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

OCEANOGRAPHICAL CRUISE REPORT NO. 17

DIVISION OF FISHERIES AND OCEANOGRAPHY
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL
RESEARCH ORGANIZATION, AUSTRALIA 1966

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H.M.A.S. GASCOYNE

Cruise G4/62

(Seasonal Biological Cruise No. 1)

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION,

AUSTRALIA

MELBOURNE, 1966

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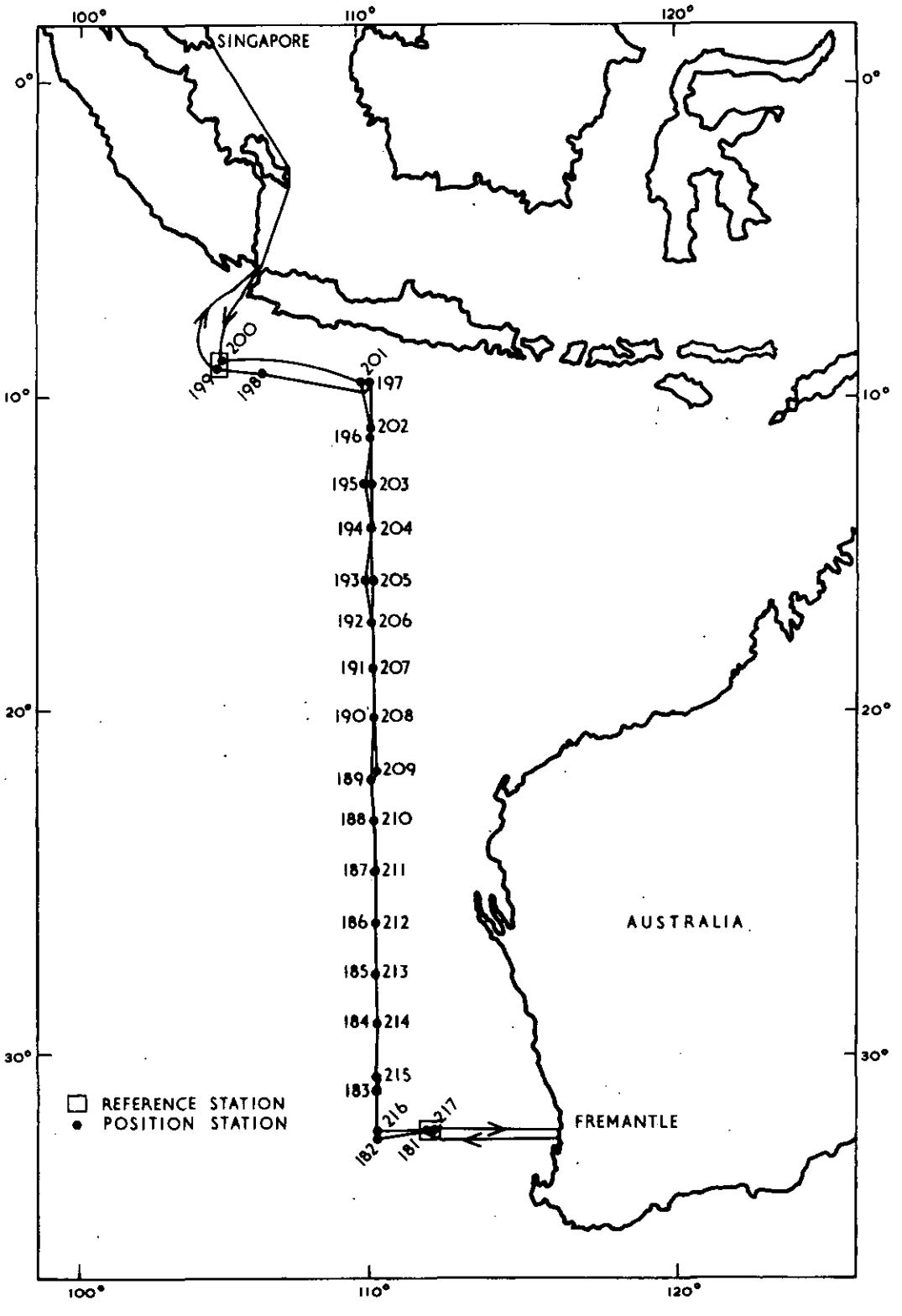
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OCEANOGRAPHICAL CRUISE REPORT

No. 17

Oceanographical Observations in the Indian Ocean in 1962

H.M.A.S. GASCOYNE

Cruise G4/62

August 19 - September 16, 1962

I. INTRODUCTION

During 1959-62 ten cruises were made by H.M.A.S. Diamantina in the south-east Indian Ocean. These cruises indicated the need for more detailed observations covering the range of seasonal fluctuations in a suitable section of this area. The section along the 110°E. line from west of Fremantle to 10°N. could be conveniently worked, and included areas where interesting features had been recorded on the earlier cruises. A series of six cruises (seasonal biological cruises) at two-monthly intervals along this section was therefore commenced. This report records the data for the fourth cruise in 1962 of H.M.A.S. Gascoyne, Royal Australian Navy frigate, in the Indian Ocean; this was the first 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 the inter-relations of these properties with particular reference to the dynamics of production; and to investigate long and short wave radiation in its relation to the energy budget of the ocean.

Itinerary

The cruise commenced at Fremantle on August 19, occupied SCOR-UNESCO Reference Station 1, and then 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

D. Tranter (Cruise Leader)
F. Davies
E.L. Deacon, Division of Meteorological Physics, CSIRO
N. Dyson
M. El-Hehyawi (UNESCO Shipboard Fellow from U.A.R.)
M. Legand (Institut Francais d'Oceanie, New Caledonia)
J. Stevenson, Division of Meteorological Physics, CSIRO

The analyses of hydrological samples were done in the ship's laboratory by Mr Davies. Nitrate analyses were done at Cronulla by Mr Staniforth. The primary production samples were taken and incubated aboard by Mr Dyson, and the counts were made at Cronulla by Mr Scott. 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 and Mr Heron. 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-seven stations were worked (G4/181/62-G4/217/62).

Bathythermograph casts were made at 36 stations. Hydrology samples were taken at 35 stations, and primary production, pigment, and zooplankton samples at 36 stations. The midwater trawl was used at 16 stations.

TABLE 1

WORK DONE AT EACH STATION

Stn No.	BT	Hydrology 1	2	3	Prim. Production 1	2	3	Pig-ments	Zooplankton 1	2	3	Micro-nekton
181	+	+	+		+	+	+	+	+	+		
182	+	+	+				+	+	+	+		
183	+	+		+			+	+	+	+		+
184	+	+	+			+	+	+	+	+		
185	+	+		+			+	+	+	+		+
186	+	+	+			+	+	+	+	+		
187	+	+		+			+	+	+	+		+
188	+	+	+			+	+	+	+	+		
189	+	+		+			+	+	+	+		+
190	+	+	+			+	+	+	+	+		
191	+	+		+			+	+	+	+		+
192	+	+	+			+	+	+	+	+		
193	+	+		+			+	+	+	+		+
194	+	+	+			+	+	+	+	+		
195	+	+		+			+	+	+	+		+
196	+	+	+			+	+	+	+	+		
197	+	+	+				+	+	+	+		+
198												+
199	+	+	+	+	+	+	+	+	+	+		
200	+	+	+				+	+		+		
201	+	+		+		+	+	+		+	+	
202	+	+		+			+	+		+	+	+
203	+	+	+			+	+	+		+	+	
204	+	+		+			+	+		+	+	+
205	+	+	+			+	+	+		+	+	
206	+	+		+			+	+		+	+	+
207	+	+	+			+	+	+		+	+	
208	+	+		+			+	+		+	+	+
209	+	+	+			+	+	+		+	+	
210	+	+		+			+	+		+	+	+
211	+	+	+			+	+	+		+	+	
212	+	+		+			+	+		+	+	+
213	+	+	+			+	+	+		+	+	
214	+	+		+			+	+		+	+	+
215	+	+	+				+	+		+	+	
216	+	+		+			+	+		+	+	
217	+						+	+		+	+	

BT	Bathythermograms
Hydrology	1 Surface
	2 Subsurface
	3 To 200 m only for temperature and salinity
Prim. Production	Primary Production
	1 In situ incubation
	2 Simulated in situ incubation
	3 Artificial light incubation
Zooplankton	1 Indian Ocean standard net
	2 Clarke-Bumpus horizontal tows
	3 Clarke-Bumpus oblique 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 ± 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 ± 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. To correct for salt effects multiply the results given 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 than allowed to cool and 100 ml of distilled water and 2 drops of 2% 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)

(b) Oblique and horizontal tows within the 200-0 m stratum with Clarke-Bumpus Samplers (CBS)

(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.

(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. 147) to mg/m^3 (minimal and maximal estimates).

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IV. DATA SHEETS

The hydrology data were processed in a C.D.C. 3600 Computer, and primary production and pigment data in an I.B.M. 1401 Computer. Explanation of the headings for each section is 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, G4/181/62 signifies the 181st station worked by Gascoyne 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
* and ***	Indicate no data available

NOTE: Salinity results

The salinometer had a faulty stirrer. This was repaired after Station 200. Results for Stations 181-200 might be in error.

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/181/62	19/8/62	0800 G	31 58 S	111 48 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	15.6	18.3	00	3	16	0	8	7	00	2	17	4	1025.5	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	19.61	35.625	25.36	5.13	102	0.10	0.31	0.0
2	25	19.61	35.625	25.36	5.05	101	0.12	***	0.0
2	50	19.63	35.629	25.36	5.06	101	0.12	0.31	0.0
2	75	19.65	35.635	25.36	5.06	101	0.17	***	0.3
2	100	19.69	35.655	25.36	4.95	99	0.10	0.31	0.2
2	150	19.68	35.661	25.37	5.02	100	0.10	***	0.1
2	200	19.74	35.682	25.37	4.90	98	0.10	0.30	0.3
2	300	18.19	35.817	25.87	4.88	95	0.15	0.33	0.3
2	500	11.26	35.000	26.75	5.48	92	0.62	0.84	8.5
2	700	8.91	34.669	26.89	5.47	87	0.98	1.16	16.8
2	900	6.56	34.475	27.09	4.64	69	1.51	1.59	28.5
2	1100	4.32	34.426	27.32	4.00	56	1.89	1.95	32.4
1	1260	3.66	34.505	27.45	3.57	49	2.00	2.11	35.1
1	1454	3.18	34.557	27.54	3.48	48	1.98	2.11	35.1
1	1938	2.56	34.701	27.71	3.81	51	1.84	1.90	31.5
1	2422	2.13	34.741	27.78	3.81	51	1.94	2.06	33.9
1	2906	1.80	34.749	27.81	3.91	52	1.83	1.94	33.3
1	3390	1.49	34.734	27.82	4.09	53	1.83	1.94	33.0
1	3875	1.31	34.727	27.83	4.22	55	1.90	1.94	32.1
1	4358	1.22	34.719	27.83	4.43	57	1.85	2.03	33.6

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/182/62	20/8/62	0800 G	32 08 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
4572	19.4	16.7	35	4	16	8	1	7	35	4	32	4	1018.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	19.62	35.621	25.35	5.09	102	0.14	0.29	0.2
2	25	19.63	35.621	25.35	5.06	101	0.14	***	0.1
2	50	19.64	35.622	25.35	5.12	102	0.14	0.28	0.1
2	75	19.66	35.622	25.34	5.08	101	0.17	***	0.1
2	100	19.66	35.622	25.34	4.99	100	0.17	0.33	0.1
2	150	19.42	35.736	25.49	4.94	98	0.17	***	0.1
2	200	18.55	35.821	25.78	4.87	95	0.20	0.33	1.1
2	300	15.31	35.581	26.37	5.09	93	0.33	0.45	5.5
2	500	10.16	34.866	26.84	5.52	90	0.86	0.92	16.0
2	700	8.58	34.632	26.92	5.33	84	1.12	1.22	17.4
2	900	5.76	34.427	27.15	4.53	66	1.69	1.83	32.1
2	1100	4.08	34.464	27.37	3.66	51	2.04	2.21	32.1
1	1257	3.62	34.579	27.51	3.54	49	2.05	2.21	33.9
1	1454	3.12	34.590	27.57	3.38	46	2.05	2.15	33.9
1	1949	2.46	34.701	27.72	3.55	48	2.03	2.10	33.0
1	2446	2.01	34.730	27.78	3.78	50	2.01	1.98	33.9
1	2945	1.72	34.736	27.80	4.05	53	1.86	1.98	33.0
1	3443	1.42	34.731	27.82	4.13	54	1.92	1.98	32.7
1	3941	1.27	34.721	27.83	4.32	56	1.92	2.01	33.0
1	4440	1.17	34.720	27.83	4.43	57	1.90	2.01	32.4

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/183/62	20/8/62	2000 G	30 42 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	16.1	18.9	34	3	16	0	4	7	34	2	31	6	1018.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.70	35.720	25.67	***	***	***	***	***
1	25	18.69	35.730	25.68	***	***	***	***	***
1	50	18.70	35.730	25.67	***	***	***	***	***
1	75	18.72	35.720	25.66	***	***	***	***	***
1	100	18.44	35.770	25.77	***	***	***	***	***
1	150	16.96	35.720	26.09	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/184/62	21/8/62	0800 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
5486	18.9	20.6	31	3	16	8	1	7	31	2	32	5	1016.1	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	18.88	35.679	25.59	5.18	102	0.13	0.25	0.1
2	24	18.84	35.679	25.60	5.19	102	0.13	***	0.1
2	48	18.65	35.744	25.70	5.18	102	0.13	0.27	0.0
2	71	18.45	35.809	25.80	5.07	99	0.19	***	***
2	95	18.18	35.814	25.87	5.04	98	0.22	0.32	0.0
2	142	17.97	35.842	25.94	5.19	100	0.15	***	***
2	188	17.55	35.831	26.04	5.14	99	0.21	0.32	0.1
2	282	15.40	35.646	26.40	5.23	96	0.29	0.40	0.5
2	470	10.31	34.871	26.82	5.43	89	0.76	0.96	10.6
2	657	8.71	34.667	26.92	5.39	85	1.13	1.15	16.2
2	845	6.29	34.463	27.11	4.53	67	1.51	1.67	26.4
1	898	5.45	34.448	27.21	4.53	66	1.68	1.73	29.4
1	986	4.53	34.432	27.30	4.13	58	1.90	1.97	32.4
1	1075	4.06	34.464	27.38	3.67	51	2.14	2.11	33.6
1	1300	3.51	34.593	27.53	2.97	41	2.22	2.35	35.1
1	1525	3.00	34.632	27.61	3.30	45	2.15	2.26	35.1

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/185/62	21/8/62	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	19.4	20.6	31	5	16	3	7	7	31	2	31	5	1019.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.26	35.530	25.12	***	***	***	***	***
1	25	20.24	35.518	25.11	***	***	***	***	***
1	50	20.14	35.558	25.17	***	***	***	***	***
1	75	19.71	35.703	25.39	***	***	***	***	***
1	100	19.14	35.739	25.57	***	***	***	***	***
1	150	18.28	35.814	25.84	***	***	***	***	***
1	200	16.93	35.762	26.13	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/186/62	22/8/62	0800 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
3900	18.9	20.0	20	3	16	1	2	7	*	*	22	3	1020.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
3	0	21.05	35.370	24.78	4.97	102	0.17	0.29	0.0
3	25	20.62	35.460	24.97	4.77	97	0.17	***	0.0
3	50	20.51	35.480	25.01	4.78	97	0.17	0.30	0.0
3	75	20.35	35.520	25.08	4.81	97	0.17	***	0.0
3	100	19.97	35.640	25.28	4.92	99	0.17	0.29	0.2
3	150	19.15	35.750	25.57	4.70	93	0.29	***	0.6
3	200	17.83	35.820	25.96	4.95	96	0.29	0.32	0.6
3	300	14.14	35.480	26.55	5.07	91	0.43	0.51	1.1
3	500	9.56	34.850	26.93	5.46	88	0.97	1.09	10.9
3	700	7.54	34.540	27.00	4.77	73	1.37	1.40	19.4
3	900	4.56	34.470	27.33	3.49	49	2.00	2.01	30.0
3	1100	4.26	34.600	27.46	2.62	37	2.08	2.17	32.1
1	1300	3.79	34.630	27.54	2.82	39	2.16	2.12	32.7
1	1500	3.30	34.650	27.60	3.13	43	2.17	2.17	32.1
2	1990	2.35	34.740	27.76	3.52	47	2.06	2.13	31.2
2	2487	1.93	34.760	27.81	3.59	47	2.04	2.06	30.3
2	2984	1.62	34.740	27.81	3.90	51	2.06	2.00	30.3
2	3481	1.37	34.740	27.83	4.17	54	2.06	***	29.4

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/187/62	22/8/62	2000 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
4115	20.0	21.1	12	2	16	*	*	7	12	1	20	3	1021.5	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	21.25	35.410	24.76	***	***	***	***	***
1	25	20.95	35.460	24.88	***	***	***	***	***
1	50	20.92	35.460	24.88	***	***	***	***	***
1	75	20.76	35.500	24.96	***	***	***	***	***
1	100	19.80	35.510	25.22	***	***	***	***	***
1	150	18.66	35.750	25.70	***	***	***	***	***
1	200	16.97	35.810	26.16	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/188/62	23/8/62	0800 G	23 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
4984	19.4	21.7	11	3	16	*	*	7	11	2	20	4	1021.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	22.58	35.030	24.10	4.84	101	0.13	0.31	0.0
2	25	22.29	35.070	24.21	4.59	96	0.12	***	0.1
2	50	22.44	35.260	24.31	4.44	93	0.14	0.30	0.4
2	75	21.81	35.350	24.56	4.38	91	0.23	***	0.5
2	100	21.07	35.500	24.87	4.59	94	0.16	0.36	0.2
2	150	18.99	35.410	25.36	3.76	74	0.56	***	4.5
2	200	18.08	35.620	25.74	4.19	81	0.45	0.53	2.6
2	300	15.38	35.610	26.37	4.78	88	0.41	0.51	1.4
2	500	10.03	34.850	26.85	5.45	89	0.88	0.92	10.2
2	700	7.76	34.560	26.98	4.78	74	1.28	1.35	20.4
2	900	5.30	34.540	27.30	2.96	43	2.01	2.08	30.8
2	1100	4.58	34.610	27.44	2.49	35	2.06	2.13	33.6
1	1300	3.89	34.630	27.53	2.68	37	2.13	2.11	32.7
1	1500	3.33	34.670	27.61	2.91	40	2.11	2.16	32.4

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/189/62	23/8/62	2000 G	21 45 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
4938	18.3	23.3	12	4	16	1	1	*	12	2	21	6	1020.5	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	23.16	35.070	23.96	***	***	***	***	***
1	25	22.70	35.100	24.12	***	***	***	***	***
1	50	22.16	35.140	24.30	***	***	***	***	***
1	75	21.91	35.230	24.44	***	***	***	***	***
1	100	21.72	35.300	24.54	***	***	***	***	***
1	150	21.49	35.350	24.65	***	***	***	***	***
1	200	20.81	35.590	25.01	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/190/62	24/8/62	0800 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
4023	23.3	25.6	11	4	16	*	*	7	10	2	11	4	1019.8	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	23.23	35.051	23.93	4.80	102	0.21	0.33	0.0
2	25	23.19	35.041	23.93	4.53	96	0.19	***	0.0
2	50	23.22	35.038	23.92	4.56	97	0.19	0.35	0.6
2	75	22.86	35.076	24.05	4.45	94	0.26	***	0.9
2	100	21.14	35.150	24.59	3.48	71	0.57	0.64	4.4
2	150	19.25	35.461	25.33	3.88	77	0.51	***	3.2
2	200	17.77	35.667	25.86	4.29	83	0.43	0.58	2.5
2	300	14.34	35.471	26.50	4.83	87	0.48	0.61	3.2
2	700	6.31	34.600	27.22	2.53	38	1.89	2.15	28.5
2	900	5.15	34.638	27.39	2.06	30	2.15	2.32	31.5
2	1100	4.35	34.636	27.48	2.39	34	2.17	2.32	32.1
1	1200	4.11	34.642	27.51	2.49	35	2.15	2.28	33.9
1	1400	3.41	34.665	27.60	***	***	2.04	2.16	34.2
1	1900	2.50	34.723	27.73	3.17	43	2.04	2.19	32.7
1	2400	2.02	34.726	27.77	3.48	46	2.06	2.13	32.1
1	2900	1.62	34.729	27.81	3.83	50	2.01	2.09	31.5
1	3400	1.34	34.725	27.82	4.05	53	1.93	2.09	31.8
1	3900	1.21	34.722	27.83	4.30	56	1.96	2.04	29.4

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/191/62	24/8/62	2000 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	20.6	23.9	11	4	16	1	*	7	11	2	22	6	1019.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	24.38	34.780	23.38	***	***	***	***	***
1	25	24.06	34.830	23.51	***	***	***	***	***
1	50	24.08	34.830	23.51	***	***	***	***	***
1	75	23.50	34.990	23.80	***	***	***	***	***
1	100	23.23	34.970	23.87	***	***	***	***	***
1	150	19.27	34.960	24.94	***	***	***	***	***
1	200	17.54	35.120	25.49	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/192/62	25/8/62	0800 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
5486	20.6	23.9	09	4	16	8	3	7	09	2	22	5	1017.6	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	24.40	34.668	23.29	4.70	101	0.15	0.24	0.3
2	25	24.36	34.660	23.30	4.52	98	0.15	***	***
2	50	24.39	34.837	23.42	4.39	95	0.15	0.30	0.1
2	75	24.37	34.882	23.46	4.63	100	0.17	***	0.1
2	100	24.22	34.986	23.59	4.51	97	0.20	0.39	0.1
2	125	24.02	35.006	23.66	4.17	90	0.30	***	0.9
2	150	20.70	34.852	24.48	2.89	58	0.79	***	10.2
2	200	17.67	34.972	25.35	2.74	52	0.91	1.13	13.4
2	250	16.37	35.230	25.86	3.35	63	0.84	***	11.4
2	300	14.94	35.267	26.21	3.53	64	0.82	0.89	12.0
2	400	10.94	34.936	26.76	4.32	72	1.01	***	15.0
2	500	8.68	34.674	26.93	4.75	75	1.19	1.30	18.4
2	700	6.45	34.635	27.23	2.19	33	1.75	2.19	36.0
2	900	5.53	34.642	27.35	1.94	28	2.13	2.30	36.3
2	1100	4.80	34.638	27.43	2.08	30	2.13	2.36	36.3
1	1291	4.13	34.650	27.52	2.39	34	2.13	2.30	37.8
1	1489	3.51	34.670	27.60	2.61	36	2.10	2.21	39.0
1	1985	2.49	34.716	27.73	3.10	42	2.01	2.20	35.7
1	2482	2.03	34.724	27.77	3.43	45	2.03	2.19	35.1
1	2978	1.62	34.726	27.80	3.78	50	1.90	2.07	35.7
1	3474	1.33	34.717	27.82	4.07	53	1.94	2.02	34.5
1	3971	1.21	34.714	27.82	4.18	54	1.90	2.01	33.0
1	4467	1.18	34.711	27.82	4.24	55	1.83	2.01	35.1
1	4963	1.19	34.713	27.82	4.47	58	1.87	2.01	36.3

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/193/62	25/8/62	2000 G	15 33 S	109 58 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
5578	21.1	25.0	10	4	16	*	*	7	10	2	22	5	1016.4	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	25.53	34.510	22.83	***	***	***	***	***
1	25	25.47	34.520	22.86	***	***	***	***	***
1	50	24.89	34.670	23.15	***	***	***	***	***
1	75	24.59	34.720	23.27	***	***	***	***	***
1	100	24.55	34.760	23.32	***	***	***	***	***
1	150	19.51	34.920	24.85	***	***	***	***	***
1	200	16.79	34.990	25.57	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/194/62	26/8/62	0800 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
5578	21.1	25.0	10	4	16	8	3	7	10	2	24	4	1016.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	25.59	34.534	22.83	4.54	100	0.14	0.38	***
2	25	25.55	34.512	22.83	4.48	99	0.14	***	***
2	50	25.58	34.510	22.82	4.49	99	0.17	0.30	0.1
2	75	25.57	34.512	22.82	4.51	99	0.19	***	***
2	100	25.38	34.568	22.92	4.22	93	0.25	0.41	***
2	125	21.80	34.827	24.16	3.15	65	0.72	***	6.1
2	150	18.96	34.762	24.87	2.27	44	1.07	***	15.0
2	200	15.40	34.713	25.68	2.27	41	1.25	1.41	19.0
2	250	13.52	34.685	26.06	2.39	42	1.46	***	21.3
2	300	11.90	34.715	26.41	2.38	40	1.50	1.63	19.5
2	400	10.42	34.815	26.75	3.30	54	1.39	***	19.5
2	500	8.99	34.722	26.92	4.12	65	***	1.45	21.3
2	700	6.73	34.631	27.19	2.10	32	2.01	2.27	32.7
2	900	5.62	34.622	27.32	1.94	28	2.30	2.35	33.6
2	1100	4.60	34.621	27.44	2.11	30	2.30	2.33	35.4
1	1283	4.17	34.644	27.51	2.22	31	2.05	2.25	34.8
1	1481	3.55	34.671	27.59	2.46	34	2.23	2.25	36.3
1	1974	2.51	34.725	27.73	2.97	40	2.23	2.15	35.1
1	2468	2.04	34.730	27.77	3.45	46	2.14	2.19	33.6
1	2961	1.66	34.724	27.80	3.67	48	2.04	2.06	33.6
1	3454	1.38	34.721	27.82	3.99	52	2.04	2.14	32.4
1	3947	1.24	34.719	27.82	4.13	54	1.99	2.09	32.7
1	4441	1.18	34.717	27.83	4.26	55	1.97	2.10	31.8
1	4934	1.18	34.716	27.83	4.42	57	1.97	2.04	30.9

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/195/62	26/8/62	2000 G	12 34 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
4480	20.6	26.1	10	3	16	*	*	7	10	2	07	4	1014.3	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	25.92	34.450	22.66	***	***	***	***	***
1	25	25.86	34.450	22.68	***	***	***	***	***
1	50	25.85	34.450	22.69	***	***	***	***	***
1	75	25.85	34.450	22.69	***	***	***	***	***
1	100	25.84	34.490	22.72	***	***	***	***	***
1	150	19.59	34.720	24.68	***	***	***	***	***
1	200	14.62	34.690	25.83	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/196/62	27/8/62	0800 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
4846	21.7	25.6	10	3	16	8	2	7	10	2	20	4	1013.8	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	25.91	34.269	22.53	4.57	101	0.13	0.33	0.0
2	25	25.88	34.252	22.53	4.44	98	0.14	***	0.0
2	50	25.88	34.382	22.63	4.36	96	0.13	0.31	0.0
2	75	25.83	34.473	22.71	4.40	97	0.17	***	0.0
2	100	22.86	34.625	23.71	3.08	65	0.63	0.74	4.5
2	125	20.38	34.914	24.61	2.92	59	0.78	***	7.7
2	150	18.76	34.999	25.10	2.85	56	0.89	***	10.1
2	200	13.47	34.599	26.01	2.34	41	1.38	1.50	21.0
2	250	11.13	34.566	26.43	2.27	38	1.65	***	22.6
2	300	10.02	34.579	26.64	2.05	33	1.68	1.85	27.6
2	400	8.72	34.604	26.87	2.16	34	1.93	***	27.8
2	500	7.65	34.618	27.05	2.22	34	1.99	2.07	31.8
2	700	6.27	34.614	27.23	1.92	28	2.01	2.11	33.0
2	900	4.90	34.604	27.39	2.10	30	2.32	2.30	33.9
2	1100	4.20	34.641	27.50	2.18	31	2.25	2.28	28.1
1	1278	3.80	34.678	27.57	2.37	33	2.25	2.28	33.3
1	1475	3.33	34.723	27.65	2.51	34	2.25	2.28	34.8
1	1967	2.44	34.741	27.75	3.15	42	2.13	2.19	31.5
1	2459	1.96	34.741	27.79	3.42	45	2.11	2.14	33.0
1	2950	1.62	34.730	27.81	3.71	49	2.09	2.14	33.0
1	3442	1.30	34.720	27.82	4.02	52	2.09	2.14	31.2
1	3933	1.18	34.714	27.82	4.10	53	1.99	2.09	31.8
1	4425	1.17	34.717	27.83	4.30	56	2.01	***	31.5

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/197/62	27/8/62	2050 G	9 17 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
3200	23.3	26.7	11	3	16	8	3.	7	11	2	21	4	1013.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	25.90	34.240	22.51	4.51	100	0.13	0.24	0.5
2	25	25.87	34.220	22.51	4.42	98	0.13	***	0.2
2	50	25.89	34.239	22.52	4.37	97	0.12	0.27	0.1
2	75	25.37	34.491	22.87	4.07	89	0.23	***	0.6
2	100	20.07	34.517	24.39	2.67	53	0.90	1.00	13.0
2	125	16.60	34.538	25.27	2.59	48	1.17	***	16.6
2	150	13.75	34.550	25.91	2.43	43	1.37	***	20.6
2	200	11.05	34.555	26.44	2.20	37	1.63	1.63	24.8
2	250	10.09	34.621	26.66	2.03	33	1.81	***	30.3
2	300	9.76	34.677	26.76	1.84	30	1.80	1.83	30.6
2	400	9.10	34.770	26.94	1.80	29	1.91	***	33.9
2	500	8.64	34.710	26.97	1.81	28	1.99	2.01	33.6
1	672	7.32	34.684	27.15	1.70	26	2.01	2.16	36.0
1	865	5.77	34.637	27.32	1.91	28	2.30	2.23	35.4
1	1060	4.72	34.627	27.43	2.10	30	2.32	2.33	35.4
1	1257	4.13	34.661	27.52	2.25	32	2.30	2.36	36.0
1	1454	3.53	34.705	27.62	2.40	33	2.21	2.34	35.7
1	1950	2.38	34.738	27.75	3.13	42	2.20	2.19	34.2
1	2449	1.95	34.735	27.79	3.36	44	2.11	2.09	35.7
1	2948	1.83	34.730	27.79	3.47	46	2.14	2.00	34.2

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/199/62	29/8/62	0830 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	22.8	26.1	10	5	16	8	1	7	10	3	12	5	1009.5	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	26.16	34.148	22.36	4.56	101	0.17	0.30	0.0
2	25	26.04	34.131	22.39	4.46	99	0.13	***	0.0
2	50	25.72	34.292	22.61	4.45	98	0.16	0.33	0.0
2	75	21.66	34.356	23.84	2.86	59	0.73	***	9.4
2	100	20.07	34.421	24.32	2.72	54	0.90	0.98	11.2
2	125	17.97	34.611	25.00	2.54	49	1.05	***	12.8
2	150	15.82	34.549	25.46	2.51	46	1.18	***	20.6
2	200	12.34	34.600	26.23	2.18	37	1.43	1.62	24.4
2	250	11.32	34.619	26.44	2.06	34	1.60	***	28.2
2	300	10.81	34.726	26.62	1.74	29	1.64	1.82	30.9
2	400	9.57	34.760	26.86	1.92	31	1.82	***	33.3
2	500	8.41	34.716	27.01	1.80	28	1.89	2.03	33.3
2	700	6.84	34.689	27.22	1.60	24	2.04	2.20	36.3
2	900	5.43	34.632	27.35	1.90	28	2.17	2.27	34.2
2	1100	4.58	34.631	27.45	2.03	29	2.14	2.35	35.4
1	1288	4.06	34.681	27.55	2.24	31	2.11	2.29	38.7
1	1487	3.55	34.714	27.63	2.37	33	1.97	2.06	38.4
1	1981	2.48	34.745	27.75	3.03	41	2.07	2.13	38.4
1	2476	1.97	34.738	27.79	3.29	44	1.99	2.08	36.9
1	2971	1.75	34.729	27.80	3.61	47	2.00	2.09	34.5
1	3466	1.43	34.722	27.81	3.88	51	2.00	1.98	34.5
1	3962	1.19	34.716	27.83	4.18	54	1.99	2.04	36.3
1	4457	1.17	34.713	27.82	4.26	55	1.89	2.03	33.6
1	4952	1.20	34.714	27.82	4.26	55	1.91	2.00	33.6
1	5446	1.26	34.715	27.82	4.40	57	1.90	1.98	34.2

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/200/62	7/9/62	0400 G	8 53 S	105 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
6035	21.1	24.4	11	4	16	8	2	7	11	3	15	5	1009.1	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	25.28	34.373	22.80	4.46	98	0.21	0.36	0.1
2	21	25.23	34.360	22.81	4.31	94	0.16	***	0.4
2	41	24.78	34.332	22.92	4.30	93	0.23	0.47	0.6
2	62	24.28	34.354	23.09	4.34	93	0.35	***	1.0
2	83	24.03	34.335	23.15	3.96	85	0.44	0.63	2.0
2	104	20.60	34.369	24.14	2.75	55	0.89	***	7.0
2	124	18.99	34.582	24.72	2.57	50	0.96	***	14.0
2	165	15.03	34.596	25.67	2.38	43	1.18	1.35	18.0
2	207	12.52	34.622	26.21	2.16	37	1.52	***	23.0
2	247	11.23	34.642	26.47	1.95	33	1.67	1.70	27.3
2	330	10.16	34.699	26.71	1.86	30	1.71	***	27.3
2	412	9.57	34.780	26.87	1.84	30	1.77	1.83	29.1
2	576	8.07	34.744	27.08	1.61	25	2.01	2.12	33.9
2	741	6.89	34.717	27.23	1.60	24	2.17	2.29	34.2
2	905	5.59	34.654	27.35	1.85	27	2.25	2.33	34.2
1	950	5.45	34.634	27.35	1.93	28	2.22	2.26	35.4
1	1095	4.90	34.641	27.42	1.95	28	2.13	2.25	35.7
1	1460	3.73	34.706	27.60	2.34	33	2.22	2.27	34.5
1	1825	2.86	34.746	27.72	2.77	38	2.17	2.29	36.3
1	2190	2.26	34.743	27.77	3.23	43	2.11	2.20	33.6
1	2555	1.89	34.736	27.79	3.41	45	2.05	2.08	35.4
1	2920	1.68	34.729	27.80	3.65	48	2.05	2.09	35.4
1	3285	1.50	34.724	27.81	3.83	50	2.04	2.05	33.6
1	3645	1.28	34.719	27.82	4.00	52	2.03	2.06	35.4
1	4005	1.18	34.714	27.82	4.25	55	2.00	2.03	33.9

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/201/62	8/9/62	1030 G	9 27 S	109 49 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
732	23.9	26.7	09	4	16	8	6	6	10	2	17	5	1009.5	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	25.51	34.321	22.69	***	***	***	***	***
1	25	25.21	34.273	22.75	***	***	***	***	***
1	50	22.59	34.312	23.55	***	***	***	***	***
1	75	19.74	34.632	24.57	***	***	***	***	***
1	100	17.55	34.712	25.18	***	***	***	***	***
1	150	13.31	34.539	25.99	***	***	***	***	***
1	200	11.53	34.549	26.35	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/202/62	8/9/62	2030 G	10 58 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	23.9	26.7	09	4	16	8	1	7	09	2	19	5	1009.3	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	25.16	34.253	22.75	***	***	***	***	***
1	25	25.08	34.243	22.77	***	***	***	***	***
1	50	24.99	34.241	22.79	***	***	***	***	***
1	75	20.68	34.246	24.03	***	***	***	***	***
1	100	17.09	34.433	25.08	***	***	***	***	***
1	150	14.10	34.528	25.82	***	***	***	***	***
1	200	12.57	34.547	26.15	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/203/62	9/9/62	0800 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
4572	23.3	26.1	13	3	16	1	1	7	13	2	19	4	1012.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	26.12	34.401	22.57	4.56	101	0.13	0.30	0.4
2	24	26.02	34.385	22.59	4.38	97	0.13	***	0.3
2	48	26.02	34.385	22.59	4.40	97	0.13	0.27	0.4
2	72	26.03	34.384	22.58	4.48	99	0.16	***	0.3
2	96	25.41	34.488	22.85	3.56	78	0.38	0.53	0.2
2	120	22.77	34.518	23.66	2.75	58	0.83	***	9.7
2	144	20.60	34.519	24.26	2.63	53	0.90	***	14.0
2	193	15.83	34.520	25.44	2.48	46	1.15	1.21	20.0
2	242	13.57	34.585	25.97	2.41	42	1.38	***	23.1
2	290	11.71	34.548	26.31	2.38	40	1.65	1.64	24.9
2	387	10.04	34.622	26.67	2.15	35	1.66	***	31.2
2	484	8.99	34.650	26.87	2.08	33	1.81	1.83	32.7
2	677	6.99	34.610	27.13	1.94	29	1.87	2.08	38.1
2	870	5.62	34.609	27.31	2.00	29	2.14	2.32	38.1
2	1064	4.69	34.618	27.43	2.10	30	2.15	2.32	38.7
1	1160	4.59	34.626	27.45	2.15	31	2.18	2.31	38.4
1	1340	3.89	34.645	27.54	2.30	32	2.12	2.18	37.8
1	1800	2.78	34.730	27.71	2.94	40	2.12	2.18	34.8
1	2295	2.11	34.742	27.78	3.29	44	2.08	2.18	36.6
1	2790	1.64	34.730	27.80	3.71	49	2.04	2.08	33.6
1	3285	1.44	34.725	27.82	3.91	51	2.02	2.02	33.0
1	3780	1.26	34.722	27.83	4.06	53	2.00	2.00	36.0
1	4175	1.21	34.717	27.83	4.25	55	1.98	2.00	34.8

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/204/62	9/9/62	2000 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
5577	22.2	25.6	12	3	16	8	2	7	12	2	18	4	1013.5	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	25.80	34.338	22.62	***	***	***	***	***
1	25	25.62	34.387	22.71	***	***	***	***	***
1	50	25.60	34.430	22.75	***	***	***	***	***
1	75	25.56	34.437	22.77	***	***	***	***	***
1	100	25.56	34.441	22.77	***	***	***	***	***
1	150	22.23	34.702	23.95	***	***	***	***	***
1	200	18.85	34.726	24.87	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/205/62	10/9/62	0800 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
5669	23.9	26.1	11	2	16	*	*	8	11	1	19	4	1015.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	25.83	34.571	22.78	4.65	103	0.11	0.29	0.3
2	25	25.36	34.551	22.91	4.41	97	0.09	***	0.6
2	50	25.34	34.541	22.91	4.48	98	0.11	0.21	0.5
2	75	25.26	34.540	22.94	4.48	98	0.12	***	0.2
2	100	24.53	34.683	23.26	3.94	85	0.25	0.41	1.3
2	125	21.64	34.859	24.23	3.03	62	0.64	***	7.7
2	150	20.25	34.905	24.64	2.81	56	0.79	***	10.8
2	200	17.61	34.909	25.32	2.66	51	0.94	1.05	14.6
2	250	14.98	35.041	26.03	2.98	54	1.01	***	16.8
2	300	13.54	35.062	26.35	3.21	56	1.04	1.16	14.4
2	400	10.93	34.953	26.77	4.47	74	0.94	***	14.6
2	500	8.97	34.720	26.92	4.45	71	1.13	1.25	18.9
2	700	6.84	34.639	27.18	2.24	34	1.95	2.09	35.1
2	900	5.57	34.639	27.34	1.94	28	2.13	2.29	36.9
2	1100	4.78	34.638	27.44	2.07	30	2.18	2.26	34.8
1	1300	4.19	34.644	27.50	2.24	31	2.18	2.32	35.7
1	1500	3.53	34.679	27.60	2.57	35	2.07	2.17	39.9
1	2000	2.53	34.726	27.73	3.14	42	2.10	2.17	37.5
1	2500	1.98	34.731	27.78	3.46	46	2.04	2.20	37.5
1	3000	1.68	34.728	27.80	3.80	50	2.05	2.05	34.2
1	3500	1.37	34.725	27.82	4.07	53	1.95	2.10	33.0

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/206/62	10/9/62	2100 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
5486	22.2	25.0	10	2	16	8	6	6	10	1	20	4	1016.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	24.69	34.513	23.09	***	***	***	***	***
1	25	24.30	34.793	23.42	***	***	***	***	***
1	50	24.07	34.874	23.55	***	***	***	***	***
1	75	23.94	34.917	23.62	***	***	***	***	***
1	100	23.74	34.920	23.68	***	***	***	***	***
1	150	21.70	35.024	24.34	***	***	***	***	***
1	200	18.09	35.101	25.35	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/207/62	11/9/62	0800 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	21.1	23.9	10	3	16	8	2	6	10	2	18	6	1018.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	24.60	34.733	23.28	4.67	101	0.10	0.30	0.3
2	24	24.47	34.721	23.31	4.48	97	0.10	***	0.1
2	48	24.00	34.848	23.55	4.43	95	0.12	0.32	0.3
2	72	23.44	34.985	23.82	4.65	99	0.12	***	0.2
2	95	22.90	35.069	24.03	4.60	97	0.19	0.32	0.2
2	118	22.61	35.072	24.12	4.13	87	0.28	***	1.3
2	142	20.98	35.027	24.54	3.16	64	0.61	***	8.0
2	189	18.34	35.070	25.26	2.87	56	0.75	0.92	12.6
2	236	16.65	35.232	25.79	3.25	61	0.79	***	11.4
2	283	14.98	35.263	26.20	3.53	64	0.85	0.93	13.0
2	377	11.97	35.060	26.66	4.07	69	0.94	***	15.2
2	470	9.63	34.792	26.87	4.87	78	0.99	1.05	17.4
2	658	6.94	34.593	27.13	3.16	48	1.74	1.84	32.1
2	846	5.74	34.632	27.32	2.08	30	2.17	2.25	35.1
2	1034	4.88	34.635	27.42	2.13	30	2.26	2.27	36.6
1	1180	4.47	34.644	27.47	2.27	32	2.21	2.29	35.1
1	1365	3.82	34.661	27.56	2.53	35	2.17	2.17	37.8
1	1830	2.64	34.717	27.71	3.12	42	2.07	2.09	33.6
1	2305	2.09	34.729	27.77	3.37	45	2.07	2.17	35.1
1	2785	1.71	34.730	27.80	3.68	48	2.03	2.07	35.7
1	3270	1.44	34.724	27.81	3.90	51	1.93	2.00	34.2
1	3763	1.24	34.721	27.83	4.08	53	1.94	2.01	34.5
1	4255	1.19	34.718	27.83	4.30	56	1.94	2.01	34.5

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/208/62	11/9/62	2100 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
3658	21.1	23.9	12	4	16	8	2	6	12	3	20	6	1017.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	23.06	35.073	23.99	***	***	***	***	***
1	25	22.89	35.068	24.04	***	***	***	***	***
1	50	23.00	35.069	24.00	***	***	***	***	***
1	75	22.79	35.095	24.09	***	***	***	***	***
1	100	22.14	35.132	24.30	***	***	***	***	***
1	150	21.37	35.349	24.68	***	***	***	***	***
1	200	18.72	35.464	25.47	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/209/62	12/9/62	0800 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
4900	21.1	22.8	16	4	16	8	1	7	16	3	19	6	1018.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	22.37	35.146	24.24	4.93	103	0.10	0.28	0.0
2	25	22.31	35.139	24.26	4.82	101	0.12	***	0.3
2	50	22.34	35.142	24.25	4.83	101	0.12	0.31	0.0
2	75	21.87	35.218	24.44	4.93	102	0.11	***	0.0
2	100	21.47	35.329	24.63	4.57	94	0.17	0.32	0.4
2	150	19.94	35.324	25.04	3.58	72	0.51	***	4.7
2	200	18.70	35.546	25.53	3.97	78	0.46	0.51	2.5
2	300	14.56	35.502	26.47	4.89	88	0.44	0.51	2.6
2	500	8.68	34.685	26.94	5.06	80	1.08	1.19	13.5
2	700	6.15	34.548	27.20	3.18	47	1.83	1.97	27.0
2	900	5.20	34.619	27.37	2.30	33	2.13	2.13	28.5
2	1100	4.69	34.636	27.44	2.30	33	2.09	2.21	31.8
1	1252	3.96	34.643	27.53	2.53	35	2.13	2.18	33.0
1	1447	3.24	34.657	27.61	2.99	41	2.08	2.14	29.4
1	1940	2.43	34.718	27.73	3.27	44	2.06	2.14	31.2
1	2440	1.98	34.733	27.78	3.46	46	2.02	2.07	29.1
1	2940	1.61	34.729	27.81	3.86	51	1.93	2.07	28.5
1	3440	1.31	34.723	27.82	4.09	53	1.89	1.97	28.8
1	3940	1.18	34.717	27.83	4.17	54	1.87	1.97	29.1
1	4440	1.17	34.720	27.83	4.33	56	1.87	1.95	28.2

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/210/62	12/9/62	2100 G	23 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
4938	15.6	20.0	16	3	16	5	1	8	16	2	19	6	1020.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	21.85	35.262	24.48	***	***	***	***	***
1	25	21.81	35.257	24.49	***	***	***	***	***
1	50	21.65	35.258	24.53	***	***	***	***	***
1	75	21.52	35.345	24.63	***	***	***	***	***
1	100	21.34	35.392	24.72	***	***	***	***	***
1	150	20.38	35.544	25.09	***	***	***	***	***
1	200	19.50	35.720	25.46	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/211/62	13/9/62	0800 G	24 29 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
4206	15.6	19.4	18	4	16	6	6	6	17	3	20	5	1020.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	20.88	35.440	24.88	4.99	102	0.12	0.24	0.0
2	25	20.85	35.440	24.89	4.97	101	0.14	***	0.0
2	50	20.71	35.503	24.97	4.97	101	0.15	0.27	0.3
2	75	20.17	35.664	25.24	4.62	93	0.22	***	0.0
2	100	19.84	35.733	25.38	4.90	98	0.15	0.26	0.4
2	150	18.60	35.806	25.76	4.64	91	0.22	***	0.9
2	200	17.07	35.781	26.11	4.74	90	0.25	0.35	3.8
2	300	12.90	35.293	26.66	5.27	92	0.53	0.54	13.6
2	500	9.05	34.707	26.90	5.37	85	1.02	1.12	27.9
2	700	5.98	34.450	27.14	4.30	63	1.61	1.74	31.8
2	900	4.60	34.548	27.38	2.96	42	2.18	2.23	35.1
2	1100	3.96	34.585	27.48	2.85	40	2.02	2.18	35.7
1	1295	3.37	34.617	27.57	3.04	42	2.15	2.18	37.2
1	1495	3.03	34.671	27.64	3.14	43	2.19	2.18	35.1
1	1994	2.27	34.730	27.76	3.37	45	2.10	2.08	33.6
1	2492	1.88	34.735	27.79	3.72	49	2.04	2.10	32.1
1	2991	1.56	34.730	27.81	3.97	52	1.99	2.07	31.2
1	3489	1.36	34.724	27.82	4.11	53	1.93	1.93	33.0
1	3987	1.19	34.718	27.83	4.29	56	1.95	1.99	31.5

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/212/62	13/9/62	2000 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	13.9	18.3	18	4	16	8	4	6	18	3	21	7	1023.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	21.68	35.249	24.51	***	***	***	***	***
1	25	21.63	35.249	24.53	***	***	***	***	***
1	50	21.63	35.265	24.54	***	***	***	***	***
1	75	21.24	35.347	24.71	***	***	***	***	***
1	100	21.00	35.439	24.85	***	***	***	***	***
1	150	20.22	35.625	25.20	***	***	***	***	***
1	200	18.71	35.815	25.74	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/213/62	14/9/62	0800 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	15.6	20.6	08	4	16	8	3	6	09	3	21	5	1023.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	20.05	35.571	25.20	5.08	102	0.12	0.22	0.0
2	25	20.00	35.572	25.22	5.01	101	0.12	***	0.0
2	50	20.03	35.567	25.20	5.00	100	0.12	0.22	0.0
2	75	19.61	35.675	25.40	5.03	100	0.12	***	0.1
2	100	19.38	35.736	25.50	4.97	99	0.12	0.22	0.0
2	150	18.74	35.802	25.72	4.95	97	0.14	***	0.3
2	200	17.82	35.842	25.98	4.89	94	0.20	0.24	0.2
2	300	14.92	35.599	26.47	4.96	90	0.33	0.41	1.8
2	500	9.99	34.835	26.84	5.42	88	0.89	0.88	10.5
2	700	8.23	34.604	26.95	5.15	80	1.17	1.28	18.6
2	900	5.25	34.449	27.23	4.02	58	1.81	1.84	28.6
2	1100	4.48	34.553	27.40	2.88	41	2.04	2.19	33.3
1	1295	3.69	34.565	27.49	3.11	43	1.93	2.02	33.3
1	1494	3.19	34.614	27.58	3.23	44	2.00	2.07	33.3
1	1991	2.45	34.712	27.73	3.38	45	2.00	2.12	33.6
1	2489	2.00	34.734	27.78	3.65	48	2.00	2.15	32.1
1	2986	1.73	34.734	27.80	3.90	51	1.99	1.99	32.7
1	3484	1.42	34.735	27.82	4.05	53	1.89	1.96	33.6
1	3982	1.25	34.727	27.83	4.26	55	1.89	1.95	31.8
1	4479	1.15	34.722	27.83	4.36	56	1.89	1.93	32.7
1	4977	1.11	34.719	27.83	4.48	58	1.87	1.93	27.9
1	5375	1.11	34.722	27.84	4.60	59	1.87	1.91	30.9

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/214/62	14/9/62	2040 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
5486	15.0	18.3	11	3	16	8	5	7	11	1	21	7	1021.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	19.87	35.641	25.30	***	***	***	***	***
1	25	19.51	35.707	25.45	***	***	***	***	***
1	50	19.19	35.749	25.56	***	***	***	***	***
1	75	18.96	35.832	25.69	***	***	***	***	***
1	100	18.52	35.844	25.81	***	***	***	***	***
1	150	17.69	35.908	26.06	***	***	***	***	***
1	200	16.46	35.797	26.27	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/215/62	15/9/62	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
5303	14.4	16.7	30	2	16	8	5	7	30	1	21	7	1018.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	18.03	35.770	25.87	5.27	102	0.10	0.23	0.0
2	25	17.97	35.774	25.89	5.20	101	0.10	***	0.0
2	49	17.74	35.836	25.99	5.04	97	0.17	0.23	0.5
2	72	17.35	35.837	26.09	5.04	96	0.20	***	0.3
2	97	16.45	35.748	26.24	5.27	99	0.18	0.23	0.1
2	146	15.63	35.669	26.36	5.16	95	0.22	***	0.7
2	195	14.13	35.476	26.54	5.15	92	0.35	0.41	2.1
2	292	11.71	35.099	26.74	5.31	90	0.58	0.73	5.4
2	493	9.30	34.726	26.87	5.45	87	0.97	0.96	12.0
2	680	7.71	34.551	26.98	4.96	76	1.28	1.32	19.8
2	875	4.73	34.413	27.26	4.25	60	1.81	1.84	28.8
2	1069	4.14	34.510	27.40	3.30	46	1.91	1.91	31.8
1	1296	3.38	34.574	27.53	3.29	45	2.05	2.01	31.8
1	1496	2.95	34.615	27.60	3.32	45	2.02	2.03	33.6
1	1993	2.37	34.710	27.73	3.52	47	1.95	1.98	30.3
1	2492	2.01	***	***	3.72	***	1.90	1.98	31.2
1	2990	1.71	34.736	27.80	3.89	51	2.10	1.98	31.8
1	3488	1.43	***	***	4.15	***	1.93	1.91	29.6
1	3987	1.27	34.722	27.82	4.24	55	1.91	1.91	29.8
1	4485	1.20	34.718	27.83	4.32	56	1.86	1.89	31.5
1	4983	1.11	34.718	27.83	4.40	57	1.88	1.81	30.9

STATION	DATE	TIME	LATITUDE	LONGITUDE
G4/216/62	15/9/62	2000 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
5303	10.0	16.7	21	6	16	8	6	6	21	4	23	8	1020.0	*	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	18.47	35.727	25.73	***	***	***	***	***
1	25	18.47	35.730	25.73	***	***	***	***	***
1	50	18.50	35.762	25.75	***	***	***	***	***
1	75	18.46	35.741	25.74	***	***	***	***	***
1	100	18.38	35.742	25.76	***	***	***	***	***
1	150	17.99	35.828	25.93	***	***	***	***	***
1	200	16.95	35.788	26.15	***	***	***	***	***

DATA

PART 2

PRIMARY PRODUCTION

EXPLANATION OF HEADINGS

Part 2 — Primary Production

STATION	Gives the station identification. For example, G4/181/62 signifies the 181st station worked from Gascoyne 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: 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. If all DARK counts are aberrant or not done an arbitrary count of 20 is used and the symbol "F" 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 the 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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/181/62	19/ 8/62	1400 H	31 58 S	111 49 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	1594	**	19 E	1575	04.00	01.15	00.00
25	1349	**	19 E	1330	04.00	00.97	00.27
50	1057	16	16	1041	04.00	00.76	00.49
75	810	**	19 E	791	04.00	00.58	00.66
100	512	**	19 E	493	04.00	00.36	00.78
150	456	22	22	434	04.00	00.32	00.95

E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/181/62	19/ 8/62	1100 H	31 58 S	111 49 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
IN SITU	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	585	22	22	563	00.50	03.30	00.00
12	778	26	26	752	00.50	04.41	00.05
29	813	16	16	797	00.50	04.67	00.13
38	941	19	19	922	00.50	05.40	00.18
49	510	24	24	486	00.50	02.85	00.23
59	417	21	21	396	00.50	02.32	00.26

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/181/62	19/ 8/62	1100 H	31 58 S	111 49 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	1103	27	27	1076	00.50	06.30	00.00
12	1102	35	35	1067	00.50	06.25	00.08
29	972	18	18	954	00.50	05.59	00.18
38	708	13	13	695	00.50	04.07	00.22
49	418	10	10	408	00.50	02.39	00.26
59	270	12	12	258	00.50	01.51	00.28

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/182/62	20/ 8/62	0815 H	32 08 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	1653	25	25	1628	04.00	01.19	00.00
25	1079	28	28	1051	04.00	00.77	00.25
50	1025	23	23	1002	04.00	00.73	00.44
75	1107	26	26	1081	04.00	00.79	00.63
100	1056	22	22	1034	04.00	00.76	00.82
150	47	35	35	12	04.00	00.01	01.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/183/62	20/ 8/62	2015 H	30 42 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	505	26	26	479	04.00	00.35	00.00
25	370	27	27	343	04.00	00.25	00.08
50	393	20	20	373	04.00	00.27	00.15
75	348	25	25	323	04.00	00.24	00.21
100	49	20	20	29	04.00	00.02	00.24
150	181	25	25	156	04.00	00.11	00.27

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/184/62	21/ 8/62	0945 H	29 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	456	27	27	429	04.00	00.31	C0.00
25	433	33	33	400	04.00	00.29	C0.08
50	468	29	29	439	04.00	00.32	00.16
75	582	21	21	561	04.00	00.41	00.25
100	187	20	20	167	04.00	00.12	C0.32
150	159	20	20	139	04.00	00.10	00.38

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/184/62	21/ 8/62	1115 H	29 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	386	39	39	347	00.50	02.03	00.00
25	466	43	43	423	00.50	02.48	00.06
25	398	40	40	358	00.50	02.10	00.06
36	343	43	43	300	00.50	01.76	00.08
55	315	43	43	272	00.50	01.59	00.11
60	179	48	48	131	00.50	00.77	00.12

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/185/62	21/ 8/62	2015 H	27 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	47	32	32	15	04.00	00.01	00.00
25	64	45	45	19	04.00	00.01	00.00
50	208	34	34	174	04.00	00.13	00.02
75	294	54 B	39 E	255	04.00	00.19	00.06
100	242	36	36	206	04.00	00.15	00.10
150	347	48	48	299	04.00	00.22	00.19

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/186/62	22/ 8/62	0815 H	26 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	966	27	27	939	04.00	00.69	00.00
25	653	32	32	621	04.00	00.45	00.14
50	560	27	27	533	04.00	00.39	00.25
75	681	36	36	645	04.00	00.47	00.36
100	210	27	27	183	04.00	00.13	00.44
150	27	21	21	6	04.00	00.00	00.47

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/186/62	22/ 8/62	1115 H	26 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	518	63 B	35 E	483	00.50	02.83	00.00
30	483	74 B	35 E	448	00.50	02.62	00.08
36	453	33	33	420	00.50	02.46	00.10
41	288	232 B	35 E	253	00.50	01.48	00.11
55	300	32	32	268	00.50	01.57	00.13
65	108	40	40	68	00.50	00.40	00.14

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/187/62	22/ 8/62	2015 H	24 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	38	36	36	2	04.00	00.00	00.00
25	52	43	43	9	04.00	00.01	00.00
50	254	40	40	214	04.00	00.16	00.02
75	86	40	40	46	04.00	00.03	00.04
100	102	28	28	74	04.00	00.05	00.05
150	315	235 B	37 E	278	04.00	00.20	00.11

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/188/62	23/ 8/62	0845 H	23 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	695	30	30	665	04.00	00.49	00.00
25	285	26	26	259	04.00	00.19	00.09
50	477	47	47	430	04.00	00.31	00.15
75	391	37	37	354	04.00	00.26	00.22
100	42	47	47	5 G	04.00	00.00	00.25
150	48	54 B	37 E	11	04.00	00.01	00.25

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/188/62	23/ 8/62	1100 H	23 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	314	40	40	274	.00.50	01.61	00.00
35	607	20	20	587	00.50	03.44	00.09
40	377	34	34	343	00.50	02.01	00.10
50	363	22	22	341	00.50	02.00	00.12
60	247	21	21	226	00.50	01.32	00.14
70	247	54 B	27 E	220	00.50	01.29	00.15

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/189/62	23/ 8/62	2020 H	21 45 S	109 58 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	299	60 B	37 E	262	03.75	00.20	00.00
25	109	43	43	66	03.75	00.05	00.03
50	309	60 B	37 E	272	03.75	00.21	00.06
75	185	60 B	37 E	148	03.75	00.12	00.10
100	99	29	29	70	03.75	00.05	00.12
150	48	40	40	8	03.75	00.01	00.14

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/190/62	24/ 8/62	0830 H	20 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	948	48	48	900	04.00	00.66	00.00
25	707	19	19	688	04.00	00.50	00.15
50	740	34	34	706	04.00	00.52	00.28
75	66	33	33	33	04.00	00.02	00.35
100	42	33	33	9	04.00	00.01	00.35
150	33	29	29	4	04.00	00.00	00.35

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/190/62	24/ 8/62	1100 H	20 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	388	53 B	32 E	356	00.50	02.09	00.00
21	392	155 B	32 E	360	00.50	02.11	00.04
34	468	30	30	438	00.50	02.57	00.07
45	277	52 B	32 E	245	00.50	01.44	00.09
56	170	29	29	141	00.50	00.83	00.10
78	213	39	39	174	00.50	01.02	00.12

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/191/62	24/ 8/62	2015 H	18 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	274	35	35	239	04.00	00.18	00.00
25	109	44	44	65	04.00	00.05	00.03
50	82	55 B	42 E	40	04.00	00.03	00.04
75	206	43	43	163	04.00	00.12	00.06
100	94	49	49	45	04.00	00.03	00.08
150	88	65 B	42 E	46	04.00	00.03	00.10

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/192/62	25/ 8/62	0900 H	17 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	849	42	42	807	04.00	00.59	00.00
25	687	23	23	664	04.00	00.49	00.14
50	420	26	26	394	04.00	00.29	00.24
75	339	38	38	301	04.00	00.22	00.30
100	92	69 B	32 E	60	04.00	00.04	00.33
150	111	92 B	32 E	79	04.00	00.06	00.36

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/192/62	25/ 8/62	1100 H	17 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	213	92 B	21 E	192	00.50	01.12	00.00
21	354	136 B	21 E	333	00.50	01.95	00.03
37	319	86 B	21 E	298	00.50	01.75	00.06
50	255	58 B	21 E	234	00.50	01.37	00.08
60	191	163 B	21 E	170	00.50	01.00	00.09
66	72	21	21	51	00.50	00.30	00.09

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/193/62	25/ 8/62	2000 H	15 33 S	109 58 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	49	49	105	04.00	00.08	00.00
25	124	32	32	92	04.00	00.07	00.02
50	68	21	21	47	04.00	00.03	00.03
75	111	27	27	84	04.00	00.06	00.04
100	71	39	39	32	04.00	00.02	00.05
150	41	51 B	33 E	8	04.00	00.01	00.06

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/194/62	26/ 8/62	0830 H	14 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	1010	29	29	981	04.00	00.72	00.00
25	859	30	30	829	04.00	00.61	00.17
50	870	26	26	844	04.00	00.62	00.32
75	809	27	27	782	04.00	00.57	00.47
100	468	35	35	433	04.00	00.32	00.58
150	54	64 B	29 E	25	04.00	00.02	00.67

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/194/62	26/ 8/62	1100 H	14 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	227	64 B	20 F	207	00.50	01.21	00.00
27	353	81 B	20 F	333	00.50	01.95	00.04
35	449	154 B	20 F	429	00.50	02.51	00.06
45	304	93 B	20 F	284	00.50	01.66	00.08
54	235	54 B	20 F	215	00.50	01.26	00.09
60	195	88 B	20 F	175	00.50	01.03	00.10

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/195/62	26/ 8/62	2000 H	12 34 S	109 57 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	301	95 B	27 E	274	04.00	00.20	00.00
25	198	26	26	172	04.00	00.13	00.04
50	194	56 B	27 E	167	04.00	00.12	00.07
75	119	26	26	93	04.00	00.07	00.09
100	265	29	29	236	04.00	00.17	00.12
150	45	60 B	27 E	18	04.00	00.01	00.17

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/196/62	27/ 8/62	0830 H	11 00 S	110 01 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	1383	69	69	1314	04.00	00.96	00.00
25	1448	32	32	1416	04.00	01.04	00.25
50	466	106 B	43 E	423	04.00	00.31	00.42
75	97	39	39	58	04.00	00.04	00.46
100	41	35	35	6	04.00	00.00	00.47
150	120	96 B	43 E	77	04.00	00.06	00.49

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/196/62	27/ 8/62	1100 H	11 00 S	110 01 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	607	52	52	555	00.50	03.25	00.00
24	620	56	56	564	00.50	03.30	00.08
33	447	59 B	46 E	401	00.50	02.35	00.11
40	437	64 B	46 E	391	00.50	02.29	00.13
50	308	32	32	276	00.50	01.62	00.15
57	189	62 B	46 E	143	00.50	00.84	00.16

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/197/62	27/ 8/62	2100 H	09 17 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	253	47	47	206	04.00	00.15	00.00
25	237	33	33	204	04.00	00.15	00.04
50	281	19	19	262	04.00	00.19	00.08
75	74	36	36	38	04.00	00.03	00.11
100	242	208 B	35 E	207	04.00	00.15	00.13
150	47	44	44	3	04.00	00.00	00.17

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/199/62	29/ 8/62	0830 H	09 00 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	1762	31	31	1731	04.00	01.27	00.00
25	1359	25	25	1334	04.00	00.98	00.28
50	985	22	22	963	04.00	00.71	00.49
75	59	21	21	38	04.00	00.03	00.58
100	83	69 B	28 E	55	04.00	00.04	00.59
150	45	41	41	4	04.00	00.00	00.60

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/199/62	29/ 8/62	1100 H	09 00 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
IN SITU	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	931	41	41	890	00.50	05.21	00.00
20	1422	45	45	1377	00.50	08.07	00.13
35	1860	24	24	1836	00.50	10.76	00.27
40	2121	41	41	2080	00.50	12.18	00.33
49	1036	29	29	1007	00.50	05.90	00.41
61	666	53	53	613	00.50	03.59	00.47

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/199/62	29/ 8/62	1100 H	09 00 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	1289	41	41	1248	00.50	07.31	00.00
20	826	68	68	758	00.50	04.44	00.12
35	1128	24	24	1104	00.50	06.47	00.20
40	1244	41	41	1203	00.50	07.05	00.23
49	871	29	29	842	00.50	04.93	00.28
61	543	35	35	508	00.50	02.98	00.33

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/200/62	7/ 9/62	0745 H	08 53 S	105 03 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	1755	111	111	1644	04.00	01.20	00.00
25	2048	82	82	1966	04.00	01.44	00.33
50	2988	131	131	2857	04.00	02.09	00.77
75	3194	96	96	3098	04.00	02.27	01.32
100	201	75 B	105 E	96	04.00	00.07	01.61
150	90	116 B	105 E	- 15 G	04.00	00.00	01.63

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/201/62	8/ 9/62	1100 H	09 27 S	109 49 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	1508	84	84	1424	04.00	01.04	00.00
25	1094	43	43	1051	04.00	00.77	00.23
50	312	66 B	63 E	249	04.00	00.18	00.35
75	106	100 B	63 E	43	04.00	00.03	00.38
100	87	96 B	63 E	24	04.00	00.02	00.39
150	78	90 B	63 E	15	04.00	00.01	00.40

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/201/62	8/ 9/62	1245 H	09 27 S	109 49 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	381	48	48	333	00.50	01.95	00.00
25	523	67 B	42 E	481	00.50	02.82	00.06
36	457	56 B	42 E	415	00.50	02.43	00.09
41	404	35	35	369	00.50	02.16	00.10
49	397	43	43	354	00.50	02.07	00.12
56	142	73 B	42 E	100	00.50	00.59	C0.13

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/202/62	8/ 9/62	2100 H	10 58 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	89 B	20 F	538	04.00	00.39	00.00
25	516	75 B	20 F	496	04.00	00.36	00.09
50	795	183 B	20 F	775	04.00	00.57	00.21
75	246	161 B	20 F	226	04.00	00.17	00.30
100	90	80 B	20 F	70	04.00	00.05	00.33
150	87	109 B	20 F	67	04.00	00.05	00.36

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/203/62	9/ 9/62	0830 H	12 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	1277	65	65	1212	04.00	00.89	00.00
25	1602	52	52	1550	04.00	01.14	00.25
50	1513	158 B	58 E	1455	04.00	01.07	00.53
75	1363	162 B	58 E	1305	04.00	00.96	00.78
100	260	198 B	58 E	202	04.00	00.15	00.92
150	110	99 B	58 E	52	04.00	00.04	00.97

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/203/62	9/ 9/62	1200 H	12 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	485	29	29	456	00.50	02.67	00.00
25	298	47	47	251	00.50	01.47	00.05
35	330	42	42	288	00.50	01.69	00.07
42	404	38	38	366	00.50	02.14	00.08
52	265	41	41	224	00.50	01.31	00.10
59	218	34	34	184	00.50	01.08	00.11

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/204/62	9/ 9/62	2030 H	14 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	426	133 B	20 F	406	04.00	00.30	00.00
25	230	71 B	20 F	210	04.00	00.15	00.06
50	413	85 B	20 F	393	04.00	00.29	00.12
75	402	95 B	20 F	382	04.00	00.28	00.19
100	379	198 B	20 F	359	04.00	00.26	00.26
150	105	127 B	20 F	85	04.00	00.06	00.34

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/205/62	10/ 9/62	0830 H	15 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	516	63 B	45 E	471	04.00	00.34	00.00
25	624	45	45	579	04.00	00.42	00.10
50	543	46	46	497	04.00	00.36	00.20
75	488	95 B	45 E	443	04.00	00.32	00.29
100	154	51 B	45 E	109	04.00	00.08	00.34
150	53	64 B	45 E	8	04.00	00.01	00.36

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/205/62	10/ 9/62	1230 H	15 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	196	27	27	169	00.50	00.99	00.00
25	225	257 B	34 E	191	00.50	01.12	00.03
38	209	72 B	34 E	175	00.50	01.03	00.04
46	199	56 B	34 E	165	00.50	00.97	00.05
53	175	44	44	131	00.50	00.77	00.06
59	152	32	32	120	00.50	00.70	00.06

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/206/62	10/ 9/62	2130 H	17 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	548	54	54	494	03.75	00.39	00.00
25	183	64 B	45 E	138	03.75	00.11	00.06
50	460	42	42	418	03.75	00.33	00.12
75	209	63 B	45 E	164	03.75	00.13	00.18
100	162	37	37	125	03.75	00.10	00.21
150	40	48	48	- 8 G	03.75	00.00	00.24

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/207/62	11/ 9/62	0830 H	18 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	668	44	44	624	04.00	00.46	00.00
25	672	49	49	623	04.00	00.46	00.12
50	783	40	40	743	04.00	00.54	00.24
75	450	93	42 E	408	04.00	00.30	00.35
100	158	37	37	121	04.00	00.09	00.39
150	41	51	42 E	- 1 G	04.00	00.00	00.42

E MEAN NON-ABERRANT DARK USED
G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/207/62	11/ 9/62		18 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	383	32	32	351	00.50	02.06	00.00
20	300	36	36	264	00.50	01.55	00.04
36	268	34	34	234	00.50	01.37	00.06
42	232	44	44	188	00.50	01.10	00.07
51	222	36	36	186	00.50	01.09	00.08
60	208	54 B	36 E	172	00.50	01.01	00.09

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/208/62	11/ 9/62	2130 H	20 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	185	70 B	44 E	141	04.00	00.10	00.00
25	80	40	40	40	04.00	00.03	00.02
50	160	54 B	44 E	116	04.00	00.08	00.03
75	142	95 B	44 E	98	04.00	00.07	00.05
100	44	76 B	44 E	0	04.00	00.00	00.06
150	44	48	48	- 4 G	04.00	00.00	00.06

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/209/62	12/ 9/62	0830 H	21 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	939	29	29	910	04.00	00.67	00.00
25	705	24	24	681	04.00	00.50	00.15
50	651	22	22	629	04.00	00.46	00.27
75	327	38	38	289	04.00	00.21	00.35
100	108	27	27	81	04.00	00.06	00.38
150	36	37	37	- 1 G	04.00	00.00	00.40

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/209/62	12/ 9/62	H	21 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	633	25	25	608	00.50	03.56	00.00
21	413	24	24	389	00.50	02.28	00.06
37	236	19	19	217	00.50	01.27	00.09
46	254	31	31	223	00.50	01.31	00.10
55	177	31	31	146	00.50	00.86	00.11
64	120	53 B	26 E	94	00.50	00.55	00.12

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/210/62	12/ 9/62	2130 H	23 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	135	37	37	98	04.00	00.07	00.00
25	124	34	34	90	04.00	00.07	00.02
50	79	37	37	42	04.00	00.03	00.03
75	131	41	41	90	04.00	00.07	00.04
100	175	179 B	37 E	138	04.00	00.10	00.06
150	25	37	37	- 12 G	04.00	00.00	00.09

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/211/62	13/ 9/62	0830 H	24 29 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	686	43	43	643	04.00	00.47	00.00
25	507	26	26	481	04.00	00.35	00.10
50	458	19	19	439	04.00	00.32	00.18
75	41	36	36	5	04.00	00.00	00.22
100	122	86 B	31 E	91	04.00	00.07	00.23
150	34	35	35	- 1 G	04.00	00.00	00.25

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/211/62	13/ 9/62	1145 H	24 29 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	558	36	36	522	00.50	03.06	00.00
29	343	33	33	310	00.50	01.82	00.07
42	433	38	38	395	00.50	02.31	00.10
48	317	43	43	274	00.50	01.61	00.11
59	459	22	22	437	00.50	02.56	00.13
68	303	42	42	261	00.50	01.53	00.15

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/212/62	13/ 9/62	0230 H	26 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	666	44	44	622	04.00	00.46	00.00
25	519	38	38	481	04.00	00.35	00.10
50	242	23	23	219	04.00	00.16	00.16
75	206	42	42	164	04.00	00.12	00.20
100	37	20	20	17	04.00	00.01	00.22
150	39	34	34	5	04.00	00.00	00.22

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/213/62	14/ 9/62	0830 H	27 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	749	48	48	701	04.00	00.51	00.00
25	700	32	32	668	04.00	00.49	00.13
50	615	27	27	588	04.00	00.43	00.25
75	508	62 B	32 E	476	04.00	00.35	00.35
100	277	125 B	32 E	245	04.00	00.18	00.42
150	101	23	23	78	04.00	00.06	00.48

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/213/62	14/ 9/62	1200 H	27 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU	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	175	16	16	159	00.50	00.93	00.00
27	293	126 B	26 E	267	00.50	01.56	00.03
42	186	24	24	162	00.50	00.95	00.05
47	273	25	25	248	00.50	01.45	00.06
59	183	28	28	155	00.50	00.91	00.07
65	189	38	38	151	00.50	00.88	00.08

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/214/62	14/ 9/62	2110 H	29 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	372	41	41	331	04.00	00.24	00.00
25	200	41	41	159	04.00	00.12	00.05
50	151	64 B	34 E	117	04.00	00.09	00.08
75	116	38	38	78	04.00	00.06	00.10
100	84	27	27	57	04.00	00.04	00.11
150	32	23	23	9	04.00	00.01	00.12

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/215/62	15/ 9/62	0830 H	30 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	531	36	36	495	04.00	00.36	00.00
25	449	27	27	422	04.00	00.31	00.08
50	481	29	29	452	04.00	00.33	00.16
75	120	21	21	99	04.00	00.07	00.21
100	802	32	32	770	04.00	00.56	00.29
150	26	16	16	10	04.00	00.01	00.43

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/216/62	15/ 9/62	0230 H	32 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	305	37	37	268	04.00	00.20	00.00
25	257	34	34	223	04.00	00.16	00.05
50	230	25	25	205	04.00	00.15	00.09
75	220	27	27	193	04.00	00.14	00.13
100	232	20	20	212	04.00	00.16	00.17
150	36	37	37	- 1 G	04.00	00.00	00.21

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/217/62	16/ 9/62	0800 H	32 00 S	111 52 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT	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	700	43	43	657	04.00	00.48	00.00
25	759	37	37	722	04.00	00.53	00.13
50	410	28	28	382	04.00	00.28	00.23
75	428	82 B	38 E	390	04.00	00.29	00.30
100	322	151 B	38 E	284	04.00	00.21	00.36
150	66	45	45	21	04.00	00.02	00.42

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

DATA

PART 3

PIGMENTS

EXPLANATION OF HEADINGS

Part 3	Pigments
STATION	Gives the station identification. For example, G4/181/62 signifies the 181st station worked from Gascoyne 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
G 4/181/62	19/ 8/62	0800 G	31 58 S	111 48 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.31	0.07	0.41	0.08	0.09
25	0.13	0.03	0.15	0.02	0.03
75	0.26	0.06	0.63	0.23	0.25
100	0.23	0.04	0.40	0.08	0.05

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/182/62	20/ 8/62	0800 G	32 08 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.38	0.07	0.55	0.11	0.06
25	0.33	0.06	0.58	0.09	0.09
50	0.35	0.09	0.50	0.10	0.04
75	0.38	0.07	0.59	0.10	0.08
100	0.37	0.11	0.64	0.13	0.05

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/183/62	20/ 8/62	2000 G	30 42 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
50	0.37	0.14	0.88	0.13	0.02
75	0.30	0.09	0.57	0.08	0.06
150	0.13	0.11	0.80	0.15	- 0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/184/62	21/ 8/62	0800 G	29 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.16	0.11	0.70	0.15	0.18
25	0.15	0.04	0.50	0.11	0.01
50	0.24	0.13	0.74	0.13	0.01
75	0.31	0.13	0.79	0.14	0.03
100	0.21	0.10	0.79	0.13	0.17
150	0.25	0.09	0.60	0.11	0.06

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/185/62	21/ 8/62	2000 G	27 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.17	0.10	0.66	0.12	0.03
25	0.13	0.10	0.66	0.10	- 0.00
75	0.50	0.21	0.78	0.12	0.09
100	0.24	0.11	0.79	0.14	0.03
150	0.13	0.12	0.91	0.18	- 0.06

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/186/62	22/ 8/62	0800 G	26 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.12	0.09	0.53	0.11	0.12
25	0.17	0.12	0.26	0.10	- 0.01
50	0.17	0.09	0.49	0.08	0.00
75	0.31	0.09	0.85	0.13	- 0.01
100	0.18	0.11	0.77	0.13	0.09
150	0.14	0.08	0.75	0.15	- 0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/187/62	22/ 8/62	2000 G	24 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.18	0.08	0.55	0.10	0.00
25	0.16	0.08	0.71	0.13	- 0.03
50	0.23	0.13	0.99	0.16	- 0.05
75	0.30	0.12	0.89	0.14	- 0.00
100	0.17	0.10	0.65	0.11	- 0.00
150	0.12	0.08	0.63	0.10	- 0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/188/62	23/ 8/62	0800 G	23 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.13	0.08	0.54	0.10	0.03
25	0.11	0.08	0.53	0.09	0.04
50	0.19	0.09	0.55	0.12	0.01
100	0.24	0.13	0.73	0.12	0.02
150	0.09	0.10	0.63	0.13	- 0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/189/62	23/ 8/62	2000 G	21 45 S	109 57 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
25	0.12	0.10	0.62	0.11	- 0.02
50	0.27	0.09	0.73	0.12	0.00
75	0.28	0.10	0.71	0.13	0.04
100	0.27	0.10	0.77	0.13	0.03
150	0.16	0.11	0.63	0.13	- 0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/190/62	24/ 8/62	0800 G	20 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.18	0.08	0.57	0.10	- 0.01
25	0.19	0.10	0.58	0.12	- 0.01
50	0.22	0.09	0.63	0.11	- 0.00
150	0.11	0.09	0.75	0.14	- 0.05

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/191/62	24/ 8/62	2000 G	18 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.12	0.07	0.45	0.12	- 0.04
25	0.11	0.06	0.48	0.13	- 0.04
50	0.17	0.11	0.67	0.15	- 0.01
75	0.37	0.12	0.94	0.10	0.04
100	0.30	0.14	0.95	0.12	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/192/62	25/ 8/62	0800 G	17 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.23	0.10	0.60	0.12	- 0.02
25	0.14	0.14	0.56	0.12	- 0.04
50	0.17	0.08	0.55	0.10	- 0.01
100	0.21	0.09	0.63	0.14	- 0.03
150	0.11	0.11	0.74	0.11	- 0.03

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/193/62	25/ 8/62	2000 G	15 33 S	109 58 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.17	0.12	0.60	0.11	- 0.00
25	0.12	0.09	0.54	0.11	- 0.03
75	0.28	0.13	0.69	0.12	0.01
100	0.26	0.13	0.89	0.14	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/194/62	26/ 8/62	0800 G	14 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.14	0.09	0.58	0.11	- 0.00
25	0.19	0.10	0.45	0.09	- 0.00
50	0.24	0.09	0.64	0.08	0.01
75	0.20	0.07	0.50	0.11	0.01
100	0.16	0.12	0.52	0.08	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/195/62	26/ 8/62	2000 G	12 34 S	109 57 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.12	0.09	0.65	0.11	- 0.02
25	0.23	0.14	0.93	0.16	- 0.01
50	0.18	0.06	0.38	0.06	0.03
75	0.24	0.09	0.59	0.09	0.03
150	0.14	0.09	0.84	0.15	- 0.05

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/196/62	27/ 8/62	0800 G	11 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.27	0.10	0.77	0.13	0.01
25	0.30	0.11	0.76	0.13	- 0.01
50	0.26	0.12	0.69	0.12	- 0.01
100	0.21	0.15	0.85	0.13	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/197/62	27/ 8/62	2050 G	09 17 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.24	0.12	0.75	0.12	- 0.01
25	0.15	0.09	0.62	0.14	- 0.04
50	0.33	0.15	0.81	0.12	0.03
75	0.34	0.14	0.86	0.13	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/199/62	29/ 8/62	0830 G	09 00 S	105 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.25	0.09	0.61	0.11	- 0.00
25	0.21	0.06	0.47	0.08	0.01
50	0.39	0.10	0.57	0.09	0.08
100	0.09	0.10	0.48	0.10	- 0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/200/62	7/ 9/62	0400 G	08 53 S	105 03 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.30	0.08	0.56	0.09	0.05
25	0.34	0.09	0.69	0.10	0.04
50	0.61	0.12	0.82	0.12	0.05
75	0.52	0.09	0.66	0.10	0.05
100	0.20	0.10	0.56	0.11	- 0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/201/62	8/ 9/62	1030 G	09 27 S	109 49 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
25	0.33	0.09	0.59	0.11	0.06
50	0.17	0.08	0.47	0.09	- 0.00
75	0.17	0.11	0.66	0.11	- 0.01
100	0.11	0.07	0.69	0.12	- 0.04
150	0.12	0.09	0.73	0.13	- 0.05

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/202/62	8/ 9/62	2030 G	10 58 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.24	0.10	0.57	0.08	0.02
25	0.25	0.11	0.73	0.12	0.00
50	0.35	0.07	0.66	0.08	0.07
75	0.35	0.13	0.60	0.10	0.04
100	0.18	0.12	0.77	0.15	- 0.05
150	0.11	0.10	0.54	0.11	- 0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/203/62	9/ 9/62	0800 G	12 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.28	0.09	0.72	0.12	0.01
25	0.29	0.13	0.64	0.11	0.01
50	0.23	0.12	0.58	0.11	- 0.01
100	0.18	0.08	0.55	0.08	0.04
150	0.09	0.06	0.42	0.12	- 0.05

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/204/62	9/ 9/62	2000 G	14 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.16	0.08	0.50	0.09	0.00
25	0.21	0.15	0.78	0.14	0.00
75	0.29	0.12	0.68	0.09	0.05

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/205/62	10/ 9/62	0800 G	15 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.11	0.05	0.48	0.08	- 0.01
25	0.19	0.09	0.63	0.10	- 0.02
50	0.20	0.07	0.55	0.11	- 0.01
75	0.18	0.10	0.63	0.13	- 0.03
100	0.29	0.14	0.68	0.12	0.01
150	0.09	0.10	0.33	0.06	- 0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/206/62	10/ 9/62	2100 G	17 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.03	0.47	0.08	- 0.02
25	0.21	0.06	0.41	0.07	0.02
50	0.21	0.13	0.58	0.10	- 0.01
75	0.32	0.19	0.92	0.13	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/207/62	11/ 9/62	0800 G	18 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.13	0.07	0.46	0.09	- 0.01
25	0.16	0.08	0.53	0.10	- 0.02
50	0.14	0.05	0.36	0.09	0.00
75	0.24	0.09	0.62	0.09	0.04
100	0.31	0.09	0.65	0.09	0.05
150	0.09	0.06	0.46	0.08	- 0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/208/62	11/ 9/62	2100 G	20 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.14	0.10	0.66	0.12	- 0.04
25	0.11	0.11	0.70	0.14	- 0.04
100	0.25	0.15	1.00	0.16	- 0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/209/62	12/ 9/62	0800 G	21 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.16	0.12	0.54	0.10	- 0.02
25	0.23	0.11	0.67	0.12	- 0.00
50	0.21	0.09	0.65	0.11	- 0.01
75	0.26	0.09	0.70	0.13	- 0.12
150	0.20	0.11	0.69	0.12	- 0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/210/62	12/ 9/62	2100 G	23 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.10	0.09	0.57	0.09	- 0.01
25	0.10	0.05	0.38	0.07	- 0.00
50	0.23	0.15	0.70	0.14	- 0.02
100	0.23	0.13	0.82	0.13	- 0.02
150	0.07	0.04	0.14	0.03	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/211/62	13/ 9/62	0800 G	24 29 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.11	0.03	0.24	0.04	0.03
25	0.11	0.08	0.44	0.08	0.01
50	0.13	0.09	0.59	0.14	- 0.03
75	0.26	0.15	0.71	0.25	- 0.04
100	0.23	0.10	0.48	0.15	0.03
150	0.05	0.04	0.16	0.11	- 0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/212/62	13/ 9/62	2000 G	26 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.32	0.08	0.66	0.10	0.03
25	0.30	0.10	0.84	0.12	0.00
50	0.24	0.09	0.52	0.10	0.02
100	0.11	0.07	0.44	0.08	- 0.01
150	0.07	0.05	0.32	0.07	- 0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/213/62	14/ 9/62	0800 G	27 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.20	0.06	0.63	0.09	0.02
25	0.18	0.06	0.69	0.11	- 0.02
50	0.21	0.07	0.51	0.10	- 0.01
75	0.20	0.08	0.61	0.48	- 0.13
100	0.29	0.08	0.65	0.12	- 0.01
150	0.14	0.06	0.42	0.08	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/214/62	14/ 9/62	2040 G	29 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.12	0.12	0.62	0.15	- 0.05
25	0.22	0.10	0.64	0.21	- 0.03
50	0.19	0.05	0.57	0.11	- 0.00
75	0.26	0.07	0.46	0.08	0.05
100	0.22	0.08	0.48	0.08	0.05
150	0.10	0.07	0.59	0.07	- 0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/215/62	15/ 9/62	0800 G	30 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.19	0.14	0.61	0.15	- 0.03
50	0.30	0.13	0.75	0.11	0.03
75	0.17	0.06	0.47	0.08	0.03
100	0.36	0.10	0.93	0.14	0.03
150	0.08	0.05	0.62	0.10	- 0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/216/62	15/ 9/62	2000 G	32 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.15	0.10	0.53	0.09	- 0.02
25	0.28	0.20	2.28	0.10	- 0.04
50	0.24	0.12	0.84	0.13	- 0.02
75	0.27	0.11	0.81	0.12	- 0.01
100	0.29	0.09	0.69	0.08	0.07
150	0.14	0.10	0.66	0.15	- 0.03

STATION	DATE	TIME	LATITUDE	LONGITUDE
G 4/217/62	16/ 9/62	0800 G	32 00 S	111 52 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.03	0.21	0.07	- 0.03
25	0.18	0.08	0.53	0.09	- 0.00
50	0.17	0.07	0.65	0.09	- 0.01
75	0.25	0.09	0.43	0.07	0.03
100	0.32	0.10	0.50	0.06	0.08
150	0.16	0.10	0.68	0.12	- 0.03

DATA

PART 4

ZOOPLANKTON

EXPLANATION OF SYMBOLS

Part 4	Zooplankton
x	Samples given to Indian Ocean Biological Centre, Cochin, India
*	Predominantly gelatinous organisms
( )	Including exceptionally large organisms
C.	Approximately
+	Sampler open during recovery

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)
G4/181/62	19/8/62	1548	200	4.87	24
31°58'S. 111°49'E.		1600	200	6.35	32
G4/182/62	20/8/62	1037	200	3.71	19
32°08'S. 110°00'E.		1045	200	4.53	23 x
G4/183/62	20/8/62	2050	200	5.11	26
30°42'S. 110°00'E.		2100	200	6.24	31 x
G4/184/62	21/8/62	1200	213	7.31	34
29°00'S. 110°00'E.					
G4/185/62	21/8/62	2055	242	28.78	72
27°30'S. 110°00'E.		2100	214	12.17	56 x
G4/186/62	22/8/62	1205	213	11.14	52 x
26°00'S. 110°00'E.		1213	200	12.72	64
G4/187/62	22/8/62	2105	231	17.19	73
24°30'S. 110°00'E.		2115	221	14.41	65 x
G4/188/62	22/8/62	1040	225	8.02	36
23°00'S. 110°00'E.		1050	207	6.70	32 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)
G4/189/62	22/8/62	2050	231	37.25	205
21°45'S. 109°58'E.		2100	231	94.77	104(270*)x
G4/190/62	22/8/62	1015	231	4.74	25
20°00'S. 110°00'E.		1030	213	4.37	21 x
G4/191/62	24/8/62	2055	221	12.62	57
18°30'S. 110°00'E.		2105	213	18.47	45(86*)x
G4/192/62	25/8/62	1050	221	6.48	29
17°00'S. 110°00'E.		1100	221	9.14	46 x
G4/193/62	25/8/62	2045	231	16.18	70
15°33'S. 109°58'E.		2055	213	12.02	56 x
G4/194/62	26/8/62	1040	221	12.16	55
14°00'S. 110°00'E.		1055	221	7.59	34 x
G4/195/62	26/8/62	2040	221	14.62	66
12°34'S. 109°57'E.		2050	213	15.71	74 x
G4/196/62	27/8/62	1030	213	24.56	47(116*)
11°00'S. 110°00'E.		1045	207	10,88	50 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)
G4/197/62	27/8/62	2115	213	22.45	105
9°30'S. 110°00'E.		2130	231	85.68	67(370*)x
G4/199/62	29/8/62	0830	213	37.25	96
9°00'S. 105°00'E.		0845	213	17.06	80(116)x

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
G4/181/62	19/8/62	0924	0-10	0	21.9	21
31°58'S. 111°49'E.		"	50-0 +		24.5	24
		"	100-0 +		24.9	30
		"	200-0 +		33.4	28
G4/182/62	20/8/62	1125	0-10	0	10.8	25
32°08'S. 110°00'E.		"	55-60	58	12.9	34
		"	115-125	120	10.9	25
		"	240-255	250	21.5	28
G4/183/62	20/8/62	2325	0-10	0	18.6	65
30°42'S. 110°00'E.		"	50-60	50	15.0	39(87)
		"	100-125	100	15.4	14
		"	220-250	220	19.7	7
G4/184/62	21/8/62	1221	0-10	0	12.4	13
29°00'S. 110°00'E.		"	45-55	50	14.7	25
		"	90-120	110	14.4	13
		"	200-240	230	24.3	17
G4/185/62	21/8/62	2328	0-10		18.1	131
27°30'S. 110°00'E.		"	36-50	43	16.4	22
		"	76-97	86	23.0	37
		"	180-220	190	24.6	10

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
G4/186/62 26°00'S. 110°00'E.	22/8/62	1220	0-10	0	16.9	30
		"	37-45	41	12.6	61
		"	77-87	82	17.3	69
		"	170-190	180	23.5	23
G4/187/62 24°30'S. 110°00'E.	22/8/62	2330	0-10	0	14.0	152(346)
		"	44-52	48	12.3	61(163)
		"	91-101	96	20.2	38(77)
G4/188/62	23/8/62	1140	0-10	0	15.9	17
		"	30-50	30	14.9	9
		"	60-100	60	12.4	27
		"	160-220	170	14.5	14
G4/189/62 21°45'S. 109°58'E.	23/8/62	2325	0-10	0	20.0	89
		"	55-60	57	16.3	108(291)
		"	115-125	120	12.6	33
		"	240-260	250	14.8	13
G4/190/62 20°00'S. 110°00'E.	24/8/62	1115	0-10	0	14.7	45
G4/191/62 18°30'S. 110°00'E.	24/8/62	2300	0-10	0	28.0	34(62)
		"	45-50	47	27.2	100(142)

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
G4/191/62	24/8/62	2300	90-100	95	28.0	40
18°30'S. 110°00'E.		"	200-230	200	26.8	10
G4/192/62	25/8/62	1140	0-10		32.2	22
17°00'S. 110°00'E.		"	20-32	22	29.4	19
		"		65	25.4	61
		"	180-210	190	42.0	45
G4/193/62	25/8/62	2300	0-10	0	26.3	25
15°33'S. 109°58'E.		"	30-45	35	c. 5.2	c. 100
		"	65-90	70	c. 7.6	c. 28
		"	160-210	170	c. 4.2	c. 79
G4/194/62	26/8/62	1130	0-10	0	23.3	10
14°00'S. 110°00'E.		"	27-51	39	22.3	13
		"	60-96	78	24.3	10
		"	150-220	170	29.8	14
G4/195/62	26/8/62	2250	0-10	0	30.6	30
12°34'S. 109°57'E.		"	39-47	43	28.9	78
		"	70-80	75	34.2	74
		"	175-200	190	44.7	65(117)

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
G4/196/62	27/8/62	1120	0-10	0	23.5	14
11°00'S. 110°00'E.		"	40-45	42	27.5	24(84*)
		"	80-100	85	29.0	33
		"	195-225	200	39.9	22
G4/197/62	27/8/62	2320	0-10	0	30.3	37
9°30'S. 110°00'E.		"	25-30	27	32.4	34
		"	50-70	55	31.1	45
		"	140-150	145	53.9	19
G4/199/62	29/8/62	0920	0-10	0	18.3	238
9°00'S. 105°00'E.		"		47	22.9	124
		"		94	25.9	17
		"		207	29.4	40
G4/200/62	7/9/62	0415	0-10	0	23.9	121
8°53'S. 105°03'E.		"	55-60	58	23.9	199
		"	110-125	120	21.5	74
		"	250-280	260	16.4	27

OBLIQUE AND HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
G4/201/62	8/9/62	1115	0-200-0		24.3	129
9°27'S. 109°49'E.		"	0-200-0		23.7	190
		1245	0-10	0	13.1	80
		"	40-50	45	17.0	94
		"	90-110	95	19.8	185
		"	215-245	220	18.2	25
G4/202/62	8/9/62	2110	0-200-0		33.5	212
10°58'S. 110°00'E.		"	0-200-0		31.0	194
		2245	0-10	0	20.7	476
		"	40-50	45	19.0	309
		"	90-100	95	24.6	79
		"	200-220	210	31.9	39
G4/203/62	9/9/62	1025	0-200-0		29.9	104
12°30'S. 110°00'E.		"	0-200-0		30.7	88
		1208	0-10	0	23.3	42
		"	35-40		19.1	84
		"	70-85	80	22.7	77
		"	180-190		29.3	24

OBLIQUE AND HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
G4/204/62	9/9/62	2038	0-200-0		51.0	68
14°00'S. 110°00'E.		"	0-200-0		40.1	62
		2240	0-10	0	24.7	304
		"	50-60	55	20.7	83
		"	100-120	110	23.0	54
		"	210-250	220	23.7	20
G4/205/62	10/9/62	1050	0-200-0		37.9	100
15°30'S. 110°00'E.		"	0-200-0		34.5	64
		1231	45-60	50	12.6	29
		"	90-120	100	19.7	28
G4/206/62	10/9/62	2155	0-200-0		42.4	34
17°00'S. 110°00'E.		"	0-200-0		37.4	47
		2335	0-10	0	18.8	74
		"	45-70		17.7	54
		"	95-130	95	23.2	24
		"	200-240	240	23.5	13
G4/207/62	11/9/62	1030	0-200-0		37.4	40
18°30'S. 110°00'E.		"	0-200-0		33.2	48
		1158	0-10	0	19.3	22
		"	60-65	62	18.8	11
		"	115-125	120	23.4	29
		"	275-290	284	23.4	15

OBLIQUE AND HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
G4/208/62	11/9/62	2140	0-200-0		28.5	25
20°00'S. 110°00'E.		"	0-200-0		25.6	21
		2320	0-10	0	23.0	46(94*)
		"	30-70	30	7.5	25
		"	35-105		7.5	11
		"	140-250		5.1	14
G4/210/62	12/9/62	2145	0-200-0		42.9	41
23°00'S. 110°00'E.		"	0-200-0		37.4	58
		2340	0-10	0	32.7	11
		"	25-45	30	31.0	9
		"	50-100	55	29.8	24
		"	110-200	125	57.2	20
G4/211/62	13/9/62	1025	0-200-0		23.5	57
24°29'S. 110°00'E.		"	0-200-0		21.1	53
		1150	0-10	0	20.4	25
		"	20-45		10.3	7
G4/212/62	13/9/62	2045	0-200-0		29.9	34
26°00'S. 110°00'E.		"	0-200-0		26.8	26
		2230	0-10		24.4	67(180)
		"	42-50	46	20.3	94
		"	100-115	110	29.0	42(116)
		"	190-210	200	37.5	10

OBLIQUE AND HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
G4/213/62	14/9/62	1045	0-200-0		33.6	52
27°30'S. 110°00'E.		"	0-200-0		29.7	74
		1210	0-10	0	18.5	11
G4/214/62	14/9/62	2125	0-200-0		66.6	39
29°00'S. 110°00'E.		2325	0-10	0	18.8	103
		"	70	70	15.5	61
		"	130	130	21.8	11
		"	270	270	5.4	30
G4/215/62	15/9/62	1050	0-200-0		41.3	64
30°30'S. 110°00'E.		"	0-200-0		43.8	34
		1145	0-10	0	22.2	21
		"	55-65	60	23.2	31
G4/216/62	15/9/62	2050	0-200-0		49.7	42
32°00'S. 110°00'E.		"	0-200-0		45.8	42
		2240	0-10	0	22.7	96
		"	75	75	23.3	67
G4/217/62	16/9/62	0930	0-200-0		33.8	46
32°00'S. 111°52'E.		"	0-200-0		33.5	47
		1025	0-10	0	16.1	30
		"	40-55	50	15.3	49
		"	90-120	100	26.5	33
		"	160-220	180	38.9	12

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
G4/183/62 30°42'S. 110°00'E.	20/8/62	2116 2256	12098	290	104	2160	7788	2718
G4/185/62 27°30'S. 110°00'E.	21/8/62	2107 2306	14106	245	600	3240	3353	5723
G4/187/62 24°30'S. 110°00'E.	22/8/62	2130 2311	10092	205	1864	4080	3967	8438
G4/189/62 21°45'S. 109°57'E.	23/8/62	2132 2306	9506	205	1784	6000	7894	6153
G4/191/62 18°30'S. 110°00'E.	24/8/62	2110 2245	12160	230	1248	4920	6991	5612
G4/193/62 15°33'S. 109°58'E.	25/8/62	2106 2244	10000	200	544	3600	5349	8340
G4/195/62 12°34'S. 109°57'E.	26/8/62	2110 2236	9752	195	1128	3120	6737	7692

+ If no data, 200 m assumed

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

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
G4/197/62 9°30'S. 110°00'E.	27/8/62	2146 2307	8240	180	648	5280	11528	5796
G4/198/62 9°07'S. 106°22'E.	28/8/62	2032 2218	7346	170	536	18480	16124	15946
G4/202/62 10°58'S. 110°00'E.	8/9/62	2110 2228	9630	-	600	27480	5813	5283
G4/204/62 14°00'S. 110°00'E.	9/9/62	2038 2225	13210	310	520	4560	3533	6183
G4/206/62 17°00'S. 110°00'E.	10/9/62	2150 2330	9876	190	544	3000	3754	5799
G4/208/62 20°00'S. 110°00'E.	11/9/62	2140 2310	9260	300	776	2280	3091	3217

+ If no data, 200 m assumed

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

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
G4/210/62 23°00'S. 110°00'E.	12/9/62	2150 2319	9042	260	2264	2400	1665	3776
G4/212/62 26°00'S. 110°00'E.	13/9/62	2045 2215	10186	-	704	1920	2802	2645
G4/214/62 29°00'S. 110°00'E.	14/9/62	2125	13518	260	584	2400	2868	4370

+ 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.
2. Oceanographical observations in the Indian Ocean in 1960. H.M.A.S. *Diamantina* Cruise Dm1/60.
3. Oceanographical observations in the Indian Ocean in 1960. H.M.A.S. *Diamantina* Cruise Dm2/60.
4. Oceanographical observations in the Indian Ocean in 1960. H.M.A.S. *Diamantina* Cruise Dm3/60.
5. Oceanographical observations in the Pacific Ocean in 1960. H.M.A.S. *Gascoyne* Cruises G1/60 and G2/60.
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7. Oceanographical observations in the Indian Ocean in 1961. H.M.A.S. *Diamantina* Cruise Dm1/61.
8. Oceanographical observations in the Pacific Ocean in 1961. H.M.A.S. *Gascoyne* Cruise G1/61.
9. Oceanographical observations in the Indian Ocean in 1961. H.M.A.S. *Diamantina* Cruise Dm2/61.
10. Oceanographical observations in the Indian and Pacific Oceans in 1961. H.M.A.S. *Gascoyne* Cruise G2/61.
11. Oceanographical observations in the Indian Ocean in 1961. H.M.A.S. *Diamantina* Cruise Dm3/61.
14. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm1/62.
15. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm2/62.
17. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Gascoyne* Cruise G4/62.
18. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm3/62.
19. Oceanographical observations in the Pacific Ocean in 1962. H.M.A.S. *Gascoyne* Cruise G5/62.
20. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm4/62.
21. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Gascoyne* Cruise G1/63.
22. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Gascoyne* Cruise G2/63.
23. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Diamantina* Cruise Dm1/63.
24. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Diamantina* Cruise Dm2/63.
25. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Diamantina* Cruise Dm3/63.