

Moss Landing

Marine Laboratories

Technical Publication 72-1

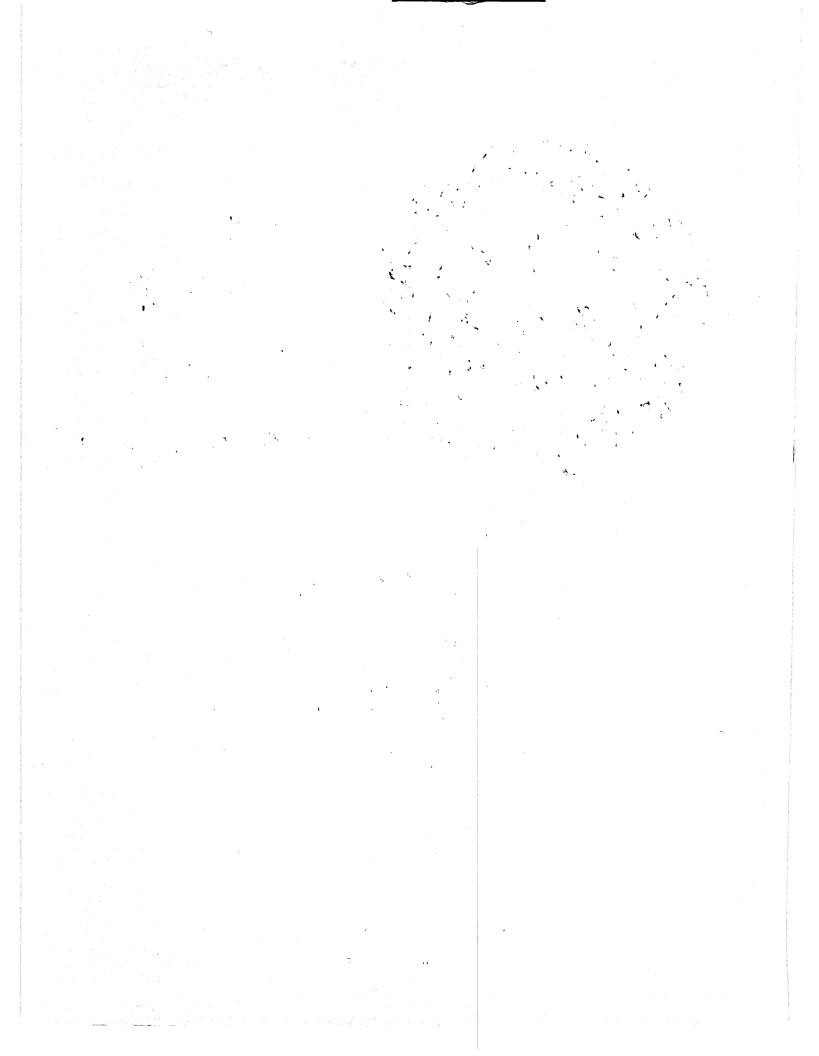
OCEANOGRAPHIC OBSERVATIONS IN MONTEREY BAY, CALIFORNIA FEBRUARY 1971 TO DECEMBER 1971

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by William W. Broenkow

Moss Landing Marine Laboratories
of the
California State University and Colleges
at
Fresno, Hayward, Sacramento, San Francisco, and San Jose



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OCEANOGRAPHIC OBSERVATIONS IN MONTEREY BAY, CALIFORNIA FEBRUARY 1971 TO DECEMBER 1971

William W. Broenkow

INTRODUCTION

Moss Landing Marine Laboratories began a study of the hydrography of Monterey Bay in February 1971 to determine seasonal and small scale spatial variations in some physical, chemical and biological parameters. These data have been obtained to determine the relative influences of the transport of offshore waters through the bay, the discharges of domestic sewages into the bay, and the biochemical changes that occur within the bay.

Initially the study was supported solely by a grant from the Office of Sea Grant Programs, and in September 1971 additional support to expand this work was received from the Association of Monterey Bay Area Governments. By incorporating results obtained under both grants into one report, the data will be readily accessible for detailed study.

SCIENTIFIC PERSONNEL

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In addition to the above, 37 students enrolled in the undergraduate research class, "Environmental Research Participation", have greatly aided in the shipboard sampling, laboratory analyses and data reduction.

ACKNOWLEDGEMENTS

Without the much appreciated assistance of Frank Monnich, Captain of R/V Amigo, the hydrographic observational program would not have been accomplished.

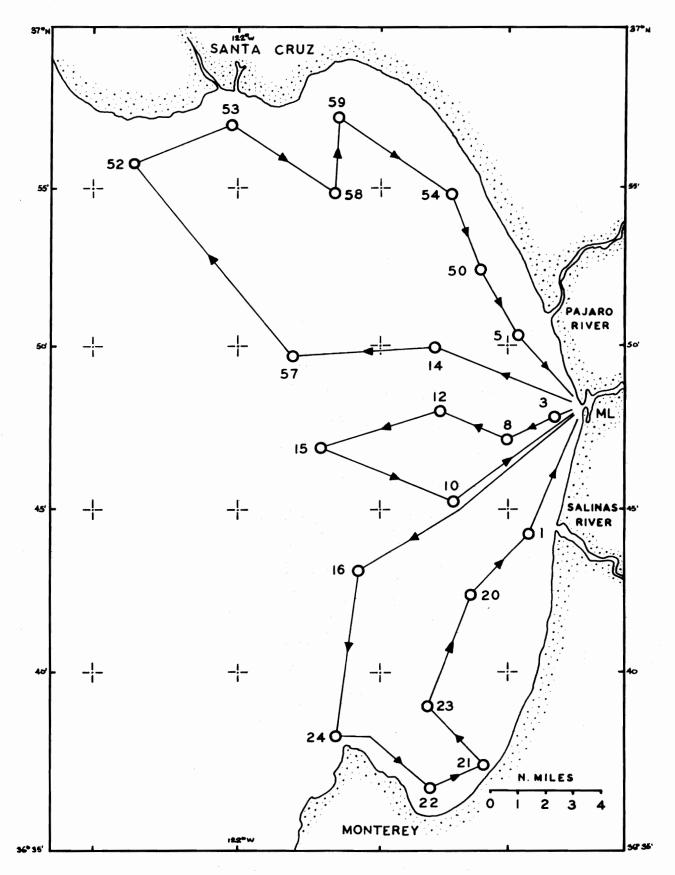
This research was supported by Grant 2-35137 from the Office of Sea Grant Programs, National Oceanic and Atmospheric Administration,

Department of Commerce and by the Association of Monterey Bay Area

Governments.

MONTEREY BAY HYDROGRAPHIC STATION LOCATIONS

STATION NUMBER	LATITUDE N.	LONGITUDE W.	DEP'	<u>TH</u>	SAMPLING DEPTHS
			<u>m</u>	<u>fm</u>	
24	36 ⁰ 38.8'	121 ⁰ 56.3'	40	22	0, 5, 10, 20, 30
22	36 ⁰ 36.6'	121 ⁰ 52.9'	16	9	0, 5, 10
21	36 ⁰ 37.6'	121 ⁰ 51.2'	18	10	0, 5, 10
23	36 ⁰ 39.2'	121 ^o 53.1'	68	37	0, 5, 10, 20, 30, 50
20	36 ⁰ 43.1'	121 ⁰ 51.5'	57	31	0, 5, 10, 20, 30, 50
16	36 ⁰ 43.3'	121 ⁰ 55.6'	97	53	0, 5, 10, 20, 30, 50, 75
10	36 ^o 45.6¹	121 ^o 52.0'	70	38	0, 5, 10, 20, 30, 50
1	36 ⁰ 44.7'	121 ⁰ 49.3'	15	8	0, 5, 10
3	36 ⁰ 48.1'	121 ⁰ 48.2'	110	60	0, 5, 10, 20, 30, 50, 75, 100
8	36 ⁰ 47.4'	121 ^o 50.0'	240	130	0, 5, 10, 20, 30, 50, 75, 100, 150
12	36 ⁰ 48.0'	121 ⁰ 52.2'	240	130	0, 5, 10, 20, 30, 50, 75, 100, 150
15	36 [°] 46.6'	121 ⁰ 57.2'	718	393	0, 10, 20, 30, 50, 75, 100, 150, 200, 250, 300, 400
57	36 ⁰ 50.2'	121 ^o 58.1'	366	200	0, 10, 20, 30, 50, 75, 100, 150
14	36 ^o 50.5'	121°52.7'	59	32	0, 5, 10, 20, 30, 50
5	36 ⁰ 50.81	121 ⁰ 49.6'	15	8	0, 5, 10
54	36 ⁰ 55.2'	121 ⁰ 52.7'	15	8	0, 5, 10
58	36 ⁰ 55.1'	121 ⁰ 56.7'	26	14	0, 5, 10, 20
59	36 ⁰ 57.1'	121 ⁰ 56.2'	15	8	0, 5, 10
53	36 ⁰ 56.81	122 ⁰ 00.1'	15	8	0, 5, 10
52	36 ⁰ 55.3'	122 ⁰ 04.4'	· 35	19	0, 5, 10, 20
50	36 ⁰ 52.9'	121 ⁰ 51.3'	18	10	0, 5, 10



Moss Landing Marine Laboratories Monterey Bay Hydrographic Stations.

METHODS

Station Position. When the shoreline was clearly visible, station positions were determined using horizontal sextant angles with an accuracy of about - 0.1 mile within 1 mile of shore and - 0.3 mile within 6 miles of shore. During inclement weather a combination of loran, radar ranges and bearings and fathometer readings were used, and in most cases the accuracy of the position was about - 0.5 mile or better.

Hydrographic Sampling. Four 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, and 400 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.

<u>Temperature</u>. The <u>in situ</u> 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 Kahlisco 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. The 500 ml samples were filtered through 3 µm glass fiber filters, quick frozen in a dry ice-alcohol solution aboard ship and were refrigerated at -10° C until analyzed ashore within 3 weeks of collection. Groups of 36 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.

Dissolved reactive phosphate was determined by the method of Murphy and Riley (1962) described in Strickland and Parsons (1968) using ascorbic acid to reduce the phospho-molybdate complex. The sample absorbance was determined in 10 cm cells on a Beckman DU II Spectrophotometer at 885 nm. Precision of the analyses is about $\frac{1}{2}$ 0.03 µg-atoms/liter (2 SD).

Nitrate was determined by the cadmium-reduction method of Wood $\underline{\text{et}}$ $\underline{\text{al}}$ (1967) followed by the nitrite color development. The sample absorbance was determined in 1 cm cells

using a Spectronic 20 Colorimeter at 543 nm. Precision of the analyses is about * 0.5 µg-atoms/liter (2 SD).

Nitrite was determined by the method of Bendschneider and Robinson (1952) described by Strickland and Parsons (1967). The absorbance of the diazo color was determined on the Beckman DU using 10 cm cells at 543 nm. Precision of the method is about * 0.03 µg-atoms/liter (2 SD).

Ammonia was determined by the indophenol method of Solorzano (1969) with the color absorbance determined with the Beckman DU at 640 nm using 10 cm cells. Precision of the method is about *- 0.1 µg-atoms/liter (2 SD).

Reactive silica was determined by the method of Mullin and Riley (1955) as modified by Strickland and Parsons (1968). The silicomolybate complex was reduced by a metol-sulfite, oxalic acid solution, and the color absorbance was determined in 1 cm cells on a Spectronic 20 at 810 nm. Precision of the method is about - µg-atoms/liter (2 SD).

<u>Plant Pigments</u>. Chlorophyll <u>a</u> and Phaeophytin <u>a</u> fluorescences were determined by the method of Holm-Hansen <u>et al</u> (1965) using the Turner Model 3 Fluorometer, and their concentrations were estimated using the equations of Strickland and Parsons (1968).

The glass fiber filters, from the nutrient sample filtration (3 μ m pore size) were treated with MgCO₃ and quick frozen for plant pigment analysis ashore. Precision of the method is about $\frac{4}{5}$ 5% (2 SD).

EXPLANATION OF TABLES

CRUISE Moss Landing Marine Laboratories consecutive hydro-

graphic cruise number.

STATION Permanent hydrographic station number. 11 designates

Moss Landing Marine Laboratories.

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 (8 bottle) stations the time

on-station was generally under one hour.

N LATITUDE Observed station position corresponding to sampling W LONGITUDE time given above. Drift while on station was generall

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.

WAVES

dir Direction from which the dominant waves are 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 is blowing, in tens of

degrees, according to WMO Code 0877.

speed Wind speed in knots.

BAROM Pressure in millibars.

AIR TEMP OC

dry Air temperatures were obtained about 2 m above sea

surface. Dry-bulb air temperature in degrees centi-

grade.

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 equa-

tions in Knudsen's Hydrographical Tables (Knudsen,

1901).

OXYGEN Dissolved oxygen concentration in ml(STP)/liter.

AOU Apparent oxygen utilization in µg-atoms 02-0/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 Percent 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

PO₄-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

NH₃-N/liter.

SILICA Concentration of reactive silica in µg-atoms

SiO₂-Si/liter.

CHL-a Concentration of chlorophyll a in $\mu g/liter (mg/m^3)$.

PHAEO Concentration of phaeophytin a in $\mu g/liter (mg/m^3)$.

*

Questionable data point. These values are suspect based upon reliminary analysis of the data and should be used with caution.

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Hydrographic Stations

ML	CRUISE 2		1101
16	February	1971	1103
			1105
			1107
			1114
			1112
			1110
			1108
ML	CRUISE 3		1151
20	February	1971	1152
			1153
			1154
			1155

				SILICA	10 7 5)
		В		PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.13	,
DE	5.	VISIB	7	RATE NITRITE ΑΙ μg-atoms/liter	11	1
UNGITU	121° 49.5	CLOUDS typ amt	8	re NIT -atomș		
MIC		ATH (~	NITRAT µ8-	1.1	•
N LATITUDE W LONGITUDE	36° 44.8°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	۳.	PHATE	.57	
	36°	IR TEMP °(dry wet	8.8 8.3	PHOS		
HOUR	8.2	AIR dry	∞	SAT	108	:
	1971	BAROM mb	000.5	XYGEN AOU SAI $n_1/1$ $n_1/1$ n_2	-45 -78 -52	1
DATE	16 FEB 1971	ND speed	29 4 7 10 4 1009.5	SIGMA T OXYGEN AOU SAT m1/1 µg-at/1 %	6.49 6.86	1
NOI		WAVES WIND dir ht p dir speed	10	A T	49 49 51	
STATION	1101	WAVES r ht p	4 7	SIGM	25.49 25.49 25.51	•
UISE	7		29	SALINITY ppt	454 446	
CRU	ML	TRANSP m	5	SAL	4 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
		Ħ		TEMP °C	11.55	
				ОЕРТН m	0 20	ì

				NIA SILICA	18 5	14 4					• 00	
ITUDE	121° 48,3°	CLOUDS VISIB	9	NITRATE NITRITE AMMONIA µg-atoms/liter							.23	
W LONGITUDE	121	WEATH CLOUDS typ amt	∞	NITRATE µg-at	2.2	2.3	3.7	8.4	6.1	22.4	24.5	28.9
N LATITUDE	36° 48.2°	EMP°C wet	7. 6 1	PIIOSPHATE	.79	• 55	*8*	1,17	1,02	2.08	2,36	2.62
HOUR	9.5	AIR 1 dry	11.1	SAT %	112	112	108	26	103	22	77	38
ы	FEB 1971	BAROM mb	1008.8	XYGEN AOU m1/1 μg-at/1	- 65	- 61	-40	16	- 15	242	313	354
DATE	16 FEB	WIND dir speed		OXYGEN AOU m1/1 µg-at/	6.72	6.68	6.45	5.86	6.18	3,52	2.80	2,42
STATION	1103	c c		SIGMA T	25,50	25,50	25.53	25.63	25,56	26.07	25,25	26,39
CRUISE	ML 2	NSP WAVES dir ht	5	SALINITY ppt							33,866	
		TRANSP	•	TEMP °C	11,54	11,52	11,42	11,10*	11,38	9.62	9.04	8,52
				DEPTII m	0	5	10	20	30	64	74	86

* indicates questionable data: Paired thermometer read 11.02

				SILICA	8 22 0
		1B		PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.44
UDE	.61	S VIS:	9	TRITE /	.23 .14
LONGI	121° 49.6'	CLOUDS typ amt	8	rRATE NITRITE ΑΙ μg-atoms/liter	3.8 2.4 4.7
UDE W		WEATH		TE NIT	
N LATITUDE W LONGITUDE	36°50.8	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	11.0 9.4	PHOSPHA	1.17 .78 .98
HOUR	10.7			SAT L %	114 112 107
阳	16 FEB 1971 10.7	BAROH mb	1006.8	AOU μg-at/1	-73 -64 -36
DATE	16 FEB	WIND r speed	5 6 1006.8	OXYGEN m1/1	6.80 6.68 6.40
STATION	1105	p di	S	SIGMA T OXYGEN AOU SAT m1/1 µg-at/1 %	25.39 25.46 25.50
CRUISE	ML 2		2	TEMP SALINITY °C ppt	33,345 33,446 33,457
		TRANSP	•	TEMP °C	11.64 11.70 11.52
				DEPTH m	0 5

				SILICA	က	4	9	12	32*	70	25
		1B		AMMONIA r	.20	• 24	%	.52	09.	• 36	8.
TUDE	.9.09	JDS VISIB	8	RATE NITRITE A µg-atoms/liter	.07	•08	.12	.22	•24	•25	.15
W LONG	121° 50.6	WEATH CLOUDS typ amt	œ	IITRATE N µg-ato	1.7	3.4	5.1	10,6	11.2	17.6	21,4
N LATITUDE W LONGITUDE	36° 48.9°	5 3	11.6 10.4	PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.53	.63	06.	1,39	1,64	1.96	2.21
HOUR N	12.1	AIR TEMP °(dry wet	11.6	• •	115	111	105	86	68	51	22
f e 7	FEB 1971	BAROM mb	1006.4	AOU ug-at/	-78	- 09	-27	28	176	267	252
DATE	16 FEB	WIND dir speed	12	OXYGEN AOU SAT m1/1 µg-at/1 %	98.9	99•9	6.32	5,41	4.10	3.17	3,41
STATION	1107		4 7 27	SIGMA T	25.47	25.49	25.52	25.67	25.68	25,90	26.07
CRUISE	ML 2	P WAVES dir ht p	29 4 7	SALINITY ppt	13,437	3.441	13,442	13,532	3,535	33,660	13, 759
0	Σi	TRANSP	7	TEMP SA	11.60	11,52 3	11,34 3	10,92* 3	10,88	10.14 3	9.62 3
				DEPTH	0	10	20	30	20	75	100

* indicates questionable data: Paired thermometer read 10.85 * indicates questionable data: Silicate is anomalously high

ы	_	VISIB	9	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter
W LONGITUDE	121° 52,4	TH CLOUDS	& &	ITRATE NITRITE AN µg-atoms/liter
HOUR N LATITUDE W LONGITUDE	2 1114 16 FEB 1971 13.0 36° 50.8° 121° 52.4°	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	11.8 10.6	PHOSPHATE N
HOUR	13.0		11.	SAT %
DATE	EB 1971	BAROM 1 mb	23 10 1005.1	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 %
	16 F	WIND ir spec	23 10	r OXYG
STATION	1114	WAVES WIND BARO dir ht p dir speed mb		SIGMA
CRUISE	ML 2			ALINITY ppt
		TRANSP		TEMP S.
				DEPTH

* indicates questionable data: Nitrate appears anomalously low

5 4 16 16

.28 .24 .82 .37

.08 .09 .27 .33

1.1 .7 8.9 2.8*

.63 .69 1.39 1.51

118 117 90 75

-97 -89 55 137

7.06 6.98 5.43 4.57

25.46 25.47 25.60 25.74

33,431 33,433 33,482 33,563

11.64 11.58 11.08 10.62

0 10 20 29

€1	_	VISIB	
HOUR N LATITUDE W LONGITUDE	ML 2 1112 16 FEB 1971 13.8 36° 48.0° 121° 52.0°	AIR TEMT °C WEATH CLOUDS VISIB dry wet typ amt	
IDE W	10,	WEATH	
N LATITU	36°48.	IEMP °C wet	19 7 1003.7 12.2 10.6
HOUR	13.8	AIR dry	12.
	1971	TRANSP WAVES WIND BAROM m dir ht p dir speed mb	1003.7
DATE	16 FEB	ND speed	۲
STATION	2	WI	19
	11	AVES ht p	
CRUISE	7	W. dir	
CR	M	TRANSP	Ŋ

SILICA	2 117 21 34 43 45 46	
AMMONIA r	000000000000000000000000000000000000000	
RATE NITRITE A jıg-atoms/liter	.03 .02 .02 .03 .03	
NITRATE J18-at	21. 8.2 11.3 11.3 23.6 23.6 25.5 27.1	
PHOSPHATE NITRATE NITRITE AMMONIA SILICA)18-atoms/liter	54 55 1.48 1.60 2.17 2.38 2.49 2.51	
SAT %	111 75 62 61 43 39 36 36	
AOU g-at/1	-92 -58 138 209 322 344 367	
OXYGEN AOU m1/1 µg-at/1	7.01 6.64 4.57 3.82 3.77 2.70 2.29 2.30	
SIGMA T	25.47 25.49 25.78 25.90 26.08 26.38 26.45 26.45	
SALINITY ppt	33,441 33,447 33,584 33,656 33,937 33,998 34,000	
TEMP °C	11.64 11.54 110.50 10.12 9.62 9.02 8.37 8.37	
DEPTH m	0 20 30 49 75 100 149 199	

				SILICA	7 7 10 18
		e		MMONIA	.00
JDE	8	S VISIB	9	rRITE A s/liter	.04 .01 .10
LONGIT	121° 51.8'	CLOUDS typ amt	∞	RATE NITRITE A µg-atoms/liter	9 1.1 3.6 4.2
DE W		WEATH		E NITR	.9 1.1 3.6 14.2
N LATITUDE W LONGITUDE	36° 45.3¹	AIR TEMP °C WEATH CLOUDS dry wet typ amt	12.2 10.6	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.53 .58 .81
HOUR	15.5	AIR 1 dry	12.2	SAT %	115 113 103 79
f+7		BAROM mb	1003.4	AOU 1 g-at/1	-80 -69 -17 114
DATE	16 FEB 1971	WIND dir speed	``	OXYGEN m1/1 ,	6.88 6.77 6.22 4.82
STATION	1110	ď		SIGMA T ΟΧΥGEN AOU SAT m1/1 μg-at/1 %	25.49 25.50 25.57 25.76
CRUISE	ML 2			TEMP SALINITY °C ppt	33.442 33.449 33.473 33.577
		TRANSP	5	TEMP S	11.54 11.49 11.20 10.62
				EP TH m	0 20 30

				SILICA	7	12	5 6	35	36	58 *		47
		æ		MONIA	00.	• 20	•25	90•	00.	*00°	00.	00•
TUDE	.0.0	S VISIB	8 2	RATE NITRITE AI µg-atoms/liter	90•	.12	Ξ.	60•	•18	*80*	11.	60 •
W LONGI	121° 50.0'	TH CLOUDS typ amt	∞	ITRATE Ν μg-ator	1.9	9•9	18,1	25.4	26.5	11.7*	19.6	26.5
N LATITUDE W LONGITUDE	36° 47.5°	TP°C WEATH wet	10.0	PHOSPHATE NITRITE AMMONIA SILICA μg-atoms/liter	.63		1.90				2.83	
HOUR N	16.7 3	AIR TEMP °C dry wet	11.2 10.0	SAT %	116	66	59	48	43	38	33	30
	FEB 1971	BAROM mb	1003.0	OXYGEN AOU m1/1 µg-at/1	-84	œ	228	291	321	351	384	403
DATE	16 FEB	WIND dir speed	0	OXYGEN ml/l ,	6.93	5.94	3.66	3.04	2.12	2,44	2,13	1.96
STATION	1108	c.	10	SIGMA T	25,48	25,60	26.03	26.22	26.27	26.38	26.49	26.57
CRUISE	ML 2	SP WAVES dir ht		SALINITY PPt	33,438	33,505	33,739	33,853	33,889	33,952	34,010	34.050
Ü	4	TRANSP	9	TEMP S.							8,18	
				DEPTH m	0	10	20	30	20	75	100	150

* indicates questionable data: All nutrients are anomalously low

				SILICA	11	13	19	23
		IB		PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.40	90°	.07	•43
TUDE	.3,	S VISIB	8	TRITE 18/11te	•18	.22	.13	•15
LONGI	121° 59.3'	CLOUDS typ amt	0 1	RATE NITRITE A µg-atoms/liter	2.	9.	.2	9•
UDE W		WEATH	2	TE NIT			20.2	
N LATITUDE W LONGITUDE	36°53.8¹	AIR TEMP °C WEATH CLOUDS dry wet typ amt	13,3 8,8	РНОЅРНА	1,23	1,56	1,99	2,27
HOUR	11.4	AIR T dry	13,3	SAT %	66	82	99	51
Ħ	20 FEB 1971	BAROM mb	1018.0	XYGEN AOU : m1/1 µg-at/1	œ	84	247	274
DATE	20 FEB	WIND dir speed	8 2	OXYGEN m1/1	6.01	5.20	3,45	3,17
STATION	1151	WAVES W r ht p dir	4	SIGMA T OXYGEN AOU ml/l µg-at/]	25.71	25.76	25.99	26.08
CRUISE	ML 3	43	27 2	ALINITY ppt	33,522	33,522	33.689	33.764
J	24	TRANSP	5	TEMP SALINITY	10,65* 33,522	10,36	9,75	9.54
				DEРТН m	0	10	20	30

* indicates questionable data: Paired thermometer read 10.59

W LONGITUDE	122° 00,8
N LATITUDE	36°55.1
HOUR	13.0
DATE	20 FEB 1971
STATION	1152
CRUISE	ML 3

VISIB		œ
CLOUDS	typ amt	۰
AIR TEMP C WEATH CLOUDS	ħ	, 0 ,
ာ မ	wet	7.7
AIR TE	dry	7.7
BAROM	ф	1016.7
WIND	speed	22 R
3	dir	22
WAVES	dir ht p	
RANSP	E	v

ILICA	14 14 17
MONIA S	. 55 . 90 . 30 . 53
TRATE NITRITE AM µg-atoms/liter	. 29 . 26 . 22 . 19
PHOSPHATE NITRITE AMMONIA SILICA μg-atoms/liter	11.8 12.5 15.4 18.2
РНОЅРНАТЕ	1.66 1.74 1.87
SAT	87 91 77
AOU g-at/1	68 51 125 207
OXYGEN AOU m1/1 µg-at/1	5.31 5.56 4.76
SIGMA T	25.69 25.79 25.86
SALINITY ppt	33.547 33.561 33.615
TEMP :	10.86 10.38 10.16
EPTH m	10 0 50 30

		VISIB	&	PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter
CTUDE	90.8	JDS amt	က	RATE NITRITE AN µg-atoms/liter
LONG	.22。(CLOUDS typ amt	С	ATE 1 1g-ato
Э	-	ЕАТН	7	NITR
HOUR N LATITUDE W LONGITUDE	3 1153 20 FEB 1971 13.6 36° 56.7' 122° 00.8'	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	22 3 1016.7 14.6 8.3 2 0 3 8	OSPHATE
Z	• ,	AIR TEMP °C dry wet	4. 6	
HOUR	13.6		Ĥ	SAT %
	1971	BAROM mb	1016.7	AOU 1g-at/1
CRUISE STATION DATE	20 FEB	WAVES WIND BARO	e.	TEMP SALINITY SIGMAT OXYGEN AOU SAT °C ppt m1/1 µg-at/1 %
NOI	8	WI	22	T.
STAT	115	S3		SIGM
JISE	က	WAVES dir ht		INITY
CR	Ä	FRANSP m	7	SAL]
		TR		TEMP °C

* indicates questionable data: Phosphate appears anomalously high

24 20 19

2.39 1.60 1.61

.49 .40 .37

13.0 13.5 13.9

2.51* 2.06 2.09

82 75 76

100 136 133

4.95 4.59 4.64

25.50 25.78 25.81

33.321 33.587 33.594

10.94 10.50 10.38

0 2 2

DEPTH E

ы	•	VISIB
HOUR N LATITUDE W LONGITUDE	36° 54.7° 121° 52.4°	AIR TEMP °C WEATH CLOUDS VISIB
OE W	•	VEATH
III	54.	v
N LAT	36°	TEM.
HOUR	14.9	AIR
	20 FEB 1971 14.9	BAROM
DATE	FEB	
	20	WIND
STATION	ML 3 1154	
SE	ო	WAVES
CRUISE	M	TRANSP

SILICA	8 8 19
AMMONIA r	.18
TRATE NITRITE AM µg-atoms/liter	.19
NITRATE µg-at	2.2 3.5 14.7
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.87 1.03 2.06
SAT %	119 115 69
7	-101 -78 170
OXYGEN AOU s ml/1 µg-at/1	7.14 6.92 4.23
SIGMA T	25.57 25.61 25.84
SALINITY ppt	33,503 33,508 33,634
TEMP °C	11.33 11.12 10.37
DEPTH	0 2

œ

С

7

1016.7

25

typ amt

dry wet

dir ht p dir speed mb

E

				SILICA	10 11 14 19
		æ		MMONIA	.70 .34 .92
DE	. 4	VISIB	∞	RATE NITRITE A µg-atoms/liter	.27 .25 .30
GITU	121° 50.4'	CLOUDS typ amt	0 4	NIT	
M LON	121	H CI typ	0	TRATE µg–e	6.5 8.1 10.4 16.9
IDE	.2	WEAT	2	E NI	ਜਜ
N LATITUDE W LONGITUDE	36°50.2°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	12.3 10.1	PHOSPHATE NITRITE AMMONIA SILICA µg-atoms/liter	1.40 1.48 1.55 1.95
HOUR	16.0	AIR T dry	12.3	SAT %	106 95 88 65
E.		BAROM mb	1016.6	OXYGEN AOU SAT m1/1 µg-at/1 %	-32 29 67 195
DATE	20 FEB 1971	WIND dir speed	25 7 3	OXYGEN m1/1	6.40 5.76 5.35 3.98
STATION	1155		25	SIGMA T OXYGEN AOU m1/1 µg-at/1	25.64 25.72 25.75 25.92
CRUISE	က	WAVES dir ht p		SALINITY ppt	33,545 33,568 33,572 33,671
SS	Ä	TRANSP m	9	SAL	
		TR		TEMP °C	11.12 10.76 10.62 10.10
				DEPTH m	0 9 119 28

Hydrographic Stations

ML CRUISE 4	1101
16 March 1971	1103
	1105
	1107
	1114
	1112
	1110
	1108
ML CRUISE 5	1155
20 March 1971	1156
	1154
	1153
	1152
	1157

				SILICA	18 14 14
		ø		PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.00
邑	•	VISIB	7	TRATE NITRITE A	.46 .35
GITUI	121° 49.2'	CLOUDS typ amt	0 8	NIT! toms/	
l LON	121°	i CL typ	0	RATE µg-a	14.9 10.8 12.2
DE 4	.	WEAT	77	E NIJ	77 77
N LATITUDE W LONGITUDE	36° 44.8¹	AIR TEMP °C WEATH CLOUDS dry wet typ amt	10.3 9.4 44	SPHAT	1.68 1.31 1.27
1	36	IR TEMP °(dry wet	ຕຸ	ЪНО	
HOUR	8.1	AIR dry	10,	SAT %	112 116 112
	1971	BAROM mb	022.7	AOU g-at/1	-65 -88 -66
DATE	16 MAR 1971	D ipeed	6 3 1022.7	SALINITY SIGMA T OXYGEN AOU SAT ppt m1/1 µg-at/1 %	6.95 7.18 6.95
NC		WIND dir sp	9	0	
STATION	1101	S P		SIGMA	25.85 25.95 25.98
CRUISE	4	WAVES WIND dir ht p dir speed		VIIY	514 581 593
CRU	ĬĹ	ISP	3	SALII Pl	33.514 33.681 33.693
		TRAI		TEMP °C	9.80 9.97 9.82
				DEPTH	0 5 10

				SILICA	13	31	51	39	48	20	61
		I.B		AMMONIA r	.67	.62	44.	1,05	•01	•51	•07
W LONGITUDE	£2.	VISIB	. 10	RATE NITRITE A µg-atoms/liter	.37	.33	•29	.37	.27	.32	•29
	121° 48.5¹	CLOUDS typ amt	0 7	NIT							
I LON	121°	-	С	RATE µg-a	16.0	4.	0.	.3	.2	3,1	9•7
N LATITUDE W	36° 48.1°	WEATH	42	LIN	16	7	22	26	27	38	32
			10.1	PHOSPHATE NITRITE AMMONIA SILICA μg-atoms/liter	1.70	2,10	2,32	2,66	2.49	2,63	2.95
HOUR N	9.3	AIR TEMP °C dry wet	11.1 10.1	SAT PI	91	29	46	42	39	38	23
DATE	1971	BAROM mb	1022.7	XYGEN AOU m1/1 µg-at/1	20	189	309	330	349	355	447
	16 MAR 1971	WIND dir speed	ю Г	OXYGEN AOU ml/l µg-at/	5,65	4.22	2.90	2.69	2,48	2,43	1,51
NC		WI	35	H	7		6	7	4	9	9
STATION	1103	Q.	4	SIGMA T	26.07	26.3	26.3	26.4	26.4	26.4	26.6
CRUISE	ML MSP	WAVES r ht	27 2 4		80 L	· &	0	9	_	10	*
		ţ	7	SALINITY ppt	33,788	3.90	3,97	3.98	00.4	4.00	4.10
		RANS	4	SA							
		Н		TEMP °C	9.72	8	8.6	8.5	8.4	8	7.5
				DEPTH m	0 10	10	20	30	20	75	100

* indicates questionable data

				SILICA	18 14 14
		11B		PHOSPHATE NITRATE NITRITE AΜΜΟΝΙΑ SILICA μg-atoms/liter	3.28 .50
DE	5,	VIS	9	RATE NITRITE A µg-atoms/liter	.39 .34
NGITU	121° 49.5'	CLOUDS typ amt	က	E NIT atoms	
W LO!	121	H C	0	TRATI µg-	11.1 11.6 11.4
UDE	.8	WEAT	42	TE NI	
N LATITUDE W LONGITUDE	36° 50.8°	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	11.7 10.0	эноsрна	1.32 1.32
ногж 1	10.5	AIR TI dry	11.7	SAT %	110 114 111
	16 MAR 1971	ВАКОМ mb	1022.7		-54 -74 -61
DATE	16 MAR	WIND ir speed	0	OXYGEN m1/1	6.74 7.01 6.88
STATION	1105	p dj	27 1 4 0	SIGMA T OXYGEN AOU m1/1 µg-at/]	25.79 25.97 26.01
UISE	4	WAVES dir ht	27	SALINITY ppt	578 728 751
CRU	Ä	NSP	en e		8 8 8
		TRAI		TEMP °C	10.44 10.06 9.90
				DEPTH	0 5

				SILICA	16	14	18	25	29	37	41
		IB		PHOSPHATE NITRATE NITRITE AMMONIA μg-atoms/liter	00•	•43	•43	• 58	•95	• 54	• 52
rude	0.2	DS VISIB	3 6	RATE NITRITE A µg-atoms/liter	•30	• 28	• 29	30	• 39	• 32	•32
N LATITUDE W LONGITUDE	121° 50,2'	typ amt	С	rrate Ν μg-ato	7.4	9.0	3.5	9.2	1.5	27.5	5.2
TUDE	8.7	WEATH	45	ATE NI							
N LATI	36° 48.7°	AIR TEMP °C dry wet	12.8 10.9	РНОЅРН	1,23	1.26	1.4	1.7	2.0	2,32	2.4
HOUR	11.6	AIR TI dry	12.	SAT L %	108	63	85	6	77	20	38
阳	1971	BAROM mb	1022.0	OXYGEN AOU m1/1 µg-at/1						284	
DATE	16 MAR 1971	WIND dir speed	0	OXYGEN m1/1	6.52	3,93*	5,31	6.07	4.88	3,19	2,41
STATION	1107	c	27 1 4 0	SIGMA T	25,83	26.03	26.09	26.16	26.23	26,38	26.43
CRUISE	ML 4	ISP WAVES dir ht	5 27	SALINITY ppt	•	•	•	•	33,857	33,954	66.993
		TRANSP	u,	TEMP S	11,03	9.84	9.55	9.26	80.6	8.62	8,49
				DEPTH m	0	10	20	30	20	75	100

* indicates questionable data: Oxygen appears anomalously low

ы		AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	9
SITUD	52.6	JUDS	7
LON	121°	CLO	0
UDE W	.51	WEATH	5
ATIT	. 50	°C	9.0
Z	36	TEMP	ï
HOUR N LATITUDE W LONGITUDE	ML 4 1114 16 MAR 1971 12.9 36° 50.5° 121° 52.6°	AIR dry	5 28 1 3 29 8 1021.7 11.1 10.6 5 0 7 6
ы	1971	TRANSP WAVES WIND BAROM m dir ht p dir speed mb	1021.7
DATE	16 MAR	ND speed	œ
ON		WI dir	29
TAT	1117	ď	3
လ		WES ht	1
CRUISE STATION	4	W# dir	28
CRI	M	TRANSP	5

SILICA	14 15 20 38
AMMONIA r	.37 .59 1.10 .96
TRATE NITRITE ΑΝ μg-atoms/liter	34 31 33 34 34
NITRATE µg-ato	6.8 10.5 15.6 22.6 27.0
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1.13 1.22 1.51 2.04 3.08*
SAT %	127 111 92 65 64
OXYGEN AOU m1/1 µg-at/1	-145 -61 46 196 318
OXYGEN m1/1 p	7.66 6.89 5.75 4.12 2.80
SIGMA T	25.79 26.01 26.10 26.25 26.37
SALINITY ppt	33,727 33,725 33,756 33,862 33,959
TEMP	11.09 9.80 9.40 9.00 8.68
DEPTH m	0 10 20 30 50

* indicates questionable data: Phosphate appears anomalously high

W LONGITUDE	121° 51.7'
N LATITUDE	36° 47.9
HOUR	14.0
DATE	16 MAR 1971 14.0
STATION	1112
CRUISE	4
CRI	Ä

VISIB		7
CLOUDS	typ amt	1 0 5
ZATH		
AIR TEMP °C WI	wet	11.7 11.2
AIR TE	dry	11.7
BAROM	qu	1021.0
WIND	dir speed	26 1 4 26 9
M	dir	26
	Q	7
WAVES	ht	-
WA	dir ht p	26
TRANSP	E	7

SILICA	19	19	77	9	34	37	41	38
AMMONIA r	00.	1.57	90	1,05	60°	00.	•18	•11
NITRITE oms/lite	•33	•33	.32	• 33	•30	•24	• 20	•23
NITRATE NITRITE AMMONIA 9 µg-atoms/liter	14.7	14.2	18.9	21.9	25.7	28.5	28.6	29.2
PHOSPHATE	1,36	1.42	1.72	1.99	2.28	2,33	2.48	2,57
SAT %	111	103	84	69	51	40	36	33
AOU 1g-at/1	- 58	-14	92	175	276	340	367	386
OXYGEN AOU m1/1 µg-at/1	6.79	6.41	5.26	4.35	3,25	2,57	2.28	2.09
SIGMA T	25.92	26.07	26.12	26.20	26.32	26,41	26.47	26.49
SALINITY ppt	33,719	33,726	33,744	33,806	33,916	33,975	34.026	34.032
TEMP °C	10,29	9.47	9.20	9.05	8,82	8.54	8.40	8,30
DEPTH m	0	10	20	30	64	86	147	195

W LONGITUDE	121° 51.7°
N LATITUDE	36° 45.9°
HOUR	15.1
DATE	16 MAR 1971 15.1
STATION	1110
ISE	7
CRUISE	Ĭ,

VISIB		7
CLOUDS	typ amt	ın,
	ţ	0
WEATH		က
TEMP C	wet	10.8
TE		4
AIR	dry	11.4
BAROM	qu	1020.3
WIND	speed	12
3	dir	28
	p dir	
	d	
WAVES	dir ht p dir	27 4 3 28

SILICA	16	17	70	22	31
AMMONIA r	00•	8	•05	• 45	• 20
PHOSPHATE NITRITE AMMONIA μg-atoms/liter	• 08	•04	•03	• 08	•08
: NITRATE µg-at	13.0	17.4	19.6	19.9	24.7
PHOSPHATE	1,46	1,63	1,71	1,87	2,31
SAT %	107	93	87	77	48
AOU g-at/1	-39	36	9/	127	295
OXYGEN AOU m1/1 μg-at/1	6.67	5.86	5.44	4.87	3.06
SIGMA T	26.03	26.08	26.11	26.17	26.36
SALINITY PPt	33,716	33,724	33,735	33,795	33,934
TEMP °C	9.64	9.36	9.22	9,15	8.67
DEРТН m	0	10	19	29	48

121° 49.8
36° 47.5
16.2
16 MAR 1971
1108
4
Ä

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

SILICA	15 18 23 22
AMMONIA r	.30 .09 1.09
TRATE NITRITE AM µg-atoms/liter	06 05 04 03
NITRATE µg-ato	11.6 16.9 21.3
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1.36 1.67 1.83 1.88
SAT %	110 92 80 75
AOU 3-at/1	-54 47 112 142
OXYGEN AOU m1/1 µg-at/1	6.82 5.74 5.04
SIGMA T	26.02 26.11 26.17 26.19
SALINITY ppt	33,735 33,751 33,797 33,817
TEMP °C	9.80 9.34 9.18
EPTH m	0 9 19 28

W LONGITUDE	121° 50.5°
N LATITUDE	36°50,3
HOUR	10.0
DATE	20 MAR 1971
STATION	1155
RUISE	5
CRI	녓

VISIB		7
CLOUDS	typ amt	Н
ប	typ	4
WEATH		П
ပ	t t	12.8
AIR TEMP °C	wet	12
ΉΞ	۶.	16.1
AIR	$^{\mathrm{dry}}$	16
BAROM	qm	1032.8
WIND	dir speed	13
X	dir	16
	۵	
WAVES	ht	Н
WA	dir ht	15 1 2
TRANSP	E	4

SILICA	20 15 18 20
AMMONIA c	1.32 1.42 2.19 1.33
IRATE NITRITE ΑΙ μg-atoms/liter	.33 .27 .27
HOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	7.4 8.1 10.5 13.9
PHOSPHATE	1.15 1.18 1.36 1.51
SAT %	110 112 97 88
AOU g-at/1	-55 -64 14 65
OXYGEN AOU ml/l µg-at/l	6.72 6.86 6.03 5.50
SIGMA T	25.92 25.96 26.14 26.21
SALINITY ppt	33,788* 33,770* 33,897* 33,929*
TEMP (10.60 10.28 9.86 9.56
DEPTH	0 10 20 30

* indicates questionable data: Salinity appears to be approximately .1 ppt high

W LONGITUDE	121° 55.0'
N LATITUDE	36 55.2
HOUR	11,3
DATE	20 MAR 1971
STATION	1156
CRUISE	Ŋ
CRU	Ä

VISIB		7
CLOUDS	typ amt	4 1
WEATH	_	2
TEMP °C	wet	11,1
AIR TI	dry	12.8
BAROM	qu	1017.6
MIND	speed	29 3
4	dir	29
	Д	7
WAVES	ht	Н
WA	dir ht	17 1 2
TRANSP	E	œ

SILICA	4 4 8 23
AMMONIA r	.00 .25 1.30 3.31
NITRITE ,	.07 .08 .17
NITRATE 1 µg-ato	0 0 2.4 15.2
PHOSPHATE NITRATE NITRITE AMMONIA μg-atoms/liter	.55 .51 .77 1.79
SAT %	154 155 125 76
AOU 1g-at/1	-284 -295 -134 134
OXYGEN AOU ml/l µg-at/l	9.09 9.34 7.63
SIGMA T	25.71 25.90 26.03 26.24
SALINITY ppt	33.854* 33.858* 33.862* 33.932*
TEMP S	12.05 11.02* 10.34 9.40
DEPTH m	0 20 30

* indicates questionable data: Paired thermometer read 10.94 Salinity appears to be approximately 0.1 ppt high

W LONGITUDE	121° 52.5'
N LATITUDE	36° 55,41
HOUR	12.0
DATE	20 MAR 1971
STATION	1154
CRUISE	ML 5

VISIB		7
CLOUDS	typ amt	0
WEATH	-	7
AIR TEMP °C	dry wet	17.2 13.1
BAROM AJ		1018.3
MIND	dir speed	
WAVES	dir ht p	24 0 2 2 10
TRANSP	p E	9

SILICA	5 32
AMMONIA r	.15
ITRATE NITRITE AM µg-atoms/liter	08
NITRATE μg-at	0.0.1
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.54
SAT %	153 155 130
AOU 1g-at/1	-273 -296 -164
OXYGEN AOU m1/1 µg-at/1	8.90 9.33 7.99
SIGMA T	25.62 25.87 26.06
SALINITY ppt	33.869* 33.868* 33.862*
TEMP S	*
DEPTH	0 5

Paired thermometer reads 11.15 Salinity appears to be approximately 0.1 ppt high * indicates questionable data:

W LONGITUDE	122 00.7
N LATITUDE	36° 55.91
HOUR	13,3
DATE	20 MAR 1971
STATION	1153
SE	2
CRUISE	된

VISIB		7
CLOUDS	typ amt	0
WEATH		7
၁	t)	5
TEMP C	wet	12.5
_	>	14.3
AIR	dry	14
BAROM	qu	1015.9
	speed	5 1015.9
WIND BAROM	dir speed mb	23 5
MIND	speed	23 5
MIND	p dir speed	23 5
	speed	ς.

PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter
SAT %
AOU g-at/1
OXYGEN AOU ml/1 µg-at/1
SIGM I
SALINITY :
TEMP °C
DEPTH m

0 11.52 53.612* 25.62 7.99 -1/9 134 .64 .0 .13												
612* 25.62 7.99 -179 134 .64 .0 .13 853* 26.02 8.93 -250 146 .48 .0 .08 .18	=	• 34	•18	2.9	• 74	119	-104	7.34	26.09	33,882*	10,03*	9
012* 25.02 /.99 =1/9 134 .64 .0 .13	ν,	•18	•08	•	•48	146	- 250	8,93	26.02	33,853*	10,33*	2
' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	-		•13	°.	• 64	134	-1 79	7.99	25.62	33,612*	11,52	0

Paired thermometers read 10.26 at 5 m, 9.97 at 10 m Salinity appears to be 0.1 high * indicates questionable data:

W LONGITUDE	122 00.8'
N LATITUDE	36° 54.9
HOUR	14.0
DATE	20 MAR 1971
STATION	1152
RUISE	Ŋ
CRU	Ä

VISIB		7
CLOUDS	yp amt	1
S	ty	0
WEATH		2
ပ	dry wet	.7
Ę	We	11.7
TE	_	œ
IR	dr	12.8
-		
BAROM	qu	1015.9
MIND	dir speed	25 4
M	dir	25
	Q.	7
WAVES	ht	-
WA	dir ht	27 1 2
RANSP	Ħ	4

SILICA	6 6 12 23
AM1ONIA T	.18 .33 .73 2.54
TRATE NITRITE ΑΝ μg-atoms/liter	.05 .17 .27
NITRATE pg-at	.0 1.7 7.3 14.1
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.35 .58 .97 1.71
SAT %	170 133 115 75
OXYGEN AOU m1/1 µg-at/1	-374 -179 -82 137
	10.17 8.14 7.12 4.73
SIGMA T	25.85 26.04 26.13 26.26
SALINITY ppt	33.882* 33.879* 33.888* 33.934*
C.	11.42 10.32* 9.85* 9.30
DEPTH	0 10 19 29

Paired thermometers read 10.25 at 10 m, 9.78 at 19 m Salinity appears to be 0.1 high * indicates questionable data:

CRUISE STATION DATE HOUR NIATITUDE WILONGITUDE ML 5 1157 20 MAR 1971 15.7 36°51.3' 121°58.2' TRANSP WAVES WIND BAROM AIR TEMP °C WEATH CLOUDS VISIB m dir ht p dir speed mb dry wet typ amt				
E F 1971 1 1 BAROM mb	ы	•	VISIB	0
E F 1971 1 1 BAROM mb	GITUD	58.2	OUDS	0
E F 1971 1 1 BAROM mb	LON	121°	मु ह	0
E F 1971 1 1 BAROM mb	IDE W	3.	WEATH	0
E F 1971 1 1 BAROM mb	ATIT	51,	°C	0
E F 1971 1 1 BAROM mb	N	36	TEMP	0
CRUISE STATION DATE ML 5 1157 20 MAR 1971 ANSP WAVES WIND BAROM a dir ht p dir speed mb	HOUR	15.7	AIR dry	•
CRUISE STATION DATH ML 5 1157 20 MAR ANSP WAVES WIND	M	1971	BAROM mb	0.0001
CRUISE STATION ML 5 1157 ; ANSP WAVES WID ANSP WAT ANSP WA	DAT	20 MAR	MD speed	0
CRUISE STATI ML 5 1157 ANSP WAVES ANSP WAVES	NO		WID dir 8	0
CRUISE S ML 5 ANSP WAVES ANSP WAVES	TAT	1157	۾	0
CRUISE ML 5 ANSP W n dir	S		AVES ht	0
CRI ML MANSP	JISE	Ŋ	W dir	0
TR	CRI	Æ	TRANSP	4

SILICA	2 11 11 17 18 35 37
AMMONIA :r	. 72 . 29 1.03 1.22 1.28 . 63
RATE NITRITE A μg-atoms/liter	05 11 30 24 24 24
CIN	6.5 14.2 14.5 28.6 29.1
PHOSPHATE	
SAT %	169 143 115 98 94 43 37
OXYGEN AOU m1/1 µg-at/1	-372 -234 -84 -84 31 326 356 410
OXYGEN m1/1	10.18 8.78 7.14 6.14 5.90 2.72 2.39 1.82
SIGMA I	25.83 26.03 26.08 26.14 26.15 26.49 26.53
SALINITY ppt	33.820* 33.821* 33.824* 33.845* 34.082* 34.119*
TEMP (11.24 10.11* 9.85* 9.48 8.58 8.58
DEPTH	0 10 20 30 45 45 90 136

Paired thermometers read 10.04 at 10 m, 9.76 at 20 m, 8.42 at 136 m, 8.16 at 159 m Salinity appears to be 0.1 ppt high * indicates questionable data:

Hydrographic Stations

ML	CRUISE 6		1101
13	April 1971	· Complete	1103
			1105
			1107
			1114
			1112
	* * *		1110
			1108
	CRUISE 7		1155
17	April 1971		1156
			1154
			1153

			•	SILICA	20 18 17
		IB		PHOSPHATE NITRATE NITRITE AΜΜΟΝΙΑ SILICA μg-atoms/liter	0000
DE	.9	VISIB	∞	RATE NITRITE A µg-atoms/liter	.02 .02
NGILD	121° 49.6'	CLOUDS typ amt	8 7	E NIT	
M LC		ATH (° c	NITRA] \mu_ug-	1.2 3.1 4.8
N LATITUDE W LONGITUDE	36° 44.7	AIR TEMP °C WEATH CLOUDS dry wet typ amt		SPHATE	.74 .84 .92
	96	IR TEMP °(11.7 10.0	PHO	
HOUR	8.1	AIR	17	SAT L %	113 113 110
ы	1970	BAROM mb	1015.6	AOU ug-at/]	-71 -66 -55
DATE	13 APR 1970	WIND .r speed	2	OXYGEN m1/1	6.75 6.71 6.60
STATION	1101	WAVES WIND dir speed	26 1 3 17 2 1015.6	SIGMA T OXYGEN AOU SAT m1/1 µg-at/1 %	25.72 25.73 25.77
	9	WAVES Lr ht	7	[X Z]	
CRUISE	M.	TRANSP V	5 2(TEMP SALINITY °C PPt	33.769 33.772 33.78
		TRA		TEMP °C	11.66* 33.769 11.60 33.772 11.44 33.781
				DEPTII m	0 5 10

* indicates questionable data: Paired thermometer read 11.60

				SILICA	15	16	17	22	37	34	40	* 49
		IB		AMMONIA r	.77	.14	44.	.77	.50	.91	.31	1.67
TUDE	48.31	JDS VISIB	7 8	RATE NITRITE A µg-atoms/liter	.18	•16	•14	•24	.38	• 38	.37	• 35
W LONGITUDE	121° 48.3'	WEATH CLOUDS typ amt	∞ .	NITRATE NITRITE AMMONIA μg-atoms/liter	7.6	8.1	7.9	13,8	26.3	26.0	26.4	28.3
N LATITUDE	36° 48.2°	TP°C WEA	10.4 1	PHOSPHATE N	.84	06.			2,35			
HOUR N	9.2 3	AIR TEMP °C dry wet	11.9 10.4	SAT PHO	111	109	109	87	43	43	39	37
		ВАКОМ mb	1015.6	OXYGEN AOU m1/1 µg-at/1	-57	-46	-46	71	323	327	347	363
DATE	13 APR 1971	WIND dir speed	4	OXYGEN m1/1	09.9	6,49	6,49	5.28	2,75	2.12	2,51	2,36
STATION	1103	<u>-</u>	12	SIGMA T	25.74	25.76	25,76	25,93	26,38	26.40	26.44	26.47
CRUISE	М. 6	ISP WAVES dir ht		SALINITY ppt	33, 792	33,793	33,785	33,829	33,948	33,962	33,979	34,000
		TRANSP	.	TEMP S				10,75				
				DEPTH m	0	5	10	20	30	20	75	100

* indicates questionable data

W LONGITUDE	121° 49.5'
N LATITUDE	36°50.9
HOUR	10.3
DATE	13 APR 1971
STATION	1105
RUISE	9
g	Ä

VISIB		7
CLOUDS	yp amt	∞
	typ	9
WEATH		2
TEMP °C	wet	10.6
AIR TE	dry	12,8
BAROM	qu	1016.3
П		10.
		0 10:
MIND	dir speed	0 0 10:
	p dir speed	0 0 10:
MIND	p dir speed	0 0 0 10:
		0 0 0 0 10:

SILICA	22 20 19
AMMONIA :r	1.24 .48 .20
TRATE NITRITE AM µg-atoms/liter	.26 .23
NITRATE µg-at	10.6 12.3 12.4
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1.32 1.17 1.19
SAT	109 102 100
AOU 1g-at/1	-47 -11 -1
OXYGEN AOU m1/1 µg-at/1	6.50 6.15 5.94
SIGMA T	25.48 25.83 25.70
SALINITY ppt	33,463 33,793 33,806
TEMP °C	11.64* 11.14 11.90
DEPTH m	0 5

* indicates questionable data: Paired thermometer read 11.72

W LONGITUDE	121° 50.3'
N LATITUDE	36° 48.7
HOUR	11.4
DATE	13 APR 1971
STATION	1107
ISE	9
CRUIS	Ä

VISIB		7
CLOUDS	typ amt	∞
Ö	ty	9
WEATH		7
TEMP °C	t)	œ
Ę	wet	12.8
E	5	15.7
AIR	dry	15
AROM	С	15.6
BAROM	ф	1015.6
	speed mb	
WIND BAROM	speed	0 0 1015.6
WIND	p dir speed	
WIND	p dir speed	
WIND	speed	

SILICA	15 11 11 13 13 13 13 13 13
AMMONIA : t	.00 .00 .00 1.62 .18
NITRITE coms/11te	002000000000000000000000000000000000000
NITRATE µg-at	7.7 9.4 14.1 19.0 23.3 27.4
PHOSPHATE NITRATE NITRITE AMMONIA µg-atoms/liter	1.17 1.18 1.51 2.00 2.27 2.30
SAT %	107 104 84 64 47 45
N AOU µg-at/1	-35 -21 86 200 301 314
OXYGEN m1/1 µ	6.39 6.29 3.18 3.99 2.85
SIGMA T	25.80 25.87 26.00 26.16 26.35 26.38
SALINITY ppt	33,802 33,798 33,810 33,874 33,931
TEMP °C	11,36* 10,92 10,26 9,58 8,68 8,58*
DEPTH	0 10 20 30 50 75

* indicates questionable data: Paired thermometers read 11.44 at 0 m, 8.38 at 75 m

W LONGITUDE	121° 52.6°
N LATITUDE	36°50,3°
HOUR	12.4
DATE	13 APR 1971
STATION	1114
CRUISE	ML 6

VISIB		7
CLOUDS	typ amt	. 9
\Box	ty	9
WEATH		7
AIR TEMP C	wet	11,1
TE	>	
AIR	dry	12.8
BAROM	qu	1015.6
WIND	speed	24 7
3	dir	24
	đ	
VES	ht	
WAVES	dir ht p	
TRANSP	Ħ	9

SILICA	15 18 22 35 51
AMMONIA:	.37 .22 .83 1.50
ITRATE NITRITE AN µg-atoms/liter	21 26 38 42 06*
MOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	9.9 14.7 21.3 25.1 1.9*
РИОЅРНАТЕ	1.04 1.43 1.82 2.31 2.12
SAT %	108 90 67 48 43
AOU g-at/1	-43 55 185 292 322
OXYGEN AOU m1/1 μg-at/1	6.45 5.51 4.18 3.07
SIGMA T	25.97 26.14 26.27 26.39
SALINITY ppt	33,797 33,813 33,848 33,953
TEMP 8	11.57 10.36 9.43 8.80 8.58*
DEPTII m	0 10 20 30 50

* indicates questionable data: Paired thermometer read 8.64
Nitrate and nitrite values appear anomalously low

CRUISE STATION DATE HOUR NIATITUDE WIONGITUDE ML 6 1112 31 APR 1971 13.4 36 47.9 121° 51.8' TRANSP WAVES WIND BAROM AIR TEMP °C WEATH CLOUDS VISIB m dir ht p dir speed mb dry wet typ amt 5 27 11 1014.6 11.8 10.7 2 6 8 7 11.58 33.788 25.75 6.66 -62 112 .71 4.6 .02 .37 13 10.24 33.816 26.01 5.47 60 89 1.30 12.9 .04 .39 36 10.24 33.816 26.01 5.47 60 89 1.30 12.9 .04 .39 36 10.24 33.816 26.03 3.79 223 60 2.00 22.4 .11 .99 36 8.90 33.901 26.29 3.35 266 53 11.50* 25.3 .05 .71 15* 8.842 33.973 26.43 2.62 337 41 2.11 29.6 .05 .77 29 8.842 33.973 26.43 2.62 337 41 2.11 29.6 .05 .77 29 8.94 34.039 26.45 34.4 38 2.66 29 0.03 58 18*					SILICA	13	14	36	15*	53	29	33	18*	51
TRANSP WAVES WIND BAROM AIR T and dir ht p dir speed mb dry TEMP SALINITY SIGMA T OXYGEN AOU SAT C ppt ml/l µg-at/l % 11.58 33.788 25.75 6.66 -62 112 10.24 33.816 26.01 5.47 60 89 9.15 33.865 26.23 3.79 223 60 8.90 33.901 26.29 3.35 266 53 8.42 33.973 26.43 2.62 337 41 8.30 33.993 26.46 2.45 354 38 7.96 34.039 26.45 354 38			<u>8</u>		AMMONIA F	.37	• 39	66.	.71	88	.77	• 39	• 58	•51
TRANSP WAVES WIND BAROM AIR T and dir ht p dir speed mb dry TEMP SALINITY SIGMA T OXYGEN AOU SAT C ppt ml/l µg-at/l % 11.58 33.788 25.75 6.66 -62 112 10.24 33.816 26.01 5.47 60 89 9.15 33.865 26.23 3.79 223 60 8.90 33.901 26.29 3.35 266 53 8.42 33.973 26.43 2.62 337 41 8.30 33.993 26.46 2.45 354 38 7.96 34.039 26.45 354 38	TUDE	1.8		8 7	ITRITE / ms/lite:	•02	•04	.11	•05	•07	•05	•08	•03	90•
TRANSP WAVES WIND BAROM AIR T and dir ht p dir speed mb dry TEMP SALINITY SIGMA T OXYGEN AOU SAT C ppt ml/l µg-at/l % 11.58 33.788 25.75 6.66 -62 112 10.24 33.816 26.01 5.47 60 89 9.15 33.865 26.23 3.79 223 60 8.90 33.901 26.29 3.35 266 53 8.42 33.973 26.43 2.62 337 41 8.30 33.993 26.46 2.45 354 38 7.96 34.039 26.45 354 38	W LONGI	121°5	-		TRATE N. µg-ator	4. 6	2.9	2.4	5.3	7.9	9.6	9.1	6.6	1.3
TRANSP WAVES WIND BAROM AIR T and dir ht p dir speed mb dry TEMP SALINITY SIGMA T OXYGEN AOU SAT C ppt ml/l µg-at/l % 11.58 33.788 25.75 6.66 -62 112 10.24 33.816 26.01 5.47 60 89 9.15 33.865 26.23 3.79 223 60 8.90 33.901 26.29 3.35 266 53 8.42 33.973 26.43 2.62 337 41 8.30 33.993 26.46 2.45 354 38 7.96 34.039 26.45 354 38		.6•	WEAT	2	ITE NI									
TRANSP WAVES WIND BAROM TRANSP WAVES WIND BAROM A dir ht p dir speed mb 5 27 11 1014.6 C ppt m1/1 µg-at/1 11.58 33.788 25.75 6.66 -62 1 10.24 33.816 26.01 5.47 60 9.15 33.865 26.23 3.79 223 8.90 33.901 26.29 3.35 266 8.42 33.973 26.46 2.45 354 8.30 33.993 26.46 2.45 354 7.96 34.039 26.46 2.45 354	N LATIT	36° 47	EMP °C	3 10.7	РНОЅРН	.71	1,30	2,00	1,50	2.12	2,11	2,26	2.06	2,61
CRUISE STATION ML 6 1112 3 TRANSP WAVES WIN m dir ht p dir s 5 27 5 27 11.58 33.788 25.75 10.24 33.816 26.01 9.15 33.865 26.23 8.90 33.901 26.29 (8.57 33.962 26.39 8.42 33.973 26.43 8.30 33.993 26.46 7.96 34.039	HOUR	13.4	AIR 1 dry	11.8		112	88	09	53	48	41	38	31	28
CRUISE STATION ML 6 1112 3 TRANSP WAVES WIN m dir ht p dir s 5 27 5 27 11.58 33.788 25.75 10.24 33.816 26.01 9.15 33.865 26.23 8.90 33.901 26.29 (8.57 33.962 26.39 8.42 33.973 26.43 8.30 33.993 26.46 7.96 34.039		1971	BAROM mb	.014.6	AOU 1g-at/1	- 62	09	223	566	293	337	354	396	415
CRUISE STATI ML 6 1112 TRANSP WAVES m dir ht p 5 5 11.58 33.788 25.7 10.24 33.816 26.0 9.15 33.865 26.2 8.90 33.901 26.2 8.90 33.993 26.4 8.30 33.993 26.4 8.30 33.993 26.4	DATE	31 APR	Speed		OXYGEN m1/1 µ	99*9	5.47	3,79	3,35	3.09	2.62	2,45	2.02	1,84
CRUIS ML ML ML At m di 5 5 C ppt 11.58 33.78 10.24 33.81 10.24 33.81 8.90 33.99 8.42 33.99 8.42 33.99	STATION	1112	<u>α</u>	27		25.75	26.01	26.23	26.29	26.39	26.43	26.46	26.55	26.60
TRA TEMP °C 11.58 10.24 9.15 8.90 8.90 8.42	CRUISE		i		ALINITY ppt	33,788	33,816	33,865	33,901	33,962	33,973	33,993	34.039	34.066
			TRAN	5										
DEPTH m 0 10 20 30 75					DEРТН m	0	10	20	30	20	75	100	150	200

Paired thermometer read 7.80 Phosphate and silica appear anomalously low * indicates questionable data:

ы	•	VISIB	7
GITUD	51.7	COUDS	∞
LOI	121	£ 3	9
HOUR N LATITUDE W LONGITUDE	ω	AIR TEMP °C WEATH CLOUDS 'dry wet typ amt	2
ATIT	• 45	°C C	8
N	36	TENT	2 1
HOUR	14.4		12.
Fe?	13 APR 1971 14.4 36° 45.8' 121° 51.7'	FRANSP WAVES WIND BAROM m dir ht p dir speed mb	5 23 2 2 29 6 1013.5 12.2 10.8 2 6 8 7
DATE	APR	ed	
	13	Spe	9
ION	C	Wl dir	29
TAT	111	D	2
S		VES ht	7
CRUISE STATION	ML 6 1110	WA	23
CRI	M	TRANSP	5

SILICA	16 24 54* 35
AMMONIA er	.00 .59 .62
ITRATE NITRITE AN µg-atoms/liter	.20 .06 .12
NITRATE µg-a	10.0 16.0 28.5 26.3
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1.14 1.37 2.00 2.11
SAT %	111 79 56 50
AOU 1g-at/1	-59 113 246 283
OXYGEN AOU m1/1 µg-at/1	6.67 4.91 3.55 3.17
SIGMA T	25.81 26.05 26.25 26.33
SALINITY ppt	33.799 33.809 33.878 33.922
remp °C	11.29* 9.96 9.04 8.78
DEРТН m	0 10 20 30

* indicates questionable data: Paired thermometer read 11.36 Silica appears anomalously high

				SILICA	16	C7		32	32	36	40
		IB		AMMONIA r	.15	1.21		· 80	• 54	• 38	
ITUDE	50.31	UDS VISIB amt	8 7	RATE NITRITE ΑΙ μg-atoms/liter	•20	• 40		•43	.37	• 34	• 32
M LONG	121° 50.3°	ATH CLOUDS typ amt	1 6	NITRATE µg-at	10.0	57.9		26.3	27.9	27.5	29.8
N LATITUDE W LONGITUDE	36° 47.4'	AIR TEMP °C WEATH dry wet	12,8 11,4	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1,13	1,95		2,33	2,38	2,50	2.49
HOUR	15.3	AIR TI dry	12.	SAT	108	51		40	37	34	31
田		BAROM mb	1013.9	OXYGEN AOU SAT ml/l µg-at/l %	- 43	278		343	364	381	396
DATE	13 APR 1971	WIND dir speed	20 4	OXYGEN m1/1	6.52	3,22		2,56	2,36	2,18	2.02
STATION	1108	Q	20 1 2 20	SIGMA T	25.85	26.20 26.31	26,39	26.42	26.49	26.53	26.55
CRUISE	ML 6	NSP WAVES dir ht	5 20	*C ppt	33, 798	33,857 33,908	33,959	33,968	34,009	34,033	34.046
		TRANSP m	-,	TEMP S	11,08	9.29* 8.82	8.58	8,40	8,16	8.02	7.96
				DEPTH m	Н;	11 21	31	20	100	150	200

* indicates questionable data: Paired thermometer read 9.19

W LONGITUDE	121° 50.9
N LATITUDE	36° 50.2°
HOUR	10.0
DATE	17 APR 1971
STATION	1155
ISE	7
CRUISI	Ä

VISIB		
CLOUDS	typ amt	٠
WEATH		
၁	Į,	
TEMP °C	wet	
AIR T	dry	
AI	P	
BAROM	P	
MIND	dir speed	
	Ф	ľ
WAVES	ht	7
WA	dir ht	25
TRANSP	Ħ	ıc

PHOSPHATE NITRATE NITRITE AMMONIA SILICA 20 20 20 20 20 .00 pg-atoms/liter .16 .15 .24 .38 11.0 9.8 12.5 21.1 1.10 1.12 1.54 2.11 102 103 96 59 SAT % $m1/1 \mu g-at/1$ OXYGEN AOU -10 -14 24 229 6.14 6.20 5.79 3.68 SIGMA T 25.84 25.85 25.88 26.19 11.11* 33.796 11.04 33.791 10.87 33.798 9.45* 33.883 SALINITY ppt TEMP °C DEPTH 0 10 19 29

* indicates questionable data: Paired thermometers read 11.05 at 0 m, 9.37 at 29 m

W LONGITUDE	121° 54.9'
N LATITUDE	36° 52.7
HOUR	11,1
DATE	17 APR 1971
STATION	1156
ISE	7
CRUISE	¥

AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt BAROM mb WIND dir speed WAVES dir ht p TRANSP

SILICA	17 22 16 22
MMONIA.	.16 .00 .00
PHOSPHATE NITRITE AMMONIA SILICA μg-atoms/liter	.13 .11 .10
: NITRATE µg-at	6.9 6.7 9.4 17.8
РНОЅРНАТЕ	.86 .80 .94 1.66
SAT %	113 111 106 78
AOU g-at/1	-67 -56 -32 124
OXYGEN AOU SAT ml/1 µg-at/1 %	6.78 6.66 6.40 4.79
SIGMA I	25.83 25.82 25.85 26.06
SALINITY ppt	33,786 33,780 33,780
TEMP °C	11.14 11.13 11.00 10.00*
DEPTH m	0 9 18 28

* indicates questionable data: Paired thermometer read 10.06

W LONGITUDE	121° 53.8'
N LATITUDE	36 55,31
HOUR	11.8
DATE	17 APR 1971
STATION	1154
RUISE	7
CRI	Ä

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

SILICA	14
AMMONIA C	.61 .19
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.07
NITRATE μg-at	1,3 3,1
PHOSPHATE	. 52
SAT %	78 120
XYGEN AOU SAI m1/1 μ g-at/1 %	116 -106
0	4.62* 116 7.15 -106
SIGMA T	25.64 25.71
SALINITY ppt	33 . 735 33 . 757
TEMP °C	11.94
DEРТН m	ო დ

* indicates questionable data: Oxygen appears anomalously low

W LONGITUDE	122 00.4
N LATITUDE	36° 56.6°
HOUR	13.1
DATE	17 APR 1971
STATION	1153
ISE	7
CRUISI	첫

AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt BAROM mb WIND dir speed WAVES dir ht p TRANSP

E

SILICA	30 47* 29
AMMONIA r	1.98 2.06 1.73
TRATE NITRITE AM µg-atoms/liter	.45 .46 .46
MOSPHATE NITRATE NITRITE AMMONIA μg-atoms/liter	18.3 20.4 18.9
PIIOSPHATE	1.98 1.93 1.90
SAT	73 69 60
OXYGEN AOU m1/1 µg-at/1	151 174 222
OXYGEN m1/1 µ	4.47 4.24 3.75
SIGMA I	26.03 26.07 26.16
SALINITY ppt	33.818 33.830 33.860
TEMP °C	10.10 9.92 9.52
DEPTH	0 5

* indicates questionable data: Silica appears anomalously high

Hydrographic Stations

ML CRUISE 8	1101	
11 May 1971	1103	
·	1105	
	1107	
	1114	
	1112	
	1110	
	1108	
ML CRUISE 9		
15 May 1971	1103	
	1155	
	1156	
	1154	
	1153	
	1152	

				SILIC	31 28 28
		I.B		PHOSPHATE NITRATE NITRITE AMMONIA SILIC, μg-atoms/liter	.54 .70 1.28
闰	•	VISIB	9	IITE /	02
GITUL	49.7	CLOUDS typ amt	œ	RATE NITRITE Al μg-atoms/liter	• • •
Z LON	121°	H CL typ	7	rrate μg-a	1.4 1.8 8.0
DE 1	. 7	WEATI	77	E NI	
I LATITU	36°45.	AIR TEMP °C WEATH CLOUDS dry wet typ amt	10,3 10,0 44 7 8	HOSPHAT	.92 .92 1.30
HOUR N LATITUDE W LONGITUDE	11 MAY 1971 7.5 36° 45.4° 121° 49.7°	AIR TE dry	10.3		127 127 110
DATE	1971	BAROM mb	1016.3	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt nl/1 µg-at/1 %	-144 -143 -52
	11 MAY	WAVES WIND dir ht p dir speed	26 1 3 25 6 1016.3	OXYGEN m1/1	7.56 -144 7.54 -143 6.64 -52
NOI	1	W	25	IA T	66 66 82
STAT	8 1101	ES t p	1 3	SIGN	25.66 25.66 25.82
CRUISE STATION	œ	WAVES dir ht	26	NITY pt	725 729 721
CRU	M	TRANSP m	7	SALI	8 8 8
		TI.			11.80 11.81 10.91
				SPTH m	0 5

W LONGITUDE	121° 48.2°
N LATITUDE	36° 49.21
HOUR	8.7
DATE	11 MAY 1971
STATION	1103
RUISE	ML 8
CRU	Ä

VISIB		9
CLOUDS	typ amt	7 8
당	typ	7
WEATH		44
TEMP °C	wet	10.0
AIR TE	dry	10.6
BAROM	ф	1015.9
MIND	speed	9
3	dir	21
	ď	7
WAVES	ht	26 2 2
W	dir ht	26
TRANSP	E	4

SILICA	22 23 33 33 37	
AMMONIA r	1.42 1.36 1.54 1.06 1.01 1.33	2
NITRITE /	000000000000000000000000000000000000000	6
NITRATE 1 μg-ato	14.6 16.9 30.0 26.0 28.6 29.3	7
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1.55 1.66 2.03 2.27 2.44 2.34	2,57
SAT %	100 93 79 50 47 45 39	33
AOÙ g-at/1	-2 35 117 283 298 315 349	380
OXYGEN AOU m1/1 µg-at/1	6.08 5.57 4.84 3.17 3.00 2.84	2,09
SIGMA T	25.82 25.73 25.98 26.30 26.35 26.42	26.50
SALINITY ppt	33,734 33,761 33,767 33,891 33,921 33,953	33,999
TEMP C	10.93 11.58 10.20 8.83 8.83 8.63 8.63	8,03
DEPTH m	0 5 10 20 30 50 50	9

W LONGITUDE	121° 49.51
N LATITUDE	36° 50.91
HOUR	9.7
DATE	11 MAY 1971
STATION	1105
ISE	8
CRUISE	Ä

VISIB		9
CLOUDS	typ amt	∞
CL	typ	7
WEATH		44
TEMP °C	wet	10,3
AIR TEN	dry	10.6
A1	.0	
BAROM	qu	1016.3
WIND	pəəds	က
M	dir	21
	ď	3
WAVES	lir ht	27 1 3
WA	dir	27
TRANSP	E	9

SILICA	13		23	
AMMONIA :r		2,31	.83	• 56
TRATE NITRITE AM µg-atoms/liter		•03	•03	•04
NITRATE PROBLEMENT PRO		22.0*	13.9	15.4
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter		1.94*	1,30	1,38
SAT		110	104	103
AOU		-51	- 20	-17
OXYGEN AOU m1/1 µg-at/1		6.53	6.24	6.23
SIGMA T		25.56	25.75	25.79
SALINITY PPt		33,573	33,718	33,724
TEMP °C		11,70	11,28	11,06
DEPTH		0	5	10

* indicates questionable data: Phosphate appears anomalously high

W LONGITUDE	121° 50.2°
N LATITUDE	36° 49.0
HOUR	10.5
DATE	11 MAY 1971
STATION	1107
CRUISE	ML 8

VISIB		9
CLOUDS	typ amt	7 8
WEATH	ם	20
TEMP °C	wet	10.6
AIR TF	dry	11,1
BAROM	qu	1016.3
WIND	dir speed	0
WAVES	dir ht p	26 0 2
٥.	dir h	3 26 (
TRANSI	Ħ	

SILICA	27 24 19 16 29 31
AMMONIA r	.23 .55 .57 .97 1.11
NITRITE oms/11te	. 24 . 23 . 33 . 33 . 31
PHOSPHATE NITRITE AMMONIA μg-atoms/liter	13.0 16.1 25.3 25.9 27.0
PIIOSPHATE	1.13 1.25 1.43 1.99 2.17 2.35
SAT %	118 110 103 70 60 47
AOU g-at/1	-95 -14 -14 169 301 324
OXYGEN AOU m1/1 µg-at/1	6.99 6.59 6.21 4.35 3.77 2.98
SIGMA T	25.66 25.77 25.82 26.12 26.33 26.33
SALINITY ppt	33,754 33,761 33,743 33,811 33,811
TEMP °C	11.93 11.32 10.98 9.54 9.16 8.70 8.70
DEPTH m	0 10 20 30 50 74 74

CRUISE STATION DATE HOUR N LATITUDE W LONGITUDE ML 8 1114 11 MAY 1971 11.4 36° 50.5' 121° 52.3'

VISIB		9
CLOUDS	typ amt	· co
덩	typ	7
WEATH		77
TEMP °C	wet	10.6
AIR TE	dry wet	11.1
BAROM	qm	1016.3
WIND	dir speed	27 5
W	dir	
	Д	28 0 2
VES	ht	0
WAVES	dir	28
RANSP	日	7

SILICA	22	11	11	19	15
	.25	• 32	• 20	•75	.67
NITRATE NITRITE AMMONIA µg-atoms/liter	•04	•04	•08	•12	•12
NITRATE µg-at	13.0	17.6	25.5	28.7	35.4
PHOSPHATE	1,20	1,14	1,76	1,81	2.05
SAT	119	108	75	65	54
AOU g-at/1	86-	-40	139	193	261
OXYGEN AOU m1/1 µg-at/1	7.07	6,49	4.68	4.11	3,41
SIGMA T	25.67	25.78	26.07	26.17	26.29
SALINITY ppt	33,698	33,710	33,760	33,818	33,887
TEMP • C	11,61	11,06	09.6	9.28	8.89
DEPTH	, o	10	20	30	20

				SILICA	13	13	27	31	33	34	34	37	40
		13		AMMONIA r	98*	1,54	1.06	•84	• 54	•25	•29	•37	•33
TUDE	52.01	IDS VISIB	. 80	RATE NITRITE A µg-atoms/liter	.23	• 26	•40	•27	•31	• 33	•32	•31	•24
W LONGITUDE	121° 52.0'	TH CLOUDS	7	ITRATE Ν μg-atc	15.1	15.0	25.6	30.1	32.6	33,1	33.0	29.7	26.5
N LATITUDE	36° 47.9°	TP °C WEATH wet	.1.1 42	PHOSPHATE NITRITE AMMONIA SILICA μg-atoms/liter									2.21
HOUR N I	12.5 36	AIR TEMP °C dry wet	11.9 11.1	SAT PHC	111	104	29	53	48	47	46	39	35
		BAROM mb	1016.3					265					
DATE	11 MAY 1971	WIND dir speed	m	OXYGEN AOU ml/l μg-at/l	6.64	6.27	4.20	3,36	3.07	2.96	2.90	2,52	2.22
STATION	1112	ď	1 3 27	SIGMA T	25.76	25.86	26.16	26.25	26.34	26,35	26.37	26.41	26.47
CRUISE	ML 8	ISP WAVES dir ht	25 1 3	SALINITY ppt	33,790	33,820	33,814	33,849	33,913	33,930	33,944	33,962	33,982
		TRANSP	7	TEMP S	11,52	11,10	9.30	8.90	8,70	8.72*	8.61	8.44	8.20
				DEPTH m	0	10	70	30	20	74	66	148	198

* indicates questionable data

W LONGITUDE	121° 51.9°
N LATITUDE	36° 45.5
HOUR	13.6
DATE	11 MAY 1971 13.6
STATION	1110
RUISE	æ
CRU	뉡

VISIB		7
SON	typ amt	8
CLOUDS	typ	7
WEATH		2 7 8
AIR TEMP 'C WEATH	wet	10.6
AIR TE	dry wet	11,1
BAROM	d	1016.3
MIND	speed	9
3	dir	28 1 3 25 6
	Ф	က
VES	ht	1
WAVES	dir ht p	28
TRANSP	E	7

SILICA	31	27	17	32	37
MMONIA.	69•	1,25	• 58	.47	77.
ITRATE NITRITE A μg-atoms/liter	.03	60 •	•04	.13	• 20
NITRATE NITRITE AMMONIA µg-atoms/liter	12.9	17.7	25.4	25.8	26.9
PHOSPHATE	1.23	1,55	1,99	2.22	2,48
SAT %	116	94	28	53	47
AOU 5-at/1	-85	32	235	797	303
OXYGEN AOU m1/1 µg-at/1	6.87	5.78	3.67	3,37	2.97
SIGM I	25,71	26.02	26.20	26.25	26,34
SALINITY ppt	33,828	33,827	33,818	33.846	33,916
TEMP :	11.96	10,22	9006	8.94	8,68
DEPTH m	0	10	20	8	20

				SILICA	12	11	14	15	16	16	39	45
		IB		AMMONIA F	64.	1,16	1,03	1,22	1,22	• 59	• 62	•71
TUDE	9.8	DS VISIB	8 7	RATE NIȚRITE A µg-atoms/liter	90•	90•	* 0	.17	.13	.11	•14	•15
W LONGITUDE	121° 49.8°	WFATH CLOUDS typ amt	7	NITRATE NIȚRITE AMMONIA SILICA µg-atoms/liter	8•4.	.4.3	3.2	34.3	3.8	37.1	9.8	30.7
N LATITUDE	36° 47.5°	C WEAT	8 2	PHOSPHATE NI				2.55 3				
N LAT	36°	AIR TEMP °C dry wet	11.7 10.8	PHOSP	1.	1.	1	2.	ij	į.	2.	2.
HOUR	14.6			SAT	121	84	29	67	24	40	40	
E	11 MAY 1971	BAROM mb	1015.9	OXYGEN AOU m1/1 µg-at/1	-109			183				
DATE	11 MA	WIND dir speed	∞	OXYGEI m1/1	7,15	5.20	3,72	4.22	3,42	2,55	2,57	
STATION	1108	c.	28 1 3 24	SIGMA T	25.68	26.03	26.23	26.16	26.27	26.29	26.39	26.42
CRUISE	ML 3		28	SALINITY ppt	•	•	•	33,815	•	•	•	•
o	Σ	TRANSP	7	TEMP SA				9,33				
				DEРТН m	0	10	20	30	20*	70	120	169

* indicates questionable data: Depth uncertain
Phosphate appears anomalously low

W LONGITUDE	1210 48.41
N LATITUDE	36° 48,11
HOUR	9,6
DATE	15 MAY 1971
STATION	1103
CRUISE	6
CR	MI

VISIB		7
CLOUDS	typ amt	α
WEATH	•	77
TEMP °C	dry wet	13.9 13.3
AIR TI	dry	13.9
BAROM	윹	26 1 2 26 5 1016.9
WIND	dir speed	ľ
M	dir	26
	d	c
VES	ht	-
WAVES	dir ht p	96
TRANSP	E	σ

PHOSPHATE NITRATE NITRITE AMMONIA SILICA	μg-atoms/liter
SAT	K
	ml/l µg-at/l
$^{\circ}$	m1/1 m
SIGMA T	
SALINITY	ppt
TEMP	၁
DEPTH	E

4.75 4.09	3.60 3.49 3.41	3.12 2.90 2.70 2.68	2.51 2.42 2.29 2.29
33,255 33,814	33.838 33.845 33.860	33.881 33.904 33.925 33.936	33.950 33.961 33.975 33.975
Omr	7 7 7 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	25 30 30 40	50 65 90 100

W LONGITUDE	121° 50.6'
N LATITUDE	36° 50.4"
HOUR	10.8
DATE	15 MAY 1971
STATION	1155
ISE	6
CRUISE	M

VISIB		9
SOLIC	yp amt	
CLOUDS	typ	0
WEATH		2
AIR TEMP °C	wet	12,2
AIR TE	dry	13,3
BAROM	qu	1017.6
	peeds	4 1017.6
WIND BAROM	dir speed mb	26 4 1017.6
MIND	peeds	26 4 1017.6
	peeds	26 4 1017,6
MIND	p dir speed	4 26 4 1017.6

SILICA	15 . 25 . 28 . 34
AMMONIA :r	.00 .43 .61
NITRITE coms/lite	.12 .38 .39
NITRATE µg-at	1.2 12.1 17.8 27.3
PHOSPHATE NITRATE NITRITE AMMONIA μg-atoms/liter	.56 1.59 1.81 2.49
SAT %	142 111 90 57
AOU 1g-at/1	-217 -59 54 242
OXYGEN AOU m1/1 µg-at/1	8.27 6.69 5.48 3.58
SIGMA T	25.49 25.81 25.91 26.22
SALINITY ppt	33,711 33,775 33,781 33,855
TEMP C	12.61 11.16* 10.63 9.16
DEPTH m	0 20 30

* indicates questionable data: Paired thermometer read 11.31

W LONGITUDE	121° 55.4'
N LATITUDE	36° 52.9
HOUR	11.8
DATE	15 MAY 1971
STATION	1156
SE	6
CRUISE	Ä

VISIB		9
COUDS	typ amt	1
ົວ	ty	5 0
WEATH		2
MP °C	wet	12.8 12.2
AIR TEMP °C WEATH CLOUDS	dry wet	12.8
BAROM	qu	1017.9
QN.		
MIND	dir speed	
	dir speed	
	dir speed	
		23 1 2 24 7 10

SILICA	24	27	34	28
AMMONIA r	• 34	99•	1,50	1.74
NIȚRITE toms/lite	.37	.42	• 39	• 38
: NITRATE µg-at	13.5	16.8	22.7	25.4
PHOSPHATE NITRATE NITRITE AMMONIA : µg-atoms/liter	1,42	1.64	2,10	2.18
SAT	110	86	70	61
AOU 1g-at/1	- 51	11	162	221
OXYGEN AOU m1/1 µg-at/1	95.9	5.92	4.15	3,80
SIGMA T	25.77	25.85	25.77	26.17
SALINITY ppt	33,774	33,779	33,822	33,825
rem. °c	11.40	11,00*	11,58	9.28
DEPTH m	0	10	70	30

* indicates questionable data: Paired thermometer read 10.84 at 10 meters

ក	•	VISIB
HOUR N LATITUDE W LONGITUDE	36° 55.3° 121° 52.9°	AIR TEMP °C WEATH CLOUDS dry wet typ amt
UDEW	.31	WEATH
TIL	55,	° L
N	36°	TEMP
HOUR	12,6	
	1971	BAROM mb
DATE	15 MAY 1971 12.6	TRANSP WAVES WIND m dir ht p dir speed
STATION	75	W
STAI	11	S U
CRUISE	и. 9 1154	WAVE dfr ht
CRU	Ħ	TRANSP

0

~

12.8

13.9

1017.6

က

10

0

SILICA	12 18 20
AMMONIA c	1,35 ,20 1,14
NIRITE /	.08 .18
NITRATE N µg-ato	3.3 8.4
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.51 .69 .93
SAT %	147 141 118
AOU 1g-at/1	-250 -216 -97
OXYGEN AOU ml/l µg-at/l	8.75 8.32 7.05
SIGMA T	25.67 25.63 25.72
SALINITY ppt	33 . 727 33 . 760 33 . 770
TEMP (11.74 12.10* 11.66
DEРТН m	0 5 10

* indicates questionable data

W LONGITUDE	122 00.5
N LATITUDE	36° 56.7'
HOUR	13,7
DATE	15 MAY 1971
STATION	1153
CRUISE	ML 9

VISIB		
CLOUDS	typ amt	
WEATH		
AIR TEMP °C WEATH	wet	15.5 13.4
AIR T	dry	7, 5
BAROM	qu	1017,6
WIND	dir speed	76 7 7 8 3
	۵	c
VES	ht	c
WA	dir ht p	26
TRANSP	E	~

SILICA	12 34 25
AMMONIA r	.87 .90 2.21
NITRATE NITRITE AM μg-atoms/liter	.05
NITRATE 1 µg-ato	1.2 7.4 9.9
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.37 1.06 1.22
SAT %	165 113 107
AOU g-at/1	-331 -71 -36
OXYGEN AOU m1/1 µg-at/1	9.43 6.77 6.39
SIGMA T	25.32 25.72 25.74
SALINITY ppt	33 . 743 33 . 752 33 . 752
TEMP .	13.61 11.57* 11.46
DEРТН m	0 2

* indicates questionable data: Paired thermometer read 11.45

ы	_	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	7
ITUDI	8.00	OUDS amt	-
LONG	122°	CLC	0
HOUR N LATITUDE W LONGITUDE	.9•	WEATH	2
ATIT	;° 54	o °C	12.8
Z	36	TEM	6
HOUR	14.2		13,
r+1	1971	BAROM mb	1017,3
DATE	ML 9 1152 15 MAY 1971 14.2 36° 54.6° 122° 00.8°	TRANSP WAVES WIND BAROM m dir ht p dir speed mb	5 27 3 2 27 11 1017,3 13,9 12,8 2 0 1
LON	61	WI dir	27
TAT	1152	ρ.	7
O2		AVES ht	က
CRUISE STATION	6	W. dir	27
CRI	M	TRANSP	Ŋ

SILICA	22 23 30 38
MMONIA	.48 .84 .66 1.90
IITRITE A ms/liter	.28 .31 .46
PHOSPHATE NITRATE NITRITE AMMONIA μg-atoms/liter	10.6 11.6 22.5 24.1
РНОЅРНАТЕ	.98 1.28 2.09 2.32
SAT 1 %	60 100 65 55
AOU ;-at/1	214 -2 193 252
OXYGEN AOU ml/1 µg-at/1	3.59* 6.12 4.09 3.47
SIGMA T	25.77 25.93 26.14 26.21
SALINITY ppt	33,778 33,786 33,818 33,850
TEMP °C	11.42 10.58* 9.48 9.18
DEPTH m	0 9 17 26

* indicates questionable data: Paired thermometer read 10.69

Oxygen appears anomalously low

W LONGITUDE	121° 48.2°
N LATITUDE	36° 48.1
HOUR	10.0
DATE	18 JUN 1971
STATION	1103
CRUISE	ML 10

S

SILICA	∞	3	14	37	32	34	36	43
AMMONIA r	00•	8.	62.	2,55	2.26	2.27	1,73	2.78
ΓRATE NITRITE ΑΝ μg-atoms/liter	•02	•02	.27	• 38	• 36	• 35	• 34	• 35
NI	0.	٣.	13.6	24.6	24.8	25.8	26.8	26.2
PHOSPHATE	.41	.61	1,65	2,58	2,67	2.90	3.06	3,73*
SAT %	144	160	82	52	64	45	42	37
A AOU μg-at/1	-221	-307	96	566	289	307	328	355
OXYGEN m1/1 µ	8.09	9.23	4.97	3,29	3.05	2,85	2,65	2,36
SIGMA T	25.23	25.57	25.96	26.24	26.27	26.28	26,32	26.35
SALINITY ppt	33,880	33,909	33,905	33,908	33,927	33,934	33,940	33,955
TEMP °C	14,53	13,00	10,90	9,30	9.16	9.14	8.92	8.80
DEPTH m	0	5	10	20	30	20	75	100

* indicates questionable data: Phosphate appears anomalously high

W LONGITUDE	121° 49.6
N LATITUDE	36° 50.8
HOUR	11.4
DATE	18 JUN 1971
STATION	1105
RUISE	10
CRU	M

u

SILICA	3 3 16
MMONIA	.29 .00 .67
ITRATE NITRITE AM μg-atoms/liter	.02 .01
NITRATE Ν μg-atc	2.3 1.2 13.9
PHOSPHATE NITRATE NITRITE AMMONIA SILICA $\mu_{B-atoms}/11ter$.59 .90 2.03
SAT %	159 162 87
AOU g-at/1	-293 -317 68
OXYGEN AOU SAT m1/1 µg-at/1 %	8.86 9.28 5.27
SIGMA T	25.20 25.47 25.95
SALINITY ppt	33.914 33.919 33.917
TEMP °C	14.77 13.51 11.00
DEPTH m	0 2

LONGITUDE	. 50.3
M LC	121
N LATITUDE	36° 49.1
HOUR	12.7
DATE	18 JUN 1971
STATION	1107
RUISE	ML 10
క్ర	Ä

AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt BAROM mb WIND dir speed TRANSP WAVES m dirht p

SILICA	27 31 33 36 41	
AMMONIA r	.00 1.71 .63 .67 .48	•
TRATE NIȚRITE AN µg-atoms/liter	. 43 . 46 . 37 . 37 . 39	
IN	21.5 21.5 25.8 25.9 26.5 28.3	•
РНОЅРНАТЕ	2.12 2.27 2.29 2.35 2.44 2.44	: •
SAT %	174 64 55 49 42 41	,
OXYGEN AOU ml/l μg-at/l	-374 202 254 288 329 334 346	:
OXYGEN m1/1 µ	9.84 3.96 3.44 3.10 2.65 2.60	•
SIGMA T	25.36 26.18 26.26 26.31 26.34 26.35	
SALINITY ppt	33.934 33.913 33.921 33.926 33.955 33.957	
TEMP °C	14.12 9.64 9.19 8.94 8.86 8.80 8.71	
DEPTH m	10 20 30 49 73	,

121° 52.7'
36 50,5
15.4
18 JUN 1971
1114
10
M

SILICA	4 20 30 31 35
AMMONIA	.08 1.35 1.15 .65
IITRITE ∤ ms/liter	. 12 . 31 . 44 . 41
PHOSPHATE NITRATE NITRITE AMMONIA μg-atoms/liter	3.0 17.7 24.5 25.3
PHOSPHATE	2.37 2.50 3.06
SAT %	152 82 54 49 43
AOU g-at/1	-268 95 257 289 324
OXYGEN AOU ml/1 µg-at/1	8.86 5.04 3.40 3.03
SIGMA T	25.68 26.06 26.26 26.34 26.37
SALINITY ppt	33,915 33,923 33,928 33,973
TEMP :	12.46 10.44 9.26 8.97 8.83
DEPTH m	10 20 30 50

W LONGITUDE	121° 52.2'
N LATITUDE	36° 48.01
HOUR	16.8
DATE	18 JUN 1971
STATION	1112
CRUISE	ML 10

VISIB		
CLOUDS	typ amt	
WEATH		
TEM °C	wet	
AIR I	dry	
BAROM	qu	
MIND	dir speed	
	p di	
WAVES	dir ht	
TRANSP	E	

SILICA	יט	9	22	30	32	77	36	39
AMMONIA r	.31	• 08	1,16	•31	• 30	• 64	.67	8
NITRITE oms/lite	•19	•19	7 7.	• 20	64.	77.	•43	• 40
NITRATE NITRITE AMMONIA S pg-atoms/liter	2.7	5.9	23,3	26.5	27.7	27.9	35.7*	28.6
PIIOSPHATE	•55	.77	2,35	2,35	2,45	2,43	2.44	2,55
SAT %	147	133	22	20	53	44	77	36
AOU g-at/1	-247	- 176	546	284	268	315	319	363
OXYGEN AOU m1/1 µg-at/1	8.62	7.94	3,47	3,14	3,33	2.81	2.78	2,31
SIGMA T	25.72	25.38	26.28	26,33	26,36	26,39	26,41	26.45
SALINITY ppt	33,959	33,956	33,971	33,956	33,971	34,008	34,015	34,033
TEMP °C	12.44	11.57	9.34	8.94	8,81*	8,80	8.72	8.56
DEPTH	0	6	19	28	40	80	125	173

* indicates questionable data: Paired thermometer read 8.92 Nitrate appears anomalously high

W LONGITUDE	121° 52.0°
N LATITUDE	36° 45.6°
HOUR	18.2
DATE	18 JUN 1971
STATION	1110
CRUISE	ML 10
S S	M

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SILICA	4 8 27 31 35
AMMON I.A F	.15 .31 .88 .98
IITRATE NITRITE AN μg-atoms/liter	.09 .27 .35 .36
NITRATE µg-at	23.4 23.4 25.1 27.0
PHOSPHATE NITRATE NITRITE AMMONIA µg-atoms/liter	. 71. 1.81 2.44 2.66
SAT	161 84 65 55 48
AOU g-at/1	-316 85 197 255 293
OXYGEN AOU m1/1 µg-at/1	9.39 5.18 4.05 3.44
SIGMA T	25.71 26.12 26.26 26.32 26.33
SALINITY ppt	33.957 33.965 33.964 33.979 33.979
TEMP °C	12.48 10.26 9.41 9.12 8.82
DEPTH m	0 10 20 29 49

121° 50.0'
36° 47.4
19,3
18 JUN 1971
1108
ML 10

SILICA	2	24	30	32	34	34	37
AMMONIA r	00.	1,76	3,92	• 68	• 38	.11	86.
NITRITE oms/lite	•04	.41	•42	.41	• 39	•37	.40
PHOSPHATE NITRATE NITRITE AMMONIA μg-atoms/liter	1,3	22.4	25.8	26.5		27.2	27.2
PHOSPHATE	•33	2.24	2,37	2,42	2,39	2.41	2,56
SAT.	178	61	55	52	20	48	44
AOU g-at/1	- 394 -260	-20 <i>5</i> 218	256	270	282	292	317
OXYGEN AOU ml/l µg-at/l	10.13	3,81	3,45	3,29	3,17	3.06	2,79
SIGMA T	25.49	26.27	26.33	26.34	26.36	26.38	26.40
SALINITY ppt	33,969	33,977	33,968	33,977	33,985	33,990	34,002
TEMP °C	13.61	9.40	8.98	8.98	8,88	8.82	8.75
DEPTH m	0 [2 2	30	20	75	100	150

ы		VISIB
HOUR N LATITUDE W LONGITUDE	19 JUN 1971 8.8 36° 51.2° 121° 57.6°	AIR TEMP °C WEATH CLOUDS VISIB
IDE W	2, 1	WEATH
LATITU	36°51.	MP°C
IOUR IN	8.8	AIR TE drv
	1971	BAROM
DATE	19 JUN	TRANSP WAVES WIND BAROM m dir ht n dir speed mb
STATION		W dir
CRUISE ST	и 11 1157	WAVES dir ht
CRU	Ħ	TRANSP

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6

11,1

11,1

1017,3

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29

7

27

S

SILICA	16 22 37 22 40 40 41
SII	
AMMONIA r	.13 .26 1.27 1.08 1.84 1.56 1.34
ITRITE ms/lite	21 25 34 38 33 33 23
NITRATE NITRITE AMMONIA µg-atoms/liter	5.2 15.0 23.5 17.3 26.9 28.2 28.3
PIIOSPHATE	.67 2.20 2.79 3.32* 3.04 3.04
SAT %	130 81 53 48 41 36 35
AOU g-at/1	-158 102 262 294 332 361 367
OXXGEN AOU m1/1 µg-at/1	7.75 . 5.01 3.34 3.02 2.62 2.25 1.95
SIGMA T	25.88 26.11 26.28 26.33 26.38 26.40 26.40
SALINITY PPt	33.935 33.934 33.956 33.969 33.998 33.993 34.029
TEMP .	11.46 10.16 9.24 9.00 8.78 8.68 8.68
DEPTH m	0 10 20 30 48 72 97

* indicates questionable data: Phosphate appears anomalously high

W LONGITUDE	122° 00.4'
N LATITUDE	36° 54.4
HOUR	10.1
DATE	18 JUN 1971
STATION	1152
CRUISE	11
CRU	Ä

VISIB		9
ouds	typ amt	0 2
ರ	typ	0
WEATH		-
ပ	dry wet	3,1
	We	-
R	ry	13.9 13.1
ΑI	ਦ	-
	qu	1017.3
R	dir ht p dir speed	-
2	dir	28
	ď	23 0 2
VES	ht	0
W	dir	23
TRAMSP	. ≢	7

SILICA	11:	73 73	43
AMMONIA r	.14	67.	1,50
IITRAIE NITRITE AN jig-atoms/liter	.27	٠ د د	09.
PHOSPHATE NITRATE NITRITE AMMONIA µg-atoms/liter	5.9	10.1	26.9
PHOSPHATE	69.		2,38
SAT %	120	104 77	7 84
AOU 3-at/1	-104	77 -	296
OXYGEN AOU ml/l µg-at/1			3.00
SIGMA T	25.86	25.98	26.33
SALINITY ppt	33,928	33,932	33,958
TEMP °C	11.57	10.94	8.97
DEPTH m	0	2 5	7 7 7 7

W LONGITUDE	122 00.5'	
N LATITUDE	36°56.8	
HOUR	11.1	
DATE	19 JUN 1971	
STATION	1153	
CRUISE	ML 11	

VISIB		7
COUDS	typ amt	H
ວ	tyl	0
WEATH		П
့	wet	13,9
AIR TEMP C	dry	14.4
BAROM	qu	1018,6
	speed	• •
	dir speed mb	• •
MIND	dir speed	• •
MIND	dir speed	• •
MIND	dir speed	23 0 2 23 4 1018,6
MIND	speed	• •

SILICA	7 7 10
AMMONIA r	22 49 54
TRATE NITRITE AM µg-atoms/liter	12 15
NITRATE µg-at	1.5
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.39
SAT	148 132 112
AOU 1g-at/1	-236 -163 -64
OXYGEN m1/1 ,	8.20 7.62 6.62
SIGMA T OXYGEN AOU m1/1 µg-at/1	25.15 25.59 25.78
SALINITY S ppt	33,902 33,938 33,943
TEMP °C	15.00 12.98 12.03
DEPTH m	0 5

W LONGITUDE	121° 52.6'	
N LATITUDE	36°55.6	
HOUR	12.4	
DATE	19 JUN 1971	
STATION	1154	
CRUISE	ML 11	

VISIB			PHOSPHATE NITRATE NITRITE AMMONIA SILICA
SOLO	amt	н	NIȚR] :oms/]
CLC	typ	0	RATE µg-at
JEATH		7	IIN E
1 2, JH	dir ht p dir speed mb dry wet typ amt	25 1 2 25 2 1018,3 16,9 14,7 2 0 1	PHOSPHATI
AIR T	dry	16.9	SAT 1
BAROM	qm	1018,3	SALINITY SIGMA T OXYGEN AOU SAT ppt m1/1 μ 8-at/1 %
	speed	2	OXYGEN m1/1 ,
Z	dir	25	T
S	d	2	SIGM
AAVE	r ht	5 1	Ł
	d.	23	ALINI; ppt
TRANSP	E	9	TEMP S
			DEPTH

0.05

.03 .01

8 9 4

. 59 . 43 . 42

173 167 167

-362 -336 -339

9.60 9.40 9.46

25.17 25.35 25.40

33.963 33.960 33.957

W LONGITUDE	121° 54.6
N LATITUDE	36°53.0
HOUR	13,1
DATE	19 JUN 1971
STATION	1156
CRUISE	ML 11

		SILICA	11 10 35 36
8		AMMONIA c	.39 .21 1.54 1.92
VISIB	7	<pre>LTRATE NITRITE AI Jug-atoms/liter</pre>	.09 .16 .41
OUDS amt	1	NIT	
1 CL typ	0	rrate Jig-a	2.2 4.2 24.3 21.7
WEAT	2	E NI	. , 4, 4,
AIR TEMP °C WEATH CLOUDS vdry wet typ amt	13,9 13,3 2 0 1 7	PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.49 .59 2.16 2.14
AIR TE dry	13.9	SAT %	134 124 55 46
BAROM mb	1017.6	SIGMA T OXYGEN AOU ml/l µg-at/1	-177 -128 253 306
P WAVES WIND dir ht p dir speed	25 2 2 25 8 1017.6	OXYGEN m1/1	7.85 7.38 3.44 2.88
W] dir	25	T T	73 85 28 33
gs L b	2	SIGM	25.73 25.85 26.28 26.33
WAVE dir ht	25 2	SALINITY SIG PPt	33,942 33,945 33,954 33,974
TRANSP m	4	SAL.	
TR		TEMP C	12,32 11,68 9,28 9,04
		DEPTH m	0 10 20 30

Hydrographic Stations

ML CRUISE 12	1103
23 July 1971	1108
	1112
	1115
	1116
	1110
	1101
ML CRUISE 13	1114
24 July 1971	1157
	1152
	1153
	1158
	1159
	1154
	1156
	1105

				SILICA	ń	6	25	25	18	25	27	36
		IB		AMMONIA r	2,38	3,47	3,71	2,21	2,91	2.26	3.00	2,41
TUDE	8.0	DS VISIB mt	8 1	RATE NITRITE A µg-atoms/liter	•05	60•	.17	• 20	.27	•29	• 28	•28
W LONGITUDE	120° 48.0	TH CLOUDS typ amt	×	ITRATE Ν μg-ατο	4.5	12.2	22.9	21.5	18.6	24.0	22,1	27.5
N LATITUDE	36° 48.2°	TP°C WEATH wet	11.1	PHOSPHATE NITRITE AMMONIA SILICA μg-atoms/liter	94.					2.01		
HOUR N	7.9 3	AIR TEMP °C dry wet	11.7 11.1	SAT PH	114	92	29	58	65	28	57	04
	1971	BAROM mb	6*966	AOU 1g-at/1	-71	45	230	233	191	234	239	341
DATE	23 JUL 1971	WIND dir speed	н	OXYGEN AOU ml/l µg-at/l	6.43	5,52	3,65	3.61	4.02	3,60	3.56	2.52
STATION	1103	ري م	1 2 17	SIGMA T	25.16	25.84	26.16	26,16	26.04	26,16	26.19	26,39
CRUISE	ML 12	SP WAVES dir ht	29 1 2	SALINITY ppt	33,742	33,799	33,878	33,882	33,835	33,887	33,895	34,002
		TRANSP	9	TEMP S	14,36							
				DEPTH m	0	2	10	70	30	20	75	100

				SILICA	, L	7	9	12	. 13	23	30	38
		11B		AMMONIA :r	.68	1,79	3,18	2.97	3,71	3,35	2,12	1,14
TIME	121° 49.5'	CLOUDS VISIB	8	RATE NITRITE A µg-atoms/liter	• 05	• 31	•29	• 30	•29	• 36	.41	•32
W LONGITUDE		WEATH CLOUDS typ amt	×	NITRATE μg-at	1.9	10,8	13,5	17.9	15,5	23.0	24.2	28.0
N LATITUDE	36° 47.4	AIR TEMP °C WE dry wet	12.1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.25	1.05	1,51	1.60	1.59	1,95	2.13	2.44
HOUR	7.6	AIR T dry	12,7	SAT %	134	95	82	75	75	28	52	38
	1971	BAROM mb	995.3	XYGEN AOU m1/1 µg-at/1	-171	30	46	135	135	231	268	351
DATE	23 JUL 1971	WIND dir speed	13 1	OXYGEN AOU m1/1 μg-at/	7.64	5.74	5.04	4.64	4.63	3,63	3,25	2.42
STATION	1108	Q.	29 1 9 13	SIGMA T	25,33	25,82	25.92	25.99	25.98	26.16	26.22	26.40
CRUISE	ML 11	NSP WAVES dir ht	9 29	SALINITY ppt	33,751	33,698	33,729	33,773	33,773	33,891	33,916	34.006
		TRANSP		TEMP S	13,56	10,80	10,37	10,14	10,22	99.6	9.42	8.72
				ОЕРТН m	0	10	20	೫	77	93	142	191

W LONGITUDE	121° 52,3°
N LATITUDE	36° 48.01
HOUR	11,5
DATE	23 JUL 1971
STATION	1112
CRUISE	ML 12

VISIB		9
CLOUDS	typ amt	∞
WEATH C	ty	×
TEMP C	wet	12,1
AIR TE	dry wet	12,8
BAROM	a	995.6
		4 995.6
WIND BAROLI	dir speed mb	29 4 995.6
WIND	p dir speed	4
WIND	p dir speed	4
	speed	4
WIND	p dir speed	1 3 29 4

SILICA	2	7		19	25	28	33	39
AMMONIA r	•75	1,61		1,26	•93	1.21	.97	.41
NITRITE oms/lite	•14	•41		•32	• 34	.37	• 39	•28
PHOSPHATE NITRATE NITRITE AMMONIA μg-atoms/liter	3.9	13.5		18.5	23,3	25.8	27.9	28.6
РИОЅРНАТЕ	•35	1,31		1.78	2.00	2.17	2,39	2,49
SAT %	125	87	9/	73	73	52	42	32
AOU 1g-at/1	-128	71	134	152	150	270	329	391
OXYGEN AOU ml/l µg-at/l	7.21	5,29	4.65	4.48	4.55	3,22	2,64	2.02
SIGMA T	25,38	25.83	25.94	26.04	26.16	26.23	26,36	26.50
SALINITY ppt	33,696	33.686	33,716	33,800	33,864	33,930	33,989	34.060
TEMP °C	13,12	10,70	10,19	96.6	9.57	9,44	8.91	8.38
DEPTH m	0	10	20	30	65	86	148	197

ы	_	VISIB
HOUR N LATITUDE W LONGITUDE	23 JUL 1971 13.8 36° 46.8° 121° 55.4°	TRANSP WAVES WIND BAROM AIR TEMP C WEATH CLOUDS VISIB
JDE W		WEATH
TIL	94	်
N LA	36	TEIP
HOUR	13.8	AIR
	1971	BAROM
DATE	23 JUL	IND
ION	2	W
CRUISE STATION	ML 12 1115	VES
ISE	12	WA
CRU	M	TRANSP

VISIB	7
CLOUDS typ amt	× ×
EATH	
AIR TEMP °C W dry wet	12,7
AIR Ti dry	13,3
BAROM mb	995.6
WIND r speed	9
WII dir	30 2 2 29
٠ <u>.</u>	7
WAVES iir ht p	7
W. dir	30
TRANSP m	œ

SILICA	2	10	17	20	23	31	27	. 32	28*	43	48	38*
AM10NIA :r	1,22	1.82	1.09	•82	1,10	1.78	1.44	1.24	• 34	.71	•52	00.
NITRATE NITRITE AM10NIA µg-atoms/liter	•24	77.	• 28	• 31	• 36	• 35	.37	• 33	.11	• 20	60°	.18
NITRATE µg-at	4.3	10.7	17.8	21,3	23.2	25.0	26.0	27.2	34.9	31,3	32.8	31,3
РНОЅРНАТЕ	.41	1.07	1.60	1,82	1,94	2,14	2,19	2,37	2.97*	2.65	2,73	2,49*
SAT %	120	46	74	89	62	55	52	38	32	56	22	18
N AOU g	-106	14	143	179	213	251	268	349	389	426	451	480
OXYGEN m1/1)	7.00	5.89	4.56	4.20	3,83	3,43	3,25	2,43	2.01	1.67	1,45	1,19
SIGMA T	25,40	25.76	25.94	26.03	26.12	26.19	26.22	26,38	26.46	26.58	26.68	26.76
SALINITY ppt	33,656	33,668	33,705	33,749	33,846	33,892	33,908	33,990	34.050	34,104	34.148	34.185
remp °C	12,84	11,01*	10,14	9.80	9.73	9.52	9,41	8.82	8,56	80.8	7. 66	7.24
DEPTH	0	10	20	30	94	71	95	144	165	209	252	297

Paired thermometer read 11.07 Phosphate and silica appear anomalously high at 165 m Phosphate and silica appear anomalously low at 297 m * indicates questionable data:

W LONGITUDE	121° 54.6'
N LATITUDE	36° 43.61
HOUR	15.7
DATE	23 JUL 1971
STATION	1116
CRUISE	ML 12

AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt BAROM mb WIND dir speed WAVES dir ht p TRANSP E

a

SILICA	3 0 0 21
AMMONIA F	.84 .55 1.35 2.97 2.35 2.35
ΓRATE NITRITE A μg-atoms/liter	03 03 14 07 09
PHOSPHATE NITRATE NITRITE AMMONIA µg-atoms/liter	.6 .8 .8 14.8 10.8 12.8
PHOSPHATE	.28 .28 .69 1.79 1.69 1.61
SAT %	134 133 104 76 88 94 68
AOU g-at/1	-177 -173 -23 133 63 33
OXYGEN AOU ml/l µg-at/1	7.78 7.79 6.31 4.66 5.38 5.72
SIGMA T	25.39 25.49 25.80 25.96 25.87 26.00
SALINITY	33.681 33.685 33.729 33.748 33.733 33.882
TEMP °C	13.02 12.54 11.01 10.22 10.68 10.59
DEPTH m	0 10 19 28 46 70

SII				П	41,	
AMMONIA .r	•45	•53	2,17	2,53	2,77	
RITE s/11te	60•	90•	•18	•28	.21	
TE NIT						
NITRA µg	£.	•	8,3	15.9	18,9	
ноѕрнате	.22	•30	1,18	1,88	1.97	
	134	136	92	73	99	
AOU g-at/1	-173	- 188	45	148	188	
OXYGEN m1/1 µ						
	25,35	25.54	25,86	26.00	26,07	
.INITY ppt	3,725	3,714	3,745	3,776	3,837	
SAI						
TEMP °C	13,36	12,36	10,77	10,08	9.95	
DEPTH m	0	ព	19	53	48	
	TEMP SAI	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 % 13,36 33,725 25,35 7,69 -173 134	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 % 13,36 33,725 25,35 7,69 -173 134 12,36 33,714 25,54 7,98 -188 136	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 % 13.36 33.725 25.35 7.69 -173 134 12.36 33.745 25.86 5.57 45 92	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 % 13.36 33.725 25.35 7.69 -173 134 12.36 33.714 25.54 7.98 -188 136 10.77 33.745 25.86 5.57 45 92 10.08 33.776 26.00 4.51 148 73	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 % 13.36 33.725 25.35 7.69 -173 134 12.36 33.714 25.54 7.98 -188 136 10.77 33.745 25.86 5.57 45 92 10.08 33.776 26.00 4.51 148 73 9.95 33.837 26.07 4.08 188 66

* indicates questionable data: Silica appears anomalously high

W LONGITUDE	
N LATITUDE	36° 44.9
HOUR	17.6
DATE	23 JUL 1971 17.6
STATION	1101
CRUISE	12
CRU	M

13.6 12.5

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SILICA	7 0 7
METONIA	.53 .38
ITRATE NITRITE AM µg-atoms/liter	.05
NITRATE N µg-ato	707
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.19 .21 .26
SAT.	138 136 139
AOU µg-at/1	-192 -185 -200
OXYGEN AOU 9 ml/l µg-at/l	7.84 7.76 7.93
SIGMA T	25.26 25.26 25.35
SALINITY ppt	33,738 33,738 33,750
TEMP °C	13.86 13.86 13.48
DEPTH m	0 5 10

LONGITUDE	121° 52.2'
LATITUDE W	36° 50,4° 13
HOUR	1 8.8
DATE	24 JUL 1971
STATION	1114
CRUISE	ML 13

VISIB		7
CLOUDS	typ amt	7 8
WEATH	t	77
TEMP °C	wet	12.2
AIR TE	dry wet	12.8
BAROM	qu	1012,9
WIND	speed	29 0
ΙM	dir	
	ф	က
WAVES	ht	0
WA	dir ht	29 0 3
TRAMSP	E	9

SILICA	6	12	23*	21
AMMONIA F	.42	.67	• 39	2.23
VITRITE / oms/lite;	• 08	09.	.47	• 36
PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	•2	11.6	21.8	18.4
PHOSPIIATE	.34	1.23	1.15*	1,91
SAT %	133	98	72	99
AOU g-at/1	-168	73	154	191
OXYGEN AOU m1/1 µg-at/1			4.45	
SIGMA T	25,40	25.80	25.94	26.07
SALINITY ppt	33,766	33,657	33,681	33,810
TEMP °C	13,30	10,73	10,01	9.84
DEPTH m	0	10	20	30

* indicates questionable data: Silica appears anomalously high and phosphate appears anomalously low

W LONGITUDE	121° 52.6
N LATITUDE	36° 51.2
HOUR	9.5
DATE	24 JUL 1971
STATION	1157
CRUISE	ML 13
CRI	À

VISIB		7
LOUDS	typ amt	8
Ü	ţ	œ
WEATH	dry wet t	12.8 12.8 44
၁	υ L	œ
Æ	we	12
IE	۶	œ
AIR	dr	13
BAROM		1012.8
OF I	speed	29 0
5		
_	dir	29
_	p dir	
VES 1	nt p dir	
FRANSP WAVES 1	dir ht p dir speed	29 1 3 29

SILICA	58 * \$ 20	1
AMMONIA r	.36 .60 .76 .53 .82	•
<pre>rATE NITRITE Al μg-atoms/liter</pre>	. 20 . 33 . 33 . 38 . 38 . 38	,
NITRATE NITRITE AMMONIA µg-atoms/liter	2.9 8.4 20.4 20.7 26.4 24.8)
PHOSPHATE	56 1.05 1.12* 1.83 1.45* 2.30	1
SAT %	104 78 54 67 58 46)
1 ΑΟυ μg-at/1	-21 115 253 181 231 360	,
OXYGEN m1/1 µ	6.07 4.69 3.31 4.17 3.64 2.91	,
SIGMA T	25.53 25.72 25.93 26.03 26.15 26.23	1
SALINITY	33.770 33.722 33.718 33.771 33.860	1111
TEMP °C	12.66 111.46 10.24 9.88 9.60 9.33	
DEPTH m	10 20 30 48 72	>

* indicates questionable data: Silica appears anomalously high and phosphate appears anomalously low

W LONGITUDE	122° 1.5'
N LATITUDE	36° 54.8
HOUR	10.7
DATE	24 JUL 1971
STATION	1152
CRUISE	ML 13

VISIB	9
CLOUDS typ amt	8 /
ЕАТН	2 7 8
AIR TEMP °C W	13.3 12.7
AIR TE dry	13,3
BAROM mb	1014.2
WIND BAROM dir speed mb	
WIND dir speed	
WAVES WIND dir ht p dir speed	
	8 27 1 5 27 1 1014.2

SILICA	10 23 17 34*
AMMONIA r	.12 .46 2.01 1.87
NITRITE oms/lite	.09 .41 .36
NITRATE µg-at	1.3 16.3 15.5 21.8
PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.29 1.62 1.81 1.45*
SAT %	129 73 68 59
OXYGEN AOU ml/l µg-at/l	-147 150 175 226
OXYGEN m1/1	7.37 4.49 4.23 3.69
SIGMA T	25.38 25.94 26.07 26.13
SALINITY ppt	33.807 33.687 33.824 33.839
TEMP °C	13.54 10.07 9.92 9.64
DEPTH m	10 20 30

* indicates questionable data: Phosphate appears anomalously low and silica appears anomalously high

				SILICA	~ 9 9
		IB		PHOSPHATE NITRATE NITRITE AMMONIA SILICA pg-atoms/liter	2.44 1.44 2.48
E	<u>.</u>	VISIB	9	RATE NITRITE A µg-atoms/liter	0.08
GITU	122° 00,3	CLOUDS typ amt	7 8	NIT	
M LON	122°	H CL typ	7	rrate /18-a	4 8 0
DE 1		WEAT	2	E NE	
N LATITUDE W LONGITUDE	36°56.8"	AIR TEMP °C WEATH CLOUDS dry wet typ amt	14.4 13.3	ноѕрнат	.76
HOUR N		AIR TEN dry	14.4		134 135 110
	24 JUL 1971 11.5	BAROM mb	1013.9	TEMP SALINITY SIGMA T ΟΧΥGEN AOU SAT °C ppt m1/1 μg-at/1 %	
DATE	24 JUL		25 1 2 25 2 1	OXYGEN m1/1 µ	7.46 -168 7.65 -178 6.45 -51
ION		WI dir	25	Ľ /	27 27
STATION	1153	S	7	SIGM	25.08 25.27 25.64
CRUISE	13	WAVES WIND dir ht p dir speed	25 1	INITY ppt	33,780 33,811 33,819
ຽ	M	TRANSP m	7	SAL	
		TR		TEMP °C	14.88 14.10 12.26
				DEPTII m	0 5

W LONGITUDE	121° 57.2'
N LATITUDE	36° 55.4
HOUR	12.2
DATE	24 JUL 1971
STATION	1158
CRUISE	ML 13

VISIB		9
CLOUDS	typ amt	2 7 8
WEATH		7
AIR TEMP °C WI	dry wet	14.4 13.4
BAROM		1013.5
MIND	speed	
M	dir	26 2
WAVES W	dir	
		6 26 2 2 26

SILICA	∞	18	12	56
AMMONIA c	•01	00.	.47	2,01
ITRATE NITRITE AM μg-atoms/liter	•10	•20	• 34	•37
NITRATE NITRITE AMMONIA µg-atoms/liter	4.	3,3	11.0	20.2
РНОЅРНАТЕ	•28	•53	1.12	1.63
SAT %	134	122	95	71
AOU g-at/1	-174	-112	56	158
OXXGEN AOU m1/1 µg-at/1	7,71	7.12	5.76	4.42
SIGMA T	25,41	25.57	25,81	26.02
SALINITY ppt	33,787	33,765	33,724	33,763
TEMP °C	13,29	12,43	10,97	06*6
DEPTII m	0	2	10	20

	,			SILICA	31 44* 72*
		æ		MMONIA	.74 .08 .21
UDE	.21	S VISIB	3 7	RATE NITRITE A µg-atoms/liter	.10
V LONGIT	121° 56.2'	I CLOUDS typ amt	2 7 8	ΓRATE NI μg-atom	1.6 1.5 2.6
DE v	1,	WEATE		E NET	H H W
N LATITUDE W LONGITUDE	36° 57.1'	AIR TEMP °C WEATH CLOUDS dry wet typ amt	15.0 13.9	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.53 .32 .51
HOUR 1	12.8	AIR II dry	15.0		131 139 137
110	12			S	
딾	1971	BAROM mb	1013,5	AOU μg-at/]	7.33 -156 7.94 -198 7.91 -189
DATE	24 JUL 1971	WIND dir speed	24 1 6 24 1	TEMP SALINITY SIGMA T ΟΧΎGEN AOU SAT °C ppt m1/1 μg-at/1 %	7.33 7.94 7.91
Z		WI Hr	24	H	
STATION	1159	ф ф	9	IGMA	25.09 25.34 25.46
S		AAVES r ht	Н	Ω	
CRUISE	13	1	24	INITY PPt	33,771 33,771 33,767
g	預	TRANSP	œ	SAL	
		TRA		TEMP °C	14.80 13.58 12.99
				DEPTH	0 5

* indicates questionable data: Silica appears anomalously high

				SILICA	<u>ν</u> , εν φ
		В		PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.14 .16
三	~	VISIB	9	RATE NITRITE A µg-atoms/liter	110
GILD	121° 53.8'	CLOUDS typ amt	∞	NIT	
NOI 7	121°	H CL typ	7	rRATE μg-a	1.0 2.5 4.6
DE 1	5,	WEATI	2	E NI	
N LATITUDE W LONGITUDE	36°55.5¹	AIR TEMP °C WEATH CLOUDS dry wet typ amt	16.1 14.0 2 7 8	SPHAT	.41 .53
r z	36.	AIR TEMP °C dry wet	1 1	PHO	
HOUR	13.6	AIR dry	16.	SAT %	133 125 112
	1971	BAROM mb	013.9	AOU g-at/1	-166 -130 -62
DATE	24 JUL 1971	peq	25 1 6 25 1 1013.9	SALINITY SIGMA T OXYGEN AOU SAT ppt m1/1 µg-at/1 %	7.53 7.21 6.57
NC		WIND dir spe	25	E	
STATION	1154	ς. Φ.	9	SIGMA	25.24 25.38 25.59
•		WAVES r ht	-	,	
CRUISE	13		25	INITY PP¢	33.757 33.761 33.774
CR	Ä	TRANSP m	7	SAL	
		TR.		TEMP	14.04 13.35 12.34
				DEPTH m	0 5 10

妇	-	VISIB	7
TILL	54.4	JUDS amt	9
LONG	121°	CLC	7
HOUR N LATITUDE W LONGITUDE	36° 53.9' 121° 54.4'	TEMP °C WEATH CLOUDS y wet typ amt	14.7 13.6 1 7 6
ATIT	53,	°C et	3.6
I N	36	TEMP	7 1
HOUR	14.4	AIR dr	
<u>[22</u>	1971	BAROM mb	1013.9
DATE	24 JUL 1971 14.4	WIND dir speed	6 25 2 5 25 2 1013.9
LON	ML 13 1156	WI dir	25
STATION	115	۵	5
		VES ht	7
RUISE	13	W. dir	25
CRI	Ä	TRANSP WAVES m dir ht p	9

SILICA	6 8 20 29
AMMONIA er	.00 .49 .83 2.83
TRATE NITRITE ΑΝ μġ-atoms/liter	.07 .31 .39
NITRATE μg-at	8.8 21.8 21.6
PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.34 .97 1.64 2.18
SAT %	134 100 72 58
OXYGEN AOU ml/l µg-at/l	-175 -2 157 235
OXYGEN m1/1	7.70 6.01 4.43 3.59
SIGMA T	25.38 25.70 25.96 26.11
SALINITY ppt	33,779 33,697 33,696 33,824
TEMP °C	13.44* 11.43 9.96 9.68
DEРТН m	0 10 20 30

* indicates questionable data: Paired thermometer read 13.38

W LONGITUDE	121° 50.1'
N LATITUDE	36°50.6
HOUR	15,3
DATE	24 JUL 1971
STATION	1105
CRUISE	ML 13
CRU	Ä

VISIB	7
CLOUDS typ amt	9 /
WEATH	3 7 6
AIR TEMP °C dry wet	13.9
AIR TE dry	16.1
BAROM mb	1013,5
WIND dir speed	25 2
W] dîr	
P	5
WES ht	25 2 5
WAVES dir ht p	25
TRANSP	∞

.10 4 .53 3 .60 11
.33
1.0 2.9 4.0
.36 .65
130 126 120
-151 -136 -106
7.42 7.31 6.99
25.33 25.42 25.48
33,759 33,743 33,766
13.58 13.08 12.88
0 10

Hydrographic Stations

ML	CRUISE	<u>15</u>	1103
27	August	1971	1108
			1112
			1115
			1116
			1110
			1101
<u>ML</u>	CRUISE	<u>16</u>	1114
28	August	1971	1157
			1152
			1153
			1158
			1159
			1154
			1156
			1105

				SILICA	9	2	7	2	21	15	21	37
		IB		AMMONIA F	2,77	• 64	1.20	1,42	1.27	2.76	3.00	3,77
ITUDE	48.2	UDS VISIB	7 7	RATE NITRITE A µg-atoms/liter	.15	•10	•08	•16	•41	• 34	•41	•37
W LONGITUDE	121° 48.2°	WEATH CLOUDS typ amt	9 0	NITRATE DE PRINCE DE PRINC	1.5	4.	1.0	2.4	5.8	10.9	14.1	17.1
N LATITUDE	36° 48.1°		14.4	PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	• 76	67.	•53	•63	•85	1,34	1.60	1,73
HOUR N	8.1	AIR TEMP °C dry wet	15.8 14.4	SAT %	107	111	110	106	92		69	29
	1971	BAROM mb	1015.9	OXYGEN AOU m1/1 µg-at/1	- 32	- 26	- 48	- 32	42		168	224
DATE	27 AUG 1971	WIND dir speed		OXYGEN m1/1 /	5.78	6.13	6.14	6.17	5.49		4.19	3,61
STATION	1103	ρ.	0 2	SIGMA T	24.23	24.43	24.66	25.06	25,35	25.65	25.80	25.92
CRUISE	ML 15	NSP WAVES dir ht	8 28	SALINITY ppt							33,682	
		TRANSP	-	TEMP .	16,48	15,72	14.78	12,98	11,74*	11,30	10,82*	10,42
				DEPTH	0	2	10	20	30	20	75	100

* indicates questionable data: Paired thermometers read 11.66 at 30 m, 10.97 at 75 m

W LONGITUDE	121° 50.0'
N LATITUDE	36° 47,4
HOUR	9.3
DATE	27 AUG 1971
STATION	1108
CRUISE	ML 15

VISIB		7
CLOUDS	typ amt	7
ົວ	ţ	9
WEATH		2
TEMP °C	dry wet	14.4
TE	>	16.1
AIR '	dr	16
BAROM	2	9.9
BA	Έ	1016,6
WIND BA	dir speed m	101
	p dir speed	•
WIND	p dir speed	•
		28 0 2 101

SILICA	4	7	6	∞	10	56	39	52
AMMONIA : t	.54	•91	64.	.40	3.60	2,52	1.86	•51
NITRATE NITRITE AM10NIA SILICA µg-atoms/liter	•08	•16	.21	•24	•35	•43	•29	.21
	1.1	2.6	3.5	5.4	8.4	15.7	23.1	29.3
PHOSPHATE	.52	• 64	• 70	* 8	1.08	1,63	2,17	2,57
SAT %	114	108	103	86	88	62	45	30
OXYGEN AOU m1/1 µg-at/1	-67	-4 2	-14	13	28	205	306	398
OXYGEN m1/1 /	6,33	6.30	60.9	5.90	5,37	3,77	2.82	1,93
SIGMA T	25.63	25.04	25,19	25,32	25,52	25,83	26.19	26.47
SALINITY ppt	33	33		33	33	33	33	34
remp °c	15,01*	12,92	12,02*	11,16	11,29*	10,80	*9*0	8,43
DEPTH m	0	10	20	30	20	100	150	200

* indicates questionable data: Paired thermometers read 14.95 at 0 m, 12.14 at 20 m, 11.20 at 50 m, 9.54 at 150 m

				SILICA	က	2	4	13	'n	21	25	32
		IB		AMMONIA	66.	•92	1,80	2,15	1,51	2.28	2.19	.77
ITUDE	121° 52.2'	UDS VISIB	7 7	RATE NITRITE A µg-atoms/liter	•07	60 •	•13	•17	•14	•42	•40	•31
W LONGITUDE		WEATH CLOUDS typ amt	5 .	NITRATE µg-at	.7	٠,	2.7	2.0	2.7	13,5	18.2	23.4
N LATITUDE	36°48.0°	EMP °C	16.4 15.0	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	• 56	.57	• 78	•92	•79	1.47	1,73	2,10
HOUR	10.6	AIR T dry	16.4	SAT %	121	117	101	100	106	73	63	
M	AUG 1971	1971 BAROM mb	1016.6	AOU ug-at/1	-1 02	- 88	-37	7	- 32	148	200	
DATE	27 AUG	WIND dir speed		OXYGEN AOU m1/1 µg-at/1	6.77	6.79	6.27	5.93	6.21	4.38	3,87	2.90
STATION	1112	۵.	0 2	SIGMA T	24.80	25.15	25,31	25,41	25,30	25.75	25.90	
CRUISE	ML 15	SP WAVES dir ht	28	SALINITY ppt	33,338	33,369	33,468	33,476	33,464	33,672	33,739	33,868
	ML TRANSP m	20	TEMP S	14.60	13,02	12,55*	12,10	12,61*	11,04	10,52*		
				DEPTH	0	10	20	30	20	70	120	170

Paired thermometers read 12.48 at 20 m, 12.55 at 20 m, 10.40 at 120 m $\,$ * indicates questionable data:

				SILICA	2	7	2	∞	13	13	18	23	34	45	51	54
		IB		AMMONIA :r	•05	•02	•25	• 33	•13	1,35	.81	•04	99•	• 24	•14	00•
ITUDE	57.2"	UDS VISIB	1 7	RATE NITRITE A µg-atoms/liter	00.	00•	0	.11	90•	•16	•19	•12	•05	•01	00.	•03
W LONGITUDE	121° 57.2'	WEATH CLOUDS typ amt	1 6	NITRATE µg-at	2.9	2.3	2.0	6.3	10,3	13.0	17.3	20.1	23,3	28.0	29.6	29.1
N LATITUDE	36° 46.6°	TEMP °C wet	15.8	PIIOSPHATE NITRATE NITRITE AMMONIA	.41	•37	• 59	• 93	1,12	1.40	1,61	1.80	2,33	2,58	2.69	2.78
HOUR	12.6	AIR dry	17.8	SAT	112	112	111	94	87	9/	65	99	40	72	22	20
r-3	AUG 1971	BAROM mb	1017.3	AOU ug-at/1	- 58	- 61	-57	33	71	128	193	244	338	417	452	465
DATE	27 AUG	WIND dir speed		OXYGEN AOU ml/1 µg-at/1	6.03	6.26	6.48	5.77	5,41	4.62	4.00	3,51	2,50	1,74	1,42	1,32
STATION	1115	ď	0 2	SIGMA T	24.22	24.56	25.08	25.40	25.54	25.70	25.88	26.07	26.28	26.54	26.63	56 . 69
CRUISE	ML 15	TRANSP WAVES m dir ht	18 25	TEMP SALINITY °C ppt	16,90* 33,257										7.82* 34.113	
				DEPTH 1											300	

* indicates questionable data: Paired thermometers read 16.84 at 0 m, 12.93 at 20 m, 10.05 at 99 m, 7.91 at 300 m

CRUISE STATION DATE HOUR N LATITUDE W LONGITUDE ML 15 1116 27 JUL 1971 14.0 36° 43.3' 121° 55.6'

VISIB		7
CLOUDS	typ amt	н
IJ	typ	0
WEATH		1
TEMP °C	dry wet	15.8
TE ~	5	17.8
AIR	d	17
BAROL	qm	1017,3
_	pəəds	
WIND BARON	pəəds	
MIND		
MIND	p dir speed	
_	pəəds	26 0 2 2 6 1017.3

SILICA	4 2 2 7 6 10 19
Amionia :r	.00 .14 .33 .53 .70 .202
NITRATE NITRITE AM µg-atoms/liter	.07 .06 .04 .13 .21
NITRATE µg-at	2.8 .0 .0 1.8 3.5 8.7
PHOSPHATE	.36 .35 .57 .68 1.14
SAT %	112 113 112 107 105 88 73
OXYGEN AOU m1/1 µg-at/1	-56 -61 -36 -26 65
OXYGEN m1/1 p	5,97 6,11 6,19 6,35 6,21 5,26 4,52
SIGMA T	24.13 24.32 24.48 25.06 25.18 25.52
SALINITY PPt	33.261 33.242 33.177 33.006* 33.204 33.476
TEMP °C	17.28 16.41 15.50* 11.99 12.19* 11.51 9.98*
DEPTH m	0 5 10 20 30 50 74

Paired thermometers read 15.57 at 10 m, 12.13 at 30 m, 10.09 at 74 m Salinity appears anomalously low * indicates questionable data:

			٠.
(e)	_	VISIB	7
SITUDI	52.0	JUDS	П
LONG	121°	CL(typ	С
JDE W	. 9	AIR TEMP °C WEATH CLOUDS dry wet typ amt	7
ATIT	45	° C	6.1
N	36	TEMP	8 1
HOUR N LATITUDE W LONGITUDE	15.2 36 45.6' 121° 52.0'		17.
67	1971	BAROM	1017.3
DATE	ML 15 1110 27 AUG 1971	WIND p dir speed	10 28 0 8 30 8 1017,3 17,8 16,1 2 0 1
LON		WI	30
TAT	111(۵	ø
S		WES ht	С
CRUISE STATION	15	WA dir	28
CRI	보	TRANSP WAVES m dir ht p	10

SILICA	2 26* 7 21 9
AMMONIA et	1.52 .65 .73 1.28 2.20
TRATE NITRITE AN µg-atoms/liter	.10 .10 .33 .36
NITRATE µg-at	3.3 7.4 9.0
PHOSPHATE NITRATE NITRITE AMMONIA µg-atoms/liter	.51 .51 .72 .97
SAT L %	118 118 103 92 89
AOU 1g-at/1	-86 -92 -18 45 61
OXYGEN AOU ml/l µg-at/l	6.43 6.69 6.15 5.64
SIGMA I	24.52 24.88 25.21 25.44 25.44
SALINITY ppt	33,380 33,346 33,180 33,133*
TEMP °C	16.00 14.25* 11.92 10.43* 11.18
DEPTH	0 10 19 29 48

Paired thermometers read 14.18 at 10 m, 10.57 at 29 m Salinity appears anomalously low Silica appears anomalously high * indicates questionable data:

				SILICA	1 1 1
		I.B		AMMONIA r	.77 .36 .21
ITUDE	49,31	UDS VISIB amt	1 7	<pre>IRATE NITRITE Al</pre>	03
M LONG	121° 49,3	ATH CLOUDS typ amt	2 0 1	NITRATE µg-at	.7 .9 1.3
N LATITUDE W LONGITUDE	36° 44.7°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	17.8 16.1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.47 .46 .49
HOUR	16.0	AIR 1 dry	17.8	SAT %	117 118 114
	27 AUG 1971 16.0	BAROM mb	1017,3	AOU 1g-at/1	-84 -89 -72
DATE	27 AUG	WIND r speed	7	OXYGEN m1/1)	6.45 6.52 6.59
STATION	1101	p d	8 0 2 27 7 1017.3	SIGMA I	25.56 24.60 24.99
CRUISE	ML 15	NSP	13 28	TEMP SALINITY SIGMA T ΟΧΥGEN AOU SAT °C ppt m1/1 μg-at/1 %	15.66* 33.336 15.46 33.326 13.28* 33.239
		TRA		TEMP °C	15.66* 15.46 13.28*
				DEPTH m	0 5 10

* indicates questionable data: Paired thermometers read 15.59 at 0 m, 13.36 at 10 m

				SILICA	11	10	10	11
		<u>.</u>		PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.95	•73	1,55	1.76
ы		VISIB	7	ITE A liter	15	19	.19	32
GITUD	121° 52.7'	CLOUDS typ amt	m	RATE NITRITE A µg-atoms/liter	•	•	. •	•
M LON	121°	H CL typ	0 0 3	TRATE µg-a	1.6	2.7	4.3	6.6
TUDE	,5,	WEAT		VIE NJ	•	•	.+	.+
N LATITUDE W LONGITUDE	36° 50,5°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	13.9 13.3	иозрн/	49	٥	78.	1.2
HOUR	7.5	AIR T dry	13.9		119	114	105	87
	1971	BAROM mb	1016.6	AOU 1g-at/1	-92	- 72	- 23	69
DATE	28 AUG 1971	WIND dir speed	П	OXYGEN m1/1 µ	6.64	99*9	6.15	5.24
STATION	1114		0 2	TEMP SALINITY SIGMA T OXYGEN AOU SAT $^{\circ}$ C ppt m1/1 μ g-at/1 %	24.72	25.14	25,36	25.59
CRIJISE	ML 16	P WAVES dir ht p		LINITY	33,290	3.266	3,466	3,522
Ö	Œ	TRANSP m	16	S. S.	14.78	64 3	33* 3	28 3
					14.	12.	12.	11.
				DEPTH	0	2	20	30

* indicates questionable data: Paired thermometer read 12.21

f - 1	_	VISIB	7
SITUDI	57.1	OUDS amt	æ
LONG	121°	CLC	0
HOUR N LATITUDE W LONGITUDE	28 AUG 1971 8.6 36° 50.2° 121° 57.1°	AIR TEMP °C WEATH CLOUDS V dry wet typ amt	1016.6 15.0 14.2 2 0 3
LATIT	36°50,	ጡ °c wet	14.2
Z	• ,	t TE	0
HOUR	8.6		15
	1971	BAROM mb	.016.6
DATE	8 AUG	D peed	П
NOI		WIN dir s	
STATION	115	το Φ.	0 2
CRUISE	ML 16 1157	FRANSP WAVES WIND BAROM m dir ht p dir speed mb	0
CRU	M	TRANSP	13

SILICA	34*	9	4	7	17	22	25	30
AMMON IA e t	.72	• 59	.81	1,33	1,47	1,53	•91	• 33
NITRATE NITRITE AMMONIA µg-atoms/liter	•03	•07	•10	•13	•26	•25	•39	• 26
	1.3	1.4	1,1	3.6	13,3	17.6		24.0
PHOSPHATE	•43	64.	09*	•91	1.45	1.70	1.96	2.14
SAT %	114	109	118	108	9/	99	53	77
OXYGEN AOU m1/1 µg-at/1	-70	94-	-92	-41	129	184	260	310
OXYGEN ml/1 ,	6.27	6.29	6.92	6.36	4.62	4.06	3,27	2,77
SIGMA T	24.50	24.94	25.27	25,36	25.74	25.88	26.05	26.19
SALINITY ppt								33,885
remp °C	15,85*	13,34	12,39*	12,22	10,91*	10,44	6,63*	9.48
DEPTH m	0	10	20	30	67	74	86	147

Paired thermometers read 15.79 at 0 m, 12.49 at 20 m, 10.82 at 49 m, 10.02 at 98 m Silica appears anomalously high * indicates questionable data:

		VISIB	7
ITUDE	4.4	UDS	2
LONG	122°	CLC	0
JDE W	3*	WEAT H	1
HOUR N LATITUDE W LONGITUDE	6°55.	P°C wet	1017.9 16.7 15.0 1 0 2
Z	ñ	TEM	7.
HOUR	10.2	AIR	16
	1971	BAROM mb	017.9
DATE	ML 16 1152 28 AUG 1971 10.2 36° 55.3° 122° 4.4°	FRANSP WAVES WIND BAROM AIR TEMT °C WEATH CLOUDS VISIB m dir ht p dir speed mb dry wet typ amt	-
	52	Wl	
STA	11	ES t p	0 2
CRUISE STATION	16	WAV dir h	19 25 0 2
CRU	포	TRANSP	19

SILICA	4 10 10 0
AM1ONIA : t	.83 .75 1.37 2.29
IRATE NITRITE ΑΝ μg-atoms/liter	.32
NITRATE µg-at	1.4 2.0 1.6 3.6
PHOSPHATE NITRATE NITRITE ΑΜ10NIA SILICA μg-atoms/liter	.51 .56 .65
SAT 1 %	114 111 113 99
AOU g-at/1	-71 -55 -69 3
OXYGEN AOU m1/1 µg-at/1	6.37 6.43 6.61 5.85
SIGMA T	24.61 25.04 25.26 25.32
SALINITY ppt	33,218 33,228 33,456 33,432
TEMP °C	15.06* 13.02 12.78* 12.36*
DEPTH m	0 10 20 30

* indicates questionable data: Paired thermometers read 14.90 at 0 m, 12.88 at 20 m

				SILICA	יט יט יט
		IB		AMMONIA r	.27 .53 1.52
TUDE	0.1	IDS VIS	2 7	RATE NITRITE A µg-atoms/liter	.06 .06
W LONG	122° 00.1	TH CLOUDS typ amt	0	ITRATE Ν μg-atc	.5
N LATITUDE W LONGITUDE	36° 56.8°	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	15.8 15.3 2 0 2	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.46 .44 .55
HOUR N		AIR TEMP 0 dry wet	15.8		115 114 112
	28 AUG 1971 10.8	BAROM mb	1017.9	AOU ug-at/1	-74 -69 -61
DATE	28 AUG	WIND r speed		OXYGEN m1/1	6.36 6.37 6.30
STATION	1153	p d	5 0 2	TEMP SALINITY SIGMA T ΟΧΥGEN AOU SAT °C ppt m1/1 μg-at/1 %	24.51 24.64 24.70
CRUISE	ML 16	NSP	7	SALINITY ppt	33,221 33,222 33,239
		TRAI	14	TEMP C	15.49* 14.90 14.70
				DEPTH m	0 5

* indicates questionable data: Paired thermometer read 15.55

W LONGITUDE	121° 56.7'
N LATITUDE	36°55.1
HOUR	11.7
DATE	28 AUG 1971
STATION	1158
CRITSE	ML 16

VISIB		7
OUDS	typ amt	2
CL	typ	0
WEATH		ec.
AIR TEMP °C	jt T	8.9
EM	wet	16.9 15.8
RT	dry	6.9
AI	Þ	1
BAROM	qu	1017.6
WIND	dir speed	25 6
M	dir	25
	ф	7
WAVES	ht	25 0 2
WA	dir ht	25
TRANSP	E	13

A SILICA	L 2 2 L
AMMONI.	.56 .48 .64 1.31
ITRATE NITRITE ΑΜ μg-atoms/liter	.16 .07 .14
NITRATE µg-at	2. 4
PHOSPHATE NITRATE NITRITE AMMONIA µg-atoms/liter	.49 .41 .51
SAT %	115 115 113 107
AOU g-at/1	-71 -75 -66 -38
OXYGEN AOU ml/l µg-at/l	6.20 6.37 6.41 6.25
SIGMA T	24.21 24.52 24.79 25.09
SALINITY ppt	33,185 33,214 33,226 33,278
"C	16.72* 15.44 14.21* 12.92
DEPTH m	0 5 10 20

* indicates questionable data: Paired thermometers read 16.79 at 0 m, 14.15 at 10 m

				SILICA	N N 8
		IB		AMMONIA r	.52 1.11 2.34
FI.		VISIB	7	ITE	.09 .12 .14
	56.2	UDS	7	NITR oms/	• • •
LONG	121°	CLOUDS typ amt	С	RATE NITRITE A µg-atoms/liter	m v
≥	-	ЕАТН	2	NITIN	
HOUR N LATITUDE W LONGITUDE	36° 57.1' 121° 56.2'	AIR TEMP °C WEATH CLOUDS dry wet typ amt	16.9 15.8	PHOSPHATE NITRITE ΑΜΜΟΝΙΑ SILICA μg-atoms/liter	.48 .51
HOUR		AIR TENP °(dry wet	16.9		114 113 109
	1971	BAROM mb	1017.6	AOU 1g-at/1	-69 -63 -43
DATE	28 AUG 1971 12.4	WIND dir speed	-	SIGMA T OXYGEN AOU SAT ml/1 µg-at/1 %	6.26 6.29 6.09
NO		WI dîr	25	H	7.57
STATION	1159	ες Φ.	7	SIGM	24.42 24.63 24.71
	16	WAVES r ht p	25 0 2	XI.	780
CKUISE	₩ 1	d i		SALINITY ppt	15.92* 33.226 14.96 33.228 14.75* 33.262
		TRANSP m	13	TEMP S	92* 96 75*
				TEM C	15. 14.
				ОЕРТН m	10 5 0

* indicates questionable data: Paired thermometers read 15.86 at 0 m, 14.81 at 10 m

				⋖
				SILIC
		118		PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter
ы		VIS	7	ITE 11te
III	52.7	UDS	2	NITR oms/
LONG	21°	CLOUDS typ amt	0	rkate NITRITE AN μg-atoms/liter
3	П	ATH	7	NITR 4
TUDE	5.2	WE		ATE
LATI	6 5.	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	16.4	OSPH.
Z	m	TEN	œ	PH
HOUR N LATITUDE W LONGITUDE	28 AUG 1971 13.1 36° 55.2' 121° 52.7'	AIR dry	25 0 2 25 7 1017.6 17.8 16.4 2 0 2	SAT %
		BAROM mb	9.	U tt/1
EE]	197	BAF	1017	AC US-8
DATE	AUG	WAVES WIND BARO	_	rgen 1/1
	28	ONI.		O E
NOI	4	dir	25	A T
STATION	1154	WAVES Lr ht p	7	SIGM .
0,1		AVES ht	0	51 ⋈
CRUISE	16	W. dir	25	INIT
SE	M	TRANSP m	13	SAL
		T.		TEMP SALINITY SIGMA T OXYGEN AOU SAT $^{\circ}$ C ppt m1/1 μ g-at/1 $\%$
				DEPTH

* indicates questionable data: Paired thermometer read 15.45

.51 .55 1.31

00.09

.43 .45

117 117 115

-82 -81 -73

6.32 6.36 6.36

24.22 24.36 24.55

33.207 33.222 33.234

16.74 16.17 15.39*

0 2 0

				SILICA	2	'n	6	13
		IB		AMMON LA r	1.00	1.23	1.74	2.48
DE	•0	VISIB	7	RITE /lite	•10	•13	• 56	•35
ONGIT	121° 55.0'	CLOUDS typ amt	0 2	RATE NITRITE A µg-atoms/liter				
M		ATH C	7	NITRA' µ8	•2	2.3	5.1	7.2
N LATITUDE W LONGITUDE	36°53.01	AIR TEMP °C WEATH CLOUDS dry wet typ amt		PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	•52	.57	•92	1.14
HOUR	13.9	AIR I dry		SAT %	115	111	86	86
		BAROM mb	1016.9	AOU g-at/1	-72	- 29	12	29
DATE	28 AUG 1971	WIND dir speed	Н	OXYGEN m1/1 µ	6.19	6,49	5.85	5,33
STATION	1156	<u>ρ</u> ,	7 0 2	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 %	24.16	25.04	25.42	25,52
CRUISE	, 16	1	27	INITY	33,180	.195	369	1,468
ຮ	뵤	TRANSP	10	SAI	2* 33	33	33	33
		H		TEME	16,92*	12.8	11.6	11.4
				DEPTH	0	10	20	႙

* indicates questionable data: Paired thermometer read 16.98

E	•	AIR TERP °C WEATH CLOUDS VISIB dry wet	7
ITI	49.6	OUDS amt	7
LON	121°	CLC	0
JDE W	8	WEATH	7
ATIT	20	et C	6.1
Z	36	TENP V	1
HOUR N LATITUDE W LONGITUDE	ML 16 1105 28 AUG 1971 14.9 36° 50.8° 121° 49.6°		14 27 0 2 27 12 1016.3 18.1 16.1 2 0 2
	1971	BAROM	1016,3
DATE	8 AUG	D peed	12
NO		WIN dir s	27
TAT	1105	D	7
လ		VES	0
CRUISE STATION	16	WA dir	27
CRI	M	TRANSP WAVES WIND m dir ht p dir speed	14

SILICA	444
AMMONIA f	.87 1.26 1.08
IRAIE NITRITE AM μg-atoms/liter	.05 .08
NITRATE µg-ato	ພູຕູ້ທຸ
PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.44 .46 .51
SAT	116 117 115
AOU μg-at/1	-79 -85 -77
OXYGEN AOU m1/1 μg-at/1	6.38 6.53 6.52
SIGMA T	24.52 24.65 24.83
SALINITY	33.273 33.273 33.302
TEMP	15.74 15.06 14.30*
DEPTH	0 5

* indicates questionable data: Paired thermometer read 14.39

Hydrographic Stations

ML CRUISE 17	1114
29 September 1971	1157
	1152
	1153
	1159
	1158
	1154
	1150
	1105
30 September 1971	1103
	1108
	1112
	1115
	1110
	1101
1 October 1971	1120
	1123
	1121
	1122
	1124
	1116

				РНАЕО /1	*8*	1.06	.54	• 51	.15
				CHL-a PHAEO µg/1	.52	• 63	.57	9.	• 08
				SILICA	21	0	27	14	23
Ξ(<u>.</u>	VISIB	œ	MMONIA :	77.	00.	00.	1.84	•86
LONGITUE	121° 52.5'	CLOUDS typ amt	П	NITRITE /		90•	•05	•36	.52
N LATITUDE W LONGITUDE	36° 50.5°	AIR TEMP °C WEATH dry wet	2 3	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1.0	• 5	.1	6.4	12.5
		IR TEMP °C dry wet	12.2 11.2	оѕрнате		•36	69°	1.20	1,46
HOUR	6.8								
6.3	1971	BAROM mb	991.5	SAT				85	
DATE	29 SEP 1971	WIND dir speed	2	N AOU				80	
STATION	1114		တ	OXYGE m1/1	7.21	7.15	5.37	5.03	4.40
	17 11	WAVES dir ht p	27 2 2	SIGMA T OXYGEN AOU SAT m1/1 µg-at/1 %	24.71	24.72	25.33	25.48	25.69
CRUISE	M	TRANSP	7	TEMP SALINITY °C ppt	33,427	33,424	33,511	33,542	33,586
				TEMP °C	15,34	15.28	12.67	12,00	11,04
				DEРТН m	0	10	20	30	20

				РНАЕ0 /1	.25	•74	.07	.12	.11	.12	60.	90°
		,		CHL-a PHAE0 μg/1	.32	1.17	• 29	•00	•03	90•	•04	•01
				SILICA	Ŋ	11	14	13	21	27	94	40
ы		VISIB	∞	MMONIA	• 05	•62	•38	•45	96	00.	%	.
W LONGITUDE	121° 56.6'	typ amt	н	PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	90°	.17	1.	•18	.57	.37	11.	.14
N LATITUDE V	36° 49.7°	°C WEATH	۴.	NITRATE µg-at	e.	1:1	6.	1,3	12.2	21.2	25.6	28.4
HOUR N LA	8.6 36	AIR TEMP °C dry wet	13.4 12.3	PHOSPHATE	.41	69.	•61	• 79	1,38	1,85	2.04	2.27
	1971	BAROM mb	1011.9	SAT 1 %	116	111	103	88	75	53	45	37
DATE	29 SEP	WIND dir speed	7 29 1	OXYGEN AOU m1/1 µg-at/1	-79							
STATION	1157	WI p dir	2 7		6.50	6.36	5.94	5.18	4.53	3,28	2.84	2,37
CRUISE STA	17 1:	WAVES dir ht	27 2	SIGMA T	24.87	25.05	25.15	25.40	25.67	26.00	26.21	26,38
CRU	M	TRANSP	12	SALINITY ppt	33.446	33.447	33,469	33,538	33,570	33,736	33.878	33.972
				TEMP °C	14.65	13,78	13,41	12,38	11,08	9.92	9.30	8.70
				DEPTH m	0	9	20	30	20	75	100	150

				PHAEO 1	.16 .85 .25
				CHL-a PHAEO μg/1	.24 1.09 .66 .17
				SILICA	8 12 13 28
妇		VISIB	6	MMONIA	.25 .47 .69 2.70
N LATITUDE W LONGITUDE	122° 2.5	AIR TEMP °C WEATH CLOUDS dry wet typ amt	н	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.09 .14 .16
TUDE W		WEATH	ო	ITRATE µg-at	1.4 .9 .6
N LATI	36°55.6°	IR TEMP °C dry wet	15.0 15.6	PHATE N	.53 .66 .69 1.32
HOUR	10.6				1
	1971	BAROM	1011.9	SAT 1 %	114 106 104 78
DATE	29 SEP 1971		∞	OXYGEN AOU SAT m1/1 µg-at/1 %	-68 -32 -18 113
NOI		WIND dir speed	26	OXYGEN m1/1	6.39 6.05 5.91 4.61
STATION	1152	WAVES dir ht p	1 2	SIGMA I	24.90 25.01 25.03 25.36
CRUISE	ML 17	WAV dir h	26 1	SIGN	24 25 25
CRU	M	TRANSP WAVES m dir ht	8	SALINITY ppt	33,437 33,440 33,442 33,483
				TEMP °C	14.50 13.98 13.86 12.38
				DEPTH m	0 5 10 20

				PHAE0 /1	1.70 1.12 .54
				CHL-a PH μg/1	1.97 1.47 .29
				SILICA	5 16 16
ы		VISIB	6	MMONIA	.00 .38 1.43
HOUR N LATITUDE W LONGITUDE	.22° .3¹	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO μg -atoms/liter	.08 .12
TUDE W	36° 55.6° 122°	WEATH		ITRATE N µg-ato	0 m m
N LATI	36°5	IR TEMP °C dry wet	15.8 14.5	SPHATE N	.60 .73 .94
HOUR	11.4		15	PHO	
	1971	BAROM mb	0111.9	SAT 1 %	113 108 100
DATE	29 SEP 1971	D	26 12 1011.9	AOU µg-at/	-66 -39 -1
STATION DATE		WIND dir speed	26	OXYGEN m1/1	6.34 6.07 5.70
	1153	WAVES dir ht p	26 1 2	T AME	24.84 24.90 25.00
CRUISE	ML 17	W/ dir	26	SIC	555
CR	Ä	TRANSP	7	TEMP SALINITY SIGMA T OXYGEN AOU SAT $^{\circ}$ C ppt m1/1 μ g-at/1 %	33,429 33,433 33,440
					14.72 14.46 14.02
				EPTH m	0 2

				PHAE0	.36
				CHL-a PH μg/1	.51
				SILICA	0 1 9
ы		VISIB	6	MONIA	000
N LATITUDE W LONGITUDE	121° 55.5'	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	г	PHOSPHATE NITRITE AMMONIA SILICA CHL-a PHAEO $\mu g / 1$	03
ITUDE W	36° 57.4'	с WEATH	2	NITRATE µg-at	000
	36	IR TEMP °C dry wet		SPHATE	.32 .30
HOUR	12,3				
Fe3	29 SEP 1971	BAROM mb	1010.3	SAT	134 134 139
DATE	9 SEP	D speed		l AOU μg-at/	7.37 -165 7.41 -169 7.73 -194
NOI		WIND dir speed	26	OXYGEN m1/1	7.37 7.41 7.73
SE STATION	17 1159	WAVES dir ht p	26 2 2	SIGMA T	24.67 24.67 24.74
CRUISE	ML 17	TRANSP WAVES m dir ht	10	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 %	33.428 33.429 33.434
				TEMP :	15.52 15.50 15.20
				DEPTH m	0 5 10

4				-a PHAE0 μg/l	.27
				CHL-a	.34.09
				SILICA	6 12 14
Ħ	•	VISIB	6	MMONIA	.08 .33 .89
N LATITUDE W LONGITUDE	121° 57.0	AIR TEMP °C WEATH CLOUDS dry wet typ amt	н	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO μg -atoms/liter	.11 .14 .21 .13
UDE W		WEATH	7	TRATE µg-at	1.6
N LATIT	36° 54.8'	IR TEMP °C dry wet	16.1 14.2	HATE NI	.49 .79 .88
HOUR	13.2	AIR I dry	16.1	PHOSP	• • • •
	1971	BAROM mb	1010,5	SAT 1 %	112 110 100 90
DATE	29 SEP 1971	WIND dir speed	27 13 1	OXYGEN AOU SAT m1/1 µg-at/1 %	-57 -50 1 51
STATION			27	OXYGEN m1/1	6.26 6.24 5.78 5.28
CRUISE STA'	17 1158	WAVES dir ht p	26 2 2	SIGMA T	24.88 24.96 25.19 25.34
CRU	ML 17	TRANSP	16	SALINITY ppt	33.440 33.409 33.436 33.507
				TEMP .	14.60 14.08 13.08 12.56
				DEPTH m	0 4 9 17

W LONGITUDE	121° 52,4'
N LATITUDE	36° 55.2°
HOUR	14.1
DATE	29 SEP 1971
STATION	1154
CRUISE	ML 17
CRI	된

VISIB		6
CLOUDS		2
TEMP °C WEATH		7
MP °C	wet	16.2 15.3
AIR TE	dry wet	16.2
BAROM	qm	1010.8
WIND	dir speed	25 12
WAVES	dir ht p	25 1 2 25 12
TRANSP	E d	11

PHAEO 1	.23
CHL-a PHAEO µg/1	.37
SILICA	000
MMONIA S	0000
TRATE NITRITE A µg-atoms/liter	.04 .02 .06
VITRATE N µg-ato	000
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.30 .28 .29
SAT %	133 134 137
AOU 1g-at/1	-166 -169 -182
OXYGEN AOU ml/1 µg-at/1	7.42 7.46 7.62
SIGMA T	24.76 24.77 24.78
SALINITY ppt	33.420 33.419 33.420
TEMP °C	15.09 15.04 14.98
DEPTH m	0 5 10

				PHAEO	.00
				CHL-a PH/ μg/1	1.47 4.73
				SILICA	070
ы	-	VISIB	6	MONIA	000
HOUR N LATITUDE W LONGITUDE	36° 52,9' 121° 51,2'	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	2	PHOSPHATE NITRITE AMMONIA SILICA CHL-a PHAEO $\mu g/1$.06 .05
TUDE	15.91	; WEATH	က	IITRATE µg-at	0.1.0
N LATI	36°5	IR TEMP °C dry wet		SPHATE N	.25 .26
HOUR	14.8				
ы	29 SEP 1971	BAROM mb	1009.1	SAT /1 %	145 145 144
DATE	29 SEP	WIND dir speed	27 13 1009.1	in Aou Lyg-at	8.03 -222 8.04 -223 7.99 -218
STATION	1150	_		OXYGI m1/1	8.03 8.04 7.99
CRUISE ST		WAVES dir ht p	27 2 2	SIGMA T	24.70 24.71 24.72
CRU	ML 17	TRANSP	9	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 %	33.411 33.411 33.411
				TEMP °C	15.31 15.28 15.20
				DEPTH m	0 5

				РНАЕ0 /1	1.16 .88 1.20
				CHL-a PH μg/l	1.79 1.45 2.35
				SILICA	m 0 0
떱		VISIB	6	MMONIA	0000
N LATITUDE W LONGITUDE	121° 49.8°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	9	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO μg-atoms/liter	.06 .04 .08
ITUDE W	36°50.91	C WEATH	e	NITRATE µg-at	000
		TEMP °(SPHATE 1	.33 .27 .30
HOUR	15.6	AIR			
	1971	BAROM mb	1000,1	SAT '1 %	141 140 142
DATE	29 SEP 1971	pea	26 11 1009.1	N AOU μg-at/	7.78 –201 7.75 –198 7.83 –205
STATION	1105			OXYGE m1/1	7.78 7.75 7.83
CRUISE STA		WAVES dir ht p	26 2 2	SIGMA T OXYGEN AOU SAT ml/l µg-at/l %	24.67 24.67 24.68
CRU	ML 17	TRANSP m di	œ	DEPTH TEMP SALINITY m °C ppt	33,409 33,408 33,410
				TEMP :	15.44 15.42 15.40
				DEPTH	0 5 10

				РНАЕ0 /1	00.	1.26	• 40	•32	1,56	.27	•24
				CHL-a PHAEO µg/1	3.78	2,27	.68	.35	1.87	.12	90•
				SILICA	7	6	10	11	6	15	54
Ħ	•	VISIB	6	MMONIA	•19	•01	1.44	2,35	•08	2,27	1.12
LONGITUI	121° 48.5'	CLOUDS typ amt	3 1	IITRITE / ms/liter	•04	•05	•19	• 28	•07	•36	•43
TUDE W	36° 48.1¹]	WEATH	6	ITRATE N µg-ato	4.	.1	1.8	4.5	9.	10.2	18.1
HOUR N LATITUDE W LONGITUDE	36°4	AIR TEMP °C dry wet	11.8 11.1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	64.	•74					1,73
HOUR	9•9		11								
_	1971	BAROM mb		SAT 1 %	127	93	84	73	95	77	89
DATE	30 SEP 1971	peq	۲	OXYGEN AOU ml/l µg-at/l			86				
STATION		WIND dir spe	15 5	OXYGED m1/1	6.93	5,43	4.92	4.30	5.49	4.58	4.15
CRUISE STAT	17 1103	WAVES dir ht p	26 1 2	SIGMA T	24.54	25,29	25.41	25.48	25,25	25.58	25.90
CRUI	M	TRANSP m d	4	SALINITY ppt	33,422	33,509	33,528	33,535	33,504	33,573	33,684
				TEMP (16.06	12,86	12,30	11,97	13,03	11,60	10.28
				DEPTH m			10				
				DEP							

* indicates questionable data: Depths uncertain

W LONGITUDE	121° 50.5'
N LATITUDE	36° 47.4°
HOUR	8.5
DATE	30 SEP 1971
STATION	1108
CRUISE	ML 17

VISIB		6
CLOUDS	typ amt	н
IJ	typ	က
WEATH		2
၁	ñ	9.0
TEMP °C	wet	10.6
AIR T	dry	12.8
VΙ	ъ	П
BAROM	qш	1013.9
WIND	speed	4
M	dir	30
	ф	7
WAVES	ht	29 2 2
MM	dir ht	29
TRANSP	E	8

РНАЕ0 /1	1.34 .51 .11.2 .11.2 .09
CHL-a µg/	2.36 .68 .04 2.15 .04
SILICA	10 10 14 22 22 31 32 40
AMMONIA F	.10 .05 1.13 .28 .00 .19
<pre>RATE NITRITE Al μg-atoms/liter</pre>	.02 .04 .51 .15 .15
NITRATE NITRITE AMMONIA µg-atoms/liter	.8 .3 .4 19.2 26.1 26.3 26.3
PHOSPHATE	.31 .70 1.28 1.74 1.85 2.02 2.08
SAT %	137 85 75 61 35 48 46
\vdash	
AOU g-at/	-181 79 137 217 362 293 304 362
OXYGEN AOU m1/1 µg-at/1	7.58 -181 4.97 79 4.47 137 3.72 217 2.17* 362 2.99 293 2.89 304 2.34 362
SIGMA T ΟΧΥGEN AOU m1/l μg-at/	
H	7.58 4.97 4.47 3.72 2.17* 2.89
SIGMA I	428 24.74 7.58 544 25.38 4.97 586 25.63 4.47 671 25.89 3.72 764 26.07 2.17* 816 26.16 2.99 857 26.22 2.89 985 26.43 2.34
SALINITY SIGMA T ppt	33,428 24,74 7,58 33,544 25,38 4,97 33,586 25,63 4,47 33,671 25,89 3,72 33,764 26,07 2,17* 33,816 26,16 2,99 33,857 26,22 2,89

* indicates questionable data

CRUISE STATION DATE HOUR NIATITUDE WICHTUDE IT 1112 30 SEP 1971 11.8 36° 46.9° 121° 52.1°

VISIB	6
CLOUDS typ amt	7
CLC	က
WEATH	2
AIR TEMP °C dry wet	13.9 12.1
R TE ry	3.9
AI	7
BAROM mb	1014.6
WIND dir speed	н
W] dir	29 2 2 33
ď	2
VES ht	7
WAVES dir ht p	29
ANSP	6

РНАЕО 1	.32	.11	0.07	11.
CHL-a I µg/1	2.39	.04	0.00	70.
SILICA	ഹ ന	13	34	1 4
	00.	2.45	£1.88	90.
NITRATE NITRITE AMMONIA µg-atoms/liter	.01	.47	10	·T•
NITRATE µg-at	1,3	11.7	26.6 27.8	20.00
PHOSPHATE	.26 .28	1.33	2.07	64.7
SAT	134 137 84	77	45 40 73	75
_			326 42 340 40	
OXYGEN AOU SAT m1/1 µg-at/1 %	-166 -184 86	125 272		286
_	7.38 -166 7.61 -184	4.60 125 3.08 272	326	766 707
OXYGEN AOU ml/l µg-at/l	24.67 7.38 -166 24.73 7.61 -184 25.47 4.95 86	25.61 4.60 125 25.86 3.08 272	2,62 326 2,51 340	20.30 2.04 392
SIGMA T ΟΧΥGEN AOU m1/l μg-at/l	24.67 7.38 -166 24.73 7.61 -184 25.47 4.95 86	33.557 25.61 4.60 125 33.658 25.86 3.08 272	33,908 26,24 2,62 326 33,930 26,30 2,51 340	34°0T/ 70°30 7°04 397

CRUISE STATION DATE HOUR NIATITUDE WIONGITUDE ML 17 1115 30 SEP 1971 12.4 36° 46.8" 121° 58.3"

VISIB		6
CLOUDS	:yp amt	2
WEATH (t	en
TEMP C	wet	12.1
AIR TE	dry	13.6
BAROM	qu	1015.6
MIND	dir speed	32 16
	Д	٣
WAVES	dir ht	31 4 3
TRANSP	E	Ŋ

РНАЕО /1	8.6	95	• 54	• 18	• 20	.12	9 0•	•05	•05	90•	•03
CHL-a PH/ μg/1	5,33	1.26	64.	•34	60.	•03	•05	•05	•01	•05	•01
SILICA	9 4	9	6	14	16	19	19*	34	36	43	54
	11.	22	00.	•16	00•	00.	* 90°	•21	•04	•43	•19
NITRITE , oms/lite	03	70.	0	•43	•55	.11	*80*	80°	*00	•07	•02
NITRATE NITRITE AMMONIA µg-atoms/liter	'nς	2 %	5.	4.7	16.1	18.6	22.6*	27.4	30.1	31,1	35.6
PHOSPHATE	•43	41	.72	1.07	1,50	1.72	2,37*	2,19	2,38	2,48	2.76
SAT %	123	115	74	74	69	61	40	40	32	30	22
AOU g-at/1	-115	-73	136	138	170	214	338	339	386	402	461
OXYGEN AOU ml/l µg-at/l	6.97	6.52	4.33	4.39	4.15	3.74	2,51*	2,51	2.05	1,93	1.43
SIGMA T	25.07	25.10	25.41	25.58	25.78	25.94	26,35	26.41	26.53	26.61	26.79
SALINITY ppt	33,528	33,533	33,574	33,638	33,677	33.747	34.013	34.065	34,133	34.148	34.187
TEMP °C	13.98	13.88	12,49	11,85	10,90	10,30	80.6	8.98	8.54	8.12	7.04
DEPTH m	0 [13	28	36	09	84	134	155	195	240	330

* indicates questionable data

ы		AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	6
NGITUD	51.8	LOUDS p amt	т
[O	121	ty C	က
UDEW	.4.	WEATH	н
LATIT	36°45	MP °C wet	12.1
HOUR N LATITUDE W LONGITUDE	30 SEP 1971 14.3 36° 45.4° 121° 51.8°	AIR TE dry	29 6 3 29 14 1015,2 14,0 12,1 1 3 1
	1971	WAVES WIND BAROM Aidir ht p dir speed mb	.015.2
DATE	30 SEP	ND speed	14 1
N.		WI lir	29
STATION	1110	<u>.</u>	က
ST	H	ES	9
CRUISE	17	WAV dir h	29
CRI	첫	TRANSP m di	'n

PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO

µg-atoms/liter

OXYGEN AOU m1/1 µg-at/1

SIGMA T

SALINITY

TEMP °C

DEPTH

日

ppt

* indicates questionable data: Paired thermometer read 12.68

.85 1.52 .79 1.19 .18

2.45 2.23 .98 1.76 .34

4 4 6 6 15

2.40

02 02 02 03 35

2. 2. 4. 2. 7. 6

.36 .47 .47 .53 .76

141 141 108 102 88 88 78

-201 -203 -40 -10 63

7.76 7.78 6.13 5.84 5.14

24.67 24.66 25.05 25.16 25.38 25.55

33.444 33.441 33.507 33.537 33.560 33.580

15.58 15.58 14.00 13.60 12.60*

0 5 10 16 24 41

W LONGITUDE	121° 49.6'
N LATITUDE	36° 44.9
HOUR	15.0
DATE	30 SEP 1971 15.0
STATION	1101
CRUISE	Æ 17
CRU	À

VISIB	6
AIR TEMP °C WEATH CLOUDS dry wet typ amt	3 1
C	n
WEATH	7
Wet wet	
Y IE	
AIR	
ROM b	9
BA	1014.6
WIND BAROM dir speed mb	
WIND dir speed	28
WIND dir speed	28
WAVES WIND BA	
WIND dir speed	28

РНАЕ0 /1	999
CHL-a μg/	4.56 2.30 2.24
SILICA	9 20 20
AMMONIA r	000
TRATE NITRITE AM µg-atoms/liter	.03 .03
NITRATE pg-at	9750
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.42 .41
SAT	142 144 139
OXYGEN AOU m1/1 µg-at/1	-208 -213 -191
OXYGEN m1/1 /	7.83 7.89 7.66
SIGMA I	24.64 24.64 24.68
SALINITY ppt	33.433 33.429 33.431
TEMP °C	15.67 15.65 15.49
DEPTH m	0 2

•				CHL-a PHAEO µg/1		19. 9				
					3.4	7,15	4.	9.	1.0	•
				SILICA	2	2	2	7	10	13
ក	•	VISIB	œ	AMONIA	00.	00.	• 39	•10	•18	2.24
N LATITUDE W LONGITUDE	121° 51.8°	CLOUDS typ amt	1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	•07	90•	•05	60°	.17	•42
TITUDE	36° 43.0°	°C WEATH	0	: NITRATE μg-at	2.8	۲.	o <u>.</u>	o <u>.</u>	6•	7.2
		AIR TEMP °C dry wet		оѕрнать	•35	• 36	.47	• 54	90	1,33
HOUR	7.1					_				
ы	1 OCT 1971	BAROM mb	1019.3	SAT /1 %		130				
DATE	1 OCT	WIND dir speed	œ	OXYGEN AOU ml/l µg-at/l		-148				
STATION	1120		12	OXYGE m1/1	7.63	7.21	6.89	6.01	4.98	4.73
CRUISE STA		WAVES dir ht p	28 0 2	SIGMA T	24.75	24.75	24.88	25.15	25,37	25.54
CRU	ML 17	TRANSP	4	SALINITY ppt	33,447	33,445	33,473	33,501	33,535	33,560
				TEMP °C	15.19	15,20	14.72	13,52	12,54	11.76
				DEРТН m	0	2	10	20	30	20

CRUISE STATION DATE HOUR N LATITUDE W LONGITUDE ML 17 1123 1 OCT 1971 8,4 36° 39.0° 121° 53.2°

VISIB		œ
CLOUDS	typ amt	-
AIR TEMP °C WEATH		c
C. JWE	wet	138 117 0
AIR I	dry	13 8
BAROM	qu	1019 6
WIND	dir speed	
	dir	70 0 7 5 3
	Д	C
VES	ht	C
WAVES	dir	20
TRANSP	E G	ď

РНАЕ0 /1	.67	00.	.53	• 35	.41	• 20
CHL-a PH μg/1	5.23	4.73	80	• 38	•51	•10
SILICA	2	7	4	6	15	21
AMMONIA F	%	0.	•54	00.	2,31	.85
NITRITE /	•05	•04	•04	* 08	•37	.57
NITRATE µg-ato	٦.	0•	r.	0.	5,3	18.2
PHOSPHATE NITRATE NITRITE AMMONIA µg-atoms/liter	• 30	•24	• 38	•79	1,30	1.77
SAT %	147	144	133	87	80	65
AOU 1g-at/1	-230	-215	-166	20	108	185
OXYGEN AOU m1/1 µg-at/1	8.12	7.96	7.43	5.08	4.74	3.91
SIGMA T	24.78	24.79	24.83	25,38	25.53	25.64
SALINITY ppt	33,495	33,494	33,495	33,540	33,559	33,642
TEMP °C	15,23	15,18	15.00	12,48	11,80	11,53
DEPTH m	0	2	10	70	9	20

6				-a PHAEO μg/l	.58 1.55 1.16
				CHL-a µg	31.10 1.56
				SILICA	8 8 16
Ä	•	VISIB	œ	MMONIA	.07 .00 .19
N LATITUDE W LONGITUDE	121° 51.6'	CLOUDS typ amt	н	TRATE NITRITE AN µg-atoms/liter	.05 .06 .02
TUDE W		WEATH	0	ITRATE N μg-ato	3.1.2
N LATI	36° 37,31	AIR TEMP °C WEATH CLOUDS dry wet typ amt	16.3 12.8	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO µg-atoms/liter	.30 .49
HOUR	9.3	AIR	16	РНО	
	1971	BAROM mb		SAT 1 %	169 130 113
DATE	1 OCT 1971	peq	ъ	OXYGEN AOU SAT m1/1 μ g-at/1 %	9.22 -334 7.17 -148 6.41 -67
STATION	21		9	OXYGEN m1/1	9.22 7.17 6.41
	17 1121	WAVES dir ht p	29 2 0	SIGMA I	24.63 24.71 25.03
CRUISE	ML 17	TRANSP m d	7	TEMP SALINITY S	33.492 33.478 33.529
				TEMP S	15.89 15.52 14.20
				IPTH m	0 2 0

				PHAE0 1	00. 4.8 .60
				CHL-a PH μg/l	14.5 .64 .70
				SILICA	7 5 11
1 2	- ,	VISIB	œ	MMONIA	.08 .28 .15
N LATITUDE W LONGITUDE	121° 53.1	AIR TEMP °C WEATH CLOUDS dry wet typ amt	1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO μg-atoms/liter μg/l	.02 .02
TUDE W		WEATH	0	ITRATE µg-at	1.1
N LATI	36° 36.7°	IR TEMP °C dry wet	15.7 12.7	PHATE N	.19 .16
HOUR	8.6	AIR dry			
ы	1 OCT 1971	BAROM mb	1019.6	XXGEN AOU SAT m1/1 µg-at/1 %	177 153 116
DATE	1 OCT	WIND dir speed	2	OXYGEN AOU m1/1 µg-at/1	9.66 -374 8.42 -259 6.55 -79
STATION	1122	•	6	O	9.66 8.42 6.55
		WAVES dir ht p	32 0 2	SIGMA I	24.63 24.72 25.04
CRUISE	ML 17	TRANSP m	7	TEMP SALINITY °C ppt	33.496 33.501 33.522
				TEMP °C	15.94 15.52 14.14
				DEPTH m	0 2

I LONGITUDE	121° 56.5°
N LATITUDE V	36, 39,81
HOUR	10.7
DATE	1 OCT 1971
STATION	1124
CRUISE	ML 17

NUDS VISIB	1 8	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO $$\mu g\mbox{-}atoms/liter$
WEATH CLOUDS typ amt	0	TRATE NITRITE AM µg-atoms/liter
AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	15.6 13.9	PHOSPHATE NIT
S WIND BAROM p dir speed mb	2 35 4 1019,6 15,6 13,9 0	[SIGMA T OXYGEN AOU SAT m1/1 μg-at/1 %
FRANSP WAVES m dir ht p	5 29 0 2	SALINITY SIGMA ppt
H		TEMP SAL

1.14. .56

7 5 9 13 13

.07 .00 .00 .00

04 02 03 03 39

3.1.2

.18 .21 .70 .86

160 138 88 80 80 73

-296 -186 63 103 143

8.81 7.65 5.12 4.74 4.37

24.68 24.82 25.32 25.44 25.59

33.502 33.494 33.536 33.548 33.584

15.70 15.04 12.81 12.25 11.60

0 10 30 30

DEPTH

W LONGITUDE	121° 55.7'
N LATITUDE	36° 43.0
HOUR	12.0
DATE	1 OCT 1971
STATION	1116
RUISE	17
CRU	ML 17

		PHAEO '1	.00 .91 .56 .52 .37
		CHL-a PH μg/1	7.05 1.37 .64 .53 .27
		SILICA	5 6 6 10 13 17
VISIB	∞	AMMONIA C	000.517
CLOUDS typ amt	1	RATE NITRITE AI µg-atoms/liter	.05 .05 .07 .19 .23
WEATH	0	ITRATE 1 µg-ato	.1 .3 .9 .4 .9 21.2
AIR TEMP °C dry wet	14.7 12.9	PHOSPHATE NITRITE AMMONIA μg-atoms/liter	.33 .50 .46 .84 1.11 1.55
BAROM	1020.0	SAT %	144 119 112 84 79 68
	3	OXYGEN AOU m1/1 µg-at/1	-214 -98 -63 81 113 174 255
WIND dir speed	29 8	OXYGEN m1/1	7.91 6.30 6.42 4.96 4.68 4.13 3.32
WAVES dir ht p	29 0 2	SIGMA T	24.70 25.04 25.10 25.42 25.54 25.78
TRANSP	6	SALINITY	33,466 33,465 33,501 33,555 33,641 33,761
		TEMP °C	15.52 13.90 13.74 12.38 11.82 10.74
		DEPTH m	0 10 20 30 50 75

Hydrographic Stations ML CRUISE 18 20 October 1971 21 October 1971 22 October 1971

				РН А ЕО 1	1.40 .84
				CHL-a PH μg/1	2.15 3.54 4.22
				SILICA	19 11 9
田		VISIB	7	MMONIA	.40 .15
HOUR N LATITUDE W LONGITUDE	121° 49.8°	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	7 8	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO $\mu_{ m B}$ -atoms/liter	.22
ITUDE W	36° 50.8°	с WEATH	3 40	NITRATE µg-at	6.9 1.9 3.0
N LAT		AIR TEMP °(dry wet	9.4 8.3 40	SPHATE	.73 .71 .64
HOUR	6.5	AIA	01	PHC	
ы	1971	ВАRОМ mb	11 1 1017.9	SAT /1 %	108 109 109
DATE	20 OCT 1971	WIND dir speed	н	N AOU µg-at	-42 -44 -47
STATION	1105			OXYGE m1/1	6.33 6.37 6.50
		WAVES dir ht p	27 0 2	SIGMA T OXYGEN AOU SAT m1/1 µg-at/1 %	25.39 25.40 25.47
CRUISE	ML 18	TRANSP m di	6 2	TEMP SALINITY S	33,550 33,543 33,455
				TEMP 8	12.50 12.42 11.68
				DEPTH m	0 5

2				РНАЕО /1	.37 .08 1.18
				CHL-a PH μg/1	6.16 4.30 1.70
				SILICA	8 10 11
30		VISIB	7	MMONIA	.00 .18
N LATITUDE W LONGITUDE	121° 51.5'	AIR TEMP °C WEATH CLOUDS dry wet typ amt	7 8	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO μg -atoms/liter	.13
TIUDE	36° 52.7°	C WEAT	3 40	NITRATE µg-a1	2°.4 2°.3 2°.8
IVI N		IR TEMP °C dry wet	10.0 8.3 40	ЭЅРНЛТЕ	.59 .70 .79
HOUR	7.3	AI	Ä	PHO	
	1971	BAROM mb	017.9	SAT 1 %	111 104 101
DATE	20 OCT 1971) peed	10 2 1017.9	AOU ug-at/	-57 -22 -6
NOI		WIND dir speed	10	OXYGEN AOU SAT m1/1 µg-at/1 %	6.59 6.19 6.01
CRUISE STATION	18 1150	WAVES dir ht p	27 0 2	SIGMA T	25.45 25.47 25.48
CRU	ML 18	TRANSP	9	SALINITY ppt	33.462 33.498 33.518
				TEMP °C	11.81 11.86 11.89
				DEPTH m	0 5 10

				РНАЕО '1	.40
				CHL-a PH µg/1	23.6 8.27 2.32
				SILICA	18 19 20
Ξ	•	VISIB	7	MMONIA:	.00
HOUR N LATITUDE W LONGITUDE	36° 55,3† 121° 52,7†	AIR TEMP °C WEATH CLOUDS dry wet typ amt	7 8	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO μg -atoms/liter	.04 .06
TUDE	5,3'	WEATI	7.	ITRATE µg-a	000
N LATI	36°5	IR TEMP °C dry wet	11.1 8.9	PHATE N	.49 .54 .78
HOUR	8.1	AIR dry	11.	PHOS	
63	1971	BAROM mb	1019.3	OXYGEN AOU SAT ml/l µg-at/l %	148 135 86
DATE	20 OCT 1971	WIND dir speed		N AOU μg-at	8.59 -250 7.85 -180 5.02 75
STATION	1154	_	16 2	OXYGE m1/1	8.59 7.85 5.02
		WAVES dir ht p	18 1 5	SIGMA I	25.34 25.39 25.44
CRUISE	ML 18	TRANSP m d	က	SALINITY ppt	33.620 33.609 33.611
				TEMP °C	13.04 12.72 12.48
				DEPTH	0 5 10

eЭ	_	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	7
GITUD	56.7	OUDS	8
N LON	121°	I CL	7
JDE V	3,	WEATH	2
N LATITU	36°55	aMP °C wet	9. 4
HOUR N LATITUDE W LONGITUDE	18 1158 20 OCT 1971 9.0 36° 55.3' 121° 56.7'		18 1 5 18 3 1019,3 11,7 9,4 5 7 8
EЭ	1971	BAROM I mb	1019,3
DATE	20 OCT	WAVES WIND dir ht p dir speed	m
LON	., m	WID dir s	13
CRUISE STATION	1158	Δ.	5
CO		AVES ht	7
ISE	18	W. dir	18
CRI	ML	TRANSP	7

* indicates questionable data: Paired thermometer read 12.34

29.6 14.7 7.43 1.47

17 16 15 14

.01 .00 .17 .36

92 45 11

0000

.48 .51 .56

141 129 114 104

-212 -149 -73 -23

8.18 7.49 6.66 6.13

25.35 25.37 25.40 25.43

33.615 33.609 33.604 33.581

12.96 12.84 12.64 12.40*

0 10 20

PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO

µg-atoms/liter

SAT %

OXYGEN AOU m1/1 µg-at/1

SIGMA T

SALINITY

TEMP °C

DEPTH

E

ppt

				РНАЕ0 ′1	.00
				CHL-a PH μg/1	19.3 4.16 8.33
				SILICA	14 14 19
г.		VISIB	7	MONIA	00.00
N LATITUDE W LONGITUDE	36° 57.3' 121° 56.2'	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	13.3 12.8 0 7 7	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO µg-atoms/liter	.04 .06 .07
UDE W I	.3' 12	WEATH	0	TRATE NI µg-atom	000
N LATIT	36°57	AIR TEMP °C dry wet	3 12.8	HATE NI	.55 .59
HOUR	7.6	AIR 1 dry	13,3	PHOSI	
M	1971	BAROM mb	1017.6	SAT /1 %	123 112 91
DATE	20 OCT 1971	WIND dir speed	28 8 1017.6	N AOU	7.19 -119 6.58 -63 5.36 46
STATION	1159			OXYGE m1/1	7.19 6.58 5.36
		WAVES dir ht p	29 2 6	IGMA I	25.41 25.43 25.45
CRUISE	ML 18	TRANSP WAVES m dir ht	4	TEMP SALINITY SIGNA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 %	33 . 577 33 . 573 33 . 599
				TEMP S	12.52 12.38 12.38
				ЭЕРТН m	0 20 10

			PHAE0 1	.61* .18
			CHL-a µg/	4.40* 4.56 3.71
			SILICA	12 13 6
•	VISIB	^	MMONIA	.24 .34 .76
122° .3	CLOUDS typ amt	7 8	NITRITE A oms/liter	.12
56.7"	С WEATH	1 5	NITRATE µg-at	1.1
36	R TEMP °	2.8 11.	OSPHATE	.60
10.5			PH	
1971	BAROM mb	1019,3	SAT	113 108 113
10 OCT	D ipeed	0	r AOU μg-at/	6.63 -65 6.36 -40 6.66 -66
	WIN dir s		OXYGEN m1/1	6.63 6.36 6.66
	WAVES iir ht p	0	SIGMA I	25.45 25.47 25.48
보	TRANSP	7	SALINITY	33,558 33,559 33,559
			TEMP °C	12.22 12.12 12.07
			DEPTH m	0 5 10
	ML 18 1153 20 OCT 1971 10.5 36° 56.7° 122° .3°	1153 AVES WI ht p dir	18 1153 20 OCT 1971 10 WAVES WIND BAROM Ir ht p dir speed mb 0 0 1019.3	TRANSP WAVES WIND BAROM m dir ht p dir speed mb 7 0 0 0 0 1019.3 TEMP SALINITY SIGMA T OXYGEN AOU SAT COUNTY OXYGEN AOU SAT M1/1 µg-at/1 %

* indicates questionable data

LONGITUDE	2,7
M LONG	122° 2.7
LATITUDE	36°55.41
N LAT	36
HOUR	11.2
巴	r 1971
DATE	20 OCT
STATION	1152
	18
CRUISE	M

VISIB		7
CLOUDS	typ amt	9
Γ	typ	7
WEATH		П
၁	ید	11.7
TEM	dry wet	
R T	ry	13,3
AIR	Ъ	1
BAROM	qu	1018.6
MIND	speed	9
M	dir	25
	ф	2
WAVES	lir ht	П
W	dir	28
TRANSP	E	9

PHAEO '1	00° 666 00° 58
CHL-a]	3.66 5.16 3.61 1.08
SILICA	4 7 9 12
MMONIA 8	.08 .00 .07
<pre>IRATE NITRITE AN</pre>	.06 .09 .10
NITRATE µg-at	2.5 0.3 2.4
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.40 .52 .57
SAT	123 117 114 101
AOU 1g-at/1	-122 -87 -73 -3
OXYGEN AOU ml/l µg-at/l	7.30 6.91 6.74 5.96
SIGMA T	25.37 25.43 25.44 25.48
SALINITY ppt	33,408 33,472 33,506 33,551
TEMP °C	12.00 11.96 12.06 12.00*
DEPTH	0 5 10 20

* indicates questionable data: Paired thermometer read 11.94

W LONGITUDE	121° 58.1°
N LATITUDE	36° 50.1
HOUR	12.7
DATE	20 OCT 1971
STATION	1157
CRUISE	ML 18

AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt BAROM mb WIND dir speed WAVES dir ht p TRANSP

Ħ

РНАЕО /1	.07 1.01 .71 .37 .44 .28 .13
CHL-a µg/	.01 .93 .39 .15 .08
SILICA	6 10 11 14 15 20 28
AMMONIA r	08 10 30 05 00 04 07
NITRATE NITRITE AN µg-atoms/liter	.10 .27 .34 .19
	2.0 1.8 4.1 6.5 13.7 17.0 18.9
PHOSPHATE	.65 .73 .89 1.00 1.27 1.63 2.09
SAT L %	105 97 97 90 78 73 66
AOU 1g-at/1	-24 14 17 55 118 145 187 307
OXYGEN AOU m1/1 µg-at/1	6.05 5.74 5.77 5.43 4.74 4.08
T A	25 25 25 25 25 25 25 25 25 25 25 25 25 2
SIGMA	25.20 25.39 25.49 25.59 25.67 25.77 25.90 26.17
SALINITY SIGN PPt	33.479 33.483 33.489 33.475 33.541 33.632 33.852
01	

* indicates questionable data: Paired thermometer read 12.96

W LONGITUDE	121° 52.4'
N LATITUDE	36° 50.8
HOUR	14.2
DATE	20 OCT 1971
STATION	1114
CRUISE	ML 18

VISIB		7
CLOUDS	yp amt	7
C	typ	7
WEATH		0
TEMP °C	wet	12.2
AIR TE	dry	13.9
BAROM	입	1017.6
WIND	speed	10
3	dir	29 2 5 31
	ď	2
WAVES	dir ht p	7
M	dir	29
TRANSP	Ħ	8

PHAEO '1	1,38 ,93 ,33*	
CHL-a µg/	1.52 1.13 .23*	00.
SILICA	V 8 9 5	27
MMONIA :	.11 .16 .42	2.05
NITRATE NITRITE AMMONIA S µg-atoms/liter	.25 .13 .18	38
NITRATE µg-at	2 2 2 4 4 6 9 6	7.5
PHOSPHATE	.61 .62 .71	1.15
SAT %	108 111 106	91
AOU 18-at/1	-41 -56 -30	47
OXYGEN AOU m1/1 µg-at/1	6.29 6.51 6.24	5.46
SIGMA T	25.28 25.38 25.44	25.56
SALINITY ppt	33.497 33.515 33.528	
TEMP °C	12.83 12.38 12.15	11.47*
DEPTH m	0 01 65	7 7 8

* indicates questionable data: Paired thermometer read 11.38

)				CHL-a PHAEO μg/1	1,55	1,53	1.27	.83	• 58	.22	.41	•45
				CHL-a	2,20	1,71	1.44	1,41	•53	•25	• 28	• 30
				SILICA	11	70	10	11	9	15	18	21
ы		VISIB	7	MONIA	00•	00•	00.	•15	•57	•25	•05	•73
W LONGITUDE	121° 48.4'	CLOUDS typ amt	2 1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	•10	• 10	.12	•18	• 50	•30	•30	•28
N LATITUDE W	36° 48.1'	°C WEATH	9.2 5	: NITRATE µg-at	1.2	1,3	1.3	2.3	2.2	8.5	11.2	12,7
HOUR N LA	6.5 36	AIR TEMP °C dry wet	10.0	РНОЅРНАТЕ	• 65	•63	• 58	.68	69•	1,11	1.25	1.37
		BAROM mb	1019.3	SAT L %	104	106		86	95	85	79	73
DATE	21 OCT 1971			OXYGEN AOU ml/l µg-at/1	-22	- 30		11	53	81	115	145
STATION	1103	WIND dir speed	11 2	OXYGEN m1/1	6.07	6.16		5.77	5.61	5.11	4.77	4.46
CRUISE STA	18 11	WAVES dir ht p	27 1 2	SIGMA T	25.29	25,31	25,35	25.43	25.49	25.62	25.70	25.78
CRU	됬	TRANSP	Ŋ	SALINITY ppt	33,509	33	33,535	33,538	33,535	33,553	33,581	33,636
				TEMP °C	12,84	12,80	12,64	12,26*	11,88	11,28	10,95	10,72*
				DEPTH m	0	5	10	20	9	20	75	100

* indicates questionable data: Paired thermometers read 12.18 at 20 m., 10.66 at 100 m.

				РНАЕО /1	1,25	• 74	.72	.52	64.	04.	•23	•24
				CHL-a PHAEO µg/1	1.02	•64	• 76	• 38	•38	•30	•24	.12
				SILICA	7	9	7	10	11	16	16	32
F-3		VISIB	7	MONIA	00•	00.	00.	•65	•04	• 26	00•	00•
W LONGITUDE	121° 49 _. 9¹	CLOUDS typ amt	2 1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.12	•08	.12	• 24	•23	• 30	•34	•10
N LATITUDE W	36° 47.6°]	с иеатн	3	NITRATE N µg-ato	9.	6•	1.6	4.7	5.0	11.2	16.0	20.8
		AIR TEMP °C dry wet	9.9 9.3	OSPHATE	• 50	.53	•63	.91	06•	1.09	1,22	1.92
HOUR	7.8	AI		FL								
	1971	BAROM mb	1019.3	SAT	102	100	66	99	84	83	71	20
DATE	21 OCT 1971	D peed		AOU μg-at/	8						159	
LON		WIND dir speed	13 4	OXYGEN AOU m1/1 µg-at/1	5.90	5.79	5.78	4.01*	4.98	4.96	4.26	3,15
STATION	1108	WAVES dir ht p	27 1 2	SIGMA T	5.27	5.26	5,31	5,45	5.49	5.58	25.65	6.15
CRUISE	18	W	27		2	7	7	7	7	7	7	7
CR	M	TRANSP	10	SALINITY ppt							33,548	
				TEMP °C	12,94	12,98	12,72	11,98*	11,84	11,39	11,10	9.44
				EPTH m	0	10	20	30	20	75	100	150

DEPTH Ħ

* indicates questionable data: Paired thermometer read 11.89

2				PHAE0 / 1	.42	•65	•72	•65	30	•22	•18	•17
				СН L-а РНАЕО µg/1	•80	68	.85	•68	•24	.17	•16	.11
				SILICA	9	9	7	11	10	14	16	25
		VISIB	7	MONIA	00•	00.	00•	00	٠ •	00•	00•	00•
W LONGITUDE	121° 52.0'	H CLOUDS typ amt	2 1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	60•	.13	•02	.21	.22	• 29	• 38	.22
N LATITUDE V	36° 48.2°	C WEATH	7 5	NITRATE µg-at	•5	1,5	3.2	7.5	8,1	12.9	13.6	19.7
		AIR TEMP °C dry wet	11.8 10.7	OSPHATE	.48	• 59	89•	90	1.04	1,32	1,42	1,82
HOUR	8.9											
	1971	BAROM mb	1020.7	SAT '1 %	97	102	97	89	82	72	73	29
DATE	21 OCT 1971	D peed		AOU µg-at/	14	-7	16	28	96	151	146	229
STATION		WIND dir speed	14 4	OXYGEN AOU m1/1 µg-at/1	5.60	5.86	5.64	5.25	4 •89	4.35	4.45	3.63
	18 1112	WAVES dir ht p	28 1 2	SIGMA T	25.19	25,21	25.29	25.41	25,51	25.67	25.73	26.01
CRUISE	M	TRANSP m d	∞	SALINITY	33,505	33,500	33,507	33,500	33,509	33,567	33,567	33,737
				· C	13,32	13,22	12,86	12,17*	11,68	11,04	10,71	6 *98*
				DEPTH m	0	10	20	30	20	75	100	150

Paired thermometers read 12.08 at 30 m., 9.80 at 150 m. * indicates questionable data:

W LONGITUDE	121° 56.8°
N LATITUDE	36° 46.6
HOUR	10.6
DATE	21 OCT 1971
STATION	1115
CRUISE	M. 18

VISIB		7
CLOUDS	yp amt	П
	tyl	7
WEATH		2
AIR TEMP °C	wet	11.7
AIR TE	dry	13,3
BAROM	숕	1020.7
WIND	ir speed	29 6
3	dir	
	Д	28 1 2
WAVES	ht	7
WA	dir ht	28
RANSP		_

PHAE0 /1	• 36	1.08	9.	•24	•25	•24	.15	•05	•05	•04	•04	90°
CHL-a Pi µg/1	94.	1,01	.77	•21	•13	•16	.11	•05	•05	•05	•05	•03
SILICA	9	7	∞	13	15	18	20	53	33	40	20	99
AMMONIA r	00 •	00•	00.	00•	00.	00	00•	00.	00.	00.	°	00•
	•14	•14	•19	• 29	• 29	• 28	•21	•14	.11	•07	•07	0.
NITRATE NITRITE µg-atoms/lite	1.5	3.2	4.1	11.6	13.9	14.2	17.4	24.2	25.5	26.9	33.2	36.3
PHOSPHATE	99•	• 16	•94	1,39	1.40	1,45	1,65	2.21	2,35	2.48	2.67	2.81
SAT %	66	100	91	77	9/	69	6 7	45	38	32	25	18
A AOU μg-at/1	က	0	47	123	132	169	183	307	348	385	434	484
OXYGEN m1/1 µ	5.72	5.88	5,39	4.67	4.59	4.23	4.11	2.84	2,42	2.07	1,62	1.22
SIGMA T	25,14	25,35	25.41	25.65	25,70	25.79	25.90	26.26	26,39	26,50	26.63	26.81
SALINITY ppt	33	33	33,476	33	33	33	33	33	34.	34.	34.	34.
TEMP °C	13,36	12,32	12,07	11,04*	10,88	10,47	10,14	9.20	8.90	8.44	7.78	6.74
DEPTH	0	10	20	30	20	75	100	150	200	250	300	400

* indicates questionable data: Paired thermometer read 10.97

4				-a PHAE0 μg/1
				CHL-a
				PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO µg-atoms/liter
ы		VISIB	7	MONIA
ITUD	51.7	UDS	1	IE A iter
LONG	21°	CLOUDS typ amt	2 1	ITRI ms/1
3	36° 45.4° 121° 51.7°	AIR TEMP °C WEATH CLOUDS dry wet typ amt		RATE NITRITE AN µg-atoms/liter
TUDE	5.4	WE		ITRA Pe
LAT	96°4	æ°C wet	14.4 13.1 5	YTE N
Z		IR TEMP (dry wet	4.4	SPH4
HOUR N LATITUDE W LONGITUDE	21 OCT 1971 12.0	AII dı	77	PHC
	11.	BAROM mb	9.6	SAT %
DATE	л 19	B.A.	1019.6	00 tt/1
D	21 00	ND speed	8	N AO µβ−a
NO		WIND BARC dir speed mb	29 8	XXGEN AOU SA1 m1/1 µg-at/1 %
CRUISE STATION	1110	Q,	7	о ⁻
Š		WAVES dir ht p	1	3MA
JISE	М. 18	W. dir	28	SI
CRI	뵤	TRANSP WAVES m dir ht	11 28 1 2	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 %
				TEMP °C

Paired thermometer read 12.69 indicates questionable data:

.61 1.01 1.35 .59 .65

.78 1.24 1.32 .91 .91 .88

8 7 7 11

39 27 27 25 21 45

06 05 06 10 16 25

1.3 1.3 1.3 3.1 4.2 10.1

.52 .33 .54 .69 .76

104 102 101 97 93 80

-18 -10 -7 -7 15 36

5.95 5.91 5.89 5.66 5.45 4.77

25.16 25.24 25.25 25.28 25.33 25.33

33.500 33.497 33.488 33.485 33.494 33.522

13.48 13.04 12.94 12.57 11.67

0 10 20 20 49

DEPTH

Ħ

				-a PHAE0 μg/1	.80 1.03 1.06
				CHL-a	1.36 1.51 1.62
				SILICA	2 7 9
ы	-	VISIB	7	MMONIA	.25 .32 .30
HOUR N LATITUDE W LONGITUDE	36° 44.7' 121° 49.5'	AIR TEMP °C WEATH CLOUDS dry wet typ amt	2 1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO μg-atoms/liter	.04 .05
TUDE	4.7	WEATH	'n	ITRATE µg-at	2 4 0
N LATI	36°4	TEMP °C y wet	15.0 13.3	SPHATE N	.40 .59
HOUR	21 OCT 1971 13.7				
	1971	BAROM	.019	SAT	108 107 106
DATE	1 OCT		29 9 1019.3	AOU µg-at/	138
STATION		WIND dir speed	53	OXYGEN m1/1	6.18 -38 6.22 -38 6.18 -33
CRUISE STAT	18 1101	WAVES dir ht p	28 1 2	SIGMA T OXYGEN AOU SAT ml/l µg-at/l %	25.18 25.25 25.26
CRU	M	TRANSP		TEMP SALINITY °C ppt	33.510 33.507 33.505
				TEMP °C	13.42 13.06 12.96
				DEРТН m	0 5

6				PHAE0 /1
				CHL-a PH µg/1
HOUR N LATITUDE W LONGITUDE	22 OCT 1971 7.0 36° 43.2' 121° 51.7'	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	10.1 9.6 0 0 7	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO pg-atoms/liter
CRUISE STATION DATE	M. 18 1120 22 OCT 1971	FRANSP WAVES WIND BAROM m dir ht p dir speed mb	26 0 2 14 1 1018.6	SIGMA T OXYGEN AOU SAT m1/1 µg-at/1 %
CRU	Ж	TRANSP	6	TEMP SALINITY SIGMA T °C PPt
				DEPTH

* indicates questionable data: Paired thermometer read 12.24

98 82 91 58 50

6 6 8 17

.30 .21 .28 .48 .48

00 08 07 07 41 41

.6 .0 .7 5.0 7.2 7.2

.50 .54 .55 .85 .85 1.00

100 106 105 92 82 69

1 -31 -25 39 94 170

5.77 6.13 6.07 5.44 4.88 4.17

25.23 25.22 25.24 25.39 25.48 25.48

33.508 33.512 33.511 33.501 33.500

13.16 13.20 13.10 12.32* 11.88

µg-atoms/liter

m1/1 µg-at/1

W LONGITUDE	121° 53.2'
N LATITUDE	36° 39.1
HOUR	8.2
DATE	22 OCT 1971
STATION	1123
CRUISE	ML 18

VISIB	7
CLOUDS typ amt	0 0
WEATH	
TEMP °C W	10.1
AIR TEMP (dry wet	11.4
ВАКОМ mb	1020.0
ND speed	-
WIND BAROM dir speed mb	16 0 1020.0
ND speed	-
WIND p dir speed	-

РНАЕО /1	1,34	•61	•43	•25	04.	.17
CHL-a Pi μg/1	•29	• 50	• 38	.27	• 28	•10
SILICA	9	7	œ	10	13	18
MONIA	•24	• 32	•61	•63	1,27	•33
NITRATE NITRITE AM µg-atoms/liter	60°	•10	•20	•24	.32	•26
	1,3	1.0	4.7	7.5	8.1	17.5
PHOSPHATE	.53	•43	•79	86.	1,11	1.50
SAT %	105	95	93	88	84	68
AOU g-at/1	-27	41	38	65	88	174
OXYGEN AOU ml/l µg-at/1	80.9	5,35	5.44	5.19	4.98	4.16
SIGMA T	25.21	25.27	25,37	25.44	25.51	25.80
SALINITY ppt				33,501		
TEMP °C	13,20	12,90	12,42	12,04*	11,70	10,53
DEРТН m	0	'n	10	20	30	20

* indicates questionable data: Paired thermometers read 11.95

3				РНАЕО 1	1,25
				CHL-a PH μg/1	1.12
				SILICA	987
		VISIB	7	MONIA 8	.68 .76
HOUR N LATITUDE W LONGITUDE	121° 51.2'	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	0	PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO µg-atoms/liter	0.00 0.07 0.08
ITUDE	36° 37.8'	С WEAT	0	NITRATE µg-a'	1.2
R N LAT		AIR TEMP °C dry wet	12.3 11.0	ноѕрнате	39
HOU	0•6				999
STATION DATE	22 OCT 1971	WIND BAROM dir speed mb	0 1019.3	TEMP SALINITY SIGMA T ΟΧΥGEN AOU SAT °C ppt m1/1 μg-at/1 %	-31 106 -31 106 -32 106
TATION	1121	<u>α</u>		I OXYGE m1/1	6.09 6.09
CRUISE S'	ML 18	TRANSP WAVES m dir ht	0	SIGMA	25.16 25.16 25.16
CRU	Ħ	TRANSP	80	SALINITY ppt	33,512 33,503
				TEMP °C	13.52
				SPTH 1	0 5 0

ш		VISIB	7
HOUR N LATITUDE W LONGITUDE	22 OCT 1971 9.5 36° 36.4° 121° 52.9°	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	0 2
UDE W I	.4. 12	WEATH	34 1 1020.0 12.7 11.1 2 0 2
N LATIT	36°36	AIR TEMP °C dry wet	7 11.1
HOUR	9.5		12.
DATE	т 1971	BAROM	1020.0
DA	22 OC	WIND r speed	7
STATION	1122	WAVES WIND BAROM r ht p dir speed mb	
CRUISE	18	L	0
CR	됬	TRANSP m d1	6

РНЛЕО /1	.11 1.53 1.05
CHL-a] µg/:	4.89 1.71 1.44
SILICA	, o o u
MMONIA	.04 .57 .23
<pre>IRATE NITRITE AM μg-atoms/liter</pre>	.07
NITRATE µg-at	4 6 6
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.53
SAT	110 108 108
AOU 1g-at/1	-49 -43 -39
OXYGEN AOU m1/1 µg-at/1	6.28 6.21 6.19
SIGMA T	24.14 24.13 24.16
SALINITY ppt	33,507 33,503 33,500
TEMP °C	13.60 13.60 13.46
ЕРТН п	0 5 10

W LONGITUDE	121° 56.4°
N LATITUDE	36°38,91
HOUR	10.5
DATE	22 OCT 1971
STATION	1124
CRUISE	ML 18

VISIB		7
CLOUDS	yp amt	7
ᄗ	typ	0
WEATH		0
TEMP °C	wet	10.7
AIR TE	dry	12.2
BAROM	ф	1019.6
WIND	speed	П
M	dir	31
	Д	7
WAVES	ht	1 2
WA	dir ht	27
RANSP		

РНАЕО '1	.49 .40 .20 .17
CHL-a PF μg/1	.38 .32 .25 .13
SILICA	10 11 13 14
AMMONIA F	1.04 .90 .70 .45
<pre>IRATE NITRITE Aν μg-atoms/liter</pre>	.17 .19 .23 .23
PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	4.0 6.3 8.5 11.0
PHOSPHATE	.79 .98 1.07 1.30
SAT %	115 90 85 76 74
AOU g-at/1	-75 53 78 131 138
OXYGEN AOU m1/1 µg-at/1	6.63 5.28 5.05 4.56 4.50
SIGMA T	25.22 25.39 25.46 25.65 25.67
SALINITY ppt	33,491 33,512 33,523 33,562
TEMP °C	13.14 12.34 12.00 11.16
DEPTH m	0 10 20 30

* indicates questionable data: Paired thermometer read 11.13

W LONGITUDE	121° 55.6'
N LATITUDE	36° 43.41
HOUR	11.6
DATE	22 OCT 1971
STATION	1116
CRUISE	ML 18

VISIB		7
CLOUDS	typ amt	2
CL	typ	0
WEATH		0
TEMP °C	wet	11.6
AIR TE	dry	12,3
[A	•	,
BAROM	qu	1013,8
WIND	speed	Н
W	dir	25
	Д	н
WAVES	ht	7
WA	dir ht	28
TRANSP	E	10

РНАЕО /1	.58 .99 .93 1.10 .66 1.58
CHL-a μg/	.58 .89 .88 1.05 .72 .78
SILICA	2 2 2 4 2 4
MMONIA	.40 .34 .31 .31 .40 .27
NITRATE NITRITE AMMONIA ; µg-atoms/liter	.06 .06 .08 .11 .23
	1.2 .6 2.3 2.3 4.1 10.9
PHOSPHATE	.53 .50 .53 .65 .83 1.25
SAT %	105 106 105 104 95 74
AOU ig-at/1	-24 -30 -24 -20 138 224
OXYGEN AOU m1/1 µg-at/1	6.10 6.10 6.08 6.11 5.64 4.48
SIGMA T	25.03 25.13 25.18 25.34 25.43 25.63
SALINITY ppt	33,432 33,432 33,409 : 33,445 33,540 33,540
TEMP °C	13.82 13.36 13.00 12.31* 11.96 11.17
DEPTH m	0 5 10 20 30 50 75

* indicates questionable data: Paired thermometer read 12.21

Hydrographic Stations

ML	CRUISE 19	2	1114
17	November	1971	1157
			1152
			1153
			1158
			1159
			1154
			1150
			1105
18	November	1971	1103
			1108
	:		1112
			1115
			1110
			1101
19	November	1971	1120
			1123
			1121
			1122
			1124
			1116

W LONGITUDE	121° 53.1'
N LATITUDE	36° 50.7
HOUR	8.8
DATE	17 NOV 1971
STATION	1114
CRUISE	ML 19

VISIB	
CLOUDS	tvp amt
WEATH	
ပ	1
TEMP °C	Wet
AIR '	drv
BAROM	qu
MIND	dir ht p dir speed
WAVES	dir ht p
TRANSP	E

РНАЕО /1	. 94 . 94 . 75 . 60	
CHL-a Pl µg/1	.99 1.05 .78 .42	
SILICA	12 12 8 8 22	
AMMONIA r	.83 .52 1.00 1.59	
TTRITE /	.07 .08 .11 .16	
NITRATE N µg-atc	3.6 3.1 3.4 3.7	
PHOSPHATE NITRATE NITRITE AMMONIA µg-atoms/liter	.62 .99 .73 .96 1.55	
SAT %	92 105 75 79 52	
AOU g-at/1	40 -26 130 110 264	
OXYGEN AOU m1/1 µg-at/1	5.47 6.22 4.46 4.72 3.19	
SIGMA T	25.38 25.37 25.37 25.46 25.90	
SALINITY PPt	33,425 33,416 33,418 33,465 33,689	
TEMP °C	12.02 12.04 12.04 11.79* 10.28	
	0 10 20 30 50	

* indicates questionable data: Paired thermometer read 11.88

W LONGITUDE	121° 58.1'
N LATITUDE	36° 50.2
HOUR	10.7
DATE	17 NOV 1971
STATION	1157
CRUISE	ML 19

AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt BAROM mb WIND dir speed WAVES dir ht p TRANSP m d:

РНАЕО /1	.25 .33 .22 .21 .051
CHL-a μg/	.26 .39 .08 .09
SILICA	20 20 30 36
AMONIA:	.43 .17 .13 .73 .40
ΓΚΑΤΕ NITRITE AN μg-atoms/liter	.16 .16 .23 .37 .30
NITRATE µg-at	3.5 2.9 3.3 5.0 15.1 31.2* 31.0*
PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.63 .59 .63 .73 1.33 1.74 1.95
SAT %	92 99 101 98 73 55 47
AOU g-at/1	44 8 -4 9 146 248 298 339
OXYGEN AOU m1/1 µg-at/1	5.40 5.82 5.97 5.82 4.43 2.93
SIGMA T	25.33 25.34 25.36 25.37 25.72 26.00 26.18
SALINITY ppt	33.410 33.405 33.405 33.411 33.582 33.735 33.844
TEMP °C	12.23 12.15 12.04* 12.01 10.84 9.94 9.33*
DEРТН m	0 10 20 30 50 75 100

* indicates questionable data: Paired thermometers read 12.10 at 20 m, 9.42 at 100 m

W LONGITUDE	122° 2.4'
N LATITUDE	36°55.3"
HOUR	12.2
DATE	17 WOV 1971
STATION	1152
CRUISE	ML 19

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

·

CHL-a PHAEO μg/l	.48 .97 .68
CHL-a μβ	.71 1.15 1.24 .58
SILICA	13 11 12 11
AMMONIA r	.99 1.03 1.04 1.26
NITRITE :oms/lite	.28 .26 .30
NITRATE µg-at	4.7 6.1 5.2
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	. 78 . 96 . 80
SAT	103 102 96 100
AOU 1g-at/1	-14 -10 23 3
OXYGEN AOU m1/1 µg-at/1	6.06 6.06 5.68 5.92
SIGMA T	25.34 25.39 25.39 25.40
SALINITY PPt	33.410 33.405 33.402 33.403
SALI P	
TEMP SALI °C P	12.23 33 11.90 33 11.87* 33 11.83 33

* indicates questionable data: Paired thermometer read 11.78

W LONGITUDE	122 00.01
N LATITUDE	36° 56.8
HOUR	12.9
DATE	17 NOV 1971
STATION	1153
CRUISE	ML 19

AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt BAROM mb WIND dir speed WAVES dir ht p TRANSP

E

РНАЕО /1	.62 2.01 .98
СН L-а РНАЕО µg/1	2.90 2.90
SILICA	12 10 12
AMMONIA F	.94 1.24 1.99
ITRATE NITRITE AM µg-atoms/liter	.27 .20 .24
NITRATE µg-ato	3.8 2.1 3.1
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.71 .72 .85
SAT %	95 96 99
AOU g-at/1	29 20 3
OXYGEN AOU m1/1 µg-at/1	5.56 5.70 5.92
SIGMA T	25.29 25.34 25.37
SALINITY ppt	33,397 33,374 33,365
TEMP C	12.40 12.04 11.82*
DEPTH	0 5 10

* indicates questionable data: Paired thermometer read 11.93

W LONGITUDE	121° 56.4'
N LATITUDE	36° 55.2'
HOUR	13.8
DATE	17 NOV 1971
STATION	1158
RUISE	L 19
Ü	Ä

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

a PHAEO µg/1	.79 .81 .88
CHL-a	1.01 .90 .88
	11 8 7 9
MMONIA	.19 .26 .23
TRATE NITRITE AM µg-atoms/liter	.21 .18 .19
NITRATE µg-a1	3.9 2.9 3.0 4.1
PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.60 .65 .59
SAT %	89 92 77 84
AOU 1g-at/1	60 43 123 87
OXYGEN AOU m1/1 µg-at/1	5.21 5.41 4.55 4.96
SIGMA T	25.29 25.30 25.36 25.37
SALINITY ppt	33,391 33,388 33,384 33,395
TEMP °C	12.36 12.29 11.99* 11.98
DEPTH m	0 5 10 20

* indicates questionable data: Paired thermometer read 12.08

W LONGITUDE	121° 56.2'
N LATITUDE	36° 57.1
HOUR	14.6
DATE	17 NOV 1971
STATION	1159
CRUISE	ML 19

AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt BAROM mb WIND dir speed TRANSP WAVES m dirht p

S

-a PHAE μg/l	1.42 1.24 1.17
CHL-a PHAEO µg/1	1.88 1.23 1.19
	12 11 10
AMMONIA :	1.60 1.74 1.25
TRATE NITRITE AM µg-atoms/liter	.18 .17
NITRATE µg-at	1.7 2.5 1.5
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.77
SAT %	107 80 93
.	
AOU 8 18-at/1	-38 106 38
OXYGEN AOU s m1/1 µg-at/1	6.33 -38 4.74 106 5.51 38
SIGMA T OXYGEN AOU s m1/1 µg-at/1	
T OXYGEN AOU m1/1 µg-at/1	33.356 25.28 6.33 33.351 25.33 4.74 33.365 25.36 5.51
SIGMA T OXYGEN AOU nl/1 µg-at/1	25.28 6.33 25.33 4.74 25.36 5.51

* indicates questionable data: Paired thermometer read 12.00

LONGITUDE	121° 52.7
M LO	121
N LATITUDE	36 55.2
HOUR	15.2
DATE	17 NOV 1971
STATION	1154
CRUISE	ML 19

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

РНАЕО /1	.38 .88 1.00
CHL-a PHAE0 μg/1	.34 .96 1.05
SILICA	10 8 8
AMMONIA F	.40 .68 .94
PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.15 .16
NITRATE µg-a	1.7
PHOSPHATE	. 65
SAT %	103 109 69
AOU 1g-at/1	-16 -47 164
OXYGEN AOU m1/1 µg-at/1	6.05 6.44 4.07
SIGMA T	25.27 25.32 25.34
SALINITY ppt	33,382 33,372 33,378
TEMP °C	12.48 12.16 12.05*
DEPTH m	0 5 10

* indicates questionable data: Paired thermometer read 12.14

W LONGITUDE	121° 51.1'
N LATITUDE	36° 52.8'
HOUR	15.8
DATE	17 NOV 1971
STATION	1150
CRUISE	ML 19

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

-а РНЛЕС µВ/1	.98 2.04 1.59
СН L-а РНΛΕ0 μg/1	1.32 1.10 1.76
SILICA	10 20* 7
MMONIA	.61 .38 .84
NITRITE A toms/liter	.10
NITRATE µg-a	1.7 3.0 1.6
PHOSPHATE NITRATE NITRITE AMMONIA SILICA	.73 .68 .83
SAT %	111 106 103
AOU SAT g-at/1 %	-56 111 -33 106 -17 103
OXYGEN AOU SAT m1/1 µg-at/1 %	
SIGMA T ΟΧΥGEN AOU SAT m1/1 μg-at/1 %	-56 -33 -17
T OXYGEN AOU m1/1 µg-at/1	33.390 25.29 6.51 -56 33.377 25.32 6.28 -33 33.380 25.35 6.13 -17
SIGMA T OXYGEN AOU ml/l µg-at/l	390 25.29 6.51 -56 377 25.32 6.28 -33 380 25.35 6.13 -17

* indicates questionable data: Paired thermometer read 12.08

W LONGITUDE	121° 49.7
N LATITUDE	36°50.8
HOUR	16.4
DATE	17 NOV 1971
STATION	1105
CRUISE	М. 19

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

-a PHΛΕΟ μg/1	.62
СН L-а РНΛΕ0 μg/1	.70
SILICA	7 6 8
AMMONIA r	.52 1.58 1.12
ITRATE NITRITE AM μg-atoms/liter	.08
NITRATE 1 µg-ato	.6 .9 2.2
PHOSPHATE NITRATE NITRITE ANMONIA SILICA	.52 .59 .76
SAT	110 96 100
AOU 1g-at/1	-51 24 0
OXYGEN AOU SAT $m1/1 \mu g$ -at/1 %	6.46 5.63 5.92
SIGMA T	25.30 25.32 25.35
SALINITY ppt	33,397 33,393 33,396
TEMP °C	12.38 12.25 12.07*

* indicates questionable data: Paired thermometer read 12.07

ы		VISIB
N LATITUDE W LONGITUDE	36° 48.2′ 121° 48.3′	WEATH CLOUDS typ amt
UDEW	.2.	WEATH
N LATIT	36°48	AIR TEMP °C 1 dry wet
HOUR	8.2	•
ы	1971 8.2	BAROM mb
ON DATE	18 NOV	WIND dir speed
STATION	1103	ა ი
RUISE	ML 19	e WAVES dir ht p
CRI	M	TRANSP

œ

9

0

7

5.2

7.2

1017.6

6

8 0 3

 ∞

РНЛЕО /1	.37	00.	00.	•43	30	• 34	.43	.22
CHL-a µg/	1.03	1,19	1.07	1,19	• 58	98•	•33	•31
SILICA	9	9	7	6	12	6	19	20
AMMONIA r	90•	00•	90°	• 30	•62	· 0	•51	• 65
NITRATE NITRITE AN µg-atoms/liter	60•	•02	•02	•07	•04	•04	•07	90 °
IN	4.1	2.1	2.2	4. 6	0°9	5.3	11.8	14.0
PHOSPHATE	*9	•62	09*	• 79	•85	•74	1.29	1.48
SAT %	901	103	88	96	98	80	53	48
l AOU μg-at/1	-33	- 18	99	19	73	109	252	280
OXYGEN m1/1 µ	6.29	6.12	5.19	5.72	5.12	4.76	3.22	2.94
SIGMA T	25,35	25,35	25,37	25,39	25.43	25.47	25.69	25.76
SALINITY ppt					33,447			
TENP °C	12,10	12,10	12,02	11,98	11,86	11,54	11,01	10,80
DEРТН m	0	S	10	20	30	20	.75	100

* indicates questionable data: Paired thermometers read 12.11 at 10 m, 11.11 at 75 m

E	.	
HOUR N LATITUDE W LONGITUDE	18 NOV 1971 10.0 36° 47.5° 121° 50.2°	
<u>ند</u>	_	į
rudi	7.5	
ATI	.4	•
N	36	
HOUR	10.0	1
	1971	
DATE	MOV	
	18 1	
Z		
STATION	1108	
Š		
CRUISE	19	:
CRU	ML 19	

VISIB		7
CLOUDS	typ amt	80
_	typ	0
WEATH		Н
၁	et	0.6
EMP	wet	
AIR TEMP °C	dry	10.0
BAROM	Q	1017.6
		101
MIND	speed	2
MI	dir	20
	<u>α</u>	3
WAVES	ht	7
MA	dir ht	80
TRANSP	Ħ	10

PHAE0 /1	.40 .25 .25 .26 .22 .23
CHL-a	.32 .30 .19 .09 .08
SILICA	5 12 14 18 20 21 25
AMMONIA F	.13 .10 1.16 .55 .91 .45
NITRATE NITRITE AMMONIA µg-atoms/liter	.17 .27 .29 .32 .32
	2.7 2.5 8.3 11.8 14.2 17.7 20.0
PHOSPHATE	.64 1.09 1.30 1.47 1.63 1.77
SAT	102 101 80 75 60 62 62
AOU g-at/1	-10 -4 108 136 219 209 210
OXYGEN AOU m1/1 µg-at/1	6.01 5.96 4.80 4.55 3.79 3.83 2.63
SIGMA T	25.33 25.34 25.57 25.73 25.79 25.88 25.95
SALINITY ppt	33,405 33,409 33,513 33,591 33,623 33,675 33,699
TEMP °C	12.20 12.16 11.36* 10.85 10.62* 10.02* 9.88
DEPTH m	0 10 20 30 49 74 98

* indicates questionable data: Paired thermometers read 11.47 at 20 m, 10.69 at 40 m, 10.20 at 98 m

W LONGITUDE	121° 52.3'
N LATITUDE	36° 47.8
HOUR	11.2
DATE	18 NOV 1971
STATION	1112
CRUISE	M. 19

VISIB		7
CLOUDS	typ amt	9
CĽ	typ	0
WEATH		, T
TEMP °C	et	10.3
EMP	wet	
AIR I	dry	12.0
		*
BAROM	qu	1017.3
	speed mb	1 1017,3
WIND BAROM		29 1 1017.3
WIND	speed	3 29 1 1017,3
WIND	p dir speed	1 3 29 1 1017.3
	speed	10 1 3 29 1 1017,3
WIND	p dir speed	14 10 1 3 29 1 1017.3

СН г- а РНЛЕО µg/1	* * * * * * * * * * * * * * * * * * *
SILICA	4 5 10 12 23 23 23
	.43 .00 .75 .25 .10 .14
NITRATE NITRITE AMMONIA µg-atoms/liter	20 30 30 42 23 20 20
	2.8 2.9 6.6 11.1 19.0 20.0 20.4 24.5
PIIOSPHATE	.61 .66 .99 1.19 1.78 1.81 1.81
SAT %	67 72 72 59 49 46 35
AOU g-at/1	172 134 151 219 283 302 301
OXYGEN m1/1 µ	3.97 4.41 4.28 3.56 2.99 2.82 2.85
SIGM T	25.34 25.36 25.50 25.62 25.95 26.04 26.08
SALINITY ppt	33.421 33.418 33.475 33.548 33.715 33.787 33.787
TEMP °C	12.24 12.11 11.59* 11.26 10.13 9.84 9.68*
DEPTH	0 10 20 30 50 75 100

* indicates questionable data: Paired thermometer read 11.69 at 20 m, 9.79 at 100 m Incorrect filter used on fluorometer, correction applied

. 63	_	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	7
ITUD	56.8	UDS	2
LONG	.21°	CLO typ	0
JUE W	.5	ИЕЛТН	П
LATIT	36°46	MP°C wet	12.2
HOUR N LATITUDE W LONGITUDE	1115 18 NOV 1971 13.0 36° 46.5° 121° 56.8°	AIR TE dry	2 3 36 2 1015.9 13.9 12.2 1 0 5
	1971	WAVES WIND BAROM A r ht p dir speed mb	1015.9
DATE	18 NOV	Speed	7
LON	10	W] dir	36
STATION	111	Ω,	က
V3		AVES ht	7
CRUISE	ML 19	W/ dir	
CRI	ᅜ	TRANSP WAVES m dir ht	11 10

CHL-a PHAEO µg/1	388 3088 1888 0028 0128 0138 018
SILICA C	7 6 10 17 21 22 21 34 37 68
	41 10 19 00 00 00 00 00 00 00 00 00 00 00
NITRATE NITRITE AMMONIA µg-atoms/liter	25 25 03 00 01 00 00 00
	4.8 3.3 3.2 15.1 18.3 17.7 22.7 28.9
PHOSPHATE	
SAT %	103 100 89 62 64 57 38 40 25 16
AOU 1g-at/1	-18 -9 10 209 238 345 437 464 496
OXYGEN AOU m1/1 µg-at/1	6.07 6.00 5.89 3.77 3.92 3.53 2.37 2.55 1.60
SIGMA I	25.28 25.32 25.36 25.36 25.36 25.84 25.99 26.12 26.26 26.64 26.73
SALINITY ppt	33.411 33.407 33.407 33.524 33.656 33.887 33.895 34.106 34.106
TEMP C	12.51 12.28 12.19* 11.60 10.51* 10.23 9.91* 9.59 9.06 7.71 7.18*
DEPTH m	0 10 20 29 49 73 147 197 295 394

* indicates questionable data: Paired thermometers read 12.27 at 20 m, 10.40 at 49 m, 10.01 at 98 m,7.28 at 295 m Incorrect filter used on fluorometer, correction applied

6				-a PHAE0 μg/1
				CHL-a yg
		IB		PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL-a PHAEO $$\mu g\text{-atoms/liter}$
闰	-	VIS	∞	MMON
ONGITUD	1°51.6	CLOUDS typ amt	0 5	RATE NITRITE AN µg-atoms/liter
ĭ	12	표 . 간		E NI
JDE	.2.	WEA?	2	rrati Jes-1
LATIT	36° 45.	MP °C	16.2 11.1 2 0 5	ATE NI
HOUR N LATITUDE W LONGITUDE	18 NOV 1971 14.6 36° 45.2' 121° 51.6'	BAROM AIR TEMP °C WEATH CLOUDS VISIB mb dry wet typ amt	16.2	PHOSPE
	1971	ВАКОМ mb	1014.2	SAT
DATE	18 NOV	WIND BARO	34 2 1014.2	OXYGEN AOU SAT m1/1 μg-at/1 %
NO		WI	34	XXGE
STATION	1110	Φ.	က	H
CRUISE	ML 19	FRANSP WAVES m dir ht	14 1 3	SIGMA
CRUI	보	TRANSP	6	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 µg-at/1 %
				TEMP °C
				DEPTH m

* indicates questionable data: Paired thermometer read 12.92

28 28 20 20 34 11

6 6 7 7

23 23 27 27 27 27

02 04 05 05 03

3.2 2.2 2.1 2.0 3.3

.65 .61 .57 .56 .56

99 99 104 92 95

6 4 -19 40 24 128

5.83 5.84 6.13 5.46 5.65 4.63

25.30 25.33 25.33 25.34 25.35

33,390 33,388 33,387 33,405 33,401

12.31 12.30 12.13 12.13 12.08 10.92

ы	_	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	∞
TUD	49.3	UDS	2
LONG	.21°	CLO typ	0
UDE W	.84	WEATH	2
LATIT	36° 44	MP °C wet	10.6
HOUR N LATITUDE W LONGITUDE	18 NOV 1971 15.3 36° 44.8' 121° 49.3'	AIR TE dry	12 2 3 36 3 1014,2 15,6 10,6 2 0 5 8
	1971	ВАКОМ mb	1014.2
DATE	18 NOV	WAVES WIND dir ht p dir speed	e
LON		WI	36
STATION	1101	Д	3
S	19	VES ht	7
CRUISE	19	W/ dir	12
CRU	Ä	TRANSP	12

CHL-a PHAEO µg/1	1.30 .96 1.43 1.02 .74 .54
SILICA	4 9 8
AMMON I.A r	.16 .31
NITRATE NITRITE AM µg-atoms/liter	.03 .09 .15
NITRATE pg-at	1.3 1.9 3.0
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.52 .60 .75
н	110 107 102
SA' %	777
AOU SAT	-50 11 -38 10 -11 10
OXYGEN AOU SA m1/1 µB-at/1 %	
SIGMA T OXYGEN AOU SA m1/l μg-at/l %	-50 -38 -11
SIGMA T OXYGEN AOU m1/l µg-at/1	33.405 25.34 6.47 -50 33.405 25.34 6.34 -38 33.429 25.41 6.07 -11
T OXYGEN AOU m1/1 µg-at/1	25.34 6.47 -50 25.34 6.34 -38 25.41 6.07 -11

* indicates questionable data: Paired thermometer read 11.94

				CHI
				PHOSPHATE NITRATE NITRITE AMMONIA SILICA CHL µg-atoms/liter
[-]		AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	œ	MONIA
SITUDI	51,8	CLOUDS typ amt	9	RATE NITRITE AN µg-atoms/liter
LONG	121°	CLC	0	NITR] oms/]
DE X	34	ИЕАТ Н	н	RATE ug-at
HOUR N LATITUDE W LONGITUDE	43.	°C '	8,4 6,2 1 0 6	E NIT
Z	36	AIR TEMP °(dry wet	4.	SPHAT
HOUR	8.3	AIR	ω	
	19 NOV 1971 8.3 36° 43.3' 121° 51.8'	WIND BAROM ir speed mb	29 2 3 3 7 1024.0	SIGMA T OXYGEN AOU SAT ml/l µg-at/1 %
DATE	NOV	eed	7 1	AOU g-at/
z		WAVES WIND BARO dir ht p dir speed mb	က	rgen L/1 µ
IISE STATION	19 1120	ب بغ	က	OX II
S	-	WAVES ir ht p	7	MA 1
ILSE	19	WA	29	SIG
CRU	Ä	TRANSP	11	TEMP SALINITY °C ppt
				TEMP °C

L-a PHAE0

 $\mu g/1$

43 43 21 22 32

.46 .65 .51 .16 .17

.46 .47 .50 .52 .52

21 20 21 33 33 46

2.9 2.7 2.9 6.2 9.6 15.0

.74 .70 .70 .70 1.08

100 103 103 81 78 67

-2 -17 -13 103 120 182

5.97 6.14 6.10 4.81 4.70 4.07

25.41 25.40 25.42 25.48 25.48 25.66

33,421 33,420 33,420 33,420 33,648

11.84 11.90 11.82* 11.66 11.07* 10.50

DEPTH m

30 m Paired thermometers read 11.90 at 10 m, 11.15 at * indicates questionable data:

1 N LATITUDE W LONGITUDE 36° 39.2° 121° 53.3°		
Z	W LONGITUDE	121° 53.3'
	N LATITUDE	36° 39.2
HOUR 10.1	HOUR	10.1
DATE 19 NOV 1971	DATE	NOV
STATION 1123	STATION	1123
CRUISE ML 19	CRUISE	ML 19

VISIB		∞
CLOUDS	yp amt	1 0 3 8
WEATH	Ð.	1
J. JW	wet	11.9 8.4
AIR TE	dry	11.9
BAROM	mb dry wet typ amt	1023.0
WIND	dir speed	29 2 3 3 6 1023.0
WAVES	Д	29 2 3
FRANSP WAV	n dir h	19 29
IR	-	•

.44 .41 .27 .31 .53
.45 .39 .27 .27
8 8 9 14 16
1.19 1.23 1.31 .53 .06
. 22 . 21 . 25 . 39 . 34
3.8 3.1 4.7 11.4 13.4
.84 1.02 .91 1.27 1.41
102 95 93 67 68
-8 25 39 179 167 226
6.01 5.63 5.51 4.04 4.13*
25.37 25.37 25.43 25.67 25.73
33,427 33,424 33,444 33,554 33,578
12.08 12.08 11.83* 11.02 10.78*
0 10 70 80 80 80 80 80 80 80 80 80 80 80 80 80

* indicates questionable data: Paired thermometers read 11.91 at 10 m, 10.84 at 30 m

30				CHL-a PHAEO µg/1
ы	_	VISIB	ω	PHOSPHATE NITRITE AMMONIA SILICA CHL-a PHAEO μg-atoms/liter
W LONGITUDE	36° 37.4′ 121° 51.3′	TH CLOUDS	0 2	<pre>IRATE NITRITE AN</pre>
N LATITUDE W LONGITUDE	36° 37.4	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	15.0 10.0 2	PHATE NITRATI µg-4
HOUR	11.3			
DATE	19 NOV 1971 11.3	WIND BAROM dir speed mb	2 6 1023.0	XYGEN AOU SAT m1/1 µg-at/1 %
SE STATION	1121	գ	15 32 2 3 2	DEPTH TEMP SALINITY SIGMA T OXYGEN AOU SAT m °C ppt m1/1 μg-at/1 %
CRUISE	ML 19	TRANSP WAVES m dir ht	15	SALINITY S
				TEMP °C
				ОЕРТН m

* indicates questionable data: Paired thermometer read 12.02

.14 .62 .64

1.38 .78 .86

9 8 9

1.12 1.36 1.36

.21 .21 .24

5.0 3.6 4.2

.90 .85 .89

95 94 102

26 34 -10

5.62 5.53 6.05

25.37 25.38 25.42

33.435 33.436 33.445

12.13 12.09 11.92*

0 2 0

W LONGITUDE	121° 52.7'
N LATITUDE	36° 36.4°
HOUR	12.2
DATE	19 NOV 1971 12.2
STATION	1122
ISE	19
CRUISE	널

TRANSP WAVES WIND BAROM AIR TEMP °C WEATH CLOUDS VISIB m dir ht p dir speed mb dry wet typ amt 14 34 1 3 33 6 1022,7 13,9 10,8 2 0 2 8			
WAVES WIND BAROM AIR TEMP °C WEATH dir ht p dir speed mb dry wet 34 1 3 33 6 1022.7 13.9 10.8 2	VISIB		∞
WAVES WIND BAROM AIR TEMP °C WEATH dir ht p dir speed mb dry wet 34 1 3 33 6 1022.7 13.9 10.8 2	Sano	amt	7
WAVES WIND BAROM AIR TEMP °C dir ht p dir speed mb dry wet 34 1 3 33 6 1022,7 13,9 10.8	CL	typ	0
WAVES WIND BAROM dir ht p dir speed mb 34 1 3 33 6 1022.7	WEATH		7
WAVES WIND BAROM dir ht p dir speed mb 34 1 3 33 6 1022.7	ວ	et	8.0.
WAVES WIND BAROM dir ht p dir speed mb 34 1 3 33 6 1022.7	(EMP	3	
WAVES WIND dir speed 34 1 3 33 6 1	AIR 7	dry	13,5
WAVES W dir ht p dir 34 1 3 33	BAROM	qu	1022.7
WAVES W dir ht p dir 34 1 3 33	ND	speed	9
ъ	M	dir	33
ъ		ር	က
ъ	WES	ht	-
TRANSP m 14	WA		34
	TRANSP	E	14

PHAEO 1	.38
CHL-a PHAEO µg/1	.20
SILICA	13 12 13
AMMONIA	3.31 1.10
ITRATE NITRITE AM µg-atoms/liter	.34 .33
NITRATE µg-at	4.9 8.1 9.5
PHOSPHATE NITRITE AMMONIA SILICA μg-atoms/liter	1.27 1.11 1.85*
SAT	88 95 93
AOU g-at/1	63 27 35
OXYGEN AOU SAT ml/l µg-at/l %	5.20 5.67 5.63
SIGMA T	25.35 25.51 25.61
SALINITY ppt	33,426 33,491 33,528
TEMP °C	12.20 11.63* 11.20*
ОЕРТН m	0 5 10

* indicates questionable data: Paired thermometers read 11.57 at 5 m, 11.33 at 10 m

W LONGITUDE	121° 56.4'
N LATITUDE	36° 38.7
HOUR	13.2
DATE	19 NOV 1971
STATION	1124
CRUISE	ML 19

		PHAEO 1	.11	•15	•15	.13	•17
	•	CHL-a PHAEO µg/1	•02	• 10	.11	.11	60.
		SILICA	15	14	14	14	13
VISIB	∞	MMONIA	1.04	.72	99•	64.	•37
CLOUDS typ amt	0 3	RATE NITRITE A µg-atoms/liter	.38	•41	• 38	•34	•32
WEATH	2	ITRATE Ν μg-ato	16.7	13.8	13.5	13.6	12.8
AIR TEMP °C WEATH CLOUDS dry wet typ amt	14.2 10.8 2 0 3	PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter				1.21	
		•					
BAROM mb	1022.7	SAT	90	88	85	81	9/
(I) Speed	33 2	AOU μg-at,	52	99	79	100	130
WIND dir speed	33	OXYGEN AOU SAT m1/1 µg-at/1 %	5.40	5.28	5.14	4.91	4.60
TRANSP WAVES m dir ht p	32 2 3	SIGMA I	25.55	25.62	25.62	25.64	25.68
TRANSP	12	SALINITY ppt	33,528	33,541	33,541	33,545	33,566
		TEMP °C	11.56	11,21	11,21	11,14	10,98
		DEPTH m	0	S	10	20	30

* indicates questionable data: Paired thermometers read 11.27 at 5 m, 11.02 at 20 m

CRUISE STATION DATE HOUR N LATITUDE W LONGITUDE ML 19 1116 19 NOV 1971 14.4 36° 43.1' 121° 56.0'

VISIB		∞
CLOUDS	typ amt	7
당	typ	0
WEATH		2
TEMP °C	wet	10.5
AIR TE	dry	13.0
BAROM	qw	1022.0
WIND	speed	7
M	dir	31
	d	3
WAVES	ht	32 2 3
MA	dir ht	32
TRANSP	E	14

CHL-a PHAEO µg/1	.57*	.35*	.52*	*00*	*00*	*00*	.03*
SILICA	7	ġ	7	10	12	14	20
MMONIA	.11	• 36	.21	• 38	• 39	•16	00•
NITRITE / oms/lite)	.23	•19	.23	• 50	.48	•28	•26
NITRATE NITRITE AMMONIA S µg-atoms/liter	2.9	2.4	3.0	8,3	7.7	12.6	15.8
PHOSPHATE	*9	69*	.87	86.	1.18	1.37	3.01*
ZVZ %	97	105	91	78	80	77	29
AOU g-at/1	16	- 26	94	115	109	125	224
OXYGEN AOU m1/1 µg-at/1	5.69	6.20	5.40	4.68	4.77	4.68	3.63
SIGMA T	25.28	25,34	25,36	25,50	25.53	25.70	25.87
SALINITY ppt	33,402						
TEMP °C	12.48	12,16	12,06*	11,64	11,50*	10,81	10,32*
DEPTH m	0	2	10	70	8	20	75

Paired thermometers read 12.12 at 10 m, 11.56 at 30 m, 10.40 at 75 m Incorrect filter used on fluorometer, correction applied * indicates questionable data:

Hydrographic Stations

<u>ML</u>	CRUISE 20	1114
15	December 1971	1157
		1152
		1153
		1158
		. 1159
		1154
		1150
		1105
16	December 1971	1103
		1108
		1112
		1115
17	December 1971	1110
		1101
		1120
		1123
		1121
		1122
		1124
		1116

				PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter		21	18	56
		m		PMONIA		44.	•45	•22
30	•	VISIB	9	RATE NITRITE AN µg-atoms/liter		.20	• 26	60•
IGITUI	121° 52.5'	CLOUDS typ amt	6 1	NIT)				
M LON	121°	H CI	9	TRATE μg-ε		14.7	14.5	22.9
UDE	. 4.	WEAT	က	TE NI				
N LATITUDE W LONGITUDE	36° 50,4°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	6.1	OSPHA		1,45	1,45	1,99
		IR TEMP °(dry wet	7.2 6.1					
HOUR	7.9			SAT 1 %	88	8	85	84
	1971	BAROM mb	1018,6	OXYGEN AOU m1/1 µg-at/1	69	67	83	293
DATE	15 DEC 1971) peed	0 0	KYGEN n1/1)	5.42	5.44	5.26	2.98
N.	H	WIND dir speed	0					
STATION	1114		3 2	SIGMA T	25.89	25.90	25,90	26.18
	0	WAVES dir ht p	31 3		<u> </u>			4
CRUISE	ML 20	SP		ALINI) ppt	33.607	33.61	33,61	33,85
		TRANSP	9	TEMP SALINITY °C ppt	96.6			
				ОЕРТН m	0 5	202	30	20

* indicates questionable data: Paired thermometer read 9.92

W LONGITUDE	121° 58.2'
N LATITUDE	36, 49.8
HOUR	9.7
DATE	15 DEC 1971
STATION	1157
CRUISE	20
CRU	Ä

		SILICA	18	18	18	22	30	32	32	36
e		MMONIA	•73	• 20	.11	•18	•26	00•	•31	00•
VISIB	9	RATE NITRITE A µg-atoms/liter	22	,24	,23	28	12	60	0.5	90•
CLOUDS typ amt	6 1	NITH toms/	•	٠	•	•	•	•	•	•
+		RATE µg-a	63	œ	0	۲.	۲.	5	5	27.3
WEA TH	3	E NIT	15	14	15	17	24	25	25	27
AIR TEMP °C dry wet	8.9 7.2 3	PHOSPHATE	1,43	1,42	1,41	1,63	2.09	2,16	2,20	2.22
y TEM	6•	PH								
AIR dr	∞	SAT %	83	98	98	71	42	38	38	32
BAROM mb	1021.0	OXYGEN AOU m1/1 µg-at/1	95	9/	62	191	324	347	351	391
WIND dir speed	31 2	OXYGEN m1/1)	5,13	5,34	5,32	4.39	2.67	2,43	2,42	2.04
		SIGM I	39	33	0	35	7.	32	39	52
WAVES ir ht p	31 3 2	SIGM	25.	25.	25.	25.	26.27	26	26	26.
WAVE r ht	1 3		ဆ	9	7	2	ဆ	ස	6	6
Ġ	3	SALINITY	13,59	13,59	13,59	13.67	33,908	3.94	3,98	4.04
TRANSP m	9									
H		TEMP °C	6.6	6.6	9.8	6.6	9.12	8.9	8.7	8,2
		DEРТН п	0	10	20	30	20	74	66	149

W LONGITUDE	122° 2.5
N LATITUDE	36°55,31
HOUR	11.3
DATE	15 DEC 1971
STATION	1152
CRUISE	20
CRU	Ä

VISIB		9
CLOUDS	typ amt	6 1
WEATH	-	က
AIR TEMP °C	wet	8.9 7.2
AIR TE	dry	8.9
BAROM	qu	1021.0
WIND	dir speed	2
MI	dir	18
	c	~
WAVES	ht	31 3 2
WA	dir ht	31
TRANSP	E	5

SILICA	18 17 18 23
MMONIA	.33 .19 .13
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.28 .27 .26
NITRATE µg-at	14.3 14.7 14.6 18.9
PIIOSPHATE	1.42 1.41 1.42 1.72
SAT %	88 88 86 65
AOU g-at/1	64 67 76 193
OXYGEN AOU SAT ml/1 µg-at/1 %	5.48 5.46 5.35 4.04
SIGMA T	25.83 25.85 25.85 25.98
SALINITY ppt	33,525 33,528 33,538 33,692
TEMP °C	9.93* 9.86 9.90 9.82
DEРТН m	0 5 10 20

* indicates questionable data: Paired thermometer read 9.85

				SILICA	21 19 21
		æ		MMONIA	.87 .55
Ħ		VISIB	9	RATE NITRITE A µg-atoms/liter	04.0
SITUD	00.2	CLOUDS typ amt	6 1	NITR toms/	• • •
LON	122° 00.2'	GE CE	9	RATE µ8-a1	14.8 15.3 16.3
DE W		WEATH	2	E NIT	14 15
HOUR N LATITUDE W LONGITUDE	36° 56.8°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	10.0 7.8 2	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1.51 1.49 1.54
HOUR	12.1	AIR TI dry	10.0		85 84 68
	15 DEC 1971 12.1	BAROM mb	1021.0	SALINITY SIGMA T OXYGEN AOU SAT ppt m1/1 µg-at/1 %	82 89 178
DATE	15 DEC	WAVES WIND dir ht p dir speed	31 3 3 18 2 1021.0	OXYGEN m1/1	5.27 5.22 4.19
STATION	<u> </u>	W	18	A T	82 86 90
	1153	ES t p	3	SIGN	25.82 25.86 25.90
CRUISE	20	WAVES dir ht	31	NITY pt	525 530 616
SS	Ä	TRANSP m	2	SALI	* * *
		TR		TEMP	9.99* 33.525 9.82 33.530 9.98 33.616
				EPTH m	0 2 01

* indicates questionable data: Paired thermometer read 9.93

W LONGITUDE	121° 56.6'
N LATITUDE	36° 55.21
HOUR	13.0
DATE	15 DEC 1971
STATION	1158
CRUISE	20
CRU	M

	9
typ amt	6 1
	7
wet	10.0 7.8
dry	10.0
d	1020.3
eed	
dir sp	18 2
p dir speed	3 18 2
dir ht p dir sp	31 3 3 18 2

SILICA	19 18 19 20
AMMONIA : r	.77 .17 .35
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	.33 .30 .30
E NITRATE µg-a	14.2 14.3 14.7 15.2
PHOSPHATI	1.41 1.41 1.42 1.50
SAT %	89 87 86 78
AOU 1g-at/1	60 69 76 125
OXYGEN AOU m1/1 µg-at/1	5.49 5.42 5.35 4.81
SIGMA I	25.85 25.89 25.91 25.92
SALINITY ppt	33,594 33,595 33,601 33,617
TEMP °C	10.13* 9.90 9.84 9.84
DEPTH m	0 5 10 20

* indicates questionable data: Paired thermometer read 10.06

W LONGITUDE	121° 56.2'
N LATITUDE	36° 57.0
HOUR	13.6
DATE	15 DEC 1971
STATION	1159
CRUISE	70
CRU	Ę

ω.		
VISIE		9
CLOUDS	yp amt	Н
IJ	typ	9
WEATH		7
ပ	it.	7.8
EMP	wet	
AIR TEMP °C	dry	10.0
A1	.0	
BAROM	qu	1020.3
WIND	speed	18 2
W	dir	18
	ď	4
WAVES	lir ht	31 3 4
WA	dir	31
TRANSP	E	4

SILICA	19
MMONIA :	.64
ITRATE NITRITE AM μg-atoms/liter	.38
PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	14.2 14.8 14.1
PHOSPHATE	1.46
SAT %	85 81 82
AOU g-at/1	81 107 99
OXYGEN AOU SAT m1/1 µg-at/1 %	5.26
SALINITY SIGMA T ppt	25.82 25.87 25.88
ALINITY ppt	10,16* 33,553 9,88 33,556 9,82 33,560
TEMP S	10,16* 9,88
DEPTH m	0 5

* indicates questionable data: Paired thermometer read 10.10

				SILICA	15 18 16
		IB		PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	. 39 . 48 . 29
JUE	.7.	S VISIB	9	rate Nitrite A jig-atoms/liter	36 36 34
GITI	52	CLOUDS typ amt	H	NI.	
LON	121° 52.7'	CLC	6 1	ATE 18-a	201
N LATITUDE W LONGITUDE	-	АТН	7	NITR	11.5 13.0 12.1
UDE	.2	WE		E	
ATIT	36° 55.2°	et C	8,3	SPHA	1.24 1.37 1.27
r Z	36	E P		PHO	
HOUR	15 DEC 1971 14.5	AIR TEMP °C WEATH CLOUDS dry wet typ amt	11.1 8.3	SALINITY SIGMA T OXYGEN AOU SAT ppt m1/1 µg-at/1 %	93 91 87
#	_	M	_	J E/1	6 C 8
	197.	BAROM mb	31 3 4 18 4 1020,7	A01	39 50 73
DATE	DEC	Pa	-	GEN /1 y	72 63 39
_	15]	WIND r spe	4	OXY m.1,	5.72 5.63 5.39
Z		WI IIr	18	H	01.10.5
STATION	1154	- C	4	GMA	25.82 25.86 25.87
ST	-	ES.	m	SI	000
到	20	WAVES WIND dir ht p dir speed	31	T T	57 59 54
CRUISE	녗			TIN	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
0	Σ	TRANSP m	Ŋ	SA	* ~ ~
		Ē		TEMP °C	10.20* 33.567 9.93 33.559 9.88 33.564
				DEPTH	0 2 2 10

* indicates questionable data: Paired thermometer read 10.13

				SILICA	18 18 18
		8		AMMONIA :	.37
E(<u>.</u>	VISIB	9	RATE NITRITE A μg-atoms/liter	39 37 36
GIIO	51.	CLOUDS typ amt	6 1	NIT] toms,	
LON	121°	CT.	9	RATE µg-a	12.2 12.7 13.1
E W	•	ЕАТ Н	7	TIN	12 13
HOUR N LATITUDE W LONGITUDE	36° 52,8' 121° 51,3'	AIR TEMP °C WEATH CLOUDS dry wet typ amt	10.6 8.3	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1,33
HOUR	15.1	AIR TEMP °(dry wet	10.6	_	98 93 84
	1971	BAROM mb	1020.7	AOU 1g-at/1	13 40 86
CRUISE STATION DATE	15 DEC 1971 15.1	WAVES WIND r ht p dir speed	1 3 3 31 4 1020,7	SALINITY SIGMA T OXYGEN AOU SAT ppt m1/1 µg-at/1 %	6.03 5.75 5.24
NO.		WI dir	31	H	5 7 8
STAT	1150	ES t p	3	SIGW	25.85 25.87 25.88
ISE	20	WAVES dir ht	31	NITY pt	572 568 577
CRU	內	TRANSP	e	SALI	33.572 33.568 33.577
		TRA		TEMP .	10.06* 9.94 9.88
				DEPTH m	0 5

* indicates questionable data: Paired thermometer read 10.15

W LONGITUDE	121° 49.5
N LATITUDE	36° 50.8
HOUR	15.8
DATE	15 DEC 1971
STATION	1105
CRUISE	ML 20

VISIB		9
OUDS	typ amt	2 6 1
ᄗ	typ	9
WEATH CLOUDS		7
ာ မျ	wet	10.6 8.3
AIR TEMP C	dry	10.6
	d	1021.7
MIND	dir speed	31 2
3	dîr	31
	۵	31 3 3
WAVES	ht	က
W	dir ht	31
TRANSP	Ħ	4

SILICA	20 20 18
AMMONIA r	.41 .32 .28
NITRITE oms/11te	.22 .18 .18
NITRATE µg-at	14.2 14.0 14.0
PHOSPHATE NITRATE NITRITE AMMONIA S µg-atoms/liter	1.50 1.48 1.41
SAT %	94 91 91
AOU g-at/1	32 49 50
OXYGEN AOU SAT m1/1 µg-at/1 %	5.81 5.64 5.64
SIGMA I	25.85 25.89 25.91
SALINITY ppt	33.590 33.604 33.602
TEMP °C	10.11* 9.96 9.85
DEPTH m	0 2 01

* indicates questionable data: Paired thermometer read 10.17

				SILICA	23	24 23	23	27	22	31	4 5 *
		8		MMONIA	. 61	39	•25	• 38	• 36	•19	•21
DE	5.	VISIB	7	RATE NITRITE A µg-atoms/liter	33	34 34	.31	.32	.31	30	•22
GITU	48.	CLOUDS typ amt	~	NIT							
W LONGITUDE	121° 48.5'	-	7	RATE ug-a	∞ (၁ ထ	.2	6.	7.	7	∞
		WEATH	2	NIT	15	16.0 16.8	17	18	17	21	21
N LATITUDE	36° 48.21	AIR TEMP °C W dry wet	3.6	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1.60	1,58 1,65	1,65	1,68	1,68	1.89	2.06
Z	6	y TEM	5.0	PH							
HOUR	8.2	AIR I dry	ις.	SAT	53	54 62	52	58	51	36	25
	1971	BAROM mb	1027.8	AOU 18-at/1	259	256 210	566	231	273	359	425
DATE	16 DEC 1971	WIND dir speed	13 10 1	OXYGEN AOU ml/1 µg-at/1	3.29	3,85 3,85	3,23	3,61	3,18	2.26	1,59
NO		WI	13	H	2 0	7 9	7	-	_	6	4
STATION	1103	<u>e</u> .	Ç	SIGMA T	25.9	25.92 25.96	25.9	26.0	26.0	26.1	26.3
		WAVES Lr ht	29 4								
CRUISE	20	Q	29	INIT	.628	33,663	.672	•736	.683	.836	.927
చ్	첫	TRANSP m	5	SAL							
		AT.		TEMP SALINITY °C ppt	9.91	9.84	9.80	9.85	9,61	9.26	8.76
		-		DEPTH	0,1	ი მ	20	53	48	73	46

* indicates questionable data: Silica appears anomalously high

W LONGITUDE	121° 50.3°
N LATITUDE	36° 47.5
HOUR	9,3
DATE	16 DEC 1971
STATION	1108
CRUISE	ML 20

SP WAVES WIND dir speed			
WAVES WIND BAROM AIR TEMP °C WEATH dir ht p dir speed mh dry wet	VISIB		œ
WAVES WIND BAROM AIR TEMP °C WEATH dir ht p dir speed mh dry wet	CLOUDS	:yp amt	4 2
WAVES WIND BAROM dir ht p dir speed mb	WEATH		'n
WAVES WIND BAROM dir ht p dir speed mb	J . J.	wet	4.2
dir ht p dir speed	AIR TE	dry	5.8
dir ht p dir speed	BAROM	da q	1028.8
WAVES dir ht p	EN CHA	speed	œ
ਦ	W	dir	
ਦ		C	4
ਦ	VES	ht	Ŋ
TRANSP m			29
	TRANSP	E	6

SILICA	17 18 20 25 25 28 30	38
	.02 .00 .03 .07	•07
RATE NITRITE AN µg-atoms/liter	20 21 19 18 22 22 21	•16
MOSPHATE NITRATE NITRITE AMMONIA μg-atoms/liter	14.1 14.5 15.4 20.4 19.7 20.8	24.1
PHOSPHATE	1.34 1.35 1.28 1.77 1.84 1.97	2,25
SAT %	71 73 67 54 48 43	30
AOU g-at/1	160 148 184 258 319 374	399
OXYGEN AOU m1/1 μ B-at/1	4.40 4.54 4.13 3.33 3.01 2.69 2.10	1.89
SIGMA T	25.87 25.88 25.89 26.06 26.10 26.19	26,38
SALINITY ppt	33,586 33,584 33,604 33,769 33,811 33,862	33,964
TEMP °C	9.97 9.93 9.98 9.72 9.67	8.66
DEPTH	0 10 20 30 50 74	149

ы		VISIB	œ
GITUDI	52.4	OUDS amt	7
LON	121°	CL	4
UDEW		WEATH	2
HOUR N LATITUDE W LONGITUDE	36° 47	AIR TEMP °C WEATH CLOUDS dry wet typ amt	7.2 5.6 5 4 2
Z	• ,	R TEI	7.2
HOUR	10.4		
Ħ	16 DEC 1971 10.4 36° 47.8' 121° 52.4'	FRANSP WAVES WIND BAROM m dir ht p dir speed mb	29 5 4 3 8 1029.5
DATE	16 DEC	ND speed	&
NO		WI dir	က
STATION	1112	D.	4
C)		AVES ht	2
RUISE	ML 20	W/ dir	29
CRI	Ä	TRANSP	6

SILICA	17 18 18 22 28 28 33 33
AMMONIA r	00011000
NITRATE NITRITE AMMONIA µg-atoms/liter	20 20 20 00 00 00 00 00
	14.4 15.0 15.1 20.1 21.9 23.0 23.5
PHOSPHATE	1.34 1.31 1.36 1.73 1.95 2.09 2.19
SAT %	87 74 86 49 41 37
N AOU µg-at/1	74 146 77 283 300 332 358 416
OXYGEN m1/1 µ	5.35 4.55 3.03 2.89 2.58 1.73
SIGMA T	25.86 25.87 25.88 26.01 26.18 26.31 26.34
SALINITY ppt	33,580 33,581 33,586 33,737 33,868 33,948
TEMP °C	10.01* 9.97 9.94 9.86 9.45* 9.06
DEPTH	0 10 20 30 50 74 74 99

Paired thermometers read 9.95 at 0 m, 9.38 at 50m, 8.97 at 99 m $\,$ * indicates questionable data:

ы	•	VISIB	œ
GITUD	57.4	OUDS	2
LON	121°	CL	4
UDE W	36° 46.8° 121° 57.4°	AIR TEMP °C WEATH CLOUDS V dry wet typ amt	8.3 6.1 5 4 2 8
TIT	46	c gt	5.1
N L	36	EMP We	~
HOUR N LATITUDE W LONGITUDE		AIR I dry	, œ
	1115 16 DEC 1971 12.1	WAVES WIND BAROM dir ht p dir speed mb	1029.5
DATE	16 DEC	n Speed	9 28 5 4 7 10 1029.5
ION		WIN dir s	7
STATION	111	C.	4
		AVES ht	Ŋ
RUISE	ML 20	W. dir	28
CRL	Ä	TRANSP	6

SILICA	17	17	29	21	22	29	32	32	33	40	43	53
AMMONIA r	.21	8	•05	00.	•01	•21	•18	00.	90•	•10	•00	30
RATE NITRITE ΑΝ μg-atoms/liter	•19	.17	•16	.11	•07	•02	•05	•04	•05	•03	•04	0.5
NITRATE µg-at	15.4	16.8	19.2	21.2	19.9	22.6	24.4	26.0	24.7	27.0	28.5	30,3
PHOSPHATE NITRITE AMMONIA	1,29	1,37	1,62	1,75	1.78	2,10	2.17	2,28	2,13	2,39	2,46	2,69
SAT %	89	63	54	28	26	42	38	33	31	31	27	21
AOU g-at/1	58	202	257	236	248	326	353	383	392	393	422	462
OXYGEN AOU m1/1 µg-at/1	5.54	3,91	3,32	3,58	3,46	2.65	2,38	2.08	1.93	2.00	1.74	1.40
SIGMA T	25.84	25.87	25.95	26.02	26.07	26,30	26,35	26.44	26.35	26.50	26.61	26.73
SALINITY ppt	33,538	33,560	33,661	33,714	33,755	33,943	33,965	34.017	33,972	34.049	34,110	34.140
TEMP S	9.97*	9,88	9.85*	*69° 6	09.6	9.10	8.86*	8.57	8.92	8,32	7.91*	7.21
DEPTH m	0	10	20	30	20	75	66	149	199	249	298	398

* indicates questionable data: Paired thermometers read 9.89 at 0 m, 9.92 at 20 m, 9.76 at 30m, 8.02 at 298 m

				SILICA	18	18	7	12	17	20*
		g		MMONIA	•07	.13	•03	•25	•25	60.
<u> </u>	•	VISIB	∞	RATE NITRITE A µg-atoms/liter	12	14	80,	10	11	•15
GITU	52.(CLOUDS typ amt	4 1	NIT; toms/	·	·		·		
LON	121° 52.0'	CL typ	4	RATE µg-a	4.	0	4.	∞.	2	18.0
E V		ÆА ТН	2	NIT	14	10	10	12	15	18
N LATITUDE W LONGITUDE	36° 45.2°	AIR TEMP °C WEATH dry wet	10.6 7.8	PHOSPHATE NITRATE NITRITE AΜΜΟΝΙΑ SILICA μg-atoms/liter	1,35	1,13	1.08	1,29	1.49	1.79
HOUR N	13.8	AIR TE dry	10.6	SAT PI	83	73	83	78	59	43
		BAROM mb	1027.8	AOU g-at/1	93	151	92	121	229	319
DATE	16 DEC 1971	WIND dir speed	4 8 1	OXYGEN AOU ml/l µg-at/l	5,13	4.48	5.14	4.84	3,63	2.67
STATION	1110			SIGMA T	25,85	25.85	25.85	25.91	25.99	26.17
CRUISE	20	WAVES dir ht p	28 3 4	SALINITY ppt	584	33,579	,580	,627	,727	863
CR	五	TRANSP	œ	SAL]						
		IR		TEMP °C	10,12	10,10	10,11	9.94	9.92	*6 7°6
				DEPTH m	0	2	10	70	30	20

* indicates questionable data: Paired thermometer read 9.41
Silica appears anomalously low

				SILICA	25 25 26
		æ		MMONIA	.47 .48 .35
<u> </u>	•	VISIB	œ	RATE NITRITE AN µg-atoms/liter	39 34 23
SITOD	121° 49.5'	CLOUDS typ amt	1	NITR toms/	• • •
LONG	121°	CLC	0	RATE Jig-a	17.7 17.2 17.5
Ä ≥	•	катн	-	TIN :	17 17 17
HOUR N LATITUDE W LONGITUDE	36° 44.6°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	7.2 5.0 1 0 1	PHOSPHATE NITRITE AMMONIA SILICA μg-atoms/liter	1.70 1.59 1.75
z		R TE Iry	7.2		
HOUR	7.8	AI		SAT	50 72 46
阳	1971	BAROM mb	1016.6	ΑΟŬ μg-at/1	279 156 297
DATE	17 DEC 1971	WAVES WIND dir ht p dir speed	29 2 6 9 11 1016.6	SALINITY SIGMA T OXXGEN AOU SAT ppt m1/1 µg-at/1 %	3.08 4.46 2.88
ION	н	W] dir	6	A T	98 99 01
STATION	1101	WAVES r ht p	2 6	SIGM	25.98 25.99 26.01
CRUISE	20	WA	29	INITY opt	690 701 720
CR	M	TRANSP m	5	SAL]	* * *
		TR.		TEAP °C	9.80* 33.690 9.79* 33.701 9.77* 33.720
				DEPTH	0 5

* indicates questionable data: Paired thermometers read 9.74 at 0 m, 9.79 at 5m, 9.77 at 10 m

				SILICA	21	21	21		24	33
		83		PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	.39	30	•31		•16	.37
TUDE	1.7	S VISIB	8	RATE NITRITE Α μg-atoms/liter	•19	•18	•25		.14	•23
N LATITUDE W LONGITUDE	121° 51.7'	AIR TEMP °C WEATH CLOUDS dry wet typ amt	0 1	ΓRATE NI μg-ator	9•9	16.5	5.7		7. 4	23.9
rude v	3.1'	WEATH	H	ATE NIT						
N LATE	36° 43.1°	IR TEMP °C dry wet	7.2 5.0	лнозрну	1.5	1,55	1,5		1.8	2.07
HOUR	9.8	AIR 1 dry	7.3	SAT	55	24	63	73	54	41
	1971	BAROM mb	1016.6	XYGEN AOU m1/1 µ8-at/1	250	253	203	147	257	331
DATE	17 DEC 1971	WIND dir speed	9 12	OXYGEN AOU m1/1 µg-at/	3,38	3,35	3,91	4.55	3,32	2,57
STATION	1120	C ₁	2 6 9	SIGMA T	25.93	25.93	25.94	25.95	26.04	26.23
CRUISE	ML 20	SP WAVES dir ht	29	TEMP SALINITY °C ppt	33,664	33,664	33,664	33,676	33,766	33.896
•	Æ	TRANSP	10	TEMP SA					*	
				DEPTH m	0	2	10	20	30	67

* indicates questionable data: Paired thermometer read 9.76

W LONGITUDE	121° 53.2'
N LATITUDE	36° 39.21
HOUR	8.6
DATE	17 DEC 1971
STATION	1123
CRUISE	ML 20

SP WAVES WIND BAROM AIR TEMP °C WEATH CLOUDS VISIB dir speed mb dry wet typ amt 29 2 6 9 9 1024.0 7.8 5.6 1 0 1 8			
dir ht p dir speed mb dry wet 29 2 6 9 9 1024.0 7.8 5.6 1	VISIB		80
dir ht p dir speed mb dry wet 29 2 6 9 9 1024.0 7.8 5.6 1	SUDO	amt	7
dir ht p dir speed mb dry wet 29 2 6 9 9 1024.0 7.8 5.6	CLC	typ	0
dir ht p dir speed mb dr dr dr 29 2 6 9 9 1024.0 7	WEATH		1
dir ht p dir speed mb dr dr dr 29 2 6 9 9 1024.0 7	٥ ،	ret	5.6
dir ht p dir speed mb dr dr dr 29 2 6 9 9 1024.0 7	TEM	:	
dir ht p dir speed 29 2 6 9 9	AIR	dry	7.
dir ht p dir 29 2 6 9	BAROM	ф	1024.0
dir ht p dir 29 2 6 9	E	speed	6
ਦੋ ``	M	dir	6
ਦੋ ``		d	9
ਦੋ ``	VES	ht	7
ISP	WA	dir	29
TRANSI m 7			

SILICA	23	20	23	30	30	31
AMMONIA r	•18	00•	•03	•07	.12	00
NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	•16	•19	.21	•18	•15	•10
E NITRATE μg-a	15.4	15,9	15.5	17.4	23.1	24.8
PHOSPHATE	1,40	1.37	1.46	1.86	1.91	1.98
SAT %	80	89	75	4 8	67	33
OXYGEN AOU ml/l µg-at/l	111	175	138	291	282	375
OXYGEN m1/1	96.4	4.24	4.65	2.97	3.08	2.06
SIGMA T	25.94	25.95	25.96	26,11	26.16	26.22
SALINITY ppt	33	33		33	33	33
rem °c	9.87*	9.83*	9.87	9.58	9.50*	9,33
DEPTH m	0	5	10	20	30	64

* indicates questionable data: Paired thermometers read 9.81 at 0 m, 9.89 at 5 m, 9.42 at 30 m

W LONGITUDE	121° 51.1'
N LATITUDE	36° 37.7°
HOUR	10.6
DATE	17 DEC 1971
STATION	1121
CRUISE	20
CRU	À

VISIB	œ
CLOUDS	(y) amc 0 1
2	0
WEATH	П
AIR TEMP °C	7.2
AIR TE	10.0
BAROM	1023.4
WIND	0
WI	0
	7
WAVES	1
WAVES	29
TRANSP	. 4

SILICA	20 22 20
AMMONIA :r	1,56 1,36 .80
NITRITE coms/lite	.26 .27 .26
NITRATE µg-at	14.2 14.3 14.4
PHOSPHATE NITRATE NITRITE AMMONIA SILICA μg-atoms/liter	1.62 1.65 1.54
SAT %	101 96 93
AOU g-at/1	23 40
OXYGEN AOU SAT m1/1 µg-at/1 %	6.25 5.94 5.76
SIGMA T	25.88 25.91 25.93
SALINITY ppt	33.620 33.623 33.635
TEMP °C	10.08* 9.91* 9.84
DEPTH m	0 5

* indicates questionable data: Paired thermometers read 10.00 at 0 m, 9.85 at 5 m

				SILICA	19 20 21
				MONIA	.32 .42 .51
.,·		VISIB	∞	RATE NITRITE AM µg-atoms/liter	.27 .27 .30
TION I	52.9	UDS	н	NITR:	*****
NOT	121° 52.9'	CLOUDS typ amt	0 1	RATE µg–at	11.3 14.2 14.9
× 33 24	•	weath	H	E NIT	11
HOUR N LATITUDE W LONGITUDE	36° 36.61	AIR TEMP °C WEATH CLOUDS dry wet typ amt	11.1 7.8 1	PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1.37 1.40 1.49
TOOK	11.2	AIR TI dry	11.1		98 98 95
	1971	BAROM mb	022.4	XYGEN AOU SAT m1/1 μ g-at/1 %	12 10 28
DATE	17 DEC 1971 11.2	WAVES WIND r ht p dir speed	9 1 7 0 0 1022.4	TY SIGMA T ΟΧΥGEN AOU SAT m1/1 μg-at/1 %	6.04 6.07 5.87
	~	WI d1r	0	T	90
SIALLON	1122	S: .	7	SIGM	25.90 25.91 25.91
a a	20	WAVES dir ht	29 1	IITY	28 28 34
CKOTS	Ä	NSP	9 :	SALINI' ppt	33.628 33.628 33.63
		TRA		TEMP °C	10.04 9.98 9.96
				EPTH m	0 50

				SILICA	21	21	20	20	20
		IB		PHOSPHATE NITRATE NITRITE AMMONIA SILICA µg-atoms/liter	1.07	*8	92.	.27	• 65
三	3.	VISIB	∞	RATE NITRITE A µg-atoms/liter	26	,26	• 26	22	.22
GITU	121° 56.3'	CLOUDS typ amt	0	NIT! toms/	•	•	·	•	•
I LON	121	typ typ	0	RATE µg-a	4.	63	17.0	4.	6•
DE		ÆATH	-	E NIT	16	16	17	17	17
N LATITUDE W LONGITUDE	36°38.8¹	AIR TEMP °C WEATH CLOUDS dry wet typ amt	6.8	PHAT	.62	79.	1.69	63	. 70
N	36	IR TEMP °C dry wet	11.7 8.9	PHOS	_	_	_	_	_
HOUR	12.2	AIR	11.	SAT %	06	29	82	29	78
	1971	BAROM mb	1022,4	A0U 1g-at/1	54	115	101	117	120
DATE	17 DEC 1971	WIND dir speed	2 2 1	SIGMA T OXYGEN AOU : m1/1 µg-at/1	5.60	4.92	5.09	4.91	4 •89
NO		WIND dir sp	7	H	н	e	9	7	6
STATION	1124	Ç.	~ ~	SIGMA	26.0	26.0	26.06	26.0	26.09
ä	20	WAVES Lr ht	29 1 7	H	82	2	80		6
CRUISE	뉟			SALINITY ppt	33,73	33,74	33,758	33,77	33,77
		TRANSP		TEMP S	9.84	*92. 6	89.6	89.6	09.6
				DEPTH m	0	5	2	20	30

* indicates questionable data: Paired thermometer read 9.70

W LONGITUDE	121° 55.7°
N LATITUDE	36° 44.5
HOUR	13,3
DATE	17 DEC 1971
STATION	1116
CRUISE	ML 20

VISIB		œ
CLOUDS	:yp amt	П
ပ	ty	0
WEATH		1
AIR TEMP °C	wet	10.0
IR TE	dry	12.8
BAROM	돁	1021.3
WIND BAROM	dir speed mb	4 1 1021,3
	p dir speed	5 4 1 1021.3
MIND	p dir speed	1 5 4 1 1021.3
		31 1 5 4 1 1021.3
MIND	p dir speed	9 31 1 5 4 1 1021,3

SILICA	21 10 25 13 22 29
AMMONIA F	.22 .14 .30 .01 .12
NITRATE NITRITE AMMONIA µg-atoms/liter	24 20 20 26 13 03
	15.3 9.3 13.6 12.9 17.1 21.2
PHOSPHATE	1.45 .94 1.47 1.43 2.05
SAT %	86 85 78 70 70 38
OXYGEN AOU ml/1 µg-at/1	79 84 119 91 165 294 351
OXYGEN m1/1)	5.28 4.86 5.18 5.18 4.35 2.97
SIGMA T	25.93 25.97 25.98 25.99 26.02 26.22
SALINITY ppt	33,694 33,696 33,698 33,700 33,739 33,906
TEMP °C	10,11* 9,92 9,88 9,82 9,36
DEPTH	0 10 20 30 50 75

Paired thermometers read 10.05 at 0 m, 9.75 at 30 m Silica appears anomalously low * indicates questionable data: