



# **MONTHLY RECEIVING WATERS MONITORING REPORT FOR THE POINT LOMA OCEAN OUTFALL**

(POINT LOMA METROPOLITAN WASTEWATER TREATMENT PLANT)  
NPDES PERMIT No. CA 0107409

## **JUNE 2016**

CITY OF SAN DIEGO  
OCEAN MONITORING PROGRAM  
PUBLIC UTILITIES DEPARTMENT  
ENVIRONMENTAL MONITORING AND TECHNICAL SERVICES DIVISION





## THE CITY OF SAN DIEGO

July 31, 2016

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

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

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

Sincerely,

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

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

TDS/asb

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

### Public Utilities Department

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## INTRODUCTION

Monthly reports of water quality and ocean conditions for the San Diego coastal region surrounding the Point Loma Ocean Outfall are submitted to the San Diego Regional Water Quality Control Board and U.S. EPA Region 9 in accordance with Order No. R9-2009-0001, NPDES Permit No. CA0107409 for the Point Loma Wastewater Treatment Plant (PLWTP), Point Loma Ocean Outfall (PLOO). This report includes receiving waters monitoring data collected from all shore, kelp and offshore stations specified in the above order. Data for influent and effluent monitoring activities for the PLWTP are presented in separate reports.

## MATERIALS AND METHODS

### ***Shore Stations***

Water quality conditions are monitored at eight shore stations (D4, D5, D7–D12). These stations range from the tip of the Point Loma Peninsula to west of Mission Bay (see station locations map). Due to site inaccessibility, station D8 has been temporarily abandoned and replaced with station D8-A. This new location will be sampled until access is restored at the original location. Seawater samples are collected from the surf zone at each station five times during the month. These samples are subsequently transported to the City's Marine Microbiology Laboratory and analyzed for the presence of several types of fecal indicator bacteria (FIBs), including total coliforms, fecal coliforms, and *Enterococcus*. Visual observations of water color and clarity, surf height, human or animal activity, and weather conditions are also recorded at the time of sample collection. Wind speed and direction are measured using a hand-held anemometer with a compass.

### ***Kelp Bed Stations***

The eight kelp stations are sampled five times during the month according to permit specifications in order to monitor water quality conditions within the Point Loma kelp forest. These stations include three sites located along the inshore edge of the kelp bed paralleling the 9-m depth contour (i.e., stations C4, C5 and C6), and five sites located near the offshore edge of the kelp bed along the 18-m depth contour (i.e., stations A1, A6, A7, C7 and C8).

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

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

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

### ***Offshore Stations***

Offshore water quality sampling is conducted quarterly typically during the months of February, May, August and November. A total of 36 offshore stations (F01–F36) are sampled during each survey usually over a 3-day period. Three of the stations (F01–F03) are located along the 18-m depth contour, while 11 stations are located along each of the following contours: 60 m (stations F04–F14); 80 m (stations F15–F25); 98 m (stations F26–F36). Of these 36 stations, 15 (F01–F03, F06–F14, F18–F20) are located within State jurisdictional waters (i.e., within 3 nautical miles of shore) and are subject to the California Ocean Plan's compliance standards.

Monitoring at all offshore sites includes measurements of *Enterococcus* bacteria, water temperature, salinity, density, dissolved oxygen, pH, chlorophyll *a*, transmissivity, chromomorphic dissolved organic matter (CDOM), and visual observations of weather and water conditions. Monitoring at sites within State waters also include the collection of discrete grab samples for ammonium analysis (see Table 4.2).

Seawater samples for ammonium and bacteriological analyses at the offshore stations are primarily collected using a CTD-integrated rosette sampler with Niskin bottles. Profiles of the various physical/chemical parameters (listed above) are taken using a Sea-Bird CTD. The CTD profile data are then presented in both graphical and tabular form. Additionally, data for depths closest to those at which bacteriological samples are collected are extracted from the CTD profiles and presented with the bacteriological data.

### ***Bacteriological Reporting and Quality Assurance***

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

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

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

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

- (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 2016 Quality Assurance Report, which will be completed in March 2017.

## **SUMMARY OF RESULTS**

***Shore Stations***

- During June 2016, all of the eight shore stations were in compliance with various water-contact standards specified in the Ocean Plan.
- Although each of the 8 shore stations are normally sampled 5 times during the month, samples were not taken at station D8 on June 2, 8, and 14 because of blocked access to the stairs due to public safety concerns. Samples were collected at new station D8-A on June 20 and 27.
- Over the years, elevated bacteria levels at shore and kelp bed stations have tended to be associated with rainfall events, heavy recreational use, or the presence of seabirds or decaying kelp and surfgrass. See the City of San Diego's most recent *Point Loma Ocean Outfall Annual Receiving Waters Monitoring and Assessment Report* for details (<http://www.sandiego.gov/mwwd/environment/oceanmonitor/reports/index.shtml>).
- Nothing of sewage origin was observed at any of the shore stations.

***Kelp Bed Stations***

- The eight kelp bed water quality stations (A1, A6, A7, C4, C5, C6, C7, C8) were sampled five times during June (i.e. June 4, 16, 20, 22, 27).
- During June, all of the kelp bed stations were in compliance with the various water-contact standards specified in the Ocean Plan.

- Water column temperatures ranged from 10.74 to 20.38°C during the month. The difference between surface and bottom waters ranged from 2.04 to 7.73°C, indicating that the water column was stratified at the kelp bed stations during the month.
- Chlorophyll *a* concentrations ranged from 0.31 to 11.01 µg/L during June, suggesting the presence of phytoplankton blooms during the month.
- There were no notable visual observations for June.

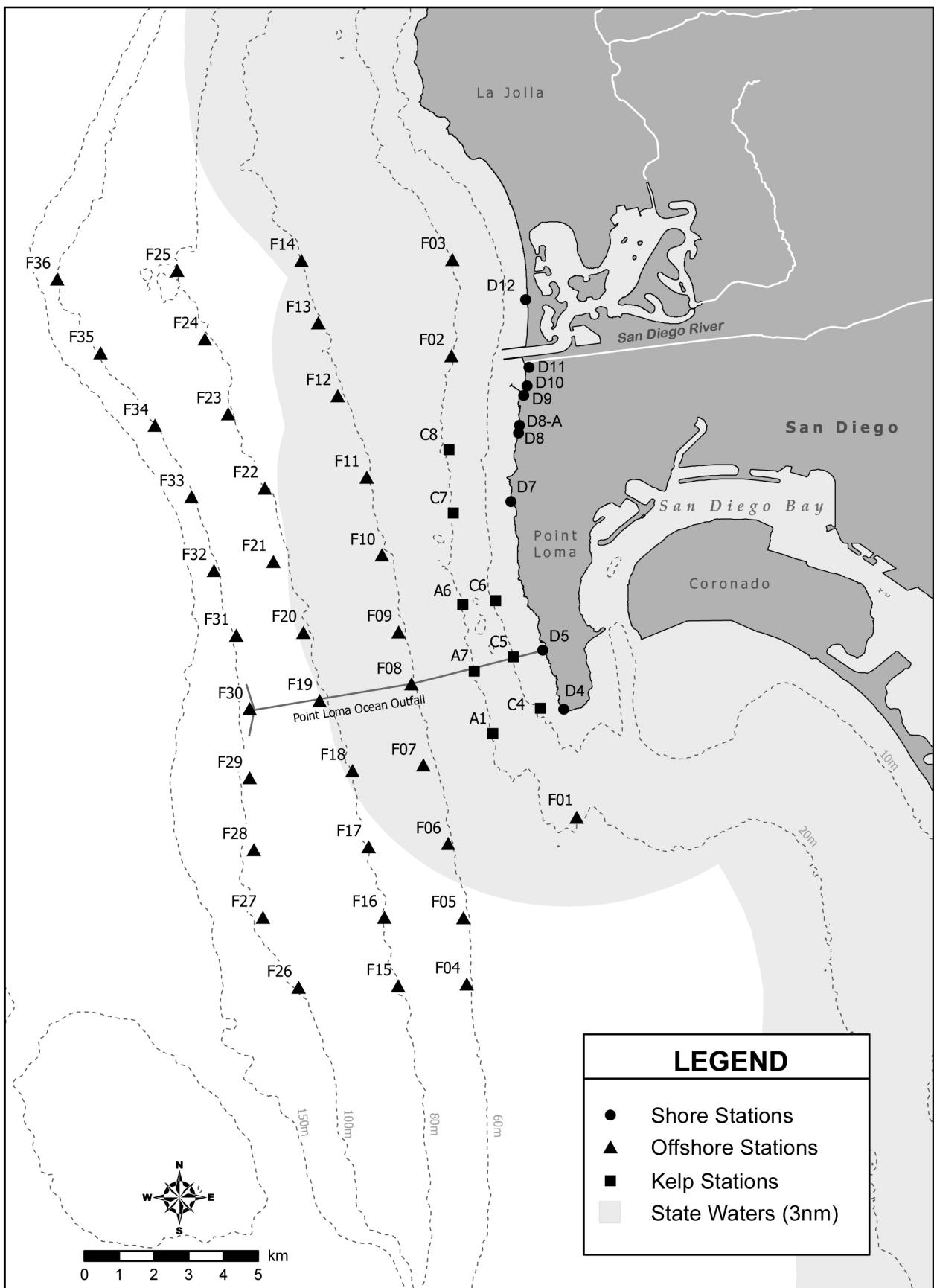
#### ***Offshore Stations***

- Quarterly sampling was not conducted during June at the offshore stations. The next quarterly sampling is scheduled for August 2016.



## TABLES AND FIGURES







# Shore Stations



**Table 2.1**

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

Date	D4	D5	D7	D8	D8-A	D9	D10	D11	D12
01 Jun 2016	3	12	3	20	ns	5	22	17	2
02 Jun 2016	3	19	5	20	ns	4	22	27	3
03 Jun 2016	3	19	5	20	ns	4	22	27	3
04 Jun 2016	3	19	5	20	ns	4	22	27	3
05 Jun 2016	3	19	5	20	ns	4	22	27	3
06 Jun 2016	3	19	5	20	ns	4	22	27	3
07 Jun 2016	3	19	5	20	ns	4	22	27	3
08 Jun 2016	4	12	4	20	ns	3	30	31	6
09 Jun 2016	4	12	4	20	ns	3	30	31	6
10 Jun 2016	4	12	4	20	ns	3	30	31	6
11 Jun 2016	4	12	4	20	ns	3	30	31	6
12 Jun 2016	4	12	4	20	ns	3	30	31	6
13 Jun 2016	4	12	4	20	ns	3	30	31	6
14 Jun 2016	4	19	6	ns	ns	4	30	21	6
15 Jun 2016	4	19	6	ns	ns	4	30	21	6
16 Jun 2016	4	19	6	ns	ns	4	30	21	6
17 Jun 2016	4	19	6	ns	ns	4	30	21	6
18 Jun 2016	4	19	6	ns	ns	4	30	21	6
19 Jun 2016	4	19	6	ns	ns	4	30	21	6
20 Jun 2016	4	14	5	ns	20*	6	19	14	6
21 Jun 2016	4	14	5	ns	20*	6	19	14	6
22 Jun 2016	4	14	5	ns	20*	6	19	14	6
23 Jun 2016	4	14	5	ns	20*	6	19	14	6
24 Jun 2016	4	14	5	ns	20*	6	19	14	6
25 Jun 2016	4	14	5	ns	20*	6	19	14	6
26 Jun 2016	5*	11*	6*	ns	20*	8*	20*	24*	8*
27 Jun 2016	4	13	5	ns	20*	6	21	33	8
28 Jun 2016	4	13	5	ns	20*	6	21	33	8
29 Jun 2016	4	13	5	ns	20*	6	21	33	8
30 Jun 2016	4	13	5	ns	20*	6	21	33	8

\* Geometric mean calculated using n<5

ns = not sampled

**Table 2.2**

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

Date	D4	D5	D7	D8	D8-A	D9	D10	D11	D12
01 Jun 2016	2	2	2	2	ns	2	3	3	2
02 Jun 2016	2	2	2	2	ns	2	3	3	2
03 Jun 2016	2	2	2	2	ns	2	3	3	2
04 Jun 2016	2	2	2	2	ns	2	3	3	2
05 Jun 2016	2	2	2	2	ns	2	3	3	2
06 Jun 2016	2	2	2	2	ns	2	3	3	2
07 Jun 2016	2	2	2	2	ns	2	3	3	2
08 Jun 2016	2	2	2	2	ns	2	3	3	3
09 Jun 2016	2	2	2	2	ns	2	3	3	3
10 Jun 2016	2	2	2	2	ns	2	3	3	3
11 Jun 2016	2	2	2	2	ns	2	3	3	3
12 Jun 2016	2	2	2	2	ns	2	3	3	3
13 Jun 2016	2	2	2	2	ns	2	3	3	3
14 Jun 2016	2	2	2	ns	ns	2	3	2	3
15 Jun 2016	2	2	2	ns	ns	2	3	2	3
16 Jun 2016	2	2	2	ns	ns	2	3	2	3
17 Jun 2016	2	2	2	ns	ns	2	3	2	3
18 Jun 2016	2	2	2	ns	ns	2	3	2	3
19 Jun 2016	2	2	2	ns	ns	2	3	2	3
20 Jun 2016	2	2	2	ns	2*	2	3	2	3
21 Jun 2016	2	2	2	ns	2*	2	3	2	3
22 Jun 2016	2	2	2	ns	2*	2	3	2	3
23 Jun 2016	2	2	2	ns	2*	2	3	2	3
24 Jun 2016	2	2	2	ns	2*	2	3	2	3
25 Jun 2016	2	2	2	ns	2*	2	3	2	3
26 Jun 2016	2*	2*	2*	ns	2*	2*	2*	2*	3*
27 Jun 2016	2	2	2	ns	2*	2	2	4	3
28 Jun 2016	2	2	2	ns	2*	2	2	4	3
29 Jun 2016	2	2	2	ns	2*	2	2	4	3
30 Jun 2016	2	2	2	ns	2*	2	2	4	3

\* Geometric mean calculated using n<5

ns = not sampled

**Table 2.3**

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

Date	D4	D5	D7	D8	D8-A	D9	D10	D11	D12
01 Jun 2016	4	3	2	2	ns	2	3	4	2
02 Jun 2016	4	3	2	2	ns	2	3	4	2
03 Jun 2016	4	3	2	2	ns	2	3	4	2
04 Jun 2016	4	3	2	2	ns	2	3	4	2
05 Jun 2016	4	3	2	2	ns	2	3	4	2
06 Jun 2016	4	3	2	2	ns	2	3	4	2
07 Jun 2016	4	3	2	2	ns	2	3	4	2
08 Jun 2016	2	2	2	2	ns	2	2	4	2
09 Jun 2016	2	2	2	2	ns	2	2	4	2
10 Jun 2016	2	2	2	2	ns	2	2	4	2
11 Jun 2016	2	2	2	2	ns	2	2	4	2
12 Jun 2016	2	2	2	2	ns	2	2	4	2
13 Jun 2016	2	2	2	2	ns	2	2	4	2
14 Jun 2016	2	2	2	ns	ns	2	2	2	2
15 Jun 2016	2	2	2	ns	ns	2	2	2	2
16 Jun 2016	2	2	2	ns	ns	2	2	2	2
17 Jun 2016	2	2	2	ns	ns	2	2	2	2
18 Jun 2016	2	2	2	ns	ns	2	2	2	2
19 Jun 2016	2	2	2	ns	ns	2	2	2	2
20 Jun 2016	2	2	2	ns	2*	2	2	2	2
21 Jun 2016	2	2	2	ns	2*	2	2	2	2
22 Jun 2016	2	2	2	ns	2*	2	2	2	2
23 Jun 2016	2	2	2	ns	2*	2	2	2	2
24 Jun 2016	2	2	2	ns	2*	2	2	2	2
25 Jun 2016	2	2	2	ns	2*	2	2	2	2
26 Jun 2016	2*	2*	2*	ns	2*	2*	2*	2*	2*
27 Jun 2016	2	2	2	ns	2*	2	2	2	3
28 Jun 2016	2	2	2	ns	2*	2	2	2	3
29 Jun 2016	2	2	2	ns	2*	2	2	2	3
30 Jun 2016	2	2	2	ns	2*	2	2	2	3

\* Geometric mean calculated using n<5

ns = not sampled

**Table 2.4**

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

Date	D4	D5	D7	D8	D8-A	D9	D10	D11	D12
02 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
08 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
14 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
20 Jun 2016	IC	IC	IC	ns	IC	IC	IC	IC	IC
27 Jun 2016	IC	IC	IC	ns	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	D8-A	D9	D10	D11	D12
02 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
08 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
14 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
20 Jun 2016	IC	IC	IC	ns	IC	IC	IC	IC	IC
27 Jun 2016	IC	IC	IC	ns	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	D8-A	D9	D10	D11	D12
02 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
08 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
14 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
20 Jun 2016	IC	IC	IC	ns	IC	IC	IC	IC	IC
27 Jun 2016	IC	IC	IC	ns	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	D8-A	D9	D10	D11	D12
02 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
08 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
14 Jun 2016	IC	IC	IC	ns	ns	IC	IC	IC	IC
20 Jun 2016	IC	IC	IC	ns	IC	IC	IC	IC	IC
27 Jun 2016	IC	IC	IC	ns	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

**Table 2.8**

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

<b>Station</b>	<b>Date</b>	<b>Time</b>	<b>Total</b>	<b>Fecal</b>	<b>Enter</b>	<b>F:T</b>
D4	02 Jun 2016	932	<2	<2	2e	1.00
	08 Jun 2016	955	10e	<2	<2	0.20
	14 Jun 2016	1104	2e	<2	<2	1.00
	20 Jun 2016	812	20e	2e	<2	0.10
	27 Jun 2016	944	<2	<2	<2	1.00
D5	02 Jun 2016	914	<20	<2	2e	0.10
	08 Jun 2016	930	<2	<2	<2	1.00
	14 Jun 2016	1128	<20	2e	2e	0.10
	20 Jun 2016	757	<20	4e	<2	0.20
	27 Jun 2016	921	<20	<2	<2	0.10
D7	02 Jun 2016	1000	<20	<2	<2	0.10
	08 Jun 2016	1235	<2	<2	<2	1.00
	14 Jun 2016	1027	<20	<2	<2	0.10
	20 Jun 2016	839	<2	<2	<2	1.00
	27 Jun 2016	1029	<2	<2	2e	1.00
D8	02 Jun 2016	1016	ns	ns	ns	ns
	08 Jun 2016	1215	ns	ns	ns	ns
	14 Jun 2016	1015	ns	ns	ns	ns
D8-A	20 Jun 2016	854	<20	<2	<2	0.10
	27 Jun 2016	1044	<20	<2	<2	0.10
D9	02 Jun 2016	1037	10e	<2	<2	0.20
	08 Jun 2016	1210	2e	<2	<2	1.00
	14 Jun 2016	1007	8e	<2	<2	0.25
	20 Jun 2016	914	<20	<2	4e	0.10
	27 Jun 2016	1058	2e	<2	<2	1.00
D10	02 Jun 2016	1047	20e	<2	<2	0.10
	08 Jun 2016	1155	<200	<2	3e	0.01
	14 Jun 2016	947	<20	<2	2e	0.10
	20 Jun 2016	932	<2	<2	<2	1.00
	27 Jun 2016	1113	28e	4e	2e	0.14
D11	02 Jun 2016	1100	<20	<2	2e	0.10
	08 Jun 2016	1145	40e	2e	3e	0.05
	14 Jun 2016	920	<20	<2	<2	0.10
	20 Jun 2016	954	<20	<2	<2	0.10
	27 Jun 2016	1130	120e	48	2e	0.40

<b>Station</b>	<b>Date</b>	<b>Time</b>	<b>Total</b>	<b>Fecal</b>	<b>Enterο</b>	<b>F:T</b>
D12	02 Jun 2016	1120	<20	<2	2e	0.10
D12	08 Jun 2016	1120	40e	16e	<2	0.40
D12	14 Jun 2016	850	<2	<2	2e	1.00
D12	20 Jun 2016	1027	<2	<2	2e	1.00
D12	27 Jun 2016	1155	12e	<2	10e	0.17

ns = not sampled

ND = no data

**Comments**

Station	Date	Depth	Parameter	Comments
D8	02 Jun 2016			Site not accessible; No water sample collected but visual observations recorded
D8	08 Jun 2016			Site not accessible; No water sample collected but visual observations recorded
D8	14 Jun 2016			Site not accessible; No water sample collected; No visual observations recorded

**Table 2.9**

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

Station	Date	Parameter	Value
D4	02 Jun 2016	Arrive Time	932
D4	02 Jun 2016	Weather	Overcast
D4	02 Jun 2016	Wind Speed (kts)	5.8
D4	02 Jun 2016	Wind Dir	NW
D4	02 Jun 2016	Animal Life	None
D4	02 Jun 2016	Floatables	None
D4	02 Jun 2016	Water Color	Green
D4	02 Jun 2016	Current Direction	NW
D4	02 Jun 2016	Wave Height Low (ft)	3
D4	02 Jun 2016	High Tide (ft)	4.1
D4	02 Jun 2016	High Tide Time	753
D4	02 Jun 2016	Low Tide (ft)	0.8
D4	02 Jun 2016	Low Tide Time	1330
D4	02 Jun 2016	Comments	Kelp; Seagrass; Water clear
D4	08 Jun 2016	Arrive Time	955
D4	08 Jun 2016	Weather	Cloudy
D4	08 Jun 2016	Wind Speed (kts)	3.4
D4	08 Jun 2016	Wind Dir	N
D4	08 Jun 2016	Animal Life	None
D4	08 Jun 2016	Floatables	None
D4	08 Jun 2016	Water Color	Green
D4	08 Jun 2016	Current Direction	N
D4	08 Jun 2016	Wave Height Low (ft)	0.5
D4	08 Jun 2016	High Tide (ft)	3.9
D4	08 Jun 2016	High Tide Time	1313
D4	08 Jun 2016	Low Tide (ft)	-0.8
D4	08 Jun 2016	Low Tide Time	638
D4	08 Jun 2016	Comments	Water clear; Tuna crabs
D4	14 Jun 2016	Arrive Time	1104
D4	14 Jun 2016	Weather	Cloudy
D4	14 Jun 2016	Wind Speed (kts)	4
D4	14 Jun 2016	Wind Dir	W
D4	14 Jun 2016	Animal Life	None
D4	14 Jun 2016	Floatables	None
D4	14 Jun 2016	Water Color	Green
D4	14 Jun 2016	Current Direction	W
D4	14 Jun 2016	Wave Height Low (ft)	2
D4	14 Jun 2016	High Tide (ft)	3.3
D4	14 Jun 2016	High Tide Time	606
D4	14 Jun 2016	Low Tide (ft)	1.4
D4	14 Jun 2016	Low Tide Time	1151
D4	14 Jun 2016	Comments	Kelp; Seagrass; Water turbid; Many small tuna crabs
D4	20 Jun 2016	Arrive Time	812
D4	20 Jun 2016	Weather	Sunny
D4	20 Jun 2016	Wind Speed (kts)	3.4
D4	20 Jun 2016	Wind Dir	NW
D4	20 Jun 2016	Animal Life	None
D4	20 Jun 2016	Floatables	None

Station	Date	Parameter	Value
D4	20 Jun 2016	Water Color	Green
D4	20 Jun 2016	Current Direction	NW
D4	20 Jun 2016	Wave Height Low (ft)	3
D4	20 Jun 2016	High Tide (ft)	3.8
D4	20 Jun 2016	High Tide Time	1028
D4	20 Jun 2016	Low Tide (ft)	-0.6
D4	20 Jun 2016	Low Tide Time	414
D4	20 Jun 2016	Comments	Seagrass; Water clear
D4	27 Jun 2016	Arrive Time	944
D4	27 Jun 2016	Weather	Cloudy
D4	27 Jun 2016	Wind Speed (kts)	2
D4	27 Jun 2016	Wind Dir	W
D4	27 Jun 2016	Animal Life	None
D4	27 Jun 2016	Floatables	None
D4	27 Jun 2016	Water Color	Green
D4	27 Jun 2016	Current Direction	W
D4	27 Jun 2016	Wave Height Low (ft)	2
D4	27 Jun 2016	High Tide (ft)	4.7
D4	27 Jun 2016	High Tide Time	1604
D4	27 Jun 2016	Low Tide (ft)	0.6
D4	27 Jun 2016	Low Tide Time	917
D4	27 Jun 2016	Comments	Water clear
D5	02 Jun 2016	Arrive Time	914
D5	02 Jun 2016	Weather	Overcast
D5	02 Jun 2016	Wind Speed (kts)	6
D5	02 Jun 2016	Wind Dir	W
D5	02 Jun 2016	Animal Life	None
D5	02 Jun 2016	Floatables	None
D5	02 Jun 2016	Water Color	Green
D5	02 Jun 2016	Current Direction	W
D5	02 Jun 2016	Wave Height Low (ft)	2
D5	02 Jun 2016	High Tide (ft)	4.1
D5	02 Jun 2016	High Tide Time	753
D5	02 Jun 2016	Low Tide (ft)	0.8
D5	02 Jun 2016	Low Tide Time	1330
D5	02 Jun 2016	Comments	Seagrass; Algae; Water clear
D5	08 Jun 2016	Arrive Time	930
D5	08 Jun 2016	Weather	Cloudy
D5	08 Jun 2016	Wind Speed (kts)	1.3
D5	08 Jun 2016	Wind Dir	N
D5	08 Jun 2016	Animal Life	None
D5	08 Jun 2016	Floatables	None
D5	08 Jun 2016	Water Color	Green
D5	08 Jun 2016	Current Direction	N
D5	08 Jun 2016	Wave Height Low (ft)	0.5
D5	08 Jun 2016	High Tide (ft)	3.9
D5	08 Jun 2016	High Tide Time	1313
D5	08 Jun 2016	Low Tide (ft)	-0.8
D5	08 Jun 2016	Low Tide Time	638
D5	08 Jun 2016	Comments	Water clear; Tuna crabs in water
D5	14 Jun 2016	Arrive Time	1128

Station	Date	Parameter	Value
D5	14 Jun 2016	Weather	Cloudy
D5	14 Jun 2016	Wind Speed (kts)	1.5
D5	14 Jun 2016	Wind Dir	W
D5	14 Jun 2016	Animal Life	None
D5	14 Jun 2016	Floatables	None
D5	14 Jun 2016	Water Color	Green
D5	14 Jun 2016	Current Direction	W
D5	14 Jun 2016	Wave Height Low (ft)	2
D5	14 Jun 2016	High Tide (ft)	3.3
D5	14 Jun 2016	High Tide Time	606
D5	14 Jun 2016	Low Tide (ft)	1.4
D5	14 Jun 2016	Low Tide Time	1151
D5	14 Jun 2016	Comments	Kelp; Seagrass; Water turbid; Many small tuna crabs
D5	20 Jun 2016	Arrive Time	757
D5	20 Jun 2016	Weather	Sunny
D5	20 Jun 2016	Wind Speed (kts)	5.2
D5	20 Jun 2016	Wind Dir	NW
D5	20 Jun 2016	Animal Life	None
D5	20 Jun 2016	Floatables	None
D5	20 Jun 2016	Water Color	Green
D5	20 Jun 2016	Current Direction	NW
D5	20 Jun 2016	Wave Height Low (ft)	1
D5	20 Jun 2016	High Tide (ft)	3.8
D5	20 Jun 2016	High Tide Time	1028
D5	20 Jun 2016	Low Tide (ft)	-0.6
D5	20 Jun 2016	Low Tide Time	414
D5	20 Jun 2016	Comments	Kelp; Seagrass; Algae; Water clear
D5	27 Jun 2016	Arrive Time	921
D5	27 Jun 2016	Weather	Cloudy
D5	27 Jun 2016	Wind Speed (kts)	1
D5	27 Jun 2016	Wind Dir	E
D5	27 Jun 2016	Animal Life	None
D5	27 Jun 2016	Floatables	None
D5	27 Jun 2016	Water Color	Green
D5	27 Jun 2016	Current Direction	E
D5	27 Jun 2016	Wave Height Low (ft)	2
D5	27 Jun 2016	High Tide (ft)	4.7
D5	27 Jun 2016	High Tide Time	1604
D5	27 Jun 2016	Low Tide (ft)	0.6
D5	27 Jun 2016	Low Tide Time	917
D5	27 Jun 2016	Comments	Water clear
D7	02 Jun 2016	Arrive Time	1000
D7	02 Jun 2016	Weather	Overcast
D7	02 Jun 2016	Wind Speed (kts)	0.2
D7	02 Jun 2016	Wind Dir	NW
D7	02 Jun 2016	Animal Life	None
D7	02 Jun 2016	Floatables	None
D7	02 Jun 2016	Water Color	Green
D7	02 Jun 2016	Current Direction	NW
D7	02 Jun 2016	Wave Height Low (ft)	2
D7	02 Jun 2016	High Tide (ft)	4.1
D7	02 Jun 2016	High Tide Time	753

Station	Date	Parameter	Value
D7	02 Jun 2016	Low Tide (ft)	0.8
D7	02 Jun 2016	Low Tide Time	1330
D7	02 Jun 2016	Comments	Kelp; Seagrass; Water clear; Huge amount of tuna crabs in water
D7	08 Jun 2016	Arrive Time	1235
D7	08 Jun 2016	Weather	Cloudy
D7	08 Jun 2016	Wind Speed (kts)	1
D7	08 Jun 2016	Wind Dir	N
D7	08 Jun 2016	Animal Life	None
D7	08 Jun 2016	Floatables	None
D7	08 Jun 2016	Water Color	Green
D7	08 Jun 2016	Current Direction	N
D7	08 Jun 2016	Wave Height Low (ft)	0.5
D7	08 Jun 2016	High Tide (ft)	3.9
D7	08 Jun 2016	High Tide Time	1313
D7	08 Jun 2016	Low Tide (ft)	2.1
D7	08 Jun 2016	Low Tide Time	1819
D7	08 Jun 2016	Comments	Water clear; Tuna crabs in water
D7	14 Jun 2016	Arrive Time	1027
D7	14 Jun 2016	Weather	Cloudy
D7	14 Jun 2016	Wind Speed (kts)	4
D7	14 Jun 2016	Wind Dir	W
D7	14 Jun 2016	Animal Life	None
D7	14 Jun 2016	Floatables	None
D7	14 Jun 2016	Water Color	Green
D7	14 Jun 2016	Current Direction	W
D7	14 Jun 2016	Wave Height Low (ft)	3
D7	14 Jun 2016	High Tide (ft)	3.3
D7	14 Jun 2016	High Tide Time	606
D7	14 Jun 2016	Low Tide (ft)	1.4
D7	14 Jun 2016	Low Tide Time	1151
D7	14 Jun 2016	Comments	Kelp; Seagrass; 3 Surfers; Water turbid; Many small tuna crabs
D7	20 Jun 2016	Arrive Time	839
D7	20 Jun 2016	Weather	Sunny
D7	20 Jun 2016	Wind Speed (kts)	0.3
D7	20 Jun 2016	Wind Dir	NW
D7	20 Jun 2016	Animal Life	None
D7	20 Jun 2016	Floatables	None
D7	20 Jun 2016	Water Color	Green
D7	20 Jun 2016	Current Direction	NW
D7	20 Jun 2016	Wave Height Low (ft)	2
D7	20 Jun 2016	High Tide (ft)	3.8
D7	20 Jun 2016	High Tide Time	1028
D7	20 Jun 2016	Low Tide (ft)	-0.6
D7	20 Jun 2016	Low Tide Time	414
D7	20 Jun 2016	Comments	Seagrass; Water clear
D7	27 Jun 2016	Arrive Time	1029
D7	27 Jun 2016	Weather	Cloudy
D7	27 Jun 2016	Wind Speed (kts)	2.7
D7	27 Jun 2016	Wind Dir	W
D7	27 Jun 2016	Animal Life	None
D7	27 Jun 2016	Floatables	None

Station	Date	Parameter	Value
D7	27 Jun 2016	Water Color	Green
D7	27 Jun 2016	Current Direction	W
D7	27 Jun 2016	Wave Height Low (ft)	3
D7	27 Jun 2016	High Tide (ft)	4.7
D7	27 Jun 2016	High Tide Time	1604
D7	27 Jun 2016	Low Tide (ft)	0.6
D7	27 Jun 2016	Low Tide Time	917
D7	27 Jun 2016	Comments	Water clear
D8	02 Jun 2016	Arrive Time	1016
D8	02 Jun 2016	Weather	Partly Cloudy
D8	02 Jun 2016	Wind Speed (kts)	3.8
D8	02 Jun 2016	Wind Dir	W
D8	02 Jun 2016	Animal Life	None
D8	02 Jun 2016	Floatables	None
D8	02 Jun 2016	Water Color	Green
D8	02 Jun 2016	Current Direction	W
D8	02 Jun 2016	Wave Height Low (ft)	3
D8	02 Jun 2016	High Tide (ft)	4.1
D8	02 Jun 2016	High Tide Time	753
D8	02 Jun 2016	Low Tide (ft)	0.8
D8	02 Jun 2016	Low Tide Time	1330
D8	02 Jun 2016	Comments	Kelp; Water clear; Site inaccessible
D8	08 Jun 2016	Arrive Time	1215
D8	08 Jun 2016	Weather	Cloudy
D8	08 Jun 2016	Wind Speed (kts)	2.3
D8	08 Jun 2016	Wind Dir	N
D8	08 Jun 2016	Animal Life	1 Bird
D8	08 Jun 2016	Floatables	None
D8	08 Jun 2016	Water Color	Green
D8	08 Jun 2016	Current Direction	N
D8	08 Jun 2016	Wave Height Low (ft)	1
D8	08 Jun 2016	High Tide (ft)	3.9
D8	08 Jun 2016	High Tide Time	1313
D8	08 Jun 2016	Low Tide (ft)	-0.8
D8	08 Jun 2016	Low Tide Time	638
D8	08 Jun 2016	Comments	Water clear; Site inaccessible
D8-A	20 Jun 2016	Arrive Time	854
D8-A	20 Jun 2016	Weather	Sunny
D8-A	20 Jun 2016	Wind Speed (kts)	1.2
D8-A	20 Jun 2016	Wind Dir	NW
D8-A	20 Jun 2016	Animal Life	None
D8-A	20 Jun 2016	Floatables	None
D8-A	20 Jun 2016	Water Color	Green
D8-A	20 Jun 2016	Current Direction	NW
D8-A	20 Jun 2016	Wave Height Low (ft)	2
D8-A	20 Jun 2016	High Tide (ft)	3.8
D8-A	20 Jun 2016	High Tide Time	1028
D8-A	20 Jun 2016	Low Tide (ft)	-0.6
D8-A	20 Jun 2016	Low Tide Time	414
D8-A	20 Jun 2016	Comments	Kelp; Water clear; Alternate sampling site 500 feet north of original site

Station	Date	Parameter	Value
D8-A	27 Jun 2016	Arrive Time	1044
D8-A	27 Jun 2016	Weather	Cloudy
D8-A	27 Jun 2016	Wind Speed (kts)	3.2
D8-A	27 Jun 2016	Wind Dir	W
D8-A	27 Jun 2016	Animal Life	None
D8-A	27 Jun 2016	Floatables	None
D8-A	27 Jun 2016	Water Color	Green
D8-A	27 Jun 2016	Current Direction	W
D8-A	27 Jun 2016	Wave Height Low (ft)	4
D8-A	27 Jun 2016	High Tide (ft)	4.7
D8-A	27 Jun 2016	High Tide Time	1604
D8-A	27 Jun 2016	Low Tide (ft)	0.6
D8-A	27 Jun 2016	Low Tide Time	917
D8-A	27 Jun 2016	Comments	Seagrass; Water clear; Alternate sampling site 500 feet north of the original site
D9	02 Jun 2016	Arrive Time	1037
D9	02 Jun 2016	Weather	Sunny
D9	02 Jun 2016	Wind Speed (kts)	2.3
D9	02 Jun 2016	Wind Dir	W
D9	02 Jun 2016	Animal Life	None
D9	02 Jun 2016	Floatables	None
D9	02 Jun 2016	Water Color	Green
D9	02 Jun 2016	Current Direction	W
D9	02 Jun 2016	Wave Height Low (ft)	3
D9	02 Jun 2016	High Tide (ft)	4.1
D9	02 Jun 2016	High Tide Time	753
D9	02 Jun 2016	Low Tide (ft)	0.8
D9	02 Jun 2016	Low Tide Time	1330
D9	02 Jun 2016	Comments	Kelp; 1 Surfer; Water clear
D9	08 Jun 2016	Arrive Time	1210
D9	08 Jun 2016	Weather	Cloudy
D9	08 Jun 2016	Wind Speed (kts)	3.6
D9	08 Jun 2016	Wind Dir	N
D9	08 Jun 2016	Animal Life	None
D9	08 Jun 2016	Floatables	None
D9	08 Jun 2016	Water Color	Green
D9	08 Jun 2016	Current Direction	N
D9	08 Jun 2016	Wave Height Low (ft)	2
D9	08 Jun 2016	High Tide (ft)	3.9
D9	08 Jun 2016	High Tide Time	1313
D9	08 Jun 2016	Low Tide (ft)	-0.8
D9	08 Jun 2016	Low Tide Time	638
D9	08 Jun 2016	Comments	Water clear; Tuna crabs in water
D9	14 Jun 2016	Arrive Time	1007
D9	14 Jun 2016	Weather	Cloudy
D9	14 Jun 2016	Wind Speed (kts)	5
D9	14 Jun 2016	Wind Dir	W
D9	14 Jun 2016	Animal Life	None
D9	14 Jun 2016	Floatables	None
D9	14 Jun 2016	Water Color	Green
D9	14 Jun 2016	Current Direction	W
D9	14 Jun 2016	Wave Height Low (ft)	2

Station	Date	Parameter	Value
D9	14 Jun 2016	High Tide (ft)	3.3
D9	14 Jun 2016	High Tide Time	606
D9	14 Jun 2016	Low Tide (ft)	1.4
D9	14 Jun 2016	Low Tide Time	1151
D9	14 Jun 2016	Comments	Kelp; Seagrass; 3 Surfers; Water turbid; Many small blue jellyfish and small tuna crabs
D9	20 Jun 2016	Arrive Time	914
D9	20 Jun 2016	Weather	Sunny
D9	20 Jun 2016	Wind Speed (kts)	0.5
D9	20 Jun 2016	Wind Dir	NW
D9	20 Jun 2016	Animal Life	None
D9	20 Jun 2016	Floatables	None
D9	20 Jun 2016	Water Color	Green
D9	20 Jun 2016	Current Direction	NW
D9	20 Jun 2016	Wave Height Low (ft)	3
D9	20 Jun 2016	High Tide (ft)	3.8
D9	20 Jun 2016	High Tide Time	1028
D9	20 Jun 2016	Low Tide (ft)	-0.6
D9	20 Jun 2016	Low Tide Time	414
D9	20 Jun 2016	Comments	Seagrass; 6 Persons; Water clear
D9	27 Jun 2016	Arrive Time	1058
D9	27 Jun 2016	Weather	Cloudy
D9	27 Jun 2016	Wind Speed (kts)	5.6
D9	27 Jun 2016	Wind Dir	W
D9	27 Jun 2016	Animal Life	None
D9	27 Jun 2016	Floatables	None
D9	27 Jun 2016	Water Color	Green
D9	27 Jun 2016	Current Direction	W
D9	27 Jun 2016	Wave Height Low (ft)	4
D9	27 Jun 2016	High Tide (ft)	4.7
D9	27 Jun 2016	High Tide Time	1604
D9	27 Jun 2016	Low Tide (ft)	0.6
D9	27 Jun 2016	Low Tide Time	917
D9	27 Jun 2016	Comments	Water clear
D10	02 Jun 2016	Arrive Time	1047
D10	02 Jun 2016	Weather	Sunny
D10	02 Jun 2016	Wind Speed (kts)	4.2
D10	02 Jun 2016	Wind Dir	N
D10	02 Jun 2016	Animal Life	None
D10	02 Jun 2016	Floatables	None
D10	02 Jun 2016	Water Color	Green
D10	02 Jun 2016	Current Direction	N
D10	02 Jun 2016	Wave Height Low (ft)	3
D10	02 Jun 2016	High Tide (ft)	4.1
D10	02 Jun 2016	High Tide Time	753
D10	02 Jun 2016	Low Tide (ft)	0.8
D10	02 Jun 2016	Low Tide Time	1330
D10	02 Jun 2016	Comments	Kelp; 8 Persons; 2 Surfers; Water clear
D10	08 Jun 2016	Arrive Time	1155
D10	08 Jun 2016	Weather	Cloudy
D10	08 Jun 2016	Wind Speed (kts)	3.5

Station	Date	Parameter	Value
D10	08 Jun 2016	Wind Dir	N
D10	08 Jun 2016	Animal Life	None
D10	08 Jun 2016	Floatables	None
D10	08 Jun 2016	Water Color	Green
D10	08 Jun 2016	Current Direction	N
D10	08 Jun 2016	Wave Height Low (ft)	2
D10	08 Jun 2016	High Tide (ft)	3.9
D10	08 Jun 2016	High Tide Time	1313
D10	08 Jun 2016	Low Tide (ft)	-0.8
D10	08 Jun 2016	Low Tide Time	638
D10	08 Jun 2016	Comments	Water clear; Tuna crabs onshore
D10	14 Jun 2016	Arrive Time	947
D10	14 Jun 2016	Weather	Cloudy
D10	14 Jun 2016	Wind Speed (kts)	4
D10	14 Jun 2016	Wind Dir	W
D10	14 Jun 2016	Animal Life	None
D10	14 Jun 2016	Floatables	None
D10	14 Jun 2016	Water Color	Green
D10	14 Jun 2016	Current Direction	W
D10	14 Jun 2016	Wave Height Low (ft)	2
D10	14 Jun 2016	High Tide (ft)	3.3
D10	14 Jun 2016	High Tide Time	606
D10	14 Jun 2016	Low Tide (ft)	1.4
D10	14 Jun 2016	Low Tide Time	1151
D10	14 Jun 2016	Comments	Kelp; Seagrass; Water turbid; Many small blue jellyfish and small tuna crabs
D10	20 Jun 2016	Arrive Time	932
D10	20 Jun 2016	Weather	Sunny
D10	20 Jun 2016	Wind Speed (kts)	2.9
D10	20 Jun 2016	Wind Dir	W
D10	20 Jun 2016	Animal Life	None
D10	20 Jun 2016	Floatables	None
D10	20 Jun 2016	Water Color	Green
D10	20 Jun 2016	Current Direction	W
D10	20 Jun 2016	Wave Height Low (ft)	3
D10	20 Jun 2016	High Tide (ft)	3.8
D10	20 Jun 2016	High Tide Time	1028
D10	20 Jun 2016	Low Tide (ft)	-0.6
D10	20 Jun 2016	Low Tide Time	414
D10	20 Jun 2016	Comments	3 Persons; 4 Surfers; Water clear
D10	27 Jun 2016	Arrive Time	1113
D10	27 Jun 2016	Weather	Cloudy
D10	27 Jun 2016	Wind Speed (kts)	2.5
D10	27 Jun 2016	Wind Dir	W
D10	27 Jun 2016	Animal Life	None
D10	27 Jun 2016	Floatables	None
D10	27 Jun 2016	Water Color	Green
D10	27 Jun 2016	Current Direction	W
D10	27 Jun 2016	Wave Height Low (ft)	3
D10	27 Jun 2016	High Tide (ft)	4.7
D10	27 Jun 2016	High Tide Time	1604
D10	27 Jun 2016	Low Tide (ft)	0.6

Station	Date	Parameter	Value
D10	27 Jun 2016	Low Tide Time	917
D10	27 Jun 2016	Comments	10 Persons; Water clear
D11	02 Jun 2016	Arrive Time	1100
D11	02 Jun 2016	Weather	Sunny
D11	02 Jun 2016	Wind Speed (kts)	6.4
D11	02 Jun 2016	Wind Dir	N
D11	02 Jun 2016	Animal Life	None
D11	02 Jun 2016	Floatables	None
D11	02 Jun 2016	Water Color	Green
D11	02 Jun 2016	Current Direction	N
D11	02 Jun 2016	Wave Height Low (ft)	3
D11	02 Jun 2016	High Tide (ft)	4.1
D11	02 Jun 2016	High Tide Time	753
D11	02 Jun 2016	Low Tide (ft)	0.8
D11	02 Jun 2016	Low Tide Time	1330
D11	02 Jun 2016	Comments	Seagrass; 3 Surfers
D11	08 Jun 2016	Arrive Time	1145
D11	08 Jun 2016	Weather	Cloudy
D11	08 Jun 2016	Wind Speed (kts)	2.5
D11	08 Jun 2016	Wind Dir	N
D11	08 Jun 2016	Animal Life	None
D11	08 Jun 2016	Floatables	None
D11	08 Jun 2016	Water Color	Green
D11	08 Jun 2016	Current Direction	N
D11	08 Jun 2016	Wave Height Low (ft)	1.5
D11	08 Jun 2016	High Tide (ft)	3.9
D11	08 Jun 2016	High Tide Time	1313
D11	08 Jun 2016	Low Tide (ft)	-0.8
D11	08 Jun 2016	Low Tide Time	638
D11	08 Jun 2016	Comments	Water clear; Tuna crabs onshore
D11	14 Jun 2016	Arrive Time	920
D11	14 Jun 2016	Weather	Cloudy
D11	14 Jun 2016	Wind Speed (kts)	5
D11	14 Jun 2016	Wind Dir	W
D11	14 Jun 2016	Animal Life	None
D11	14 Jun 2016	Floatables	None
D11	14 Jun 2016	Water Color	Green
D11	14 Jun 2016	Current Direction	W
D11	14 Jun 2016	Wave Height Low (ft)	3
D11	14 Jun 2016	High Tide (ft)	3.3
D11	14 Jun 2016	High Tide Time	606
D11	14 Jun 2016	Low Tide (ft)	1.4
D11	14 Jun 2016	Low Tide Time	1151
D11	14 Jun 2016	Comments	Kelp; Seagrass; Water turbid; Many small blue jellyfish and tuna crabs
D11	20 Jun 2016	Arrive Time	954
D11	20 Jun 2016	Weather	Sunny
D11	20 Jun 2016	Wind Speed (kts)	2.7
D11	20 Jun 2016	Wind Dir	NW
D11	20 Jun 2016	Animal Life	None
D11	20 Jun 2016	Floatables	None

Station	Date	Parameter	Value
D11	20 Jun 2016	Water Color	Green
D11	20 Jun 2016	Current Direction	NW
D11	20 Jun 2016	Wave Height Low (ft)	3
D11	20 Jun 2016	High Tide (ft)	3.8
D11	20 Jun 2016	High Tide Time	1028
D11	20 Jun 2016	Low Tide (ft)	-0.6
D11	20 Jun 2016	Low Tide Time	414
D11	20 Jun 2016	Comments	27 Persons; 9 Surfers; Water clear
D11	27 Jun 2016	Arrive Time	1130
D11	27 Jun 2016	Weather	Cloudy
D11	27 Jun 2016	Wind Speed (kts)	4.1
D11	27 Jun 2016	Wind Dir	W
D11	27 Jun 2016	Animal Life	None
D11	27 Jun 2016	Floatables	None
D11	27 Jun 2016	Water Color	Green
D11	27 Jun 2016	Current Direction	W
D11	27 Jun 2016	Wave Height Low (ft)	4
D11	27 Jun 2016	High Tide (ft)	4.7
D11	27 Jun 2016	High Tide Time	1604
D11	27 Jun 2016	Low Tide (ft)	0.6
D11	27 Jun 2016	Low Tide Time	917
D11	27 Jun 2016	Comments	Water clear
D12	02 Jun 2016	Arrive Time	1120
D12	02 Jun 2016	Weather	Sunny
D12	02 Jun 2016	Wind Speed (kts)	9.7
D12	02 Jun 2016	Wind Dir	W
D12	02 Jun 2016	Animal Life	None
D12	02 Jun 2016	Floatables	None
D12	02 Jun 2016	Water Color	Green
D12	02 Jun 2016	Current Direction	W
D12	02 Jun 2016	Wave Height Low (ft)	3
D12	02 Jun 2016	High Tide (ft)	4.1
D12	02 Jun 2016	High Tide Time	753
D12	02 Jun 2016	Low Tide (ft)	0.8
D12	02 Jun 2016	Low Tide Time	1330
D12	02 Jun 2016	Comments	Seagrass; 20 Persons; Water clear
D12	08 Jun 2016	Arrive Time	1120
D12	08 Jun 2016	Weather	Cloudy
D12	08 Jun 2016	Wind Speed (kts)	2.7
D12	08 Jun 2016	Wind Dir	N
D12	08 Jun 2016	Animal Life	None
D12	08 Jun 2016	Floatables	None
D12	08 Jun 2016	Water Color	Green
D12	08 Jun 2016	Current Direction	N
D12	08 Jun 2016	Wave Height Low (ft)	1
D12	08 Jun 2016	High Tide (ft)	3.9
D12	08 Jun 2016	High Tide Time	1313
D12	08 Jun 2016	Low Tide (ft)	-0.8
D12	08 Jun 2016	Low Tide Time	638
D12	08 Jun 2016	Comments	Water clear; Tuna crabs onshore
D12	14 Jun 2016	Arrive Time	850

Station	Date	Parameter	Value
D12	14 Jun 2016	Weather	Cloudy
D12	14 Jun 2016	Wind Speed (kts)	6
D12	14 Jun 2016	Wind Dir	W
D12	14 Jun 2016	Animal Life	None
D12	14 Jun 2016	Floatables	None
D12	14 Jun 2016	Water Color	Green
D12	14 Jun 2016	Current Direction	W
D12	14 Jun 2016	Wave Height Low (ft)	3
D12	14 Jun 2016	High Tide (ft)	3.3
D12	14 Jun 2016	High Tide Time	606
D12	14 Jun 2016	Low Tide (ft)	1.4
D12	14 Jun 2016	Low Tide Time	1151
D12	14 Jun 2016	Comments	Kelp; Seagrass; Water turbid; Many small blue jellyfish and small tuna crabs
D12	20 Jun 2016	Arrive Time	1027
D12	20 Jun 2016	Weather	Sunny
D12	20 Jun 2016	Wind Speed (kts)	4
D12	20 Jun 2016	Wind Dir	W
D12	20 Jun 2016	Animal Life	None
D12	20 Jun 2016	Floatables	None
D12	20 Jun 2016	Water Color	Green
D12	20 Jun 2016	Current Direction	W
D12	20 Jun 2016	Wave Height Low (ft)	3
D12	20 Jun 2016	High Tide (ft)	3.8
D12	20 Jun 2016	High Tide Time	1028
D12	20 Jun 2016	Low Tide (ft)	1.9
D12	20 Jun 2016	Low Tide Time	1528
D12	20 Jun 2016	Comments	50 Persons; 2 Surfers; Water clear
D12	27 Jun 2016	Arrive Time	1155
D12	27 Jun 2016	Weather	Cloudy
D12	27 Jun 2016	Wind Speed (kts)	4.2
D12	27 Jun 2016	Wind Dir	W
D12	27 Jun 2016	Animal Life	None
D12	27 Jun 2016	Floatables	None
D12	27 Jun 2016	Water Color	Green
D12	27 Jun 2016	Current Direction	W
D12	27 Jun 2016	Wave Height Low (ft)	3
D12	27 Jun 2016	High Tide (ft)	4.7
D12	27 Jun 2016	High Tide Time	1604
D12	27 Jun 2016	Low Tide (ft)	0.6
D12	27 Jun 2016	Low Tide Time	917
D12	27 Jun 2016	Comments	35 Persons

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# Kelp Stations



**Table 3.1**

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Jun 2016	5	2	3	2	3	3	4	3
02 Jun 2016	5	2	3	2	3	3	4	3
03 Jun 2016	5	2	3	2	3	3	4	3
04 Jun 2016	7	3	4	2	2	4	4	4
05 Jun 2016	7	3	4	2	2	4	4	4
06 Jun 2016	7	3	4	2	2	4	4	4
07 Jun 2016	7	3	4	2	2	4	4	4
08 Jun 2016	7	3	4	2	2	4	4	4
09 Jun 2016	7	3	4	2	2	4	4	4
10 Jun 2016	7	3	4	2	2	4	4	4
11 Jun 2016	6*	3*	3*	2*	2*	4*	4*	3*
12 Jun 2016	6*	3*	3*	2*	2*	4*	4*	3*
13 Jun 2016	6*	3*	3*	2*	2*	4*	4*	3*
14 Jun 2016	6*	3*	3*	2*	2*	4*	4*	3*
15 Jun 2016	9*	4*	3*	2*	2*	5*	5*	4*
16 Jun 2016	20*	5*	3*	3*	3*	7*	6*	5*
17 Jun 2016	20*	5*	3*	3*	3*	7*	6*	5*
18 Jun 2016	20*	5*	3*	3*	3*	7*	6*	5*
19 Jun 2016	20*	5*	3*	3*	3*	7*	6*	5*
20 Jun 2016	22	8	6	3	3	7	5	4
21 Jun 2016	23*	12*	7*	3*	3*	9*	7*	5*
22 Jun 2016	19	8	6	3	3	7	6	5
23 Jun 2016	19	8	6	3	3	7	6	5
24 Jun 2016	19	8	6	3	3	7	6	5
25 Jun 2016	19	8	6	3	3	7	6	5
26 Jun 2016	19	8	6	3	3	7	6	5
27 Jun 2016	13	6	5	3	3	7	5	4
28 Jun 2016	13	6	5	3	3	7	5	4
29 Jun 2016	13	6	5	3	3	7	5	4
30 Jun 2016	17	8	6	3	3	6	4	4

\* Geometric mean calculated using n<5

**Table 3.2**

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Jun 2016	2	2	2	2	2	2	2	2
02 Jun 2016	2	2	2	2	2	2	2	2
03 Jun 2016	2	2	2	2	2	2	2	2
04 Jun 2016	2	2	2	2	2	2	2	2
05 Jun 2016	2	2	2	2	2	2	2	2
06 Jun 2016	2	2	2	2	2	2	2	2
07 Jun 2016	2	2	2	2	2	2	2	2
08 Jun 2016	2	2	2	2	2	2	2	2
09 Jun 2016	2	2	2	2	2	2	2	2
10 Jun 2016	2	2	2	2	2	2	2	2
11 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
12 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
13 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
14 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
15 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
16 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
17 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
18 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
19 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
20 Jun 2016	2	2	2	2	2	2	2	2
21 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
22 Jun 2016	2	2	2	2	2	2	2	2
23 Jun 2016	2	2	2	2	2	2	2	2
24 Jun 2016	2	2	2	2	2	2	2	2
25 Jun 2016	2	2	2	2	2	2	2	2
26 Jun 2016	2	2	2	2	2	2	2	2
27 Jun 2016	2	2	2	2	2	2	2	2
28 Jun 2016	2	2	2	2	2	2	2	2
29 Jun 2016	2	2	2	2	2	2	2	2
30 Jun 2016	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 Jun 2016	2	2	2	2	2	2	2	2
02 Jun 2016	2	2	2	2	2	2	2	2
03 Jun 2016	2	2	2	2	2	2	2	2
04 Jun 2016	2	2	2	2	2	2	2	2
05 Jun 2016	2	2	2	2	2	2	2	2
06 Jun 2016	2	2	2	2	2	2	2	2
07 Jun 2016	2	2	2	2	2	2	2	2
08 Jun 2016	2	2	2	2	2	2	2	2
09 Jun 2016	2	2	2	2	2	2	2	2
10 Jun 2016	2	2	2	2	2	2	2	2
11 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
12 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
13 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
14 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
15 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
16 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
17 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
18 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
19 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
20 Jun 2016	2	2	2	2	2	2	2	2
21 Jun 2016	2*	2*	2*	2*	2*	2*	2*	2*
22 Jun 2016	2	2	2	2	2	2	2	2
23 Jun 2016	2	2	2	2	2	2	2	2
24 Jun 2016	2	2	2	2	2	2	2	2
25 Jun 2016	2	2	2	2	2	2	2	2
26 Jun 2016	2	2	2	2	2	2	2	2
27 Jun 2016	2	2	2	2	2	2	2	2
28 Jun 2016	2	2	2	2	2	2	2	2
29 Jun 2016	2	2	2	2	2	2	2	2
30 Jun 2016	2	2	2	2	2	2	2	2

\* Geometric mean calculated using n<5

**Table 3.4**

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
04 Jun 2016	IC							
16 Jun 2016	IC							
20 Jun 2016	IC							
22 Jun 2016	IC							
27 Jun 2016	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

**Table 3.5**

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
04 Jun 2016	IC							
16 Jun 2016	IC							
20 Jun 2016	IC							
22 Jun 2016	IC							
27 Jun 2016	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

**Table 3.6**

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
04 Jun 2016	IC							
16 Jun 2016	IC							
20 Jun 2016	IC							
22 Jun 2016	IC							
27 Jun 2016	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

**Table 3.7**

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
04 Jun 2016	IC							
16 Jun 2016	IC							
20 Jun 2016	IC							
22 Jun 2016	IC							
27 Jun 2016	IC							

IC = In Compliance

E = Exceedance

ns = not sampled

**Table 3.8**

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

Station	Date	Time	Depth	Total	Fecal	Enter	F:T	N-NH <sub>3</sub>	Temp	XMS	DO	Sal	pH
A1	04 Jun 2016	812	1	<20	<2	<2	0.100	ns	15.6	73.19	7.4	33.52	8.0
A1	04 Jun 2016	812	12	6e	<2	<2	0.333	ns	13.1	80.05	5.2	33.52	8.0
A1	04 Jun 2016	812	18	6e	<2	<2	0.333	ns	11.6	81.33	4.4	33.57	7.9
A1	16 Jun 2016	818	1	2e	<2	<2	1.000	ns	18.4	77.21	8.1	33.56	8.2
A1	16 Jun 2016	818	12	620	<2	<2	0.003	ns	17.2	76.59	7.4	33.55	8.1
A1	16 Jun 2016	818	18	<2	<2	<2	1.000	ns	13.6	78.50	5.7	33.38	8.1
A1	20 Jun 2016	819	1	<2	<2	<2	1.000	ns	16.5	72.07	7.8	33.53	8.1
A1	20 Jun 2016	819	12	56	<2	<2	0.036	ns	11.7	82.85	3.8	33.53	7.8
A1	20 Jun 2016	819	18	52	2e	<2	0.038	ns	10.7	81.77	3.6	33.62	7.8
A1	22 Jun 2016	801	1	2e	<2	<2	1.000	ns	18.8	74.85	7.6	33.56	8.1
A1	22 Jun 2016	801	12	<20	<2	<2	0.100	ns	15.7	67.87	5.4	33.48	8.1
A1	22 Jun 2016	801	18	<2	<2	<2	1.000	ns	12.5	81.06	5.3	33.47	7.9
A1	27 Jun 2016	747	1	<2	<2	<2	1.000	ns	19.6	76.70	7.9	33.55	8.2
A1	27 Jun 2016	747	12	<2	<2	<2	1.000	ns	17.7	82.60	6.5	33.48	8.2
A1	27 Jun 2016	747	18	2e	<2	<2	1.000	ns	12.8	80.44	6.0	33.44	8.0
C4	04 Jun 2016	956	1	<2	<2	<2	1.000	ns	15.3	74.55	6.7	33.54	8.1
C4	04 Jun 2016	956	3	<2	<2	<2	1.000	ns	15.2	74.49	6.6	33.53	8.1
C4	04 Jun 2016	956	9	<2	<2	<2	1.000	ns	13.7	79.46	5.4	33.52	8.0
C4	16 Jun 2016	1022	1	<2	<2	<2	1.000	ns	19.3	72.57	7.0	33.60	8.1
C4	16 Jun 2016	1022	3	<20	<2	<2	0.100	ns	18.8	60.86	7.3	33.58	8.1
C4	16 Jun 2016	1022	9	<20	<2	<2	0.100	ns	17.1	62.77	7.1	33.51	8.2
C4	20 Jun 2016	1018	1	<2	<2	<2	1.000	ns	16.4	70.51	7.5	33.42	8.1
C4	20 Jun 2016	1018	3	<2	<2	<2	1.000	ns	15.8	71.48	6.8	33.51	8.1
C4	20 Jun 2016	1018	9	<2	<2	<2	1.000	ns	13.0	77.89	4.8	33.51	7.9
C4	22 Jun 2016	937	1	4e	<2	<2	0.500	ns	18.7	77.34	7.2	33.56	8.1
C4	22 Jun 2016	937	3	<2	<2	<2	1.000	ns	17.9	75.17	7.2	33.54	8.1
C4	22 Jun 2016	937	9	<2	<2	<2	1.000	ns	16.0	79.82	5.9	33.49	8.1
C4	27 Jun 2016	926	1	<2	<2	<2	1.000	ns	20.0	74.43	6.8	33.56	8.1
C4	27 Jun 2016	926	3	<2	<2	<2	1.000	ns	19.7	69.64	7.3	33.55	8.1
C4	27 Jun 2016	926	9	<2	<2	<2	1.000	ns	18.0	79.65	5.6	33.50	8.1
C5	04 Jun 2016	944	1	2e	<2	<2	1.000	ns	16.7	69.74	7.7	33.54	8.1
C5	04 Jun 2016	944	3	<2	<2	<2	1.000	ns	16.3	74.12	7.1	33.54	8.1
C5	04 Jun 2016	944	9	<2	<2	<2	1.000	ns	13.7	83.20	5.4	33.53	8.0
C5	16 Jun 2016	1006	1	<2	<2	<2	1.000	ns	19.6	70.98	7.3	33.61	8.2
C5	16 Jun 2016	1006	3	<20	<2	<2	0.100	ns	19.1	70.51	7.1	33.58	8.2

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	N-NH3	Temp	XMS	DO	Sal	pH
C5	16 Jun 2016	1006	9	<2	<2	<2	1.000	ns	16.4	77.11	6.8	33.50	8.1
C5	20 Jun 2016	1007	1	<2	<2	<2	1.000	ns	16.5	71.51	7.1	33.60	8.1
C5	20 Jun 2016	1007	3	<2	<2	<2	1.000	ns	16.3	70.94	7.0	33.62	8.1
C5	20 Jun 2016	1007	9	<2	<2	<2	1.000	ns	14.3	78.26	6.9	34.77	8.0
C5	22 Jun 2016	925	1	2e	<2	<2	1.000	ns	19.7	80.41	7.7	33.59	8.2
C5	22 Jun 2016	925	3	2e	<2	<2	1.000	ns	18.6	78.65	7.5	33.53	8.2
C5	22 Jun 2016	925	9	<2	<2	<2	1.000	ns	16.7	81.00	6.8	33.52	8.1
C5	27 Jun 2016	919	1	<2	<2	<2	1.000	ns	19.7	75.75	7.4	33.56	8.1
C5	27 Jun 2016	919	3	<2	<2	<2	1.000	ns	19.5	75.80	7.4	33.56	8.1
C5	27 Jun 2016	919	9	<2	<2	<2	1.000	ns	16.5	78.56	6.0	33.47	8.0
A6	04 Jun 2016	842	1	<2	<2	<2	1.000	ns	16.4	73.01	7.7	33.53	8.1
A6	04 Jun 2016	842	12	6e	2e	<2	0.333	ns	13.0	79.84	5.4	33.52	8.0
A6	04 Jun 2016	842	18	48	6e	<2	0.125	ns	11.5	83.31	4.5	33.56	8.0
A6	16 Jun 2016	854	1	<20	<2	<2	0.100	ns	19.1	75.27	7.7	33.60	8.2
A6	16 Jun 2016	854	12	2e	<2	<2	1.000	ns	16.6	73.13	7.3	33.45	8.1
A6	16 Jun 2016	854	18	10e	<2	<2	0.200	ns	14.7	74.06	6.5	33.48	8.1
A6	20 Jun 2016	902	1	<2	<2	<2	1.000	ns	17.3	72.10	8.0	33.48	8.1
A6	20 Jun 2016	902	12	20e	<2	<2	0.100	ns	12.4	82.46	4.4	33.48	7.9
A6	20 Jun 2016	902	18	110	<2	<2	0.018	ns	11.4	83.00	3.9	33.55	7.8
A6	22 Jun 2016	827	1	<2	<2	<2	1.000	ns	19.7	80.80	7.7	33.59	8.2
A6	22 Jun 2016	827	12	<2	<2	<2	1.000	ns	14.1	75.85	6.1	33.48	8.0
A6	22 Jun 2016	827	18	2e	<2	<2	1.000	ns	13.6	77.84	5.9	33.50	8.0
A6	27 Jun 2016	816	1	<2	<2	<2	1.000	ns	19.6	70.47	7.9	33.57	8.2
A6	27 Jun 2016	816	12	2e	<2	<2	1.000	ns	16.2	82.69	6.3	33.45	8.1
A6	27 Jun 2016	816	18	2e	<2	<2	1.000	ns	14.4	82.44	6.5	33.44	8.0
C6	04 Jun 2016	933	1	<2	<2	<2	1.000	ns	16.8	75.06	8.1	33.54	8.1
C6	04 Jun 2016	933	3	<2	<2	<2	1.000	ns	16.2	73.85	7.4	33.55	8.1
C6	04 Jun 2016	933	9	6e	<2	<2	0.333	ns	13.0	83.39	4.8	33.53	8.0
C6	16 Jun 2016	949	1	<20	<2	<2	0.100	ns	19.1	66.92	7.3	33.31	8.2
C6	16 Jun 2016	949	3	<20	<2	<2	0.100	ns	18.9	67.27	7.2	33.56	8.2
C6	16 Jun 2016	949	9	<20	<2	<2	0.100	ns	16.0	72.27	6.6	33.50	8.1
C6	20 Jun 2016	956	1	<2	<2	<2	1.000	ns	17.5	64.47	7.9	33.49	8.1
C6	20 Jun 2016	956	3	<20	<2	<2	0.100	ns	16.5	68.94	7.6	33.52	8.1
C6	20 Jun 2016	956	9	<2	<2	<2	1.000	ns	12.9	78.95	5.1	33.48	8.0
C6	22 Jun 2016	914	1	<2	<2	<2	1.000	ns	19.6	79.80	7.7	33.59	8.2
C6	22 Jun 2016	914	3	<2	<2	<2	1.000	ns	19.4	80.68	7.5	33.56	8.2
C6	22 Jun 2016	914	9	<2	<2	<2	1.000	ns	16.2	80.65	7.0	33.53	8.1
C6	27 Jun 2016	907	1	<20	<2	<2	0.100	ns	19.8	65.29	7.5	33.57	8.1
C6	27 Jun 2016	907	3	<2	<2	<2	1.000	ns	19.7	68.40	7.4	33.57	8.1
C6	27 Jun 2016	907	9	<2	<2	<2	1.000	ns	17.4	77.70	6.2	33.47	8.1
A7	04 Jun 2016	827	1	<2	<2	<2	1.000	ns	15.8	73.11	7.1	33.52	8.1

Station	Date	Time	Depth	Total	Fecal	Enteric	F:T	N-NH3	Temp	XMS	DO	Sal	pH
A7	04 Jun 2016	827	12	6e	<2	<2	0.333	ns	13.1	81.49	5.3	33.53	8.0
A7	04 Jun 2016	827	18	22e	<2	<2	0.091	ns	12.2	83.57	4.7	33.56	7.9
A7	16 Jun 2016	836	1	<2	<2	<2	1.000	ns	18.8	79.02	7.8	33.59	8.2
A7	16 Jun 2016	836	12	<2	<2	<2	1.000	ns	17.4	74.43	7.7	33.54	8.2
A7	16 Jun 2016	836	18	<2	<2	<2	1.000	ns	14.1	78.74	5.6	33.49	8.1
A7	20 Jun 2016	842	1	<2	<2	<2	1.000	ns	17.1	71.43	8.0	33.54	8.1
A7	20 Jun 2016	842	12	10e	<2	<2	0.200	ns	12.4	82.50	3.8	33.47	7.9
A7	20 Jun 2016	842	18	180e	6e	2e	0.033	ns	11.2	81.46	3.6	33.55	7.8
A7	22 Jun 2016	816	1	4e	<2	<2	0.500	ns	18.6	75.60	7.7	33.55	8.1
A7	22 Jun 2016	816	12	<2	<2	<2	1.000	ns	15.4	67.77	6.2	33.49	8.1
A7	22 Jun 2016	816	18	<2	<2	<2	1.000	ns	12.8	79.45	5.6	33.47	7.9
A7	27 Jun 2016	804	1	<2	<2	<2	1.000	ns	19.4	78.37	8.1	33.56	8.2
A7	27 Jun 2016	804	12	<2	<2	<2	1.000	ns	17.9	83.14	7.6	33.49	8.2
A7	27 Jun 2016	804	18	2e	<2	<2	1.000	ns	15.1	82.34	6.0	33.42	8.1
C7	04 Jun 2016	858	1	4e	2e	2e	0.500	ns	16.6	75.53	8.1	33.54	8.1
C7	04 Jun 2016	858	12	<2	<2	<2	1.000	ns	12.5	83.72	4.9	33.53	8.0
C7	04 Jun 2016	858	18	4e	<2	<2	0.500	ns	12.0	85.84	4.4	33.54	7.9
C7	16 Jun 2016	910	1	<20	<2	<2	0.100	ns	19.2	72.55	7.9	33.60	8.2
C7	16 Jun 2016	910	12	<2	<2	<2	1.000	ns	15.0	75.81	6.6	33.45	8.1
C7	16 Jun 2016	910	18	<2	<2	<2	1.000	ns	13.9	80.44	6.1	33.45	8.1
C7	20 Jun 2016	923	1	<2	2e	<2	1.000	ns	18.1	75.08	7.8	33.56	8.1
C7	20 Jun 2016	923	12	<2	<2	<2	1.000	ns	13.1	79.39	5.0	33.46	8.0
C7	20 Jun 2016	923	18	10e	<2	<2	0.200	ns	11.7	84.87	4.0	33.53	7.9
C7	22 Jun 2016	842	1	<2	<2	<2	1.000	ns	20.3	82.07	7.6	33.60	8.2
C7	22 Jun 2016	842	12	<2	<2	<2	1.000	ns	15.6	78.16	6.4	33.50	8.1
C7	22 Jun 2016	842	18	8e	<2	<2	0.250	ns	12.7	84.23	5.0	33.50	7.9
C7	27 Jun 2016	831	1	<2	<2	<2	1.000	ns	19.8	75.06	8.1	33.57	8.2
C7	27 Jun 2016	831	12	2e	<2	<2	1.000	ns	16.9	73.59	6.2	33.48	8.1
C7	27 Jun 2016	831	18	2e	<2	<2	1.000	ns	14.8	80.91	6.4	33.48	8.0
C8	04 Jun 2016	912	1	<2	<2	<2	1.000	ns	15.8	71.99	7.6	33.54	8.1
C8	04 Jun 2016	912	12	2e	<2	<2	1.000	ns	12.5	82.32	5.0	33.53	8.0
C8	04 Jun 2016	912	18	4e	<2	<2	0.500	ns	11.6	85.18	4.2	33.55	7.9
C8	16 Jun 2016	923	1	<20	<2	<2	0.100	ns	19.4	69.14	7.9	33.60	8.2
C8	16 Jun 2016	923	12	34e	8e	<2	0.235	ns	14.8	77.21	6.5	33.47	8.1
C8	16 Jun 2016	923	18	2e	<2	<2	1.000	ns	13.9	76.80	5.9	33.47	8.0
C8	20 Jun 2016	938	1	<2	<2	<2	1.000	ns	18.6	81.31	8.1	33.56	8.2
C8	20 Jun 2016	938	12	<2	<2	<2	1.000	ns	14.1	65.42	6.7	33.45	8.1
C8	20 Jun 2016	938	18	<2	<2	<2	1.000	ns	11.9	85.48	4.2	33.47	7.9
C8	22 Jun 2016	854	1	<2	<2	<2	1.000	ns	20.4	83.99	7.6	33.60	8.2
C8	22 Jun 2016	854	12	<2	<2	<2	1.000	ns	14.9	75.55	6.0	33.49	8.1
C8	22 Jun 2016	854	18	8e	<2	<2	0.250	ns	12.6	83.49	4.9	33.50	7.9

<b>Station</b>	<b>Date</b>	<b>Time</b>	<b>Depth</b>	<b>Total</b>	<b>Fecal</b>	<b>Enter</b>	<b>F:T</b>	<b>N-NH3</b>	<b>Temp</b>	<b>XMS</b>	<b>DO</b>	<b>Sal</b>	<b>pH</b>
C8	27 Jun 2016	848	1	<2	<2	<2	1.000	ns	19.7	76.65	8.2	33.57	8.2
C8	27 Jun 2016	848	12	<2	<2	<2	1.000	ns	16.9	77.66	6.1	33.48	8.1
C8	27 Jun 2016	848	18	2e	<2	<2	1.000	ns	13.8	81.13	5.8	33.46	8.0

ns = not sampled

ND = no data

**Table 3.9**

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

Station	Date	Parameter	Value
A1	04 Jun 2016	Depth (m)	18
A1	04 Jun 2016	Arrive Time	812
A1	04 Jun 2016	Depart Time	818
A1	04 Jun 2016	Air Temp (C)	15
A1	04 Jun 2016	Weather	Fog
A1	04 Jun 2016	Visibility (mi)	1
A1	04 Jun 2016	Wind Speed (kts)	0
A1	04 Jun 2016	Wind Dir	
A1	04 Jun 2016	Water Color	Brownish-Green
A1	04 Jun 2016	Wave Ht Low (ft)	4
A1	04 Jun 2016	Wave Period (sec)	13
A1	04 Jun 2016	Sea State	Calm
A1	04 Jun 2016	High Tide (ft)	4.24
A1	04 Jun 2016	High Tide Time	940
A1	04 Jun 2016	Low Tide (ft)	1.1
A1	04 Jun 2016	Low Tide Time	1501
A1	04 Jun 2016	Comments	Kelp
A1	16 Jun 2016	Depth (m)	18
A1	16 Jun 2016	Arrive Time	818
A1	16 Jun 2016	Depart Time	830
A1	16 Jun 2016	Air Temp (C)	17
A1	16 Jun 2016	Weather	Partly Cloudy
A1	16 Jun 2016	Visibility (mi)	8
A1	16 Jun 2016	Wind Speed (kts)	1
A1	16 Jun 2016	Wind Dir	E
A1	16 Jun 2016	Water Color	Brownish-Green
A1	16 Jun 2016	Wave Ht Low (ft)	5
A1	16 Jun 2016	Wave Period (sec)	13
A1	16 Jun 2016	Sea State	Calm
A1	16 Jun 2016	High Tide (ft)	3.42
A1	16 Jun 2016	High Tide Time	755
A1	16 Jun 2016	Low Tide (ft)	1.63
A1	16 Jun 2016	Low Tide Time	1310
A1	16 Jun 2016	Comments	Kelp; Lower XMS at surface due to bubbles; Large swell
A1	20 Jun 2016	Depth (m)	16
A1	20 Jun 2016	Arrive Time	819
A1	20 Jun 2016	Depart Time	838
A1	20 Jun 2016	Air Temp (C)	19
A1	20 Jun 2016	Weather	Clear
A1	20 Jun 2016	Visibility (mi)	15
A1	20 Jun 2016	Wind Speed (kts)	2
A1	20 Jun 2016	Wind Dir	SW
A1	20 Jun 2016	Water Color	Brownish-Green
A1	20 Jun 2016	Wave Ht Low (ft)	4
A1	20 Jun 2016	Wave Period (sec)	7
A1	20 Jun 2016	Sea State	Confused swell
A1	20 Jun 2016	High Tide (ft)	3.76
A1	20 Jun 2016	High Tide Time	1028
A1	20 Jun 2016	Low Tide (ft)	1.87

Station	Date	Parameter	Value
A1	20 Jun 2016	Low Tide Time	1528
A1	20 Jun 2016	Comments	Kelp debris
A1	22 Jun 2016	Depth (m)	18
A1	22 Jun 2016	Arrive Time	801
A1	22 Jun 2016	Depart Time	807
A1	22 Jun 2016	Air Temp (C)	19
A1	22 Jun 2016	Weather	Partly Cloudy
A1	22 Jun 2016	Visibility (mi)	8
A1	22 Jun 2016	Wind Speed (kts)	5
A1	22 Jun 2016	Wind Dir	N
A1	22 Jun 2016	Water Color	Brownish-Green
A1	22 Jun 2016	Wave Ht Low (ft)	4
A1	22 Jun 2016	Wave Period (sec)	19
A1	22 Jun 2016	Sea State	Wind ripples
A1	22 Jun 2016	High Tide (ft)	3.82
A1	22 Jun 2016	High Tide Time	1147
A1	22 Jun 2016	Low Tide (ft)	-0.66
A1	22 Jun 2016	Low Tide Time	526
A1	22 Jun 2016	Comments	
A1	27 Jun 2016	Depth (m)	18
A1	27 Jun 2016	Arrive Time	747
A1	27 Jun 2016	Depart Time	756
A1	27 Jun 2016	Air Temp (C)	19
A1	27 Jun 2016	Weather	Fog
A1	27 Jun 2016	Visibility (mi)	1
A1	27 Jun 2016	Wind Speed (kts)	3
A1	27 Jun 2016	Wind Dir	NW
A1	27 Jun 2016	Water Color	Brownish-Green
A1	27 Jun 2016	Wave Ht Low (ft)	3
A1	27 Jun 2016	Wave Period (sec)	9
A1	27 Jun 2016	Sea State	Calm
A1	27 Jun 2016	High Tide (ft)	4.69
A1	27 Jun 2016	High Tide Time	1604
A1	27 Jun 2016	Low Tide (ft)	0.63
A1	27 Jun 2016	Low Tide Time	917
A1	27 Jun 2016	Comments	Kelp
C4	04 Jun 2016	Depth (m)	10
C4	04 Jun 2016	Arrive Time	956
C4	04 Jun 2016	Depart Time	1000
C4	04 Jun 2016	Air Temp (C)	16
C4	04 Jun 2016	Weather	Fog
C4	04 Jun 2016	Visibility (mi)	2
C4	04 Jun 2016	Wind Speed (kts)	3
C4	04 Jun 2016	Wind Dir	NE
C4	04 Jun 2016	Water Color	Green
C4	04 Jun 2016	Wave Ht Low (ft)	4
C4	04 Jun 2016	Wave Period (sec)	13
C4	04 Jun 2016	Sea State	Calm
C4	04 Jun 2016	High Tide (ft)	4.24
C4	04 Jun 2016	High Tide Time	940
C4	04 Jun 2016	Low Tide (ft)	1.1
C4	04 Jun 2016	Low Tide Time	1501

Station	Date	Parameter	Value
C4	04 Jun 2016	Comments	Kelp debris
C4	16 Jun 2016	Depth (m)	10
C4	16 Jun 2016	Arrive Time	1022
C4	16 Jun 2016	Depart Time	1026
C4	16 Jun 2016	Air Temp (C)	17
C4	16 Jun 2016	Weather	Partly Cloudy
C4	16 Jun 2016	Visibility (mi)	8
C4	16 Jun 2016	Wind Speed (kts)	4
C4	16 Jun 2016	Wind Dir	S
C4	16 Jun 2016	Water Color	Greenish-Brown
C4	16 Jun 2016	Wave Ht Low (ft)	5
C4	16 Jun 2016	Wave Period (sec)	13
C4	16 Jun 2016	Sea State	Calm
C4	16 Jun 2016	High Tide (ft)	3.42
C4	16 Jun 2016	High Tide Time	755
C4	16 Jun 2016	Low Tide (ft)	1.63
C4	16 Jun 2016	Low Tide Time	1310
C4	16 Jun 2016	Comments	Kelp; Boats
C4	20 Jun 2016	Depth (m)	8
C4	20 Jun 2016	Arrive Time	1018
C4	20 Jun 2016	Depart Time	1025
C4	20 Jun 2016	Air Temp (C)	20
C4	20 Jun 2016	Weather	Clear
C4	20 Jun 2016	Visibility (mi)	15
C4	20 Jun 2016	Wind Speed (kts)	5
C4	20 Jun 2016	Wind Dir	W
C4	20 Jun 2016	Water Color	Brownish-Green
C4	20 Jun 2016	Wave Ht Low (ft)	4
C4	20 Jun 2016	Wave Period (sec)	7
C4	20 Jun 2016	Sea State	Confused swell
C4	20 Jun 2016	High Tide (ft)	3.76
C4	20 Jun 2016	High Tide Time	1028
C4	20 Jun 2016	Low Tide (ft)	1.87
C4	20 Jun 2016	Low Tide Time	1528
C4	20 Jun 2016	Comments	Kelp
C4	22 Jun 2016	Depth (m)	11
C4	22 Jun 2016	Arrive Time	937
C4	22 Jun 2016	Depart Time	943
C4	22 Jun 2016	Air Temp (C)	20
C4	22 Jun 2016	Weather	Partly Cloudy
C4	22 Jun 2016	Visibility (mi)	11
C4	22 Jun 2016	Wind Speed (kts)	5
C4	22 Jun 2016	Wind Dir	SW
C4	22 Jun 2016	Water Color	Bluish-Green
C4	22 Jun 2016	Wave Ht Low (ft)	4
C4	22 Jun 2016	Wave Period (sec)	19
C4	22 Jun 2016	Sea State	Wind ripples
C4	22 Jun 2016	High Tide (ft)	3.82
C4	22 Jun 2016	High Tide Time	1147
C4	22 Jun 2016	Low Tide (ft)	-0.66
C4	22 Jun 2016	Low Tide Time	526
C4	22 Jun 2016	Comments	Kelp debris

Station	Date	Parameter	Value
C4	27 Jun 2016	Depth (m)	10
C4	27 Jun 2016	Arrive Time	926
C4	27 Jun 2016	Depart Time	930
C4	27 Jun 2016	Air Temp (C)	19
C4	27 Jun 2016	Weather	Fog
C4	27 Jun 2016	Visibility (mi)	1
C4	27 Jun 2016	Wind Speed (kts)	1
C4	27 Jun 2016	Wind Dir	S
C4	27 Jun 2016	Water Color	Brownish-Green
C4	27 Jun 2016	Wave Ht Low (ft)	3
C4	27 Jun 2016	Wave Period (sec)	9
C4	27 Jun 2016	Sea State	Calm
C4	27 Jun 2016	High Tide (ft)	4.69
C4	27 Jun 2016	High Tide Time	1604
C4	27 Jun 2016	Low Tide (ft)	0.63
C4	27 Jun 2016	Low Tide Time	917
C4	27 Jun 2016	Comments	Kelp
C5	04 Jun 2016	Depth (m)	9
C5	04 Jun 2016	Arrive Time	944
C5	04 Jun 2016	Depart Time	949
C5	04 Jun 2016	Air Temp (C)	16
C5	04 Jun 2016	Weather	Fog
C5	04 Jun 2016	Visibility (mi)	2
C5	04 Jun 2016	Wind Speed (kts)	1
C5	04 Jun 2016	Wind Dir	S
C5	04 Jun 2016	Water Color	Green
C5	04 Jun 2016	Wave Ht Low (ft)	4
C5	04 Jun 2016	Wave Period (sec)	13
C5	04 Jun 2016	Sea State	Calm
C5	04 Jun 2016	High Tide (ft)	4.24
C5	04 Jun 2016	High Tide Time	940
C5	04 Jun 2016	Low Tide (ft)	1.1
C5	04 Jun 2016	Low Tide Time	1501
C5	04 Jun 2016	Comments	Kelp
C5	16 Jun 2016	Depth (m)	10
C5	16 Jun 2016	Arrive Time	1006
C5	16 Jun 2016	Depart Time	1022
C5	16 Jun 2016	Air Temp (C)	17
C5	16 Jun 2016	Weather	Partly Cloudy
C5	16 Jun 2016	Visibility (mi)	8
C5	16 Jun 2016	Wind Speed (kts)	3
C5	16 Jun 2016	Wind Dir	S
C5	16 Jun 2016	Water Color	Green
C5	16 Jun 2016	Wave Ht Low (ft)	5
C5	16 Jun 2016	Wave Period (sec)	13
C5	16 Jun 2016	Sea State	Calm
C5	16 Jun 2016	High Tide (ft)	3.42
C5	16 Jun 2016	High Tide Time	755
C5	16 Jun 2016	Low Tide (ft)	1.63
C5	16 Jun 2016	Low Tide Time	1310
C5	16 Jun 2016	Comments	Kelp

Station	Date	Parameter	Value
C5	20 Jun 2016	Depth (m)	7
C5	20 Jun 2016	Arrive Time	1007
C5	20 Jun 2016	Depart Time	1011
C5	20 Jun 2016	Air Temp (C)	20
C5	20 Jun 2016	Weather	Clear
C5	20 Jun 2016	Visibility (mi)	15
C5	20 Jun 2016	Wind Speed (kts)	6
C5	20 Jun 2016	Wind Dir	SE
C5	20 Jun 2016	Water Color	Brownish-Green
C5	20 Jun 2016	Wave Ht Low (ft)	4
C5	20 Jun 2016	Wave Period (sec)	7
C5	20 Jun 2016	Sea State	Confused swell
C5	20 Jun 2016	High Tide (ft)	3.76
C5	20 Jun 2016	High Tide Time	1028
C5	20 Jun 2016	Low Tide (ft)	1.87
C5	20 Jun 2016	Low Tide Time	1528
C5	20 Jun 2016	Comments	Kelp; Seagrass
C5	22 Jun 2016	Depth (m)	10
C5	22 Jun 2016	Arrive Time	925
C5	22 Jun 2016	Depart Time	930
C5	22 Jun 2016	Air Temp (C)	20
C5	22 Jun 2016	Weather	Partly Cloudy
C5	22 Jun 2016	Visibility (mi)	10
C5	22 Jun 2016	Wind Speed (kts)	3
C5	22 Jun 2016	Wind Dir	NE
C5	22 Jun 2016	Water Color	Bluish-Green
C5	22 Jun 2016	Wave Ht Low (ft)	4
C5	22 Jun 2016	Wave Period (sec)	19
C5	22 Jun 2016	Sea State	Wind ripples
C5	22 Jun 2016	High Tide (ft)	3.82
C5	22 Jun 2016	High Tide Time	1147
C5	22 Jun 2016	Low Tide (ft)	-0.66
C5	22 Jun 2016	Low Tide Time	526
C5	22 Jun 2016	Comments	Kelp
C5	27 Jun 2016	Depth (m)	10
C5	27 Jun 2016	Arrive Time	919
C5	27 Jun 2016	Depart Time	919
C5	27 Jun 2016	Air Temp (C)	19
C5	27 Jun 2016	Weather	Fog
C5	27 Jun 2016	Visibility (mi)	1
C5	27 Jun 2016	Wind Speed (kts)	0
C5	27 Jun 2016	Wind Dir	
C5	27 Jun 2016	Water Color	Brownish-Green
C5	27 Jun 2016	Wave Ht Low (ft)	3
C5	27 Jun 2016	Wave Period (sec)	9
C5	27 Jun 2016	Sea State	Calm
C5	27 Jun 2016	High Tide (ft)	4.69
C5	27 Jun 2016	High Tide Time	1604
C5	27 Jun 2016	Low Tide (ft)	0.63
C5	27 Jun 2016	Low Tide Time	917
C5	27 Jun 2016	Comments	Kelp
A6	04 Jun 2016	Depth (m)	18

Station	Date	Parameter	Value
A6	04 Jun 2016	Arrive Time	842
A6	04 Jun 2016	Depart Time	848
A6	04 Jun 2016	Air Temp (C)	16
A6	04 Jun 2016	Weather	Fog
A6	04 Jun 2016	Visibility (mi)	1
A6	04 Jun 2016	Wind Speed (kts)	0
A6	04 Jun 2016	Wind Dir	
A6	04 Jun 2016	Water Color	Green
A6	04 Jun 2016	Wave Ht Low (ft)	4
A6	04 Jun 2016	Wave Period (sec)	13
A6	04 Jun 2016	Sea State	Calm
A6	04 Jun 2016	High Tide (ft)	4.24
A6	04 Jun 2016	High Tide Time	940
A6	04 Jun 2016	Low Tide (ft)	1.1
A6	04 Jun 2016	Low Tide Time	1501
A6	04 Jun 2016	Comments	Lots of tuna crab on station; Kelp debris
A6	16 Jun 2016	Depth (m)	19
A6	16 Jun 2016	Arrive Time	854
A6	16 Jun 2016	Depart Time	858
A6	16 Jun 2016	Air Temp (C)	17
A6	16 Jun 2016	Weather	Partly Cloudy
A6	16 Jun 2016	Visibility (mi)	8
A6	16 Jun 2016	Wind Speed (kts)	3
A6	16 Jun 2016	Wind Dir	SW
A6	16 Jun 2016	Water Color	Green
A6	16 Jun 2016	Wave Ht Low (ft)	5
A6	16 Jun 2016	Wave Period (sec)	13
A6	16 Jun 2016	Sea State	Calm
A6	16 Jun 2016	High Tide (ft)	3.42
A6	16 Jun 2016	High Tide Time	755
A6	16 Jun 2016	Low Tide (ft)	1.63
A6	16 Jun 2016	Low Tide Time	1310
A6	16 Jun 2016	Comments	Kelp; Seagrass
A6	20 Jun 2016	Depth (m)	17
A6	20 Jun 2016	Arrive Time	902
A6	20 Jun 2016	Depart Time	915
A6	20 Jun 2016	Air Temp (C)	20
A6	20 Jun 2016	Weather	Clear
A6	20 Jun 2016	Visibility (mi)	15
A6	20 Jun 2016	Wind Speed (kts)	4
A6	20 Jun 2016	Wind Dir	NE
A6	20 Jun 2016	Water Color	Green
A6	20 Jun 2016	Wave Ht Low (ft)	4
A6	20 Jun 2016	Wave Period (sec)	7
A6	20 Jun 2016	Sea State	Confused swell
A6	20 Jun 2016	High Tide (ft)	3.76
A6	20 Jun 2016	High Tide Time	1028
A6	20 Jun 2016	Low Tide (ft)	1.87
A6	20 Jun 2016	Low Tide Time	1528
A6	20 Jun 2016	Comments	Kelp; Boats
A6	22 Jun 2016	Depth (m)	17
A6	22 Jun 2016	Arrive Time	827

Station	Date	Parameter	Value
A6	22 Jun 2016	Depart Time	833
A6	22 Jun 2016	Air Temp (C)	20
A6	22 Jun 2016	Weather	Partly Cloudy
A6	22 Jun 2016	Visibility (mi)	8
A6	22 Jun 2016	Wind Speed (kts)	5
A6	22 Jun 2016	Wind Dir	N
A6	22 Jun 2016	Water Color	Brownish-Green
A6	22 Jun 2016	Wave Ht Low (ft)	4
A6	22 Jun 2016	Wave Period (sec)	19
A6	22 Jun 2016	Sea State	Wind ripples
A6	22 Jun 2016	High Tide (ft)	3.82
A6	22 Jun 2016	High Tide Time	1147
A6	22 Jun 2016	Low Tide (ft)	-0.66
A6	22 Jun 2016	Low Tide Time	526
A6	22 Jun 2016	Comments	
A6	27 Jun 2016	Depth (m)	7
A6	27 Jun 2016	Arrive Time	816
A6	27 Jun 2016	Depart Time	821
A6	27 Jun 2016	Air Temp (C)	19
A6	27 Jun 2016	Weather	Fog
A6	27 Jun 2016	Visibility (mi)	1
A6	27 Jun 2016	Wind Speed (kts)	1
A6	27 Jun 2016	Wind Dir	N
A6	27 Jun 2016	Water Color	Brownish-Green
A6	27 Jun 2016	Wave Ht Low (ft)	3
A6	27 Jun 2016	Wave Period (sec)	9
A6	27 Jun 2016	Sea State	Calm
A6	27 Jun 2016	High Tide (ft)	4.69
A6	27 Jun 2016	High Tide Time	1604
A6	27 Jun 2016	Low Tide (ft)	0.63
A6	27 Jun 2016	Low Tide Time	917
A6	27 Jun 2016	Comments	Kelp; Boats
C6	04 Jun 2016	Depth (m)	9
C6	04 Jun 2016	Arrive Time	933
C6	04 Jun 2016	Depart Time	938
C6	04 Jun 2016	Air Temp (C)	16
C6	04 Jun 2016	Weather	Fog
C6	04 Jun 2016	Visibility (mi)	2
C6	04 Jun 2016	Wind Speed (kts)	1
C6	04 Jun 2016	Wind Dir	S
C6	04 Jun 2016	Water Color	Green
C6	04 Jun 2016	Wave Ht Low (ft)	4
C6	04 Jun 2016	Wave Period (sec)	13
C6	04 Jun 2016	Sea State	Calm
C6	04 Jun 2016	High Tide (ft)	4.24
C6	04 Jun 2016	High Tide Time	940
C6	04 Jun 2016	Low Tide (ft)	1.1
C6	04 Jun 2016	Low Tide Time	1501
C6	04 Jun 2016	Comments	Tuna crab on station; Kelp debris
C6	16 Jun 2016	Depth (m)	9
C6	16 Jun 2016	Arrive Time	949
C6	16 Jun 2016	Depart Time	953

Station	Date	Parameter	Value
C6	16 Jun 2016	Air Temp (C)	18
C6	16 Jun 2016	Weather	Partly Cloudy
C6	16 Jun 2016	Visibility (mi)	8
C6	16 Jun 2016	Wind Speed (kts)	3
C6	16 Jun 2016	Wind Dir	W
C6	16 Jun 2016	Water Color	Green
C6	16 Jun 2016	Wave Ht Low (ft)	5
C6	16 Jun 2016	Wave Period (sec)	13
C6	16 Jun 2016	Sea State	Calm
C6	16 Jun 2016	High Tide (ft)	3.42
C6	16 Jun 2016	High Tide Time	755
C6	16 Jun 2016	Low Tide (ft)	1.63
C6	16 Jun 2016	Low Tide Time	1310
C6	16 Jun 2016	Comments	Kelp
C6	20 Jun 2016	Depth (m)	9
C6	20 Jun 2016	Arrive Time	956
C6	20 Jun 2016	Depart Time	1001
C6	20 Jun 2016	Air Temp (C)	20
C6	20 Jun 2016	Weather	Clear
C6	20 Jun 2016	Visibility (mi)	15
C6	20 Jun 2016	Wind Speed (kts)	6
C6	20 Jun 2016	Wind Dir	S
C6	20 Jun 2016	Water Color	Brownish-Green
C6	20 Jun 2016	Wave Ht Low (ft)	4
C6	20 Jun 2016	Wave Period (sec)	7
C6	20 Jun 2016	Sea State	Confused swell
C6	20 Jun 2016	High Tide (ft)	3.76
C6	20 Jun 2016	High Tide Time	1028
C6	20 Jun 2016	Low Tide (ft)	1.87
C6	20 Jun 2016	Low Tide Time	1528
C6	20 Jun 2016	Comments	Kelp
C6	22 Jun 2016	Depth (m)	10
C6	22 Jun 2016	Arrive Time	914
C6	22 Jun 2016	Depart Time	920
C6	22 Jun 2016	Air Temp (C)	20
C6	22 Jun 2016	Weather	Partly Cloudy
C6	22 Jun 2016	Visibility (mi)	10
C6	22 Jun 2016	Wind Speed (kts)	2
C6	22 Jun 2016	Wind Dir	S
C6	22 Jun 2016	Water Color	Bluish-Green
C6	22 Jun 2016	Wave Ht Low (ft)	4
C6	22 Jun 2016	Wave Period (sec)	19
C6	22 Jun 2016	Sea State	Wind ripples
C6	22 Jun 2016	High Tide (ft)	3.82
C6	22 Jun 2016	High Tide Time	1147
C6	22 Jun 2016	Low Tide (ft)	-0.66
C6	22 Jun 2016	Low Tide Time	526
C6	22 Jun 2016	Comments	Kelp
C6	27 Jun 2016	Depth (m)	9
C6	27 Jun 2016	Arrive Time	907
C6	27 Jun 2016	Depart Time	909
C6	27 Jun 2016	Air Temp (C)	18

Station	Date	Parameter	Value
C6	27 Jun 2016	Weather	Fog
C6	27 Jun 2016	Visibility (mi)	1
C6	27 Jun 2016	Wind Speed (kts)	3
C6	27 Jun 2016	Wind Dir	NE
C6	27 Jun 2016	Water Color	Brownish-Green
C6	27 Jun 2016	Wave Ht Low (ft)	3
C6	27 Jun 2016	Wave Period (sec)	9
C6	27 Jun 2016	Sea State	Calm
C6	27 Jun 2016	High Tide (ft)	4.69
C6	27 Jun 2016	High Tide Time	1604
C6	27 Jun 2016	Low Tide (ft)	0.63
C6	27 Jun 2016	Low Tide Time	917
C6	27 Jun 2016	Comments	Kelp; Seagrass
A7	04 Jun 2016	Depth (m)	17
A7	04 Jun 2016	Arrive Time	827
A7	04 Jun 2016	Depart Time	832
A7	04 Jun 2016	Air Temp (C)	15
A7	04 Jun 2016	Weather	Fog
A7	04 Jun 2016	Visibility (mi)	1
A7	04 Jun 2016	Wind Speed (kts)	0
A7	04 Jun 2016	Wind Dir	
A7	04 Jun 2016	Water Color	Green
A7	04 Jun 2016	Wave Ht Low (ft)	4
A7	04 Jun 2016	Wave Period (sec)	13
A7	04 Jun 2016	Sea State	Calm
A7	04 Jun 2016	High Tide (ft)	4.24
A7	04 Jun 2016	High Tide Time	940
A7	04 Jun 2016	Low Tide (ft)	1.1
A7	04 Jun 2016	Low Tide Time	1501
A7	04 Jun 2016	Comments	Kelp; >1000 of tuna crab around boat
A7	16 Jun 2016	Depth (m)	19
A7	16 Jun 2016	Arrive Time	836
A7	16 Jun 2016	Depart Time	847
A7	16 Jun 2016	Air Temp (C)	17
A7	16 Jun 2016	Weather	Partly Cloudy
A7	16 Jun 2016	Visibility (mi)	8
A7	16 Jun 2016	Wind Speed (kts)	2
A7	16 Jun 2016	Wind Dir	N
A7	16 Jun 2016	Water Color	Green
A7	16 Jun 2016	Wave Ht Low (ft)	5
A7	16 Jun 2016	Wave Period (sec)	13
A7	16 Jun 2016	Sea State	Calm
A7	16 Jun 2016	High Tide (ft)	3.42
A7	16 Jun 2016	High Tide Time	755
A7	16 Jun 2016	Low Tide (ft)	1.63
A7	16 Jun 2016	Low Tide Time	1310
A7	16 Jun 2016	Comments	Kelp
A7	20 Jun 2016	Depth (m)	20
A7	20 Jun 2016	Arrive Time	842
A7	20 Jun 2016	Depart Time	855
A7	20 Jun 2016	Air Temp (C)	19
A7	20 Jun 2016	Weather	Clear

Station	Date	Parameter	Value
A7	20 Jun 2016	Visibility (mi)	15
A7	20 Jun 2016	Wind Speed (kts)	4
A7	20 Jun 2016	Wind Dir	W
A7	20 Jun 2016	Water Color	Green
A7	20 Jun 2016	Wave Ht Low (ft)	4
A7	20 Jun 2016	Wave Period (sec)	7
A7	20 Jun 2016	Sea State	Confused swell
A7	20 Jun 2016	High Tide (ft)	3.76
A7	20 Jun 2016	High Tide Time	1028
A7	20 Jun 2016	Low Tide (ft)	1.87
A7	20 Jun 2016	Low Tide Time	1528
A7	20 Jun 2016	Comments	Kelp
A7	22 Jun 2016	Depth (m)	19
A7	22 Jun 2016	Arrive Time	816
A7	22 Jun 2016	Depart Time	821
A7	22 Jun 2016	Air Temp (C)	20
A7	22 Jun 2016	Weather	Partly Cloudy
A7	22 Jun 2016	Visibility (mi)	8
A7	22 Jun 2016	Wind Speed (kts)	4
A7	22 Jun 2016	Wind Dir	S
A7	22 Jun 2016	Water Color	Brownish-Green
A7	22 Jun 2016	Wave Ht Low (ft)	4
A7	22 Jun 2016	Wave Period (sec)	19
A7	22 Jun 2016	Sea State	Wind ripples
A7	22 Jun 2016	High Tide (ft)	3.82
A7	22 Jun 2016	High Tide Time	1147
A7	22 Jun 2016	Low Tide (ft)	-0.66
A7	22 Jun 2016	Low Tide Time	526
A7	22 Jun 2016	Comments	, Birds on station; Boats
A7	27 Jun 2016	Depth (m)	19
A7	27 Jun 2016	Arrive Time	804
A7	27 Jun 2016	Depart Time	808
A7	27 Jun 2016	Air Temp (C)	18
A7	27 Jun 2016	Weather	Fog
A7	27 Jun 2016	Visibility (mi)	1
A7	27 Jun 2016	Wind Speed (kts)	0
A7	27 Jun 2016	Wind Dir	
A7	27 Jun 2016	Water Color	Brownish-Green
A7	27 Jun 2016	Wave Ht Low (ft)	3
A7	27 Jun 2016	Wave Period (sec)	9
A7	27 Jun 2016	Sea State	Calm
A7	27 Jun 2016	High Tide (ft)	4.69
A7	27 Jun 2016	High Tide Time	1604
A7	27 Jun 2016	Low Tide (ft)	0.63
A7	27 Jun 2016	Low Tide Time	917
A7	27 Jun 2016	Comments	Kelp
C7	04 Jun 2016	Depth (m)	18
C7	04 Jun 2016	Arrive Time	858
C7	04 Jun 2016	Depart Time	902
C7	04 Jun 2016	Air Temp (C)	16
C7	04 Jun 2016	Weather	Fog
C7	04 Jun 2016	Visibility (mi)	1

Station	Date	Parameter	Value
C7	04 Jun 2016	Wind Speed (kts)	0
C7	04 Jun 2016	Wind Dir	
C7	04 Jun 2016	Water Color	Green
C7	04 Jun 2016	Wave Ht Low (ft)	4
C7	04 Jun 2016	Wave Period (sec)	13
C7	04 Jun 2016	Sea State	Calm
C7	04 Jun 2016	High Tide (ft)	4.24
C7	04 Jun 2016	High Tide Time	940
C7	04 Jun 2016	Low Tide (ft)	1.1
C7	04 Jun 2016	Low Tide Time	1501
C7	04 Jun 2016	Comments	Kelp
C7	16 Jun 2016	Depth (m)	18
C7	16 Jun 2016	Arrive Time	910
C7	16 Jun 2016	Depart Time	916
C7	16 Jun 2016	Air Temp (C)	17
C7	16 Jun 2016	Weather	Partly Cloudy
C7	16 Jun 2016	Visibility (mi)	8
C7	16 Jun 2016	Wind Speed (kts)	2
C7	16 Jun 2016	Wind Dir	SW
C7	16 Jun 2016	Water Color	Green
C7	16 Jun 2016	Wave Ht Low (ft)	5
C7	16 Jun 2016	Wave Period (sec)	13
C7	16 Jun 2016	Sea State	Calm
C7	16 Jun 2016	High Tide (ft)	3.42
C7	16 Jun 2016	High Tide Time	755
C7	16 Jun 2016	Low Tide (ft)	1.63
C7	16 Jun 2016	Low Tide Time	1310
C7	16 Jun 2016	Comments	Kelp
C7	20 Jun 2016	Depth (m)	18
C7	20 Jun 2016	Arrive Time	923
C7	20 Jun 2016	Depart Time	926
C7	20 Jun 2016	Air Temp (C)	21
C7	20 Jun 2016	Weather	Clear
C7	20 Jun 2016	Visibility (mi)	15
C7	20 Jun 2016	Wind Speed (kts)	2
C7	20 Jun 2016	Wind Dir	SW
C7	20 Jun 2016	Water Color	Brownish-Green
C7	20 Jun 2016	Wave Ht Low (ft)	4
C7	20 Jun 2016	Wave Period (sec)	7
C7	20 Jun 2016	Sea State	Confused swell
C7	20 Jun 2016	High Tide (ft)	3.76
C7	20 Jun 2016	High Tide Time	1028
C7	20 Jun 2016	Low Tide (ft)	1.87
C7	20 Jun 2016	Low Tide Time	1528
C7	20 Jun 2016	Comments	
C7	22 Jun 2016	Depth (m)	18
C7	22 Jun 2016	Arrive Time	842
C7	22 Jun 2016	Depart Time	848
C7	22 Jun 2016	Air Temp (C)	20
C7	22 Jun 2016	Weather	Partly Cloudy
C7	22 Jun 2016	Visibility (mi)	8
C7	22 Jun 2016	Wind Speed (kts)	4

Station	Date	Parameter	Value
C7	22 Jun 2016	Wind Dir	S
C7	22 Jun 2016	Water Color	Bluish-Green
C7	22 Jun 2016	Wave Ht Low (ft)	4
C7	22 Jun 2016	Wave Period (sec)	19
C7	22 Jun 2016	Sea State	Wind ripples
C7	22 Jun 2016	High Tide (ft)	3.82
C7	22 Jun 2016	High Tide Time	1147
C7	22 Jun 2016	Low Tide (ft)	-0.66
C7	22 Jun 2016	Low Tide Time	526
C7	22 Jun 2016	Comments	Kayakers; Kelp
C7	27 Jun 2016	Depth (m)	18
C7	27 Jun 2016	Arrive Time	831
C7	27 Jun 2016	Depart Time	840
C7	27 Jun 2016	Air Temp (C)	19
C7	27 Jun 2016	Weather	Fog
C7	27 Jun 2016	Visibility (mi)	1
C7	27 Jun 2016	Wind Speed (kts)	1
C7	27 Jun 2016	Wind Dir	N
C7	27 Jun 2016	Water Color	Green
C7	27 Jun 2016	Wave Ht Low (ft)	3
C7	27 Jun 2016	Wave Period (sec)	9
C7	27 Jun 2016	Sea State	Calm
C7	27 Jun 2016	High Tide (ft)	4.69
C7	27 Jun 2016	High Tide Time	1604
C7	27 Jun 2016	Low Tide (ft)	0.63
C7	27 Jun 2016	Low Tide Time	917
C7	27 Jun 2016	Comments	Kelp
C8	04 Jun 2016	Depth (m)	19
C8	04 Jun 2016	Arrive Time	912
C8	04 Jun 2016	Depart Time	917
C8	04 Jun 2016	Air Temp (C)	16
C8	04 Jun 2016	Weather	Fog
C8	04 Jun 2016	Visibility (mi)	1
C8	04 Jun 2016	Wind Speed (kts)	2
C8	04 Jun 2016	Wind Dir	N
C8	04 Jun 2016	Water Color	Green
C8	04 Jun 2016	Wave Ht Low (ft)	4
C8	04 Jun 2016	Wave Period (sec)	13
C8	04 Jun 2016	Sea State	Calm
C8	04 Jun 2016	High Tide (ft)	4.24
C8	04 Jun 2016	High Tide Time	940
C8	04 Jun 2016	Low Tide (ft)	1.1
C8	04 Jun 2016	Low Tide Time	1501
C8	04 Jun 2016	Comments	
C8	16 Jun 2016	Depth (m)	18
C8	16 Jun 2016	Arrive Time	923
C8	16 Jun 2016	Depart Time	929
C8	16 Jun 2016	Air Temp (C)	17
C8	16 Jun 2016	Weather	Partly Cloudy
C8	16 Jun 2016	Visibility (mi)	8
C8	16 Jun 2016	Wind Speed (kts)	4
C8	16 Jun 2016	Wind Dir	N

Station	Date	Parameter	Value
C8	16 Jun 2016	Water Color	Green
C8	16 Jun 2016	Wave Ht Low (ft)	5
C8	16 Jun 2016	Wave Period (sec)	13
C8	16 Jun 2016	Sea State	Calm
C8	16 Jun 2016	High Tide (ft)	3.42
C8	16 Jun 2016	High Tide Time	755
C8	16 Jun 2016	Low Tide (ft)	1.63
C8	16 Jun 2016	Low Tide Time	1310
C8	16 Jun 2016	Comments	Kelp
C8	20 Jun 2016	Depth (m)	20
C8	20 Jun 2016	Arrive Time	938
C8	20 Jun 2016	Depart Time	943
C8	20 Jun 2016	Air Temp (C)	21
C8	20 Jun 2016	Weather	Clear
C8	20 Jun 2016	Visibility (mi)	15
C8	20 Jun 2016	Wind Speed (kts)	0
C8	20 Jun 2016	Wind Dir	
C8	20 Jun 2016	Water Color	Brownish-Green
C8	20 Jun 2016	Wave Ht Low (ft)	4
C8	20 Jun 2016	Wave Period (sec)	7
C8	20 Jun 2016	Sea State	Confused swell
C8	20 Jun 2016	High Tide (ft)	3.76
C8	20 Jun 2016	High Tide Time	1028
C8	20 Jun 2016	Low Tide (ft)	1.87
C8	20 Jun 2016	Low Tide Time	1528
C8	20 Jun 2016	Comments	Birds on station; Boats
C8	22 Jun 2016	Depth (m)	19
C8	22 Jun 2016	Arrive Time	854
C8	22 Jun 2016	Depart Time	859
C8	22 Jun 2016	Air Temp (C)	20
C8	22 Jun 2016	Weather	Partly Cloudy
C8	22 Jun 2016	Visibility (mi)	8
C8	22 Jun 2016	Wind Speed (kts)	3
C8	22 Jun 2016	Wind Dir	SE
C8	22 Jun 2016	Water Color	Bluish-Green
C8	22 Jun 2016	Wave Ht Low (ft)	4
C8	22 Jun 2016	Wave Period (sec)	19
C8	22 Jun 2016	Sea State	Wind ripples
C8	22 Jun 2016	High Tide (ft)	3.82
C8	22 Jun 2016	High Tide Time	1147
C8	22 Jun 2016	Low Tide (ft)	-0.66
C8	22 Jun 2016	Low Tide Time	526
C8	22 Jun 2016	Comments	Kelp debris
C8	27 Jun 2016	Depth (m)	19
C8	27 Jun 2016	Arrive Time	848
C8	27 Jun 2016	Depart Time	852
C8	27 Jun 2016	Air Temp (C)	19
C8	27 Jun 2016	Weather	Fog
C8	27 Jun 2016	Visibility (mi)	1
C8	27 Jun 2016	Wind Speed (kts)	1
C8	27 Jun 2016	Wind Dir	NE
C8	27 Jun 2016	Water Color	Green

Station	Date	Parameter	Value
C8	27 Jun 2016	Wave Ht Low (ft)	3
C8	27 Jun 2016	Wave Period (sec)	9
C8	27 Jun 2016	Sea State	Calm
C8	27 Jun 2016	High Tide (ft)	4.69
C8	27 Jun 2016	High Tide Time	1604
C8	27 Jun 2016	Low Tide (ft)	0.63
C8	27 Jun 2016	Low Tide Time	917
C8	27 Jun 2016	Comments	Kelp; Kelp debris

**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 Jun 2016	1	15.56	73.19	7.4	33.52	8.0	24.7	3.72
A1	04 Jun 2016	2	15.58	73.18	7.3	33.52	8.0	24.7	3.88
A1	04 Jun 2016	3	15.41	73.10	7.1	33.52	8.0	24.7	4.22
A1	04 Jun 2016	4	15.03	73.43	6.9	33.53	8.0	24.8	4.40
A1	04 Jun 2016	5	14.78	73.69	6.7	33.52	8.0	24.9	4.44
A1	04 Jun 2016	6	14.63	74.31	6.6	33.52	8.0	24.9	4.31
A1	04 Jun 2016	7	14.54	74.59	6.5	33.52	8.0	24.9	4.24
A1	04 Jun 2016	8	14.33	74.87	6.3	33.52	8.0	25.0	4.11
A1	04 Jun 2016	9	13.82	76.09	6.0	33.55	8.0	25.1	3.75
A1	04 Jun 2016	10	13.61	77.94	5.8	33.53	8.0	25.1	3.43
A1	04 Jun 2016	11	13.36	79.70	5.5	33.53	8.0	25.2	3.04
A1	04 Jun 2016	12	13.05	80.05	5.2	33.52	8.0	25.2	2.48
A1	04 Jun 2016	13	12.59	80.84	5.0	33.53	8.0	25.3	2.35
A1	04 Jun 2016	14	12.29	81.31	4.8	33.53	8.0	25.4	1.78
A1	04 Jun 2016	15	12.04	81.25	4.7	33.55	8.0	25.5	1.59
A1	04 Jun 2016	16	11.68	81.07	4.5	33.56	8.0	25.5	1.39
A1	04 Jun 2016	17	11.55	81.19	4.4	33.56	8.0	25.6	1.27
A1	04 Jun 2016	18	11.57	81.33	4.4	33.57	7.9	25.6	1.20
A1	16 Jun 2016	1	18.44	77.21	8.1	33.56	8.2	24.1	1.36
A1	16 Jun 2016	2	18.44	77.86	8.1	33.58	8.2	24.1	1.61
A1	16 Jun 2016	3	18.44	78.72	8.1	33.58	8.2	24.1	1.93
A1	16 Jun 2016	4	18.43	78.86	8.1	33.58	8.2	24.1	2.20
A1	16 Jun 2016	5	18.38	78.76	8.1	33.58	8.2	24.1	2.60
A1	16 Jun 2016	6	18.31	78.51	8.0	33.58	8.2	24.1	2.88
A1	16 Jun 2016	7	18.24	78.27	8.0	33.56	8.2	24.1	3.41
A1	16 Jun 2016	8	18.12	77.11	7.8	33.56	8.2	24.1	3.72
A1	16 Jun 2016	9	18.08	77.13	7.6	33.56	8.2	24.1	4.12
A1	16 Jun 2016	10	17.74	76.54	7.6	33.54	8.2	24.2	4.24
A1	16 Jun 2016	11	17.48	76.30	7.7	33.53	8.1	24.3	4.25
A1	16 Jun 2016	12	17.25	76.59	7.4	33.55	8.1	24.3	3.99
A1	16 Jun 2016	13	17.34	75.74	6.5	33.52	8.1	24.3	2.88
A1	16 Jun 2016	14	16.75	75.62	5.4	33.52	8.1	24.4	2.06
A1	16 Jun 2016	15	16.28	76.66	4.8	33.44	8.1	24.5	1.99
A1	16 Jun 2016	16	14.84	78.26	5.1	33.39	8.1	24.8	1.90
A1	16 Jun 2016	17	14.17	78.27	5.4	33.48	8.1	25.0	1.93
A1	16 Jun 2016	18	13.64	78.50	5.7	33.38	8.1	25.0	1.86
A1	20 Jun 2016	1	16.51	72.07	7.8	33.53	8.1	24.5	2.52
A1	20 Jun 2016	2	16.44	71.65	7.6	33.53	8.1	24.5	3.07
A1	20 Jun 2016	3	16.23	71.02	6.9	33.52	8.1	24.6	4.66
A1	20 Jun 2016	4	15.13	69.92	6.4	33.51	8.1	24.8	5.11
A1	20 Jun 2016	5	14.19	71.45	5.6	33.50	8.0	25.0	4.41
A1	20 Jun 2016	6	13.45	74.62	5.3	33.48	8.0	25.1	4.33
A1	20 Jun 2016	7	13.24	77.75	5.2	33.49	8.0	25.2	3.49
A1	20 Jun 2016	8	12.87	79.00	4.7	33.48	7.9	25.2	2.93
A1	20 Jun 2016	9	12.53	80.93	4.5	33.50	7.9	25.3	2.22
A1	20 Jun 2016	10	12.22	81.88	4.2	33.49	7.9	25.4	1.88
A1	20 Jun 2016	11	11.96	83.02	4.0	33.52	7.9	25.4	1.41
A1	20 Jun 2016	12	11.69	82.85	3.8	33.53	7.8	25.5	1.26

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
A1	20 Jun 2016	13	11.34	82.25	4.0	33.56	7.8	25.6	1.26
A1	20 Jun 2016	14	11.42	82.00	3.9	33.56	7.8	25.6	0.98
A1	20 Jun 2016	15	11.20	81.85	3.8	33.56	7.8	25.6	0.95
A1	20 Jun 2016	16	11.08	81.56	3.7	33.59	7.8	25.7	0.68
A1	20 Jun 2016	17	10.94	81.61	3.5	33.59	7.8	25.7	0.59
A1	20 Jun 2016	18	10.74	81.77	3.6	33.62	7.8	25.8	0.62
A1	22 Jun 2016	1	18.81	74.85	7.6	33.56	8.1	24.0	5.66
A1	22 Jun 2016	2	18.24	74.89	7.7	33.53	8.1	24.1	6.45
A1	22 Jun 2016	3	17.70	72.69	7.8	33.51	8.1	24.2	7.06
A1	22 Jun 2016	4	17.42	71.08	7.7	33.52	8.1	24.3	7.88
A1	22 Jun 2016	5	17.33	69.77	7.7	33.52	8.1	24.3	8.76
A1	22 Jun 2016	6	17.17	69.27	7.6	33.50	8.1	24.3	9.28
A1	22 Jun 2016	7	16.94	68.29	7.5	33.50	8.1	24.4	9.50
A1	22 Jun 2016	8	16.77	66.16	7.4	33.50	8.1	24.4	9.55
A1	22 Jun 2016	9	16.68	66.14	7.1	33.50	8.1	24.4	9.26
A1	22 Jun 2016	10	16.60	66.24	6.7	33.50	8.1	24.5	8.66
A1	22 Jun 2016	11	16.32	66.22	6.2	33.46	8.1	24.5	6.62
A1	22 Jun 2016	12	15.67	67.87	5.4	33.48	8.1	24.7	5.06
A1	22 Jun 2016	13	15.36	70.46	4.7	33.43	8.0	24.7	4.10
A1	22 Jun 2016	14	13.88	74.74	4.5	33.45	8.0	25.0	3.42
A1	22 Jun 2016	15	13.22	78.36	4.5	33.45	8.0	25.1	3.14
A1	22 Jun 2016	16	12.64	80.12	4.7	33.45	7.9	25.3	3.12
A1	22 Jun 2016	17	12.50	81.01	5.0	33.47	7.9	25.3	3.53
A1	22 Jun 2016	18	12.51	81.06	5.3	33.47	7.9	25.3	3.69
A1	27 Jun 2016	1	19.56	76.70	7.9	33.55	8.2	23.8	2.82
A1	27 Jun 2016	2	19.41	76.65	8.0	33.53	8.2	23.8	2.53
A1	27 Jun 2016	3	18.96	76.55	8.2	33.51	8.2	23.9	2.49
A1	27 Jun 2016	4	18.59	76.94	8.2	33.52	8.2	24.0	2.40
A1	27 Jun 2016	5	18.55	79.06	8.3	33.52	8.2	24.0	2.28
A1	27 Jun 2016	6	18.54	80.35	8.3	33.52	8.2	24.0	2.20
A1	27 Jun 2016	7	18.52	80.58	8.3	33.52	8.2	24.0	2.16
A1	27 Jun 2016	8	18.52	81.06	8.2	33.52	8.2	24.0	2.19
A1	27 Jun 2016	9	18.50	81.49	8.0	33.52	8.2	24.0	2.34
A1	27 Jun 2016	10	18.49	81.60	7.7	33.51	8.2	24.0	2.29
A1	27 Jun 2016	11	18.25	82.06	7.2	33.47	8.2	24.0	1.83
A1	27 Jun 2016	12	17.68	82.60	6.5	33.48	8.2	24.2	1.53
A1	27 Jun 2016	13	17.44	82.62	5.8	33.46	8.1	24.2	1.44
A1	27 Jun 2016	14	16.12	82.44	5.5	33.36	8.1	24.5	1.43
A1	27 Jun 2016	15	15.05	82.81	5.2	33.42	8.1	24.7	1.49
A1	27 Jun 2016	16	14.55	82.51	5.0	33.42	8.1	24.9	1.51
A1	27 Jun 2016	17	13.77	82.10	5.3	33.35	8.0	25.0	1.50
A1	27 Jun 2016	18	12.80	80.44	6.0	33.44	8.0	25.2	1.55
C4	04 Jun 2016	1	15.26	74.55	6.7	33.54	8.1	24.8	2.38
C4	04 Jun 2016	2	15.25	74.49	6.6	33.54	8.1	24.8	2.42
C4	04 Jun 2016	3	15.15	74.49	6.6	33.53	8.1	24.8	2.61
C4	04 Jun 2016	4	14.98	74.80	6.6	33.53	8.1	24.8	2.85
C4	04 Jun 2016	5	14.94	75.27	6.5	33.53	8.1	24.9	3.12
C4	04 Jun 2016	6	14.64	75.89	6.4	33.53	8.1	24.9	3.03
C4	04 Jun 2016	7	14.26	77.18	6.2	33.53	8.1	25.0	2.92
C4	04 Jun 2016	8	14.13	77.61	5.9	33.52	8.0	25.0	2.58
C4	04 Jun 2016	9	13.71	79.46	5.4	33.52	8.0	25.1	1.87
C4	04 Jun 2016	10	13.30	79.87	5.0	33.52	8.0	25.2	1.22

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
C4	04 Jun 2016	11	13.22	78.57	5.0	33.51	8.0	25.2	0.95
C4	16 Jun 2016	1	19.31	72.57	7.0	33.60	8.1	23.9	1.10
C4	16 Jun 2016	2	19.27	71.59	6.9	33.60	8.1	23.9	1.63
C4	16 Jun 2016	3	18.82	60.86	7.3	33.58	8.1	24.0	2.05
C4	16 Jun 2016	4	18.51	59.55	7.6	33.58	8.1	24.1	2.42
C4	16 Jun 2016	5	18.53	60.66	8.0	33.58	8.1	24.1	2.88
C4	16 Jun 2016	6	18.41	64.30	7.8	33.57	8.1	24.1	2.98
C4	16 Jun 2016	7	18.08	73.25	7.3	33.53	8.2	24.1	2.61
C4	16 Jun 2016	8	17.57	69.57	7.0	33.54	8.2	24.3	2.45
C4	16 Jun 2016	9	17.15	62.77	7.1	33.51	8.2	24.3	2.26
C4	16 Jun 2016	10	17.01	58.84	7.4	33.52	8.1	24.4	2.32
C4	20 Jun 2016	1	16.35	70.51	7.5	33.42	8.1	24.5	1.46
C4	20 Jun 2016	2	16.27	70.72	7.1	33.52	8.1	24.5	1.75
C4	20 Jun 2016	3	15.84	71.48	6.8	33.51	8.1	24.6	1.77
C4	20 Jun 2016	4	15.63	74.00	5.8	33.52	8.1	24.7	2.33
C4	20 Jun 2016	5	14.81	73.97	5.4	33.47	8.1	24.8	2.63
C4	20 Jun 2016	6	13.80	75.47	5.6	33.51	8.0	25.1	2.16
C4	20 Jun 2016	7	13.84	77.76	4.9	33.48	8.0	25.0	1.61
C4	20 Jun 2016	8	13.17	79.28	4.8	33.49	8.0	25.2	1.52
C4	20 Jun 2016	9	13.03	77.89	4.8	33.51	7.9	25.2	1.00
C4	20 Jun 2016	10	12.94	75.86	4.4	33.48	7.9	25.2	0.75
C4	20 Jun 2016	11	12.67	73.27	4.5	33.51	7.9	25.3	0.70
C4	20 Jun 2016	12	12.59	74.61	4.6	33.51	7.9	25.3	0.70
C4	22 Jun 2016	1	18.66	77.34	7.2	33.56	8.1	24.0	1.64
C4	22 Jun 2016	2	18.43	77.27	7.2	33.54	8.1	24.0	2.26
C4	22 Jun 2016	3	17.94	75.17	7.2	33.54	8.1	24.2	3.09
C4	22 Jun 2016	4	17.72	75.31	7.4	33.53	8.1	24.2	4.54
C4	22 Jun 2016	5	17.49	74.69	7.1	33.52	8.1	24.3	4.22
C4	22 Jun 2016	6	17.02	71.89	6.7	33.50	8.1	24.4	3.44
C4	22 Jun 2016	7	16.44	74.51	6.5	33.51	8.1	24.5	2.16
C4	22 Jun 2016	8	16.32	77.74	6.0	33.51	8.1	24.5	1.30
C4	22 Jun 2016	9	15.96	79.82	5.9	33.49	8.1	24.6	1.16
C4	22 Jun 2016	10	15.35	78.68	6.4	33.50	8.0	24.7	1.50
C4	27 Jun 2016	1	19.97	74.43	6.8	33.56	8.1	23.7	1.26
C4	27 Jun 2016	2	19.96	73.39	7.1	33.56	8.1	23.7	1.56
C4	27 Jun 2016	3	19.66	69.64	7.3	33.55	8.1	23.7	1.83
C4	27 Jun 2016	4	19.52	68.63	7.3	33.55	8.1	23.8	1.87
C4	27 Jun 2016	5	19.44	69.75	7.3	33.55	8.1	23.8	1.77
C4	27 Jun 2016	6	19.37	70.89	7.2	33.54	8.1	23.8	1.20
C4	27 Jun 2016	7	19.03	73.39	6.6	33.52	8.1	23.9	0.83
C4	27 Jun 2016	8	18.45	77.44	6.0	33.50	8.1	24.0	0.74
C4	27 Jun 2016	9	18.00	79.65	5.6	33.50	8.1	24.1	0.81
C4	27 Jun 2016	10	17.06	78.99	5.8	33.44	8.1	24.3	0.83
C4	27 Jun 2016	11	16.50	69.50	6.1	33.48	8.0	24.5	0.79
C5	04 Jun 2016	1	16.69	69.74	7.7	33.54	8.1	24.5	2.42
C5	04 Jun 2016	2	16.64	72.73	7.5	33.54	8.1	24.5	2.62
C5	04 Jun 2016	3	16.26	74.12	7.1	33.54	8.1	24.6	2.84
C5	04 Jun 2016	4	15.14	75.17	6.6	33.55	8.1	24.8	2.89
C5	04 Jun 2016	5	14.67	79.08	6.1	33.53	8.1	24.9	2.42
C5	04 Jun 2016	6	14.37	82.43	5.9	33.53	8.1	25.0	1.83

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
C5	04 Jun 2016	7	14.22	82.63	5.9	33.53	8.1	25.0	1.74
C5	04 Jun 2016	8	14.00	82.20	5.8	33.53	8.0	25.0	1.73
C5	04 Jun 2016	9	13.67	83.20	5.4	33.53	8.0	25.1	1.43
C5	04 Jun 2016	10	13.31	83.97	5.2	33.54	8.0	25.2	1.12
C5	16 Jun 2016	1	19.57	70.98	7.3	33.61	8.2	23.8	1.71
C5	16 Jun 2016	2	19.48	71.00	7.3	33.60	8.2	23.8	1.92
C5	16 Jun 2016	3	19.13	70.51	7.1	33.58	8.2	23.9	2.11
C5	16 Jun 2016	4	18.60	71.73	6.8	33.56	8.2	24.0	2.46
C5	16 Jun 2016	5	18.02	74.83	6.8	33.49	8.2	24.1	2.97
C5	16 Jun 2016	6	17.14	77.32	7.0	33.51	8.2	24.3	3.18
C5	16 Jun 2016	7	16.99	76.98	7.0	33.52	8.2	24.4	2.65
C5	16 Jun 2016	8	16.58	76.67	6.8	33.50	8.2	24.5	2.20
C5	16 Jun 2016	9	16.39	77.11	6.8	33.50	8.1	24.5	2.06
C5	16 Jun 2016	10	16.16	76.19	6.9	33.48	8.1	24.5	2.07
C5	16 Jun 2016	11	16.01	72.86	7.0	33.50	8.1	24.6	2.04
C5	20 Jun 2016	1	16.51	71.51	7.1	33.60	8.1	24.6	0.31
C5	20 Jun 2016	2	16.44	72.48	7.1	33.59	8.1	24.6	0.32
C5	20 Jun 2016	3	16.33	70.94	7.0	33.62	8.1	24.6	0.32
C5	20 Jun 2016	4	15.94	69.15	6.7	33.79	8.1	24.8	0.32
C5	20 Jun 2016	5	15.91	68.58	6.6	33.72	8.1	24.8	0.33
C5	20 Jun 2016	6	15.69	68.09	6.7	33.81	8.1	24.9	0.40
C5	20 Jun 2016	7	15.52	75.76	7.0	33.87	8.1	25.0	0.36
C5	20 Jun 2016	8	15.08	79.94	6.7	34.08	8.1	25.2	0.36
C5	20 Jun 2016	9	14.27	78.26	6.9	34.77	8.0	26.0	0.35
C5	20 Jun 2016	10	13.96	78.67	6.7	34.25	8.0	25.6	0.36
C5	20 Jun 2016	11	13.16	79.12	6.6	34.23	8.0	25.8	0.33
C5	22 Jun 2016	1	19.69	80.41	7.7	33.59	8.2	23.8	2.14
C5	22 Jun 2016	2	19.56	80.19	7.7	33.55	8.2	23.8	3.08
C5	22 Jun 2016	3	18.63	78.65	7.5	33.53	8.2	24.0	3.48
C5	22 Jun 2016	4	18.05	75.98	7.4	33.53	8.2	24.1	3.48
C5	22 Jun 2016	5	17.56	73.36	7.5	33.52	8.1	24.2	3.38
C5	22 Jun 2016	6	17.29	76.42	7.3	33.53	8.1	24.3	2.65
C5	22 Jun 2016	7	17.13	79.04	7.1	33.51	8.1	24.3	2.39
C5	22 Jun 2016	8	16.87	81.23	7.0	33.52	8.1	24.4	2.17
C5	22 Jun 2016	9	16.68	81.00	6.8	33.52	8.1	24.5	1.49
C5	22 Jun 2016	10	15.99	81.66	7.0	33.51	8.1	24.6	1.70
C5	22 Jun 2016	11	16.05	81.46	7.0	33.52	8.1	24.6	1.57
C5	27 Jun 2016	1	19.72	75.75	7.4	33.56	8.1	23.7	1.50
C5	27 Jun 2016	2	19.62	75.65	7.5	33.56	8.1	23.8	1.74
C5	27 Jun 2016	3	19.53	75.80	7.4	33.56	8.1	23.8	1.91
C5	27 Jun 2016	4	19.48	76.99	6.9	33.56	8.1	23.8	1.72
C5	27 Jun 2016	5	19.37	76.94	5.9	33.54	8.1	23.8	1.03
C5	27 Jun 2016	6	18.73	77.20	5.4	33.50	8.1	23.9	0.90
C5	27 Jun 2016	7	17.79	78.70	5.5	33.49	8.1	24.2	1.10
C5	27 Jun 2016	8	17.15	79.94	5.7	33.49	8.0	24.3	1.57
C5	27 Jun 2016	9	16.53	78.56	6.0	33.47	8.0	24.4	1.69
C5	27 Jun 2016	10	15.78	63.59	6.4	33.45	8.0	24.6	1.37
A6	04 Jun 2016	1	16.45	73.01	7.7	33.53	8.1	24.5	3.84
A6	04 Jun 2016	2	15.78	72.72	7.3	33.53	8.1	24.7	4.15
A6	04 Jun 2016	3	15.38	73.84	6.9	33.52	8.1	24.8	4.15

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
A6	04 Jun 2016	4	15.04	74.80	6.7	33.52	8.1	24.8	3.96
A6	04 Jun 2016	5	14.63	76.04	6.5	33.52	8.1	24.9	3.71
A6	04 Jun 2016	6	14.29	77.14	6.3	33.52	8.1	25.0	3.53
A6	04 Jun 2016	7	14.12	77.48	6.2	33.51	8.1	25.0	3.47
A6	04 Jun 2016	8	13.90	77.64	6.0	33.51	8.1	25.1	3.39
A6	04 Jun 2016	9	13.59	78.26	5.9	33.52	8.1	25.1	3.20
A6	04 Jun 2016	10	13.44	79.18	5.8	33.52	8.0	25.2	3.03
A6	04 Jun 2016	11	13.37	79.41	5.6	33.51	8.0	25.2	2.82
A6	04 Jun 2016	12	13.01	79.84	5.4	33.52	8.0	25.2	2.67
A6	04 Jun 2016	13	12.63	80.95	5.2	33.52	8.0	25.3	2.31
A6	04 Jun 2016	14	12.33	81.98	5.0	33.53	8.0	25.4	2.17
A6	04 Jun 2016	15	12.18	82.50	4.9	33.53	8.0	25.4	1.90
A6	04 Jun 2016	16	12.10	82.67	4.8	33.52	8.0	25.4	1.78
A6	04 Jun 2016	17	11.83	82.79	4.6	33.53	8.0	25.5	1.79
A6	04 Jun 2016	18	11.48	83.31	4.5	33.56	8.0	25.6	1.44
A6	04 Jun 2016	19	11.67	83.57	4.4	33.52	7.9	25.5	1.31
A6	16 Jun 2016	1	19.07	75.27	7.7	33.60	8.2	23.9	1.73
A6	16 Jun 2016	2	19.08	75.13	7.8	33.60	8.2	23.9	2.13
A6	16 Jun 2016	3	18.87	75.43	7.8	33.58	8.2	24.0	2.61
A6	16 Jun 2016	4	18.64	76.30	7.7	33.58	8.2	24.0	3.36
A6	16 Jun 2016	5	18.51	76.51	7.7	33.56	8.2	24.0	4.00
A6	16 Jun 2016	6	18.01	76.93	7.9	33.53	8.2	24.1	4.68
A6	16 Jun 2016	7	17.63	76.25	7.8	33.54	8.2	24.2	5.40
A6	16 Jun 2016	8	17.41	75.36	7.6	33.52	8.2	24.3	5.92
A6	16 Jun 2016	9	17.02	73.24	7.6	33.49	8.2	24.4	6.06
A6	16 Jun 2016	10	16.63	72.92	7.8	33.50	8.2	24.4	6.21
A6	16 Jun 2016	11	16.50	72.66	7.5	33.51	8.2	24.5	5.98
A6	16 Jun 2016	12	16.58	73.13	7.3	33.45	8.1	24.4	5.83
A6	16 Jun 2016	13	15.86	70.95	7.4	33.45	8.1	24.6	5.43
A6	16 Jun 2016	14	15.78	71.86	7.0	33.49	8.1	24.6	4.52
A6	16 Jun 2016	15	15.58	73.91	6.4	33.43	8.1	24.6	3.96
A6	16 Jun 2016	16	15.04	77.09	6.4	33.45	8.1	24.8	3.58
A6	16 Jun 2016	17	14.82	76.93	6.4	33.47	8.1	24.8	3.44
A6	16 Jun 2016	18	14.69	74.06	6.5	33.48	8.1	24.9	3.31
A6	20 Jun 2016	1	17.34	72.10	8.0	33.48	8.1	24.3	2.07
A6	20 Jun 2016	2	17.32	72.57	7.9	33.53	8.1	24.3	2.33
A6	20 Jun 2016	3	17.28	72.57	7.5	33.54	8.1	24.3	3.53
A6	20 Jun 2016	4	17.08	72.38	7.0	33.53	8.1	24.4	5.04
A6	20 Jun 2016	5	16.02	70.98	6.7	33.46	8.1	24.6	5.97
A6	20 Jun 2016	6	14.79	67.95	6.1	33.48	8.1	24.8	5.08
A6	20 Jun 2016	7	14.18	68.54	5.1	33.47	8.1	25.0	3.90
A6	20 Jun 2016	8	13.54	73.43	4.9	33.46	8.0	25.1	3.61
A6	20 Jun 2016	9	13.08	78.40	4.9	33.48	8.0	25.2	3.00
A6	20 Jun 2016	10	12.99	79.78	4.6	33.47	8.0	25.2	2.61
A6	20 Jun 2016	11	12.49	81.62	4.5	33.48	8.0	25.3	2.28
A6	20 Jun 2016	12	12.40	82.46	4.4	33.48	7.9	25.3	2.06
A6	20 Jun 2016	13	12.15	83.39	4.3	33.48	7.9	25.4	2.01
A6	20 Jun 2016	14	11.97	83.37	4.3	33.49	7.9	25.4	1.68
A6	20 Jun 2016	15	11.86	83.46	4.1	33.50	7.9	25.5	1.43
A6	20 Jun 2016	16	11.70	83.79	4.0	33.51	7.9	25.5	1.21
A6	20 Jun 2016	17	11.57	83.67	3.9	33.52	7.9	25.5	1.17
A6	20 Jun 2016	18	11.41	83.00	3.9	33.55	7.8	25.6	1.05
A6	20 Jun 2016	19	11.31	81.74	3.9	33.56	7.8	25.6	1.08

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
A6	22 Jun 2016	1	19.74	80.80	7.7	33.59	8.2	23.8	2.27
A6	22 Jun 2016	2	19.37	80.53	7.7	33.57	8.2	23.8	2.90
A6	22 Jun 2016	3	18.91	78.77	7.4	33.55	8.2	23.9	4.72
A6	22 Jun 2016	4	18.00	75.86	7.2	33.52	8.2	24.1	5.92
A6	22 Jun 2016	5	17.12	71.61	6.8	33.52	8.1	24.4	6.61
A6	22 Jun 2016	6	16.08	70.92	6.6	33.48	8.1	24.5	6.55
A6	22 Jun 2016	7	15.61	71.93	6.2	33.50	8.1	24.7	6.22
A6	22 Jun 2016	8	14.74	72.81	6.2	33.47	8.1	24.8	6.08
A6	22 Jun 2016	9	14.55	73.83	6.3	33.47	8.0	24.9	5.89
A6	22 Jun 2016	10	14.50	74.34	6.2	33.47	8.0	24.9	5.51
A6	22 Jun 2016	11	14.25	74.86	6.2	33.47	8.0	25.0	5.20
A6	22 Jun 2016	12	14.14	75.85	6.1	33.48	8.0	25.0	5.00
A6	22 Jun 2016	13	13.97	76.53	6.0	33.48	8.0	25.0	4.85
A6	22 Jun 2016	14	13.84	77.02	6.0	33.48	8.0	25.1	4.76
A6	22 Jun 2016	15	13.76	77.10	6.0	33.49	8.0	25.1	4.64
A6	22 Jun 2016	16	13.73	77.27	5.9	33.49	8.0	25.1	4.43
A6	22 Jun 2016	17	13.64	77.45	5.9	33.50	8.0	25.1	4.30
A6	22 Jun 2016	18	13.65	77.84	5.9	33.50	8.0	25.1	4.48
A6	27 Jun 2016	1	19.56	70.47	7.9	33.57	8.2	23.8	1.97
A6	27 Jun 2016	2	19.54	80.97	7.8	33.56	8.2	23.8	2.08
A6	27 Jun 2016	3	19.42	81.42	7.6	33.56	8.2	23.8	1.97
A6	27 Jun 2016	4	19.26	80.98	7.4	33.55	8.2	23.9	1.98
A6	27 Jun 2016	5	18.97	81.20	7.3	33.53	8.2	23.9	2.08
A6	27 Jun 2016	6	18.52	81.63	7.4	33.53	8.1	24.0	1.93
A6	27 Jun 2016	7	18.29	81.91	7.4	33.53	8.1	24.1	2.00
A6	27 Jun 2016	8	18.27	81.89	7.2	33.53	8.1	24.1	1.84
A6	27 Jun 2016	9	18.09	81.85	6.9	33.52	8.1	24.1	1.49
A6	27 Jun 2016	10	17.84	82.00	6.5	33.51	8.1	24.2	1.31
A6	27 Jun 2016	11	17.19	82.22	6.3	33.47	8.1	24.3	1.27
A6	27 Jun 2016	12	16.17	82.69	6.3	33.45	8.1	24.5	1.29
A6	27 Jun 2016	13	15.63	82.68	6.3	33.47	8.1	24.7	1.30
A6	27 Jun 2016	14	15.26	82.38	6.4	33.43	8.1	24.7	1.29
A6	27 Jun 2016	15	14.86	82.39	6.4	33.45	8.0	24.8	1.29
A6	27 Jun 2016	16	14.75	82.51	6.4	33.44	8.0	24.8	1.27
A6	27 Jun 2016	17	14.61	82.27	6.5	33.43	8.0	24.8	1.33
A6	27 Jun 2016	18	14.41	82.44	6.5	33.44	8.0	24.9	1.27
A6	27 Jun 2016	19	14.33	82.86	6.6	33.44	8.0	24.9	1.25
A6	27 Jun 2016	20	14.28	82.79	6.5	33.44	8.0	24.9	1.25
A6	27 Jun 2016	21	14.21	82.87	6.6	33.44	8.0	24.9	1.24
C6	04 Jun 2016	1	16.75	75.06	8.1	33.54	8.1	24.5	2.60
C6	04 Jun 2016	2	16.79	74.81	8.0	33.54	8.1	24.4	3.18
C6	04 Jun 2016	3	16.25	73.85	7.4	33.55	8.1	24.6	4.43
C6	04 Jun 2016	4	15.26	75.45	6.9	33.54	8.1	24.8	3.90
C6	04 Jun 2016	5	14.68	77.39	6.5	33.54	8.1	24.9	3.26
C6	04 Jun 2016	6	14.25	79.42	6.1	33.53	8.1	25.0	2.70
C6	04 Jun 2016	7	13.87	80.98	5.8	33.53	8.1	25.1	2.19
C6	04 Jun 2016	8	13.44	82.62	5.3	33.53	8.1	25.2	1.73
C6	04 Jun 2016	9	12.98	83.39	4.8	33.53	8.0	25.3	1.16
C6	04 Jun 2016	10	12.82	84.30	4.6	33.52	8.0	25.3	0.91
C6	16 Jun 2016	1	19.12	66.92	7.3	33.31	8.2	23.7	1.95
C6	16 Jun 2016	2	19.12	60.59	7.4	33.52	8.2	23.9	2.04

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
C6	16 Jun 2016	3	18.92	67.27	7.2	33.56	8.2	23.9	1.72
C6	16 Jun 2016	4	18.44	70.09	6.4	33.59	8.2	24.1	1.31
C6	16 Jun 2016	5	18.32	72.13	5.8	33.52	8.2	24.1	1.36
C6	16 Jun 2016	6	16.96	76.19	5.9	33.44	8.2	24.3	1.09
C6	16 Jun 2016	7	16.09	77.39	6.2	33.48	8.2	24.6	1.08
C6	16 Jun 2016	8	15.73	76.07	6.5	33.51	8.1	24.7	1.07
C6	16 Jun 2016	9	15.96	72.27	6.6	33.50	8.1	24.6	1.10
C6	20 Jun 2016	1	17.46	64.47	7.9	33.49	8.1	24.2	2.66
C6	20 Jun 2016	2	17.25	68.31	7.7	33.50	8.1	24.3	3.34
C6	20 Jun 2016	3	16.48	68.94	7.6	33.52	8.1	24.5	3.87
C6	20 Jun 2016	4	16.26	68.50	7.5	33.51	8.1	24.5	3.73
C6	20 Jun 2016	5	15.96	67.74	6.8	33.51	8.1	24.6	3.20
C6	20 Jun 2016	6	15.71	70.77	5.4	33.48	8.1	24.6	2.24
C6	20 Jun 2016	7	14.39	75.92	4.4	33.47	8.1	24.9	1.23
C6	20 Jun 2016	8	13.45	79.43	4.3	33.47	8.0	25.1	1.10
C6	20 Jun 2016	9	12.90	78.95	5.1	33.48	8.0	25.2	1.41
C6	20 Jun 2016	10	12.91	77.93	5.6	33.50	8.0	25.2	1.63
C6	22 Jun 2016	1	19.59	79.80	7.7	33.59	8.2	23.8	1.60
C6	22 Jun 2016	2	19.68	79.97	7.6	33.59	8.2	23.8	2.46
C6	22 Jun 2016	3	19.40	80.68	7.5	33.56	8.2	23.8	3.67
C6	22 Jun 2016	4	18.55	79.40	7.5	33.54	8.2	24.0	4.29
C6	22 Jun 2016	5	18.00	76.71	7.2	33.55	8.2	24.2	3.82
C6	22 Jun 2016	6	17.54	74.50	7.0	33.53	8.2	24.3	2.49
C6	22 Jun 2016	7	17.10	77.02	6.6	33.53	8.1	24.4	1.52
C6	22 Jun 2016	8	16.53	80.31	6.7	33.51	8.1	24.5	1.30
C6	22 Jun 2016	9	16.20	80.65	7.0	33.53	8.1	24.6	1.47
C6	27 Jun 2016	1	19.80	65.29	7.5	33.57	8.1	23.7	2.68
C6	27 Jun 2016	2	19.72	68.18	7.4	33.57	8.1	23.7	2.62
C6	27 Jun 2016	3	19.69	68.40	7.4	33.57	8.1	23.8	2.54
C6	27 Jun 2016	4	19.69	71.22	7.4	33.57	8.1	23.8	2.61
C6	27 Jun 2016	5	19.64	66.74	7.3	33.56	8.1	23.8	2.23
C6	27 Jun 2016	6	19.59	66.84	6.8	33.56	8.1	23.8	1.52
C6	27 Jun 2016	7	19.46	66.39	6.1	33.54	8.1	23.8	0.95
C6	27 Jun 2016	8	18.91	70.43	5.7	33.52	8.1	23.9	0.80
C6	27 Jun 2016	9	17.37	77.70	6.2	33.47	8.1	24.3	0.92
A7	04 Jun 2016	1	15.75	73.11	7.1	33.52	8.1	24.7	4.16
A7	04 Jun 2016	2	15.19	73.58	6.9	33.54	8.1	24.8	4.00
A7	04 Jun 2016	3	15.07	74.40	6.8	33.53	8.1	24.8	3.92
A7	04 Jun 2016	4	14.89	75.77	6.6	33.52	8.1	24.9	3.81
A7	04 Jun 2016	5	14.49	76.17	6.4	33.53	8.1	25.0	3.64
A7	04 Jun 2016	6	14.36	76.08	6.2	33.52	8.0	25.0	3.35
A7	04 Jun 2016	7	14.11	78.03	6.1	33.53	8.0	25.0	3.17
A7	04 Jun 2016	8	13.91	78.49	5.9	33.53	8.0	25.1	2.91
A7	04 Jun 2016	9	13.53	79.51	5.7	33.53	8.0	25.2	2.56
A7	04 Jun 2016	10	13.29	80.69	5.5	33.53	8.0	25.2	2.33
A7	04 Jun 2016	11	13.19	81.12	5.4	33.53	8.0	25.2	2.06
A7	04 Jun 2016	12	13.11	81.49	5.3	33.53	8.0	25.2	1.94
A7	04 Jun 2016	13	12.94	81.98	5.2	33.53	8.0	25.3	1.75
A7	04 Jun 2016	14	12.78	82.16	5.1	33.54	8.0	25.3	1.58
A7	04 Jun 2016	15	12.65	82.62	5.0	33.54	8.0	25.3	1.48
A7	04 Jun 2016	16	12.38	83.25	4.9	33.55	8.0	25.4	1.37

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
A7	04 Jun 2016	17	12.27	83.52	4.8	33.56	8.0	25.4	1.28
A7	04 Jun 2016	18	12.22	83.57	4.7	33.56	7.9	25.4	1.14
A7	16 Jun 2016	1	18.78	79.02	7.8	33.59	8.2	24.0	1.14
A7	16 Jun 2016	2	18.77	78.97	7.8	33.59	8.2	24.0	1.31
A7	16 Jun 2016	3	18.74	78.87	7.8	33.59	8.2	24.0	2.00
A7	16 Jun 2016	4	18.63	78.86	7.9	33.58	8.2	24.0	2.51
A7	16 Jun 2016	5	18.35	77.47	7.9	33.58	8.2	24.1	3.16
A7	16 Jun 2016	6	18.29	77.83	7.9	33.56	8.2	24.1	3.22
A7	16 Jun 2016	7	17.83	76.17	8.0	33.55	8.2	24.2	3.50
A7	16 Jun 2016	8	17.88	76.64	7.9	33.56	8.2	24.2	3.82
A7	16 Jun 2016	9	17.76	76.19	8.0	33.54	8.2	24.2	4.25
A7	16 Jun 2016	10	17.63	76.14	7.9	33.55	8.2	24.3	4.66
A7	16 Jun 2016	11	17.47	75.34	7.9	33.53	8.2	24.3	4.73
A7	16 Jun 2016	12	17.35	74.43	7.7	33.54	8.2	24.3	4.93
A7	16 Jun 2016	13	17.45	74.42	7.2	33.53	8.2	24.3	4.71
A7	16 Jun 2016	14	16.95	73.50	7.0	33.52	8.2	24.4	4.26
A7	16 Jun 2016	15	16.46	73.68	6.8	33.51	8.2	24.5	4.21
A7	16 Jun 2016	16	16.08	75.63	6.1	33.53	8.1	24.6	3.13
A7	16 Jun 2016	17	15.70	78.31	5.3	33.45	8.1	24.6	2.44
A7	16 Jun 2016	18	14.14	78.74	5.6	33.49	8.1	25.0	2.27
A7	16 Jun 2016	19	13.87	78.76	6.0	33.48	8.1	25.0	2.33
A7	20 Jun 2016	1	17.10	71.43	8.0	33.54	8.1	24.4	2.61
A7	20 Jun 2016	2	17.04	71.07	7.9	33.54	8.1	24.4	3.36
A7	20 Jun 2016	3	16.96	70.60	7.8	33.53	8.1	24.4	4.15
A7	20 Jun 2016	4	16.82	70.19	7.6	33.53	8.1	24.4	5.53
A7	20 Jun 2016	5	16.68	69.85	7.2	33.52	8.1	24.5	6.67
A7	20 Jun 2016	6	15.78	69.02	6.9	33.49	8.1	24.6	7.28
A7	20 Jun 2016	7	15.27	67.81	6.4	33.48	8.1	24.7	7.42
A7	20 Jun 2016	8	14.21	68.46	6.3	33.46	8.1	25.0	6.47
A7	20 Jun 2016	9	14.11	70.57	5.3	33.49	8.0	25.0	4.55
A7	20 Jun 2016	10	13.45	73.06	4.3	33.44	8.0	25.1	3.29
A7	20 Jun 2016	11	12.62	79.79	4.1	33.47	8.0	25.3	2.07
A7	20 Jun 2016	12	12.36	82.50	3.8	33.47	7.9	25.3	1.61
A7	20 Jun 2016	13	11.71	83.89	3.7	33.48	7.9	25.5	1.31
A7	20 Jun 2016	14	11.59	82.96	3.8	33.52	7.9	25.5	1.05
A7	20 Jun 2016	15	11.32	82.44	3.7	33.53	7.9	25.6	0.95
A7	20 Jun 2016	16	11.20	82.09	3.8	33.55	7.8	25.6	0.99
A7	20 Jun 2016	17	11.11	81.46	3.8	33.57	7.8	25.6	0.79
A7	20 Jun 2016	18	11.15	81.46	3.6	33.55	7.8	25.6	0.72
A7	20 Jun 2016	19	10.91	81.35	3.6	33.59	7.8	25.7	0.71
A7	20 Jun 2016	20	10.91	81.37	3.7	33.60	7.8	25.7	0.70
A7	22 Jun 2016	1	18.56	75.60	7.7	33.55	8.1	24.0	4.14
A7	22 Jun 2016	2	17.73	74.92	7.9	33.53	8.1	24.2	4.30
A7	22 Jun 2016	3	17.46	74.20	7.8	33.54	8.1	24.3	4.95
A7	22 Jun 2016	4	17.40	73.56	7.6	33.52	8.1	24.3	5.81
A7	22 Jun 2016	5	17.25	73.04	7.5	33.52	8.1	24.3	6.36
A7	22 Jun 2016	6	17.12	72.61	7.6	33.50	8.1	24.3	6.73
A7	22 Jun 2016	7	16.77	71.10	7.7	33.51	8.1	24.4	7.94
A7	22 Jun 2016	8	16.65	70.53	7.6	33.50	8.1	24.4	8.92
A7	22 Jun 2016	9	16.46	70.78	7.4	33.48	8.1	24.5	9.30
A7	22 Jun 2016	10	15.91	70.73	7.0	33.48	8.1	24.6	8.95
A7	22 Jun 2016	11	15.51	68.37	6.7	33.48	8.1	24.7	7.30

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
A7	22 Jun 2016	12	15.37	67.77	6.2	33.49	8.1	24.7	6.20
A7	22 Jun 2016	13	15.13	68.79	5.8	33.45	8.1	24.8	5.19
A7	22 Jun 2016	14	14.62	73.01	5.4	33.48	8.0	24.9	4.42
A7	22 Jun 2016	15	14.41	74.16	5.0	33.46	8.0	24.9	4.04
A7	22 Jun 2016	16	13.61	77.17	4.8	33.44	8.0	25.1	3.80
A7	22 Jun 2016	17	12.96	78.94	5.1	33.46	8.0	25.2	3.90
A7	22 Jun 2016	18	12.79	79.45	5.6	33.47	7.9	25.2	4.27
A7	27 Jun 2016	1	19.40	78.37	8.1	33.56	8.2	23.8	2.18
A7	27 Jun 2016	2	19.48	77.74	8.0	33.56	8.2	23.8	2.33
A7	27 Jun 2016	3	19.36	78.37	8.0	33.55	8.2	23.8	2.33
A7	27 Jun 2016	4	19.22	79.90	8.2	33.54	8.2	23.9	2.08
A7	27 Jun 2016	5	19.01	80.42	8.3	33.53	8.2	23.9	2.07
A7	27 Jun 2016	6	18.76	80.69	8.3	33.49	8.2	23.9	2.15
A7	27 Jun 2016	7	18.24	82.69	8.3	33.49	8.2	24.1	2.16
A7	27 Jun 2016	8	18.02	83.29	8.3	33.49	8.2	24.1	2.24
A7	27 Jun 2016	9	17.92	83.20	8.2	33.50	8.2	24.1	2.29
A7	27 Jun 2016	10	17.91	83.25	8.2	33.50	8.2	24.1	2.35
A7	27 Jun 2016	11	17.91	83.04	8.0	33.50	8.2	24.1	2.36
A7	27 Jun 2016	12	17.87	83.14	7.6	33.49	8.2	24.1	2.17
A7	27 Jun 2016	13	17.71	82.79	7.0	33.48	8.2	24.2	1.86
A7	27 Jun 2016	14	17.51	82.26	6.5	33.48	8.1	24.2	1.66
A7	27 Jun 2016	15	17.18	81.51	6.2	33.45	8.1	24.3	1.36
A7	27 Jun 2016	16	16.40	81.32	6.0	33.42	8.1	24.4	1.24
A7	27 Jun 2016	17	15.70	81.89	5.9	33.43	8.1	24.6	1.12
A7	27 Jun 2016	18	15.05	82.34	6.0	33.42	8.1	24.7	1.12
A7	27 Jun 2016	19	14.58	82.81	6.3	33.45	8.0	24.9	1.12
C7	04 Jun 2016	1	16.61	75.53	8.1	33.54	8.1	24.5	3.16
C7	04 Jun 2016	2	16.19	75.03	7.7	33.54	8.1	24.6	3.83
C7	04 Jun 2016	3	15.42	72.62	7.3	33.54	8.1	24.8	4.41
C7	04 Jun 2016	4	15.25	73.50	7.0	33.53	8.1	24.8	4.53
C7	04 Jun 2016	5	14.63	75.92	6.6	33.53	8.1	24.9	4.00
C7	04 Jun 2016	6	14.28	77.26	6.2	33.52	8.1	25.0	3.57
C7	04 Jun 2016	7	13.61	79.41	5.8	33.53	8.1	25.1	2.98
C7	04 Jun 2016	8	13.23	81.15	5.4	33.53	8.1	25.2	2.42
C7	04 Jun 2016	9	12.97	82.13	5.3	33.52	8.0	25.3	2.16
C7	04 Jun 2016	10	12.81	82.69	5.2	33.52	8.0	25.3	1.96
C7	04 Jun 2016	11	12.67	83.05	5.0	33.52	8.0	25.3	1.80
C7	04 Jun 2016	12	12.49	83.72	4.9	33.53	8.0	25.4	1.62
C7	04 Jun 2016	13	12.36	83.93	4.8	33.53	8.0	25.4	1.51
C7	04 Jun 2016	14	12.29	84.37	4.8	33.53	8.0	25.4	1.41
C7	04 Jun 2016	15	12.21	84.84	4.6	33.53	8.0	25.4	1.34
C7	04 Jun 2016	16	12.09	85.07	4.5	33.54	8.0	25.4	1.23
C7	04 Jun 2016	17	12.02	85.15	4.4	33.54	8.0	25.5	1.07
C7	04 Jun 2016	18	11.98	85.84	4.4	33.54	7.9	25.5	0.97
C7	16 Jun 2016	1	19.21	72.55	7.9	33.60	8.2	23.9	1.97
C7	16 Jun 2016	2	19.13	72.51	7.8	33.60	8.2	23.9	3.19
C7	16 Jun 2016	3	19.04	72.59	7.5	33.59	8.2	23.9	4.06
C7	16 Jun 2016	4	18.67	73.47	7.3	33.53	8.2	24.0	5.23
C7	16 Jun 2016	5	17.87	74.05	7.1	33.56	8.2	24.2	5.95
C7	16 Jun 2016	6	16.96	73.47	7.2	33.44	8.2	24.3	6.10
C7	16 Jun 2016	7	15.92	72.48	7.4	33.50	8.2	24.6	5.95
C7	16 Jun 2016	8	15.73	72.64	7.3	33.45	8.2	24.6	5.67

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
C7	16 Jun 2016	9	15.37	73.09	7.3	33.47	8.2	24.7	5.29
C7	16 Jun 2016	10	15.32	73.28	7.1	33.46	8.1	24.7	5.02
C7	16 Jun 2016	11	15.20	74.18	6.9	33.45	8.1	24.7	4.45
C7	16 Jun 2016	12	15.02	75.81	6.6	33.45	8.1	24.8	3.91
C7	16 Jun 2016	13	14.87	76.31	6.3	33.45	8.1	24.8	3.26
C7	16 Jun 2016	14	14.53	77.50	6.1	33.44	8.1	24.9	2.60
C7	16 Jun 2016	15	14.23	78.69	6.0	33.45	8.1	24.9	2.13
C7	16 Jun 2016	16	14.06	80.06	5.9	33.44	8.1	25.0	2.09
C7	16 Jun 2016	17	13.95	80.44	6.1	33.45	8.1	25.0	2.09
C7	20 Jun 2016	1	18.05	75.08	7.8	33.56	8.1	24.2	2.16
C7	20 Jun 2016	2	17.96	74.79	7.7	33.56	8.1	24.2	2.90
C7	20 Jun 2016	3	17.80	72.78	7.6	33.55	8.1	24.2	3.71
C7	20 Jun 2016	4	17.30	71.55	7.6	33.50	8.1	24.3	4.77
C7	20 Jun 2016	5	16.73	69.82	7.6	33.53	8.1	24.4	5.18
C7	20 Jun 2016	6	16.37	68.60	7.5	33.49	8.1	24.5	6.55
C7	20 Jun 2016	7	16.17	67.74	7.0	33.52	8.1	24.6	8.34
C7	20 Jun 2016	8	15.42	67.22	6.9	33.44	8.1	24.7	9.21
C7	20 Jun 2016	9	14.66	67.09	6.4	33.47	8.1	24.9	9.23
C7	20 Jun 2016	10	13.85	69.00	5.9	33.45	8.1	25.0	6.39
C7	20 Jun 2016	11	13.61	72.53	5.4	33.46	8.0	25.1	5.34
C7	20 Jun 2016	12	13.05	79.39	5.0	33.46	8.0	25.2	3.30
C7	20 Jun 2016	13	13.01	81.91	4.3	33.43	8.0	25.2	2.36
C7	20 Jun 2016	14	12.38	83.93	4.4	33.48	7.9	25.3	2.06
C7	20 Jun 2016	15	12.16	83.98	4.4	33.48	7.9	25.4	1.91
C7	20 Jun 2016	16	12.02	84.02	4.3	33.49	7.9	25.4	1.75
C7	20 Jun 2016	17	11.89	84.23	4.1	33.50	7.9	25.4	1.20
C7	20 Jun 2016	18	11.69	84.87	4.0	33.53	7.9	25.5	1.06
C7	22 Jun 2016	1	20.28	82.07	7.6	33.60	8.2	23.6	1.53
C7	22 Jun 2016	2	20.26	82.46	7.6	33.60	8.2	23.6	1.89
C7	22 Jun 2016	3	20.00	82.67	7.5	33.59	8.2	23.7	3.00
C7	22 Jun 2016	4	19.43	81.85	7.5	33.54	8.2	23.8	4.34
C7	22 Jun 2016	5	18.58	78.62	7.5	33.54	8.2	24.0	5.53
C7	22 Jun 2016	6	17.74	75.13	7.4	33.51	8.2	24.2	5.32
C7	22 Jun 2016	7	17.49	73.64	6.8	33.53	8.2	24.3	5.08
C7	22 Jun 2016	8	16.28	75.18	6.9	33.50	8.1	24.5	5.09
C7	22 Jun 2016	9	15.95	76.17	7.0	33.50	8.1	24.6	5.14
C7	22 Jun 2016	10	15.95	76.78	6.9	33.50	8.1	24.6	5.02
C7	22 Jun 2016	11	15.70	77.42	6.7	33.50	8.1	24.7	4.53
C7	22 Jun 2016	12	15.59	78.16	6.4	33.50	8.1	24.7	3.69
C7	22 Jun 2016	13	15.32	79.19	6.0	33.49	8.1	24.7	2.99
C7	22 Jun 2016	14	14.82	80.54	4.8	33.51	8.1	24.8	2.26
C7	22 Jun 2016	15	13.30	82.73	4.8	33.48	8.0	25.1	2.19
C7	22 Jun 2016	16	13.16	83.49	4.9	33.50	8.0	25.2	1.76
C7	22 Jun 2016	17	12.82	83.99	4.8	33.50	7.9	25.3	1.68
C7	22 Jun 2016	18	12.68	84.23	5.0	33.50	7.9	25.3	1.84
C7	27 Jun 2016	1	19.76	75.06	8.1	33.57	8.2	23.7	3.63
C7	27 Jun 2016	2	19.74	74.84	8.1	33.56	8.2	23.7	4.27
C7	27 Jun 2016	3	19.66	73.73	8.0	33.56	8.2	23.8	4.70
C7	27 Jun 2016	4	19.56	73.52	8.0	33.55	8.2	23.8	4.79
C7	27 Jun 2016	5	19.43	73.57	7.8	33.55	8.2	23.8	4.96
C7	27 Jun 2016	6	19.33	73.75	7.7	33.55	8.2	23.8	5.16
C7	27 Jun 2016	7	19.16	73.86	7.3	33.55	8.2	23.9	5.17

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
C7	27 Jun 2016	8	18.98	73.94	6.9	33.53	8.2	23.9	5.14
C7	27 Jun 2016	9	18.41	73.74	6.7	33.50	8.2	24.0	4.61
C7	27 Jun 2016	10	17.82	74.63	6.6	33.50	8.1	24.2	3.96
C7	27 Jun 2016	11	17.61	73.56	6.3	33.51	8.1	24.2	3.39
C7	27 Jun 2016	12	16.93	73.59	6.2	33.48	8.1	24.4	2.91
C7	27 Jun 2016	13	16.42	77.74	6.1	33.48	8.1	24.5	2.37
C7	27 Jun 2016	14	15.98	79.48	6.0	33.47	8.1	24.6	1.92
C7	27 Jun 2016	15	15.60	80.13	5.8	33.45	8.1	24.6	1.63
C7	27 Jun 2016	16	15.20	80.83	5.7	33.46	8.1	24.7	1.51
C7	27 Jun 2016	17	14.98	81.33	6.0	33.42	8.0	24.8	1.92
C7	27 Jun 2016	18	14.78	80.91	6.4	33.48	8.0	24.8	2.44
C8	04 Jun 2016	1	15.75	71.99	7.6	33.54	8.1	24.7	4.95
C8	04 Jun 2016	2	15.51	72.19	7.0	33.54	8.1	24.7	5.22
C8	04 Jun 2016	3	14.11	74.43	6.3	33.54	8.1	25.0	4.36
C8	04 Jun 2016	4	13.71	77.30	6.0	33.53	8.1	25.1	3.54
C8	04 Jun 2016	5	13.53	77.84	5.8	33.52	8.1	25.1	3.18
C8	04 Jun 2016	6	13.22	80.34	5.6	33.52	8.1	25.2	2.93
C8	04 Jun 2016	7	13.12	80.24	5.5	33.52	8.0	25.2	2.70
C8	04 Jun 2016	8	13.00	80.76	5.3	33.52	8.0	25.2	2.44
C8	04 Jun 2016	9	12.82	81.66	5.2	33.53	8.0	25.3	2.37
C8	04 Jun 2016	10	12.78	81.61	5.2	33.53	8.0	25.3	2.30
C8	04 Jun 2016	11	12.70	82.02	5.1	33.53	8.0	25.3	2.16
C8	04 Jun 2016	12	12.50	82.32	5.0	33.53	8.0	25.4	2.10
C8	04 Jun 2016	13	12.33	82.47	4.9	33.53	8.0	25.4	2.08
C8	04 Jun 2016	14	12.17	82.71	4.7	33.53	8.0	25.4	1.93
C8	04 Jun 2016	15	11.90	83.66	4.5	33.54	8.0	25.5	1.64
C8	04 Jun 2016	16	11.70	84.55	4.3	33.55	8.0	25.5	1.36
C8	04 Jun 2016	17	11.64	85.28	4.2	33.55	7.9	25.5	1.07
C8	04 Jun 2016	18	11.64	85.18	4.2	33.55	7.9	25.5	0.95
C8	04 Jun 2016	19	11.64	85.03	4.2	33.55	7.9	25.5	0.89
C8	04 Jun 2016	20	11.64	84.69	4.2	33.55	7.9	25.5	0.91
C8	16 Jun 2016	1	19.40	69.14	7.9	33.60	8.2	23.9	2.33
C8	16 Jun 2016	2	19.31	69.11	7.7	33.59	8.2	23.9	3.27
C8	16 Jun 2016	3	18.66	71.71	7.5	33.53	8.2	24.0	4.94
C8	16 Jun 2016	4	17.86	73.93	7.2	33.52	8.2	24.2	6.19
C8	16 Jun 2016	5	17.47	73.21	6.7	33.53	8.2	24.3	5.89
C8	16 Jun 2016	6	16.87	71.44	6.4	33.49	8.2	24.4	4.87
C8	16 Jun 2016	7	16.53	70.04	6.1	33.52	8.2	24.5	4.59
C8	16 Jun 2016	8	15.99	71.91	6.3	33.41	8.2	24.5	4.50
C8	16 Jun 2016	9	15.06	76.58	6.6	33.46	8.1	24.8	4.72
C8	16 Jun 2016	10	14.92	76.62	6.7	33.48	8.1	24.8	4.50
C8	16 Jun 2016	11	14.97	76.56	6.7	33.43	8.1	24.8	4.33
C8	16 Jun 2016	12	14.85	77.21	6.5	33.47	8.1	24.8	3.82
C8	16 Jun 2016	13	14.69	77.64	6.1	33.43	8.1	24.8	2.83
C8	16 Jun 2016	14	14.50	78.44	5.7	33.46	8.1	24.9	2.50
C8	16 Jun 2016	15	14.33	79.02	5.6	33.45	8.1	24.9	2.49
C8	16 Jun 2016	16	13.96	79.53	5.8	33.46	8.1	25.0	2.29
C8	16 Jun 2016	17	14.09	79.04	5.8	33.46	8.1	25.0	2.35
C8	16 Jun 2016	18	13.91	76.80	5.9	33.47	8.0	25.0	2.19
C8	20 Jun 2016	1	18.61	81.31	8.1	33.56	8.2	24.0	0.77
C8	20 Jun 2016	2	18.38	81.11	8.1	33.56	8.2	24.1	0.91
C8	20 Jun 2016	3	18.18	80.65	8.0	33.56	8.2	24.1	1.21

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
C8	20 Jun 2016	4	18.04	80.11	8.0	33.55	8.2	24.2	1.64
C8	20 Jun 2016	5	17.79	79.03	8.0	33.54	8.2	24.2	2.28
C8	20 Jun 2016	6	17.58	77.88	7.7	33.54	8.2	24.3	3.49
C8	20 Jun 2016	7	17.34	75.14	7.4	33.53	8.2	24.3	5.47
C8	20 Jun 2016	8	16.97	72.01	7.2	33.52	8.2	24.4	7.43
C8	20 Jun 2016	9	16.46	67.73	7.1	33.51	8.1	24.5	9.19
C8	20 Jun 2016	10	15.65	65.54	6.9	33.48	8.1	24.7	10.52
C8	20 Jun 2016	11	14.94	63.95	6.7	33.46	8.1	24.8	11.01
C8	20 Jun 2016	12	14.11	65.42	6.7	33.45	8.1	25.0	9.51
C8	20 Jun 2016	13	14.08	66.89	5.8	33.46	8.1	25.0	6.94
C8	20 Jun 2016	14	13.44	73.18	4.8	33.42	8.1	25.1	3.78
C8	20 Jun 2016	15	13.22	77.82	4.0	33.45	8.0	25.1	2.44
C8	20 Jun 2016	16	12.37	83.45	3.8	33.45	8.0	25.3	1.69
C8	20 Jun 2016	17	12.14	85.24	3.9	33.46	7.9	25.4	1.46
C8	20 Jun 2016	18	11.88	85.48	4.2	33.47	7.9	25.4	1.65
C8	20 Jun 2016	19	11.89	85.44	4.5	33.48	7.9	25.4	1.85
C8	22 Jun 2016	1	20.38	83.99	7.6	33.60	8.2	23.6	0.82
C8	22 Jun 2016	2	20.37	83.96	7.6	33.60	8.2	23.6	0.84
C8	22 Jun 2016	3	20.35	84.04	7.6	33.60	8.2	23.6	0.98
C8	22 Jun 2016	4	20.34	83.97	7.6	33.60	8.2	23.6	1.11
C8	22 Jun 2016	5	20.33	83.88	7.5	33.60	8.2	23.6	1.30
C8	22 Jun 2016	6	20.17	83.76	7.6	33.58	8.2	23.6	1.77
C8	22 Jun 2016	7	18.52	82.82	8.2	33.50	8.2	24.0	2.28
C8	22 Jun 2016	8	17.59	81.03	7.9	33.51	8.2	24.2	4.13
C8	22 Jun 2016	9	17.33	79.65	7.5	33.50	8.2	24.3	4.96
C8	22 Jun 2016	10	16.81	74.42	6.8	33.51	8.2	24.4	5.24
C8	22 Jun 2016	11	16.11	73.82	6.3	33.44	8.1	24.5	5.21
C8	22 Jun 2016	12	14.89	75.55	6.0	33.49	8.1	24.8	4.10
C8	22 Jun 2016	13	14.48	78.27	5.3	33.44	8.1	24.9	3.96
C8	22 Jun 2016	14	13.57	79.13	5.4	33.49	8.0	25.1	2.78
C8	22 Jun 2016	15	13.62	81.42	4.4	33.48	8.0	25.1	1.93
C8	22 Jun 2016	16	12.70	83.29	4.6	33.49	8.0	25.3	1.89
C8	22 Jun 2016	17	12.69	83.37	4.8	33.49	7.9	25.3	1.88
C8	22 Jun 2016	18	12.65	83.49	4.9	33.50	7.9	25.3	1.90
C8	22 Jun 2016	19	12.72	83.39	4.9	33.51	7.9	25.3	1.91
C8	27 Jun 2016	1	19.72	76.65	8.2	33.57	8.2	23.7	2.26
C8	27 Jun 2016	2	19.62	76.82	8.3	33.55	8.2	23.8	2.45
C8	27 Jun 2016	3	19.40	78.07	8.3	33.55	8.2	23.8	2.93
C8	27 Jun 2016	4	19.32	78.55	8.2	33.55	8.2	23.8	3.82
C8	27 Jun 2016	5	19.08	78.57	8.1	33.53	8.2	23.9	4.36
C8	27 Jun 2016	6	18.78	76.98	8.2	33.53	8.2	24.0	4.58
C8	27 Jun 2016	7	18.62	75.68	8.2	33.53	8.2	24.0	4.65
C8	27 Jun 2016	8	18.56	75.52	8.0	33.53	8.2	24.0	4.48
C8	27 Jun 2016	9	18.51	75.48	7.6	33.52	8.2	24.0	3.92
C8	27 Jun 2016	10	18.29	74.98	6.6	33.51	8.2	24.1	2.73
C8	27 Jun 2016	11	17.62	75.40	6.0	33.48	8.2	24.2	2.04
C8	27 Jun 2016	12	16.91	77.66	6.1	33.48	8.1	24.4	1.71
C8	27 Jun 2016	13	16.36	78.86	6.2	33.48	8.1	24.5	1.63
C8	27 Jun 2016	14	16.05	80.47	6.3	33.49	8.1	24.6	1.64
C8	27 Jun 2016	15	16.02	80.92	5.9	33.49	8.1	24.6	1.26
C8	27 Jun 2016	16	15.90	80.93	5.2	33.47	8.0	24.6	1.12
C8	27 Jun 2016	17	14.68	81.25	5.2	33.38	8.0	24.8	1.14
C8	27 Jun 2016	18	13.85	81.13	5.8	33.46	8.0	25.0	1.19

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens ( $\sigma\text{-t}$ )	Chlor ( $\mu\text{g/L}$ )
C8	27 Jun 2016	19	13.89	80.53	6.0	33.43	8.0	25.0	1.19

NA = not available

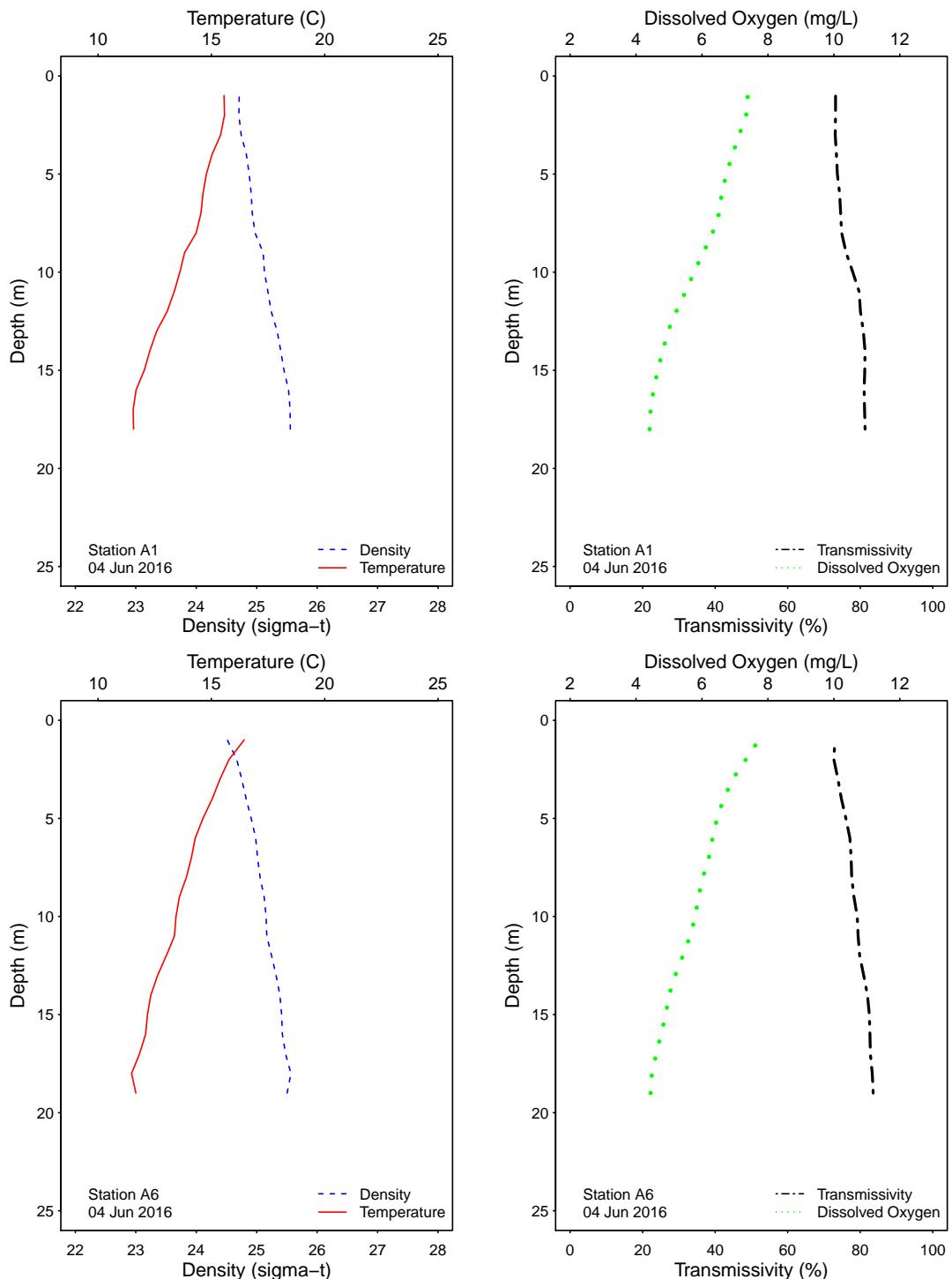


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

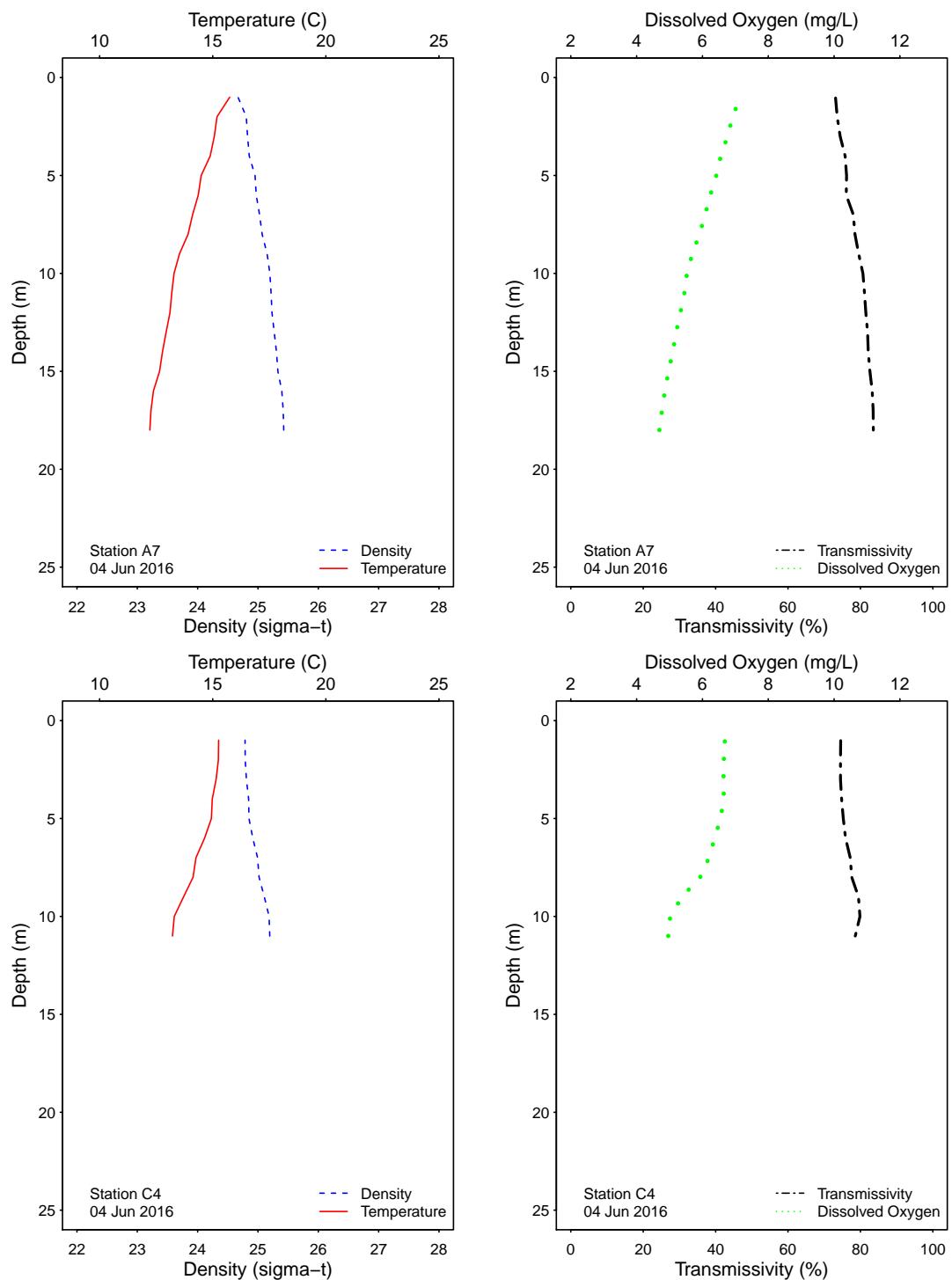


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

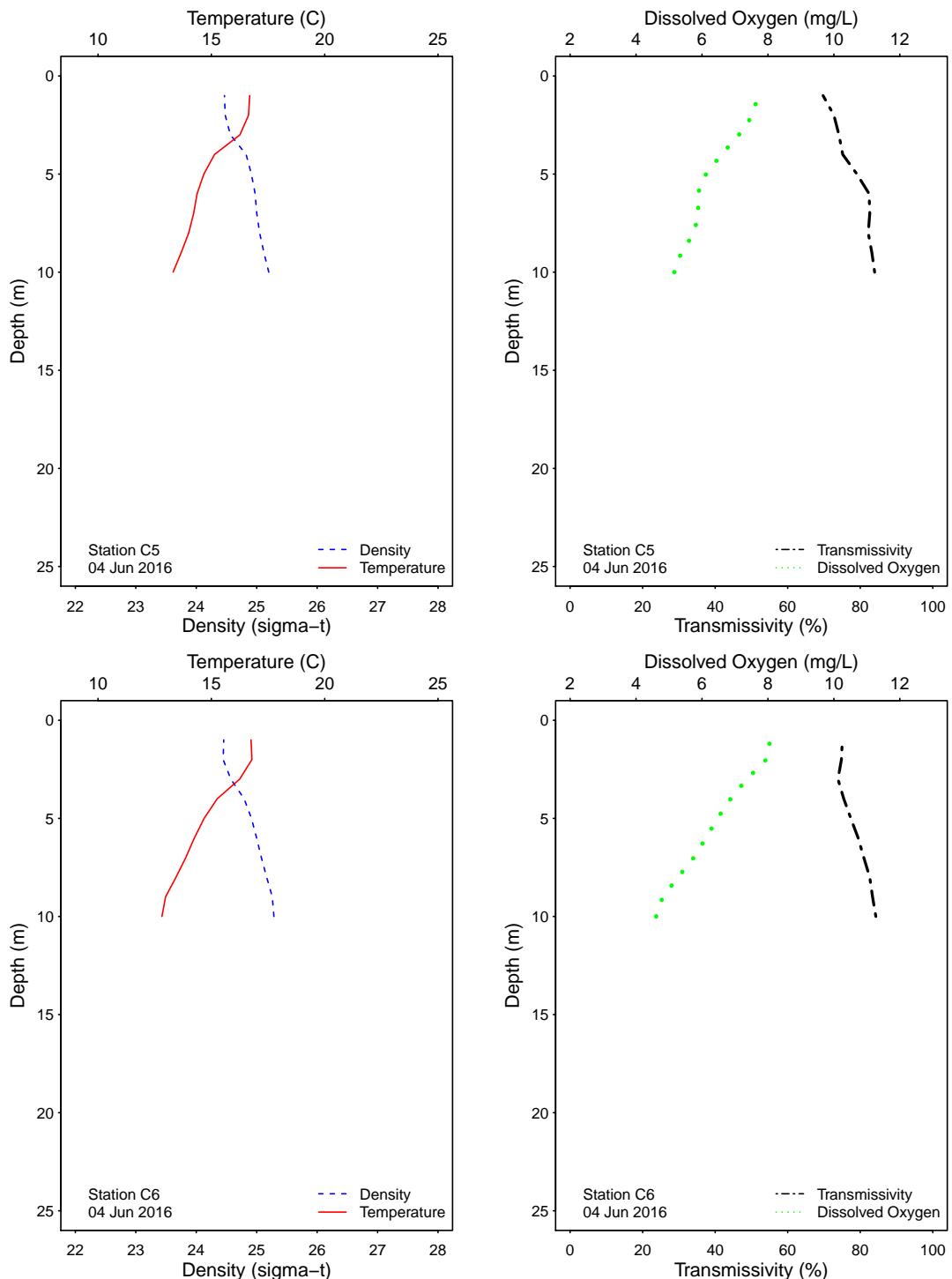


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

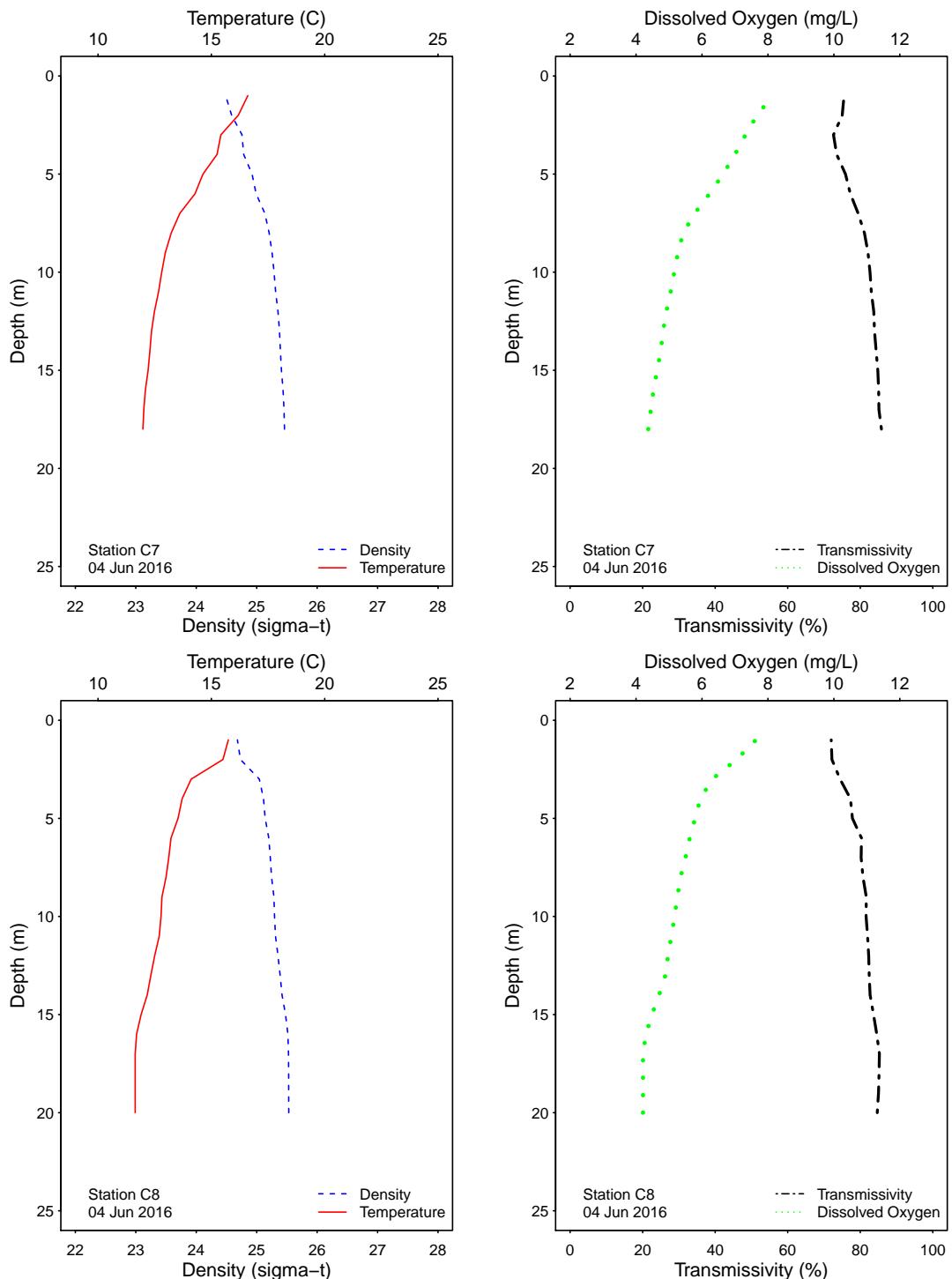


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

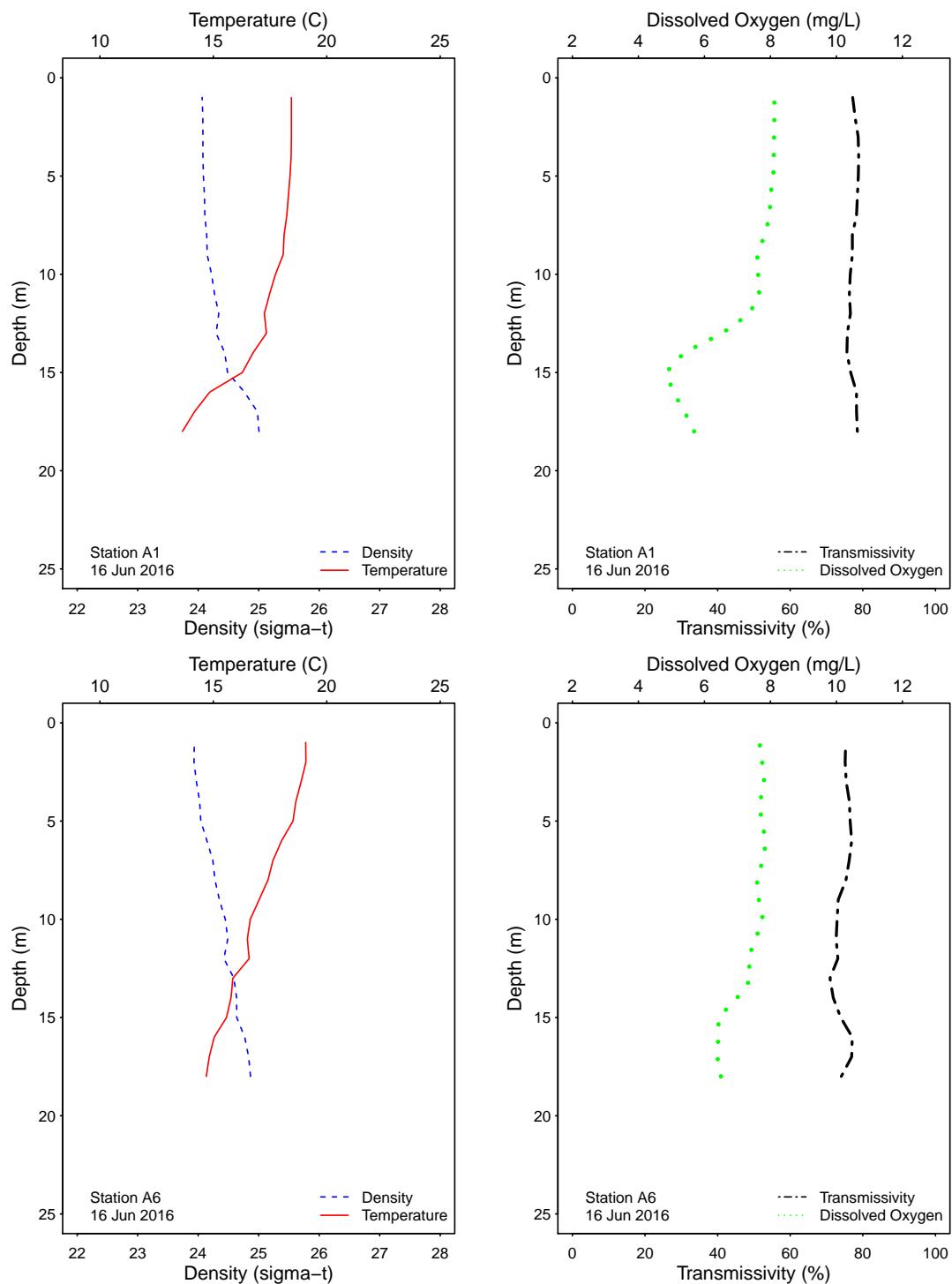


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

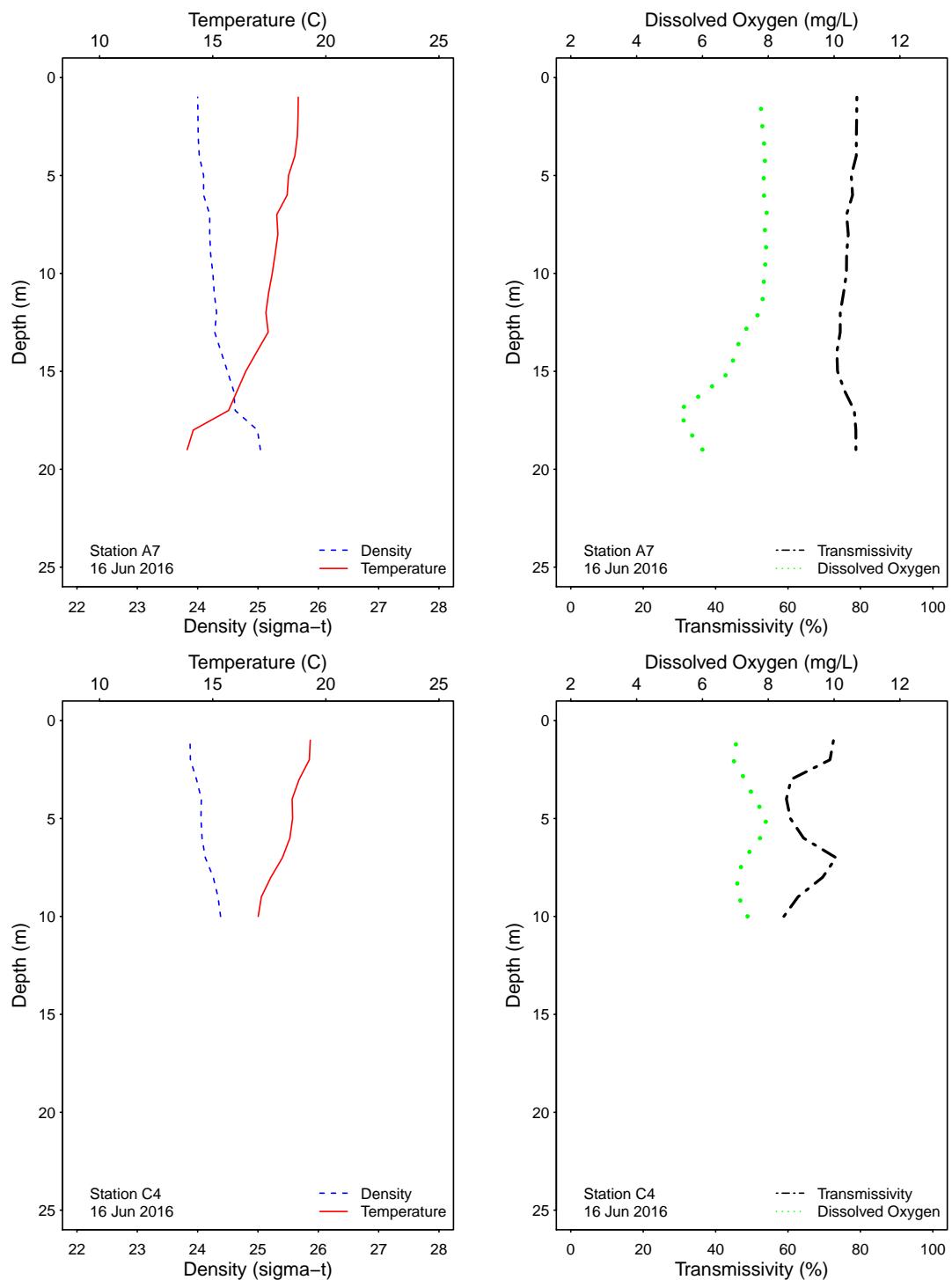


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

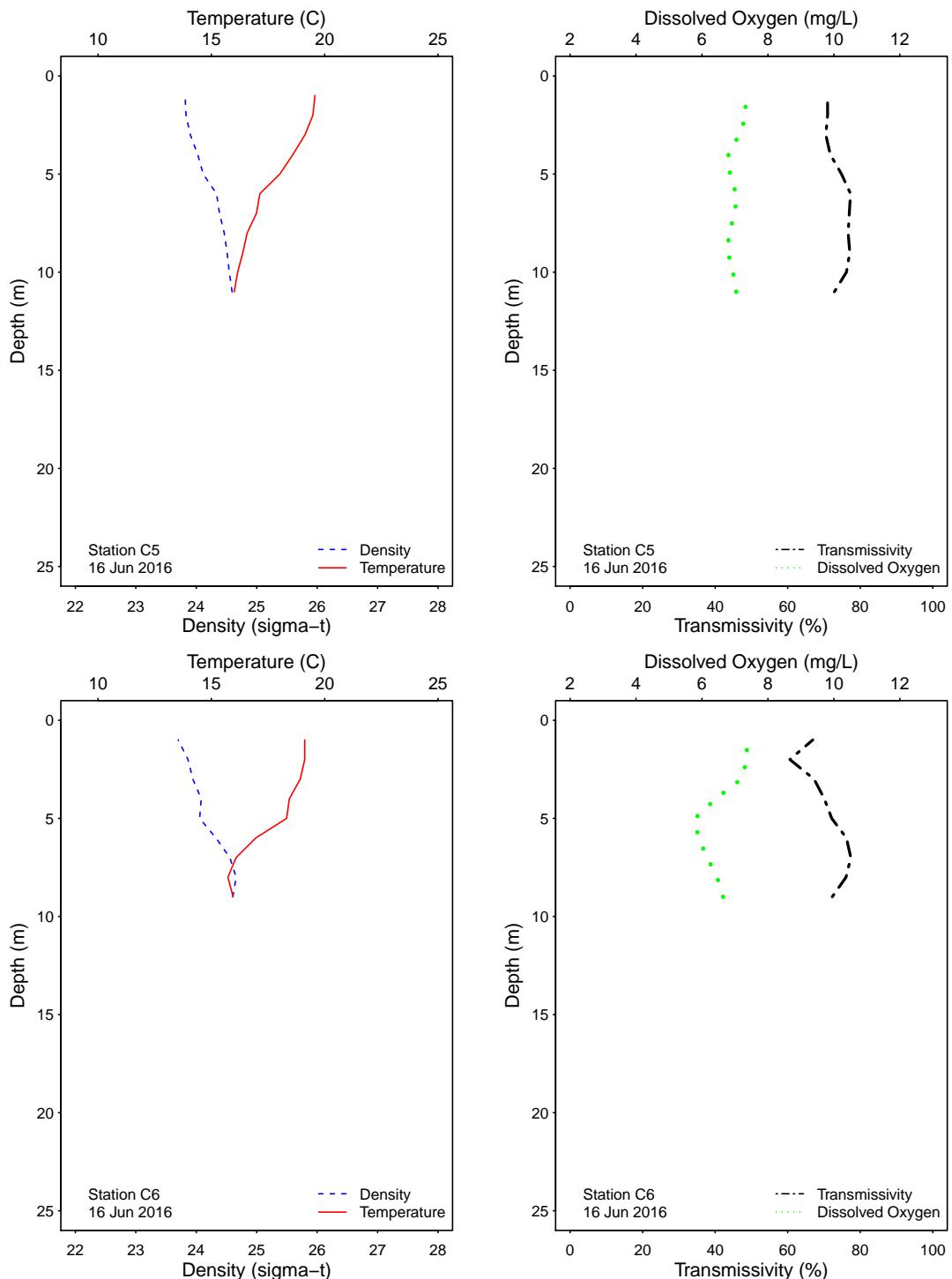


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

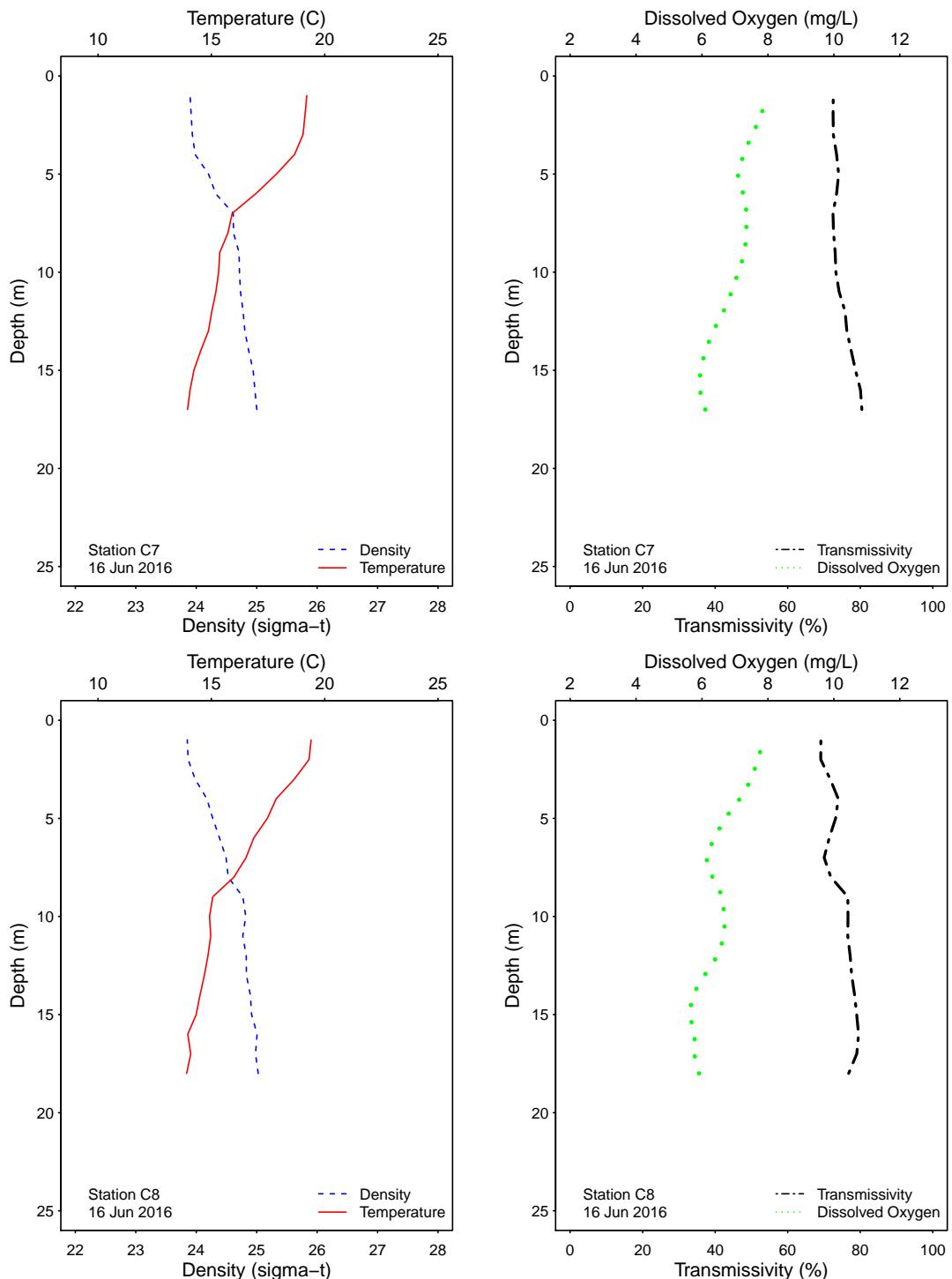


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

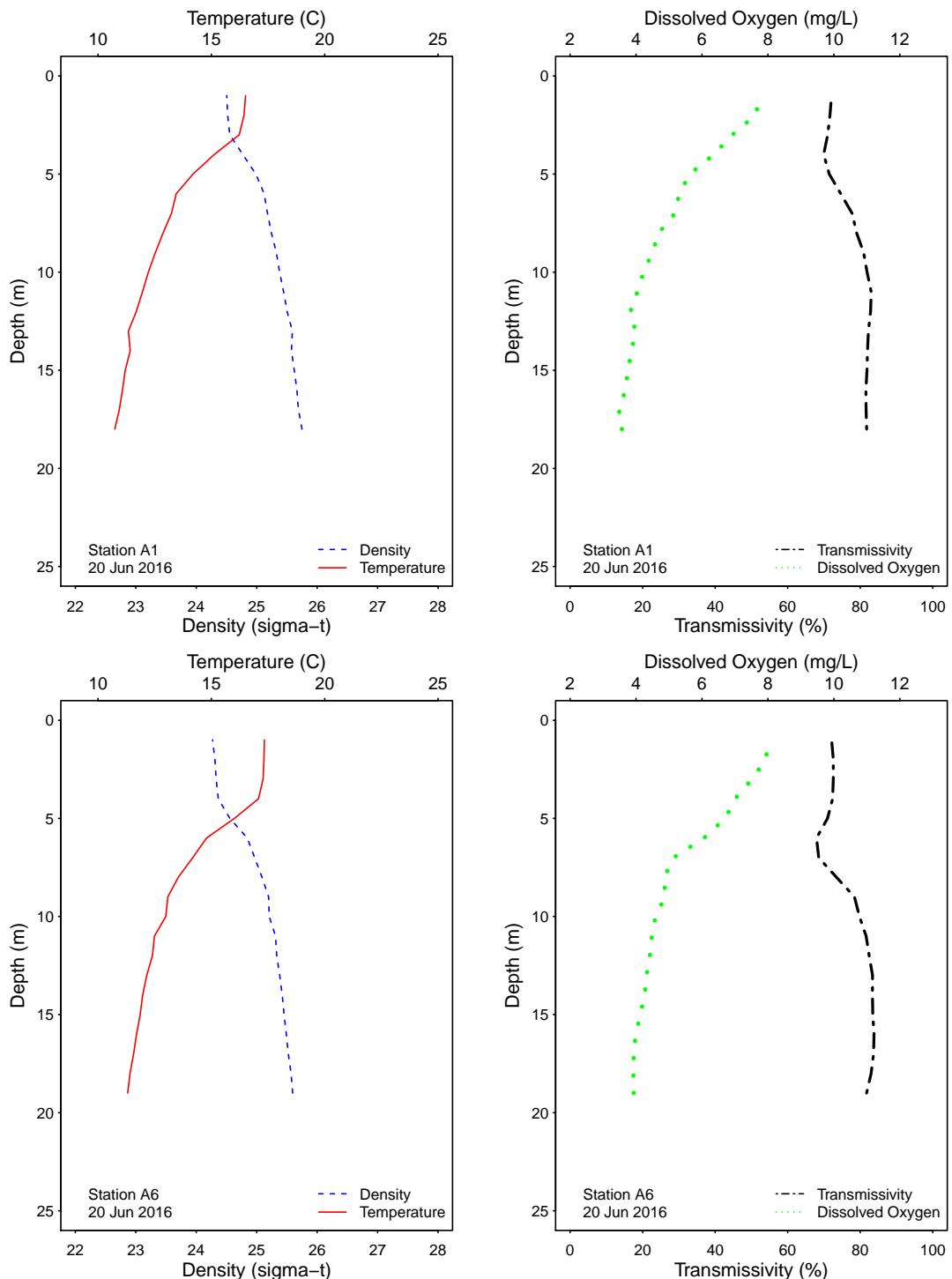


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

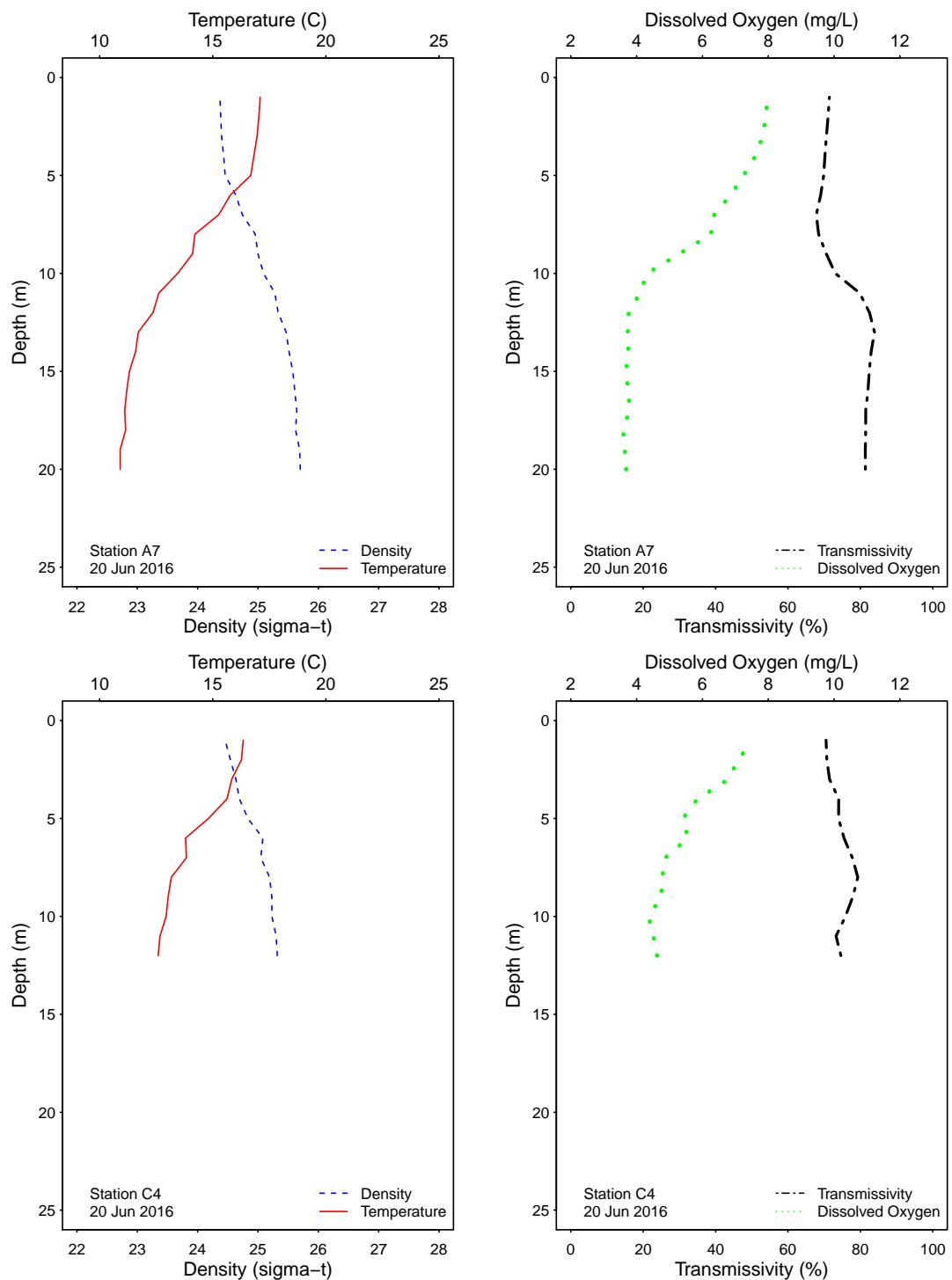


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

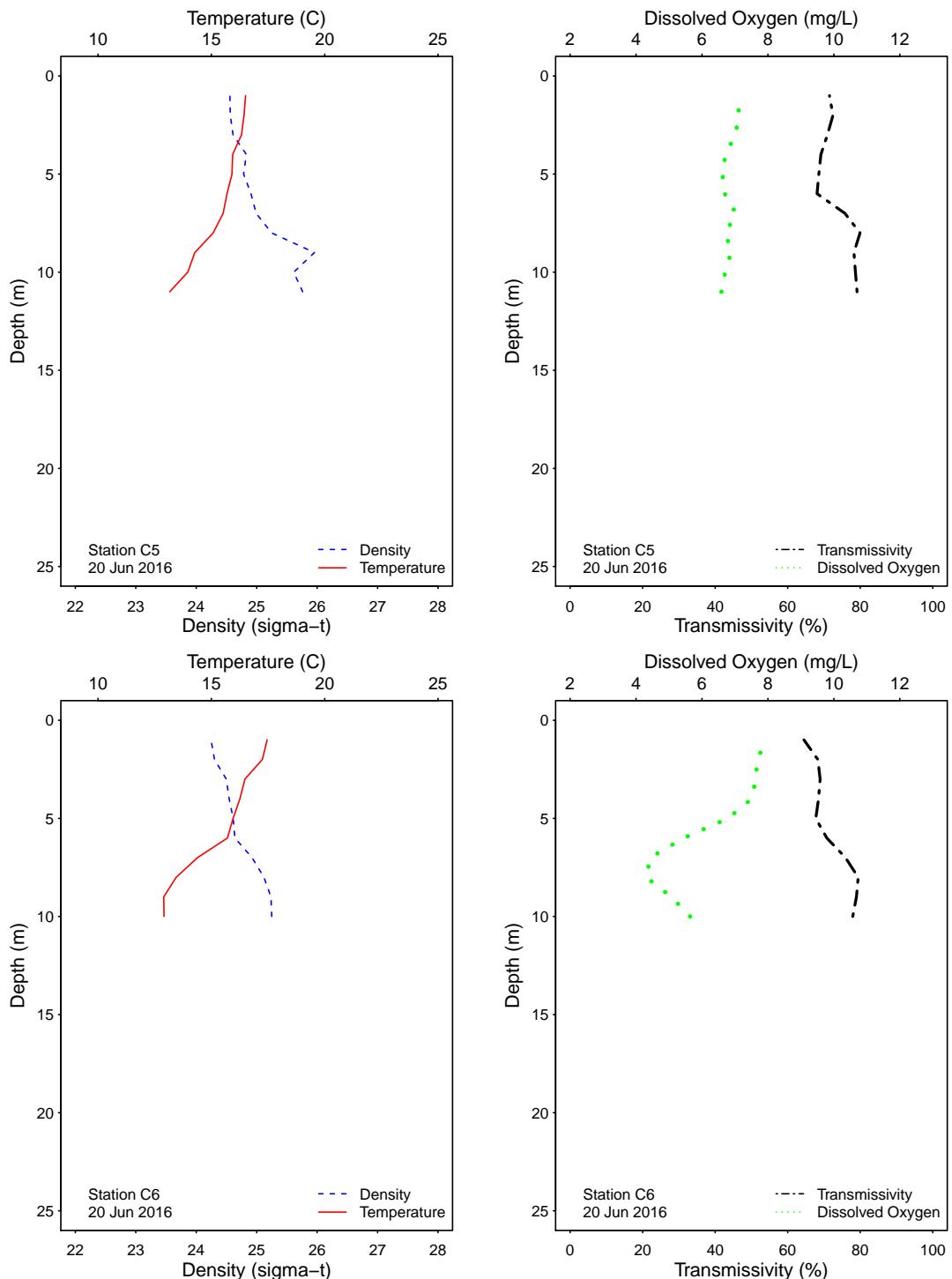


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

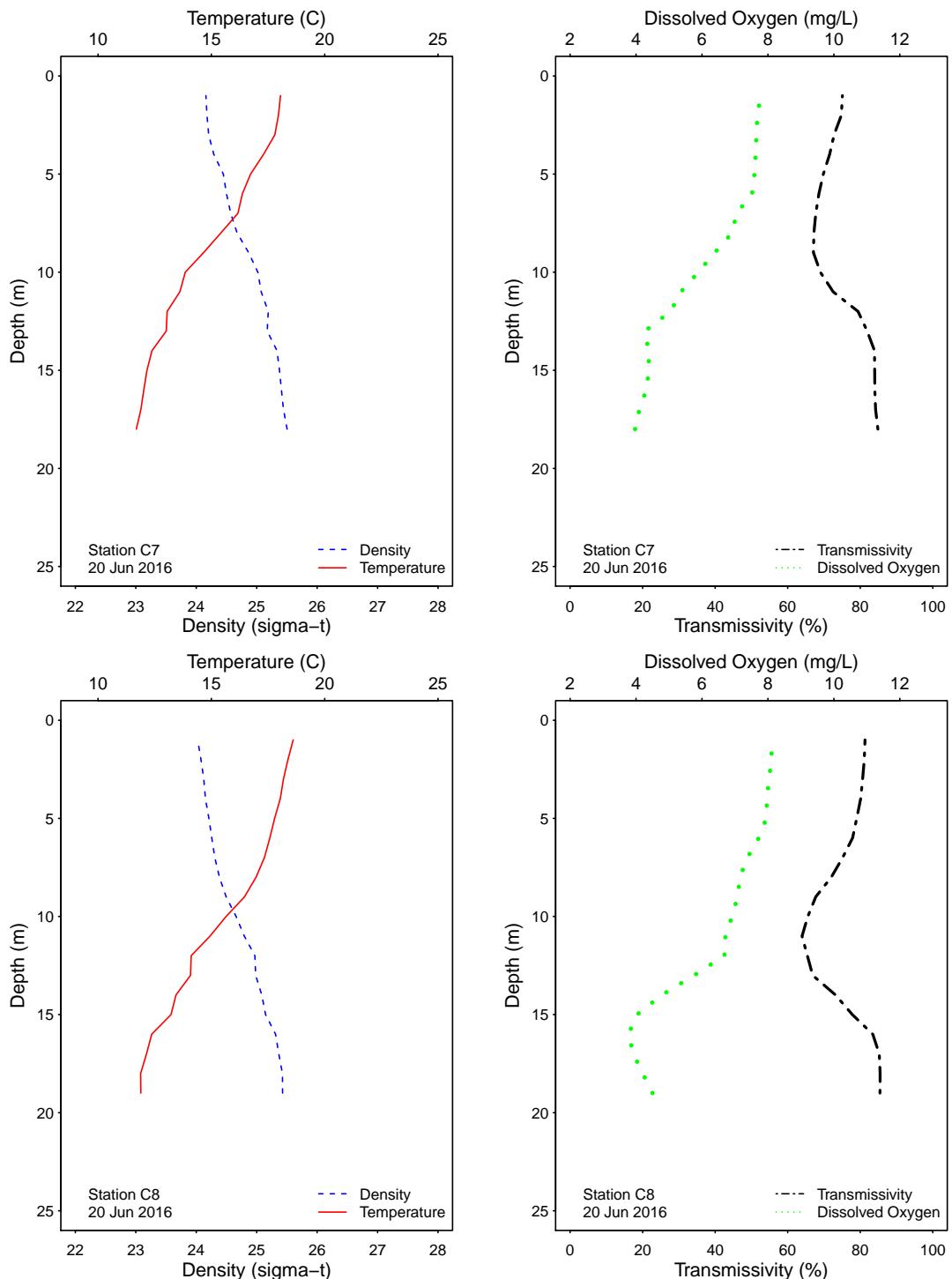


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

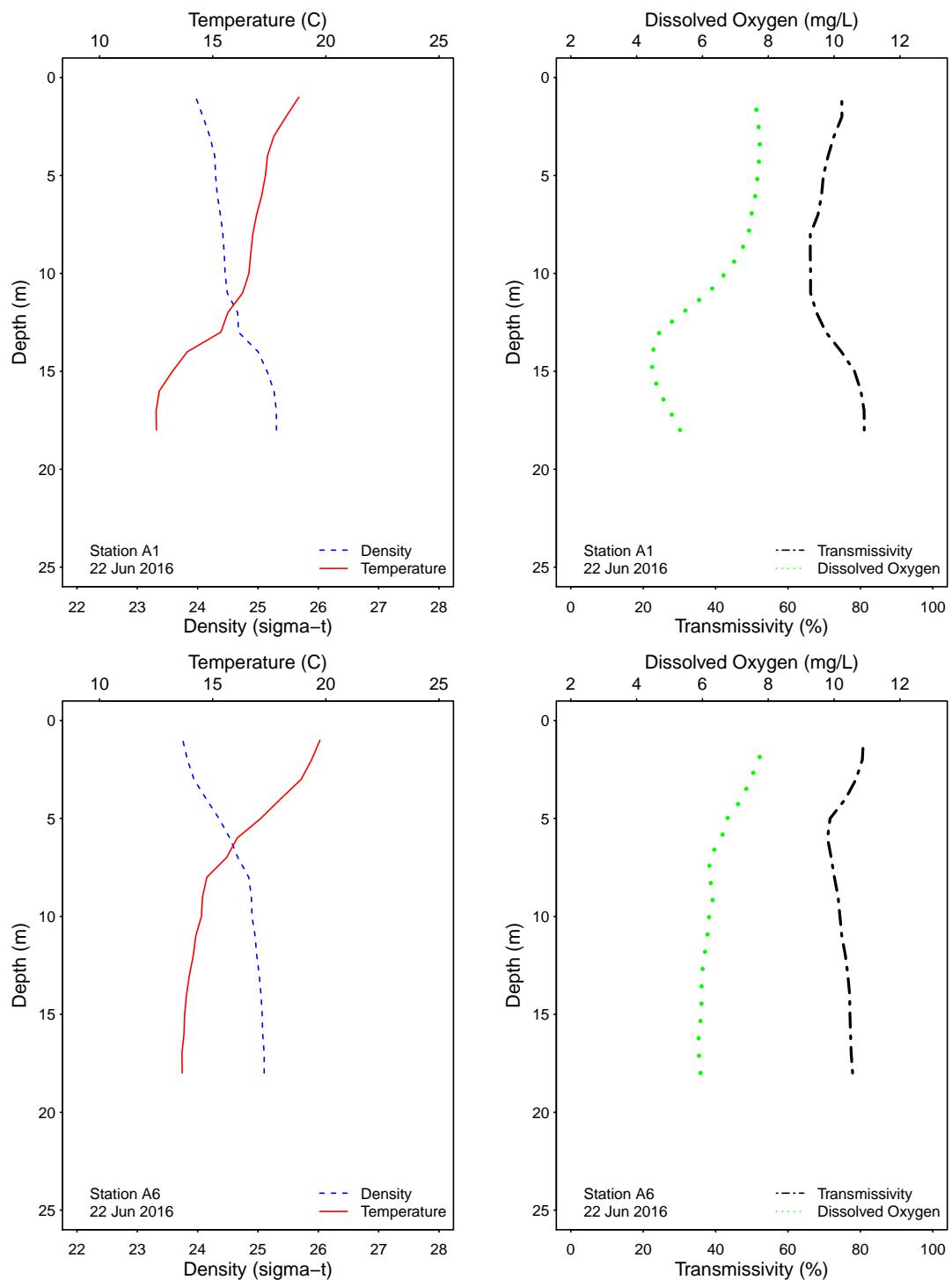


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

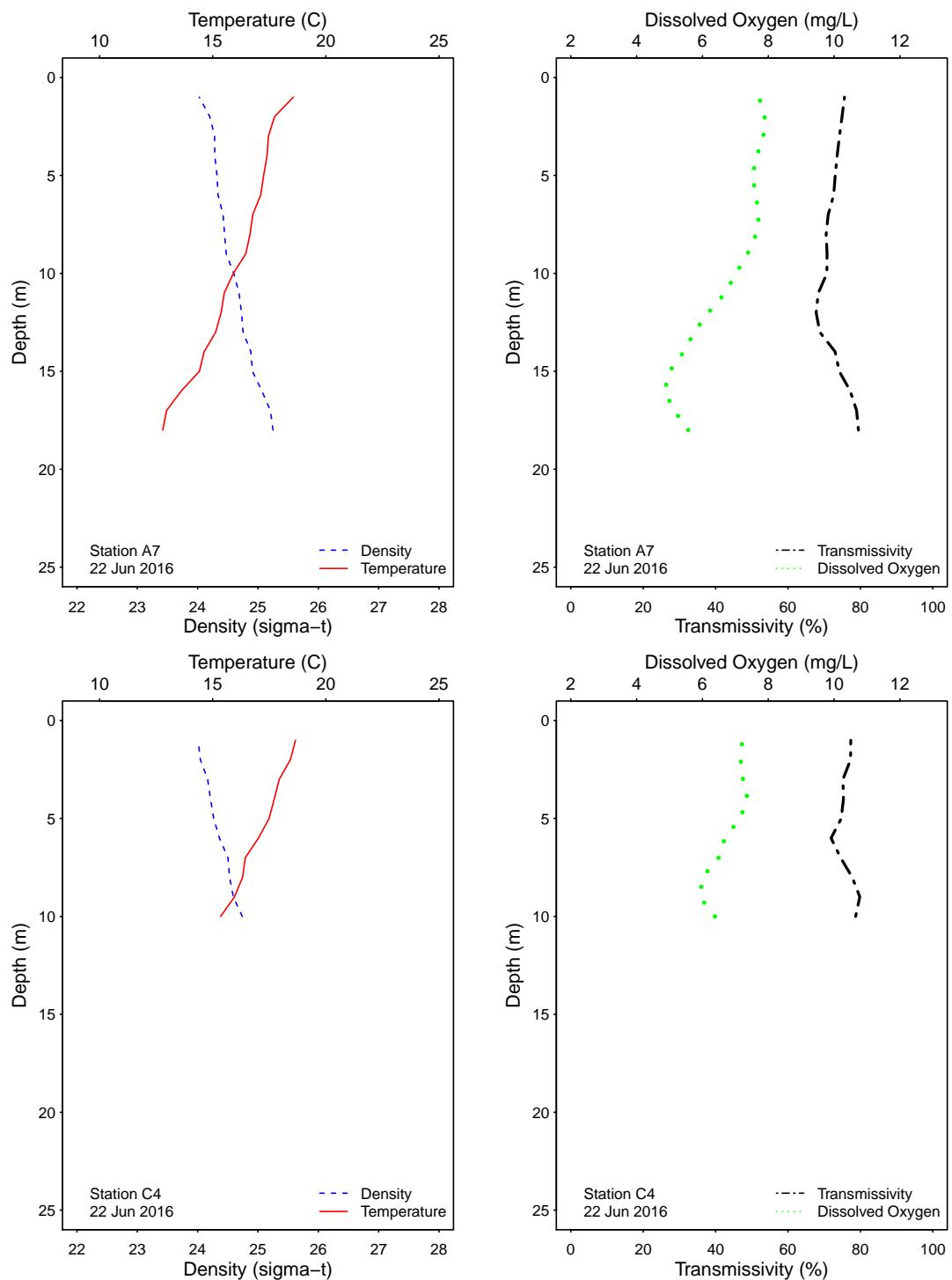


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

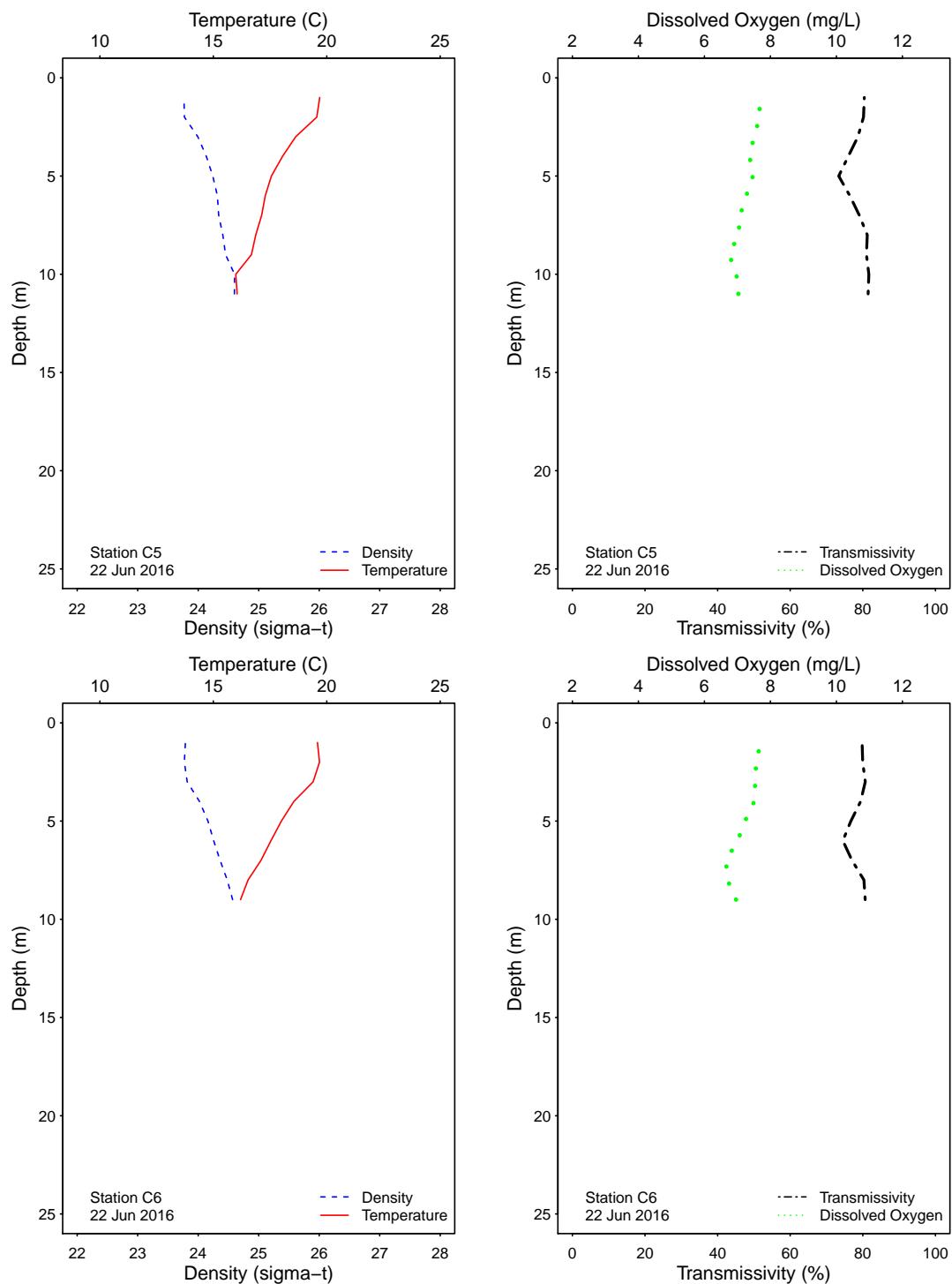


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

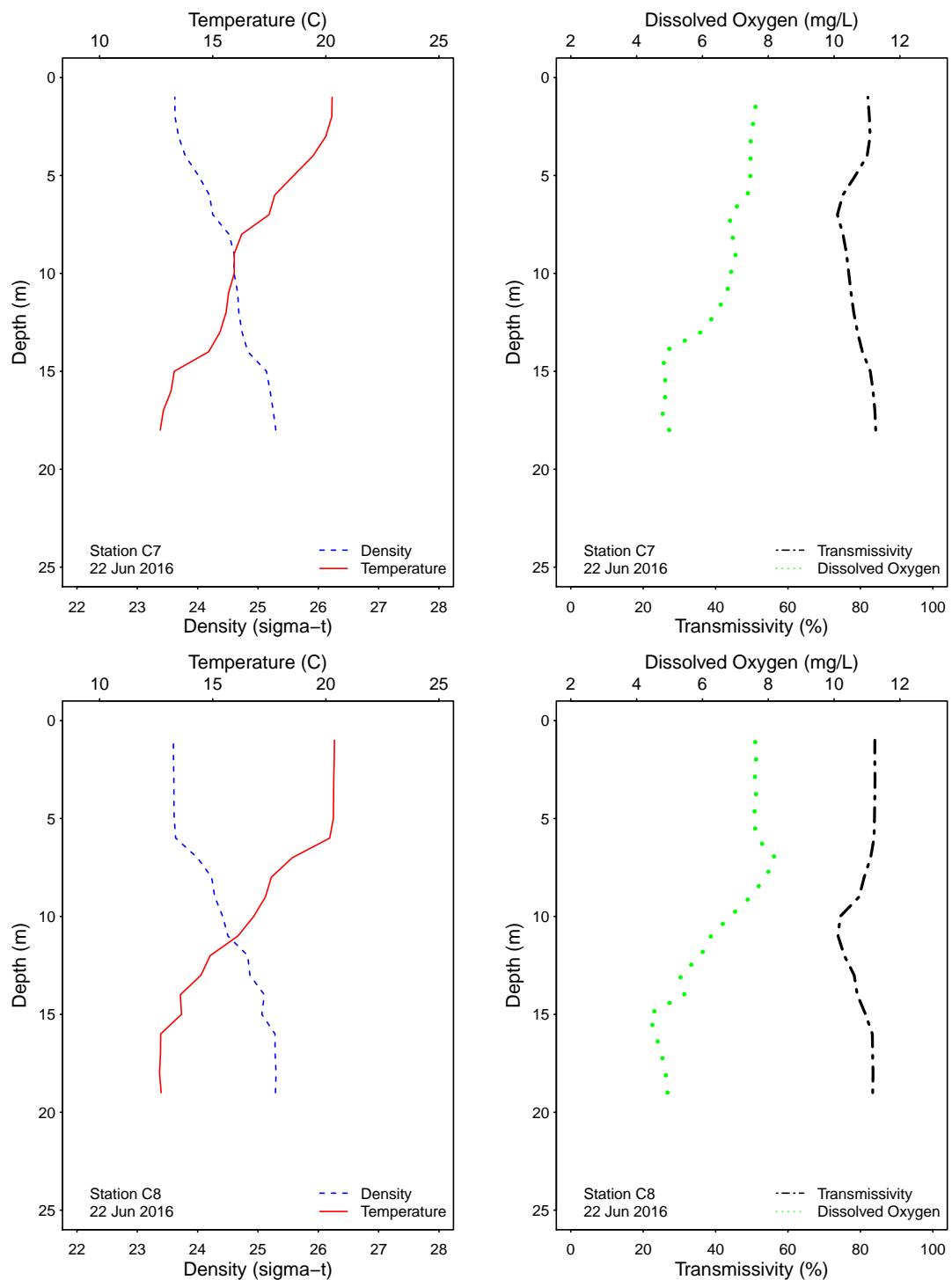


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

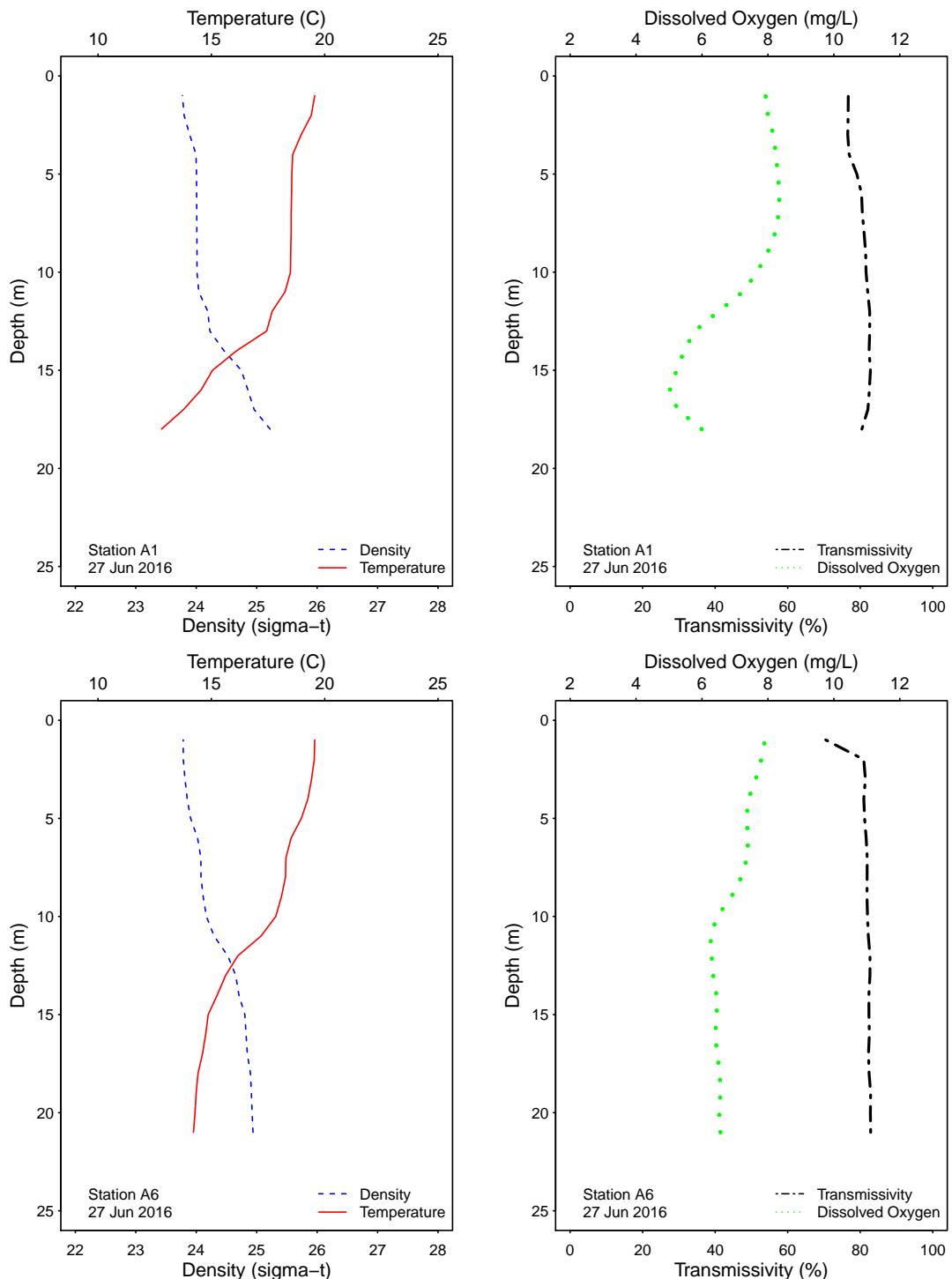


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

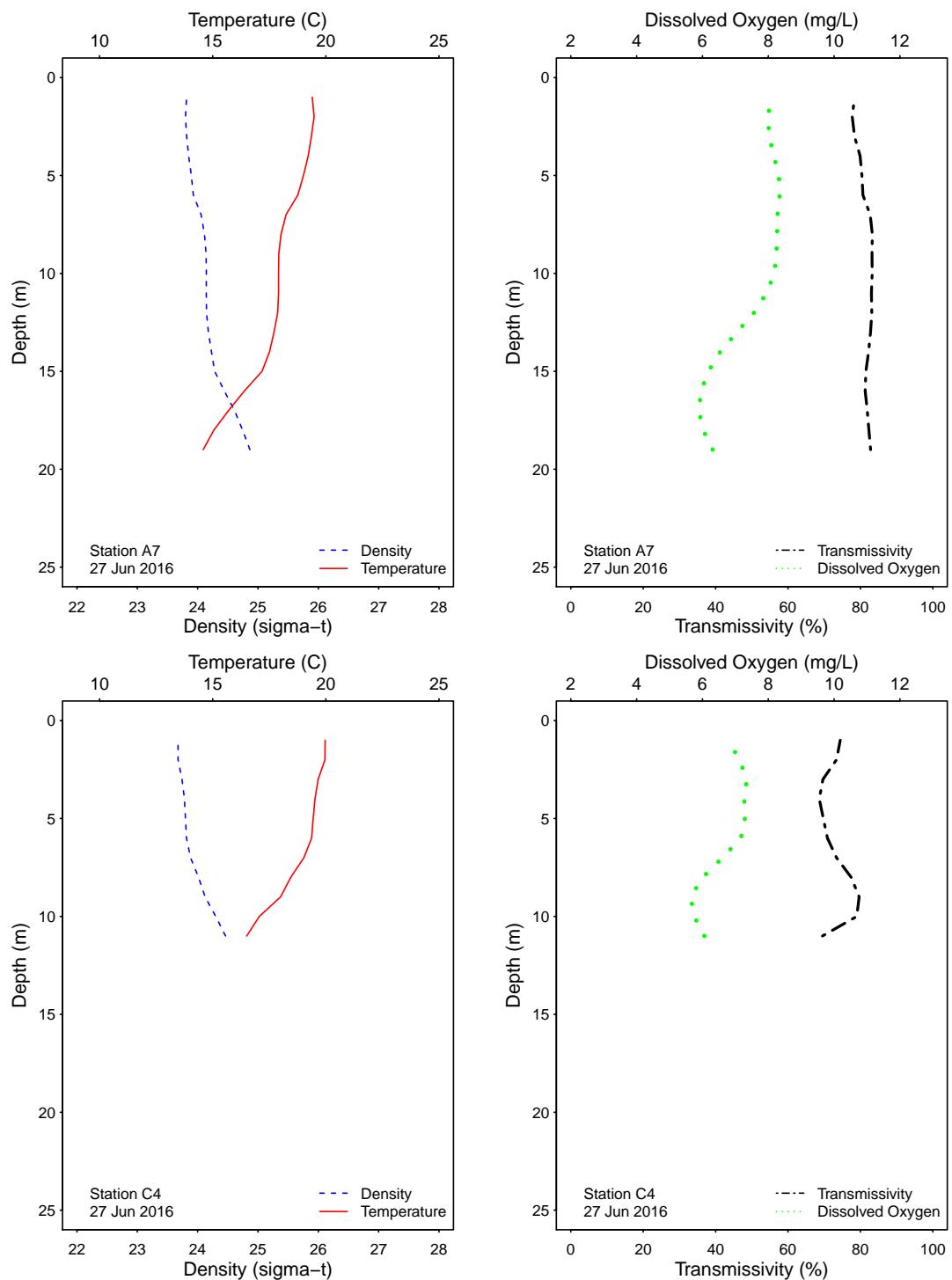


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

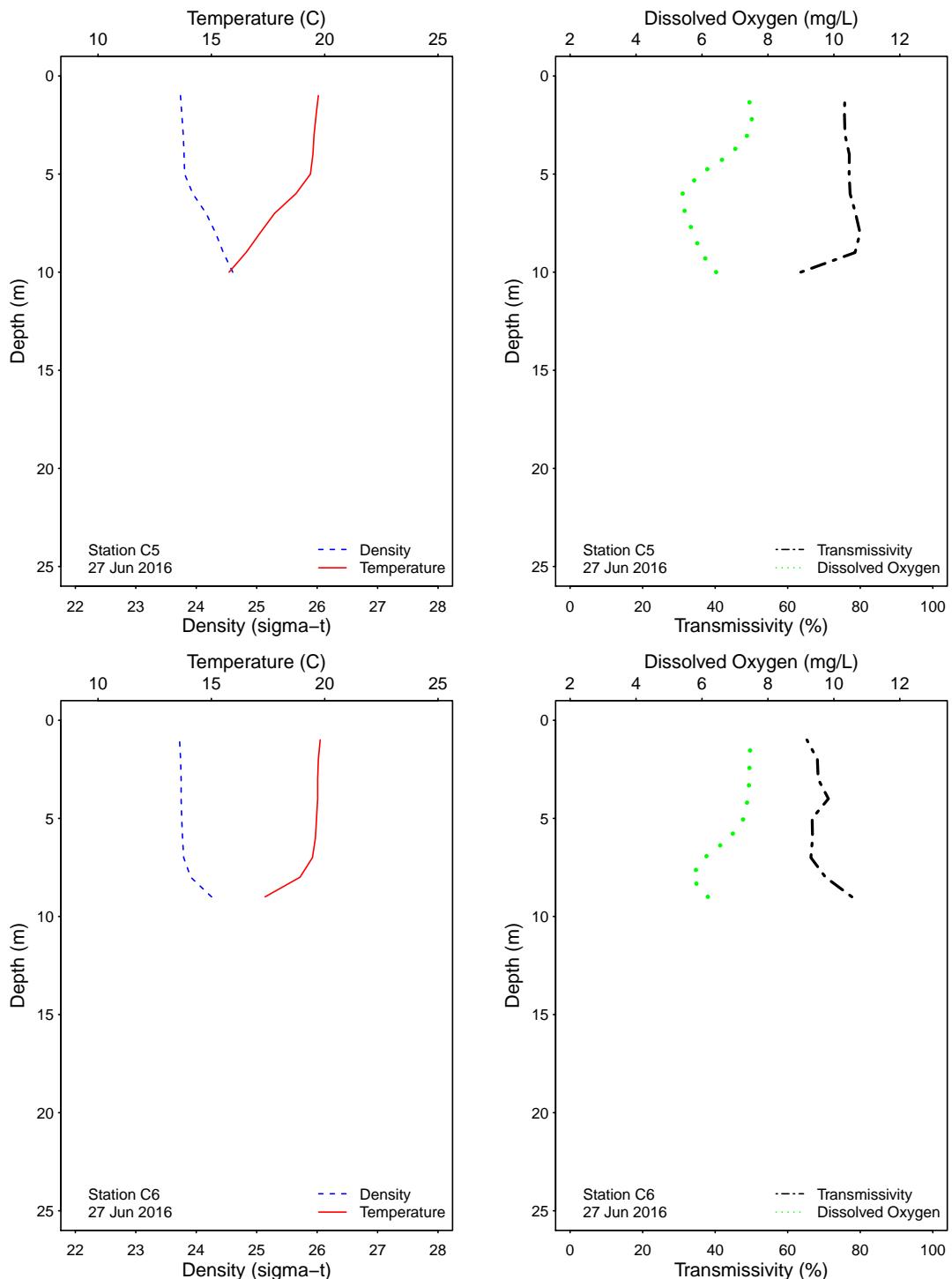


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

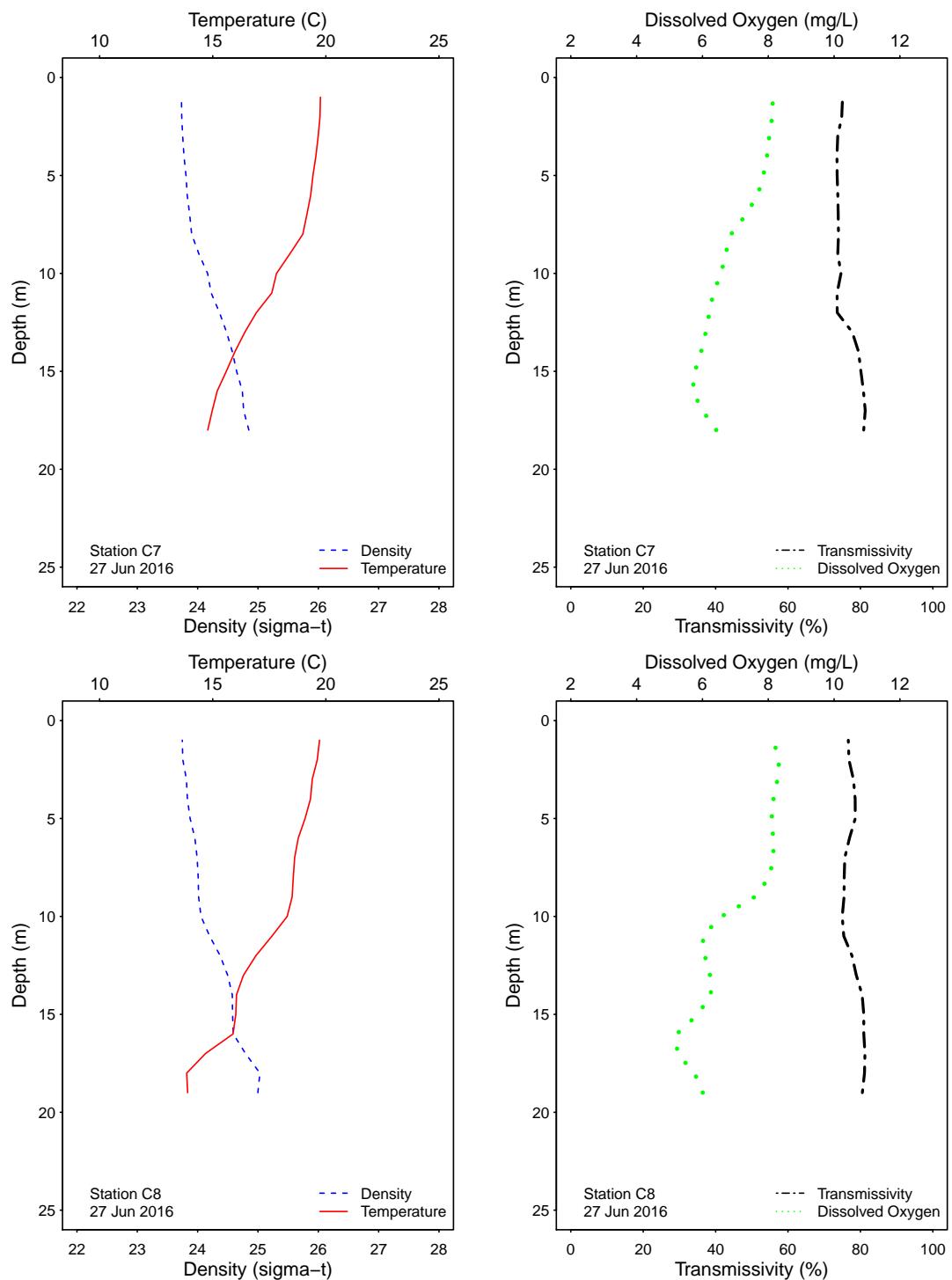


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

# **APPENDIX A**

## Quality Assurance



**Table A.1**

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

<b>Station</b>	<b>Date</b>	<b>Depth</b>	<b>Analyst</b>	<b>Procedure</b>	<b>Total</b>	<b>Fecal</b>	<b>Enter</b>
A7	04 Jun 2016	18	JT	LAB DUPLICATE	14e	<2	<2
A7	16 Jun 2016	18	JT	LAB DUPLICATE	<2	<2	<2
A7	20 Jun 2016	18	JT	LAB DUPLICATE	160e	4e	<2
A7	22 Jun 2016	18	SR	LAB DUPLICATE	<2	<2	<2
A7	27 Jun 2016	18	LMA	LAB DUPLICATE	<2	ns	<2
A7	27 Jun 2016	18	ZV	LAB DUPLICATE	ns	<2	ns
C7	04 Jun 2016	18	SR	LAB DUPLICATE	6e	<2	<2
C7	16 Jun 2016	18	LMA	LAB DUPLICATE	<2	<2	<2
C7	20 Jun 2016	18	SR	LAB DUPLICATE	16e	<2	<2
C7	22 Jun 2016	18	SR	LAB DUPLICATE	2e	<2	<2
C7	27 Jun 2016	18	AR	LAB DUPLICATE	2e	<2	<2
C8	04 Jun 2016	12	JT	LAB DUPLICATE	<2	<2	<2
C8	16 Jun 2016	12	LMA	LAB DUPLICATE	30e	24e	<2
C8	20 Jun 2016	12	SR	LAB DUPLICATE	8e	<2	ns
C8	20 Jun 2016	12		LAB DUPLICATE	ns	ns	ns
C8	22 Jun 2016	12	JT	LAB DUPLICATE	<2	<2	<2
C8	27 Jun 2016	12	JT	LAB DUPLICATE	<2	<2	<2
D8	14 Jun 2016			FIELD DUPLICATE	ns	ns	ns
D12	02 Jun 2016		JT	FIELD DUPLICATE	<20	<2	<2
D12	02 Jun 2016		JT	LAB DUPLICATE	<20	<2	<2
D12	08 Jun 2016		JT	FIELD DUPLICATE	20e	2e	ns
D12	08 Jun 2016		ZV	FIELD DUPLICATE	ns	ns	2e
D12	08 Jun 2016		JT	LAB DUPLICATE	<20	14e	ns
D12	08 Jun 2016		ZV	LAB DUPLICATE	ns	ns	ns
D12	14 Jun 2016		SR	FIELD DUPLICATE	<2	<2	2e
D12	14 Jun 2016		SR	LAB DUPLICATE	<2	<2	<2
D12	20 Jun 2016		SR	FIELD DUPLICATE	<2	<2	<2
D12	20 Jun 2016		SR	LAB DUPLICATE	<2	<2	<2
D12	27 Jun 2016		LMA	FIELD DUPLICATE	<2	<2	<2
D12	27 Jun 2016		LMA	LAB DUPLICATE	<20	4e	2e

ns = not sampled

ND = no data

