

POINT LOMA OCEAN OUTFALL MONTHLY RECEIVING WATERS MONITORING REPORT

POINT LOMA WASTEWATER TREATMENT PLANT

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

SEPTEMBER 2018

Environmental Monitoring and Technical Services
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October 31, 2018

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

Attention: POTW Compliance Unit

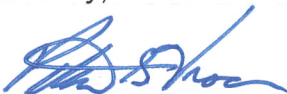
Dear Mr. Gibson:

Enclosed is the September 2018 Monthly Receiving Waters Monitoring Report for the Point Loma Ocean Outfall, Point Loma Wastewater Treatment Plant as required per Order No. R9-2017-0007, NPDES Permit No. CA0107409.

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

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

Sincerely,



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

TS/amw

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

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INTRODUCTION

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

MATERIALS AND METHODS

Shore Stations

Water quality conditions are required to be monitored at eight shoreline stations, including D4, D5, D7, D8, D9, D10, D11 and D12, which range from the tip of the Point Loma Peninsula to west of Mission Bay (see station locations map). However, station D8 was replaced by alternate station D8-A in June 2016 because of inaccessibility to the original site. Additionally, due to increasing instability in several cliffside areas off Point Loma, City staff have been unable to safely access and sample both D8-A and station D7 since February 7, 2018. Consequently, the City is working with the San Diego Water Board to identify new alternate sample locations until safe access can be restored to these two original sites. During March 2018, the City was able to identify a new alternate location for stations D8/D8-A. This new station, designated D8-B, is located about 150 feet north of D8-A. In contrast, no suitable alternate site with safe access has yet been determined for station D7. Thus, the City will continue to monitor conditions at station D7 while working with the Water Board to resolve the situation.

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

Kelp Bed Stations

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

Routine weekly monitoring at each of the kelp bed sites consisted primarily of collecting seawater samples at discrete depths to determine concentrations of indicator bacteria (i.e., total coliforms, fecal coliforms, and *Enterococcus*). Water column profiles of various physical/chemical parameters were also generated during each sampling event, and visual observations of weather and water conditions were recorded at each station.

Seawater samples at the kelp bed stations were collected using a CTD-integrated rosette sampler with Niskin bottles. Aliquots for bacteriological analyses were drawn from these bottles into sterile sample bottles for processing at the City's Marine Microbiology Laboratory. Water column profiles of temperature, transmissivity, dissolved oxygen, pH, salinity, density, chlorophyll *a* were generated using a Sea-Bird conductivity, temperature and depth instrument (CTD), which collects these data at a rate of ≥ 4 scans per second. These scans were then internally averaged to create water column profiles with data readings at a rate of one per meter. Additionally, CTD profile data for each water sample depth are presented with the bacteriological data.

Offshore Stations

Offshore water quality sampling is conducted quarterly typically during the months of February, May, August and November. A total of 36 offshore stations (F01–F36) are sampled during each survey usually over a 3-day period. Three of the stations (F01–F03) are located along the 18-m depth contour, while 11 stations are located along each of the following contours: 60 m (stations F04–F14); 80 m (stations F15–F25); 98 m (stations F26–F36). Of these 36 stations, 15 (F01–F03, F06–F14, F18–F20) are located within State jurisdictional waters (i.e., within 3 nautical miles of shore) and are subject to the California Ocean Plan's compliance standards. Monitoring at all offshore sites includes measurements of *Enterococcus* bacteria, water temperature, salinity, density, dissolved oxygen, pH, chlorophyll *a*, transmissivity, chromomorphpic dissolved organic matter (CDOM), and visual observations of weather and water conditions.

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

Bacteriological Reporting and Quality Assurance

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

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

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

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

- (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 2018 Quality Assurance Report, which will be completed in March 2019.

SUMMARY OF RESULTS

Shore Stations

- During September, all eight shore stations were in compliance with various California Ocean Plan (Ocean Plan) water-contact standards.
- There were no notable visual observations for September.

Kelp Bed Stations

- The eight kelp bed water quality stations (A1, A6, A7, C4, C5, C6, C7, C8) were sampled four times during the month (i.e. September 4, 10, 17, 24).
- During September, one of the kelp bed stations was out of compliance with various water-contact standards specified in the Ocean Plan (see below).
 - o The SSM standard for fecal coliform was exceeded at station A6 on September 17.
 - o The SSM standard for *Enterococcus* was exceeded at station A6 on September 17.
 - o The SSM standard for fecal/total coliform ratio (F:T) was exceeded at station A6 on September 17.
- Water column temperatures ranged from 13.53 to 22.90°C during the month. The difference between surface and bottom waters ranged from 2.56 to 7.92°C, indicating that the water column was stratified at some of the kelp bed stations during the month.
- Chlorophyll *a* concentrations ranged from 0.31 to 3.59 µg/L during September, suggesting the absence of phytoplankton blooms during the month.

- There were no notable visual observations for September.

Offshore Stations

Quarterly sampling was not conducted during September at the offshore stations. The next quarterly sampling is scheduled for November 2018.



TABLES AND FIGURES

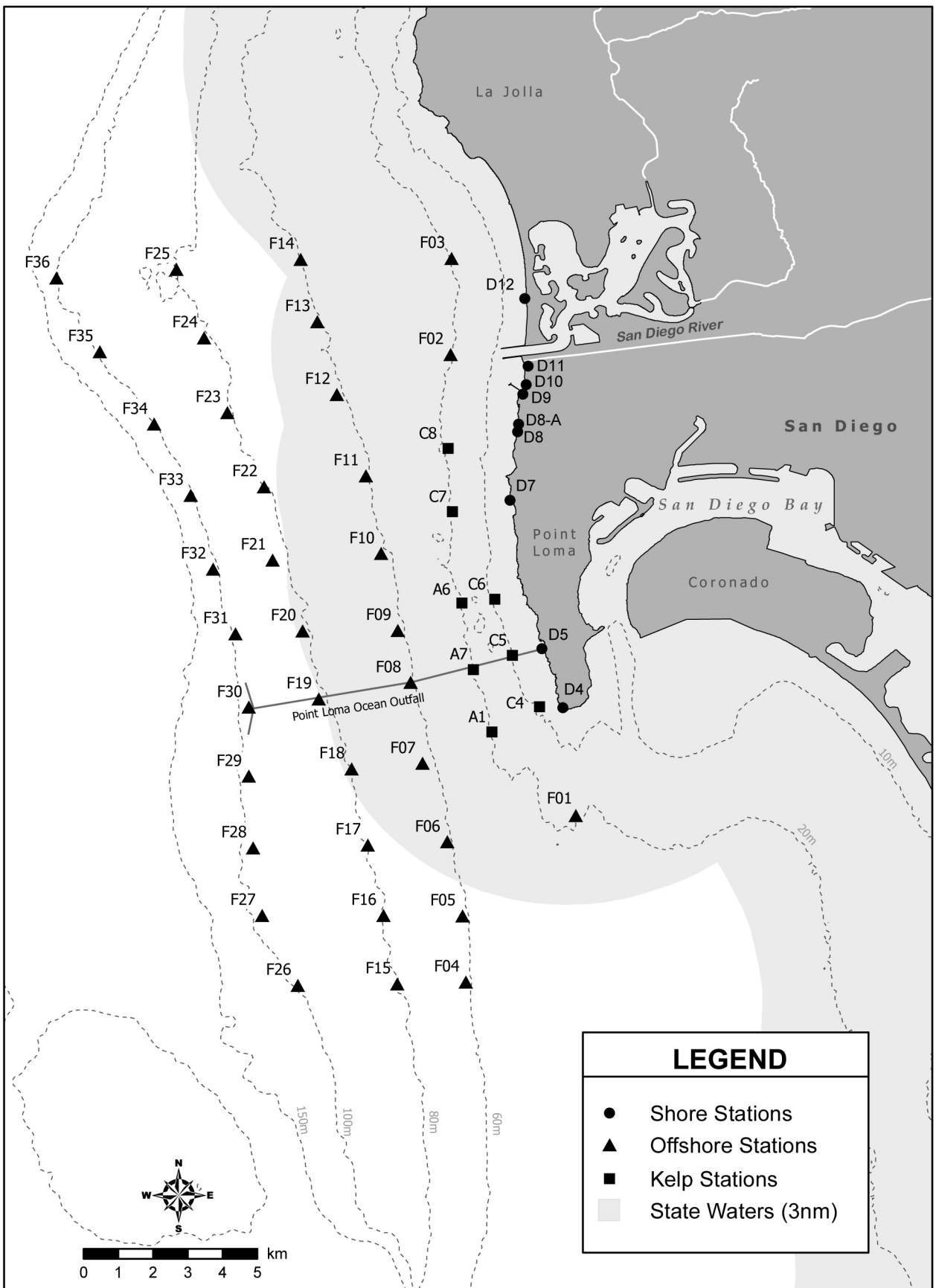


Figure 1.1 Station Map

Shore Stations

Table 2.1

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
01 Sep 2018	63*	63*	ns	50*	36*	24*	16*	34*
02 Sep 2018	63*	63*	ns	50*	36*	24*	16*	34*
03 Sep 2018	63*	63*	ns	50*	36*	24*	16*	34*
04 Sep 2018	63*	63*	ns	50*	36*	24*	16*	34*
05 Sep 2018	50	50	ns	42	32	23	17	19
06 Sep 2018	50	50	ns	42	32	23	17	19
07 Sep 2018	36*	63*	ns	42*	24*	24*	16*	11*
08 Sep 2018	36*	63*	ns	42*	24*	24*	16*	11*
09 Sep 2018	36*	63*	ns	42*	24*	24*	16*	11*
10 Sep 2018	36*	63*	ns	42*	24*	24*	16*	11*
11 Sep 2018	36*	63*	ns	42*	24*	24*	16*	11*
12 Sep 2018	32	58	ns	36	26	23	19	13
13 Sep 2018	32	58	ns	36	26	23	19	13
14 Sep 2018	36*	42*	ns	24*	24*	20*	19*	11*
15 Sep 2018	36*	42*	ns	24*	24*	20*	19*	11*
16 Sep 2018	36*	42*	ns	24*	24*	20*	19*	11*
17 Sep 2018	36*	42*	ns	24*	24*	20*	19*	11*
18 Sep 2018	36*	42*	ns	24*	24*	20*	19*	11*
19 Sep 2018	32	58	ns	30	23	20	19	13
20 Sep 2018	32	58	ns	30	23	20	19	13
21 Sep 2018	20*	42*	ns	28*	24*	20*	19*	11*
22 Sep 2018	20*	42*	ns	28*	24*	20*	19*	11*
23 Sep 2018	20*	42*	ns	28*	24*	20*	19*	11*
24 Sep 2018	20*	42*	ns	28*	24*	20*	19*	11*
25 Sep 2018	20*	42*	ns	28*	24*	20*	19*	11*
26 Sep 2018	32	36	ns	30	36	20	19	13
27 Sep 2018	32	36	ns	30	36	20	19	13
28 Sep 2018	36*	42*	ns	34*	42*	20*	24*	11*
29 Sep 2018	36*	42*	ns	34*	42*	20*	24*	11*
30 Sep 2018	36*	42*	ns	34*	42*	20*	24*	11*

* Geometric mean calculated using n<5

ns = not sampled

Table 2.2

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
01 Sep 2018	3*	5*	ns	10*	2*	6*	2*	4*
02 Sep 2018	3*	5*	ns	10*	2*	6*	2*	4*
03 Sep 2018	3*	5*	ns	10*	2*	6*	2*	4*
04 Sep 2018	3*	5*	ns	10*	2*	6*	2*	4*
05 Sep 2018	3	4	ns	10	2	5	2	3
06 Sep 2018	3	4	ns	10	2	5	2	3
07 Sep 2018	3*	2*	ns	10*	2*	6*	2*	4*
08 Sep 2018	3*	2*	ns	10*	2*	6*	2*	4*
09 Sep 2018	3*	2*	ns	10*	2*	6*	2*	4*
10 Sep 2018	3*	2*	ns	10*	2*	6*	2*	4*
11 Sep 2018	3*	2*	ns	10*	2*	6*	2*	4*
12 Sep 2018	2	2	ns	9	2	5	2	3
13 Sep 2018	2	2	ns	9	2	5	2	3
14 Sep 2018	3*	2*	ns	12*	2*	4*	2*	4*
15 Sep 2018	3*	2*	ns	12*	2*	4*	2*	4*
16 Sep 2018	3*	2*	ns	12*	2*	4*	2*	4*
17 Sep 2018	3*	2*	ns	12*	2*	4*	2*	4*
18 Sep 2018	3*	2*	ns	12*	2*	4*	2*	4*
19 Sep 2018	2	2	ns	9	2	3	2	4
20 Sep 2018	2	2	ns	9	2	3	2	4
21 Sep 2018	3*	2*	ns	6*	2*	3*	2*	2*
22 Sep 2018	3*	2*	ns	6*	2*	3*	2*	2*
23 Sep 2018	3*	2*	ns	6*	2*	3*	2*	2*
24 Sep 2018	3*	2*	ns	6*	2*	3*	2*	2*
25 Sep 2018	3*	2*	ns	6*	2*	3*	2*	2*
26 Sep 2018	2	3	ns	6	2	3	2	2
27 Sep 2018	2	3	ns	6	2	3	2	2
28 Sep 2018	2*	4*	ns	5*	2*	2*	2*	2*
29 Sep 2018	2*	4*	ns	5*	2*	2*	2*	2*
30 Sep 2018	2*	4*	ns	5*	2*	2*	2*	2*

* Geometric mean calculated using n<5

ns = not sampled

Table 2.3

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
01 Sep 2018	5*	2*	ns	4*	2*	5*	5*	4*
02 Sep 2018	5*	2*	ns	4*	2*	5*	5*	4*
03 Sep 2018	5*	2*	ns	4*	2*	5*	5*	4*
04 Sep 2018	5*	2*	ns	4*	2*	5*	5*	4*
05 Sep 2018	4	2	ns	4	2	4	4	3
06 Sep 2018	4	2	ns	4	2	4	4	3
07 Sep 2018	4*	2*	ns	3*	2*	5*	4*	4*
08 Sep 2018	4*	2*	ns	3*	2*	5*	4*	4*
09 Sep 2018	4*	2*	ns	3*	2*	5*	4*	4*
10 Sep 2018	4*	2*	ns	3*	2*	5*	4*	4*
11 Sep 2018	4*	2*	ns	3*	2*	5*	4*	4*
12 Sep 2018	3	2	ns	3	3	5	4	3
13 Sep 2018	3	2	ns	3	3	5	4	3
14 Sep 2018	4*	2*	ns	4*	2*	7*	5*	4*
15 Sep 2018	4*	2*	ns	4*	2*	7*	5*	4*
16 Sep 2018	4*	2*	ns	4*	2*	7*	5*	4*
17 Sep 2018	4*	2*	ns	4*	2*	7*	5*	4*
18 Sep 2018	4*	2*	ns	4*	2*	7*	5*	4*
19 Sep 2018	3	2	ns	3	2	5	4	4
20 Sep 2018	3	2	ns	3	2	5	4	4
21 Sep 2018	4*	2*	ns	4*	2*	4*	3*	3*
22 Sep 2018	4*	2*	ns	4*	2*	4*	3*	3*
23 Sep 2018	4*	2*	ns	4*	2*	4*	3*	3*
24 Sep 2018	4*	2*	ns	4*	2*	4*	3*	3*
25 Sep 2018	4*	2*	ns	4*	2*	4*	3*	3*
26 Sep 2018	3	3	ns	3	2	4	3	3
27 Sep 2018	3	3	ns	3	2	4	3	3
28 Sep 2018	2*	3*	ns	3*	2*	4*	3*	3*
29 Sep 2018	2*	3*	ns	3*	2*	4*	3*	3*
30 Sep 2018	2*	3*	ns	3*	2*	4*	3*	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-B	D9	D10	D11	D12
05 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
12 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
19 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
26 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.5

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
05 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
12 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
19 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
26 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.6

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
05 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
12 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
19 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
26 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.7

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

Date	D4	D5	D7	D8-B	D9	D10	D11	D12
05 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
12 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
19 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC
26 Sep 2018	IC	IC	ns	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 2.8

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

Station	Date	Time	Total	Fecal	Entero	F:T
D4	05 Sep 2018	848	<20	2e	<2	0.10
D4	12 Sep 2018	1044	<20	<2	2e	0.10
D4	19 Sep 2018	1031	<20	2e	2e	0.10
D4	26 Sep 2018	830	<200	<2	<2	0.01
D5	05 Sep 2018	830	<20	2e	2e	0.10
D5	12 Sep 2018	1030	40e	<2	<2	0.05
D5	19 Sep 2018	1050	<200	<2	<2	0.01
D5	26 Sep 2018	813	20e	28e	8e	1.40
D7	05 Sep 2018	911	ns	ns	ns	ns
D7	12 Sep 2018	949	ns	ns	ns	ns
D7	19 Sep 2018	1020	ns	ns	ns	ns
D7	26 Sep 2018	853	ns	ns	ns	ns
D8-B	05 Sep 2018	941	<20	14e	4e	0.70
D8-B	12 Sep 2018	938	<20	4e	6e	0.20
D8-B	19 Sep 2018	959	80e	<2	2e	0.02
D8-B	26 Sep 2018	905	40e	6e	2e	0.15
D9	05 Sep 2018	1009	<20	4e	<2	0.20
D9	12 Sep 2018	919	40e	2e	4e	0.05
D9	19 Sep 2018	939	<20	<2	<2	0.10
D9	26 Sep 2018	916	200e	2e	<2	0.01
D10	05 Sep 2018	1020	<20	<2	2e	0.10
D10	12 Sep 2018	851	<20	4e	6e	0.20
D10	19 Sep 2018	924	<20	2e	2e	0.10
D10	26 Sep 2018	934	<20	2e	8e	0.10
D11	05 Sep 2018	1051	<20	2e	<2	0.10
D11	12 Sep 2018	836	40e	2e	10e	0.05
D11	19 Sep 2018	910	20e	4e	<2	0.20
D11	26 Sep 2018	956	<20	2e	2e	0.10
D12	05 Sep 2018	1138	<2	<2	<2	1.00
D12	12 Sep 2018	810	<20	<2	<2	0.10
D12	19 Sep 2018	850	20e	4e	8e	0.20
D12	26 Sep 2018	1019	<20	<2	<2	0.10

ns = not sampled

ND = no data

Comments

Station	Date	Depth	Parameter	Comments
D7	05 Sep 2018			Site inaccessible due to unsafe conditions
D7	12 Sep 2018			Site inaccessible due to unsafe conditions
D7	19 Sep 2018			Site inaccessible due to unsafe conditions
D7	26 Sep 2018			Site inaccessible due to unsafe conditions

Table 2.9

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

Station	Date	Parameter	Value
D4	05 Sep 2018	Arrive Time	848
D4	05 Sep 2018	Weather	Cloudy
D4	05 Sep 2018	Wind Speed (kts)	1.4
D4	05 Sep 2018	Wind Dir	W
D4	05 Sep 2018	Animal Life	None
D4	05 Sep 2018	Floatables	None
D4	05 Sep 2018	Water Color	Green
D4	05 Sep 2018	Current Direction	N
D4	05 Sep 2018	Water Temp (C)	21
D4	05 Sep 2018	Wave Height Low (ft)	2
D4	05 Sep 2018	High Tide (ft)	3.8
D4	05 Sep 2018	High Tide Time	713
D4	05 Sep 2018	Low Tide (ft)	0.1
D4	05 Sep 2018	Low Tide Time	1242
D4	05 Sep 2018	Comments	Kelp; Seagrass; Algae; Water clear
D4	12 Sep 2018	Arrive Time	1044
D4	12 Sep 2018	Weather	Sunny
D4	12 Sep 2018	Wind Speed (kts)	1.7
D4	12 Sep 2018	Wind Dir	NE
D4	12 Sep 2018	Animal Life	7 Cormorants; 1 Seagull
D4	12 Sep 2018	Floatables	None
D4	12 Sep 2018	Water Color	Green
D4	12 Sep 2018	Current Direction	NE
D4	12 Sep 2018	Water Temp (C)	22
D4	12 Sep 2018	Wave Height Low (ft)	1
D4	12 Sep 2018	High Tide (ft)	5.5
D4	12 Sep 2018	High Tide Time	1132
D4	12 Sep 2018	Low Tide (ft)	0.4
D4	12 Sep 2018	Low Tide Time	523
D4	12 Sep 2018	Comments	Debris; 4 Surfers; 3 Boats; Water clear
D4	19 Sep 2018	Arrive Time	1031
D4	19 Sep 2018	Weather	Sunny
D4	19 Sep 2018	Wind Speed (kts)	3
D4	19 Sep 2018	Wind Dir	SW
D4	19 Sep 2018	Animal Life	None
D4	19 Sep 2018	Floatables	None
D4	19 Sep 2018	Water Color	Green
D4	19 Sep 2018	Current Direction	SW
D4	19 Sep 2018	Water Temp (C)	22
D4	19 Sep 2018	Wave Height Low (ft)	3
D4	19 Sep 2018	High Tide (ft)	4
D4	19 Sep 2018	High Tide Time	738
D4	19 Sep 2018	Low Tide (ft)	0.6
D4	19 Sep 2018	Low Tide Time	1258
D4	19 Sep 2018	Comments	Kelp; Seagrass; Algae; Water turbid
D4	26 Sep 2018	Arrive Time	830
D4	26 Sep 2018	Weather	Overcast
D4	26 Sep 2018	Wind Speed (kts)	0.7

Station	Date	Parameter	Value
D4	26 Sep 2018	Wind Dir	N
D4	26 Sep 2018	Animal Life	None
D4	26 Sep 2018	Floatables	None
D4	26 Sep 2018	Water Color	Green
D4	26 Sep 2018	Current Direction	N
D4	26 Sep 2018	Water Temp (C)	19
D4	26 Sep 2018	Wave Height Low (ft)	1
D4	26 Sep 2018	High Tide (ft)	5.3
D4	26 Sep 2018	High Tide Time	1019
D4	26 Sep 2018	Low Tide (ft)	0.6
D4	26 Sep 2018	Low Tide Time	415
D4	26 Sep 2018	Comments	Algae; Water clear
D5	05 Sep 2018	Arrive Time	830
D5	05 Sep 2018	Weather	Cloudy
D5	05 Sep 2018	Wind Speed (kts)	1.6
D5	05 Sep 2018	Wind Dir	W
D5	05 Sep 2018	Animal Life	None
D5	05 Sep 2018	Floatables	None
D5	05 Sep 2018	Water Color	Green
D5	05 Sep 2018	Current Direction	N
D5	05 Sep 2018	Water Temp (C)	20
D5	05 Sep 2018	Wave Height Low (ft)	3
D5	05 Sep 2018	High Tide (ft)	3.8
D5	05 Sep 2018	High Tide Time	713
D5	05 Sep 2018	Low Tide (ft)	0.1
D5	05 Sep 2018	Low Tide Time	1242
D5	05 Sep 2018	Comments	Kelp; Seagrass; Algae; Water clear
D5	12 Sep 2018	Arrive Time	1030
D5	12 Sep 2018	Weather	Sunny
D5	12 Sep 2018	Wind Speed (kts)	0.7
D5	12 Sep 2018	Wind Dir	S
D5	12 Sep 2018	Animal Life	1 Pelican
D5	12 Sep 2018	Floatables	Foam
D5	12 Sep 2018	Water Color	Green
D5	12 Sep 2018	Current Direction	S
D5	12 Sep 2018	Water Temp (C)	22
D5	12 Sep 2018	Wave Height Low (ft)	2
D5	12 Sep 2018	High Tide (ft)	5.5
D5	12 Sep 2018	High Tide Time	1132
D5	12 Sep 2018	Low Tide (ft)	0.4
D5	12 Sep 2018	Low Tide Time	523
D5	12 Sep 2018	Comments	Water clear
D5	19 Sep 2018	Arrive Time	1050
D5	19 Sep 2018	Weather	Sunny
D5	19 Sep 2018	Wind Speed (kts)	3
D5	19 Sep 2018	Wind Dir	SW
D5	19 Sep 2018	Animal Life	None
D5	19 Sep 2018	Floatables	None
D5	19 Sep 2018	Water Color	Green
D5	19 Sep 2018	Current Direction	SW
D5	19 Sep 2018	Water Temp (C)	22
D5	19 Sep 2018	Wave Height Low (ft)	3

Station	Date	Parameter	Value
D5	19 Sep 2018	High Tide (ft)	4
D5	19 Sep 2018	High Tide Time	738
D5	19 Sep 2018	Low Tide (ft)	0.6
D5	19 Sep 2018	Low Tide Time	1258
D5	19 Sep 2018	Comments	Kelp; Seagrass; Water turbid
D5	26 Sep 2018	Arrive Time	813
D5	26 Sep 2018	Weather	Overcast
D5	26 Sep 2018	Wind Speed (kts)	4
D5	26 Sep 2018	Wind Dir	N
D5	26 Sep 2018	Animal Life	None
D5	26 Sep 2018	Floatables	None
D5	26 Sep 2018	Water Color	Green
D5	26 Sep 2018	Current Direction	N
D5	26 Sep 2018	Water Temp (C)	20
D5	26 Sep 2018	Wave Height Low (ft)	2
D5	26 Sep 2018	High Tide (ft)	5.3
D5	26 Sep 2018	High Tide Time	1019
D5	26 Sep 2018	Low Tide (ft)	0.6
D5	26 Sep 2018	Low Tide Time	415
D5	26 Sep 2018	Comments	Seagrass; Algae; Water clear
D7	05 Sep 2018	Arrive Time	911
D7	05 Sep 2018	Weather	Cloudy
D7	05 Sep 2018	Wind Speed (kts)	1.8
D7	05 Sep 2018	Wind Dir	W
D7	05 Sep 2018	Animal Life	None
D7	05 Sep 2018	Floatables	None
D7	05 Sep 2018	Water Color	Green
D7	05 Sep 2018	Current Direction	N
D7	05 Sep 2018	Water Temp (C)	21
D7	05 Sep 2018	Wave Height Low (ft)	3
D7	05 Sep 2018	High Tide (ft)	3.8
D7	05 Sep 2018	High Tide Time	713
D7	05 Sep 2018	Low Tide (ft)	0.1
D7	05 Sep 2018	Low Tide Time	1242
D7	05 Sep 2018	Comments	Kelp; Seagrass; Water clear; Site inaccessible due to unsafe conditions
D7	12 Sep 2018	Arrive Time	949
D7	12 Sep 2018	Weather	Sunny
D7	12 Sep 2018	Wind Speed (kts)	5.6
D7	12 Sep 2018	Wind Dir	NE
D7	12 Sep 2018	Animal Life	None
D7	12 Sep 2018	Floatables	None
D7	12 Sep 2018	Water Color	Green
D7	12 Sep 2018	Current Direction	NE
D7	12 Sep 2018	Water Temp (C)	0
D7	12 Sep 2018	Wave Height Low (ft)	2
D7	12 Sep 2018	High Tide (ft)	5.5
D7	12 Sep 2018	High Tide Time	1132
D7	12 Sep 2018	Low Tide (ft)	0.4
D7	12 Sep 2018	Low Tide Time	523
D7	12 Sep 2018	Comments	Kelp; Seagrass; 14 Surfers; 1 Boat; Water clear; Site inaccessible due to unsafe conditions

Station	Date	Parameter	Value
D7	19 Sep 2018	Arrive Time	1020
D7	19 Sep 2018	Weather	Sunny
D7	19 Sep 2018	Wind Speed (kts)	3
D7	19 Sep 2018	Wind Dir	S
D7	19 Sep 2018	Animal Life	None
D7	19 Sep 2018	Floatables	None
D7	19 Sep 2018	Water Color	Green
D7	19 Sep 2018	Current Direction	S
D7	19 Sep 2018	Water Temp (C)	
D7	19 Sep 2018	Wave Height Low (ft)	3
D7	19 Sep 2018	High Tide (ft)	4
D7	19 Sep 2018	High Tide Time	738
D7	19 Sep 2018	Low Tide (ft)	0.6
D7	19 Sep 2018	Low Tide Time	1258
D7	19 Sep 2018	Comments	Site inaccessible due to unsafe conditions
D7	26 Sep 2018	Arrive Time	853
D7	26 Sep 2018	Weather	Overcast
D7	26 Sep 2018	Wind Speed (kts)	3.8
D7	26 Sep 2018	Wind Dir	N
D7	26 Sep 2018	Animal Life	None
D7	26 Sep 2018	Floatables	None
D7	26 Sep 2018	Water Color	Green
D7	26 Sep 2018	Current Direction	N
D7	26 Sep 2018	Water Temp (C)	0
D7	26 Sep 2018	Wave Height Low (ft)	2
D7	26 Sep 2018	High Tide (ft)	5.3
D7	26 Sep 2018	High Tide Time	1019
D7	26 Sep 2018	Low Tide (ft)	0.6
D7	26 Sep 2018	Low Tide Time	415
D7	26 Sep 2018	Comments	Water clear; Site inaccessible due to unsafe conditions
D8-B	05 Sep 2018	Arrive Time	941
D8-B	05 Sep 2018	Weather	Partly Cloudy
D8-B	05 Sep 2018	Wind Speed (kts)	3.6
D8-B	05 Sep 2018	Wind Dir	W
D8-B	05 Sep 2018	Animal Life	None
D8-B	05 Sep 2018	Floatables	None
D8-B	05 Sep 2018	Water Color	Green
D8-B	05 Sep 2018	Current Direction	N
D8-B	05 Sep 2018	Water Temp (C)	21
D8-B	05 Sep 2018	Wave Height Low (ft)	3
D8-B	05 Sep 2018	High Tide (ft)	3.8
D8-B	05 Sep 2018	High Tide Time	713
D8-B	05 Sep 2018	Low Tide (ft)	0.1
D8-B	05 Sep 2018	Low Tide Time	1242
D8-B	05 Sep 2018	Comments	Kelp; Seagrass; 3 Surfers; Water clear
D8-B	12 Sep 2018	Arrive Time	938
D8-B	12 Sep 2018	Weather	Sunny
D8-B	12 Sep 2018	Wind Speed (kts)	3.6
D8-B	12 Sep 2018	Wind Dir	N
D8-B	12 Sep 2018	Animal Life	None
D8-B	12 Sep 2018	Floatables	None

Station	Date	Parameter	Value
D8-B	12 Sep 2018	Water Color	Green
D8-B	12 Sep 2018	Current Direction	N
D8-B	12 Sep 2018	Water Temp (C)	22
D8-B	12 Sep 2018	Wave Height Low (ft)	2
D8-B	12 Sep 2018	High Tide (ft)	5.5
D8-B	12 Sep 2018	High Tide Time	1132
D8-B	12 Sep 2018	Low Tide (ft)	0.4
D8-B	12 Sep 2018	Low Tide Time	523
D8-B	12 Sep 2018	Comments	None
D8-B	19 Sep 2018	Arrive Time	959
D8-B	19 Sep 2018	Weather	Sunny
D8-B	19 Sep 2018	Wind Speed (kts)	3
D8-B	19 Sep 2018	Wind Dir	SW
D8-B	19 Sep 2018	Animal Life	None
D8-B	19 Sep 2018	Floatables	None
D8-B	19 Sep 2018	Water Color	Green
D8-B	19 Sep 2018	Current Direction	SW
D8-B	19 Sep 2018	Water Temp (C)	22
D8-B	19 Sep 2018	Wave Height Low (ft)	4
D8-B	19 Sep 2018	High Tide (ft)	4
D8-B	19 Sep 2018	High Tide Time	738
D8-B	19 Sep 2018	Low Tide (ft)	0.6
D8-B	19 Sep 2018	Low Tide Time	1258
D8-B	19 Sep 2018	Comments	Kelp; Seagrass; Water turbid
D8-B	26 Sep 2018	Arrive Time	905
D8-B	26 Sep 2018	Weather	Overcast
D8-B	26 Sep 2018	Wind Speed (kts)	3.7
D8-B	26 Sep 2018	Wind Dir	N
D8-B	26 Sep 2018	Animal Life	None
D8-B	26 Sep 2018	Floatables	None
D8-B	26 Sep 2018	Water Color	Green
D8-B	26 Sep 2018	Current Direction	N
D8-B	26 Sep 2018	Water Temp (C)	19
D8-B	26 Sep 2018	Wave Height Low (ft)	2
D8-B	26 Sep 2018	High Tide (ft)	5.3
D8-B	26 Sep 2018	High Tide Time	1019
D8-B	26 Sep 2018	Low Tide (ft)	0.6
D8-B	26 Sep 2018	Low Tide Time	415
D8-B	26 Sep 2018	Comments	Algae; Water clear
D9	05 Sep 2018	Arrive Time	1009
D9	05 Sep 2018	Weather	Partly Cloudy
D9	05 Sep 2018	Wind Speed (kts)	10.2
D9	05 Sep 2018	Wind Dir	W
D9	05 Sep 2018	Animal Life	None
D9	05 Sep 2018	Floatables	None
D9	05 Sep 2018	Water Color	Green
D9	05 Sep 2018	Current Direction	N
D9	05 Sep 2018	Water Temp (C)	21
D9	05 Sep 2018	Wave Height Low (ft)	3
D9	05 Sep 2018	High Tide (ft)	3.8
D9	05 Sep 2018	High Tide Time	713
D9	05 Sep 2018	Low Tide (ft)	0.1

Station	Date	Parameter	Value
D9	05 Sep 2018	Low Tide Time	1242
D9	05 Sep 2018	Comments	Kelp; Seagrass; 1 Person; Water clear
D9	12 Sep 2018	Arrive Time	919
D9	12 Sep 2018	Weather	Sunny
D9	12 Sep 2018	Wind Speed (kts)	5.6
D9	12 Sep 2018	Wind Dir	N
D9	12 Sep 2018	Animal Life	2 Seagulls
D9	12 Sep 2018	Floatables	Plastic bag
D9	12 Sep 2018	Water Color	Green
D9	12 Sep 2018	Current Direction	N
D9	12 Sep 2018	Water Temp (C)	22
D9	12 Sep 2018	Wave Height Low (ft)	3
D9	12 Sep 2018	High Tide (ft)	5.5
D9	12 Sep 2018	High Tide Time	1132
D9	12 Sep 2018	Low Tide (ft)	0.4
D9	12 Sep 2018	Low Tide Time	523
D9	12 Sep 2018	Comments	4 Surfers; Water clear
D9	19 Sep 2018	Arrive Time	939
D9	19 Sep 2018	Weather	Sunny
D9	19 Sep 2018	Wind Speed (kts)	3
D9	19 Sep 2018	Wind Dir	SW
D9	19 Sep 2018	Animal Life	None
D9	19 Sep 2018	Floatables	None
D9	19 Sep 2018	Water Color	Brown
D9	19 Sep 2018	Current Direction	SW
D9	19 Sep 2018	Water Temp (C)	22
D9	19 Sep 2018	Wave Height Low (ft)	3
D9	19 Sep 2018	High Tide (ft)	4
D9	19 Sep 2018	High Tide Time	738
D9	19 Sep 2018	Low Tide (ft)	0.6
D9	19 Sep 2018	Low Tide Time	1258
D9	19 Sep 2018	Comments	Kelp; Seagrass; 2 Surfers; Water turbid
D9	26 Sep 2018	Arrive Time	916
D9	26 Sep 2018	Weather	Overcast
D9	26 Sep 2018	Wind Speed (kts)	3.6
D9	26 Sep 2018	Wind Dir	N
D9	26 Sep 2018	Animal Life	None
D9	26 Sep 2018	Floatables	None
D9	26 Sep 2018	Water Color	Green
D9	26 Sep 2018	Current Direction	N
D9	26 Sep 2018	Water Temp (C)	19
D9	26 Sep 2018	Wave Height Low (ft)	3
D9	26 Sep 2018	High Tide (ft)	5.3
D9	26 Sep 2018	High Tide Time	1019
D9	26 Sep 2018	Low Tide (ft)	0.6
D9	26 Sep 2018	Low Tide Time	415
D9	26 Sep 2018	Comments	Seagrass; Algae; Water clear
D10	05 Sep 2018	Arrive Time	1020
D10	05 Sep 2018	Weather	Partly Cloudy
D10	05 Sep 2018	Wind Speed (kts)	8.4
D10	05 Sep 2018	Wind Dir	W

Station	Date	Parameter	Value
D10	05 Sep 2018	Animal Life	None
D10	05 Sep 2018	Floatables	None
D10	05 Sep 2018	Water Color	Green
D10	05 Sep 2018	Current Direction	N
D10	05 Sep 2018	Water Temp (C)	21
D10	05 Sep 2018	Wave Height Low (ft)	3
D10	05 Sep 2018	High Tide (ft)	3.8
D10	05 Sep 2018	High Tide Time	713
D10	05 Sep 2018	Low Tide (ft)	0.1
D10	05 Sep 2018	Low Tide Time	1242
D10	05 Sep 2018	Comments	Kelp; Seagrass; 5 Surfers; Water clear
D10	12 Sep 2018	Arrive Time	851
D10	12 Sep 2018	Weather	Partly Cloudy
D10	12 Sep 2018	Wind Speed (kts)	2.7
D10	12 Sep 2018	Wind Dir	NW
D10	12 Sep 2018	Animal Life	28 Seagulls
D10	12 Sep 2018	Floatables	None
D10	12 Sep 2018	Water Color	Green
D10	12 Sep 2018	Current Direction	NW
D10	12 Sep 2018	Water Temp (C)	23
D10	12 Sep 2018	Wave Height Low (ft)	3
D10	12 Sep 2018	High Tide (ft)	5.5
D10	12 Sep 2018	High Tide Time	1132
D10	12 Sep 2018	Low Tide (ft)	0.4
D10	12 Sep 2018	Low Tide Time	523
D10	12 Sep 2018	Comments	Kelp; Seagrass; 14 Persons; 28 Surfers; 8 Swimmers; Water clear
D10	19 Sep 2018	Arrive Time	924
D10	19 Sep 2018	Weather	Sunny
D10	19 Sep 2018	Wind Speed (kts)	4
D10	19 Sep 2018	Wind Dir	SW
D10	19 Sep 2018	Animal Life	None
D10	19 Sep 2018	Floatables	None
D10	19 Sep 2018	Water Color	Green
D10	19 Sep 2018	Current Direction	SW
D10	19 Sep 2018	Water Temp (C)	24
D10	19 Sep 2018	Wave Height Low (ft)	3
D10	19 Sep 2018	High Tide (ft)	4
D10	19 Sep 2018	High Tide Time	738
D10	19 Sep 2018	Low Tide (ft)	0.6
D10	19 Sep 2018	Low Tide Time	1258
D10	19 Sep 2018	Comments	Kelp; Seagrass; 7 Surfers; Water turbid
D10	26 Sep 2018	Arrive Time	934
D10	26 Sep 2018	Weather	Overcast
D10	26 Sep 2018	Wind Speed (kts)	3.5
D10	26 Sep 2018	Wind Dir	N
D10	26 Sep 2018	Animal Life	None
D10	26 Sep 2018	Floatables	None
D10	26 Sep 2018	Water Color	Green
D10	26 Sep 2018	Current Direction	N
D10	26 Sep 2018	Water Temp (C)	20
D10	26 Sep 2018	Wave Height Low (ft)	3
D10	26 Sep 2018	High Tide (ft)	5.3

Station	Date	Parameter	Value
D10	26 Sep 2018	High Tide Time	1019
D10	26 Sep 2018	Low Tide (ft)	0.6
D10	26 Sep 2018	Low Tide Time	415
D10	26 Sep 2018	Comments	Kelp; Seagrass; 1 Person; 13 Surfers; Water clear
D11	05 Sep 2018	Arrive Time	1051
D11	05 Sep 2018	Weather	Sunny
D11	05 Sep 2018	Wind Speed (kts)	5.8
D11	05 Sep 2018	Wind Dir	W
D11	05 Sep 2018	Animal Life	None
D11	05 Sep 2018	Floatables	None
D11	05 Sep 2018	Water Color	Green
D11	05 Sep 2018	Current Direction	N
D11	05 Sep 2018	Water Temp (C)	22
D11	05 Sep 2018	Wave Height Low (ft)	3
D11	05 Sep 2018	High Tide (ft)	3.8
D11	05 Sep 2018	High Tide Time	713
D11	05 Sep 2018	Low Tide (ft)	0.1
D11	05 Sep 2018	Low Tide Time	1242
D11	05 Sep 2018	Comments	Kelp; Seagrass; 9 Persons; 7 Surfers; 9 Swimmers; Water clear
D11	12 Sep 2018	Arrive Time	836
D11	12 Sep 2018	Weather	Partly Cloudy
D11	12 Sep 2018	Wind Speed (kts)	3.8
D11	12 Sep 2018	Wind Dir	N
D11	12 Sep 2018	Animal Life	3 Pigeons
D11	12 Sep 2018	Floatables	None
D11	12 Sep 2018	Water Color	Green
D11	12 Sep 2018	Current Direction	N
D11	12 Sep 2018	Water Temp (C)	22
D11	12 Sep 2018	Wave Height Low (ft)	2
D11	12 Sep 2018	High Tide (ft)	5.5
D11	12 Sep 2018	High Tide Time	1132
D11	12 Sep 2018	Low Tide (ft)	0.4
D11	12 Sep 2018	Low Tide Time	523
D11	12 Sep 2018	Comments	Kelp; Seagrass; 1 Jogger; 7 Persons; 29 Surfers; Water clear
D11	19 Sep 2018	Arrive Time	910
D11	19 Sep 2018	Weather	Sunny
D11	19 Sep 2018	Wind Speed (kts)	3.4
D11	19 Sep 2018	Wind Dir	E
D11	19 Sep 2018	Animal Life	None
D11	19 Sep 2018	Floatables	None
D11	19 Sep 2018	Water Color	Green
D11	19 Sep 2018	Current Direction	E
D11	19 Sep 2018	Water Temp (C)	20
D11	19 Sep 2018	Wave Height Low (ft)	3
D11	19 Sep 2018	High Tide (ft)	4
D11	19 Sep 2018	High Tide Time	738
D11	19 Sep 2018	Low Tide (ft)	0.6
D11	19 Sep 2018	Low Tide Time	1258
D11	19 Sep 2018	Comments	Kelp; Seagrass; 20 Surfers; Water turbid
D11	26 Sep 2018	Arrive Time	956
D11	26 Sep 2018	Weather	Overcast

Station	Date	Parameter	Value
D11	26 Sep 2018	Wind Speed (kts)	1.3
D11	26 Sep 2018	Wind Dir	N
D11	26 Sep 2018	Animal Life	None
D11	26 Sep 2018	Floatables	None
D11	26 Sep 2018	Water Color	Green
D11	26 Sep 2018	Current Direction	N
D11	26 Sep 2018	Water Temp (C)	20
D11	26 Sep 2018	Wave Height Low (ft)	3
D11	26 Sep 2018	High Tide (ft)	5.3
D11	26 Sep 2018	High Tide Time	1019
D11	26 Sep 2018	Low Tide (ft)	0.6
D11	26 Sep 2018	Low Tide Time	415
D11	26 Sep 2018	Comments	Seagrass; 3 Persons; 18 Surfers; Water clear
D12	05 Sep 2018	Arrive Time	1138
D12	05 Sep 2018	Weather	Partly Cloudy
D12	05 Sep 2018	Wind Speed (kts)	6.3
D12	05 Sep 2018	Wind Dir	W
D12	05 Sep 2018	Animal Life	None
D12	05 Sep 2018	Floatables	None
D12	05 Sep 2018	Water Color	Green
D12	05 Sep 2018	Current Direction	N
D12	05 Sep 2018	Water Temp (C)	22
D12	05 Sep 2018	Wave Height Low (ft)	3
D12	05 Sep 2018	High Tide (ft)	3.8
D12	05 Sep 2018	High Tide Time	713
D12	05 Sep 2018	Low Tide (ft)	0.1
D12	05 Sep 2018	Low Tide Time	1242
D12	05 Sep 2018	Comments	Kelp; Seagrass; 8 Persons; 1 Swimmer; 2 Fishermen; Water clear
D12	12 Sep 2018	Arrive Time	810
D12	12 Sep 2018	Weather	Overcast
D12	12 Sep 2018	Wind Speed (kts)	1.7
D12	12 Sep 2018	Wind Dir	E
D12	12 Sep 2018	Animal Life	8 Shorebirds; 50 Birds; 2 Dogs
D12	12 Sep 2018	Floatables	None
D12	12 Sep 2018	Water Color	Green
D12	12 Sep 2018	Current Direction	E
D12	12 Sep 2018	Water Temp (C)	21
D12	12 Sep 2018	Wave Height Low (ft)	2
D12	12 Sep 2018	High Tide (ft)	5.5
D12	12 Sep 2018	High Tide Time	1132
D12	12 Sep 2018	Low Tide (ft)	0.4
D12	12 Sep 2018	Low Tide Time	523
D12	12 Sep 2018	Comments	Kelp; 1 Jogger; 17 Persons; 7 Surfers; 1 Swimmer; Water clear
D12	19 Sep 2018	Arrive Time	850
D12	19 Sep 2018	Weather	Sunny
D12	19 Sep 2018	Wind Speed (kts)	2
D12	19 Sep 2018	Wind Dir	W
D12	19 Sep 2018	Animal Life	None
D12	19 Sep 2018	Floatables	None
D12	19 Sep 2018	Water Color	Green
D12	19 Sep 2018	Current Direction	W
D12	19 Sep 2018	Water Temp (C)	20

Station	Date	Parameter	Value
D12	19 Sep 2018	Wave Height Low (ft)	2
D12	19 Sep 2018	High Tide (ft)	4
D12	19 Sep 2018	High Tide Time	738
D12	19 Sep 2018	Low Tide (ft)	0.6
D12	19 Sep 2018	Low Tide Time	1258
D12	19 Sep 2018	Comments	None
D12	26 Sep 2018	Arrive Time	1019
D12	26 Sep 2018	Weather	Overcast
D12	26 Sep 2018	Wind Speed (kts)	7.6
D12	26 Sep 2018	Wind Dir	N
D12	26 Sep 2018	Animal Life	None
D12	26 Sep 2018	Floatables	None
D12	26 Sep 2018	Water Color	Green
D12	26 Sep 2018	Current Direction	N
D12	26 Sep 2018	Water Temp (C)	20
D12	26 Sep 2018	Wave Height Low (ft)	3
D12	26 Sep 2018	High Tide (ft)	5.3
D12	26 Sep 2018	High Tide Time	1019
D12	26 Sep 2018	Low Tide (ft)	0.6
D12	26 Sep 2018	Low Tide Time	415
D12	26 Sep 2018	Comments	Kelp; Seagrass; 5 Persons; 1 Surfer; Water clear

Kelp Stations

Table 3.1

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Sep 2018	4*	3*	2*	12*	5*	6*	3*	5*
02 Sep 2018	4*	3*	2*	12*	5*	6*	3*	5*
03 Sep 2018	4*	3*	2*	12*	5*	6*	3*	5*
04 Sep 2018	8	4	4	13	5	10	6	6
05 Sep 2018	6*	3*	4*	13*	7*	15*	9*	5*
06 Sep 2018	6*	3*	4*	13*	7*	15*	9*	5*
07 Sep 2018	6*	3*	4*	13*	7*	15*	9*	5*
08 Sep 2018	6*	3*	4*	13*	7*	15*	9*	5*
09 Sep 2018	6*	3*	4*	13*	7*	15*	9*	5*
10 Sep 2018	5	4	4	14	8	13	8	4
11 Sep 2018	5	4	4	14	8	13	8	4
12 Sep 2018	6*	4*	4*	16*	11*	12*	11*	5*
13 Sep 2018	6*	4*	4*	16*	11*	12*	11*	5*
14 Sep 2018	6*	4*	4*	16*	11*	12*	11*	5*
15 Sep 2018	6*	4*	4*	16*	11*	12*	11*	5*
16 Sep 2018	6*	4*	4*	16*	11*	12*	11*	5*
17 Sep 2018	6	13	4	17	13	12	8	4
18 Sep 2018	6	13	4	17	13	12	8	4
19 Sep 2018	7*	20*	4*	20*	12*	19*	8*	4*
20 Sep 2018	7*	20*	4*	20*	12*	19*	8*	4*
21 Sep 2018	7*	20*	4*	20*	12*	19*	8*	4*
22 Sep 2018	7*	20*	4*	20*	12*	19*	8*	4*
23 Sep 2018	7*	20*	4*	20*	12*	19*	8*	4*
24 Sep 2018	6	16	5	13	9	12	6	3
25 Sep 2018	6	16	5	13	9	12	6	3
26 Sep 2018	8*	26*	5*	11*	8*	12*	7*	3*
27 Sep 2018	8*	26*	5*	11*	8*	12*	7*	3*
28 Sep 2018	8*	26*	5*	11*	8*	12*	7*	3*
29 Sep 2018	8*	26*	5*	11*	8*	12*	7*	3*
30 Sep 2018	8*	26*	5*	11*	8*	12*	7*	3*

* Geometric mean calculated using n<5

Table 3.2

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
01 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
02 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
03 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
04 Sep 2018	2	2	2	2	2	2	2	2
05 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
06 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
07 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
08 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
09 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
10 Sep 2018	2	2	2	2	2	2	2	2
11 Sep 2018	2	2	2	2	2	2	2	2
12 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
13 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
14 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
15 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
16 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
17 Sep 2018	2	7	2	2	2	2	2	2
18 Sep 2018	2	7	2	2	2	2	2	2
19 Sep 2018	2*	9*	2*	2*	2*	2*	2*	2*
20 Sep 2018	2*	9*	2*	2*	2*	2*	2*	2*
21 Sep 2018	2*	9*	2*	2*	2*	2*	2*	2*
22 Sep 2018	2*	9*	2*	2*	2*	2*	2*	2*
23 Sep 2018	2*	9*	2*	2*	2*	2*	2*	2*
24 Sep 2018	2	7	2	2	2	2	2	2
25 Sep 2018	2	7	2	2	2	2	2	2
26 Sep 2018	2*	9*	2*	2*	2*	2*	2*	2*
27 Sep 2018	2*	9*	2*	2*	2*	2*	2*	2*
28 Sep 2018	2*	9*	2*	2*	2*	2*	2*	2*
29 Sep 2018	2*	9*	2*	2*	2*	2*	2*	2*
30 Sep 2018	2*	9*	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 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
02 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
03 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
04 Sep 2018	2	2	2	2	2	2	2	2
05 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
06 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
07 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
08 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
09 Sep 2018	2*	2*	2*	2*	2*	2*	2*	2*
10 Sep 2018	2	2	3	2	2	2	2	2
11 Sep 2018	2	2	3	2	2	2	2	2
12 Sep 2018	2*	2*	3*	2*	2*	2*	2*	2*
13 Sep 2018	2*	2*	3*	2*	2*	2*	2*	2*
14 Sep 2018	2*	2*	3*	2*	2*	2*	2*	2*
15 Sep 2018	2*	2*	3*	2*	2*	2*	2*	2*
16 Sep 2018	2*	2*	3*	2*	2*	2*	2*	2*
17 Sep 2018	2	4	3	2	2	2	2	2
18 Sep 2018	2	4	3	2	2	2	2	2
19 Sep 2018	2*	5*	3*	2*	2*	2*	2*	2*
20 Sep 2018	2*	5*	3*	2*	2*	2*	2*	2*
21 Sep 2018	2*	5*	3*	2*	2*	2*	2*	2*
22 Sep 2018	2*	5*	3*	2*	2*	2*	2*	2*
23 Sep 2018	2*	5*	3*	2*	2*	2*	2*	2*
24 Sep 2018	2	4	3	2	2	2	2	2
25 Sep 2018	2	4	3	2	2	2	2	2
26 Sep 2018	2*	5*	3*	2*	2*	2*	2*	2*
27 Sep 2018	2*	5*	3*	2*	2*	2*	2*	2*
28 Sep 2018	2*	5*	3*	2*	2*	2*	2*	2*
29 Sep 2018	2*	5*	3*	2*	2*	2*	2*	2*
30 Sep 2018	2*	5*	3*	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 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
10 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
17 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
24 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.5

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
04 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
10 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
17 Sep 2018	IC	E	IC	IC	IC	IC	IC	IC
24 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.6

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
04 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
10 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
17 Sep 2018	IC	E	IC	IC	IC	IC	IC	IC
24 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.7

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

Date	A1	A6	A7	C4	C5	C6	C7	C8
04 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
10 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC
17 Sep 2018	IC	E	IC	IC	IC	IC	IC	IC
24 Sep 2018	IC	IC	IC	IC	IC	IC	IC	IC

IC = In Compliance

E = Exceedance

ns = not sampled

ND = no data

Table 3.8

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

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
A1	04 Sep 2018	800	1	<20	<2	<2	0.100	21.7	77.83	8.4	33.78	8.2
A1	04 Sep 2018	800	12	400e	<2	<2	0.005	18.3	79.69	7.9	33.59	8.1
A1	04 Sep 2018	800	18	<20	<2	<2	0.100	17.2	80.29	7.3	33.58	8.1
A1	10 Sep 2018	813	1	<2	<2	<2	1.000	21.8	84.53	6.9	33.68	8.2
A1	10 Sep 2018	813	12	<2	<2	<2	1.000	16.2	82.00	7.3	33.63	8.1
A1	10 Sep 2018	813	18	<2	<2	2e	1.000	14.5	85.47	7.3	33.57	8.1
A1	17 Sep 2018	754	1	<2	<2	<2	1.000	20.6	82.26	7.9	33.73	8.2
A1	17 Sep 2018	754	12	4e	<2	<2	0.500	17.5	80.47	7.9	33.61	8.1
A1	17 Sep 2018	754	18	4e	<2	<2	0.500	14.7	78.86	7.3	33.53	8.1
A1	24 Sep 2018	807	1	<2	<2	<2	1.000	20.3	83.01	8.0	33.67	8.2
A1	24 Sep 2018	807	12	4e	<2	<2	0.500	13.8	87.26	7.4	33.52	8.0
A1	24 Sep 2018	807	18	6e	<2	<2	0.333	13.6	87.80	7.0	33.53	8.0
A6	04 Sep 2018	826	1	<2	<2	<2	1.000	22.9	78.79	8.2	33.85	8.3
A6	04 Sep 2018	826	12	<20	<2	<2	0.100	19.1	79.41	7.9	33.62	8.2
A6	04 Sep 2018	826	18	<2	<2	<2	1.000	17.3	81.81	7.5	33.58	8.1
A6	10 Sep 2018	854	1	<2	<2	<2	1.000	21.3	84.20	6.8	33.76	8.2
A6	10 Sep 2018	854	12	2e	<2	<2	1.000	17.5	83.81	7.2	33.77	8.1
A6	10 Sep 2018	854	18	18e	<2	<2	0.111	15.2	84.95	7.2	33.56	8.1
A6	17 Sep 2018	821	1	3000e	2400e	180e	0.800	20.7	81.60	7.8	33.72	8.2
A6	17 Sep 2018	821	12	4e	4e	<2	1.000	16.9	81.48	7.7	33.56	8.2
A6	17 Sep 2018	821	18	12e	6e	2e	0.500	15.3	84.19	7.2	33.55	8.1
A6	24 Sep 2018	836	1	<2	<2	<2	1.000	20.6	84.52	7.8	33.70	8.2
A6	24 Sep 2018	836	12	<2	<2	<2	1.000	16.6	84.94	7.9	33.56	8.1
A6	24 Sep 2018	836	18	18e	<2	<2	0.111	14.2	87.22	7.2	33.52	8.0
A7	04 Sep 2018	813	1	2e	<2	<2	1.000	22.7	78.34	8.3	33.84	8.3
A7	04 Sep 2018	813	12	2e	<2	<2	1.000	19.5	79.75	8.2	33.63	8.2
A7	04 Sep 2018	813	18	40e	<2	<2	0.050	18.8	80.87	8.0	33.61	8.2
A7	10 Sep 2018	839	1	<2	<2	<20	1.000	22.0	84.44	7.8	33.79	8.2
A7	10 Sep 2018	839	12	<2	<2	<2	1.000	16.2	82.90	7.1	33.58	8.1
A7	10 Sep 2018	839	18	2e	2e	<2	1.000	14.8	84.12	7.0	33.55	8.1
A7	17 Sep 2018	807	1	2e	<2	<2	1.000	20.8	82.38	7.9	33.73	8.2
A7	17 Sep 2018	807	12	<2	<2	<2	1.000	18.4	82.10	7.7	33.65	8.2
A7	17 Sep 2018	807	18	<2	<2	<2	1.000	15.7	82.44	7.0	33.56	8.1
A7	24 Sep 2018	823	1	<2	<2	<2	1.000	20.4	85.24	7.9	33.69	8.2
A7	24 Sep 2018	823	12	2e	<2	<2	1.000	14.4	86.73	7.5	33.51	8.1
A7	24 Sep 2018	823	18	18e	4e	4e	0.222	13.7	87.45	7.1	33.51	8.0

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
C4	04 Sep 2018	936	1	<20	<2	<2	0.100	22.5	75.76	7.9	33.83	8.3
C4	04 Sep 2018	936	3	20e	<2	<2	0.100	22.2	76.57	7.8	33.81	8.3
C4	04 Sep 2018	936	9	<20	<2	<2	0.100	19.6	77.86	6.4	33.65	8.1
C4	10 Sep 2018	1002	1	<20	<2	<2	0.100	21.0	72.56	6.4	33.74	8.2
C4	10 Sep 2018	1002	3	<20	<2	<2	0.100	20.6	78.43	7.1	33.76	8.2
C4	10 Sep 2018	1002	9	<20	<2	<2	0.100	17.1	74.32	6.4	33.71	8.1
C4	17 Sep 2018	930	1	<20	<2	<2	0.100	20.8	62.33	7.1	33.69	8.1
C4	17 Sep 2018	930	3	20e	<2	<2	0.100	20.6	69.63	7.4	33.70	8.2
C4	17 Sep 2018	930	9	<20	<2	<2	0.100	17.0	72.39	6.3	33.59	8.1
C4	24 Sep 2018	942	1	<2	<2	<2	1.000	20.2	82.74	8.0	33.69	8.2
C4	24 Sep 2018	942	3	<2	<2	<2	1.000	20.2	83.36	7.8	33.69	8.2
C4	24 Sep 2018	942	9	<2	<2	<2	1.000	14.8	82.37	7.2	33.51	8.0
C5	04 Sep 2018	926	1	<2	<2	<2	1.000	22.6	75.56	7.7	33.83	8.2
C5	04 Sep 2018	926	3	<20	<2	<2	0.100	22.6	76.24	7.5	33.83	8.2
C5	04 Sep 2018	926	9	<2	<2	<2	1.000	18.9	81.82	7.4	33.62	8.1
C5	10 Sep 2018	951	1	<2	<2	<2	1.000	21.1	82.27	6.4	33.73	8.2
C5	10 Sep 2018	951	3	<20	<2	<2	0.100	20.8	82.05	7.4	33.80	8.2
C5	10 Sep 2018	951	9	<20	<2	<2	0.100	19.2	72.79	6.5	33.82	8.1
C5	17 Sep 2018	919	1	<20	<2	<2	0.100	20.7	71.28	7.3	33.71	8.2
C5	17 Sep 2018	919	3	<20	<2	<2	0.100	20.5	74.89	7.7	33.71	8.2
C5	17 Sep 2018	919	9	<20	<2	<2	0.100	17.2	75.95	6.6	33.58	8.1
C5	24 Sep 2018	931	1	<2	<2	<2	1.000	20.4	83.11	8.0	33.67	8.2
C5	24 Sep 2018	931	3	<2	<2	<2	1.000	20.3	84.55	7.9	33.69	8.2
C5	24 Sep 2018	931	9	<2	<2	<2	1.000	15.6	82.16	7.2	33.53	8.1
C6	04 Sep 2018	911	1	<200	<2	<2	0.010	22.8	77.13	8.0	33.84	8.3
C6	04 Sep 2018	911	3	40e	<2	<2	0.050	22.8	77.36	8.0	33.84	8.3
C6	04 Sep 2018	911	9	<20	<2	<2	0.100	19.2	79.25	5.9	33.66	8.1
C6	10 Sep 2018	939	1	<2	<2	<2	1.000	21.1	84.60	7.8	33.75	8.2
C6	10 Sep 2018	939	3	2e	<2	<2	1.000	20.9	83.61	7.8	33.75	8.2
C6	10 Sep 2018	939	9	<20	<2	<2	0.100	19.4	75.61	6.3	33.72	8.1
C6	17 Sep 2018	909	1	<2	<2	<2	1.000	20.6	78.02	7.8	33.71	8.2
C6	17 Sep 2018	909	3	<20	<2	<2	0.100	20.6	77.84	7.8	33.71	8.2
C6	17 Sep 2018	909	9	<20	<2	<2	0.100	18.1	76.00	6.9	33.69	8.1
C6	24 Sep 2018	920	1	<2	<2	<2	1.000	20.4	83.20	8.1	33.70	8.2
C6	24 Sep 2018	931	3	<2	<2	<2	1.000	20.4	84.24	8.1	33.70	8.2
C6	24 Sep 2018	920	9	<2	<2	<2	1.000	16.3	85.38	7.5	33.56	8.1
C7	04 Sep 2018	843	1	<200	<2	<2	0.010	22.7	78.47	8.4	33.83	8.3
C7	04 Sep 2018	843	12	<20	<2	<2	0.100	18.4	81.06	7.7	33.61	8.2
C7	04 Sep 2018	843	18	<2	<2	<2	1.000	15.8	82.73	7.5	33.52	8.1
C7	10 Sep 2018	908	1	<2	<2	<2	1.000	21.1	83.14	7.8	33.75	8.2
C7	10 Sep 2018	908	12	<20	<2	<2	0.100	17.2	84.25	7.9	33.59	8.1

Station	Date	Time	Depth	Total	Fecal	Entero	F:T	Temp	XMS	DO	Sal	pH
C7	10 Sep 2018	908	18	2e	<2	<2	1.000	14.6	83.46	7.2	33.53	8.1
C7	17 Sep 2018	835	1	4e	<2	<2	0.500	21.2	84.02	7.8	33.76	8.2
C7	17 Sep 2018	835	12	<2	<2	<2	1.000	16.1	82.87	7.9	33.55	8.1
C7	17 Sep 2018	835	18	2e	<2	<2	1.000	14.9	83.38	7.4	33.52	8.1
C7	24 Sep 2018	920	1	2e	<2	<2	1.000	20.8	84.05	7.8	33.70	8.2
C7	24 Sep 2018	850	12	<2	<2	<2	1.000	17.1	83.93	8.0	33.57	8.1
C7	24 Sep 2018	850	18	2e	<2	<2	1.000	15.1	86.49	7.7	33.53	8.1
C8	04 Sep 2018	856	1	<20	<2	<2	0.100	22.8	77.44	8.2	33.84	8.3
C8	04 Sep 2018	856	12	<20	<2	<2	0.100	18.9	80.79	7.7	33.63	8.2
C8	04 Sep 2018	856	18	<2	<2	<2	1.000	15.7	83.73	7.4	33.53	8.1
C8	10 Sep 2018	920	1	<2	<2	<2	1.000	20.7	82.64	6.9	33.74	8.2
C8	10 Sep 2018	920	12	<2	<2	<2	1.000	16.5	84.56	7.8	33.60	8.1
C8	10 Sep 2018	920	18	2e	<2	2e	1.000	14.6	82.02	7.3	33.58	8.1
C8	17 Sep 2018	849	1	2e	<2	<2	1.000	21.1	84.18	7.8	33.75	8.2
C8	17 Sep 2018	849	12	<2	<2	<2	1.000	16.8	83.35	8.0	33.57	8.2
C8	17 Sep 2018	849	18	2e	<2	<2	1.000	14.6	83.93	7.4	33.53	8.1
C8	24 Sep 2018	850	1	<2	<2	<2	1.000	20.9	86.53	7.8	33.69	8.2
C8	24 Sep 2018	904	12	<2	<2	<2	1.000	17.6	84.83	8.3	33.57	8.2
C8	24 Sep 2018	904	18	2e	<2	<2	1.000	15.6	85.81	7.7	33.53	8.1

ns = not sampled

ND = no data

Table 3.9

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

Station	Date	Parameter	Value
A1	04 Sep 2018	Depth (m)	20
A1	04 Sep 2018	Arrive Time	800
A1	04 Sep 2018	Depart Time	805
A1	04 Sep 2018	Air Temp (C)	21
A1	04 Sep 2018	Weather	Overcast
A1	04 Sep 2018	Visibility (mi)	6
A1	04 Sep 2018	Wind Speed (kts)	6
A1	04 Sep 2018	Wind Dir	S
A1	04 Sep 2018	Water Color	Bluish-Green
A1	04 Sep 2018	Wave Ht Low (ft)	3
A1	04 Sep 2018	Wave Period (sec)	9
A1	04 Sep 2018	Sea State	Light chop
A1	04 Sep 2018	High Tide (ft)	3.41
A1	04 Sep 2018	High Tide Time	618
A1	04 Sep 2018	Low Tide (ft)	2.58
A1	04 Sep 2018	Low Tide Time	1054
A1	04 Sep 2018	Comments	Kelp debris
A1	10 Sep 2018	Depth (m)	19
A1	10 Sep 2018	Arrive Time	813
A1	10 Sep 2018	Depart Time	831
A1	10 Sep 2018	Air Temp (C)	19
A1	10 Sep 2018	Weather	Haze
A1	10 Sep 2018	Visibility (mi)	5
A1	10 Sep 2018	Wind Speed (kts)	5
A1	10 Sep 2018	Wind Dir	NE
A1	10 Sep 2018	Water Color	Green
A1	10 Sep 2018	Wave Ht Low (ft)	3
A1	10 Sep 2018	Wave Period (sec)	11
A1	10 Sep 2018	Sea State	Calm
A1	10 Sep 2018	High Tide (ft)	5.48
A1	10 Sep 2018	High Tide Time	1018
A1	10 Sep 2018	Low Tide (ft)	-0.58
A1	10 Sep 2018	Low Tide Time	411
A1	10 Sep 2018	Comments	Kelp
A1	17 Sep 2018	Depth (m)	20
A1	17 Sep 2018	Arrive Time	754
A1	17 Sep 2018	Depart Time	800
A1	17 Sep 2018	Air Temp (C)	20
A1	17 Sep 2018	Weather	Haze
A1	17 Sep 2018	Visibility (mi)	8
A1	17 Sep 2018	Wind Speed (kts)	0
A1	17 Sep 2018	Wind Dir	
A1	17 Sep 2018	Water Color	Green
A1	17 Sep 2018	Wave Ht Low (ft)	4
A1	17 Sep 2018	Wave Period (sec)	13
A1	17 Sep 2018	Sea State	Calm
A1	17 Sep 2018	High Tide (ft)	3.41
A1	17 Sep 2018	High Tide Time	615
A1	17 Sep 2018	Low Tide (ft)	2.97

Station	Date	Parameter	Value
A1	17 Sep 2018	Low Tide Time	1018
A1	17 Sep 2018	Comments	Kelp
A1	24 Sep 2018	Depth (m)	20
A1	24 Sep 2018	Arrive Time	807
A1	24 Sep 2018	Depart Time	814
A1	24 Sep 2018	Air Temp (C)	18
A1	24 Sep 2018	Weather	Overcast
A1	24 Sep 2018	Visibility (mi)	10
A1	24 Sep 2018	Wind Speed (kts)	10
A1	24 Sep 2018	Wind Dir	S
A1	24 Sep 2018	Water Color	Bluish-Green
A1	24 Sep 2018	Wave Ht Low (ft)	3
A1	24 Sep 2018	Wave Period (sec)	9
A1	24 Sep 2018	Sea State	Heavy chop
A1	24 Sep 2018	High Tide (ft)	5.06
A1	24 Sep 2018	High Tide Time	927
A1	24 Sep 2018	Low Tide (ft)	0.89
A1	24 Sep 2018	Low Tide Time	1529
A1	24 Sep 2018	Comments	none
A6	04 Sep 2018	Depth (m)	19
A6	04 Sep 2018	Arrive Time	826
A6	04 Sep 2018	Depart Time	833
A6	04 Sep 2018	Air Temp (C)	21
A6	04 Sep 2018	Weather	Overcast
A6	04 Sep 2018	Visibility (mi)	6
A6	04 Sep 2018	Wind Speed (kts)	6
A6	04 Sep 2018	Wind Dir	S
A6	04 Sep 2018	Water Color	Bluish-Green
A6	04 Sep 2018	Wave Ht Low (ft)	3
A6	04 Sep 2018	Wave Period (sec)	9
A6	04 Sep 2018	Sea State	Light chop
A6	04 Sep 2018	High Tide (ft)	3.41
A6	04 Sep 2018	High Tide Time	618
A6	04 Sep 2018	Low Tide (ft)	2.58
A6	04 Sep 2018	Low Tide Time	1054
A6	04 Sep 2018	Comments	Kelp debris
A6	10 Sep 2018	Depth (m)	22
A6	10 Sep 2018	Arrive Time	854
A6	10 Sep 2018	Depart Time	858
A6	10 Sep 2018	Air Temp (C)	19
A6	10 Sep 2018	Weather	Haze
A6	10 Sep 2018	Visibility (mi)	5
A6	10 Sep 2018	Wind Speed (kts)	4
A6	10 Sep 2018	Wind Dir	SE
A6	10 Sep 2018	Water Color	Green
A6	10 Sep 2018	Wave Ht Low (ft)	3
A6	10 Sep 2018	Wave Period (sec)	11
A6	10 Sep 2018	Sea State	Calm
A6	10 Sep 2018	High Tide (ft)	5.48
A6	10 Sep 2018	High Tide Time	1018
A6	10 Sep 2018	Low Tide (ft)	-0.58
A6	10 Sep 2018	Low Tide Time	411

Station	Date	Parameter	Value
A6	10 Sep 2018	Comments	Kelp; High CDOM from 1-6 meters
A6	17 Sep 2018	Depth (m)	19
A6	17 Sep 2018	Arrive Time	821
A6	17 Sep 2018	Depart Time	827
A6	17 Sep 2018	Air Temp (C)	20
A6	17 Sep 2018	Weather	Haze
A6	17 Sep 2018	Visibility (mi)	8
A6	17 Sep 2018	Wind Speed (kts)	2
A6	17 Sep 2018	Wind Dir	W
A6	17 Sep 2018	Water Color	Green
A6	17 Sep 2018	Wave Ht Low (ft)	4
A6	17 Sep 2018	Wave Period (sec)	13
A6	17 Sep 2018	Sea State	Calm
A6	17 Sep 2018	High Tide (ft)	3.41
A6	17 Sep 2018	High Tide Time	615
A6	17 Sep 2018	Low Tide (ft)	2.97
A6	17 Sep 2018	Low Tide Time	1018
A6	17 Sep 2018	Comments	Kelp
A6	24 Sep 2018	Depth (m)	18
A6	24 Sep 2018	Arrive Time	836
A6	24 Sep 2018	Depart Time	840
A6	24 Sep 2018	Air Temp (C)	18
A6	24 Sep 2018	Weather	Overcast
A6	24 Sep 2018	Visibility (mi)	10
A6	24 Sep 2018	Wind Speed (kts)	9
A6	24 Sep 2018	Wind Dir	SE
A6	24 Sep 2018	Water Color	Bluish-Green
A6	24 Sep 2018	Wave Ht Low (ft)	2
A6	24 Sep 2018	Wave Period (sec)	13
A6	24 Sep 2018	Sea State	Heavy chop
A6	24 Sep 2018	High Tide (ft)	5.06
A6	24 Sep 2018	High Tide Time	927
A6	24 Sep 2018	Low Tide (ft)	0.89
A6	24 Sep 2018	Low Tide Time	1529
A6	24 Sep 2018	Comments	none
A7	04 Sep 2018	Depth (m)	19
A7	04 Sep 2018	Arrive Time	813
A7	04 Sep 2018	Depart Time	819
A7	04 Sep 2018	Air Temp (C)	21
A7	04 Sep 2018	Weather	Overcast
A7	04 Sep 2018	Visibility (mi)	6
A7	04 Sep 2018	Wind Speed (kts)	8
A7	04 Sep 2018	Wind Dir	S
A7	04 Sep 2018	Water Color	Bluish-Green
A7	04 Sep 2018	Wave Ht Low (ft)	3
A7	04 Sep 2018	Wave Period (sec)	9
A7	04 Sep 2018	Sea State	Light chop
A7	04 Sep 2018	High Tide (ft)	3.41
A7	04 Sep 2018	High Tide Time	618
A7	04 Sep 2018	Low Tide (ft)	2.58
A7	04 Sep 2018	Low Tide Time	1054
A7	04 Sep 2018	Comments	Kelp

Station	Date	Parameter	Value
A7	10 Sep 2018	Depth (m)	19
A7	10 Sep 2018	Arrive Time	839
A7	10 Sep 2018	Depart Time	843
A7	10 Sep 2018	Air Temp (C)	19
A7	10 Sep 2018	Weather	Haze
A7	10 Sep 2018	Visibility (mi)	5
A7	10 Sep 2018	Wind Speed (kts)	5
A7	10 Sep 2018	Wind Dir	NE
A7	10 Sep 2018	Water Color	Green
A7	10 Sep 2018	Wave Ht Low (ft)	3
A7	10 Sep 2018	Wave Period (sec)	11
A7	10 Sep 2018	Sea State	Calm
A7	10 Sep 2018	High Tide (ft)	5.48
A7	10 Sep 2018	High Tide Time	1018
A7	10 Sep 2018	Low Tide (ft)	-0.58
A7	10 Sep 2018	Low Tide Time	411
A7	10 Sep 2018	Comments	Kelp
A7	17 Sep 2018	Depth (m)	19
A7	17 Sep 2018	Arrive Time	807
A7	17 Sep 2018	Depart Time	813
A7	17 Sep 2018	Air Temp (C)	20
A7	17 Sep 2018	Weather	Haze
A7	17 Sep 2018	Visibility (mi)	8
A7	17 Sep 2018	Wind Speed (kts)	6
A7	17 Sep 2018	Wind Dir	NW
A7	17 Sep 2018	Water Color	Green
A7	17 Sep 2018	Wave Ht Low (ft)	4
A7	17 Sep 2018	Wave Period (sec)	13
A7	17 Sep 2018	Sea State	Calm
A7	17 Sep 2018	High Tide (ft)	3.41
A7	17 Sep 2018	High Tide Time	615
A7	17 Sep 2018	Low Tide (ft)	2.97
A7	17 Sep 2018	Low Tide Time	1018
A7	17 Sep 2018	Comments	Kelp
A7	24 Sep 2018	Depth (m)	19
A7	24 Sep 2018	Arrive Time	823
A7	24 Sep 2018	Depart Time	828
A7	24 Sep 2018	Air Temp (C)	18
A7	24 Sep 2018	Weather	Overcast
A7	24 Sep 2018	Visibility (mi)	10
A7	24 Sep 2018	Wind Speed (kts)	12
A7	24 Sep 2018	Wind Dir	S
A7	24 Sep 2018	Water Color	Bluish-Green
A7	24 Sep 2018	Wave Ht Low (ft)	2
A7	24 Sep 2018	Wave Period (sec)	13
A7	24 Sep 2018	Sea State	Heavy chop
A7	24 Sep 2018	High Tide (ft)	5.06
A7	24 Sep 2018	High Tide Time	927
A7	24 Sep 2018	Low Tide (ft)	0.89
A7	24 Sep 2018	Low Tide Time	1529
A7	24 Sep 2018	Comments	none

Station	Date	Parameter	Value
C4	04 Sep 2018	Depth (m)	13
C4	04 Sep 2018	Arrive Time	936
C4	04 Sep 2018	Depart Time	940
C4	04 Sep 2018	Air Temp (C)	20
C4	04 Sep 2018	Weather	Overcast
C4	04 Sep 2018	Visibility (mi)	8
C4	04 Sep 2018	Wind Speed (kts)	6
C4	04 Sep 2018	Wind Dir	S
C4	04 Sep 2018	Water Color	Green
C4	04 Sep 2018	Wave Ht Low (ft)	3
C4	04 Sep 2018	Wave Period (sec)	9
C4	04 Sep 2018	Sea State	Heavy chop
C4	04 Sep 2018	High Tide (ft)	3.41
C4	04 Sep 2018	High Tide Time	618
C4	04 Sep 2018	Low Tide (ft)	2.58
C4	04 Sep 2018	Low Tide Time	1054
C4	04 Sep 2018	Comments	Kelp debris
C4	10 Sep 2018	Depth (m)	9
C4	10 Sep 2018	Arrive Time	1002
C4	10 Sep 2018	Depart Time	1005
C4	10 Sep 2018	Air Temp (C)	19
C4	10 Sep 2018	Weather	Haze
C4	10 Sep 2018	Visibility (mi)	5
C4	10 Sep 2018	Wind Speed (kts)	4
C4	10 Sep 2018	Wind Dir	SE
C4	10 Sep 2018	Water Color	Green
C4	10 Sep 2018	Wave Ht Low (ft)	3
C4	10 Sep 2018	Wave Period (sec)	11
C4	10 Sep 2018	Sea State	Calm
C4	10 Sep 2018	High Tide (ft)	5.48
C4	10 Sep 2018	High Tide Time	1018
C4	10 Sep 2018	Low Tide (ft)	-0.58
C4	10 Sep 2018	Low Tide Time	411
C4	10 Sep 2018	Comments	Kelp; Kelp debris; Seagrass; Boats
C4	17 Sep 2018	Depth (m)	10
C4	17 Sep 2018	Arrive Time	930
C4	17 Sep 2018	Depart Time	935
C4	17 Sep 2018	Air Temp (C)	21
C4	17 Sep 2018	Weather	Haze
C4	17 Sep 2018	Visibility (mi)	8
C4	17 Sep 2018	Wind Speed (kts)	8
C4	17 Sep 2018	Wind Dir	NW
C4	17 Sep 2018	Water Color	Brownish-Green
C4	17 Sep 2018	Wave Ht Low (ft)	4
C4	17 Sep 2018	Wave Period (sec)	13
C4	17 Sep 2018	Sea State	Calm
C4	17 Sep 2018	High Tide (ft)	3.41
C4	17 Sep 2018	High Tide Time	615
C4	17 Sep 2018	Low Tide (ft)	2.97
C4	17 Sep 2018	Low Tide Time	1018
C4	17 Sep 2018	Comments	none
C4	24 Sep 2018	Depth (m)	11

Station	Date	Parameter	Value
C4	24 Sep 2018	Arrive Time	942
C4	24 Sep 2018	Depart Time	946
C4	24 Sep 2018	Air Temp (C)	18
C4	24 Sep 2018	Weather	Overcast
C4	24 Sep 2018	Visibility (mi)	10
C4	24 Sep 2018	Wind Speed (kts)	7
C4	24 Sep 2018	Wind Dir	S
C4	24 Sep 2018	Water Color	Bluish-Green
C4	24 Sep 2018	Wave Ht Low (ft)	2
C4	24 Sep 2018	Wave Period (sec)	13
C4	24 Sep 2018	Sea State	Light chop
C4	24 Sep 2018	High Tide (ft)	5.06
C4	24 Sep 2018	High Tide Time	927
C4	24 Sep 2018	Low Tide (ft)	0.89
C4	24 Sep 2018	Low Tide Time	1529
C4	24 Sep 2018	Comments	Kelp
C5	04 Sep 2018	Depth (m)	11
C5	04 Sep 2018	Arrive Time	926
C5	04 Sep 2018	Depart Time	930
C5	04 Sep 2018	Air Temp (C)	20
C5	04 Sep 2018	Weather	Overcast
C5	04 Sep 2018	Visibility (mi)	8
C5	04 Sep 2018	Wind Speed (kts)	6
C5	04 Sep 2018	Wind Dir	S
C5	04 Sep 2018	Water Color	Bluish-Green
C5	04 Sep 2018	Wave Ht Low (ft)	3
C5	04 Sep 2018	Wave Period (sec)	9
C5	04 Sep 2018	Sea State	Light chop
C5	04 Sep 2018	High Tide (ft)	3.41
C5	04 Sep 2018	High Tide Time	618
C5	04 Sep 2018	Low Tide (ft)	2.58
C5	04 Sep 2018	Low Tide Time	1054
C5	04 Sep 2018	Comments	none
C5	10 Sep 2018	Depth (m)	10
C5	10 Sep 2018	Arrive Time	951
C5	10 Sep 2018	Depart Time	954
C5	10 Sep 2018	Air Temp (C)	19
C5	10 Sep 2018	Weather	Haze
C5	10 Sep 2018	Visibility (mi)	5
C5	10 Sep 2018	Wind Speed (kts)	4
C5	10 Sep 2018	Wind Dir	SE
C5	10 Sep 2018	Water Color	Green
C5	10 Sep 2018	Wave Ht Low (ft)	3
C5	10 Sep 2018	Wave Period (sec)	11
C5	10 Sep 2018	Sea State	Calm
C5	10 Sep 2018	High Tide (ft)	5.48
C5	10 Sep 2018	High Tide Time	1018
C5	10 Sep 2018	Low Tide (ft)	-0.58
C5	10 Sep 2018	Low Tide Time	411
C5	10 Sep 2018	Comments	Kelp; Kelp debris; Seagrass
C5	17 Sep 2018	Depth (m)	9
C5	17 Sep 2018	Arrive Time	919

Station	Date	Parameter	Value
C5	17 Sep 2018	Depart Time	925
C5	17 Sep 2018	Air Temp (C)	20
C5	17 Sep 2018	Weather	Haze
C5	17 Sep 2018	Visibility (mi)	8
C5	17 Sep 2018	Wind Speed (kts)	4
C5	17 Sep 2018	Wind Dir	NW
C5	17 Sep 2018	Water Color	Green
C5	17 Sep 2018	Wave Ht Low (ft)	4
C5	17 Sep 2018	Wave Period (sec)	13
C5	17 Sep 2018	Sea State	Calm
C5	17 Sep 2018	High Tide (ft)	3.41
C5	17 Sep 2018	High Tide Time	615
C5	17 Sep 2018	Low Tide (ft)	2.97
C5	17 Sep 2018	Low Tide Time	1018
C5	17 Sep 2018	Comments	Kelp
C5	24 Sep 2018	Depth (m)	9
C5	24 Sep 2018	Arrive Time	931
C5	24 Sep 2018	Depart Time	936
C5	24 Sep 2018	Air Temp (C)	18
C5	24 Sep 2018	Weather	Overcast
C5	24 Sep 2018	Visibility (mi)	10
C5	24 Sep 2018	Wind Speed (kts)	7
C5	24 Sep 2018	Wind Dir	SW
C5	24 Sep 2018	Water Color	Bluish-Green
C5	24 Sep 2018	Wave Ht Low (ft)	2
C5	24 Sep 2018	Wave Period (sec)	13
C5	24 Sep 2018	Sea State	Light chop
C5	24 Sep 2018	High Tide (ft)	5.06
C5	24 Sep 2018	High Tide Time	927
C5	24 Sep 2018	Low Tide (ft)	0.89
C5	24 Sep 2018	Low Tide Time	1529
C5	24 Sep 2018	Comments	none
C6	04 Sep 2018	Depth (m)	10
C6	04 Sep 2018	Arrive Time	911
C6	04 Sep 2018	Depart Time	918
C6	04 Sep 2018	Air Temp (C)	20
C6	04 Sep 2018	Weather	Overcast
C6	04 Sep 2018	Visibility (mi)	8
C6	04 Sep 2018	Wind Speed (kts)	4
C6	04 Sep 2018	Wind Dir	S
C6	04 Sep 2018	Water Color	Bluish-Green
C6	04 Sep 2018	Wave Ht Low (ft)	3
C6	04 Sep 2018	Wave Period (sec)	9
C6	04 Sep 2018	Sea State	Light chop
C6	04 Sep 2018	High Tide (ft)	3.41
C6	04 Sep 2018	High Tide Time	618
C6	04 Sep 2018	Low Tide (ft)	2.58
C6	04 Sep 2018	Low Tide Time	1054
C6	04 Sep 2018	Comments	none
C6	10 Sep 2018	Depth (m)	10
C6	10 Sep 2018	Arrive Time	939
C6	10 Sep 2018	Depart Time	942

Station	Date	Parameter	Value
C6	10 Sep 2018	Air Temp (C)	19
C6	10 Sep 2018	Weather	Haze
C6	10 Sep 2018	Visibility (mi)	5
C6	10 Sep 2018	Wind Speed (kts)	3
C6	10 Sep 2018	Wind Dir	SE
C6	10 Sep 2018	Water Color	Green
C6	10 Sep 2018	Wave Ht Low (ft)	3
C6	10 Sep 2018	Wave Period (sec)	11
C6	10 Sep 2018	Sea State	Calm
C6	10 Sep 2018	High Tide (ft)	5.48
C6	10 Sep 2018	High Tide Time	1018
C6	10 Sep 2018	Low Tide (ft)	-0.58
C6	10 Sep 2018	Low Tide Time	411
C6	10 Sep 2018	Comments	Kelp
C6	17 Sep 2018	Depth (m)	9
C6	17 Sep 2018	Arrive Time	909
C6	17 Sep 2018	Depart Time	913
C6	17 Sep 2018	Air Temp (C)	20
C6	17 Sep 2018	Weather	Haze
C6	17 Sep 2018	Visibility (mi)	8
C6	17 Sep 2018	Wind Speed (kts)	7
C6	17 Sep 2018	Wind Dir	NW
C6	17 Sep 2018	Water Color	Green
C6	17 Sep 2018	Wave Ht Low (ft)	4
C6	17 Sep 2018	Wave Period (sec)	13
C6	17 Sep 2018	Sea State	Calm
C6	17 Sep 2018	High Tide (ft)	3.41
C6	17 Sep 2018	High Tide Time	615
C6	17 Sep 2018	Low Tide (ft)	2.97
C6	17 Sep 2018	Low Tide Time	1018
C6	17 Sep 2018	Comments	none
C6	24 Sep 2018	Depth (m)	9
C6	24 Sep 2018	Arrive Time	920
C6	24 Sep 2018	Depart Time	924
C6	24 Sep 2018	Air Temp (C)	18
C6	24 Sep 2018	Weather	Overcast
C6	24 Sep 2018	Visibility (mi)	10
C6	24 Sep 2018	Wind Speed (kts)	9
C6	24 Sep 2018	Wind Dir	W
C6	24 Sep 2018	Water Color	Bluish-Green
C6	24 Sep 2018	Wave Ht Low (ft)	2
C6	24 Sep 2018	Wave Period (sec)	13
C6	24 Sep 2018	Sea State	Heavy chop
C6	24 Sep 2018	High Tide (ft)	5.06
C6	24 Sep 2018	High Tide Time	927
C6	24 Sep 2018	Low Tide (ft)	0.89
C6	24 Sep 2018	Low Tide Time	1529
C6	24 Sep 2018	Comments	none
C7	04 Sep 2018	Depth (m)	19
C7	04 Sep 2018	Arrive Time	843
C7	04 Sep 2018	Depart Time	849
C7	04 Sep 2018	Air Temp (C)	21

Station	Date	Parameter	Value
C7	04 Sep 2018	Weather	Overcast
C7	04 Sep 2018	Visibility (mi)	6
C7	04 Sep 2018	Wind Speed (kts)	4
C7	04 Sep 2018	Wind Dir	S
C7	04 Sep 2018	Water Color	Bluish-Green
C7	04 Sep 2018	Wave Ht Low (ft)	3
C7	04 Sep 2018	Wave Period (sec)	9
C7	04 Sep 2018	Sea State	Light chop
C7	04 Sep 2018	High Tide (ft)	3.41
C7	04 Sep 2018	High Tide Time	618
C7	04 Sep 2018	Low Tide (ft)	2.58
C7	04 Sep 2018	Low Tide Time	1054
C7	04 Sep 2018	Comments	Kelp debris
C7	10 Sep 2018	Depth (m)	18
C7	10 Sep 2018	Arrive Time	908
C7	10 Sep 2018	Depart Time	912
C7	10 Sep 2018	Air Temp (C)	20
C7	10 Sep 2018	Weather	Haze
C7	10 Sep 2018	Visibility (mi)	5
C7	10 Sep 2018	Wind Speed (kts)	1
C7	10 Sep 2018	Wind Dir	S
C7	10 Sep 2018	Water Color	Green
C7	10 Sep 2018	Wave Ht Low (ft)	3
C7	10 Sep 2018	Wave Period (sec)	11
C7	10 Sep 2018	Sea State	Calm
C7	10 Sep 2018	High Tide (ft)	5.48
C7	10 Sep 2018	High Tide Time	1018
C7	10 Sep 2018	Low Tide (ft)	-0.58
C7	10 Sep 2018	Low Tide Time	411
C7	10 Sep 2018	Comments	Kelp
C7	17 Sep 2018	Depth (m)	19
C7	17 Sep 2018	Arrive Time	835
C7	17 Sep 2018	Depart Time	840
C7	17 Sep 2018	Air Temp (C)	20
C7	17 Sep 2018	Weather	Haze
C7	17 Sep 2018	Visibility (mi)	8
C7	17 Sep 2018	Wind Speed (kts)	8
C7	17 Sep 2018	Wind Dir	NW
C7	17 Sep 2018	Water Color	Green
C7	17 Sep 2018	Wave Ht Low (ft)	4
C7	17 Sep 2018	Wave Period (sec)	13
C7	17 Sep 2018	Sea State	Calm
C7	17 Sep 2018	High Tide (ft)	3.41
C7	17 Sep 2018	High Tide Time	615
C7	17 Sep 2018	Low Tide (ft)	2.97
C7	17 Sep 2018	Low Tide Time	1018
C7	17 Sep 2018	Comments	none
C7	24 Sep 2018	Depth (m)	20
C7	24 Sep 2018	Arrive Time	850
C7	24 Sep 2018	Depart Time	855
C7	24 Sep 2018	Air Temp (C)	18
C7	24 Sep 2018	Weather	Overcast

Station	Date	Parameter	Value
C7	24 Sep 2018	Visibility (mi)	10
C7	24 Sep 2018	Wind Speed (kts)	10
C7	24 Sep 2018	Wind Dir	SE
C7	24 Sep 2018	Water Color	Bluish-Green
C7	24 Sep 2018	Wave Ht Low (ft)	2
C7	24 Sep 2018	Wave Period (sec)	13
C7	24 Sep 2018	Sea State	Heavy chop
C7	24 Sep 2018	High Tide (ft)	5.06
C7	24 Sep 2018	High Tide Time	927
C7	24 Sep 2018	Low Tide (ft)	0.89
C7	24 Sep 2018	Low Tide Time	1529
C7	24 Sep 2018	Comments	none
C8	04 Sep 2018	Depth (m)	18
C8	04 Sep 2018	Arrive Time	856
C8	04 Sep 2018	Depart Time	901
C8	04 Sep 2018	Air Temp (C)	21
C8	04 Sep 2018	Weather	Overcast
C8	04 Sep 2018	Visibility (mi)	6
C8	04 Sep 2018	Wind Speed (kts)	6
C8	04 Sep 2018	Wind Dir	S
C8	04 Sep 2018	Water Color	Bluish-Green
C8	04 Sep 2018	Wave Ht Low (ft)	3
C8	04 Sep 2018	Wave Period (sec)	9
C8	04 Sep 2018	Sea State	Light chop
C8	04 Sep 2018	High Tide (ft)	3.41
C8	04 Sep 2018	High Tide Time	618
C8	04 Sep 2018	Low Tide (ft)	2.58
C8	04 Sep 2018	Low Tide Time	1054
C8	04 Sep 2018	Comments	Kelp debris
C8	10 Sep 2018	Depth (m)	18
C8	10 Sep 2018	Arrive Time	920
C8	10 Sep 2018	Depart Time	924
C8	10 Sep 2018	Air Temp (C)	20
C8	10 Sep 2018	Weather	Haze
C8	10 Sep 2018	Visibility (mi)	5
C8	10 Sep 2018	Wind Speed (kts)	0
C8	10 Sep 2018	Wind Dir	
C8	10 Sep 2018	Water Color	Green
C8	10 Sep 2018	Wave Ht Low (ft)	3
C8	10 Sep 2018	Wave Period (sec)	11
C8	10 Sep 2018	Sea State	Calm
C8	10 Sep 2018	High Tide (ft)	5.48
C8	10 Sep 2018	High Tide Time	1018
C8	10 Sep 2018	Low Tide (ft)	-0.58
C8	10 Sep 2018	Low Tide Time	411
C8	10 Sep 2018	Comments	Boats; High CDOM from 1-9 meters; Kelp debris
C8	17 Sep 2018	Depth (m)	19
C8	17 Sep 2018	Arrive Time	849
C8	17 Sep 2018	Depart Time	854
C8	17 Sep 2018	Air Temp (C)	20
C8	17 Sep 2018	Weather	Haze
C8	17 Sep 2018	Visibility (mi)	8

Station	Date	Parameter	Value
C8	17 Sep 2018	Wind Speed (kts)	4
C8	17 Sep 2018	Wind Dir	W
C8	17 Sep 2018	Water Color	Green
C8	17 Sep 2018	Wave Ht Low (ft)	4
C8	17 Sep 2018	Wave Period (sec)	13
C8	17 Sep 2018	Sea State	Calm
C8	17 Sep 2018	High Tide (ft)	3.41
C8	17 Sep 2018	High Tide Time	615
C8	17 Sep 2018	Low Tide (ft)	2.97
C8	17 Sep 2018	Low Tide Time	1018
C8	17 Sep 2018	Comments	none
C8	24 Sep 2018	Depth (m)	20
C8	24 Sep 2018	Arrive Time	904
C8	24 Sep 2018	Depart Time	907
C8	24 Sep 2018	Air Temp (C)	18
C8	24 Sep 2018	Weather	Overcast
C8	24 Sep 2018	Visibility (mi)	10
C8	24 Sep 2018	Wind Speed (kts)	10
C8	24 Sep 2018	Wind Dir	S
C8	24 Sep 2018	Water Color	Bluish-Green
C8	24 Sep 2018	Wave Ht Low (ft)	2
C8	24 Sep 2018	Wave Period (sec)	13
C8	24 Sep 2018	Sea State	Heavy chop
C8	24 Sep 2018	High Tide (ft)	5.06
C8	24 Sep 2018	High Tide Time	927
C8	24 Sep 2018	Low Tide (ft)	0.89
C8	24 Sep 2018	Low Tide Time	1529
C8	24 Sep 2018	Comments	none

Table 3.10

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

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
A1	04 Sep 2018	1	21.73	77.83	8.4	33.78	8.2	23.4	2.83
A1	04 Sep 2018	2	21.45	77.84	8.1	33.75	8.2	23.4	3.12
A1	04 Sep 2018	3	20.50	78.89	8.2	33.71	8.2	23.6	2.97
A1	04 Sep 2018	4	20.16	78.85	8.2	33.68	8.2	23.7	2.88
A1	04 Sep 2018	5	20.02	79.64	8.1	33.66	8.2	23.7	2.84
A1	04 Sep 2018	6	19.33	79.51	8.0	33.64	8.2	23.9	2.64
A1	04 Sep 2018	7	18.86	79.47	8.0	33.61	8.2	24.0	2.64
A1	04 Sep 2018	8	18.76	79.44	8.0	33.61	8.1	24.0	2.63
A1	04 Sep 2018	9	18.57	79.47	7.9	33.60	8.1	24.1	2.65
A1	04 Sep 2018	10	18.46	79.38	7.9	33.60	8.1	24.1	2.62
A1	04 Sep 2018	11	18.30	79.53	7.9	33.59	8.1	24.1	2.55
A1	04 Sep 2018	12	18.27	79.69	7.9	33.59	8.1	24.1	2.46
A1	04 Sep 2018	13	18.20	79.71	7.9	33.59	8.1	24.1	2.54
A1	04 Sep 2018	14	18.18	79.64	7.9	33.59	8.1	24.2	2.53
A1	04 Sep 2018	15	18.14	79.66	7.9	33.60	8.1	24.2	2.50
A1	04 Sep 2018	16	18.12	79.73	7.7	33.60	8.1	24.2	2.55
A1	04 Sep 2018	17	17.69	79.77	7.5	33.60	8.1	24.3	2.32
A1	04 Sep 2018	18	17.20	80.29	7.3	33.58	8.1	24.4	1.84
A1	04 Sep 2018	19	16.47	80.74	7.2	33.57	8.1	24.5	1.31
A1	10 Sep 2018	1	21.80	84.53	6.9	33.68	8.2	23.3	0.41
A1	10 Sep 2018	2	21.81	84.58	7.4	33.74	8.2	23.3	0.41
A1	10 Sep 2018	3	21.78	84.56	7.5	33.77	8.2	23.3	0.41
A1	10 Sep 2018	4	21.47	84.51	7.5	33.84	8.2	23.5	0.43
A1	10 Sep 2018	5	20.98	84.33	7.6	33.84	8.2	23.6	0.57
A1	10 Sep 2018	6	19.52	84.04	7.5	33.93	8.2	24.1	0.65
A1	10 Sep 2018	7	18.68	83.42	7.4	33.79	8.2	24.2	0.83
A1	10 Sep 2018	8	17.72	83.33	7.4	33.81	8.1	24.4	1.12
A1	10 Sep 2018	9	17.09	83.26	7.4	33.72	8.1	24.5	1.21
A1	10 Sep 2018	10	16.58	82.77	7.4	33.67	8.1	24.6	1.23
A1	10 Sep 2018	11	16.50	82.19	7.4	33.62	8.1	24.6	1.17
A1	10 Sep 2018	12	16.18	82.00	7.3	33.63	8.1	24.7	1.14
A1	10 Sep 2018	13	15.43	82.55	7.3	33.65	8.1	24.8	0.93
A1	10 Sep 2018	14	14.73	84.46	7.4	33.58	8.1	24.9	0.95
A1	10 Sep 2018	15	14.62	85.26	7.4	33.55	8.1	24.9	0.76
A1	10 Sep 2018	16	14.62	85.31	7.3	33.56	8.1	24.9	0.61
A1	10 Sep 2018	17	14.59	85.41	7.3	33.57	8.1	25.0	0.56
A1	10 Sep 2018	18	14.54	85.47	7.3	33.57	8.1	25.0	0.51
A1	10 Sep 2018	19	14.50	85.41	7.2	33.56	8.1	25.0	0.47
A1	17 Sep 2018	1	20.65	82.26	7.9	33.73	8.2	23.6	0.67
A1	17 Sep 2018	2	20.64	82.30	7.9	33.73	8.2	23.6	0.74
A1	17 Sep 2018	3	20.59	82.60	7.9	33.73	8.2	23.6	0.82
A1	17 Sep 2018	4	20.49	82.79	7.9	33.72	8.2	23.7	0.91
A1	17 Sep 2018	5	20.19	82.67	7.8	33.70	8.2	23.7	1.05
A1	17 Sep 2018	6	18.95	82.08	7.9	33.67	8.2	24.0	1.33
A1	17 Sep 2018	7	18.58	81.58	8.0	33.64	8.2	24.1	1.57
A1	17 Sep 2018	8	18.36	81.11	7.9	33.63	8.2	24.1	1.71
A1	17 Sep 2018	9	18.12	80.70	7.9	33.62	8.2	24.2	1.82
A1	17 Sep 2018	10	18.03	80.72	7.9	33.62	8.2	24.2	1.88

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
A1	17 Sep 2018	11	17.85	80.71	7.9	33.61	8.2	24.2	1.99
A1	17 Sep 2018	12	17.53	80.47	7.9	33.61	8.1	24.3	2.04
A1	17 Sep 2018	13	17.48	79.97	7.9	33.60	8.1	24.3	2.05
A1	17 Sep 2018	14	17.42	79.44	7.9	33.60	8.1	24.3	2.08
A1	17 Sep 2018	15	17.22	79.17	7.7	33.59	8.1	24.4	2.09
A1	17 Sep 2018	16	16.33	79.00	7.4	33.56	8.1	24.6	1.93
A1	17 Sep 2018	17	15.05	80.51	7.3	33.55	8.1	24.8	1.54
A1	17 Sep 2018	18	14.74	78.86	7.3	33.53	8.1	24.9	0.98
A1	24 Sep 2018	1	20.29	83.01	8.0	33.67	8.2	23.7	0.79
A1	24 Sep 2018	2	20.26	85.03	8.0	33.69	8.2	23.7	0.83
A1	24 Sep 2018	3	19.87	84.80	7.8	33.71	8.2	23.8	0.86
A1	24 Sep 2018	4	17.84	84.45	8.0	33.67	8.1	24.3	1.05
A1	24 Sep 2018	5	16.65	84.48	7.9	33.63	8.1	24.5	1.19
A1	24 Sep 2018	6	15.80	84.99	7.9	33.57	8.1	24.7	1.34
A1	24 Sep 2018	7	15.17	85.60	7.8	33.56	8.1	24.8	1.37
A1	24 Sep 2018	8	14.69	86.10	7.7	33.52	8.1	24.9	1.39
A1	24 Sep 2018	9	14.55	86.37	7.6	33.52	8.1	24.9	1.36
A1	24 Sep 2018	10	14.22	86.56	7.6	33.52	8.0	25.0	1.38
A1	24 Sep 2018	11	14.04	86.86	7.5	33.53	8.0	25.0	1.39
A1	24 Sep 2018	12	13.85	87.26	7.4	33.52	8.0	25.1	1.38
A1	24 Sep 2018	13	13.75	87.60	7.3	33.52	8.0	25.1	1.31
A1	24 Sep 2018	14	13.59	87.75	7.2	33.52	8.0	25.1	1.19
A1	24 Sep 2018	15	13.54	88.00	7.1	33.52	8.0	25.1	1.07
A1	24 Sep 2018	16	13.54	88.01	7.1	33.52	8.0	25.1	1.00
A1	24 Sep 2018	17	13.53	87.97	7.0	33.52	8.0	25.1	0.93
A1	24 Sep 2018	18	13.55	87.80	7.0	33.53	8.0	25.1	0.93
A6	04 Sep 2018	1	22.90	78.79	8.2	33.85	8.3	23.1	2.40
A6	04 Sep 2018	2	22.89	78.76	8.2	33.85	8.3	23.1	2.37
A6	04 Sep 2018	3	22.89	78.96	8.3	33.85	8.3	23.1	2.44
A6	04 Sep 2018	4	22.86	78.70	8.2	33.85	8.3	23.1	2.60
A6	04 Sep 2018	5	22.83	78.85	8.2	33.85	8.3	23.1	3.01
A6	04 Sep 2018	6	22.60	78.38	8.1	33.83	8.3	23.2	3.36
A6	04 Sep 2018	7	22.08	77.90	8.1	33.79	8.3	23.3	3.43
A6	04 Sep 2018	8	21.65	78.13	8.0	33.76	8.3	23.4	3.59
A6	04 Sep 2018	9	20.94	78.49	8.0	33.72	8.2	23.5	3.42
A6	04 Sep 2018	10	20.07	78.62	7.9	33.68	8.2	23.7	3.07
A6	04 Sep 2018	11	19.39	79.13	8.0	33.65	8.2	23.9	3.05
A6	04 Sep 2018	12	19.13	79.41	7.9	33.62	8.2	23.9	2.90
A6	04 Sep 2018	13	18.57	79.90	7.9	33.60	8.2	24.1	2.67
A6	04 Sep 2018	14	18.45	80.23	7.9	33.60	8.2	24.1	2.53
A6	04 Sep 2018	15	18.36	80.41	7.8	33.59	8.2	24.1	2.35
A6	04 Sep 2018	16	18.11	80.78	7.7	33.60	8.1	24.2	2.27
A6	04 Sep 2018	17	17.82	81.24	7.6	33.59	8.1	24.2	2.10
A6	04 Sep 2018	18	17.29	81.81	7.5	33.58	8.1	24.4	1.84
A6	04 Sep 2018	19	16.92	82.81	7.5	33.57	8.1	24.4	1.51
A6	04 Sep 2018	20	16.82	83.04	7.6	33.56	8.1	24.5	1.39
A6	10 Sep 2018	1	21.31	84.20	6.8	33.76	8.2	23.5	0.47
A6	10 Sep 2018	2	21.29	84.29	7.6	33.77	8.2	23.5	0.50
A6	10 Sep 2018	3	21.27	84.25	7.7	33.77	8.2	23.5	0.49
A6	10 Sep 2018	4	21.10	84.24	7.7	33.78	8.2	23.5	0.50
A6	10 Sep 2018	5	21.04	84.23	7.8	33.76	8.2	23.5	0.61
A6	10 Sep 2018	6	21.00	84.19	7.8	33.75	8.2	23.5	0.70

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
A6	10 Sep 2018	7	20.96	84.14	7.8	33.75	8.2	23.6	0.69
A6	10 Sep 2018	8	20.63	84.25	7.8	33.76	8.2	23.7	0.76
A6	10 Sep 2018	9	19.97	84.19	7.8	33.75	8.2	23.8	0.80
A6	10 Sep 2018	10	19.34	83.87	7.6	33.79	8.2	24.0	0.89
A6	10 Sep 2018	11	18.63	83.57	7.5	33.78	8.2	24.2	1.05
A6	10 Sep 2018	12	17.51	83.81	7.2	33.77	8.1	24.4	1.15
A6	10 Sep 2018	13	16.60	83.87	7.1	33.73	8.1	24.6	0.89
A6	10 Sep 2018	14	16.12	84.74	7.4	33.60	8.1	24.6	0.75
A6	10 Sep 2018	15	15.70	84.71	7.3	33.60	8.1	24.7	0.68
A6	10 Sep 2018	16	15.37	84.88	7.3	33.59	8.1	24.8	0.67
A6	10 Sep 2018	17	15.25	84.99	7.3	33.57	8.1	24.8	0.59
A6	10 Sep 2018	18	15.15	84.95	7.2	33.56	8.1	24.8	0.52
A6	10 Sep 2018	19	15.11	84.96	7.1	33.56	8.1	24.8	0.47
A6	10 Sep 2018	20	15.01	84.81	7.0	33.56	8.1	24.9	0.45
A6	10 Sep 2018	21	14.87	84.84	7.0	33.57	8.1	24.9	0.41
A6	17 Sep 2018	1	20.70	81.60	7.8	33.72	8.2	23.6	0.75
A6	17 Sep 2018	2	20.71	82.27	7.8	33.72	8.2	23.6	0.78
A6	17 Sep 2018	3	20.69	82.35	7.8	33.72	8.2	23.6	0.88
A6	17 Sep 2018	4	20.66	82.45	7.8	33.72	8.2	23.6	0.95
A6	17 Sep 2018	5	20.56	82.52	7.8	33.72	8.2	23.6	0.99
A6	17 Sep 2018	6	20.19	82.46	7.7	33.70	8.2	23.7	1.08
A6	17 Sep 2018	7	19.32	82.42	7.8	33.68	8.2	23.9	1.26
A6	17 Sep 2018	8	18.70	82.30	7.9	33.65	8.2	24.1	1.54
A6	17 Sep 2018	9	18.20	81.70	7.8	33.62	8.2	24.2	1.83
A6	17 Sep 2018	10	17.60	80.97	7.8	33.60	8.2	24.3	1.99
A6	17 Sep 2018	11	17.02	81.14	7.8	33.59	8.2	24.4	1.85
A6	17 Sep 2018	12	16.93	81.48	7.7	33.56	8.2	24.4	1.72
A6	17 Sep 2018	13	16.34	82.26	7.6	33.56	8.1	24.6	1.45
A6	17 Sep 2018	14	16.19	82.78	7.5	33.55	8.1	24.6	1.20
A6	17 Sep 2018	15	15.78	83.24	7.3	33.55	8.1	24.7	0.94
A6	17 Sep 2018	16	15.55	83.78	7.3	33.55	8.1	24.7	0.83
A6	17 Sep 2018	17	15.44	84.06	7.2	33.55	8.1	24.8	0.77
A6	17 Sep 2018	18	15.35	84.19	7.2	33.55	8.1	24.8	0.72
A6	17 Sep 2018	19	15.31	84.13	7.2	33.55	8.1	24.8	0.65
A6	24 Sep 2018	1	20.64	84.52	7.8	33.70	8.2	23.6	0.63
A6	24 Sep 2018	2	20.62	85.03	7.8	33.70	8.2	23.6	0.70
A6	24 Sep 2018	3	20.60	85.16	7.8	33.70	8.2	23.6	0.70
A6	24 Sep 2018	4	20.57	85.27	7.8	33.70	8.2	23.6	0.72
A6	24 Sep 2018	5	20.54	85.32	7.8	33.69	8.2	23.6	0.76
A6	24 Sep 2018	6	20.46	85.38	7.8	33.69	8.2	23.6	0.79
A6	24 Sep 2018	7	20.31	85.27	7.9	33.69	8.2	23.7	0.89
A6	24 Sep 2018	8	19.98	85.05	7.8	33.68	8.2	23.8	1.00
A6	24 Sep 2018	9	19.11	84.27	7.9	33.66	8.2	24.0	1.18
A6	24 Sep 2018	10	18.31	84.34	7.9	33.63	8.2	24.1	1.20
A6	24 Sep 2018	11	17.54	84.64	7.9	33.60	8.1	24.3	1.17
A6	24 Sep 2018	12	16.61	84.94	7.9	33.56	8.1	24.5	1.10
A6	24 Sep 2018	13	15.94	85.26	7.8	33.55	8.1	24.6	1.05
A6	24 Sep 2018	14	15.51	85.61	7.6	33.53	8.1	24.7	0.90
A6	24 Sep 2018	15	15.17	86.06	7.5	33.52	8.1	24.8	0.84
A6	24 Sep 2018	16	14.94	86.36	7.4	33.52	8.1	24.8	0.76
A6	24 Sep 2018	17	14.60	86.78	7.3	33.52	8.1	24.9	0.67
A6	24 Sep 2018	18	14.20	87.22	7.2	33.52	8.0	25.0	0.63
A6	24 Sep 2018	19	14.09	87.45	7.2	33.51	8.0	25.0	0.64

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
A6	24 Sep 2018	20	13.90	87.41	7.2	33.51	8.0	25.1	0.70
A6	24 Sep 2018	21	13.77	87.41	7.1	33.51	8.0	25.1	0.76
A7	04 Sep 2018	1	22.74	78.34	8.3	33.84	8.3	23.1	2.50
A7	04 Sep 2018	2	22.77	78.67	8.3	33.84	8.3	23.1	2.60
A7	04 Sep 2018	3	22.71	78.47	8.4	33.84	8.3	23.1	2.89
A7	04 Sep 2018	4	22.69	78.68	8.3	33.84	8.3	23.1	2.97
A7	04 Sep 2018	5	22.64	78.41	8.2	33.83	8.3	23.1	3.22
A7	04 Sep 2018	6	22.21	78.10	8.2	33.80	8.3	23.3	3.34
A7	04 Sep 2018	7	21.77	77.53	8.2	33.77	8.3	23.4	3.36
A7	04 Sep 2018	8	21.55	77.66	8.2	33.76	8.2	23.4	3.30
A7	04 Sep 2018	9	21.28	77.88	8.0	33.73	8.2	23.5	3.00
A7	04 Sep 2018	10	19.87	78.28	8.1	33.68	8.2	23.8	2.76
A7	04 Sep 2018	11	19.55	79.41	8.2	33.64	8.2	23.8	2.82
A7	04 Sep 2018	12	19.50	79.75	8.2	33.63	8.2	23.8	2.76
A7	04 Sep 2018	13	19.47	79.88	8.1	33.63	8.2	23.9	2.69
A7	04 Sep 2018	14	19.38	79.88	8.1	33.63	8.2	23.9	2.68
A7	04 Sep 2018	15	19.24	80.00	8.1	33.63	8.2	23.9	2.62
A7	04 Sep 2018	16	19.10	80.20	8.0	33.62	8.2	23.9	2.56
A7	04 Sep 2018	17	18.98	80.24	8.0	33.62	8.2	24.0	2.53
A7	04 Sep 2018	18	18.83	80.87	8.0	33.61	8.2	24.0	2.33
A7	04 Sep 2018	19	18.37	82.30	7.7	33.63	8.2	24.1	2.15
A7	04 Sep 2018	20	17.65	83.36	7.6	33.63	8.1	24.3	1.81
A7	10 Sep 2018	1	21.98	84.44	7.8	33.79	8.2	23.3	0.35
A7	10 Sep 2018	2	21.96	84.64	7.8	33.81	8.2	23.3	0.41
A7	10 Sep 2018	3	21.94	84.58	7.8	33.81	8.2	23.3	0.43
A7	10 Sep 2018	4	21.76	84.50	7.8	33.80	8.2	23.4	0.47
A7	10 Sep 2018	5	21.43	84.47	7.8	33.78	8.2	23.4	0.63
A7	10 Sep 2018	6	21.12	84.20	7.7	33.77	8.2	23.5	0.79
A7	10 Sep 2018	7	20.50	84.06	7.4	33.75	8.2	23.7	0.92
A7	10 Sep 2018	8	18.83	83.59	7.1	33.72	8.2	24.1	1.22
A7	10 Sep 2018	9	17.60	82.21	7.1	33.65	8.1	24.3	1.26
A7	10 Sep 2018	10	17.06	81.94	7.1	33.60	8.1	24.4	1.14
A7	10 Sep 2018	11	16.54	82.25	7.1	33.62	8.1	24.6	0.99
A7	10 Sep 2018	12	16.20	82.90	7.1	33.58	8.1	24.6	0.82
A7	10 Sep 2018	13	15.88	83.40	7.0	33.58	8.1	24.7	0.64
A7	10 Sep 2018	14	15.50	83.61	6.9	33.57	8.1	24.8	0.47
A7	10 Sep 2018	15	14.91	84.03	7.0	33.56	8.1	24.9	0.38
A7	10 Sep 2018	16	14.84	84.52	7.0	33.55	8.1	24.9	0.34
A7	10 Sep 2018	17	14.78	84.86	7.0	33.55	8.1	24.9	0.36
A7	10 Sep 2018	18	14.77	84.12	7.0	33.55	8.1	24.9	0.33
A7	17 Sep 2018	1	20.78	82.38	7.9	33.73	8.2	23.6	0.66
A7	17 Sep 2018	2	20.78	83.26	7.8	33.73	8.2	23.6	0.68
A7	17 Sep 2018	3	20.77	83.27	7.8	33.73	8.2	23.6	0.68
A7	17 Sep 2018	4	20.78	83.45	7.9	33.73	8.2	23.6	0.71
A7	17 Sep 2018	5	20.78	83.50	7.9	33.73	8.2	23.6	0.75
A7	17 Sep 2018	6	20.77	83.55	7.9	33.73	8.2	23.6	0.78
A7	17 Sep 2018	7	20.69	83.59	7.9	33.73	8.2	23.6	0.79
A7	17 Sep 2018	8	20.63	83.32	7.9	33.73	8.2	23.6	0.84
A7	17 Sep 2018	9	20.54	83.24	7.9	33.73	8.2	23.6	0.88
A7	17 Sep 2018	10	20.42	83.22	7.8	33.72	8.2	23.7	0.94
A7	17 Sep 2018	11	19.51	82.90	7.7	33.70	8.2	23.9	1.16
A7	17 Sep 2018	12	18.45	82.10	7.7	33.65	8.2	24.1	1.43

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
A7	17 Sep 2018	13	17.65	81.76	7.7	33.62	8.2	24.3	1.48
A7	17 Sep 2018	14	17.54	81.59	7.6	33.60	8.1	24.3	1.46
A7	17 Sep 2018	15	17.40	80.12	7.5	33.59	8.1	24.3	1.29
A7	17 Sep 2018	16	17.32	81.16	7.2	33.59	8.1	24.4	1.14
A7	17 Sep 2018	17	16.55	81.78	7.0	33.59	8.1	24.5	0.88
A7	17 Sep 2018	18	15.73	82.44	7.0	33.56	8.1	24.7	0.64
A7	17 Sep 2018	19	15.17	83.47	7.0	33.55	8.1	24.8	0.54
A7	24 Sep 2018	1	20.45	85.24	7.9	33.69	8.2	23.6	0.71
A7	24 Sep 2018	2	20.45	85.38	7.9	33.69	8.2	23.6	0.76
A7	24 Sep 2018	3	20.45	85.53	7.9	33.69	8.2	23.6	0.81
A7	24 Sep 2018	4	20.32	85.57	7.8	33.69	8.2	23.7	0.80
A7	24 Sep 2018	5	19.85	85.52	7.9	33.67	8.2	23.8	0.79
A7	24 Sep 2018	6	19.14	85.19	7.7	33.65	8.2	23.9	0.88
A7	24 Sep 2018	7	17.19	84.44	7.8	33.61	8.1	24.4	1.08
A7	24 Sep 2018	8	16.11	84.87	7.8	33.57	8.1	24.6	1.16
A7	24 Sep 2018	9	15.58	85.23	7.7	33.54	8.1	24.7	1.09
A7	24 Sep 2018	10	15.24	86.56	7.5	33.52	8.1	24.8	0.89
A7	24 Sep 2018	11	14.71	86.90	7.5	33.51	8.1	24.9	0.87
A7	24 Sep 2018	12	14.38	86.73	7.5	33.51	8.1	25.0	0.92
A7	24 Sep 2018	13	14.34	86.96	7.5	33.50	8.1	25.0	0.95
A7	24 Sep 2018	14	14.13	87.12	7.4	33.51	8.0	25.0	0.92
A7	24 Sep 2018	15	13.96	87.14	7.3	33.51	8.0	25.0	0.95
A7	24 Sep 2018	16	13.86	87.18	7.3	33.51	8.0	25.1	1.04
A7	24 Sep 2018	17	13.81	87.43	7.2	33.51	8.0	25.1	0.97
A7	24 Sep 2018	18	13.73	87.45	7.1	33.51	8.0	25.1	0.82
A7	24 Sep 2018	19	13.73	87.20	7.0	33.52	8.0	25.1	0.73
C4	04 Sep 2018	1	22.54	75.76	7.9	33.83	8.3	23.2	2.28
C4	04 Sep 2018	2	22.54	76.00	7.8	33.83	8.3	23.2	2.57
C4	04 Sep 2018	3	22.22	76.57	7.8	33.81	8.3	23.2	2.94
C4	04 Sep 2018	4	21.63	76.32	7.8	33.77	8.2	23.4	3.29
C4	04 Sep 2018	5	21.08	76.01	7.7	33.73	8.2	23.5	3.13
C4	04 Sep 2018	6	20.69	76.08	7.6	33.70	8.2	23.6	3.08
C4	04 Sep 2018	7	20.30	76.13	7.4	33.68	8.2	23.7	2.92
C4	04 Sep 2018	8	19.93	76.72	7.1	33.66	8.1	23.8	2.38
C4	04 Sep 2018	9	19.61	77.86	6.4	33.65	8.1	23.8	1.79
C4	04 Sep 2018	10	19.15	78.03	5.4	33.63	8.1	23.9	1.17
C4	04 Sep 2018	11	18.51	71.28	4.8	33.62	8.0	24.1	0.70
C4	04 Sep 2018	12	18.79	61.29	5.1	33.60	7.9	24.0	0.63
C4	10 Sep 2018	1	21.00	72.56	6.4	33.74	8.2	23.5	0.43
C4	10 Sep 2018	2	20.70	79.41	7.1	33.85	8.2	23.7	0.48
C4	10 Sep 2018	3	20.59	78.43	7.1	33.76	8.2	23.7	0.47
C4	10 Sep 2018	4	20.34	77.87	7.1	33.82	8.2	23.8	0.52
C4	10 Sep 2018	5	20.06	75.82	7.0	33.79	8.2	23.8	0.93
C4	10 Sep 2018	6	19.75	71.91	6.9	33.77	8.1	23.9	1.10
C4	10 Sep 2018	7	19.00	73.62	6.7	33.86	8.1	24.1	1.26
C4	10 Sep 2018	8	17.84	74.63	6.5	33.76	8.1	24.4	0.86
C4	10 Sep 2018	9	17.14	74.32	6.4	33.71	8.1	24.5	1.29
C4	10 Sep 2018	10	16.76	70.75	6.3	33.69	8.0	24.6	1.21
C4	10 Sep 2018	11	16.06	63.24	5.9	33.75	8.0	24.8	0.96
C4	17 Sep 2018	1	20.76	62.33	7.1	33.69	8.1	23.6	0.99
C4	17 Sep 2018	2	20.70	61.78	7.2	33.70	8.1	23.6	1.17

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
C4	17 Sep 2018	3	20.58	69.63	7.4	33.70	8.2	23.6	1.44
C4	17 Sep 2018	4	20.33	72.19	7.6	33.70	8.2	23.7	1.67
C4	17 Sep 2018	5	20.23	74.46	7.5	33.69	8.2	23.7	1.80
C4	17 Sep 2018	6	19.59	74.75	7.3	33.67	8.2	23.9	1.72
C4	17 Sep 2018	7	18.66	71.18	7.2	33.64	8.2	24.1	1.40
C4	17 Sep 2018	8	18.37	73.90	6.8	33.63	8.1	24.1	1.19
C4	17 Sep 2018	9	16.96	72.39	6.3	33.59	8.1	24.4	0.68
C4	17 Sep 2018	10	16.21	70.55	6.1	33.56	8.1	24.6	0.39
C4	17 Sep 2018	11	15.86	63.06	6.1	33.54	8.0	24.7	0.31
C4	24 Sep 2018	1	20.23	82.74	8.0	33.69	8.2	23.7	0.85
C4	24 Sep 2018	2	20.22	83.27	8.0	33.69	8.2	23.7	0.92
C4	24 Sep 2018	3	20.20	83.36	7.8	33.69	8.2	23.7	0.96
C4	24 Sep 2018	4	19.97	83.40	7.4	33.68	8.2	23.8	0.87
C4	24 Sep 2018	5	18.42	80.66	6.8	33.65	8.2	24.1	0.62
C4	24 Sep 2018	6	16.37	74.43	6.6	33.60	8.1	24.6	0.51
C4	24 Sep 2018	7	15.50	79.46	6.7	33.55	8.0	24.7	0.49
C4	24 Sep 2018	8	15.07	81.14	6.9	33.52	8.0	24.8	0.51
C4	24 Sep 2018	9	14.80	82.37	7.2	33.51	8.0	24.9	0.58
C4	24 Sep 2018	10	14.64	83.07	7.2	33.50	8.1	24.9	0.57
C4	24 Sep 2018	11	14.49	82.47	7.2	33.49	8.0	24.9	0.54
C4	24 Sep 2018	12	14.72	80.65	7.2	33.50	8.0	24.9	0.49
C5	04 Sep 2018	1	22.65	75.56	7.7	33.83	8.2	23.1	2.57
C5	04 Sep 2018	2	22.66	76.26	7.7	33.83	8.2	23.1	2.84
C5	04 Sep 2018	3	22.61	76.24	7.5	33.83	8.2	23.2	3.00
C5	04 Sep 2018	4	22.24	76.33	7.2	33.81	8.2	23.2	3.19
C5	04 Sep 2018	5	21.32	77.67	7.2	33.76	8.2	23.5	2.99
C5	04 Sep 2018	6	20.33	78.67	7.5	33.70	8.2	23.7	2.83
C5	04 Sep 2018	7	19.63	79.44	7.7	33.65	8.2	23.8	2.56
C5	04 Sep 2018	8	19.26	80.63	7.7	33.62	8.2	23.9	2.20
C5	04 Sep 2018	9	18.95	81.82	7.4	33.62	8.1	24.0	1.78
C5	04 Sep 2018	10	18.80	82.17	7.2	33.61	8.1	24.0	1.50
C5	04 Sep 2018	11	18.20	81.52	7.0	33.60	8.1	24.2	1.04
C5	10 Sep 2018	1	21.10	82.27	6.4	33.73	8.2	23.5	0.85
C5	10 Sep 2018	2	20.94	82.56	6.8	33.83	8.2	23.6	0.93
C5	10 Sep 2018	3	20.82	82.05	7.4	33.80	8.2	23.6	0.88
C5	10 Sep 2018	4	20.75	81.30	7.6	33.78	8.2	23.6	0.78
C5	10 Sep 2018	5	20.70	80.98	7.6	33.77	8.2	23.6	0.74
C5	10 Sep 2018	6	20.66	80.50	7.7	33.76	8.2	23.6	0.93
C5	10 Sep 2018	7	20.45	77.82	7.5	33.79	8.2	23.7	1.29
C5	10 Sep 2018	8	20.04	71.72	7.0	33.79	8.1	23.8	1.54
C5	10 Sep 2018	9	19.23	72.79	6.5	33.82	8.1	24.1	1.28
C5	10 Sep 2018	10	18.42	71.01	6.1	33.73	8.0	24.2	1.33
C5	10 Sep 2018	11	18.45	65.10	5.8	33.59	8.1	24.1	0.95
C5	17 Sep 2018	1	20.72	71.28	7.3	33.71	8.2	23.6	0.92
C5	17 Sep 2018	2	20.63	74.50	7.5	33.71	8.2	23.6	1.09
C5	17 Sep 2018	3	20.49	74.89	7.7	33.71	8.2	23.6	1.33
C5	17 Sep 2018	4	20.49	75.87	7.7	33.71	8.2	23.6	1.44
C5	17 Sep 2018	5	20.27	76.31	7.6	33.70	8.2	23.7	1.70
C5	17 Sep 2018	6	19.48	76.22	7.4	33.66	8.2	23.9	1.88
C5	17 Sep 2018	7	18.77	76.58	6.7	33.64	8.2	24.0	1.43
C5	17 Sep 2018	8	17.49	77.20	6.8	33.60	8.1	24.3	1.05

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
C5	17 Sep 2018	9	17.24	75.95	6.6	33.58	8.1	24.4	0.98
C5	17 Sep 2018	10	16.67	70.38	6.4	33.57	8.1	24.5	0.55
C5	17 Sep 2018	11	16.59	66.27	6.5	33.57	8.1	24.5	0.45
C5	24 Sep 2018	1	20.36	83.11	8.0	33.67	8.2	23.7	0.67
C5	24 Sep 2018	2	20.35	84.53	8.0	33.69	8.2	23.7	0.73
C5	24 Sep 2018	3	20.34	84.55	7.9	33.69	8.2	23.7	0.77
C5	24 Sep 2018	4	20.30	84.35	7.9	33.69	8.2	23.7	0.77
C5	24 Sep 2018	5	20.12	83.92	7.7	33.68	8.2	23.7	0.74
C5	24 Sep 2018	6	18.40	82.87	7.4	33.67	8.2	24.1	0.76
C5	24 Sep 2018	7	16.45	82.18	7.5	33.60	8.1	24.6	0.70
C5	24 Sep 2018	8	15.89	82.42	7.3	33.55	8.1	24.7	0.53
C5	24 Sep 2018	9	15.59	82.16	7.2	33.53	8.1	24.7	0.43
C5	24 Sep 2018	10	15.68	80.76	7.3	33.52	8.1	24.7	0.38
C6	04 Sep 2018	1	22.75	77.13	8.0	33.84	8.3	23.1	2.51
C6	04 Sep 2018	2	22.75	77.33	8.0	33.84	8.3	23.1	2.69
C6	04 Sep 2018	3	22.75	77.36	8.0	33.84	8.3	23.1	2.86
C6	04 Sep 2018	4	22.74	76.96	8.0	33.84	8.3	23.1	3.09
C6	04 Sep 2018	5	22.72	76.88	7.8	33.84	8.3	23.1	3.21
C6	04 Sep 2018	6	22.34	76.91	7.5	33.81	8.3	23.2	3.45
C6	04 Sep 2018	7	21.13	78.77	6.9	33.77	8.2	23.5	2.90
C6	04 Sep 2018	8	19.84	80.52	6.4	33.70	8.1	23.8	1.90
C6	04 Sep 2018	9	19.24	79.25	5.9	33.66	8.1	23.9	1.14
C6	04 Sep 2018	10	19.28	77.03	6.2	33.63	8.0	23.9	0.82
C6	10 Sep 2018	1	21.07	84.60	7.8	33.75	8.2	23.5	0.52
C6	10 Sep 2018	2	21.00	84.13	7.8	33.76	8.2	23.6	0.48
C6	10 Sep 2018	3	20.86	83.61	7.8	33.75	8.2	23.6	0.57
C6	10 Sep 2018	4	20.82	83.36	7.8	33.75	8.2	23.6	0.81
C6	10 Sep 2018	5	20.77	82.71	7.8	33.75	8.2	23.6	1.04
C6	10 Sep 2018	6	20.69	81.43	7.7	33.74	8.2	23.6	1.34
C6	10 Sep 2018	7	20.56	79.54	7.4	33.74	8.2	23.7	1.62
C6	10 Sep 2018	8	20.27	77.65	6.9	33.73	8.2	23.7	1.74
C6	10 Sep 2018	9	19.44	75.61	6.3	33.72	8.1	23.9	1.30
C6	10 Sep 2018	10	18.51	72.66	6.1	33.67	8.1	24.1	0.74
C6	17 Sep 2018	1	20.62	78.02	7.8	33.71	8.2	23.6	0.94
C6	17 Sep 2018	2	20.60	78.11	7.8	33.72	8.2	23.6	1.07
C6	17 Sep 2018	3	20.58	77.84	7.8	33.71	8.2	23.6	1.22
C6	17 Sep 2018	4	20.50	76.86	7.7	33.71	8.2	23.6	1.45
C6	17 Sep 2018	5	20.45	75.56	7.7	33.71	8.2	23.7	1.66
C6	17 Sep 2018	6	20.46	74.80	7.6	33.71	8.2	23.7	1.73
C6	17 Sep 2018	7	20.16	75.33	7.4	33.71	8.2	23.7	1.76
C6	17 Sep 2018	8	19.63	77.24	7.2	33.68	8.2	23.9	1.69
C6	17 Sep 2018	9	18.15	76.00	6.9	33.69	8.1	24.2	1.34
C6	17 Sep 2018	10	17.23	72.40	6.9	33.59	8.1	24.4	0.80
C6	24 Sep 2018	1	20.43	83.20	8.1	33.70	8.2	23.7	0.96
C6	24 Sep 2018	2	20.44	84.15	8.1	33.70	8.2	23.7	1.00
C6	24 Sep 2018	3	20.43	84.24	8.1	33.70	8.2	23.7	1.06
C6	24 Sep 2018	4	20.42	84.23	8.0	33.70	8.2	23.7	1.07
C6	24 Sep 2018	5	20.20	84.16	7.7	33.69	8.2	23.7	1.11
C6	24 Sep 2018	6	18.89	82.92	7.7	33.66	8.2	24.0	1.20
C6	24 Sep 2018	7	17.70	82.96	7.7	33.62	8.2	24.3	1.19

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
C6	24 Sep 2018	8	16.72	84.96	7.6	33.58	8.1	24.5	0.90
C6	24 Sep 2018	9	16.32	85.38	7.5	33.56	8.1	24.6	0.59
C6	24 Sep 2018	10	15.86	84.94	7.3	33.55	8.1	24.7	0.37
C6	24 Sep 2018	11	16.09	84.53	7.6	33.52	8.1	24.6	0.31
C7	04 Sep 2018	1	22.70	78.47	8.4	33.83	8.3	23.1	2.67
C7	04 Sep 2018	2	22.71	78.54	8.4	33.83	8.3	23.1	2.73
C7	04 Sep 2018	3	22.71	78.70	8.4	33.83	8.3	23.1	2.80
C7	04 Sep 2018	4	22.71	78.81	8.4	33.83	8.3	23.1	2.67
C7	04 Sep 2018	5	22.70	78.51	8.3	33.83	8.3	23.1	3.15
C7	04 Sep 2018	6	22.46	78.27	8.2	33.81	8.3	23.2	3.55
C7	04 Sep 2018	7	21.68	78.72	8.2	33.75	8.3	23.4	3.55
C7	04 Sep 2018	8	21.44	79.03	8.1	33.73	8.2	23.4	3.39
C7	04 Sep 2018	9	21.04	79.52	7.9	33.72	8.2	23.5	3.16
C7	04 Sep 2018	10	20.11	80.08	7.8	33.69	8.2	23.7	2.83
C7	04 Sep 2018	11	19.40	80.54	7.8	33.65	8.2	23.9	2.60
C7	04 Sep 2018	12	18.40	81.06	7.7	33.61	8.2	24.1	2.30
C7	04 Sep 2018	13	17.45	81.78	7.6	33.58	8.1	24.3	1.82
C7	04 Sep 2018	14	16.64	82.66	7.6	33.56	8.1	24.5	1.48
C7	04 Sep 2018	15	16.50	83.03	7.7	33.54	8.1	24.5	1.39
C7	04 Sep 2018	16	16.07	83.45	7.6	33.53	8.1	24.6	1.21
C7	04 Sep 2018	17	15.73	83.90	7.5	33.53	8.1	24.7	0.90
C7	04 Sep 2018	18	15.80	82.73	7.5	33.52	8.1	24.7	0.76
C7	10 Sep 2018	1	21.05	83.14	7.8	33.75	8.2	23.5	0.68
C7	10 Sep 2018	2	20.86	83.05	7.8	33.76	8.2	23.6	0.74
C7	10 Sep 2018	3	20.67	82.97	7.8	33.75	8.2	23.6	0.80
C7	10 Sep 2018	4	20.24	83.10	7.8	33.73	8.2	23.7	0.79
C7	10 Sep 2018	5	19.38	83.34	7.9	33.72	8.2	23.9	0.91
C7	10 Sep 2018	6	19.12	83.69	8.0	33.67	8.2	24.0	0.98
C7	10 Sep 2018	7	19.11	83.74	8.0	33.66	8.2	24.0	1.07
C7	10 Sep 2018	8	18.95	83.74	7.9	33.67	8.2	24.0	1.08
C7	10 Sep 2018	9	18.53	83.83	7.9	33.65	8.2	24.1	1.14
C7	10 Sep 2018	10	17.69	84.00	7.9	33.64	8.2	24.3	1.10
C7	10 Sep 2018	11	17.33	84.26	8.0	33.60	8.2	24.4	1.16
C7	10 Sep 2018	12	17.18	84.25	7.9	33.59	8.1	24.4	1.20
C7	10 Sep 2018	13	16.39	84.42	7.9	33.58	8.1	24.6	1.17
C7	10 Sep 2018	14	15.91	84.80	7.9	33.55	8.1	24.7	1.08
C7	10 Sep 2018	15	15.81	84.89	7.8	33.54	8.1	24.7	1.00
C7	10 Sep 2018	16	15.67	84.98	7.7	33.55	8.1	24.7	1.00
C7	10 Sep 2018	17	15.07	84.88	7.3	33.56	8.1	24.8	0.76
C7	10 Sep 2018	18	14.61	83.46	7.2	33.53	8.1	24.9	0.49
C7	10 Sep 2018	19	14.64	80.97	7.2	33.52	8.1	24.9	0.31
C7	17 Sep 2018	1	21.24	84.02	7.8	33.76	8.2	23.5	0.65
C7	17 Sep 2018	2	21.24	84.27	7.8	33.76	8.2	23.5	0.71
C7	17 Sep 2018	3	21.05	84.15	7.7	33.75	8.2	23.5	0.80
C7	17 Sep 2018	4	19.91	84.12	7.9	33.71	8.2	23.8	0.94
C7	17 Sep 2018	5	19.54	83.84	7.8	33.66	8.2	23.9	1.04
C7	17 Sep 2018	6	17.66	83.21	8.0	33.62	8.2	24.3	1.33
C7	17 Sep 2018	7	17.34	83.39	8.1	33.59	8.2	24.3	1.52
C7	17 Sep 2018	8	17.19	83.44	8.0	33.58	8.2	24.4	1.64
C7	17 Sep 2018	9	16.42	83.24	8.0	33.56	8.2	24.5	1.66
C7	17 Sep 2018	10	16.26	83.15	8.0	33.55	8.2	24.6	1.74
C7	17 Sep 2018	11	16.22	83.12	8.0	33.55	8.1	24.6	1.81

Station	Date	Depth (m)	Temp (°C)	XMS (‰)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
C7	17 Sep 2018	12	16.14	82.87	7.9	33.55	8.1	24.6	1.78
C7	17 Sep 2018	13	16.09	82.91	7.9	33.55	8.1	24.6	1.79
C7	17 Sep 2018	14	15.96	82.83	7.7	33.55	8.1	24.6	1.64
C7	17 Sep 2018	15	15.94	82.43	7.7	33.55	8.1	24.7	1.62
C7	17 Sep 2018	16	15.82	82.11	7.4	33.56	8.1	24.7	1.52
C7	17 Sep 2018	17	14.91	83.23	7.3	33.55	8.1	24.9	1.00
C7	17 Sep 2018	18	14.87	83.38	7.4	33.52	8.1	24.9	0.63
C7	24 Sep 2018	1	20.75	84.05	7.8	33.70	8.2	23.6	0.71
C7	24 Sep 2018	2	20.75	84.15	7.7	33.71	8.2	23.6	0.77
C7	24 Sep 2018	3	20.74	84.40	7.7	33.70	8.2	23.6	0.78
C7	24 Sep 2018	4	20.62	84.17	7.7	33.71	8.2	23.6	0.86
C7	24 Sep 2018	5	20.51	83.05	7.7	33.70	8.2	23.6	0.89
C7	24 Sep 2018	6	20.47	83.09	7.7	33.70	8.2	23.6	0.89
C7	24 Sep 2018	7	20.26	83.12	7.7	33.69	8.2	23.7	0.86
C7	24 Sep 2018	8	20.12	83.83	7.7	33.68	8.2	23.7	0.88
C7	24 Sep 2018	9	19.16	84.03	7.8	33.66	8.2	24.0	1.07
C7	24 Sep 2018	10	18.27	83.33	8.0	33.62	8.2	24.1	1.25
C7	24 Sep 2018	11	17.74	83.99	8.0	33.60	8.1	24.3	1.29
C7	24 Sep 2018	12	17.14	83.93	8.0	33.57	8.1	24.4	1.23
C7	24 Sep 2018	13	16.71	82.57	8.0	33.57	8.1	24.5	1.15
C7	24 Sep 2018	14	16.41	83.09	8.0	33.55	8.1	24.5	1.10
C7	24 Sep 2018	15	16.01	83.17	7.9	33.56	8.1	24.6	1.05
C7	24 Sep 2018	16	15.83	84.98	7.8	33.53	8.1	24.7	1.05
C7	24 Sep 2018	17	15.28	86.06	7.7	33.53	8.1	24.8	0.98
C7	24 Sep 2018	18	15.07	86.49	7.7	33.53	8.1	24.8	0.85
C7	24 Sep 2018	19	15.22	86.39	7.7	33.53	8.1	24.8	0.78
C8	04 Sep 2018	1	22.81	77.44	8.2	33.84	8.3	23.1	2.70
C8	04 Sep 2018	2	22.81	78.02	8.2	33.85	8.3	23.1	2.94
C8	04 Sep 2018	3	22.81	78.09	8.2	33.85	8.3	23.1	2.99
C8	04 Sep 2018	4	22.81	78.40	8.2	33.85	8.3	23.1	3.05
C8	04 Sep 2018	5	22.81	78.23	8.2	33.85	8.3	23.1	3.19
C8	04 Sep 2018	6	22.61	78.21	8.0	33.82	8.3	23.2	3.42
C8	04 Sep 2018	7	22.16	78.86	8.1	33.78	8.3	23.2	3.45
C8	04 Sep 2018	8	21.79	78.96	8.1	33.75	8.3	23.3	3.44
C8	04 Sep 2018	9	21.36	78.93	8.0	33.74	8.2	23.4	3.40
C8	04 Sep 2018	10	20.53	79.79	7.7	33.71	8.2	23.6	2.98
C8	04 Sep 2018	11	19.61	80.40	7.6	33.67	8.2	23.8	2.60
C8	04 Sep 2018	12	18.91	80.79	7.7	33.63	8.2	24.0	2.36
C8	04 Sep 2018	13	18.60	81.23	7.6	33.61	8.2	24.1	2.09
C8	04 Sep 2018	14	17.94	81.96	7.6	33.60	8.1	24.2	1.74
C8	04 Sep 2018	15	17.27	82.55	7.6	33.57	8.1	24.4	1.50
C8	04 Sep 2018	16	16.38	83.37	7.5	33.56	8.1	24.6	1.21
C8	04 Sep 2018	17	15.89	83.73	7.5	33.54	8.1	24.6	0.91
C8	04 Sep 2018	18	15.67	83.73	7.4	33.53	8.1	24.7	0.75
C8	04 Sep 2018	19	15.02	83.76	7.5	33.53	8.1	24.8	0.66
C8	04 Sep 2018	20	14.89	84.10	7.7	33.50	8.1	24.8	0.62
C8	10 Sep 2018	1	20.73	82.64	6.9	33.74	8.2	23.6	0.67
C8	10 Sep 2018	2	20.72	83.03	7.5	33.74	8.2	23.6	0.67
C8	10 Sep 2018	3	20.68	82.94	7.7	33.75	8.2	23.6	0.74
C8	10 Sep 2018	4	20.50	82.82	7.7	33.76	8.2	23.7	0.78
C8	10 Sep 2018	5	20.36	82.93	7.7	33.75	8.2	23.7	0.92
C8	10 Sep 2018	6	20.22	83.13	7.8	33.73	8.2	23.7	1.02

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
C8	10 Sep 2018	7	19.84	83.10	7.7	33.76	8.2	23.9	1.18
C8	10 Sep 2018	8	19.03	83.32	7.8	33.72	8.2	24.0	1.16
C8	10 Sep 2018	9	18.84	83.67	7.8	33.68	8.2	24.0	1.17
C8	10 Sep 2018	10	18.15	83.95	7.8	33.70	8.2	24.2	1.01
C8	10 Sep 2018	11	17.09	84.21	7.9	33.65	8.1	24.5	1.12
C8	10 Sep 2018	12	16.50	84.56	7.8	33.60	8.1	24.6	1.11
C8	10 Sep 2018	13	16.00	84.50	7.8	33.61	8.1	24.7	1.10
C8	10 Sep 2018	14	15.69	84.67	7.9	33.60	8.1	24.7	1.14
C8	10 Sep 2018	15	15.40	84.35	7.8	33.59	8.1	24.8	1.17
C8	10 Sep 2018	16	15.30	84.27	7.7	33.56	8.1	24.8	1.09
C8	10 Sep 2018	17	15.14	83.96	7.5	33.57	8.1	24.8	0.99
C8	10 Sep 2018	18	14.63	82.02	7.3	33.58	8.1	25.0	0.77
C8	10 Sep 2018	19	14.36	76.52	7.2	33.55	8.1	25.0	0.58
C8	10 Sep 2018	20	14.65	77.96	7.3	33.51	8.1	24.9	0.42
C8	17 Sep 2018	1	21.07	84.18	7.8	33.75	8.2	23.5	0.67
C8	17 Sep 2018	2	21.08	84.35	7.8	33.75	8.2	23.5	0.71
C8	17 Sep 2018	3	21.08	83.96	7.8	33.75	8.2	23.5	0.76
C8	17 Sep 2018	4	21.04	83.91	7.8	33.75	8.2	23.5	0.84
C8	17 Sep 2018	5	20.99	83.64	7.8	33.74	8.2	23.5	0.92
C8	17 Sep 2018	6	20.93	83.50	7.9	33.74	8.2	23.6	0.92
C8	17 Sep 2018	7	20.66	83.44	7.9	33.73	8.2	23.6	0.96
C8	17 Sep 2018	8	20.01	83.53	7.8	33.70	8.2	23.8	1.07
C8	17 Sep 2018	9	18.85	83.60	8.0	33.66	8.2	24.0	1.21
C8	17 Sep 2018	10	18.18	83.42	8.0	33.62	8.2	24.2	1.35
C8	17 Sep 2018	11	17.41	83.57	8.0	33.59	8.2	24.3	1.64
C8	17 Sep 2018	12	16.84	83.35	8.0	33.57	8.2	24.5	1.86
C8	17 Sep 2018	13	16.34	83.58	8.1	33.55	8.2	24.6	1.95
C8	17 Sep 2018	14	16.34	83.66	8.1	33.55	8.2	24.6	1.95
C8	17 Sep 2018	15	16.10	84.07	8.1	33.55	8.2	24.6	2.01
C8	17 Sep 2018	16	15.95	84.24	8.0	33.54	8.2	24.6	2.03
C8	17 Sep 2018	17	15.49	84.32	7.7	33.55	8.2	24.7	1.83
C8	17 Sep 2018	18	14.62	83.93	7.4	33.53	8.1	24.9	1.03
C8	17 Sep 2018	19	14.50	83.28	7.4	33.52	8.1	24.9	0.76
C8	17 Sep 2018	20	14.51	82.88	7.4	33.52	8.1	24.9	0.74
C8	24 Sep 2018	1	20.87	86.53	7.8	33.69	8.2	23.5	0.32
C8	24 Sep 2018	2	20.86	86.50	7.8	33.70	8.2	23.5	0.36
C8	24 Sep 2018	3	20.83	86.77	7.7	33.69	8.2	23.5	0.37
C8	24 Sep 2018	4	20.32	86.72	7.9	33.67	8.2	23.7	0.42
C8	24 Sep 2018	5	19.68	86.49	8.1	33.64	8.2	23.8	0.47
C8	24 Sep 2018	6	19.00	85.69	8.2	33.61	8.2	24.0	0.58
C8	24 Sep 2018	7	18.97	84.20	8.2	33.61	8.2	24.0	0.71
C8	24 Sep 2018	8	18.93	82.86	8.1	33.62	8.2	24.0	0.81
C8	24 Sep 2018	9	18.90	82.66	8.0	33.62	8.2	24.0	0.93
C8	24 Sep 2018	10	18.76	82.49	8.0	33.62	8.1	24.0	0.91
C8	24 Sep 2018	11	18.05	83.48	8.2	33.60	8.2	24.2	0.85
C8	24 Sep 2018	12	17.55	84.83	8.3	33.57	8.2	24.3	0.81
C8	24 Sep 2018	13	17.08	85.30	8.3	33.55	8.2	24.4	0.81
C8	24 Sep 2018	14	16.73	85.41	8.2	33.55	8.1	24.5	0.82
C8	24 Sep 2018	15	16.35	85.18	8.1	33.55	8.1	24.5	0.85
C8	24 Sep 2018	16	16.04	85.35	8.1	33.54	8.1	24.6	0.84
C8	24 Sep 2018	17	15.87	85.64	8.0	33.53	8.1	24.6	0.87
C8	24 Sep 2018	18	15.60	85.81	7.7	33.53	8.1	24.7	0.80
C8	24 Sep 2018	19	14.99	85.98	7.6	33.54	8.1	24.8	0.65

Station	Date	Depth (m)	Temp (°C)	XMS (%)	DO (mg/L)	Sal (ppt)	pH	Dens (σ -t)	Chlor (μ g/L)
C8	24 Sep 2018	20	15.17	86.13	7.6	33.51	8.1	24.8	0.60

NA = not available

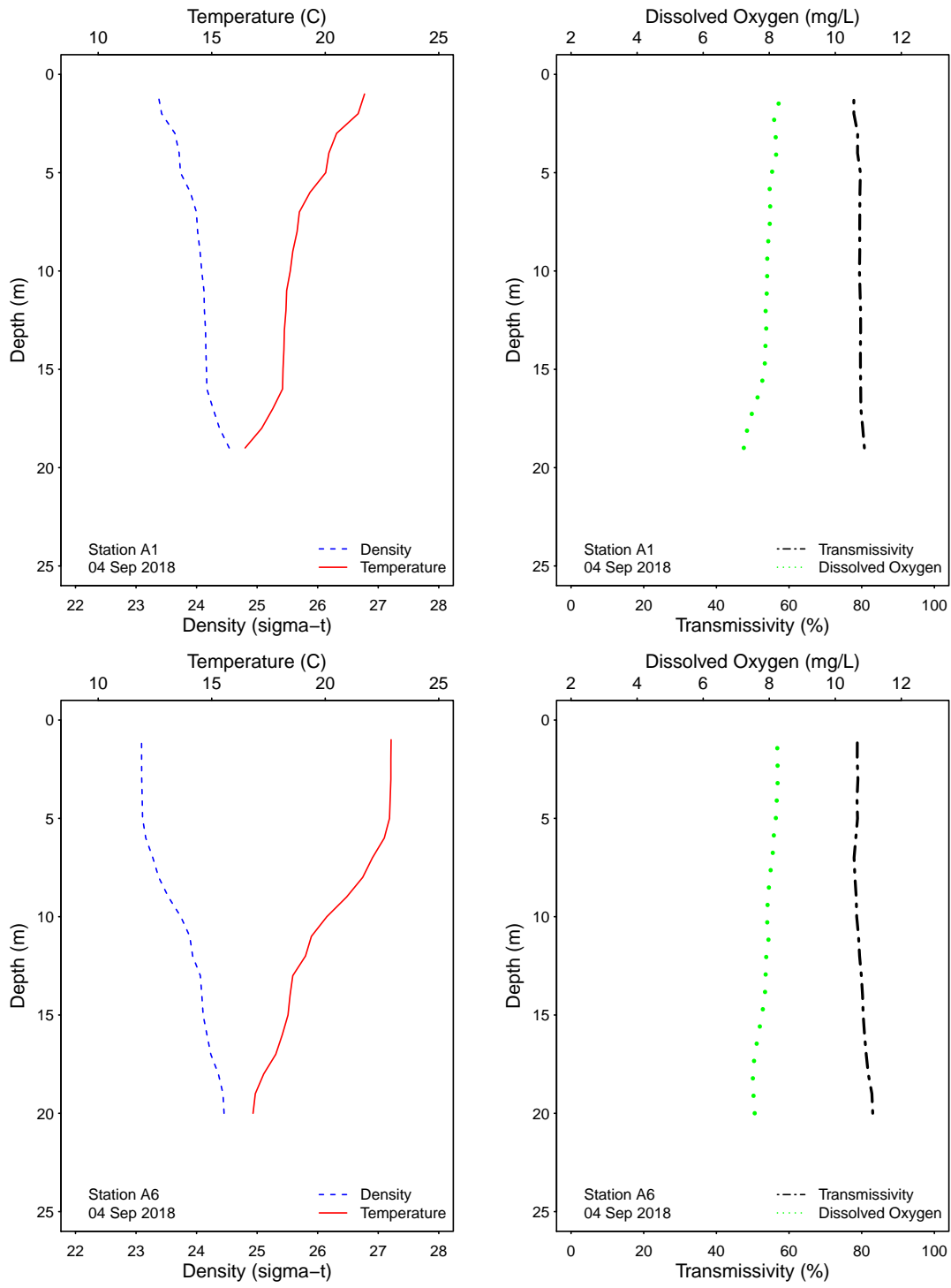


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

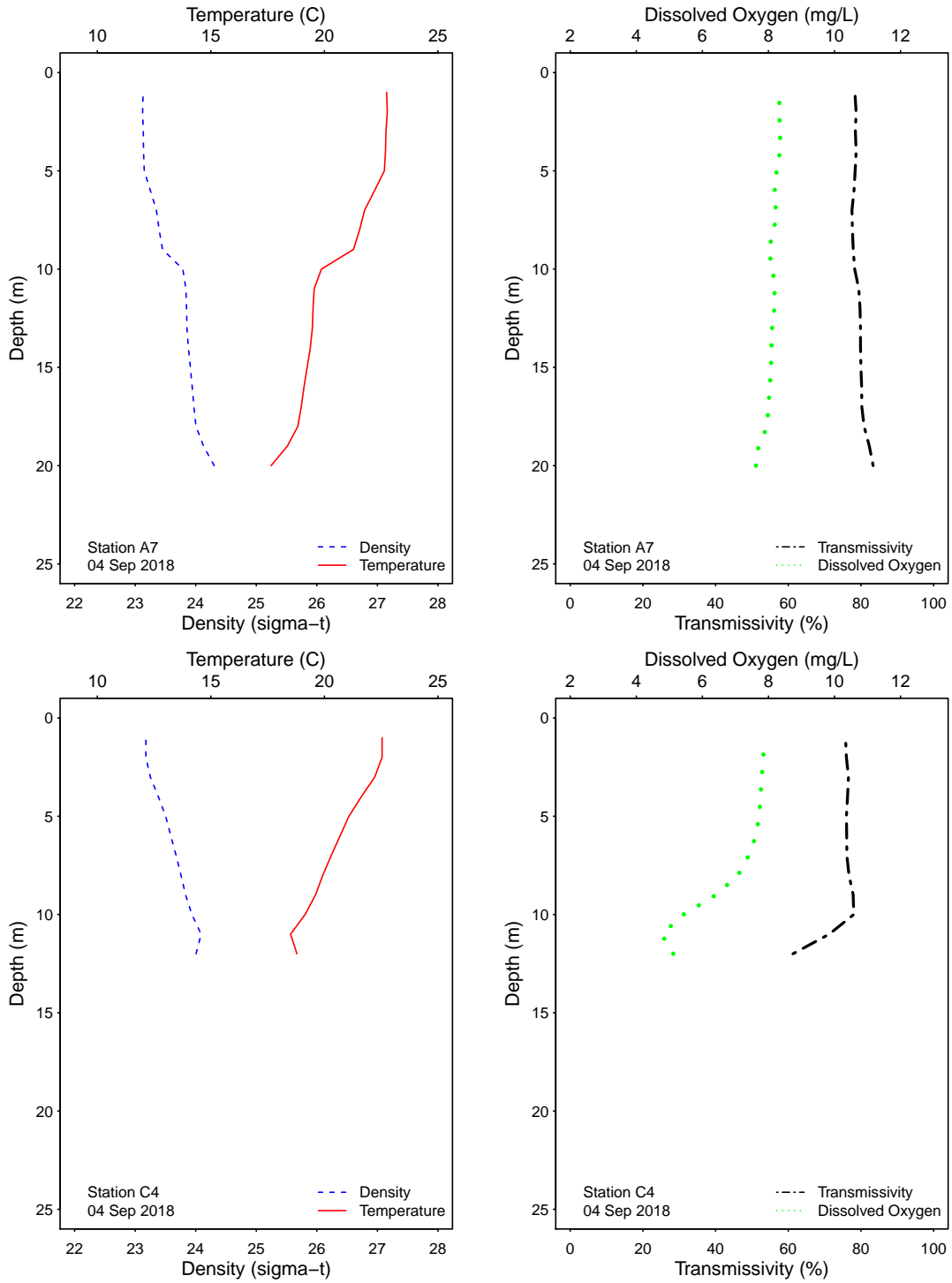


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

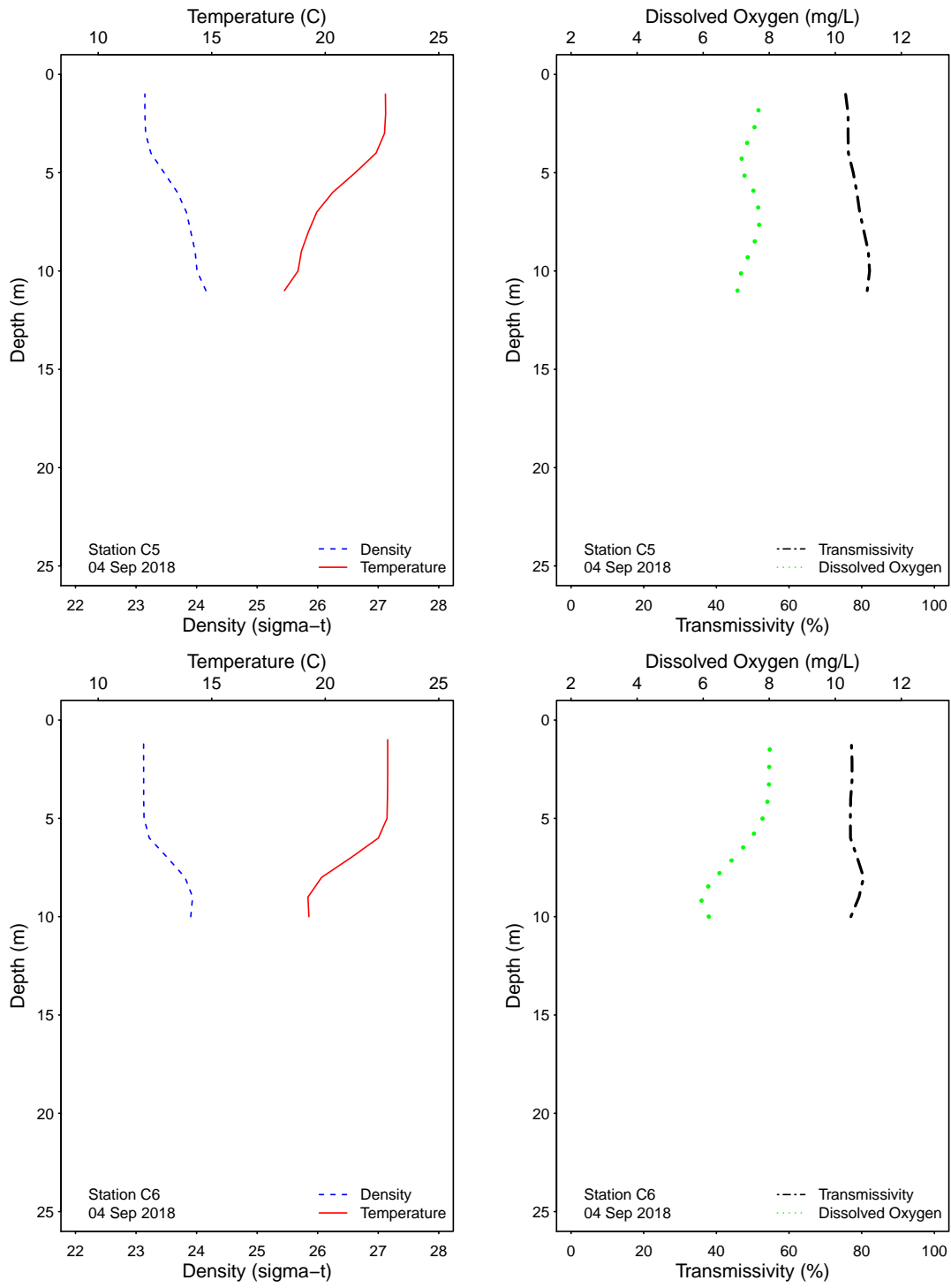


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

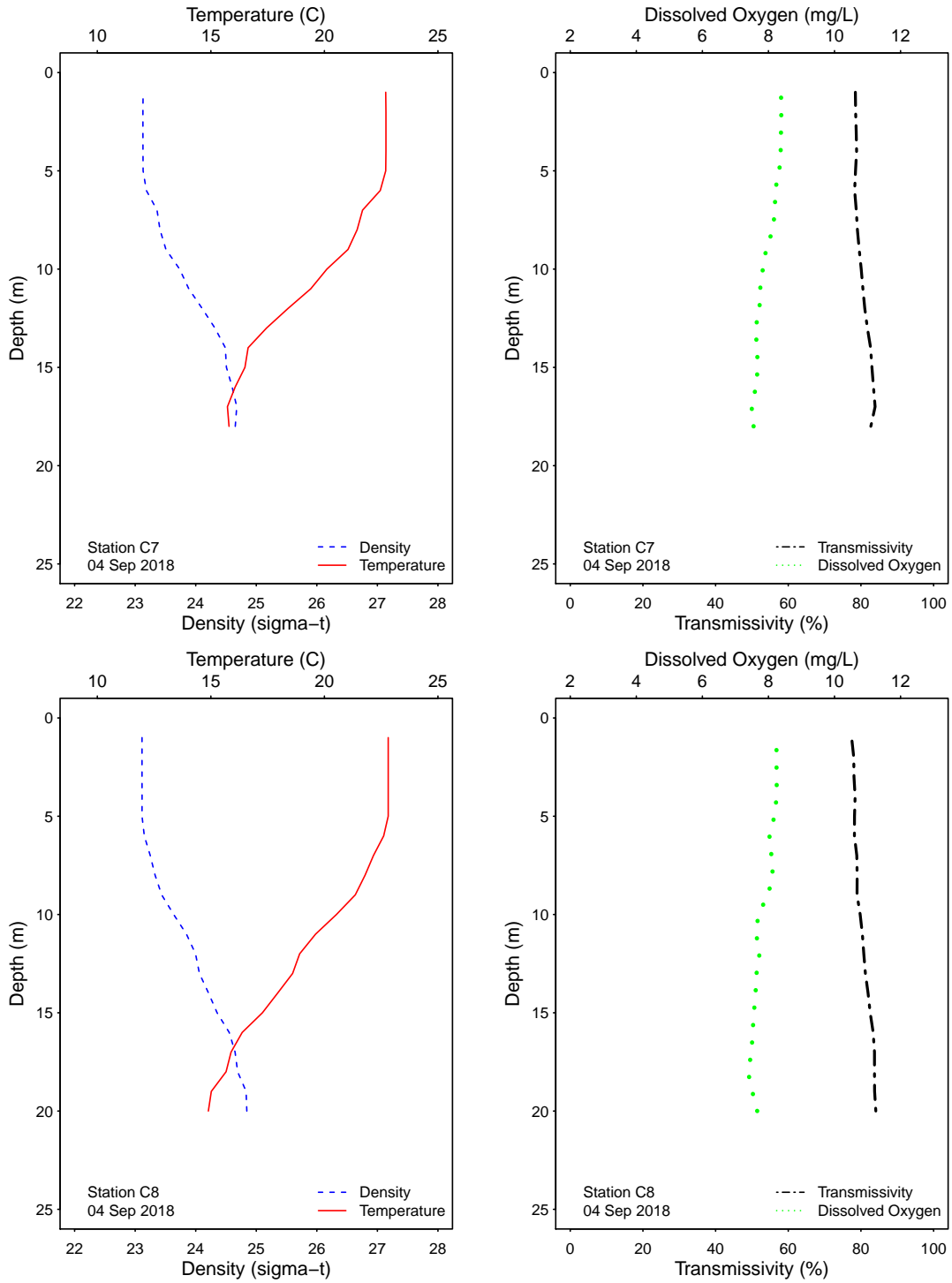


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

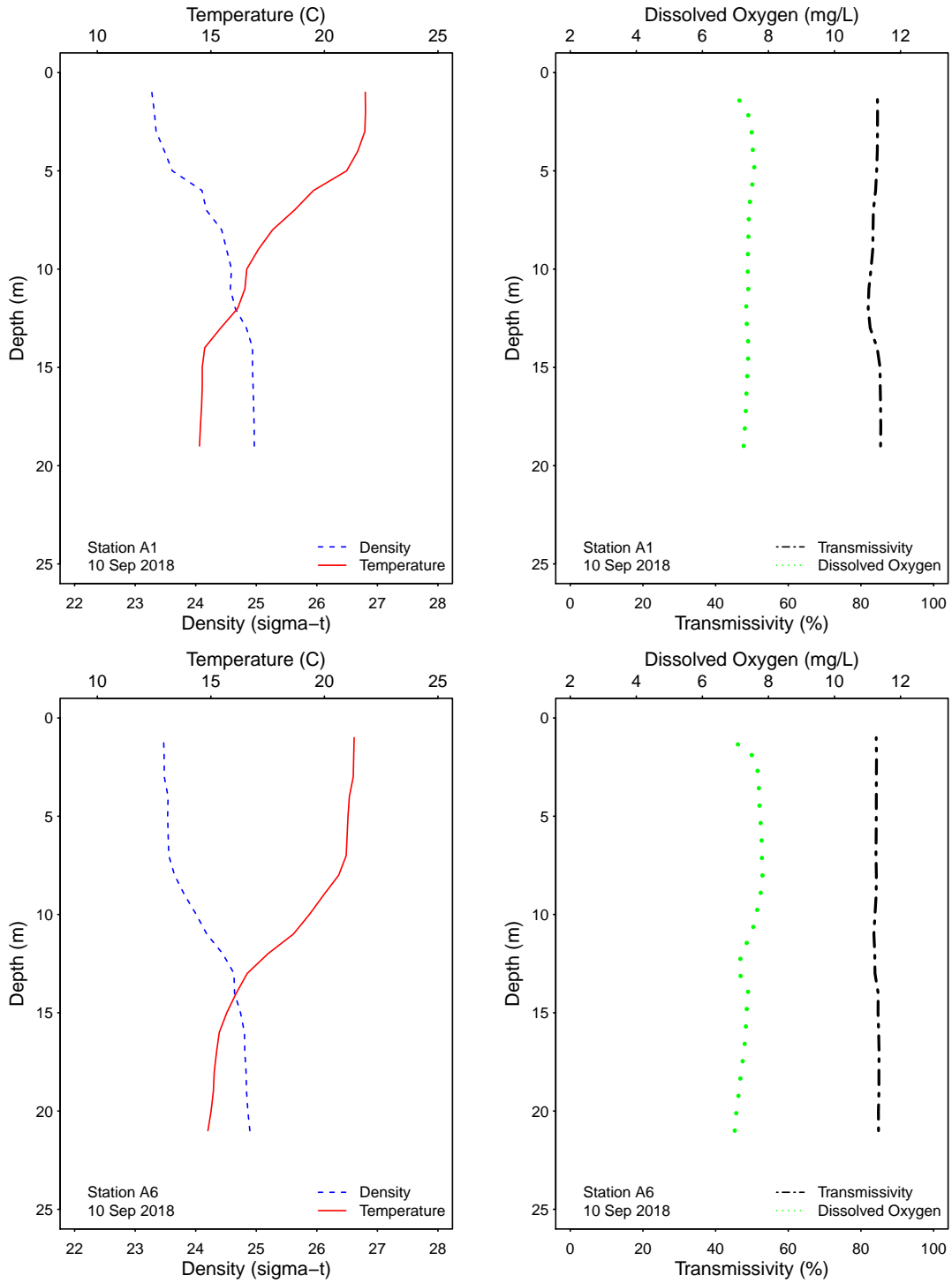


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

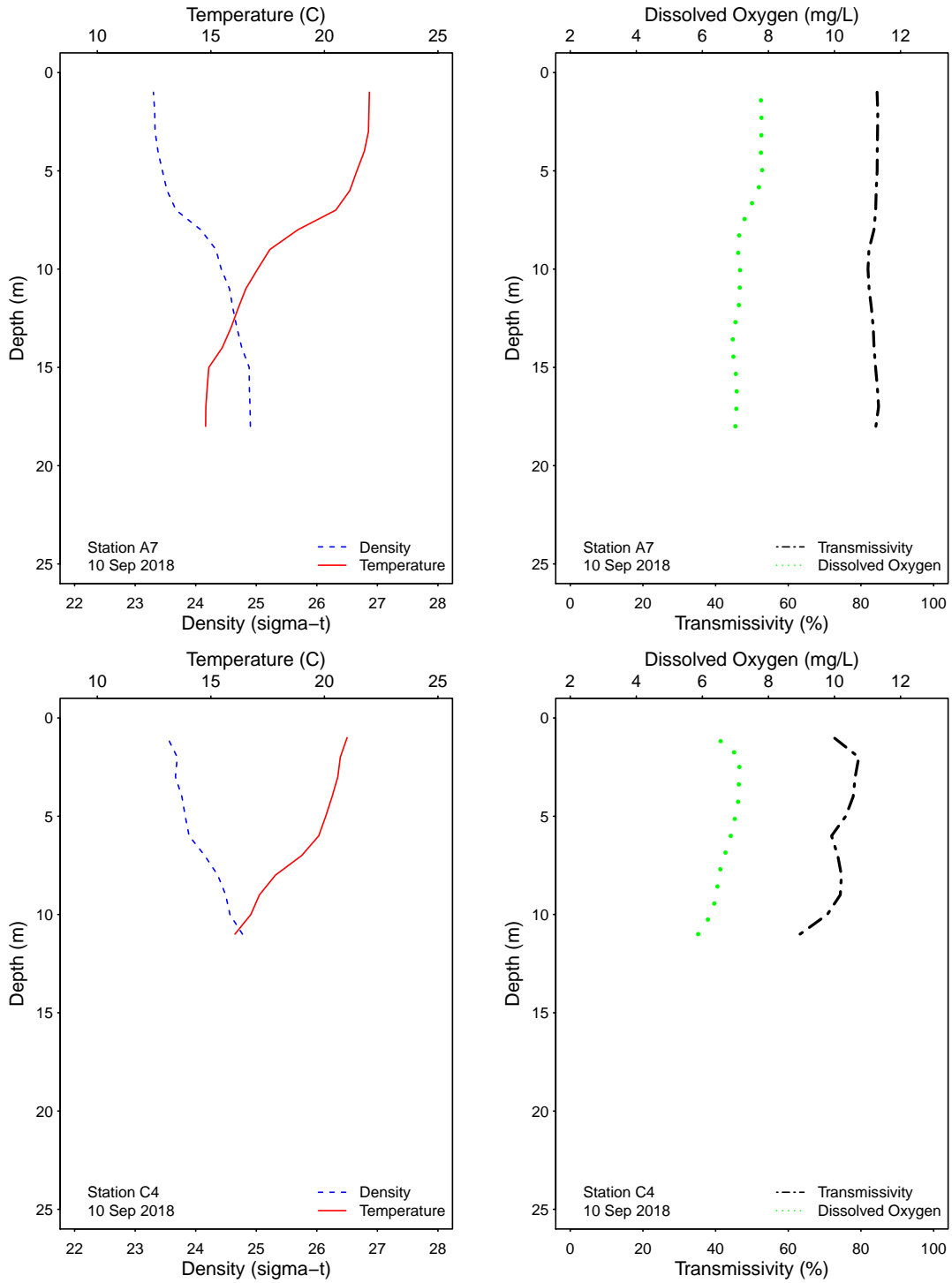


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

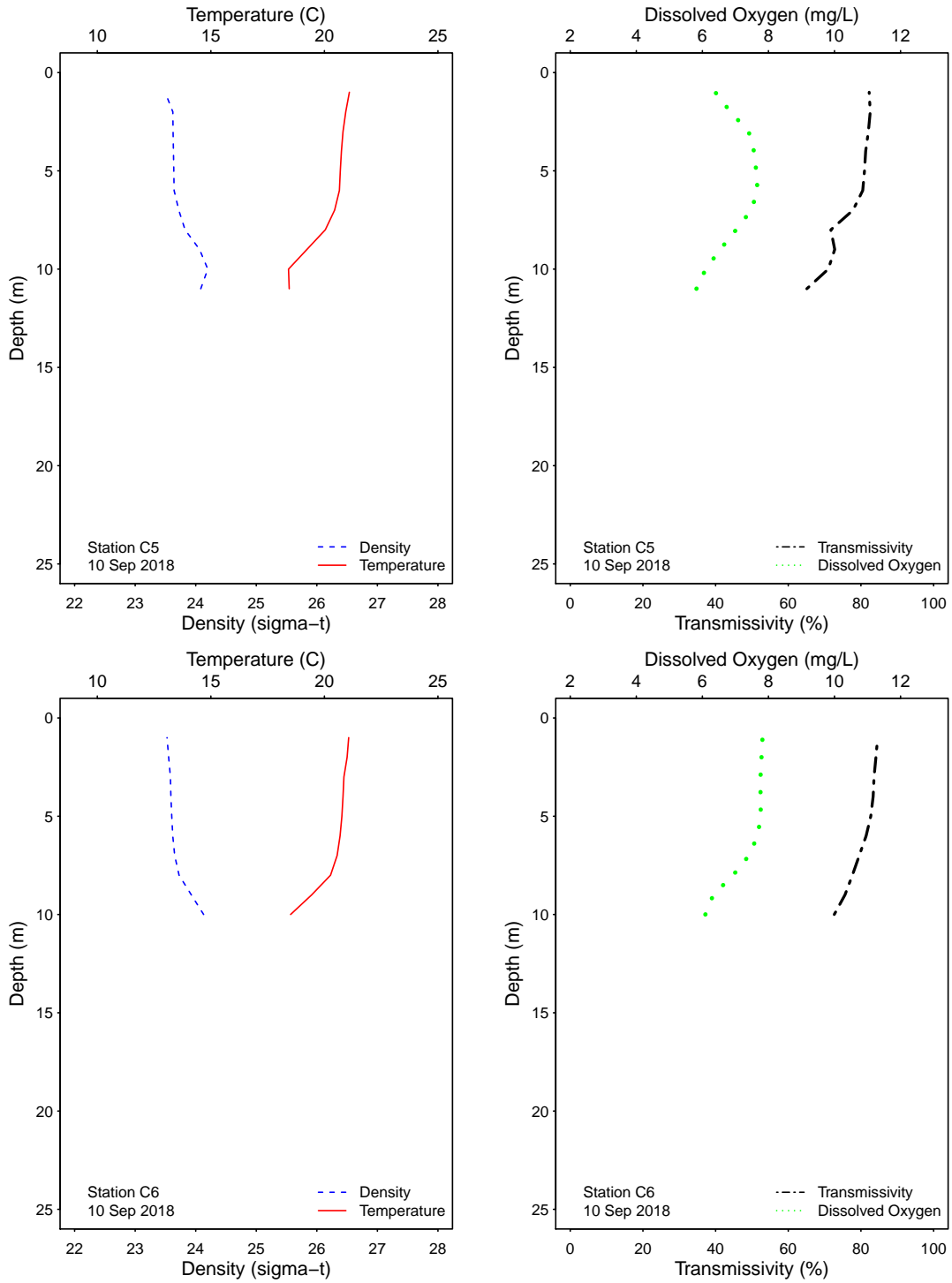


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

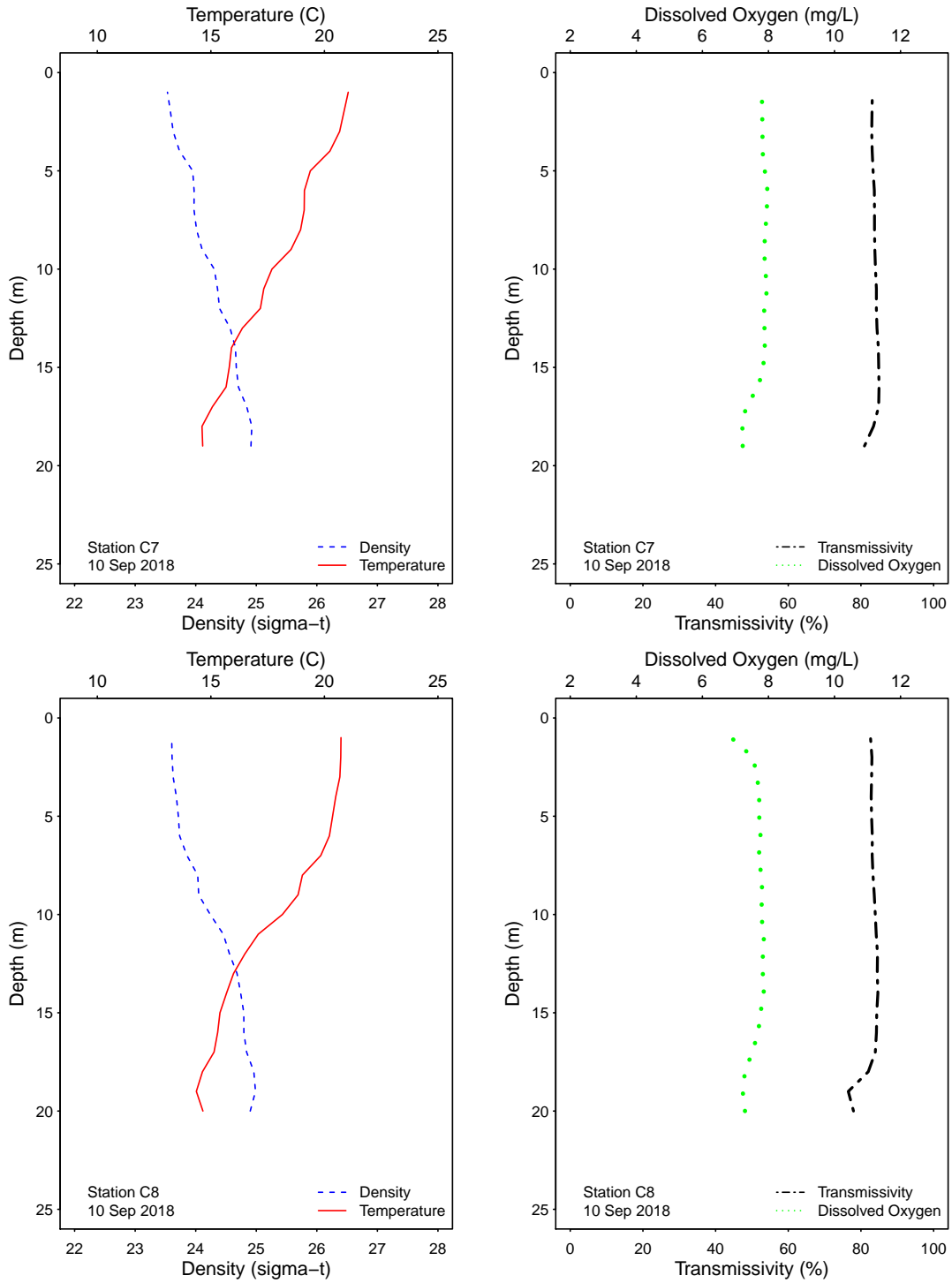


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

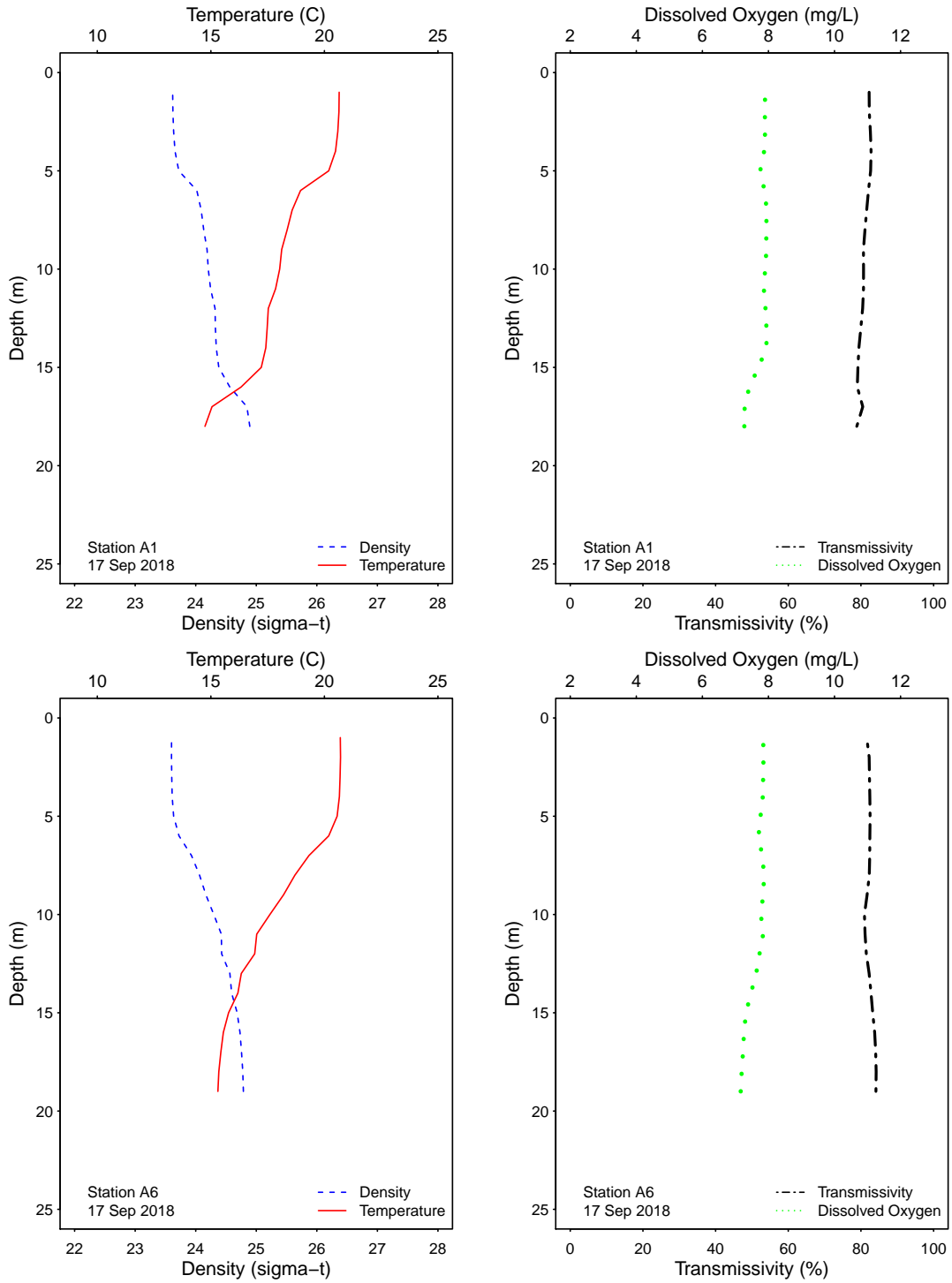


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

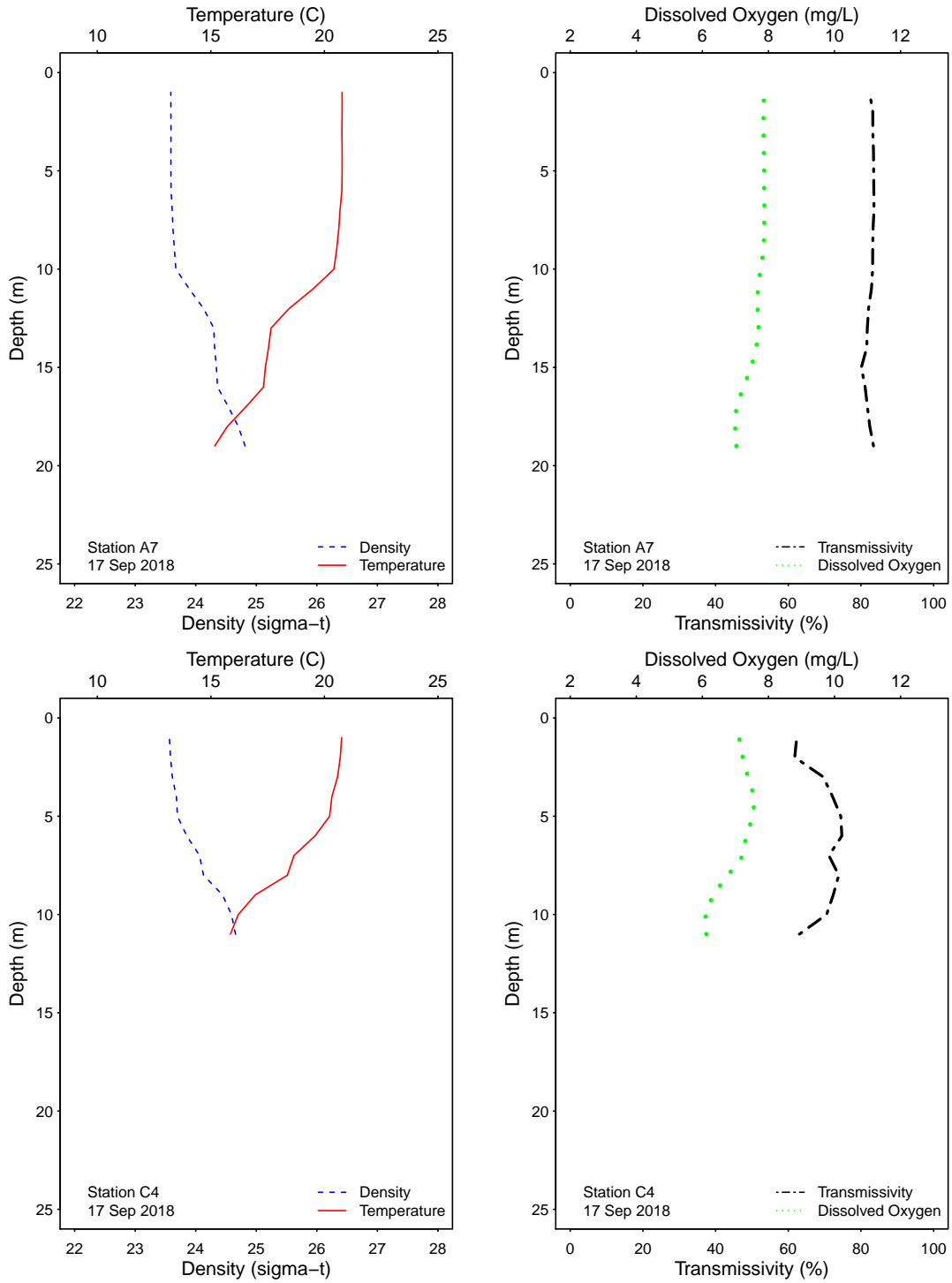


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

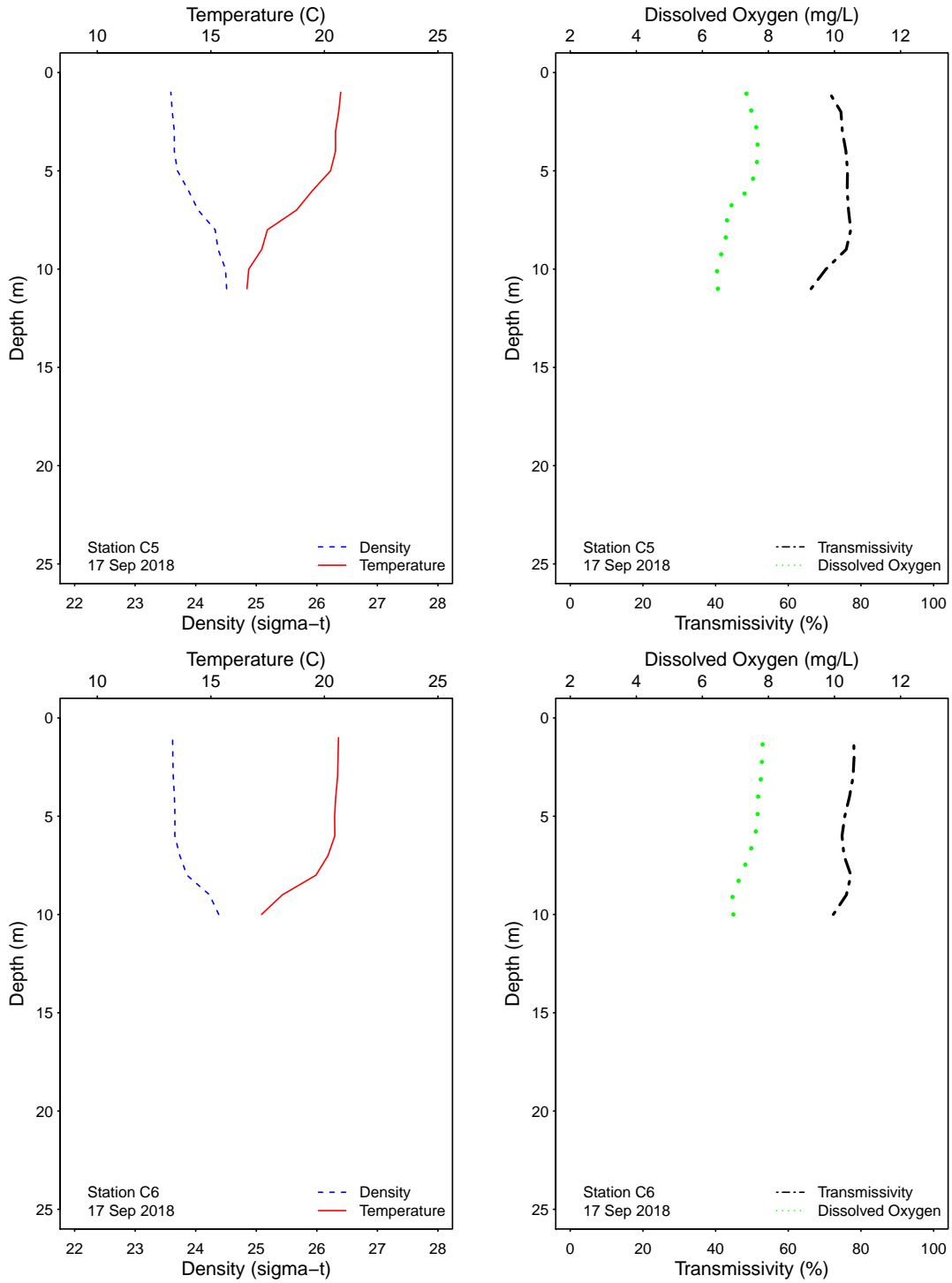


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

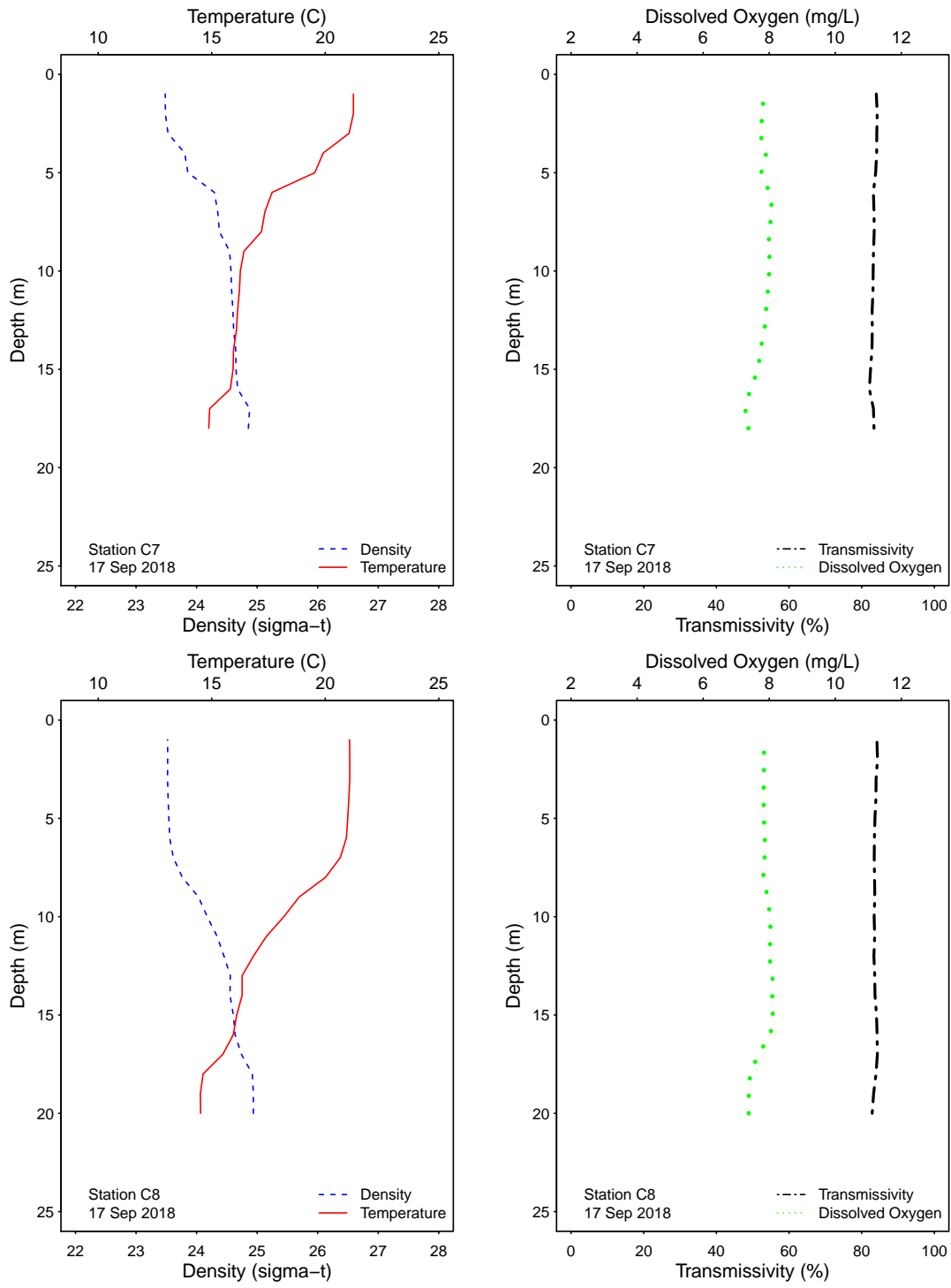


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

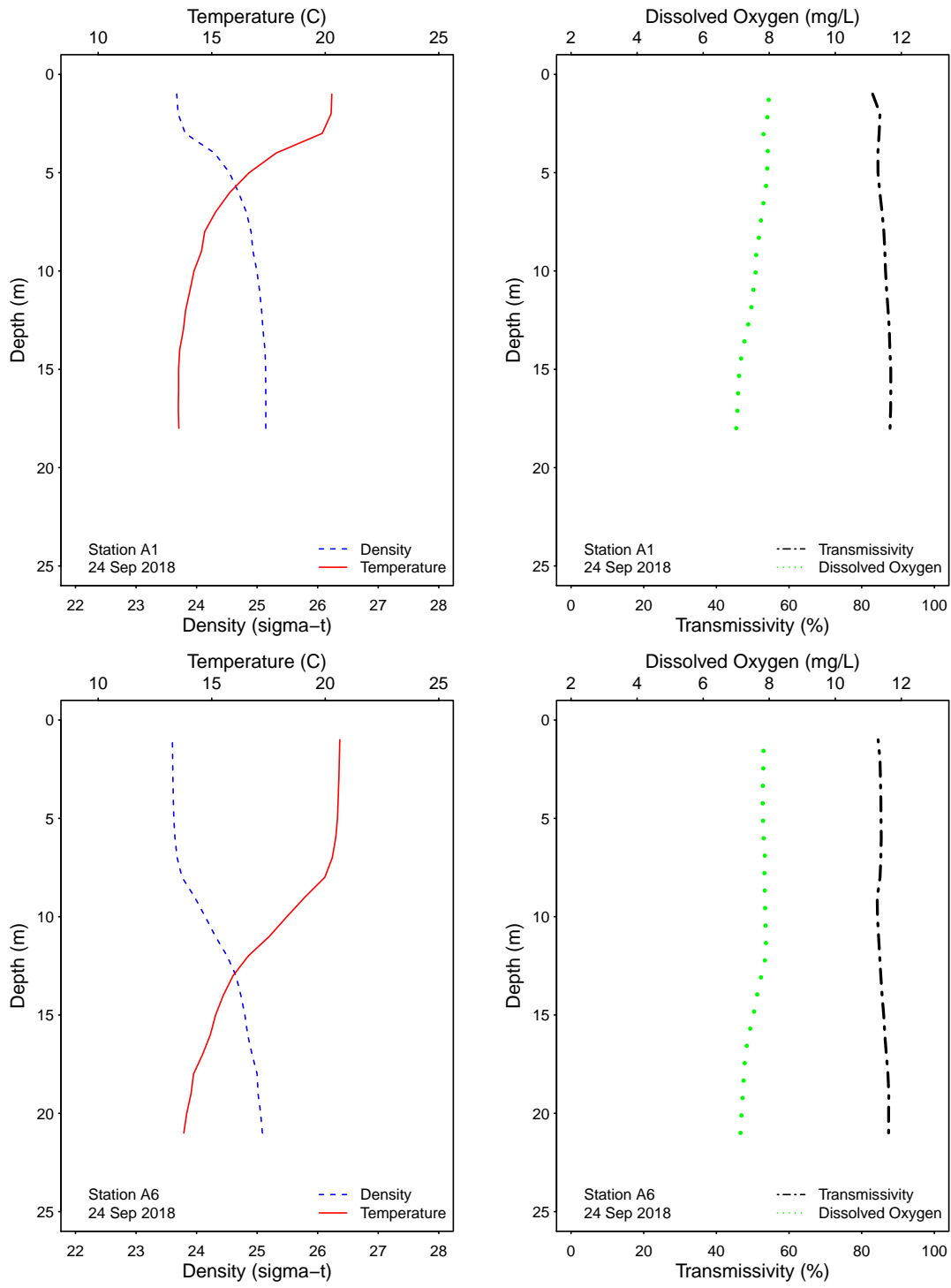


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

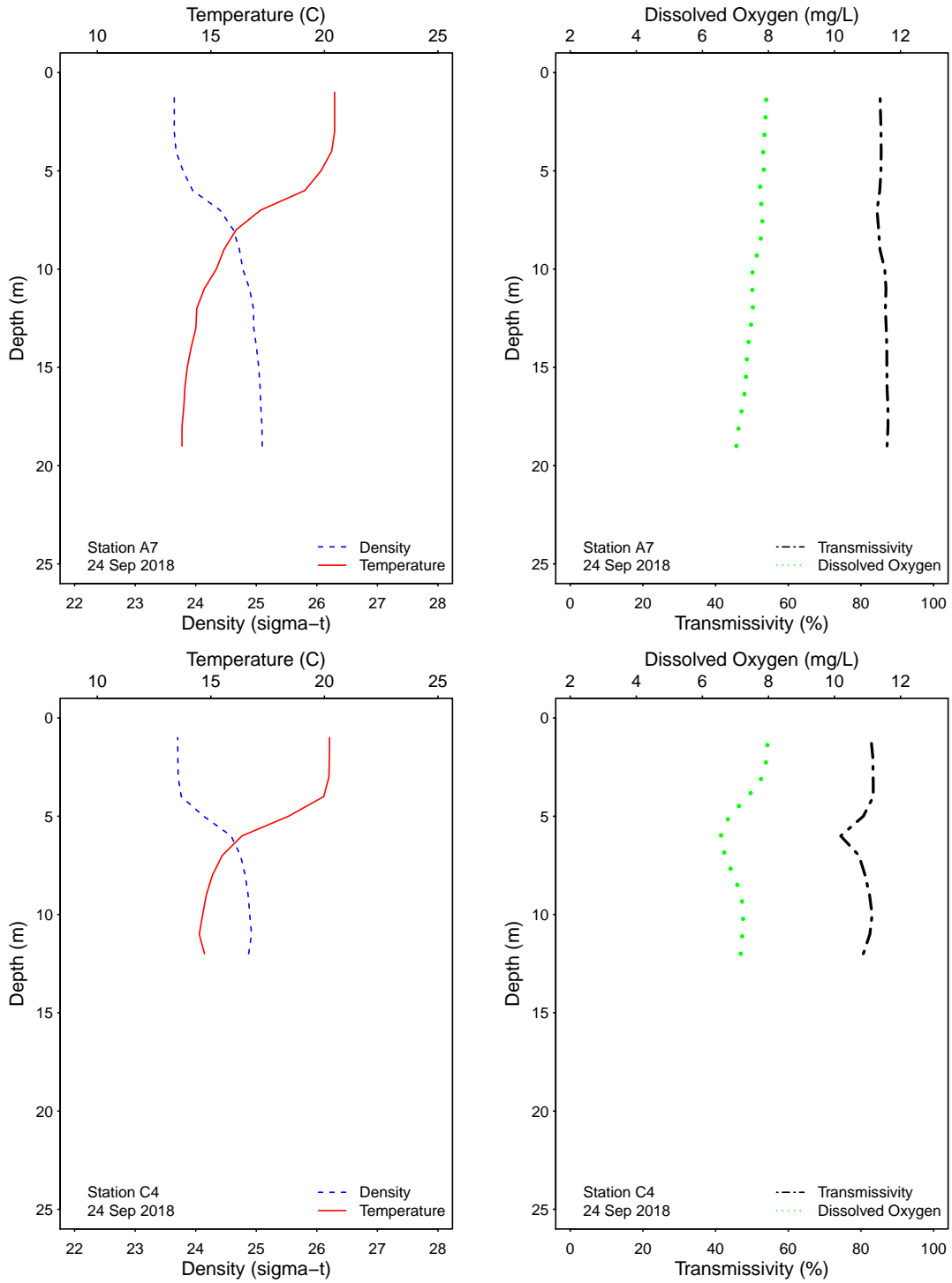


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

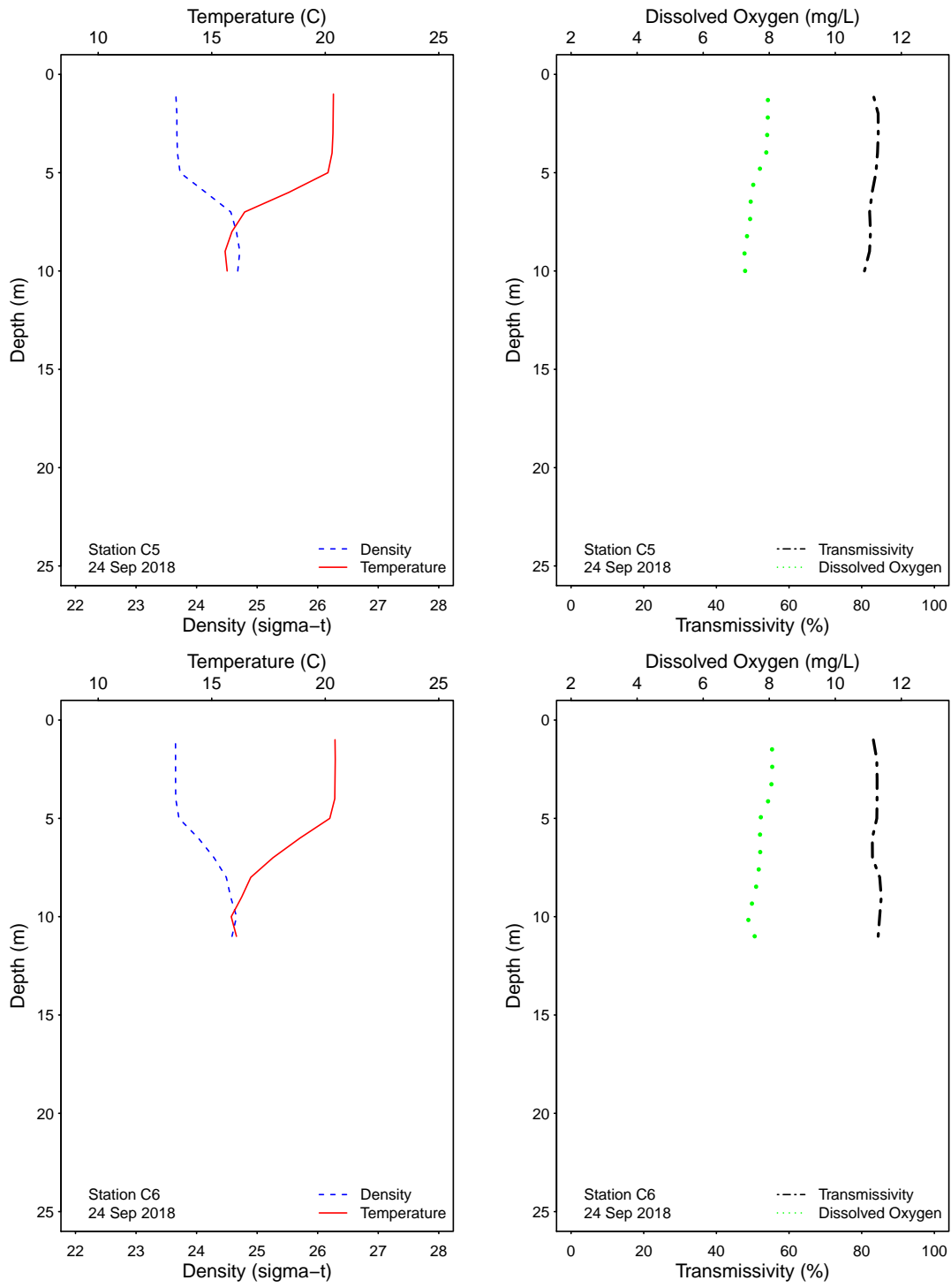


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

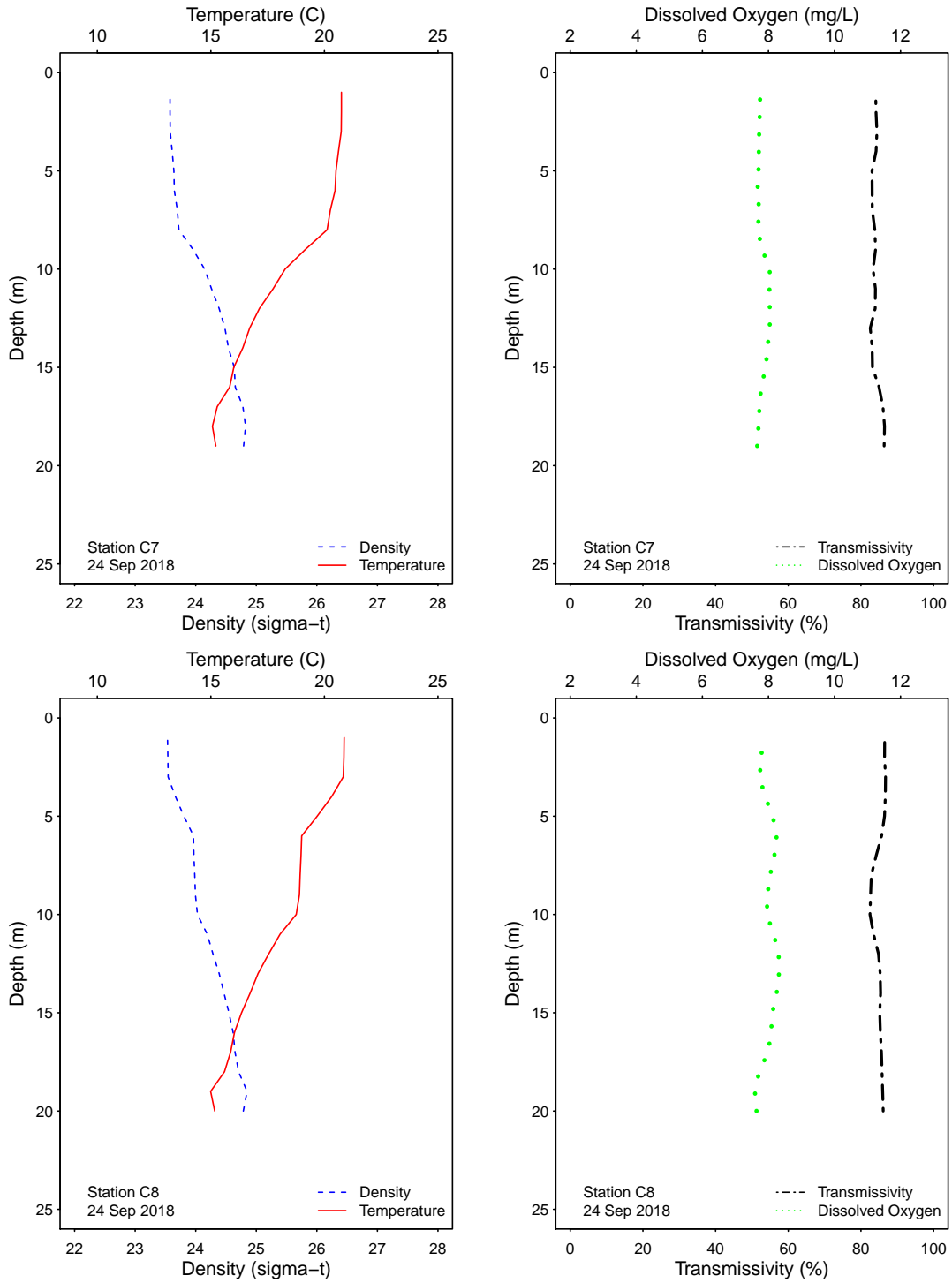


Figure 3.1: Graphics of CTD profile data from the PLOO kelp stations for each sample date.

APPENDIX A

Quality Assurance

Table A.1

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

Station	Date	Depth	Analyst	Procedure	Total	Fecal	Entero
A7	04 Sep 2018	18	LMA	LAB DUPLICATE	2e	<2	<2
A7	10 Sep 2018	18	LMA	LAB DUPLICATE	8e	<2	<2
A7	17 Sep 2018	18	AR	LAB DUPLICATE	<2	<2	<2
A7	24 Sep 2018	18	JLT	LAB DUPLICATE	12e	2e	2e
C7	04 Sep 2018	18	AE	LAB DUPLICATE	<2	<2	<2
C7	10 Sep 2018	18	LMA	LAB DUPLICATE	<2	<2	<2
C7	17 Sep 2018	18	AR	LAB DUPLICATE	4e	<2	<2
C7	24 Sep 2018	18	JLT	LAB DUPLICATE	<2	<2	<2
C8	04 Sep 2018	12	JT	LAB DUPLICATE	20e	<2	<2
C8	10 Sep 2018	12	AE	LAB DUPLICATE	<2	<2	<2
C8	17 Sep 2018	12	AR	LAB DUPLICATE	<2	<2	<2
C8	24 Sep 2018	12	JLT	LAB DUPLICATE	<2	2e	2e
D12	05 Sep 2018		AE	FIELD DUPLICATE	<2	<2	<2
D12	05 Sep 2018		AE	LAB DUPLICATE	<2	<2	<2
D12	12 Sep 2018		JT	FIELD DUPLICATE	<20	<2	<2
D12	12 Sep 2018		JT	LAB DUPLICATE	<20	<2	<2
D12	19 Sep 2018		AE	FIELD DUPLICATE	20e	8e	2e
D12	19 Sep 2018		AE	LAB DUPLICATE	<20	2e	6e
D12	26 Sep 2018		LMA	FIELD DUPLICATE	<20	<2	2e
D12	26 Sep 2018		LMA	LAB DUPLICATE	<20	<2	<2

ns = not sampled

ND = no data

