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Physical, Nutrient, and Biological Measurements of
Coastal Waters off Central California in October 2006

by

Thomas A. Rago, Reiko Michisaki, Baldo Marinovic, Marguerite Blum, and
Katherine Whitaker

June 2007

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University of California, Santa Cruz

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13. ABSTRACT (maximum 200 words) The results of analyses of hydrographic, nutrient, and biological data collected in coastal ocean waters off Central California in October 2006 aboard the <i>R/V Wecoma</i> (Hoke cruise) and <i>R/V Point Sur</i> (PaCOOS cruise) are presented in both tabular and graphical form. Along with all the data from the PaCOOS cruise, included in this report are also hydrographic data sampled over the last two days of the Hoke cruise at CalCOFI stations between Moss Landing, California, and Point Reyes, California, and along CalCOFI line 60. The PaCOOS cruise departed from Moss Landing and proceeded to Point Reyes following CalCOFI line 67 to station 90, thence to CalCOFI line 60/station 90, and finally along CalCOFI line 60. The cruise then returned to Moss Landing via the course from CalCOFI line 61.75/station 52.5 to CalCOFI Line 65.25/station 52.5, and thence to site H3. The Hoke cruise finished in Redwood City, California, after following a route from Moss Landing via the aforementioned H3/CalCOFI stations 52.5 and the inshore CalCOFI Line 60 stations from station 60. ADCP observations collected during both cruises, and marine mammal and biological observations taken during the PaCOOS cruise, are also included.			
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Introduction

Following in a long tradition of hydrographic studies of the California Current system-- see, for example, Steger et al. (2000) and Collins et al. (2003)-- the data in this report were collected during October 2006 on two cruises (25 September-4 October aboard the *R/V Wecoma* and 24-29 October aboard the *R/V Point Sur*) for the Pacific Coast Ocean Observing System (PaCOOS) program. The PaCOOS program was organized in 2003/2004 as the NOAA west coast contribution to the national Integrated Ocean Observing System (IOOS), and is charged with “providing the ocean information needed for the sustained use of fishery resources and protection of marine species and their ecosystem under a changing climate.”¹ PaCOOS cruises generally subsample the standard California Cooperative Oceanic Fisheries Investigations (CalCOFI) grid of hydrographic stations (figure 1). The *R/V Point Sur* cruise did exactly that, sampling along CalCOFI line 67 from Moss Landing, California, to station 90 (CTD casts 1-19), northwest to CalCOFI line 60/station 90 (CTD cast 23), then shoreward to Point Reyes, California, along CalCOFI line 60 (CTD casts 24-34) (figure 2). That cruise then finished by sampling stations 52.5 on CalCOFI lines 61.75, 63.5, and 62.25 and station H3 (CTD casts 35-38) to complete a hydrographic “box.” The *R/V Wecoma* cruise repeated (or, more accurately, “pre-peated”, as this cruise occurred before the *R/V Point Sur* cruise) sampling of nine of the stations later sampled during the *R/V Point Sur* cruise (that is, H3, the coastal stations 52.5, and some of the inshore stations along CalCOFI line 60—CTD casts 77-85) (figure 2). In addition to the standard PaCOOS sampling of CalCOFI stations, during the *R/V Point Sur* cruise eight CTD casts were inserted between the standard CalCOFI sites along line 67 (figure 2) to increase the resolution of the hydrographic data. Primary productivity and zooplankton analyses were not performed at these added sites, nor were these analyses performed during the *R/V Wecoma* cruise. Participants on the *R/V Point Sur* cruise came from the Naval Postgraduate School (Physical Oceanography and Marine Mammal Observations), the Monterey Bay Aquarium Research Institute (Nutrient Analysis and Primary Productivity), the University of California at Santa Cruz (Zooplankton Analysis) and Moss Landing Marine Laboratories (Physical Oceanography). Additionally, there was a participant from the University of California at San Diego and a volunteer observer (a medical doctor from the state of New Hampshire) during the *R/V Wecoma* cruise.

The CTD data can be found in the NODC data archive using accession number 0019214.

Standard Procedures

CTD/Rosette Data:

At each site a Seabird Electronics, Inc., Conductivity-Temperature-Depth (CTD) *911plus* instrument fitted with a 12-place rosette was deployed. The rosette was equipped with 12 10-liter PVC Niskin bottles for collection of water samples. The CTD was generally lowered to 1000 meters or the bottom (whichever came first), except that casts were extended to the full ocean depth at CTD station 19 (4049 dbar) and CTD station 24 (4270 dbar). Where primary productivity sampling was performed, water samples were taken at depths designed to maximize resolution of the variables sampled throughout the thermocline. Where only nutrient sampling was performed², water samples were more or less evenly spaced throughout the water column. A water sample was always obtained at or near the bottom of each CTD cast for later conductivity/salinity calibration of the CTD conductivity sensors.

¹ <http://www.pacoos.org/Pages/history.htm>

² CTD stations 3, 5, 7, 9, 11, 13, 15, 17, 19, and 24

Besides temperature (dual sensors), conductivity (dual sensors), and pressure, the CTD also measured fluorescence, transmissivity, dissolved oxygen content, and photosynthetically available radiation (PAR) in the water column. During the *R/V Point Sur* (PaCOOS) cruise, the CTD also recorded surface PAR. Except for PAR, surface PAR, and the secondary of the dual sensors, all these parameters are reported here.

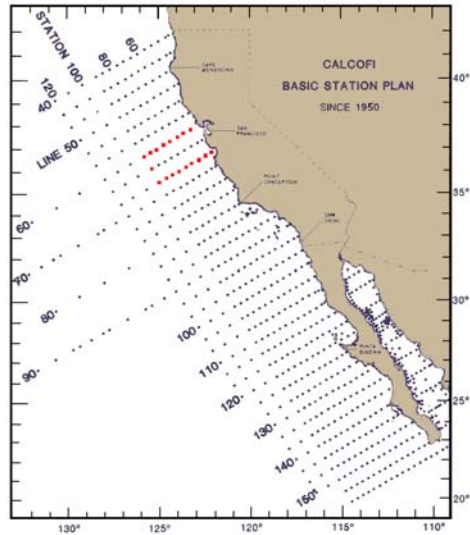


Figure 1: Full CalCOFI hydrographic station grid. Stations occupied during the PaCOOS and Hoke cruises of October 2006 are highlighted in red.

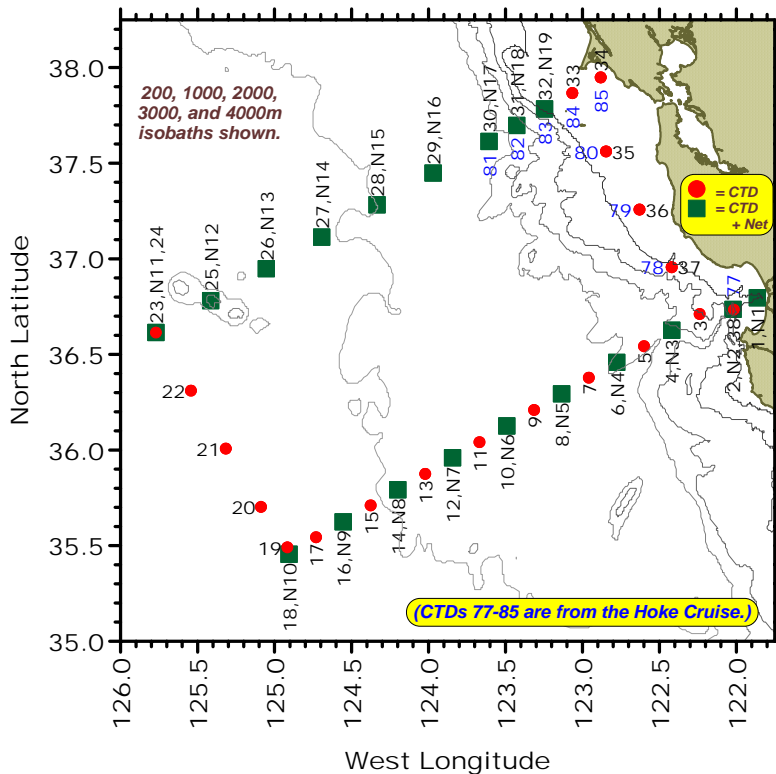


Figure 2: Hydrographic and net tow stations occupied during the PaCOOS and Hoke cruises of October 2006. Stations occupied during the Hoke cruise are labeled in blue.

Generally, a minimum of two salinity samples (including the bottom-of-cast sample) were collected from each CTD cast. These samples were analyzed at the Naval Postgraduate School (NPS) after the cruise using a Guildline model 8400B Autosal salinometer. Two regressions—one for each cruise—between the salinometer results and the conductivities measured by the CTD at the times the Niskin bottles were tripped were made, from which corrections to the CTD salinities were determined and then applied. The salinometer was standardized using IAPSO Standard Seawater (batch P145) before and after each set of water samples was analyzed. Salinity values were calculated using the algorithms for the Practical Salinity Scale, 1978 (UNESCO, 1981).

Dissolved oxygen (Winkler) samples were collected at CTD stations 19 and 29 (*R/V Point Sur* cruise) and station 65 (*R/V Wecoma* cruise). (CTD station 65 is not shown in figure 2.) These were analyzed after the cruises at the Monterey Bay Aquarium Research Institute (MBARI). The CTDs for these cruises were outfitted with Sea-Bird Electronics, Inc., SBE 43 oxygen sensors. This sensor is a polarographic membrane that outputs a voltage proportional to the temperature-compensated current flow occurring when oxygen is reacted inside the membrane. Dissolved oxygen concentration is then calculated from a modified version of the algorithm by Owens and Millard (1985). The results of the analysis of the Winkler oxygen samples were compared to the corresponding oxygen values recorded by the CTD. Using the method described in SBE Application Note #64-2³, we calculated new SBE 43 sensor coefficients for each cruise. Corrected CTD oxygen values were then recalculated with the modified version of the Owens and Millard (1985) algorithm using the new sensor coefficients.

Nutrient samples were collected in 45-ml polypropylene screw-capped containers which were rinsed three times prior to filling. Samples were frozen and returned to MBARI for later analysis on an AlpChem autoanalyzer, as in Sakamoto et al. (1990).

Chlorophyll-*a* and phaeopigments were collected in 280-ml polyethylene bottles and filtered onto 25-mm Whatmann GF/F filters. Chlorophyll-*a* was assayed with the standard fluorometric procedure of Holm-Hansen et al. (1965), modified such that phaeopigments are extracted in acetone in a freezer over at least 24 hours (Venrick and Hayward, 1984; Chavez et al., 1991). Analysis was performed as possible during the *R/V Point Sur* cruise or at MBARI immediately following the cruise.

Primary productivity was estimated for the 100, 50, 15, 5, 1, and 0.1% light penetration depths as determined by secchi, and followed the general method of Parsons et al. (1984). Water samples from the appropriate depths were collected in 280-ml polycarbonate bottles, spiked with ¹⁴C, and incubated on deck for 24 hours under running seawater in plexiglass tubes wrapped with nickel-cadmium screens of differing pore size. (See Pennington and Chavez, 2000, for methodology details.)

Zooplankton Net Tows:

Nineteen stations⁴ were sampled for zooplankton during the *R/V Point Sur* cruise (figure 2). All sampling was conducted with 0.7-m diameter paired bongo nets fitted with 505-mm mesh, which were towed obliquely to a depth of 210 m (or within 10 m of the bottom, whichever came first). Samples were preserved at sea according to standard protocols (Kramer et al., 1972). Upon return to the University of California at Santa Cruz (UCSC), all samples were initially measured for total biovolume and subsequently processed for krill species composition and abundance.

³ http://www.seabird.com/pdf_documents/ApplicationNotes/Appnote64-2Aug05.pdf

⁴ CTD stations 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 23, and 25-32

Patterns of zooplankton and krill distribution and abundance differed with respect to both CalCOFI lines 60 and 67 and to the comparable patterns observed in October 2005. There was a consistent pattern of increased offshore distribution of both total zooplankton biovolume (figure 7a) and the mean abundances of the two dominant euphausiid species (*Euphasia pacifica* and *Nematoscelis difficilis*) (figures 7b and 7c). Additionally, overall abundance was lower along both CalCOFI line 60 and 67 than was observed the previous year.

These distributions reflected oceanographic conditions that were more typical of fall for the Central California Current region, with the productive zone restricted to a narrower coastal margin. In particular, the distribution of the oceanic krill species *Nematoscelis difficilis* suggested that warmer offshore waters associated with the California Current extended substantially farther inshore in 2006 than in 2005. Furthermore, the consistently greater offshore distribution of total zooplankton and krill observed along CalCOFI line 60 compared to CalCOFI line 67 both in October 2006 and October 2005 suggests that there is relatively greater offshore advection of zooplankton associated with the upwelling plume centered on Pt Reyes.

Marine Mammal Observations:

Observations of marine mammals were made by a single observer during daylight hours (approximately 1500 to 0100 Coordinated Universal Time [UTC]) throughout the *R/V Point Sur* cruise, conditions permitting (e.g., clear or high clouds, beaufort state less than 4, etc.). Observations were made from the 01-deck forward of the Bridge, where eye height was approximately 15.67 meters above the sea surface, using handheld Fujinon 7 x 50 binoculars with compass for bearing and reticle for distance. Observations were recorded on a laptop computer using the marine mammal and bird mapping program *Seebird*. This program interfaces with handheld global positioning system (GPS) devices, and allows the generation of observation logs containing the observations of the mammals themselves with matching ship's velocities and positions, observational conditions, etc. Generally, intensive "on effort" observations were made during the last half of each half-hour period, with the other half of the half-hour period devoted to less intensive "off effort" observations. Depending on the situation, the observer would take short breaks from the observations approximately every two hours.

Ancillary Observations:

Underway Data: Near surface measurements of temperature and salinity were recorded throughout the cruises from water pumped through the ships' uncontaminated seawater systems. These data, along with meteorological data (barometric pressure, wind, etc.) collected from various sensors mounted primarily on the ships' masts, were recorded at approximately 30-second intervals throughout the cruises. Table 1 lists these data at the start of each hydrographic station.

ADCP: For both cruises, continuous profiles of ocean currents and acoustic backscatter between 10 and 730 meters were measured along the ship's track using hull-mounted Acoustic Doppler Current Profilers (75-kHz Ocean Surveyor, 300-kHz Broad Band). The data were averaged over 5-minute intervals.

Tabulated Data

The following tables of data follow:

1) Table 1: Meteorological and Sea Surface Data

This lists the meteorological and surface oceanographic conditions at the start of each hydrographic station.

2) Table 2: Hydrographic Data

This is a chronological listing of the hydrographic data collected at each CTD station during the cruises. Data are given for standard pressures, except that the last line of data for each site is the deepest pressure for that CTD cast. The surface pressure, listed as 0 dbar, is actually 1 dbar. Salinities have been adjusted according to the conductivity/salinity calibration correction determined from the collected salinity water samples. The time listed for each station is the beginning (UTC) of the CTD cast. Units of geopotential anomaly ($\Delta\Phi$), potential density (σ_θ), and potential spiciness (π_θ) are m^2s^{-2} , kg m^{-3} , and kg m^{-3} , respectively.

3) Table 3: Nutrient and Primary Productivity Data

This is a chronological listing of the results of the nutrient and primary productivity analyses of the water samples collected from the 12 Niskin bottles tripped at each hydrographic station during the *R/V Point Sur* (PaCOOS) cruise. The time given is the start (UTC) for each hydrographic station. Except where primary productivity analyses were not performed (see Introduction), the data for each hydrographic station are separated into two sections (“Physical and Chemical” and “Biological”).

The physical oceanographic properties listed in the first seven columns of the “Physical and Chemical” section of each station’s data are the uncorrected values measured by the CTD at the times each Niskin bottle was tripped. Because they are uncorrected, these values may differ slightly from those listed in Table 1. The last four columns of this section of each station’s data give the nitrate (NO_3), nitrite (NO_2), phosphate (PO_4), and dissolved silicate (SiO_4) concentrations (determined as described previously).

The “Biological” section of each station’s data gives the results of the primary productivity analyses. As stated above, primary productivity sampling was not undertaken at every hydrographic station.

4) Table 4: Zooplankton Data

Nineteen hydrographic stations—10 on CalCOFI line 67, 9 on CalCOFI line 60—were sampled for zooplankton. This table lists the total biovolume and krill abundance, as well as the mean abundance of the two dominant euphausiid species (*Euphasia pacifica* and *Nematoscelis difficilis*), measured. The data are listed by CalCOFI line, onshore to offshore and south to north.

5) Table 5: Marine Mammal Data

This table lists the results of the marine mammal observations made during the *R/V Point Sur* cruise. The data are listed by species code, then chronologically within each species code.

Figures of Results

Graphical representations of the data collected during these cruises follow the tabulated data. Figure 3 is a series of four diagrams contouring (a) the temperature ($^{\circ}\text{C}$), (b) the salinity, (c) the density anomaly (kg m^{-3}), and (d) the oxygen ($\mu\text{m kg}^{-1}$) fields along the line of hydrographic stations from Moss Landing to Point Reyes. The two blue lines in each diagram indicate the locations of the corner hydrographic stations (CTDs 18/19 and 23/24).

Figure 4 contours the fluorescence and transmissivity in the upper 100 meters of the water column along the line of hydrographic stations from Moss Landing to Point Reyes. Again, the blue lines indicate the locations of the corner hydrographic stations.

Figure 5 is a series of four diagrams contouring (a) the nitrate (μm), (b) nitrite (μm), (c) phosphate (μm), and (d) silicate (μm) fields along the line of hydrographic stations from Moss Landing to Point Reyes. The white lines indicate the locations of the corner hydrographic stations.

Figure 6a charts the locations of marine mammal sightings, as well as showing the observational conditions throughout the *R/V Point Sur* (PaCOOS) cruise. Figure 6b shows the ship's actual track during the cruise, and is included to show why the marine mammal observational area in figure 6a expands at times during the cruise.

Figures 7a-c show zooplankton biovolume displacement and the abundance of the two dominant euphausiid species during the *R/V Point Sur* (PaCOOS) cruise of October 2006.

Finally, figures 8 shows results of shipboard current measurements on *R/V Wecoma* (figure 8a) and *R/V Point Sur* (figure 8b).

Cruise Participants

Personnel	Duties	Institutional Affiliation
Curtis Collins (Chief Sci., <i>R/V Wecoma</i>) Tarry Rago Katherine Whitaker ⁺ Affonso Mascarenhas* Tetyana Margolina* Marla Stone* Keith Wyckoff* LT Alicia Hopkins* Dr. Cornelius Sullivan* (Volunteer Observer)	Physical Oceanography Physical Oceanography Marine Mammal Obs. Physical Oceanography Physical Oceanography Physical Oceanography Physical Oceanography Physical Oceanography	Naval Postgraduate School
Tim Pennington ⁺ (Co-Chief Sci., <i>R/V Point Sur</i>) Marguerite Blum ⁺ Lionel Pawlowski ⁺ Jasmine Ruvacabla ⁺ Khrysta Moe ⁺ Santino de Santis ⁺	Nutrients, Primary Prod. Nutrients, Primary Prod., Oxygens Nutrients Nutrients Nutrients Nutrients	Monterey Bay Aquarium Research Institute
Asila Ghoul ⁺ Jonathan Brininger ⁺	Phytoplankton Net Tows Phytoplankton Net Tows	Univ. of CA at Santa Cruz
Ben Jokinen ⁺	Ship Tech., Phys. Ocean.	Moss Landing Marine Laboratories
Chris Garsha [*]	Physical Oceanography	Univ. of CA at San Diego

* *R/V Wecoma* cruise only
+ *R/V Point Sur* cruise only

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Tables

Table 1: *Meteorological and sea surface data collected during the Hoke and PaCOOS cruises of October 2006.* Listed here are the meteorological and surface oceanographic conditions as measured by the underway data acquisition systems of the *R/V Wecoma* (Hoke) and *R/V Point Sur* (PaCOOS) at the beginning of each hydrographic station. Continuous measurements of the water being pumped through the ships' uncontaminated seawater systems ("sea chest") from approximately 3 meters below the surface (both ships) supplied the oceanographic data, while instrumentation atop the ships' masts supplied the meteorological data.

Station	Yearday, 2006 (UTC)	Air Temperature (°C)	Humidity (percent)	Barometric Pressure (mb)	Shortwave Radiation (watts/m ²)	Wind Speed (knots)	Wind Direction (°T)	Sea Surface Temperature (°C)	Sea Surface Salinity
77	276.6444	14.5	85.4	1017.5	154.6	4.2	269.9	14.90	33.35
78	276.7535	14.4	84.1	1017.9	336.9	7.4	015.1	15.17	---
79	276.8451	15.1	75.9	1017.7	280.5	6.2	083.4	15.39	33.34
80	276.9313	15.6	70.3	1016.5	208.7	4.4	344.3	14.26	33.44
81	277.0674	15.0	81.8	1015.9	13.9	2.8	274.8	15.42	33.36
82	277.1403	14.7	78.4	1015.6	5.2	5.5	203.3	15.24	33.37
83	277.2396	14.7	80.9	1015.5	5.3	7.9	240.6	15.02	33.45
84	277.2917	14.5	83.6	1015.2	5.2	6.3	209.1	14.21	33.52
85	277.3458	14.3	86.3	1015.3	5.0	6.5	152.8	14.59	33.54
1	297.7035	11.7	97.6	1014.7	19.7	1.9	125.6	15.33	33.32
2	297.7847	12.9	90.3	1014.4	22.0	11.7	309.3	15.39	33.30
3	297.9035	13.1	89.2	1013.5	14.5	14.4	297.2	15.40	33.27
4	297.9889	13.2	88.5	1014.0	9.6	12.0	296.0	14.88	33.25
5	298.0951	13.9	87.4	1014.6	0.0	6.5	314.2	15.02	33.27
6	298.1771	14.5	83.1	1015.4	0.0	10.6	324.6	15.18	33.29
7	298.2854	14.7	84.1	1016.2	0.0	11.6	336.8	15.05	33.28
8	298.3667	14.7	85.7	1016.4	0.0	14.6	354.1	14.98	33.26
9	298.4722	14.5	90.9	1016.5	0.0	20.0	014.2	15.07	33.28
10	298.6007	15.1	77.3	1018.2	0.9	23.6	361.3	15.33	33.28
11	298.7632	15.0	76.9	1020.4	21.7	24.3	353.9	15.89	33.10
12	298.9444	15.1	77.2	1019.7	0.1	20.3	345.4	15.79	32.96
13	299.1201	14.8	76.6	1020.1	0.0	23.6	339.7	16.21	32.99
14	299.2521	14.9	74.7	1020.8	0.0	23.4	353.2	16.55	32.91
15	299.4285	15.0	79.6	1021.4	0.0	20.8	350.9	16.52	32.91
16	299.5799	14.9	83.7	1022.6	0.0	17.7	353.6	16.51	32.90
17	299.7361	15.1	81.8	1024.2	0.0	16.9	005.6	16.57	32.89
18	299.8882	15.0	83.1	1023.7	0.0	17.4	356.6	16.13	32.87
19	299.9299	15.0	84.1	1023.6	0.0	16.0	355.3	16.17	32.85
20	300.1465	14.1	88.4	1024.8	0.0	15.9	007.4	15.02	32.90
21	300.2903	13.7	86.5	1025.3	0.0	14.7	006.9	14.63	33.08

Station	Yearday, 2006 (UTC)	Air Temperature (°C)	Humidity (percent)	Barometric Pressure (mb)	Shortwave Radiation (watts/m ²)	Wind Speed (knots)	Wind Direction (°T)	Sea Surface Temperature (°C)	Sea Surface Salinity
22	300.4417	13.5	86.6	1025.5	0.0	12.5	015.7	14.77	33.10
23	300.5826	13.0	89.6	1025.6	0.0	10.8	022.9	13.87	33.10
24	300.6299	13.1	90.5	1025.9	0.0	11.0	022.9	13.87	33.04
25	300.8542	14.2	91.0	1025.4	25.0	7.1	019.5	15.06	33.04
26	301.0118	14.6	90.4	1023.9	0.2	5.8	334.8	15.24	33.10
27	301.1632	14.8	86.0	1023.9	0.0	6.8	012.4	15.27	33.07
28	301.3049	14.9	72.2	1023.2	0.0	5.2	335.4	14.97	33.03
29	301.4597	15.1	81.4	1021.6	0.0	8.0	327.7	15.05	33.08
30	301.6118	14.8	86.1	1020.8	5.6	6.3	341.3	15.09	33.08
31	301.7174	14.7	85.2	1020.9	35.8	8.1	310.5	14.76	33.10
32	301.8299	15.0	80.6	1019.4	14.3	9.9	322.7	15.08	33.18
33	301.9069	15.5	81.2	1017.5	2.2	11.6	320.1	15.14	33.23
34	301.9674	17.4	59.2	1016.9	1.4	11.5	317.4	15.36	33.35
35	302.0778	15.0	83.9	1016.9	0.0	11.7	305.7	15.11	33.22
36	302.1861	14.4	88.1	1017.4	0.0	10.2	324.4	14.91	33.17
37	302.2944	14.5	88.4	1017.1	0.0	11.1	325.6	15.09	33.21
38	302.4188	13.1	94.7	1016.8	0.0	6.2	322.2	14.89	33.19

Table 2: List at standard pressures of hydrographic data collected during the Hoke and PaCOOS cruises of October 2006. Stations are in chronological order. For each cast, the surface pressure (listed as 0 dbar) is actually 1 dbar, while the last pressure is the deepest pressure of the cast. Salinities and oxygens have been adjusted according to the calibration corrections determined from the collected salinity and oxygen water samples. The time listed for each station is the beginning (<mm/dd/yyyy, hhmm> UTC) of the CTD cast. Units of geopotential anomaly ($\Delta\Phi$), potential density (σ_θ), and potential spiciness (π_θ) are m^2s^{-2} , kg m^{-3} , and kg m^{-3} , respectively.

Station: 77 **Date:** 10/03/2006, 1528 **Lat.:** 36° 44.10 N **Long.:** 122° 01.20 W

P(dbar)	T(°C)	S	O ₂ ($\mu\text{m/kg}$)	Xmiss(%)	$\Delta\Phi$	σ_θ	π_θ
0	14.881	33.382	259.4	91.2	0.032	24.750	0.821
10	14.875	33.381	260.8	91.2	0.319	24.751	0.819
20	13.817	33.422	246.7	92.9	0.632	25.006	0.622
30	13.044	33.482	227.8	93.7	0.920	25.209	0.508
50	11.485	33.560	170.1	94.9	1.433	25.568	0.265
75	10.616	33.654	147.0	94.8	2.008	25.797	0.181
100	10.101	33.770	128.1	94.7	2.539	25.976	0.181
125	9.911	33.837	113.8	94.6	3.035	26.061	0.202
150	9.704	33.906	104.6	94.7	3.516	26.150	0.221
200	9.202	34.065	79.0	94.7	4.405	26.357	0.263
250	8.860	34.169	61.5	95.1	5.219	26.494	0.289
300	8.301	34.191	59.9	95.3	5.985	26.598	0.219
400	7.455	34.215	42.5	95.2	7.421	26.742	0.113
500	6.591	34.252	27.3	94.8	8.719	26.891	0.022
600	5.813	34.303	21.8	92.8	9.866	27.031	-0.038
700	5.007	34.355	14.6	94.5	10.911	27.170	-0.093
800	4.564	34.399	20.3	92.6	11.839	27.255	-0.108
900	4.168	34.434	21.0	93.7	12.695	27.326	-0.123
1000	3.908	34.458	22.7	94.0	13.495	27.372	-0.131
1010	3.905	34.458	23.0	94.0	13.574	27.372	-0.132

Station: 78 **Date:** 10/03/2006, 1805 **Lat.:** 36° 57.31 N **Long.:** 122° 24.80 W

P(dbar)	T(°C)	S	O ₂ ($\mu\text{m/kg}$)	Xmiss(%)	$\Delta\Phi$	σ_θ	π_θ
0	15.104	33.491	272.3	91.5	0.032	24.786	0.957
10	15.128	33.490	272.7	91.4	0.316	24.781	0.961
20	14.527	33.482	263.4	93.0	0.626	24.904	0.821
30	13.308	33.411	230.5	93.8	0.923	25.101	0.506
50	10.772	33.466	176.5	94.6	1.445	25.622	0.059
75	9.922	33.680	148.3	95.0	1.994	25.936	0.080
100	9.604	33.806	126.0	95.1	2.493	26.088	0.126
125	9.415	33.906	111.7	95.1	2.963	26.197	0.173
150	9.357	34.008	93.7	95.0	3.411	26.287	0.244
200	9.232	34.082	74.7	94.8	4.273	26.366	0.281
250	8.962	34.146	60.4	94.4	5.091	26.460	0.288
250	8.962	34.146	60.4	94.4	5.091	26.460	0.288

Station: 79 Date: 10/03/2006, 2017 Lat.: 37° 15.50 N Long.: 122° 37.83 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.345	33.399	268.7	90.6	0.033	24.663	0.938
10	14.401	33.309	254.8	91.1	0.322	24.797	0.658
20	12.636	33.377	216.8	93.8	0.614	25.207	0.343
30	11.974	33.486	191.8	94.4	0.876	25.419	0.300
50	10.930	33.629	157.3	90.1	1.356	25.722	0.218
75	10.424	33.686	141.3	90.9	1.907	25.855	0.172
93	9.806	33.818	115.8	92.4	2.277	26.063	0.169

Station: 80 Date: 10/03/2006, 2221 Lat.: 37° 33.70 N Long.: 122° 50.68 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.227	33.473	257.5	90.1	0.030	24.960	0.750
10	14.169	33.473	255.9	90.3	0.298	24.973	0.737
20	12.667	33.479	221.8	92.2	0.585	25.281	0.430
30	12.051	33.530	197.2	92.8	0.846	25.439	0.350
50	11.762	33.562	185.5	92.8	1.344	25.518	0.319
75	11.263	33.583	168.0	92.2	1.946	25.627	0.242
83	11.149	33.621	153.0	90.2	2.133	25.677	0.251

Station: 81 Date: 10/04/2006, 0137 Lat.: 37° 36.81 N Long.: 123° 36.51 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.380	33.383	288.7	86.1	0.033	24.642	0.933
10	15.189	33.382	286.6	88.4	0.328	24.684	0.889
20	14.977	33.404	274.3	90.2	0.650	24.747	0.859
30	14.593	33.378	256.9	92.4	0.966	24.810	0.754
50	12.794	33.255	240.2	93.8	1.579	25.083	0.277
75	9.975	33.433	188.0	94.8	2.208	25.734	-0.107
100	8.842	33.656	160.1	95.2	2.728	26.092	-0.117
125	8.864	33.881	122.0	95.0	3.188	26.266	0.065
150	8.555	33.950	126.8	95.2	3.617	26.368	0.070
200	8.194	34.065	91.2	95.3	4.421	26.513	0.105
250	7.666	34.108	70.4	95.4	5.173	26.626	0.060
300	7.210	34.123	56.7	95.5	5.878	26.703	0.007
400	6.064	34.115	43.5	95.5	7.186	26.849	-0.153
500	5.676	34.218	22.4	95.5	8.373	26.980	-0.121
600	5.333	34.299	14.3	95.5	9.461	27.086	-0.099
700	4.819	34.319	11.8	95.5	10.469	27.162	-0.142
800	4.513	34.382	11.8	95.5	11.400	27.246	-0.127
900	4.228	34.420	14.6	95.5	12.274	27.309	-0.128
1000	3.817	34.444	17.7	95.5	13.092	27.370	-0.151
1011	3.798	34.450	18.4	95.6	13.178	27.377	-0.149

Station: 82 Date: 10/04/2006, 0322 Lat.: 37° 41.80 N Long.: 123° 25.60 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.190	33.402	282.5	89.1	0.032	24.699	0.906
10	15.012	33.449	283.9	90.2	0.320	24.774	0.903
20	14.812	33.482	278.8	90.3	0.634	24.843	0.884
30	14.209	33.498	256.7	92.2	0.936	24.984	0.765
50	11.205	33.564	163.1	94.3	1.459	25.621	0.216
75	10.009	33.727	129.9	94.8	2.003	25.958	0.133
100	9.571	33.823	120.7	94.8	2.495	26.106	0.134
125	9.393	33.950	103.8	94.9	2.960	26.235	0.204
150	9.109	34.072	85.3	95.0	3.391	26.377	0.255
200	8.701	34.134	69.8	95.1	4.201	26.490	0.238
250	8.074	34.152	65.6	95.3	4.961	26.601	0.155
300	7.366	34.120	61.9	95.5	5.680	26.679	0.026
400	6.308	34.110	52.7	95.5	7.018	26.814	-0.126
500	5.851	34.199	26.4	95.5	8.239	26.944	-0.114
600	5.414	34.262	16.8	95.5	9.363	27.047	-0.119
700	4.854	34.306	12.2	95.6	10.403	27.148	-0.149
800	4.589	34.361	11.7	95.6	11.360	27.222	-0.135
900	4.222	34.395	12.9	95.6	12.257	27.289	-0.148
1000	3.933	34.437	16.5	95.5	13.091	27.353	-0.146
1010	3.888	34.440	17.1	95.5	13.171	27.360	-0.148

Station: 83 Date: 10/04/2006, 0545 Lat.: 37° 46.79 N Long.: 123° 14.76 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.002	33.475	279.2	87.9	0.031	24.796	0.921
10	14.775	33.503	277.6	88.5	0.313	24.866	0.892
20	12.263	33.470	216.9	92.9	0.602	25.341	0.333
30	11.316	33.602	170.5	93.0	0.844	25.630	0.267
50	10.801	33.665	146.2	92.5	1.300	25.773	0.223
75	10.625	33.703	132.3	90.9	1.851	25.833	0.221
100	10.082	33.793	118.5	92.8	2.370	25.998	0.197
125	9.419	34.011	79.3	94.0	2.842	26.278	0.257
125	9.419	34.011	79.3	94.0	2.842	26.278	0.257

Station: 84 Date: 10/04/2006, 0700 Lat.: 37° 51.84 N Long.: 123° 03.79 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.189	33.551	320.2	78.8	0.029	25.028	0.803
10	13.629	33.550	279.7	86.0	0.286	25.143	0.683
20	13.083	33.562	246.5	91.8	0.561	25.263	0.580
30	11.868	33.572	195.1	93.8	0.818	25.506	0.348
50	10.891	33.682	149.0	93.9	1.278	25.770	0.253
75	10.544	33.722	128.9	93.6	1.822	25.862	0.222
85	10.417	33.747	111.2	91.2	2.035	25.904	0.219

Station: 85 Date: 10/04/2006, 0818 Lat.: 37° 56.81 N Long.: 122° 52.91 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.556	33.569	325.5	80.1	0.030	24.964	0.897
10	14.563	33.569	326.2	80.1	0.298	24.963	0.898
20	12.891	33.588	240.4	91.5	0.578	25.321	0.562
30	12.196	33.619	195.3	89.3	0.832	25.480	0.448
45	12.135	33.630	182.1	86.6	1.204	25.500	0.445

Station: 1 Date: 10/24/2006, 1653 Lat.: 36° 47.79 N Long.: 121° 51.84 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.310	33.442	310.3	82.4	0.032	24.703	0.964
10	14.744	33.426	257.9	84.2	0.321	24.814	0.825
20	14.469	33.448	234.5	86.8	0.629	24.890	0.782
30	13.741	33.435	208.6	89.7	0.928	25.032	0.616
50	12.539	33.462	182.4	91.7	1.483	25.293	0.391
75	11.197	33.578	150.9	91.2	2.108	25.634	0.225
100	10.880	33.645	133.8	88.5	2.679	25.744	0.220
125	10.530	33.727	120.0	87.3	3.235	25.870	0.222
150	10.291	33.777	110.5	86.6	3.768	25.950	0.219
200	9.529	33.922	86.8	84.4	4.750	26.192	0.203
250	8.746	34.054	66.0	86.0	5.638	26.422	0.181
300	8.074	34.135	51.2	84.7	6.423	26.588	0.141
353	7.512	34.191	41.9	85.5	7.180	26.715	0.102

Station: 2 Date: 10/24/2006, 1850 Lat.: 36° 44.13 N Long.: 122° 01.32 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.382	33.348	262.1	87.9	0.033	24.615	0.906
10	14.168	33.392	246.9	88.2	0.319	24.910	0.673
20	13.254	33.379	231.2	89.2	0.612	25.087	0.471
30	12.918	33.416	215.6	90.2	0.894	25.183	0.431
50	11.979	33.475	180.8	92.2	1.433	25.410	0.292
75	11.714	33.520	169.8	92.5	2.069	25.495	0.276
100	10.815	33.651	141.8	92.5	2.664	25.760	0.213
125	10.218	33.759	127.6	92.8	3.200	25.948	0.193
150	9.783	33.853	112.4	92.7	3.700	26.096	0.192
200	9.204	34.004	96.4	92.8	4.618	26.309	0.215
250	8.849	34.150	57.8	92.8	5.444	26.481	0.273
300	8.270	34.171	50.5	92.5	6.213	26.587	0.199
400	7.173	34.225	32.9	92.8	7.607	26.790	0.081
500	6.120	34.241	20.5	92.8	8.841	26.943	-0.048
600	5.575	34.308	17.8	91.0	9.945	27.065	-0.063
700	5.098	34.348	16.6	90.2	10.955	27.153	-0.088
800	4.602	34.387	15.4	90.8	11.883	27.241	-0.114
900	4.261	34.416	19.4	89.5	12.761	27.301	-0.128
1000	3.466	34.488	27.6	90.1	13.535	27.439	-0.150
1014	3.407	34.496	28.9	90.0	13.634	27.452	-0.150

Station: 3 Date: 10/24/2006, 2141 Lat.: 36° 42.71 N Long.: 122° 14.35 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.390	33.352	257.0	89.6	0.033	24.617	0.912
10	15.382	33.352	257.0	89.6	0.331	24.618	0.909
20	15.218	33.345	256.5	89.7	0.662	24.650	0.867
30	14.522	33.402	239.6	90.3	0.982	24.843	0.757
50	11.378	33.471	172.2	92.3	1.522	25.518	0.175
75	10.290	33.661	144.5	92.8	2.098	25.859	0.129
100	9.649	33.811	116.1	92.9	2.605	26.084	0.137
125	9.435	33.897	104.4	92.9	3.076	26.187	0.170
150	9.311	33.940	102.2	92.9	3.529	26.241	0.183
200	9.130	34.099	77.9	93.0	4.386	26.395	0.278
250	8.341	34.070	90.2	93.2	5.197	26.496	0.131
300	8.029	34.157	59.8	93.3	5.953	26.612	0.152
400	7.265	34.215	35.7	93.3	7.346	26.769	0.086
500	6.100	34.229	21.8	93.4	8.594	26.936	-0.060
600	5.475	34.268	13.9	93.2	9.716	27.045	-0.107
700	4.886	34.322	8.4	93.4	10.753	27.158	-0.132
800	4.460	34.381	9.1	93.3	11.695	27.252	-0.133
900	4.203	34.406	10.3	93.4	12.567	27.299	-0.142
1000	3.869	34.446	15.3	93.4	13.391	27.367	-0.144
1011	3.811	34.454	16.5	93.4	13.477	27.378	-0.144

Station: 4 Date: 10/24/2006, 2344 Lat.: 36° 37.59 N Long.: 122° 25.17 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.858	33.410	266.0	86.9	0.032	24.777	0.838
10	14.793	33.409	266.2	86.8	0.316	24.791	0.823
20	14.572	33.409	260.1	88.7	0.629	24.838	0.774
30	13.111	33.364	218.0	91.7	0.927	25.105	0.429
50	10.980	33.495	165.7	92.7	1.446	25.608	0.120
75	10.068	33.735	128.9	92.9	1.992	25.954	0.149
100	9.487	33.855	127.7	93.0	2.485	26.145	0.145
125	9.308	33.985	96.9	92.9	2.940	26.276	0.219
150	9.218	34.042	81.2	92.8	3.374	26.335	0.248
200	8.873	34.105	74.4	92.9	4.205	26.441	0.242
250	8.478	34.144	68.8	93.1	4.994	26.534	0.210
300	8.137	34.204	49.2	93.1	5.741	26.633	0.205
400	7.344	34.219	35.7	93.1	7.144	26.761	0.100
500	6.216	34.216	24.6	93.1	8.414	26.911	-0.055
600	5.338	34.250	13.9	93.3	9.548	27.047	-0.137
700	4.987	34.324	9.1	93.2	10.570	27.147	-0.120
800	4.707	34.357	8.6	93.2	11.541	27.205	-0.126
900	4.317	34.403	10.5	93.3	12.446	27.285	-0.132
1000	3.973	34.434	13.6	93.4	13.286	27.346	-0.144
1011	3.953	34.436	13.8	93.4	13.376	27.350	-0.144

Station: 5 Date: 10/25/2006, 0217 Lat.: 36° 32.57 N Long.: 122° 35.99 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.015	33.432	263.0	88.7	0.032	24.760	0.890
10	15.011	33.431	262.8	88.7	0.318	24.760	0.888
20	15.014	33.431	256.9	88.9	0.636	24.760	0.889
30	13.625	33.373	215.0	91.7	0.940	25.008	0.542
50	10.918	33.420	181.5	92.5	1.464	25.561	0.050
75	9.928	33.679	144.7	93.0	2.025	25.934	0.081
100	9.312	33.874	134.7	93.1	2.508	26.189	0.132
125	9.064	33.982	116.3	93.0	2.950	26.313	0.176
150	8.878	34.036	105.9	93.0	3.373	26.385	0.189
200	8.609	34.120	79.3	93.0	4.177	26.493	0.212
250	8.221	34.184	56.2	93.2	4.934	26.604	0.202
300	7.619	34.176	50.3	93.4	5.650	26.687	0.107
400	6.947	34.217	33.0	93.4	6.998	26.814	0.043
500	6.213	34.262	18.5	93.3	8.225	26.948	-0.019
600	5.687	34.312	11.4	93.2	9.346	27.054	-0.046
700	5.127	34.332	9.1	93.3	10.382	27.138	-0.097
800	4.665	34.357	8.4	93.4	11.352	27.211	-0.130
900	4.321	34.404	10.4	93.4	12.256	27.286	-0.130
1000	4.013	34.427	12.7	93.3	13.100	27.337	-0.145
1012	3.999	34.430	13.1	93.3	13.199	27.341	-0.144

Station: 6 Date: 10/25/2006, 0415 Lat.: 36° 27.53 N Long.: 122° 46.61 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.177	33.385	259.6	89.6	0.032	24.689	0.889
10	15.175	33.385	259.3	89.8	0.325	24.689	0.889
20	14.986	33.378	256.4	90.1	0.648	24.726	0.841
30	14.060	33.386	214.0	90.4	0.964	24.928	0.645
50	12.081	33.473	179.1	92.1	1.506	25.389	0.310
75	10.078	33.652	151.3	93.0	2.076	25.888	0.085
100	9.368	33.814	147.7	93.0	2.575	26.132	0.093
125	8.976	33.911	147.4	93.1	3.030	26.271	0.106
150	8.617	33.967	144.7	93.2	3.459	26.372	0.094
200	8.422	34.079	93.4	93.2	4.276	26.490	0.151
250	8.160	34.171	60.4	93.2	5.035	26.602	0.183
300	7.863	34.206	46.0	93.3	5.754	26.675	0.166
400	7.247	34.249	29.3	93.4	7.107	26.799	0.110
500	6.362	34.239	22.8	93.3	8.365	26.910	-0.018
600	5.836	34.291	13.3	93.3	9.522	27.019	-0.045
700	5.275	34.332	9.2	93.4	10.582	27.120	-0.081
800	4.784	34.383	9.5	93.3	11.553	27.218	-0.097
900	4.385	34.417	11.9	93.4	12.450	27.290	-0.114
1000	4.067	34.447	15.6	93.3	13.288	27.347	-0.124
1010	4.034	34.450	16.2	93.3	13.370	27.353	-0.125

Station: 7 Date: 10/25/2006, 0651 Lat.: 36° 22.73 N Long.: 122° 57.53 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.040	33.400	260.6	89.3	0.032	24.730	0.870
10	15.037	33.399	260.6	89.3	0.321	24.730	0.869
20	15.043	33.399	260.2	89.1	0.642	24.729	0.870
30	13.286	33.398	217.9	90.4	0.951	25.096	0.492
50	11.620	33.465	182.6	92.0	1.485	25.469	0.215
75	10.318	33.650	147.4	92.8	2.067	25.845	0.125
100	9.754	33.796	133.1	92.9	2.578	26.055	0.144
125	9.523	33.938	106.0	92.9	3.050	26.205	0.217
150	9.285	34.010	92.1	92.9	3.495	26.300	0.234
200	8.713	34.110	82.3	93.0	4.329	26.470	0.221
250	8.315	34.164	61.9	93.1	5.102	26.574	0.201
300	8.071	34.223	45.5	93.2	5.831	26.657	0.210
400	7.254	34.248	29.7	93.3	7.191	26.796	0.110
500	6.383	34.234	23.7	93.3	8.452	26.904	-0.019
600	5.785	34.298	12.5	93.3	9.601	27.031	-0.045
700	5.220	34.338	9.1	93.3	10.656	27.132	-0.082
800	4.784	34.373	8.9	93.3	11.625	27.210	-0.104
900	4.465	34.409	11.0	93.3	12.534	27.274	-0.112
1000	4.138	34.443	14.8	93.3	13.388	27.337	-0.120
1012	4.100	34.446	15.3	93.3	13.487	27.343	-0.121

Station: 8 Date: 10/25/2006, 0848 Lat.: 36° 17.64 N Long.: 123° 08.14 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.971	33.392	259.8	90.3	0.032	24.739	0.849
10	14.975	33.392	259.5	90.2	0.320	24.738	0.849
20	14.980	33.392	259.6	90.2	0.640	24.737	0.850
30	14.931	33.386	246.3	90.3	0.961	24.744	0.834
50	11.336	33.470	174.6	92.0	1.513	25.525	0.166
75	9.704	33.596	150.5	93.0	2.078	25.906	-0.024
100	9.539	33.847	119.9	93.0	2.574	26.130	0.148
125	9.301	33.966	103.6	93.0	3.032	26.262	0.202
150	9.211	34.050	91.5	92.9	3.464	26.343	0.253
200	9.090	34.170	59.0	92.9	4.290	26.457	0.328
250	8.562	34.191	55.7	93.1	5.067	26.558	0.260
300	7.874	34.177	54.0	93.3	5.804	26.651	0.145
400	7.140	34.220	33.8	93.3	7.170	26.790	0.072
500	6.399	34.247	22.0	93.3	8.427	26.912	-0.007
600	5.801	34.290	13.3	93.2	9.580	27.023	-0.049
700	5.173	34.315	9.3	93.4	10.644	27.119	-0.105
800	4.767	34.378	9.1	93.3	11.623	27.216	-0.103
900	4.443	34.414	11.2	93.2	12.528	27.280	-0.110
1000	4.033	34.449	15.8	93.4	13.373	27.352	-0.126
1010	4.011	34.451	16.2	93.4	13.453	27.356	-0.127

Station: 9 Date: 10/25/2006, 1120 Lat.: 36° 12.59 N Long.: 123° 18.87 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.050	33.423	259.4	91.2	0.032	24.746	0.891
10	15.049	33.422	259.7	91.7	0.319	24.745	0.890
20	15.058	33.422	259.5	91.9	0.639	24.744	0.891
30	15.061	33.422	259.7	91.9	0.959	24.743	0.892
50	12.002	33.463	185.8	91.8	1.549	25.396	0.286
75	10.227	33.666	145.4	93.0	2.143	25.873	0.121
100	9.908	33.827	120.0	92.9	2.653	26.053	0.194
125	9.625	33.915	106.3	92.8	3.129	26.170	0.215
150	9.253	34.009	93.4	92.8	3.582	26.305	0.228
200	9.083	34.143	69.1	93.0	4.415	26.437	0.305
250	8.652	34.181	57.9	92.9	5.208	26.536	0.266
300	7.917	34.187	50.2	93.3	5.952	26.652	0.159
400	7.260	34.215	35.9	93.3	7.334	26.770	0.085
500	6.416	34.239	23.3	93.3	8.606	26.904	-0.011
600	5.688	34.262	15.0	93.3	9.767	27.014	-0.086
700	5.091	34.282	11.0	93.4	10.839	27.103	-0.141
800	4.902	34.351	9.0	93.2	11.838	27.180	-0.109
900	4.490	34.397	10.6	93.1	12.768	27.262	-0.119
1000	4.159	34.431	13.8	93.0	13.636	27.325	-0.127
1019	4.069	34.440	14.9	93.0	13.794	27.341	-0.130

Station: 10 Date: 10/25/2006, 1425 Lat.: 36° 07.59 N Long.: 123° 29.50 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.319	33.369	258.6	91.1	0.033	24.645	0.909
10	15.328	33.369	258.6	91.1	0.329	24.644	0.911
20	15.320	33.367	258.6	91.2	0.658	24.644	0.906
30	15.268	33.356	257.3	91.1	0.987	24.647	0.886
50	11.779	33.273	206.6	92.4	1.585	25.290	0.093
75	10.596	33.497	171.9	92.9	2.215	25.678	0.052
100	9.731	33.624	148.0	93.0	2.769	25.924	0.002
125	9.351	33.789	126.9	93.1	3.268	26.116	0.070
150	9.024	33.917	112.5	93.1	3.725	26.269	0.119
200	8.645	34.062	95.9	93.1	4.565	26.443	0.172
250	7.962	34.054	103.1	93.3	5.350	26.540	0.061
300	7.245	34.088	80.8	93.4	6.084	26.670	-0.016
400	6.285	34.099	58.5	93.4	7.433	26.809	-0.137
500	5.313	34.116	38.7	93.4	8.654	26.942	-0.245
600	5.417	34.282	12.3	93.4	9.764	27.063	-0.102
700	4.968	34.346	9.1	93.4	10.783	27.167	-0.105
800	4.546	34.381	9.8	93.4	11.719	27.242	-0.124
900	4.228	34.424	12.6	93.4	12.591	27.312	-0.124
1000	3.866	34.447	15.4	93.4	13.409	27.368	-0.144
1012	3.849	34.450	15.8	93.4	13.504	27.371	-0.144

Station: 11 Date: 10/25/2006, 1819 Lat.: 36° 02.48 N Long.: 123° 40.13 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.888	33.057	258.2	90.7	0.036	24.278	0.792
10	15.888	33.057	258.5	90.5	0.364	24.279	0.792
20	15.893	33.057	258.1	90.5	0.728	24.278	0.793
30	13.901	33.047	277.4	90.4	1.075	24.699	0.342
50	11.522	32.899	270.7	92.0	1.684	25.047	-0.254
75	10.956	33.271	203.0	92.8	2.362	25.439	-0.063
100	9.911	33.546	164.7	93.0	2.941	25.833	-0.029
125	9.438	33.755	140.3	93.1	3.449	26.075	0.058
150	8.935	33.889	128.9	93.1	3.915	26.261	0.082
200	8.374	34.027	109.3	93.2	4.754	26.457	0.103
250	7.824	34.088	78.6	93.2	5.525	26.587	0.068
300	6.959	34.044	82.7	93.4	6.248	26.675	-0.090
400	5.729	34.060	57.7	93.4	7.574	26.848	-0.238
500	4.997	34.125	33.4	93.4	8.753	26.986	-0.274
600	4.660	34.212	16.0	93.5	9.822	27.094	-0.243
700	4.402	34.305	8.8	93.5	10.797	27.197	-0.198
800	4.225	34.380	10.5	93.5	11.695	27.276	-0.159
900	4.101	34.445	15.8	93.4	12.531	27.341	-0.122
1000	3.811	34.468	20.6	93.4	13.319	27.390	-0.133
1011	3.793	34.474	21.3	93.4	13.403	27.397	-0.130

Station: 12 Date: 10/25/2006, 2240 Lat.: 35° 57.58 N Long.: 123° 50.65 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.780	33.080	258.8	89.4	0.036	24.320	0.786
10	15.780	33.079	258.3	89.3	0.360	24.320	0.785
20	15.575	33.072	260.4	89.3	0.719	24.361	0.732
30	12.599	32.943	276.9	91.3	1.044	24.879	-0.010
50	11.121	32.900	264.8	92.2	1.632	25.120	-0.329
75	10.384	33.053	230.9	92.8	2.315	25.368	-0.340
100	9.729	33.459	174.9	93.0	2.916	25.796	-0.129
125	9.140	33.741	139.6	93.0	3.428	26.112	-0.002
150	8.669	33.899	133.8	93.1	3.878	26.310	0.047
200	8.190	34.027	106.8	93.1	4.700	26.485	0.075
250	7.559	34.053	84.2	93.2	5.458	26.598	0.002
300	6.768	34.047	74.0	93.3	6.170	26.703	-0.114
400	6.084	34.115	42.0	93.3	7.472	26.847	-0.151
500	5.580	34.190	24.0	93.3	8.665	26.970	-0.154
600	4.993	34.245	13.9	93.4	9.751	27.083	-0.181
700	4.624	34.307	9.4	93.4	10.749	27.175	-0.173
800	4.306	34.370	10.0	93.5	11.666	27.259	-0.158
900	4.042	34.418	13.7	93.5	12.524	27.326	-0.149
1000	3.802	34.455	18.7	93.5	13.327	27.380	-0.144
1015	3.768	34.460	19.6	93.5	13.443	27.388	-0.144

Station: 13 Date: 10/26/2006, 0253 Lat.: 35° 52.53 N Long.: 124° 01.28 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	16.206	33.025	255.6	90.9	0.037	24.182	0.841
10	16.208	33.025	255.6	91.0	0.373	24.182	0.841
20	16.217	33.024	255.6	91.0	0.746	24.180	0.843
30	16.178	33.020	256.9	91.0	1.120	24.186	0.830
50	13.131	33.130	254.8	91.8	1.767	24.920	0.246
75	11.647	33.349	220.2	92.9	2.469	25.375	0.128
100	9.725	33.514	168.7	93.0	3.060	25.839	-0.086
125	9.210	33.758	140.2	93.1	3.564	26.115	0.023
150	8.735	33.911	125.2	93.1	4.016	26.310	0.068
200	8.120	34.004	110.1	93.1	4.841	26.477	0.046
250	7.548	34.064	81.4	93.2	5.596	26.608	0.009
300	7.053	34.081	69.0	93.2	6.308	26.691	-0.048
400	6.239	34.148	38.4	93.2	7.620	26.853	-0.105
500	5.535	34.203	19.7	93.3	8.809	26.986	-0.149
600	5.051	34.279	10.9	93.3	9.878	27.103	-0.147
700	4.686	34.337	8.4	93.3	10.860	27.192	-0.142
800	4.364	34.392	9.7	93.3	11.769	27.271	-0.135
900	4.120	34.431	13.3	93.3	12.618	27.328	-0.131
1000	3.828	34.465	18.8	93.3	13.416	27.386	-0.133
1015	3.771	34.471	19.9	93.3	13.532	27.397	-0.134

Station: 14 Date: 10/26/2006, 0603 Lat.: 35° 47.55 N Long.: 124° 11.98 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	16.539	33.010	252.8	91.4	0.038	24.094	0.908
10	16.549	33.009	253.1	91.5	0.381	24.092	0.910
20	16.544	33.009	253.1	91.5	0.763	24.093	0.908
30	16.539	33.008	253.4	91.5	1.145	24.094	0.906
50	12.242	32.951	260.7	91.6	1.811	24.953	-0.075
75	10.921	33.306	205.0	93.0	2.501	25.472	-0.041
100	9.689	33.563	170.5	93.2	3.066	25.884	-0.053
125	9.100	33.744	164.4	93.1	3.567	26.121	-0.006
150	8.838	33.882	130.3	93.0	4.025	26.270	0.061
200	8.370	34.030	93.3	93.1	4.856	26.460	0.105
250	7.536	34.050	90.3	93.2	5.622	26.599	-0.004
300	6.941	34.064	74.8	93.3	6.336	26.693	-0.077
400	6.253	34.166	33.3	93.2	7.639	26.866	-0.089
500	5.679	34.230	18.4	93.3	8.815	26.989	-0.111
600	5.137	34.304	9.8	93.3	9.881	27.113	-0.117
700	4.714	34.358	8.5	93.3	10.851	27.205	-0.123
800	4.355	34.397	10.1	93.3	11.750	27.275	-0.132
900	4.105	34.427	13.2	93.3	12.596	27.327	-0.135
1000	3.842	34.456	17.1	93.3	13.399	27.377	-0.139
1022	3.772	34.461	18.1	93.4	13.570	27.388	-0.142

Station: 15 Date: 10/26/2006, 1017 Lat.: 35° 42.69 N Long.: 124° 22.53 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	16.514	33.005	253.0	91.5	0.038	24.096	0.898
10	16.514	33.005	253.0	91.5	0.381	24.097	0.898
20	16.513	33.005	252.8	91.5	0.762	24.097	0.897
30	16.496	33.005	253.1	91.5	1.144	24.102	0.893
50	12.835	32.963	268.9	91.5	1.845	24.849	0.053
75	11.273	33.099	225.7	92.9	2.582	25.248	-0.142
100	10.035	33.496	171.0	93.0	3.199	25.773	-0.048
125	9.243	33.747	149.9	93.1	3.711	26.101	0.020
150	8.969	33.895	130.4	93.1	4.173	26.261	0.092
200	8.143	33.979	133.7	93.1	5.014	26.453	0.030
250	7.495	34.017	112.2	93.2	5.785	26.579	-0.036
300	7.243	34.096	67.7	93.2	6.507	26.676	-0.010
400	5.897	34.074	54.2	93.3	7.831	26.838	-0.206
500	5.664	34.222	19.3	93.3	9.018	26.985	-0.119
600	5.205	34.282	11.2	93.3	10.096	27.088	-0.127
700	4.736	34.346	8.4	93.3	11.083	27.193	-0.130
800	4.349	34.397	10.1	93.3	11.987	27.276	-0.133
900	4.088	34.442	14.8	93.3	12.828	27.340	-0.125
1000	3.835	34.467	18.6	93.3	13.618	27.386	-0.132
1012	3.791	34.471	19.4	93.3	13.710	27.394	-0.133

Station: 16 Date: 10/26/2006, 1355 Lat.: 35° 37.51 N Long.: 124° 33.24 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	16.499	33.004	252.5	91.7	0.038	24.099	0.894
10	16.504	33.004	252.2	91.7	0.381	24.098	0.895
20	16.505	33.004	252.2	91.7	0.762	24.099	0.895
30	16.491	33.004	252.1	91.7	1.143	24.102	0.891
50	12.541	32.940	268.3	91.9	1.817	24.888	-0.024
75	11.265	33.144	218.9	92.9	2.539	25.285	-0.107
100	9.887	33.476	178.5	93.1	3.140	25.783	-0.088
125	9.356	33.702	138.9	93.1	3.667	26.047	0.002
150	9.106	33.867	132.2	93.1	4.137	26.217	0.092
200	8.105	33.975	154.7	93.2	4.977	26.457	0.021
250	7.553	34.036	100.4	93.2	5.745	26.585	-0.013
300	7.468	34.139	56.3	93.2	6.466	26.679	0.056
400	6.316	34.140	41.6	93.3	7.798	26.837	-0.101
500	5.376	34.174	23.9	93.3	8.991	26.981	-0.191
600	5.192	34.289	10.8	93.3	10.067	27.095	-0.123
700	4.773	34.352	8.5	93.3	11.056	27.193	-0.122
800	4.376	34.398	10.1	93.3	11.961	27.274	-0.129
900	4.047	34.443	14.8	93.3	12.800	27.345	-0.128
1000	3.779	34.473	19.5	93.3	13.583	27.397	-0.133
1010	3.756	34.475	20.0	93.3	13.659	27.401	-0.133

Station: 17 Date: 10/26/2006, 1740 Lat.: 35° 32.67 N Long.: 124° 43.85 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	16.554	32.991	251.9	91.7	0.038	24.076	0.897
10	16.550	32.990	251.9	91.7	0.383	24.077	0.895
20	16.552	32.991	251.7	91.7	0.766	24.077	0.895
30	16.549	32.990	252.1	91.7	1.150	24.078	0.894
50	13.268	33.007	264.2	92.0	1.865	24.797	0.177
75	10.955	33.178	218.6	93.0	2.590	25.367	-0.137
100	9.656	33.547	170.9	93.1	3.180	25.877	-0.071
125	9.196	33.747	142.2	93.1	3.678	26.108	0.012
150	9.098	33.919	117.8	93.1	4.137	26.259	0.132
200	8.405	34.027	101.2	93.1	4.975	26.452	0.108
250	7.294	33.998	123.6	93.3	5.739	26.592	-0.080
300	6.601	34.001	105.4	93.3	6.457	26.689	-0.173
400	6.269	34.169	33.9	93.3	7.761	26.867	-0.084
500	5.160	34.153	26.0	93.3	8.934	26.990	-0.233
600	4.764	34.252	13.0	93.4	9.994	27.114	-0.200
700	4.740	34.375	9.5	93.3	10.954	27.216	-0.107
800	4.334	34.411	11.3	93.3	11.842	27.289	-0.123
900	3.994	34.441	15.0	93.3	12.670	27.349	-0.135
1000	3.756	34.471	20.0	93.3	13.452	27.397	-0.136
1012	3.725	34.476	21.2	93.4	13.543	27.404	-0.135

Station: 18 Date: 10/26/2006, 2119 Lat.: 35° 27.79 N Long.: 124° 54.38 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	16.106	32.965	256.7	90.9	0.037	24.159	0.770
10	16.105	32.964	256.5	90.9	0.375	24.159	0.769
20	16.063	32.964	256.5	90.8	0.750	24.168	0.759
30	16.032	32.964	256.6	90.8	1.125	24.176	0.752
50	12.498	32.946	261.8	91.9	1.792	24.901	-0.028
75	11.026	33.182	219.5	92.8	2.497	25.357	-0.121
100	9.956	33.490	170.4	93.0	3.107	25.782	-0.065
125	9.214	33.773	137.5	93.0	3.617	26.125	0.035
150	8.827	33.870	133.7	93.0	4.077	26.263	0.049
200	8.494	34.036	102.1	93.1	4.914	26.445	0.128
202	8.476	34.036	102.1	93.1	4.947	26.449	0.126

Station: 19 Date: 10/26/2006, 2219 Lat.: 35° 29.51 N Long.: 124° 55.03 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	16.140	32.970	256.6	90.8	0.038	24.155	0.783
10	16.153	32.970	256.5	90.8	0.376	24.152	0.785
20	16.086	32.968	257.0	90.7	0.751	24.166	0.768
30	16.045	32.969	257.2	90.7	1.126	24.176	0.758
50	12.750	32.985	263.1	91.7	1.805	24.883	0.054
75	11.049	33.106	230.4	92.7	2.519	25.294	-0.177
100	9.948	33.469	178.9	93.0	3.134	25.767	-0.084
125	9.252	33.660	156.8	93.1	3.661	26.031	-0.048
150	8.910	33.862	130.8	93.0	4.128	26.244	0.057
200	8.127	33.992	126.3	93.1	4.970	26.466	0.037
250	7.400	34.002	122.1	93.2	5.742	26.581	-0.061
300	6.693	34.007	103.2	93.3	6.461	26.682	-0.155
400	5.776	34.090	53.1	93.3	7.771	26.865	-0.209
500	5.736	34.243	18.0	93.3	8.946	26.993	-0.093
600	4.891	34.244	13.9	93.3	10.017	27.093	-0.193
700	4.590	34.336	8.4	93.3	10.997	27.201	-0.154
800	4.261	34.399	10.4	93.3	11.893	27.287	-0.140
900	3.968	34.433	14.5	93.4	12.721	27.346	-0.144
1000	3.719	34.472	20.1	93.3	13.502	27.402	-0.138
1100	3.506	34.497	25.8	93.3	14.240	27.443	-0.140
1200	3.247	34.511	29.2	93.3	14.943	27.480	-0.154
1300	3.045	34.528	34.1	93.3	15.615	27.512	-0.160
1400	2.899	34.544	40.3	93.3	16.261	27.539	-0.160
1500	2.738	34.558	45.8	93.4	16.884	27.565	-0.164
1750	2.283	34.591	60.9	93.4	18.327	27.631	-0.177
2000	2.037	34.615	74.7	93.4	19.648	27.671	-0.179
2500	1.767	34.650	103.2	93.4	22.084	27.723	-0.174
3000	1.613	34.665	118.7	93.4	24.387	27.749	-0.176
3500	1.527	34.677	132.7	93.4	26.646	27.768	-0.176
4000	1.487	34.686	148.8	93.5	28.882	27.782	-0.175
4049	1.489	34.686	149.8	93.4	29.103	27.782	-0.175

Station: 20 Date: 10/27/2006, 0331 Lat.: 35° 42.16 N Long.: 125° 05.31 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.003	33.189	263.4	89.5	0.034	24.576	0.696
10	15.006	33.190	263.5	89.4	0.335	24.576	0.696
20	14.994	33.195	263.0	89.6	0.671	24.583	0.698
30	14.451	33.228	262.9	90.3	1.000	24.725	0.604
50	10.735	32.921	250.3	92.0	1.602	25.204	-0.382
75	10.604	33.376	201.8	92.6	2.245	25.582	-0.042
100	9.266	33.704	141.0	92.9	2.779	26.062	-0.011
125	9.068	33.874	112.5	92.8	3.246	26.228	0.092
150	8.446	33.907	107.4	92.9	3.682	26.351	0.019
200	7.983	34.040	97.3	93.1	4.484	26.525	0.054
250	7.277	34.053	82.9	93.2	5.227	26.638	-0.038
300	6.818	34.067	70.1	93.2	5.925	26.712	-0.091
400	5.823	34.097	45.8	93.2	7.221	26.865	-0.197
500	5.304	34.189	21.6	93.2	8.383	27.002	-0.188
600	5.085	34.302	10.3	93.2	9.442	27.118	-0.125
700	4.707	34.358	8.8	93.3	10.404	27.206	-0.124
800	4.322	34.400	10.6	93.3	11.303	27.281	-0.133
900	4.024	34.437	14.5	93.3	12.139	27.343	-0.136
1000	3.782	34.467	19.3	93.3	12.925	27.392	-0.137
1011	3.742	34.470	19.9	93.3	13.009	27.398	-0.138

Station: 21 Date: 10/27/2006, 0658 Lat.: 36° 00.45 N Long.: 125° 19.03 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.609	33.213	262.4	89.3	0.033	24.678	0.627
10	14.619	33.212	262.5	89.5	0.326	24.676	0.629
20	14.620	33.212	262.2	89.6	0.652	24.676	0.629
30	14.573	33.220	259.8	90.3	0.977	24.692	0.624
50	10.549	33.035	239.5	92.5	1.555	25.326	-0.324
75	9.380	33.399	196.9	93.0	2.163	25.805	-0.235
100	8.956	33.693	149.6	93.0	2.675	26.103	-0.069
125	8.858	33.914	112.2	92.9	3.131	26.292	0.090
150	8.625	33.998	100.7	92.9	3.555	26.395	0.119
200	8.047	34.061	77.2	93.0	4.349	26.532	0.080
250	7.370	34.092	67.1	93.2	5.089	26.655	0.005
300	6.716	34.075	61.8	93.2	5.779	26.733	-0.098
400	6.139	34.183	29.1	93.2	7.045	26.894	-0.090
500	5.545	34.246	15.9	93.2	8.198	27.018	-0.114
600	5.015	34.296	10.3	93.2	9.244	27.121	-0.138
700	4.525	34.344	8.1	93.2	10.206	27.215	-0.154
800	4.337	34.419	11.8	93.3	11.090	27.295	-0.116
900	4.023	34.453	16.4	93.3	11.913	27.355	-0.123
1000	3.767	34.479	21.6	93.3	12.690	27.403	-0.129
1011	3.729	34.482	22.0	93.3	12.773	27.409	-0.130

Station: 22 Date: 10/27/2006, 1036 Lat.: 36° 18.64 N Long.: 125° 32.61 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.760	33.232	261.4	89.8	0.033	24.661	0.676
10	14.760	33.232	261.6	89.7	0.327	24.661	0.676
20	14.589	33.223	261.7	89.4	0.654	24.691	0.630
30	14.230	33.229	260.7	90.0	0.973	24.772	0.557
50	11.266	32.916	255.2	92.0	1.594	25.106	-0.289
75	9.565	33.432	195.1	93.0	2.217	25.801	-0.177
100	8.928	33.622	178.7	93.0	2.735	26.052	-0.130
125	8.847	33.872	140.4	92.9	3.199	26.261	0.055
150	8.584	33.973	108.3	92.9	3.628	26.381	0.093
200	8.133	34.065	74.7	93.0	4.427	26.523	0.096
250	7.726	34.125	58.9	93.1	5.169	26.630	0.083
300	6.943	34.085	58.2	93.2	5.873	26.709	-0.060
400	6.227	34.160	34.1	93.2	7.173	26.864	-0.097
500	5.606	34.234	17.0	93.2	8.347	27.002	-0.116
600	5.078	34.290	10.5	93.2	9.410	27.109	-0.135
700	4.764	34.353	8.5	93.2	10.386	27.195	-0.121
800	4.342	34.382	8.8	93.2	11.295	27.265	-0.145
900	4.175	34.424	12.1	93.2	12.152	27.317	-0.130
1000	3.862	34.446	14.9	93.2	12.966	27.367	-0.145
1011	3.814	34.450	15.5	93.2	13.052	27.375	-0.147

Station: 23 Date: 10/27/2006, 1359 Lat.: 36° 36.90 N Long.: 125° 46.25 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	13.842	33.208	264.2	90.4	0.031	24.835	0.458
10	13.844	33.206	264.1	90.4	0.311	24.834	0.457
20	13.826	33.203	264.1	90.5	0.622	24.835	0.450
30	13.345	33.098	267.4	90.6	0.932	24.852	0.266
50	12.644	33.002	260.9	91.1	1.548	24.916	0.046
75	9.796	33.364	195.2	92.9	2.205	25.710	-0.193
100	8.723	33.649	192.0	93.1	2.721	26.105	-0.142
102	8.668	33.684	191.2	93.1	2.759	26.141	-0.122

Station: 24 Date: 10/27/2006, 1507 Lat.: 36° 36.86 N Long.: 125° 46.26 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	13.858	33.208	264.5	90.4	0.031	24.832	0.461
10	13.848	33.207	264.6	90.4	0.311	24.833	0.458
20	13.780	33.193	265.3	90.5	0.622	24.837	0.433
30	13.419	33.118	267.8	90.6	0.932	24.853	0.297
50	11.594	32.960	256.6	91.9	1.541	25.081	-0.192
75	9.779	33.366	199.5	92.9	2.181	25.714	-0.194
100	8.705	33.659	191.0	93.1	2.697	26.116	-0.136
125	8.549	33.909	122.4	93.1	3.145	26.336	0.037
150	8.451	34.025	85.0	92.9	3.555	26.443	0.114
200	7.793	34.090	71.5	93.0	4.326	26.593	0.066
250	7.850	34.216	40.8	93.1	5.037	26.684	0.173
300	7.406	34.228	34.8	93.1	5.715	26.758	0.117
400	6.737	34.239	26.5	93.1	7.001	26.860	0.032
500	6.046	34.254	18.7	93.2	8.202	26.963	-0.047
600	5.251	34.268	12.7	93.2	9.308	27.071	-0.133
700	4.792	34.328	8.5	93.2	10.313	27.172	-0.138
800	4.440	34.391	9.5	93.2	11.234	27.262	-0.127
900	4.078	34.418	11.7	93.2	12.089	27.322	-0.145
1000	3.750	34.452	15.7	93.3	12.889	27.383	-0.152
1100	3.558	34.486	23.0	93.3	13.645	27.430	-0.144
1200	3.324	34.508	28.8	93.3	14.360	27.471	-0.149
1300	3.097	34.527	34.5	93.3	15.041	27.507	-0.156
1400	2.919	34.541	39.1	93.3	15.693	27.535	-0.161
1500	2.777	34.553	43.4	93.3	16.322	27.558	-0.165
1750	2.353	34.587	58.8	93.4	17.793	27.622	-0.174
2000	2.050	34.610	72.3	93.4	19.131	27.666	-0.181
2500	1.766	34.646	98.4	93.4	21.582	27.719	-0.177
3000	1.612	34.664	117.2	93.4	23.893	27.748	-0.177
3500	1.521	34.676	133.2	93.4	26.149	27.768	-0.177
4000	1.492	34.685	147.6	93.4	28.390	27.781	-0.175
4270	1.507	34.687	151.2	93.4	29.617	27.783	-0.175

Station: 25 Date: 10/27/2006, 2030 Lat.: 36° 46.89 N Long.: 125° 24.94 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.996	33.231	262.1	88.2	0.033	24.609	0.727
10	14.787	33.230	262.2	88.0	0.330	24.654	0.680
20	14.760	33.230	261.5	88.1	0.658	24.660	0.674
30	14.709	33.230	257.3	89.1	0.985	24.671	0.662
50	10.262	33.394	184.2	92.5	1.530	25.655	-0.088
75	9.622	33.641	148.8	92.8	2.075	25.955	-0.001
100	9.040	33.845	118.7	92.8	2.556	26.209	0.065
125	8.866	33.940	103.5	92.8	3.000	26.312	0.112
150	8.615	34.049	85.2	92.9	3.414	26.436	0.158
200	8.116	34.102	70.8	93.0	4.193	26.555	0.123
250	7.647	34.130	58.8	93.1	4.926	26.646	0.075
300	7.148	34.146	49.7	93.2	5.621	26.730	0.017
400	6.053	34.150	34.6	93.2	6.905	26.879	-0.126
500	5.427	34.200	20.7	93.3	8.069	26.996	-0.164
600	5.091	34.264	11.5	93.2	9.147	27.087	-0.154
700	4.690	34.325	8.0	93.3	10.144	27.181	-0.152
800	4.346	34.378	8.4	93.3	11.060	27.261	-0.148
900	4.070	34.416	11.1	93.2	11.915	27.321	-0.148
1000	3.811	34.455	16.3	93.2	12.718	27.379	-0.143
1011	3.782	34.457	16.6	93.2	12.804	27.384	-0.144

Station: 26 Date: 10/28/2006, 0017 Lat.: 36° 56.91 N Long.: 125° 03.21 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.257	33.172	262.7	88.3	0.034	24.507	0.739
10	14.762	33.169	264.5	87.5	0.336	24.612	0.626
20	14.723	33.172	264.1	87.6	0.667	24.623	0.619
30	14.698	33.172	262.8	87.9	0.999	24.629	0.613
50	11.967	33.231	232.7	91.8	1.623	25.223	0.096
75	9.772	33.538	164.5	92.8	2.218	25.850	-0.058
100	9.348	33.751	128.0	92.9	2.732	26.086	0.040
125	8.863	33.903	103.1	92.9	3.186	26.283	0.082
150	8.573	33.989	97.7	92.9	3.609	26.396	0.104
200	7.768	34.002	108.2	93.0	4.404	26.527	-0.008
250	7.301	34.040	88.0	93.1	5.146	26.624	-0.045
300	6.698	34.053	70.3	93.2	5.847	26.717	-0.118
400	5.917	34.143	35.1	93.2	7.128	26.890	-0.149
500	5.418	34.192	21.4	93.3	8.290	26.991	-0.172
600	4.981	34.255	11.8	93.3	9.365	27.093	-0.173
700	4.600	34.329	8.2	93.3	10.348	27.195	-0.158
800	4.467	34.404	10.7	93.2	11.254	27.269	-0.115
900	4.112	34.434	13.6	93.2	12.102	27.332	-0.129
1000	3.789	34.454	15.9	93.3	12.902	27.381	-0.146
1011	3.781	34.459	17.3	93.3	12.987	27.386	-0.143

Station: 27 Date: 10/28/2006, 0355 Lat.: 37° 06.86 N Long.: 124° 41.63 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.265	33.238	261.8	88.9	0.034	24.556	0.793
10	14.945	33.233	263.6	88.3	0.334	24.622	0.717
20	14.902	33.235	263.3	88.4	0.664	24.633	0.709
30	14.889	33.237	261.8	88.9	0.995	24.638	0.707
50	11.941	33.020	241.5	91.6	1.645	25.064	-0.078
75	10.320	33.535	168.5	92.8	2.277	25.755	0.033
100	9.482	33.683	135.6	92.9	2.809	26.011	0.008
125	9.030	33.853	122.1	92.9	3.284	26.217	0.069
150	8.482	33.900	125.0	92.9	3.725	26.340	0.019
200	7.799	34.002	106.9	93.0	4.529	26.523	-0.003
250	7.418	34.067	78.5	93.2	5.271	26.629	-0.008
300	7.036	34.107	58.4	93.2	5.973	26.714	-0.030
400	6.131	34.129	40.9	93.2	7.274	26.852	-0.133
500	5.461	34.187	23.0	93.2	8.463	26.982	-0.171
600	5.177	34.296	10.8	93.3	9.536	27.102	-0.119
700	4.817	34.351	8.7	93.3	10.524	27.188	-0.117
800	4.473	34.397	10.2	93.3	11.437	27.263	-0.119
900	4.217	34.420	12.2	93.3	12.301	27.310	-0.129
1000	3.880	34.450	15.6	93.2	13.118	27.368	-0.141
1010	3.849	34.453	16.0	93.2	13.197	27.374	-0.141

Station: 28 Date: 10/28/2006, 0719 Lat.: 37° 16.95 N Long.: 124° 20.05 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.962	33.173	263.3	88.3	0.034	24.572	0.674
10	14.848	33.169	263.6	88.1	0.335	24.594	0.645
20	14.823	33.170	262.9	88.3	0.669	24.600	0.640
30	14.816	33.170	261.8	88.6	1.002	24.602	0.638
50	11.983	33.326	222.8	92.3	1.594	25.294	0.174
75	9.839	33.531	164.6	92.8	2.195	25.834	-0.052
100	8.909	33.651	162.9	93.1	2.703	26.078	-0.110
125	8.681	33.839	142.2	93.0	3.163	26.261	0.003
150	8.544	33.956	112.8	93.0	3.591	26.374	0.074
200	7.906	34.018	105.7	93.0	4.390	26.519	0.025
250	7.479	34.084	68.9	93.1	5.133	26.633	0.014
300	6.994	34.124	52.0	93.2	5.827	26.733	-0.023
400	6.197	34.159	34.5	93.2	7.117	26.868	-0.101
500	5.554	34.219	19.5	93.2	8.284	26.996	-0.135
600	5.009	34.268	11.6	93.2	9.359	27.099	-0.160
700	4.659	34.315	8.3	93.3	10.348	27.177	-0.163
800	4.327	34.365	8.1	93.3	11.268	27.253	-0.160
900	4.080	34.413	10.8	93.3	12.128	27.318	-0.148
1000	3.787	34.444	14.4	93.2	12.936	27.373	-0.154
1016	3.713	34.445	14.5	93.3	13.061	27.381	-0.161

Station: 29 Date: 10/28/2006, 1102 Lat.: 37° 26.94 N Long.: 123° 58.22 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.039	33.219	262.7	89.0	0.033	24.591	0.727
10	15.047	33.219	262.6	89.0	0.334	24.589	0.729
20	14.993	33.220	263.1	88.8	0.668	24.602	0.717
30	14.944	33.231	260.5	89.2	1.001	24.621	0.715
50	11.698	33.071	232.8	91.9	1.616	25.149	-0.083
75	10.010	33.317	191.1	92.8	2.257	25.638	-0.194
100	9.290	33.590	156.7	93.0	2.800	25.970	-0.097
125	8.685	33.742	156.8	93.0	3.284	26.184	-0.074
150	8.524	33.905	131.3	93.0	3.728	26.338	0.030
200	7.955	34.034	92.2	93.0	4.536	26.525	0.045
250	7.712	34.119	60.9	93.1	5.279	26.628	0.076
300	7.314	34.146	49.6	93.2	5.984	26.706	0.040
400	5.912	34.110	40.9	93.2	7.288	26.865	-0.175
500	5.465	34.195	21.1	93.2	8.462	26.988	-0.164
600	5.057	34.269	11.9	93.2	9.536	27.094	-0.154
700	4.664	34.319	8.5	93.2	10.529	27.179	-0.160
800	4.329	34.362	8.0	93.2	11.451	27.251	-0.162
900	4.026	34.414	10.7	93.2	12.308	27.324	-0.153
1000	3.845	34.450	15.4	93.2	13.114	27.372	-0.144
1011	3.808	34.449	15.4	93.3	13.200	27.375	-0.148

Station: 30 Date: 10/28/2006, 1441 Lat.: 37° 36.83 N Long.: 123° 36.41 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.090	33.185	261.6	89.7	0.034	24.553	0.712
10	15.044	33.181	262.9	89.4	0.337	24.561	0.698
20	14.984	33.180	263.4	89.2	0.673	24.573	0.684
30	14.907	33.180	262.5	89.7	1.009	24.590	0.666
50	11.806	33.059	242.4	92.2	1.620	25.119	-0.073
75	10.372	33.282	199.5	92.8	2.283	25.549	-0.159
100	9.348	33.556	159.4	92.9	2.847	25.934	-0.115
125	8.804	33.761	142.2	93.0	3.339	26.181	-0.040
150	8.526	33.882	134.1	93.0	3.781	26.319	0.012
200	7.934	34.018	98.3	93.0	4.583	26.515	0.029
250	7.577	34.077	74.3	93.0	5.336	26.614	0.023
300	7.336	34.130	54.1	93.2	6.048	26.690	0.030
400	6.422	34.161	36.1	93.2	7.364	26.840	-0.070
500	5.641	34.184	24.8	93.2	8.563	26.957	-0.152
600	5.357	34.288	12.0	93.2	9.665	27.075	-0.105
700	5.011	34.339	9.1	93.2	10.678	27.156	-0.105
800	4.559	34.371	8.8	93.2	11.622	27.233	-0.131
900	4.311	34.411	10.9	93.2	12.510	27.293	-0.126
1000	3.963	34.440	14.1	93.2	13.344	27.352	-0.140
1013	3.906	34.441	14.3	93.3	13.448	27.359	-0.145

Station: 31 Date: 10/28/2006, 1713 Lat.: 37° 41.85 N Long.: 123° 25.61 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.744	33.383	282.2	84.0	0.032	24.781	0.792
10	14.690	33.382	282.7	83.4	0.315	24.792	0.778
20	14.639	33.396	271.0	84.1	0.630	24.814	0.778
30	14.511	33.399	264.1	89.1	0.941	24.844	0.752
50	11.379	33.099	224.4	91.9	1.529	25.229	-0.121
75	9.753	33.415	175.6	92.7	2.154	25.757	-0.159
100	9.189	33.651	147.3	92.9	2.676	26.034	-0.065
125	8.898	33.783	135.9	92.9	3.151	26.184	-0.007
150	8.784	33.921	116.4	92.9	3.598	26.310	0.083
200	7.869	33.978	120.2	93.0	4.423	26.493	-0.012
250	7.482	34.025	98.0	93.0	5.187	26.587	-0.032
300	7.128	34.095	65.1	93.2	5.906	26.692	-0.026
400	6.293	34.134	39.2	93.2	7.229	26.835	-0.109
500	5.827	34.207	22.8	93.2	8.439	26.953	-0.111
600	5.244	34.290	11.9	93.0	9.542	27.090	-0.116
700	4.901	34.320	9.4	93.0	10.546	27.154	-0.133
800	4.659	34.370	8.9	93.2	11.503	27.221	-0.121
900	4.242	34.398	10.2	93.2	12.398	27.289	-0.144
1000	3.918	34.438	13.8	93.2	13.229	27.355	-0.146
1012	3.904	34.442	14.3	93.3	13.326	27.360	-0.145

Station: 32 Date: 10/28/2006, 1955 Lat.: 37° 47.06 N Long.: 123° 14.81 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.054	33.412	305.7	81.7	0.032	24.736	0.883
10	14.750	33.408	282.4	83.4	0.316	24.799	0.812
20	14.284	33.401	271.6	88.4	0.625	24.893	0.704
30	12.955	33.380	221.0	91.5	0.920	25.148	0.410
50	10.669	33.576	160.7	92.6	1.427	25.727	0.129
75	9.864	33.819	119.8	91.7	1.948	26.054	0.181
100	9.562	33.899	106.3	91.4	2.427	26.167	0.193
117	9.336	33.958	98.5	91.7	2.735	26.251	0.202

Station: 33 Date: 10/28/2006, 2146 Lat.: 37° 52.00 N Long.: 123° 03.95 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.117	33.407	296.2	80.8	0.032	24.718	0.893
10	14.535	33.396	273.1	81.8	0.315	24.835	0.755
20	12.519	33.283	224.1	90.5	0.613	25.157	0.246
30	11.653	33.283	209.0	91.9	0.885	25.321	0.077
50	11.387	33.567	165.9	92.1	1.386	25.591	0.252
75	10.689	33.634	141.7	88.9	1.961	25.769	0.178
86	10.684	33.634	138.9	86.4	2.207	25.770	0.177

Station: 34 Date: 10/28/2006, 2313 Lat.: 37° 56.95 N Long.: 122° 52.89 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.293	33.384	306.0	84.0	0.033	24.662	0.915
10	14.749	33.418	287.7	78.8	0.319	24.807	0.820
20	14.056	33.417	235.9	84.5	0.624	24.953	0.668
30	12.653	33.491	179.2	89.7	0.906	25.293	0.437
41	11.665	33.577	141.5	79.7	1.184	25.548	0.313

Station: 35 Date: 10/29/2006, 0152 Lat.: 37° 33.72 N Long.: 122° 50.82 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.092	33.328	335.1	76.9	0.033	24.663	0.825
10	14.739	33.331	320.0	75.0	0.325	24.742	0.749
20	14.126	33.373	261.6	78.4	0.639	24.904	0.648
30	13.520	33.435	231.9	88.7	0.933	25.077	0.569
50	12.130	33.511	176.2	91.3	1.480	25.410	0.350
75	10.751	33.663	131.7	90.1	2.068	25.780	0.212
82	10.739	33.667	128.4	89.7	2.223	25.785	0.212

Station: 36 Date: 10/29/2006, 0428 Lat.: 37° 15.47 N Long.: 122° 37.78 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	14.907	33.404	271.8	88.3	0.032	24.762	0.844
10	14.886	33.404	270.7	88.4	0.318	24.767	0.839
20	14.822	33.404	268.5	88.5	0.634	24.781	0.825
30	14.673	33.401	262.0	88.6	0.949	24.810	0.789
50	13.429	33.327	223.2	90.2	1.564	25.012	0.464
75	10.981	33.610	145.8	87.3	2.198	25.698	0.212
91	10.801	33.645	137.7	85.8	2.562	25.757	0.206

Station: 37 Date: 10/29/2006, 0704 Lat.: 36° 57.39 N Long.: 122° 25.22 W

P(dbar)	T(°C)	S	O ₂ (µm/kg)	Xmiss(%)	ΔΦ	σ _θ	π _θ
0	15.074	33.357	270.3	88.7	0.032	24.689	0.844
10	15.037	33.353	269.6	88.5	0.324	24.695	0.833
20	14.366	33.332	262.3	89.0	0.641	24.822	0.668
30	13.616	33.299	231.7	90.1	0.947	24.952	0.481
50	11.396	33.407	186.0	92.1	1.484	25.465	0.127
75	10.564	33.563	162.9	92.7	2.076	25.735	0.099
100	10.152	33.688	141.4	92.9	2.624	25.904	0.126
125	9.826	33.816	122.9	92.9	3.130	26.059	0.171
150	9.588	33.892	115.0	92.8	3.612	26.158	0.190
200	9.187	34.003	97.5	92.7	4.523	26.311	0.212
250	8.796	34.108	72.7	92.3	5.359	26.456	0.232
272	8.602	34.147	59.9	91.5	5.708	26.517	0.231

Station: 38 Date: 10/29/2006, 1003 Lat.: 36° 44.04 N Long.: 122° 00.95 W

P(dbar)	T(°C)	S	O ₂ ($\mu\text{m}/\text{kg}$)	Xmiss(%)	$\Delta\Phi$	σ_{θ}	π_{θ}
0	14.877	33.439	293.1	86.5	0.031	24.795	0.865
10	14.354	33.389	279.9	85.4	0.312	24.869	0.711
20	13.025	33.438	220.5	90.5	0.605	25.179	0.470
30	12.452	33.466	195.1	91.7	0.875	25.312	0.377
50	11.905	33.497	179.9	91.9	1.392	25.441	0.295
75	11.500	33.530	166.1	91.7	2.017	25.542	0.244
100	11.146	33.603	152.7	92.2	2.613	25.664	0.236
125	10.389	33.730	124.8	90.8	3.172	25.897	0.200
150	9.662	33.868	111.9	92.2	3.666	26.127	0.184
200	9.252	33.974	107.3	92.7	4.587	26.278	0.200
250	8.727	34.148	60.5	92.7	5.406	26.498	0.252
300	8.144	34.201	49.4	92.9	6.162	26.630	0.204
400	7.269	34.224	34.6	92.9	7.559	26.775	0.093
500	6.321	34.241	23.0	93.1	8.820	26.918	-0.022
600	5.715	34.295	18.5	91.7	9.961	27.038	-0.056
700	5.190	34.345	18.6	89.3	11.003	27.141	-0.080
800	4.534	34.391	13.4	91.8	11.951	27.252	-0.118
900	4.285	34.423	21.2	88.5	12.819	27.305	-0.120
1000	3.912	34.455	23.9	88.2	13.643	27.369	-0.133
1010	3.897	34.457	24.3	88.6	13.722	27.373	-0.133

Table 3: Results of nutrient and primary productivity analyses of water samples collected at each hydrographic station during the PaCOOS cruise of October 2006. Stations are in chronological (and numerical) order. The time listed (<Mon. dd, yyyy hh:mm>) for each station is the beginning of the CTD cast. 12 Niskin bottles were tripped at each station, although some bottles sampled duplicate pressures. Except where primary productivity analyses were not performed (see Introduction), the data for each station are separated into two sections (“Physical and Chemical” and “Biological”).

The physical oceanographic properties listed in the first seven columns of the “Physical and Chemical” section of each station’s data are the uncorrected values measured by the CTD at the times each Niskin bottle was tripped. Because they are uncorrected, these values may differ slightly from those listed in table 2. The last four columns of this section give the nitrate (NO₃), nitrite (NO₂), phosphate (PO₄), and dissolved silicate (SiO₄) concentrations.

The “Biological” section of each station’s data gives the results of the primary productivity analyses. As stated above, primary productivity sampling was not undertaken at every hydrographic station.

Date Oct 24, 2006 16:53 Cruise: S406 Latitude: 36.796 Year: 2006
 Project: CALCOFI Station: C1 Longitude: -121.864 Work week: 43
 Platform: R/V POINT SUR Cast: 1 Secchi Depth: 9 Day of Year: 297

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.6	12	15.288	33.430	24.699	84	0.059	0.063	0.071	5.136
5	4.9	11	15.238	33.428	24.709	84	0.146	0.095	0.057	5.053
10	10.4	10	14.573	33.439	24.861	85	0.457	0.088	0.097	6.670
20	19.3	9	14.239	33.445	24.936	89	1.872	0.196	0.273	7.792
30	30.2	8	13.673	33.430	25.043	91	2.970	0.276	0.356	7.983
40	40.2	7	12.953	33.475	25.222	92	12.094	0.264	1.094	11.861
60	61.6	6	11.553	33.493	25.503	92	17.194	0.099	1.249	16.608
80	80.8	5	10.924	33.616	25.713	90	19.084	0.150	1.416	19.480
100	100.0	4	10.865	33.640	25.743	88	19.579	0.230	1.557	21.028
150	151.1	3	10.179	33.794	25.983	87	23.307	0.139	1.862	28.825
200	202.2	2	9.471	33.928	26.207	86	---	---	---	---
350	352.1	1	7.502	34.186	26.712	85	---	---	---	---

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	5.504	0.293	0	100	115.864	21.052	0
5	11	4.786	0.324	5	50	109.430	22.863	3
10	10	3.270	0.171	5	30	98.235	20.524	5
20	9	1.262	0.187	10	15	20.799	6.362	8
30	8	1.026	0.177	20	5	9.786	7.752	13
40	7	0.227	0.154	20	1	1.404	1.112	23
60	6	0.168	0.150	40	0.1	0.000	0.000	44
80	5	0.094	0.148					
100	4	0.079	0.144					
150	3	0.050	0.125					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll a:	61.49	mg m-2 day -1	Carbon Fixation:	847.12	mg m-2 day-1
Phaeophytin:	5.11	mg m-2 day -1	Productivity Index:	13.78	mg C mg Chl day-1
Mixed Layer	8	meters	PBOpt:	22.86	mg C mg Chl day-1

Date Oct 24, 2006 18:50 Cruise: s406 Latitude: 36.736 Year: 2006
 Project: CALCOFI Station: H3 Longitude: -122.022 Work week: 43
 Platform: R/V POINT SUR Cast: 2 Secchi Depth: 17 Day of Year: 297

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.6	12	15.367	33.343	24.615	88	1.218	0.300	0.184	4.029
5	5.5	11	14.687	33.394	24.801	87	3.737	0.246	0.440	6.481
10	10.4	10	13.670	33.379	25.003	89	5.419	0.247	0.583	7.998
20	19.8	9	13.369	33.373	25.060	89	6.099	0.255	0.543	8.310
30	30.1	8	13.273	33.383	25.087	90	9.045	0.303	0.783	10.034
40	39.7	7	12.509	33.403	25.253	92	11.571	0.306	0.996	11.595
60	60.3	6	11.891	33.489	25.438	92	16.269	0.272	1.250	15.127
80	81.1	5	11.116	33.580	25.651	93	17.929	0.152	1.494	18.111
100	102.6	4	10.592	33.671	25.815	93	19.830	0.095	1.537	20.198
150	151.9	3	9.721	33.846	26.100	93	20.682	0.204	1.634	24.938
200	201.9	2	9.169	34.029	26.334	93	24.145	0.097	1.837	26.712
1000	1009.2	1	3.410	34.493	27.449	90	39.394	0.658	3.034	84.432

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	1.798	0.320	0	100	62.632	34.829	0
5	11	1.489	0.400	5	50	89.947	60.388	4
10	10	1.689	0.624	10	30	66.758	39.519	7
20	9	1.635	0.755	20	15	51.811	31.693	11
30	8	0.672	0.548	30	5	10.207	15.187	18
40	7	0.405	0.319	40	1	1.447	3.571	28
60	6	0.193	0.239	60	0.1	0.567	2.930	48
80	5	0.092	0.201					
100	4	0.039	0.097					
150	3	0.014	0.104					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	31.39	mg m-2 day -1	Carbon Fixation:	1063.2	mg m-2 day-1
Phaeophytin:	14.40	mg m-2 day -1	Productivity Index:	33.87	mg C mg Chl day-1
Mixed Layer	5	meters	PBOpt:	60.39	mg C mg Chl day-1

Date: Oct 24, 2006 21:41 Cruise: S406 Latitude: 36.712 Year: 2006
 Project: CALCOFI Station: NPS1 Longitude: -122.239 Work week: 43
 Platform: R/V POINT SUR Cast: 3 Secchi Depth: --- Day of Year: 297

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.4	12	15.478	33.373	24.613	89	0.394	0.109	0.127	2.527
50	50.3	11	11.356	33.475	25.525	92	16.080	0.114	1.151	13.718
100	99.2	10	9.766	33.763	26.027	93	20.944	0.000	1.417	21.602
200	202.3	9	8.820	34.051	26.407	93	27.690	0.072	1.884	34.135
300	303.3	8	8.105	34.182	26.621	93	31.722	0.030	2.318	46.674
400	403.5	7	7.166	34.209	26.778	93	34.291	0.085	2.828	58.126
500	504.5	6	6.071	34.242	26.950	93	---	---	---	---
600	605.6	5	5.420	34.262	27.047	93	39.850	0.018	2.932	86.858
700	705.4	4	4.867	34.323	27.160	93	41.369	0.125	2.981	98.626
800	807.9	3	4.456	34.381	27.252	93	41.766	0.061	3.048	107.25
900	907.2	2	4.192	34.403	27.299	93	41.980	0.019	3.180	113.58
1000	1009.1	1	3.811	34.451	27.376	93	42.292	0.049	3.175	120.92

Date Oct 24, 2006 23:44 Cruise: S406 Latitude: 36.626 Year: 2006
 Project: CALCOFI Station: 67-55 Longitude: -122.419 Work week: 43
 Platform: R/V POINT SUR Cast: 4 Secchi Depth: 17 Day of Year: 297

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.6	12	14.897	33.403	24.763	87	0.914	0.159	0.011	3.367
5	5.0	11	14.890	33.402	24.764	87	0.662	0.089	0.021	3.156
10	10.3	10	14.779	33.403	24.789	87	0.641	0.097	0.079	3.268
20	19.6	9	14.359	33.392	24.870	90	3.957	0.341	0.284	5.471
30	30.5	8	12.104	33.381	25.313	92	13.438	0.083	0.887	11.126
40	40.7	7	11.267	33.421	25.499	93	17.531	0.026	1.142	15.721
60	60.5	6	10.392	33.674	25.851	93	21.103	0.038	1.440	21.002
80	80.5	5	9.838	33.771	26.021	93	23.214	0.027	1.614	24.839
100	100.9	4	9.483	33.861	26.150	93	24.087	0.029	1.678	26.825
150	151.6	3	9.197	34.045	26.341	93	27.918	0.012	1.936	33.483
200	202.5	2	8.696	34.072	26.442	93	28.133	0.059	1.912	36.161
1000	1009.5	1	3.958	34.432	27.347	93	42.763	0.006	3.063	119.79

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	1.072	0.259	0	100	52.201	48.709	0
5	11	1.081	0.267	5	50	77.011	71.255	5
10	10	1.244	0.340	10	30	71.060	57.111	9
20	9	0.736	0.290	20	15	26.487	36.005	14
30	8	0.301	0.232	30	5	4.014	13.352	22
40	7	0.151	0.185	40	1	0.775	5.140	39
60	6	0.064	0.138	60	0.1	0.083	1.305	74
80	5	0.019	0.148					
100	4	0.011	0.137					
150	3	0.008	0.113					
200	2	0.008	0.063					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	22.81	mg m-2 day -1	Carbon Fixation:	1008.2	mg m-2 day-1
Phaeophytin:	9.74	mg m-2 day -1	Productivity Index:	44.20	mg C mg Chl day-1
Mixed Layer	23	meters	PBOpt:	71.26	mg C mg Chl day-1

Date: Oct 25, 2006 2:17 Cruise: S406 Latitude: 36.543 Year: 2006
 Project: CALCOFI Station: NPS2 Longitude: -122.6 Work week: 43
 Platform: R/V POINT SUR Cast: 5 Secchi Depth: --- Day of Year: 298

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.5	12	14.975	33.417	24.757	89	0.988	0.108	0.227	3.207
50	50.7	11	11.640	33.398	25.413	92	16.315	0.052	1.042	13.745
100	100.1	10	9.290	33.850	26.173	93	23.987	0.048	1.531	26.958
200	199.1	9	8.662	34.113	26.480	93	28.134	0.029	1.919	37.380
300	302.6	8	7.634	34.175	26.684	93	32.924	0.029	2.291	51.976
400	403.1	7	6.875	34.202	26.812	93	35.365	0.039	2.522	62.977
495	501.5	6	6.208	34.259	26.947	93	37.479	0.016	2.807	75.157
600	605.2	5	5.650	34.307	27.055	93	38.605	0.008	2.884	84.720
700	704.2	4	5.104	34.331	27.140	93	40.176	0.006	2.951	94.676
800	807.3	3	4.701	34.369	27.216	93	41.368	0.028	3.033	103.77
900	909.2	2	4.276	34.402	27.289	93	41.480	0.013	3.007	117.40
1000	1009.9	1	4.001	34.427	27.338	93	---	---	---	---

Date Oct 25, 2006 4:16 Cruise: S406 Latitude: 36.459 Year: 2006
 Project: CALCOFI Station: 67-60 Longitude: -122.777 Work week: 43
 Platform: R/V POINT SUR Cast: 6 Secchi Depth: 17 Day of Year: 298

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.7	12	15.169	33.379	24.686	90	1.005	0.149	0.212	2.808
5	5.4	11	15.166	33.379	24.686	90	0.874	0.135	0.034	2.694
10	9.8	10	15.170	33.378	24.685	90	0.882	0.173	0.131	2.653
20	21.1	9	14.951	33.373	24.729	90	2.282	0.322	0.206	3.710
30	30.3	8	13.705	33.405	25.017	91	10.320	0.376	0.657	9.065
40	40.5	7	12.469	33.449	25.296	92	11.961	0.248	0.948	10.730
60	60.2	6	10.520	33.597	25.769	93	20.070	0.071	1.249	18.843
80	80.1	5	9.816	33.698	25.968	93	21.580	0.046	1.342	21.777
100	100.7	4	9.306	33.817	26.145	93	22.534	0.074	1.465	24.640
150	150.9	3	8.697	33.946	26.343	93	24.434	0.053	1.451	29.805
200	202.9	2	8.393	34.069	26.486	93	25.306	0.067	1.626	30.812
1000	1009.6	1	4.034	34.448	27.351	93	43.050	0.035	2.972	116.54

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.590	0.206	0	100	29.361	49.736	0
5	11	0.609	0.180	5	50	42.822	70.372	6
10	10	0.592	0.203	10	30	39.514	66.728	11
20	9	0.717	0.283	20	15	34.751	48.435	17
30	8	0.671	0.126	30	5	9.096	13.552	26
40	7	0.456	0.288	40	1	2.181	4.783	41
60	6	0.100	0.156	60	0.1	0.205	2.053	70
80	5	0.022	0.099					
100	4	0.005	0.100					
150	3	0.003	0.053					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	25.46	mg m-2 day -1	Carbon Fixation:	933.28	mg m-2 day-1
Phaeophytin:	8.58	mg m-2 day -1	Productivity Index:	36.66	mg C mg Chl day-1
Mixed Layer	26	meters	PBOpt:	70.37	mg C mg Chl day-1

Date: Oct 25, 2006 6:50 Cruise: S406 Latitude: 36.379 Year: 2006
 Project: CALCOFI Station: NPS3 Longitude: -122.959 Work week: 43
 Platform: R/V POINT SUR Cast: 7 Secchi Depth: --- Day of Year: 298

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.6	12	15.034	33.393	24.726	89	1.347	0.171	0.239	4.032
50	51.3	11	10.925	33.565	25.672	93	20.761	0.091	1.255	19.280
100	102.3	10	9.477	33.903	26.184	93	25.212	0.051	1.661	28.522
200	202.9	9	8.663	34.128	26.492	93	30.123	0.077	2.047	39.598
300	302.3	8	8.025	34.220	26.662	93	32.485	0.032	2.332	49.705
400	402.7	7	7.338	34.244	26.781	93	33.963	0.063	2.445	57.308
500	503.6	6	6.418	34.230	26.896	93	37.523	0.048	2.709	70.764
600	606.1	5	5.816	34.290	27.021	93	38.109	0.058	2.742	80.196
700	707.3	4	5.245	34.336	27.127	93	40.349	0.040	2.918	91.536
800	808.0	3	4.788	34.370	27.207	93	41.507	0.027	2.976	101.87
900	910.0	2	4.437	34.409	27.277	93	38.160	0.034	2.759	100.54
1000	1010.2	1	4.104	34.443	27.341	93	41.774	0.034	2.887	113.37

Date Oct 25, 2006 8:48 Cruise: S406 Latitude: 36.294 Year: 2006
 Project: CALCOFI Station: 67-65 Longitude: -123.136 Work week: 43
 Platform: R/V POINT SUR Cast: 8 Secchi Depth: 17 Day of Year: 298

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.6	12	14.986	33.392	24.735	90	1.285	0.167	0.092	3.772
5	4.4	11	14.985	33.391	24.735	90	1.217	0.159	0.104	3.568
10	9.2	10	14.991	33.391	24.734	90	1.140	0.148	0.052	3.463
20	20.9	9	14.987	33.390	24.734	90	1.367	0.164	0.089	3.714
30	30.6	8	14.382	33.398	24.870	91	5.799	0.439	0.367	5.818
40	40.9	7	12.630	33.421	25.243	91	11.947	0.271	0.684	10.238
60	59.0	6	10.588	33.411	25.612	93	19.740	0.086	1.163	17.770
80	79.7	5	9.804	33.581	25.878	93	21.768	0.058	1.384	20.916
100	100.7	4	9.348	33.801	26.126	93	25.138	0.051	1.613	27.066
150	150.8	3	9.212	34.072	26.360	93	27.724	0.085	1.924	33.753
200	201.0	2	9.028	34.178	26.473	93	29.821	0.036	2.218	39.135
1000	1009.1	1	4.011	34.448	27.354	93	41.362	0.025	2.895	113.78

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.599	0.282	0	100	20.552	34.287	0
5	11	0.590	0.249	5	50	33.848	57.337	6
10	10	0.581	0.266	10	30	33.933	58.378	11
20	9	0.563	0.301	20	15	27.408	48.673	17
30	8	0.699	0.394	30	5	12.820	18.332	26
40	7	0.627	0.365	40	1	2.782	4.439	39
60	6	0.156	0.164	60	0.1	0.000	0.000	63
80	5	0.049	0.103					
100	4	0.008	0.071					
150	3	0.003	0.077					
200	2	0.001	0.064					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	24.43	mg m-2 day -1	Carbon Fixation:	798.66	mg m-2 day-1
Phaeophytin:	12.77	mg m-2 day -1	Productivity Index:	32.69	mg C mg Chl day-1
Mixed Layer	31	meters	PBOpt:	58.38	mg C mg Chl day-1

Date Oct 25, 2006 11:19 Cruise: S406 Latitude: 36.21 Year: 2006
 Project: CALCOFI Station: NPS4 Longitude: -123.314 Work week: 43
 Platform: R/V POINT SUR Cast: 9 Secchi Depth: --- Day of Year: 298

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	2.2	12	15.078	33.414	24.732	92	0.962	0.164	0.113	2.735
50	51.0	11	11.676	33.461	25.455	92	15.240	0.141	1.190	13.023
100	102.6	10	9.848	33.838	26.072	93	24.136	0.051	1.598	25.925
200	202.2	9	9.072	34.141	26.437	93	29.283	0.070	2.059	36.831
300	301.3	8	8.040	34.180	26.629	93	32.233	0.045	2.226	47.637
400	404.3	7	7.231	34.209	26.769	93	34.692	0.052	2.477	59.416
500	505.3	6	6.405	34.226	26.895	93	37.048	0.018	2.653	70.257
600	605.0	5	5.868	34.275	27.003	93	38.930	0.016	2.911	80.227
700	705.8	4	5.089	34.291	27.109	93	40.925	0.025	2.843	94.482
800	804.4	3	4.862	34.356	27.187	93	41.485	0.033	2.942	100.65
900	906.9	2	4.454	34.396	27.265	93	41.975	0.025	2.919	109.00
1000	1015.0	1	4.099	34.434	27.333	93	42.297	0.024	2.964	117.63

Date Oct 25, 2006 14:25 Cruise: S406 Latitude: 36.127 Year: 2006
 Project: CALCOFI Station: 67-70 Longitude: -123.492 Work week: 43
 Platform: R/V POINT SUR Cast: 10 Secchi Depth: 17 Day of Year: 298

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.5	12	15.254	33.356	24.649	91	0.323	0.085	0.028	2.834
5	5.3	11	15.262	33.357	24.649	91	0.278	0.097	0.052	2.612
10	10.3	10	15.275	33.357	24.646	91	0.270	0.100	0.160	2.594
20	20.6	9	15.269	33.356	24.647	91	0.293	0.103	0.048	2.615
30	29.9	8	15.113	33.321	24.654	91	0.771	0.140	0.167	2.528
40	42.2	7	11.798	33.102	25.154	92	8.755	0.208	0.470	7.070
60	61.7	6	11.308	33.316	25.410	93	14.136	0.081	0.794	11.612
80	80.0	5	10.314	33.491	25.722	93	19.099	0.316	1.249	17.289
100	99.5	4	9.709	33.668	25.963	93	22.832	0.133	1.459	23.131
150	150.5	3	8.905	33.922	26.292	93	26.105	0.047	1.642	30.163
200	202.8	2	8.484	34.032	26.444	93	28.617	0.069	1.786	35.855
1000	1009.5	1	3.854	34.446	27.368	93	43.427	0.027	2.938	120.76

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.410	0.200	0	100	5.188	12.666	0
5	11	0.429	0.197	5	50	12.682	29.585	7
10	10	0.440	0.225	10	30	17.728	40.246	12
20	9	0.403	0.195	20	15	15.193	37.677	19
30	8	0.400	0.202	30	5	7.768	19.439	30
40	7	0.386	0.262	40	1	1.697	4.397	47
60	6	0.203	0.153	60	0.1	0.000	0.000	77
80	5	0.070	0.083					
100	4	0.021	0.066					
150	3	0.004	0.043					
200	2	0.003	0.028					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	19.27	mg m-2 day -1	Carbon Fixation:	464.52	mg m-2 day-1
Phaeophytin:	10.09	mg m-2 day -1	Productivity Index:	24.11	mg C mg Chl day-1
Mixed Layer	32	meters	PBOpt:	40.25	mg C mg Chl day-1

Date Oct 25, 2006 18:18 Cruise: S406 Latitude: 36.041 Year: 2006
 Project: CALCOFI Station: NPS5 Longitude: -123.669 Work week: 43
 Platform: R/V POINT SUR Cast: 11 Secchi Depth: --- Day of Year: 298

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.4	12	15.799	33.062	24.303	90	0.069	0.025	0.033	2.087
50	50.1	11	11.564	32.956	25.084	92	6.183	0.228	0.502	5.969
100	101.9	10	9.501	33.736	26.050	93	23.988	0.028	1.515	23.105
200	204.0	9	8.302	34.030	26.470	93	28.640	0.058	1.684	36.226
300	303.9	8	6.974	34.061	26.687	93	33.638	0.037	2.186	52.875
400	404.2	7	5.653	34.050	26.849	93	37.855	0.088	2.946	70.597
500	504.4	6	5.002	34.119	26.981	93	39.995	0.024	2.697	85.881
600	606.0	5	4.666	34.208	27.090	93	41.527	0.020	2.783	98.294
700	704.8	4	4.407	34.299	27.192	93	42.307	0.021	2.951	106.77
800	808.5	3	4.236	34.387	27.280	93	42.561	0.034	2.964	112.41
900	905.8	2	4.074	34.443	27.343	93	42.410	0.052	2.983	112.68
1000	1009.3	1	3.794	34.470	27.393	93	42.585	0.026	2.901	122.88

Date Oct 25, 2006 22:40 Cruise: S406 Latitude: 35.96 Year: 2006
 Project: CALCOFI Station: 67-75 Longitude: -123.844 Work week: 43
 Platform: R/V POINT SUR Cast: 12 Secchi Depth: 15 Day of Year: 298

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.7	12	15.698	33.076	24.336	88	0.255	0.043	0.024	2.161
5	4.0	11	15.703	33.076	24.335	89	0.351	0.064	0.045	1.968
10	10.3	10	15.696	33.075	24.336	89	0.193	0.047	0.005	1.914
20	20.4	9	15.432	33.074	24.394	89	0.705	0.078	0.046	2.040
30	28.4	8	13.837	33.051	24.716	91	1.478	0.101	0.115	2.475
40	41.8	7	11.535	32.899	25.045	91	0.722	0.121	0.126	2.009
60	59.4	6	10.941	32.964	25.202	93	6.377	0.099	0.433	5.150
80	80.2	5	10.019	33.186	25.534	93	15.748	0.070	0.966	13.770
100	98.4	4	9.825	33.501	25.812	93	21.180	0.046	1.303	19.722
150	151.0	3	8.653	33.895	26.310	93	25.983	0.033	1.586	30.081
200	200.4	2	8.109	34.024	26.494	93	29.006	0.033	1.896	37.877
1000	1012.0	1	3.770	34.456	27.385	93	43.285	0.030	2.921	121.97

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.482	0.068	0	100	15.597	32.342	0
5	11	0.441	0.070	5	50	21.715	49.197	8
10	10	0.432	0.063	10	30	20.120	46.541	13
20	9	0.513	0.101	20	15	18.337	35.735	20
30	8	0.480	0.141	30	5	9.312	19.418	32
40	7	0.510	0.217	40	1	2.121	4.156	48
60	6	0.203	0.088	60	0.1	0.000	0.000	79
80	5	0.116	0.068					
100	4	0.052	0.058					
150	3	0.002	0.009					
200	2	0.005	0.030					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	23.16	mg m-2 day -1	Carbon Fixation:	647.12	mg m-2 day-1
Phaeophytin:	5.82	mg m-2 day -1	Productivity Index:	27.95	mg C mg Chl day-1
Mixed Layer	20	meters	PBOpt:	49.2	mg C mg Chl day-1

Date: Oct 26, 2006 2:53 Cruise: S406 Latitude: 35.875 Year: 2006
 Project: CALCOFI Station: NPS6 Longitude: -124.021 Work week: 43
 Platform: R/V POINT SUR Cast: 13 Secchi Depth: --- Day of Year: 299

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.2	12	16.216	33.022	24.178	91	0.024	0.011	0.030	2.128
50	49.4	11	12.593	32.929	24.869	92	2.494	0.221	0.298	3.141
100	100.2	10	9.609	33.514	25.859	93	21.674	0.035	1.303	19.858
200	201.8	9	8.094	34.027	26.499	93	29.809	0.024	1.884	39.242
300	303.8	8	6.850	34.069	26.710	93	34.706	0.030	2.313	55.189
400	401.3	7	6.210	34.150	26.859	93	37.375	0.033	2.738	67.818
500	504.1	6	5.507	34.218	27.000	93	39.845	0.038	2.890	82.964
600	604.8	5	4.977	34.280	27.113	93	41.214	0.034	2.934	95.188
700	706.6	4	4.652	34.342	27.199	93	41.854	0.021	3.011	103.59
800	808.4	3	4.357	34.398	27.276	93	42.237	0.022	3.167	109.59
900	908.0	2	4.081	34.430	27.332	93	42.436	0.027	3.099	116.30
1000	1011.8	1	3.782	34.468	27.393	93	42.522	0.052	3.031	122.97

Date Oct 26, 2006 6:03 Cruise: S406 Latitude: 35.792 Year: 2006
 Project: CALCOFI Station: 67-80 Longitude: -124.2 Work week: 43
 Platform: R/V POINT SUR Cast: 14 Secchi Depth: 15 Day of Year: 299

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.1	12	16.554	33.013	24.093	91	0.011	0.010	0.076	1.960
5	4.2	11	16.557	33.012	24.092	92	0.019	0.018	0.099	1.739
10	9.8	10	16.560	33.012	24.091	92	0.013	0.019	0.078	1.767
20	20.8	9	16.566	33.011	24.090	92	0.005	0.011	0.059	1.565
30	29.6	8	16.549	33.004	24.089	91	0.279	0.051	0.078	1.674
40	41.0	7	13.175	32.919	24.748	91	2.441	0.154	0.158	2.785
60	59.8	6	11.617	32.969	25.085	93	6.881	0.081	0.516	6.029
80	80.1	5	10.599	33.326	25.544	93	17.026	0.032	1.034	14.806
100	103.0	4	9.640	33.566	25.894	93	21.064	0.016	1.261	20.023
150	152.8	3	8.723	33.900	26.303	93	26.526	0.009	1.648	30.476
200	201.4	2	8.335	34.033	26.467	93	29.679	0.039	1.901	37.783
1000	1010.0	1	3.817	34.456	27.380	93	43.164	0.008	2.971	121.26

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.172	0.059	0	100	2.005	11.683	0
5	11	0.173	0.055	5	50	6.016	34.865	11
10	10	0.177	0.057	10	30	5.471	30.895	19
20	9	0.172	0.061	20	15	4.783	27.862	29
30	8	0.236	0.096	30	5	4.009	16.979	41
40	7	0.421	0.263	40	1	1.631	3.879	58
60	6	0.200	0.194	60	0.1	0.146	0.729	99
80	5	0.053	0.066					
100	4	0.017	0.035					
150	3	0.003	0.034					
200	2	0.001	0.034					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	13.18	mg m-2 day -1	Carbon Fixation:	242.85	mg m-2 day-1
Phaeophytin:	5.72	mg m-2 day -1	Productivity Index:	18.42	mg C mg Chl day-1
Mixed Layer	34	meters	PBOpt:	34.86	mg C mg Chl day-1

Date: Oct 26, 2006 10:17 Cruise: S406 Latitude: 35.711 Year: 2006
 Project: CALCOFI Station: NPS7 Longitude: -124.376 Work week: 43
 Platform: R/V POINT SUR Cast: 15 Secchi Depth: --- Day of Year: 299

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.5	12	16.455	32.997	24.104	91	0.036	0.007	0.070	2.113
50	50.1	11	12.870	32.977	24.853	91	1.872	0.150	0.196	2.848
100	101.5	10	10.116	33.472	25.742	93	21.058	0.016	1.229	19.057
200	202.0	9	8.133	33.975	26.452	93	27.022	0.020	1.614	34.506
295	299.7	8	7.284	34.100	26.674	93	33.908	0.015	2.251	52.423
400	402.5	7	5.861	34.076	26.844	93	37.352	0.030	2.595	69.157
500	503.7	6	5.603	34.216	26.988	93	39.544	0.016	2.740	82.540
600	605.2	5	5.102	34.287	27.104	93	40.914	0.025	2.882	93.037
700	706.7	4	4.703	34.345	27.196	93	41.678	0.028	2.962	101.74
800	806.6	3	4.329	34.400	27.281	93	42.242	0.032	2.966	109.95
900	907.9	2	4.040	34.443	27.346	93	42.379	0.025	2.986	116.47
1000	1009.1	1	3.805	34.467	27.390	93	42.373	0.015	2.996	120.22

Date Oct 26, 2006 13:55 Cruise: S406 Latitude: 35.625 Year: 2006
 Project: CALCOFI Station: 67-85 Longitude: -124.554 Work week: 43
 Platform: R/V POINT SUR Cast: 16 Secchi Depth: 15 Day of Year: 299

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.2	12	16.494	32.999	24.097	92	0.015	0.012	0.038	2.097
5	4.8	11	16.499	33.000	24.096	92	0.020	0.017	0.014	1.914
10	10.4	10	16.499	32.999	24.096	92	0.022	0.016	0.048	1.768
20	19.7	9	16.486	32.999	24.099	92	0.011	0.017	0.017	1.661
30	30.0	8	16.102	32.972	24.166	92	0.014	0.016	0.072	1.693
40	41.9	7	12.567	32.885	24.840	92	0.338	0.057	0.056	1.881
60	60.8	6	12.402	33.110	25.047	93	3.614	0.092	0.198	3.900
80	81.4	5	10.845	33.221	25.419	93	14.309	0.022	0.768	11.657
100	101.6	4	9.962	33.462	25.759	93	19.262	0.014	1.118	17.594
150	149.0	3	9.059	33.862	26.220	93	24.973	0.028	1.535	27.282
200	200.2	2	8.019	33.975	26.469	93	25.421	0.015	1.508	34.143
1000	1008.8	1	3.758	34.472	27.398	93	43.098	0.007	2.912	120.58

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.224	0.062	0	100	2.323	10.356	0
5	11	0.235	0.061	5	50	5.633	23.946	10
10	10	0.213	0.063	10	30	5.658	26.622	17
20	9	0.203	0.060	20	15	5.063	24.886	26
30	8	0.301	0.127	30	5	3.046	10.134	39
40	7	0.457	0.286	40	1	1.589	3.478	54
60	6	0.278	0.353	60	0.1	0.072	0.259	81
80	5	0.106	0.104					
100	4	0.046	0.056					
150	3	0.004	0.030					
200	2	0.001	0.014					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	14.84	mg m-2 day -1	Carbon Fixation:	216.05	mg m-2 day-1
Phaeophytin:	6.02	mg m-2 day -1	Productivity Index:	14.56	mg C mg Chl day-1
Mixed Layer	35	meters	PBOpt:	26.62	mg C mg Chl day-1

Date: Oct 26, 2006 17:40 Cruise: S406 Latitude: 35.544 Year: 2006
 Project: CALCOFI Station: NPS8 Longitude: -124.731 Work week: 43
 Platform: R/V POINT SUR Cast: 17 Secchi Depth: 23 Day of Year: 299

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.9	12	16.545	32.983	24.073	92	0.049	0.028	0.036	2.296
50	50.1	11	12.567	32.970	24.906	92	3.873	0.198	0.430	4.116
100	101.1	10	9.568	33.576	25.913	93	21.187	0.037	1.367	20.040
200	201.3	9	8.170	34.015	26.478	93	29.042	0.047	1.860	37.868
300	303.1	8	6.473	33.999	26.704	93	33.395	0.050	2.152	55.054
400	402.9	7	6.248	34.177	26.876	93	38.161	0.038	2.739	69.637
500	505.2	6	5.258	34.179	26.999	93	42.263	0.031	2.996	95.305
600	604.1	5	4.862	34.277	27.123	93	40.841	0.049	2.938	85.311
700	705.4	4	4.675	34.370	27.219	93	42.714	0.034	3.125	103.69
800	805.9	3	4.327	34.410	27.289	93	43.005	0.077	3.242	110.03
900	909.1	2	3.939	34.437	27.352	93	43.679	0.092	3.295	118.91
1000	1011.2	1	3.731	34.474	27.402	93	43.543	0.053	3.014	122.32

Date Oct 26, 2006 21:18 Cruise: S406 Latitude: 35.463 Year: 2006
 Project: CALCOFI Station: 67-90 Longitude: -124.906 Work week: 43
 Platform: R/V POINT SUR Cast: 18 Secchi Depth: 18 Day of Year: 299

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.5	12	16.112	32.959	24.153	91	0.053	0.064	0.039	2.129
5	4.5	11	16.108	32.959	24.154	91	0.043	0.079	0.077	1.996
10	9.7	10	16.110	32.959	24.153	91	0.017	0.069	0.064	1.812
20	19.5	9	16.066	32.957	24.163	91	0.098	0.114	0.144	1.856
30	29.3	8	16.025	32.952	24.168	91	0.215	0.088	0.098	2.126
40	40.4	7	13.257	32.868	24.692	91	1.745	0.174	0.164	2.634
60	59.6	6	11.387	32.931	25.097	93	6.620	0.154	0.428	5.340
80	79.7	5	10.884	33.240	25.427	93	15.668	0.118	1.105	12.742
100	99.2	4	9.985	33.476	25.767	93	21.114	0.072	1.353	19.918
150	152.2	3	8.817	33.875	26.268	93	25.175	0.072	1.651	28.386
200	200.4	2	8.492	34.033	26.443	93	28.735	0.055	1.960	35.521
200	200.6	1	8.492	34.033	26.443	93	29.032	0.048	1.861	36.041

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.261	0.067	0	100	5.151	19.760	0
5	11	0.267	0.067	5	50	7.076	26.501	9
10	10	0.290	0.068	10	30	6.913	23.862	16
20	9	0.291	0.079	20	15	6.392	21.994	24
30	8	0.394	0.136	30	5	5.387	13.667	36
40	7	0.478	0.263	40	1	1.605	3.359	53
60	6	0.252	0.170	80	0.1	0.000	0.000	85
80	5	0.046	0.054					
100	4	0.045	0.050					
150	3	0.006	0.031					
200	2	0.003	0.021					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	17.97	mg m-2 day -1	Carbon Fixation:	285.37	mg m-2 day-1
Phaeophytin:	6.26	mg m-2 day -1	Productivity Index:	15.88	mg C mg Chl day-1
Mixed Layer	35	meters	PBOpt:	26.5	mg C mg Chl day-1

Date: Oct 26, 2006 22:18 Cruise: S406 Latitude: 35.492 Year: 2006
 Project: CALCOFI Station: 67-90 Longitude: -124.917 Work week: 43
 Platform: R/V POINT SUR Cast: 19 Secchi Depth: --- Day of Year: 299

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.7	12	16.124	32.963	24.153	91	0.036	0.069	0.025	2.356
250	254.3	11	7.221	33.990	26.596	93	30.070	0.069	1.877	44.571
500	504.9	10	5.660	34.239	26.999	93	40.209	0.059	3.036	82.083
750	759.0	9	4.505	34.373	27.240	93	42.720	0.057	3.046	108.14
1000	1012.2	8	3.778	34.463	27.389	93	43.268	0.053	3.144	124.69
1500	1517.4	7	2.736	34.554	27.562	93	42.675	0.039	3.102	147.44
2000	2023.9	6	2.050	34.610	27.666	93	40.826	0.077	2.895	167.35
2500	2535.2	5	1.774	34.646	27.719	93	39.404	0.043	2.749	172.55
3000	3044.4	4	1.607	34.663	27.748	93	38.585	0.052	2.612	175.35
3500	3556.2	3	1.514	34.675	27.768	93	37.173	0.075	2.682	172.76
4000	4044.9	2	1.489	34.683	27.780	93	36.877	0.049	2.424	167.94
4000	4045.0	1	1.489	34.683	27.780	93	37.085	0.078	2.508	168.01

Date Oct 27, 2006 3:30 Cruise: S406 Latitude: 35.703 Year: 2006
 Project: CALCOFI Station: 65.25-90 Longitude: -125.088 Work week: 43
 Platform: R/V POINT SUR Cast: 20 Secchi Depth: 18 Day of Year: 300

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.9	12	14.987	33.190	24.580	90	1.567	0.116	0.097	3.421
5	5.0	11	14.991	33.190	24.578	90	1.511	0.142	0.268	3.058
10	10.1	10	14.986	33.189	24.579	90	1.695	0.157	0.182	3.058
20	20.5	9	14.728	33.206	24.648	90	2.613	0.163	0.324	3.652
40	40.8	8	10.800	32.943	25.210	92	7.521	0.194	0.571	6.371
60	60.5	7	10.643	33.320	25.532	93	17.159	0.089	1.162	16.311
80	81.0	6	9.203	33.512	25.922	93	20.826	0.092	1.493	20.763
100	102.1	5	9.278	33.804	26.139	93	26.448	0.089	1.897	28.419
250	252.0	4	7.239	34.049	26.640	93	33.245	0.070	2.203	49.433
500	504.4	3	5.317	34.199	27.008	93	39.781	0.058	2.797	83.794
750	757.8	2	4.465	34.379	27.249	93	42.579	0.089	2.999	106.16
1000	1009.3	1	3.744	34.467	27.396	93	43.198	0.051	3.090	122.76

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.400	0.100	0	100	17.982	45.000	0
5	11	0.381	0.105	5	50	21.569	56.544	8
10	10	0.424	0.121	10	30	20.708	48.823	13
20	9	0.464	0.162	20	15	18.708	40.312	20
				30	5	4.583	---	32
				40	1	1.555	---	59
				80	0.1	0.096	---	142

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	19.28	mg m-2 day -1	Carbon Fixation:	629.70	mg m-2 day-1
Phaeophytin:	8.05	mg m-2 day -1	Productivity Index:	32.66	mg C mg Chl day-1
Mixed Layer	26	meters	PBOpt:	56.54	mg C mg Chl day-1

Date Oct 27, 2006 6:58 Cruise: S406 Latitude: 36.008 Year: 2006
 Project: CALCOFI Station: 63.5-90 Longitude: -125.317 Work week: 43
 Platform: R/V POINT SUR Cast: 21 Secchi Depth: 18 Day of Year: 300

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.5	12	14.608	33.207	24.674	90	2.227	0.206	0.157	3.599
5	5.4	11	14.623	33.206	24.671	90	2.173	0.106	0.171	3.463
10	9.9	10	14.619	33.206	24.671	90	1.598	0.142	0.245	3.583
20	20.6	9	14.617	33.204	24.671	90	1.601	0.113	0.254	3.277
40	40.3	8	10.983	32.967	25.197	92	9.853	0.151	0.749	8.849
60	60.0	7	10.182	33.256	25.561	93	15.372	0.063	0.973	14.229
80	81.4	6	9.131	33.498	25.922	93	20.451	0.079	1.304	21.190
100	100.8	5	8.855	33.714	26.136	93	23.849	0.066	1.549	26.103
250	252.1	4	7.541	34.104	26.640	93	32.999	0.076	2.348	49.244
500	504.2	3	5.516	34.245	27.021	93	39.875	0.040	2.933	85.003
750	756.5	2	4.333	34.373	27.259	93	42.208	0.037	3.014	110.03
1000	1010.0	1	3.738	34.478	27.405	93	40.647	0.051	2.985	116.92

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.463	0.147	0	100	20.726	44.747	0
5	11	0.454	0.165	5	50	24.902	54.837	7
10	10	0.592	0.211	10	30	23.140	39.077	12
20	9	0.473	0.153	20	15	19.834	41.916	18
40	8	0.400	0.185	40	5	3.904	9.770	30
60	7	0.203	0.161	40	1	1.327	3.320	47
80	6	0.022	0.037	80	0.1	0.025	1.134	78
100	5	0.016	0.037					
250	4	0.003	0.025					
500	3	0.002	0.014					
750	2	0.001	0.010					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	20.97	mg m-2 day -1	Carbon Fixation:	594.56	mg m-2 day-1
Phaeophytin:	8.26	mg m-2 day -1	Productivity Index:	28.35	mg C mg Chl day-1
Mixed Layer	34	meters	PBOpt:	54.84	mg C mg Chl day-1

Date Oct 27, 2006 10:36 Cruise: S406 Latitude: 36.311 Year: 2006
 Project: CALCOFI Station: 61.75-90 Longitude: -125.543 Work week: 43
 Platform: R/V POINT SUR Cast: 22 Secchi Depth: 18 Day of Year: 300

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.8	12	14.761	33.226	24.656	89	1.886	0.111	0.007	3.244
5	4.9	11	14.759	33.226	24.657	89	1.896	0.122	0.211	3.080
10	11.2	10	14.759	33.226	24.657	89	1.959	0.141	0.144	3.071
20	19.9	9	14.426	33.248	24.745	90	3.132	0.157	0.253	3.688
40	40.1	8	13.512	33.105	24.824	91	4.984	0.220	0.411	4.940
60	60.0	7	10.138	33.238	25.554	93	15.120	0.056	0.876	13.084
80	80.3	6	9.251	33.496	25.902	93	20.733	0.079	1.300	20.470
100	102.0	5	8.811	33.654	26.096	93	21.939	0.051	1.308	22.882
250	252.8	4	7.588	34.116	26.643	93	33.841	0.050	2.238	49.735
500	504.3	3	5.653	34.241	27.001	93	39.823	0.029	3.005	81.819
750	755.3	2	4.563	34.370	27.232	93	42.482	0.034	3.019	105.11
1000	1010.7	1	3.815	34.447	27.373	93	43.204	0.040	3.102	123.83

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.534	0.154	0	100	17.509	32.787	0
5	11	0.518	0.160	5	50	27.224	52.588	7
10	10	0.519	0.175	10	30	24.490	47.225	12
20	9	0.463	0.130	20	15	17.092	36.902	19
40	8	0.406	0.147	40	5	6.411	15.793	30
60	7	0.103	0.074	40	1	1.784	4.394	48
80	6	0.024	0.035	80	0.1	0.000	0.000	93
100	5	0.013	0.025					
250	4	0.005	0.035					
500	3	0.003	0.018					
750	2	0.001	0.008					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	21.97	mg m-2 day -1	Carbon Fixation:	633.93	mg m-2 day-1
Phaeophytin:	7.25	mg m-2 day -1	Productivity Index:	28.85	mg C mg Chl day-1
Mixed Layer	22	meters	PBOpt:	52.59	mg C mg Chl day-1

Date Oct 27, 2006 13:59 Cruise: S406 Latitude: 36.615 Year: 2006
 Project: CALCOFI Station: 60-90 Longitude: -125.771 Work week: 43
 Platform: R/V POINT SUR Cast: 23 Secchi Depth: 18 Day of Year: 300

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.8	8	13.849	33.202	24.829	90	3.500	0.170	0.212	4.908
5	4.8	7	13.851	33.202	24.829	90	3.543	0.161	0.302	4.784
10	10.2	6	13.846	33.201	24.829	90	3.649	0.158	0.286	4.759
20	20.5	5	13.780	33.190	24.835	91	3.628	0.171	0.389	4.738
40	40.6	4	13.054	33.049	24.872	91	4.416	0.157	0.335	5.088
60	60.6	3	10.687	33.035	25.302	92	12.950	0.083	0.918	12.278
80	80.5	2	9.410	33.459	25.848	93	20.228	0.048	1.469	20.737
100	101.2	1	8.696	33.664	26.121	93	20.003	0.047	1.335	21.341

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	8	0.496	0.118	0	100	17.476	35.241	0
5	7	0.492	0.108	5	50	23.096	46.919	7
10	6	0.460	0.103	10	30	19.709	42.886	13
20	5	0.442	0.111	20	15	14.533	32.857	20
40	4	0.426	0.134	40	5	6.613	15.525	32
60	3	0.158	0.111	40	1	1.634	3.835	50
80	2	0.034	0.045	80	0.1	0.021	0.635	---

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	22.23	mg m-2 day -1	Carbon Fixation:	584.06	mg m-2 day-1
Phaeophytin:	6.04	mg m-2 day -1	Productivity Index:	26.27	mg C mg Chl day-1
Mixed Layer	29	meters	PBOpt:	46.92	mg C mg Chl day-1

Date: Oct 27, 2006 15:07 Cruise: S406 Latitude: 36.614 Year: 2006
 Project: CALCOFI Station: 60-90 Longitude: -125.771 Work week: 43
 Platform: R/V POINT SUR Cast: 24 Secchi Depth: --- Day of Year: 300

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.9	12	13.335	33.084	24.843	90	3.391	0.215	0.489	5.207
250	252.3	11	7.804	34.221	26.694	93	32.890	0.064	2.790	51.165
500	503.7	10	5.980	34.251	26.969	93	38.973	0.084	2.855	78.413
750	756.5	9	4.467	34.364	27.237	93	42.603	0.026	3.126	108.64
1000	1009.9	8	3.649	34.452	27.394	93	42.249	0.052	3.229	150.84
1500	1517.4	7	2.716	34.553	27.563	93	41.116	0.110	3.763	170.45
2000	2024.3	6	2.029	34.609	27.667	93	38.788	0.035	2.788	173.87
2500	2533.6	5	1.756	34.642	27.717	93	37.766	0.016	2.681	174.79
3000	3044.4	4	1.612	34.662	27.747	93	36.667	0.068	2.676	172.96
3500	3554.9	3	1.520	34.675	27.767	93	35.984	0.030	2.532	164.46
4300	4267.1	2	1.507	34.684	27.781	93	34.457	0.032	2.596	159.37
4300	4267.8	1	1.507	34.684	27.781	93	2.059	0.127	0.206	3.550

Date Oct 27, 2006 20:30 Cruise: S406 Latitude: 36.782 Year: 2006
 Project: CALCOFI Station: 60-85 Longitude: -125.415 Work week: 43
 Platform: R/V POINT SUR Cast: 25 Secchi Depth: 16 Day of Year: 300

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
5	4.8	11	14.774	33.223	24.651	88	2.008	0.119	0.355	3.233
10	9.9	10	14.729	33.224	24.661	88	2.116	0.135	0.325	3.203
20	20.6	9	14.696	33.219	24.665	88	2.601	0.145	0.379	3.611
40	41.0	8	11.784	33.329	25.332	92	17.809	0.040	1.119	16.160
60	60.4	7	9.859	33.495	25.801	93	21.414	0.038	1.397	20.467
80	80.9	6	9.492	33.710	26.030	93	25.516	0.058	1.758	26.464
100	101.2	5	9.025	33.820	26.192	93	26.789	0.037	1.795	29.501
250	251.8	4	7.653	34.127	26.642	93	33.439	0.053	2.437	49.583
500	503.5	3	5.415	34.189	26.989	93	40.350	0.025	3.078	83.585
750	756.0	2	4.491	34.354	27.227	93	42.547	0.015	2.973	106.33
1000	1010.4	1	3.785	34.455	27.382	93	43.039	0.021	3.099	122.64

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
5	11	0.683	0.163	5	50	36.113	52.875	6
10	10	0.699	0.241	10	30	39.542	56.544	11
20	9	0.727	0.214	20	15	28.944	39.836	16
40	8	0.250	0.168	20	5	12.273	16.892	27
60	7	0.085	0.082	40	1	1.127	4.511	43
80	6	0.025	0.064	60	0.1	0.134	1.569	83
100	5	0.012	0.068					
250	4	0.003	0.030					
500	3	0.001	0.015					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	26.95	mg m-2 day -1	Carbon Fixation:	912.70	mg m-2 day-1
Phaeophytin:	8.59	mg m-2 day -1	Productivity Index:	33.87	mg C mg Chl day-1
Mixed Layer	34	meters	PBOpt:	56.54	mg C mg Chl day-1

Date Oct 28, 2006 0:17 Cruise: S406 Latitude: 36.949 Year: 2006
 Project: CALCOFI Station: 60-80 Longitude: -125.053 Work week: 43
 Platform: R/V POINT SUR Cast: 26 Secchi Depth: 16 Day of Year: 301

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.7	12	15.030	33.165	24.551	88	1.001	0.112	0.086	2.642
5	5.3	11	14.886	33.165	24.583	88	0.944	0.101	0.271	2.389
10	10.6	10	14.752	33.167	24.612	87	1.008	0.137	0.255	2.391
20	19.9	9	14.707	33.166	24.622	88	1.528	0.144	0.293	2.736
40	41.0	8	12.484	33.181	25.085	91	7.267	0.448	0.621	7.133
60	60.7	7	10.421	33.435	25.660	93	20.006	0.041	1.259	18.830
80	81.8	6	9.688	33.618	25.926	93	24.082	0.062	1.608	24.827
100	101.6	5	9.183	33.777	26.133	93	25.914	0.057	1.930	28.405
250	251.6	4	7.243	34.039	26.631	93	32.414	0.032	2.042	48.125
500	504.3	3	5.411	34.189	26.989	93	40.429	0.036	2.912	84.406
750	755.8	2	4.541	34.368	27.232	93	40.299	0.104	3.107	102.23
1000	1009.7	1	3.792	34.457	27.383	93	39.604	0.018	2.973	118.31

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.612	0.156	0	100	23.446	38.302	0
5	11	0.661	0.163	5	50	25.072	37.921	6
10	10	0.699	0.207	10	30	35.066	50.143	11
20	9	0.745	0.221	20	15	25.364	34.058	17
40	8	0.523	0.234	20	5	12.469	16.742	26
60	7	0.097	0.089	40	1	2.524	4.824	40
80	6	0.032	0.060	60	0.1	0.195	2.009	71
100	5	0.013	0.050					
250	4	0.002	0.015					
500	3	0.002	0.008					
750	2	0.002	0.013					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	27.45	mg m-2 day -1	Carbon Fixation:	752.20	mg m-2 day-1
Phaeophytin:	8.46	mg m-2 day -1	Productivity Index:	27.40	mg C mg Chl day-1
Mixed Layer	3	meters	PBOpt:	50.14	mg C mg Chl day-1

Date Oct 28, 2006 3:55 Cruise: S406 Latitude: 37.114 Year: 2006
 Project: CALCOFI Station: 60-75 Longitude: -124.694 Work week: 43
 Platform: R/V POINT SUR Cast: 27 Secchi Depth: 16 Day of Year: 301

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.7	12	15.231	33.231	24.558	89	1.072	0.123	0.273	2.550
5	5.4	11	14.979	33.230	24.612	89	1.054	0.105	0.420	1.588
10	10.3	10	14.910	33.229	24.627	88	1.074	0.106	0.212	1.721
20	19.3	9	14.885	33.230	24.633	89	1.346	0.088	0.223	2.033
40	40.2	8	14.796	33.219	24.644	91	8.450	0.089	0.661	7.011
60	60.4	7	11.186	33.327	25.441	93	19.548	0.073	1.278	17.900
80	80.2	6	10.042	33.601	25.854	93	23.860	0.050	1.513	22.591
100	101.6	5	9.549	33.746	26.050	93	26.193	0.035	1.658	26.643
250	250.9	4	7.417	34.083	26.641	93	33.363	0.090	2.223	47.794
500	504.2	3	5.413	34.196	26.994	93	41.209	0.073	2.849	82.277
750	757.0	2	4.611	34.376	27.231	93	39.509	0.059	2.758	95.439
1000	1009.3	1	3.842	34.451	27.373	93	44.467	0.038	3.013	121.49

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.518	0.135	0	100	30.705	59.313	0
5	11	0.519	0.157	5	50	28.179	54.243	7
10	10	0.581	0.190	10	30	24.012	41.311	12
20	9	0.581	0.198	20	15	17.558	30.207	18
40	8	0.302	0.193	20	5	8.829	15.189	29
60	7	0.094	0.095	40	1	1.377	4.566	46
80	6	0.058	0.078	60	0.1	0.064	0.676	83
100	5	0.022	0.061					
250	4	0.003	0.017					
500	3	0.002	0.010					
750	2	0.001	0.011					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	23.94	mg m-2 day -1	Carbon Fixation:	689.89	mg m-2 day-1
Phaeophytin:	8.66	mg m-2 day -1	Productivity Index:	28.82	mg C mg Chl day-1
Mixed Layer	5	meters	PBOpt:	59.31	mg C mg Chl day-1

Date Oct 28, 2006 7:18 Cruise: S406 Latitude: 37.282 Year: 2006
 Project: CALCOFI Station: 60-70 Longitude: -124.334 Work week: 43
 Platform: R/V POINT SUR Cast: 28 Secchi Depth: 16 Day of Year: 301

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.7	12	14.963	33.167	24.567	88	0.891	0.090	0.109	2.230
5	5.3	11	14.961	33.166	24.567	88	0.892	0.082	0.129	1.712
10	10.2	10	14.835	33.164	24.593	88	0.929	0.100	0.126	1.617
20	19.8	9	14.813	33.162	24.596	89	1.657	0.121	0.185	2.086
40	40.5	8	11.694	33.205	25.253	92	12.658	0.088	1.282	10.598
60	60.7	7	10.361	33.441	25.675	93	23.012	0.031	1.302	21.803
80	81.0	6	9.150	33.552	25.962	93	20.402	0.054	1.219	18.395
100	101.4	5	8.778	33.708	26.143	93	24.602	0.070	1.508	25.057
250	252.3	4	7.315	34.061	26.639	93	34.559	0.055	2.195	49.151
500	503.8	3	5.529	34.213	26.994	93	41.363	0.046	2.760	83.245
750	757.0	2	4.480	34.336	27.213	93	42.925	0.047	2.931	103.96
1000	1014.4	1	3.722	34.443	27.379	93	44.479	0.073	3.062	124.13

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.636	0.186	0	100	25.989	40.879	0
5	11	0.645	0.186	5	50	31.702	49.162	6
10	10	0.699	0.233	10	30	28.363	40.558	11
20	9	0.663	0.235	20	15	18.896	28.501	17
40	8	0.271	0.167	20	5	8.583	12.946	27
60	7	0.064	0.071	40	1	0.970	3.584	44
80	6	0.019	0.039	60	0.1	0.050	0.776	88
100	5	0.009	0.027					
250	4	0.002	0.014					
500	3	0.002	0.013					
750	2	0.002	0.010					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	25.76	mg m-2 day -1	Carbon Fixation:	675.08	mg m-2 day-1
Phaeophytin:	9.31	mg m-2 day -1	Productivity Index:	26.21	mg C mg Chl day-1
Mixed Layer	36	meters	PBOpt:	49.16	mg C mg Chl day-1

Date Oct 28, 2006 11:02 Cruise: S406 Latitude: 37.449 Year: 2006
 Project: CALCOFI Station: 60-65 Longitude: -123.97 Work week: 43
 Platform: R/V POINT SUR Cast: 29 Secchi Depth: 16 Day of Year: 301

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.5	12	15.065	33.219	24.585	89	0.819	0.122	0.206	2.056
5	5.4	11	15.064	33.218	24.585	89	0.840	0.138	0.210	0.425
10	10.1	10	15.065	33.218	24.585	89	0.756	0.097	0.102	0.021
20	19.9	9	14.977	33.218	24.604	89	1.045	0.124	0.156	0.252
40	40.8	8	11.901	33.073	25.112	92	9.596	0.079	0.654	5.175
60	61.1	7	10.190	33.269	25.570	93	16.600	0.037	0.995	11.652
80	80.3	6	9.362	33.520	25.903	93	22.824	0.084	1.419	19.240
100	101.2	5	8.989	33.658	26.071	93	24.249	0.070	1.446	21.700
250	250.1	4	7.728	34.127	26.631	93	34.400	0.126	2.360	45.904
500	504.3	3	5.597	34.209	26.983	93	40.916	0.046	2.677	78.538
750	757.1	2	4.507	34.342	27.215	93	43.292	0.054	2.849	105.73
1000	1010.2	1	3.811	34.447	27.373	93	44.087	0.027	2.961	121.28

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.539	0.152	0	100	20.267	37.568	0
5	11	0.548	0.111	5	50	26.203	47.845	7
10	10	0.576	0.150	10	30	22.208	38.569	12
20	9	0.559	0.208	20	15	16.195	28.995	18
40	8	0.370	0.201	20	5	7.492	13.413	29
60	7	0.096	0.087	40	1	1.212	3.278	46
80	6	0.033	0.037	60	0.1	0.105	1.092	85
100	5	0.014	0.026					
250	4	0.005	0.014					
500	3	0.004	0.006					
750	2	0.003	0.006					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	24.01	mg m-2 day -1	Carbon Fixation:	601.13	mg m-2 day-1
Phaeophytin:	8.41	mg m-2 day -1	Productivity Index:	25.04	mg C mg Chl day-1
Mixed Layer	38	meters	PBOpt:	47.85	mg C mg Chl day-1

Date Oct 28, 2006 14:41 Cruise: S406 Latitude: 37.614 Year: 2006
 Project: CALCOFI Station: 60-60 Longitude: -123.607 Work week: 43
 Platform: R/V POINT SUR Cast: 30 Secchi Depth: 16 Day of Year: 301

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.4	12	15.097	33.180	24.549	90	0.722	0.105	0.013	2.818
5	4.7	11	15.099	33.180	24.548	90	0.489	0.072	0.123	2.607
10	10.1	10	15.097	33.180	24.548	90	0.520	0.089	0.171	2.952
20	19.7	9	15.065	33.177	24.554	90	1.242	0.173	0.351	3.682
40	40.7	8	12.141	33.020	25.026	92	6.827	0.264	0.479	7.839
60	58.9	7	10.835	33.151	25.366	93	14.820	0.066	0.911	16.054
80	80.9	6	9.818	33.381	25.720	93	20.649	0.037	1.254	16.555
100	100.2	5	9.233	33.565	25.959	93	23.934	0.036	1.439	22.145
250	253.1	4	7.424	34.061	26.623	93	34.077	0.045	2.150	47.165
500	504.5	3	5.586	34.177	26.959	93	36.629	0.043	2.520	71.064
750	756.8	2	4.652	34.343	27.200	93	43.880	0.109	2.982	103.16
1000	1011.0	1	3.911	34.438	27.356	93	42.668	0.113	2.961	118.39

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	0.502	0.139	0	100	17.772	35.384	0
5	11	0.493	0.131	5	50	25.678	52.068	7
10	10	0.519	0.157	10	30	21.264	40.931	12
20	9	0.533	0.181	20	15	16.735	31.391	19
40	8	0.358	0.224	20	5	8.737	16.388	30
60	7	0.106	0.079	40	1	1.540	4.304	47
80	6	0.059	0.054	60	0.1	0.738	6.949	84
100	5	0.022	0.036					
250	4	0.000	0.017					
500	3	0.003	0.010					
750	2	0.000	0.019					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	23.08	mg m-2 day -1	Carbon Fixation:	624.00	mg m-2 day-1
Phaeophytin:	8.29	mg m-2 day -1	Productivity Index:	27.03	mg C mg Chl day-1
Mixed Layer	173	meters	PBOpt:	52.07	mg C mg Chl day-1

Date Oct 28, 2006 17:12 Cruise: S406 Latitude: 37.697 Year: 2006
 Project: CALCOFI Station: 60-57.5 Longitude: -123.427 Work week: 43
 Platform: R/V POINT SUR Cast: 31 Secchi Depth: 10 Day of Year: 301

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.3	12	14.875	33.390	24.758	80	0.119	0.089	0.291	4.377
5	4.9	11	14.790	33.398	24.782	78	0.089	0.090	0.408	4.103
10	9.8	10	14.705	33.394	24.798	79	0.231	0.079	0.190	4.090
20	20.5	9	14.518	33.391	24.836	89	1.155	0.140	0.180	3.796
40	40.6	8	11.726	33.082	25.151	92	10.935	0.093	0.744	8.122
60	60.9	7	10.506	33.235	25.489	93	17.153	0.040	1.005	13.645
80	81.1	6	9.420	33.539	25.908	93	22.140	0.062	1.408	19.759
100	100.6	5	9.155	33.659	26.045	93	24.581	0.069	1.559	24.325
250	251.1	4	7.347	34.017	26.599	93	32.781	0.099	2.037	45.837
500	504.4	3	5.635	34.190	26.963	93	41.056	0.049	2.742	79.609
750	756.3	2	4.817	34.343	27.182	93	42.837	0.034	2.861	98.475
1000	1011.0	1	3.900	34.440	27.359	93	43.724	0.049	2.958	118.41

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	8.356	1.136	0	100	144.565	17.302	0
5	11	8.810	1.021	5	50	181.225	20.571	2
10	10	5.240	0.802	5	30	158.619	18.005	4
20	9	1.108	0.511	10	15	57.634	10.998	6
40	8	0.278	0.237	20	5	8.091	7.302	10
60	7	0.149	0.121	20	1	1.956	1.766	17
80	6	0.056	0.062	40	0.1	0.188	0.676	34
100	5	0.024	0.037					
250	4	0.008	0.019					
500	3	0.003	0.015					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	68.61	mg m-2 day -1	Carbon Fixation:	1028.8	mg m-2 day-1
Phaeophytin:	12.26	mg m-2 day -1	Productivity Index:	15.00	mg C mg Chl day-1
Mixed Layer	---	meters	PBOpt:	20.57	mg C mg Chl day-1

Date Oct 28, 2006 19:55 Cruise: S406 Latitude: 37.784 Year: 2006
 Project: CALCOFI Station: 60-55 Longitude: -123.247 Work week: 43
 Platform: R/V POINT SUR Cast: 32 Secchi Depth: 10 Day of Year: 301

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.6	12	14.998	33.406	24.744	81	0.085	0.087	0.208	5.301
5	5.1	11	14.777	33.402	24.789	82	0.268	0.073	0.296	4.834
10	9.8	10	14.605	33.395	24.820	85	0.620	0.130	0.278	5.712
20	20.1	9	14.204	33.385	24.897	89	8.479	0.289	0.703	8.411
40	41.5	8	11.377	33.512	25.550	92	18.986	0.090	1.308	16.750
60	59.9	7	10.025	33.739	25.964	93	23.838	0.062	1.620	24.864
80	81.3	6	9.779	33.836	26.081	92	26.590	0.058	1.873	29.972
100	101.2	5	9.514	33.909	26.183	92	26.805	0.068	1.942	30.838
115	115.1	4	9.359	33.949	26.240	92	---	---	---	---
115	115.8	3	9.354	33.952	26.242	92	---	---	---	---
115	116.3	2	9.344	33.954	26.246	92	---	---	---	---
115	115.9	1	9.345	33.953	26.245	92	---	---	---	---

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	5.567	0.763	0	100	130.578	23.454	0
5	11	3.878	0.681	5	50	81.146	20.924	3
10	10	2.389	0.544	5	30	78.534	20.251	5
20	9	0.736	0.349	10	15	32.302	13.523	8
40	8	0.206	0.201	20	5	4.502	6.120	14
60	7	0.045	0.112	20	1	1.232	1.674	26
80	6	0.024	0.111	40	0.1	0.581	2.819	52
100	5	0.010	0.085					
115	4	0.014	0.091					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	49.54	mg m-2 day -1	Carbon Fixation:	782.80	mg m-2 day-1
Phaeophytin:	12.30	mg m-2 day -1	Productivity Index:	15.80	mg C mg Chl day-1
Mixed Layer	33	meters	PBOpt:	23.45	mg C mg Chl day-1

Date Oct 28, 2006 21:45 Cruise: S406 Latitude: 37.867 Year: 2006
 Project: CALCOFI Station: 60-52.5 Longitude: -123.066 Work week: 43
 Platform: R/V POINT SUR Cast: 33 Secchi Depth: 8 Day of Year: 301

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.1	12	15.071	33.398	24.722	81	1.447	0.115	0.380	5.793
5	5.5	11	14.638	33.394	24.812	81	2.601	0.218	0.563	6.435
10	10.0	10	14.253	33.387	24.888	87	6.879	0.276	0.762	7.527
20	20.2	9	12.122	33.277	25.228	92	13.347	0.172	1.023	12.230
30	30.0	8	11.471	33.308	25.374	92	15.759	0.096	1.198	14.253
40	41.1	7	11.064	33.384	25.507	92	17.339	0.098	1.380	16.363
60	61.2	6	10.975	33.575	25.672	92	20.122	0.192	1.730	21.359
80	80.8	5	10.684	33.630	25.767	87	21.111	0.335	1.743	25.093
85	85.6	4	10.685	33.630	25.767	86	20.980	0.303	1.676	24.847
85	86.0	3	10.685	33.630	25.767	86	---	---	---	---
85	85.7	2	10.685	33.630	25.767	87	---	---	---	---
85	85.0	1	10.686	33.631	25.767	87	---	---	---	---

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	4.941	0.873	0	100	103.714	20.992	0
5	11	3.896	0.646	5	50	79.460	20.394	3
10	10	1.417	0.490	5	30	57.057	14.644	5
20	9	0.420	0.231	10	15	16.947	11.961	8
30	8	0.296	0.195	10	5	6.930	4.891	16
40	7	0.233	0.198	20	1	0.316	0.753	31
60	6	0.130	0.208	30	0.1	0.084	0.285	59
80	5	0.117	0.394					
85	4	0.116	0.377					

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	54.29	mg m-2 day -1	Carbon Fixation:	673.26	mg m-2 day-1
Phaeophytin:	14.58	mg m-2 day -1	Productivity Index:	12.40	mg C mg Chl day-1
Mixed Layer	---	meters	PBOpt:	20.99	mg C mg Chl day-1

Date Oct 28, 2006 23:12 Cruise: S406 Latitude: 37.949 Year: 2006
 Project: CALCOFI Station: 60-50 Longitude: -122.881 Work week: 43
 Platform: R/V POINT SUR Cast: 34 Secchi Depth: 8 Day of Year: 301

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.0	12	15.246	33.376	24.666	84	0.202	0.065	0.149	7.211
5	5.0	11	15.058	33.403	24.728	82	0.483	0.070	0.316	6.106
10	10.6	10	14.572	33.426	24.851	82	2.177	0.115	0.392	7.388
20	20.3	9	13.892	33.419	24.988	87	12.477	0.237	1.136	17.497
40	40.6	8	11.667	33.570	25.542	80	17.702	0.248	1.439	24.482
40	40.6	7	11.668	33.570	25.542	80	---	---	---	---
40	40.6	6	11.670	33.570	25.541	80	---	---	---	---
40	40.6	5	11.670	33.570	25.541	80	---	---	---	---
40	40.9	4	11.668	33.571	25.542	80	---	---	---	---
40	40.5	3	11.675	33.570	25.540	80	---	---	---	---
40	40.6	2	11.671	33.571	25.542	80	---	---	---	---
40	40.3	1	11.687	33.573	25.541	81	14.767	0.095	1.302	18.191

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)	DEP (m)	% S. I.	CARBON (mg m-3 d-1)	PROD INDEX carbon/chl (mg m-3 d-1)	LIGHT DEPTH (m)
0	12	3.170	0.491	0	100	85.366	26.932	0
5	11	6.694	0.705	5	50	123.134	18.396	3
10	10	4.814	0.695	5	30	72.020	10.760	5
20	9	2.298	0.389	10	15	36.436	7.570	7
40	8	1.925	0.481	10	5	13.230	2.748	12
				20	1	1.159	0.504	19
				40	0.1	0.624	0.324	32

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	89.15	mg m-2 day -1	Carbon Fixation:	787.62	mg m-2 day-1
Phaeophytin:	11.89	mg m-2 day -1	Productivity Index:	8.83	mg C mg Chl day-1
Mixed Layer	---	meters	PBOpt:	26.93	mg C mg Chl day-1

Date Oct 29, 2006 1:51 Cruise: S406 Latitude: 37.562 Year: 2006
 Project: CALCOFI Station: 61.75-52.5 Longitude: -122.847 Work week: 44
 Platform: R/V POINT SUR Cast: 35 Secchi Depth: 8 Day of Year: 302

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.7	12	15.122	33.324	24.653	76	0.108	0.031	0.513	11.498
5	5.3	11	15.076	33.325	24.664	76	0.119	0.031	0.292	11.258
10	10.0	10	14.746	33.328	24.738	73	0.462	0.051	0.461	10.797
20	19.8	9	14.105	33.377	24.912	83	4.144	0.172	0.576	10.148
40	40.5	8	12.806	33.479	25.254	91	12.187	0.081	0.868	12.048
60	59.8	7	11.168	33.604	25.659	92	18.883	0.020	1.397	19.069
80	81.5	6	10.740	33.662	25.782	90	21.202	0.134	1.686	24.078
80	81.8	5	10.739	33.663	25.782	89	---	---	---	---
80	81.0	4	10.741	33.662	25.781	90	---	---	---	---
80	81.6	3	10.739	33.663	25.782	90	---	---	---	---
80	81.3	2	10.740	33.663	25.782	90	---	---	---	---
80	81.3	1	10.740	33.663	25.782	90	---	---	---	---

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)
0	12	12.443	1.201
5	11	14.350	1.667
10	10	14.077	1.770
20	9	5.649	0.436
40	8	1.426	0.150
60	7	0.674	0.121
80	6	0.155	0.238

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	---	mg m-2 day -1	Carbon Fixation:	---	mg m-2 day-1
Phaeophytin:	---	mg m-2 day -1	Productivity Index:	---	mg C mg Chl day-1
Mixed Layer	50	meters	PBOpt:	---	mg C mg Chl day-1

Date Oct 29, 2006 4:27 Cruise: S406 Latitude: 37.258 Year: 2006
 Project: CALCOFI Station: 63.5-52.5 Longitude: -122.629 Work week: 44
 Platform: R/V POINT SUR Cast: 36 Secchi Depth: --- Day of Year: 302

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.9	12	14.877	33.399	24.765	88	0.971	0.088	0.202	4.575
5	5.2	11	14.888	33.399	24.762	88	0.771	0.087	0.260	4.274
10	10.4	10	14.876	33.399	24.765	88	0.897	0.098	0.323	4.474
20	20.2	9	14.794	33.396	24.780	89	4.327	0.215	0.547	5.848
30	30.5	8	13.663	33.347	24.980	90	7.194	0.286	0.739	7.377
40	40.2	7	13.034	33.333	25.096	91	10.480	0.226	1.124	9.528
60	60.5	6	11.417	33.501	25.535	92	18.083	0.123	1.490	17.271
80	80.8	5	10.940	33.616	25.710	86	---	---	---	---
80	80.6	4	10.938	33.616	25.711	86	---	---	---	---
80	81.2	3	10.933	33.617	25.712	86	---	---	---	---
80	81.5	2	10.931	33.617	25.713	86	---	---	---	---
90	90.8	1	10.776	33.647	25.763	85	---	---	---	---

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)
0	12	2.225	0.394
5	11	1.934	0.320
10	10	1.798	0.320
20	9	1.126	0.281
30	8	0.745	0.315
40	7	0.590	0.291
60	6	0.148	0.140

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	---	mg m-2 day -1	Carbon Fixation:	---	mg m-2 day-1
Phaeophytin:	---	mg m-2 day -1	Productivity Index:	---	mg C mg Chl day-1
Mixed Layer	47	meters	PBOpt:	---	mg C mg Chl day-1

Date Oct 29, 2006 7:03 Cruise: S406 Latitude: 36.956 Year: 2006
 Project: CALCOFI Station: 65.25-52.5 Longitude: -122.42 Work week: 44
 Platform: R/V POINT SUR Cast: 37 Secchi Depth: --- Day of Year: 302

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	1.9	12	15.089	33.349	24.680	89	0.702	0.080	0.283	4.136
5	5.2	11	15.088	33.349	24.680	89	1.042	0.118	0.463	4.230
10	10.1	10	15.050	33.347	24.687	89	1.350	0.138	0.513	4.739
20	20.6	9	14.399	33.331	24.815	89	2.289	0.133	0.530	5.335
30	30.7	8	13.777	33.312	24.930	90	8.731	0.229	0.946	8.550
40	40.6	7	12.131	33.381	25.308	92	13.914	0.221	1.291	12.514
60	61.0	6	11.100	33.477	25.573	92	18.147	0.079	1.525	15.899
80	81.3	5	10.511	33.568	25.748	93	20.810	0.075	1.920	19.386
100	100.5	4	10.139	33.675	25.896	93	23.025	0.068	1.985	22.909
150	152.0	3	9.545	33.905	26.175	93	24.788	0.071	2.060	27.383
200	202.5	2	9.110	34.023	26.339	93	27.984	0.070	2.127	32.884
270	271.7	1	8.588	34.147	26.519	92	31.008	0.087	2.522	40.529

Biological

DEP (m)	BTL #	CHL (mg m-3 d-1)	PHAEO (mg m-3 d-1)
0	12	1.172	0.269
5	11	1.117	0.256
10	10	1.017	0.322
20	9	0.954	0.351
30	8	0.609	0.400
40	7	0.396	0.251
60	6	0.139	0.142
80	5	0.055	0.092
100	4	0.019	0.083
150	3	0.009	0.113
200	2	0.010	0.086

Integrated Value

Integrated values are 1.0% of Surface Intensity (S.I.)

Chlorophyll <i>a</i> :	---	mg m-2 day -1	Carbon Fixation:	---	mg m-2 day-1
Phaeophytin:	---	mg m-2 day -1	Productivity Index:	---	mg C mg Chl day-1
Mixed Layer	13	meters	PBOpt:	---	mg C mg Chl day-1

Date: Oct 29, 2006 10:04 Cruise: S406 Latitude: 36.734 Year: 2006
 Project: CALCOFI Station: H3 Longitude: -122.016 Work week: 44
 Platform: R/V POINT SUR Cast: 38 Secchi Depth: --- Day of Year: 302

* Note: Latitude and Longitude are reported in decimal degrees. '---' signifies no data.

Physical and Chemical

DEP (m)	PRESS (db)	BTL #	TEMP (°C)	SAL	SIGMA T	TRANSMISS (%)	NO3 (µM)	NO2 (µM)	PO4 (µM)	SIO4 (µM)
0	0.9	12	14.868	33.432	24.792	86	---	---	---	---
5	5.4	11	14.665	33.413	24.821	85	---	---	---	---
10	10.0	10	13.940	33.384	24.951	87	---	---	---	---
20	20.1	9	12.577	33.406	25.242	92	---	---	---	---
40	39.5	8	11.888	33.492	25.440	92	---	---	---	---
50	51.0	7	11.719	33.501	25.478	92	---	---	---	---
80	79.9	6	11.226	33.587	25.637	92	---	---	---	---
100	101.9	5	10.914	33.631	25.727	92	---	---	---	---
250	252.3	4	8.739	34.128	26.481	93	---	---	---	---
500	504.5	3	6.342	34.239	26.913	93	---	---	---	---
750	757.6	2	4.739	34.366	27.209	91	---	---	---	---
1000	1010.0	1	3.899	34.454	27.370	89	---	---	---	---

Table 4: *Zooplankton Data.* This table lists the total biovolume and krill abundance measured at the nineteen hydrographic stations—10 on CalCOFI line 67, 9 on CalCOFI line 60— where bongo net tows were completed during the PaCOOS cruise of October 2006. Also listed are the abundances of the two dominant species of euphasiid. The data are listed by CalCOFI line, onshore to offshore and south to north. (CalCOFI station 60-55, while sampled, was not a successful net tow.)

Station (<i>CalCOFI</i>) Number	Latitude (°N)	Longitude (°W)	Zooplankton Biovolume (ml/1000m ³)	<i>Euphasia pacifica</i> (no./1000m ³)	<i>Nematoscelis difficilis</i> (no./1000m ³)	Krill Abundance (no./1000m ³)
1 (67-C1)	36.799	121.863	43	63	0	64
2 (67-M1)	36.736	122.020	121	86	22	151
4 (67-55)	36.620	122.416	130	97	47	160
6 (67-60)	36.465	122.768	381	3023	470	3544
8 (67-65)	36.287	123.133	512	1495	154	1721
10 (67-70)	36.121	123.502	455	479	37	600
12 (67-75)	35.958	123.843	80	65	82	191
14 (67-80)	35.798	124.194	188	276	134	560
16 (67-85)	35.634	124.550	262	1	10	20
18 (67-90)	35.465	124.915	72	0	76	90
32 (60-55)	37.774	123.256	---	---	---	---
31 (60-57.5)	37.697	123.440	142	23	36	112
30 (60-60)	37.622	123.609	127	32	42	119
29 (60-65)	37.454	123.970	247	635	171	880
28 (60-70)	37.284	124.336	342	3255	270	3827
27 (60-75)	37.113	124.686	227	115	526	789
26 (60-80)	36.954	125.063	123	3	14	106
25 (60-85)	36.782	125.405	117	4	13	47
24 (60-90)	36.624	125.775	134	192	11	291

Table 5: *Marine Mammal Observations.* This table lists the results of the marine mammal observations made during the PaCOOS cruise of October 2006. The data are listed by species code, then chronologically within each species code.

Species Code	Scientific (<i>Common</i>) Name	Size of Group	Date of Sighting (mm/dd/yyyy)	Latitude (°N)	Longitude (°W)
17	Delphinus	50	10/27/2006	36.617	-125.773
	delphis	50	10/27/2006	36.687	-125.666
	<i>(short-beaked</i>	6	10/27/2006	36.762	-125.457
	<i>common</i>	18	10/27/2006	36.778	-125.412
	<i>dolphin)</i>	5	10/27/2006	36.818	-125.374
		90	10/27/2006	36.868	-125.325
		50	10/27/2006	36.894	-125.288
27	Lissodelphis borealis <i>(Northern right whale dolphin)</i>	8	10/24/2006	36.740	-122.048
44	Phocoenoides	8	10/24/2006	36.796	-121.864
	dalli <i>(Dall's porpoise)</i>	2	10/24/2006	36.798	-121.870
76	Megaptera	2	10/24/2006	36.774	-121.941
	novaeangliae	2	10/24/2006	36.741	-122.006
	<i>(humpback</i>	3	10/28/2006	37.687	-123.441
	<i>whale)</i>	1	10/28/2006	37.757	-123.279
		2	10/28/2006	37.759	-123.238
79	Unidentifird large whale	1	10/24/2006	36.766	-121.864

Species Code	Scientific (Common) Name	Size of Group	Date of Sighting (mm/dd/yyyy)	Latitude (°N)	Longitude (°W)
EL	Enhydra lutris <i>(sea otter)</i>	40	10/24/2006	36.804	-121.786
MA	Mirounga angustirostris <i>(elephant seal)</i>	1	10/28/2006	37.662	-123.567
UA	Unidentified Fur Seal <i>(Northern fur seal or Gaudalupe fur seal)</i>	1	10/24/2006	35.893	-123.830
		1	10/26/2006	35.624	-124.836
		1	10/28/2006	37.662	-123.567
		1	10/28/2006	37.690	-123.441
		1	10/28/2006	37.781	-123.249
1	10/28/2006	37.943	-122.884		
US	Unidentified Seal <i>(Northern elephant seal or harbor seal)</i>	1	10/28/2006	37.662	-123.567
UT	Unidentified Turtle	1	10/24.2006	36.737	-122.033

Figures

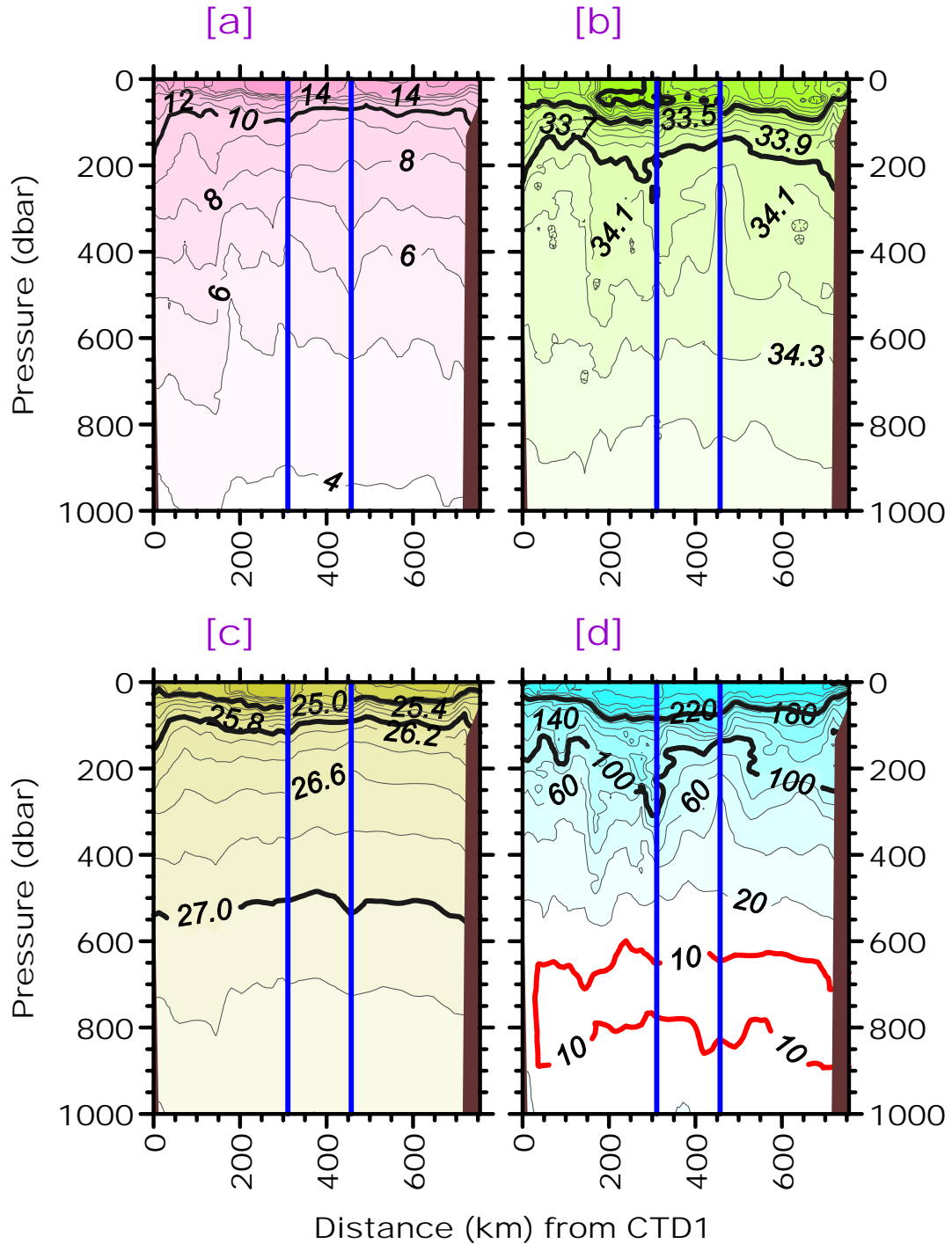


Figure 3: Contours of (a) temperature ($^{\circ}\text{C}$), (b) salinity, (c) density anomaly (kg m^{-3}), and (d) oxygen ($\mu\text{m kg}^{-1}$) fields along the line of hydrographic stations from Moss Landing (on the left) to Point Reyes. The blue lines indicate the locations of the corner hydrographic stations (CTDs 18/19 and 23/24). Contour intervals for panels a-d are 1°C , 0.1, 0.2 kg m^{-3} , and 20 $\mu\text{m kg}^{-1}$, respectively, except that the (nearly) oxygen minimum contour of 10 $\mu\text{m kg}^{-1}$ is highlighted in red in panel d.

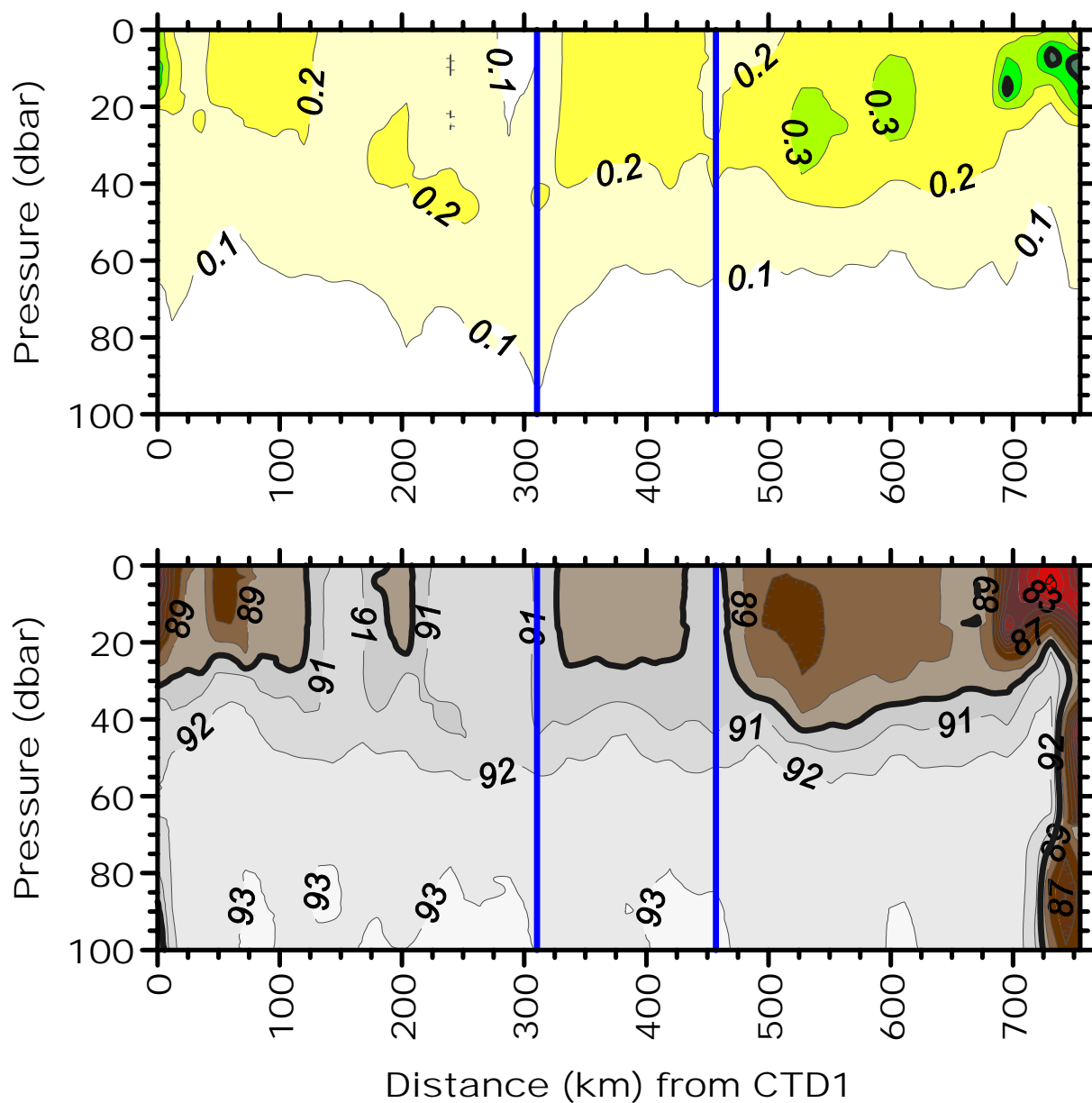


Figure 4: Contours of fluorescence (volts) [upper panel] and transmissivity (percentage) [lower panel] in the upper 100 dbars of the water column along the line of hydrographic stations from Moss Landing (on the left) to Point Reyes. The blue lines indicate the locations of the corner hydrographic stations (CTDs 18/19 and 23/24). The contour intervals are 0.1 volt and 1 percent, respectively, for the upper and lower panels.

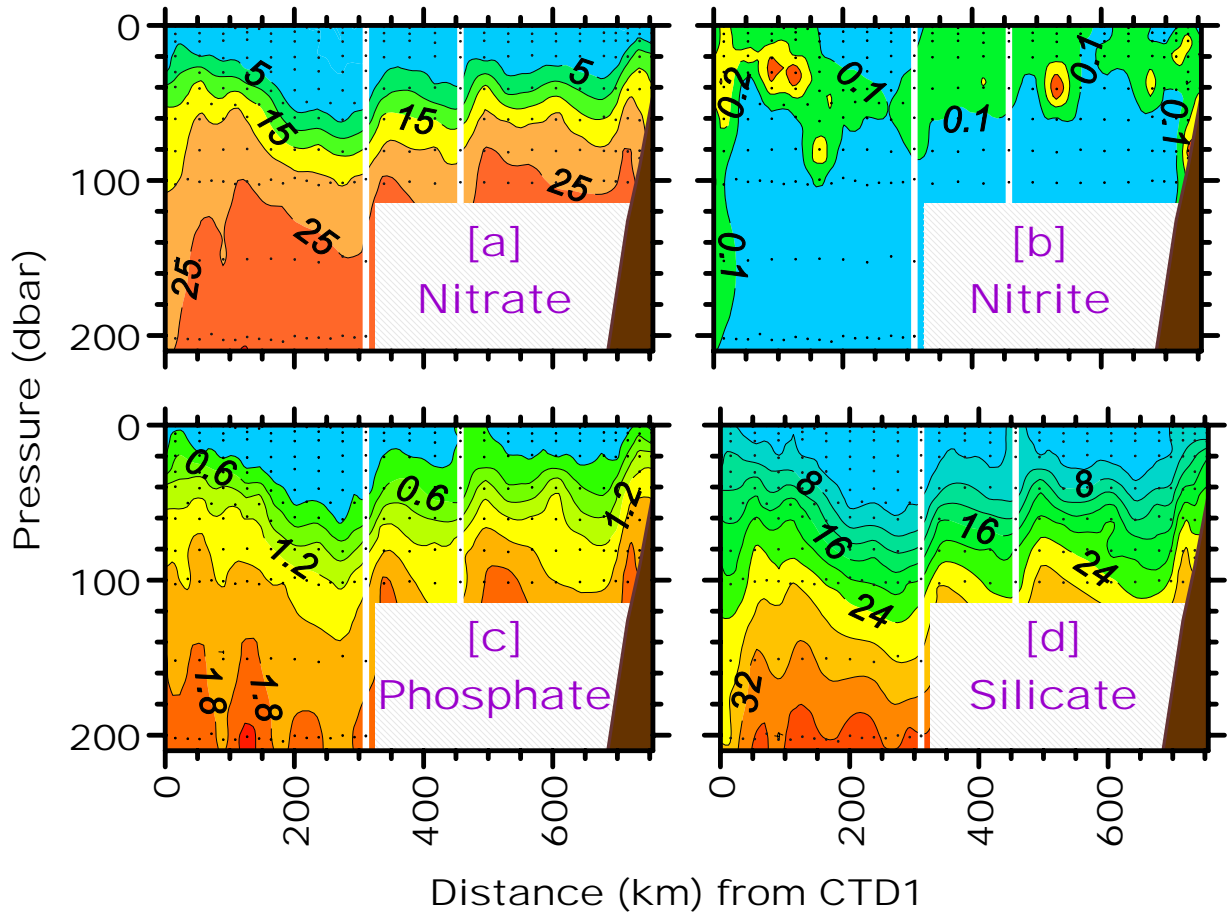


Figure 5: Contours of (a) nitrate (μm), (b) nitrite (μm), (c) phosphate (μm), and (d) silicate (μm) fields in the upper 200 dbar of the water column along the line of hydrographic stations from Moss Landing (on the left) to Point Reyes during the PaCOOS cruise of October 2006. The dots indicate the water sample locations, while the white lines indicate the locations of the corner hydrographic stations (CTDs 18/19 and 23/24). The contour intervals are (a) 5 μm , (b) 0.1 μm , (c) 0.3 μm , and (d) 4 μm .

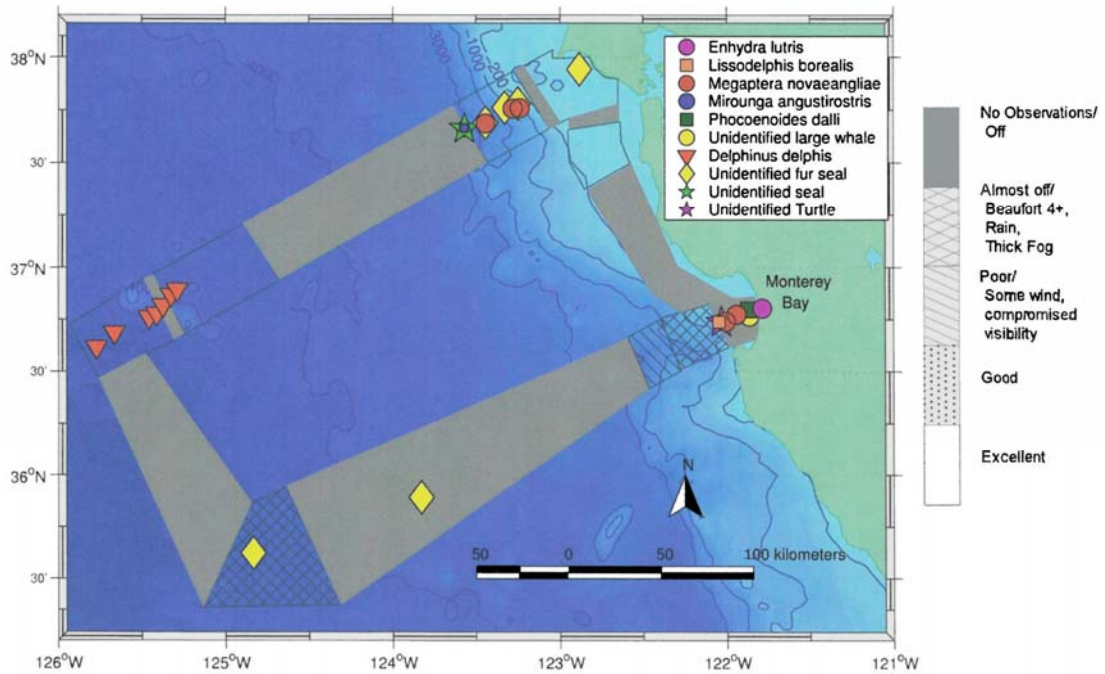


Figure 6a: Locations of sightings of all marine mammals during the PaCOOS cruise of October 2006. Observational conditions are also shown in this figure.

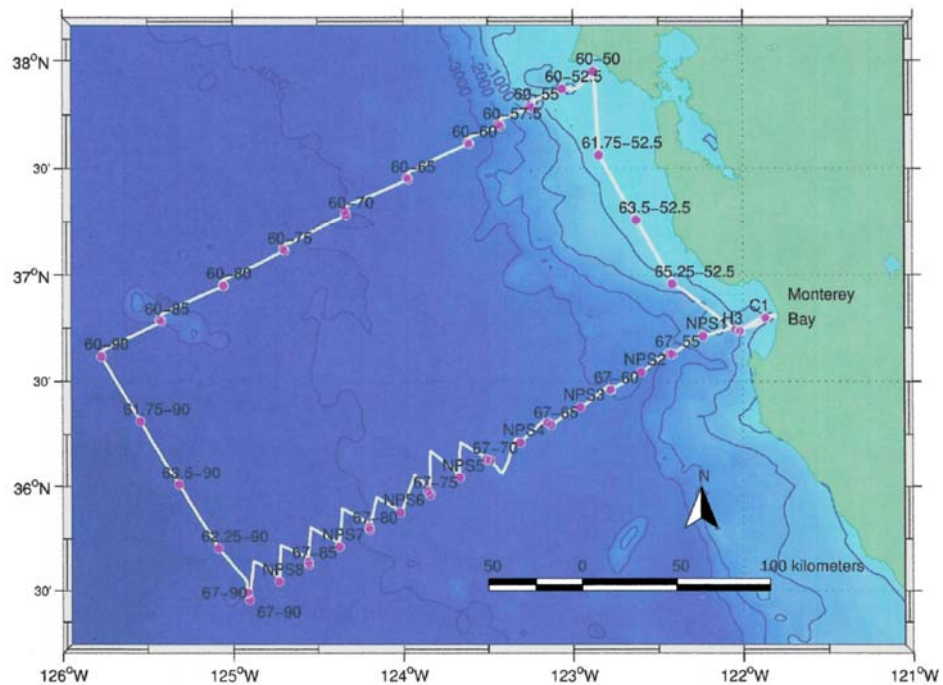


Figure 6b: CalCOFI sites and actual cruise track during the PaCOOS cruise of October 2006.

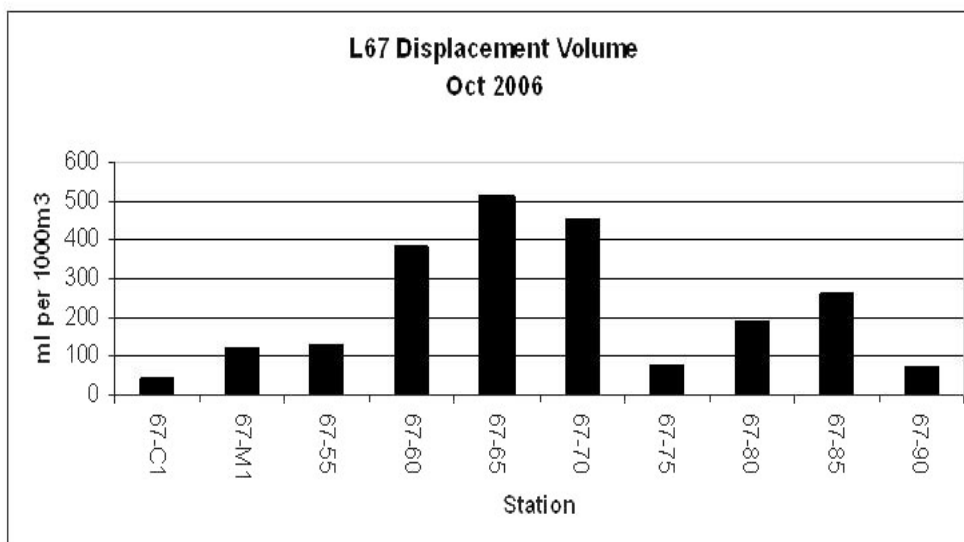
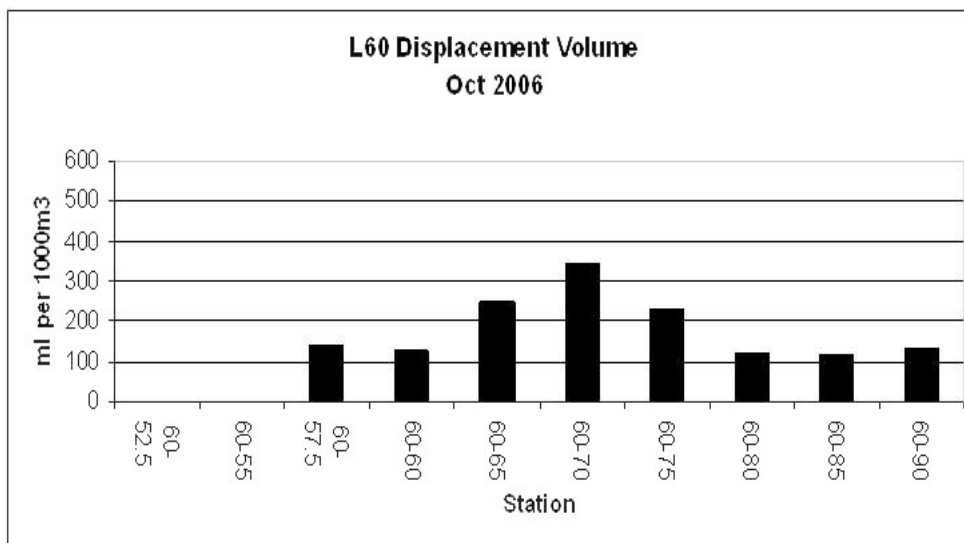


Figure 7a: Biovolume displacement values for CalCOFI lines 67 (lower) and 60 (upper) collected during October 2006.

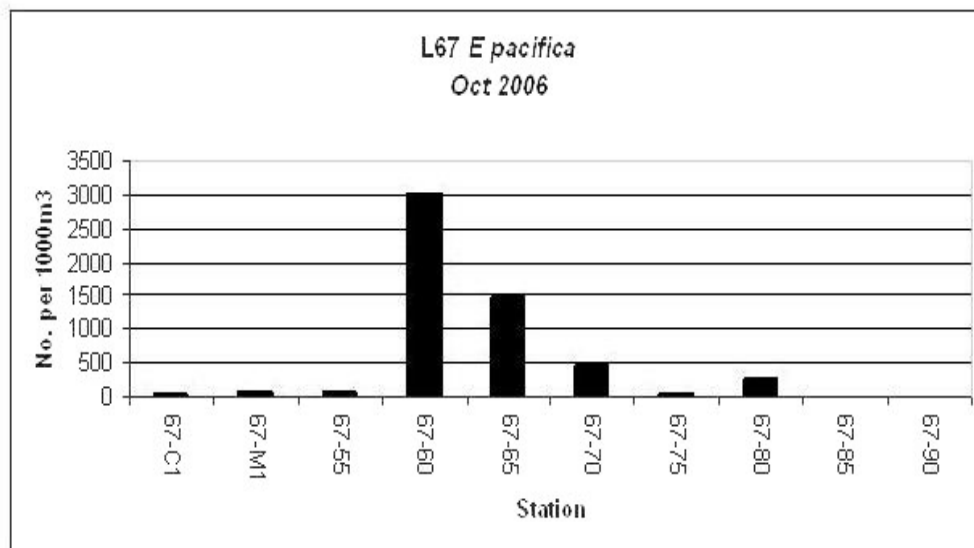
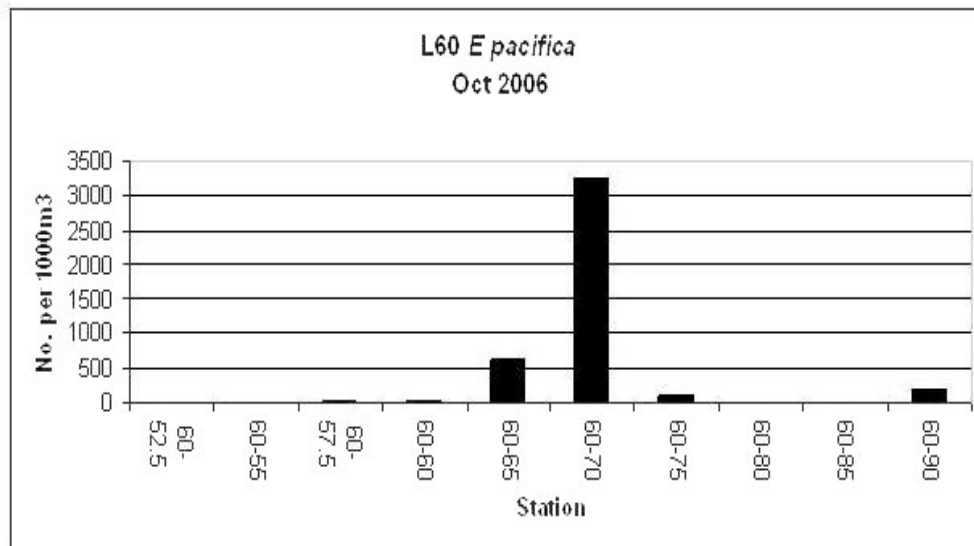


Figure 7b: Mean abundance for CalCOFI lines 67 (lower) and 60 (upper) of the species *Euphasia pacifica* collected during October 2006.

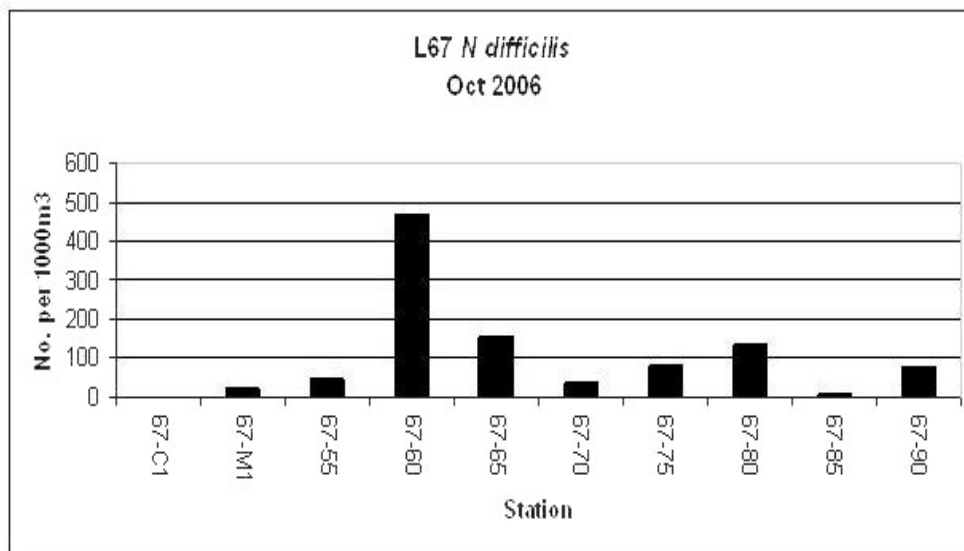
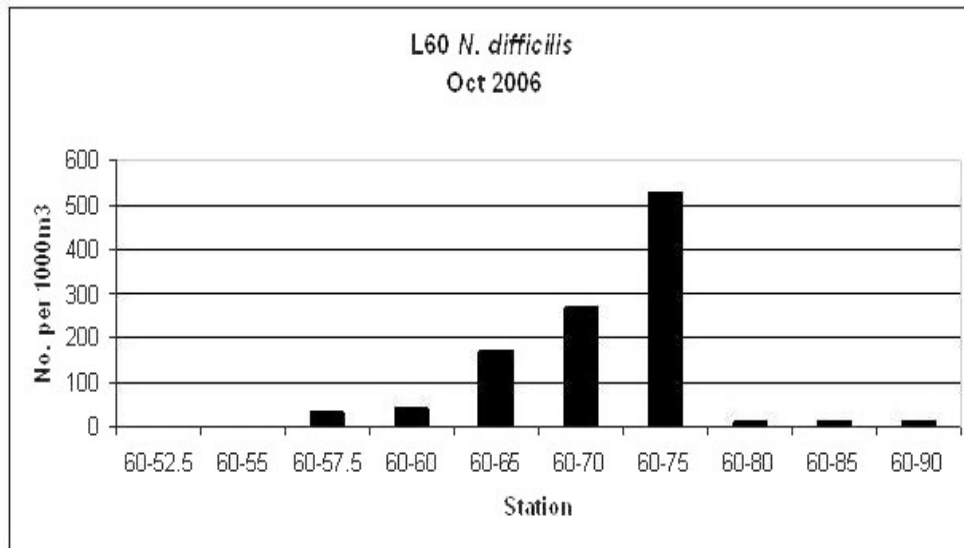


Figure 7c: Mean abundance for CalCOFI lines 67 (lower) and 60 (upper) of the species *Nematoscelis difficilis* collected during October 2006.

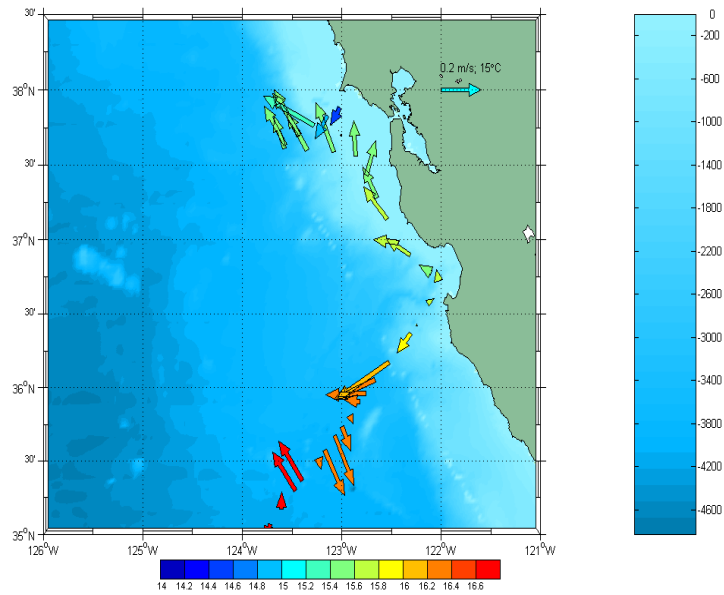


Figure 8a: *Ocean current velocity measurements by shipboard (R/V Wecoma) ADCP during October 2006. Velocities were measured by the 75 kHz Ocean Surveyor instrument except on the continental shelf, where the 300 kHz Broadband instrument was used. Each vector represents a 1-hour average for 100-200 meters (Ocean Surveyor) or 20-40 meters (Broadband). Sea surface temperatures are indicated by the color of the velocity vector.*

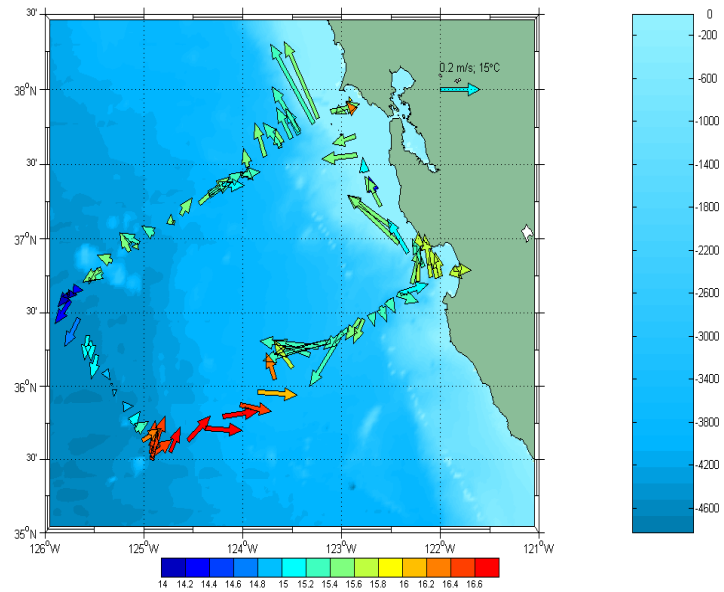


Figure 8b: *Ocean current velocity measurements by shipboard (R/V Point Sur) ADCP during October 2006. Velocities were measured by the 75 kHz Ocean Surveyor instrument except on the continental shelf, where the 300 kHz Broadband instrument was used. Each vector represents a 1-hour average for 50-100 meters (Ocean Surveyor) or 25-50 meters (Broadband). Sea surface temperatures are indicated by the color of the velocity vector.*

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