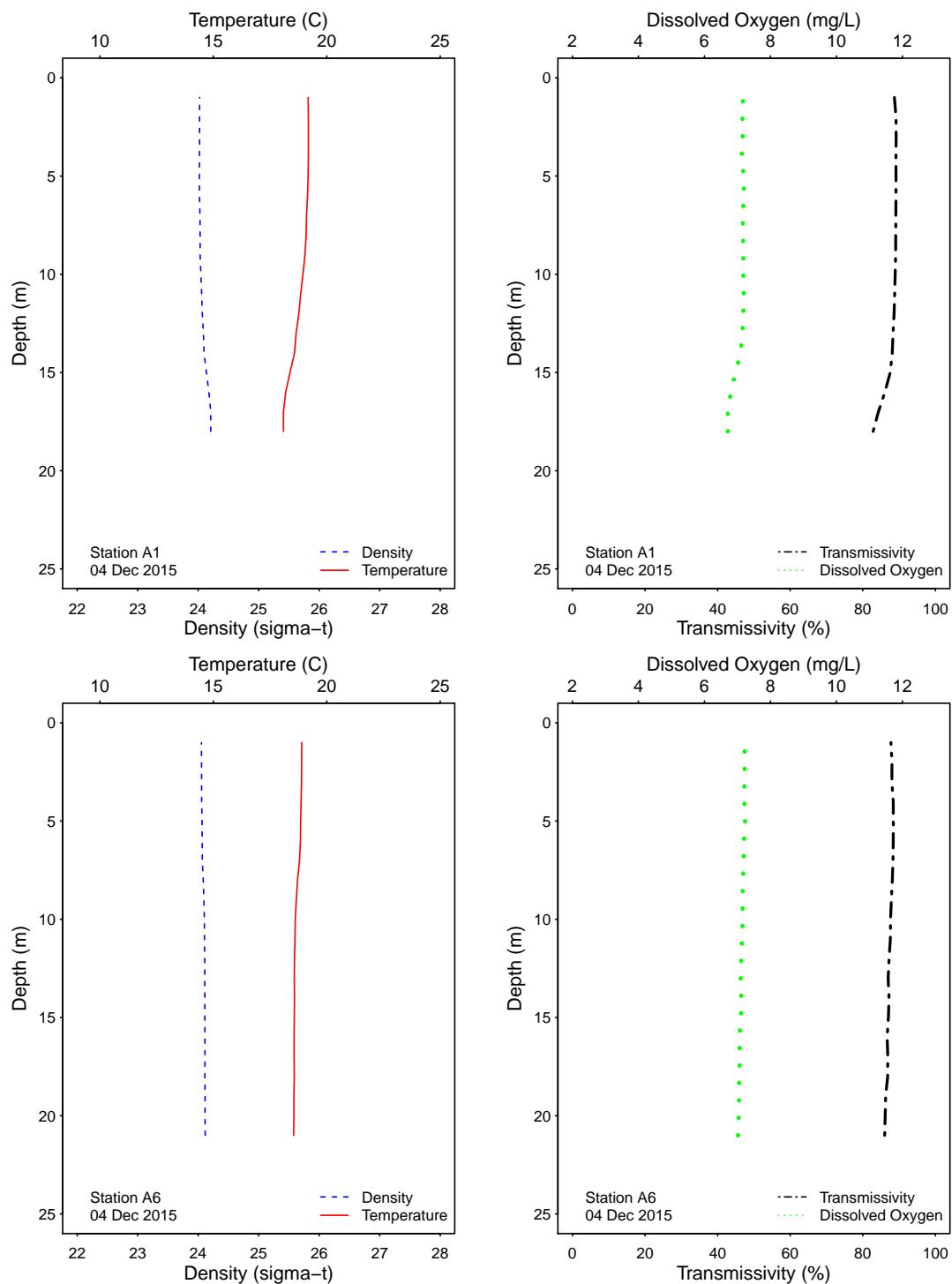


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

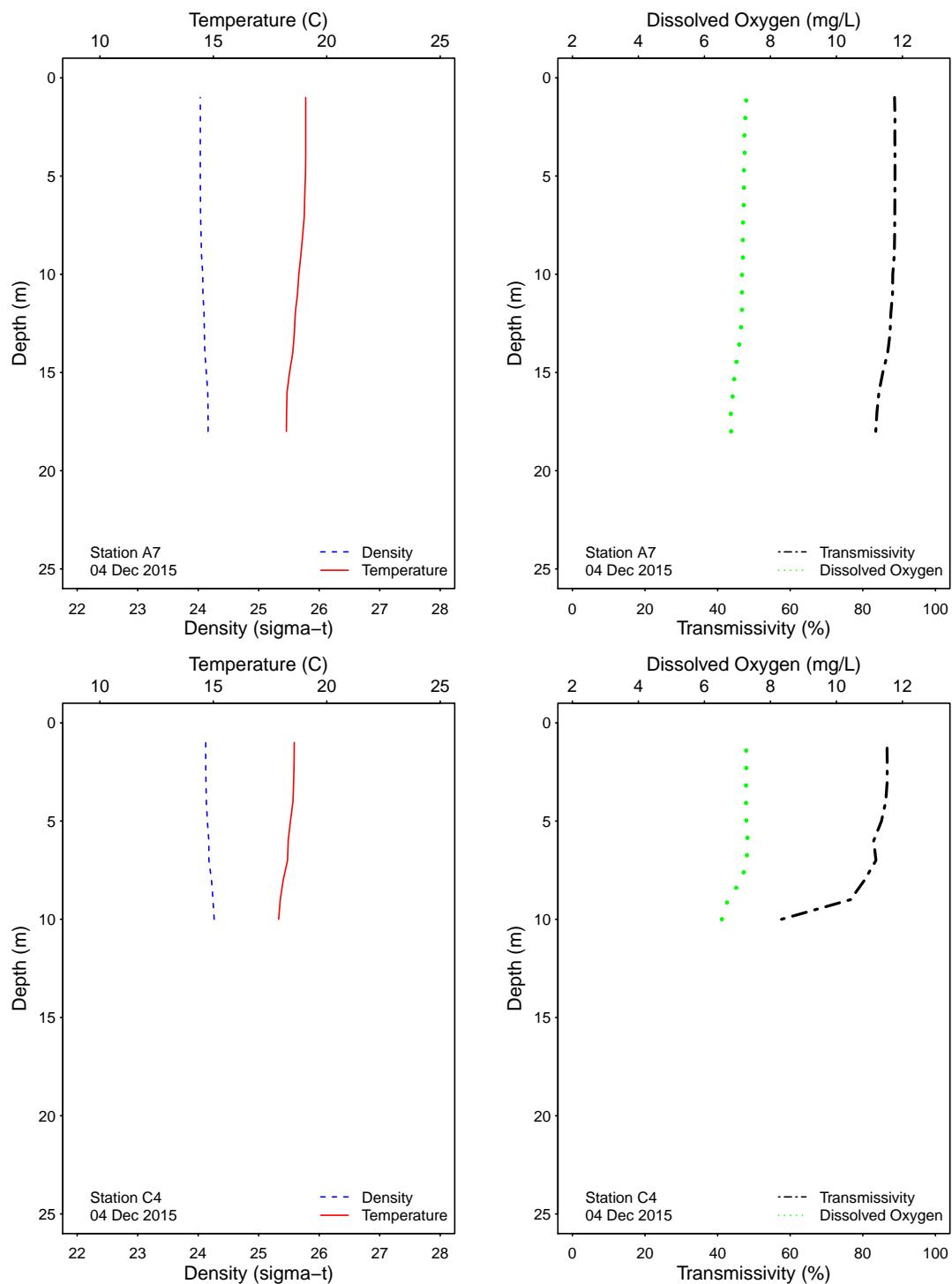


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

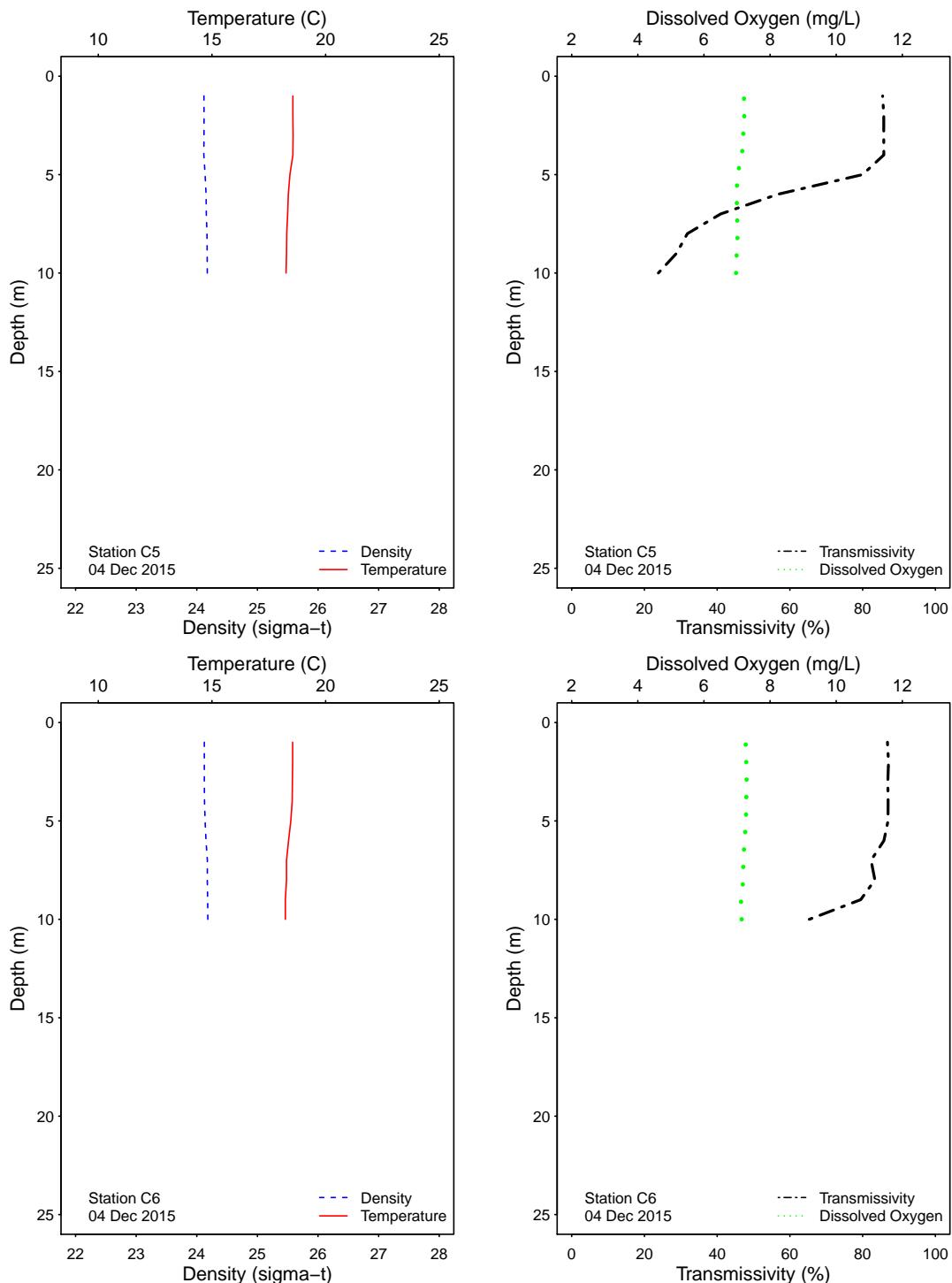


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

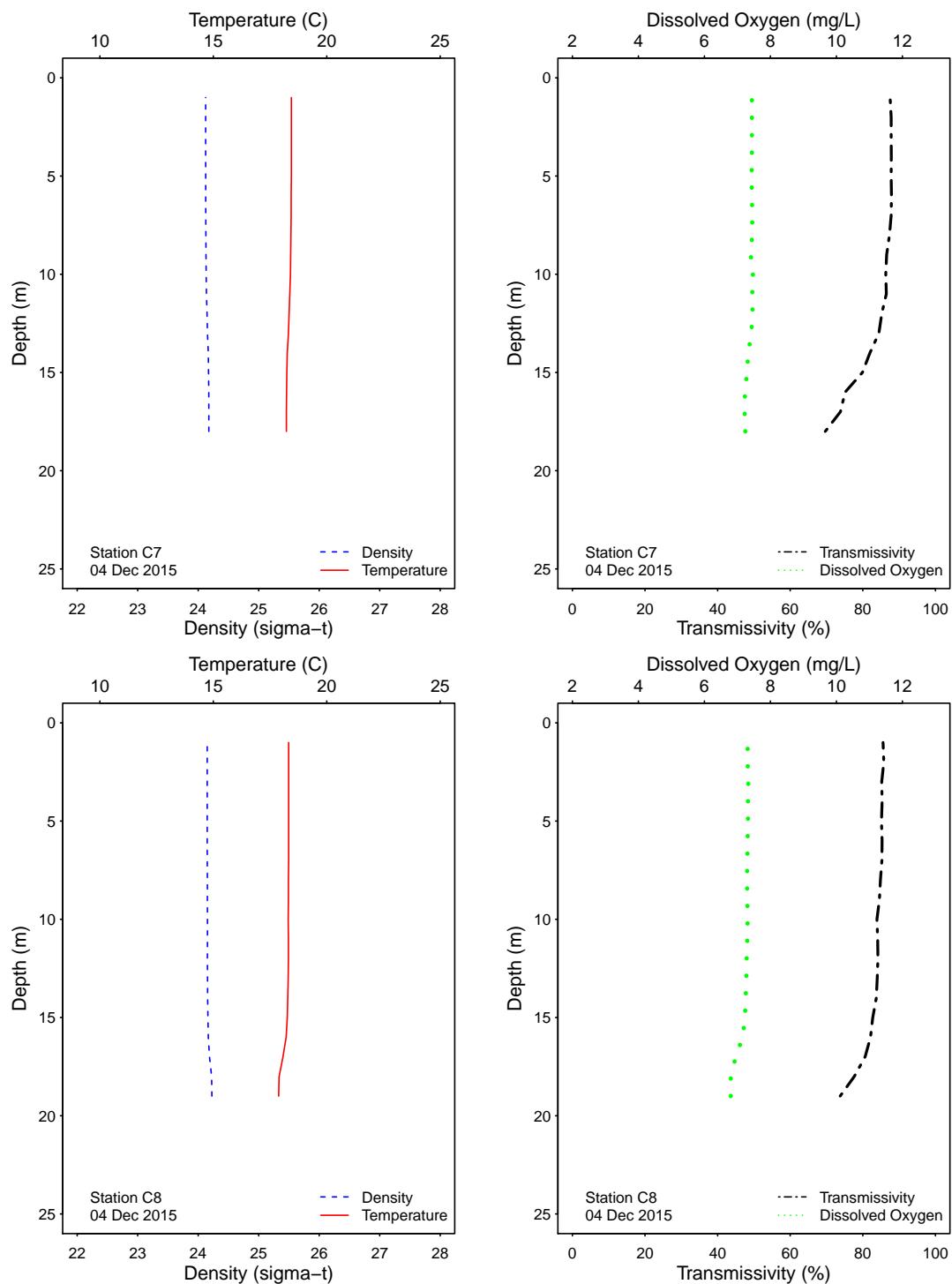


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

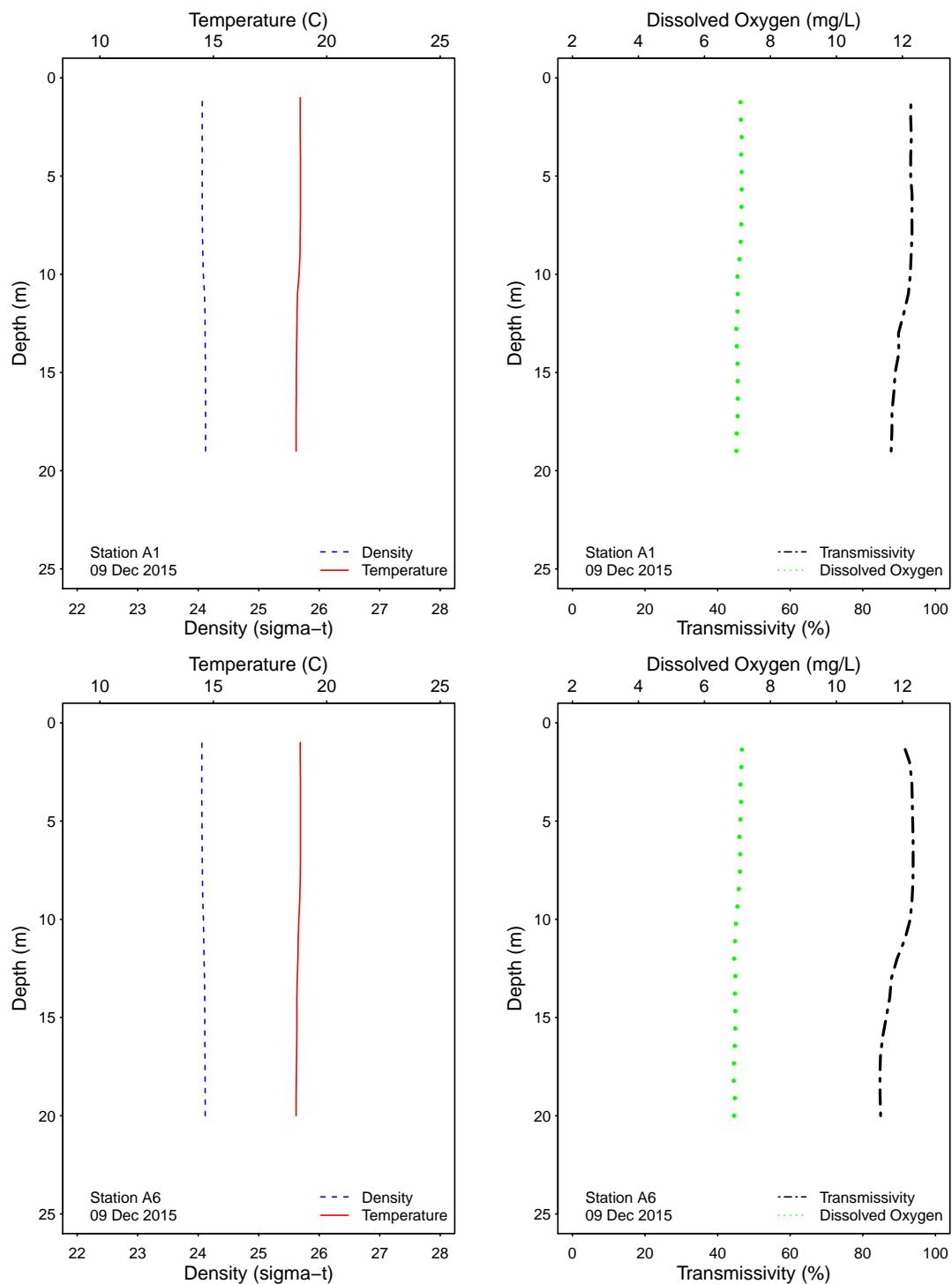


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

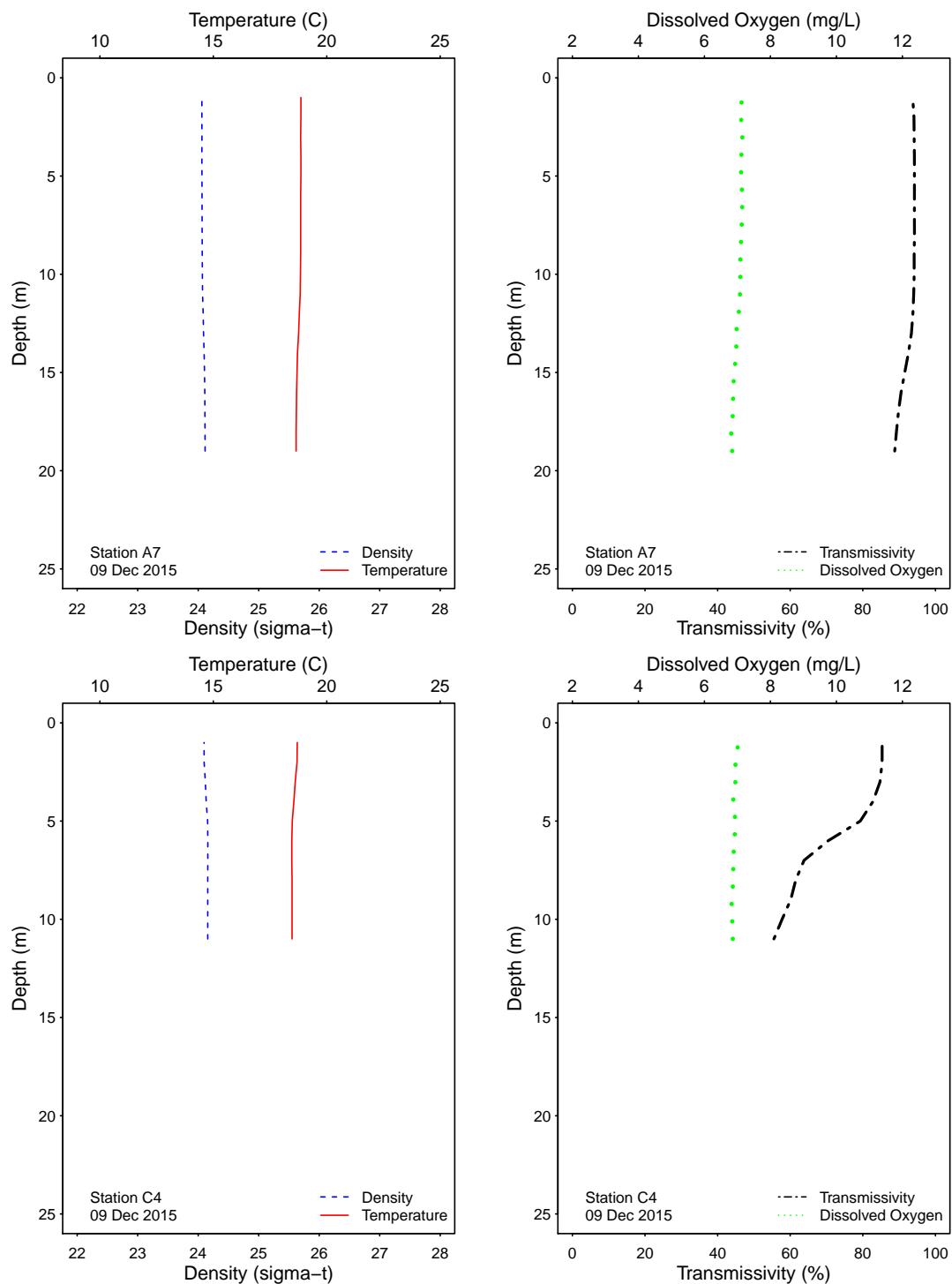


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

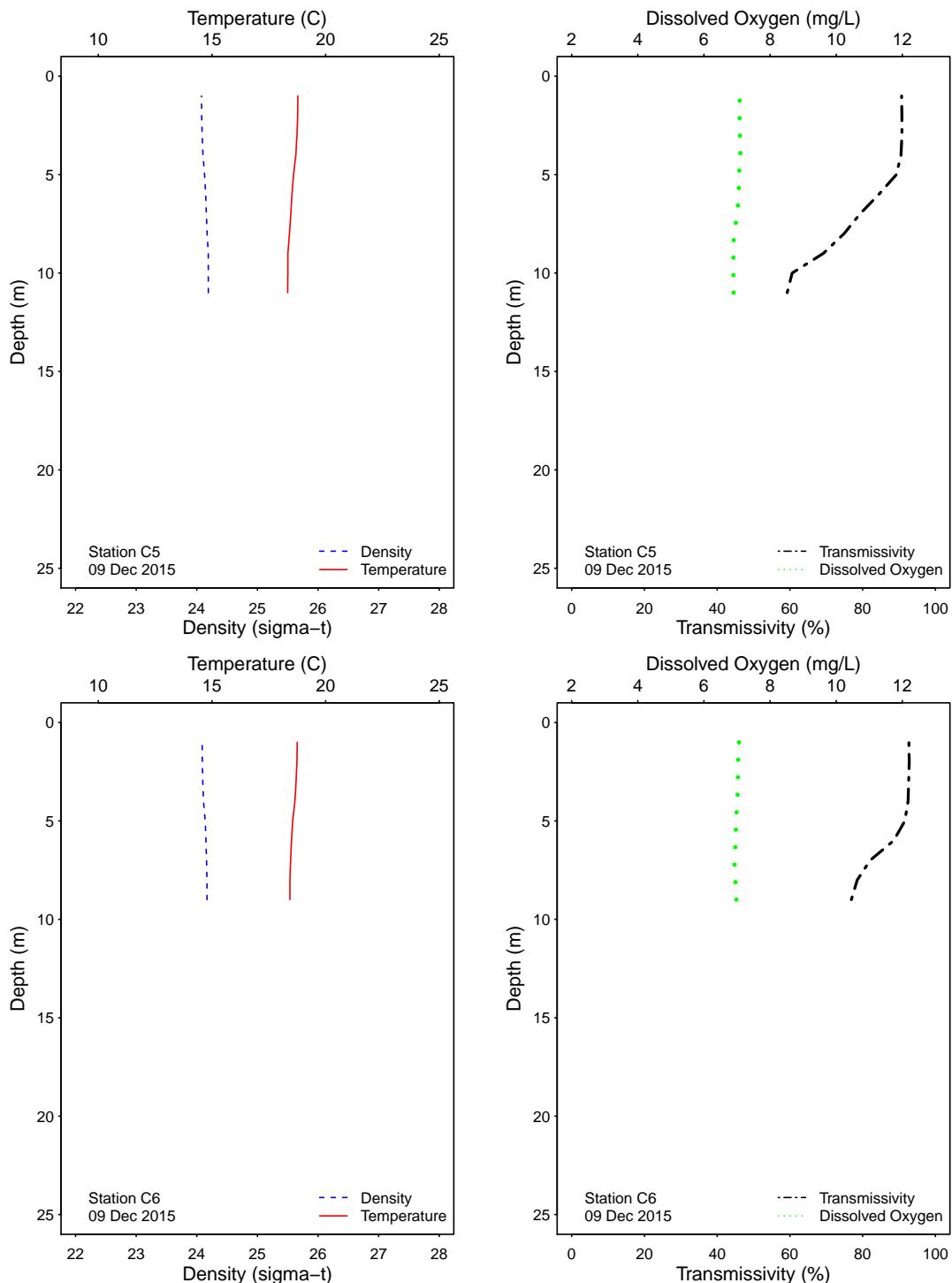


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

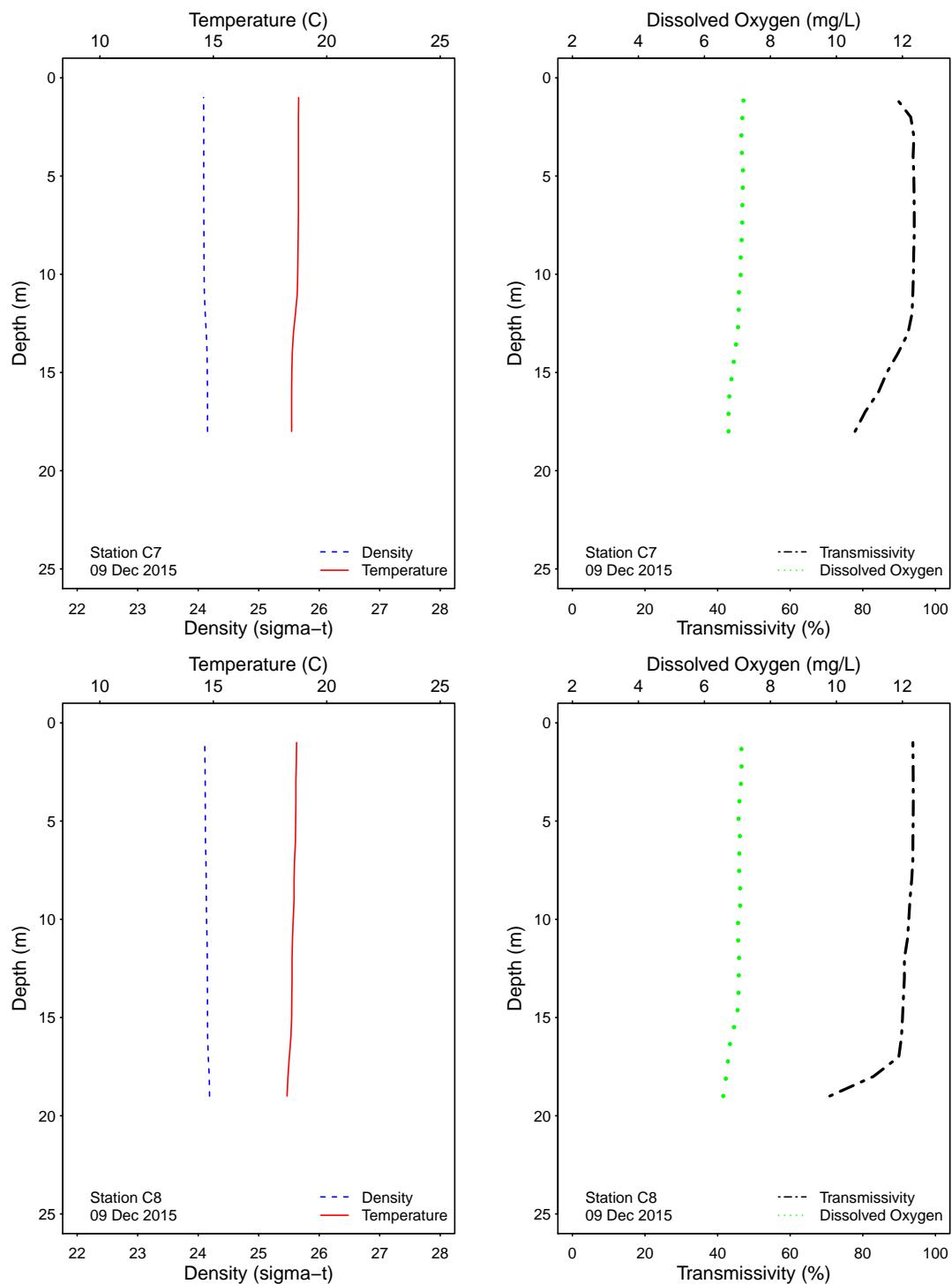


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

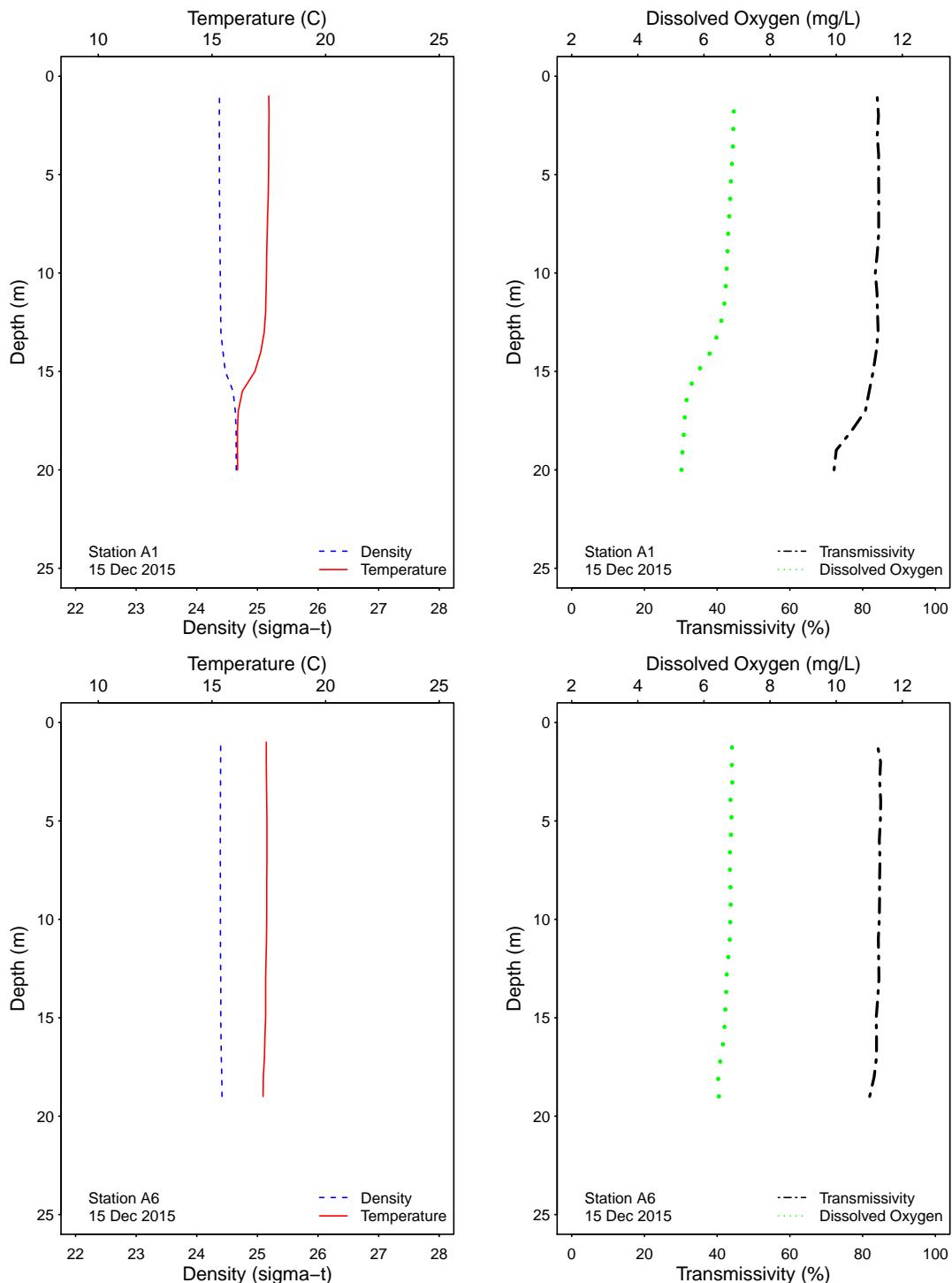


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

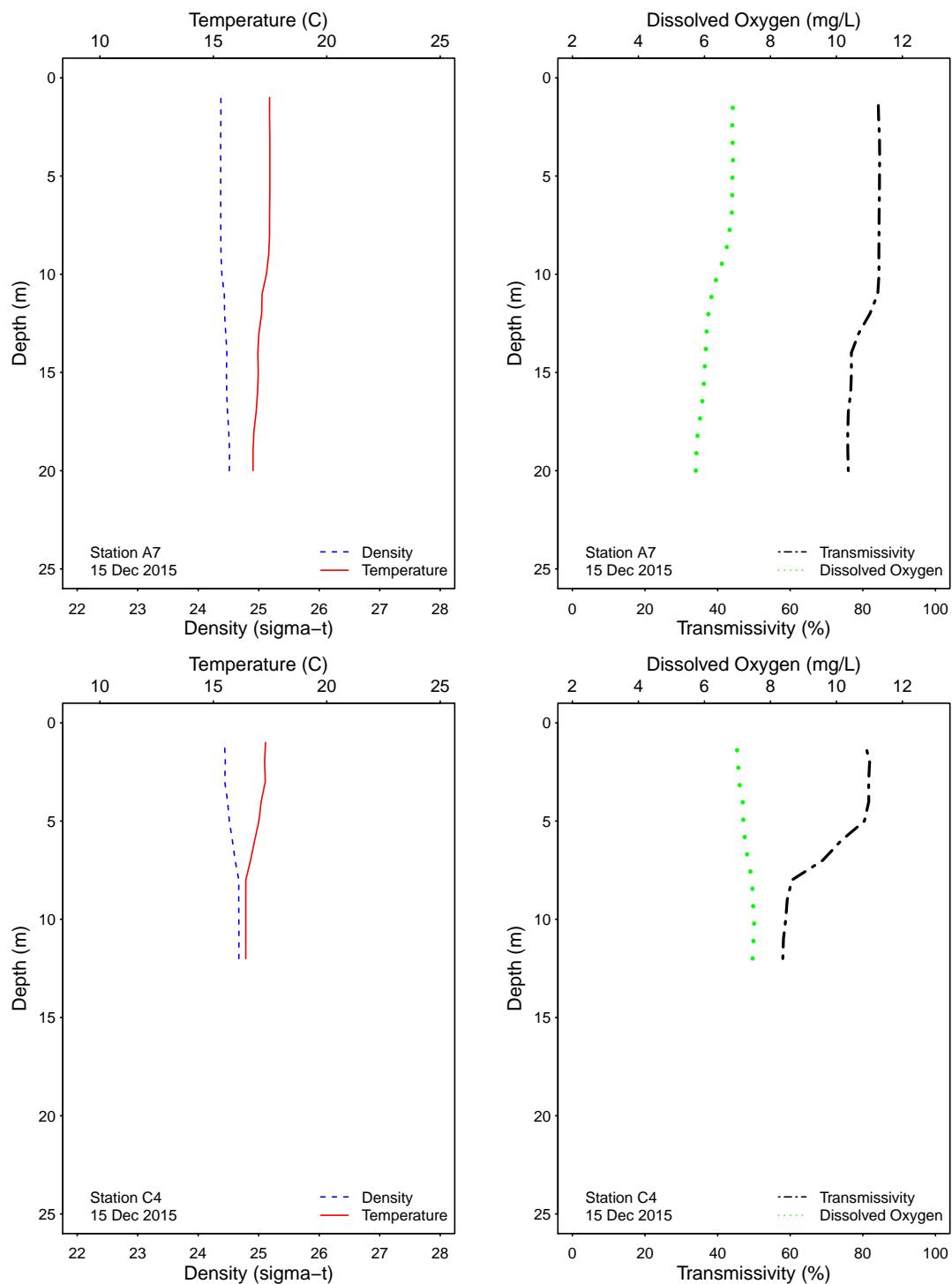


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

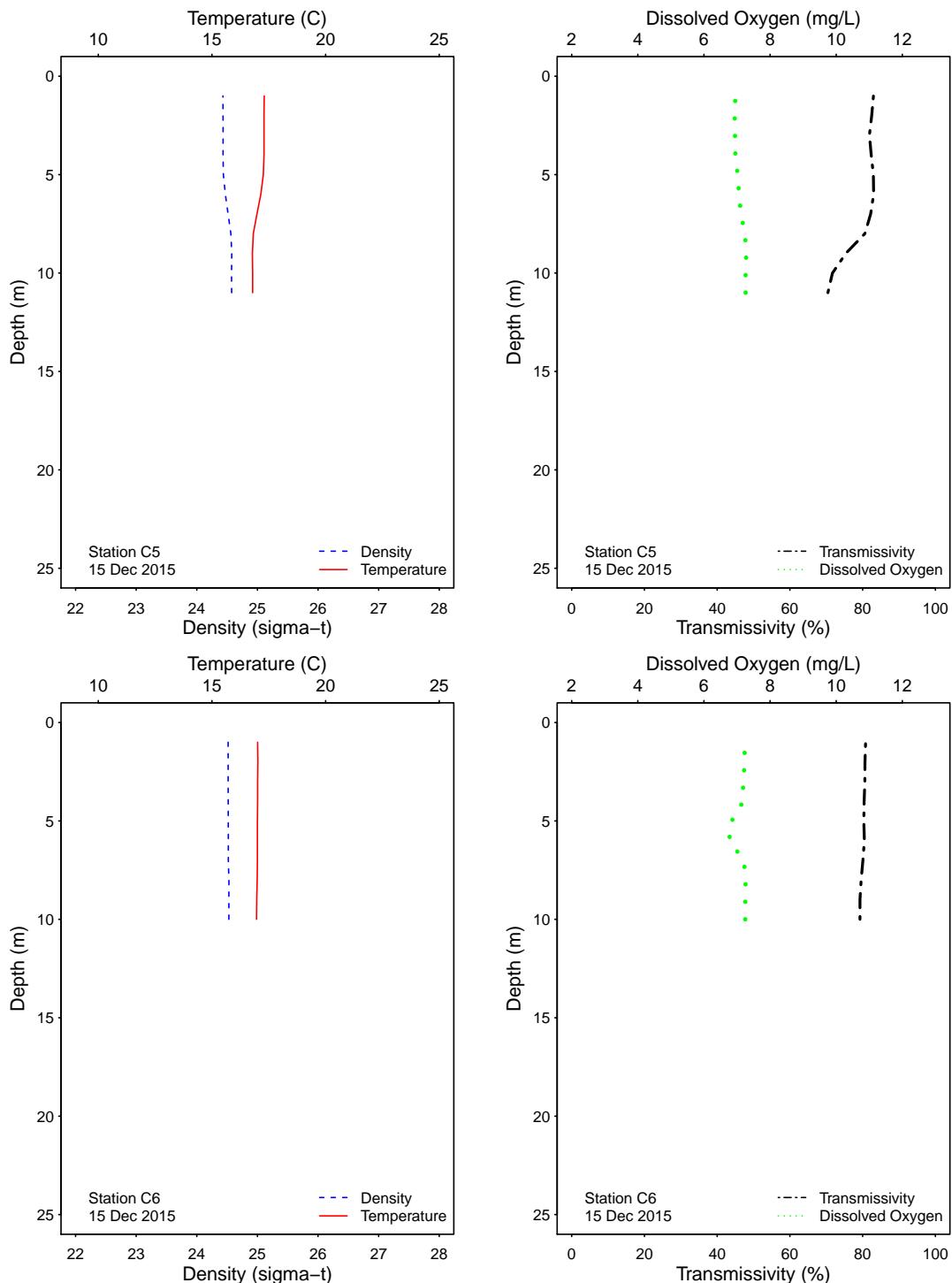


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

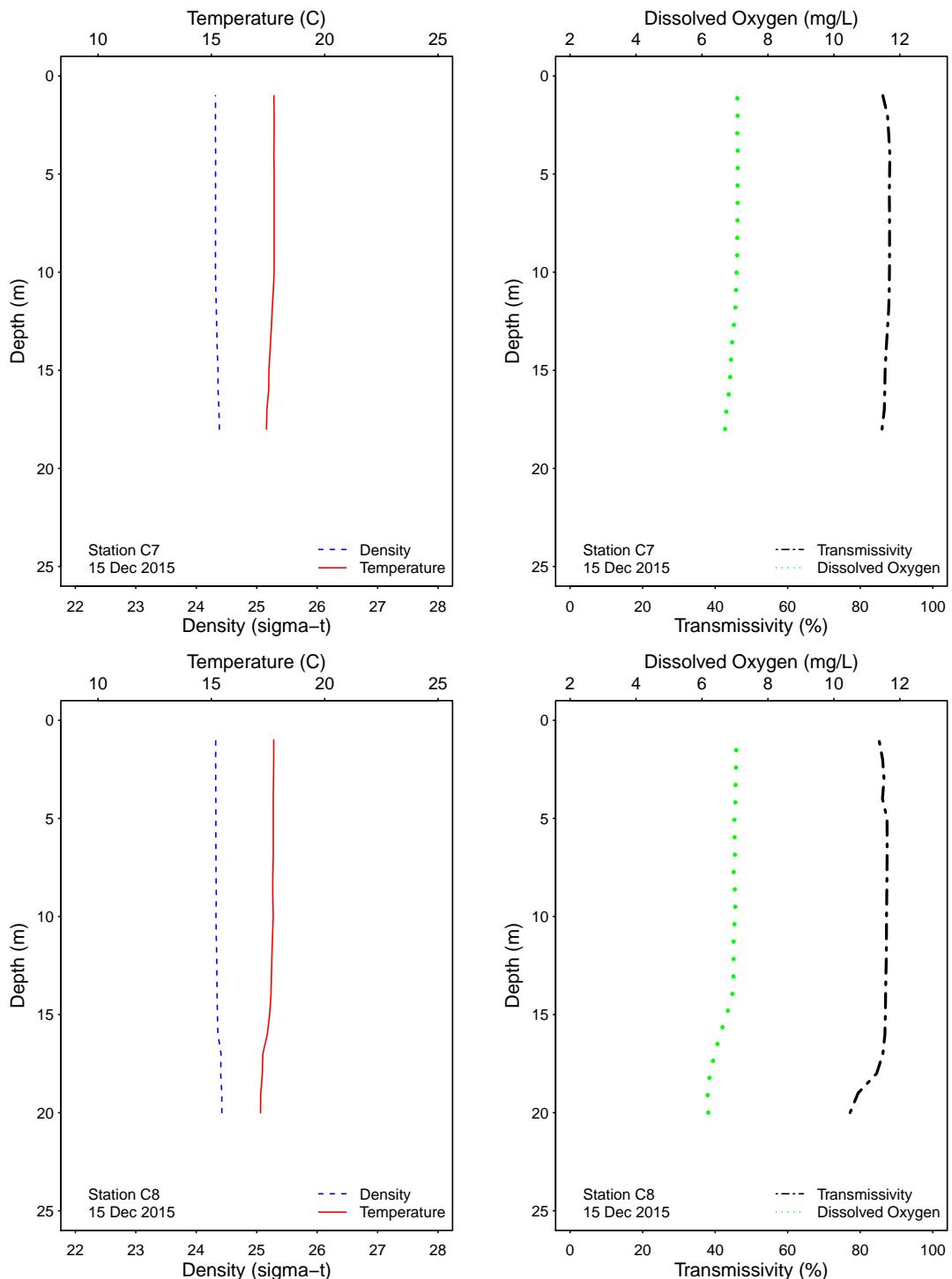


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

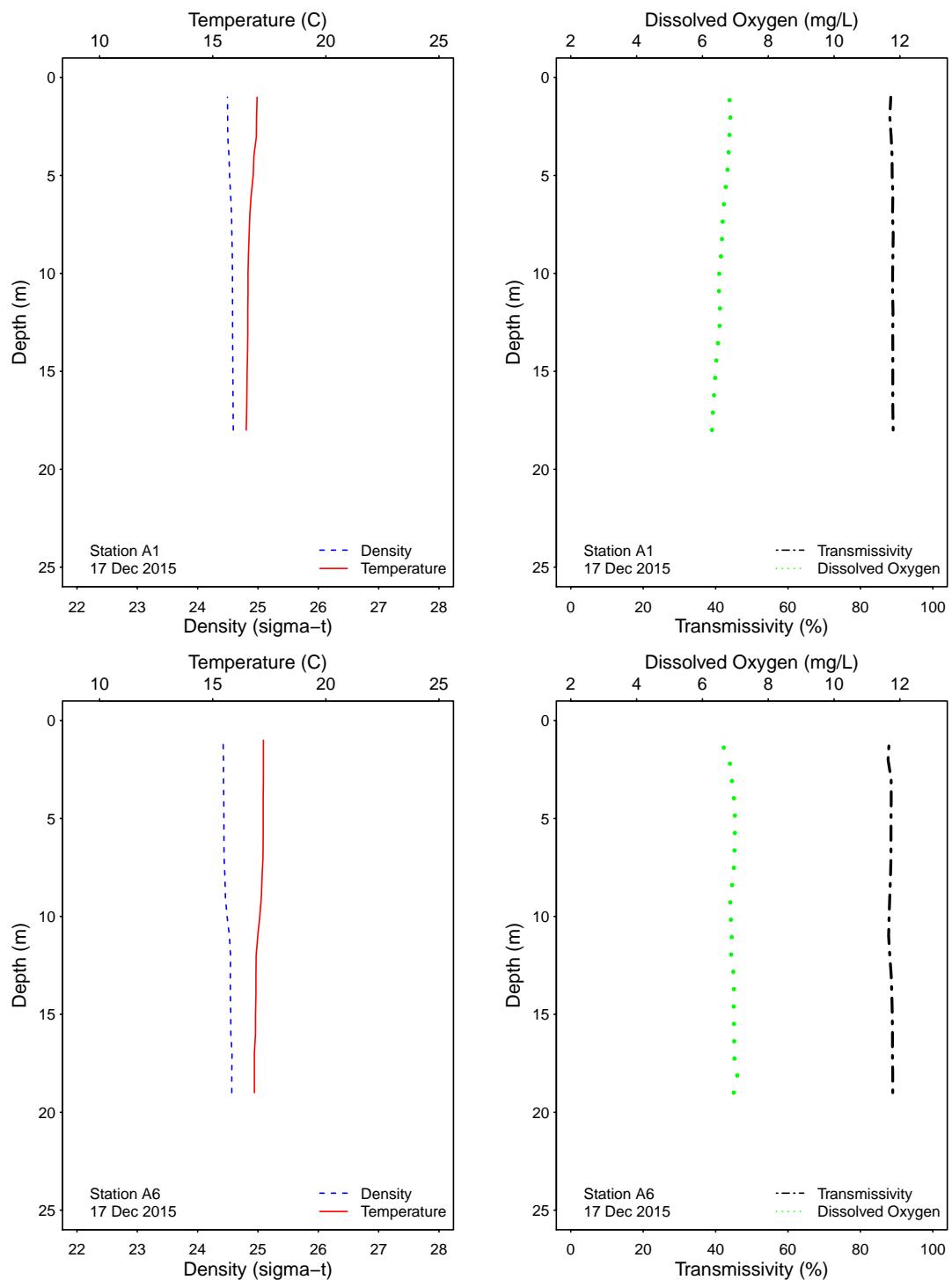


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

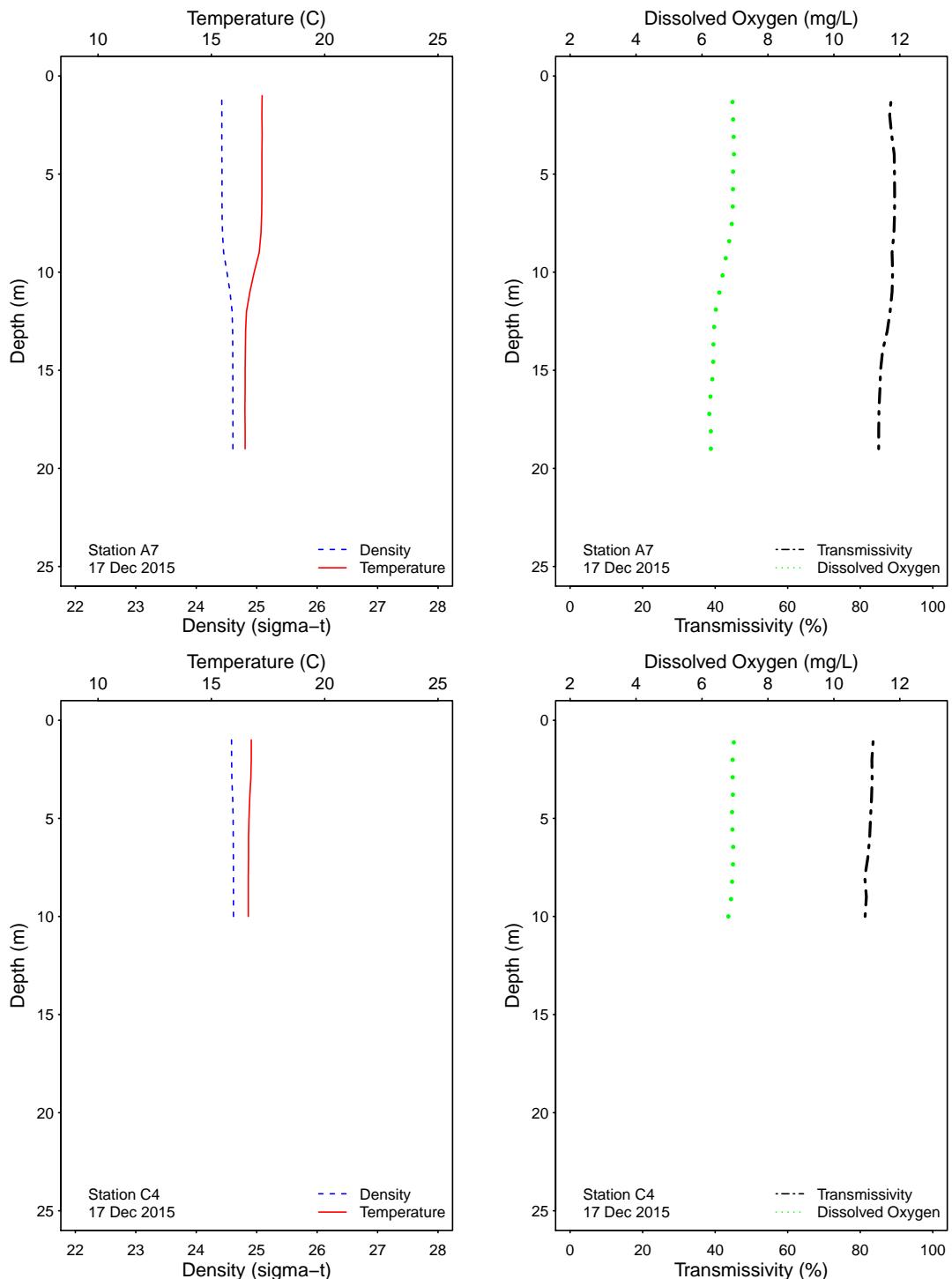


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

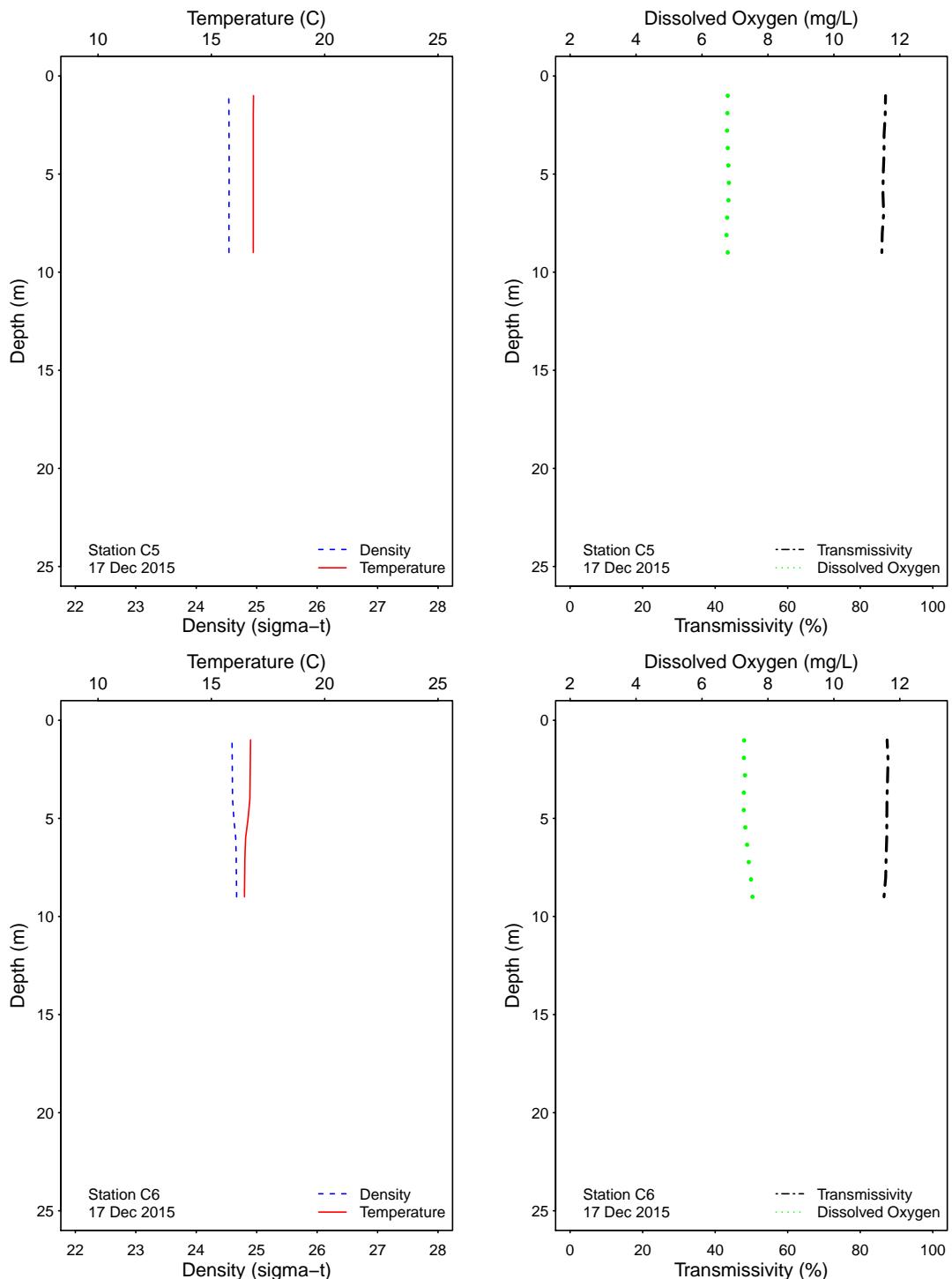


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

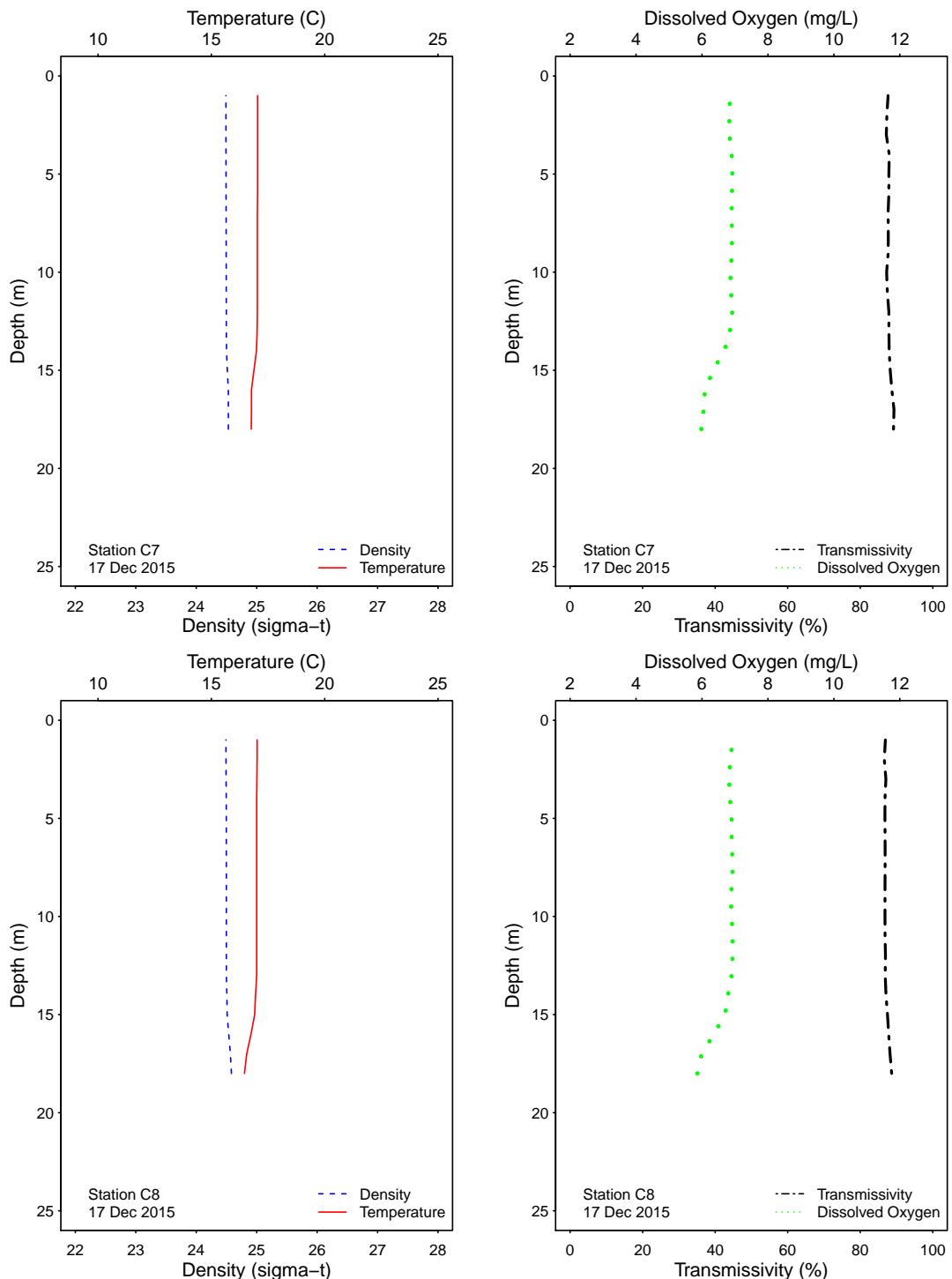


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

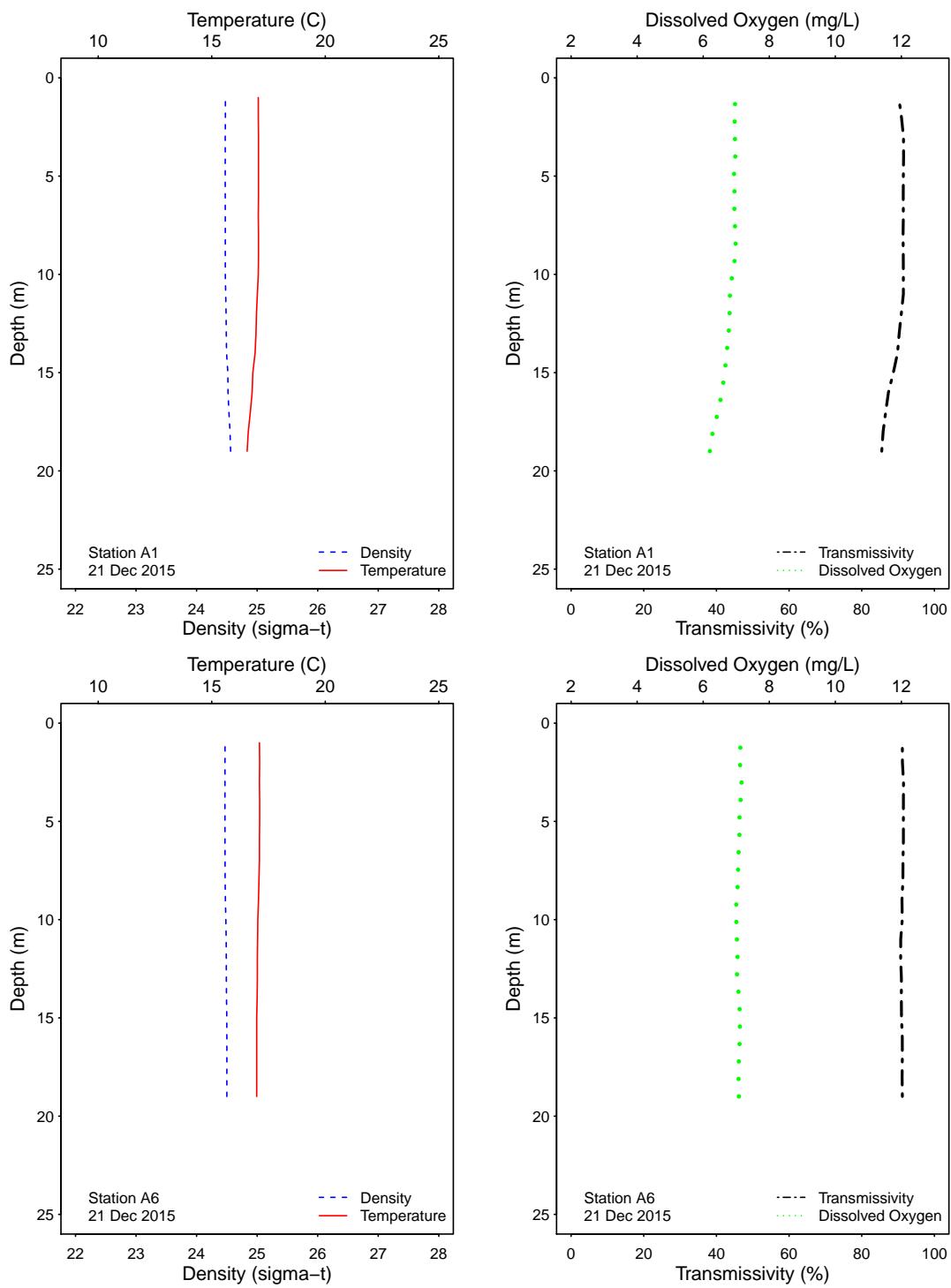


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

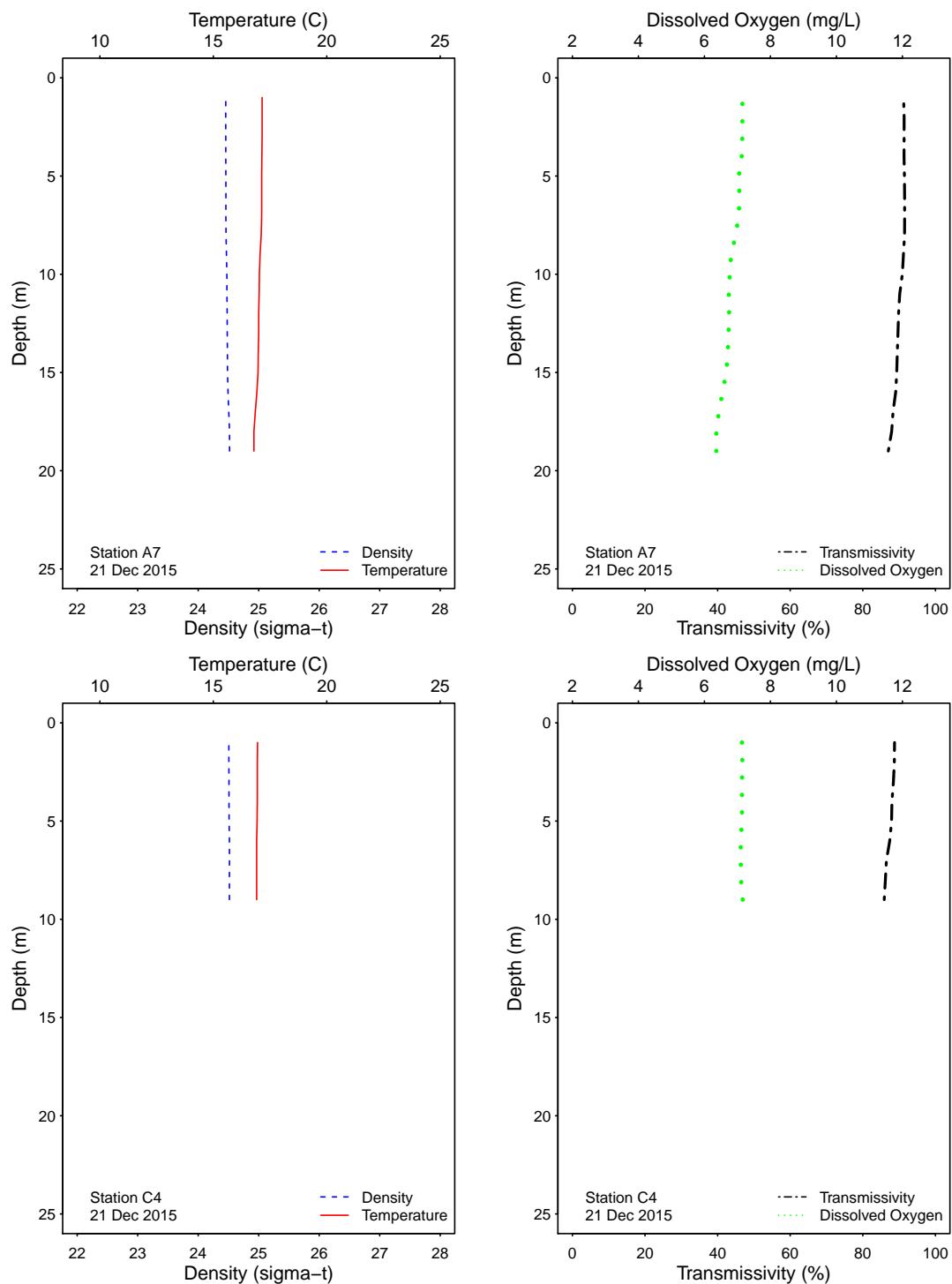


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

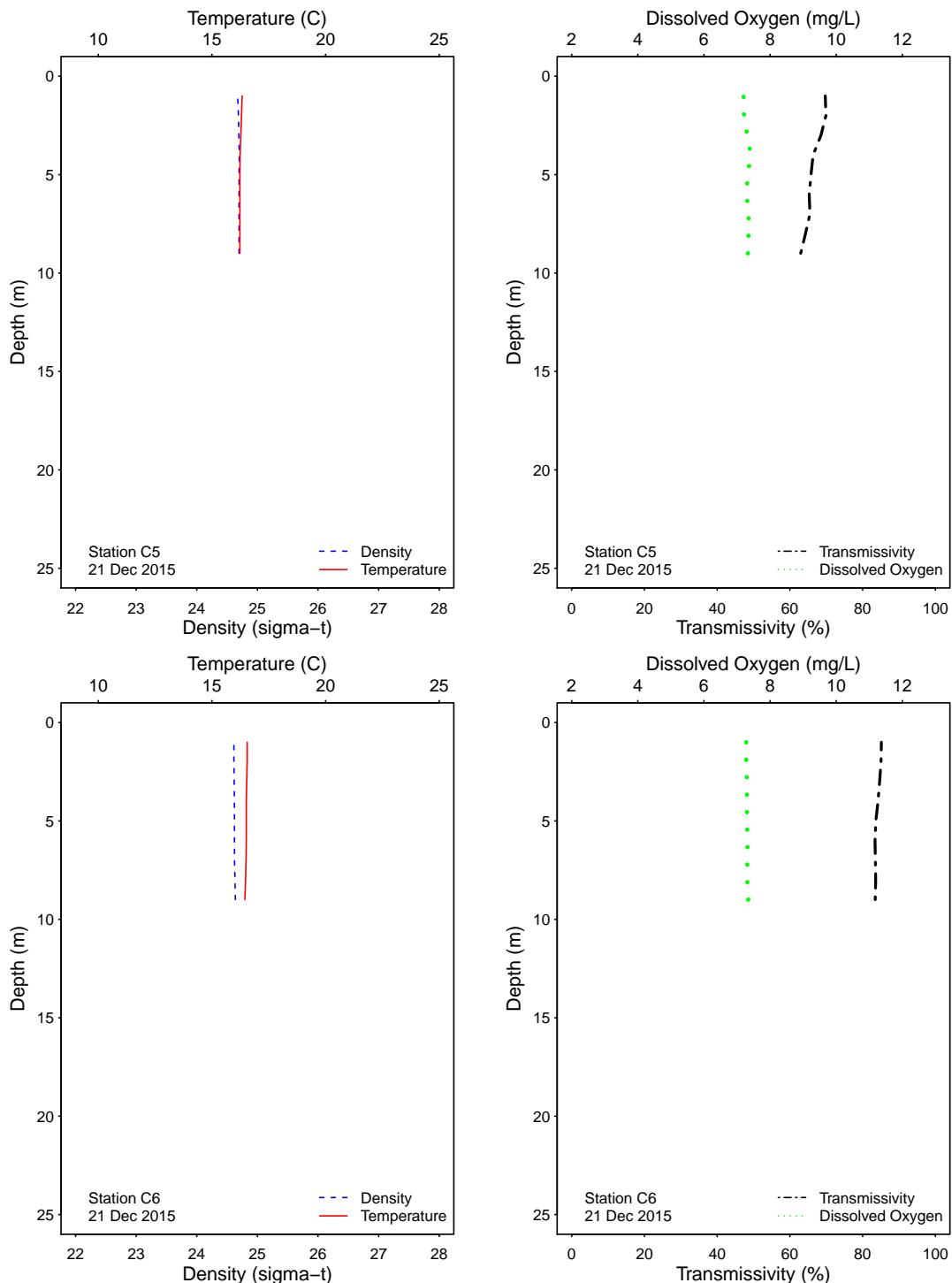


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

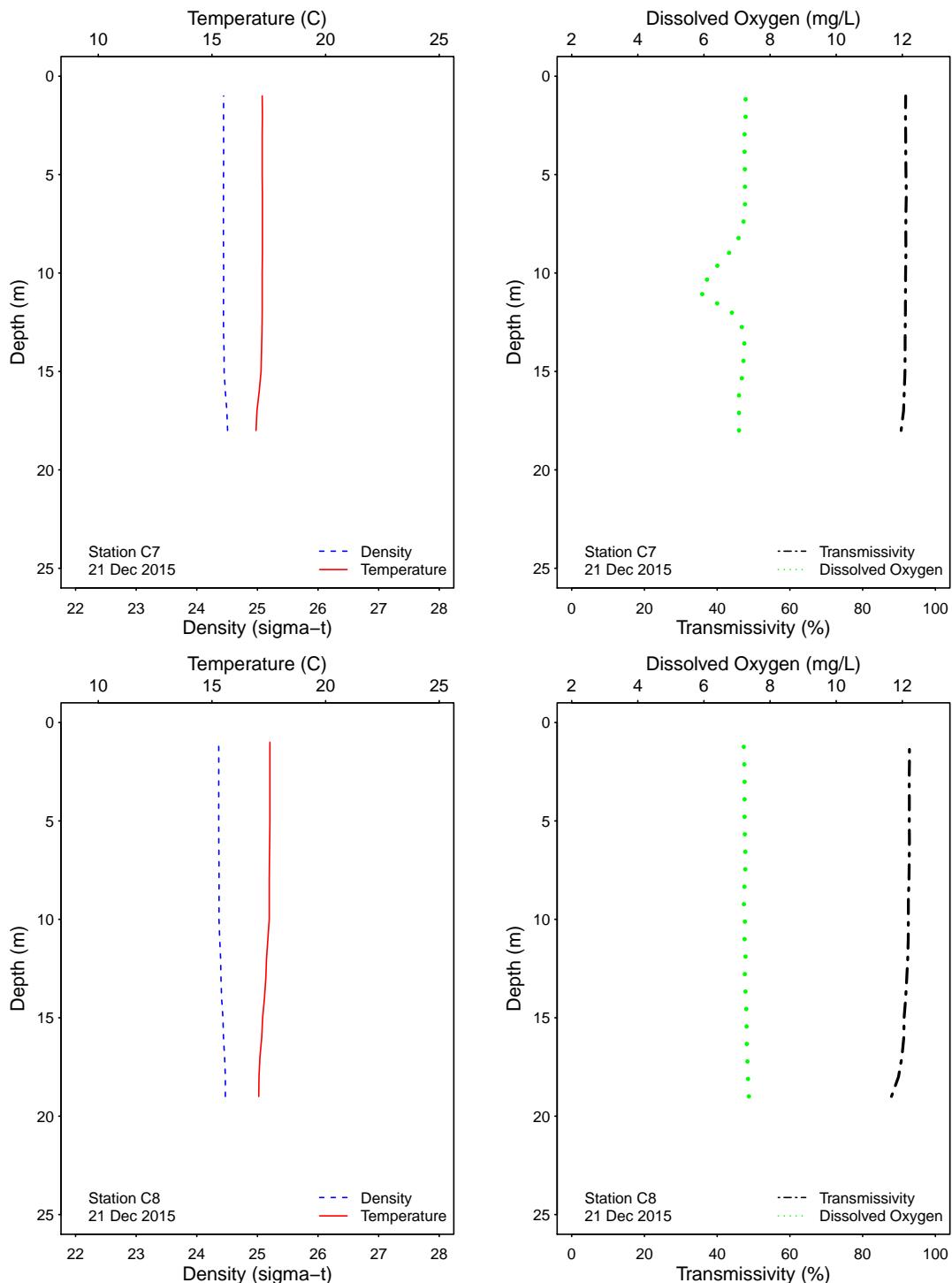


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

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.

Station	Date	Depth	Analyst	Procedure	Total	Fecal	Enter
A7	04 Dec 2015	18	SR	LAB DUPLICATE	<2	<2	<2
A7	09 Dec 2015	18	SR	LAB DUPLICATE	2e	<2	<2
A7	15 Dec 2015	18	AR	LAB DUPLICATE	ns	ns	<2
A7	15 Dec 2015	18	JT	LAB DUPLICATE	20e	ns	ns
A7	15 Dec 2015	18	LMA	LAB DUPLICATE	ns	<2	ns
A7	17 Dec 2015	18	AR	LAB DUPLICATE	26e	<2	<2
A7	21 Dec 2015	18	JT	LAB DUPLICATE	14e	<2	2e
C7	04 Dec 2015	18	SR	LAB DUPLICATE	<2	<2	<2
C7	09 Dec 2015	18	ZV	LAB DUPLICATE	<2	<2	<2
C7	15 Dec 2015	18	LMA	LAB DUPLICATE	<2	<2	<2
C7	17 Dec 2015	18	ZV	LAB DUPLICATE	60	2e	<2
C7	21 Dec 2015	18	LMA	LAB DUPLICATE	<2	<2	<2
C8	04 Dec 2015	12	SR	LAB DUPLICATE	2e	<2	<2
C8	09 Dec 2015	12	SR	LAB DUPLICATE	<2	<2	<2
C8	15 Dec 2015	12	JT	LAB DUPLICATE	<20	<2	<2
C8	17 Dec 2015	12	AR	LAB DUPLICATE	14e	<2	<2
C8	21 Dec 2015	12	JT	LAB DUPLICATE	<2	<2	<2
D8	01 Dec 2015		SR	FIELD DUPLICATE	<20	<2	<2
D8	01 Dec 2015		SR	LAB DUPLICATE	20e	<2	2e
D8	06 Dec 2015		LMA	FIELD DUPLICATE	20e	4e	8e
D8	06 Dec 2015		LMA	LAB DUPLICATE	<20	4e	8e
D8	11 Dec 2015		AR	FIELD DUPLICATE	<200	6e	10e
D8	11 Dec 2015		AR	LAB DUPLICATE	<200	<2	28e
D8	17 Dec 2015		SR	FIELD DUPLICATE	20e	2e	2e
D8	17 Dec 2015		SR	LAB DUPLICATE	20e	6e	<2
D8	23 Dec 2015		ZV	FIELD DUPLICATE	600e	60e	80e
D8	23 Dec 2015		LMA	LAB DUPLICATE	200e	60e	100e
D8	29 Dec 2015		LMA	FIELD DUPLICATE	<20	8e	58
D8	29 Dec 2015		LMA	LAB DUPLICATE	<20	12e	62

ns = not sampled

