OCEANOGRAPHICAL OBSERVATIONS
IN THE INDIAN OCEAN IN 1962
H.M.A.S. *DIAMANTINA*
Cruise Dm 4/62

OCEANOGRAPHICAL CRUISE REPORT NO. 20

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

OCEANOGRAPHICAL CRUISE REPORT

No. 20

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H.M.A.S. DIAMANTINA

Cruise Dm4/62

(Seasonal Biological Cruise No. 2)

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION,
AUSTRALIA
MELBOURNE, 1967

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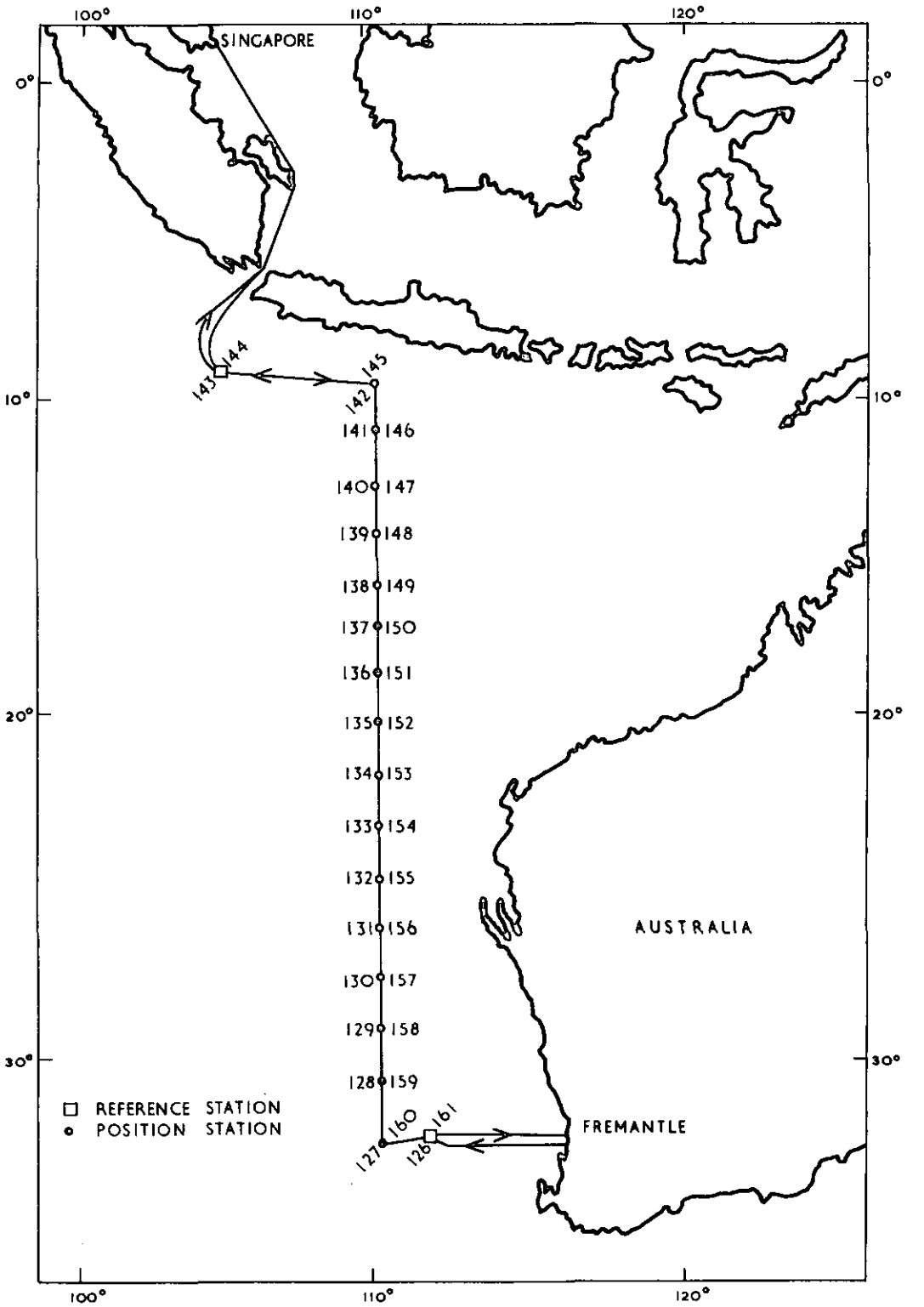
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OCEANOGRAPHICAL CRUISE REPORT

No. 20

Oceanographical Observations in the Indian Ocean in 1962

H.M.A.S. DIAMANTINA

Cruise Dm4/62

October 15 - November 13, 1962

I. INTRODUCTION

This report records the data for the fourth cruise in 1962 of H.M.A.S. Diamantina, Royal Australian Navy frigate, in the Indian Ocean; it was the second of the seasonal biological cruises.

Objectives

To determine zooplankton biomass, primary production, pigments, and micronekton abundance along the 110°E. meridian; to examine the environmental factors likely to influence these biological properties, and their inter-relations with particular reference to the dynamics of production.

Itinerary

The cruise commenced at Fremantle on October 15, occupied SCOR-UNESCO Reference Station 1, and a series of stations north along the 110°E. meridian to SCOR-UNESCO Reference Station 2, proceeded through Sunda Strait to Singapore and then back along the same route to Fremantle (Fig. 1).

Scientific Personnel

H. Jitts (Cruise Leader)
N. Dyson
A. Heron
J. Klye
B. Wauthy (Institut Francais d'Oceanie, New Caledonia)
Chan Kwan-Ming (UNESCO Fellow, from Cooperative Development and Fisheries Department, Hong Kong)

Salinity, oxygen, inorganic phosphate, and total phosphorus determinations were done in the ship's laboratory by Mr Klye. Nitrate analyses were done at Cronulla by Mr Staniforth. The primary production samples were incubated and counted aboard by Mr Dyson. The samples for pigment determination were taken aboard by Mr Dyson, and the analyses were done at Cronulla by Mr Wootton. The zooplankton samples were weighed at Cronulla by Mr Tranter. The micronekton samples were weighed at Noumea. The data were processed under the direction of Mr Hedge, by Mrs Bailey, Miss Hammond, Mrs Sander, and Miss Wanstall. The track chart was prepared for publication by Mr Breach and Mrs Cozens.

II. WORK ACCOMPLISHED

Thirty-six stations were worked (Dm4/126/62-Dm4/161/62). Bathythermograph casts were made at 36 stations. Subsurface hydrology samples were collected at 36 stations, primary production and pigments at 36 stations, zooplankton at 32 stations and micronekton at 15 stations.

TABLE 1

WORK DONE AT EACH STATION

Stn No.	BT	Hydrology 1	Hydrology 2	Primary Production	Pigments	Zooplankton 1	Zooplankton 2	Micro-nekton
126	+	+		+	+	+	+	+
127	+	+		+	+	+	+	
128	+		+	+	+	+	+	+
129	+	+		+	+	+		
130	+		+	+	+	+	+	+
131	+	+		+	+	+	+	
132	+		+	+	+	+	+	+
133	+	+		+	+	+	+	
134	+		+	+	+	+	+	+
135	+	+		+	+		+	
136	+		+	+	+			+
137	+	+		+	+			
138	+		+	+	+	+	+	+
139	+			+	+		+	
140	+		+	+	+	+	+	+
141	+	+		+	+		+	
142	+	+		+	+	+	+	+
143	+	+		+	+			
144	+	+		+	+	+	+	
145	+		+	+	+	+	+	
146	+		+	+	+	+	+	+
147	+	+		+	+	+	+	
148	+		+	+	+	+		+
149	+	+		+	+	+		
150	+		+	+	+	+	+	+
151	+	+		+	+	+	+	
152	+		+	+	+	+	+	+
153	+	+		+	+	+	+	
154	+		+	+	+		+	
155	+	+		+	+	+		
156	+		+	+	+	+	+	
157	+	+		+	+	+		
158	+		+	+	+	+	+	+
159	+	+		+	+		+	
160	+		+	+	+	+		+
161	+	+		+	+			

BT		Bathythermograms
Hydrology	1	Surface to bottom
	2	Surface to 500 m
Zooplankton	1	Indian Ocean Standard Net (IOSN) hauls. From Station 138 these hauls were replaced by Clarke-Bumpus Sampler (CBS) tows
	2	CBS horizontal tows

III. METHOD OF COLLECTION AND ANALYSIS OF SAMPLES

1. Physics

Temperature.- Water temperatures were taken with deep-sea reversing thermometers: protected thermometers with a range of -2°C to 30°C, and unprotected thermometers with a range of -2°C to 30°C, or -4°C to 60°C. The accuracy of the temperatures is considered to be $\pm$ 0.03 deg C.

Bathythermograms.- A 900 ft bathythermograph was used at the stations indicated in Table 1. A photograph of each slide is filed at Cronulla.

Thermometric Depth.- Depth calculations were made by the method described by Pollak (1950), and are considered accurate to $\pm$ 15 m at depths greater than 1000 m and to 1% above that depth.

Sigma-t.- Sigma-t values were calculated by computer, using the Table of σ_t given by La Fond (1951).

2. Chemistry

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

Dissolved Oxygen.- The standard Winkler method (Jacobsen, Robinson and Thompson 1950) was used with potassium iodate as the iodometric standard. Samples were collected in 275-300 ml capacity bottles and 100 ml duplicate aliquots were titrated to a starch end point. Values are given as ml/l. Duplicate titrations agreed to better than 0.03 ml/l of oxygen.

Oxygen Saturation.- Oxygen percentage saturation values were calculated by computer using the equation of Richards and Corwin (1956).

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 a 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 minutes of adding reagents, and completed within 10 minutes. At air temperatures greater than 25°C batches of 6 were analysed; readings were begun within 5 minutes of adding reagents and completed within 7 minutes. 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. If it is wished to correct for salt effects, the results given should be multiplied by 1.15.

Total Phosphorus.- 100 ml samples were drawn from the Nansen bottles into 150 ml Pyrex conical flasks, 0.2 ml of 72% perchloric acid was added and digestion at 200°-250°C carried out immediately on a sand tray. After evaporation of water, heating was continued until fuming of the salt residue commenced. The samples were then allowed to cool and 100 ml of distilled water and 2 drops of 2% w/v phenolphthalein were added. If alkaline, perchloric acid was added until a slight acidity persisted. The flasks were allowed to stand for about 24 hours to allow the salts to dissolve. Phosphate was then determined as described above for inorganic phosphate. Results are given as µg-atom/l, without salt correction. If it is wished to correct for salt effects, the results given should be multiplied by 1.15.

Nitrate.- After collection, water samples were stored in plastic bottles and preserved with 2 drops of saturated $HgCl_2$. Nitrate was determined at Cronulla by the strychnidine method (Rochford 1947). The reagent was prepared by adding 0.64 g strychnidine to a litre of nitrate-free sulphuric acid. 5 ml of this reagent were added, with minimum agitation, to 5 ml seawater or standard nitrate solution. The standards were made up in a mixture of equal volumes of

artificial seawater and nitrate-free sulphuric acid. The standards and samples were shaken to distribute the reagent, and the colour developed for 2 hours. The solutions were read in a Unicam SP 600 spectrophotometer at a wavelength of 530 mμ using a 5 mm cell. Samples with an absorbance greater than that of the standard corresponding to 14.4 μg-atom/l were diluted with artificial seawater - sulphuric acid mixture before reading. Results are given in μg-atom/l.

3. Primary Production

Water samples were aliquots of those taken in the twin 6 l. plastic sampler for pigment measurements. The ^{14}C method described by Dyson et al. (1965) was used.

The samples were poured into 300 ml Pyrex bottles and incubated (a) in situ, (b) in a simulated in situ incubator, or (c) in artificial light constant at 1100 ft candles. Geiger counting was done on board with a windowless counter.

4. Pigments

Water samples were taken with a plastic sampler and filtered within one or two hours through HA Millipore filters. The filters were placed in envelopes and stored in a refrigerator in metal desiccators over silica gel. The analyses were carried out at Cronulla using the method given by Humphrey (1960), except that 4 cm cells were used in the Unicam SP 600 spectrophotometer and 9 ml 90% acetone were used for extraction.

5. Zooplankton

Sampling consisted of

(a) Vertical hauls through the upper 200-0 m with the Indian Ocean Standard Net (IOSN). From Station 138 Clarke-Bumpus Samplers (CBS) were used to sample the water column.

(b) CBS horizontal tows within the 200-0 m stratum.

(a) Vertical Hauls 200-0 m: The IOSN was used in the standard manner (Currie 1963), except that a heavier (100 lb)

weight was attached to keep the net under control; this was replaced with a 30 lb weight during washing operations. No flowmeter was used. Wire angle averaged 20° and never exceeded 40°. The length of wire paid out to place the net at 200 m varied from 200-260 m with a mean of 214 m.

Samples were removed from the net in the following manner:

The plankton bucket was detached, the contents were poured into a larger container and the bucket replaced. The net was lowered into the water up to the ring and raised again, and the washings collected as before; remnants still adhering to the codend were washed into the bucket by slopping water from the outside. Finally the net was lowered into the water and washed through without the bucket attached.

Sampling was in duplicate, the one haul immediately following the other. One sample is lodged with the Indian Ocean Biological Centre, Cochin, India; the other is at Cronulla.

The IOSN was lost during this cruise and the CBS used as a substitute. Two units were attached one above the other and hauled simultaneously. At day stations the tow was of the "double oblique" character, from surface-200 m-surface, the duration of the tow being 45 minutes; the wire angle was kept within the limits 45°-60°, the ship's speed being 2-3 kt. At night stations samplers were attached to the warp of the midwater trawl. The resulting tow differed considerably from that at day stations. The trawl was paid out to an estimated depth of 200 m at a ship's speed of 5 kt; the length of warp was 700 m and the wire angle was considerably in excess of 60°; the trawl was then recovered at a ship's speed of 2-3 kt, the tow lasting 1-1$\frac{1}{2}$ hours.

(b) Horizontal Tows: Four CBS were towed simultaneously at approximately 200, 100, 50 and 0 m. The duration of the tow was approximately 45 minutes. The wire angle was kept within the limits 45-60°, the ship's speed being 2-3 kt. Depth recorders (Hamon, Tranter, and Heron 1963) were attached. These record both the depth range and the modal depth. CBS were washed by hand in the ship's laboratory and the entire catch removed.

Storage of Samples

Samples were concentrated in the shipboard laboratory and stored in plastic bottles. Neutralized formalin was added to a final concentration of 10%.

Biomass Determination

Biomass was determined at Cronulla approximately one month after the end of the cruise. Each sample was strained off in a weighing dish and allowed to drain. Weighing dishes with a base of 7 cm^2 and 80 meshes per inch gauze were used for CB samples, and ones with a base of 25 cm^2 and 60 meshes per inch gauze were used for IOSN samples. The drained sample was then washed several times in 50% alcohol to remove extraneous water and allowed to drain on an absorbent cloth which was repeatedly wrung dry. When the samples began to show signs of friability the weighing dish was carefully dried and the sample weighed. The entire operation took 5-10 minutes, depending on the size of the sample. Samples containing large quantities of gelatinous material took longer. The routine procedure was to weigh the entire catch, and where exceptionally large organisms occurred (weighing more than half the rest of the catch), to make a second weighing without them.

Estimation of Volume Filtered

In estimating volume filtered by the IOSN it was assumed that 1 metre of wire out results in 1 m^3 of water filtered (the mouth area of the net being 1 m^2). Estimates of volume filtered by CBS are based on flowmeter readings referred to calibrations made before and after the cruise (Tranter 1962).

6. Micronekton

The micronekton programme, more correctly termed the midwater trawl programme, consisted of oblique tows through the upper 200 m layer with a 5 ft Isaacs-Kidd midwater trawl. The tows were made at every night station. The programme was conducted, in the field and in the laboratory, by the staff of the Laboratoire d'Oceanographie of the Institut Francais d'Oceanie, Noumea.

On the Ship

The gear consisted of a 5 ft Isaacs-Kidd midwater trawl scaled down from the 6 ft trawl (King and Iversen 1962; Aron 1960). No flowmeter was used.

The trawl was fitted with a depth recorder (Hamon, Tranter, and Heron 1963) and lowered from the stern while the ship's speed was 2 kt. When the trawl was clear of the ship, speed was increased to 5 kt and the wire was paid out at 40-50 m per minute under a constant and minimum tension. After 600 m of wire had been paid out the ship's speed was reduced to 3 kt and further adjusted according to the reading of a tension gauge; a final 100 m was then paid out making the total 700 m. After 5 minutes the wire was retrieved at a winch speed of 9 m/min. The average time at which the tows were made was 10 p.m. The paying-out period averaged 15 minutes and the retrieval period 80 minutes.

The net was washed from outside into the bucket which was then removed from the net. The net was checked for organisms caught in the meshes (e.g. Leptocephali); these were removed. The samples were stored in neutralized 10% formalin, in plastic jars; larger organisms were stored separately.

In the Laboratory

Samples were sorted by taxa 1-2 months after collection. The wet volumes were measured by displacement and counts of subsamples were made. The taxa could be pooled into 4 main categories:

1. Gelatinous organisms (Medusae, Salps, Siphonophores) - no counts were made, the components very often being broken.

2. Planktonic organisms of relatively small size - no counts were made, the components being too numerous.

3. Macroplanktonic organisms - counts were made for each of the following components and in some cases for genus: Annelids, Pteropods, Heteropods, Chaetognaths, Amphipods, Stomatopods, Carids, Penaeids, Mysids, Euphausiids, Phyllosomas.

4. Micronektonic organisms - counts were made for each of the following components: Fishes, Fish larvae, Leptocephali, Cephalopods. Counts were made by species and by size for the fishes.

Categories 3 and 4 predominate in midwater trawl samples but are not clearly distinguished. Detailed results will be published separately; average conversion factors, determined for each taxa or category, were used to convert from wet volume to dry weight (the dry weight was obtained by keeping the sample at 60°, in an oven, until the weight remained constant - usually 24 hours). A table of conversion factors is given with the data.

Categories 1 and 2 are comparable to the organisms obtained by the usual conical plankton net. Results are expressed in dry weight per average tow (using the general average conditions for all stations - 15 minutes for paying out, 5 minutes for horizontal tow, 78 minutes for retrieval). Results are then directly comparable.

From the above data it is possible to obtain absolute values by a method already used by King and Iversen (1962) and Aron (1960). Assuming that (a) the speed of the trawl was known, (b) the trawl was working during paying out and retrieval in a manner proportional to the ship's speed, (c) all the water passing through a definite section of the net was filtered and (d) all the organisms passing through this section were caught, then the front end surface can be used to calculate the minimum value filtered. This gives the following results:

Assumed maximum volume of water filtered per average tow
$= 1.929\ m^2 \times 10{,}000\ m = 19{,}290\ m^3$

Assumed minimum volume of water filtered per average tow
$= 0.197\ m^2 \times 10{,}000\ m = 1{,}970\ m^3$

From these estimates of maximum and minimum volume filtered it is possible to convert the data (p.135) to mg/m^3 (minimal and maximal estimates).

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IV. DATA SHEETS

Hydrology data were processed in a C.D.C. 3600 Computer, and primary production and pigment data in an I.B.M. 1401 Computer. Explanations of the headings for each section are given at the beginning of the relevant part.

DATA

PART 1

HYDROLOGY

EXPLANATION OF HEADINGS

Part 1 — Hydrology

STATION — Gives the station identification. For example, Dm4/126/62 signifies the 126th station worked by Diamantina in 1962, on her 4th 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. The code letter used for the time zone (Table 2) follows the time

TABLE 2

CODE FOR TIME ZONES

Longitude Exceeding		Up to but not exceeding	Time Zone (hrs)	Code
07°30'E.	-	22°30'E.	-1	A
22°30'E.	-	37°30'E.	-2	B
37°30'E.	-	52°30'E.	-3	C
52°30'E.	-	67°30'E.	-4	D
67°30'E.	-	82°30'E.	-5	E
82°30'E.	-	97°30'E.	-6	F
97°30'E.	-	112°30'E.	-7	G
112°30'E.	-	127°30'E.	-8	H
127°30'E.	-	142°30'E.	-9	I
142°30'E.	-	157°30'E.	-10	K
157°30'E.	-	172°30'E.	-11	L
172°30'E.	-	180°	-12	M
180°	-	172°30'W.	+12	Y
172°30'W.	-	157°30'W.	+11	X
157°30'W.	-	142°30'W.	+10	W
142°30'W.	-	127°30'W.	+9	V
127°30'W.	-	112°30'W.	+8	U
112°30'W.	-	97°30'W.	+7	T
97°30'W.	-	82°30'W.	+6	S
82°30'W.	-	67°30'W.	+5	R
67°30'W.	-	52°30'W.	+4	Q
52°30'W.	-	37°30'W.	+3	P

Longitude Exceeding	Up to but not Exceeding	Time Zone (hrs)	Code
37°30'W.	- 22°30'W.	+2	O
22°30'W.	- 07°30'W.	+1	N
07°30'W.	- 07°30'E.	0	Z

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)
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. An asterisk indicates that the wire angle was not measured

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, TOTAL P and NITRATE	Given in µg-atom/l
***	Indicates no data available

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 126/62	16/10/62	1130 G	31 57 S	111 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
4938	11,7	17,2	25	1	16	8	6	8	25	1	25	1	1018,0	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
2	0	19,27	35,611	25,44	5,07	100	0,21	0,26	0,0
2	22	19,05	35,616	25,50	5,20	103	0,19	***	0,0
2	43	18,93	35,697	25,59	5,02	99	0,21	0,31	0,0
2	65	18,18	35,791	25,85	5,25	102	0,17	***	0,0
2	86	17,81	35,849	25,99	5,33	103	0,21	0,36	0,3
2	129	17,51	35,823	26,04	5,16	99	0,20	***	0,0
2	173	17,21	35,811	26,10	5,33	102	0,21	0,36	0,0
2	258	15,68	35,727	26,40	5,30	98	0,30	0,57	0,9
2	432	11,18	35,005	26,77	5,43	91	0,79	0,93	8,3
2	604	9,19	34,703	26,87	5,52	88	0,97	1,01	12,8
2	777	7,67	34,536	26,98	4,98	76	1,29	1,32	18,4
1	991	4,73	34,404	27,26	4,47	64	1,80	***	23,9
1	1171	4,19	34,528	27,41	3,80	53	2,00	2,04	27,0
1	1352	3,26	34,532	27,51	3,70	51	1,97	1,99	28,7
1	1807	2,59	34,669	27,68	3,67	49	1,97	1,99	27,1
1	2265	2,20	34,725	27,76	3,78	50	1,86	1,88	27,6
1	2729	1,84	34,731	27,79	3,99	53	1,92	1,96	24,5
1	3199	1,55	34,733	27,81	4,21	55	1,92	1,96	26,2
1	3674	1,32	34,724	27,82	4,36	57	1,86	1,88	25,7
1	4153	1,21	34,719	27,83	4,36	56	1,86	1,91	25,8

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 127/62	17/10/62	0815 G	32 00 S	110 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
5029	12,2	16,1	22	1	16	8	4	8	22	2	24	2	1017,5	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	18,88	35,663	25,58	5,20	102	0,20	0,37	0,0
2	24	18,77	35,663	25,60	5,20	102	0,17	***	0,0
2	48	18,68	35,760	25,70	5,20	102	0,17	0,36	0,2
2	73	18,31	35,801	25,83	5,00	97	0,22	***	0,4
2	98	17,44	35,794	26,03	5,08	97	0,31	0,42	0,7
2	148	16,42	35,795	26,28	5,14	96	0,28	***	0,4
2	197	15,12	35,630	26,45	5,13	94	0,39	0,63	1,6
2	296	12,47	35,225	26,69	5,34	92	0,58	0,86	4,9
2	494	9,61	34,766	26,85	5,56	89	0,95	1,68	10,6
2	691	8,32	34,592	26,93	5,15	80	1,20	1,73	17,0
2	888	5,32	34,430	27,21	4,24	61	1,70	1,89	26,8
1	952	4,86	34,434	27,27	4,02	57	1,88	2,08	28,8
1	1125	3,97	34,495	27,41	3,58	50	2,00	2,17	31,0
1	1300	3,36	34,522	27,49	3,56	49	2,06	2,19	21,7
1	1735	2,70	34,722	27,71	4,36	59	1,90	2,03	30,5
1	2325	2,26	34,656	27,70	3,57	48	2,00	2,17	30,4
1	2615	1,91	34,719	27,78	3,66	48	1,96	2,08	30,2
1	3065	1,69	34,728	27,80	3,87	51	1,98	2,14	31,5
1	3530	1,40	34,734	27,83	4,14	54	1,89	2,06	30,7
1	4015	1,25	34,727	27,83	4,32	56	1,86	2,03	30,7
1	4300	1,17	34,719	27,83	4,47	58	1,89	2,06	31,3

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 128/62	17/10/62	2100 G	30 30 S	110 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
5158	12,8	15,6	22	2	16	8	2	8	22	2	23	2	1016,9	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	19,08	35,726	25,57	***	***	***	***	***
1	24	17,15	***	***	***	***	***	***	***
1	47	16,37	35,752	26,26	***	***	***	***	***
1	71	15,44	35,652	26,39	***	***	***	***	***
1	94	14,91	35,606	26,48	***	***	***	***	***
1	141	14,64	35,599	26,53	***	***	***	***	***
1	188	13,70	35,435	26,60	***	***	***	***	***
1	282	11,86	35,121	26,73	***	***	***	***	***
1	471	9,68	34,778	26,85	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 129/62	18/10/62	0845 G	29 03 S	109 57 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
5394	12,8	17,2	29	1	16	2	7	8	29	1	22	1	1015,0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	19,12	35,662	25,92	5,21	103	0,20	0,28	0,0
2	25	18,82	35,662	25,99	5,20	102	0,17	***	0,3
2	50	18,79	35,667	25,60	5,19	102	0,20	0,31	0,0
2	75	18,25	35,707	25,77	5,17	101	0,20	***	0,3
2	100	18,17	35,806	25,87	5,12	99	0,20	0,27	0,1
2	150	16,57	35,756	26,21	5,24	99	0,20	***	0,1
2	200	15,51	35,662	26,38	5,23	96	0,27	0,41	0,8
2	300	12,91	35,268	26,64	5,33	93	0,51	0,65	3,5
2	500	9,39	34,729	26,86	5,96	89	0,96	1,09	13,2
2	700	7,86	34,538	26,95	5,04	78	1,26	1,37	19,8
2	900	4,82	34,434	27,27	4,03	58	1,83	1,96	30,4
1	1082	4,07	34,497	27,40	3,50	49	2,06	2,13	32,6
1	1279	3,41	34,553	27,51	3,43	47	2,08	2,32	29,9
1	1476	2,97	34,603	27,59	3,56	48	2,05	2,15	33,5
1	1968	2,35	34,711	27,73	3,60	48	1,99	2,18	36,4
1	2460	1,98	34,723	27,77	3,84	51	1,96	2,04	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 130/62	18/10/62	2000 G	27 30 S	110 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
5577	15,0	17,8	24	1	16	6	4	7	*	*	*	*	1013,5	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	20,17	35,589	25,18	***	***	***	***	***
1	25	20,02	35,593	25,23	***	***	***	***	***
1	50	19,64	35,685	25,40	***	***	***	***	***
1	75	19,28	35,746	25,54	***	***	***	***	***
1	100	18,96	35,793	25,65	***	***	***	***	***
1	150	17,90	35,800	25,93	***	***	***	***	***
1	200	16,39	35,758	26,26	***	***	***	***	***
1	300	13,03	35,320	26,65	***	***	***	***	***
1	500	9,46	34,748	26,87	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 131/62	19/10/62	0830 G	25 52 S	109 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
3895	14,4	18,3	26	1	16	6	6	8	26	2	26	1	1013,8	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	20,44	35,464	25,02	***		0,21	0,37	0,4
2	23	20,36	35,467	25,04	4,83	98	0,21	***	0,3
2	46	20,36	35,466	25,04	***	***	0,17	0,44	***
2	92	19,97	35,581	25,23	4,87	98	0,17	0,37	0,1
2	138	19,33	35,740	25,52	4,89	97	0,20	***	0,7
2	185	18,44	35,813	25,80	5,10	100	0,27	0,46	0,5
2	278	14,98	35,551	26,42	***	***	0,39	0,76	0,7
2	468	10,64	34,935	26,81	5,37	89	0,79	1,09	5,4
2	661	8,58	34,621	26,91	5,20	82	1,11	1,40	15,8
2	855	5,32	34,441	27,22	4,23	61	1,78	1,99	16,8
1	989	4,53	34,478	27,34	3,55	50	2,00	2,18	30,3
1	1178	4,01	34,560	27,46	3,66	51	2,06	2,22	31,9
1	1370	3,59	34,607	27,54	3,67	51	2,13	2,33	33,6
1	1857	2,60	34,699	27,70	3,71	50	2,02	2,22	28,6
1	2350	2,12	34,731	27,77	3,60	48	2,04	2,20	33,2
1	2845	1,79	34,725	27,79	3,84	51	2,00	2,14	29,6

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 132/62	19/10/62	2010 G	24 30 S	110 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
4936	16,1	19,4	22	2	16	6	3	7	24	2	24	1	1013,0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	21,23	35,305	24,68	***	***	***	***	***
1	25	20,81	35,444	24,90	***	***	***	***	***
1	50	20,42	35,566	25,10	***	***	***	***	***
1	75	20,26	35,585	25,16	***	***	***	***	***
1	100	19,89	35,665	25,32	***	***	***	***	***
1	150	18,48	35,591	25,62	***	***	***	***	***
1	200	17,80	35,827	25,97	***	***	***	***	***
1	300	14,68	35,541	26,48	***	***	***	***	***
1	500	9,78	34,816	26,87	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 133/62	20/10/62	0830 G	23 00 S	110 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
4938	16,7	20,0	25	1	16	6	2	8	21	2	21	1	1012,5	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
2	0	22,17	35,165	24,32	5,03	105	0,20	0,37	0,0
2	25	22,15	35,173	24,33	4,94	103	0,15	***	0,2
2	50	22,16	35,186	24,33	5,01	104	0,15	0,43	0,0
2	75	21,91	35,204	24,42	4,80	100	0,21	***	0,7
2	100	21,12	35,339	24,74	4,35	89	0,35	0,60	2,0
2	150	19,87	35,626	25,29	4,50	90	0,32	***	1,2
2	200	18,13	35,670	25,77	4,35	84	0,42	0,68	1,9
2	300	15,65	35,670	26,36	5,02	93	0,37	0,58	1,7
2	500	10,59	34,941	26,82	5,45	90	0,76	1,11	7,9
2	700	7,90	34,571	26,97	5,04	78	1,27	1,88	17,3
1	1076	4,69	34,613	27,43	2,69	38	2,15	2,56	30,1
1	1271	4,06	34,637	27,51	2,82	39	2,15	2,39	32,5
1	1467	3,41	34,647	27,59	3,04	42	2,14	2,43	35,2
1	1956	2,43	34,717	27,73	3,41	46	2,02	2,32	32,0
1	2445	1,99	34,731	27,78	3,63	48	1,99	2,36	32,0
1	2933	1,69	34,734	27,80	3,86	51	1,96	2,36	28,5
1	3422	1,40	34,733	27,82	4,23	55	1,89	2,13	31,2

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 134/62	20/10/62	2030 G	21 30 S	110 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
4938	17,8	20,0	15	2	16	8	5	8	15	2	15	1	1013,0	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	23,02	35,019	23,96	***	***	***	***	***
1	25	23,00	35,014	23,97	***	***	***	***	***
1	50	22,96	35,021	23,98	***	***	***	***	***
1	75	21,99	35,159	24,36	***	***	***	***	***
1	100	21,24	35,168	24,58	***	***	***	***	***
1	150	20,70	35,572	25,03	***	***	***	***	***
1	200	19,04	35,735	25,59	***	***	***	***	***
1	300	14,85	35,510	26,42	***	***	***	***	***
1	500	8,84	34,693	26,92	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 135/62	21/10/62	0830 G	19 59 S	110 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
4023	16,7	21,9	17	1	16	8	2	8	20	3	20	1	1015,2	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
3	0	23,57	34,947	23,75	4,79	102	0,21	0,42	0,2
3	22	23,53	34,961	23,77	3,58	76	0,23	***	0,1
3	43	23,52	34,960	23,77	4,64	99	0,21	0,52	0,1
3	64	23,06	35,042	23,97	3,79	80	0,28	***	0,1
3	85	22,65	35,100	24,13	3,78	79	0,30	0,60	0,1
3	127	21,74	35,133	24,41	4,15	86	0,50	***	2,6
3	169	19,91	35,299	25,03	3,74	75	0,66	0,88	9,9
3	253	17,54	35,650	25,90	4,07	78	0,53	0,78	5,8
3	421	10,24	34,893	26,85	4,85	79	1,00	1,27	10,6
1	980	5,04	34,641	27,41	2,28	33	2,32	2,72	32,3
1	1158	4,58	34,640	27,46	2,34	33	2,29	2,65	32,3
2	1282	4,12	34,647	27,51	2,52	35	2,29	2,61	31,1
2	1710	2,85	34,695	27,68	3,10	42	2,17	2,54	31,4

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 136/62	21/10/62	2045 G	18 30 S	110 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
4755	16,7	21,1	20	2	16	8	3	8	20	3	19	3	1016,0	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	23,12	35,019	23,93	***	***	***	***	***
1	25	23,12	35,002	23,92	***	***	***	***	***
1	50	23,05	35,027	23,96	***	***	***	***	***
1	75	22,57	35,109	24,16	***	***	***	***	***
1	100	22,07	35,162	24,34	***	***	***	***	***
1	150	20,14	35,266	24,95	***	***	***	***	***
1	200	18,78	35,511	25,49	***	***	***	***	***
1	300	14,45	35,346	26,38	***	***	***	***	***
1	500	8,80	34,704	26,94	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 137/62	22/10/62	0830 G	17 00 S	110 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
5541	18,3	23,9	11	1	16	8	6	8	11	3	19	2	1016,0	30	15	15

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
2	0	25,61	34,542	22,83	4,60	101	0,23	0,46	0,0
2	25	25,57	34,527	22,83	4,58	101	0,20	***	0,0
2	50	24,54	34,746	23,31	4,74	103	0,21	0,45	0,3
2	75	24,06	34,857	23,54	4,72	101	0,20	***	0,2
2	100	23,80	34,971	23,70	4,72	101	0,22	0,40	0,4
2	125	22,91	35,024	24,00	4,33	91	0,39	***	0,8
2	150	21,54	34,950	24,33	3,36	69	0,70	***	5,7
2	200	18,25	35,060	25,27	3,02	58	0,94	1,20	8,9
2	250	15,49	35,298	26,11	3,60	66	0,88	***	8,0
2	300	13,33	35,179	26,48	3,85	67	0,97	1,23	10,6
3	400	***	34,962	***	4,95	***	0,98	***	11,0
3	500	8,90	34,699	26,92	4,74	75	1,27	1,51	16,7
3	700	6,56	34,621	27,20	2,47	37	2,14	2,36	28,2
3	900	5,46	34,641	27,36	2,01	29	2,37	2,79	31,4
1	1019	4,96	34,644	27,42	2,14	31	2,30	2,72	31,1
1	1199	4,42	34,652	27,49	2,31	33	2,13	2,51	30,1
1	1379	3,86	34,674	27,56	2,60	36	2,27	2,51	30,1
1	1834	2,71	34,717	27,71	3,10	42	2,19	2,42	32,7
1	2298	2,13	34,748	27,78	3,81	51	2,14	2,38	32,0
1	2767	1,74	34,741	27,81	3,49	46	2,14	2,35	32,4
1	2243	1,46	34,735	27,82	3,95	52	2,04	2,27	29,8
1	3725	1,29	34,723	27,82	3,99	52	2,00	2,33	30,1

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 138/62	22/10/62	2030 G	15 30 S	110 00 E

SONIC DEPTH	AIR TEMP, WET	DRY	WIND DIR,	SP,	ANEM, HEIGHT	CLOUD TYPE	AMT,	VIS,	SEA DIR,	AMT,	SWELL DIR,	AMT,	ATMOS, PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
5486	18,3	22,8	15	2	16	8	6	8	15	3	16	2	1014,0	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	25,68	34,544	22,81	***	***	***	***	***
1	23	25,64	34,550	22,83	***	***	***	***	***
1	45	25,64	34,547	22,82	***	***	***	***	***
1	67	25,41	34,505	22,87	***	***	***	***	***
1	90	24,29	34,687	23,34	***	***	***	***	***
1	135	19,95	34,885	24,71	***	***	***	***	***
1	180	17,86	34,853	25,21	***	***	***	***	***
1	270	13,33	34,831	26,21	***	***	***	***	***
1	450	9,45	34,747	26,87	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 139/62	23/10/62	0830 G	14 02 S	109 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
6035	18.9	24.4	14	2	16	8	4	8	14	4	19	2	1012.2	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	26.60	34.496	22.49	4.54	102	0.20	0.46	0.3
2	23	26.57	34.491	22.49	4.52	101	0.18	***	0.2
2	46	26.61	34.487	22.48	4.60	103	0.18	0.41	0.2
2	68	26.55	34.485	22.49	4.56	102	0.18	***	0.1
2	92	26.44	34.466	22.51	4.60	103	0.22	0.51	0.1
2	115	25.82	34.392	22.65	4.45	98	0.21	***	0.2
2	138	25.03	34.526	23.00	3.65	80	0.53	***	2.6
3	184	17.77	34.766	25.17	2.59	50	1.13	1.40	14.2
1	1007	5.01	34.625	27.40	2.17	31	2.35	2.26	32.8
1	1190	4.43	34.629	27.47	2.28	32	2.30	2.49	26.2
1	1372	3.76	34.665	27.57	2.56	36	2.30	2.44	31.1
1	1830	2.74	34.721	27.71	2.95	40	2.26	2.42	34.2

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 140/62	23/10/62	2130 G	12 38 S	109 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
4572	20,0	25,0	14	1	16	6	4	8	16	3	16	2	1011,0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	26,75	34,615	22,53	***	***	***	***	***
1	25	26,75	34,579	22,50	***	***	***	***	***
1	50	26,79	34,569	22,48	***	***	***	***	***
1	75	25,90	34,406	22,64	***	***	***	***	***
1	100	24,43	34,384	23,07	***	***	***	***	***
1	150	22,88	34,427	23,56	***	***	***	***	***
1	200	17,49	34,633	25,13	***	***	***	***	***
1	300	12,35	34,557	26,20	***	***	***	***	***
1	500	8,69	34,706	26,96	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 141/62	24/10/62	0845 G	10 54 S	110 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
4938	21,1	26,7	16	1	16	1	5	8	*	*	18	1	1010,0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	26,69	34,506	22,47	4,57	102	0,21	0,41	0,3
2	24	26,59	34,498	22,49	4,54	102	0,17	***	0,2
2	48	21,72	34,448	23,90	3,29	68	0,77	0,94	6,5
2	72	19,78	34,475	24,44	2,89	57	1,04	***	11,4
2	96	17,95	34,530	24,94	2,69	52	1,15	1,30	7,2
2	120	16,80	34,552	25,24	2,68	50	1,23	***	17,9
2	144	15,60	34,663	25,60	2,63	48	1,30	***	15,0
2	191	13,50	34,699	26,08	2,51	44	1,44	1,66	20,6
2	239	11,58	34,717	26,47	2,47	42	1,58	***	20,5
2	287	10,37	34,716	26,69	2,52	41	1,76	1,85	25,6
2	382	8,66	34,638	26,91	2,30	36	1,95	***	27,2
2	477	7,99	34,691	27,05	1,94	30	2,11	2,31	30,4
2	668	6,33	34,618	27,23	2,17	32	2,30	2,39	30,7
2	858	5,17	34,625	27,38	2,27	33	2,34	2,42	30,7
1	1054	4,40	34,634	27,47	2,57	36	2,35	2,47	32,0
1	1252	4,03	34,685	27,55	2,64	37	2,34	2,47	33,7
1	1450	3,46	34,713	27,63	2,57	35	2,27	2,57	32,7
1	1948	2,43	34,741	27,75	3,15	42	2,18	2,30	30,7
1	2447	1,98	34,739	27,79	3,48	46	2,15	2,26	34,2
1	2947	1,65	34,726	27,80	3,76	49	2,14	2,27	30,2
1	3447	1,32	34,721	27,82	4,11	53	2,10	2,18	33,2
1	3947	1,17	***	***	4,26	***	2,04	2,21	30,7

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 142/62	24/10/62	2020 G	9 30 S	110 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
1189	22,2	26,1	13	1	16	2	5	8	13	2	16	1	1009,0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	26,79	34,457	22,40	4,56	102	0,20	0,36	0,1
1	24	26,71	34,455	22,42	4,55	102	0,16	***	0,1
1	48	26,62	34,448	22,44	4,53	101	0,15	0,43	0,0
1	72	24,26	34,537	23,23	3,42	74	0,66	***	4,0
1	96	22,02	34,583	23,92	2,90	60	0,88	1,08	8,9
1	120	18,92	34,567	24,73	2,48	48	1,11	***	19,7
1	144	17,75	34,685	25,11	2,42	46	1,17	***	15,6
1	193	14,11	34,569	25,85	2,58	46	1,40	1,60	18,4
1	241	11,56	34,536	26,33	2,54	43	1,60	***	24,0
1	289	11,00	34,573	26,46	2,54	42	1,68	1,82	24,7
1	385	8,94	34,643	26,87	2,34	37	1,87	***	***
1	482	8,16	34,708	27,04	1,89	29	2,07	2,30	32,2
1	674	6,66	34,667	27,22	1,90	28	2,22	2,39	31,1
1	866	5,36	34,635	27,37	2,16	31	2,28	2,39	34,2
1	1050	4,97	34,646	27,42	2,22	32	2,27	2,35	34,9

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 143/62	26/10/62	0815 G	9 00 S	105 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
5669	23,3	26,7	14	1	16	5	1	8	17	1	17	1	1010,8	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
2	0	26,49	34,281	22,36	4,72	105	0,22	0,39	0,0
2	25	26,23	34,403	22,53	4,68	104	0,15	***	0,0
2	50	26,18	34,433	22,57	4,66	104	0,13	0,41	0,2
2	75	25,82	34,440	22,69	4,61	102	0,23	***	0,0
2	100	22,38	34,573	23,81	3,03	63	0,89	0,99	8,8
2	125	19,33	34,625	24,67	2,65	52	1,08	***	14,0
2	150	16,23	34,571	25,38	2,75	51	1,31	***	16,8
2	200	13,28	34,622	26,06	2,43	42	1,58	1,65	22,8
2	250	12,03	34,692	26,36	2,01	34	1,70	***	24,4
2	300	10,88	34,701	26,58	1,99	33	1,83	1,90	28,5
2	400	9,71	34,746	26,82	2,12	34	1,83	***	27,9
2	500	8,83	34,774	26,99	2,00	32	1,99	2,08	33,3
2	700	6,79	34,674	27,21	1,94	29	2,16	2,30	33,3
2	900	5,46	34,649	27,36	2,10	31	2,26	2,42	33,3
1	1089	4,63	34,643	27,46	2,28	32	2,21	2,35	31,0
1	1287	4,08	34,684	27,55	2,40	34	2,25	2,35	35,5
1	1486	3,59	34,704	27,61	2,52	35	2,25	2,30	34,5
1	1981	2,57	34,751	27,75	3,09	42	2,14	2,26	34,2
1	2476	2,00	34,742	27,79	3,49	46	2,08	2,26	33,9
1	2971	1,70	34,733	27,80	3,63	48	2,13	2,26	32,6
1	3466	1,44	34,724	27,81	4,06	53	2,00	2,12	30,4
1	3961	1,20	34,721	27,83	4,07	53	1,96	2,07	32,0

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 144/62	3/11/62	1200 G	9 00 S	105 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
5907	23,3	24,4	07	2	16	8	8	8	14	3	14	1	1022,5	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
2	0	27,69	33,525	21,41	4,43	100	0,19	0,41	0,0
2	23	27,59	33,570	21,48	4,40	99	0,16	***	0,0
2	47	26,66	34,303	22,32	4,52	101	0,19	0,49	0,0
2	70	25,79	34,426	22,69	3,99	88	0,44	***	2,0
2	93	24,58	34,529	23,13	3,51	76	0,58	0,84	4,4
2	117	22,00	34,582	23,92	3,40	70	0,91	***	11,3
2	139	19,49	34,606	24,61	3,16	62	1,03	***	14,7
2	186	15,58	34,641	25,59	***	***	1,32	1,58	19,6
2	232	12,45	34,641	26,24	2,11	36	1,60	***	25,2
2	278	11,10	34,703	26,55	1,93	32	1,73	2,03	29,0
2	371	9,91	34,753	26,79	2,04	33	1,90	***	28,3
2	464	8,92	34,747	26,95	2,04	32	1,84	2,18	30,7
2	650	7,36	34,698	27,15	1,75	27	2,26	2,39	29,8
2	835	6,05	34,647	27,29	1,94	29	2,32	2,54	30,1
1	1027	4,94	34,639	27,42	2,17	31	2,26	2,57	32,3
1	1220	4,41	34,677	27,51	2,19	31	2,32	2,61	34,5
1	1413	3,84	34,705	27,59	2,41	34	2,29	2,50	30,7
1	1900	2,81	34,745	27,72	2,93	40	2,14	2,43	33,6
1	2387	2,12	34,738	27,77	3,42	45	2,12	2,38	32,3
1	2875	1,74	34,734	27,80	3,76	49	2,12	2,31	28,8
1	3357	1,48	34,722	27,81	3,97	52	2,03	2,21	29,8
1	3850	1,22	34,722	27,83	4,18	54	2,02	2,16	31,4

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 145/62	4/11/62	1220 G	9 36 S	110 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
1280	25,0	28,3	13	1	16	6	7	8	15	2	15	1	1012,1	°	°	°

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	27,34	34,103	21,95	***	***	***	***	***
1	25	27,21	34,501	22,30	***	***	***	***	***
1	50	27,18	34,502	22,31	***	***	***	***	***
1	75	25,34	34,491	22,88	***	***	***	***	***
1	100	24,13	34,488	23,24	***	***	***	***	***
1	125	21,30	34,480	24,04	***	***	***	***	***
1	150	16,46	34,587	25,34	***	***	***	***	***
1	200	13,32	34,609	26,05	***	***	***	***	***
1	250	11,62	34,581	26,35	***	***	***	***	***
1	300	10,36	34,600	26,60	***	***	***	***	***
1	400	9,54	34,724	26,83	***	***	***	***	***
1	500	8,43	34,740	27,03	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 146/62	4/11/62	2045 G	11 00 S	110 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
4828	23,9	27,2	12	1	16	8	2	8	15	2	16	1	1008,8	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	27,33	34,486	22,25	***	***	***	***	***
1	24	27,01	34,473	22,34	***	***	***	***	***
1	49	23,20	34,368	23,42	***	***	***	***	***
1	73	20,21	34,434	24,29	***	***	***	***	***
1	97	18,46	34,522	24,81	***	***	***	***	***
1	121	16,52	34,596	25,34	***	***	***	***	***
1	146	15,36	34,730	25,70	***	***	***	***	***
1	194	12,16	34,556	26,23	***	***	***	***	***
1	243	11,63	34,590	26,36	***	***	***	***	***
1	291	9,92	34,619	26,69	***	***	***	***	***
1	388	8,73	34,625	26,89	***	***	***	***	***
1	485	7,78	34,607	27,02	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 47 147/62	5/11/62	0840 G	12 30 S	110 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
4480	23.9	27.2	11	1	16	8	3	8	15	2	17	1	1011.7	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	27.09	34.545	22.37	4.56	103	0.18	0.41	0.0
2	24	26.85	34.515	22.42	4.56	103	0.18	***	0.0
2	48	26.48	34.465	22.50	4.57	102	0.20	0.44	0.0
2	73	25.76	34.499	22.75	4.55	100	0.20	***	0.0
2	96	23.44	34.485	23.44	3.12	66	0.81	1.11	5.9
2	120	21.89	34.630	23.99	2.95	61	0.90	***	8.5
2	145	20.21	34.674	24.48	2.85	57	0.97	***	9.5
2	194	16.56	34.860	25.53	2.68	50	1.20	1.45	14.6
2	242	13.08	34.579	26.07	2.62	45	1.48	***	18.8
2	291	11.62	34.564	26.34	2.34	39	1.65	1.84	20.1
2	388	9.46	34.609	26.76	2.25	36	1.90	***	22.6
2	485	8.34	34.618	26.94	2.29	36	1.90	2.18	24.8
2	679	6.88	34.637	27.17	2.05	31	2.22	2.33	28.1
2	872	5.50	34.620	27.34	2.10	31	2.33	2.51	29.9
1	996	5.10	34.622	27.39	2.17	31	2.38	2.71	29.5
1	1186	4.31	34.625	27.48	2.24	32	2.38	2.58	30.7
1	1375	3.77	34.659	27.56	2.51	35	2.24	2.49	29.4
1	1850	2.63	34.735	27.73	3.03	41	2.05	2.45	29.4
1	2327	2.13	34.739	27.77	3.38	45	***	2.29	29.5
1	2797	1.74	34.735	27.80	3.70	49	2.14	2.29	29.4
1	3270	1.45	34.728	27.82	3.93	51	2.15	2.28	29.2
1	3745	1.26	34.731	27.83	4.17	54	2.05	2.15	28.7

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 148/62	5/11/62	2030 G	14 00 S	110 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
5486	23,9	26,7	13	2	16	8	6	8	14	3	18	1	1012,7	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	26,90	34,521	22,41	***	***	***	***	***
1	25	26,69	34,496	22,46	***	***	***	***	***
1	50	26,54	34,464	22,48	***	***	***	***	***
1	75	26,46	34,460	22,51	***	***	***	***	***
1	100	25,66	34,462	22,76	***	***	***	***	***
1	125	24,59	34,550	23,15	***	***	***	***	***
1	150	22,17	34,625	23,91	***	***	***	***	***
1	200	18,89	34,761	24,88	***	***	***	***	***
1	250	15,23	34,627	25,65	***	***	***	***	***
1	300	13,61	34,656	26,02	***	***	***	***	***
1	400	10,94	34,907	26,73	***	***	***	***	***
1	500	8,89	34,715	26,93	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 149/62	6/11/62	0815 G	15 30 S	110 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
5577	22,2	26,1	15	2	16	8	2	8	15	3	18	2	1014,1	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
2	0	26,28	34,561	22,64	4,56	102	0,20	0,44	0,5
2	25	25,24	34,614	23,00	4,74	104	0,20	***	0,3
2	50	24,94	34,642	23,11	4,71	103	0,21	0,47	0,0
2	75	24,49	34,697	23,29	4,73	102	0,21	***	0,2
2	100	23,85	34,828	23,58	4,35	93	0,30	0,56	***
2	125	21,33	34,866	24,32	3,00	61	0,84	***	9,1
2	150	19,95	34,958	24,76	2,90	58	0,89	***	10,2
2	200	15,90	34,727	25,58	2,65	49	1,26	1,42	18,3
2	250	14,00	34,860	26,10	2,86	51	1,31	***	17,0
2	300	12,68	34,831	26,34	2,72	47	1,44	1,62	14,8
2	400	10,40	34,809	26,75	2,69	44	1,53	***	21,6
2	500	9,17	34,746	26,91	4,12	66	1,39	1,59	19,6
2	700	6,75	34,640	27,19	2,34	35	2,16	2,37	28,0
2	900	5,61	34,642	27,34	2,09	30	2,36	2,47	31,3
1	1091	4,71	34,636	27,44	2,19	31	2,36	2,52	30,6
1	1289	4,15	34,656	27,52	2,38	33	2,32	2,47	30,4
1	1487	3,53	34,678	27,60	2,68	37	2,25	2,43	28,3
3	1988	2,53	34,731	27,73	3,16	42	2,18	2,37	30,7
3	2485	2,03	34,740	27,78	3,42	45	2,14	2,37	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 150/62	6/11/62	2100 G	17 00 S	110 00 E

SONIC DEPTH	AIR TEMP, WET	DRY	WIND DIR,	SP,	ANEM, HEIGHT	CLOUD TYPE	AMT,	VIS,	SEA DIR,	AMT,	SWELL DIR,	AMT,	ATMOS, PRESSURE	WIRE ANGLES CAST1	CAST2	CAST3
5577	21,1	23,9	12	1	16	8	3	8	14	2	16	1	1014,0	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	25,25	34,706	23,07	***	***	***	***	***
1	25	25,12	34,647	23,06	***	***	***	***	***
1	50	24,02	34,930	23,60	***	***	***	***	***
1	75	23,54	34,947	23,76	***	***	***	***	***
1	100	23,05	34,983	23,93	***	***	***	***	***
1	125	22,69	35,108	24,13	***	***	***	***	***
1	150	22,03	35,151	24,34	***	***	***	***	***
1	200	18,80	35,377	25,38	***	***	***	***	***
1	250	16,26	35,385	26,00	***	***	***	***	***
1	300	14,32	35,332	26,39	***	***	***	***	***
1	400	10,79	34,937	26,78	***	***	***	***	***
1	500	9,08	34,737	26,92	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 151/62	7/11/62	0830 G	18 30 S	110 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
4840	20,0	23,9	19	2	16	8	3	8	19	3	22	1	1014,7	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
2	0	25,09	34,905	23,26	4,64	102	0,19	0,44	0,2
2	25	24,82	34,895	23,34	4,69	102	0,19	***	0,0
2	50	23,84	34,926	23,65	4,84	104	0,23	0,56	0,0
2	75	23,34	35,006	23,86	4,85	103	0,20	***	0,9
2	100	22,41	35,034	24,15	4,34	91	0,39	0,70	5,7
2	125	21,06	35,078	24,56	3,49	71	0,65	***	2,6
2	150	19,98	35,124	24,88	3,28	66	0,70	***	***
2	200	17,49	35,124	25,51	3,21	61	0,93	1,17	8,6
2	250	16,12	35,344	26,00	3,68	68	0,79	***	5,9
2	300	14,70	35,466	26,41	4,56	82	0,61	0,86	7,9
2	400	11,46	35,067	26,76	5,36	90	0,76	***	12,7
2	500	9,28	34,737	26,89	5,34	85	1,10	1,38	21,5
2	700	6,79	34,607	27,16	3,05	46	2,03	2,04	32,0
2	900	5,67	34,648	27,34	2,17	32	2,25	2,45	28,1
1	1083	4,90	34,647	27,43	2,30	33	2,29	2,61	29,9
1	1280	4,21	34,650	27,51	2,49	35	2,30	2,47	30,4
1	1477	3,50	34,666	27,59	2,83	39	2,33	2,40	28,1
1	1970	2,42	34,723	27,74	3,34	45	2,14	2,32	***
1	2462	2,00	34,739	27,78	3,49	46	2,10	2,26	28,3
1	2954	1,63	34,731	27,81	3,79	50	2,10	2,22	28,5
1	3446	1,36	34,724	27,82	4,11	53	2,02	2,14	***
1	3938	1,21	34,723	27,83	4,22	55	1,98	2,09	26,9

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 152/62	7/11/62	2015 G	20 00 S	110 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
4200	17,8	22,2	21	1	16	*	*	*	20	2	21	1	1015,3	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	23,96	35,000	23,67	***	***	***	***	***
1	25	23,70	34,986	23,74	***	***	***	***	***
1	50	23,49	34,992	23,81	***	***	***	***	***
1	75	22,93	35,003	23,98	***	***	***	***	***
1	100	22,44	35,052	24,15	***	***	***	***	***
1	125	21,44	35,109	24,47	***	***	***	***	***
1	150	20,98	35,325	24,77	***	***	***	***	***
1	200	18,64	35,456	25,48	***	***	***	***	***
1	250	17,15	35,670	26,01	***	***	***	***	***
1	300	15,47	35,540	26,30	***	***	***	***	***
1	400	11,88	35,111	26,72	***	***	***	***	***
1	500	9,50	34,775	26,88	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 153/62	8/11/62	0830 G	21 30 S	110 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
3913	19.3	21.1	25	2	16	6	5	8	25	3	23	1	1016.0	10	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	22.29	35.275	24.37	5.02	105	0.23	0.44	0.0
2	25	21.76	35.333	24.56	5.13	106	0.23	***	0.0
2	50	21.62	35.357	24.61	5.13	106	0.22	0.42	0.2
2	75	21.48	35.364	24.66	5.10	105	0.25	***	0.0
2	100	21.31	35.368	24.71	5.12	105	0.22	0.44	0.0
2	150	20.83	35.423	24.88	4.84	99	0.29	***	0.3
2	200	19.90	35.649	25.30	4.77	96	0.42	0.49	0.7
2	300	15.70	35.589	26.29	4.84	89	0.51	0.68	2.9
2	500	7.66	34.593	27.02	4.66	72	1.45	1.59	15.7
2	700	5.97	34.564	27.23	3.16	46	1.98	2.08	26.4
2	900	5.09	34.605	27.37	2.66	38	2.22	2.29	29.6
1	1071	4.59	34.625	27.45	2.53	36	2.24	2.37	31.5
1	1268	4.05	34.640	27.52	2.69	38	2.28	2.36	29.8
1	1466	3.33	34.681	27.62	3.08	42	2.18	2.28	27.1
1	1960	2.39	34.723	27.74	3.47	46	2.10	2.24	31.2
1	2455	1.99	34.734	27.78	3.61	48	2.10	2.18	30.1
1	2948	1.63	34.735	27.81	3.99	52	2.08	2.18	***
1	3443	1.35	34.727	27.82	4.19	54	2.08	2.12	26.6

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 154/62	8/11/62	2030 G	23 00 S	110 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
4938	16,7	21,1	18	2	16	6	6	8	20	3	22	3	*	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	21,82	35,310	24,52	***	***	***	***	***
1	24	21,80	35,313	24,53	***	***	***	***	***
1	48	21,79	35,310	24,53	***	***	***	***	***
1	73	21,48	35,322	24,63	***	***	***	***	***
1	97	20,69	35,469	24,95	***	***	***	***	***
1	146	20,31	35,571	25,13	***	***	***	***	***
1	194	19,14	35,733	25,56	***	***	***	***	***
1	290	15,57	35,668	26,38	***	***	***	***	***
1	484	10,47	34,917	26,83	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 155/62	9/11/62	0835 G	24 30 S	110 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
4114	15,0	20,0	19	2	16	6	5	8	19	4	22	5	1018,4	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	21,58	35,370	24,63	4,91	101	0,21	0,42	0,0
2	24	21,52	35,370	24,65	4,87	100	0,19	***	0,0
2	48	20,63	35,609	25,08	5,02	102	0,18	0,40	0,0
2	72	19,83	35,712	25,37	5,03	101	0,19	***	0,0
2	96	19,39	35,731	25,50	5,08	101	0,19	0,40	0,0
2	144	18,24	35,768	25,82	4,60	89	0,34	***	0,9
2	192	17,28	35,845	26,11	4,97	95	0,30	0,47	0,3
2	288	13,84	35,443	26,58	5,19	92	0,49	0,65	2,1
2	480	9,69	34,790	26,86	5,46	88	0,95	1,10	10,8
2	673	7,65	34,547	26,99	4,88	75	1,37	1,47	19,4
2	865	4,76	34,466	27,30	3,80	54	1,94	2,09	26,9
1	1074	4,23	34,581	27,45	2,89	41	2,18	2,30	30,7
1	1272	3,67	34,622	27,54	2,94	41	2,24	2,38	29,6
1	1469	3,13	34,659	27,62	3,16	43	2,12	2,33	27,6
1	1963	2,41	34,716	27,73	3,40	46	2,10	2,24	28,2
1	2457	1,96	34,731	27,78	3,65	48	2,02	2,16	28,2
1	2951	1,62	34,731	27,81	3,91	51	2,01	2,12	28,0
1	3445	1,40	34,722	27,82	4,11	54	1,96	2,10	30,3
1	3939	1,20	34,719	27,83	4,23	55	1,88	2,15	30,1

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 156/62	9/11/62	2025 G	26 00 S	110 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
4023	14,5	18,6	18	2	16	6	8	8	16	3	18	3	1022,1	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
1	0	19,68	35,721	25,41	***	***	***	***	***
1	25	19,63	35,735	25,44	***	***	***	***	***
1	50	19,51	35,744	25,48	***	***	***	***	***
1	75	19,33	35,763	25,54	***	***	***	***	***
1	100	19,03	35,767	25,62	***	***	***	***	***
1	150	18,25	35,821	25,86	***	***	***	***	***
1	200	16,89	35,796	26,17	***	***	***	***	***
1	300	14,05	35,474	26,56	***	***	***	***	***
1	500	9,87	34,823	26,86	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 157/62	10/11/62	0830 G	27 30 S	110 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
5486	13,3	17,8	15	1	16	5	7	8	15	2	23	4	1021.5	*	*	*

CAST	DEPTH	TEMP,	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT,	INORG, P	TOTAL P	NITRATE
2	0	19,51	35,733	25,47	5,11	102	0,21	0,42	0,0
2	24	19,47	35,732	25,48	5,18	103	0,15	***	0,0
2	48	19,43	35,737	25,49	5,17	103	0,32	0,44	0,0
2	73	18,93	35,775	25,65	5,18	102	0,20	***	0,0
2	97	18,58	35,813	25,77	4,97	97	0,26	0,44	0,3
2	145	17,55	35,828	26,03	4,98	96	0,27	***	0,4
2	193	16,25	35,732	26,27	5,17	97	0,30	0,51	0,4
2	289	13,75	35,424	26,59	5,19	92	0,49	0,70	2,7
2	483	10,05	34,845	26,84	5,39	88	0,91	1,18	9,8
2	675	8,19	34,593	26,95	5,09	79	1,27	1,63	13,2
2	868	5,19	34,435	27,23	4,29	62	1,81	2,24	23,4
1	1088	4,10	34,522	27,42	3,35	47	2,05	2,38	25,1
1	1086	3,53	34,574	27,52	3,30	46	2,14	2,50	27,3
1	1484	3,03	34,622	27,60	3,42	47	2,08	2,29	30,0
1	1979	2,40	34,714	27,73	3,62	48	2,07	2,29	27,7
1	2473	2,01	34,728	27,77	3,70	49	2,03	2,30	27,3
1	2967	1,70	34,731	27,80	3,98	52	2,01	2,24	26,8
1	3462	1,49	34,735	27,82	4,15	54	2,01	2,22	25,7
1	3956	1,30	34,721	27,82	4,28	56	1,94	2,12	25,7

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 158/62	10/11/62	2020 G	29 00 S	110 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
5303	13.3	17.8	18	1	16	6	6	8	18	2	22	2	1021.5	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.63	35.814	25.50	***	***	***	***	***
1	25	19.51	35.742	25.47	***	***	***	***	***
1	50	19.42	35.748	25.50	***	***	***	***	***
1	75	18.48	35.746	25.74	***	***	***	***	***
1	100	17.86	35.835	25.96	***	***	***	***	***
1	150	16.48	35.766	26.24	***	***	***	***	***
1	200	14.66	35.544	26.48	***	***	***	***	***
1	300	11.28	***	***	***	***	***	***	***
1	500	8.58	34.664	26.94	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 159/62	11/11/62	0800 G	30 30 S	110 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
5212	13.9	16.1	33	1	16	6	6	8	33	2	20	2	1020.5	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	19.19	35.670	25.50	5.24	104	0.20	0.41	0.0
2	25	18.94	35.690	25.58	5.24	103	0.19	***	0.0
2	50	18.94	35.690	25.58	5.26	104	0.21	0.44	0.0
2	75	18.93	35.691	25.58	5.22	103	0.20	***	0.0
2	100	18.95	35.678	25.57	5.12	101	0.19	0.46	0.0
2	150	18.51	35.753	25.74	5.17	101	0.21	***	0.5
2	200	18.01	35.780	25.88	5.13	99	0.23	0.49	0.5
2	300	15.78	35.749	26.39	5.36	99	0.33	0.42	0.7
2	500	10.83	34.966	26.80	5.45	90	0.89	1.05	8.9
2	700	8.85	34.668	26.90	5.43	86	1.12	1.31	12.7
2	900	6.24	34.448	27.11	4.63	69	1.66	1.63	20.7
1	1066	4.37	34.433	27.32	4.20	59	1.97	2.17	30.7
1	1260	3.80	34.522	27.45	3.52	49	2.12	2.22	30.7
1	1454	3.24	34.581	27.55	3.49	48	2.12	2.24	31.4
1	1940	2.60	34.691	27.70	3.53	48	2.07	2.33	32.0
1	2424	2.16	34.733	27.77	3.71	49	2.08	2.29	32.0
1	2907	1.80	34.739	27.80	3.98	52	2.02	2.15	30.4
1	3392	1.55	34.737	27.82	4.21	55	1.96	2.05	29.1
1	3877	1.29	34.726	27.83	4.37	57	1.89	2.04	26.3

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 160/62	11/11/62	1915 G	32 02 S	110 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
4736	13.9	16.7	20	*	16	6	7	8	20	2	19	2	1018.1	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.62	35.803	25.75	***	***	***	***	***
1	24	18.59	35.814	25.77	***	***	***	***	***
1	48	18.50	35.817	25.79	***	***	***	***	***
1	72	18.03	35.835	25.92	***	***	***	***	***
1	96	17.31	35.851	26.11	***	***	***	***	***
1	145	15.59	35.719	26.41	***	***	***	***	***
1	194	14.34	35.531	26.54	***	***	***	***	***
1	290	12.62	35.261	26.69	***	***	***	***	***
1	483	9.75	34.780	26.84	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/ 161/62	12/11/62	0615 G	32 00 S	111 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
4938	13.9	16.4	19	1	16	6	2	8	19	2	22	2	1017.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	18.30	35.780	25.81	5.13	100	0.19	0.35	0.0
2	25	18.23	35.785	25.83	5.23	102	0.18	***	0.0
2	50	18.17	35.794	25.86	5.22	101	0.18	0.36	0.0
2	75	18.03	35.805	25.90	5.18	100	0.19	***	0.0
2	100	17.92	35.810	25.93	5.19	100	0.19	0.37	0.5
2	150	16.89	35.790	26.16	5.31	101	0.23	***	0.5
2	200	15.64	35.733	26.41	5.31	98	0.29	0.44	0.7
2	300	12.89	35.290	26.66	5.46	95	0.53	0.72	4.0
2	500	9.48	34.740	26.86	5.58	89	0.96	1.12	15.0
2	700	8.50	34.615	26.92	5.45	85	1.20	1.32	17.8
2	900	5.45	34.427	27.19	4.38	64	1.49	1.93	30.1
1	1092	***	34.474	***	3.66	***	2.02	2.22	34.8
1	1284	3.29	34.511	27.49	3.76	52	2.08	2.21	33.3
1	1482	2.96	34.603	27.59	3.58	49	2.04	2.21	34.2
1	1976	2.38	34.705	27.73	3.75	50	1.96	2.19	31.0
1	2470	1.99	34.725	27.77	3.81	50	1.97	2.10	31.4
1	2963	1.67	34.730	27.80	4.09	54	1.95	2.09	32.9
1	3457	1.42	34.724	27.82	4.21	55	1.93	2.04	32.9
1	3951	1.28	34.731	27.83	4.31	56	1.89	1.96	32.6

DATA

PART 2

PRIMARY PRODUCTION

EXPLANATION OF HEADINGS

Part 2	Primary Production
STATION	Gives the station identification. For example, Dm4/126/62 signifies the 126th station worked from Diamantina in 1962 on her 4th cruise for that year
DATE	Given as day/month/year
TIME	Given in Zone Time (Table 2, p. 16)
LATITUDE LONGITUDE	Given in degrees and minutes
INCUBATION METHOD	IN SITU: Incubation in situ SIMULATED IN SITU: Incubation in a simulated in situ incubator using sunlight and blue glass filters ARTIFICIAL CONSTANT LIGHT 0: Incubation in artificial light constant at 1100 ft candles
ACTIVITY CPM	Activity of the ^{14}C stock used in counts per minute
BACKGROUND	Activity in counts per minute
DEPTH	Depth of sampling in metres
LIGHT	The counts per minute of the filter from the clear bottle
DARK	The counts per minute of the filter from the dark bottle. If this is more than 50 and also more than 10% of the LIGHT count, it is assumed to be aberrant and the symbol "B" is placed after it

DARK USED	Usually the same as DARK. However, if this is aberrant or not done, the mean of the other DARK counts at that station which are not aberrant is used, and the symbol "E" placed after it
NETT	LIGHT minus DARK USED. If this is negative it is assumed to be equal to zero for further calculations and the symbol "G" is placed after it
INC. PER.	Incubation period
PRODUCTION A	For artificial constant light this is calculated rate of production at the depth sampled per hour of incubation. For in situ and simulated in situ it is the production per day and this is assumed to be twice the production from noon to sunset. Where this value is missing, the symbol "I" is placed after it, and for the calculation of PRODUCTION B it is assumed to have the same value as at the next depth sampled below it.
PRODUCTION B	The integrated rate of production per day under one square metre of sea surface from the surface to the depth given. For artificial constant light, the production per day is assumed to equal 10 times the hourly production
**	Indicates no data available

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/126/62	16/10/62	1900 H	31 57 S	111 - 50 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	328	33	33	295	04.00	00.22	00.00
25	290	43	43	247	04.00	00.18	00.05
50	119	26	26	93	04.00	00.07	00.08
75	361	24	24	337	04.00	00.25	00.12
100	285	12	12	273	04.00	00.20	00.18
150	246	19	19	227	04.00	00.17	00.27

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/126/62	16/10/62	1130 H	31 57 S	111 50 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
IN SITU	5 NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH	LIGHT	DARK	DARK USED	NETT	INC. PER.	PRODUCTION A	PRODUCTION B
M	CPM	CPM	CPM	CPM	DAYS	MG.C/DAY/CU.M.	G.C/DAY/SQ.M.
0	294	24	24	270	00.50	01.58	00.00
21	130	24	24	106	00.50	00.62	00.02
35	305	18	18	287	00.50	01.68	00.04
50	341	28	28	313	00.50	01.83	00.07
60	242	19	19	223	00.50	01.31	00.09
80	66	41	41	25	00.50	00.15	00.10

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/126/62	16/10/62	1130 H	31 57 S	111 50 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	7 NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. DAYS	PRODUCTION A MG.C/DAY/CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	313	24	24	289	00.50	01.69	00.00
21	304	24	24	280	00.50	01.64	00.03
35	392	18	18	374	00.50	02.19	00.06
50	489	28	28	461	00.50	02.70	00.10
60	288	19	19	269	00.50	01.58	00.12
80	86	41	41	45	00.50	00.26	00.14

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/127/62	17/10/62	0915 H	32 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	558	53	53	505	04.00	00.37	00.00
25	400	25	25	375	04.00	00.27	00.08
50	866	19	19	847	04.00	00.62	00.19
75	564	31	31	533	04.00	00.39	00.32
100	39	11	11	28	04.00	00.02	00.37
150	20	14	14	6	04.00	00.00	00.38
200	33	**	25 E	8	04.00	00.01	00.38

E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/127/62	17/10/62	1130 H	32 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	7 NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. DAYS	PRODUCTION A MG.C/DAY/CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	79	49	49	30	00.50	00.18	00.00
20	260	23	23	237	00.50	01.39	00.02
31	280	34	34	246	00.50	01.44	00.04
50	259	70 B	38 E	221	00.50	01.29	00.07
63	154	41	41	113	00.50	00.66	00.08
86	66	46	46	20	00.50	00.12	00.09

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/128/62	17/10/62	2100 H	30 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	196	21	21	175	04.00	00.13	00.00
25	265	25	25	240	04.00	00.18	00.04
50	285	30	30	255	04.00	00.19	00.09
75	325	24	24	301	04.00	00.22	00.14
100	155	11	11	144	04.00	00.11	00.18
150	193	19	19	174	04.00	00.13	00.24
200	26	**	21 E	5	04.00	00.00	00.27

E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/129/62	18/10/62	0905 H	29 03 S	109 57 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT O	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH	LIGHT	DARK	DARK USED	NETT	INC. PER.	PRODUCTION A	PRODUCTION B
M	CPM	CPM	CPM	CPM	HOURS	MG.C/HR./CU.M.	G.C/DAY/SQ.M.
0	**	27	**	**	04.00	** I	00.00
25	319	34	34	285	04.00	00.21	00.05
50	397	27	27	370	04.00	00.27	00.11
75	447	26	26	421	04.00	00.31	00.18
100	721	30	30	691	04.00	00.51	00.28
150	318	28	28	290	04.00	00.21	00.46
200	52	20	20	32	04.00	00.02	00.52

I VALUE ASSUMED EQUAL NEXT DEPTH

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/130/62	18/10/62	2000 H	27 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	762	36	36	726	04.00	00.53	00.00
25	145	40	40	105	04.00	00.08	00.08
50	118	31	31	87	04.00	00.06	00.10
75	138	35	35	103	04.00	00.08	00.12
100	81	26	26	55	04.00	00.04	00.14
150	24	22	22	2	04.00	00.00	00.15

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/131/62	19/10/62	0830 H	25 52 S	109 56 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	2309	32	32	2277	04.10	01.63	00.00
25	517	25	25	492	04.10	00.35	00.25
50	498	22	22	476	04.10	00.34	00.34
75	831	27	27	804	04.10	00.57	00.45
100	211	20	20	191	04.10	00.14	00.54
150	56	27	27	29	04.10	00.02	00.58

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/132/62	19/10/62	2030 H	24 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	780	28	28	752	04.00	00.55	00.00
25	114	38	38	76	04.00	00.06	00.08
50	91	38	38	53	04.00	00.04	00.09
75	151	33	33	118	04.00	00.09	00.11
100	92	19	19	73	04.00	00.05	00.13
150	23	23	23	0	04.00	00.00	00.14

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/133/62	20/10/62	0830 H	23 00 S	110 03 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	1130	46	46	1084	04.00	00.79	00.00
25	917	47	47	870	04.00	00.64	00.18
50	1032	53	53	979	04.00	00.72	00.35
75	1601	57	57	1544	04.00	01.13	00.58
100	148	61 B	48 E	100	04.00	00.07	00.73
150	572	39	39	533	04.00	00.39	00.85

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/133/62	20/10/62	1200 H	23 00 S	110 03 E

INCUBATION METHOD		PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	7	NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. DAYS	PRODUCTION A MG.C/DAY/CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	526	44	44	482	00.50	02.82	00.00
8	514	42	42	472	00.50	02.77	00.02
22	415	52 B	43 E	372	00.50	02.18	00.05
43	266	69 B	43 E	223	00.50	01.31	00.09
65	206	51 B	43 E	163	00.50	00.95	00.11

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/134/62	20/10/62	2030 H	21 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	230	47	47	183	04.00	00.13	00.00
25	167	54 B	25 E	142	04.00	00.10	00.03
50	155	29	29	126	04.00	00.09	00.05
75	265	16	16	249	04.00	00.18	00.08
100	173	18	18	155	04.00	00.11	00.12
150	46	17	17	29	04.00	00.02	00.15

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/135/62	21/10/62	0900 H	19 59 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT O	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	1009	330 B	22 E	987	04.00	00.72	00.00
25	967	30	30	937	04.00	00.69	00.18
50	1031	21	21	1010	04.00	00.74	00.36
75	198	23	23	175	04.00	00.13	00.47
100	24	27	27	- 3 G	04.00	00.00	00.49
150	11	13	13	- 2 G	04.00	00.00	00.49

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED
G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/135/62	21/10/62	1200 H	19 59 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	7 NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. DAYS	PRODUCTION A MG.C/DAY/CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	395	34	34	361	00.50	02.11	00.00
12	408	22	22	386	00.50	02.26	00.03
37	473	85 B	32 E	441	00.50	02.58	00.09
55	237	41	41	196	00.50	01.15	00.12
65	225	58 B	32 E	193	00.50	01.13	00.13

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/136/62	21/10/62	2045 H	18 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	154	40	40	114	04.00	00.08	00.00
25	131	45	45	86	04.00	00.06	00.02
50	148	40	40	108	04.00	00.08	00.04
75	123	27	27	96	04.00	00.07	00.06
100	63	16	16	47	04.00	00.03	00.07
150	43	18	18	25	04.00	00.02	00.08

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/137/62	22/10/62	0930 H.	17 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	741	19	19	722	04.00	00.53	00.00
25	680	24	24	656	04.00	00.48	00.13
50	493	16	16	477	04.00	00.35	00.23
75	808	25	25	783	04.00	00.57	00.35
100	650	18	18	632	04.00	00.46	00.48
150	34	21	21	13	04.00	00.01	00.60

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/137/62	22/10/62	1200 H	17 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	7 NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. DAYS	PRODUCTION A MG.C/DAY/CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	337	20	20	317	00.50	01.86	00.00
10	449	12	12	437	00.50	02.56	00.02
25	244	60 B	19 E	225	00.50	01.32	00.05
51	129	24	24	105	00.50	00.62	00.08
66	59	19	19	40	00.50	00.23	00.09
80	85	20	20	65	00.50	00.38	00.09

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/138/62	22/10/62	2045 H	15 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	156	34	34	122	04.00	00.09	00.00
25	131	29	29	102	04.00	00.07	00.02
50	181	31	31	150	04.00	00.11	00.04
75	290	28	28	262	04.00	00.19	00.08
100	39	20	20	19	04.00	00.01	00.11
150	87	30	30	57	04.00	00.04	00.12

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/139/62	23/10/62	0940 H	14 02 S	109 59 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	678	25	25	653	04.00	00.48	00.00
25	540	25	25	515	04.00	00.38	00.11
50	707	26	26	681	04.00	00.50	00.22
75	734	19	19	715	04.00	00.52	00.35
100	402	14	14	388	04.00	00.28	00.45
150	58	16	16	42	04.00	00.03	00.53

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/139/62	23/10/62	1230 H	14 02 S	109 59 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	7 NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. DAYS	PRODUCTION A MG.C/DAY/CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	91	59 B	18 E	73	00.50	00.43	00.00
13	92	34	34	58	00.50	00.34	00.01
37	45	19	19	26	00.50	00.15	00.02
57	36	10	10	26	00.50	00.15	00.02
65	19	17	17	2	00.50	00.01	00.02
85	19	12	12	7	00.50	00.04	00.02

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/140/62	23/10/62	2130 H	12 38 S	109 59 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	111	33	33	78	04.00	00.06	00.00
25	181	28	28	153	04.00	00.11	00.02
50	127	35	35	92	04.00	00.07	00.04
75	377	41	41	336	04.00	00.25	00.08
100	151	36	36	115	04.00	00.08	00.12
150	109	28	28	81	04.00	00.06	00.16

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/141/62	24/10/62	0900 H	10 54 S	110 03 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	CPM

DEPTH	LIGHT	DARK	DARK USED	NETT	INC. PER.	PRODUCTION A	PRODUCTION B
M	CPM	CPM	CPM	CPM	HOURS	MG.C/HR./CU.M.	G.C/DAY/SQ.M.
0	1838	45	45	1793	04.00	01.31	00.00
25	1461	31	31	1430	04.00	01.05	00.30
50	1864	40	40	1824	04.00	01.34	00.60
75	250	29	29	221	04.00	00.16	00.79
100	1040	30	30	1010	04.00	00.74	00.90
150	80	31	31	49	04.00	00.04	01.10

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/141/62	24/10/62	1145 H	10 54 S	110 03 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	7 NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. DAYS	PRODUCTION A MG.C/DAY/CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	71	95 B	29 E	42	00.50	00.25	00.00
11	173	171 B	29 E	144	00.50	00.84	00.01
32	209	63 B	29 E	180	00.50	01.05	00.03
47	191	37	37	154	00.50	00.90	00.04
55	7	20	20	- 13 G	00.50	00.00	00.04
65	48	30	30	18	00.50	00.11	00.04

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED
G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/142/62	24/10/62	2020 H	09 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	296	34	34	262	04.00	00.19	00.00
25	314	33	33	281	04.00	00.21	00.05
50	569	23	23	546	04.00	00.40	00.13
75	41	13	13	28	04.00	00.02	00.18
100	35	8	8	27	04.00	00.02	00.19
150	72	14	14	58	04.00	00.04	00.21

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/143/62	26/10/62	0900 H	09 00 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH	LIGHT	DARK	DARK USED	NETT	INC. PER.	PRODUCTION A	PRODUCTION B
M	CPM	CPM	CPM	CPM	HOURS	MG.C/HR./CU.M.	G.C/DAY/SQ.M.
0	918	43	43	875	04.00	00.64	00.00
25	496	39	39	457	04.00	00.33	00.12
50	916	23	23	893	04.00	00.65	00.24
75	295	15	15	280	04.00	00.21	00.35
100	303	7	7	296	04.00	00.22	00.40
150	75	13	13	62	04.00	00.05	00.47

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/144/62	3/11/62	1545 H	09 00 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	373	26	26	347	04.00	00.25	00.00
25	288	32	32	256	04.00	00.19	00.06
50	35	75 B	20 E	15	04.00	00.01	00.09
75	88	18	18	70	04.00	00.05	00.10
100	26	16	16	10	04.00	00.01	00.11
150	61	9	9	52	04.00	00.04	00.12

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/144/62	3/11/62	1215 H	09 00 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
IN SITU	5 NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. DAYS	PRODUCTION A MG.C/DAY/CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	708	32	32	676	00.50	03.96	00.00
8	235	30	30	205	00.50	01.20	00.02
36	236	16	16	220	00.50	01.29	00.05
55	16	14	14	2	00.50	00.01	00.06
67	214	17	17	197	00.50	01.15	00.07
82	82	6	6	76	00.50	00.45	00.08

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/144/62	3/11/62	1215 H	09 00 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	7 NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. DAYS	PRODUCTION A MG.C/DAY/CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	1154	32	32	1122	00.50	06.57	00.00
8	237	30	30	207	00.50	01.21	00.03
36	146	16	16	130	00.50	00.76	00.06
55	76	14	14	62	00.50	00.36	00.07
67	148	17	17	131	00.50	00.77	00.08
82	71	6	6	65	00.50	00.38	00.09

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/145/62	4/11/62	1220 H	09 36 S	110 02 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	845	23	23	822	04.00	00.60	00.00
25	687	27	27	660	04.00	00.48	00.14
50	1404	25	25	1379	04.00	01.01	00.33
75	303	22	22	281	04.00	00.21	00.48
100	61	29	29	32	04.00	00.02	00.51
150	66	22	22	44	04.00	00.03	00.52

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/145/62	4/11/62	1215 H	09 36 S	110 02 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	7 NOON - SUNSET	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. DAYS	PRODUCTION A MG.C/DAY/CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	1140	331 B	18 E	1122	00.50	06.57	00.00
8	218	28	28	190	00.50	01.11	00.03
21	136	15	15	121	00.50	00.71	00.04
53	168	14	14	154	00.50	00.90	00.07
62	117	15	15	102	00.50	00.60	00.08
84	112	19	19	93	00.50	00.54	00.09

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/146/62	4/11/62	2050 H	11 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	457	72 B	37 E	420	04.00	00.31	00.00
25	165	78 B	37 E	128	04.00	00.09	00.05
50	319	42	42	277	04.00	00.20	00.09
75	54	25	25	29	04.00	00.02	00.12
100	38	44	44	- 6 G	04.00	00.00	00.12
150	23	73 B	37 E	- 14 G	04.00	00.00	00.12

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED
G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/147/62	5/11/62	0845 H	12 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	410	111 B	35 E	375	04.00	00.27	00.00
25	275	77 B	35 E	240	04.00	00.18	00.06
50	418	52 B	35 E	383	04.00	00.28	00.12
75	965	44	44	921	04.00	00.67	00.24
100	360	27	27	333	04.00	00.24	00.35
150	419	90 B	35 E	384	04.00	00.28	00.48

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/148/62	5/11/62	2030 H	14 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	105	52 B	34 E	71	04.00	00.05	00.00
25	76	39	39	37	04.00	00.03	00.01
50	110	58 B	34 E	76	04.00	00.06	00.02
75	127	48	48	79	04.00	00.06	00.04
100	212	31	31	181	04.00	00.13	00.06
150	47	19	19	28	04.00	00.02	00.10

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/149/62	6/11/62	0845 H	15 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	850	68	68	782	04.10	00.56	00.00
25	584	50	50	534	04.10	00.38	00.12
50	461	38	38	423	04.10	00.30	00.21
75	184	23	23	161	04.10	00.12	00.26
100	625	22	22	603	04.10	00.43	00.33
150	29	51 B	40 E	- 11 G	04.10	00.00	00.44

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED
G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/150/62	6/11/62	2100 H	17 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 10	8.97 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	192	30	30	162	04.00	00.11	00.00
25	148	50 B	40 E	108	04.00	00.07	00.02
50	116	57 B	40 E	76	04.00	00.05	00.04
75	153	46	46	107	04.00	00.07	00.06
100	183	43	43	140	04.00	00.10	00.08
150	151	44	44	107	04.00	00.07	00.12

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/151/62	7/11/62	0845 H	18 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	690	37	37	653	04.00	00.48	00.00
25	714	37	37	677	04.00	00.50	00.12
50	800	24	24	776	04.00	00.57	00.25
75	854	22	22	832	04.00	00.61	00.40
100	382	19	19	363	04.00	00.27	00.51
150	372	28	28	344	04.00	00.25	00.64

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/152/62	7/11/62	2030 H	20 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	327	26	26	301	04.00	00.22	00.00
25	111	50 B	28 E	83	04.00	00.06	00.04
50	133	36	36	97	04.00	00.07	00.06
75	203	38	38	165	04.00	00.12	00.08
100	100	29	29	71	04.00	00.05	00.10
150	35	15	15	20	04.00	00.01	00.12

B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/153/62	8/11/62	0915 H	21 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	497	23	23	474	04.00	00.35	00.00
25	517	32	32	485	04.00	00.36	00.09
50	663	21	21	642	04.00	00.47	00.19
75	549	21	21	528	04.00	00.39	00.30
100	773	20	20	753	04.00	00.55	00.42
150	59	11	11	48	04.00	00.04	00.57

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/154/62	8/11/62	2045 H	23 00 S	110 04 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	133	47	47	86	04.30	00.06	00.00
25	125	41	41	84	04.30	00.06	00.02
50	125	39	39	86	04.30	00.06	00.04
75	147	44	44	103	04.30	00.07	00.06
100	49	20	20	29	04.30	00.02	00.07
150	152	49	49	103	04.30	00.07	00.09

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/155/62	9/11/62	0830 H	24 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	447	25	25	422	04.00	00.31	00.00
25	504	32	32	472	04.00	00.35	00.08
50	1048	19	19	1029	04.00	00.75	00.22
75	632	20	20	612	04.00	00.45	00.37
100	505	25	25	480	04.00	00.35	00.47
150	55	28	28	27	04.00	00.02	00.56

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/156/62	9/11/62	2030 H	26 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	117	29	29	88	04.00	00.06	00.00
25	123	32	32	91	04.00	00.07	00.02
50	100	32	32	68	04.00	00.05	00.04
75	108	28	28	80	04.00	00.06	00.05
100	101	46	46	55	04.00	00.04	00.06
150	35	15	15	20	04.00	00.01	00.07

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/157/62	10/11/62	0845 H	27 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	349	36	36	313	04.00	00.23	00.00
25	377	22	22	355	04.00	00.26	00.06
50	362	25	25	337	04.00	00.25	00.12
75	380	27	27	353	04.00	00.26	00.18
100	370	21	21	349	04.00	00.26	00.25
150	332	23	23	309	04.00	00.23	00.37

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/158/62	10/11/62	2025 H	29 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	107	35	35	72	04.00	00.05	00.00
25	101	39	39	62	04.00	00.05	00.01
50	97	30	30	67	04.00	00.05	00.02
75	92	26	26	66	04.00	00.05	00.03
100	71	26	26	45	04.00	00.03	00.04
150	81	29	29	52	04.00	00.04	00.06

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/159/62	11/11/62	0915 H	30 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	611	34	34	577	04.00	00.42	00.00
25	524	25	25	499	04.00	00.37	00.10
50	412	18	18	394	04.00	00.29	00.18
75	557	25	25	532	04.00	00.39	00.27
100	393	33	33	360	04.00	00.26	00.35
150	129	14	14	115	04.00	00.08	00.44

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/160/62	11/11/62	1930 H	32 02 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	238	49	49	189	04.00	00.14	00.00
25	159	35	35	124	04.00	00.09	00.03
50	190	36	36	154	04.00	00.11	00.06
75	178	33	33	145	04.00	00.11	00.09
100	206	20	20	186	04.00	00.14	00.12
150	150	36	36	114	04.00	00.08	00.18

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/161/62	12/11/62	0800 H	32 00 S	111 50 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	NO. 11	8.38 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	586	31	31	555	04.00	00.41	00.00
25	485	24	24	461	04.00	00.34	00.09
50	556	12	12	544	04.00	00.40	00.18
75	556	15	15	541	04.00	00.40	00.28
100	409	16	16	393	04.00	00.29	00.37
150	151	9	9	142	04.00	00.10	00.47

DATA

PART 3

PIGMENTS

EXPLANATION OF HEADINGS

Part 3	Pigments
STATION	Gives the station identification. For example, Dm4/126/62 signifies the 126th station worked from Diamantina in 1962, on her 4th cruise for that year
DATE	Given as day/month/year
TIME	Given in Zone Time (Table 2, p. 16)
LATITUDE LONGITUDE	Given in degrees and minutes
DEPTH	Actual sampling depth, given in metres
CHLOROPHYLL A B C	A and B given in mg/m^3 C given in $MSPU/m^3$
ASTACIN NON-ASTACIN	Given in $MSPU/m^3$

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/126/62	16/10/62	1130 H	31 57 S	111 50 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.03	0.06	0.48	0.08	0.01
25	0.11	0.02	0.28	0.06	0.02
50	0.11	0.04	0.37	0.06	0.03
75	0.13	0.06	0.50	0.08	0.02
100	0.13	0.07	0.52	0.08	0.02
150	0.07	0.05	0.33	0.07	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/127/62	17/10/62	0815 H	32 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.08	0.04	0.35	0.07	0.04
25	0.08	0.05	0.28	0.07	0.00
50	0.16	0.10	0.52	0.11	0.00
75	0.14	0.07	0.45	0.09	0.01
100	0.05	0.05	0.33	0.06	0.03
150	0.06	0.03	0.35	0.08	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/128/62	17/10/62	2100 H	30 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.17	0.13	0.91	0.14	0.04
25	0.07	0.06	0.36	0.06	0.01
50	0.09	0.04	0.24	0.06	0.03
75	0.15	0.08	0.48	0.09	0.01
100	0.12	0.07	0.40	0.07	0.01
150	0.18	0.08	0.45	0.08	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/129/62	18/10/62	0845 H	29 03 S	109 57 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.05	0.31	0.07	0.03
25	0.07	0.05	0.38	0.07	0.02
50	0.08	0.05	0.44	0.09	0.01
75	0.16	0.10	0.51	0.08	0.03
150	0.07	0.04	0.15	0.09	0.07

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/130/62	18/10/62	2000 H	27 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.05	0.37	0.07	0.04
25	0.04	0.08	0.40	0.06	0.03
50	0.06	0.06	0.30	0.07	0.02
75	0.07	0.07	0.28	0.08	0.01
100	0.23	0.15	0.68	0.15	0.53

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/131/62	19/10/62	0830 H	25 52 S	109 56 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.05	0.04	0.28	0.06	0.03
25	0.07	0.05	0.36	0.07	0.02
50	0.06	0.05	0.35	0.06	0.03
75	0.17	0.07	0.39	0.07	0.05
100	0.22	0.10	0.71	0.17	0.26
150	0.08	0.04	0.35	0.06	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/132/62	19/10/62	2010 H	24 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.05	0.23	0.06	0.02
25	0.06	0.04	0.22	0.04	0.06
50	0.08	0.04	0.30	0.07	0.02
75	0.11	0.08	0.37	0.07	0.03
100	0.21	0.08	0.49	0.13	0.35

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/133/62	20/10/62	0830 H	23 00 S	110 03 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.04	0.34	0.07	0.03
25	0.10	0.07	0.43	0.07	0.03
50	0.09	0.05	0.33	0.06	0.04
75	0.24	0.11	0.66	0.11	0.04
100	0.27	0.10	0.77	0.19	0.31
150	0.19	0.08	0.54	0.10	0.03

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/134/62	20/10/62	2030 H	21 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.04	0.03	0.23	0.04	0.03
25	0.02	0.03	0.17	0.05	0.05
50	0.08	0.05	0.37	0.07	0.03
75	0.10	0.05	0.40	0.08	0.04
150	0.05	0.03	0.26	0.05	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/135/62	21/10/62	0830 H	19 59 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.08	0.06	0.36	0.08	0.02
25	0.08	0.07	0.33	0.06	0.03
50	0.23	0.15	0.58	0.10	0.03
75	0.18	0.11	0.46	0.09	0.04
100	0.12	0.06	0.52	0.10	0.20
150	0.07	0.05	0.40	0.08	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/136/62	21/10/62	2045 H	18 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.08	0.04	0.39	0.08	0.02
25	0.05	0.03	0.24	0.05	0.04
50	0.10	0.05	0.34	0.07	0.03
75	0.22	0.13	0.59	0.11	0.02
100	0.17	0.07	0.41	0.09	0.12
150	0.04	0.02	0.27	0.05	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/137/62	22/10/62	0830 H	17 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.07	0.37	0.08	0.02
25	0.06	0.04	0.30	0.07	0.06
50	0.08	0.04	0.42	0.08	0.03
75	0.09	0.04	0.36	0.08	0.04
100	0.15	0.08	0.49	0.12	0.16
150	0.08	0.04	0.38	0.08	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/138/62	22/10/62	2030 H	15 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.00	0.06	0.04	0.03
25	0.07	0.04	0.32	0.07	0.01
50	0.07	0.05	0.37	0.07	0.02
75	0.17	0.12	0.53	0.08	0.03
100	0.12	0.08	0.51	0.09	0.10
150	0.03	0.03	0.18	0.04	0.03

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/139/62	23/10/62	0830 H	14 02 S	109 59 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.05	0.28	0.07	0.05
25	0.08	0.05	0.40	0.08	0.04
50	0.09	0.04	0.30	0.06	0.02
75	0.10	0.05	0.45	0.07	0.05
100	0.17	0.08	0.47	0.08	0.13
150	0.06	0.05	0.18	0.06	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM4/140/62	23/10/62	2130 H	12 38 S	109 59 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.04	0.36	0.07	0.04
25	0.04	0.03	0.24	0.05	0.03
50	0.05	0.05	0.16	0.04	0.01
75	0.31	0.12	0.76	0.11	0.04
100	0.11	0.05	0.36	0.10	0.21
150	0.10	0.05	0.38	0.07	0.03

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/141/62	24/10/62	0845 H	10 54 S	110 03 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.11	0.06	0.38	0.08	0.04
25	0.13	0.07	0.50	0.09	0.03
50	0.33	0.16	0.73	0.11	0.05
75	0.19	0.09	0.59	0.09	0.03
100	0.18	0.07	0.46	0.08	0.11
150	0.05	0.04	0.34	0.06	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM4/142/62	24/10/62	2020 H	09 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.08	0.04	0.34	0.07	0.03
25	0.08	0.06	0.39	0.07	0.04
50	0.17	0.07	0.45	0.08	0.04
75	0.12	0.07	0.38	0.07	0.05
100	0.09	0.05	0.35	0.07	0.10
150	0.05	0.05	0.41	0.07	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/143/62	26/10/62	0815 H	09 00 S	105 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.03	0.33	0.06	0.03
25	0.06	0.04	0.34	0.04	0.04
50	0.09	0.04	0.31	0.05	0.04
75	0.07	0.05	0.31	0.06	0.03
100	0.18	0.09	0.43	0.07	0.09
150	0.03	0.02	0.20	0.05	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/144/62	3/11/62	1200 H	09 00 S	105 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.04	0.21	0.07	0.02
25	0.10	0.02	0.20	0.05	0.03
50	0.17	0.05	0.28	0.06	0.04
75	0.28	0.11	0.59	0.06	0.10
100	0.21	0.10	0.55	0.12	0.11
150	0.05	0.01	0.25	0.05	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/145/62	4/11/62	1220 H	09 36 S	110 02 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.11	0.07	0.38	0.10	0.03
25	0.15	0.07	0.56	0.10	0.02
50	0.15	0.07	0.56	0.09	0.03
75	0.21	0.10	0.58	0.11	0.09
100	0.16	0.07	0.42	0.11	0.12
150	0.11	0.10	0.73	0.12	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM4/146/62	4/11/62	2015 H	11 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.16	0.10	0.66	0.10	0.00
25	0.15	0.06	0.28	0.06	0.04
50	0.71	0.23	1.01	0.12	0.13
75	0.22	0.11	0.92	0.09	0.04
100	0.08	0.04	0.29	0.07	0.07
150	0.07	0.06	0.42	0.08	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM4/147/62	5/11/62	0840 H	12 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.09	0.04	0.30	0.09	0.02
25	0.06	0.02	0.14	0.03	0.02
50	0.07	0.02	0.15	0.02	0.03
75	0.20	0.04	0.30	0.03	0.07
100	0.24	0.06	0.32	0.05	0.12
150	0.25	0.10	0.51	0.04	0.08

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/148/62	5/11/62	2030 H	14 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.04	0.23	0.06	0.00
25	0.11	0.07	0.53	0.09	0.03
50	0.10	0.07	0.38	0.08	0.01
100	0.39	0.11	0.71	0.09	0.13
150	0.09	0.06	0.41	0.08	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/149/62	6/11/62	0815 H	15 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.09	0.06	0.38	0.06	0.02
25	0.09	0.06	0.35	0.07	0.01
50	0.09	0.03	0.25	0.05	0.02
75	0.35	0.13	0.64	0.08	0.14
100	0.14	0.04	0.38	0.06	0.04
150	0.06	0.05	0.34	0.06	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/150/62	6/11/62	2100 H	17 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.05	0.00	0.30	0.04	0.03
25	0.07	0.05	0.23	0.05	0.02
50	0.08	0.05	0.30	0.08	0.03
75	0.09	0.03	0.40	0.06	0.02
100	0.12	0.06	0.37	0.05	0.05
150	0.16	0.06	0.43	0.05	0.05

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM4/151/62	7/11/62	0830 H	18 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.09	0.07	0.39	0.07	0.02
25	0.09	0.04	0.33	0.06	0.01
50	0.10	0.06	0.21	0.05	0.01
75	0.15	0.05	0.29	0.06	0.02
100	0.30	0.09	0.53	0.08	0.11
150	0.16	0.07	0.47	0.06	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM4/152/62	7/11/62	2015 H	20 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.08	0.06	0.41	0.06	0.01
25	0.06	0.02	0.36	0.05	0.01
50	0.15	0.05	0.37	0.07	0.02
75	0.19	0.07	0.36	0.06	0.04
100	0.43	0.14	0.69	0.06	0.18
150	0.06	0.04	0.14	0.04	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM4/153/62	8/11/62	0830 H	21 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.09	0.04	0.37	0.07	0.02
25	0.10	0.04	0.40	0.07	0.01
50	0.10	0.04	0.32	0.05	0.03
75	0.12	0.04	0.22	0.05	0.03
100	0.26	0.07	0.48	0.08	0.05
150	0.14	0.08	0.49	0.07	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/154/62	8/11/62	2030 H	23 00 S	110 04 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.10	0.06	0.47	0.07	0.01
25	0.10	0.05	0.30	0.06	0.02
50	0.10	0.04	0.27	0.06	0.02
75	0.20	0.05	0.59	0.07	0.03
100	0.25	0.10	0.55	0.06	0.10
150	0.20	0.10	0.43	0.07	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/155/62	9/11/62	0835 H	24 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.11	0.03	0.41	0.06	0.01
25	0.09	0.03	0.31	0.06	0.02
50	0.21	0.04	0 35	0.04	0.07
75	0.17	0.04	0.25	0.05	0.04
100	0.24	0.05	0.32	0.04	0.08
150	0.13	0.05	0.37	0.05	0.05

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM4/156/62	9/11/62	2025 H	26 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.11	0.06	0.71	0.09	0.01
25	0.03	0.01	0.04	0.02	0.02
75	0.07	0.02	0.20	0.03	0.03
100	0.07	0.00	0.08	0.01	0.06
150	0.01	0.00	0.07	0.02	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM4/157/62	10/11/62	0830 H	27 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.05	0.35	0.09	0.00
25	0.03	0.01	0.07	0.02	0.03
50	0.07	0.02	0.22	0.03	0.03
75	0.12	0.03	0.30	0.03	0.04
100	0.24	0.08	0.41	0.06	0.10
150	0.03	0.02	0.06	0.01	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM4/158/62	10/11/62	2020 H	29 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
25	0.06	0.04	0.24	0.04	0.01
50	0.05	- 0.01	0.12	0.01	0.03
75	0.14	0.03	0.23	0.02	0.06
100	0.29	0.07	0.34	0.01	0.16
150	0.05	0.02	0.07	0.02	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/159/62	11/11/62	0800 H	30 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.08	0.01	0.12	0.02	0.03
25	0.09	0.01	0.08	0.02	0.04
50	0.11	0.01	0.09	0.02	0.05
75	0.10	0.01	0.13	0.02	0.04
100	0.11	0.01	0.11	0.01	0.06
150	0.19	0.03	0.20	0.02	0.07

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/160/62	11/11/62	1915 H	32 02 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.08	0.02	0.15	0.04	0.02
25	0.10	0.05	0.33	0.06	0.02
50	0.11	0.02	0.13	0.02	0.06
75	0.30	0.05	0.30	0.02	0.16
100	0.20	0.04	0.22	0.03	0.09
150	0.17	0.10	0.65	0.08	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 4/161/62	12/11/62	0615 H	32 00 S	111 50 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
50	0.21	0.03	0.29	0.04	0.06
75	0.15	0.02	0.16	0.02	0.08
100	0.18	0.01	0.33	0.02	0.09
150	0.15	0.02	0.15	0.01	0.08

DATA

PART 4

ZOOPLANKTON

EXPLANATION OF SYMBOLS

Part 4 — Zooplankton

x	Samples given to Indian Ocean Biological Centre, Cochin, India
( )	Including exceptionally large organisms
c.	Approximate values

A blank indicates no data available

VERTICAL HAULS 200–0 m : INDIAN OCEAN STANDARD NET

STATION POSITION	DATE	TIME	ESTIMATED VOLUME FILTERED (m^3)	TOTAL WEIGHT (g)	BIOMASS (mg/m^3)
Dm4/126/62	16/10/62	1830	230	12.35	53
31°57'S. 111°50'E.		1840	200	8.40	42 x
Dm4/127/62	17/10/62	1235	200	3.50	17
32°00'S. 110°00'E.		1245	200	3.90	19 x
Dm4/128/62	17/10/62	2120	200	32.45	162
30°30'S. 110°00'E.		2130	200	19.00	95 x
Dm4/129/62	18/10/62	1015	200	4.15	21
29°03'S. 110°00'E.		1025	200	3.65	18 x
Dm4/130/62	18/10/62	2015	200	20.05	100
27°30'S. 110°00'E.		2025	200	15.15	75 x
Dm4/131/62	19/10/62	1030	200	6.05	30 x
25°27'S. 109°56'E.					
Dm4/132/62	19/10/62	2015	200	12.15	61
24°30'S. 110°00'E.		2025	200	6.05	30 x

VERTICAL HAULS 200-0 m : INDIAN OCEAN STANDARD NET

STATION POSITION	DATE	TIME	ESTIMATED VOLUME FILTERED (m^3)	TOTAL WEIGHT (g)	BIOMASS (mg/m^3)
Dm4/133/62 23°00'S. 110°00'E.	20/10/62	1030	200	12.55	63
		1040	200	15.15	76 x
Dm4/134/62 21°30'S. 110°00'E.	20/10/62	2130	200	19.65	98 x

OBLIQUE AND HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH STRATUM RANGE (m)	DEPTH STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dm4/126/62 31°57'S. 111°50'E.	16/10/62	2140	0-10	0	20.0	110
		"	45-60	45	16.5	133
		"	120-160	120	24.4	24
Dm4/128/62 30°30'S. 110°00'E.	17/10/62	1215	0-10	0	17.6	167
		"			10.1	89
		"	90-110	100	11.1	58
		"			18.6	21
Dm4/130/62 27°03'S. 110°00'E.	18/10/62	2320	0-10	0	24.5	63
Dm4/131/62 25°27'S. 109°56'E.	19/10/62	1220	0-10	0	17.8	11
Dm4/132/62 24°30'S. 110°00'E.	19/10/62	2420	0-10	0	21.4	142
Dm4/134/62 21°30'S. 110°00'E.	20/10/62	2415	0-10	0	20.7	12
Dm4/135/62 19°59'S. 110°00'E.	21/10/62	1230	0-10	0	19.7	15

OBLIQUE AND HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH STRATUM RANGE (m)	MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dm4/138/62 15°30'S. 110°00'E.	22/10/62	2140	0-200-0		47.8	50
Dm4/139/62 14°02'S. 109°58'E.	23/10/62	1235	0-10	0	17.9	19
		"	40	40	11.6	30
		"	75-80	75	16.3	15
Dm4/140/62 12°38'S. 109°59'E.	23/10/62	2400	0-10	0	7.9	82
		2230	0-200-0		c. 38.2	c. 47
		"	0-200-0		c. 38.2	c. 68
Dm4/141/62 10°54'S. 110°03'E.	24/10/62	1215	0-10	0	24.9	50
		"	35-50	40	c. 24.9	c.115
Dm4/142/62 9°30'S. 110°00'E.	24/10/62	2115	0-200-0		c. 50.2	c. 40
		"	0-200-0		c. 50.2	c. 66
		2400	0-10	0	c. 19.9	c.133
		"	30-45	45	c. 19.9	c. 93
		"	60-80	80	19.9	37
Dm4/144/62 9°00'S. 105°00'E.	3/11/62	1340	0-200-0		c. 25.4	c. 35
		"	0-200-0		c. 25.4	c. 31
		1250	0-10	0	14.8	20
		"	35-55	50	8.3	24

OBLIQUE AND HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH STRATUM RANGE (m)	MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dm4/145/62 09°36'S. 110°02'E.	4/11/62	1315	0-10	0	15.1	86
		"	30-60	40	12.2	49
		"	75-125	75	17.2	31
		"	150-200	150	18.2	19
		1400	0-200-0		c. 19.1	c. 81
		"	0-200-0		c. 19.1	c.100
Dm4/146/62 11°00'S. 110°00'E.	4/11/62	2309	70-100	70	15.9	11
		"	140-200	140	20.8	7
		2100	0-200-0		43.6	43
		"	0-200-0		50.1	47
Dm4/147/62 12°30'S. 110°00'E.	5/11/62	1210	0-10	0	c. 5.3	c. 18
		1100	0-200-0		25.1	18
		"	0-200-0		25.0	24
Dm4/148/62 14°00'S. 110°00'E.	5/11/62	2050	0-200-0		46.4	32
Dm4/149/62 15°30'S. 110°00'E.	6/11/62	1055	0-200-0		19.7	36
		"	0-200-0		20.5	39

OBLIQUE AND HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH STRATUM RANGE (m)	MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dm4/150/62	6/11/62	2120	0-200-0		38.0	46
17°00'S. 110°00'E.		"	0-200-0		42.6	36
		2312	0-10	0	17.6	51
		"	40	40	15.0	46
		"	70-100	75	15.8	37
		"	140-180	150	23.1	23
Dm4/151/62	7/11/62	1055	0-200-0		21.4	40
18°30'S. 110°00'E.		"	0-200-0		21.8	51
		1200	0-10	0	20.5	21
		"	45-55	45	9.0	44
		"	90-110	90	9.8	56
		"	170-200	170	24.3	26
Dm4/152/62	7/11/62	2041	0-200-0		38.3	64
20°00'S. 110°00'E.		"	0-200-0		53.1	55
		2250		0	10.4	72
		"	40	40	13.3	60
		"	80-90	80	14.1	113
		"	150-200	150	c. 6.4	c. 23

OBLIQUE AND HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH STRATUM RANGE (m)	DEPTH STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dm4/153/62 21°30'S. 110°00'E.	8/11/62	1033	0-200-0		c. 1.6	c.156
		"	0-200-0		11.1	153
		1120		0	9.2	48
		"	40-75	75	c. 4.0	c. 50
		"	160-260	260	15.4	16
Dm4/154/62 23°00'S. 110°04'E.	8/11/62	2330		c. 0	22.2	81
		"		c. 50	9.3	161
		"		c.100	16.0	31
		"		c.200	20.0	22
Dm4/155/62 24°30'S. 110°00'E.	9/11/62	1125	0-200-0		21.2	57
		"	0-200-0		19.8	38
Dm4/156/62 26°00'S. 110°00'E.	9/11/62	2140	0-200-0		52.0	47
		"	0-200-0		61.8	30
		2320	0-10	0	16.7	47
		"	30-80	35	9.4	26
		"	70-130	75	13.0	30
		"	150-280	150	13.7	14
Dm4/157/62 27°30'S. 110°00'E.	10/11/62	1030	0-200-0		22.1	66
		"	0-200-0		20.8	58

OBLIQUE AND HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH STRATUM RANGE (m)	DEPTH STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dm4/158/62 29°00'S. 110°00'E.	10/11/62	2215	0-200-0		57.6	27 (61)
		"	0-200-0		59.0	52 (102)
		2315	0-10	0	8.1	30
		"	60-75	70	16.8	3
		"	120-135	130	15.0	10
		"	180-230	200	29.5	5
Dm4/159/62 30°30'S. 110°00'E.	11/11/62	1030	0-200-0		27.4	16
		"	0-200-0		c. 27.4	c. 22
Dm4/160/62 32°02'S. 110°00'E.	11/11/62	2130	0-200-0		26.8	69

DATA

PART 5

MICRONEKTON

OBLIQUE TOWS : 5 FT ISAACS-KIDD MIDWATER TRAWL

STATION POSITION	DATE	TIME	ESTIMATED LENGTH OF COLUMN FILTERED (m)	MAX. DEPTH (m)+	DRY WEIGHT: mg for a 10,000 m* column			
					JELLY ORG.	PLANKTON ORG.	MACRO-PLANKTON ORG.	MICRO-NEKTON
Dm4/126/62 31°57'S. 111°50'E.	16/10/62	2006 2146	9260	260	648	6360	4481	7897
Dm4/128/62 30°30'S. 110°00'E.	17/10/62	2151 2336	12964	200	248	4800	3934	5168
Dm4/130/62 27°30'S. 110°00'E.	18/10/62	2051 2233	12592	150	528	6000	2503	16422
Dm4/132/62 24°30'S. 110°00'E.	19/10/62	2103 2255	11728	200	488	4920	2979	8049
Dm4/134/62 21°30'S. 110°00'E.	20/10/62	2143 2315	9320	200	1416	6120	4518	11076
Dm4/136/62 18°30'S. 110°00'E.	21/10/62	2100 2233	9846	200	856	5520	6490	6981
Dm4/138/62 15°30'S. 110°00'E.	22/10/62	2057 2231	9630	200	480	3720	10735	9705
Dm4/140/62 12°38'S. 109°59'E.	24/10/62	2154 2345	11204	200	424	6360	9357	8773

OBLIQUE TOWS : 5 FT ISAACS-KIDD MIDWATER TRAWL

STATION POSITION	DATE	TIME	ESTIMATED LENGTH OF COLUMN FILTERED (m)	MAX. DEPTH (m)+	DRY WEIGHT: mg for a 10,000 m* column			
					JELLY ORG.	PLANKTON ORG.	MACRO-PLANKTON ORG.	MICRO-NEKTON
Dm4/142/62 9°30'S. 110°00'E.	25/10/62	2106 2251	13518	200	560	8040	16619	10807
Dm4/146/62 11°00'S. 110°00'E.	4/11/62	2110 2245	10154	200	552	9120	12965	11908
Dm4/148/62 14°00'S. 110°00'E.	5/11/62	2045 2215	10648	200	208	2880	3588	4014
Dm4/150/62 17°00'S. 110°00'E.	6/11/62	2119 2250	10664	200	312	3600	2897	2556
Dm4/152/62 20°00'S. 110°00'E.	7/11/62	2040 2235	15000	200	336	4440	3081	7008
Dm4/158/62 29°00'S. 110°00'E.	10/11/62	2114 2258	13272	200	144	2760	2544	2256
Dm4/160/62 32°02'S. 110°00'E.	11/11/62	2135 2308	12038	200	264	5520	4235	5837

+ If no data, 200 m assumed

* 10,000 m is the length of the column filtered in the time of the average tow

TABLE 3

RELATION OF WET VOLUME TO DRY WEIGHT

The displacement volume of a group of organisms (in ml) multiplied by the appropriate factor below, gives the dry weight in mg.

	CONVERSION FACTOR
Gelatinous organisms (Medusae, Salps, Siphonophores)	8
Planktonic organisms	120
Micronektonic organisms	
Fishes	189
Fish larvae	162
Leptocephali	60
Cephalopods non gelatinous, small	137
non gelatinous, big	182
gelatinous	72
Macroplanktonic organisms	
Phyllosomas	29
Stomatopods	168
Amphipods - various	130
- Phronima group	43
Mysids	145
Euphausiids	149
Penaeids	158
Carids	231
Annelids	53
Pteropods (shell included)	267
Heteropods	10
Chaetognaths	56

OCEANOGRAPHICAL CRUISE REPORTS

1. Oceanographical observations in the Indian Ocean in 1959. H.M.A.S. *Diamantina* Cruises Dm1/59 and Dm2/59.
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15. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm2/62.
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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.