MOSS LANDING MARINE LABORATORIES

Technical Publication 77-1

CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS
HYDROGRAPHIC DATA REPORT
MONTEREY BAY
JANUARY TO DECEMBER 1976

by

Stephen R. Lasley

1976

Supported by
STATE OF CALIFORNIA, MARINE RESEARCH COMMITTEE
CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS
and
OFFICE OF SEA GRANT
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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Moss Landing Marine Laboratories
California State University and Colleges
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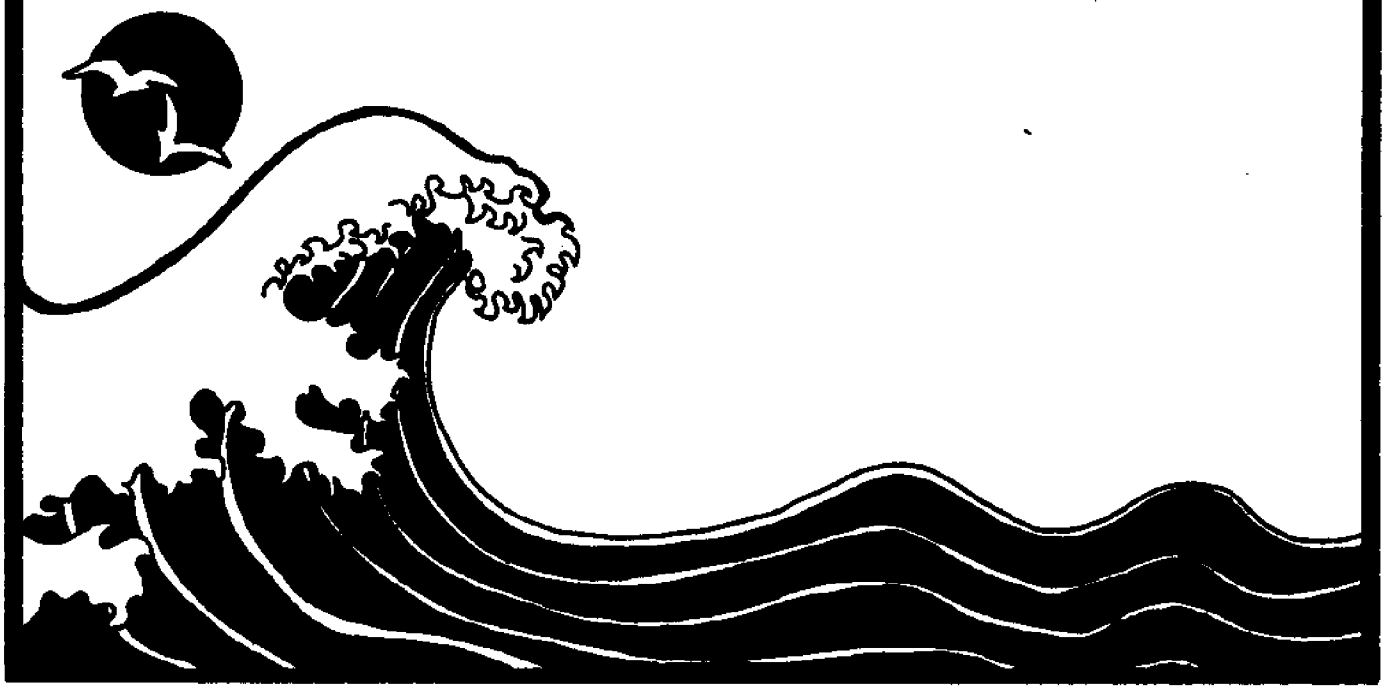

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CALCOFI HYDROGRAPHIC DATA REPORT
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INTRODUCTION

The data contained in this report were obtained as a continuance of the nearly bi-weekly hydrographic observations initiated by personnel at Hopkins Marine Station over two decades ago. These observations have been supported through the years by the State of California Marine Research Committee, California Cooperative Oceanic Fisheries Investigations. Since July 1974 the hydrographic sampling program has been carried out by investigators at Moss Landing Marine Laboratories in conjunction with an interdisciplinary study of the squid, Loligo opalescens, supported by the National Office of Sea Grant via the University of California Sea Grant College Project Number R/F-15.

Five of the original CalCOFI stations (2201, 2202, 2203, 2204, and 2205) have been retained in our sampling routine, and additional inner-bay stations have been added (1125 and 1154). Sampling was conducted bi-weekly from January through June and was on a monthly basis for the remainder of the year. All observations were made aboard R/V Oconostota.

In December an additional deep station was sampled during an International Decade of Ocean Exploration (IDOE) cruise. These data are included at the end of the regular CalCOFI cruise data.

STATION LOCATIONS

NUMBER	LATITUDE N.	LONGITUDE W.	DEPTH (m)
2201	36°37.6'	121°63.6'	46
2202	36°41.2'	121°57.9'	104
2203	36°46.7'	122°01.2'	988
2204	36°50.9'	122°01.5'	82
2205	36°55.8'	122°00.7'	26
1121	36°37.6'	121°51.2'	18
1154	36°55.2'	121°52.7'	16

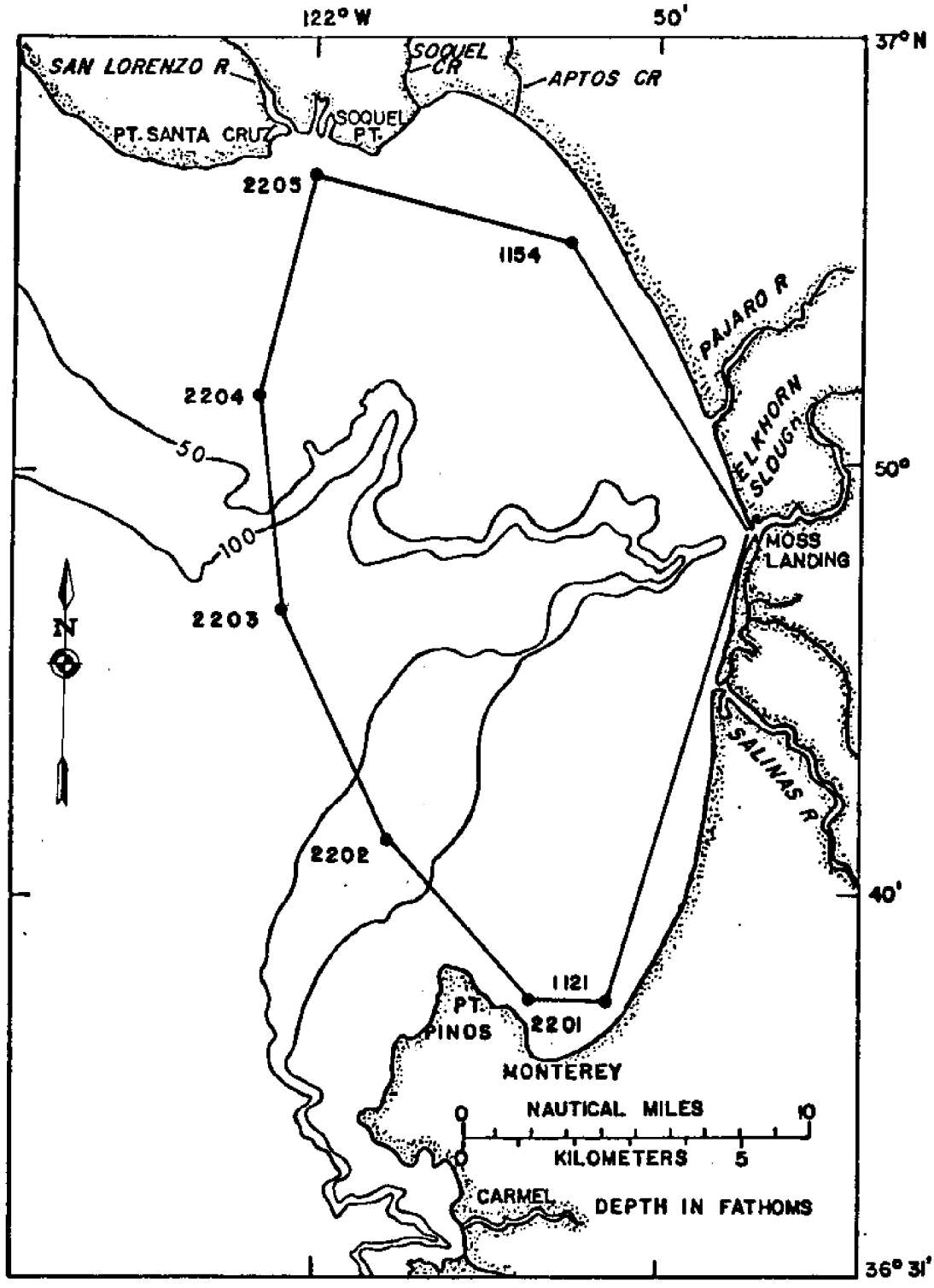

Figure 1. CalCOFI hydrographic station positions. 22 prefixes designate stations originated by Hopkins Marine Station.

EXPLANATION OF TABLES

CRUISE	Moss Landing Marine Laboratories consecutive hydrographic cruise number.
STATION	Permanent hydrographic station numbers. 11xx designates Moss Landing Marine Laboratories numbers, 22xx CalCOFI numbers as originated by Hopkins Marine Station.
DATE	Local date of sampling.
HOUR	Local sampling time (Pacific Standard Time). Time of messenger release is given for one-cast stations, median time on station is given for multi-cast stations. For two-cast stations the time on-station was generally under one hour.
N LATITUDE W LONGITUDE	Observed station positions corresponding to sampling time given above. Drift while on station was generally less than 0.5 miles. When greater drift was experienced, the ship was brought back to the station for subsequent casts.
TRANSP	Secchi disk depth, meters (not observed at night).
WAVES	
dir	Direction from which the dominant waves were coming, in tens of degrees, according to WMO Code 0885.
ht	Height of dominant waves according to WMO Code 1555.
p	Period of dominant waves according to WMO Code 3155.
WIND	
dir	Direction from which the wind was blowing, in tens of degrees, according to WMO Code 0877.
speed	Wind speed in knots.
BAROM	Pressure in millibars
AIR TEMP ^{o}C	Air temperatures were obtained about 2 m above surface
dry	Dry-bulb air temperature in degrees centigrade.
wet	Wet-bulb air temperature in degrees centigrade.
WEATH	Present weather according to WMO Code 4677.

CLOUDS typ	Cloud type according to WMO Code 0500.
amt	Cloud amount in eights according to WMO Code 2700.
VISIB	Sea level visibility according to WMO Code 4300.
DEPTH	Accepted depth in meters from which the sample was obtained, determined from wire length, wire angle and thermometric depth calculation.
TEMP	*In situ* water temperature in degrees centigrade.
SALINITY	Salinity in grams/kilogram (^{o}/oo or ppt).
SIGMA T	Potential density anomaly, computed from the equations in Knudsen's Hydrographical Tables (1901).
OXYGEN	Dissolved oxygen concentration in ml(STP)/liter.
AOU	Apparent oxygen utilization in µg-atoms O_2-O/liter: the difference between the observed oxygen concentration and the oxygen solubility computed from the *in situ* temperature and salinity using the equations of Truesdale, *et al.* (1955).
SAT	Per cent of oxygen saturation computed from the *in situ* temperature and salinity using the equations of Truesdale, *et al.* (1955).
PHOSPHATE	Concentration of reactive phosphate in µg-atoms PO_4-P/liter.
NITRATE	Concentration of dissolved nitrate in µg-atoms NO_3-N/liter.
NITRITE	Concentration of dissolved nitrite in µg-atoms NO_2-N/liter.
AMMONIA	Concentration of dissolved ammonia in µg-atoms NH_3-N/liter.
SILICA	Concentration of reactive silica in µg-atoms SiO_2-Si/liter.
*	Questionable data point. These values are suspect based upon preliminary analysis of the data and should be used with caution.

METHODS

Station Position. Station positions were determined using radar ranges with an accuracy of about ±0.2 n mile near shore and ±0.5 n mile at station 2203.

Hydrographic Sampling. Eight 5-liter Niskin plastic sampling bottles were used to obtain discrete water samples at the standard sampling depths: 0, 5, 10, 20, 30, 50, 75, 100, 150, 200, 250, 300, 500, 600, and 800 m. Accepted sampling depths were determined from wire angle for depths less than 100 m and from a combination of wire angle and thermometric depth calculations for depths greater than 100 m.

Temperature. The in situ temperature was determined from paired reversing thermometers. The average temperature is recorded when the thermometers agreed to within 0.05 °C.

Salinity. Salinity was determined using a Beckman RS-7B precision induction salinometer. Analyses were made in the laboratory and salinity was computed from conductivity ratio using the equations of Cox, et al. (1967). Substandard seawater was used to calibrate the salinometer before and after each set of 24 or fewer samples. Copenhagen water was used each month to standardize the substandard water.

Dissolved Oxygen. Water samples were treated aboard ship to fix the oxygen in the basic form. The samples were acidified and

titrated in the laboratory within 12 hours of the sampling time using Carpenter's (1965) modification of the Winkler method. The total sample is titrated with approximately 0.02 N sodium thiosulfate to the starch endpoint. Precision of the analyses is about ±0.06 ml/liter (2 SD).

Nutrient Ions. At each station a 500 ml sample was filtered and quick frozen aboard ship and refrigerated at -10 °C until analyzed ashore within two weeks of collection. Groups of 43 samples were quick thawed in the laboratory just prior to the analyses for phosphate, nitrate, nitrite, ammonia, and silica. Standards and reagent blanks were prepared fresh daily and were determined with each set of samples. The standard and blanks were read before and after each set of samples. A linear drift correction was used to correct for electronic and chemical drift over the 20-minute reading time.

Dissolved reactive phosphate was determined by the methods of Murphy and Riley (1962) described in Strickland and Parsons (1972) using ascorbic acid to reduce the phospho-molybdate complex. The sample absorbance at 880 nm was determined with a 10 cm cell. Precision of the analyses is about ±0.03 µg-at/l (2 SD). Nitrate was determined by the cadmium-reduction method of Wood et al. (1967) followed by the nitrite color development. The sample absorbance was determined with a 1 cm cell. Precision of the analyses is about ±0.5 µg-at/liter (2 SD). Nitrite was determined by the method of Bendschneider and Robinson (1952) described by Strickland and Parsons (1972). The absorbance of the diazo color was determined with a 10 cm cell on the PC-1000 at 545 nm. The precision of the method

is about ±0.03 µg-at/liter (2 SD). Ammonia was determined by the indophenol method of Solorzano (1969) with the color absorbance determined with a 10 cm cell on the PC-1000 at 650 nm. Precision of the method is about ±0.1 µg-at/liter (2 SD). Reactive silica was determined by the method of Mullin and Riley (1955) as modified by Strickland and Parsons (1972). The silicomolybdate complex was reduced by a metol-sulfite, oxalic acid solution, and the color absorbance at 810 nm was determined with a 1 cm cell on the PC-1000. Precision of the method is about ±1 µg-at/liter (SD).

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CRUISE DATA

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 35	1154	6 JAN 1976	9.4	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
9	23	1	2	28	0	1008.5	9.7	8.5	2	0	3	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	10.12	33.699	25.94	4.08	186	66	.74	7.7	.25		6
5	10.14	33.703	25.94	5.66	45	92	.75	7.0	.20		5
10	10.13	33.725	25.96	5.84	29	95	.97	11.4	.34		9

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 35	2205	6 JAN 1976	10.7	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	28	2	2	5	1	1009.0	11.8	9.5	2	0	2	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	10.09	33.741	25.98	4.48	150	73	1.26	14.3	.30		9
5	10.08	33.737	25.97	4.37	160	71	1.23	14.5	.28		12
10	10.07	33.722	25.96	5.33	75	86	1.23	14.6	.28		12
20	10.08	33.715	25.96	5.29	78	86	1.24	10.8	.31		11

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 35	2204	6 JAN 1976	11.7	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	29	3	2	16	1	1008.0	11.3	9.2	2	0	3	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	10.22	33.722	25.94	5.35	71	87	.92	8.2	.23		7
5	10.22	33.718	25.94	5.46	61	89	1.11	12.7	.31		11
10	10.16	33.734	25.96	5.62	48	91	1.12	10.4	.33		11
20	10.14	33.722	25.95	5.71	40	93	1.20	10.9	.38		11
30	10.14	33.717	25.95	4.83	119	78	1.12	13.2	.38		12
50	9.91	33.777	26.03	2.66	315	43	1.37	16.7	.03		16

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 35	2203	6 JAN 1976	13.0	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	31	3	3	24	0	1007.0	11.5	10.0	2	0	2	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	10.24	33.739	25.95	5.47	60	89	1.31	14.1	.24		15
5	10.18	33.737	25.96				1.29	13.3	.23		14
10	10.17*	33.738	25.96	4.67	133	76	1.19	10.8	.23		12
20	10.02	33.771	26.01	4.50	149	73	1.40	15.6	.07		19
30	9.90	33.785	26.04	4.40	160	71	1.18	12.9	.06		18
50	9.78	33.808	26.08	3.84	211	62	1.46	12.7	.05		19
77	9.76	33.807	26.06	3.33	255	54	130.00	14.2	.07		20
98	9.61	33.834	26.13	3.70	226	59	1.85	19.7	.07		27

* indicates questionable data Paired thermometer read 10.11

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 35	2202	6 JAN 1976	14.7	36° 41.2'	121° 57.9'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
8	31	4	3	31	4	1006.0	12.4	10.7	2	0	3	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	10.14	33.706	25.94	5.88	25	95	1.24	12.6	.44		21
5	10.13	33.703	25.94	5.73	39	93	1.30	12.9	.47		19
10	10.11	33.707	25.95	5.53	57	90	1.36	12.8	.45		20
20	10.10	33.718	25.98	5.28	79	86	1.54	14.3	.32		21
30	10.12	33.729	25.96	4.64	136	75	1.39	13.6	.29		22
50	9.99	33.764	26.01	4.44	155	72	1.61	16.9	.18		20

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 35	2201	6 JAN 1976	15.9	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
7	34	3	2	31	3	1006.0	11.9	10.5	2	0	2	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	10.27	33.698	25.91	6.08	6	99	1.27	10.5	.43		19
5	10.30	33.701	25.91	6.23	-7	101	1.20	12.1	.42		21
10	10.12	33.701	25.94	5.85	28	95	1.26	12.8	.45		21
20	9.98	33.753	26.00	3.93	201	64	1.80	12.4	.33		21
30	9.96	33.760	26.01	4.13	183	67	1.74	17.2	.29		27

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 36	1154	20 JAN 1976	8.4	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
7	15	1	1	11	1	1021.5	16.9	13.4	2	X	0	8

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	10.62	33.733	25.88	6.16	-5	101	1.03	16.7	.35	1.6	16
5	10.54	33.736	25.89	5.38	65	88	.85	8.9	.29	.6	13
10	10.52	33.735	25.90	6.12	0	100	1.05	14.3	.41	.4	16

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 36	2205	20 JAN 1976	9.8	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	15	1	X	8	1	1022.0	16.4	13.0	2	X	0	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	10.28	33.684	25.90	8.01	-166	130	.37	6.9	.10	.4	3
5	10.19	33.684	25.91	7.79	-145	127	.41	2.6	.10	.3	2
10	10.05	33.708	25.96	6.89	-63	112	.68	6.3	.21	.3	8
20	9.93	33.708	25.98	4.76	128	77	1.32	12.8	.42	2.0	21

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 36	2204	20 JAN 1976	11.1	36° 50.9'	122° 1.6'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
11	11	2	X	9	2	1022.4	15.9	14.8	2	X	0	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.05	33.696	25.77	6.30	-22	104	.89	10.4	.34	.2	15
5	10.93	33.696	25.79	6.14	-7	101	.91	10.6	.32	.1	15
10	10.93	33.691	25.79	6.12	-5	101	.75	4.0	.36	1.9	9
20	10.83	33.691	25.81	6.04	2	100	.70	4.4	.35	.1	10
30	10.76	33.710	25.84	6.11	-2	101	.99	8.6	.38	.1	15
50	10.40	33.753	25.93	5.11	90	83	1.27	17.0	.30	.6	21

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 36	2203	20 JAN 1976	13.9	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
11	36	1	X	8	3	1020.5	15.0	18.2	2	X	0	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0		33.704		6.31			.84	24.1**	.21	.4	13
5		33.704		4.77			.89	7.4	.25	.3	15
10	10.87	33.710	25.82	6.27	-18	103	1.11	7.8	.33	.2	17
20	10.84	33.702	25.82	6.24	-15	103	.88	9.5	.26	.2	18
30	10.62	33.725	25.87	4.71	124	77	1.08	10.5	.28	.2	16
51	10.15	33.767	25.99	4.85	117	79	1.35	15.0	.16	.1	18
79	9.95	33.793	26.04	4.19	178	68	1.50	19.3	.02	.1	22
96	9.76	33.827	26.10	3.58	235	58	1.67	19.7	.00	.2	24
145	9.22	33.881	26.23	3.09	285	49	1.91	20.8	.00	.3	26
194	8.61	33.976	26.40	2.25	368	35	2.13	28.8	.01	.3	37
243	7.84	34.072	26.59	1.68	428	26	2.32	16.8*	.02	.1	33*
292	7.40	34.083	26.66	1.23	475	19	2.35	13.9*	.00	1.0	36*
391	6.46	34.160	26.85	.79	527	12	3.05	27.0*	.00	.0	60
491	5.77	34.226	26.99	.58	555	9	3.21	36.8	.06	.1	82
583	5.29	34.277	27.09	.63	558	9	3.25	43.9	.01	.2	89
772	4.51	34.367	27.25	.58	574	8	3.26	42.0	.01	.0	107

* indicates questionable data

** Nitrate appears anomalously high
* Nitrate appears anomalously low
Silicate appears anomalously low

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 36	2202	20 JAN 1976	16.1	36° 41.2'	121° 57.9'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
12	0	1	X	35	1	1020.0	15.0	17.5	2	X	0	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.34	33.684	25.71	6.80	-70	113	.97	9.9	.36	.2	17
5	10.94	33.683	25.78	6.00	5	99	.73	8.7	.22	.3	12
10	10.86	33.683	25.80	5.89	15	97	.94	11.6	.35	.2	15
20	10.71*	33.691	25.83	5.74	31	94	.93	12.6	.37	.3	16
30	10.72	33.711	25.84	4.58	134	75	.97	12.2	.33	.1	17
50	10.62	33.714	25.86	4.53	140	74	1.03	13.2	.33	.1	18

* indicates questionable data Paired thermometer read 10.77

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 36	2201	20 JAN 1976	18.4	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
	0	X	X	49	0				2	X	0	8

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	11.46	33.691	25.69	6.52	-47	109	.79	8.9	.26	.1	18
5	10.96	33.687	25.78	6.37	-28	105	.75	9.8	.23	.2	15
10	10.90	33.688	25.79	6.01	4	99	.73	9.4	.22	.1	13
20	10.78	33.698	25.82	5.68	35	94	.91	12.4	.34	.0	18
30	10.77	33.694	25.82				.81	9.3	.34	.1	12

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 36	1121	20 JAN 1976	18.9	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
	0	X	X	49	0				2	X	0	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.35	33.692	25.72	6.81	-71	114	.89	9.8	.24	.1	17
5	10.96	33.686	25.78	6.48	-37	107	.91	8.9	.20	.2	17
10	10.91	33.697	25.80	5.78	-25	95	1.06	13.4	.30	.6	19

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 37	1154	3 FEB 1976	8.6	36° 55.2'	121° 52.8'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
5	26	1	X	10	2	1013.5	10.0	10.0	44	8	8	4

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.62	33.706	25.68	6.36	-34	107	.84	3.7	.43	.1	11
5	11.54*	33.702	25.69	5.55	38	93	.78	3.4	.60	.2	8
10	11.11	33.695	25.76	6.66	-55	110	.92	3.5	.58	.8	9

* indicates questionable data Paired thermometer read 11.60

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 37	2205	3 FEB 1976	9.7	36° 55.8'	122° .7'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
6	26	1	X	34	0	1013.5	8.8	9.3	44	8	8	5

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.48	33.721	25.71	5.82	14	97	.46	1.7	.03	.1	6
5	11.50	33.719	25.71	7.09	-98	119	.37	.3*	.00	.2	8
10	11.12	33.714	25.77	5.97	5	99	.66	3.9	.26	.7	11
20	10.90	33.712	25.81	4.48	141	74	1.56	2.6	.55	4.5	22

* indicates questionable data Nitrate appears anomalously low

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 37	2204	3 FEB 1976	10.7	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	29	1	X	29	0	1013.8	9.9	9.7	44	8	8	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	11.36	33.698	25.72	6.19	-16	103	.91	7.9	.34	.1	14
5	11.25	33.698	25.74	6.23	-19	104	1.11	6.2	.36	.4	14
10	11.23	33.703	25.75	6.26	-21	104	.89	7.9	.33	.1	13
20	11.15	33.714	25.77	6.10	-6	101	.83	8.6	.48	.3	10
30	11.03	33.711	25.79	6.09	-4	101	1.05	9.9	.43	.3	15
50	10.87	33.715	25.82	5.03	92	83	.96	9.4	.57	.4	15

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 37	2203	3 FEB 1976	13.2	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	21	1	X	20	2	1012.8	10.0	9.4	44	8	8	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.42	33.682	25.70	6.26	-23	105	.94	11.1	.32	.3	10
5	11.38*	33.679	25.70	6.27	-24	105	.76	9.3	.27	.2	10
10	11.38	33.681	25.70	5.90	8	98	.82	9.6	.31	.3	11
20	11.30	33.681	25.72	5.91	8	98	.92	8.2	.40	.6	12
30	11.14	33.683	25.75	5.74	26	95	.92	7.3	.42	.8	15
50	10.89	33.697	25.80	4.75	117	78	1.10	14.2	.45	.3	12
75	10.64	33.723	25.87	5.04	94	83	1.26	12.9	.43	.4	17
100	10.49	33.733	25.90	4.60	135	75	1.26	14.0	.37	.2	19
147	9.93	33.800	26.05	3.49	241	56	1.64	16.7	.15	.0	24
190	8.86	33.936	26.33	2.54	339	40	2.22	14.3	.00	.0	29
240	7.91	34.049	26.56	1.78	419	28	2.43	22.0	.00	.0	39
289	7.50	34.092	26.66	1.56	444	24	2.66	21.3	.00	.0	49
388	6.82	34.151	26.80	.98	505	15	2.43	22.0	.00	.0	20*
489	5.98	34.214	26.96	.68	543	10	3.39	20.0	.00	.0	61
585	5.26	34.289	27.10	.41	578	6	3.26	20.5	.00	.0	61
778	4.64	34.355	27.23	.36	592	5	3.55	35.7*	.00	.0	103

* indicates questionable data Paired thermometer read 11.44 Nitrate appears anomalously high
Silicate appears anomalously low

CRUISE.	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 37	2202	3 FEB 1976	15.3	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	23	2	2	26	3	1010.3	10.2	11.0	44	8	8	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	11.43	33.675	25.69	5.88	10	98	.75	7.3	.33	.3	12
5	11.46	33.671	25.68	4.78	108	80	.80	6.8	.34	.2	11
10	11.43	33.667	25.68	5.59	36	93	.90	3.0	.44	.2	10
20	11.24	33.674	25.72	4.58	128	76	1.01	5.1	.62	.5	4
30	11.12	33.681	25.75	4.91	100	81	.88	8.9	.40	.4	12
50	11.08	33.692	25.76	4.56	132	76	.98	9.8	.47	.3	14

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 37	2201	3 FEB 1976	17.4	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
	32	2	X	26	2	1010.8	10.8	9.7	44	8	8	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.61	33.665	25.65	6.08	-9	102	.77	6.7	.32	.3	11
5	11.60	33.661	25.65	6.18	-18	104	.81	6.7	.31	.2	12
10	11.59	33.668	25.65	6.19	-19	104	.75	6.6	.31	.1	12
20	11.57	33.667	25.66	6.23	-22	104	.67	2.1	.40	.2	8
30	11.53	33.667	25.66	5.50	42	92	.71	6.2	.25	.2	11

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 37	1121	3 FEB 1976	18.0	36° 37.7'	121° 51.1'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
	30	2	X	26	2	1010.8	10.8	9.7	44	8	8	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.60	33.659	25.64	6.32	-31	106	.71	6.6	.31	.2	12
5	11.62	33.658	25.64	6.33	-31	106	.73	6.8	.30	.2	12
10	11.59	33.657	25.64	6.31	-29	106	.69	4.7	.26	.2	10

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 38	1154	9 MAR 1976	9.2	36° 55.2'	121° 52.8'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
6	25	0	X	0	0	1015.6	11.0	9.2	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.98	33.579	25.51	6.64	-63	112	.01	1.2	.02	.3	22
5	11.92	33.576	25.52	5.75	16	97	.00	1.3	.00	4.0	20

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 38	2205	9 MAR 1976	10.1	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
8	25	0	X	24	1	1015.1	10.3	9.2	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.90	33.566	25.52	6.51	-51	110	.24	2.2	.09	.1	20
5	11.56	33.564	25.58	6.54	-49	109	.31	2.9	.10	.5	19
10	11.47	33.563	25.59	6.36	-32	106	.25	3.8	.11	.1	18
20	11.26	33.610	25.67	4.64	123	77	.75	8.1	.30	2.2	23

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 38	2204	9 MAR 1976	11.1	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
12	27	0	X	18	0	1015.0	13.0	9.5	2	X	0	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	11.86	33.556	25.52	6.21	-23	105	.22	4.7	.11	.1	14
5	11.52	33.573	25.59	5.66	29	95	.22	5.5	.16	.2	14
10	11.45	33.573	25.61	5.11	79	85	.23	5.4	.14	.3	14
20	11.36*	33.578	25.63	6.02	-1	100	.27	5.9	.12	.2	14
30	11.25	33.586	25.65	5.94	7	99	.38	7.4	.24	.1	15
50	9.68	33.730	26.04	3.85	212	62	1.21	19.8	.00	.1	27

* indicates questionable data Paired thermometer read 11.42

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 38	2203	9 MAR 1976	12.5	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
13	29	0	X	31	2	1014.2	13.0		2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	12.05	33.490	25.43	6.32	-35	107	1.00	8.4	.14	.4	17
5	11.96	33.485	25.44	6.31	-33	106	.52	11.0	.14	.2	14
10	11.58	33.489	25.52	6.36	-33	106	.41	7.1	.14	.2	13
20	11.57	33.493	25.52	6.36	-33	106	.36	10.5	.11	.2	12
30	11.50	33.519	25.55	6.28	-25	105	.43	6.6	.21	.1	14
50	10.59	33.582	25.77				.95	14.8	.10	.0	19
74	9.60	33.735	26.05				1.54	18.9	.11	.0	30
98	8.77	33.911	26.32	2.89	309	46	1.89	25.4	.00	.1	37
146	8.39	34.009	26.46	2.52	346	39	1.80	29.7	.00	.2	42
194	8.09	34.063	26.55	1.95	401	30	2.11	29.5	.00	.0	48
242	7.70	34.086	26.62	1.84	4	28	2.40	31.1	.00	.3	53
282	7.39	34.118	26.69	1.47	453	22	2.50	33.3	.00	.0	59
387	6.72	34.170	26.83	1.04	501	16	2.69	35.8	.00	.3	70
479	6.35	34.199	26.90	.73	534	11	2.81	37.2	.00	.4	76
576	5.58	34.254	27.04	.56	560	8	3.02	41.4	.00	.1	90
776	4.77	34.343	27.20				3.13	41.5	.00	.8	108

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 38	2202	9 MAR 1976	14.2	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
8	30	3	X	28	2	1013.1	12.0		2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	12.23	33.557	24.45	6.80	-80	115	.26	2.4	.10	.2	16
5	11.87	33.555	25.51	6.92	-87	117	.32	1.8	.10	.1	15
10	11.66	33.553	25.55	7.08	-99	119	.26	1.5	.06	.2	13
20	11.63	33.549	25.55	6.26	-25	105	.33	2.2	.11	.3	15
30	11.56	33.553	26.87	6.33	114	83	.39	2.9	.15	.2	15
50	10.63	33.611	25.78	4.72	123	77	1.07	15.1	.09	.0	21

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 38	2201	9 MAR 1976	15.0	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
8	31	0	X	30	2	1013.0	12.2		2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	12.19	33.554	25.45	7.35	-129	125	.27	.6	.00	.1	14
5	12.16	33.554	25.46	6.69	-70	113	.16	.2	.00	.2	12
10	11.98	33.551	25.49	5.55	33	94	.20	.0	.00	.0	12
20	11.45	33.602	25.63	5.60	35	94	.72	6.2	.24	.6	18
30	10.94	33.654	25.76	4.94	99	82	1.02	11.0	.26	.3	22

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 38	1121	9 MAR 1976	15.5	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
6	31	3	X	31	2	1013.5	12.0		2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	12.45	33.547	25.40	7.97	-187	136	.19	1.5	.00	.3	14
5	12.21	33.544	25.44	7.46	-139	127	.29	.0	.00	.0	12
10	12.04	33.552	25.48				.18	.0	.00	.2	12

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 39	1154	30 MAR 1976	8.6	36° 55.2'	121° 52.8'

TRANSP m	WAVES dir	WAVES ht	WAVES p	WIND dir	WIND speed	BAROM mb	AIR TEMP °C dry	AIR TEMP °C wet	WEATH	CLOUDS typ	CLOUDS amt	VISIB
3	27	1	2	32	1	1020.0	13.0	11.0	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE ug-atoms/liter	NITRATE ug-atoms/liter	NITRITE ug-atoms/liter	AMMONIA ug-atoms/liter	SILICA ug-atoms/liter
0	11.18*	33.767	25.80	7.19	-104	119	1.14	2.3	.11	1.0	30
5	11.09	33.763	25.82	5.99	4	99	1.21	1.2	.03	.7	14
10	10.68	33.775	25.90	4.74	120	78	1.20	5.4	.18	.4	25

* indicates questionable data Paired thermometer read 11.12

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 39	2205	30 MAR 1976	10.7	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
6	27	1	2	26	0	1020.0	13.0	12.0	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.52	33.803	25.77	6.12	-12	102	1.26	6.6	.20	.1	23
5	10.73	33.797	25.91	6.92	-74	114	1.26	7.8	.16	.0	30
10	10.28	33.797	25.99	6.08	5	99	1.22	12.5	.09	.0	28
20	9.22	33.881	26.23	3.01	292	48	2.26	22.4	.11	.9	35

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 39	2204	30 MAR 1976	12.1	36° 50.9'	122° 1.6'

TRANSP m	WAVES dir	WAVES ht	WAVES p	WIND dir	WIND speed	BAROM mb	AIR TEMP °C dry	AIR TEMP °C wet	WEATH	CLOUDS typ	CLOUDS amt	VISIB
9	28	1	2	16	0	1020.0	13.0	12.0	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE ug-atoms/liter	NITRATE ug-atoms/liter	NITRITE ug-atoms/liter	AMMONIA ug-atoms/liter	SILICA ug-atoms/liter
0	9.33	33.891	26.22	3.09	284	49	2.25	21.3	.26	.2	35
5	9.40	33.890	26.21	3.07	284	49	2.13	22.1	.19	.4	33
10	9.09	33.905	26.27	2.98	296	47	2.27	25.4	.22	.2	38
20	8.97	33.921	26.30	3.50	251	55	2.34	25.9	.22	.1	36
30	8.88	33.932	26.32	3.18	281	50	2.39	20.7	.20	.3	34
50	8.81	33.952	26.35	3.21	279	51	2.62	26.6	.20	.5	36

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 39	2203	30 MAR 1976	13.5	36° 46.7°	122° 1.

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	36	3	2	20	0	1020.0	12.0	11.0	2	X	0	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	Z	ug-atoms/liter				
0	10.72	33.727	25.86	5.10	88	84	2.05	18.0	.23	.4	23
5	10.12	33.721	25.95	4.96	107	80	1.89	17.0	.29	.3	22
10	10.01	33.729	25.98	5.70	43	92	1.68		.23	.1	26
20	9.70	33.779	26.07	4.23	178	68	1.55	19.7	.09	.4	24
30	9.37	33.831	26.17	3.44	252	55	1.86	20.6	.08	.1	28
50	8.90	33.924	26.31	2.96	301	47	2.06	26.3	.00	.1	31
75	8.77	33.954	26.36	2.30	361	36	1.84	24.0	.00	.3	30
100	8.30	34.011	26.42	2.13	382	33	2.36	30.9	.09	.1	37
148	7.97	34.054	26.54	1.55	438	24	2.66	23.0	.12	.1	42
196	7.82	34.086	26.68	1.50	455	23	2.91	28.1	.11	.1	44
243	7.50	34.120	26.68	1.31	4	20	3.00	25.4	.10	.1	49
291	7.26	34.123	26.71	1.15	483	18	3.20	26.2	.03	.2	49
386	6.79	34.161	26.81	.96	507	14	3.21	22.4	.00	.0	55
469	6.08	34.212	26.94	.55	554	8	3.26	38.3	.05	.0	73
574	5.39	34.278	27.08				3.58	37.8	.08	.0	90
719	4.90	34.344	27.19	.56	570	8	4.11	33.0	.04	.0	89

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 39	2202	30 MAR 1976	15.2	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
6	28	3	3	29	2	1019.4	12.0	11.0	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	10.19	33.838	26.03	3.00	281	49	1.87	23.4	.15	.2	31
5	9.53	33.865	26.17	2.98	291	48	1.77	29.2*	.16	.1	31
10	9.38	33.870	26.19	3.21	272	51		22.8	.17	.2	32
20	9.35	33.881	26.21	3.39	257	54	1.90	24.2	.18	.1	32
30	9.14	33.897	26.25	3.48	251	55	2.06	25.5	.25	.3	35
50	8.91	33.964	26.34				1.99	25.9	.03	.1	34

* indicates questionable data Nitrate appears anomalously high

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 39	2201	30 MAR 1976	16.1	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
4	33	3	2	29	2	1019.0	14.0	13.0	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	12.38*	33.681	25.51	8.14	-202	139	.34	.9	.00	.2	19
5	11.90	33.703	25.62	7.70	-157	130	.37	.9	.00	.1	19
10	10.83	33.729	25.84	5.92	13	98	.82	4.7	.02	.0	23
20	8.85	33.909	26.31	2.57	336	41	1.98	24.9	.17	.1	36
30	8.66	33.936	26.36	2.08	382	33	2.20	27.8	.14	.0	47

* indicates questionable data Paired thermometer read 12.32

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 39	1121	30 MAR 1976	16.6	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
3	31	3	3	30	2	1018.7	13.0	12.0	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	12.52	33.685	25.49	8.52	-237	146	.63	.7	.00	.5	28
5	12.52	33.686	25.49	7.19	-119	123	.41	.2	.00	.4	29
10	12.52	33.687	25.49	7.96	-187	136	.67	.1	.00	.3	20

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 40	1154	20 APR 1976	6.7	36° 55.2'	121° 52.8'

TRANSP m	WAVES dir	WAVES ht	WAVES p	WIND dir	WIND speed	BAROM mb	AIR TEMP °C dry	AIR TEMP °C wet	WEATH	CLOUDS typ	CLOUDS amt	VISIB
3	26	0	3	28	0	1020.0	13.8	13.0	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE ug-atoms/liter	NITRATE ug-atoms/liter	NITRITE ug-atoms/liter	AMMONIA ug-atoms/liter	SILICA ug-atoms/liter
0	12.67	33.596	25.39	7.80	-174	134	.32	3.1	.07	.2	12
5	11.61	33.579	25.58	7.92	-173	133	.36	2.4	.03	.1	11
10	10.80	33.625	25.76	5.02	94	83	.84	9.0	.18	.5	15

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 40	2205	20 APR 1976	10.9	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
5	26	1	2	29	2	1019.0	13.2	12.2	2	X	0	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	11.95*	33.591	25.53	6.91	-87	117	.57	5.4	.12	.1	14
5	11.49	33.590	25.61	6.97	-87	116	.60	5.6	.13	.0	15
10	11.27	33.598	25.66	6.60	-51	110	.65	7.3	.18	.0	18
20	11.05	33.617	25.71	5.50	48	91	.96	11.0	.22	.2	20

* indicates questionable data Paired thermometer read 11.88

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 40	2204	20 APR 1976	12.1	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
5	28	2	2	29	3	1018.0	12.8	12.2	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.01	33.707	25.79	6.00	4	99	1.12	13.5	.25	.0	24
5	11.00	33.707	25.79	6.06	0	100	1.15	6.4	.26	.1	16
10	10.80	33.714	25.83	5.96	10	98	1.11	6.3	.20	.0	14
20	9.58	33.847	26.14	3.96	203	64	1.72	21.0	.32	.3	32
30	9.32	33.871	26.20	3.33	262	53	1.58	19.4	.25	.4	28
50	8.84	33.924	26.32	2.79	316	44	1.89	23.3	.20	.3	36

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 40	2203	20 APR 1976	15.2	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
6	30	3	3	30	5	1015.0	12.5	12.2	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	10.31	33.794	25.98	4.17	175	68	1.59	20.2	.29	.1	31
5	10.29	33.794	25.98	4.18	175	68	1.52	19.7	.29	.0	29
10	10.08	33.798	26.02	3.87	205	63	1.78	13.4*	.33	.0	27
20	9.25	33.843	26.19	3.24	271	52	1.82	27.3	.40	.1	33
30	9.03	33.870	26.25	2.87	307	45	1.84	13.2*	.39	.0	23
50	8.35	33.970	26.43	2.15	380	34	1.99	26.5	.05	.0	37
75	8.15	33.990	26.48	2.39	361	37	2.20	27.2	.03	.1	39
100	7.86	34.040	26.56	1.91	408	29	2.20	29.4	.02	.0	45
145	7.77	34.093	26.62	1.44	451	22	2.56	16.0 *	.06	.0	33*
192	7.24	34.143	26.73	1.21	478	18	2.65	30.8	.00	.0	55
239	7.02	34.160	26.78	1.09	492	17	2.60	33.4	.00	.0	60
287	6.91	34.175	26.80	1.01	501	15	2.57	33.7	.00	.5	63
385	6.51	34.203	26.88	.72	532	11	2.58	33.1	.02	.1	63
483	5.85*	34.250	27.01	.31	579	5	2.94	41.8	.00	.0	79
577	5.36	34.300	27.10	.23	593	3	2.66	33.8	.00	.0	77
777	4.60	34.370	27.24	.29	599	4	2.96	32.8	.00	.1	95

* indicates questionable data

Paired thermometer read 5.79
Nitrate appears anomalouly low
Silicate appears anomalously low

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 40	2202	20 APR 1976	17.4	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
6	30	3	3	30	3				2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.58	36.644	25.64	6.16	-16	103	.88	10.9	.20	.0	20
5	10.50	33.793	25.95	5.23	78	86	1.67	21.0	.29	.2	28
10	10.16	33.791	26.00	5.23	82	85	1.46	19.2	.31	.0	29
20	9.73	33.812	26.09	3.81	214	61	1.62	15.8	.30	.1	22*
30	8.75	33.910	26.33	2.28	363	36	1.93	23.9	.12	.0	34
50	8.41	33.973	26.43	2.58	341	40	2.42	11.6*	.05	.0	22*

* indicates questionable data

Nitrate appears anomalously low
Silicate appears anomalously low

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 40	2201	20 APR 1976	18.4	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
	31	4	2	28	2	1014.2	12.0	12.0	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	12.24	33.546	25.44	6.93	-92	118	.64	5.0	.13	.1	15
5	11.90	33.577	25.52	6.44	-44	109	.60	8.8	.12	.1	16
10	9.91*	33.776	26.03	4.27	171	69	1.46	18.9	.33	.6	3
20	8.63	33.945	26.37	1.98	391	31	1.95	25.8	.09	.0	36
30	8.36	33.984	26.44	2.49	349	39	1.98	27.8	.02	.0	38

* indicates questionable data Paired thermometer read 9.97

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 41	1154	4 MAY 1976	7.7	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
5	27	1	3	0	0	1016.0	12.8	12.8	2	8	8	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	12.06*	33.843	25.70	7.96	-183	135	.30	1.5	.15		4
5	11.97	33.846	25.72	8.11	-195	137	.06	.5	.03	.2	2
10	11.43	33.852	25.82	6.89	-80	115	.27	1.8	.06	.6	3

* indicates questionable data Paired thermometer read 11.99

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 41	2205	4 MAY 1976	9.1	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
5	27	1	2	29	3	1016.2	11.5	12.0	2	8	8	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	12.05	33.840	25.70	7.61	-151	129	.01	.7	.10	.3	3
5	11.88	33.840	25.73	6.16	-20	104	.00		.07	.1	3
10	9.80	33.891	26.14	4.18	180	67	1.31	10.2	.23	2.2	17
20	9.44	33.907	26.21	3.43	252	55	1.84	14.0	.33	3.9	20

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 41	2204	4 MAY 1976	10.1	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
4	31	3	3	30	2	1016.0	11.7	10.5	2	8	8	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	11.06*	33.859	25.90	6.52	-43	108	.28	4.2	.17	.3	8
5	10.03	33.878	26.09	4.53	146	73	.69	7.6	.29	.3	13
10	9.39	33.894	26.21	3.61	236	58	1.35	13.1	.23	.3	20
20	9.29	33.902	26.23	2.75	314	44	1.68		.24	.4	25
30	9.26	33.905	26.24	4.12	192	66	1.58	17.3	.22	.3	25
50	8.63	33.951	26.38	2.70	327	42	1.26	17.6	.16	.4	14

* indicates questionable data Paired thermometer read 11.00

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 41	2203	4 MAY 1976	11.3	36° 46.7'	122° 1.3'

TRANSP	WAVES		WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht p	dir	speed	mb	dry	wet		typ	amt	
9	20	4 4	28	2	1017.0	12.5	10.5	2	8	8	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	10.05*	33.856	26.07	5.62	49	91	1.26	9.0	.30	2.2	18
5	9.92	33.855	26.09	5.42	68	88	.84	7.0	.22	1.8	9
10	9.87	33.852	26.10	5.34	76	86	1.06	8.3	.27	1.9	14
20	9.51	33.863	26.17	4.71	137	75	1.03	9.8	.19	1.0	14
30	9.45	33.866	26.18	4.60	147	74	1.42	29.1*	.19	1.1	20
50	9.16	33.882	26.24	4.07	198	65	1.69	18.5	.19	1.0	26
75	8.54	33.936	26.38	2.75	324	43	2.00	14.2	.04	.2	35
100	8.42	33.986	26.44	2.96	307	46	2.42	16.2	.14	.2	32
150	8.15	34.009	26.50	2.04	392	32	1.60	14.1	.22	.0	28
196	7.92	34.048	26.56	1.60	434	25	2.27	29.4	.17	.0	41
244	7.58	34.064	26.62	1.78	423	27	2.10	25.3	.01	.1	44
290	7.20	34.092	26.70	1.42	460	22	2.49	29.1	.00		32
385	6.63	34.174	26.84	.91	514	14	3.01	19.2*	.00	.1	62
481	6.12	34.230	26.95	.62	547	9	2.78	34.2	.00	.0	71
580	5.69	34.274	27.04	.52	562	8	2.90	36.7	.00	.0	78
777	4.77	34.365	27.22	.52	575	7	2.89	23.9*	.00	.0	85

* indicates questionable data

Paired thermometer read 9.98
Nitrate appears anomalously high at 30 m
Nitrate appears anomalously low at 385 m and 777 m

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 41	2202	4 MAY 1976	13.2	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
	29	4	3	28	2	1016.5	12.5	11.5	2	8	8	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	10.22	33.750	25.96	5.47	60	89	1.20	7.8	.29	.8	12
5	10.15	33.758	25.98	5.25	81	85	1.32	11.7	.28	.8	14
10	9.98	33.773	26.02	5.42	68	88		20.9	.28	2.0	20
20	9.94	33.803	26.05	5.52	59	89	1.00	11.5	.21	1.3	12
30	9.79	33.815	26.08	5.23	87	84	1.44	11.4	.25	1.5	16
50	9.23	33.862	26.21	3.93	210	63	1.80	23.2	.23	1.1	29

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 41	2201	4 MAY 1976	14.1	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
4	33	2	3	28	2	1016.5	13.0	11.5	2	8	8	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	11.10	33.849	25.88	5.63	35	93	.23	1.3	.01	.3	2
5	10.76	33.833	25.93	4.70	122	77	.51	8.6	.15	1.3	6
10	10.62	33.833	25.96	4.90	106	80	.67	16.0	.11	1.5	8
20	10.38	33.837	26.00	3.89	199	64	.93	10.2	.20	1.7	10
30	9.56	33.836	26.14	3.37	256	54	1.24	10.7	.21	1.4	17

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 41	1121	4 MAY 1976	14.6	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
4	33	3	3	28	2	1016.5	12.7	11.2	2	8	8	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	11.23	33.854	25.86	8.23	-197	137	.04	10.4	.00	5.0	0
5	11.22	33.839	25.85	8.20	-195	136	.01	.6	.00	3.0	5
10	11.03	33.835	25.88	7.41	-122	123	.15	.5	.00	1.5	2

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 42	2203	11 MAY 1976	13.0	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
29	2	2		30	3	1016.5	13.0	14.0	2	0	1	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	10.90			5.67			1.13	9.6	.19	.9	19
5	10.87			4.30			1.28	9.6	.23	.5	16
10	10.45			4.59			1.31	19.2	.21	.6	17
20	9.92			5.33			1.28	18.1	.17	.2	20
30	9.64			3.68			1.63	39.9*	.17	.0	31
50	9.45			4.00			1.48		.17	.2	26
75	9.20			3.86			1.87	17.6	.21	.0	34
100	9.01			2.89			1.66	21.0	.20	.2	30
147	8.40			2.73			1.64	21.0	.25	.0	33
196	8.27			2.48			2.20	30.5	.08	.0	43
244	7.67			1.93			2.31	41.7	.04	.0	49
293	7.22			4.31*			2.52	10.9	.02	.0	57
390	6.73			1.06			2.34	12.5**	.01	.0	56
488	6.17			.80			2.44	33.3	.00	.0	67
587	5.60			.84			2.64	37.7	.03	.0	79
769	4.46			.56			3.00	54.5	.09	.1	111

* indicates questionable data

* Nitrate appears anomalously high
** Nitrate appears anomalously low

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 43	1154	25 MAY 1976	8.3	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
4	28	1	2	15	0	1016.5	12.0	12.1	1	7	8	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	12.03	33.865	25.72	7.55	-146	128	.15	.2	.08	.2	3
5	11.85	33.864	25.76	7.34	-125	124	.22	.0	.08	.1	3
10	10.84	33.880	25.95	5.81	22	96	.88	9.1	.27	.1	9

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 43	2205	25 MAY 1976	9.4	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
7	27	2	2	28	2	1016.5	12.8	13.3	1	7	2	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	11.61	33.859	25.80	6.05	-7	102	.67	7.4	.34	.0	13
5	11.45	33.860	25.83	5.98	0	100	.52	8.1	.28	.0	12
10	10.41	33.883	26.03	4.98	101	81	1.19	15.4	.39	.1	18
20	9.90	33.889	26.12	4.25	173	69	1.62	18.8	.50	1.0	23

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 43	2204	25 MAY 1976	10.5	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
7	29	3	2	30	2	1016.5	14.0	13.7	1	7	2	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	10.80	33.877	25.96	5.88	16	97	1.05	10.1	.37	.0	15
5	10.47	33.880	26.02	5.65	41	93	1.20	11.6	.41	.0	16
10	10.27	33.884	26.06	5.35	70	87	1.23	11.5	.40	.1	17
20	10.19	33.886	26.07	4.59	139	75	1.31	19.3	.39	.4	18
30	9.95	33.894	26.12	4.59	142	74	1.44	13.4	.42	.2	20
50	8.99	33.935	26.31	2.92	303	46	1.99	21.3	.16	.0	27

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 43	2203	25 MAY 1976	11.9	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
9	30	3	3	30	2	1016.6	13.3	12.7	1	7	2	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	10.87	33.857	25.93	5.93	11	98	1.15	9.7	.34	.1	15
5	10.71	33.857	25.96	5.89	17	97	1.10	10.6	.34	.0	13
10	10.62	33.852	25.97	5.78	28	95	1.14	11.1	.35	.4	14
20	10.49	33.845	25.99	5.44	59	89	1.00	11.4	.35	.1	14
30	10.48	33.856	26.00	5.45	59	89	1.07	10.3	.38	.7	12
50	9.59	33.859	26.15	4.09	191	66	1.57	22.0	.51	.2	26
75	9.12	33.910	26.27	3.27	270	52	1.60	13.3	.44	.0	24
98	8.75	33.972	26.37	2.64	331	42	1.87	13.5	.06	.0	24
149	8.38	34.007	26.46	2.71	330	42	2.11	19.6	.11	.0	40
196	7.97	34.035	26.54	2.29	372	35	2.13	26.1	.07	.0	42
244	7.71	34.076	26.61	2.14	389	33	1.96	27.9	.07	.0	43
291	7.43	34.089	26.66	1.78	425	27	2.48	22.6	.00	.0	45
384	6.76	34.163	26.81	1.17	489	18	2.70	33.0	.03	.0	62
484	6.04	34.210	26.95	.77	535	11	2.93	35.5	.00	.0	73
584	5.42	34.282	27.08	.36	580	5	3.07	36.8	.00	.0	85
778	4.48	34.393	27.27	.39	591	6	3.17	43.2	.00	.0	101

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 43	2202	25 MAY 1976	14.1	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
11	30	4	3	30	7	1016.0	13.8	12.6	2	7	1	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	10.85	33.873	25.95	5.56	44	92	1.06	12.2	.34	1.7	14
5	10.81	33.867	25.95	5.64	38	93	1.03	11.9	.37	1.7	13
10	10.71	33.864	25.96	5.64	39	93	1.52	11.6	.38	1.6	13
20	10.51	33.858	25.99	5.58	47	91	1.15	15.0	.34	.9	17
30	10.48	33.862	26.00	5.47	57	90	.91	9.3	.38	.9	13
50	10.01	33.869	26.09	4.56	144	74	1.12	10.2	.48	.5	16

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 43	2201	25 MAY 1976	16.4	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
35	32	2	2	27	1	1015.8	13.0	12.5	2	7	1	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	12.35	33.869	25.67	9.05	-284	154	.00	.8	.00	.0	2
5	12.00	33.876	25.74	7.74	-163	131	.25	2.8	.05	.0	4
10	11.71	33.869	25.79	7.26	-116	122	.56	4.7	.14	.0	5
20	11.46	33.871	25.83	6.71	-65	112	.46	7.3	.15	.1	8
30	10.85	33.876	25.95	5.65	36	93	.79	9.3	.25	.4	10

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 43	1121	25 MAY 1976	16.9	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
	31	2	2	28	2	1015.5	12.9	12.4	2	7	1	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	13.29										
5	12.84	33.856	25.56	8.96	-281	154	.00	.8	.01	.0	1
10	12.02	33.866	25.73	8.23	-207	139	.00	.4	.00	.0	2

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML	44	8 JUN	1154	19/6 17.0	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
3	26	1	2	27	2	1012.4	12.2	12.0	2	2	6	8

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	13.41	33.937	25.51	7.22	-132	126	.16	.9	.02	.0	5
5	12.93	33.939	25.61	5.66	12	98	.32	.3	.00	.0	2
10	10.98	33.955	25.99	5.13	81	85	.63	8.2	.04	.0	10

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 44	2205	8 JUN 1976	15.6	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
3	27	1	2	27	3	1013.2	12.4	11.8	2	2	2	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	11.91*	33.956	25.82	7.73	-161	131	.45	3.7	.08	.0	7
5	11.68	33.959	25.86	7.43	-132	125	.36	2.8	.05	.0	7
10	10.18	33.971	26.14	4.63	135	75	1.14	12.5	.07	.0	23
20	8.73	33.994	26.39	2.24	367	35	1.95	28.5	.10	1.0	40

* indicates questionable data Paired thermometer read 11.83

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 44	2204	8 JUN 1976	14.3	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
9	28	1	2	28	2	1013.1	13.8	13.0	2	2	2	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	9.50	33.951	26.24	3.90	209	63	2.15	33.0	.31	.5	41
5	9.53*	33.953	26.23	3.28	264	53	2.06	29.9	.32	.3	41
10	9.28	33.951	26.27	3.05	287	49	2.02	27.5	.28	.3	39
20	9.11	33.958	26.31	3.60	241	57	2.01	30.3	.27	.3	39
30	9.01	33.957	26.32	3.36	263	53	2.21	30.0	.30	.2	45
46	8.82	33.983	26.37	3.01	297	48	1.80	27.6	.23	.1	40

* indicates questionable data Paired thermometer read 9.59

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 44	2203	8 JUN 1976	12.7	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	27	1	2	27	2	1013.2	13.5	12.9	2	2	2	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	9.83*	33.940	26.17				2.03	29.0	.21	.0	40
5	9.66	33.939	26.20				2.02	30.1	.21	.0	36
10	9.23	33.935	26.27	5.50	69	88	1.86	25.4	.18	.0	50
20	9.14*	33.950	26.30	5.47	73	87	1.86	25.8	.17	.1	35
30	9.01	33.959	26.32	4.77	137	76	1.88	26.5	.18	.3	34
50	8.89	33.966	26.35	4.36	176	69	1.82	27.2	.16	.3	40
75	8.58	34.002	26.42	3.45	261	54	1.77	20.0	.17	.0	33
98	8.44	34.060	26.49	2.82	319	44	2.31	31.8	.00	.0	44
148	8.14	34.112	26.58	1.40	449	22	2.20	30.8	.00	.0	43
197	7.87	34.116	26.62	1.33	459	21	2.07	32.5	.03	.0	45
245	7.77	34.151	26.66	1.48	447	23	2.51	36.1	.00	.0	56
294	7.53	34.167	26.71	1.32	464	20	2.20	31.1	.02	.0	50
387	7.01	34.206	26.81	.96	504	15	2.38	39.1	.00	.0	60
480	6.19	34.219	26.93	.57	550	8	2.88	39.8	.03	.0	77
575	5.42	34.296	27.09	.48	569	7	3.16	37.4	.00	.0	98
765	4.76	34.371	27.23	.36	590	5	3.35	45.7	.00	.0	109

* indicates questionable data Paired thermometer read 9.76 at 0 m; 9.20 at 20 m

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 44	2202	8 JUN 1976	11.4	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
6	28	1	2	28	2	1013.7	12.0	12.0	2	2	6	8

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	10.29	33.967	26.12	6.03	9	98	1.28	16.9	.29	.0	39
5	10.29	33.971	26.12	6.24	-9	102	1.20	15.9	.18	.0	23
10	10.27	33.967	26.12	6.29	-13	103	1.21	12.6	.19	.1	64*
20	9.62	33.962	26.23	4.23	178	68	2.25		.35	7.6	36
30	9.36	33.967	26.27	4.10	193	66	2.07	26.5	.37	1.0	33
47	8.70	33.999	26.40	2.26	365	36	2.06	30.2	.18	.0	38

* indicates questionable data Silicate appears anomalously high

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 44	2201	8 JUN 1976	8.6	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
4	31	1	2	30	2	1013.2	14.2	13.6	2	2	2	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	11.89	33.943	25.81	6.48	-49	109	.39	1.4	.06	.0	3
5	11.09	33.950	25.96	5.56	41	92	.86	7.0	.09	.6	8
10	10.24	33.963	26.12	3.53	233	58	1.54	20.2	.27	.7	17
20	9.26	33.962	26.29				1.82	18.5	.08	1.2	22
30	8.65	33.990	26.40	1.89	399	30	2.22	3.0*	.15	1.0	40

* indicates questionable data Nitrate appears anomalously low

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 44	1121	8 JUN 1976	7.9	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
4	31	1	2	31	1	1013.2	13.4	12.5	2	2	2	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	12.10	33.954	25.78	6.21	-27	105	.40	1.1	.09	.0	3
5	11.83	33.943	25.82	6.40	-41	108	.55	1.1	.00	.0	3
10	11.03	33.943	25.97	6.25	-19	104	.84	7.2	.17	.7	6

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 45	1154	20 JUL 1976	7.2	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
6	29	2	2	13	1	1019.0	13.8	12.6	2	8	8	5

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	14.49*	33.800	25.18	7.01	-124	125	.44	1.2	.06	1.0	5
5	14.15	33.804	25.25	7.89	-199	140	.42	.9	.00	.5	0
10	12.91	33.821	25.52	6.44	-56	111	.74	4.9	.20	1.6	8

* indicates questionable data Paired thermometer read 14.43

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 45	2205	20 JUL 1976	8.2	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
8	29	1	2	19	0	1019.2	14.8	13.2	2	8	4	5

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	14.51	33.756	24.14	7.32	-152	130	.33	.3	.04	.2	1
5	14.37	33.763	25.17	7.97	-209	142	.31	.0	.00	.2	0
10	12.33	33.822	25.63	5.88	0	100	.78	5.0	.15	1.2	3
20	11.86	33.815	25.72	5.51	37	93	1.07	9.1	.30	2.2	12

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 45	2204	20 JUL 1976	9.3	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	31	1	2	20	0	1019.2	14.0	13.2	2	8	8	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	13.09*	33.734	25.42	5.91	-11	102	.76	7.0	.21	.5	5
5	12.35	33.707	25.54	5.90	-2	101	.81	7.7	.24	.3	5
10	12.12	33.617	25.58	6.06	-13	103	.84	8.7	.26	.3	6
20	11.39	33.760	25.76	5.14	76	86	1.28	12.8	.45	1.5	15
30	10.87	33.781	25.87	4.09	176	68	1.45	15.6	.39	2.0	18
50	9.93	33.760	26.02	3.99	196	64	1.60	20.1	.26	.3	24

* indicates questionable data

Paired thermometer read 13.00

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 45	2203	20 JUL 1976	10.5	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
14	32	2	2	34	2	1019.0	16.0	14.5	2	8	7	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	13.09	33.617	25.33	6.00	-18	104	.88	10.1	.19	.4	14
5	12.92	33.624	25.36	6.05	-21	104	.84	9.2	.19	.2	8
10	12.45	33.652	25.48	5.98	-10	102	.91	10.1	.22	.0	9
20	10.71	33.626	25.78	5.21	78	86	1.18	.0*	.31	.1	16
30	10.67	33.747	25.88	4.84	111	80	1.21	.0*	.38	.3	17
49	10.14	33.830	26.04				1.63	.0*	.30	.3	24
73	9.86	33.915	26.15	3.02	283	49	1.63	1.1*	.29	1.0	27
98	9.56	33.927	26.21	2.47	336	40	1.80	1.2*	.21	.7	32
146	9.32	33.952	26.27	2.68	320	43	2.00	24.6	.24	.3	37
194	8.77	34.042	26.43	2.07	381	33	2.21	28.2	.05	.0	41
241	8.11	34.126	26.59	1.84	410	29	2.35	31.0	.00	.0	49
292	7.66	34.119	26.65	1.48	448	23	2.28	29.7	.00	.3	50
389	7.24	34.214	26.79	.99	498	15	2.74	34.3	.05	.4	64
486	6.63	34.243	26.89				2.88	37.5	.03	.3	74
577	6.08	34.266	26.98	.60	549	9	2.82	36.4	.06	.1	83
763	4.91	34.363	27.20	.55	571	8	2.86	35.4	.00	.0	101

* indicates questionable data Nitrate appears anomalously low

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 45	2202	20 JUL 1976	12.4	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	31	2	2	31	2	1019.0	14.6	13.9	2	8	8	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	12.88	33.685	25.42	6.18	-32	106	.76	1.1	.29	.3	7
5	12.38	33.660	25.50	6.16	-25	105	.79	7.8	.24	.1	6
10	12.26	33.651	25.51	6.03	-12	102	.81	8.0	.25	.3	6
20	12.11*	33.689	25.57	4.93	87	84	.93	8.8	.27	.5	9
30	11.68	33.742	25.69	4.40	139	74	1.05	11.9	.37	1.0	13
50	10.42	33.877	26.02	3.48	235	57	1.45	16.4	.33	1.3	23

* indicates questionable data

Paired thermometer read 12.05

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 45	2201	20 JUL 1976	13.2	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	35	1	2	30	2	1019.0	14.0	15.0	2	8	7	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	14.25*	33.753	25.19	6.60	-85	117	.68	5.5	.20	.1	6
5	13.85	33.744	25.27	6.79	-97	119	.57	6.1	.18	.3	3
10	12.70	33.807	25.55	5.00	73	86	1.07	11.1	.26	.8	14
20	11.62	33.821	25.77	4.67	115	78	1.24	14.2	.32	1.2	18
30	11.20	33.835	25.85	4.63	123	77	1.35	15.0	.35	1.3	20

* indicates questionable data

Paired thermometer read 14.19

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 45	1121	20 JUL 1976	13.7	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
8	34	1	2	32	2	1018.8	15.5	14.0	2	8	7	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	14.34	33.752	25.17	6.19	-49	110	.61	6.7	.17	.1	4
5	14.06	33.752	25.23	6.63	-85	117	.48	4.6	.14	.0	4
10	13.54*	33.782	25.36	5.47	23	96	.77	8.0	.21	.3	9

* indicates questionable data Paired thermometer read 13.60

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 46	1154	18 AUG 1976	7.4	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
8	22	2	2	10	2	1014.2	16.0	15.2	2	8	8	8

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	16.16	33.612	24.67				.61	1.2	.09	.2	4
5	15.28	33.627	24.87				.19	1.1	.03	.2	3
10	15.06	33.643	24.93				.20	.2	.00		3

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 46	2205	18 AUG 1976	8.9	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
8	21	2	2	15	1	1014.5	16.0	15.0	2	8	8	8

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	15.98	33.599	24.20				.26	.0	.08	.2	3
5	15.11	33.629	24.91				.22	.0	.02	.1	4
10	14.07	33.664	25.16				.30	.1	.01	.4	3
20	13.23	33.699	25.36				.80	5.7	.32	1.6	11

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 46	2204	18 AUG 1976	9.9	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
8	21	2	2	3	1	1014.9	15.8	15.2	2	8	8	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	14.47	33.648	25.07	7.04	-126	125	.22	.8	.02	.4	4
5	14.23	33.646	25.11	6.98	-118	124	.25	1.0	.06	.4	4
10	13.61	33.654	25.25				.41	3.4	.10	.5	5
20	12.22	33.643	25.52				.40	4.6	.35	2.0	12
30	10.97*	33.633	25.74				1.02	11.9	.52	1.2	15
48	10.30	33.818	26.00				1.49	20.9	.23	.0	22

* indicates questionable data Paired thermometer read 10.90

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 46	2203	18 AUG 1976	12.2	36° 46.7'	122° 1.3'

TRANSP m	WAVES dir	WAVES ht	WAVES p	WIND dir	WIND speed	BAROM mb	AIR TEMP °C dry	AIR TEMP °C wet	WEATH	CLOUDS typ	CLOUDS amt	VISIB
11	20	2	2	26	1	1014.3	17.0	15.8	2	8	8	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE ug-atoms/liter	NITRATE ug-atoms/liter	NITRITE ug-atoms/liter	AMMONIA ug-atoms/liter	SILICA ug-atoms/liter
0	16.63	33.410	24.40				.18	2.1	.00	.1	8
5	16.23	33.466	24.54	6.40	-85	118	.34	2.1	.00	.1	3
10	15.37	33.580	24.82	6.72	-106	122	.19	1.6	.03	.2	5
20	13.02	33.631	25.35	6.11	-28	106	.64	6.2	.21	1.1	8
30	11.48*	33.548	25.58	5.62	33	94	.97	9.9	.38	1.0	12
50	10.37	33.618	25.83	4.96	105	81	.74	10.8	.50	.6	13
75	9.98*	33.750	26.00	3.67	224	59	1.07	18.5	.16	.0	21
100	9.69	33.834	26.12	2.86	300	46	1.60	23.0	.16	.0	27
136	9.61	33.896	26.18				1.37	20.5	.10	.0	25
184	8.92	34.021	26.61	2.06	384	32	2.02	27.8	.17	.0	38
232	8.51	34.089	26.72				2.11	30.4	.04	.0	42
280	7.87	34.159	26.65				2.24	32.8	.02	.1	51
376	7.40	34.205	26.76				2.23	29.8	.02	.1	56
472	6.69	34.252	26.89				2.34	31.8	.07	.0	64
574	6.14	34.283	26.99				2.90	36.1	.19	.5	80
768	5.15	34.359	27.17				1.95	25.6	.04	.0	81

* indicates questionable data Paired thermometer read 11.41 at 30 m; 10.04 at 75 m

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 46	2202	18 AUG 1976	13.2	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
12	21	1	2	21	2	1013.5	15.2	15.2	61	8	8	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	16.62	33.433	24.42	6.09	-61	113	.19	1.9	.00	.0	5
5	16.54	33.449	24.45	6.50	-97	120	.02	.1	.00	.0	2
10	16.49	33.455	24.47	6.17	-67	114	.16	.2	.02	.0	2
20	15.04	33.629	24.93	6.96	-124	125	.15	.0	.01	.0	3
30	13.59*	33.646	25.25	5.90	-15	103	.48	4.0	.12	.9	6
48	10.68	33.406*	25.61	5.04	95	83	.82	10.9	.45	.3	14

* indicates questionable data

Paired thermometer read 13.49
Salinity appears anomalously low

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 46	2201	18 AUG 1976	13.9	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	0	1	2	34	0	1013.2	15.0	15.0	61	8	8	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	16.41	33.424	24.46	6.50	-96	120	.15	.4	.00	.0	2
5	16.24	33.471	24.54	6.48	-92	119	.14	.3	.00	.0	2
10	14.79	33.602	24.96	6.40	-72	115	.01	2.0	.05	.2	2
20	14.19	33.637	25.16	6.43	-68	114	.26	1.6	.05	.3	5
30	13.52*	33.644	25.26	5.95	-19	104	.47	4.4	.16	.7	6

* indicates questionable data Paired thermometer read 13.44

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 46	1121	18 AUG 1976	14.4	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	33	1	2	25	0	1013.2	15.3	14.8	1	8	8	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	15.79	33.566	24.71	6.59	-98	120	.15	.1	.00	.0	2
5	15.65	33.579	24.76	6.47	-86	118	.00	.0	.00	.0	1
10	15.56	33.582	24.78	6.99	-132	127	.11	.1	.00	.0	2

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 47	1154	20 SEP 1976	8.3	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
11	0	0	X	0	0	1014.5	14.0	13.6	2	8	3	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	15.06	33.617	24.91	5.87	-27	106	.09	.4	.01	.2	1
5	14.72	33.628	25.00	6.13	-47	110	.19	1.6	.05	.5	2
10	14.08	33.640	25.14			3	.34	2.0	.10	.1	2

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 47	2205	20 SEP 1976	9.5	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
14	0	0	X	21	0	1014.8	15.6	14.7	2	8	3	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	15.07	33.617	24.91	7.07	-134	127	.00	.0	.00	.1	1
5	14.82	33.615	24.96	6.29	-62	113	.06	.0	.00	.0	2
10	14.31	33.710	25.15	6.92	-114	123	.00	.0	.01	.0	1
20	13.38	33.633	25.28	4.31	128	75	.63	3.7	.34	3.0	8

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 47	2204	20 SEP 1976	10.5	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
14	26	1	X	27	1	1015.2	14.8	14.0	2	8	5	7

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	14.92	33.606	24.94	6.91	-119	124	.10	.0	.01	.1	2
5	14.62	33.604	25.00	6.68	-95	119	.25	.6	.05	.1	2
10	14.22	33.610	25.09				.12	.8	.10	.2	1
20	12.34	33.657	25.50	4.78	98	81	.77	5.4	.48	1.9	10
30	11.86	33.703	25.63	4.39	138	74	.59	7.7	.83	.3	13
50	11.17	33.745	25.79	4.34	150	72	.59	12.8	.42	.4	15

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 47	2203	20 SEP 1976	12.0	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
12	30	2	X	30	2	1015.1	16.5	15.2	2	8	2	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	14.53	33.545	24.97	6.97	-120	124	.CO	1.1	.02	.0	4
5	14.23	33.554	25.04	6.71	-94	119	.00	3.6	.08	.1	2
10	14.07	33.568	25.09	6.51	-74	115	.29	2.8	.16	.0	2
20	13.33	33.620	25.28	5.51	22	96	.19	4.2	.79	.1	5
30	12.42	33.710	25.53	4.62	111	79	.52	7.6	.98	.0	8
50	12.29	33.717	25.56	4.59	115	78	.59	8.8	1.07	.0	9
75	11.43	33.724	25.73	4.49	134	75	1.22	16.4	.50	.0	12
100	10.35	33.794	25.97	3.39	244	55	.46	11.0	.00	.0	10
150	9.98	33.854	26.08	3.40	248	55	.75	12.9	.00	.0	15
197	9.62	33.921	26.19	3.07	282	49	.99	15.4	.00	.7	24
245	9.41	33.972	26.27	2.68	319	43	1.07	20.2	.00	.0	18
292	8.47	34.113	26.53	1.83	406	29	1.90	25.6	.00	.0	26
387	7.42	34.173	26.73	1.40	459	21	1.79	29.5	.00	.0	38
483	6.25	34.212	26.92	.74	534*	11	1.12	22.1	.00	.0	40
576	5.73	34.294	27.05	.55	558*	8	2.55	33.2	.00	.5	50
769	4.71	34.383	27.24	.57	572	8	1.28	24.0	.00	.0	53

* indicates questionable data AOU appears anomalously high

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 47	2202	20 SEP 1976	13.5	36° 41.2'	121° 57.9'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
12	31	2	X	29	2	1015.2	16.6	15.3	2	8	2	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	13.05	33.642	25.35	6.08	-25	105	.33	4.9	.28	.1	4
5	12.8I*	33.683	25.43	5.16	58	89	.22	6.4	.45	.0	7
10	12.6I	33.688	25.47	5.08	68	87	1.35*	5.9	.46	.0	7
20	12.43	33.693	25.5I	4.85	90	83	.43	11.4	.55	.0	7
30	12.03	33.704	25.60	4.5I	125	76	.16	7.3	.37	.3	5
50	11.60	33.708	25.68	4.48	133	75	.42	8.5	.36	.3	7

* indicates questionable data

Paired thermometer read 12.88
Phosphate appears anomalouly high

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 47	2201	20 SEP 1976	14.4	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
9	32	1	X	29	2	1015.0	16.3	15.1	2	8	3	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	15.81	33.649	24.77	6.70	-109	122	.00	1.6	.00	.3	1
5	15.64	33.652	24.81	6.86	-121	125	.00	.0	.00	.1	1
10	12.54	33.694	25.49	5.25	53	90	.57	7.5	.57	.3	7
20	12.08	33.712	25.60	4.86	93	82	.45	11.6	.58	.0	7
30	11.83	33.722	25.65	4.36	141	73	.43	9.5	.58	.0	7

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 47	1121	20 SEP 1976	14.9	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
8	31	2	X	26	2	1015.0	17.1	15.3	2	8	3	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	15.78*	33.649	24.78	5.41	6	99	.17	.9	.04	.1	1
5	15.58	33.649	24.82	4.90	53	89	.01	.6	.02	.2	0
10	12.79	33.697	25.45	5.02	71	86	.75	6.6	.68	1.4	9

* indicates questionable data

Paired thermometer read 15.86

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 48	1154	19 OCT 1976	7.3	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
7	0	0	X	8	0	1017.5	13.0	12.2	45	X	8	5

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	15.08	33.595	24.89	6.17	-54	111	.49	.8	.12	.2	8
5	14.37	33.606	25.05	6.64	-89	118	.49	4.2	.09	.2	7
10	14.26	33.606	25.08	5.76	-9	102	.65	2.7	.15	.5	6

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 48	2205	19 OCT 1976	8.7	36° 55.8'	122° .7'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
8	0	0	X	7	0	1018.2	13.3	11.9	45	X	8	5

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	15.48	33.584	24.80	6.61	-97	120	.38	.0	.00	.0	6
5	15.09*	33.598	24.89	6.30	-66	113	.37	.0	.00	.0	6
10	14.12	33.620	25.12	5.64	2	100	.60	1.1	.10	.2	7
20	13.79	33.616	25.18	5.38	29	94	.74	2.5	.25	.5	7

* indicates questionable data Paired thermometer read 15.16

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 48	2204	19 OCT 1976	9.5	36° 50.9'	122° 1.6'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
17	30	1	X	7	0	1018.2	13.8	12.8	45	X	8	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	14.96	33.593	24.92				.43	.0	.08	.0	6
5	14.91	33.588	24.92	4.88	62	88	.41	.0	.08	.1	6
10	14.61	33.600	25.00	5.02	52	90	.46	.6	.09	.1	5
20	14.53	33.594	25.01	5.87	-22	105	.48	.8	.11	.2	6
30	13.36	33.545	25.22	5.81	-4	101	.59	3.5	.16	.1	7
50	12.56	33.647	25.45	4.76	97	81	.99	10.6	.44	.0	8

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 48	2203	19 OCT 1976	11.0	36° 47.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
14	5	1	X	5	1	1018.2	14.8	11.9	43	X	8	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	15.66	33.371	24.59	5.37	12	98	.33	.0	.00	.2	6
5	15.64	33.582	24.76	5.95	-40	108	.27	.3	.00	.2	4
10	15.58	33.577	24.77	5.96	-40	108	.30	.0	.00	.1	4
20	15.17	33.548	24.84	6.06	-45	109	.24	.0	.00	.2	4
30	14.97	33.543	24.88	5.90	-29	106	.25	.0	.01	.2	4
50	12.69	33.515	25.33	5.31	47	91	.64	3.4	.22	.2	5
75	11.84	33.662	25.60	4.47	131	75	1.02	10.3	.38	.1	8
100	11.25	33.695	25.74	3.86	192	64	.94	10.6	.01	.0	8
150	9.89	33.764	26.03	3.74	219	60	1.42	17.7	.00	.0	13
196	9.60	33.905	26.19	3.08	281	49	1.60	21.3	.01	.0	16
242	8.83	34.061	26.43	2.45	346	39	2.04	31.0	.06	.0	22
289	8.36	34.114	26.55	2.09	385	33	2.17	28.8	.05	.0	21
383	6.98	34.200	26.81	.99	501	15	2.32	29.1	.00	.0	22
381	6.24*	34.242	26.95	1.73	446	26	2.43	36.8	.00	.0	28
580	5.46	34.315	27.10	.74	545	11	1.99*	37.6	.00	.8	35
759	4.57	34.405	27.27	.47	583	7	3.07	41.5	.00	.1	46

* indicates questionable data

Paired thermometer read 6.30
Phosphate appears anomalously low

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 48	2202	19 OCT 1976	12.3	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
14	33	1	X	30	2	1017.2	15.5	13.8	41	X	6	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	16.29	33.590	24.62	5.95	-46	110	.20	.0	.00	.0	5
5	16.24*	33.592	24.63	5.81	-33	107	.15	.0	.00	.0	4
10	16.24	33.595	24.63	5.73	-26	106	.22	.0	.00	.2	3
20	15.80	33.602	24.74	5.84	-32	107	.22	.0	.01	.0	3
30	14.86	33.598	24.94	5.65	-5	101	.43	.8	.26	.1	4
50	12.64*	33.609	25.41	4.80	93	82	.64	4.0	.17	.0	5

* indicates questionable data Paired thermometers read 16.30 at 5 m; 12.72 at 50 m

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 48	2201	19 OCT 1976	13.7	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
14	31	1	X	29	2	1016.8	14.3	13.9	1	8	8	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	16.13	33.604	24.67	5.97	-46	110	.22	.0	.01	.3	4
5	16.07	33.607	24.68	5.76	-27	106	.23	.0	.00	.2	1
10	15.95	33.600	24.70	5.74	-24	105	.27	2.4	.03	.2	1
20	15.90	33.599	24.71	5.83	-32	107	.19	.0	.00	.2	0
30	15.37	33.599	24.83	5.66	-11	102	.47	.0	.09	.9	1

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 48	1121	19 OCT 1976	14.1	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	32	1	X	29	2	1017.0	15.8	13.8	1	8	7	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	16.15	33.599	24.66				.36	.0	.00	.3	4
5	16.16	33.598	24.65	5.95	-45	109	.20			.5	1
10	16.01	33.590	24.68	6.04	-51	111	.33	.0	.00	.5	1

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 49	1154	16 NOV 1976	8.4	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
7	25	2	6	0	0	1022.2	15.9	14.8	2	X	0	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	15.43	33.472	24.72	6.19	-59	112	.18	3.3	.10	.0	5
5	15.26	33.467	24.76	6.33	-70	114	.22	.6	.08	.0	3
10	15.01	33.468	24.81	4.63	84	83	.41	.0	.02	.0	5

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 49	2205	16 NOV 1976	9.6	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
7	26	2	6	30	0	1022.5	17.8	14.9	2	X	0	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	15.06	33.233	24.62	5.27	27	95	.17	.0	.07	.0	5
5	14.93	33.411	24.78	4.78	71	86	.07	.0	.01	.0	2
10	14.85	33.419	24.81	6.31	-64	113	.05	.0	.00	.0	2
20	14.79	33.565	24.93	5.44	13	97	.19	.0	.07	.0	6

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 49	2204	16 NOV 1976	10.6	36° 50.9'	122° 1.6'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
13	29	2	6	34	1	1022.5	17.8	15.5	2	X	0	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	15.55	33.571	24.77	5.88	-33	107	.09	.0	.00	.0	1
5	15.50	33.575	24.79	5.66	-12	103	.11	.0	.01	.0	1
10	15.39	33.584	24.82	5.72	-17	104	.11	.0	.07	.0	2
20	15.35	33.590	24.83	5.59	-5	101	.27	.0	.08	.0	2
30	15.16	33.586	24.87	5.80	-22	105	.25	.0	.06	.3	3
50	14.17	33.578	25.07	5.15	45	91	.29	1.0	.39	.1	5

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 49	2203	16 NOV 1976	11.8	36° 46.7'	122° 1.3'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
21	29	3	4	34	2	1022.2	18.5	15.8	2	X	0	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	15.63	33.337	24.57	5.94	-38	108	.21	.1	.00	.0	2
5	15.60	33.335	24.58	5.94	-38	108	.19	1.5	.00	.0	2
10	15.50	33.333	24.60	5.89	-32	107	.34	.0	.00	.0	1
20	15.29	33.385	24.69	6.05	-45	109	.07	.0	.00	.0	2
30	14.82	33.429	24.82	6.08	-43	109	.05	.0	.00	.0	0
50	13.36	33.404	25.11	5.71	4	99	.33	1.4	.24	.0	4
75	11.89	33.452	25.43	5.14	71	87	.53	9.6	.21	.0	9
100	10.75	33.567	25.73	4.21	167	69	.41	3.3	.61	.0	14
146	9.99	33.680	25.95	3.97	197	64	1.45	17.3	.05	.0	22
195	9.09	33.913	26.27	3.78	225	60	1.12	13.6	.04	.0	27
245	8.73	34.011	26.41	2.42	351	38	2.36	18.4	.06	.0	30
295	8.05	34.093	26.58	2.13	385	33	2.31	26.4	.07	.0	47
384	7.14	34.176	26.77	1.16	484*	18	1.29	18.4	.03	.0	59*
477	6.30	34.216	26.92	.78	530	12	1.44	31.7	.02	.0	39
575	5.58	34.270	27.05	.72	546	11	3.16	33.2	.05	.0	93*
771	4.59*	34.374	27.24	.56	574	8	2.13	13.5	.00	.0	40*

* indicates questionable data

Paired thermometer read 4.65
AOU and phosphate appear anomalously low
Silicate appears anomalously high at 477 and 575 m and low at 771 m

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 49	2202	16 NOV 1976	13.5	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
10	31	2	5	34	2	1020.0	19.8	16.5	2	X	0	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	15.75	33.597	24.75	6.06	-51	111	.09	.0	.00	.0	3
5	15.68	33.594	24.76	6.09	-53	111	.06	.0	.00	.0	1
10	15.48*	33.579	24.79	6.05	-47	110	.28	.2	.00	.0	2
20	15.27	33.608	24.86	5.74	-18	104	.42	.1	.14	.0	2
30	14.61	33.611	25.01	5.39	19	96	.25	1.2	.33	.2	4
50	13.97	33.603	25.14	5.20	43	92	.34	1.5	.40	.0	5

* indicates questionable data

Paired thermometer read 15.54

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 49	2201	16 NOV 1976	14.4	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
8	32	1	5	35	1	1019.2	21.5	17.5	2	X	0	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	15.73	33.573	24.73	5.95	-41	108	.19	.0	.04	.3	2
5	15.62	33.573	24.76	6.01	-453	104	.13	.0	.04	.2	4
10	15.27*	33.591	24.85	5.86	-30	106	.16	.0	.15	.3	4
20	15.16	33.601	24.88	5.87	-28	106	.11	.0	.13	.4	2
30	14.82	33.601	24.95	5.50	7	99	.37	2.2	.24	.4	5

* indicates questionable data Paired thermometer read 15.33

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 49	1121	16 NOV 1976	14.9	36° 37.7'	121° 51.1'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
7	32	1	5	35	1	1019.2	21.5	17.5	2		0	6

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	16.00	33.575	24.67	5.17	25	95	.38	.0	.04	.3	5
5	15.92	33.574	24.69	5.79	-28	106	.18	.0	.04	.3	3
10	15.50	33.587	24.79	5.85	-29	106	.24	.8	.04	.8	9

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 50	1154	7 DEC 1976	8.3	36° 55.2'	121° 52.8'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
6	0	0	X	8	2	1021.3	10.8	8.2	2	X	0	6

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	14.26	33.605	25.08	6.44	-70	114	.41	.6	.08	.0	5
5	14.29*	33.602	25.07	5.27	33	93	.39	1.3	.04	.0	5
10	14.29	33.608	25.07	6.01	-32	107	.39	1.7	.00	.0	4

* indicates questionable data Paired thermometer read 14.23

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 50	2205	7 DEC 1976	9.3	36° 55.8'	122° .7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
17	17	1	3	10	1	1021.3	12.5	10.0	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	14.53	33.599	25.01	5.50	10	98	.46	2.7	.20	.1	5
5	14.52	33.597	25.02	5.08	48	90	.45	1.3	.20	.0	4
10	14.43	33.596	25.03	5.05	51	90	.53	1.7	.31	.1	6
20	14.27	33.591	25.06	4.91	66	87	.55	2.5	.27	.3	6

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 50	2204	7 DEC 1976	10.3	36° 50.9'	122° 1.6°

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
15	11	1	3	11	2	1021.8	11.0	9.3	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	14.57	33.605	25.01	5.51	9	98	.35	1.2	.15	.0	4
5	14.60	33.597	25.00	5.28	29	94	.41	1.6	.17	.0	3
10	14.60	33.593	25.00	5.16	40	92	.41	1.8	.16	.0	3
20	14.57	33.596	25.00	5.54	6	99	.35	1.2	.15	.0	3
30	14.56	33.599	25.01	5.67	-4	101	.44	1.6	.22	.0	5
50	14.57	33.589	25.00	6.27	-58	112	.39	1.5	.20	.0	4

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 50	2203	7 DEC 1976	12.0	36° 46.7'	122° 1.3'

TRANSP m	WAVES dir	ht	p	WIND dir	speed	BAROM mb	AIR TEMP °C dry	wet	WEATH	CLOUDS typ	amt	VISIB
15	9	1	3	8	2	1020.8	15.5	11.5	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	14.73	33.591	24.97	5.87	-24	105	.38	6.6	.09	.5	8
5	14.71	33.587	24.97	5.79	-16	103	.39	3.7	.08	.0	4
10	14.70	33.586	24.97	5.82	-19	104	.40	2.5	.10	.1	5
20	14.65	33.600	24.99	6.38	-68	114	.33	1.5	.11	.0	4
30	14.64	33.602	24.99	5.97	-32	107	.58	1.1	.08	.0	3
50	14.07	33.568	25.09	5.18	44	91	.66	2.7	.20	.0	5
75	13.26	33.567	25.25	4.51	112	78	.88	5.5	.11	.0	7
100	11.99	33.612	25.53	4.57	120	77	.44	9.9	.02	.0	14
125	12.11	33.597	25.50	4.45	130	75	.76	4.5	.03	.0	10
172	10.51	33.738	25.90	3.05	273	50	1.43	13.1	.06	.0	22
218	9.31	33.894	26.22				1.57	23.2	.04	.0	34
264	8.48	34.022	26.46	2.39	357	37	2.17	29.6	.05	.3	40
356	7.52	34.103	26.66	1.82	420	28	2.10	27.8	.02	.0	48
450	6.76										
543	5.83	34.257	27.01				2.78		.01	.0	71
728	4.62	34.362	27.23	.49	580	7	.56		.01	.4	92

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 50	2202	7 DEC 1976	13.7	36° 41.2'	121° 57.9'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
21	0	0	X	26	0	1019.5	17.8	12.0	2	X	0	7

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	14.83	33.614	24.96	5.68	-8	102	.35	2.8	.24	.1	4
5	14.67	33.615	25.00	5.59	1	100	.25	3.0	.21	.2	5
10	14.70	33.609	24.99	5.52	7	99	.43	2.0	.20	.1	2
20	14.56	33.609	25.02	5.37	22	96	.46	1.7	.27	.1	4
30	14.53	33.609	25.02	4.91	63	87	.43	2.4	.24	.3	4
50	14.53	33.607	25.02				.37	2.4	.21	.1	5

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 50	2201	7 DEC 1976	14.8	36° 37.6'	121° 53.7'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
14	0	0	X	13	0	1019.3	18.3	15.1	2	X	0	8

DEPTH	TEMP	SALINITY	SIGMA T	OXYGEN	AOU	SAT	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
m	°C	ppt		ml/l	ug-at/l	%	ug-atoms/liter				
0	14.89	33.616	24.95	5.73	-13	103	.38	1.1	.14	.1	3
5	14.67	33.612	24.99	5.74	-12	103	.40	1.9	.16	.2	3
10	14.69	33.612	24.99	5.67	-6	101	.00	2.0	.20	.4	7
20	14.62	33.612	25.01	5.23	33	93	.34	1.0	.19	.3	3
30	14.60	33.642	25.03	5.31	26	95	.31	1.5	.26	2.0	4

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML 50	1121	7 DEC 1976	15.2	36° 37.7'	121° 51.1'

TRANSP	WAVES			WIND		BAROM	AIR TEMP °C		WEATH	CLOUDS		VISIB
m	dir	ht	p	dir	speed	mb	dry	wet		typ	amt	
15	0	0	X	36	0	1019.3	15.8	13.8	2	X	0	8

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE	NITRITE	AMMONIA	SILICA
							ug-atoms/liter				
0	14.93	33.614	24.94	5.16	37	93	.43	1.2	.17	.5	6
5	14.56	33.606	25.01	5.15	41	92	.48	1.1	.11	.7	5
10	14.57	33.603	25.01					1.6	.14	.8	7

CRUISE	STATION	DATE	HOUR	N LATITUDE	W LONGITUDE
ML	IDOE	14 DEC 1976	7.0	36° 48.0'	123° 20.3'

DEPTH m	TEMP °C	SALINITY ppt	SIGMA T	OXYGEN ml/l	AOU ug-at/l	SAT %	PHOSPHATE	NITRATE NITRITE AMMONIA SILICA ug-atoms/liter
0	14.34	33.539	25.01	7.70	-183	137	.60	.7*
10	14.46	33.531	24.98	7.68	-182	137	.56	.7*
20	14.17	33.503	25.02	7.61	-173	134	.44	1.7*
30	13.61	33.549	25.10	6.60	-77	115	.75	4.3*
50	12.03			6.40			1.13	11.2*
88	10.70	33.639	25.79	5.33	68	88	1.60	18.0*
119	9.95	33.736	26.00	4.58	143	74	1.82	21.6*
166	9.18	33.908	26.26	3.38	259	54	2.15	26.8*
190	8.42	33.992	26.44	3.40	267	53	2.36	29.2*
240	7.59	34.052	26.61				2.40	30.7*
290	7.28	34.134	26.72	2.30	380	35	3.30	40.7*
390	6.64	34.127	26.80	1.86	429	28	2.91	37.6*
490	6.03	34.251	26.98	1.55	465	23	3.38	40.9*
590	5.36	34.278	27.08				3.20	41.8*
800	4.45	34.348	27.24					
995	3.88	34.419	27.36	.45	596	6	3.44	44.2*
1195		34.468		.40			3.52	43.5*
1493	2.72	34.516	27.55	.45	614	6	3.26	40.9*
1982	2.02	34.591	27.66	1.15	564	15	3.51	42.0*
2467	1.76	34.619	27.71	2.28	467	30	3.11	39.0*
2944	1.66	34.634	27.73	3.33	375	44	2.84	37.6*

* Represents combined nitrate and nitrite