

# Moss Landing

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CALIFORNIA COOPERATIVE FISHERIES INVESTIGATIONS
HYDROGRAPHIC DATA REPORT
MONTEREY BAY
JULY TO DECEMBER 1974

by

William W. Broenkow, Stephen R. Lasley, and George C. Schrader

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## CALCOFI HYDROGRAPHIC DATA REPORT MONTEREY BAY JULY TO DECEMBER 1974

#### INTRODUCTION

In July 1974 Moss Landing Marine Laboratories began the continuation of the bi-weekly hydrographic observations in Monterey Bay. From 1951 to this date, these stations were sampled by personnel at Hopkins Marine Station in Pacific Grove.

Small changes were made in the sampling routine: 1) to facilitate squid (Loligo opalescens) studies, our observations were made at night, and 2) stations 1125 and 1154 are sampled in addition to five stations originally used by Hopkins Marine Station (2201, 2202, 2203, 2204, and 2205). These additional stations will provide important data of the nearshore environment.

#### STATION LOCATIONS

NUMBER	LATITUDE N.	LONGITUDE W.	DEPTH
2201	36°37.6'	121°53.6'	m 46
2202	36°41"2'	121°57.9'	104
2203	36°46.7'	122°01.2'	988
2204	36°50.9'	122°01.5'	82
2205	36°55.8'	122°00.7'	26
1125	36°40.0°	121°50.8'	42
1154	36°55.2'	121°52.7'	16

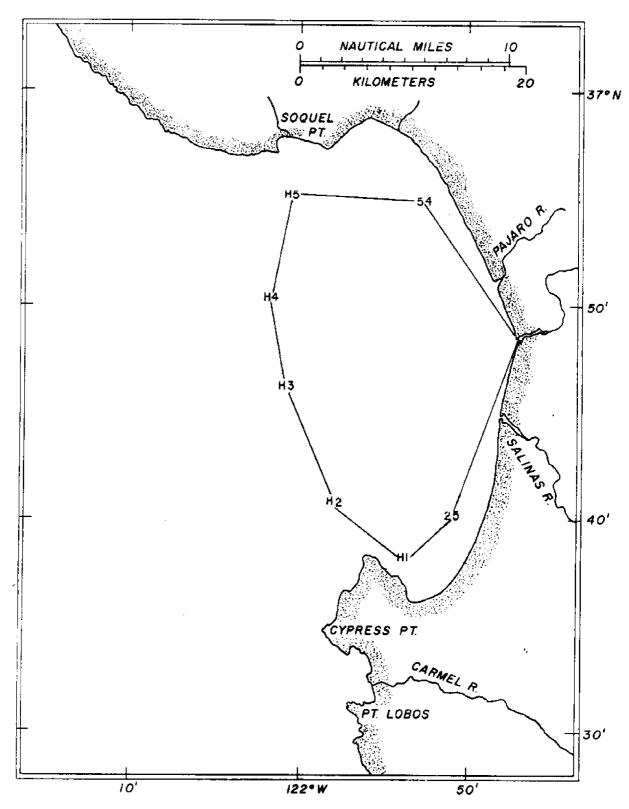


Figure 1. CalCOFI hydrographic station positions. H prefixes designate stations originated by Hopkins Marine Station.

#### EXPLANATION OF TABLES

CRUISE Moss Landing Marine Laboratories consecutive hydro-

graphic cruise number.

STATION Permanent hydrographic station numbers. 11xx desig-

nates Moss Landing Marine Laboratories, 22xx CalCOFI numbers as originated by Hopkins Marine Station.

DATE Local date of sampling.

HOUR Local sampling time (Pacific Standard Time). Time

of messenger release is given for one-cast stations, median time on station is given for multi-cast stations. For two-cast stations the time on-station was generally

under one hour.

N LATITUDE Observed station position corresponding to sampling time given above. Drift while on station was gener-

ally less than 0.5 miles. When greater drift was experienced, the ship was brought back to the station

for subsequent casts.

TRANSP Secchi disk depth, meters (not observed at night).

WAVES

dir Direction from which the dominant waves 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 °C

dry Air temperatures were obtained about 2 m above sea

surface. Dry-bulb air temperature in degrees centigrade.

wet Wet-bulb air temperature in degrees centigrade.

WEATH Present weather according to WMO Code 4677.

CLOUDS

typ Cloud type according to WMO Code 0500.

amt Cloud amount in eights according to WMO Code 2700.

VISIB Sea level visibility according to WMO Code 4300.

DEPTH Accepted depth in meters from which the sample was

obtained, determined from wire length, wire angle

and thermometric depth calculation.

TEMP In situ water temperature in degrees centigrade.

SALINITY Salinity in grams/kilogram (<sup>0</sup>/oo or ppt).

SIGMA T Potential density anomaly, computed from the equations

in Knudsen's Hydrographical Tables (Knudsen, 1901).

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

AOU Apparent oxygen utilization in  $\mu g$ -atoms  $O_2$ -0/liter:

the difference between the observed oxygen concentration and the oxygen solubility computed from the <u>in</u> situ temperature and salinity using the equations of

Truesdale, et al. (1955).

SAT Per cent of oxygen saturation computed from the in

situ temperature and salinity using the equations of

Truesdale, et al. (1955).

PHOSPHATE Concentration of reactive phosphate in µg-atoms

 $PO_A-P/liter.$ 

NITRATE Concentration of dissolved nitrate in µg-atoms

 $NO_2-N/liter.$ 

NITRITE Concentration of dissolved nitrite in µg-atoms

 $NO_2$ -N/liter.

AMMONIA Concentration of dissolved ammonia in µg-atoms

NH<sub>3</sub>-N/liter.

SILICA Concentration of reactive silica in µg-atoms

SiO<sub>2</sub>-Si/liter.

\* Questionable data point. These values are suspect

based upon preliminary analysis of the data and should

be used with caution.

 $^\dagger$  Squid catch data are available for this station and

will be published separately.

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#### METHODS

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

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

<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  $0.05^{\circ}$  C.

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

<u>Dissolved Oxygen</u>. 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  $\pm 0.06$  ml/liter (2 SD).

Nutrient Ions. The 500 ml samples were quick frozen in dry ice aboard ship and were refrigerated at -10° C until analyzed ashore within two weeks of collection. Groups of 44 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. When the probe colorimeter was used to determine sample absorbances, standards were read before and after samples. A linear frift correction was used to correct for electronic and chemical drift over the 20-minute reading time.

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 at 885 nm was determined in 10 cm cells on a Beckman DU II Spectrophotometer, or by a Brinkman PC 1000 probe colorimeter at 880 nm. Precision of the analyses is about  $\pm 0.03~\mu g$ -atoms/liter (2 SD).

Nitrate was determined by the cadmium-reduction method of Wood et al. (1967) followed by the nitrite color development. The sample absorbance was determined in 1 cm cells using a Spectronic 20 Colorimeter

at 543 nm, or the PC-1000 probe colorimeter at 545 nm. Precision of the analyses is about  $\pm 0.5~\mu g$ -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 with 10 cm path length on the Beckman DU at 543 nm, or on the PC-1000 at 545 nm. Precision of the method is about  $\pm 0.03~\mu g$ -atoms/liter (2 SD).

Ammonia was determined by the indophenol method of Solorzano (1969) with the color absorbance determined with a 10 cm path length on the Beckman DU at 640 nm, or on the PC-1000 at 650 nm. Precision of the method is about  $\pm 0.1~\mu g$ -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 at 810 nm was determined in 1 cm cells on a Spectronic 20, or on the PC-1000. Precision of the method is about  $\pm 1~\mu g$ -atoms/liter (2 SD).

ъì	-	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	-
rrup	53.8	UDS	σ'n
LONG	121°	CLOUDS typ amt	×
HOUR N LATITUDE W LONGITUDE	80	WEATH	45
LATIT	36°55,	fr°C ∀et	12.7
z	.,	Ę,	7
HOUR	23.8		12,
<b>~</b> 1	ML 1 1154 20 JUL 1974 23.8 36° 55.8' 121° 53.8'	BAROM mb	49 1 2 9 3 1017.6 12.7 12.7 45 X 9
DAT	o Jur	D peed	ω 
STATION + DATE	7	WIN dir sp	6
CATI	1154	<u> </u>	7
	,	VES	н
CRUISE	Ħ	WA dfr	49
CRU	Æ	TRANSP WAVES WIND BAROM m dirht p dir speed mb	

SILICA	17 2 30
AMMONIA e t	2,9
ITRATE NITRITE AM ug-atoms/liter	90. 80. 4.
NITRATE ug-a	1.7
PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	.00* .00* 1.54*
SAT	135 106 76
AOU 18-at/1	-174 -29 129
OXYGEN AOU m1/1 ug-at/1	7.53 -174 6.04* -29 4.62 129
SIGMA T	25.06 25.33 25.63
SALINITY SIGMA T ppt	33,765 33,777 33,474*
TEMP C	14.89 13.67 10.91
DEPTH	0 5 10

Salinity and oxygen appear anomalously low All phosphates are anomalously low \* indicates questionable data:

				SILICA	7	m	14	19
		VISIB	Ħ	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	0	o,	0	'n
TUDE	*7*			RATE NITRITE A ug-atoms/liter	.12	•16	39	.54
N LATITUDE W LONGITUDE	122°	AIR TEMP °C WEATH CLOUDS dry wet typ ant	<b>9</b> ⊀	RATE N ug-ato	7	1.0	.2	19.8
TODE N		WEATH	45	TE NIT				
I LATIT	36° 55.6¹	Wet	12.5 12.7	ноѕрна	#7C°	#CO.	1.08	1.54*
HOUR	1,1	AIR TEMP °(	12.5		142	138	93	61
	1974	ВАRОМ шb	1013.2	AOU ug-at/1	205	-191	జ	23.2
DATE	21 JUL 1974	WIND dir speed	7	OXYGEN m1/1	7.87	7.79	5,58	3,77
STATION	2205		49 1 2 6 2	TEMP SALINITY SIGMA T OXYGEN AOU SAT •C ppt m1/1 ug-at/1 %	25,00	25,16	25.83	26.02
CRUISE	ML 1	ISP WAVES dir ht p	64	MLINITY	33,710	33,709	33,802	33,820
		TRANSP		TEMP S	14.98			
				DKPTH	0	Ŋ	10	20

\* indicates questionable data: All phosphates are anomalously low

				SILICA	7	8	7	23	2	3 %
		118 118		PHOSPHATE NITRITE AMMONIA SILICA ug-atoms/liter	o,	9	9	1.2	C	<b>•</b>
LTUDE	2,5	JDS VISIB	9 1	RATE NITRITE A ug-atoms/11ter	60	1.	.24	.37	, C	• 29
N LATITUDE W LONGITUDE	122 2.5	H CLOUDS	×	TRATE Nug-ato	9	2.0	1.7	0.9	9°9	24.3
ITUDE	36° 50,3°	C WEAT	7 45	HATE NI	* 00		.11*			2,33* 2
N LAT	36	AIR TEMP °C WEATH dry wet	12.7 12.7	PHOSP	•	•	•	<b>-</b> i	, F	2.
HOUR	2.3	-		SAT	143	135	130	75	62	22
TE	21 JUL 1974	BAROM Tab	1013.2	OXYGEN AOU SAT ml/l ug-at/l %						271
† DATE	21 JU	WIND dir speed	<b>н</b>	OXYGE	8.10	7.78	7.64	4.58	3.82	3,22
STATION	2204		. 2 5	SIGMA I	25.24	25.47	25.64	25.92	26.04	25.89
CRUISE	<b>н</b>	e WAVES dir he p	49 1 2	SALINITY ppt	.772	1,791	. 798	. 790	5	,507*
ច	덫	TRANSP			08 33					
		-		TEMP 0	14.08	13.(	12.	9.01	6	6
				DEPTH	0	S	ន	20	ጽ	ጽ

Salinity appears anomalously low Nitrate appears anomalously high All phosphates are anomalously low \* indicates questionable data:

				SILICA	m	12	4	24	77	28	41	37	39	34	38	52	56	96	6	122
		Ą		ALMOMIA T	0	0	0	ပ္	0	•	0	o.	o.	o	Q	0	0	0	, 0,	•
TUDE	2.0'	CLOUDS VISIB	9 1	RATE NITRITE A ug-atoma/liter	•32	.12	•28	•33	.34	07.	• 28	•13	01.	•10	•04	.03	03	90	60	90.
E W LONGITUDE	122	WEATH CLOUDS typ amt	45 18	NTTBATE ug-at	2.4	٠,	7.4	19.6	18.0	20.8	22.8	24.1	30.3	23.6	23.0	28.9	26.7	35.00	36.2	41.7
N LATITUDE	36, 46,6	AIR TEMP °C W dry wet	12,7	PHOSPHATE NITRATE NITRITE  US-atoms/lite	****	*00*	4:12	1,33*	1,39*	1,53*	1.78*	1.79*	1,92*	1,35*	1.61*	2.26*	1.98*	2.48*	2,80*	2,36
HOUR	3.6		12,5	SAT	153	153	125	9/	77	73	61	52	38	37	34	31	IJ	6	7	7
ы	JUL 1974	BAROM mb	1016.6	1 AOII 18-at/1	<b>⇒27</b> 4	-274	-132	131	127	150	217	799	347	358	372	391	667	545	563	575
DATE	21 JUL	WIND dir speed	7	OXYCEN BJ/1	80 00 00	& (4)	7.44	4.67	4.70	4.47	3.77	3,27	2,43	2,36	2,18	<b>5</b> 00	.97	9.	•48	. 52
$\mathtt{STATION}^{\dagger}$	2203	۵	1 2 27	STGHA T	25.45	25.48	25.69	25,89	25.90	26.01	26.10	26.18	26.34	25.60	26.44	26,50	26.76	26,94	27.03	27.22
CRUISE	KL 1	TRANSP WAVES m dir ht	49	SALINITY PP <sup>t</sup>	33,791	33,787	33,741	33.680*	33,723*	33,803	33,845	33,865	33.968	34,007	34.046	34.082	34.188	34,253	34.287	34,368
		TRA		TEMP • C	13,16	12,99	11,70	10,29*	10.43	10,19	9,81	9.47	8.97	8,90	8,69	8.48	7,30	6,33	5.87	4.81
				DEPTH	0	'n	01	20	ಜ	ይ	75	8	150	200 200	250	8	400	200	<b>9</b>	800

Paired thermometer read 10.59
Salinity appears anomalously low at 20 and 30 meters
All phosphates are anomalously low \* indicates questionable data:

				SILICA	4 1	11	: <del>2</del>	24	25
		VISIB	_	AMMONIA et	1,3	4 0	. "	-4	.2
ITUDE	53,51		6	RATE NITRITE A ug-atoms/liter	90.	.12	10	80	60•
W LONGITUDE	121° 53.5	WEATH CLOUDS typ amt	<b>M</b>	IITRATE ) ug-at	oʻ.	3.2 12.1	18,9	27.1	24.7
N LATITUDE	36° 40,8'		11,1 11,5 45	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	*30*	.0/× 1.24*	1,59*	1.88*	1.87*
HOUR N		AIR TEMP °C dry wet	11,1		152	777 37	79	72	29
ěπ	1974	BAROM mb	1012.9	OXYGEN AOU SAT m1/1 ug-at/1 %	-267	118	112	154	524
DATE	21 JUL 1974	WIND dir speed	-	OXYGEN m1/1	8.81	5.80	78.7	4.43	3,68
STATION	2202	<b>P</b>	2 2 6	SIGM I	25.49	25,75	25,85	26.01	26.09
CRUISE	<b>K</b> 1	¥	69	SALINITY ppt	33,775	33,731	33,696*	33,805	33,844
		TRANSP		TEMP S	12,85	38.	10,62	10,18	9.88
				DEPTH m	0 1	` <b>2</b>	20	ද	20

Salinity appears anomalously low All phosphates are anomalously low \* indicates questionable data:

				SITICA	0	9	15	27	28
		VISIB	2	NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	•	eņ.	4.	6,	1.0
UDE	.0.			PATE NITRITE A ug-atoms/liter	90.	90*	•10	60.	•00
кт	54	CLOUDS typ amt	σ,	ton.					
Ŝ	121 54.0	ជ្ជ ស្ព	M	PATE US-8	o,	Φ.	1,5*	o.	~
<b>3</b> 5		WEATH CLOUDS typ amt	45		·	11	_	25	31.7
T'UD]	17.6	<b>5</b>		ATP.	<b>5</b> *	<b>*</b>	*5	<b>*9</b>	*
N LATITUDE W LONGITUDE	36° 37.6°	AIR TEMP °C dry wet	10.8 11.7	Phospuate	۳,	1.2	1,55*	1.9	2.0
	m	T. V.	ထ						
HOUR	7.9	AIR TE dry	01	SAT	146	76	92	28	26
	21 JUL 1974	BAROM mb	1013,2	OXYGEN AOU ml/l ug-mt/l	-235	31	128	229	244
DATE	Jūr	ed		25 T/			55	21	95
	21	WIND .r spe	-	OXX BI	8	'n	4.65	ب د	er.
STATION		WIND dir speed	27	E-	-	_	Φ	9	ထ
TAT	2201	Δ.	8	SIGMA T	25,3	25.7	25.89	26.0	26.0
S		WAVES r ht	49 3 2	<b>6</b> ⁄1					
CRUISE	1	W. dfr	69	N L	768	773	765	824	829
S	벞	TRANSP m		SALI	33,768	33	33	33	33
		TRAJ		TEMP SALINITY S  C ppt	13,76	11.40	10,70	96.6	9.86
				Hi.džiu	0	'n	유	2	30

All phosphates appear anomalously low Nitrate appears anomalously low \* indicates questionable data:

				SILICA	7 7 4 7
		VISIB	•	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	0.000
Ħ	=		2	ITE	00 00 00 00
ITUE	50.7	UDS Start	6	NITR Obes/	
LONG	121 50.7	CLOUDS typ smt	<b>24</b>	RATE NITRITE A ug-atoms/liter	9999
<b>≥</b>		EA TH	45	NITR	3.0 9.2 23.2
	0.2	<b>5</b>		ATE	1 * * * *
N LATITUDE W LONGITUDE	36° 40.2°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	11.3 11.7	HOSPH	.28* .55* 1.18* 1.81*
		2 H	e.	E	
HOUR	8.7	AIR	11	SAT	147 127 102 65
<b>(34)</b>	1974	BAROH	1013,2	TY SIGMA T OXYGEN AOU SAT ml/l ug-at/l %	-236 -141 -11 193
DATE	21 JUL 1974	WIND dir speed	3 2 27 2	OXYGEN B1/1	8.34 7.42 6.08 3.99
X O		WI dir	27	H	
STATION	1125		2	ТСИ	25.28 25.53 25.71 26.00
		MAVES r ht p	60	b1 ▶4	
CRUISE	-	ੂ ਸ਼ੁੰ	49	INIT PPt	33,755 33,767 33,774 33,794
Š	보	TRANSP B	۵	SAL.	
		Ħ <sup>-</sup>		TEMP SALINIT	13.86 12.65 11.71 10.17
				DKPTH	0 10 20

\* indicates questionable data: All phosphates appear anomalously low

				SILICA	ဖွာ့က္ဆ
		11B		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	3.3 3.3
CUDE	2.7	S VISIB	8	rrire es/11te	91.0
LONGI	121° 52.7'	CLOUDS typ amt	~ ~	RATE NITRITE A ug-atoms/liter	3,2,9
UDE W		WEATH	74	TE NIT	
N LATITUDE W LONGITUDE	366 55,1	AIR TEMP °C WEATH CLOUDS dry wet typ amt	15.0 15.5	HOSPHA	.47 .55 1.10
HOUR N		AIR TEMP • dry wet	15.0		131 121 106
謹	2 AUG 1974 23.1	BAROM mb	1010.8	ry Sigma t Oxygen agu Sat m1/1 ug-at/1 %	
DATE	2 AUG 1		2 10	XYGEN m1/1 u	7,13 -150 6,76 -103 6,13 -31
STATION $^{\dagger}$		WIND dir speed	27	0 ⊬ <b>⊀</b>	
STAT	1154	WAVES fr ht p	0 2 27	SIGM	24.71 24.98 25.37
CRUISE	ML 2	, A	21	LINITY PPt	33.599* 33.599* 33.692
Ü	X	TRANSP		TEMP SALINIT	16.16 3 14.69 3 13.16 3
				DEPTH	0 5 0

\* indicates questionable data: Salinity appears anomalously low

				SILICA	7	13 6
		1.1B		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug~atoms/liter	۰,	
DE	.7.	VISIB	9	RATE NITRITE A ug-atoms/liter	10,5	14
GITU		CLOUDS typ amt	<b>∞</b>	NIT) Coms,	Ţ	
NO I	122°	_ <b>t</b> y	Φ	RATE ug-a	<b>ω</b> ι.	8,5 11,5
30		ÆATH	45	TIN 1	***	1 <b>8</b> 11
N LATITUDE W LONGITUDE	36°55.8'	AIR TEMP °C WEATH CLOUDS dry wet typ amt	15,6 15,5	HOSPHATE	40	1.02
		IR TE	9*51			
HOUR	4.	₽°	-	SAT	125	1007
E	1974	BAROM mb	1009.8	AOU ug-at/1	<b>-121</b> -122	130
DATE	2 AUG 1974	WIND dir speed	0	OXYGEN m1/1	6.88	5,85 4,53
NO		W] dir	27	ы	<u>,</u> =	3 11
STATION	2205		е С	SIGM	24.87	25.51 25.73
SE	7	WAVES dir ht p	23 0 3	III.	62 67	27
CRUISE	첫	<b>NSP</b>		SALIN	33.6 33.6	<b>33.677</b> 33.727
		TRA		TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 ug-at/1 Z	15.42	12.40
				DKPTH	0 W	92

				SILICA	m	4	m	14	16	19
		3.TB	_,	AMONIA I	o.	0	0	, α	1,3	1:1
TUDE	1.5	CLOUDS VISIB typ amt	9 2	RATE NITRITE A ug-atoms/liter	•05	ਰ <b>.</b>	-02	91.	81.	.23
W LONGITUDE	122°		×	ITRATE ug-at	3,7	3.8	3.8	8	15.7	18,3
N LATITUDE	36° 50.9	AIR TEMP °C WEATH dry wet	15.5 45	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	.51	•58	89.	1,38	1.49	1,61
HOUR N	1.8 3	AIR TEMP °C dry wet	15,3 15,5	SAT PHO	122	121	119	77	69	59
		BAROM mb	1010.8	AOU 1g-at/1						226
DATE	3 AUG 1974	WIND dir speed	18 0	OXYGEN AOU ml/l ug-at/l	6.87	6.87	6.78	4.65	4.21	3.61
STATION	2204	Δ.	0 3 18	SIGMA I	25,12	25,16	25.24	25.78	25.89	25,99
CRUISE	ML 2	节	21 0	TEMP SALINITY °C PPt	33,685	33,682	33,686	13,729	13.750	33,789
-	-	TRANSP		TEMP S.	14,34					
				DEPTH m	0	S	2	20	දි	ĸ

				SILICA	13	<b>H</b> .	0	0	0	7	က	17	22	24	56	27	31	<b>41</b>	26	79
		<b>~</b>		<b>MONIA</b>	0	•	•	٥.	o,	o,	•	•	o.	o,	٥.	o,	•	o.	٥.	٥.
TUDE	<b>*6</b> •	JDS VISIB	8 2	PHOSPHATE NITRITE AMMONIA ug-atoms/11ter	•05	•13	<b>.</b> 08	.07	<b>80</b> •	.20	•19	<b>.</b> 15	.25	•13	60°	•05	•03	•03	•05	90°
E W LONGITUDE	122°	WEATH CLOUDS typ amt	× 7	NITRATE 1 ug-ato	4.	1,2	1,7	1.7	1,3	5.6	<b>6.3</b>	4.8	24.8	25.5	25.8	25.4	23.7	28.2	36.7	30.7
N LATITUDE	36 46.5	AIR TEMP °C W dry wet	15.5	PHOSPHATE	.51	64.	•80	.81	.82	88	*14	<b>76</b>	2.16	2,21	2,31	2,28	2,49	2.80	3.24	3.01
HOUR	3,2	AIR TI dry	14.7	SAT	113	108	101	<b>8</b> 6	71	63	9	53	41	41		30	14	90	9	89
	AUC 1974	BAROM mb	1010.8	A0U 18-at/1	-65	-41		74	155	200	194	260	332	331		405	503	545	565	277
DATE	3 AUG	WIND dir spæed	0	OXYGEN AOU ml/l ug-at/1	6.40	6.26	5.90	5,11	4,31	3,89	<b>7.</b> 00	3,29	2.57	2.62		1,93	.93	• 56	<b>77</b>	• 56
${\tt STATION}^{\dagger}$	2203	£.	0 X 12	SICHA I	25,20	25,42	25.47	25,62	25.81	25.95	26.05	26.09	26.25	26.35	26.43	26.58	26.76	26.90	27.02	27,29
CRUISE	ML 2	TRANSP WAVES m dir ht	0	SALINITY ppt	33,702	33,702	33,697	33,682	33,718	33,762	33,822	33,825	33,906	33,974	34.011	34,066	34,180	34,245	34,285	34,403
		TRA		TEMP °C	14.05	12,96	12,66	11,82	10,95	10,32	10.04	9.81	9.19	8,89	8,62	7.89	7,26	6.57	5.92	4.45
				DEPTH m	0	S	01	20	ଛ	20	75	001	50	200	250	300	400	200	9	800

				SILICA	7	m	ო	<b>∞</b>	13	12
		<b>81</b>		AHMONIA T	0.	۳ <b>.</b>	*5	o,	o,	0.
TUDE	10.8	TOS VISIB	8 2	RATE NITRITE A ug-atoms/liter	80•	•10	•10	•23	•39	•30
W LONG	121° 58.0°	WEATH CLOUDS typ amt	×	LTRATE N ug-ato	1,5	2.0	3.8	9.2	15.0	0.81
N LATITUDE W LONGITUDE	36° 41.2°		.0 45	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	•56	•63	570		1,65	
		AIR TEMP °C dry wet	14.1 15.0					_		
HOUR	74 5.9	¥		ou sar at/1 %				50 72		
DATE	3 AUG 1974		0 1009,8	OXYGEN AOU ml/1 ug-at/1				4,35 150		
STATION <sup>†</sup>		WIND dir speed	9					25.79 4		
~1	2 2202	WAVES r ht p	0 0 0	ry Sigha t						
CRUISE	五	TRANSP 1 m di	Ü	TEMP SALINITY °C ppt				33,721		
		TR		TEMP	14,29	14.09	13,68	11,06	10,55	10.05
				DEPTH	0	'n	2	20	ၕ	S,

				SILICA	4		) V-	, [~	- U
		IB		AMMONIA r	٩		-	i	1 0
Œ	-	VISIB	9	TTE	70		11	25	, v
GITUI	121° 53.8'	CLOUDS typ amt	<b>∞</b>	RATE NITRITE A ug-atoms/liter	•	•	•	, ,	•
I ON	121°	iy g	×	RATE ug-at	2	3.0	90	0	
E E		RATH	2	TIN	-	m	i m	jon	0
N LATITUDE W LONGITUDE	36° 37,6°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	15.0 15.0	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	5.8	99*	86	1.34	7 2 2
		IR TEMP °( dry wet	15.0		€.	m	_	ന	_
HOUR	7.0		•	SA.	127	11	10	78	7.
ca ·	1974	BAROM	1010.8	AOU 1g-at/1	-114	-88	-34	118	162
DATE	3 AUG 1974	WIND dir speed	27 0	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 ug-at/1 %	6.77	6.67	6,10	89.4	4.23
Į NO		WI	27	H	Q	0	و	2	2
STATION	2201	d 3	2 2	SIGMA	24.8	25.20	25,26	25,75	25.82
CRUISE	7	WAVES dir ht p	27	NITY Pt	999	969	669	714	743
CR CR	보	TRANSP		SALI	33	33	33	33,714	33
		TRAI		TEMP °C	15,76	13,99	13,72	11,28	10,97
				DEPTH	0	'n	10	70	30

				SILICA	KT (T)	4 00
		11B		PHOSPHATE NITRITE AMMONIA SILICA ug-atoms/liter	00	1.6
벋	•_	VISIB	9	IIE	.21	16 29
TI	51.5	CLOUDS typ amt	∞	NITH Coms/	• •	• •
LONG	121° 51.5°	CLC	×	RATE NITRITE A ug-atoms/liter	'nά	ون ع ا
<b>2</b>		ZATH	2	NITH	5.5	4 H
N LATITUDE W LONGITUDE	36° 39.7	AIR TEMP °C WEATH CLOUDS dry wet typ amt		HATE	.82 76	% %
LAI	36°	IR TEMP °C dry wet	14.4 14.5	HOSPI	•	.86 1.36
		R TE	4.4			
HOUR	7.9	AII	Ä	SAT Z	112	20 20 20 20 20 20 20 20 20 20 20 20 20 2
	1974	BAROM	1011.5	OXYGEN AOU SAT m1/1 ug-at/1 7	-79	-19 107
DATE	3 AUG 1974	WIND dir speed	12 0	OXYCEN m1/1	6.63 6.69	6.02 4.78
+ NOI	10	W. dir	12	H	# £	2.5
STATION <sup>†</sup>	1125	Ē.	7	SICM	25.31 25.33	25.42 25.71
	<b>4</b> 1	WAVES r ht p	27 1 2	*. }:	-1	
CRUISE	.7	끃	27	LINET	33 <b>.</b> 702 33 <b>.</b> 703	3.695
່ວ	븄	TRANSP		SAI		
		Ţ		TEMP SALINITY SIGMA T •C ppt	13.51	12.94
				DEPTH	0 10	22

				SILICA	33 8 15
		I.B		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	000
E	_	VISIB	'n	ITE A Ilter	.15 .39
N LATITUDE W LONGITUDE	121° 52.7'	AIR TEMP °C WEATH CLOUDS dry wet typ amt	<b>∞</b>	RATE NITRITE A ug-atoms/liter	L 4
LONG	121°	CLOUDS typ amt	œ	ATE . g-at	
<b>≥</b>	-	EATH	7	NITR	
TLOD	36°55,21	<u>≨</u> ∪		HATE	# E S
IAT	36°	AIR TEMP °C dry wet		HOSPI	.41 .63 1.26
	7	IR TE dry	14.0		
HOUR	23.	¥	7	SA.	139 128 85
ല	1974	BAROM mb	1000,1	AOU 18-at/1	-191 -141 77
DATE	22 AUG 1974 23.2	WAVES WIND r ht p dir speed	30 1 1009,1	TY SIGMA T OXYGEN AOU SAT ml/l ug-at/l %	7.62 -191 7.28 -141 4.96 77
<u>.</u>		WII dir	8	H	
SIATION	1154	o.		IGMA	24.73 25.19 25.43
<u>.</u>	_	AAVES r ht	27 1 2	<i>v</i> i ≽-	
CKUISE	m,	书	27	INIT	33,618 33,643 33,653
כֿ	捒	TRANSP		SAL	
		IR		TEMP SALINIT °C PPt	15.88 13.85 12.71
				DEPTH	0 20

				SILICA	45	2	. 0	27
		VISIB	5	Anconia e f	o,	į ()	O	0
NGITUDE	•7•		∞,	NITRATE MITRITE AMMONIA SILICA ug-atoms/liter	60	80.	7.7	
N LATITUDE W LONGITUDE	8' 122°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	2 8					
N LATITU	36°55.8	TEMP °C wet	4	<b>Лична</b> Зона	65.	67*	1.02	76-1
HOUR	6	AIR Ti dry	14.4	SAT	130	141	96	63
	1974	BAROM mb	1000.1	NYGEN AOU ml/l ug-at/l	- 146	-201	27	200
↑ DATE	22 AUG 1974	WIND dir speed	<b>+</b> 4	OXYCEN AQU mI/l ug-at,	7,12	7.81	5.60	3,79
STATION <sup>†</sup>	2205	<b>Q</b>	2 2 30	STGMA T	24.63	24.89	25.41	25,75
CRUISE	3	ISP WAVES dir ht	27	TEMP SALJNITY •C ppt	33.486*	33.605	33,611	33,679
		TRANSP			15,88			
				DEPTH	0	S	10	20

\* Indicates questionable data: Salinity appears anomalously low

				SILICA	4 -	o i	1, 16 27	
		8118		AMMONTA :r	o c	, oʻ		
W LONGITUDE	122* 1.8'	CLOUDS VISIB Cyp amt	6	RATE NITRITE A ug-atoms/liter	.02	4.3	41.	
		EATH CI	45 X	NITRATE ug-a				
N LATITUDE	36 50,9	AIR TEMP °C WEATH CLOUDS dry wet typ amt		PHOSPHATE NITRATE NITRITE ANMONIA SILICA ug-atoms/liter	•22 •28		1.53	
HOUR	3.1	AIR I dry	13.0	SAT	148	02	63 57	
阳	1974	BAROM mb	1009.1	XYGEN AOU ml/l ug-at/l	-238 -171	161	204	
DATE	22 AUG 1974	WIND dfr speed	<b>H</b>	OXYGEN AOU ml/l ug-at/	8.26	4.25	3,85	
STATION	2204		2 2 30	SIGMA I	24.97 25.12	25,39 25,80	25.94 26.02	
CKUISK	3	TRANSP WAVES m dirht p	27 2	SALINITY ppt	33,602 33,594	33 <b>.6</b> 05 33.692	33.745 33.779	
		TRA		o.	14.77	12.73 10.90	10.34	
				DEPTH	0 5	2 2	8 8	

				SILICA	ιń.	13	<b>1</b> 6	50 50	23	22	요 :	e F	74*	40	53	92	8	62	106
		æ		PEYONIA	o.	o.	oʻ.	<b>.</b>	0	o.	0	٠,	o.	•	o.	•	o.	o.	o.
TUDE	1,2'	IDS VISIB	6	RATE NITRITE A ug-atoms/liter	.07	æ.	.51	64.	.34	01.	.13	.01	•16	11.	•10	60.	.15	.13	.12
W LONCITUDE	122	WEATH CLOUDS typ amt	×	NITRATE   ug-at															
N LATITUDE	36* 46.7*	AIR TEMP °C WE dry wet	4	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	04.	95	1,32	1.76	1.85	1.73	2,10	2.22	2.20	2,28	2.83	3.07	3,28	3.21	3,45
HOUR	5.7	AIR TI dry	13.4	SAT	132	113	%	2	63	55	47	42	34	೭	23	14	11	∞	σ.
	AUG 1974	BAROH	1009.1	XYGEN AOU m1/1 ug-at/1	-165	-64	19	160	201	248	293	328	375	404	445	508	534	295	571
DATE	23 AUG	WIND dir speed	7	OXYGEN #1/1 u	7.55	6.55	5.71	4.26	3,84	3,39	2.96	2.67	2.19	1.91	1,50	.92	.75	• 56	• 65
STATION <sup>†</sup>	2203	<b>P</b> .	3 2 16	SIGMA T	25,25	25.41	25.57	25.80	25.87	26.01	26.14	26.29	26.46	26.49	26,63	26.82	26,96	27.12	27.31
CRUISE	3	isp waves dir h <sup>t</sup>	27	SALINITY ppt			33,656												
		TRANSP		TRAP S	13,53	12.77	11,96	10,93	10,65*	10.03	9.53	8.82	8.42*	8.16	7.79	6.93	6.19	5,39	4.27
				DEPTH	0	1/3	2	20	8	9	75	150	200	250	8	004	200	009	000

Paired thermometers read 10.54 at 30 m; 8.56 at 200 m. Silicate appears anomalously high \* indicates questionable data:

				SILICA	<b>∞</b>	11	20	24	25
		VISIB	7	AMMONIA 2.	۳.	4.	o.	٥.	o•
TTUDE	121* 53.3*		60	RATE NITRITE A ug-atoms/liter	.53	• 64	•95	1,17	1.09
M LONG		ATH CLOUDS typ ant	2 8	NITRATE ug-at	5.7	4.7	16.8	22,1	7.1
N LATITUDE W LONGITUDE	36° 37.3'	AIR TEMP °C WEATH CLOUDS dry wet typ amt		PHOSPHATE NITRITE AMMONIA SILICA ug-atoms/liter	1.16	1,38	1,79	1,93	1.98
HOUR	r,	AIR TE dry	15.5		138	137	105	88	73
БĀ	1974	BAROM	1009.1	n AOU		-178			145
DATE	16 AUG 1974	WIND dir speed	30	OXYGEN =1/1	7.50	7.43	5.71	4.97	4,35
STATION	2201		30 3 2 30	TEMP SALINITY SIGMA T OXYGEN AOU SAT *C ppt m1/1 ug-at/1 %	24.67	24.67	24.70	25.08	25.68
CRUISE	3	ISP WAVES dir ht p	30	ALINITY PP t	33,634	33,637	33,634	33,627	33,688
		TRANSP		TEMP S	16.23	16.22	16.10	14.31	11.54
				DEPTH *	0	ĸΩ	01	20	8

				SILICA	4	0	16	20
		118		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	4.6	o.	2.2	•
<del>1-1</del>	•	VISIB	<b>^</b>	ITK 11te	8	8	10	50
IIM	50.7	UDS	<b>∞</b>	NITR oms/	•	•	•	•
LONG	121° 50.7'	CLOUDS typ amt	<b>∞</b>	RATE NITRITE AI ug-atoms/liter	<b>∞</b>	0	σ.	0
3		ATH	7	NITR	2.8	•	2.9	7.
TUDE	0.1	WE		ATR.	7	6	0	2
N LAILTUDE W LONGITUDE	36° 40.1°	AIR TEMP °C WEATH CLOUDS dry wet typ amt		'H <b>d</b> SOI	2	.23	<u>.</u>	1.4
z	m	IR TEMP °(	15.5	£				
HOUR	23.0	AIR	1.5	SAT		133	120	124
	16 AUG 1974 23.0	BAROM	1009.1	OXYGEN AOU SAT ml/l ug-at/l %		-161	86	117
DATE	AUG	ed		<u>79.E</u> N 1/1 τ		31	6.61	68
_	16	WIND dir speed	4			7	9	9
LON 10	<b>.</b>	W	8	<b>(</b> −ι <b>4</b> !	32	32	32	35
STATION	1125	<u> </u>	7	16K	24.82	24.82	24.	24
V)		WAVES Ir ht	4 2	<b>5</b> 21				
CRUISE	n	뀽	ଝ	INITY	637	33,641	635	627
8	덮	TRANSP		SALI	33,	33,	33	33.
		TRA		TEMP SALINITY SIGMA I *C ppt	15,56	15.56	15,55	14.93
				DEPTH	0	5	ឧ	20

				SILICA	2
		E E		PHOSPHATE NITRATE WIRLTE AMMONIA SILICA ug-atoms/liter	.7
TUDE	3.01	DS VISIB mt	8	RATE NITRITE A ug-atoms/liter	.08
N LATITUDE W LONGITUDE	121° 53.0	AIR TEMP °C WEATH CLOUDS dry wet typ amt	0 ×	PRATE N ug-aton	.7 1.2 8.0
ITUDE	36° 55.27	WEAT	7	ATE NE	
N LAT	36	IR IEMP Cdry wet		HOSUHA	.42 .45
HOUR	23.0	AIR dry		ZVI ZVI	135 126 78
ы	30 AUG 1974 23.0	BAROM Tab	1009.5	<u>Α∩π</u> ug-at/]	7.48 -173 7.10 -129 4.60 118
DATE	30 AUG	WIND dir speed	-	OXYGEN ANU SAT ml/l ug-at/l %	7.48 7.10 4.60
${f STATION}^{\dagger}$	1154		2 6	TEMP SALINITY SIGMA T *C ppt	24.88 25.12 25.58
		WAVES r ht p	5 1 2	isi È	
CRUISE	보	SP Ag	25	SALINI! PPt	33.639 33.656 33.666
		TRAN		TEMP °C	15.31 14.24* 11.96
				DRPTH	0 2 0

\* indicates questionable data: Paired thermometer read 14,16

				SILICA	-4	6	14	11
		VISIB	<b>6</b> 0	AMMONIA	o.	1.5	1.7	2.4
ITUDE	•7•			RATE NITRITE A ug-atoms/liter	8	.27	.37	•29
W LONG	122°	TH CLOUDS typ ant	0 X	ITRATE ) ug-ati	٠,	8.2	4.6	9,3
N LATITUDE W LONGITUDE	36° 55,8°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	2	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	•20	1.24	1,48	1,34
HOUR	4.	AIR T dry			130	8	82	09
	1974	BAROM	1009.5	A0U 1g-at/1	-148	<b>10</b> 6	117	216
DATE	30 AUG 1974	WIND dir speed	0 66	OXYGEN m1/1 t	7.21	4.77	4.68	3,58
STATION	2205			TEMP SALINITY SIGMA T OXYGEN AOU SAT	24.92	25.59	25,64	25.68
CRUISE	<b>7</b> 4	TRANSP WAVES m dir ht p	24 1 2	MLINITY ppt	33,675	33,621	33.616	33.654
		TRANS		o.	15,22*	11,72*	11.45	11,39
				DKPTH	0	'n	2	20

\* indicates questionable data: Paired thermometers read 15.14 at 0 m; 11.61 at 5 m

				SILICA	প	4	10	15	17	23
		11B	_	AMONIA :r	1,3		1.6	7	9	o
Trude	122* 1.6*	CLOUDS VISIB	8	RATE NITRITE A ug-atoms/liter	70*	80	30	34	13	30
W LONGITUDE		WEATH CLOUDS typ amt	2 X	NITRATE ug-at	2.1	2.8	8.6	15,1	8.6	20.2
N LATITUDE	36* 50.9	AIR TEMP °C WE dry wet		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	.35	.43	1,00	1.49	1,51	1.89
HOUR	1.8	AIR 1 dry		SAT	118	117	96	69	\$	35
	1974	BAROM	1000.1	AOU ug-at/1	-91	-87	23	168	196	239
DATE	31 AUG 1974	WIND dir speed	30	OXYGEN AOU ml/l ug-at/l	6,72	69.9	5,60	4.15	3.91	3,47
STATION	2204	<b>Q</b> .	1 2 30	SIGMA T	25.24	25,25	25,50	25.77	25.90	26.00
CRUISE	¥.	FRANSP WAVES	23	*C PPt	33.692	33,692	33,680	33,701	33,744	33,803
		TRA		TEMP C	13,82	13,75	12,47	11,09	10,55	10,24
				DEPTH	0	•	07	20	2	ጽ

				SILICA	37*	11	15	39*	15	28	17	15	33	37	43	51	57	8	8	101
		13		AMMONTA r	۲.	9	ထ္	ထ္	1.2	۲.	•	<b>•</b>	•	0	0	0	0	0	0	0
ITODE	1,3	UDS VISIB amt	<u>ه</u> د	RATE NITRITE A ug-atoms/liter	•22	• 36	.37	.42	•37	.42	•38	.15	.00	•08	.03	10	10	.13	80	•10
W LONGITUDE	122°	WEATH CLOUDS typ amt	2 0	NITRATE ] ug-at	4.1	8.9	11,1	13,3	13.8	14.1	14.7	12.7	25.4	28.5	30,1	32,1	18,0*	28.5	37.8	41.9
N LATITUDE	36° 46.7'			PHOSPHATE NITRITE AMMONIA SILICA ug-atoms/liter	•58	.97	1,12	1.88	1,90	1,42	1,54	1.49	2.14	2,31	2.51	2.68	2,79	2,75	3,22	3,36
HOUR N	0.4	AIR TEMP °C dry wet		SAT	111	85	81	92	11	89	63	<b>5</b> 3	39	33	29	26	14	9	0	ω
M	AUG 1974	BAROH mb	1009.1	AOU 1g-at/1	<del>-</del> 58	81	103	131	154	175	204	261	344	380	396	433	509	544	909	576
DATE	31 AUG	WIND dir speed		OXYGEN AOU ml/l ug-at/l	07.9	5.03	4.82	4.54	4,32	4.10	3.82	3.27	2.47	2,13	1,85	1,66	.91	•62	.0	•55
STATION <sup>†</sup>	2203	ā	3 2 29	SIGMA I	25,36	25,65	25,72	25.81	25.69	25.87	25.93	26,10	26,37	26,51	26.44	26.70	26.87	27.00	27.09	27.31
CRUISE	MG. 4	USP WAVES dir ht	27	SAL INITY ppt	33,742	33,724	33,734	33,784	33,758	33,768	33,777	33.844	33,994	34.080	34,131	34.169	34,256	34,314	34,352	34.450
		TRANSP		TIME.	13,39	11.82*	11.49	11,21	11,02	10,82	10,51	9.85	<b>*</b> 06*8	8.43	60°6	7.60*	6.92	6,26	5.78	4.55
				DRPTH m	0	S	9	20	ଛ	3	75	100	150	200	250	300	<b>7</b> 00	200	909	800

Paired thermometers read 11.75 at 5 m; 8.97 at 150 m; 7.53 at 300 m Nitrate appears anomalously low Silicate appears anomalously high at 0 and 20 m \* indicates questionable data:

				SILICA	v	) E	2	777	, a	22
		<b>81</b> 1		AMONIA :r	c	<b>?</b> -		. "	2	. 0
Trude	121° 57.9"	CLOUDS VISIB	6	RATE NITRITE A ug-atoms/liter	23	55	96	46	9 4	44.
NOT M		WEATH CLOUDS typ amt	X 57	NITRATE ug-at	2,3	1.7	7.4	11.8	17.5	15.4
N LATITUDE W LONGITUDE	36° 41,2°	AIR TEMP °C WE dry wet	7	PHOSPHATE NITRATE NITRITE AMMONIA ug-atoms/liter	07	.37	86	1.46	1.74	1,90
HOUR	6.5	AIR 1 dry		SAT	119	118	86	77	9	9
Ħ	1974	BAROM	1000	OXYGEN AOU m1/1 ug-at/1	-95	68-	Ħ	123	191	217
DATE	31 AUG 1974	WIND dir speed	о Е	OXYGEN #1/1	9.9	6.74	5.88	4.61	3,92	3,70
STATION	2202	•	×	SIGMA I	25,29	25,31	25.61	25,74	25,83	25.93
CRUISE	ML 4	TRANSP WAVES m dir ht	67	TEMP SALINITY S *C ppt	33,698	33,695	33,694	33,727	33,730	33,746
		TRA		TRATE O.	13,58	13.46	$11_{\bullet}93$	11,38	10,88	10,37
				DEPTH	0	V.	2	20	ଛ	23

\* indicates questionable datat Silicate appears anomalously high

	SILICA	16 5 65* 14 20
<b>~</b>	AMMON LA et	2 5 9 5 9 5 9 9 9 9 9 9 9 9 9 9 9 9 9 9
	ITRITE ms/lite	33 20 20 21 32 20 21 32 32 32 32 32 32 32 32 32 32 32 32 32
typ a	FRATE N ug-ato	
45	ATE NI	•
Vet	PHOSPH	.42 .37 .98 1.15
	SAT	122 122 116 80 72
mb 1009.1	AOU ug-at/1	-113 -113 107 151
speed 0	OXYGEN B1/1	7.02 7.03 6.72 4.76
<b>P</b> 7	IGMA I	25.33 25.34 25.42 25.69 25.75
dfr ht 30 l		33,704 33,706 33,711 33,734 33,745
a	SALI	
-	TEMP C	13.41 13.35 12.97 11.66 11.38
	DEPTH	30 5 0 30 30 30
	r ht p dir speed mb dry wet t	m dir ht p dir speed mb dry wet typ amt 30 1 2 30 0 1009.1  TEMP SALINITY SIGMA T OXYGEN AOU SAT PHOSPHATE NITRATE NITRITE  "C ppt ml/l ug-at/l % ug-atoms/lit

\* indicates questionable data: Silicate appears anomalously high

				SILICA	5 10 17
		13		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	1.0
r+1	_	VISIB	4	TB .	<b>598</b> 5
N LATITUDE W LONGITUDE	121* 50,8	CLOUDS typ smt	0 ×	RATE NITRITE A ug-atoms/liter	.21 .36 .48
LON	.21	돷	×	ATE g-at	41000
M E		AIR TEMP °C WEATH CLOUDS dry wet typ ant	45	NITR	1.4 5.5 10.2 13.6
TITUD	36° 40.0¹	ئئ تع		PHATE	.50 .85 1.14
Y Z	36	TEMP		PHOS	HH
HOUR	8.7	AIR dry		SAT	121 112 89 78
	31 AUG 1974	BAROM mb	1008,5	TEMP SALINITY SIGMA T OXYGEN AOU SAT °C ppt m1/1 ug-at/1 X	-106 -63 56 116
DATE	AUG	ğ	_	GEN 1/1 u	6.95 6.57 5.29 4.68
	31	WIND Ir spe	0 66		00.0.4
STATION	2	WIND dir speed	66	T T	2322
STAT	1125		2 2	;IGM	25.35 25.52 25.63 25.63
		WAVES r ht p		53 54	
CRUISE	4	d.	27	INIT PPt	33,705 33,711 33,723 33,734
8	捒	TRANSP III		SAL	<u> </u>
		TRA		TEMP C.	13,33 12,45 11,95 11,51
				DEPTH	0 10 20

				SILICA	Q 60 9
		VISIB	<b>∞</b>	AMMONIA :er	440
GITUDE	121° 52,1°		0	RATE NITRITE A ug-atoms/liter	.12
NOT H 2		LATH CL	2 *	NITRATE ug-a	2.2
N LATITUDE W LONGITUDE	36 55,2*	AIR TEMP °C WEATH CLOUDS dry wet typ amt		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	.23 .22 .48
HOUR	22.9	AIR		SAT	149 152 118
ម្	13 SEP 1974	BAROM mb	1010.8	AOU ug-at/1	-245 -258 -93
. DATE	13 SEP	WIND dir speed	0	OXYGEN m1/1	8,34 8,52 6,86
STATION	1154	WAVES W r ht p dir	0 × 0	TEMP SALINITY SIGMA T OXYGEN AOU SAT *C ppt m1/1 ug-at/1 %	24.98 25.04 25.39
CRUISE	ML 5	d1	0	ALINITY PPt	33.619 33.629 33.653
		TRANSP		TEMP S	14.75 14.51 12.89
				DEPTH	0 00

				SILICA	'n	· •	• •	107
		VISIB	œ	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	۲.	7		1.6
TUDE	1,21			ITRITE ms/lite	•05	0.	.17	.38
I LONGI	122 1.21	CLOUDS	×	RATE NITRITE A ug-atoms/liter	4.	.7	:	9.2
rude s	.8	WEATH	7	TE NIT				
N LATITUDE W LONGITUDE	36 55.8	AIR TEMP °C WEATH CLOUDS dry wet typ amt		PHOSPHA	•29	•25	.72	1,24
HOUR	0.	AIR TE dry		SAT	146	144	86	85
Þì	1974	RAROM mb	1010.8	OXYGEN AOU SAT m1/l ug-at/l X	-227	-221	0	96
DATE	13 SEP 1974	WIND dir speed	-	OXYCEN #1/1	8.07	8.17	5.79	4.86
$\mathbf{STATION}^\dagger$	2205		Х 33	SIGM T	24.84	5.17	25,52	5.60
	ις	WAVES dir ht p	x 0 0					
CRUISE	逆	TRANSP m d		TEMP SALINITY	33.609	33,6	33.6	* 33°6
		TT.			15,39	13,89	12,23	11.83
				DEPTH	0	'n	2	70

Paired thermometer read 11.92 Silicate appears anomalously high \* indicates questionable data:

				SILICA	10	<b>∞</b>	<b>~</b>	¥6 <b>7</b>	15	17
		1.8		APPIONIA T	e,		٠,	1,1	Φ.	۳,
TUDE	2,1	JDS VISIB	8	RATE NITRITE A ug-atoms/liter	80.	.14	•16	•23	77.	.47
W LONGITUDE	122° 2.1	ATH CLOUDS typ smt	×	NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	Ģ	1.7	40.1*	7.0	14.0	17.0
N LATITUDE	36 50.9	AP°C WEATH Wet	2	PHOSPHATE )	.17	• 45	•58	•92	1,34	1,55
HOUR N	11	AIR TEMP °C dry wet		SAT	154	127	115	98	79	65
	SEP 1974	BAROM mb	1011.5	XYGEN AOU ml/l ug-at/l	-268	-137	<del>-</del> 75	12	111	188
DATE	14 SEP	WIND dir speed	0	OXYCEN AOU ml/l ug-at/	8.63	7.28	9.9	5.71	4.72	3.94
$\mathbf{STATION}^{\ \uparrow}$	2204	O.	0 x 0	SICMA I	25.03	25,23	25,33	25.44	25,61	25.77
CRUISE	ML 5	SP WAVES dir ht	0	*C ppt	33,609	33.612	33,623	33,631	33.622	33.686
		TRANSP		TEMP S	14.48	13,54	13.08	12,55*	11,61	11.03
				DKPTH	0	Ŋ	91	20	ଛ	ድ

Paired thermometer read 12.63 Nitrate appears anomalously high Silicate appears anomalously high \* indicates questionable data:

				SILICA	9	Φ	ω	11	12	16	17	15	22	26	34	43	07	63	78	97
		EB		AMMONIA F	9	٠.	٥.	1.0	1,1	1,3	7.	۲.	7.	•	۲.	•	ູຕູ	7	0	0,
ITUDE	1,8	UDS VISIB	8	RATE NITRITE A ug-atoms/liter	.14	.17	•16	*27	•29	•31	•33	.14	•05	•05	•03	00.	0.	6	90	•01
W LONGITUDE	122	WEATH CLOUDS typ amt	2 X	ITRATE I	8.4	8,1	10.5	13,9	16,4	14.8	15.8	14,1	21,3	23,4	20.9	31.9	25.0	39.0	37.2	39,1
N LATITUDE	36° 46.7'		••	PHOSPHATE NITRITE AMMONIA SILICA ug-atoms/liter	64.	•73	.71	1,17	1,23	1,38	1,47	1,37	1.78	1.98	2.08	2.58	2,33	2.97	3,15	3,26
HOUR N	2.1	AIR TEMP °C dry wet		SAT	130	115	116	76	84	9/	8	51	40	94	32	27	17	12	0	ο <sub>ν</sub>
<b>t</b> an	1974	BAROM mb	1010,8	XYGEN AOU ml/l ug-at/l	-153	-75	<b>8</b>	33	<b>580</b>	131	214	268	332	8	390	425	492	530	557	266
DATE	14 SEP	WIND dir speed	0	OXYGEN #1/1	7.45	6.64	6.72	5.53	2,85	4.54	3.64	3,12	2,50	2.88	2,05	1,73	1,11	• 78	• 59	99•
STATION <sup>†</sup>	2203	۵	0 X 33	SIGMA T	25.26	25.36	25.41	25.54	25.67	25.70	25.76	25.90	26.08	26.23	26.51	26,63	26.80	26.93	27.07	27.26
CRUISE	Æ	NSP WAVES dår ht	0	SALINITY ppt															34.298	
		TRANSP		TEMP .	13,52	13,02	12,79	12,11*	11.46	11,32	10.01	10,43	9.72	9.24	8,25	7.75*	<b>6.9</b>	6,26	5.56	4.56
				DEPTH	0	úΛ	9	20	ጽ	<b>S</b>	75	100	51 51	200	250	දූ	<b>4</b> 00	9 9 9	9	<b>8</b>

\* indicates questionable data: Paired thermometers read 12.18 at 20 m; 7.81 at 300 m

				SILICA	9	9	17	σ	2	Φ.
		118		AMMONTA T	•2	4.	œ.	4.	ထ္	.7
ITUDE	58.0	JDS VISIB	0	RATE NITRITE A ug-atoms/liter	•26	.25	•15	•19	• 20	.18
W LONGITUDE	121° 58.0	TH CLOUDS typ amt	×	ITRATE ) ug-ato	5,5	5.4	3,4	7.9	8.6	7.6
N LATITUDE	36* 41.2*	IP °C WEATH Wet	7	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	99•	•65	.54	08 <b>.</b>	.92	88
HOUR N	5.2 3	AIR TEMP °C dry wet		SAT PH	109	109	107	66	66	62
	SEP 1974	BAROH mb	1010.8	OXYGEN AOU ml/l ug-at/l	-47	44-	<del>-</del> 35	7	4	197
DATE	14 SEP	WIND dir speed	0	OXYGEN m1/1	6.22	6,18	6,13	5.70	5.75	3.67
STATION	2202	<u>ρ</u> .	x o	SIGMA I	25.15	25,15	25.20	25,33	25,36	25.49
CRUISE	ži S	NSP WAVES dir ht	0	TEMP SALINITY •C ppt	33,613					
		TRANSP		TEMP :	13,93*	13,96	13,73	13,10*	12,98	12,35
				DEPTH m	0	Ŋ	10	20	ଛ	2

\* indicates questionable data: Paired thermometers read 14.00 at 0 m; 13.04 at 20 m

				SILICA	4	ĸΩ	9	_	9
		VISIB	œ	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	4.	'n	•2	o.	£.
rwe	3.6'			TRITE 8/11te	•07	11.	•16	.13	•08
LONGI	121° 53.6'	CLOUDS typ amt	0 X	RATE NITRITE A ug-atoms/liter	4	٠.	4.3	.7	2.3
UDE W		WEATH	8	re niti		7	4	m	2
N LATITUDE W LONGITUDE	36° 37,6"	AIR TEMP °C dry wet		PHOSPHA'	• 35	.53	•64	9.	• 50
HOUR	<b>6.4</b>	AIR TE dry		SAT	140	126	114	110	66
<b>₩</b>	1974	BAROH	1012,2		-202	-131	Ŷ	-51	ო
DATE	14 SEP 1974	WIND dfr speed	0	OXYGEN AOU ml/l ug-at/	7.96	7.17	6,49	6.31	5.73
${ t STATION}^{\dagger}$	2201		0 x 12	SIGMA T	25.16	25,19	25.19	25.24	25,31
CRUISE	Æ. S	SP WAVES dir ht p	0	*C ppt	33,633	33,629	33,627	33,635	33,639
		TRANSP		TKMP S	13.94	13,82	13,78	13,57*	13,26
				DEPTH	0	S	2	20	8

\* indicates questionable data: Paired thermometer read 13.63

				SILICA	2	9	7	#
		11B		AMMONTA IT	0,	2,	۳.	. 7.
TUDE	8.04	DS VISIB mt	8	RATE NITRITE A ug-atoms/liter	•05	.10	.19	.24
W LONG	121° 50.8	TH CLOUDS typ ant	0 X	ITRATE N ug-ato	۰,	1.7	7.7	8.4
N LATITUDE W LONGITUDE	36° 40.0	AIR TEMP °C WEATH CLOUDS dry wet typ amt	2	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	•24	•49	.71	1,00
HOUR	7.1	AIR TE dry			143	115	112	06
M	1974	BAROM	1012.5	OXYGEN AOU SAT mi/i ug-at/i I	-217	-76	<del>-</del> 9	51
DATE	14 SEP 1974	WIND dir speed	0 0	OXYGEN mi/i	8,08	9.60	6.46	5.28
$\mathbf{STATION}^{\dagger}$	1125	ç.	0 x 0	TEMP SALINITY SIGMA T °C ppt	25.08	25.26	25,30	25,45
CRUISE	ML 5	<del>T</del>	0	ALINITY PP¢	33,635	33,624	33,629	33,643
	_	TRANSP		reme s.	14,35			
				DEPTH	0	'n	10	20

\* indicates questionable data: Paired thermometer read 12.65

`

				SILICA	222
		SIB		AMMONTA	2.7
TUDE	80	S VIS	_	TRITE 8/11te	.03 .12
LONGI	121° 52.8'	CLOUDS typ amt	<b>&amp;</b>	RATE NITRITE A ug-atoms/liter	on ≠1 so
A A		EATH	. 2	MITH	0.4.0
N LATITUDE W LONGITUDE	36° 55,2°	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	.43 .81 1.30
HOUR	7.7	AIR :		SAT	124 130 81
晒	1974	BAROM	1012.5	AOU 1g-at/1	-116 -151 100
DATE	29 SEP 1974	WIND dir speed	0	OXYGEN #1/1	6.82 7.28 4.64
STATION	1154	e.	24 2 2 26	SIGMA T OXYGEN AOU SAT ml/l ug-at/l Z	24.78 24.92 25.28
CRUISE	9	WAVES dir ht	54	SALINITY PPt	33,584 33,570 33,610
Š	붓	TRANSP TR		SAL	
		Ę		TEMP C	15.54 14.85 13.30
				DKPTH B	0 % 01

				SILICA	25 20 34
		VISIB	7	A <u>mgonta</u> et	4404
TUDE	•7•		60	RATE NITRITE A ug-atoms/liter	21.9° 88.
N TONG	122°	ATH CLOUDS typ smt	51 8	NITRATE ug-at	3.6 2.2 7.2 14.3
N LATITUDE W LONGITUDE	36 55.8"	AIR TEMP °C WEATH dry wet	'n	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	.62 .58 .95 1,79
HOUR	6*9	AIR T		E-1	73 72 98 69
ps)	1974	BAROH mb	1012.5	XYGEN AOU SAI Ml/1 ug-at/1 X	137 141* 10 164
DATE	29 SEP 1974	WIND dir speed	-	OXYGEN AOU #1/1 ug-at/	4.13 4.10 5.67 4.09
${ t STATION}^{\dagger}$	2205		2 3 18	SIGMA I	25.11 25.12 25.29 25.57
CRUISE	ML 6	ISP WAVES dir ht p	70	TEMP SALINITY :	33,591 33,589 33,586 33,637
		TRANSP		TEMP S	14.01* 14.00 13.14 11.90*
				DEPTH n	10 20 20

\* indicates questionable data: Paired thermometer read 14.07
AOU appears anomalously high
Paired thermometer read 11.82

				SILICA	52*	62*	19	75*	24	28
		IB		AMMONIA T	Q	0	6	1,0	7	9
TLODE	122* 1.6'	CLOUDS VISIB	80	RATE NITRITE A ug-atoms/liter	90•	80	30	.35	.21	.22
N FONC		WEATH CLOUDS typ amt	2 8	NITRATE :	1.7	1.7	5.2	10.0	12,7	19.7
N LATITUDE W LONGITUDE	36°50.9	AIR TEMP °C WE dry wet		PHOSPHATE NITRITE AMMONIA SILICA ug-atoms/liter	38	.41	•82	1,20	1.24	1,63
HOUR	5.6	AIR 1 dry		SAT	127	124	101 101	74	67	89
	1974	BAROH	1012.5	AOU 1g-at/1	-135	-121	-7	138	178	176
DATE	29 SEP 1974	WIND dir speed	-	OXYGEN AOU ml/l ug-at/l	7.18	7.03	5.88	4.41	4.07	4.14
STATION	2204		19 3 2 17	SIGMA T	25.08	25,10	25,27	25.58	25,76	25,85
CRUISE	ML 6	WSP WAVES dir ht p	19	SALINITY ppt	33,582	33,583	33,534	33,603	33,630	33.669
		TRANSP		TER.	14,17*	14.07	13,03	11,73*	10.86*	10,50
				DEPTH	0	'n	2	20	윩	ጽ

\* indicates questionable data: Paired thermometer read 14.07 at 0 m;11.66 at 20 m; 10.94 at 30 m Silicates appear anomalously high

				SILICA	11	16	20	22	<b>22</b> *	<b>42</b> *	53	<b>62</b> *	35	40	44	49	19	7.1	85	101
		8		MONIA	۲.	o,	۲.	۲.	o.	o	•	•	o.	m,	0	0	0	0	0	o.
TUDE	1.3	UDS VISIB ant	80	RATE NITRITE A ug-atoms/liter	•20	•23	.32	.37	•26	• 29	.11	•07	.12	90.	90.	80.	•00	•04	.07	*08
S W LONGITUDE	122	WEATH CLOUDS typ amt	2 8	NITRATE ug-at	3.0	4.6	7.1	11.4	14.1	16,3	20.2	18.6	19.9	25.6	28.0	30.0	36.1	37.4	38.4	40.0
N LATITUDE	36° 46.7°	AIR TEMP °C WE dry wet		PHOSPHATE NITRITE AMMONIA SILICA ug-atoms/liter	.52	•58	.83	1,17	1,33	1.46	1,66	1.56	1.64	2,10	2,18	2.40	2.76	2.96	3,11	3,19
HOUR	2.5	AIR I dry		SAT	115	111	101	<b>%</b>	29	65	8	55	5	37	*	77	13	14	σ,	•
sal	1974	BAROM nb	1012.5	XYGEN AOU m1/1 ug-at/1	-74	-53	-7	87	180	191	227	249	275	326	377	324	516	519	556	575
DATE	29 SEP	WIND dir speed	ed	OXYGEN #1/1 '	6.57	6.35	5.86	5.01	<b>4.</b> 08	3,95	3,61	3,41	3,15	2,19	2,17	2.80	.83	.92	<b>99</b>	• 59
STATION <sup>†</sup>	2203	ρ.	2 X 17	SIGMA T	25,21	25,23	25,32	25,58	25,33	25.82	25.90	26.03	26.10	25.66	26,45	26.54	26.77	26.92	27,09	27.28
CRUISE	у <u>т</u> е	WSP W	64	SALINITY PP¢	33,590															
		TRA		TEMP C	13,56	13,45	12,74	11,53*	10,81*	10.66	10,21	9.84*	9,58	12,50*	8.46	8.14*	6.97	6.16	5,35	4.36
				DEPTH	0	'n	9	20	30	S	75	100	150	200	250	300	<del>4</del> 00	Š	009	008 80

Paired thermometers read 11.47 at 20 m; 10.89 at 30 m; 9.77 at 100 m; 12.46 at 200 m; 8.07 at 300 m Salinity appears anomalously low Silicates appear anomalously high \* indicates questionable data:

				SILICA	₹ (	7 <b>9</b>	10	ដ	16
		8118		APPEONIA :r	0	0 °	٠,	o.	٩.
ITUDE	121° 57.9'	UDS VISIB	<b>&amp;</b>	RATE NITRITE A ug-atoms/liter	•19	24	.31	•24	•33
W LONGITUDE	121	WEATH CLOUDS typ amt	88	NITRATE NITRITE AMONIA SILICA ug-atoms/liter	8	2 e 3 7	7.6	11.7	14.9
N LATITUDE	36° 41.2°	AIR TEMP °C WE dry wet		PHOSPHATE	\$\$ <b>.</b>	52.	1,14	1.29	1,44
HOUR N	76	AIR TE dry		SAT	109	113 103	98	81	69
	1974	BAROM	1012.5	OXYGEN AOU ml/l ug-æt/l	44-	° 7	75	104	168
† DATE	29 SEP	WIND dir speed	<b>н</b>	OXYGEN m1/1	6.15	6. 99.	5,15	4.86	4.17
STATION <sup>†</sup>	2202	Ω.	2 2 17	SIGMA I	25.00	25.08 25.19	25.50	25.70	25.75
CRUISE	Ж. 6	SP WAVES dir he	50	SALINITY ppt	33,516	33.434	33,439	33,628	33.648
		TRANSP		TEMP S	14,31	1 2 8 8	11,48*	11,17*	10,95
				DKPTH	0 1	^ A	22	ጽ	ጽ

\* indicates questionable data: Paired thermometers read 11.41 at 20 m; 11.23 at 30 m

				SILICA	ιΛ	9	00	11	œ
		VISIB	_	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	Q		9	. 2	, eţ
LTUDE	53.81		80	RATE NITRITE A ug-atoms/liter	•21	. 20	-27	31	30
W LONGITUDE	121° 53,8'	CH CLOUDS typ amt	œ	ITRATE N ug-ato	3.4	0.4	5.3	6.9	4.9
N LATITUDE	36° 37,7	AIR TEMP °C WEATH CLOUDS dry wet typ amt	7	PHATE NJ	.62	99	.77	86	96•
	<b>%</b>	R TEMP '		PHOSI	•	•	•	•	•
HOUR	τ•		<b>6</b> 5	SAT			106		
DATE	28 SEP 1974	BAROM	1012.9	N AOU			-32		
	28 SE	WIND dir speed	21 0	OXYGE m1/1	6.29	6,32	6.13	5,63	5.59
STATION	2201	p.	49 1 X 2	SIGMA T OXYGEN AOU SAT ml/l ug-at/l %	25.09	25.11	25,26	25,33	25,56
CRUISE	<b>3</b> E 6	4	49	ALINITY PPt	33,502	33,520	33,579	33,608	33.604
		TRANSP		TEMP SALINITY S *C ppt	13,82				
				DEPTH	0	'n	2	20	30

\* indicates questionable data: Paired thermometers read 12.96 at 20 m; 11.88 at 30 m

				SILICA	01 CA	15
		VISIB	7	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	40	1.3
ITUDE	50.8'		<b>80</b>	RATE NITRITE A ug-atoms/liter	90.	.03
W LONG	121 50.8	TH CLOUDS	æ	TRATE )	<b>ٿ</b> و	.0 12.8
N LATITUDE W LONGITUDE	36* 40.0*	AIR TEMP °C WEATH dry wet	7	HATE NI	.30	
	36•	TEMP .		PHOSP	• •	• <del>-</del> -
HOUR	23.0			SAT 1 Z	132	132 82
邕	28 SEP 1974	BAROM nb	1012,2	OXYGEN AOU SAT m1/1 ug-at/1 Z	-159 -158	-160 96
P DATE	28 SE	WIND dir speed	-	OXYGED m1/1	7.44	7.46
$\mathtt{STATION}^{ +}$	1125		2 19	SIGMA T	25.08 25.07	25.10 25.56
	9	WAVES dir ht p	25 2	ITY SI		
CRUISE	보	TRANSP m d		TRMP SALINITY S	33,596	33.6
		Ħ			14.26	11.90
				DEPTH	0 10 5	38

\* indicates questionable data: Paired thermometer read 11.81

				SILICA	6 14 8
		VISIB	œ	AMMONIA 1	000
ITUDE	52.81		0	RATE NITRITE A ug-atoms/liter	.05 .02 .04
W LONG	121 52.8	TH CLOUDS	×	ITRATE N ug-atq	4 m 0
N LATITUDE W LONGITUDE	36° 55.2"	AIR TEMP °C WEATH CLOUDS dry wet typ amt	2	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	.36 .51 .85
HOUR	22.7	AIR T dry		SAT	189 100 73
Ħ	11 OCT 1974	BAROM	1015.2	OXYGEN AOU SAT ml/1 ug-at/1 %	-431 0 134
DATE	11 OCT	WIND dir speed	0	OXYGEN m1/1	10.28 5.59 4.12
${ t STATION}^{\dagger}$	1154	WAVES W dir ht p dir	1 3 6	TEMP SALINITY SIGMA T *C PPt	24.56 24.88 24.96
CRUISE	ML 7		23	ALINITY ppt	33.468 33.502 33.511
		TRANSP			16.12* 14.81 14.49*
				DEPTH	0 5 10

\* Indicates questionable data: Paired thermometers read 16.18 at 0 m; 14.42 at 10 m

				.≪	
				SILIC	7 8 12 13
		m		<b>PHONIA</b>	0.0.7.6
33		VISIB	<b>ω</b>	RATE NITRITE AN ug-atoms/liter	.03 .10 .24
SITU	٠,7	CLOUDS typ amt	о ×	NITI Semo:	• • • •
I ON	122	CLC	×	RATE ug-æ(	2.3
ਲੋ 3ਵ		EATH	7	TT.IN	700
N LATITUDE W LONGITUDE	36°55.8	AIR TEMP °C WEATH CLOUDS dry wet typ amt		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	.42 .61 .85
HOUR	23.9	AIR 1 dry		SAT	145 112 101 83
D-3	1974	BAROM mb	1014.9	AOU 18-at/1	-221 -58 -2 -2 89
DATE	11 OCT 1974	WIND dir speed	4 1 1014.9	OXYGEN m1/1 1	8.05 6.30 5.72 4.71
NO		WIND dir sp(	4	H	E 2 H 4
STATION	2205			SIGMA	24.83 25.02 25.11 25.14
SE	_	WAVES dir ht p	49 1 2	E.	13 45 54
CRUISE	보	<b>NSP</b>		SALIN	33.513 33.545 33.553 33.554
		TRA		TEMP SALINITY SIGMA T OXYGEN AOU SAT *C ppt n1/1 ug-at/1 %	15.06* 14.29 13.90
				DEPTH	20 F O

\* indicates questionable data: Paired thermometer read 15.14

				SILICA	'n	9	9	9	Q	14
		IB		<u>Ammonta</u> T	3.4	o.	o.	٥.	•	0
TUDE	1.6	CLOUDS VISIB	8	RATE NITRITE A ug-atoms/liter	• 05	•07	•20	.37	.18	•00
M LONG	122 1.6	WEATH CLOUDS typ amt	2 X 0	VITRATE ug-at	o,	o	1:1	3.8	9.6	14.1
N LATITUDE W LONGITUDE	36" 50,9"	AIR TEMP °C WE dry wet	•	PHOSPHATE NITRATE NITRITE ANMONIA SILICA ug-atoms/liter	•40	•46	•63	• 70	1.09	1.39
HOUR	1,1	AIR T dry		SAT	133	125	114	56	8	20
	1974	BAROM rab	1014.2	OXYGEN AGU ml/l ug-at/l	-163	-125	89	33	104	160
DATE	12 OCT 1974	WIND dir speed	7	OXVCEN m1/1	7.44	7.01	6.42	5.42	4.75	4.22
STATION	2204	ρ.	2 2 8	SIGMA I	24.95	24.94	25.04	25,25	25,50	25.67
CRUISE	ML 7	TRANSP WAVES m dir ht	56	°C PPt	33,537					
		TRAL		TEMP C	14.61*	14.65	14.23	13,24	12,00	11,25
				DEPTH	•	'n	9	<b>50</b>	8	R

\* indicates questionable data: Paired thermometer read 14.67

				SILICA	œ	) vo	, r	- 1	` <u>-</u>	7 7	23	16	5 2 2	33	41	6.4	\ K	3 6	5 6	106
		VISIB	<b>~</b>	AMMONIA	٠,		ļ -	ļ <b>-</b>		9	9	9	0	Ç		9	9	Ç =	9	, o
W LONGITUDE	1,3	CLOUDS VIS	8	RATE NITRITE A ug-atoms/liter	117	13	.23	[ F	35	8 7	0.	90	90	90	0.08	0.0	90	2.5	<u> </u>	.18
	122°	WEATH CLA	2 X	NITRATE ug-at	8,8	6,3	6.4	(f)	11.3	13.5	13.2	14.0	22.2	22,3	28,5	31.8	32.4	29.8	37.1	38.6
N LATITUDE	36* 46.7			PHOSPHATE NITRATE NITRITE AMMONIA ug-atoms/11ter	.51	94.	.58	69	95	1,32	1.44	1,55	2.00	2.10	2,50	2,66	2.76	2.65	3.27	3.67
HOUR	2.9	AIR TEMP °C dry wet		SAT	114	112	110	88	83	75	64	53	42	37	28	24	16	0	7	က
ы	OCT 1974	BAROM mb	1013.9	% AOU ug-at/1	69	<del>-</del> 59	6 <b>%</b> -	9	90	134	194	259	328	360	413	443	Š	549	599	604
DATE	12 oct	WIND dir speed	ਜ .	OXYGEN m1/1 u	6.43	6.32	6.22	5.03	4.82	4.46	3.91	3,29	2.62	2,35	1,83	1,57	1,03	•62	.17	•23
STATION <sup>†</sup>	2203	<u> </u>	1 3 35	SIGHA T	25.05	25.04	25.07	25,10	25,34	25,56	25.76	26.01	26.27	26.44	26.59	26.69	26.81	26,99	27,11	27.26
CRUISE	ML 7	TRANSP WAVES m dir ht	64	Salinity PPC	33,561	.33,561	33,562	33,523	33,535	33,564	33.617	33,746	33,917	34.008	34.100	34.134	34.177	34,248	34,302	34.386
		TRA	•	TIMP C	14,23*	14.26	14.14	13,84*	12,70	11.65	10,76	9.92	9.11	8.51	8	7.49	9.84	5.94	5.28	4.59
				DEPTH #	0	in ;	9	<b>5</b> 0	8	<b>S</b>	75	100	3	200	250	00 i	9	200	0 <b>0</b> 9	800

\* indicates questionable data: Paired thermometers read 16.30 at Om; 13.76 at 20 m

				SILICA	9	25*	9	∞	<b>∞</b>	#
		<b>9</b> 11		NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	oʻ	o.	o.	1.2	9.	•1
TUDE	57.91	UDS VISIB	O 80	RATE NITRITE A ug-atoms/liter	Ή.	ដ	<b>6</b>	•32	•	9
W LONG	121 57.9	TH CLO	<b>M</b> at	TTRATE   ug-at	1.1	1.4	3.0	5.6	8.0	12.4
N LATITUDE W LONGITUDE	36* 41.2'	AIR TEMP °C WEATH CLOUDS dry wet typ amt		PHOSPHATE N	.53	.47	44.	•93	•93	1.14
HOUR	1,3	AIR T		SAT	116	116	115	66	35	92
	1974	BAROM	1014.6	OXYGEN AOU ml/1 ug-et/1	-78	8	-75	9	9	127
DATE	12 OCT 1974	WIND dir speed	H	OXTGEN B1/1	6.48	6.51	6.48	5.65	5,36	4.50
STATION T	2202	WAVES W	7 1 2 8	IGMA I	24.92	24.92	24.96	25,17	25,29	25,53
CRUISE	<b>M</b> 7	퐈	27 ]	TEMP SALINITY S	33,525	33,527	33,514	33,552	33,529	33,592
		TRANSP		TEMP S	14.73	14,71	14.48	13,63	12.95	11.94
				DKPTH	0	'n	91	20	8	8

\* indicates questionable data: Silicate anomalously high

				A SILICA
ĕ <del>j</del>	•	VISIB	ω	TEMP SALINITY SIGNA T OXTGEN AOU SAT PHOSPHATE MITRATE MITRITE AMMONIA SILICA °C PPt ml/1 ug-at/1 % ug-atoms/liter
HOUR N LATITUDE W LONGITUDE	12 OCT 1974 %1 36° 37.6° 121° 53.7°	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	2 X 0	ATE MITR 8-atoms/
TUDE W	7.6' 1	WEATH	7	NTE MITE
H LATE	36 3	TEMP °C		PHOSPH
HOUR	61	AIR		SAT
內	1974	BAROH	1015.6	AOU ug-at/1
DATE	12 OCT	speed	-	OXTGEN #1/1
STATION <sup>†</sup>	2201	WAVES WIND BAROM A	9 0 X 12 1 1015.6	ICM T
CRUISE	7	WAVES dir ht	0 64	INITY S pt
3	보	TRANSP		e sal)
				ği.
				DKPTH R

\* indicates questionable data: Paired thermometers read 15.35 at 5 m; 13.66 at 20 m

88817

20044

.54 .43 .74 .92

136 116 116 86 86

-175 -172 -78 -78 195

7.48 7.47 6.47 5.48 3.63

24.74 24.79 24.89 25.14 25.33

33.520 33.522 33.530 33.547

15.29\* 15.29\* 14.86 13.74\* 12.89

30 FC 0

4. H. 8.

				SILICA	rrr8
		1B		AMYONIA f	0000
TUDE	8*02	JDS VISIB	8	RATE NITRITE A ug-atoms/liter	.01 .03 .21
N LONG	121° 50.8	TH CLOUDS typ amt	×	ITRATE N ug-ato	4.0° 8.0°
N LATITUDE W LONGITUDE	36° 40.0°	AIR TEMP °C WEATH CLOUDS dry wet typ amt	7	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	. 39 . 39 . 69
HOUR	8,9	AIR dry		SAT	126 126 124 102
ъì	1974	BAROM Bab	1014.2	AOU ug-at/1	-130 -128 -119
DATE	12 OCT 1974	WIND dir speed	0 11	OXYGEN AOU SAT ml/l ug-at/l %	7.04 7.01 6.91 5.80
STATION <sup>†</sup>	1125	<b>6</b> .	0 X 11	SIGMA I	24.87 24.87 24.88 25.09
CRUISE	<b>K</b>	끃	64	TEMP SALINITY •C ppt	33,533 33,534 33,536 33,546
		TRANSP			14.96* 14.97* 14.95 13.96
				DEPTH	0 10 20

\* indicates questionable data: Paired thermometers read 15.02 at O m; 15.03 at 5 m

ĺ

				SILICA	12 12 6
		13		APPONIA F	200
TUDE	52.8	IDS VIS	8	RATE NITRITE A ug-atoms/liter	.00 .00 .05
W LONG	121 52.8	TH CLOUDS	×	ITRATE N ug-ato	000
N LATITUDE W LONGITUDE	36" 55.2"	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ amt	2	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	4,69* 58 40
HOUR	6.2	AIR T dry	,		127 74 95
	1974	BAROM	1015.2	AOU 1g-at/1	-133 127 26
DATE	26 OCT 1974	WIND dir speed	9 0 1015.2	OXYGEN m1/1 t	7.01 4.13 5.33
STATION <sup>‡</sup>	1154	<u>~</u>	6 X 0 0	TEMP SALINITY SIGHA T OXYGEN AOU SAI	24.72 24.82 24.97
CRUISE	<b>M</b> 8	TRANSP WAVES m dir ht	0	SALINITY ppt	33,508 33,505 33,527
		TRA		Joe o	15.55 15.12 14.50
				DEPTH	0 5 0

\* indicates questionable data: Phosphate appears anomalously high

				SILICA	9	Ç	· •	13
		318	80	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	0	0,	0,	•
UDE	.7.	S VISIB	w	RATE NITRITE A ug-atoms/liter	•05	.01	90	.13
GIL		CLOUDS typ amt	œ	KON IN				
Š	122*	2 1	×	RATE ug-a	0	0	0	.2
河		EATH	7	MIT				
ITM	55.8	)# ပ		HATE	23	91	74	68
N LATITUDE W LONGITUDE	36 55,8	AIR TEMP °C WEATH CLOUDS dry wet typ amt		PHOSP	- •	•		•
HOUR	6.4	AIR		SAT	149	149	138	89
647	1974	BAROM	1015.2	OXYGEN AOU SAT nl/l ug-at/l Z	-242	244	-189	ኢ
DATE	26 OCT 1974	WIND dir speed	0 0	XYGEN #1/1	8.28	8,31	7.73	5.11
⊢ <b>Š</b>	**	WIND Ar op	0	H				
STATION	2205	ė.	×	<b>GMA</b>	4.84	4.8	24.96	5.18
N.	N	WAVES r ht p	× 0	SI	7	7	7	~
CRUISE	∞	WA.	0	INITY PPt	519	513	260	579
E E	五	TRANSP		SALI	33,519			
		TRA		TEMP SALINITY SIGNA T C PPt	15,05	15.02	14.64	13.67*
				DEPTH	0	'n	01	20

\* indicates questionable data: Paired thermometer read 13.57

DATE HOUR N LATITUDE W LONGITUDE  26 OCT 1974 3.9 36° 50.9° 122° 1.6°  MD BAROM AIR TEMP °C WEATH CLOUDS VISIB  speed mb dry wet typ amt  0. 1015.2	9	•		
3.9 36 50.9°  4 AIR TEMP °C WE dry wet.  2 SAT PHOSPHATE  1139 .34  129 .26			•	90
3.9 36 50.9°  4 AIR TEMP °C WE dry wet.  2 SAT PHOSPHATE  1139 .34  129 .26	70		77.	.26
3.9 36 50.9°  4 AIR TEMP °C WE dry wet.  2 SAT PHOSPHATE  1139 .34  129 .26	0	• e	, u	7.9
3.9 3.9 4 AIR T dry 2 5.1 5.2 1.3 1.39 1.29	.33	73	2	1.04
FE 1974 BAROM mb 1015.2 I AOU ug-at/1 -194 -142	121	96	2 2	7 FE
L L	-105	23	73	93.
	6.78	5.46	4.94	4.81
77.71 22.04 P X X IGMA IGMA 24.9	24.94	25,15	25,24	25.39
H - C	3.569	3.541	3,568	3,560
CRUISE  HL 8  TRANSP WAV  M dir h  O  TEMP SALINITY  C ppt  14.90 33.573	11	<b>28</b> *	35	2
DKPTH B 0	20	20	30	8

\* indicates questionable data: Paired thermometers read 14.88 at 5 m; 13.60 at 20 m

				SILICA	<b>00</b>	7	7	ĸ	9	9	11	14	<b>5</b> 6	36	37	47	55	77	83	102
		EI.	_	AMMONIA :T	٥.	°.	o.	•	9	e.	٥.	o	.2	0	Q	, <b>0</b>	ှင့	۲,	9	0
TUDE	1.3	UDS VISIB amt	9	RATE NITRITE A ug-atoms/liter	<b>*0°</b>	٠ <b>.</b>	<b>70.</b>	93	• 28	•16	<b>*0</b>	•03	•03	•05	•02	਼ <b>ਰ</b>	8	8	0.	•03
W LONGITUDE	122	WEATH CLOUDS typ amt	2 ×	NITRATE ug-at	.7	ئ.	1.0	2.5	5.4	7,5	11.6	13.5	12.6	13,9	20.6	8.2*	19,1	21,7	27,8	31.6
N LATITUDE	36* 46.7"			PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	.27	.27	.37	.53	.77	76.	1.21	1.47	1.90	2,27	2,34	2,63	2.77	3,16	3,18	3,33
HOUR N	1.5	AIR TEMP °C dry wet		SAT	125	119	111	106	<b>6</b>	83	99	9	45	36	8	24	16	11	7	Φ.
엁	OCT 1974	BAROH mb	1015.9	XYGEN AOU ml/l ug-at/l	-121	-91	-55	-27	20	91	181	219	80g 80g	361	<b>§</b>	438	Š	540	570	572
DATE	26 OCT	WIND dir speed	0	OXYGEN m1/1	98.99	6,52	6.13	5,95	5.22	4.86	3.92	3.64	2.80	2.31	1,95	1,59	1.04	.75	.48	• 60
STATION	2203	•	0 x 0	SIGMA I	24.77	24.78	24.79	25.01	25.25	25,43	25.55	28.84	26.17	26,39	26.56	26.66	26.84	26.99	27.10	27.28
CRUISE	<b>新</b>	WA	0	SALINITY PPC	33,595															
•		TRANSP		TRMP .	15.63	15,62	15.54	14,34*	13.12	12,35	11.77	10,62	9.46	8.72	8.15	7.67*	6.76	5.77	5,36	4.50
				DEPTH	•	<b>ا</b>	91	70	දූ	ន	75	100	150	200	250	<u>8</u>	400	9	9	\ <b>8</b>

Paired thermometers read 14.27 at 20 m; 8.75 at 300 m Nitrate appears anomalously low \* indicates questionable data:

				SILICA	•	ı,	io a	> «	° a
		VISIB		AMMONIA er	0	, <b>-</b> ; (	و د	<b>?</b> C	<b>:</b> -:
GITUDE	121° 57,9'	CLOUDS VI:	9	RATE NITRITE A ug-atoms/liter	8	8	10.	2	• 29
NOT M E		WEATH CL typ	2 X	NITRATE ug-a	φ.	4,0	ر عرف	). eq	4.2
N LATITUDE W LONGITUDE	36 41,2	AIR TEMP °C W		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	¥£.	936	0. 7.4	9	*87
HOUR	23.9	AIR 7		SAT	111	110	110	96	92
pa	ocr 1974	BAROM	1015.9	OXYGEN AOU m1/1 ug-at/1	35	<b>S</b>	0 6 <b>7 -</b>	22	42
DATE	25 oct	WIND dir speed	0	OXYGEN n.1/1	6.10	6,05	6.14	5.44	5.29
STATION	2202	•	0 X 0	SIGMA T	24,74	24.75	24.91	25,09	25.24
CRUISE	MI. 8	(SP	0	TEMP SALINITY *C ppt	33,600	33,600	33,553	33,543	33,560
		TRA		TRAFF O.	15.77	15,73	14.84	13,97	13,29
				DKPTH	01	^ E	2	8	<b>S</b>

				SILICA	∞ ∞ <i>≻</i> ∞ ∿
		VISIB	<b>&amp;</b>	AMMONIA St	40040
TUDE	121° 53.7"		9	RATE NITRITE A ug-atoms/liter	.02 .03 .03
W LONG		NTH CLOUDS	×	ITRATE ug-at	2 
N LATITUDE W LONGITUDE	36* 37.61	AIR TEMP °C WEATH CLOUDS dry wet typ amt	2	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	63 47 63 40
HOUR	22.7	AIR I		Z X	140 142 142 132 129
본	25 OCT 1974	RAROH mb	1015.2	OXYGEN AOU :	-200 -210 -208 -157 -146
DATE	25 001	WIND dir speed	0	OXYGEN #1/1	7.83 7.94 7.92 7.36
STATION	2201	WAVES V r ht p di	x o	TEMP SALINITY SIGMA T *C PPt	24.92 24.92 24.92 24.95 25.00
CRUISE	<b>첫</b> 8	4	0	ALINITY ppt	33.573 33.572 33.570 33.574 33.574
		TRANSP B		TEMP S	14.90 14.89 14.86 14.75
				DRPTH	20 E S O

				SILICA	~~~
		SIB	_	APPONIA I	2.2.2
TUDE	121° 50.8°	UDS VISIB	8	RATE NITRITE A ug-atoms/liter	.03 .02 .02
NOT M		WEATH CLOUDS typ amt	7 ×	NITRATE ug-at	4 6 8 W
N LATITUDE W LONGITUDE	36° 40.0°	AIR TEMP °C WE dry wet		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	. 42 . 42 . 44 . 52
HOUR	21.8	AIR 1 dry		SAT	136 126 108
2	25 OCT 1974	BAROM	1015.9	XYGEN AOU =1/1 ug-at/1	151 151 141
† DATE	25 OC	WIND dir speed	0	0	7.57 7.09 6.72 6.12
STATION	1125		×	SIGMA T	24.90 24.98 25.00 25.05
CRUISE	MI 8	ISP WAVES dir ht p	0	TEMP SALINITY •C PPt	33,566 33,574 33,571 33,560
		TRANSP		TEMP S	14.94* 14.61 14.52 14.22
				DEPTH	20 F O

\* indicates questionable data: Paired thermometer read 14.85

				SILICA	222
		<b>£</b> 1		PHOSPHATE HITRATE MITRITE AMMONIA SILICA ug-atoms/liter	0.2.0
TUDE	2,8"	DS VISIB mt	8	RATE MITRITE A ug-atoms/liter	.22 .17 .19
N LATITUDE W LONGITUDE	36" 55,2" 121" 52,8"	a CLOU	о Ж	TRATE N ug-aton	3.2
TUDE	5.2	WEATH	2	ATE KI	
N LATI	36. 5	AIR TEMP °C WEATH CLOUDS dry wet typ ant		FROSPE	.87
HOUR	4.5			SAT	1111 67 95
₩	23 NOV 1974	BAROM	1024.4	AOU ug-at/1	-59 177 29
DATE	23 NOV	WIND dir speed	32 0	OXYGEN #1/1	6.61 3.95 5.61
STATION	1154	P dir		GMA T	25.43 25.43 25.44
SI	<b>H</b>	WAVES r ht p	36 0 2	SI	0 0 N
CRUISE	ML 9	Ŧ	36	LINITY	33.454 33.460 33.468
	<b>~</b>	TRANSP		TEMP SALINITY SIGMA T OXYGEN AOU SAT	11.92
				DEPTH	<b>6 %</b> 0

				SILICA	13	10	10	13
		<b>8</b>		NOPON LA	o,	0		4.
ITUDE	.7.	JDS VISIB	0 8	RATE NITRITE A ug~atoms/liter	-24	.20	.23	.31
W LONGITUDE	122	ATH CLOUDS typ amt	2 ×	NITRATE ) ug-ato	5.2	3.4	4.0	7.6
N LATITUDE	36 55.8	AIR TEMP °C WEATH CLOUDS dry wet typ amt	••	PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug~atoms/liter	1.01	88.	88•	1.09
HOUR	3.5	AIR ?		SAT	101	8	66	73
	1974	BAROH	1022,7	A0U 1g-at/1	-3	7	'n	144
DATE	23 NOV 1974	WIND dir speed	г н	OXYGEN AOU SAT ml/l ug-at/l X	6.02	5.91	5.88	4.33
STATION	2205	ρ.	1 2 36	SIGMA T	25.46	25.45	25.45	25,46
CRUISE	<b>K</b> 9	NSP 41	32	TEMP SALINITY •C ppt	33.494	33.491	33.492	33,492
		TRA		TEMP C	11.90	11,95	11,93	11.88
				DEPTH	0	i,	9	22

				SILICA	7	•	7	œ	12	11
		IB		AMMON IA F	•	o.	۰.	઼	<b>઼</b>	0
TUDE	1.6'	DS VISIB mt	8	RATE NITRITE A ug-atoms/liter	.15	. 12	•16	•16	•18	•13
W LONGITUDE	122° 1.6'	TH CLOUDS typ amt	×	ITRATE N ug-atc	5.7	5.4	6.9	5.9	8.6	9.5
N LATITUDE	36° 50.9¹	AIR TEMP °C WEATH dry wet	6	PHOSPHATE NITRATE NITRITE AMMONIA ug-atoms/liter	.72	.62	.73	.67	1.03	1,13
HOUR N I	1.9 36	AIR TEM dry		SAT PHC	00	.02	86	95	99	74
	NOV 1974 1	BAROM mb	1022.4	-		-10 1		<b>5</b> 6		142
DATE	23 NOV	WIND dir speed	-	OXYGEN AOU m1/1 ug-at/	5.80	5.95	5.72	2.60	3.80	4.48
$\textbf{STATION}^{ \uparrow}$	2204		1 2 32	SIGM I	25.27	25.27	25.26	25,39	25.54	25.73
CRUISE	<b>K</b>	NSP WAVES dir ht p	32	TEMP SALINITY	33,469	33.469	33,468	33,488	33,527	33,585
		TRANSP		TEMP 5	12,78	12,79	12,83	12,26	11.61*	10.81
				DEPTH	0	'n	잌	20	೦್ಲ	, <u>S</u>

\* indicates questionable data: Paired thermometer read 11.60

				SILICA	21	∞	9	21	∞	12	13	15	23	36	48	χ.	53	77	20	79	
		IB		AMMONTA C	o.	•	•	•	o.	Ç	0.	.,	o	0	T.	Ģ	0	9	۳,	<b>o</b> .	
TUDE	1,3	DS VISIB umt	8	RATE NITRITE A ug-atoms/liter	-22	.14	.12	.20	.14	•18	•16	ਜ਼.	•13	•03	•05	8	8	•05	<b>*</b> 0	<b>*</b> 0 <b>*</b>	
W LONGITUDE	122	WEATH CLOUDS typ amt	2 X	NITRATE N ug-ato	ۍ د	4.5	3,8	7.1	5.7	10.4	11.8	13.3	18.8	24.6	28.6	30.5	33.6	17,1*	35.2	35.0	
N LATITUDE	36° 46.7°	AIR TEMP °C WE dry wet		PHOSPHATE NITRITE AMMONIA SILICA ug-atoms/liter	63 63	•76	.72	•92	.77	1.02	1,15	1,30	1,64	2.19	2,51	2,70	2,58	3.04	2,83	2.84	
HOUR	r.	AIR T.		SAT	97	96	96	96	92	ಜ	22	55	ኢ	37	56	22	13	13	18	14	
	NOV 1974	BAROM mb	1021.7	XYGEN AOU m1/1 ug-at/1	97	13	22	13	9	223	252	249	256	359	433	459	204	521	503	240	
DATE	22 NOV	WIND dir speed		OXYGEN m1/1 t	5.75	5.71	5.67	5.71	5.49	3,51	3.14	3,36	3,31	2,36	1.67	1,44	66.	16.	1.23	96•	
STATION <sup>†</sup>	2203	. C	4 2 18	SIGMA T	25,45	25.45	25.44	25.44	25.49	25.62	25.74	25,88	25,97	26.41	26.63	26.71	26.78	26.91	26.96	27.11	
CRUISE	MT 9	4SP WAVES dir ht	23	SALINITY ppt	33,499	33,500	33,499	33,502	33,512	33,562	33,590	33,657	33.712	33.965	34.067	34.101	35,124	34,129	34.174	34.175	
		TRANSP		TEMP S	11,99															4.55	
				DEPTH	0	'n	9	20	30	S,	75	100	150	200	250	300	400	200	9	800	

\* indicates questionable data: Paired thermometers read 12.06 at 5 m; 6.01 at 500 m Nitrate appears anomalously low

				SILICA	6	80	0	7	01	11
		18		NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	0.	o•	<b>.</b>	•	0	•
TUDE	57.9"	JDS VISIB	8	RATE NITRITE A ug-atoms/liter	.21	•19	•18	87.	•19	•18
W LONGITUDE	121° 57.9	TH CLOUDS	×	ITRATE ) ug-atc	4.9	5.9	5.9	5.2	7.0	7.5
N LATITUDE	36° 41,2°	fP °C WEATH wet	8	PHOSPHATE N	.92	.87	<b>*8</b> *	.85	.93	96*
HOUR N	22.0	AIR TEMP °C dry wet		SAT	102	103	102	66	79	11
		RAROM	1021.7	OXYGEN AOU ml/l ug-at/l	9	-14	-11	<b>œ</b>	111	123
DATE	22 NOV 1974	WIND dir speed	7	OXYGEN m1/1	5.96	6.02	5.98	5.80	4.66	4.55
STATION	2202	<b>~</b>	4 2 32	SIGMA T	25,32	25,33	25,32	25,39	25,41	25.47
CRUISE <sup>†</sup>	М. 9	ISP WAVES	32 ,	*C ppt	33,485	33,486	33,488	33.499	33,502	33,506
		TRANSP		TEMP S	9	57*	9	12,30*	18	92
				DEPTH	0	'n	01	20	8	67

Ħ \* indicates questionable data: Paired thermometers read 12.63 at 5 m; 12.23 at 20

				IC.	9	6	11	0	17
				SIL	,				
				PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	7	7	Q		•
		VISIB	<b>∞</b>	E AM		_	-		
TUDE	3,7'		0	RATE NITRITE A ug-atoms/liter	.21	.19	.21	. 15	.15
ONCI	121° 53,7'	CLOUDS typ aut	×	TE N					
1 14	12	Ħ		ITRA	5.3	5.6	5.7	4.5	4.7
TOE	,9*/	WEA	. 7	Z E					
N LATITUDE W LONGITUDE	36° 37.6°	AIR TEMP °C WEATH dry wet		SPHA	.92	.94	-87	.73	•76
Z	ĕ	TEM		PHC					
HOUR	20.9	AIR TH		SAT	104	104	102	96	86
		BAROH mb	1021.7		-22	-22	01-	19	œ
DATE	Σ		70	-8n -23					
ā	22 NOV 1974	WIND dir speed	18. 1	OXYGEN AOU m1/1 ug-at/	6.11	6,10	5.97	5.64	5.78
+ NO		WIND dir sp(	18	н	~	_	_	~	
STATION <sup>†</sup>	2201		8	SIGMA I	25.33	25,3	25,31	25, 3.	25,36
		WAVES dir ht p	2 2 2	S			•	•	••
CRUISE	6		32	INI T	33,479	477	479	480	493
25	Ä	TRANSP II		SAL.]					
		AT.		TEMP SALINITY •C ppt	12,55	12,61	12,61	12,55	12.42
				DEPTH m	0	'n	2	ន	8

\* indicates questionable data: Paired thermometer read 12.55

				SILICA	9.5	<b>∞ ο</b> ν
		VISIB	<b>6</b> 0	PHOSPHATE NITRATE NITRITE AMMONIA ug-atoms/liter	o o	2.1
TUDE	.8			RATE NITRITE A ug-atoms/liter	23	.23
LONG	121° 50.8'	CLOVDS typ amt	×	LATE NI 18-ator	80 F	مة مة
DE ¥		WEATH	8	E NITH	6.8	6.0
N LATITUDE W LONGITUDE	36 40.0	AIR TEMP °C WEATH dry wet		PHOSPHAT	.91	
HOUR	20.1	AIR TE dry		SAT	99	00 <b>1</b>
M		BAROM	1021.7	A0U 18-at/1	7-72	59
DATE	22 NOV 1974	WIND dir speed	H	OXYGEN AOU SAT ml/l ug-at/l X	5.78	5.87 5.20
STATION <sup>†</sup>	1125		32	SIGMA T	25,34 25,34	* *
	ਜ 6	WAVES dir ht p	2 2			
CRUISE	呂		32	ALINI PPt	33,496	33,494 33,494
		TRANSP		TEMP SALINITY *C ppt	12.53	
				DEPTH	0 10	96

\* indicates questionable data: Paired thermometers read 12.57 at 5 m; 12.50 at 19 m

				SILICA	01
		118		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	4
UDE	ж. -	S VISIB	∞	RITE .	.28 .27
LONGIT	21. 52	CLOUDS typ amt	×	RATE NITRITE A ug-atoms/liter	
E W ]	;;	EATH	2	NITRA	6.0 8.0 7.0
N LATITUDE W LONGITUDE	36" 55.2" 121" 52.8"	AIR TEMP °C WEATH CLOUDS dry wet typ amt		SPHATE	18.
Z Z		IR TEMP *( dry wet		PHO	
HOUR	19,9			SAT 1 %	109 110
63	6 DEC 1974	BAROM	023.4	A0U 1g-at/]	-46 -52 71
DATE	6 DEC	WIND r speed	9 0 1023.4	OXYGEN m1/1 .	6.41 6.47 5.09
STATION	1154	WAVES WIND r ht p dir speed		TEMP SALINITY SIGMA T OXYGEN AOU SAT *C ppt m1/1 ug-at/1 %	25,37 25,37 25,38
		WAVES r ht	24 1 2	SI	2 2 2
CRUISE	MC 10	4	24	LINIT	33.489 33.489 33.485
ပ	×	TRANSP B		SA	
		H			12.34 12.35 12.28
				DEPTH	0 2 01

				SILICA	10	6	6	2
		E I		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	ű,	m,	4	m,
UDE	.7.	S VISIB	•••	TRITE 18/11te	•28	• 26	.27	*27
LONGIT	122°	CLOUDS typ amt	о ×	RATE NITRITE A ug-atoms/liter	m	<b>6</b> 0	6.9	9
æ ao		WEATH	7	E NIT	•	'n	9	หา
N LATITUDE W LONGITUDE	36* 55.8	AIR TEMP °C WEATH CLOUDS dry wet typ amt		PHOSPHAT	.75	<b>38.</b>	•76	• 86
HOUR	21.4	AIR TE dry		SAT	106	105	101	101
	6 DEC 1974	BAROM mb	1023,4	AOU 18-at/1	-30	-26	-7	ŋ
DATE	6 DEC	WIND dir speed	0	OXYGEN AOU SAT m1/1 ug-at/1 Z	6.23	6.19	5.93	5.94
STATION	2205		9		5,41	5.42	25.42	5.43
K	7	WAVES dir ht p	1 0	IS I	7		2	7
CRUISE	ML 10	ISP	25	SALINIT PP¢	33,525	33.526	33,525	33,525
		TRAN		TEMP SALINITY SIGMA T *C PPt	12,30	12,27	12,22	12.17
				DEPTH	0	S	01	20

				SILICA	7	<i>.</i> .	-	<b>.</b> 00	;
		118		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	4.	 	. «	<b>&gt;</b> 4	•
UDE	1.6'	S VISIB	80	TRITE s/11te	•20	2,50	57	9	
LONGIT	122° 1	CLOUDS typ amt	0 ×	RATE NITRITE A ug-atoms/liter	æ	φ,		· oc	
DE W		WEATH	7	E NITR	2.	2°6		4	
N LATITUDE W LONGITUDE	36 50.9	æ •c Vet		OSPHAT	• 70	<b>&amp;</b> 2	79	74	.77
HOUR N	22.9	AIR TEMP °C WEATH CLOUDS dry wet typ amt		SAT PH	20	106 112	82	06	92
유	22			ૐ `` ⊸	7	<b>7</b> 7	i ~	٠.	
<b>2-3</b>	1974	BAROM	1023.7	AOU 18-at/1	-33	6 73 173	76	S	42
DATE	6 DEC 1974	WIND dir speed	<del></del>	OXYGEN AOU m1/1 ug-at/1	6.19	6.49 6.49	4.77	5.26	5.40
ION	<b>s</b> t	WIND dir spe	0,		4	4 TJ	6	<b>5</b> .	8
STATION	2204	ES t p	1 2	SIGMA I	25.24	25.25	25.29	25.29	25.3
CRUISE	10	WAVES dir ht	67	LINITY ppt	475	33.483	503	501	515
5	텇	NSP		SALJ	6	វិត្ត	33	33	ä
		TRANSP		TEMP SALINITY •C ppt	12.95	12.94	12.81	12,82	12,39
				DEPTH	0 4	ង	2	ଛ	ያ

				SILICA	9	31*	σ,	7	<b>∞</b>	Φ	18	17	19	<b>3</b> 5	37	51	65	2	78	¥9/
		E3		AMMON LA	6.	٠ <u>.</u>	.,	9	1.0	.,	٥.	٥.	1.1	.7	4.	7,	r;	e,	۳,	ထ္
TUDE	1,3	DS VISIB mt		NITRATE NITRITE AMMONIA ug-atoms/liter	.15	• 20	•23	.21	• 26	.27	•25	.27	.03	8.	8	8	•	•05	.47	•01
W LONGITUDE	122°	TH CLOUDS	×	ITRATE N ug-ato	2.6	3.6	4.7	4.4	5,8	10.8*	<b>8.</b> 4	4.6	13.5	17.9	0.0	26.1	30.4	28.4	31,8	16.4
N LATITUDE	46.7	°C WEATH	7	PHOSPHATE N.	•63	98•	.77	• 70	•73					2.06						
	36	AIR TEMP °C dry wet										-								7
HOUR	4.	•		SAT 1 %	106	105	103	101	96	87	83	99	46	34	29	24	91	유	9	7
M	DEC 1974	BAROM	1022.7	AOU ug-at/	-31	-25	-16	ij	20	20	8	169	302	376	411	446	499	541	556	573
DATE	7 DEC	WIND dir speed	<b>-</b>	OXYGEN AOU ml/l ug-at/l	6.17	6.11	6.01	5,89	5.60	5.06	4.92	<b>60°</b>	2.86	2.20	1.87	1.55	1.06	.70	•63	• 46
STATION <sup>†</sup>	2203	WAVES W.	1 2 9	SIGMA T	25,29	25,30	25,29	25,30	25,31	25,34	25.47	25.62	26,13	26.49	26.60	26.70	26.83	26.96	27.07	27.15
CRUISE	ML 10	NSP dj	67	SALINITY ppt																34,346
		TRA		TEMP °C	12,85	12.80	12,85	12,83*	12,76	12,64	12,06	11.48	9,55	8.29	7.83	7.37	6.68	6.03	5.40	5,28
				DEPTH	0	5	10	20	ጽ	ያ	75	100	150	200	250	300	400	500	909	800

Nitrate and Silicate at 5 m appear anomalously high Silicate appears anomalously low at 800 m Paired thermometer read 12.76 \* indicates questionable data:

				SILICA	7	Ŋ	0	9	σ	7
		<b>13</b>		AMCONIA T	9	۲ <b>۰</b> ۲	ຕຸ		'n	4.
TUDE	121 57.9"	CLOUDS VISIB	8	RATE NITRITE A ug-atems/14fer	.15	.13	•22	.15	•19	• 20
NOT M 2		WEATH CLOUDS typ amt	2 X	NITRATE ug-at	3,3	2.5	4.1	3.4	3.9	4.1
N LATITUDE W LONGITUDE	36 41.2	MP °C wet		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atows/14ter	•59	•62	.70	19.	99•	•75
HOUR	2.9	AIR TE dry		SAT	106	104	84	92	102	92
pu)	7 DEC 1974	BAROH	1022.7	MI/I 46-45/1	-28	-21	83	44	-1°	41
DATE	7 DEC	WIND dir speed	н	OXYGEN #1/1 ug	6.15	6.07	4.92	5,33	5,95	5,38
STATION	2202	AAVES W	2 X 9	SIGMA T	25.28	25,28	25,28	25,28	25, 29	25,31
CRUISE	ML 10	(SP di)	24	TEMP SALINITY C PPt	33,488	33,488	33,488	33,488	33,494	33,501
		TRA		TIBAR C	12.81	17.80	17.80	17.80	12,79	12.69
				DEPTH	0	'n	9	20	8	ያ

				*	_				
				SILIC	4	<b>L</b> J	7	∞	7
		μq		HMONIA	0	•	•	4.	. •
rude	3,7'	DS VISIB	8	PHOSPHATE NITRITE AMMONIA SILICA ug-atoms/liter	.03	•05	10•	•05	•05
N LATITUDE W LONGITUDE	121 53.7	AIR TEMP °C WEATH CLOUDS dry wet typ amt	×	TRATE N ug-ato	ع	3,5	1.8	2.6	2,3
TUDE	36° 37.6°	HEAT	7	LATE NI					
N LAT	36	IR TEMP °( dry wet		PHOSPH	1.0	7.0	0. 1.	1.03	Φ.
HOUR	3,9			SAT	109	110	110	76	73
កា	7 DEC 1974	BAROM	1021.7	AOU ug-at/]	-48	84	-48	17	143
DATE	7 DEC	WIND dir speed	0	OXYGEN AOU SAT ml/l ug-at/l Z	6.35	6,35	6.35	5.61	4.26
STATION	2201		6 X 1	TEMP SALINITY SIGMA T °C ppt	25.24	25.23	25,23	25,24	25,36
CRUISE	ML 10	SP WAVES dir ht p	49 1 X	ALINITY PP¢	33.474	33,473	33,474	33,475	33,511
	_	TRANSP		TEMP S	12,97				
				DEPTH	0	5	ន	70	8

\* indicates questionable data: Phosphate appears anomalously low

				SILICA	<b>ক পে ক ক</b>
		VISIB	<b></b>	PHOSPHATZ NITRATE NITRITE AMMONIA SILICA ug≕atoms/liter	1000
DE	<u>چ</u>		-	RITE /lit	90.00
MGITI	121° 50.8'	CLOUDS typ amt	0	<u>PATE MITRITE A</u> ug≕atoms/liter	
r ro	121	E C	×	TRATI	4 4 6 6 4 6 6 6
CUDE	•0•0	WEA	7	E E	<b>.</b>
N LATITUDE W LONGITUDE	36 40.0	AIR TEMP *C WEATH CLOUDS dry wet typ amt		HOSPHA	
		IR TEMP *( dry wet			() (h) (h)
HOUR	5.0			SAT	100
pa;	1974	BAROM	1021.0	XYGEN AOU #1/1 ug at/1	4. 4. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
DATE	7 DEC 1974	WIND dfr speed	н	OXYGEN ACU ml/1 ug at	17 67 67 67 67 68 69 69 69
+ NO		WIND dfr spa	0		
STATION <sup>†</sup>	1125	۵	×	SIGMA I	25.27 25.27 25.27 25.27
	_	WAVES r ht	9 1		
CRUISE	HIL 10	书	49	*C PPt	33,492 33,492 33,491
Ü	,24 -	TRANSP Fi		88	
		Ħ			12.86 12.87 12.86 12.70
				nepth 1	20 10 50

\* indicates questionable date: Phosphate appears anomalously high

				SILICA	r 60 80
		81		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug~atoms/liter	044
TUDE	.84	S VISIB	7	TRITE 18/11te	.18 .18
LONGI	121° 52.8'	CLOUDS	×	RATE NITRITE A ug-atoms/liter	2.1 1.1
TUDE W		WEATH	2	TE NIT	
N LATITUDE W LONGITUDE	36* 55.2	AIR TEMP °C WEATH CLOUDS dry wet typ amt		PHOSPHA	1.02 1.51* 1.18
HOUR	19.7	AIR		SAT	113 113 114
ы	19 DEC 1974 19.7	BAROM	1020.0	AOU ug-at/]	-67 -66 -75
DATE	19 DEC	WIND r speed	1 1020,0	OXYGEN #1/1	6.61 6.63 6.75
STATION	1154	WAVES WIND dir ht p dir speed	2 2 3	TEMP SALINITY SIGMA T OXYGEN AOU SAT *C ppt ml/l ug-at/l Z	25.39 25.41 25.29
CRUISE	ML 11		27	ALINITY ppt	33,555 33,539 33,537
		TRANSP		TEMP S	12.54 12.35 12.22
				DEPTH R	0 2 01

\* indicates questionable data: Phosphate appears anomalously high

				SILICA	'n	4 9 11
		81		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	o,	o
Ħ	•	VIS	7	ITB , lite	2	27.7.
TLL	.7.	CLOUDS typ ant	0	RATE NITRITE A ug-atoms/liter	•	
<b>X</b> 0	122*	4 6	0 ×	LATE 18-at	<b>o</b> v 1	<b>40</b> 6
A A		<b>EATH</b>	7	NITH	ี คื	4.0 10.3
TTQD	36* 55.8*	<b>≱</b> ∪		HATE	e :	1.15
N LATITUDE W LONGITUDE	8	AIR TEMP °C WEATH CLOUDS VISIB dry wet typ ant		PHOSP		177
HOUR	20,8	AIR 1		SAT	103	7202
	19 DEC 1974	BAROM	1 1020.0	OXYGEN AOU SAT ml/l ug-at/l X	-15	, 2 151
DATE	DEC	<b>9</b>	_	7GEN 1/1 u	20,	5.85
<b>F</b>	19	WIND dir speed	m	O I	νον	า้เก็ <del>น</del>
STATIONT	2205			¥	38	25.43
STA	22	KAVES r the p	2 2	IY SIGMA I	25, 7,	ั่มม
SE	11	KAVES dir Me	56	111	85 45	36
CRUISE	Ä	TRANSP m		SALINE	33,5	33,569 33,639
		TRA		TEMP SALINITA *C PPt	12.59	12.39
				DKPTH	0 in	92

\* indicates questionable data: Phosphate appears anomalously high

				SILICA	4	4	2	5	7	15
		118		AMMON IA : I	1.4	o.	•	o.	٥.	o.
ITUDE	1.6	CLOUDS VISIB	0	RATE NITRITE A ug-atoms/liter	.17	•22	•22	•22	•21	•33
W LONGITUDE	122° 1.6	WEATH CLOUDS typ amt	% ×	NITRATE ug-at	1.5	1.8	1.7	1,1	5.0	17.6
N LATITUDE	36° 50.9'	AIR TEMP °C WE dry wet		PHOSPHATE NITRATE NITRITE AMMONIA SILICA ug-atoms/liter	69*	.82	•84	•89	1.18	2.48
HOUR N	21.9	AIR TED dry		SAT	86	66	97	97	78	94
	DEC 1974	BAROH	1020.0	OXYGEN ADU m1/1 ug-at/1	13	m	14	14	117	298
† DATE	19 DEC	WIND dir speed	0		5.69	5.80	5.68	5.69	4.57	2,82
STATION <sup>†</sup>	2204	۵.	φ 6	SIGMA T	25,36	25,35	25,36	25,37	25.44	25.94
CRUISE	M. 11	SP WAVES dir ht	21	TEMP SALINITY •C ppt	33,552	33,553	33,545	33,550	33,572	33,714
-	•	TRANSP		TEMP S				12,61		
				DEPTH	0	iĄ.	21	20	8	8

				SILICA	7	4	'n	'n	σ.	12	19	19	. 22	18*	42	95	<b>2</b> 6	62	<b>*19</b>	78	
		2		AMMONIA F	o	<b>.</b>	•	o,	•		o,	•	o,	•	<b>.</b>	o,	<b>٠</b>	9	•	•	
TUDE	1.3'	DS VISIB mt	0 7	RAIE NITRIIE A ug-stome/liter	.11	•13	,12	.23	•21	•05	•03	•05	90•	8	<b>•</b> 0	•03	•05	8	•05	•00	
W LONGITUDE	121	TH CLOUDS typ amt	×	NITRATE NITRITE AMMONIA ug-atome/liter	1,1	<b>٠</b>	o,	2.9	12.2	18.5	22.5	18.9*	20.7	22.8	31,2	30.4	32,9	32.1	26.6	33.1	
N LATITUDE	36° 46.7'	IP C WEATH wet.	7	PHOSPHATE N	86*	86,	<b>*6</b> *	1,26								4.07					
		AIR TEMP °C dry wet.					_					•								•,	
HOUR	23.4		_	SAT 1 %	115	116	11	501	75	99	4		42	ጽ	5	23	귀	ਜ	٠,		
网	DEC 1974	BAROM	1020.0	AOU ug-at/	8-	-85	69 <b>-</b>	Ť	116	190	285		330	377	410	451	511	537	557		
DATE	19 DEC	WIND dir speed	8	OXYGEN AOU =1/1 ug-at/1	6.77	6.82	6.64	6.43	4.74	4.07	3,61	3.07	2.65	2,21	1,88	1,50	9.1	.76	9.	.41	
$station^{\dagger}$	2203	ρ.	4 X 3	SIGMA T	25.40	25,39	25,38						26.41	26.57	26.65	26.75	26.12	27.03	27,11		
CRUISE	M. 11	SP WAVES dir ht	21	SALINITY PPt	33,554	33,548	33,544						34,012	34,103	34,143	34.186	34,242	34,292	34,333	34.406	
_		TRANSP		S C.	12,46*	12,48*	12.52	12,37	11,30	10.05	9.61	•				7,33					
				HLAZG	0	'n	91	2	8	ጸ	75	100	150	200	250	300	400	200	009	800	

Paired thermometers read 12.37 at 0 m ; 12.56 at 5 m Nitrate appears anomalously low Silicates appear anomalously low \* indicates questionable data: