OCEANOGRAPHICAL OBSERVATIONS
IN THE INDIAN OCEAN IN 1965
H.M.A.S. *GASCOYNE*
Cruise G 5/65

OCEANOGRAPHICAL CRUISE REPORT NO. 46

DIVISION OF FISHERIES AND OCEANOGRAPHY
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL
RESEARCH ORGANIZATION, AUSTRALIA 1967

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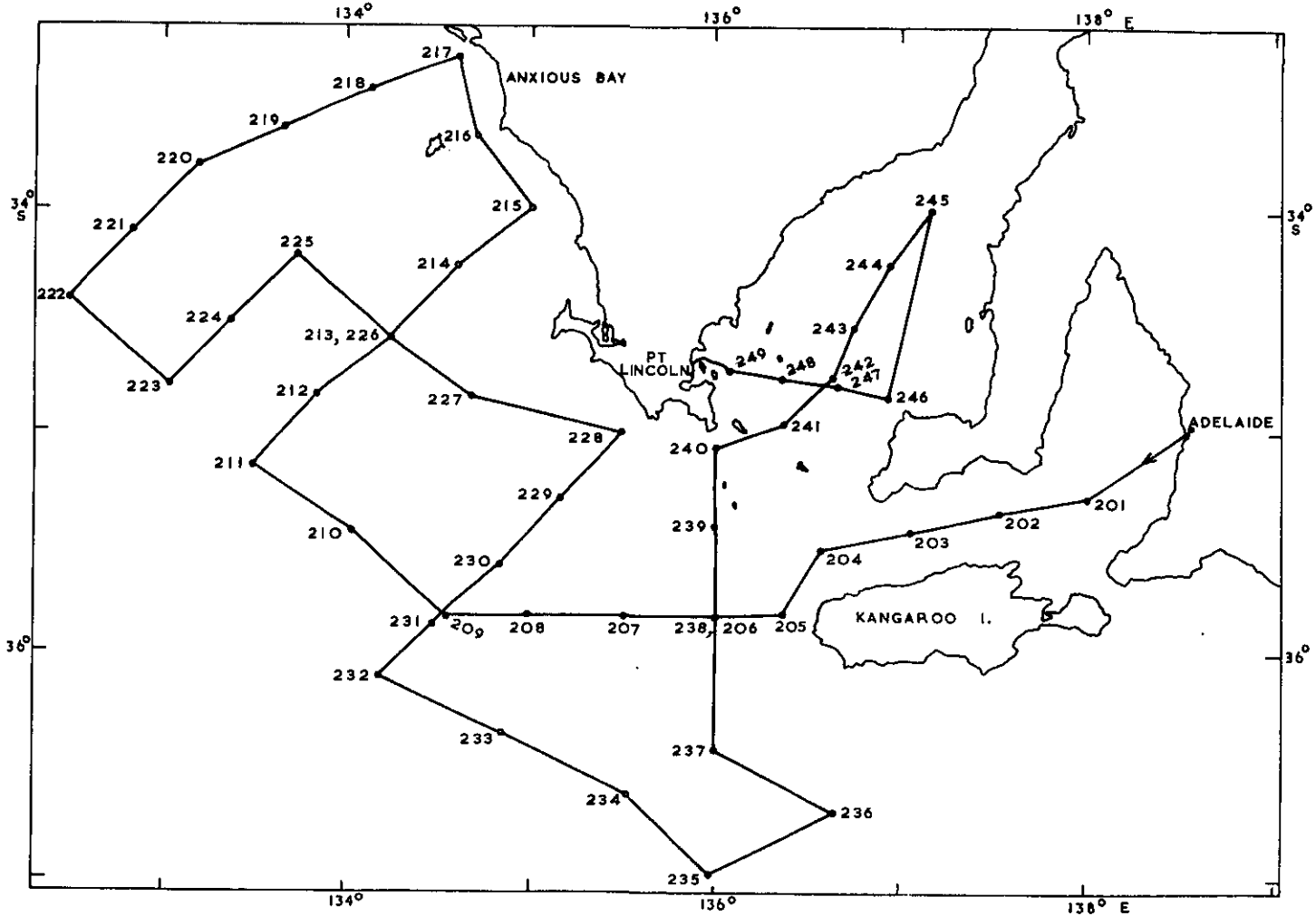

Fig. 1.– Track Chart

OCEANOGRAPHICAL CRUISE REPORT

No. 46

Oceanographical Observations in the Indian Ocean in 1965

H.M.A.S. Gascoyne

Cruise G5/65

March 29 - April 3, 1965

I. INTRODUCTION

This report records the data collected during the fifth cruise in 1965 of H.M.A.S. Gascoyne, Royal Australian Navy oceanographical frigate, in the Indian Ocean.

Objective

To examine the chemical and physical environment of the fishing grounds during the South Australian tuna season.

Itinerary

The cruise began at Adelaide on March 29, worked a series of stations in the South Australian Gulfs and the adjacent waters of the Great Australian Bight (Fig. 1), and ended at Adelaide on April 3.

Scientific Personnel

D. Vaux (Cruise Leader)
R. Bradley
L. Brown
F. Davies
J. Klye

Salinity, oxygen, and inorganic phosphate determinations were made in the ship's laboratory by J. Klye and F. Davies. The data were processed under the direction of W. Hedge with computer programmes designed by A.D. Crooks. The track chart was prepared by R. Breach.

Accuracy of cruise data is the responsibility of the cruise leader, D. Vaux.

II. WORK ACCOMPLISHED

Surface and subsurface hydrology samples were collected at forty-nine stations (G5/201/65 - G5/249/65).

TABLE 1

WORK DONE AT EACH STATION

Station Number	Hydrology Surface to Depth (m)	Station Number	Hydrology Surface to Depth (m)
201	30	226	90
202	25	227	100
203	35	228	85
204	85	229	120
205	100	230	1500
206	120	231	1500
207	500	232	1500
208	1500	233	1500
209	1500	234	1500
210	1500	235	1500
211	1100	236	600
212	100	237	200
213	90	238	120
214	70	239	75
215	60	240	75
216	40	241	40
217	45	242	35
218	60	243	35
219	60	244	25
220	75	245	17
221	90	246	40
222	700	247	40
223	900	248	39
224	100	249	19
225	80		

III. METHOD OF COLLECTION AND ANALYSIS OF SAMPLES

1. Physics

Temperature.- Water temperatures were taken with deep-sea reversing thermometers. Two protected thermometers were used at each depth, together with an unprotected thermometer on all but the upper four Nansen water bottles. Differences between

corrected protected theromometer readings were generally less than 0.03 deg C, and the mean values listed in this report are considered accurate to ± 0.03 deg C.

Thermometric Depth.- Depth calculations were made by the second method described by La Fond (1951), plotting thermometric depth against the difference between thermometric and wire depths. Depths are considered accurate to ± 5 m at depths less than 200 m, ± 10 m at depths between about 200 and 400 m, and to within about 2% at depths from 400 to 1500 m.

Sigma-t.- Sigma-t values were calculated, by computer, from temperature and salinity using the equations of Knudsen (La Fond 1951).

2. Chemistry

Salinity.- Salinity was measured on board with an inductive salinometer (Brown and Hamon 1961).

Dissolved Oxygen.- A version of the standard Winkler method was used to determine the amount of dissolved oxygen in the seawater samples. The version used is a modification of that described by Thompson and Robinson (1939) and differs in some respects from the revision by Jacobsen, Robinson, and Thompson (1950). Potassium iodate was used as the iodometric standard, and the reagents necessary to fix the oxygen in solution were used at different concentrations. Duplicate titrations were made on approximately every tenth sample. Saturation values were calculated by computer using the simpler of the equations given by Richards and Corwin (1956) -

$$O_2(\%\ \text{Satn.}) = \frac{O_2(\text{ml/l}) \times (33.5 + T^\circ C) \times 100}{332.4 - (1.854 \times S‰)} .$$

Inorganic Phosphate.- The method of Atkins (1923) was used with 1 ml molybdate reagent (300 ml 10% w/v ammonium molybdate and 100 ml 50% v/v sulphuric acid) and 0.1 ml 1% w/v stannous chloride diluted afresh from a 40% stock solution in hydrochloric acid, which was kept under paraffin. The reagents were automatically dispensed by piston dispenser.

Standard phosphate solutions were made up in distilled water. At air temperatures less than 25°C analyses were carried out in batches of 10; readings were begun within 10 min of adding reagents, and completed within 10 min. At air temperatures greater than 25°C batches of 6 were analysed; readings

were commenced within 5 min of adding reagents and completed within 7 min. Each batch was compared with a distilled water blank and a 0.65 µg-atom/l standard in a Hilger Spekker absorptiometer using 4 cm cells and Ilford 608 filters. Each day a complete calibration was made using standards up to 3.25 µg-atom/l. Results are given as µg-atom/l without any correction for salt error and are precise to ± 10% for values less than 0.5 µg-atom/l, and ± 5% for higher values. To correct for salt effects the results given can be multiplied by 1.15.

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BROWN, N.L., and HAMON, B.V. (1961).- An inductive salinometer. Deep Sea Res. 3, 65-75.

JACOBSEN, J.P., ROBINSON, R.J., and THOMPSON, T.G. (1950).- A review of the determination of dissolved oxygen in seawater by the Winkler method. Publs scient. Ass. Oceanogr. phys. 11.

LA FOND, E.C. (1951).- Processing oceanographic data. U.S. Navy Hydrogr. Off. Publ. No. 614.

RICHARDS, F.A., and CORWIN, N. (1956).- Some oceanographic applications of the solubility of oxygen in sea-water. Limnol. Oceanogr. 1, 263-7.

THOMPSON, T.G., and ROBINSON, R.J. (1939).- Notes on the determination of dissolved oxygen in seawater. J. mar. Res. 2, 1-8.

U.S. NAVY HYDROGRAPHIC OFFICE (1955).- Instruction manual for oceanographic observations. Publ. No. 607.

IV. DATA SHEETS

The data were processed in a C.D.C. 3600 Computer. An explanation of the headings for each section is given at the beginning of the surface hydrology listing.

DATA

PART 1

HYDROLOGY

SURFACE SAMPLES

EXPLANATION OF HEADINGS

Parts 1 and 2	Hydrology
STATION	Gives the station identification. For example, G5/201/65 signifies the 201st station worked by Gascoyne in 1965, on her 5th cruise for that year
DATE	Given as day/month/year
TIME	Given in Zone Time, and is the time at the beginning of the first cast. Zone Time throughout the cruise was Central Australian Standard Time, G.M.T. + $9\frac{1}{2}$ hr, Code J
LATITUDE LONGITUDE	Given in degrees and minutes
SONIC DEPTH	Given in metres, measured at standard sound velocity of 800 fm (1463 m) per second
AIR TEMP. WET DRY	Air temperatures recorded from wet and dry bulb thermometers in °C
WIND DIR. SP.	Wind direction and speed are coded using Tables 8 and 9 in U.S. Hydrogr. Office (1955)
ANEM. HEIGHT	The average height of the anemometer above sea level, given in metres
CLOUD TYPE AMT.	Cloud type and amount are coded using Tables 2 and 3 in U.S. Hydrogr. Office (1955)
VIS.	Visibility is coded using Table 4 in U.S. Hydrogr. Office (1955)
SEA DIR. AMT.	Sea direction and amount are coded using Tables 5 and 8 in U.S. Hydrogr. Office (1955)
SWELL DIR. AMT.	Sea swell direction and amount are coded using Tables 6 and 8 in U.S. Hydrogr. Office (1955)

WEA.	Weather is coded using Table 1 in U.S. Hydrogr. Office (1955)
BAROM. and ATMOS. PRESSURE	Atmospheric pressure given in millibars
WIRE ANGLES CAST 1 CAST 2 CAST 3	Wire angles are measured at the surface and expressed in degrees for each cast
CAST	The cast number corresponding to the wire angle is shown
DEPTH	Actual sampling depth, given in metres
TEMP.	Sea temperatures recorded in °C
SALINITY	Given in parts per thousand
SIGMA-T	Sigma-t to 2 decimal places
OXYGEN	Given in ml/l
OXYGEN % SAT.	Oxygen percentage saturation
INORG. P	Given in µg-atom/l
* and ***	Indicate no data available

CRUISE	STATION NUMBER	YR.	MTH.	DAY	TIME Z	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN.	WIND AMT.	SEA DN.	SEA AMT.	SWELL DN.	SWELL AMT.	WEA.	VIS.	BAROM.
5	201	65	3	29	1557	J 35 18 S	138 00 E	20.5	36,73	21	2	21	2	23	1	00	7	1016.0
5	202	65	3	29	1807	J 35 22 S	137 32 E	19.7	36,13	24	3	23	2	00	0	01	7	1016.0
5	203	65	3	29	2007	J 35 27 S	137 03 E	19.6	36,13	24	4	24	2	25	1	00	7	1018.0
5	204	65	3	29	2217	J 35 32 S	136 35 E	18.6	35,70	24	3	25	2	25	1	01	7	1019.0
5	205	65	3	30	0034	J 35 49 S	136 22 E	18.3	35,69	21	2	21	2	21	1	00	7	1019.0
5	206	65	3	30	0234	J 35 50 S	136 00 E	18.7	35,73	26	4	26	2	21	1	01	8	1019.0
5	207	65	3	30	0450	J 35 50 S	135 30 E	19.5	35,94	27	2	27	2	25	1	01	8	1020.0
5	208	65	3	30	0718	J 35 49 S	134 59 E	17.4	35,35	25	3	25	2	21	1	03	8	1021.5
5	209	65	3	30	1017	J 35 50 S	134 32 E	18.0	35,49	21	2	21	2	24	1	03	8	1019.5
5	210	65	3	30	1409	J 35 27 S	134 02 E	18.2	35,47	18	2	19	1	21	1	03	8	1024.0
5	211	65	3	30	1730	J 35 09 S	133 28 E	20.0	35,95	14	1	21	2	24	1	01	7	1025.0
5	212	65	3	30	2010	J 34 50 S	133 51 E	19.6	35,93	14	2	14	2	24	1	00	8	1026.0
5	213	65	3	30	2230	J 34 35 S	134 15 E	19.0	35,81	14	3	14	2	23	1	00	7	1025.5
5	214	65	3	31	0050	J 34 16 S	134 37 E	18.7	35,79	14	3	14	2	23	1	00	7	1025.0
5	215	65	3	31	0311	J 34 00 S	135 00 E	17.5	35,72	11	3	14	3	22	1	00	7	1024.0
5	216	65	3	31	0521	J 33 40 S	134 42 E	17.1	35,65	12	2	12	2	18	1	00	7	1024.0
5	217	65	3	31	0724	J 33 18 S	134 36 E	17.3	35,68	10	1	10	1	18	1	00	7	1025.0
5	218	65	3	31	0935	J 33 27 S	134 08 E	18.8	35,82	12	3	12	1	21	4	00	7	1026.0
5	219	65	3	31	1149	J 33 37 S	133 40 E	19.2	35,82	12	2	12	1	21	4	00	8	1025.5
5	220	65	3	31	1412	J 33 48 S	133 12 E	20.1	35,90	12	2	12	1	23	4	01	7	1023.0
5	221	65	3	31	1623	J 34 05 S	132 51 E	20.2	36,05	14	3	12	2	22	4	00	8	1022.0
5	222	65	3	31	1907	J 34 24 S	132 29 E	19.5	35,64	13	2	13	2	22	7	01	7	1023.0
5	223	65	3	31	2232	J 34 48 S	133 02 E	19.2	35,61	17	3	17	2	22	4	01	8	1023.0
5	224	65	4	1	0107	J 34 30 S	133 23 E	19.5	35,85	14	1	14	1	18	1	03	7	1020.0
5	225	65	4	1	0322	J 34 13 S	133 44 E	19.1	35,82	15	2	15	2	18	1	03	7	1020.5
5	226	65	4	1	0620	J 34 35 S	134 15 E	19.3	35,87	17	3	16	2	17	4	01	8	1021.0
5	227	65	4	1	0834	J 34 50 S	134 41 E	19.1	35,81	18	3	18	2	21	4	01	7	1021.0
5	228	65	4	1	1229	J 35 00 S	135 30 E	18.3	35,83	19	3	19	2	21	4	01	7	1020.0
5	229	65	4	1	1450	J 35 18 S	135 10 E	19.2	35,84	20	3	20	2	22	4	01	7	1019.0
5	230	65	4	1	1709	J 35 36 S	134 50 E	19.6	35,91	23	4	23	2	22	4	01	8	1019.5
5	231	65	4	1	1955	J 35 53 S	134 29 E	17.9	35,42	22	4	22	3	22	4	02	7	1020.0
5	232	65	4	1	2240	J 36 06 S	134 11 E	17.3	35,23	17	4	17	3	21	4	01	7	1021.0
5	233	65	4	2	0233	J 36 21 S	134 51 E	17.3	35,37	20	3	20	2	21	4	00	8	1021.0
5	234	65	4	2	0616	J 36 37 S	135 31 E	17.8	35,43	17	1	17	2	22	4	01	8	1021.9
5	235	65	4	2	0948	J 36 59 S	135 59 E	18.0	35,50	16	2	00	0	22	4	02	7	1022.0
5	236	65	4	2	1333	J 36 42 S	136 38 E	19.1	35,81	22	1	00	0	22	4	01	7	1021.0
5	237	65	4	2	1646	J 36 25 S	136 00 E	19.0	35,74	18	3	18	1	18	4	01	7	1020.0
5	238	65	4	2	1949	J 35 51 S	136 00 E	18.9	35,77	04	2	04	1	20	4	01	8	1020.0
5	239	65	4	2	2211	J 35 25 S	136 00 E	18.2	35,88	36	1	00	0	18	1	01	7	1019.0
5	240	65	4	3	0001	J 35 05 S	136 00 E	18.1	35,89	06	1	00	0	20	4	00	7	1018.0

CRUISE	STATION NUMBER	YR.	MTH.	DAY	TIME Z	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN.	WIND AMT.	SEA DN.	SEA AMT.	SWELL DN.	SWELL AMT.	WEA.	VIS.	BAROM.
5	241	65	4	3	0152	J 34 58 S	136 22 E	19.8	36.69	04	2	04	2	02	1	00	7	1018.0
5	242	65	4	3	0325	J 34 45 S	136 33 E	20.5	37.14	36	2	36	2		0	00	8	1018.0
5	243	65	4	3	0457	J 34 31 S	136 45 E	20.6	37.43	35	3	35	2	00	0	00	8	1012.0
5	244	65	4	3	0630	J 34 15 S	136 56 E	20.6	37.40	02	3	02	2	00	0	03	9	1012.0
5	245	65	4	3	0815	J 34 00 S	137 10 E	20.9	38.25	01	3	01	2		0	01	8	1017.5
5	246	65	4	3	1212	J 34 51 S	136 56 E	20.7	37.30	35	4	35	3	00	0	03	8	1015.0
5	247	65	4	3	1336	J 34 48 S	136 38 E	20.6	37.08	02	3	02	2	00	0	01	7	1012.0
5	248	65	4	3	1458	J 34 46 S	136 21 E	20.1	36.82		1	02	1	00	0	01	7	1012.5
5	249	65	4	3	1614	J 34 44 S	136 04 E	18.8	36.01	27	2	27	2	00	0	03	7	1012.0

DATA

PART 2

HYDROLOGY

SUBSURFACE SAMPLES

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 201/65	29/ 3/65	1557 J	35 18 S	138 00 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
37	11.1	17.2	21	2	11	*	0	7	21	2	23	1	1016.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.50	36.726	25.96	5.08	104	0.18	***	***
1	10	20.17	36.733	26.06	5.12	104	0.16	***	***
1	20	20.03	36.920	26.24	5.04	102	0.24	***	***
1	30	20.07	36.940	26.24	5.03	102	0.15	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 202/65	29/ 3/65	1807 J	35 22 S	137 32 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
31	17,2	11,1	24	3	11	3	3	7	23	2	00	0	1016,0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.69	36,132	25,72	5,20	104	0,12	***	***
1	10	19.63	36,131	25,74	5,27	105	0,12	***	***
1	20	19,57	36,172	25,79	5,20	104	0,15	***	***
1	25	19.55	36,175	25,79	5,24	105	0,08	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 203/65	29/ 3/65	2007 J	35 27 S	137 03 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
42	11,7	17,8	24	4	11	*	0	7	24	2	25	1	1018,0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19,60	36,128	25,75	5,12	102	0,20	***	***
1	10	19,48	36,132	25,78	5,13	102	0,12	***	***
1	20	19,32	36,122	25,81	5,09	101	0,17	***	***
1	30	19,28	36,129	25,83	5,10	101	0,17	***	***
1	35	19,28	36,130	25,83	5,11	102	0,15	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 204/65	29/ 3/65	2217 J	35 32 S	136 35 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
91	12.8	18.3	24	3	11	8	3	7	25	2	25	1	1019.0	5	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.59	35.700	25.68	5.33	104	0.14	***	***
1	10	18.57	35.698	25.68	5.35	105	0.13	***	***
1	20	18.23	35.695	25.76	5.39	105	0.13	***	***
1	30	17.94	35.755	25.88	5.49	106	0.13	***	***
1	40	17.69	35.750	25.94	5.52	106	0.14	***	***
1	50	16.02	35.592	26.22	5.49	102	0.27	***	***
1	65	14.35	35.470	26.49	5.06	91	0.42	***	***
1	85	14.29	35.466	26.50	4.99	89	0.43	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 205/65	30/ 3/65	0034 J	35 49 S	136 22 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
119	12,2	17,8	21	2	11	*	0	7	21	2	21	1	1019.0	0	0	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.29	35,690	25,75	5,35	104	0,13	***	***
1	10	18.28	35,693	25,75	5,34	104	0,13	***	***
1	20	18.06	35,726	25,83	5,44	105	0,13	***	***
2	30	17.91	35,740	25,88	5,46	105	0,13	***	***
2	40	17.90	35,741	25,88	5,46	105	0,13	***	***
2	50	17.54	35,722	25,96	5,47	105	0,15	***	***
2	75	14.25	35,429	26,48	5,22	93	0,36	***	***
2	100	14.03	35,418	26,52	5,11	91	0,38	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 206/65	30/ 3/65	0234 J	35 50 S	136 00 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
134	12,2	17,8	26	4	11	6	1	8	26	2	21	1	1019,0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18,73	35,733	25,67	5,32	104	0,11	***	***
1	10	18,67	35,732	25,68	5,30	104	0,11	***	***
1	20	18,66	35,732	25,68	5,30	104	0,11	***	***
1	30	18,66	35,730	25,68	5,31	104	0,11	***	***
1	40	18,65	35,731	25,69	5,31	104	0,11	***	***
1	50	18,59	35,729	25,70	5,35	105	0,14	***	***
1	75	17,89	35,685	25,84	5,43	105	0,13	***	***
1	100	15,37	35,520	26,31	5,45	100	0,24	***	***
1	120	14,91	35,516	26,41	5,12	93	0,37	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 207/65	30/ 3/65	0450 J	35 50 S	135 30 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
567	10,6	18,3	27	2	11	*	0	8	27	2	25	1	1020,0	7	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19,46	35,945	25,64	5,24	104	0,12	***	***
1	25	19,46	35,947	25,64	5,22	104	0,10	***	***
1	50	19,46	35,954	25,65	5,20	104	0,11	***	***
1	75	16,85	35,632	26,05	5,50	104	0,16	***	***
1	100	15,66	35,597	26,30	5,11	94	0,30	***	***
1	150	14,15	35,402	26,48	5,41	97	0,32	***	***
1	200	13,04	35,292	26,63	5,30	96	0,42	***	***
1	300	12,05	35,195	26,75	5,32	94	0,53	***	***
1	500	9,22	34,725	26,89	5,30	88	0,97	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 208/65	30/ 3/65	0718 J	35 49 S	134 59 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
2268	14,4	19,4	25	3	11	8	6	8	25	2	21	1	1021,5	0	0	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	17.43	35,349	25,70	5,53	106	0,18	***	***
1	25	17.42	35,349	25,70	5,48	105	0,17	***	***
1	50	17.41	35,348	25,70	5,49	105	0,20	***	***
1	75	14.07	35,212	26,35	5,71	102	0,24	***	***
1	100	13.29	35,235	26,53	5,51	97	0,37	***	***
1	150	12.81	35,292	26,68	5,49	95	0,41	***	***
1	200	12.41	35,253	26,72	5,53	95	0,45	***	***
1	300	11.31	35,077	26,80	5,52	93	0,61	***	***
2	500	8.95	34,675	26,89	5,43	86	0,98	***	***
2	700	7.75	34,531	26,96	5,00	77	1,28	***	***
2	900	6.33	34,415	27,19	4,45	64	1,68	***	***
2	1100	3.67	34,436	27,39	4,18	58	1,85	***	***
2	1300	2.94	34,520	27,53	3,90	53	1,91	***	***
2	1500	2.68	34,590	27,61	3,79	51	1,93	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 209/65	30/ 3/65	1017 J	35 50 S	134 32 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
2706	11.1	17.2	21	2	11	8	4	8	21	2	24	1	1019.5	0	0	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	18.04	35.489	25.65	5.42	105	0.16	***	***
2	25	17.99	35.493	25.67	5.41	104	0.14	***	***
2	50	17.89	35.479	25.68	5.46	105	0.15	***	***
2	75	14.17	35.302	26.40	5.81	104	0.21	***	***
2	100	13.22	35.278	26.58	5.53	97	0.35	***	***
2	150	12.71	35.279	26.69	5.51	95	0.41	***	***
2	200	12.47	35.274	26.73	5.52	95	0.45	***	***
2	300	11.58	35.131	26.79	5.51	93	0.59	***	***
1	500	9.09	34.698	26.89	5.51	88	0.96	***	***
1	700	7.90	34.544	26.95	5.08	78	1.26	***	***
1	900	5.55	34.423	27.17	4.44	65	1.64	***	***
1	1100	3.79	34.422	27.37	4.22	59	1.76	***	***
1	1300	3.01	34.505	27.51	3.88	53	1.97	***	***
1	1500	2.70	34.591	27.61	3.79	51	1.95	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 210/65	30/ 3/65	1409 J	35 27 S	134 02 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
1618	12.8	18.9	18	2	11	4	4	8	19	1	21	1	1024.0	5	0	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	18.25	35.470	25.59	5.39	105	0.14	***	***
2	25	18.11	35.470	25.62	5.44	105	0.14	***	***
2	50	17.93	35.459	25.66	5.44	105	0.14	***	***
2	75	14.56	35.286	26.31	5.89	106	0.20	***	***
2	100	13.60	35.293	26.52	5.62	99	0.31	***	***
2	150	12.84	35.301	26.68	5.49	95	0.44	***	***
2	200	12.63	35.305	26.72	5.51	95	0.47	***	***
2	300	11.40	35.096	26.80	5.50	92	0.63	***	***
1	500	9.10	34.703	26.89	5.52	88	1.04	***	***
1	700	7.73	34.531	26.97	4.97	76	1.36	***	***
1	900	5.45	34.418	27.18	4.44	64	1.78	***	***
1	1100	3.67	34.427	27.39	4.19	58	2.00	***	***
1	1300	2.97	34.518	27.53	3.86	52	2.09	***	***
1	1500	2.67	34.599	27.62	3.80	51	2.05	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 211/65	30/ 3/65	1730 J	35 09 S	133 28 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
1225	17.9	18.3	14	1	11	4	2	7	21	2	24	1	1025.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.03	35.950	25.50	5.22	105	0.07	***	***
1	25	19.80	35.974	25.58	5.20	104	0.05	***	***
1	50	19.76	35.974	25.59	5.18	104	0.07	***	***
1	75	16.07	35.568	26.19	5.50	102	0.19	***	***
1	100	15.30	35.554	26.35	5.27	97	0.29	***	***
1	150	14.60	35.485	26.45	5.28	95	0.33	***	***
1	200	13.32	35.310	26.59	5.50	96	0.37	***	***
1	300	12.49	35.270	26.72	5.52	95	0.47	***	***
1	500	9.60	34.787	26.87	5.50	88	0.93	***	***
1	700	8.02	34.559	26.94	5.16	80	1.27	***	***
1	900	5.26	34.414	27.20	4.41	64	1.73	***	***
1	1100	3.58	34.431	27.40	4.18	58	1.94	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 212/65	30/ 3/65	2010 J	34 50 S	133 51 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
121	11.7	18.3	14	2	11	*	0	8	14	2	24	1	1026.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.63	35.926	25.58	5.21	104	0.07	***	***
1	10	19.59	35.919	25.59	5.20	104	0.05	***	***
1	20	19.46	35.897	25.61	5.23	104	0.05	***	***
1	30	19.47	35.913	25.62	5.21	104	0.05	***	***
1	40	19.48	35.925	25.62	5.21	104	0.05	***	***
1	50	19.55	35.945	25.62	5.20	104	0.07	***	***
1	75	19.08	35.934	25.73	5.15	102	0.08	***	***
1	100	16.08	35.696	26.28	4.87	91	0.29	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 213/65	30/ 3/65	2230 J	34 35 S	134 15 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
101	12.2	17.8	14	3	11	*	0	7	14	2	23	1	1025.5	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.99	35.810	25.66	5.33	105	0.13	***	***
1	10	19.00	35.811	25.66	5.35	106	0.12	***	***
1	20	18.94	35.810	25.67	5.33	105	0.13	***	***
1	30	18.86	35.810	25.69	5.32	105	0.11	***	***
1	40	18.85	35.808	25.69	5.35	105	0.10	***	***
1	50	18.70	35.797	25.73	5.33	105	0.13	***	***
1	75	16.57	35.700	26.17	5.26	99	0.24	***	***
1	90	16.09	35.707	26.29	4.94	92	0.29	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 214/65	31/ 3/65	0050 J	34 16 S	134 37 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
79	11.7	17.8	14	3	11	*	0	7	14	2	23	1	1025.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.73	35.788	25.71	5.38	106	0.13	***	***
1	10	18.72	35.788	25.71	5.39	106	0.11	***	***
1	20	18.46	35.786	25.78	5.40	105	0.14	***	***
1	30	18.15	35.778	25.85	5.46	106	0.13	***	***
1	40	18.05	35.774	25.87	5.48	106	0.13	***	***
1	50	18.03	35.770	25.87	5.45	106	0.13	***	***
1	70	15.85	35.621	26.28	5.21	97	0.27	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 215/65	31/ 3/65	0311 J	34 00 S	135 00 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
70	11.7	17.2	11	3	11	*	0	7	14	3	22	1	1024.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	17.54	35.724	25.96	5.47	105	0.17	***	***
1	10	17.42	35.723	25.98	5.48	105	0.17	***	***
1	20	17.01	35.694	26.06	5.50	104	0.18	***	***
1	30	16.54	35.638	26.13	5.56	104	0.18	***	***
1	40	15.68	35.584	26.29	5.39	99	0.22	***	***
1	50	15.15	35.552	26.38	4.95	90	0.34	***	***
1	60	15.14	35.550	26.38	4.95	90	0.35	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 216/65	31/ 3/65	0521 J	33 40 S	134 42 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
51	11.7	16.7	12	2	11	*	0	7	12	2	18	1	1024.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	17.10	35.651	26.01	5.49	104	0.17	***	***
1	10	17.09	35.651	26.01	5.52	105	0.19	***	***
1	20	16.67	35.624	26.09	5.56	105	0.19	***	***
1	30	15.93	35.593	26.24	5.42	101	0.25	***	***
1	40	15.53	35.568	26.31	5.18	95	0.28	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 217/65	31/ 3/65	0724 J	33 18 S	134 36 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
55	11.1	16.1	10	1	11	*	0	7	10	1	18	1	1025.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	17.33	35.676	25.97	5.41	103	0.20	***	***
1	10	17.32	35.676	25.97	5.42	103	0.20	***	***
1	20	17.24	35.671	25.99	5.41	103	0.20	***	***
1	30	16.30	35.625	26.18	5.24	98	0.24	***	***
1	40	16.15	35.625	26.21	5.15	96	0.27	***	***
1	45	15.99	35.613	26.24	4.85	90	0.35	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 218/65	31/ 3/65	0935 J	33 27 S	134 08 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
68	12.2	17.2	12	3	11	*	0	7	12	1	21	4	1026.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.77	35.823	25.73	5.27	104	0.12	***	***
1	10	18.78	35.825	25.73	5.30	104	0.14	***	***
1	20	18.76	35.825	25.73	5.28	104	0.14	***	***
1	30	18.74	35.825	25.74	5.27	104	0.14	***	***
1	40	18.30	35.794	25.82	5.38	105	0.14	***	***
1	50	17.65	35.758	25.96	5.35	103	0.17	***	***
1	60	16.62	35.699	26.16	5.11	96	0.26	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 219/65	31/ 3/65	1149 J	33 37 S	133 40 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
.70	12.2	17.2	12	2	11	*	0	8	12	1	21	4	1025.5	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.25	35.816	25.60	5.29	105	0.13	***	***
1	10	19.10	35.813	25.63	5.26	104	0.12	***	***
1	20	19.07	35.813	25.64	5.22	103	0.12	***	***
1	30	19.03	35.808	25.65	5.26	104	0.13	***	***
1	40	18.72	35.820	25.74	5.33	105	0.11	***	***
1	50	18.43	35.809	25.80	5.36	105	0.13	***	***
1	60	16.57	35.722	26.19	5.06	95	0.27	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 220/65	31/ 3/65	1412 J	33 48 S	133 12 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
91	12.8	15.6	12	2	11	1	1	7	12	1	23	4	1023.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.09	35.902	25.44	5.19	105	0.06	***	***
1	10	19.73	35.898	25.54	5.19	104	0.06	***	***
1	20	19.47	35.843	25.56	5.22	104	0.09	***	***
1	30	19.40	35.839	25.58	5.19	103	0.11	***	***
1	40	19.29	35.826	25.60	5.24	104	0.12	***	***
1	50	19.16	35.820	25.63	5.25	104	0.13	***	***
1	75	16.30	35.738	26.26	4.63	87	0.36	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 221/65	31/ 3/65	1623 J	34 05 S	132 51 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
119	12.8	18.3	14	3	11	*	0	8	12	2	22	4	1022.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.20	36.049	25.53	5.15	104	0.05	***	***
1	10	20.15	36.049	25.54	5.16	104	0.04	***	***
1	20	20.08	36.042	25.55	5.16	104	0.06	***	***
1	30	20.07	36.046	25.56	5.14	104	0.06	***	***
1	40	20.05	36.038	25.56	5.12	103	0.04	***	***
1	50	20.07	36.043	25.56	5.10	103	0.04	***	***
1	65	20.05	36.056	25.57	5.12	103	0.06	***	***
1	90	16.35	35.664	26.19	4.98	93	0.28	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 222/65	31/ 3/65	1907 J	34 24 S	132 29 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
801	9,4	15,0	13	2	11	1	1	7	13	2	22	7	1023,0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.47	35.644	25.41	5.27	105	0.13	***	***
1	25	19.30	35.641	25.45	5.25	104	0.13	***	***
1	50	19.22	35.637	25.47	5.27	104	0.13	***	***
1	75	14.34	35.069	26.19	5.95	106	0.22	***	***
1	100	13.95	35.257	26.42	5.68	101	0.26	***	***
1	150	13.23	35.299	26.60	5.42	95	0.37	***	***
1	200	12.42	35.195	26.68	5.49	94	0.46	***	***
1	300	11.11	35.039	26.80	5.45	91	0.69	***	***
1	500	8.93	34.675	26.89	5.50	87	1.04	***	***
1	700	7.54	34.524	26.99	4.83	74	1.38	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 223/65	31/ 3/65	2232 J	34 48 S	133 02 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
953	15.0	18.3	17	3	11	6	2	8	17	2	22	4	1023.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.23	35.607	25.44	5.26	104	0.13	***	***
1	25	19.15	35.598	25.46	5.27	104	0.13	***	***
1	50	18.90	35.612	25.53	5.35	105	0.13	***	***
1	75	15.21	35.285	26.16	5.81	106	0.16	***	***
1	100	14.01	35.285	26.42	5.61	100	0.26	***	***
1	150	13.16	35.297	26.61	5.37	94	0.36	***	***
1	200	12.68	35.233	26.65	5.42	94	0.42	***	***
1	300	11.79	35.136	26.75	5.39	91	0.57	***	***
1	500	9.01	34.686	26.89	5.46	87	1.01	***	***
1	700	7.53	34.519	26.99	4.77	73	1.37	***	***
1	900	5.17	34.412	27.21	4.38	63	1.76	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 224/65	1/ 4/65	0107 J	34 30 S	133 23 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
117	12.2	17.8	14	1	11	6	4	7	14	1	18	1	1020.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.48	35.850	25.56	5.18	103	0.05	***	***
1	10	19.48	35.849	25.56	5.21	104	0.05	***	***
1	20	19.37	35.835	25.58	5.18	103	0.07	***	***
1	30	19.34	35.830	25.59	5.20	103	0.06	***	***
1	40	19.30	35.824	25.59	5.21	103	0.06	***	***
1	50	19.28	35.820	25.59	5.17	103	0.07	***	***
1	75	18.47	35.846	25.82	5.06	99	0.10	***	***
1	100	16.06	35.692	26.28	4.73	88	0.29	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 225/65	1/ 4/65	0322 J	34 13 S	133 44 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
91	12.2	17.8	15	2	11	6	4	7	15	2	18	1	1020.5	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.06	35.819	25.65	5.26	104	0.12	***	***
1	10	19.06	35.821	25.65	5.21	103	0.11	***	***
1	20	19.06	35.818	25.65	5.24	104	0.12	***	***
1	30	19.03	35.815	25.66	5.22	103	0.11	***	***
1	40	18.99	35.812	25.66	5.22	103	0.11	***	***
1	50	18.89	35.819	25.69	5.23	103	0.12	***	***
1	65	18.01	35.782	25.89	5.31	103	0.14	***	***
1	80	16.22	35.746	26.29	4.69	88	0.34	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 226/65	1/ 4/65	0620 J	34 35 S	134 15 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
99	11.7	17.8	17	3	11	8	2	8	16	2	17	4	1021.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.32	35.869	25.62	5.21	103	0.14	***	***
1	10	19.27	35.859	25.63	5.21	103	0.12	***	***
1	20	19.27	35.858	25.63	5.18	103	0.12	***	***
1	30	19.10	35.822	25.64	5.19	103	0.12	***	***
1	40	18.91	35.819	25.69	5.27	104	0.13	***	***
1	50	18.80	35.816	25.71	5.27	104	0.14	***	***
1	75	16.33	35.743	26.26	4.87	91	0.29	***	***
1	90	16.14	35.741	26.30	4.75	89	0.35	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 227/65	1/ 4/65	0834 J	34 50 S	134 41 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
101	12.2	18.9	18	3	11	6	5	7	18	2	21	4	1021.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.14	35.815	25.63	5.23	104	0.11	***	***
1	10	19.13	35.815	25.63	5.26	104	0.13	***	***
1	20	19.14	35.819	25.63	5.25	104	0.12	***	***
1	30	19.12	35.819	25.63	5.21	103	0.11	***	***
1	40	19.09	35.816	25.64	5.25	104	0.11	***	***
1	50	18.99	35.813	25.66	5.22	103	0.12	***	***
1	75	17.86	35.770	25.91	5.28	102	0.13	***	***
1	100	16.09	35.705	26.29	4.80	89	0.38	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 228/65	1/ 4/65	1229 J	35 00 S	135 30 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
91	13.9	20.0	19	3	11	1	3	7	19	2	21	4	1020.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.33	35.828	25.84	5.44	106	0.13	***	***
1	10	18.24	35.816	25.85	5.44	106	0.13	***	***
1	20	18.21	35.817	25.86	5.44	106	0.14	***	***
1	30	18.15	35.817	25.88	5.45	106	0.13	***	***
1	40	18.03	35.812	25.90	5.47	106	0.14	***	***
1	50	16.67	35.632	26.09	5.47	103	0.17	***	***
1	65	16.06	35.615	26.23	5.14	96	0.28	***	***
1	85	15.99	35.608	26.23	5.04	94	0.33	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 229/65	1/ 4/65	1450 J	35 18 S	135 10 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
128	11.7	18.3	20	3	11	4	5	7	20	2	22	4	1019.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.22	35.838	25.62	5.25	104	0.12	***	***
1	10	19.18	35.838	25.63	5.26	104	0.11	***	***
1	20	19.12	35.837	25.65	5.24	104	0.11	***	***
1	30	19.11	35.837	25.65	5.24	104	0.11	***	***
1	40	19.11	35.837	25.65	5.26	104	0.11	***	***
1	50	19.05	35.827	25.66	5.29	105	0.12	***	***
1	75	18.56	35.782	25.75	5.37	105	0.12	***	***
1	100	15.84	35.701	26.34	4.81	89	0.34	***	***
1	120	15.84	35.700	26.34	4.80	89	0.34	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 230/65	1/ 4/65	1709 J	35 36 S	134 50 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
1744	12.8	16.7	23	4	11	6	2	8	23	2	22	4	1019.5	0	0	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	19.61	35.907	25.57	5.25	105	0.08	***	***
2	25	19.73	35.952	25.58	5.25	105	0.06	***	***
2	50	19.46	35.901	25.61	5.21	104	0.06	***	***
2	75	16.33	35.475	26.05	5.09	95	0.14	***	***
2	100	14.60	35.293	26.30	5.84	105	0.20	***	***
2	150	13.97	35.377	26.50	5.50	98	0.30	***	***
2	200	12.85	35.268	26.65	5.47	95	0.44	***	***
2	300	12.08	35.211	26.76	5.47	93	0.53	***	***
1	500	9.15	34.713	26.89	5.45	87	1.01	***	***
1	700	7.55	34.521	26.98	4.82	74	1.40	***	***
1	900	5.53	34.423	27.18	4.40	64	1.74	***	***
1	1100	3.84	34.426	27.37	4.25	59	1.94	***	***
1	1300	3.11	34.489	27.49	3.92	53	2.04	***	***
1	1500	2.80	34.561	27.58	3.82	52	2.07	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 231/65	1/ 4/65	1955 J	35 53 S	134 29 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
2889	11.7	17.8	22	4	11	*	8	7	22	3	22	4	1020.0	5	0	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	17.87	35.425	25.65	5.46	105	0.19	***	***
2	25	17.87	35.425	25.65	5.45	105	0.15	***	***
2	50	17.58	35.414	25.71	5.46	105	0.16	***	***
2	75	14.11	35.281	26.40	5.79	103	0.24	***	***
2	100	13.38	35.276	26.55	5.55	97	0.35	***	***
2	150	12.90	35.302	26.67	5.46	95	0.43	***	***
2	200	12.55	35.286	26.72	5.49	95	0.47	***	***
2	300	11.62	35.139	26.79	5.49	93	0.51	***	***
1	500	9.31	34.735	26.88	5.49	88	1.02	***	***
1	700	7.98	34.554	26.95	5.10	79	1.30	***	***
1	900	5.75	34.430	27.16	4.42	65	1.72	***	***
1	1100	3.85	34.419	27.36	4.23	59	1.97	***	***
1	1300	3.07	34.503	27.50	3.90	53	2.03	***	***
1	1500	2.73	34.580	27.60	3.81	51	2.06	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 232/65	1/ 4/65	2240 J	36 06 S	134 11 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
3310	11,7	16,7	17	4	11	8	5	7	17	3	21	4	1021.0	0	0	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	17.25	35.226	25.65	5.55	105	0.20	***	***
2	25	17.26	35.225	25.64	5.56	106	0.20	***	***
2	50	17.12	35.269	25.71	6.10	116	0.18	***	***
2	75	14.06	35.184	26.34	5.77	103	0.29	***	***
2	100	13.23	35.228	26.54	5.52	97	0.37	***	***
2	150	12.51	35.217	26.68	5.51	95	0.47	***	***
2	200	12.42	35.259	26.73	5.54	95	0.49	***	***
2	300	11.13	35.034	26.80	5.48	91	0.67	***	***
1	500	9.05	34.688	26.89	5.50	87	1.07	***	***
1	700	7.96	34.549	26.95	5.09	79	1.33	***	***
1	900	5.76	34.424	27.15	4.46	65	1.71	***	***
1	1100	3.91	34.419	27.36	4.23	59	1.96	***	***
1	1300	3.08	34.494	27.50	3.90	53	2.03	***	***
1	1500	2.71	34.581	27.60	3.83	52	2.06	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 233/65	2/ 4/65	0233 J	36 21 S	134 51 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
4352	11.1	16.1	20	3	11	*	0	8	20	2	21	4	1021.0	0	0	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	17.34	35.373	25.74	5.53	105	0.20	***	***
2	25	17.34	35.368	25.73	5.57	106	0.21	***	***
2	50	17.34	35.366	25.73	5.49	105	0.20	***	***
2	75	14.32	35.152	26.26	5.82	104	0.26	***	***
2	100	12.79	35.115	26.54	5.60	97	0.47	***	***
2	150	12.66	35.242	26.67	5.53	96	0.49	***	***
2	200	12.46	35.264	26.72	5.53	95	0.54	***	***
2	300	11.41	35.097	26.80	5.52	93	0.63	***	***
1	500	9.16	34.711	26.89	5.52	88	1.02	***	***
1	700	7.90	34.544	26.95	5.08	78	1.32	***	***
1	900	5.64	34.436	27.17	4.48	65	1.71	***	***
1	1100	3.88	34.421	27.36	4.24	59	2.00	***	***
1	1300	3.03	34.503	27.51	3.91	53	2.06	***	***
1	1500	2.69	34.588	27.61	3.84	52	2.06	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 234/65	2/ 4/65	0616 J	36 37 S	135 31 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
4535	10,0	16,1	17	1	11	8	6	8	17	2	22	4	1021.9	0	0	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	17.79	35.433	25.67	5.45	105	0.22	***	***
2	25	17.61	35.417	25.71	5.47	105	0.15	***	***
2	50	17.41	35.307	25.67	5.56	106	0.15	***	***
2	75	14.02	35.250	26.40	5.73	102	0.25	***	***
2	100	13.32	35.252	26.54	5.55	97	0.37	***	***
2	150	12.63	35.263	26.69	5.47	94	0.47	***	***
2	200	12.20	35.224	26.74	5.56	95	0.49	***	***
2	300	11.27	35.078	26.81	5.56	93	0.66	***	***
1	500	9.17	34.717	26.89	5.56	89	1.03	***	***
1	700	7.95	34.551	26.95	5.09	79	1.31	***	***
1	900	5.78	34.434	27.15	4.44	65	1.69	***	***
1	1100	3.87	34.420	27.36	4.26	59	1.97	***	***
1	1300	3.08	34.493	27.50	3.90	53	2.05	***	***
1	1500	2.73	34.574	27.59	3.85	52	2.05	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 235/65	2/ 4/65	0948 J	36 59 S	135 59 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
4645	11.7	16.7	16	2	11	8	8	7	00	0	22	4	1022.0	0	0	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	17.96	35.499	25.68	5.38	104	0.14	***	***
2	25	17.92	35.508	25.70	5.38	104	0.13	***	***
2	50	17.24	35.355	25.75	5.49	104	0.14	***	***
2	75	13.97	35.175	26.35	5.71	101	0.25	***	***
2	100	13.42	35.267	26.53	5.50	97	0.35	***	***
2	150	12.78	35.310	26.69	5.41	94	0.44	***	***
2	200	12.30	***	***	5.55	***	0.48	***	***
2	300	11.10	35.046	26.81	5.52	92	0.66	***	***
1	500	9.24	34.723	26.88	5.52	88	1.00	***	***
1	700	8.00	34.554	26.94	5.13	79	1.29	***	***
1	900	5.91	34.439	27.14	4.45	65	1.67	***	***
1	1100	3.86	34.425	27.37	4.20	58	1.86	***	***
1	1300	3.06	34.499	27.50	3.91	53	2.05	***	***
1	1500	2.70	34.587	27.60	3.82	52	2.03	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 236/65	2/ 4/65	1333 J	36 42 S	136 38 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
622	15.6	19.4	22	1	11	3	6	7	00	0	22	4	1021.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.08	35.809	25.64	5.31	105	0.05	***	***
1	25	19.02	35.817	25.66	5.25	104	0.08	***	***
1	50	19.02	35.817	25.66	5.20	103	0.08	***	***
1	75	17.02	35.640	26.02	5.44	103	0.16	***	***
1	100	15.18	35.542	26.37	5.18	95	0.27	***	***
1	150	14.68	35.487	26.44	5.17	93	0.33	***	***
1	200	13.97	35.393	26.52	5.36	95	0.35	***	***
1	300	12.03	35.196	26.75	5.42	92	0.56	***	***
1	600	8.58	34.624	26.91	5.46	86	1.13	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 237/65	2/ 4/65	1646 J	36 25 S	136 00 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
238	13.3	17.2	18	3	11	1	6	7	18	1	18	4	1020.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.03	35.744	25.60	5.26	104	0.12	***	***
1	10	18.88	35.733	25.63	5.24	103	0.13	***	***
1	20	18.86	35.723	25.63	5.25	103	0.14	***	***
1	30	18.81	35.713	25.63	5.25	103	0.11	***	***
1	40	18.75	35.692	25.63	5.26	103	0.11	***	***
1	50	18.60	35.657	25.64	5.29	104	0.11	***	***
1	75	15.59	35.575	26.30	5.21	96	0.29	***	***
1	100	14.80	35.509	26.43	5.21	94	0.32	***	***
1	150	13.96	35.395	26.52	5.40	96	0.32	***	***
1	200	13.17	35.299	26.61	5.42	95	0.43	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 238/65	2/ 4/65	1949 J	35 51 S	136 00 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
135	12.8	16.7	04	2	11	8	2	8	04	1	20	4	1020.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.88	35.769	25.66	5.30	104	0.13	***	***
1	10	18.86	35.774	25.67	5.28	104	0.12	***	***
1	20	18.73	35.757	25.69	5.27	103	0.11	***	***
1	30	18.70	35.757	25.69	5.25	103	0.12	***	***
1	40	18.70	35.757	25.69	5.24	103	0.11	***	***
1	50	18.70	35.758	25.70	5.25	103	0.11	***	***
1	75	18.28	35.687	25.75	5.34	104	0.12	***	***
1	100	15.91	35.604	26.25	5.27	98	0.21	***	***
1	120	15.29	35.570	26.37	5.00	92	0.27	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 239/65	2/ 4/65	2211 J	35 25 S	136 00 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
102	12.8	16.7	36	1	11	6	2	7	00	0	18	1	1019.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.24	35.877	25.90	5.39	105	0.14	***	***
1	10	18.23	35.877	25.90	5.42	105	0.13	***	***
1	20	18.15	35.886	25.93	5.40	105	0.14	***	***
1	30	18.04	35.901	25.97	5.41	105	0.13	***	***
1	40	17.88	35.877	25.99	5.44	105	0.13	***	***
1	50	16.65	35.638	26.10	5.46	103	0.19	***	***
1	75	14.91	35.507	26.40	4.78	87	0.38	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 240/65	3/ 4/65	0001 J	35 05 S	136 00 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
84	12.8	16.7	06	1	11	*	0	7	00	0	20	4	1018.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.07	35.886	25.95	5.41	105	0.16	***	***
1	10	18.05	35.885	25.96	5.43	105	0.15	***	***
1	20	17.98	35.881	25.97	5.45	106	0.14	***	***
1	30	17.79	35.870	26.01	5.44	105	0.15	***	***
1	40	17.79	35.909	26.04	5.40	104	0.15	***	***
1	50	17.58	35.867	26.06	5.34	103	0.16	***	***
1	75	15.87	35.641	26.29	4.90	91	0.54	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 241/65	3/ 4/65	0152 J	34 58 S	136 22 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
48	12.8	16.7	04	2	11	*	0	7	04	2	02	1	1018.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.77	36.694	26.13	5.07	102	0.12	***	***
1	10	19.78	36.703	26.14	5.08	102	0.11	***	***
1	20	19.79	36.706	26.14	5.04	102	0.10	***	***
1	30	19.85	36.734	26.14	5.04	102	0.10	***	***
1	40	19.90	36.765	26.15	5.05	102	0.11	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 242/65	3/ 4/65	0325 J	34 45 S	136 33 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
44	12.2	17.8	36	2	11	*	0	8	36	2	*	0	1018.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.51	37.138	26.27	4.96	102	0.09	***	***
1	10	20.47	37.162	26.30	4.97	102	0.09	***	***
1	20	20.49	37.166	26.30	4.91	101	0.11	***	***
1	35	20.51	37.168	26.30	4.91	101	0.10	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 243/65	3/ 4/65	0457 J	34 31 S	136 45 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
42	11.7	17.2	35	3	11	*	0	8	35	2	00	0	1012.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.58	37.433	26.48	5.06	104	0.10	***	***
1	10	20.53	37.418	26.48	5.01	103	0.09	***	***
1	20	20.54	37.452	26.50	4.97	102	0.06	***	***
1	35	20.84	37.655	26.58	4.82	100	0.10	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 244/65	3/ 4/65	0630 J	34 15 S	136 56 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
34	12.2	18.3	02	3	11	4	2	9	02	2	00	0	1012.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.59	37.399	26.45	4.99	103	0.06	***	***
1	10	20.69	37.483	26.49	5.01	103	0.05	***	***
1	25	20.70	37.770	26.70	4.85	100	0.06	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 245/65	3/ 4/65	0815 J	34 00 S	137 10 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
20	12.8	18.9	01	3	11	1	1	8	01	2	*	0	1017.5	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.87	38.253	27.02	4.79	100	0.11	***	***
1	7	20.68	38.247	27.07	4.79	99	0.10	***	***
1	17	20.68	38.245	27.07	4.78	99	0.10	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 246/65	3/ 4/65	1212 J	34 51 S	136 56 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
47	16.1	23.9	35	4	11	1	7	8	35	3	00	0	1015.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.68	37.298	26.35	4.97	102	0.12	***	***
1	10	20.65	37.311	26.37	4.98	102	0.09	***	***
1	20	20.62	37.312	26.37	4.87	100	0.11	***	***
1	30	20.59	37.315	26.39	4.94	102	0.10	***	***
1	40	20.60	37.317	26.38	4.95	102	0.10	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 247/65	3/ 4/65	1336 J	34 48 S	136 38 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
48	11.7	25.6	02	3	11	1	5	7	02	2	00	0	1012.0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.58	37.084	26.21	5.02	103	0.11	***	***
1	10	20.39	37.100	26.28	5.03	103	0.12	***	***
1	20	20.40	37.136	26.30	4.99	102	0.12	***	***
1	30	20.39	37.154	26.32	4.97	102	0.12	***	***
1	40	20.40	37.154	26.31	5.00	102	0.11	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 248/65	3/ 4/65	1458 J	34 46 S	136 21 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
44	17.2	23.9	*	1	11	1	5	7	02	1	00	0	1012.5	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.11	36.820	26.14	5.09	103	0.12	***	***
1	9	19.97	36.814	26.17	5.13	104	0.12	***	***
1	19	19.98	36.816	26.17	5.05	102	0.12	***	***
1	29	19.88	36.814	26.19	5.07	102	0.12	***	***
1	39	19.90	36.815	26.19	5.09	103	0.12	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 5/ 249/65	3/ 4/65	1614 J	34 44 S	136 04 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
22	15,0	17,8	27	2	11	2	7	7	27	2	00	0	1012,0	0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.84	36.011	25.85	5.27	104	0.17	***	***
1	9	18.58	36.001	25.91	5.26	103	0.17	***	***
1	19	18.57	35.999	25.91	5.28	103	0.22	***	***

OCEANOGRAPHICAL CRUISE REPORTS

1. Oceanographical observations in the Indian Ocean in 1959. H.M.A.S. *Diamantina* Cruises Dm1/59 and Dm2/59.
2. Oceanographical observations in the Indian Ocean in 1960. H.M.A.S. *Diamantina* Cruise Dm1/60.
3. Oceanographical observations in the Indian Ocean in 1960. H.M.A.S. *Diamantina* Cruise Dm2/60.
4. Oceanographical observations in the Indian Ocean in 1960. H.M.A.S. *Diamantina* Cruise Dm3/60.
5. Oceanographical observations in the Pacific Ocean in 1960. H.M.A.S. *Gascoyne* Cruises G1/60 and G2/60.
6. Oceanographical observations in the Pacific Ocean in 1960. H.M.A.S. *Gascoyne* Cruise G3/60.
7. Oceanographical observations in the Indian Ocean in 1961. H.M.A.S. *Diamantina* Cruise Dm1/61.
8. Oceanographical observations in the Pacific Ocean in 1961. H.M.A.S. *Gascoyne* Cruise G1/61.
9. Oceanographical observations in the Indian Ocean in 1961. H.M.A.S. *Diamantina* Cruise Dm2/61.
10. Oceanographical observations in the Indian and Pacific Oceans in 1961. H.M.A.S. *Gascoyne* Cruise G2/61.
11. Oceanographical observations in the Indian Ocean in 1961. H.M.A.S. *Diamantina* Cruise Dm3/61.
12. Oceanographical observations in the Pacific Ocean in 1961. H.M.A.S. *Gascoyne* Cruise G3/61.
13. Oceanographical observations in the Pacific Ocean in 1962. H.M.A.S. *Gascoyne* Cruise G1/62.
14. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm1/62.
15. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm2/62.
16. Oceanographical observations in the Pacific and Indian Oceans in 1962. H.M.A.S. *Gascoyne* Cruises G2/62 and G3/62.
17. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Gascoyne* Cruise G4/62.
18. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm3/62.
19. Oceanographical observations in the Pacific Ocean in 1962. H.M.A.S. *Gascoyne* Cruise G5/62.
20. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm4/62.
21. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Gascoyne* Cruise G1/63.
22. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Gascoyne* Cruise G2/63.
23. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Diamantina* Cruise Dm1/63.
24. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Diamantina* Cruise Dm2/63.
25. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Diamantina* Cruise Dm3/63.
29. Oceanographical observations in the Pacific Ocean in 1963. H.M.A.S. *Gascoyne* Cruise G4/63.
31. Oceanographical observations in the Pacific Ocean in 1963. H.M.A.S. *Gascoyne* Cruise G5/63.
32. Oceanographical observations in the Pacific Ocean in 1964. H.M.A.S. *Gascoyne* Cruise G1/64.
34. Oceanographical observations in the Indian Ocean in 1964. H.M.A.S. *Gascoyne* Cruise G2/64.
46. Oceanographical observations in the Indian Ocean in 1965. H.M.A.S. *Gascoyne* Cruise G5/65.