OCEANOGRAPHICAL OBSERVATIONS
IN THE INDIAN OCEAN IN 1963
H.M.A.S. *DIAMANTINA*
Cruise Dm 1/63

OCEANOGRAPHICAL CRUISE REPORT NO. 23

DIVISION OF FISHERIES AND OCEANOGRAPHY
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL
RESEARCH ORGANIZATION, AUSTRALIA 1965

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H.M.A.S. DIAMANTINA

Cruise Dml/63

(Seasonal Biological Cruise No. 4)

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION,
AUSTRALIA
MELBOURNE, 1965

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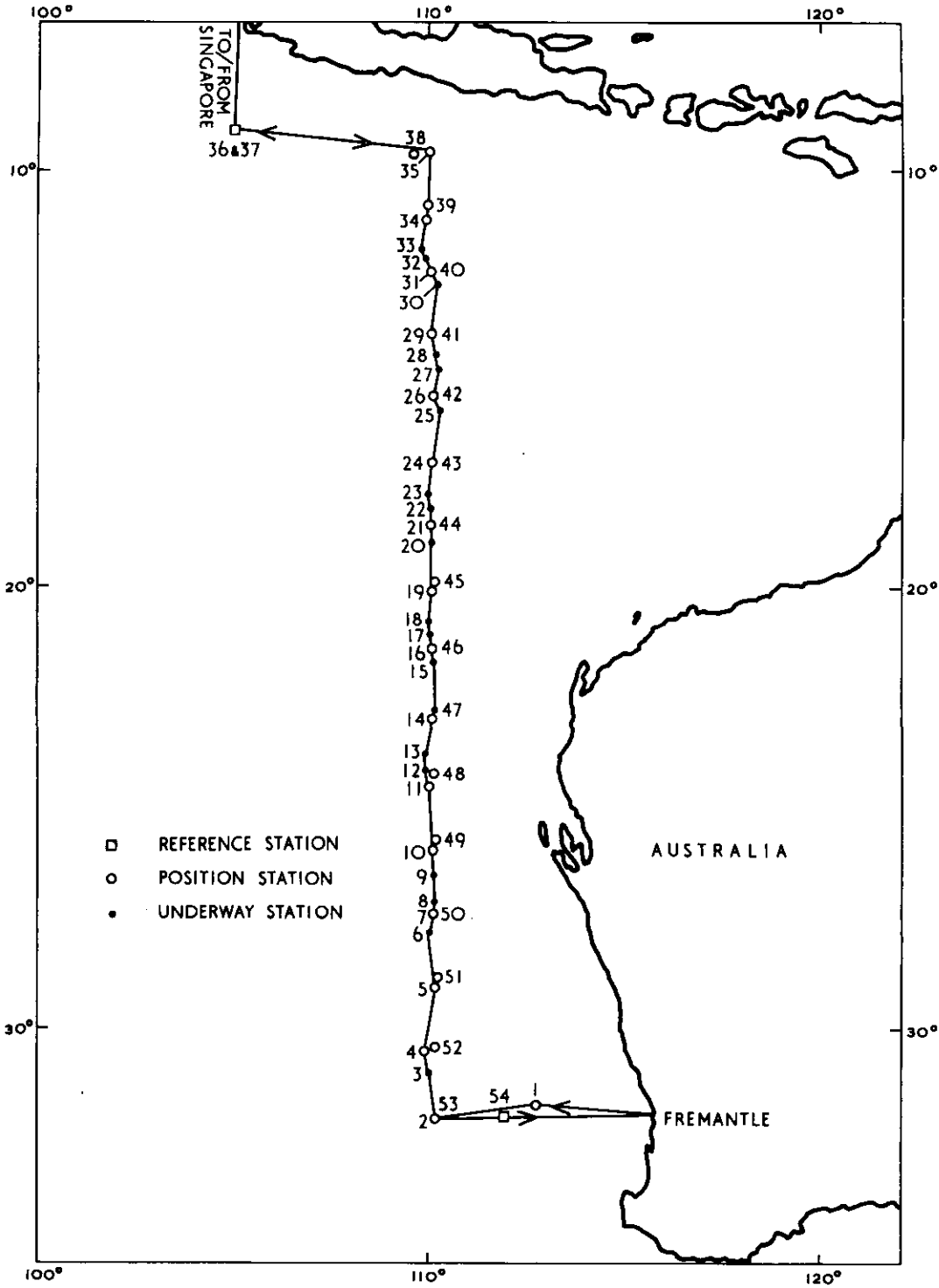
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AUSTRALIA
REFERENCE STATION
POSITION STATION
UNDERWAY STATION

OCEANOGRAPHICAL CRUISE REPORT

NO. 23

Oceanographical Observations in the Indian Ocean in 1963

H.M.A.S. Diamantina

Cruise Dml/63

March 28 - April 27, 1963

I. INTRODUCTION

This report records the data for the first cruise in 1963 of H.M.A.S. Diamantina, Royal Australian Navy frigate, in the Indian Ocean; this cruise is the fourth of the seasonal biological cruises.

Objectives

These were - to determine zooplankton biomass, primary production, pigments, particulate carbon, and micronekton abundance along the 110°E. meridian and 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.

Itinerary

The cruise commenced at Fremantle on March 28, 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. Boland
N. Dyson
J. Faget, Institut Francais d'Oceanie, Noumea
K. Fleming
J. Prothero

The analyses of hydrological samples were done in the ship's laboratory by Messrs Fleming and Prothero. Nitrate analyses were done at Cronulla by Mr Klye. 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 under the direction of Mr Tranter. 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

Fifty-four stations were worked (Dml/1/63-Dml/54/63). Bathythermograph casts were made at 36 stations. Surface hydrology, sub-surface hydrology, primary production, and pigment samples were collected at 36 stations; particulate carbon samples were collected at 35 stations; zooplankton samples were collected at 54 stations; micronekton samples were collected at 19 stations.

TABLE 1

WORK DONE AT EACH STATION

Stn No.	BT	Hydrology 1	Hydrology 2	Prim.Prod. 1	Prim.Prod. 2	Prim.Prod. 3	Part. Carbon	Pig-ments	Zooplankton 1	Zooplankton 2	Zooplankton 3	Micro-nekton
1	+	4500		+	+	+		+	+	+		+
2	+	4700			+	+	+	+	+	+		
3											+	
4	+		+			+	+	+	+	+		+
5	+	5000			+	+	+	+	+	+		
6											+	
7	+		+			+	+	+	+	+	+	+
8											+	
9											+	
10	+	3900			+	+	+	+	+	+		
11	+		+			+	+	+	+	+	+	+
12											+	

Stn No.	BT	Hydrology 1	Hydrology 2	Prim.Prod. 1	Prim.Prod. 2	Prim.Prod. 3	Part Carbon	Pig-ments	Zooplankton 1	Zooplankton 2	Zooplankton 3	Micro-nekton
13											+	
14	+	4700			+	+	+	+	+	+		
15											+	
16	+		+		+	+	+	+	+	+		+
17											+	
18											+	
19	+	4200			+	+	+		+	+		
20											+	
21	+		+			+	+	+	+	+	+	+
22											+	
23											+	
24	+	5500				+	+	+	+	+		
25											+	
26	+		+			+	+	+	+	+	+	+
27											+	
28											+	
29	+	5400			+	+	+	+	+	+		
30											+	
31	+		+			+	+	+	+	+		+
32											+	
33											+	
34	+	4700			+	+	+	+	+	+	+	+
35	+	1250				+	+	+	+	+	+	+
36	+	5500				+	+	+	+	+		+
37	+	5700		+	+	+	+	+	+	+		
38	+		+			+	+	+	+	+		
39	+		+			+	+	+	+	+	+	+
40	+	4400			+	+	+	+	+	+		
41	+		+			+	+	+	+	+	+	+
42	+	5500			+	+	+	+	+	+		
43	+		+			+	+	+	+	+	+	+
44	+	4600			+	+	+	+	+	+		
45	+		+			+	+	+	+	+	+	+
46	+	4800			+	+	+	+	+	+		
47	+		+			+	+	+	+	+	+	+
48	+	4100			+	+	+	+	+	+		
49	+		+			+	+	+	+	+	+	+
50	+	5200				+	+	+	+	+		
51	+		+			+	+	+	+	+	+	+
52	+	4900				+	+	+	+	+		
53	+		+			+	+	+	+	+	+	+
54	+	4800				+	+	+	+	+		

BT	Bathythermograms
Hydrology	1 Surface to depth (m)
	2 Surface to 500 m only for temperature and salinity
Prim.Prod.	Primary Production
	1 In situ incubation
	2 Simulated in situ incubation
	3 Artificial constant light incubation
Part.Carbon	Particulate Carbon
Zooplankton	1 Indian Ocean Standard net
	2 Clarke-Bumpus horizontal tows
	3 High speed sampler tows
Micronekton	Midwater trawl

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° to 30°, and unprotected thermometers with a range of -2° to 30° or -4° to 60°. The accuracy of the temperatures is considered to be ± 0.03°. The readings are recorded in degrees Celsius.

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% ammonium molybdate and 100 ml 50% sulphuric acid) and 0.1 ml 1% 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° 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° 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 at./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 at./l. Results are given as µg at./l without any correction for salt error and are precise to ± 10% for values less than 0.5 µg at./l and ± 5% for higher values. If it is wished to correct for salt effects the results given should be multiplied by 1.15.

Total Phosphorus.- 100 ml samples were drawn from the Nansen bottles into 150 ml Pyrex conical flasks, 0.2 ml of 72% perchloric acid was added and digestion at 200°-250° carried out immediately on a sand tray. After evaporation of water, heating was continued until fuming of the salt residue commenced. The samples were then allowed to cool and 100 ml of distilled water and 2 drops of 2% 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 at./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 the addition of 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 at./l were diluted with artificial seawater-sulphuric acid mixture before reading. Results are given in µg at./l.

Particulate Carbon.- Six litres of seawater, collected by a plastic sampler (Jitts 1964), were filtered through a Whatman GF/C glass fibre filter 25 mm in diameter. The filters were returned to Cronulla for particulate carbon estimation by the method of Dal Pont and Newell (1963). The column average was calculated according to Humphrey (1960).

3. Primary Production

Water samples were aliquots of those taken in the twin 6 l. plastic sampler for pigment measurements. The samples were poured into 300 ml Pyrex bottles and incubated (1) *in situ*, (2) in a simulated *in situ* incubator, or (3) in artificial constant light of 1100 ft candles. Geiger counting was done on board with a windowless counter. The details of the methods are given in Dyson *et al*. (1965).

To test for possible poisoning by the plastic sampler, samples (at some stations) were poured into the 300 ml Pyrex

bottles as soon as the sampler reached the ship's deck. Thereafter incubation, etc. was as for samples in (3) above. In the data these samples are indicated as having as Incubation Method: "Art. Const. Light 8".

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 glass tubes and stored 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 a 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 m with the Indian Ocean Standard Net (IOSN)

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

(a) Vertical Hauls 200-0 m: The IOSN was used in the standard manner (Currie 1963). 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 and the contents 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 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 these.

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.

On the Ship

(a) The gear: This 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.

(b) Handling: 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.

(c) Collecting and storing the samples: 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 10% neutralized 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

sub-samples were made. The taxa could be pooled into 4 main categories:

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

The categories 3 and 4 which predominate in midwater trawl samples are not clearly distinguished. Detailed results will be published separately; average conversion factors, determined for each taxa 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 these conversion factors is given along with the data.

The 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 convert to absolute terms 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 x 10,000 m = 19,290 m^3

Assumed minimum volume of water filtered per average tow = 0.197 m^2 x 10,000 m = 1,970 m^3

From these estimates of maximum and minimum volume filtered it would be possible to convert the data (p. 167) to mg/m^3 (minimal and maximal estimates).

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IV. DATA SHEETS AND TABLES

The data were listed on an I.B.M. 1401. An explanation of the headings for each set of data sheets is given at the beginning of the relevant part.

DATA

PART 1

HYDROLOGY

DEEP STATIONS

EXPLANATION OF HEADINGS

Part 1 — **Hydrology - Deep Stations**

STATION — Gives the station identification, for example, Dml/2/63 signifies the 2nd station worked by Diamantina in 1963, on her 1st 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

Longitude Exceeding	Up to but not exceeding	Time Zone (hrs)	Code
82°30'W. -	67°30'W.	+5	R
67°30'W. -	52°30'W.	+4	Q
52°30'W. -	37°30'W.	+3	P
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	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 at./l
***	Indicates no data available

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 1/63	29/ 3/63	0800 H	31 56 S	112 33 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	WIRE ANGLES CAST2
4845	17.2	21.7	15	05	16	6	6	8	15	3	20	4	1021.3	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	24.76	35.359	23.70	4.65	101	0.08	0.33	00.0
2	23	22.19	35.791	24.77	4.81	100	0.09	***	00.0
2	46	21.98	35.834	24.87	4.89	101	0.10	0.33	00.0
2	69	20.44	35.866	25.31	5.13	104	0.13	***	00.0
2	95	18.88	35.817	25.69	5.25	103	0.15	0.36	00.0
2	141	***	***	***	***	***	***	***	00.8
2	190	13.73	35.394	26.56	5.35	94	0.55	0.50	01.8
2	280	***	35.109	***	5.48	***	0.60	***	05.3
2	465	9.24	34.720	26.88	5.38	85	0.92	1.06	13.1
2	653	7.68	34.536	26.97	4.92	75	1.35	1.58	30.2
2	837	4.77	34.449	27.28	4.24	60	1.50	2.02	***
1	930	4.36	34.443	27.32	3.84	54	1.53	1.84	31.4
1	1095	3.74	34.483	27.42	3.56	49	1.96	2.14	26.6
1	1264	3.34	34.552	27.51	3.52	48	1.48	1.98	26.2
1	1697	2.66	34.681	27.68	3.54	47	1.73	1.84	27.9
1	2150	2.23	34.744	27.77	3.71	49	2.30	2.34	***
1	2604	1.91	34.750	27.80	3.90	52	1.96	2.13	25.6
1	3055	1.62	34.749	27.82	4.08	54	1.95	1.91	25.4
1	3527	1.38	34.748	27.85	4.21	55	1.85	1.87	26.6
1	4003	1.19	34.740	27.84	4.34	56	1.85	1.91	24.2

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 2/63	30/ 3/63	0800 H	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	WIRE ANGLES CAST2
4938	17.8	20.0	12	04	16	6	6	7	12	2	16	4	1023.3	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	19.54	35.953	25.64	5.21	104	0.13	0.49	00.2
2	25	19.43	35.959	25.65	5.20	103	0.14	***	00.2
2	49	19.41	35.969	25.67	5.19	103	0.14	0.45	00.1
2	74	19.20	35.953	25.71	5.25	104	0.15	***	00.1
2	98	16.18	35.690	26.25	5.54	103	0.22	0.47	00.1
2	147	14.15	35.460	26.52	5.38	96	0.48	***	***
2	195	13.00	35.286	26.63	5.47	95	0.56	0.70	03.0
2	289	11.14	35.003	26.77	5.59	93	0.74	0.93	08.1
2	478	9.06	34.689	26.88	5.58	88	1.08	1.32	14.7
2	681	7.92	34.560	26.96	5.15	79	1.40	1.48	20.0
2	870	5.19	34.399	27.19	4.52	65	1.84	2.05	27.6
1	1044	3.88	34.422	27.36	4.16	57	1.91	2.38	34.1
1	1233	3.32	34.520	27.49	3.57	49	2.03	2.49	35.6
1	1423	3.08	34.582	27.56	3.71	50	2.15	2.39	38.1
1	1897	2.49	34.685	27.70	3.73	50	2.22	2.56	35.6
1	2375	2.05	34.729	27.77	3.80	50	2.14	2.49	36.1
1	2863	1.75	34.737	27.80	4.03	52	2.16	2.41	32.8
1	3358	1.50	***	***	4.17	54	2.05	2.24	32.2
1	3853	1.26	34.730	27.83	4.37	56	2.03	2.18	32.8
1	4350	1.15	34.722	27.83	4.49	58	1.65	2.40	31.3

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 10/63	1/ 4/63	0830 H	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	WIRE ANGLES CAST2
3990	21.7	26.1	14	03	16	*	0	8	*	*	19	3	1017.9	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	25.04	35.396	23.64	4.69	102	0.11	0.36	00.3
2	23	24.93	35.428	23.70	4.66	102	0.25	***	00.1
2	46	23.57	35.430	24.10	4.75	101	0.15	0.44	00.5
2	69	22.08	35.639	24.69	4.99	104	0.22	***	00.0
2	92	19.99	35.814	25.39	5.09	102	0.24	0.44	00.0
2	138	18.24	35.833	25.86	4.69	91	0.34	***	00.4
2	188	17.09	35.820	26.13	4.90	93	0.36	0.51	00.2
2	282	14.13	35.495	26.55	5.08	90	0.48	0.65	01.6
2	473	9.87	34.820	26.85	5.55	89	0.92	1.24	09.5
2	663	8.29	34.609	26.94	5.00	77	1.27	1.71	16.6
2	855	5.19	34.486	27.26	3.68	53	1.96	2.24	26.3
1	1065	***	34.578	***	2.77	***	1.99	2.15	33.6
1	1250	3.94	34.604	27.49	2.88	40	2.30	2.41	36.8
1	1435	3.41	34.637	27.58	2.99	41	2.25	2.38	35.2
1	1900	2.61	34.703	27.70	3.31	44	2.15	2.44	32.3
1	2367	2.10	34.729	27.76	3.52	46	2.16	2.35	31.7
1	2842	1.77	34.742	27.80	3.68	48	2.10	2.28	30.3
1	3300	1.47	34.731	27.81	3.90	50	2.02	2.17	27.4
1	3590	1.35	34.737	27.83	4.16	54	1.96	2.03	30.3

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 5/63	31/ 3/63	0800 H	27 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	WIRE ANGLES CAST2
5350	21.1	25.0	12	04	16	*	*	7	15	4	15	5	1017.6	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	24.95	35.384	23.66	4.59	100	0.11	0.47	00.6
2	24	24.83	35.386	23.70	4.64	101	0.14	***	00.3
2	47	23.07	35.642	24.41	4.75	100	0.14	0.40	00.2
2	71	***	35.768	***	5.06	***	0.22	***	00.1
2	93	18.69	35.800	25.72	4.87	95	0.23	0.42	00.1
2	140	17.29	35.813	26.08	4.83	92	0.25	***	00.8
2	188	15.57	35.708	26.40	4.78	88	0.36	0.59	00.9
2	280	14.55	35.628	26.57	5.29	95	0.36	0.57	00.8
2	468	10.63	34.952	26.82	5.42	89	0.90	1.03	07.9
2	656	8.66	34.657	26.92	5.17	81	1.23	1.39	15.5
2	847	5.52	34.435	27.18	4.32	62	1.82	1.96	28.3
1	1036	4.31	34.498	27.37	3.50	49	2.17	2.28	32.7
1	1225	3.69	34.557	27.48	3.22	45	2.18	2.39	33.2
1	1410	2.73	34.615	27.62	3.31	44	2.18	2.39	31.5
1	1885	2.56	34.707	27.71	3.36	45	2.17	2.32	31.5
1	2360	2.07	34.735	27.77	3.58	47	2.22	2.38	34.2
1	2831	1.79	34.740	27.80	3.86	50	2.16	2.31	33.6
1	3300	1.56	34.737	27.81	4.03	52	2.08	2.22	31.5
1	3765	1.32	34.732	27.83	4.26	55	2.07	2.27	34.2
1	4231	1.22	34.723	27.83	4.34	56	1.99	2.05	34.2
1	4690	1.17	34.731	27.84	4.43	57	1.97	2.16	31.5

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 7/63	31/ 3/63	2030 H	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	WIRE ANGLES CAST2
5486	23.3	25.0	11	03	16	*	0	8	*	0	14	1	1017.8	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	24.51	35.592	23.92	***	***	***	***	***
1	25	24.29	35.584	24.01	***	***	***	***	***
1	49	23.04	35.629	24.41	***	***	***	***	***
1	74	***	35.707	***	***	***	***	***	***
1	97	19.29	35.818	25.58	***	***	***	***	***
1	146	17.59	35.831	26.02	***	***	***	***	***
1	195	16.14	35.741	26.30	***	***	***	***	***
1	294	13.11	35.329	26.64	***	***	***	***	***
1	490	9.50	34.763	26.87	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 4/63	30/ 3/63	2000 H	30 30 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	WIRE ANGLES CAST2
5160	18.9	21.1	12	06	16	6	3	6	12	3	14	4	1015.3	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	21.50	35.947	25.11	***	***	***	***	***
1	25	21.48	35.958	25.10	***	***	***	***	***
1	49	21.34	35.952	25.14	***	***	***	***	***
1	74	21.19	35.953	25.18	***	***	***	***	***
1	98	20.76	35.919	25.27	***	***	***	***	***
1	147	18.12	35.794	25.86	***	***	***	***	***
1	196	16.01	35.665	26.27	***	***	***	***	***
1	295	9.85	34.819	26.85	***	***	***	***	***
1	491	6.73	34.485	27.07	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 11/63	1/ 4/63	2110 H	24 36 S	109 59 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	WIRE ANGLES CAST2
3970	23.3	26.1	09	04	16	*	*	7	09	2	15	4	1016.3	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	26.02	35.305	23.27	***	***	***	***	***
1	25	26.02	35.301	23.26	***	***	***	***	***
1	50	24.14	35.380	23.90	***	***	***	***	***
1	75	21.79	35.437	24.62	***	***	***	***	***
1	100	20.77	35.455	24.91	***	***	***	***	***
1	150	19.43	35.662	25.43	***	***	***	***	***
1	200	18.14	35.775	25.84	***	***	***	***	***
1	300	15.14	35.626	26.43	***	***	***	***	***
1	500	9.82	34.843	26.88	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 14/63	2/ 4/63	0900 H	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	WIRE ANGLES CAST2
4938	23.3	27.2	13	05	16	8	1	8	13	2	15	5	1013.8	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	27.87	34.975	22.43	4.55	104	0.14	0.32	00.2
2	24	27.83	34.963	22.43	4.56	104	0.13	***	00.1
2	48	26.51	35.057	22.93	4.86	109	0.14	0.43	00.2
2	72	23.41	34.913	23.76	4.32	91	0.32	***	00.0
2	95	21.90	34.951	24.22	3.61	74	0.48	0.56	02.9
2	143	20.43	35.410	24.97	3.99	80	0.48	***	02.9
2	188	19.26	35.671	25.48	4.33	85	0.40	0.51	02.1
2	280	15.76	35.681	26.34	4.91	90	0.42	0.56	01.7
2	468	10.37	34.923	26.84	5.02	82	0.97	0.97	12.3
2	652	7.70	34.604	27.02	4.76	73	1.49	1.71	16.9
2	840	5.64	34.608	27.31	2.71	39	2.07	2.41	35.6
1	1065	***	34.647	***	***	***	2.17	2.44	38.4
1	1260	4.23	34.655	27.50	2.43	34	2.28	2.79	38.4
1	1454	3.68	34.674	27.58	2.75	38	2.07	2.44	39.4
1	1939	2.59	34.797	27.78	3.13	42	2.21	2.25	38.4
1	2423	2.08	34.753	27.79	3.45	45	2.22	2.42	36.6
1	2868	1.79	34.756	27.81	3.70	48	2.03	2.33	34.6
1	3395	1.49	34.752	27.83	3.89	51	2.02	2.24	34.6
1	3880	1.26	34.748	27.84	4.25	55	2.05	2.18	35.1
1	4365	1.21	34.743	27.84	4.27	55	1.94	1.88	34.4
1	4555	1.21	34.744	27.84	4.23	54	1.93	1.93	36.8

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 16/63	2/ 4/63	2020 H	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	WIRE ANGLES CAST2
4938	23.3	27.8	12	02	16	*	0	8	00	0	15	2	1012.5	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	28.25	34.999	22.34	***	***	***	***	***
1	25	28.00	35.032	22.43	***	***	***	***	***
1	49	25.24	35.136	23.38	***	***	***	***	***
1	74	24.04	35.150	23.75	***	***	***	***	***
1	98	22.36	35.261	24.32	***	***	***	***	***
1	147	20.17	35.535	25.13	***	***	***	***	***
1	196	18.57	35.591	25.59	***	***	***	***	***
1	295	15.46	35.589	26.34	***	***	***	***	***
1	491	9.94	34.846	26.86	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 19/63	3/ 4/63	0830 M	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	WIRE ANGLES CAST2
4400	25.0	28.3	12	02	16	*	*	8	12	1	16	3	1012.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	28.95	34.915	22.03	4.34	101	0.06	0.28	00.1
2	23	28.87	***	***	4.27	99	0.06	***	00.2
2	45	26.97	34.927	22.68	4.85	111	0.10	0.36	00.0
2	68	24.33	34.959	23.52	4.77	103	0.17	***	00.0
2	90	22.78	35.014	24.02	4.09	86	0.33	0.58	00.0
2	113	21.64	35.032	24.35	3.37	69	0.58	***	03.8
2	135	20.65	35.050	24.66	3.16	64	0.60	***	06.6
2	180	19.36	35.272	25.15	3.38	66	0.60	0.82	05.6
2	225	17.17	35.299	25.71	3.38	64	0.77	***	08.2
2	270	15.04	35.266	26.18	3.52	63	0.82	1.14	09.3
2	360	11.73	35.026	26.68	3.92	66	1.05	***	14.5
2	448	9.66	34.794	26.87	4.63	74	1.08	1.16	18.1
2	629	7.25	34.621	27.10	3.09	46	1.57	2.02	29.7
2	808	5.59	34.633	27.34	1.89	27	2.10	2.63	37.9
1	1045	***	34.641	***	2.12	***	2.30	2.61	41.2
1	1236	4.15	34.648	27.51	2.39	33	2.33	2.61	42.6
1	1425	3.72	34.669	27.57	2.56	35	2.00	2.36	43.4
1	1903	2.58	34.739	27.73	3.15	42	1.84	2.30	40.7
1	2379	2.06	34.723	27.76	3.35	44	1.83	***	40.3
1	2854	1.77	34.725	27.79	3.62	47	1.82	2.30	41.1
1	3330	1.47	34.714	27.80	3.78	49	1.81	2.25	39.5
1	3803	1.22	34.717	27.82	4.16	53	1.71	2.27	38.1
1	3990	1.21	34.717	27.82	3.98	51	1.65	1.93	39.5

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 21/63	3/ 4/63	2040 H	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	WIRE ANGLES CAST2
5058	24.2	28.3	15	03	16	*	0	8	15	1	15	2	1011.5	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	28.87	34.898	22.04	***	***	***	***	***
1	24	28.61	34.827	22.07	***	***	***	***	***
1	48	24.89	34.775	23.21	***	***	***	***	***
1	72	23.22	35.066	23.93	***	***	***	***	***
1	96	21.85	35.123	24.36	***	***	***	***	***
1	144	19.98	35.169	24.91	***	***	***	***	***
1	196	18.54	35.331	25.40	***	***	***	***	***
1	295	14.44	35.362	26.39	***	***	***	***	***
1	491	8.95	34.723	26.93	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 24/63	4/ 4/63	0830 H	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	WIRE ANGLES CAST2
5669	23.9	28.9	14	02	16	*	*	8	*	*	14	2	1011.7	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	29.01	34.882	21.98	4.39	102	0.06	0.28	00.0
1	24	28.68	34.861	22.07	4.42	102	0.06	***	00.0
1	48	26.32	34.824	22.81	4.65	103	0.08	0.34	00.0
1	72	23.73	34.877	23.64	4.23	90	0.36	***	00.0
1	95	22.01	34.924	24.17	3.42	70	0.56	0.89	04.8
1	119	20.05	34.911	24.69	2.88	57	0.80	***	10.2
1	143	19.21	35.147	25.07	3.04	60	0.70	***	08.6
1	190	16.21	35.125	25.83	3.07	57	0.91	1.09	13.5
1	240	14.77	35.120	26.14	3.22	58	1.00	***	14.2
1	290	13.28	35.116	26.45	3.63	64	0.97	1.13	14.2
1	388	10.56	34.920	26.81	4.46	73	1.06	***	15.8
1	485	9.12	34.754	26.92	4.77	75	1.07	1.13	17.3
1	678	6.99	34.644	27.16	2.57	38	1.89	1.94	33.4
2	875	5.59	34.635	27.33	2.06	30	2.23	2.26	34.6
2	1085	4.69	34.633	27.44	2.21	31	2.23	2.25	39.0
1	1281	***	34.653	***	2.38	***	2.11	2.36	39.9
1	1478	3.54	34.681	27.60	2.53	34	2.28	2.34	38.5
1	1975	2.56	34.738	27.73	3.08	41	2.17	2.33	36.4
1	2465	2.01	34.744	27.78	3.49	46	2.17	2.23	36.7
1	2955	1.67	34.749	27.81	3.75	49	2.13	2.17	36.7
1	3445	1.36	34.745	27.83	3.97	51	2.08	2.19	36.4
1	3935	1.24	34.735	27.83	4.16	53	2.10	2.13	37.1
1	4423	1.18	34.729	27.83	4.25	54	2.04	1.91	35.6
1	4910	1.20	34.733	27.83	4.23	54	2.02	1.77	36.7
1	5395	1.22	34.745	27.84	4.31	55	1.45	***	34.2

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 26/63	4/ 4/63	2030 H	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	WIRE ANGLES CAST2
5759	24.4	28.9	13	04	16	*	3	7	13	1	14	1	1010.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	28.91	34.825	21.97	***	***	***	***	***
1	25	28.88	34.834	21.99	***	***	***	***	***
1	49	26.65	34.841	22.72	***	***	***	***	***
1	74	23.53	34.942	23.75	***	***	***	***	***
1	98	22.22	35.077	24.23	***	***	***	***	***
1	147	19.27	34.996	24.96	***	***	***	***	***
1	196	15.48	34.908	25.81	***	***	***	***	***
1	293	12.88	35.092	26.50	***	***	***	***	***
1	488	8.72	34.728	26.97	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 29/63	5/ 4/63	0830 H	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	WIRE ANGLES CAST2
5596	23.6	30.0	12	03	16	8	2	8	12	1	15	2	1010.1	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	28.98	34.173	21.46	4.44	103	0.10	0.31	00.0
2	25	28.78	34.142	21.50	4.44	102	0.11	***	00.1
2	50	***	34.366	***	4.68	***	0.10	0.41	00.0
2	74	28.06	34.323	21.88	4.53	103	0.17	***	00.0
2	98	24.29	34.094	22.88	3.73	80	0.47	0.75	03.5
2	123	22.02	34.287	23.68	3.32	68	0.69	***	07.2
2	147	18.76	34.581	24.77	2.71	52	0.99	***	15.3
2	197	15.93	34.612	25.48	2.53	46	1.31	1.42	17.8
2	246	14.37	34.692	25.88	2.43	43	1.34	***	20.0
2	296	12.88	34.872	26.33	2.73	47	1.47	1.45	21.2
2	395	10.39	34.856	26.79	3.50	57	1.48	***	27.6
2	494	8.68	34.728	26.97	3.48	54	1.61	1.89	24.8
2	693	6.79	34.685	27.22	2.02	30	2.06	2.33	32.6
2	892	5.60	34.670	27.36	1.98	28	2.28	2.66	36.4
2	1090	4.82	34.657	27.44	2.16	30	2.31	2.60	38.7
1	1292	***	34.672	***	2.37	***	2.28	2.11	37.3
1	1492	3.51	34.713	27.62	2.44	34	2.28	2.39	37.7
1	1989	2.46	34.775	27.77	3.07	41	2.17	2.33	35.2
1	2485	1.97	34.761	27.80	3.53	46	2.14	2.36	35.2
1	2982	1.62	34.772	27.84	3.61	47	2.14	2.40	34.8
1	3478	1.37	34.757	27.84	4.00	52	2.02	2.23	33.6
1	3975	1.24	34.749	27.84	4.04	52	2.07	2.20	35.2
1	4472	1.17	34.739	27.84	4.13	53	2.02	2.27	35.0
1	4968	1.20	34.743	27.84	4.23	54	2.13	2.14	33.0
1	5365	1.23	34.749	27.85	4.22	54	2.10	2.07	33.0

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 31/63	5/ 4/63	2030 H	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	WIRE ANGLES CAST2
5221	24.4	28.3	07	02	16	0	2	8	*	*	15	1	1010.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	29.12	33.805	21.14	***	***	***	***	***
1	22	28.82	34.111	21.47	***	***	***	***	***
1	43	27.79	34.269	21.92	***	***	***	***	***
1	65	25.76	34.107	22.45	***	***	***	***	***
1	86	23.76	34.350	23.23	***	***	***	***	***
1	129	20.13	34.533	24.39	***	***	***	***	***
1	175	16.06	34.572	25.42	***	***	***	***	***
1	260	12.73	34.546	26.11	***	***	***	***	***
1	435	9.28	34.668	26.83	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 34/63	6/ 4/63	0930 H	11 06 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	WIRE ANGLES CAST2
4938	24.4	28.3	11	02	16	1	4	8	*	*	15	2	1010.2	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	28.28	34.334	21.81	4.45	102	0.13	0.21	00.3
2	23	28.18	34.306	21.82	4.47	102	0.12	***	00.1
2	45	26.16	34.547	22.65	4.56	101	0.31	0.36	00.0
2	68	24.21	34.609	23.30	3.94	84	0.36	***	00.8
2	90	21.86	34.597	23.96	3.17	65	0.78	0.81	07.3
2	113	18.79	34.611	24.79	2.70	53	1.02	***	12.9
2	135	15.20	34.549	25.59	2.68	48	1.13	***	18.5
2	182	13.73	34.566	25.92	2.52	44	1.45	1.67	22.5
2	230	11.88	34.587	26.31	2.40	40	1.57	***	25.3
2	283	10.70	34.606	26.54	2.24	36	1.67	1.80	27.0
2	365	9.28	34.671	26.84	2.35	37	1.80	***	28.7
2	455	8.33	34.690	27.00	2.02	31	1.97	2.02	31.9
2	640	6.78	34.647	27.19	2.12	31	2.14	2.00	33.2
2	820	5.68	34.644	27.33	2.12	30	2.25	2.43	36.1
1	910	5.27	34.658	27.40	2.14	30	2.39	2.45	37.0
2	1010	4.93	34.631	27.41	2.20	31	2.28	2.39	38.4
1	1053	4.68	34.646	27.45	2.23	31	2.33	2.47	36.2
1	1400	3.70	34.707	27.60	2.48	34	2.28	2.39	36.2
1	1810	2.75	34.764	27.74	3.26	44	2.20	2.69	35.3
1	2235	2.20	34.769	27.79	3.39	45	2.14	2.53	35.2
1	2665	1.84	34.757	27.81	3.61	47	2.17	2.35	34.6
1	3095	1.54	34.739	27.82	3.84	50	2.10	2.49	33.7
1	3530	1.30	34.734	27.83	4.04	52	1.99	2.17	34.4
1	3700	1.18	34.737	27.84	4.14	53	1.99	***	34.1

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 35/63	6/ 4/63	2030 H	09 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	WIRE ANGLES CAST2
1280	25.0	28.3	12	03	16	8	1	8	12	1	13	1	1009.5	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	28.54	34.037	21.50	4.47	102	0.17	0.35	00.1
1	25	28.52	34.023	21.50	4.55	104	0.18	***	00.1
1	49	24.55	34.622	23.20	4.39	94	0.20	0.40	00.0
1	74	21.66	34.634	24.05	3.28	67	0.68	***	06.5
1	98	17.35	34.556	25.10	2.79	52	1.06	1.38	14.4
1	123	15.41	34.564	25.56	2.62	47	1.25	***	16.1
1	147	14.16	34.555	25.82	2.63	46	1.25	***	19.7
1	197	11.97	34.548	26.26	2.42	40	1.64	2.08	23.8
1	246	10.64	34.637	26.57	2.29	37	1.68	***	27.5
1	296	10.06	34.701	26.72	2.15	34	1.67	1.84	31.6
1	394	8.94	34.723	26.93	2.07	32	1.78	***	30.5
1	493	7.92	34.714	27.08	1.78	27	1.81	2.13	32.8
1	691	6.44	34.666	27.25	1.89	28	2.09	2.36	35.0
1	888	5.40	34.640	27.36	2.15	31	2.14	2.52	35.0
1	1085	4.42	34.640	27.47	2.28	32	2.02	2.31	38.6
1	1233	3.99	34.666	27.55	2.35	33	2.14	2.36	37.8

STATION	DATE	TIME	LATITUDE	LONGITUDE
OM 1/ 36/63	7/ 4/63	0035 H	09 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	WIRE ANGLES CAST2
5576	25.6	28.3	16	04	16	8	3	7	*	*	*	*	1009.5	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	28.34	33.795	21.39	4.53	103	0.11	0.44	00.2
2	23	28.32	33.761	21.37	4.49	102	0.13	***	00.5
2	45	27.65	34.165	21.89	4.45	101	0.14	0.40	00.0
2	68	26.45	34.403	22.45	4.25	94	0.23	***	00.0
2	90	***	34.435	***	3.49	***	0.57	1.01	04.0
2	113	***	34.461	***	3.01	***	0.80	***	08.3
2	135	19.94	34.499	24.41	2.86	56	0.91	***	12.3
2	180	14.62	34.577	25.74	2.99	53	1.35	1.54	20.4
2	225	12.05	34.614	26.29	2.20	37	1.59	***	26.8
2	272	10.96	34.677	26.55	1.94	32	1.72	1.93	31.6
2	367	10.12	34.807	26.80	1.79	29	1.80	***	30.1
2	460	9.19	34.796	26.94	1.90	30	1.91	2.15	35.3
2	645	7.70	34.765	27.15	1.57	24	2.10	2.57	39.6
2	837	6.04	34.689	27.32	1.93	28	2.31	2.71	40.2
2	1028	4.93	34.669	27.44	2.06	29	2.36	***	40.5
1	1262	3.87	34.677	27.56	2.20	30	2.28	2.64	39.6
1	1455	3.71	34.711	27.62	2.40	33	2.34	2.52	37.8
1	1940	2.64	34.748	27.73	3.05	41	2.17	2.41	36.8
1	2431	2.03	34.742	27.78	3.46	45	2.14	2.24	36.4
1	2920	1.70	34.730	27.80	3.69	48	2.10	2.24	38.0
1	3415	1.46	34.725	27.81	3.78	49	2.06	2.38	37.8
1	3910	1.21	34.719	27.82	4.16	53	2.01	2.19	34.8
1	4402	1.15	34.717	27.83	4.29	55	2.06	2.24	36.2
1	4900	1.19	34.720	27.83	4.33	56	1.95	2.21	34.3
1	5396	1.25	34.724	27.82	4.18	54	1.89	2.13	33.4

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 37/63	18/ 4/63	1120 H	08 55 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	WIRE ANGLES CAST2
6126	27.2	31.1	14	02	16	8	2	8	12	1	13	2	1014.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	28.79	33.783	21.23	4.38	101	0.13	0.24	00.3
1	25	28.44	33.766	21.33	4.37	100	0.21	***	00.2
1	49	27.53	34.282	22.02	4.29	97	0.17	0.29	00.0
1	74	25.43	34.426	22.79	3.74	82	0.47	***	01.3
1	98	23.64	34.457	23.35	3.25	69	0.69	0.84	05.4
1	123	21.19	34.495	24.07	2.73	55	0.92	***	09.6
1	147	18.35	34.534	24.84	2.69	51	1.06	***	14.4
1	195	13.69	34.577	25.94	2.40	42	1.53	1.69	20.5
1	243	11.66	34.661	26.41	2.04	34	1.71	***	25.7
1	292	9.47	34.785	26.89	2.01	32	1.93	***	29.6
1	388	10.53	34.719	26.66	1.84	30	1.75	2.06	29.2
1	485	8.67	34.786	27.02	1.90	29	1.89	2.31	30.8
1	677	6.69	34.704	27.25	2.00	29	2.33	2.83	36.8
1	893	5.45	34.677	27.38	1.92	27	2.38	2.68	36.4
1	1090	4.67	34.678	27.48	1.93	27	2.31	2.70	29.8
1	1285	4.13	34.705	27.56	2.18	30	2.38	2.68	34.6
1	1481	3.56	34.742	27.64	2.43	33	2.34	2.59	35.0
1	1965	2.51	34.771	27.77	3.05	41	2.10	2.50	33.5
1	2450	2.02	34.768	27.80	3.11	41	2.19	2.55	34.1
1	2933	1.76	34.755	27.81	3.44	45	2.25	2.43	33.5
1	3415	1.43	34.744	27.83	3.79	49	2.16	2.58	32.1
1	3900	1.21	34.741	27.84	4.11	53	2.16	2.56	31.6
1	4380	1.18	34.728	27.83	4.09	52	2.13	2.28	34.6
1	4860	1.19	34.701	27.81	4.03	52	2.13	2.32	30.7
1	5340	1.25	34.729	27.83	4.03	52	1.93	2.22	25.4
1	5623	1.29	34.730	27.81	4.04	53	1.91	2.27	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 38/63	19/ 4/63	1330 H	09 32 S	109 36 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	WIRE ANGLES CAST2
3383	26.7	31.7	13	04	16	8	2	8	13	2	14	1	1011.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	28.94	33.366	20.87	***	***	***	***	***
1	19	28.57	33.472	21.07	***	***	***	***	***
1	38	28.40	33.696	21.29	***	***	***	***	***
1	57	27.46	34.281	22.04	***	***	***	***	***
1	75	24.90	34.264	22.83	***	***	***	***	***
1	113	19.42	***	***	***	***	***	***	***
1	150	15.23	34.538	25.58	***	***	***	***	***
1	230	11.88	34.557	26.28	***	***	***	***	***
1	390	9.42	34.733	26.86	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 39/63	19/ 4/63	2030 H	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	WIRE ANGLES CAST2
5066	24.4	28.3	13	03	16	*	*	8	14	2	18	1	1010.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	28.82	33.380	20.92	***	***	***	***	***
1	25	28.43	34.075	21.57	***	***	***	***	***
1	50	27.60	34.060	21.83	***	***	***	***	***
1	75	25.95	34.496	22.68	***	***	***	***	***
1	100	22.88	34.471	23.58	***	***	***	***	***
1	150	17.50	34.501	25.03	***	***	***	***	***
1	200	13.86	34.557	25.89	***	***	***	***	***
1	300	10.69	34.630	26.56	***	***	***	***	***
1	500	8.62	34.735	26.99	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 40/63	20/ 4/63	0830 H	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	WIRE ANGLES CAST2
4526	26.1	28.9	12	03	16	8	2	8	12	2	13	2	1013.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	28.75	34.014	21.42	4.23	97	0.13	0.39	00.3
2	23	28.68	34.020	21.45	4.32	99	0.13	***	00.0
2	46	26.97	34.130	22.08	4.29	96	0.17	0.47	00.0
2	69	26.23	34.211	22.38	3.75	83	0.43	***	01.7
2	92	***	34.304	***	3.57	***	0.51	0.81	02.9
2	115	***	34.371	***	3.26	***	0.62	***	06.4
2	138	21.83	34.435	23.85	2.99	61	0.88	***	09.8
2	184	17.18	34.522	25.12	2.75	51	1.35	1.52	14.8
2	230	14.18	34.551	25.82	2.56	45	1.48	***	19.2
2	275	12.78	34.550	26.10	2.50	43	1.51	1.82	22.1
2	368	10.68	34.607	26.54	2.22	36	1.72	***	25.7
2	455	9.08	34.706	26.89	2.18	34	1.77	2.05	27.4
2	635	7.69	34.620	27.04	2.18	33	2.06	2.59	31.6
2	818	6.16	34.626	27.25	1.90	28	2.27	2.61	32.9
1	1055	4.85	34.624	27.41	2.62	37	2.28	2.59	33.8
1	1245	4.23	34.651	27.51	2.19	31	2.11	2.55	36.0
1	1437	3.68	34.686	27.59	2.39	33	2.14	2.50	33.8
1	1917	2.57	34.744	27.74	2.82	37	2.05	2.33	32.3
1	2400	2.00	34.739	27.78	3.26	43	1.95	2.38	***
1	2880	1.70	34.739	27.80	3.51	46	1.96	2.42	32.4
1	3360	1.44	34.723	27.81	3.68	47	2.05	2.19	31.3
1	3843	1.23	34.727	27.83	3.98	51	1.82	2.27	33.1
1	4230	1.17	34.727	27.83	4.14	53	1.86	2.13	35.0

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 41/63	20/ 4/63	2050 H	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	WIRE ANGLES CAST2
5577	25.6	28.3	14	04	16	8	4	7	14	2	19	3	1011.5	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	28.84	34.080	21.44	***	***	***	***	***
1	25	28.72	34.070	21.47	***	***	***	***	***
1	50	28.01	34.230	21.82	***	***	***	***	***
1	75	***	34.449	***	***	***	***	***	***
1	100	23.74	34.410	23.28	***	***	***	***	***
1	150	20.30	34.499	24.31	***	***	***	***	***
1	200	16.92	34.713	25.33	***	***	***	***	***
1	300	13.03	34.796	26.24	***	***	***	***	***
1	500	8.77	34.705	26.94	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 42/63	21/ 4/63	0830 H	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	WIRE ANGLES CAST2
5669	26.1	28.3	10	01	16	9	2	8	10	1	18	4	1013.4	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	28.49	34.595	21.94	4.17	96	0.08	0.56	00.0
2	23	28.38	34.617	21.99	4.30	99	0.08	***	00.0
2	46	26.94	34.890	22.66	4.81	108	0.11	0.57	00.0
2	69	23.77	34.908	23.65	4.10	87	0.36	***	00.0
2	92	22.46	35.013	24.11	3.79	79	0.45	0.62	00.0
2	115	20.89	35.002	24.54	3.03	61	0.67	***	02.1
2	138	18.94	35.016	25.06	2.79	54	0.79	***	00.0
2	185	16.35	35.110	25.78	2.98	55	0.89	1.29	08.3
2	233	14.32	35.169	26.26	3.24	57	0.90	***	02.8
2	280	12.95	35.107	26.50	3.42	59	0.92	1.35	12.2
2	372	10.47	34.935	26.83	3.41	55	0.92	***	00.4
2	465	8.77	34.736	26.96	4.46	70	1.11	1.48	13.9
2	650	6.70	34.670	27.22	2.14	32	1.86	2.27	14.2
2	837	5.45	34.648	27.36	2.01	29	2.27	2.38	28.6
1	1080	4.73	34.628	27.43	2.19	31	2.28	2.40	32.9
1	1277	4.16	34.670	27.53	2.19	31	2.02	2.59	***
1	1475	3.54	34.704	27.62	2.52	35	2.14	2.44	30.8
1	1966	2.54	34.756	27.75	3.06	41	2.13	2.25	33.2
1	2455	2.01	34.758	27.79	3.46	45	2.31	2.42	33.2
1	2948	1.67	34.750	27.81	3.71	48	2.15	2.38	29.9
1	3438	1.39	34.745	27.83	3.95	51	2.08	2.25	35.9
1	3930	1.26	34.741	27.81	4.08	52	2.06	2.23	21.1
1	4420	1.18	34.744	27.84	4.06	52	2.05	2.31	32.3
1	4910	1.20	34.739	27.84	3.99	51	1.80	1.97	29.8
1	5400	1.22	34.748	27.85	4.21	54	1.82	2.23	27.8

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 43/63	21/ 4/63	2030 H	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	WIRE ANGLES CAST2
5577	26.1	27.8	10	01	16	8	1	8	10	1	18	4	1012.8	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	28.86	34.620	21.83	***	***	***	***	***
1	24	28.51	34.717	22.02	***	***	***	***	***
1	48	25.77	34.756	22.93	***	***	***	***	***
1	72	23.46	34.786	23.65	***	***	***	***	***
1	96	22.45	34.989	24.09	***	***	***	***	***
1	144	19.40	34.993	24.93	***	***	***	***	***
1	193	18.15	35.371	25.53	***	***	***	***	***
1	290	14.02	35.302	26.43	***	***	***	***	***
1	484	8.98	34.726	26.92	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 44/63	22/ 4/63	0830 H	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	WIRE ANGLES CAST2
4846	23.9	25.0	12	02	16	8	9	6	12	1	18	2	***	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	28.26	34.741	22.12	4.41	101	0.09	0.37	00.3
2	24	28.16	34.743	22.16	4.40	101	0.09	***	00.1
2	48	28.05	34.992	22.38	4.43	101	0.09	0.34	00.0
2	72	24.93	34.869	23.27	4.47	97	0.10	***	00.0
2	97	23.26	34.996	23.87	3.66	77	0.36	0.75	01.4
2	121	22.34	35.060	24.18	3.69	77	0.36	***	02.8
2	145	21.25	35.152	24.55	3.57	73	0.45	***	04.6
2	194	18.10	35.187	25.40	3.05	58	0.88	1.02	09.2
2	242	16.15	35.380	26.02	3.08	57	0.89	***	07.9
2	290	14.39	35.302	26.35	3.74	67	0.89	1.02	10.0
2	388	11.12	35.028	26.79	4.74	79	0.90	***	11.5
2	485	8.78	34.713	26.94	4.72	74	1.21	1.45	17.9
2	678	6.60	34.638	27.21	2.57	38	1.89	2.16	34.2
2	873	5.58	34.694	27.38	2.02	29	2.15	2.42	37.6
1	1010	5.16	34.665	27.41	2.17	31	2.19	2.59	40.3
1	1200	4.43	34.667	27.51	2.25	32	2.27	2.58	37.6
1	1392	3.88	34.674	27.56	2.52	35	2.43	2.56	36.6
1	1875	2.63	34.720	27.71	3.14	42	2.14	2.56	38.4
1	2360	2.06	34.742	27.78	3.35	44	2.15	2.34	35.9
1	2843	1.73	34.747	27.81	3.65	47	2.05	2.25	34.9
1	3330	1.45	34.734	27.82	3.83	49	2.02	2.27	34.8
1	3817	1.25	34.726	27.83	4.15	53	1.97	2.36	36.4
1	4403	1.20	34.734	27.84	4.10	53	1.93	2.25	34.2

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 45/63	22/ 4/63	2030 H	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	WIRE ANGLES CAST2
3858	21.7	25.6	16	06	16	6	5	7	16	3	19	1	1018.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	27.96	34.948	22.38	***	***	***	***	***
1	25	27.95	34.934	22.37	***	***	***	***	***
1	50	25.83	34.897	23.02	***	***	***	***	***
1	75	23.42	34.902	23.75	***	***	***	***	***
1	100	22.59	34.961	24.03	***	***	***	***	***
1	150	20.81	35.260	24.76	***	***	***	***	***
1	200	18.36	35.238	25.38	***	***	***	***	***
1	300	14.56	35.386	26.38	***	***	***	***	***
1	500	8.86	34.746	26.96	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 46/63	23/ 4/63	0900 H	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	WIRE ANGLES CAST2
5029	18.1	23.6	16	06	16	8	2	8	16	3	17	1	1021.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	26.72	35.038	22.85	4.48	100	0.17	0.37	00.0
2	25	26.72	35.044	22.85	4.53	101	0.13	***	00.0
2	50	25.05	35.127	23.43	4.79	104	0.17	0.37	00.0
2	75	22.90	35.003	23.98	3.92	82	0.40	***	02.6
2	100	21.50	35.089	24.43	3.65	75	0.48	0.98	***
2	150	20.02	35.457	25.12	3.86	77	0.50	***	03.7
2	200	18.62	35.688	25.66	4.20	82	0.45	0.69	02.6
2	300	15.48	35.658	26.38	4.92	90	0.46	0.80	01.5
2	500	9.71	34.838	26.89	5.20	83	0.95	1.33	11.5
2	700	6.86	34.542	27.09	4.29	64	1.67	1.71	25.2
2	900	5.18	34.575	27.33	2.75	39	2.22	2.33	***
1	1080	4.55	34.605	27.43	2.71	38	2.32	2.92	***
1	1276	3.88	34.618	27.52	2.75	38	2.15	2.60	***
1	1473	3.38	34.654	27.59	3.00	41	2.16	2.64	34.3
1	1965	2.44	34.722	27.73	3.35	44	2.16	2.59	33.0
1	2458	1.96	34.742	27.79	3.56	47	2.17	2.60	33.5
1	2955	1.64	34.741	27.81	3.89	50	2.14	2.48	41.7
1	3450	1.37	34.737	27.83	4.05	52	2.07	2.19	***
1	3945	1.20	34.724	27.83	4.19	54	2.08	2.22	30.6
1	4440	1.20	34.724	27.83	4.13	53	2.05	2.22	31.1
1	4738	1.21	34.740	27.84	4.30	55	2.08	2.19	33.1

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 47/63	23/ 4/63	2100 H	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	WIRE ANGLES CAST2
4755	18.3	22.8	15	06	16	8	9	6	15	6	20	8	1022.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	26.26	35.172	23.09	***	***	***	***	***
1	25	26.28	35.190	23.10	***	***	***	***	***
1	50	25.05	35.357	23.61	***	***	***	***	***
1	75	22.62	35.512	24.44	***	***	***	***	***
1	100	21.50	35.534	24.77	***	***	***	***	***
1	150	19.61	35.606	25.34	***	***	***	***	***
1	200	18.26	35.575	25.67	***	***	***	***	***
1	300	15.19	35.703	26.48	***	***	***	***	***
1	500	9.63	34.824	26.90	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 48/63	24/ 4/63	0900 H	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	WIRE ANGLES CAST2
4206	18.3	22.8	11	06	16	8	3	8	12	4	14	8	1024.5	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	24.76	35.400	23.73	4.64	101	0.09	0.44	00.2
2	24	24.75	35.409	23.74	4.61	100	0.12	***	00.0
2	48	24.70	35.412	23.75	4.67	101	0.09	0.46	00.0
2	72	22.00	35.343	24.49	4.59	95	0.27	***	00.0
2	96	20.87	35.396	24.84	4.08	83	0.35	0.60	01.0
2	144	19.90	35.625	25.28	4.40	88	0.37	***	01.0
2	192	18.70	35.784	25.71	4.50	88	0.33	0.63	00.9
2	288	15.81	35.673	26.32	4.78	88	0.44	0.72	01.9
2	480	10.52	34.936	26.83	5.38	88	0.83	1.25	08.5
2	673	7.85	34.574	26.98	4.89	75	1.37	2.05	17.9
2	862	5.29	34.556	27.31	2.87	41	2.16	2.63	30.7
1	1068	4.83	34.600	27.40	2.52	35	2.14	2.63	34.5
1	1260	4.05	34.606	27.50	2.76	39	2.22	2.71	36.3
1	1455	3.45	34.628	27.56	3.07	42	2.19	2.63	33.6
1	1939	2.54	34.716	27.72	3.33	45	2.11	2.64	***
1	2425	2.04	34.731	27.77	3.63	48	1.95	2.33	31.1
1	2910	1.71	34.735	27.80	3.89	51	2.22	2.40	31.1
1	3395	1.47	34.734	27.82	4.09	53	2.00	2.33	31.9
1	3880	1.19	34.720	27.83	4.32	55	2.07	2.44	32.3

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 49/63	24/ 4/63	2100 H	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	WIRE ANGLES CAST2
3877	18.9	21.1	14	06	16	8	2	7	14	4	16	7	1024.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	23.71	35.548	24.15	***	***	***	***	***
1	25	23.62	35.564	24.19	***	***	***	***	***
1	50	23.40	35.616	24.30	***	***	***	***	***
1	75	22.04	35.778	24.81	***	***	***	***	***
1	100	20.06	35.840	25.40	***	***	***	***	***
1	150	18.00	35.811	25.90	***	***	***	***	***
1	200	16.46	35.753	26.23	***	***	***	***	***
1	300	13.34	35.375	26.63	***	***	***	***	***
1	500	9.74	34.795	26.85	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 50/63	25/ 4/63	0830 H	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	WIRE ANGLES CAST2
5486	18.3	22.2	12	05	16	8	2	8	12	4	17	6	1023.8	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	23.29	35.603	24.32	4.45	94	0.12	0.40	00.1
2	24	23.23	35.620	24.35	4.79	101	0.14	***	00.2
2	48	23.21	35.621	24.36	4.81	103	0.13	0.44	00.8
2	72	20.65	35.804	25.21	5.19	105	0.17	***	00.0
2	97	18.92	35.809	25.67	4.97	97	0.21	0.48	00.0
2	145	17.24	35.825	26.10	4.93	93	0.33	***	00.8
2	193	15.92	35.733	26.34	4.93	91	0.35	0.69	01.0
2	290	13.16	35.348	26.64	5.18	90	0.54	1.33	03.9
2	488	9.73	34.808	26.86	5.49	88	0.95	1.38	11.4
2	680	7.93	34.614	27.00	5.06	78	1.27	1.50	20.5
2	875	4.84	34.443	27.27	4.11	58	2.02	2.10	30.7
1	1090	4.16	34.560	27.44	3.11	43	2.10	2.60	31.7
1	1289	3.54	34.601	27.53	3.08	42	2.14	2.57	25.2
1	1487	3.16	34.652	27.62	3.13	42	2.19	2.54	33.1
1	1985	2.39	34.731	27.74	3.54	47	2.10	2.14	31.5
1	2483	1.93	34.745	27.79	3.72	49	2.09	2.32	32.3
1	2981	1.65	34.749	27.82	4.02	52	2.08	2.32	31.4
1	3480	1.41	34.742	27.83	4.10	53	2.05	2.32	31.6
1	3978	1.24	34.729	27.83	4.22	54	1.73	2.32	28.9
1	4476	1.23	34.730	27.83	4.26	55	1.73	2.31	28.2
1	5170	1.13	34.724	27.83	4.54	58	1.64	2.40	23.5

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 51/63	25/ 4/63	1930 H	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	WIRE ANGLES CAST2
***	17.8	21.7	12	04	16	*	*	8	12	3	14	5	1024.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	23.23	35.514	24.27	***	***	***	***	***
1	25	23.17	35.551	24.31	***	***	***	***	***
1	50	23.05	35.559	24.35	***	***	***	***	***
1	75	21.02	35.722	25.05	***	***	***	***	***
1	100	19.34	35.773	25.54	***	***	***	***	***
1	150	18.05	35.831	25.91	***	***	***	***	***
1	200	16.76	35.781	26.18	***	***	***	***	***
1	300	13.90	35.470	26.58	***	***	***	***	***
1	500	9.75	34.800	26.85	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 52/63	26/ 4/63	0700 H	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	WIRE ANGLES CAST2
5029	16.7	20.6	09	02	16	0	6	8	09	2	18	2	1026.5	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	21.46	35.796	24.98	5.04	104	0.12	0.21	00.3
1	24	21.19	35.868	25.11	4.93	101	0.13	***	00.1
1	48	20.55	***	***	***	***	0.13	0.22	00.0
1	72	19.27	35.928	25.67	5.21	103	0.22	***	00.0
1	95	17.14	35.679	26.01	5.38	102	0.25	0.29	00.0
1	143	14.41	35.497	26.50	5.20	93	0.48	***	01.2
1	185	13.08	35.308	26.63	5.45	95	0.57	0.68	03.0
1	277	11.35	35.038	26.76	5.55	93	0.77	0.83	06.8
1	464	9.18	34.707	26.88	5.52	87	1.10	1.15	13.5
1	652	8.01	34.568	26.95	5.10	78	1.33	1.44	21.0
1	840	4.84	34.397	27.23	4.42	63	1.87	2.08	30.2
2	921	4.30	34.400	27.30	4.33	60	1.87	2.05	31.5
2	1102	3.64	34.493	27.44	3.56	49	2.18	***	33.3
2	1289	3.30	34.593	27.55	3.36	46	2.14	2.42	33.3
2	1755	2.56	34.687	27.69	3.49	46	2.11	2.29	33.9
2	2223	2.10	34.725	27.76	3.63	48	2.14	2.20	30.8
2	2695	1.84	34.730	27.79	3.95	52	2.08	2.29	33.2
2	3165	1.55	***	***	4.14	54	1.90	2.53	28.5
2	3640	1.31	34.721	27.82	4.26	55	1.95	2.14	31.6
2	4115	1.21	34.718	27.82	4.25	55	1.90	2.14	32.6
2	4496	1.14	34.717	27.83	4.53	58	1.86	1.99	34.1

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 53/63	26/ 4/63	1800 H	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	WIRE ANGLES CAST2
5029	17.8	22.8	11	05	16	0	2	8	11	4	19	4	1027.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
1	0	20.85	35.826	25.19	***	***	***	***	***
1	24	***	35.866	***	***	***	***	***	***
1	47	20.26	35.908	25.39	***	***	***	***	***
1	71	19.84	35.897	25.50	***	***	***	***	***
1	93	17.68	35.794	25.97	***	***	***	***	***
1	140	14.48	35.505	26.49	***	***	***	***	***
1	182	13.31	35.361	26.62	***	***	***	***	***
1	278	11.67	35.097	26.76	***	***	***	***	***
1	464	9.40	35.739	27.65	***	***	***	***	***

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 54/63	27/ 4/63	0200 H	32 00 S	111 50 E

SONIC DEPTH	AIR TEMP. WET	AIR TEMP. DRY	WIND DIR.	WIND SP.	ANEM. HEIGHT	CLOUD TYPE	CLOUD AMT.	VIS.	SEA DIR.	SEA AMT.	SWELL DIR.	SWELL AMT.	ATMOS. PRESSURE	WIRE ANGLES CAST1	WIRE ANGLES CAST2
4755	16.7	20.6	08	04	16	*	*	8	08	2	15	1	1027.0	*	*

CAST	DEPTH	TEMP.	SALINITY	SIGMA-T	OXYGEN	OXYGEN % SAT.	INORG. P	TOTAL P	NITRATE
2	0	20.57	35.871	25.28	4.96	100	0.06	0.23	00.5
2	24	20.56	35.888	25.30	5.10	103	0.06	***	00.2
2	48	20.21	35.902	25.40	5.03	101	0.08	0.36	00.0
2	72	18.92	35.840	25.70	5.24	103	0.09	***	00.0
2	96	16.75	35.748	26.16	5.36	101	0.14	0.37	00.0
2	144	14.88	35.554	26.44	5.16	93	0.25	***	01.1
2	192	13.23	35.318	26.61	5.41	94	0.37	0.59	01.8
2	288	11.59	35.075	26.74	5.55	93	0.55	0.84	04.0
2	480	9.22	34.715	26.88	5.43	86	0.75	1.10	10.3
2	670	7.60	34.550	27.00	4.84	74	1.14	1.36	19.6
2	863	4.90	34.398	27.23	4.44	63	1.67	1.87	27.6
1	1062	3.71	34.463	27.41	3.91	54	1.86	2.10	17.1
1	1252	3.33	34.554	27.52	3.50	48	1.90	2.25	31.7
1	1443	2.97	34.605	27.59	3.57	48	2.01	2.14	33.7
1	1914	2.46	34.706	27.72	3.66	49	1.96	2.08	34.1
1	2390	2.03	34.738	27.78	3.88	51	1.96	2.04	34.6
1	2875	1.76	34.741	27.80	4.01	52	1.89	2.02	32.1
1	3360	1.47	34.732	27.81	***	***	1.92	2.14	21.3
1	3847	1.25	34.727	27.83	4.45	57	1.85	***	31.9
1	4333	1.19	34.723	27.83	4.25	54	1.85	2.00	27.7
1	4625	1.16	34.723	27.83	4.40	56	1.80	1.96	28.2

DATA

PART 2

PRIMARY PRODUCTION

EXPLANATION OF HEADINGS

Part 2	Primary Production
STATION	Gives the station identification, for example, Dml/2/63 signifies the 2nd station worked from Diamantina in 1963, on her 1st 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 5: Incubation in situ SIMULATED IN SITU 7: Incubation in a simulated in situ incubator using sunlight and blue glass filters ARTIFICIAL CONSTANT LIGHT 0: Incubation in artificial constant light of 1100 ft candles ART. CONST. LIGHT 8: Incubation as for 0 but samples poured into glass bottles as soon as the sampler reached the ship's deck
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 the other DARK counts are aberrant an arbitrary count of 20 is used and the symbol "F" is 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. For the purpose of calculating Production B where a surface value of Production A is missing, it is assumed to be equal to the value for the next depth beneath the surface. This value is used and the symbol "I" is placed after the asterisks in the column for Production A

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 incubation, the production per day is assumed to equal 10 times the hourly production

Where a value is considered doubtful by the analyst for any reason, the symbol "K" is placed after it

** — Indicates no data available

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 1/63	29/ 3/63	1130 H	31 56 S	112 33 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
IN SITU 5	NOON - SUNSET	15	9.59 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	**	**	**	**	00.50	** I	C0.00
10	**	18	**	**	00.50	** I	C0.00
29	575	33	33	542	00.50	02.77	00.08
57	248	18	18	230	00.50	01.18	C0.14
69	262	83 B	20 E	242	00.50	01.24	00.15
76	121	13	13	108	00.50	00.55	00.16

I VALUE ASSUMED EQUAL NEXT DEPTH
B ABERRANT VALUE, NOT USED
E MEAN NON-ABERRANT DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 17 1/63	29/ 3/63	1130 H	31 56 S	112 33 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 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	271	18	18	253	00.50	01.30	00.00
10	108	18	18	90	00.50	00.46	00.01
29	233	33	33	200	00.50	01.02	00.02
57	77	18	18	59	00.50	00.30	00.04
69	103	83 B	20 E	83	00.50	00.42	00.05
76	38	13	13	25	00.50	00.13	00.05

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 2/63	30/ 3/63	0815 H	32 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	201	20	20	181	04.00	00.12	00.00
25	315	17	17	298	04.00	00.19	00.04
50	324	19	19	305	04.00	00.20	00.09
75	34	7	7	27	04.00	00.02	00.12
100	88	7	7	81	04.00	00.05	00.12
150	8	5	5	3	04.00	00.00	00.14

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 2/63	30/ 3/63	1130 H	32 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 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	119	36	36	83	00.50	00.42	00.00
17	213	36	36	177	00.50	00.91	00.01
33	339	32	32	307	00.50	01.57	00.03
52	200	27	27	173	00.50	00.89	00.05
64	196	21	21	175	00.50	00.90	00.07
83	177	20	20	157	00.50	00.80	00.08

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 4/63	30/ 3/63	2030 H	30 30 S	109 58 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	10 CPM

DEPTH	LIGHT	DARK	DARK USED	NETT	INC. PER.	PRODUCTION A	PRODUCTION B
M	CPM	CPM	CPM	CPM	HOURS	MG.C/HR./CU.M.	G.C/DAY/SQ.M.
0	71	21	21	50	04.00	00.03	00.00
25	103	23	23	80	04.00	00.05	00.01
50	94	20	20	74	04.00	00.05	00.02
75	57	16	16	41	04.00	00.03	00.03
100	47	10	10	37	04.00	00.02	00.04
150	11	4	4	7	04.00	00.00	00.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 5/63	31/ 3/63	0815 H	29 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	390	11	11	379	04.00	00.24	00.00
25	360	20	20	340	04.00	00.22	C0.C6
50	284	16	16	268	04.00	00.17	C0.11
75	109	17	17	92	04.00	00.06	00.14
100	74	9	9	65	04.00	00.04	00.15
150	5	2	2	3	04.00	00.00	CC.16

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 17 5/63	31/ 3/63	1140 H	29 00 S	11C 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 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	176	36	36	140	00.50	00.72	C0.00
12	325	17	17	308	00.50	01.58	00.01
28	278	22	22	256	00.50	01.31	C0.04
53	123	17	17	106	00.50	00.54	C0.06
65	52	20	20	32	00.50	00.16	00.06
73	38	28	28	10	00.50	00.05	CC.07

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 7/63	31/ 3/63	2050 H	27 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	763	24	24	739	04.00	00.47	C0.00
25	99	30	30	69	04.00	00.04	C0.06
50	94	29	29	65	04.00	00.04	C0.07
75	49	22	22	27	04.00	00.02	C0.08
100	33	22	22	11	04.00	00.01	C0.09
150	11	13	13	- 2 G	04.00	00.00	C0.09

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 10/63	1/ 4/63	0850 H	26 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 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	482	22	22	460	04.00	00.29	00.00
25	651	57	57	594	04.00	00.38	00.08
50	309	33	33	276	04.00	00.18	00.15
75	238	36	36	202	04.00	00.13	00.19
100	110	28	28	82	04.00	00.05	00.22
150	18	15	15	3	04.00	00.00	00.23

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 10/63	1/ 4/63	0850 H	26 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	183	22	22	161	04.00	00.10	00.00
25	340	57 B	26 E	314	04.00	00.20	00.04
50	198	33	33	165	04.00	00.11	00.08
75	70	36	36	34	04.00	00.02	00.09
100	54	28	28	26	04.00	00.02	00.10
150	11	15	15	- 4 G	04.00	00.00	00.10

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 10/63	1/ 4/63	1200 H	26 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 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	323	85 B	24 E	299	00.50	01.53	00.00
25	409	28	28	381	00.50	01.95	00.04
40	302	31	31	271	00.50	01.39	00.07
57	151	56 B	24 E	127	00.50	00.65	00.09
64	160	20	20	140	00.50	00.72	00.09
72	95	18	18	77	00.50	00.39	00.10

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DN 17 11/63	17 4/63	2120 H	24 56 S	109 59 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	143	15	15	128	04.00	00.08	C0.00
25	89	24	24	65	04.00	00.04	C0.02
50	90	23	23	67	04.00	00.04	00.03
75	61	16	16	45	04.00	00.03	00.03
100	27	16	16	11	04.00	00.01	C0.04
150	12	15	15	- 3 G	04.00	00.00	C0.04

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 14/63	2/ 4/63	0930 H	23 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	5 HOURS	15	9.59 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	567	27	27	540	04.50	00.31	00.00
25	688	17	17	671	04.50	00.38	00.09
50	938	15	15	923	04.50	00.52	00.20
75	244	19	19	225	04.50	00.13	00.28
100	29	17	17	12	04.50	00.01	00.30
150	18	22	22	- 4 G	04.50	00.00	00.30

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 14/63	2/ 4/63	0930 H	23 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	5 HOURS	15	9.59 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	327	27	27	300	04.50	00.17	00.00
25	407	17	17	390	04.50	00.22	00.05
50	384	15	15	369	04.50	00.21	00.10
75	116	19	19	97	04.50	00.06	00.14
100	25	17	17	8	04.50	00.00	00.14
150	11	22	22	- 11 G	04.50	00.00	00.14

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 14/63	2/ 4/63	1220 H	23 00 S	110 CC E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 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	295	112 B	25 E	270	00.50	01.38	CC.00
12	421	39	39	382	00.50	01.96	CC.C2
21	372	20	20	352	00.50	01.80	CC.04
46	235	25	25	210	00.50	01.07	CC.07
55	205	25	25	180	00.50	00.92	CC.08
69	182	18	18	164	00.50	00.84	00.09

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 19/63	3/ 4/63	0900 H	20 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 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	1124	39	39	1085	04.00	00.69	CC.CO
25	619	21	21	598	04.00	00.38	CO.13
50	439	52 B	24 E	415	04.00	00.27	CO.22
75	254	18	18	236	04.00	00.15	CO.27
100	96	31	31	65	04.00	00.04	00.29
150	165	15	15	150	04.00	00.10	CO.33

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 19/63	3/ 4/63	0900 H	20 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	557	39	39	518	04.00	00.33	00.00
25	401	21	21	380	04.00	00.24	00.07
50	5284	52	52	5232	04.00	03.35 K	00.52
75	67	18	18	49	04.00	00.03	00.94
100	73	31	31	42	04.00	00.03	00.95
150	71	15	15	56	04.00	00.04	00.97 K

K DOUBTFUL RESULT

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 19/63	3/ 4/63	1200 H	20 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 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	289	264 B	20 F	269	00.50	01.38	00.00
18	309	157 B	20 F	289	00.50	01.48	CC.03
29	234	102 B	20 F	214	00.50	01.10	CC.04
53	146	204 B	20 F	126	00.50	00.64	00.06
61	229	141 B	20 F	209	00.50	01.07	CC.07
75	68	119 B	20 F	48	00.50	00.25	CC.08

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 21/63	3/ 4/63	2045 H	18 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 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	234	26		26		208		04.00	00.13	CC.CO
25	129	42		42		87		04.00	00.06	C0.02
50	133	51	B	32	E	101		04.00	00.06	00.04
75	123	28		28		95		04.00	00.06	CC.05
100	32	33		33	-	1	G	04.00	00.00	C0.C6
150	26	32		32	-	6	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
DM 1/ 21/63	3/ 4/63	2045 H	18 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	10 CPM

DEPTH	LIGHT	DARK	DARK USED	NETT	INC. PER.	PRODUCTION A	PRODUCTION B
M	CPM	CPM	CPM	CPM	HOURS	MG.C/HR./CU.M.	G.C/DAY/SQ.M.
0	49	26	26	23	04.00	00.01	00.00
25	52	42	42	10	04.00	00.01	00.00
50	102	51 B	32 E	70	04.00	00.04	00.01
75	50	28	28	22	04.00	00.01	00.02
100	35	33	33	2	04.00	00.00	00.02
150	22	32	32	- 10 G	04.00	00.00	00.02

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 24/63	4/ 4/63	0900 H	17 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 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	397	48	48	349	04.00	00.22	C0.00
25	601	59	59	542	04.00	00.35	00.07
50	423	29	29	394	04.00	00.25	C0.15
75	94	22	22	72	04.00	00.05	C0.18
100	24	53 B	39 E	- 15 G	04.00	00.00	00.19
150	31	38	38	- 7 G	04.00	00.00	C0.19

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 24/63	4/ 4/63	0900 H	17 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	187	48	48	139	04.00	00.09	00.00
25	314	59 B	34 E	280	04.00	00.18	00.03
50	282	29	29	253	04.00	00.16	00.08
75	43	22	22	21	04.00	00.01	00.10
100	29	53 B	34 E	- 5 G	04.00	00.00	00.10
150	29	38	38	- 9 G	04.00	00.00	00.10

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 26/63	4/ 4/63	2030 H	15 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	10 CPM

DEPTH	LIGHT	DARK	DARK USED	NETT	INC. PER.	PRODUCTION A	PRODUCTION B
M	CPM	CPM	CPM	CPM	HOURS	MG.C/HR./CU.M.	G.C/DAY/SQ.M.
0	257	15	15	242	04.00	00.15	00.00
25	111	30	30	81	04.00	00.05	00.03
50	80	41	41	39	04.00	00.02	00.03
75	122	37	37	85	04.00	00.05	00.04
100	35	46	46	- 11 G	04.00	00.00	00.05
150	41	26	26	15	04.00	00.01	00.05

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 26/63	4/ 4/63	2030 H	15 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	55	15	15	40	04.00	00.03	CC.00
25	46	30	30	16	04.00	00.01	CC.01
50	45	41	41	4	04.00	00.00	CC.01
75	42	37	37	5	04.00	CC.00	CC.01
100	25	46	46	- 21 G	04.00	00.00	CC.01
150	27	26	26	1	04.00	00.00	00.01

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 29/63	5/ 4/63	0900 H	14 00 S	11C 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 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	1104	30	30	1074	04.00	00.69	00.00
25	475	31	31	444	04.00	00.28	00.12
50	559	37	37	522	04.00	00.33	00.20
75	276	23	23	253	04.00	00.16	00.26
100	91	39	39	52	04.00	00.03	00.28
150	107	27	27	80	04.00	00.05	00.30

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 29/63	5/ 4/63	0900 H	14 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	30	30	275	04.00	00.18	C0.00
25	394	31	31	363	04.00	00.23	00.05
50	229	37	37	192	04.00	C0.12	CC.10
75	131	23	23	108	04.00	00.07	C0.12
100	87	39	39	48	04.00	00.03	C0.13
150	29	27	27	2	04.00	00.00	00.14

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 29/63	5/ 4/63	1200 H	14 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 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	**	149	**	**	00.50	** I	C0.00
21	90	31	31	59	00.50	00.30	00.01
32	87	36	36	51	00.50	00.26	C0.01
51	57	38	38	19	00.50	00.10	C0.01
60	78	20	20	58	00.50	00.30	00.01
72	54	35	35	19	00.50	00.10	C0.02

I VALUE ASSUMED EQUAL NEXT DEPTH

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 31/63	5/ 4/63	2030 H	12 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	5 HOURS	15	9.59 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	220	55 B	41 E	179	04.58	00.10	C0.00
25	127	42	42	85	04.58	00.05	C0.02
50	127	62 B	41 E	86	04.58	00.05	C0.03
75	93	41	41	52	04.58	00.03	C0.04
100	105	69 B	41 E	64	04.58	00.04	C0.05
150	50	54 B	41 E	9	04.58	00.01	CC.C6

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 31/63	5/ 4/63	2030 H	12 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	10 CPM

DEPTH M	LIGHT CPM	DARK CPM	DARK USED CPM	NETT CPM	INC. PER. HOURS	PRODUCTION A MG.C/HR./CU.M.	PRODUCTION B G.C/DAY/SQ.M.
0	107	55 B	41 E	66	03.75	00.05	CC.CO
25	126	42	42	84	03.75	00.06	CC.01
50	117	62 B	41 E	76	03.75	00.05	CC.03
75	65	41	41	24	03.75	00.02	CC.04
100	57	69 B	41 E	16	03.75	CC.01	CC.04
150	51	54 B	41 E	10	03.75	CC.01	CC.05

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 34/63	6/ 4/63	0930 H	11 06 S	109 57 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	394	74 B	36 E	358	03.50	00.26	C0.00
25	437	45	45	392	03.50	00.29	C0.07
50	632	42	42	590	03.50	00.43	C0.16
75	174	29	29	145	03.50	00.11	C0.23
100	68	29	29	39	03.50	00.03	00.24
150	30	38	38	- 8 G	03.50	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
DM 1/ 34/63	6/ 4/63	1230 H	11 06 S	109 57 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 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	193	34	34	159	00.50	00.81	00.00
23	443	45	45	398	00.50	02.04	00.03
35	601	45	45	556	00.50	02.85	00.06
49	409	42	42	367	00.50	01.88	00.10
58	360	42	42	318	00.50	01.63	00.11
67	291	29	29	262	00.50	01.34	00.12

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 35/63	6/ 4/63	2030 H	09 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 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	167	44	44	123	04.00	00.08	C0.C0
25	118	71 B	41 E	77	04.00	00.05	00.02
50	140	27	27	113	04.00	00.07	C0.03
75	78	49	49	29	04.00	00.02	C0.04
100	47	45	45	2	04.00	00.00	C0.05
150	61	51 B	41 E	20	04.00	00.01	C0.05

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 35/63	6/ 4/63	2030 H	09 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	77	44	44	33	04.00	00.02	00.00
25	71	71 B	41 E	30	04.00	00.02	00.01
50	73	27	27	46	04.00	00.03	00.01
75	63	49	49	14	04.00	00.01	00.02
100	32	45	45	- 13 G	04.00	00.00	00.02
150	25	51 B	41 E	- 16 G	04.00	00.00	00.02

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 36/63	8/ 4/63	0035 H	09 00 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 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	223	70 B	20 F	203	04.00	00.13	00.00
25	155	211 B	20 F	135	04.00	00.09	00.03
50	124	77 B	20 F	104	04.00	00.07	00.05
75	119	85 B	20 F	99	04.00	00.06	00.06
100	71	109 B	20 F	51	04.00	00.03	00.08
150	38	79 B	20 F	18	04.00	00.01	00.09

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 36/63	8/ 4/63	0035 H	09 00 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	98	70 B	20 F	78	04.00	00.05	C0.00
25	123	211 B	20 F	103	04.00	00.07	C0.02
50	62	77 B	20 F	42	04.00	00.03	C0.03
75	99	85 B	20 F	79	04.00	00.05	C0.04
100	74	109 B	20 F	54	04.00	00.03	00.05
150	72	79 B	20 F	52	04.00	00.03	C0.06

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
OM 1/ 37/63	18/ 4/63	1215 H	08 55 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
IN SITU 5	NOON - SUNSET	15	9.59 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	267	170 B	39 E	228	00.50	01.17	C0.00
17	508	62 B	39 E	469	00.50	02.40	C0.03
30	737	134 B	39 E	698	00.50	03.57	C0.07
46	471	44	44	427	00.50	02.19	C0.12
54	433	37	37	396	00.50	02.03	C0.13
71	298	36	36	262	00.50	01.34	C0.16

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 37/63	18/ 4/63	1215 H	08 55 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 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	189	170 B	39 E	150	00.50	00.77	C0.00
17	199	62 B	39 E	160	00.50	00.82	C0.01
30	308	134 B	39 E	269	00.50	01.38	C0.03
46	250	44	44	206	00.50	01.05	C0.05
54	188	37	37	151	00.50	00.77	00.05
71	178	36	36	142	00.50	00.73	C0.07

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 37/63	18/ 4/63	1530 H	08 55 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 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	235	102 B	25 E	210	04.00	00.13	CC.00
25	349	55 B	25 E	324	04.00	00.21	C0.04
50	190	102 B	25 E	165	04.00	00.11	00.08
75	122	25	25	97	04.00	00.06	C0.10
100	47	64 B	25 E	22	04.00	00.01	C0.11
150	127	62 B	25 E	102	04.00	00.07	00.13

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 37/63	18/ 4/63	1530 H	08 55 S	105 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 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	234	102 B	25 E	209	04.00	00.13	00.00
25	245	55 B	25 E	220	04.00	00.14	00.03
50	294	102 B	25 E	269	04.00	00.17	00.07
75	153	25	25	128	04.00	00.08	00.10
100	41	64 B	25 E	16	04.00	00.01	00.12
150	36	62 B	25 E	11	04.00	00.01	00.12

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 38/63	19/ 4/63	1445 H	09 32 S	109 36 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	479	180 B	20 F	459	03.75	00.31	00.00
25	217	57 B	20 F	197	03.75	00.13	00.06
50	174	161 B	20 F	154	03.75	00.11	00.09
75	312	58 B	20 F	292	03.75	00.20	00.12
100	107	83 B	20 F	87	03.75	00.06	00.16
150	233	85 B	20 F	213	03.75	00.15	00.21

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 38/63	19/ 4/63	1445 H	09 32 S	109 36 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	406	180 B	20 F	386	03.75	00.26	00.00
25	417	57 B	20 F	397	03.75	00.27	00.07
50	254	161 B	20 F	234	03.75	00.16	00.12
75	348	58 B	20 F	328	03.75	00.22	00.17
100	90	83 B	20 F	70	03.75	00.05	00.20
150	39	85 B	20 F	19	03.75	00.01	00.22

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 39/63	19/ 4/63	2030 H	11 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	309	77 B	20 F	289	04.00	00.18	00.00
25	113	120 B	20 F	93	04.00	00.06	00.03
50	81	122 B	20 F	61	04.00	00.04	00.04
75	102	110 B	20 F	82	04.00	00.05	00.05
100	52	99 B	20 F	32	04.00	00.02	00.06
150	54	70 B	20 F	34	04.00	00.02	00.07

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 39/63	19/ 4/63	2030 H	11 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	77 B	20 F	134	04.00	00.09	00.00
25	74	120 B	20 F	54	04.00	00.03	00.02
50	55	122 B	20 F	35	04.00	00.02	00.02
75	63	110 B	20 F	43	04.00	00.03	00.03
100	11	99 B	20 F	- 9 G	04.00	00.00	00.03
150	33	70 B	20 F	13	04.00	00.01	00.03

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED
G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
OM 1/ 40/63	20/ 4/63	0900 H	12 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	95 B	20 F	538	04.00	00.34	00.00
25	920	108 B	20 F	900	04.00	00.58	00.12
50	638	145 B	20 F	618	04.00	00.40	00.24
75	93	184 B	20 F	73	04.00	00.05	00.29
100	70	202 B	20 F	50	04.00	00.03	00.30
150	24	134 B	20 F	4	04.00	00.00	00.31

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 40/63	20/ 4/63	0900 H	12 30 S	11C 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	396	95 B	20 F	376	04.00	00.24	00.00
25	422	108 B	20 F	402	04.00	00.26	CC.06
50	419	145 B	20 F	399	04.00	00.26	CC.13
75	70	184 B	20 F	50	04.00	00.03	C0.16
100	49	202 B	20 F	29	04.00	00.02	C0.17
150	23	134 B	20 F	3	04.00	00.00	CC.18

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 40/63	20/ 4/63	1200 H	12 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 MILLION	15 CPM

DEPTH	LIGHT	DARK	DARK USED	NETT	ING. PER.	PRODUCTION A	PRODUCTION B
M	CPM	CPM	CPM	CPM	DAYS	MG.C/DAY/CU.M.	G.C/DAY/SQ.M.
0	439	137 B	24 E	415	00.50	02.12	00.00
23	500	78 B	24 E	476	00.50	02.44	00.05
35	397	37	37	360	00.50	01.84	00.08
48	402	23	23	379	00.50	01.94	00.10
58	437	14	14	423	00.50	02.17	00.12

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 41/63	20/ 4/63	2100 H	14 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	147	105 B	20 F	127	04.00	00.08	00.00
25	80	131 B	20 F	60	04.00	00.04	00.02
50	61	78 B	20 F	41	04.00	00.03	00.02
75	100	134 B	20 F	80	04.00	00.05	00.03
100	35	217 B	20 F	15	04.00	00.01	00.04
150	30	131 B	20 F	10	04.00	00.01	00.05

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 41/63	20/ 4/63	2100 H	14 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	68	105 B	20 F	48	04.00	00.03	00.00
25	71	131 B	20 F	51	04.00	00.03	00.01
50	68	78 B	20 F	48	04.00	00.03	00.02
75	106	134 B	20 F	86	04.00	00.06	00.03
100	51	217 B	20 F	31	04.00	00.02	00.04
150	52	131 B	20 F	32	04.00	00.02	00.05

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 42/63	21/ 4/63	0830 H	15 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	606	66 B	20 F	586	04.00	00.37	CC.CO
25	638	100 B	20 F	618	04.00	00.40	C0.10
50	566	97 B	20 F	546	04.00	00.35	C0.19
75	139	153 B	20 F	119	04.00	00.08	C0.24
100	34	105 B	20 F	14	04.00	00.01	C0.26
150	155	154 B	20 F	135	04.00	00.09	C0.28

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 42/63	21/ 4/63	0830 H	15 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	393	66 B	20 F	373	04.00	00.24	00.00
25	454	100 B	20 F	434	04.00	00.28	C0.07
50	491	97 B	20 F	471	04.00	00.30	C0.14
75	108	153 B	20 F	88	04.00	00.06	C0.18
100	36	105 B	20 F	16	04.00	00.01	00.19
150	29	154 B	20 F	9	04.00	00.01	00.20

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 42/63	21/ 4/63	1200 H	15 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 MILLION	15 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	236	90 B	31 E	205	00.50	01.05	CC.CO
10	168	39	39	129	00.50	00.66	CC.01
26	152	36	36	116	00.50	00.59	00.02
49	77	27	27	50	00.50	00.26	00.03
59	88	39	39	49	00.50	00.25	CC.03
72	113	17	17	96	00.50	00.49	CC.04

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 43/63	21/ 4/63	2000 H	17 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	470	86 B	30 E	440	03.50	00.32	00.00
25	90	41	41	49	03.50	00.04	00.05
50	73	21	21	52	03.50	00.04	00.06
75	79	17	17	62	03.50	00.05	00.07
100	38	37	37	1	03.50	00.00	00.07
150	32	38	38	- 6 G	03.50	00.00	00.07

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 44/63	22/ 4/63	0900 H	18 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	730	54	54	676	04.00	00.43	00.00
25	602	96 B	54 E	548	04.00	00.35	00.10
50	521	113 B	54 E	467	04.00	00.30	00.18
75	225	91 B	54 E	171	04.00	00.11	00.23
100	64	134 B	54 E	10	04.00	00.01	00.25
150	68	114 B	54 E	14	04.00	00.01	00.25

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 44/63	22/ 4/63	0900 H	18 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	565	54	54	511	04.00	00.33	00.00
25	545	96 B	54 E	491	04.00	00.31	00.08
50	429	113 B	54 E	375	04.00	00.24	00.15
75	207	91 B	54 E	153	04.00	00.10	00.19
100	60	134 B	54 E	6	04.00	00.00	00.20
150	36	114 B	54 E	- 18 G	04.00	00.00	00.20

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 44/63	22/ 4/63	1200 H	18 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 MILLION	15 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	516	84 B	27 E	489	00.50	02.50	CC.CO
12	433	39	39	394	00.50	02.02	00.03
26	400	22	22	378	00.50	01.93	CC.05
54	225	49	49	176	00.50	00.90	CC.09
62	202	17	17	185	00.50	00.95	C0.10
76	141	11	11	130	00.50	00.67	C0.11

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 45/63	22/ 4/63	2045 H	20 00 S	110 C0 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	157	69 B	20 F	137	04.00	00.09	C0.00
25	160	87 B	20 F	140	04.00	00.09	CC.C2
50	341	78 B	20 F	321	04.00	00.21	CC.C6
75	42	107 B	20 F	22	04.00	00.01	C0.09
100	19	80 B	20 F	- 1 G	04.00	00.00	C0.09
150	20	59 B	20 F	0	04.00	00.00	CC.09

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED
G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 45/63	22/ 4/63	2045 H	20 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	175	69 B	20 F	155	04.00	00.10	00.00
25	125	87 B	20 F	105	04.00	00.07	00.02
50	215	78 B	20 F	195	04.00	00.12	00.05
75	49	107 B	20 F	29	04.00	00.02	00.06
100	38	80 B	20 F	18	04.00	00.01	00.07
150	25	59 B	20 F	5	04.00	00.00	00.07

B ABERRANT VALUE, NOT USED
F ARBITRARY DARK USED

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 46/63	23/ 4/63	0900 H	21 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	646	42	42	604	04.00	00.39	00.00
25	768	63	63	705	04.00	00.45	00.11
50	621	51	51	570	04.00	00.36	00.21
75	149	51 B	52 E	97	04.00	00.06	00.26
100	20	107 B	52 E -	32 G	04.00	00.00	00.27
150	17	73 B	52 E -	35 G	04.00	00.00	00.27

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 46/63	23/ 4/63	0900 H	21 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	551	42	42	509	04.00	00.33	00.00
25	528	63 B	42 E	486	04.00	00.31	00.08
50	385	51 B	42 E	343	04.00	00.22	00.15
75	100	51 B	42 E	58	04.00	00.04	00.18
100	28	107 B	42 E -	14 G	04.00	00.00	00.18
150	31	73 B	42 E -	11 G	04.00	00.00	00.18

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 46/63	23/ 4/63	1200 H	21 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 MILLION	15 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	347	32	32	315	00.50	01.61	00.00
14	488	29	29	459	00.50	02.35	00.03
27	397	37	37	360	00.50	01.84	00.05
45	186	27	27	159	00.50	00.81	00.08
55	230	23	23	207	00.50	01.06	00.09
67	389	16	16	373	00.50	01.91	00.11

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 47/63	23/ 4/63	2100 H	23 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	484	57 B	43 E	441	04.00	00.28	CC.00
25	95	54 B	43 E	52	04.00	00.03	00.04
50	108	42	42	66	04.00	00.04	00.05
75	158	4C	40	118	04.00	00.08	CC.C6
100	80	66 B	43 E	37	04.00	00.02	C0.08
150	60	47	47	13	04.00	00.01	00.08

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 47/63	23/ 4/63	2100 H	23 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	109	57 B	43 E	66	04.00	00.04	00.00
25	102	54 B	43 E	59	04.00	00.04	00.01
50	105	42	42	63	04.00	00.04	00.02
75	115	40	40	75	04.00	00.05	00.03
100	41	66 B	43 E	- 2 G	04.00	00.00	00.04
150	28	47	47	- 19 G	04.00	00.00	00.04

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 48/63	24/ 4/63	0915 H	24 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	613	46	46	567	04.00	00.36	00.00
25	626	39	39	587	04.00	00.38	C0.09
50	795	41	41	754	04.00	00.48	C0.20
75	405	25	25	380	04.00	00.24	C0.29
100	49	39	39	10	04.00	00.01	C0.32
150	28	35	35	- 7 G	04.00	00.00	00.32

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 48/63	24/ 4/63	0915 H	24 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	427	46	46	381	04.00	00.24	00.00
25	499	39	39	460	04.00	00.29	00.07
50	370	41	41	329	04.00	00.21	00.13
75	65	25	25	40	04.00	00.03	00.16
100	38	39	39	- 1 G	04.00	00.00	00.16
150	27	35	35	- 8 G	04.00	00.00	00.16

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 48/63	24/ 4/63	0915 H	24 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
SIMULATED IN SITU 7	NOON - SUNSET	15	9.59 MILLION	15 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	182	37	37	145	00.50	00.74	00.00
16	181	26	26	155	00.50	00.79	00.01
26	156	28	28	128	00.50	00.66	00.02
47	195	22	22	173	00.50	00.89	00.04
56	145	20	20	125	00.50	00.64	00.04
66	59	24	24	35	00.50	00.18	00.05

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 49/63	24/ 4/63	2100 H	26 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 CPM

DEPTH	LIGHT	DARK	DARK USED	NETT	INC. PER.	PRODUCTION A	PRODUCTION B
M	CPM	CPM	CPM	CPM	HOURS	MG.C/HR./CU.M.	G.C/DAY/SQ.M.
0	291	49	49	242	04.00	00.15	00.00
25	118	41	41	77	04.00	00.05	00.03
50	158	39	39	119	04.00	00.08	00.04
75	137	40	40	97	04.00	00.06	00.06
100	95	23	23	72	04.00	00.05	00.07
150	9	25	25	- 16 G	04.00	00.00	00.09

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 49/63	24/ 4/63	2100 H	26 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	136	49	49	87		04.00	00.06	00.00
25	96	41	41	55		04.00	00.04	00.01
50	110	39	39	71		04.00	00.05	00.02
75	35	40	40	- 5	G	04.00	00.00	00.03
100	49	23	23	26		04.00	00.02	00.03
150	16	25	25	- 9	G	04.00	00.00	00.04

G NEGATIVE VALUE, ASSUMED ZERO

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 50/63	25/ 4/63	0900 H	27 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	766	23	23	743	04.00	00.48	C0.00
25	558	30	30	528	04.00	00.34	00.10
50	562	25	25	537	04.00	00.34	00.19
75	604	24	24	580	04.00	00.37	C0.28
100	225	22	22	203	04.00	00.13	00.34
150	24	10	10	14	04.00	00.01	00.37

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 50/63	25/ 4/63	0900 H	27 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 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	638	23	23	615	04.00	00.39	C0.00
25	635	30	30	605	04.00	00.39	C0.10
50	586	25	25	561	04.00	00.36	00.19
75	161	24	24	137	04.00	00.09	C0.25
100	161	22	22	139	04.00	00.09	C0.27
150	20	10	10	10	04.00	00.01	C0.30

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 51/63	25/ 4/63	1930 H	29 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	188	47	47	141	04.00	00.09	C0.00
25	268	25	25	243	04.00	00.16	00.03
50	106	21	21	85	04.00	00.05	00.06
75	110	15	15	95	04.00	00.06	C0.07
100	20	10	10	10	04.00	00.01	C0.08
150	13	13	13	0	04.00	00.00	00.08

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 51/63	25/ 4/63	1930 H	29 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	4 HOURS	15	9.59 MILLION	15 CPM

DEPTH	LIGHT	DARK	DARK USED	NETT	INC. PER.	PRODUCTION A	PRODUCTION B
M	CPM	CPM	CPM	CPM	HOURS	MG.C/HR./CU.M.	G.C/DAY/SQ.M.
0	141	47	47	94	04.00	00.06	C0.00
25	162	25	25	137	04.00	00.09	00.02
50	114	21	21	93	04.00	00.06	00.04
75	48	15	15	33	04.00	00.02	00.05
100	24	10	10	14	04.00	00.01	00.05
150	36	13	13	23	04.00	00.01	00.06

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 52/63	26/ 4/63	0830 H	30 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	5 HOURS	15	9.59 MILLION	15 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	476	55 B	38 E	438	05.00	00.22	00.00
25	621	41	41	580	05.00	00.30	00.07
50	596	57	57	539	05.00	00.28	00.14
75	463	38	38	425	05.00	00.22	00.20
100	135	33	33	102	05.00	00.05	00.23
150	21	21	21	0	05.00	00.00	00.25

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 52/63	26/ 4/63	0830 H	30 30 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ARTIFICIAL CONSTANT LIGHT 0	5 HOURS	15	9.59 MILLION	15 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	436	55 B	38 E	398	05.00	00.20	00.00
25	659	41	41	618	05.00	00.32	00.07
50	586	57	57	529	05.00	00.27	00.14
75	148	38	38	110	05.00	00.06	00.18
100	106	33	33	73	05.00	00.04	00.19
150	18	21	21	- 3 G	05.00	00.00	00.20

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

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 53/63	26/ 4/63	1800 H	32 00 S	110 00 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	4 HOURS	15	9.59 MILLION	15 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	236	31	31	205	04.17	00.13	00.00
25	194	33	33	161	04.17	00.10	00.03
50	267	18	18	249	04.17	00.15	00.06
75	179	16	16	163	04.17	00.10	00.09
100	40	11	11	29	04.17	00.02	00.11
150	24	14	14	10	04.17	00.01	00.11

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 54/63	27/ 4/63	0315 H	32 00 S	111 50 E

INCUBATION METHOD	PERIOD	14C STOCK	ACTIVITY CPM	BACKGROUND
ART. CONST. LIGHT 8	3 HOURS	15	9.59 MILLION	15 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	191	29	29	162	03.00	00.14	00.00
25	139	22	22	117	03.00	00.10	00.03
50	142	23	23	119	03.00	00.10	00.06
75	74	15	15	59	03.00	00.05	00.07
100	55	4	4	51	03.00	00.04	00.09
150	12	6	6	6	03.00	00.01	00.10

DATA

PART 3

PIGMENTS

EXPLANATION OF HEADINGS

Part 3	Pigments
STATION	Gives the station identification, for example, Dml/2/63 signifies the 2nd station worked from Diamantina in 1963, on her 1st cruise for that year
DATE	Given as day/month/year
TIME	Given in Zone Time (Table 2, p. 16)
LATITUDE LONGITUDE	Given in degrees and minutes
DEPTH	Actual sampling depth given in metres
CHLOROPHYLL A B C	A and B given in mg/m^3 C given in $MSPU/m^3$
ASTACIN NON-ASTACIN	Given in $MSPU/m^3$

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 2/63	30/ 3/63	0800 H	32 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.05	0.38	0.06	0.00
25	0.06	0.06	0.41	0.07	0.00
50	0.06	0.06	0.41	0.08	0.00
75	0.10	0.07	0.48	0.08	0.00
100	0.15	0.11	0.54	0.09	0.01
150	0.06	0.04	0.32	0.08	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 4/63	30/ 3/63	2000 H	30 30 S	109 58 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.05	0.41	0.04	0.04
25	0.08	0.06	0.41	0.08	0.00
50	0.16	0.10	0.55	0.10	0.01
75	0.07	0.05	0.34	0.07	0.01
100	0.09	0.07	0.38	0.07	0.02
150	0.06	0.05	0.33	0.07	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 5/63	31/ 3/63	0800 H	29 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.12	0.07	0.52	0.10	0.00
25	0.02	0.02	0.10	0.05	0.01
50	0.05	0.04	0.36	0.07	0.00
75	0.08	0.06	0.48	0.07	0.00
100	0.07	0.05	0.40	0.07	0.00
150	0.07	0.05	0.38	0.06	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 7/63	31/ 3/63	2030 H	27 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.02	0.06	0.35	0.07	0.00
25	0.03	0.03	0.24	0.05	0.00
50	0.09	0.07	0.42	0.07	0.00
75	0.05	0.03	0.19	0.05	0.01
100	0.08	0.04	0.30	0.05	0.01
150	0.07	0.05	0.39	0.08	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 10/63	1/ 4/63	0830 H	26 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.03	0.03	0.28	0.06	0.02
25	0.01	0.00	0.11	0.03	0.01
50	0.03	0.01	0.27	0.07	0.01
75	0.09	0.07	0.43	0.08	0.01
100	0.12	0.10	0.56	0.10	0.00
150	0.11	0.09	0.62	0.10	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 11/63	1/ 4/63	2110 H	24 36 S	109 59 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.02	0.01	0.11	0.03	0.02
25	0.04	0.03	0.24	0.05	0.01
50	0.04	0.02	0.19	0.03	0.03
75	0.10	0.07	0.44	0.08	0.01
100	0.14	0.10	0.50	0.09	0.02
150	0.04	0.03	0.20	0.04	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 14/63	2/ 4/63	0900 H	23 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.08	0.07	0.37	0.06	0.00
25	0.02	0.01	0.13	0.04	0.02
50	0.15	0.11	0.58	0.08	0.00
75	0.23	0.14	0.59	0.09	0.03
100	0.10	0.07	0.41	0.07	0.01
150	0.06	0.05	0.35	0.06	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 16/63	2/ 4/63	2020 H	21 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.04	0.06	0.23	0.05	0.00
25	0.04	0.03	0.25	0.04	0.00
50	0.03	0.04	0.33	0.06	0.00
75	0.07	0.04	0.28	0.04	0.01
100	0.11	0.07	0.36	0.05	0.02
150	0.06	0.04	0.28	0.05	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 19/63	3/ 4/63	0830 H	20 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.05	0.06	0.47	0.07	0.00
25	0.05	0.04	0.27	0.06	0.01
50	0.04	0.02	0.13	0.04	0.02
75	0.13	0.09	0.32	0.09	0.02
100	0.12	0.08	0.40	0.07	0.02
150	0.10	0.06	0.10	0.03	0.10

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 21/63	3/ 4/63	2040 H	18 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.04	0.03	0.20	0.06	0.00
25	0.05	0.04	0.48	0.08	- 0.01
50	0.04	0.02	0.13	0.04	0.01
75	0.14	0.08	0.71	0.09	0.01
100	0.09	0.07	0.28	0.04	0.02
150	0.08	0.06	0.44	0.07	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 24/63	4/ 4/63	0830 H	17 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.00	0.00	0.03	0.00	0.00
25	0.09	0.09	0.57	0.09	- 0.01
50	0.08	0.06	0.41	0.07	0.00
75	0.16	0.09	0.53	0.08	0.01
100	0.05	0.02	0.17	0.06	0.04
150	0.06	0.04	0.38	0.07	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 26/63	4/ 4/63	2030 H	15 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.16	0.07	0.21	0.06	0.03
25	0.03	0.03	0.23	0.05	0.01
50	0.04	0.02	0.20	0.05	0.01
75	0.13	0.09	0.60	0.10	0.00
100	0.14	0.10	0.47	0.08	0.01
150	0.06	0.05	0.41	0.07	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 29/63	5/ 4/63	0830 H	14 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.05	0.04	0.20	0.05	0.02
25	0.05	0.06	0.47	0.09	0.00
50	0.06	0.04	0.26	0.05	0.02
75	0.20	0.12	0.62	0.10	0.02
100	0.22	0.12	0.69	0.11	0.01
150	0.12	0.08	0.45	0.08	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 31/63	5/ 4/63	2030 H	12 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.05	0.27	0.06	0.00
25	0.04	0.03	0.20	0.04	0.01
50	0.06	0.05	0.23	0.05	0.02
75	0.18	0.10	0.54	0.09	0.02
100	0.07	0.04	0.28	0.06	0.01
150	0.02	0.01	0.13	0.04	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 34/63	5/ 4/63	0930 H	11 06 S	109 57 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.04	0.30	0.05	0.02
25	0.06	0.05	0.39	0.07	0.00
50	0.14	0.09	0.62	0.10	0.00
75	0.24	0.12	0.52	0.07	0.04
100	0.10	0.05	0.32	0.05	0.03
150	0.02	0.01	0.09	0.03	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 35/63	6/ 4/63	2030 H	09 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.05	0.06	0.39	0.02	0.01
25	0.08	0.07	0.43	0.08	0.00
50	0.11	0.05	0.30	0.06	0.03
75	0.18	0.10	0.50	0.09	0.01
100	0.10	0.07	0.36	0.08	0.00
150	0.05	0.07	0.37	0.07	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 36/63	7/ 5/63	0035 H	09 00 S	105 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.03	0.01	0.20	0.03	0.02
25	0.06	0.05	0.38	0.07	0.00
50	0.07	0.03	0.14	0.01	0.05
75	0.18	0.09	0.39	0.06	0.04
100	0.09	0.07	0.29	0.05	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 37/63	18/ 4/63	1120 H	08 55 S	105 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.05	0.03	0.22	0.05	0.01
25	0.07	0.04	0.25	0.07	0.01
50	0.02	0.00	0.03	0.02	0.02
75	0.23	0.09	0.30	0.04	0.08
100	0.17	0.10	0.43	0.07	0.04
150	0.04	0.02	0.23	0.05	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 38/63	19/ 4/63	1330 H	09 32 S	109 36 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.04	0.01	0.05	0.02	0.02
25	0.02	0.00	0.01	0.02	0.02
50	0.10	0.05	0.41	0.05	0.01
75	0.40	0.10	0.33	0.04	0.10
100	0.23	0.08	0.27	0.03	0.07
150	0.01	0.00	0.03	0.01	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 39/63	19/ 4/63	2030 H	11 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.02	0.00	0.01	0.01	0.02
25	0.03	0.00	0.02	0.01	0.02
50	0.06	0.01	0.02	0.01	0.03
75	0.21	0.07	0.19	0.03	0.06
100	0.20	0.07	0.22	0.03	0.05
150	0.02	0.00	0.06	0.02	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 40/63	20/ 4/63	0830 H	12 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.04	0.27	0.05	0.01
25	0.05	0.01	0.02	0.02	0.02
50	0.19	0.08	0.31	0.06	0.03
75	0.28	0.10	0.33	0.02	0.11
100	0.18	0.10	0.37	0.07	0.03
150	0.02	0.01	0.05	0.02	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 41/63	20/ 4/63	2050 H	14 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.05	0.03	0.25	0.04	0.00
25	0.04	0.02	0.13	0.02	0.01
50	0.09	0.06	0.28	0.06	0.01
75	0.31	0.07	0.16	0.01	0.10
100	0.22	0.12	0.39	0.05	0.05
150	0.08	0.03	0.13	0.03	0.03

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 42/63	21/ 4/63	0830 H	15 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.04	0.20	0.05	0.01
25	0.11	0.09	0.59	0.10	- 0.01
50	0.10	0.04	0.21	0.04	0.02
75	0.30	0.14	0.32	0.02	0.10
100	0.20	0.11	0.30	0.02	0.08
150	0.04	0.04	0.23	0.05	0.00

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 43/63	21/ 4/63	2030 H	17 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.05	0.02	0.12	0.01	0.03
25	0.06	0.02	0.09	0.01	0.03
50	0.14	0.02	0.11	0.01	0.05
75	0.35	0.20	0.61	0.09	0.04
100	0.17	0.11	0.36	0.06	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 44/63	22/ 4/63	0830 H	18 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.03	0.00	0.00	0.00	0.03
25	0.05	0.01	0.02	0.01	0.02
50	0.11	0.01	0.09	0.01	0.06
75	0.29	0.08	0.23	0.02	0.13
100	0.22	0.09	0.27	0.01	0.10
150	0.02	0.01	0.00	0.00	0.03

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 45/63	22/ 4/63	2030 H	20 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.14	0.05	0.38	0.06	0.01
25	0.11	0.04	0.20	0.03	0.02
50	0.15	0.07	0.34	0.07	0.02
75	0.30	0.14	0.49	0.06	0.08
100	0.15	0.07	0.15	0.01	0.07
150	0.05	0.03	0.23	0.05	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 46/63	23/ 4/63	0900 H	21 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.00	0.01	0.01	0.05
25	0.06	0.00	0.00	0.01	0.04
50	0.13	0.01	0.12	0.01	0.05
75	0.27	0.14	0.53	0.08	0.03
100	0.13	0.07	0.17	0.01	0.07
150	0.01	0.01	0.03	0.01	0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 47/63	23/ 4/63	2100 H	23 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.01	0.04	0.01	0.04
25	0.05	0.01	0.00	0.00	0.04
50	0.13	0.02	0.11	0.01	0.04
75	0.27	0.04	0.19	0.02	0.09
100	0.48	0.11	0.40	0.02	0.10
150	0.10	0.07	0.38	0.08	- 0.01

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 48/63	24/ 4/63	0900 H	24 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.12	0.07	0.49	0.10	- 0.02
25	0.08	0.01	0.04	0.01	0.03
50	0.15	0.08	0.61	0.07	- 0.01
75	0.26	0.04	0.17	0.01	0.10
100	0.23	0.08	0.31	0.01	0.11
150	0.06	0.01	0.06	0.00	0.06

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 49/63	24/ 4/63	2100 H	26 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.07	0.00	0.12	0.01	0.03
25	0.06	0.00	0.00	0.01	0.05
50	0.10	0.00	0.09	0.01	0.05
75	0.15	0.00	0.06	0.00	0.08
100	0.21	0.06	0.21	0.01	0.10
150	0.08	0.04	0.29	0.03	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 50/63	25/ 4/63	0830 H	27 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.09	0.01	0.09	0.01	0.03
25	0.09	0.00	0.01	0.01	0.04
50	0.11	0.01	0.09	0.01	0.04
75	0.18	0.01	0.09	0.01	0.07
100	0.22	0.12	0.75	0.09	0.00
150	0.05	0.03	0.20	0.04	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 51/63	25/ 4/63	1930 H	29 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.06	0.00	0.05	0.01	0.05
25	0.11	0.04	0.22	0.03	0.04
50	0.11	0.01	0.06	0.00	0.07
75	0.28	0.02	0.13	0.00	0.13
100	0.18	0.06	0.15	0.00	0.11
150	0.10	0.05	0.25	0.03	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 52/63	26/ 4/63	0700 H	30 30 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.04	0.00	0.03	0.01	0.02
25	0.08	0.01	0.04	0.01	0.03
50	0.13	0.05	0.02	0.02	0.06
75	0.14	0.00	0.09	0.01	0.05
100	0.15	0.03	0.10	0.00	0.08
150	0.04	0.02	0.01	0.00	0.04

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 53/63	26/ 4/63	1800 H	32 00 S	110 00 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.09	0.00	0.06	0.00	0.07
25	0.13	0.01	0.12	0.01	0.08
50	0.24	0.01	0.04	0.01	0.13
75	0.28	0.04	0.18	0.00	0.15
100	0.22	0.06	0.10	0.00	0.15
150	0.06	0.02	0.16	0.03	0.02

STATION	DATE	TIME	LATITUDE	LONGITUDE
DM 1/ 54/63	27/ 4/63	0200 H	32 00 S	111 50 E

DEPTH	CHLOROPHYLL A	CHLOROPHYLL B	CHLOROPHYLL C	ASTACIN	NON-ASTACIN
0	0.12	0.01	0.14	0.01	0.06
25	0.11	0.00	0.10	0.01	0.06
50	0.17	0.00	0.18	0.01	0.09
75	0.29	0.06	0.24	0.00	0.18
100	0.27	0.08	0.24	0.01	0.15
150	0.06	0.04	0.30	0.06	0.02

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

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)
Dml/2/63	30/3/63	1045	230	3.85	17
32°00'S. 110°00'E.		1100	220	3.75	17 x
Dml/4/63	30/3/63	2115	200	8.00	40
30°30'S. 109°57.5'E.		2130	200	4.69	23 x
Dml/5/63	31/3/63	1115	230	6.10	27
29°00'S. 110°00'E.		1100	230	5.95	26 x
Dml/7/63	31/3/63	2100	213	11.30	53
27°30'S. 110°00'E.		2115	220	15.50	70 x
Dml/10/63	1/4/63	1030	240	7.80	33
26°00'S. 110°00'E.		1045	230	7.60	33 x
Dml/11/63	1/4/63	2100	210	7.95 (12.70)	33 (60)
24°36'S. 109°59'E.		2115	220	9.15	42 x
Dml/14/63	2/4/63	1145	240	7.30 (12.30*)	30 (51*)
23°00'S. 110°00'E.		1200	240	8.25	34 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)
Dml/16/63	2/4/63	2030	213	16.90	79
21°30'S. 110°00'E.		2045	213	12.90	61 x
Dml/19/63	3/4/63	1030	235	7.35	31
20°00'S. 110°00'E.		1050	240	9.00 (42.200*)	38 (176*) x
Dml/21/63	3/4/63	2100	225	15.30	68
18°30'S. 110°00'E.		2115	230	26.30	114 x
Dml/24/63	4/4/63	1115	200	6.60	33
17°00'S. 110°00'E.		1130	213	9.35	44 x
Dml/26/63	4/4/63	2045	200	13.30	67
15°30'S. 110°00'E.		2100	200	9.80	49 x
Dml/29/63	5/4/63	1045	213	9.55	45
14°00'S. 110°00'E.		1100	220	9.98	45 x
Dml/31/63	5/4/63	2100	210	13.55 *	65 *
12°30'S. 110°00'E.		2115	220	8.55	39 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)
Dml/34/63 11°06'S. 109°57'E.	6/4/63	1145	230	14.65	64
Dml/35/63 9°30'S. 110°00'E.	6/4/63	2100 2115	200 200	9.50 9.85	48 49 x
Dml/36/63 9°00'S. 105°00'E.	7/4/63	0000 0015	220 210	6.90 16.30 *	31 78 * x
Dml/37/63 8°55'S. 105°00'E.	18/4/63	1530 1545	230 240	12.20 64.80 *	53 270 * x
Dml/38/63 9°32'S. 109°36'E.	19/4/63	1415 1430	215 200	12.80 10.90	60 55 x
Dml/39/63 11°00'S. 110°00'E.	19/4/63	2100 2045	200 200	33.05 8.40	165 x 42
Dml/40/63 12°30'S. 110°00'E.	20/4/63	1115 1130	200 200	10.25 8.55	51 43 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)
Dml/41/63	20/4/63	2100	220	29.65	135
14°00'S. 110°00'E.		2115	230	21.35	93 x
Dml/42/63	21/4/63	1045	215	6.30	29
15°30'S. 110°00'E.		1115	205	6.65	32 x
Dml/43/63	21/4/63	2030	210	12.15	58
17°00'S. 110°00'E.		2045	215	7.55	35 x
Dml/44/63	22/4/63	1030	210	25.05 *	119 *
18°30'S. 110°00'E.		1045	205	7.10	35 x
Dml/45/63	22/4/63	2030	210	12.30	59
20°00'S. 110°00'E.		2045	230	10.40	45 x
Dml/46/63	23/4/63	1100	200	7.90	40
21°30'S. 110°00'E.		1115	200	7.00	35 x
Dml/47/63	23/4/63	2100	220	16.70	76
23°00'E. 110°00'E.		2115	240	8.40	35 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)
Dml/48/63	24/4/63	1100	220	8.60	39
24°30'S. 110°00'E.		1115	215	11.30	53 x
Dml/49/63	24/4/63	2100	240	10.10	42
26°00'S. 110°00'E.		2115	220	7.50	34 x
Dml/50/63	25/4/63	1030	220	7.00	32
27°30'S. 110°00'E.		1045	220	8.90	40 x
Dml/51/63	25/4/63	1930	240	13.60	57
29°00'S. 110°00'E.		1945	215	11.90	55 x
Dml/52/63	26/4/63	0915	205	4.80	23
30°30'S. 110°00'E.		0930	205	4.30	21 x
Dml/53/63	26/4/63	1830	260	7.85	30
32°00'S. 110°00'E.		1845	230	6.25	27 x
Dml/54/63	27/4/63	0245	220	10.00	45
32°00'S. 111°50'E.		0300	220	11.30	51 x

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dm1/4/63	30/3/63	2350	0-10	0	19.4	61
30°31'S. 109°57.5'E.		"	65-75	70	17.4	58
		"	125-135	130	18.1	15
Dm1/5/63	31/3/63	1220	0-10	0	23.6	20
29°00'S. 110°00'E.		"	50	50	19.3	39
		"	90-120	100	16.7	53
		"	180-250	190	25.2	15
Dm1/7/63	31/3/63	2235	0-10	0	25.2	132
27°30'S. 110°00'E.		"	50-60	50	21.4	54
		"	90-125	100	22.2	50
		"	200-240	210	24.8	9
Dm1/10/63	1/4/63	1215	0-10	0	22.1	55
26°00'S. 110°00'E.						
Dm1/11/63	1/4/63	2320	0-10	0	21.6	48
24°36'S. 109°59'E.		"	45	45	17.0	81
		"	100-180	100	18.5	24
		"	190-300	200	20.3	130 (200)

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dml/14/63 23°00'S. 110°00'E.	2/4/63	1220	0-10	0	23.9	23
		"	40-65	50	19.4	46
		"	75-125	90	20.4	72
		"	150-220	180	30.0	11
Dml/16/63 21°30'S. 110°00'E.	2/4/63	2335	0-10	0	18.3	72
		"	65-75	70	17.0	165
		"	125-140	130	21.3	25
		"	240-270	260	15.7	7
Dml/19/63 20°00'S. 110°00'E.	3/4/63	1200	0-10	0	19.8	25
		"	50-75	75	13.7	42
Dml/21/63 18°30'S. 110°00'E.	3/4/63	2330	0-10	0	21.2	39
		"	60-70	65	15.3	40
		"	120-135	125	18.2	24
		"	200-240	240	18.3	15
Dml/24/63 17°00'S. 110°00'E.	4/4/63	1220	0-10	0	23.0	19
		"	48-55	50	12.3	33
		"	95-120	105	19.3	20
		"	178-210	194	25.1	16

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dml/26/63	4/4/63	2305	0-10	0	23.1	36
15°30'S. 110°00'E.		"	45-60	55	24.1	46
		"	95-120	110	28.9	15
		"	190-240	210	30.9	16
Dml/29/63	5/4/63	1215	0-10	0	21.7	25
14°00'S. 110°00'E.						
Dml/31/63	5/4/63	2340	0-10	0	28.5	73
12°30'S. 110°00'E.		"	40-60	43	25.4	124
		"	70-140	87	28.5	47 (84)
		"	120-210	165	28.4	23
Dml/34/63	6/4/63	1205	0-10	0	20.1	20
11°06'S. 109°57'E.		"	55-70	60	11.9	73
		"	115-130	115	19.1	18
		"	220-260	225	20.3	26
Dml/35/63	6/4/63	2300	0-10	0	13.0	22
9°30'S. 110°00'E.		"	45-75	45	14.5	103
		"	90-140	90	23.1	65
		"	190-260	190	21.1	9

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH STRATUM RANGE (m)	MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dml/36/63	7/4/63	2255	0-10	0	16.2	32
9°00'S. 105°00'E.		"	30-60	37	23.4	31
		"	75-140	90	21.2	43
		"	125-250	142	37.0	17
Dml/37/63	18/4/63	1045	0-10	0	23.7	17
8°55'S. 105°00'E.		"	52-60	55	21.3	31
		"	105-130	110	21.7	30
		"	200-240	210	25.2	21
Dml/38/63	19/4/63	1315	0-10	0	10.9	23
9°32'S. 109°36'E.		"	60-70	65	11.0	62
		"	115-130	120	17.9	36
		"	220-250	225	26.2	28
Dml/39/63	19/4/63	2305	0-10	0	28.6	86
11°00'S. 110°00'E.		"	45-75	70	19.6	122
		"	100-135	130	18.9	34
Dml/40/63	20/4/63	1155	0-10	0	21.6	23
12°30'S. 110°00'E.		"	55-70	55	19.0	31
		"	115-135	120	25.1	18
		"	220-260	225	21.9	22

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dml/41/63	20/4/63	2355	0-10	0	22.9	117
14°00'S. 110°00'E.		"	50-75	75	15.7	40
		"	100-140	140	17.3	27
		"	200-280	260	26.5	23
Dml/42/63	21/4/63	1200	0-10	0	27.0	4
15°30'S. 110°00'E.		"	50-75	75	15.3	23
		"	100-150	130	19.2	15
		"	180-270	250	17.6	13
Dml/43/63	21/4/63	2255	0-10	0	18.9	70
17°00'S. 110°00'E.		"	55-70	65	15.1	76
		"	110-130	120	22.6	29
		"	200-240	220	30.2	24
Dml/44/63	22/4/63	1155	0-10	0	30.0	29
18°30'S. 110°00'E.		"	40-60	40	22.8	32
		"	80-120	80	22.9	17
		"	170-240	170	32.5	13 (64*)
Dml/45/63	22/4/63	2305	0-10	0	13.5	36
20°00'S. 110°00'E.		"	70-75	75	16.7	10

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH STRATUM RANGE (m)	MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dml/45/63	22/4/63	2305	125-140	125	19.5	9
20°00'S. 110°00'E.		"	240-260	250	21.1	13
Dml/46/63	23/4/63	1210	0-10	0	14.5	19
21°30'S. 110°00'E.		"	65-75	70	17.7	45 (321*)
		"	130-140	135	19.4	11
		"	250-260	255	17.3	10
Dml/47/63	23/4/63	2335	0-10	0	29.3	31
23°00'S. 110°00'E.		"	25-40	30	31.8	28
		"	55-75	60	31.6	63
		"	120-170	140	40.6	19
Dml/48/63	24/4/63	1205	0-10	0	25.9	26
24°30'S. 110°00'E.		"	40-65	45	23.1	18
		"	80-125	85	27.2	36
		"	160-240	165	34.4	14
Dml/49/63	24/4/63	2330	0-10	0	22.5	32
26°00'S. 110°00'E.		"	45-53	49	24.6	17
		"	81-109	95	27.2	27
		"	175-225	180	34.4	11

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

STATION POSITION	DATE	TIME	DEPTH RANGE (m)	STRATUM MODE (m)	VOLUME FILTERED (m^3)	BIOMASS (mg/m^3)
Dm1/50/63	25/4/63	1055	0-10	0	19.6	30
27°30'S. 110°00'E.		"	40-50	45	17.4	16
		"	105-115	110	23.4	12
		"	195-205	200	29.4	12
Dm1/51/63	25/4/63	2150	0-10	0	19.1	68
29°00'S. 110°00'E.		"	50-55	53	17.6	68 (128*)
		"	110-130	110	21.7	28
		"	210	210	18.7	23
Dm1/52/63	26/4/63	1000	0-10	0	12.6	17
30°30'S. 110°00'E.		"	60-65	62	14.1	39
		"	115-125	120	22.0	9
		"	225	225	23.1	11
Dm1/53/63	26/4/63	1918	0-10	0	23.5	57
32°00'S. 110°00'E.		"	55-70	60	13.4	16
		"	115-125	120	22.1	12
		"	210-240	225	23.1	14
Dm1/54/63	27/4/63	0210	0-10	0	15.9	35 (84*)
32°00'S. 111°50'E.		"	60-70	65	11.5	24
		"	120-130	125	15.5	8
		"	230-250	240	16.1	5

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			
					x JELLY ORG.	x PLANKTON ORG.	x MACRO-PLANKTON ORG.	x MICRO-NEKTON
Dml/4/63 30°30'S. 109°51'E.	30/3/63	2148 2326	10134	150	184	1680	2282	2577
Dml/7/63 27°30'S.	31/3/63	2136 2316	12994	220	74	2640	2919	7486
Dml/11/63 24°36'S. 109°59'E.	1/4/63	2149 2310	8240	170	216	2640	3530	13191
Dml/16/63 21°30'S. 110°E.	2/4/63	2114 2312	12562	225	344	2280	2262	6563
Dml/21/63 18°30'S. 110°E.	3/4/63	2130 2317	10894	210	296	2040	2369	8888
Dml/26/63 15°30'S. 110°E.	4/4/63	2117 2251	9692	200	192	2520	2889	7503
Dml/31/63 12°30'S. 110°E.	5/4/63	2130 2315	13456	210	352	2400	2524	3336

+ If no data, 200 m assumed x Refer to explanatory notes

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

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			
					x JELLY ORG.	x PLANKTON ORG.	x MACRO-PLANKTON ORG.	x MICRO-NEKTON
Dml/35/63 09°30'S. 110°E.	6/4/63	2144 2311	11080	196	232	15720	2463	2362
Dml/36/63 09°S. 105°E.	7/4/63	2116 2126	8394	196	192	1800	1952	2691
Dml/39/63 11°S. 110°E.	19/4/63	2119 2247	9922	196	368	3360	7084	13640
Dml/41/63 14°S. 110°E.	20/4/63	2149 2333	13240	230	424	3000	3728	8700
Dml/43/63 17°S. 110°E.	21/4/63	2100 2240	12624	200	136	1800	3234	8016
Dml/45/63 20°S. 110°E.	22/4/63	2116 2253	12346	240	256	1320	2225	3859
Dml/47/63 23°S. 110°E.	23/4/63	2158 2323	9414	240	456	1800	2390	8661

+ If no data, 200 m assumed
x Refer to explanatory notes
* 10,000 m is the length of the column filtered in the time of the average tows

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			
					x JELLY ORG.	x PLANKTON ORG.	x MACRO-PLANKTON ORG.	x MICRO-NEKTON
Dml/49/63 26°S. 110°E.	24/4/63	2149 2318	9104	190	168	1680	2052	11543
Dml/51/63 29°S. 110°E.	25/4/63	2016 2149	10694	196	304	2520	2721	8646
Dml/53/63 32°S. 110°E.	26/4/63	2020 2150	10140	196	520	1920	2567	8412

+ If no data, 200 m assumed
x Refer to explanatory notes
* 10,000 m is the length of the column filtered in the time of the average tows

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

DATA

PART 6

PARTICULATE CARBON

PARTICULATE CARBON

Values are in µg/l

STATION	0 m	50 m	100 m	150 m	200 m	COLUMN AVERAGE
2	22	20	20	11	7	16
4	15	11	11	11	5	11
5	11	6	4	2	7	5
7	10	5	4	3	5	5
10	6	8	6	4	5	6
11	8	10	7	4	7	7
14	8	7	2	3	3	4
16	8	9	8	4	5	7
19	7	8	7	7	6	7
21	10	8	5	2	4	6
24	8	11	5	3	3	6
26	8	11	6	5	4	7
29	12	17	9	8	6	11
31	18	21	15	8	11	15
34	14	13	10	14	9	12
35	15	21	8	6	7	12
36	14	16	14	15	11	14

PARTICULATE CARBON

Values are in µg/l

STATION	0 m	50 m	100 m	150 m	200 m	COLUMN AVERAGE
37	20	13	13	8	13	13
38	31	16	20	12	8	17
39	21	18	27	10	6	17
40	13	16	18	8	7	13
41	11	12	17	7	7	11
42	17	15	9	5	17	11
43	15	26	14	14	2	16
44	16	13	12	4	6	10
45	18	14	8	5	5	10
46	23	15	19	8	14	15
47	20	19	21	7	15	16
48	14	19	16	10	9	14
49	22	26	18	11	7	17
50	4	18	17	11	11	13
51	23	18	21	8	-	18
52	17	14	13	8	6	12
53	26	17	12	9	8	14
54	17	14	12	11	10	13

- Samples lost

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.
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15. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm2/62.
21. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Gascoyne* Cruise G1/63.
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