OCEANOGRAPHICAL OBSERVATIONS
IN THE INDIAN OCEAN IN 1963
H.M.A.S. *DIAMANTINA*
Cruise Dm 2/63

# OCEANOGRAPHICAL CRUISE REPORT NO. 24

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

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H.M.A.S. DIAMANTINA

Cruise Dm 2/63

(Seasonal Biological Cruise No. 5)

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION,

AUSTRALIA

MELBOURNE, 1965

CONTENTS




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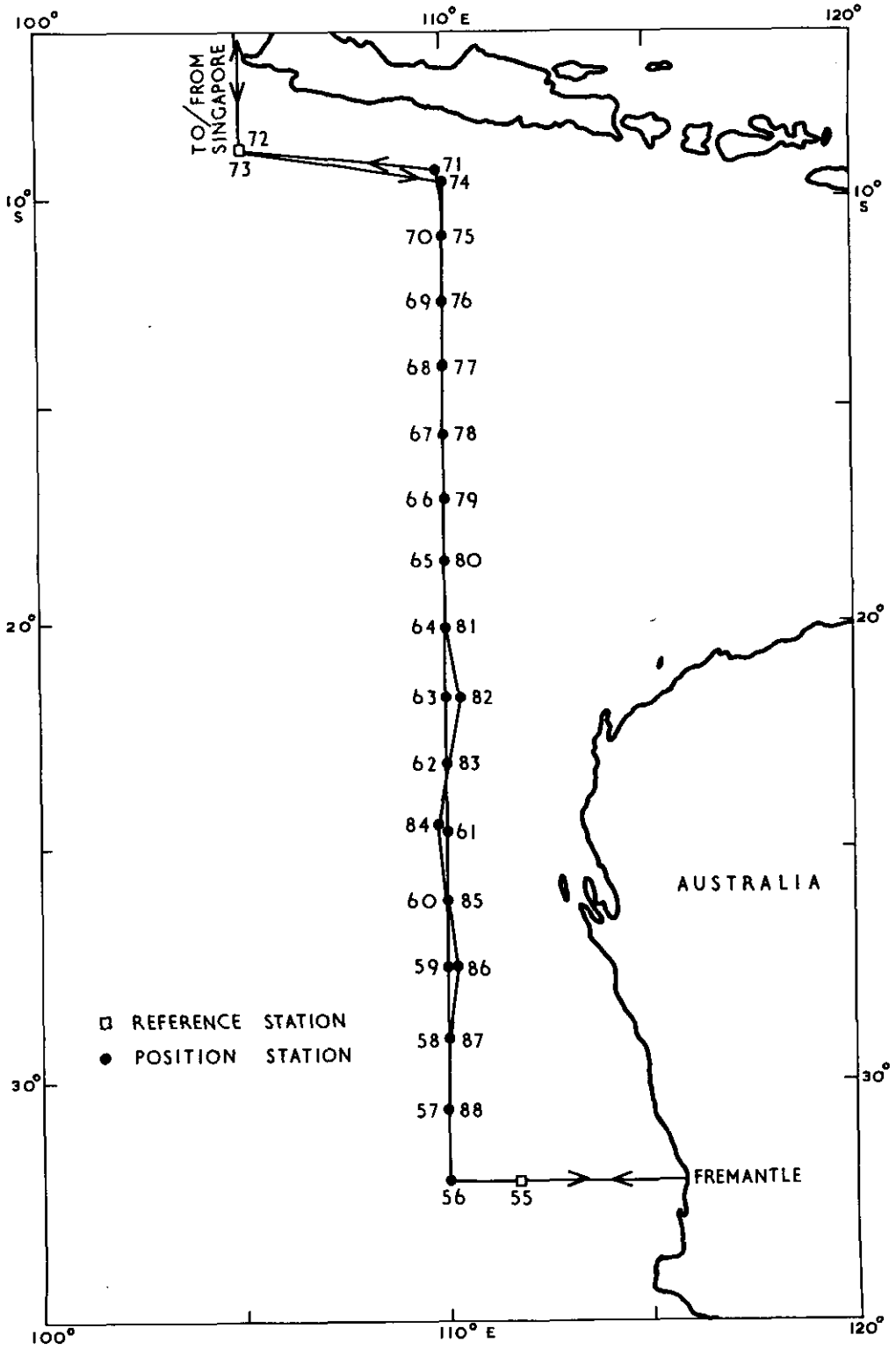
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110° E
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10° S
20°
30°
TO/FROM SINGAPORE
72
73
71
74
70
75
69
76
68
77
67
78
66
79
65
80
64
81
63
82
62
83
84
61
60
85
59
86
58
87
57
88
56
55
FREMANTLE
AUSTRALIA
REFERENCE STATION
POSITION STATION

OCEANOGRAPHICAL CRUISE REPORT

NO. 24

# Oceanographical Observations in the Indian Ocean in 1963

H.M.A.S. Diamantina

Cruise Dm 2/63

May 6 - June 3, 1963

## I. INTRODUCTION

This report records the data for the second cruise in 1963 of H.M.A.S. Diamantina, Royal Australian Navy frigate, in the Indian Ocean; this cruise is the fifth 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; to examine the environmental factors likely to influence these biological properties, and their inter-relations with particular reference to the dynamics of production; and to investigate long and short wave radiation.

### Itinerary

The cruise commenced at Fremantle on May 6, 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

H. Jitts (Cruise Leader)
R. Desrosieres, Institut Francais d'Oceanie, Noumea
C. Ho, University of Malaya (6/5/63-19/5/63)
J. Klye
T. Middleton
B. Scott
J. Stevenson, Division of Meteorological Physics

The analyses of hydrological samples were done in the ship's laboratory by Mr Klye who also did the nitrate analyses at Cronulla. The primary production samples were incubated and counted aboard by Mr Scott. The samples for pigment determination were taken aboard by Mr Middleton, 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

Thirty-four stations were worked (Dm2/55/63-Dm2/88/63). Bathythermograph casts were made at 34 stations. Subsurface hydrology, primary production, pigments, particulate carbon and zooplankton samples were collected at 34 stations; micronekton samples were collected at 14 stations.

TABLE 1

WORK DONE AT EACH STATION

| Stn No. | BT | Hydrology | | Primary Production | | | Part. Carbon | Pigments | Zooplankton | | Micronekton |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 1 | 2 | 3 | | | 1 | 2 | |
| 55 | + | 4500 | | + | + | + | + | + | + | + | |
| 56 | + | 4500 | | | | + | + | + | + | + | |
| 57 | + | | + | | | + | + | + | + | | |
| 58 | + | 5000 | | | | + | + | + | + | + | |
| 59 | + | | + | | | + | + | + | + | + | + |
| 60 | + | 3700 | | | + | + | + | + | + | + | |
| 61 | + | | + | | | + | + | + | + | + | + |
| 62 | + | 4500 | | | + | + | + | + | + | + | |
| 63 | + | | + | | | + | + | + | + | + | + |
| 64 | + | 4200 | | | + | + | + | + | + | + | |
| 65 | + | | + | | | + | + | + | + | + | + |
| 66 | + | 5000 | | | + | + | + | + | + | + | |
| 67 | + | | + | | | + | + | + | + | + | + |
| 68 | + | 5500 | | | + | + | + | + | + | + | |
| 69 | + | | + | | | + | + | + | + | + | + |

| Stn No. | BT | Hydrology | | Primary Production | | Part. Carbon | | Pig-ments | Zoo-plankton | | Micro-nekton |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 1 | 2 | 3 | | | 1 | 2 | |
| 70 | + | 4700 | | | | + | + | + | + | + | |
| 71 | + | 1100 | | | | + | + | + | + | + | + |
| 72 | + | 5500 | | | | + | + | + | + | + | |
| 73 | + | 5000 | | + | + | + | + | + | + | + | |
| 74 | + | | + | | | + | + | + | + | + | |
| 75 | + | | + | | | + | + | + | + | + | + |
| 76 | + | 4000 | | | + | + | + | + | + | + | |
| 77 | + | | + | | | + | + | + | + | + | + |
| 78 | + | 5000 | | | + | + | + | + | + | + | |
| 79 | + | | + | | | + | + | + | + | + | + |
| 80 | + | 4500 | | | + | + | + | + | + | + | |
| 81 | + | | + | | | + | + | + | + | + | + |
| 82 | + | 4500 | | | + | + | + | + | + | + | |
| 83 | + | | + | | | + | + | + | + | + | + |
| 84 | + | 3000 | | | + | + | + | + | + | + | |
| 85 | + | | + | | | + | + | + | + | + | + |
| 86 | + | 4500 | | | + | + | + | + | + | + | |
| 87 | + | | + | | | + | + | + | + | + | + |
| 88 | + | 4500 | | | | + | + | + | + | + | |

| | |
|---|---|
| BT | Bathythermograms |
| Hydrology | 1 Surface to depth (m)<br>2 Surface to 500 m only for temperature and salinity |
| Primary Production | 1 In situ incubation<br>2 Simulated in situ incubation<br>3 Artificial constant light incubation |
| Part. Carbon | Particulate Carbon |
| Zooplankton | 1 Indian Ocean Standard net<br>2 Clarke-Bumpus horizontal 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 $\sigma_t$ 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 adding 0.64 g strychnidine to a litre of nitrate-free sulphuric acid. 5 ml of this reagent were added, with minimum agitation, to 5 ml seawater or standard nitrate solution. The standards were made up in a mixture of equal volumes of artificial seawater and nitrate-free sulphuric acid. The standards and samples were shaken to distribute the reagent,

and the colour developed for 2 hours. The solutions were read in a UNICAM SP 600 spectrophotometer at a wavelength of 530 mμ using a 5 mm cell. Samples with an absorbance greater than that of the standard corresponding to 14.4 μg 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 means of 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, at some stations samples 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 envelopes 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 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 200-0 m stratum with Clarke-Bumpus Samplers (CBS)

(a) Vertical Hauls 200-0 m: The IOSN was used in the standard manner (Currie 1963) except that a heavier (100 lb) weight was attached to keep the net under control; this was replaced with a 30 lb weight during washing operations. No flowmeter was used. Wire angle averaged 20° and never exceeded 40°. The length of wire paid out to place the net at 200 m varied from 200-260 m with a mean of 214 m.

Samples were removed from the net in the following manner. The plankton bucket was detached 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 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 Intitut Francais d'Oceanie, Noumea.

On the Ship

(a) The gear: This consisted of a 5 ft Isaacs-Kid 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.

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

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

From the above data it is possible to 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

$= 1.929\ m^2 \times 10{,}000\ m = 19{,}290\ m^3$

Assumed minimum volume of water filtered per average tow

$= 0.197\ m^2 \times 10{,}000\ m = 1{,}970\ m^3$

From these estimates of maximum and minimum volume filtered it is possible to convert the data (p.147) to mg/$m^3$ (minimal and maximal estimates).

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## IV. DATA SHEETS 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, Dm2/55/63 signifies the 55th station worked by Diamantina in 1963, on her 2nd cruise for that year

DATE — Given as day/month/year

TIME — Given in Zone Time, and is the time at the beginning of the first cast. The code letter used for the time zone (Table 2) follows the time

## TABLE 2

## CODE FOR TIME ZONES

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

| Longitude Exceeding | Up to but not exceeding | Time Zone (hrs) | Code |
|---|---|---|---|
| 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 2/ 55/63 | 7/ 5/63 | 0800 H | 31 57 S | 111 50 E |

| SONIC DEPTH | AIR TEMP. WET | AIR TEMP. DRY | WIND DIR. | WIND SP. | ANEM. HEIGHT | CLOUD TYPE | CLOUD AMT. | VIS. | SEA DIR. | SEA AMT. | SWELL DIR. | SWELL AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 | WIRE ANGLES CAST2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4755 | 14.4 | 17.8 | 20 | 04 | 16 | 6 | 8 | 7 | 20 | 4 | 23 | 3 | 1019.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 21.34 | 35.770 | 25.00 | 5.19 | 106 | 0.05 | 0.33 | 00.7 |
| 2 | 24 | 21.33 | 35.766 | 25.00 | 5.21 | 107 | 0.05 | 0.24 | 00.4 |
| 2 | 48 | 21.19 | 35.844 | 25.09 | 5.20 | 107 | 0.02 | 0.27 | 00.2 |
| 2 | 72 | 20.70 | 35.919 | 25.31 | 5.27 | 107 | 0.02 | 0.27 | 00.2 |
| 2 | 97 | 18.49 | 35.837 | 25.80 | 5.57 | 108 | 0.12 | 0.24 | 00.0 |
| 2 | 121 | 16.32 | 35.708 | 26.23 | 5.58 | 104 | *** | *** | 00.4 |
| 2 | 145 | 15.26 | 35.621 | 26.41 | 5.48 | 100 | 0.25 | 0.47 | 00.6 |
| 2 | 193 | 13.80 | 35.422 | 26.57 | 5.55 | 98 | 0.37 | 0.57 | 02.0 |
| 2 | 242 | 12.83 | 35.288 | 26.66 | 5.66 | 98 | *** | *** | 03.6 |
| 2 | 292 | 12.07 | 35.170 | 26.72 | 5.82 | 99 | 0.54 | 0.71 | 04.1 |
| 2 | 486 | 9.52 | 34.753 | 26.86 | 5.88 | 94 | 0.87 | 1.03 | 08.1 |
| 2 | 680 | 8.38 | 34.606 | 26.92 | 5.52 | 86 | 1.12 | 1.27 | 11.8 |
| 2 | 873 | 5.64 | 34.418 | 27.16 | 4.77 | 69 | 1.60 | 1.75 | 16.1 |
| 2 | 1070 | 3.92 | 34.423 | 27.35 | 4.33 | 60 | 1.90 | 2.11 | 25.2 |
| 2 | 1264 | 3.37 | 34.421 | 27.41 | 3.78 | 51 | 2.03 | 2.14 | 30.7 |
| 1 | 1479 | 2.97 | 34.617 | 27.60 | 3.77 | 51 | 2.00 | 2.16 | 32.8 |
| 1 | 1968 | 2.43 | 34.727 | 27.74 | 3.80 | 50 | 1.91 | 2.03 | 33.9 |
| 1 | 2454 | 2.01 | 34.728 | 27.77 | 3.99 | 52 | 1.98 | 2.14 | 31.7 |
| 1 | 2942 | 1.73 | 34.743 | 27.80 | 4.18 | 54 | 1.91 | 2.05 | 32.2 |
| 1 | 3430 | 1.47 | 34.730 | 27.81 | 4.46 | 58 | 1.89 | 1.95 | 30.7 |
| 1 | 3917 | 1.26 | 34.723 | 27.82 | 4.51 | 58 | 1.86 | 1.99 | 31.4 |
| 1 | 4404 | 1.23 | 34.721 | 27.82 | 4.71 | 60 | 1.82 | 2.17 | 32.2 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 56/63 | 8/ 5/63 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5048 | 12.2 | 16.1 | 16 | 05 | 16 | 6 | 7 | 7 | 16 | 4 | 18 | 3 | 1024.5 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 19.52 | 35.927 | 25.63 | 5.39 | 108 | 0.08 | 0.39 | 00.5 |
| 2 | 24 | 19.53 | 35.928 | 25.60 | 5.43 | 108 | 0.07 | *** | 00.4 |
| 2 | 48 | 19.51 | 35.933 | 25.61 | 5.46 | 108 | 0.07 | 0.39 | 00.3 |
| 2 | 72 | 19.43 | 35.938 | 25.64 | 5.45 | 108 | 0.07 | *** | 00.2 |
| 2 | 97 | 16.64 | 35.728 | 26.17 | 5.56 | 104 | 0.21 | 0.38 | 00.2 |
| 2 | 145 | 14.27 | 35.456 | 26.50 | 5.63 | 100 | 0.35 | *** | 01.6 |
| 2 | 193 | 12.65 | 35.205 | 26.64 | 5.71 | 98 | 0.50 | 0.68 | 03.2 |
| 2 | 288 | 11.23 | 35.020 | 26.76 | 5.84 | 97 | 0.67 | 0.86 | 05.1 |
| 2 | 480 | 9.26 | 34.703 | 26.86 | 5.88 | 93 | 0.92 | 0.99 | 13.3 |
| 2 | 670 | 7.95 | 34.566 | 26.96 | 5.33 | 82 | 1.26 | 1.33 | 18.6 |
| 2 | 860 | 5.03 | 34.445 | 27.25 | 4.73 | 67 | 1.72 | 1.91 | 27.5 |
| 2 | 1055 | 3.73 | 34.437 | 27.38 | 4.19 | 58 | 1.92 | 2.14 | 32.3 |
| 2 | 1248 | 3.30 | 34.533 | 27.50 | 3.70 | 50 | 2.09 | 2.28 | 32.2 |
| 1 | 1349 | 3.10 | 34.582 | 27.56 | 3.71 | 50 | 2.03 | 2.35 | 33.5 |
| 1 | 1820 | 2.49 | 34.698 | 27.71 | 3.71 | 49 | 2.01 | 2.21 | 33.5 |
| 1 | 2296 | 2.09 | 34.733 | 27.77 | 4.01 | 53 | 1.92 | 2.21 | 31.8 |
| 1 | 2770 | 1.79 | 34.734 | 27.79 | 4.13 | 54 | 2.76 | 2.12 | 33.2 |
| 1 | 3250 | 1.50 | 34.730 | 27.81 | 4.35 | 56 | 1.91 | 2.15 | 33.1 |
| 1 | 3730 | 1.30 | 34.721 | 27.82 | 4.47 | 58 | 1.88 | 2.10 | 32.5 |
| 1 | 4210 | 1.19 | 34.721 | 27.83 | 4.58 | 59 | 1.84 | 2.14 | 31.8 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 57/63. | 8/ 5/63 | 2000 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5249 | 13.9 | 17.2 | 15 | 06 | 16 | 6 | 3 | 7 | 15 | 3 | 16 | 3 | 1020.3 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 19.53 | 35.947 | 25.62 | *** | *** | *** | *** | *** |
| 1 | 24 | 19.54 | 35.945 | 25.61 | *** | *** | *** | *** | *** |
| 1 | 48 | 19.51 | 35.937 | 25.62 | *** | *** | *** | *** | *** |
| 1 | 72 | 18.55 | 35.831 | 25.78 | *** | *** | *** | *** | *** |
| 1 | 97 | 16.09 | 35.661 | 26.25 | *** | *** | *** | *** | *** |
| 1 | 145 | 13.89 | 35.408 | 26.54 | *** | *** | *** | *** | *** |
| 1 | 195 | 13.00 | 35.302 | 26.64 | *** | *** | *** | *** | *** |
| 1 | 291 | 11.65 | 35.101 | 26.75 | *** | *** | *** | *** | *** |
| 1 | 485 | 9.34 | 34.742 | 26.88 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 58/63 | 9/ 5/63 | 0800 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5486 | 15.0 | 18.3 | 17 | 05 | 16 | 8 | 3 | 8 | 17 | 3 | 16 | 4 | 1018.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 22.66 | 35.595 | 24.49 | 4.96 | 104 | 0.12 | 0.24 | 00.3 |
| 2 | 25 | 22.64 | 35.607 | 24.51 | 5.01 | 105 | 0.14 | *** | 00.3 |
| 2 | 49 | 21.99 | 35.755 | 24.80 | 5.15 | 107 | 0.12 | 0.25 | 00.1 |
| 2 | 74 | 20.10 | 35.777 | 25.34 | 5.08 | 102 | 0.20 | *** | 00.0 |
| 2 | 98 | 19.20 | 35.806 | 25.60 | 5.09 | 100 | 0.24 | 0.28 | 00.2 |
| 2 | 148 | 17.65 | 35.810 | 25.99 | 4.93 | 94 | 0.31 | *** | 00.5 |
| 2 | 197 | 15.63 | 35.670 | 26.36 | 5.27 | 97 | 0.38 | 0.41 | 00.6 |
| 2 | 294 | 12.73 | 35.306 | 26.70 | 5.54 | 95 | 0.57 | 0.64 | 03.2 |
| 2 | 490 | 9.39 | 34.736 | 26.86 | 5.73 | 91 | 0.99 | 1.04 | 11.5 |
| 2 | 686 | 7.70 | 34.548 | 26.98 | 5.12 | 78 | 1.38 | 1.42 | 17.2 |
| 2 | 881 | 4.59 | 34.486 | 27.33 | 4.36 | 61 | 1.96 | 1.97 | 32.4 |
| 2 | 1077 | 3.88 | 34.523 | 27.44 | 3.64 | 50 | 2.16 | 2.18 | 32.4 |
| 2 | 1274 | 3.39 | 34.552 | 27.51 | 3.56 | 48 | 2.29 | 2.21 | 33.8 |
| 1 | 1423 | 3.09 | 34.601 | 27.58 | 3.51 | 47 | 2.15 | 2.19 | 34.2 |
| 1 | 1807 | 2.40 | 34.709 | 27.72 | 3.67 | 49 | 2.10 | 2.14 | 31.3 |
| 1 | 2392 | 2.04 | 34.726 | 27.77 | 3.83 | 50 | 2.09 | 2.16 | 34.6 |
| 1 | 2877 | 1.74 | 34.747 | 27.81 | 4.05 | 53 | 2.08 | 2.12 | 34.6 |
| 1 | 3365 | 1.51 | 34.734 | 27.80 | 4.19 | 55 | 2.03 | 2.09 | 34.6 |
| 1 | 3854 | 1.28 | 34.732 | 27.84 | 4.38 | 57 | 2.03 | 2.09 | 34.6 |
| 1 | 4343 | 1.20 | 34.717 | 27.83 | 4.47 | 58 | 1.95 | 2.04 | 33.6 |
| 1 | 4832 | 1.10 | 34.717 | 27.83 | 4.67 | 60 | 1.91 | 1.97 | 33.4 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 59/63 | 9/ 5/63 | 2000 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5577 | 17.2 | 20.6 | 17 | 06 | 16 | 8 | 2 | 8 | 17 | 4 | 18 | 4 | 1017.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 23.80 | 35.363 | 24.00 | *** | *** | *** | *** | *** |
| 1 | 25 | 23.79 | 35.359 | 23.99 | *** | *** | *** | *** | *** |
| 1 | 50 | 23.79 | 35.363 | 23.99 | *** | *** | *** | *** | *** |
| 1 | 75 | 21.85 | 35.432 | 24.60 | *** | *** | *** | *** | *** |
| 1 | 100 | 20.50 | 35.629 | 25.12 | *** | *** | *** | *** | *** |
| 1 | 150 | 18.69 | 35.791 | 25.72 | *** | *** | *** | *** | *** |
| 1 | 200 | 17.37 | 35.793 | 26.04 | *** | *** | *** | *** | *** |
| 1 | 300 | 13.88 | 35.452 | 26.57 | *** | *** | *** | *** | *** |
| 1 | 500 | 9.82 | 35.011 | 27.01 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 60/63 | 10/ 5/63 | 0800 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3840 | 16.7 | 20.6 | 19 | 05 | 16 | 6 | 6 | 8 | 19 | 3 | 18 | 4 | 1015.5 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 23.55 | 35.486 | 24.15 | 5.01 | 107 | 0.07 | 0.18 | 00.5 |
| 2 | 24 | 23.55 | 35.470 | 24.14 | 4.96 | 106 | 0.08 | *** | 00.3 |
| 2 | 48 | 23.53 | 35.470 | 24.15 | 5.00 | 106 | 0.11 | 0.27 | 00.1 |
| 2 | 72 | 22.59 | 35.615 | 24.53 | 5.13 | 107 | 0.11 | *** | 00.0 |
| 2 | 97 | 20.57 | 35.704 | 25.16 | 5.15 | 104 | 0.18 | 0.28 | 00.0 |
| 2 | 145 | 19.95 | 35.776 | 25.38 | 4.80 | 96 | 0.39 | *** | 00.5 |
| 2 | 193 | 17.72 | 35.800 | 25.96 | 5.00 | 96 | 0.26 | 0.45 | 00.7 |
| 2 | 290 | 14.03 | 35.457 | 26.54 | 5.48 | 97 | 0.47 | 0.60 | 01.9 |
| 2 | 482 | 9.72 | 34.800 | 26.86 | 5.74 | 92 | 1.04 | 1.04 | 10.8 |
| 2 | 676 | 7.62 | 34.542 | 26.99 | 5.16 | 79 | 1.42 | 1.51 | 19.6 |
| 2 | 870 | 4.72 | 34.474 | 27.31 | 3.82 | 54 | 2.03 | 2.23 | 32.3 |
| 2 | 1067 | 4.25 | 34.553 | 27.42 | 3.14 | 44 | 2.21 | 2.36 | 34.3 |
| 2 | 1264 | 3.63 | 34.585 | 27.51 | 3.27 | 45 | 2.10 | 2.40 | 36.7 |
| 1 | 1430 | 3.23 | 34.624 | 27.58 | 3.43 | 46 | 2.17 | 2.38 | 35.2 |
| 1 | 1907 | 2.41 | 34.706 | 27.72 | 3.64 | 48 | 2.12 | 2.30 | 35.2 |
| 1 | 2390 | 2.00 | 34.726 | 27.77 | 4.01 | 53 | 2.09 | 2.21 | 35.6 |
| 1 | 2876 | 1.66 | 34.733 | 27.80 | 4.11 | 53 | 2.08 | 2.17 | 33.6 |
| 1 | 3365 | 1.42 | 34.722 | 27.81 | 4.31 | 56 | 2.04 | 2.01 | 33.6 |
| 1 | 3560 | 1.30 | 34.719 | 27.82 | 4.41 | 57 | 2.04 | 2.01 | 35.2 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 62/63 | 11/ 5/63 | 0800 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5029 | 18.9 | 22.8 | 17 | 04 | 16 | 8 | 2 | 8 | 17 | 2 | 20 | 1 | 1015.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 26.05 | 35.093 | 23.10 | 4.74 | 105 | 0.15 | 0.41 | 00.3 |
| 2 | 24 | 26.06 | 35.084 | 23.09 | 4.71 | 104 | 0.17 | *** | 00.3 |
| 2 | 48 | 24.97 | 35.125 | 23.46 | 4.88 | 106 | 0.17 | 0.35 | 00.1 |
| 2 | 72 | 22.18 | 35.079 | 24.24 | 4.06 | 84 | 0.42 | *** | 01.7 |
| 2 | 97 | 21.60 | 35.390 | 24.64 | 4.79 | 98 | 0.27 | 0.39 | 00.1 |
| 2 | 145 | 19.65 | 35.538 | 25.28 | 4.35 | 86 | 0.42 | *** | 02.5 |
| 2 | 195 | 18.00 | 35.644 | 25.78 | 4.48 | 86 | 0.46 | 0.54 | 03.0 |
| 2 | 294 | 14.59 | 35.502 | 26.46 | 5.18 | 93 | 0.51 | 0.59 | 02.6 |
| 2 | 490 | 9.03 | 34.707 | 26.90 | 5.60 | 88 | 1.63 | 1.20 | 14.9 |
| 2 | 689 | 6.21 | 34.543 | 27.18 | 3.66 | 54 | 1.95 | 2.03 | 30.6 |
| 2 | 888 | 5.12 | 34.586 | 27.35 | 2.57 | 36 | 2.29 | 2.45 | 34.4 |
| 2 | 1085 | 4.49 | 34.620 | 27.45 | 2.58 | 36 | 2.31 | 2.48 | 38.5 |
| 2 | 1285 | 3.85 | 34.625 | 27.52 | 2.87 | 39 | 2.34 | 2.48 | 35.5 |
| 1 | 1297 | 3.81 | 34.630 | 27.53 | 2.86 | 39 | 2.32 | 2.41 | 33.8 |
| 1 | 1773 | 2.66 | 34.695 | 27.69 | 3.40 | 45 | 2.28 | 2.44 | 37.7 |
| 1 | 2255 | 2.15 | 34.741 | 27.77 | 3.53 | 46 | 2.23 | 2.28 | 35.8 |
| 1 | 2738 | 1.80 | 34.721 | 27.78 | 3.89 | 51 | 2.15 | 2.30 | 33.5 |
| 1 | 3220 | 1.54 | 34.725 | 27.80 | 4.05 | 52 | 2.12 | 2.24 | 33.5 |
| 1 | 3700 | 1.28 | 34.727 | 27.82 | 4.38 | 56 | 2.04 | 2.18 | 33.7 |
| 1 | 4186 | 1.19 | 34.769 | 27.86 | 4.39 | 56 | 2.04 | 2.16 | 32.9 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 63/63 | 11/ 5/63 | 2000 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4984 | 19.4 | 25.0 | 16 | 03 | 16 | 2 | 2 | 8 | 16 | 2 | 19 | 1 | 1014.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 25.53 | 35.128 | 23.29 | *** | *** | *** | *** | *** |
| 1 | 25 | 25.54 | 35.133 | 23.29 | *** | *** | *** | *** | *** |
| 1 | 50 | 25.45 | 35.157 | 23.33 | *** | *** | *** | *** | *** |
| 1 | 75 | 24.08 | 35.229 | 23.80 | *** | *** | *** | *** | *** |
| 1 | 100 | 21.17 | 35.046 | 24.49 | *** | *** | *** | *** | *** |
| 1 | 150 | 20.28 | 35.560 | 25.13 | *** | *** | *** | *** | *** |
| 1 | 200 | 18.71 | 35.699 | 25.64 | *** | *** | *** | *** | *** |
| 1 | 300 | 15.37 | 35.630 | 26.39 | *** | *** | *** | *** | *** |
| 1 | 500 | 9.48 | 34.775 | 26.88 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 64/63 | 12/ 5/63 | 0800 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4435 | 19.4 | 23.9 | 15 | 02 | 16 | 1 | 2 | 8 | 15 | 1 | 20 | 1 | 1014.9 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 26.48 | 34.952 | 22.86 | 4.60 | 103 | 0.08 | 0.33 | 00.5 |
| 2 | 24 | *** | 34.952 | *** | 4.61 | *** | 0.14 | *** | 00.7 |
| 2 | 48 | 26.40 | 34.952 | 22.88 | 4.58 | 102 | 0.14 | 0.30 | 01.0 |
| 2 | 72 | 24.46 | 34.821 | 23.38 | 4.24 | 91 | 0.24 | *** | 00.1 |
| 2 | 97 | 22.92 | 34.930 | 23.92 | 3.88 | 81 | 0.44 | 0.59 | 02.3 |
| 2 | 121 | 21.50 | 34.962 | 24.34 | 3.39 | 69 | 0.64 | *** | 05.7 |
| 2 | 145 | 20.69 | 35.025 | 24.61 | 3.18 | 64 | 0.68 | *** | 07.1 |
| 2 | 195 | 18.14 | 35.142 | 25.36 | 3.15 | 60 | 0.86 | 0.97 | 10.0 |
| 2 | 244 | 16.56 | 35.327 | 25.88 | 3.58 | 67 | 0.81 | *** | 09.3 |
| 2 | 293 | 14.63 | 35.378 | 26.36 | 4.28 | 77 | 0.74 | 0.85 | 07.5 |
| 2 | 392 | 11.31 | 35.347 | 26.77 | 5.18 | 86 | 0.86 | *** | 10.4 |
| 2 | 490 | 9.40 | 34.765 | 26.89 | 5.22 | 83 | 1.09 | 1.23 | 13.9 |
| 2 | 686 | 6.74 | 34.616 | 27.17 | 2.74 | 41 | 2.08 | 2.10 | 31.9 |
| 2 | 883 | 5.58 | 34.640 | 27.34 | 2.13 | 31 | 2.32 | 2.41 | 36.6 |
| 1 | 1065 | 4.93 | 34.648 | 27.42 | 2.24 | 32 | 2.32 | 2.41 | 35.5 |
| 1 | 1258 | 4.22 | 34.648 | 27.50 | 2.43 | 34 | 2.32 | 2.37 | 36.4 |
| 1 | 1453 | 3.65 | 34.673 | 27.59 | 2.68 | 37 | 2.31 | 2.40 | 35.3 |
| 1 | 1942 | 2.52 | 34.726 | 27.73 | 3.21 | 43 | 2.27 | 2.36 | 35.1 |
| 1 | 2434 | 2.08 | 34.732 | 27.77 | 3.55 | 47 | 2.16 | 2.27 | 35.3 |
| 1 | 2929 | 1.74 | 34.732 | 27.80 | 3.90 | 51 | 2.12 | 2.18 | 34.9 |
| 1 | 3426 | 1.43 | 34.736 | 27.82 | 4.12 | 53 | 2.08 | 2.18 | 33.3 |
| 1 | 3922 | 1.22 | 34.725 | 27.83 | 4.40 | 56 | 2.05 | 2.16 | 33.3 |
| 1 | 4120 | 1.20 | 34.744 | 27.84 | *** | *** | 1.89 | 2.02 | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 65/63 | 12/ 5/63 | 1920 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4938 | 20.0 | 24.4 | 14 | 03 | 16 | * | 0 | 8 | * | * | 19 | 1 | 1015.5 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 27.40 | 34.710 | 22.38 | *** | *** | *** | *** | *** |
| 1 | 25 | 27.36 | 34.694 | 22.38 | *** | *** | *** | *** | *** |
| 1 | 50 | 26.91 | 34.686 | 22.54 | *** | *** | *** | *** | *** |
| 1 | 75 | 23.29 | 34.708 | 23.64 | *** | *** | *** | *** | *** |
| 1 | 100 | 22.14 | 34.991 | 24.18 | *** | *** | *** | *** | *** |
| 1 | 125 | 21.07 | 35.067 | 24.54 | *** | *** | *** | *** | *** |
| 1 | 150 | 19.92 | 35.256 | 24.99 | *** | *** | *** | *** | *** |
| 1 | 200 | 18.29 | 35.395 | 25.51 | *** | *** | *** | *** | *** |
| 1 | 250 | *** | 35.280 | *** | *** | *** | *** | *** | *** |
| 1 | 300 | 14.03 | 35.226 | 26.37 | *** | *** | *** | *** | *** |
| 1 | 400 | 11.08 | 34.981 | 26.76 | *** | *** | *** | *** | *** |
| 1 | 500 | 8.79 | 34.680 | 26.92 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 66/63 | 13/ 5/63 | 0800 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5486 | 22.2 | 24.4 | * | 01 | 16 | 8 | 6 | 7 | * | * | 17 | 1 | 1014.5 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 27.49 | 34.506 | 22.20 | 4.60 | 104 | 0.13 | 0.31 | 00.4 |
| 2 | 24 | 27.41 | 34.508 | 22.23 | 4.62 | 104 | 0.11 | *** | 00.2 |
| 2 | 48 | 27.08 | 34.745 | 22.51 | 4.84 | 109 | 0.15 | 0.34 | 00.2 |
| 2 | 72 | 24.15 | 35.030 | 23.63 | 4.98 | 107 | 0.21 | *** | 00.0 |
| 2 | 95 | 22.15 | 34.938 | 24.14 | 3.66 | 76 | 0.59 | 0.72 | 04.1 |
| 2 | 119 | 20.99 | 35.143 | 24.62 | 3.21 | 65 | 0.73 | *** | 08.6 |
| 2 | 143 | 19.79 | 34.980 | 24.81 | 2.93 | 58 | 0.84 | *** | 11.0 |
| 2 | 190 | 17.54 | 35.153 | 25.51 | 3.24 | 61 | 0.94 | 1.05 | 11.8 |
| 2 | 238 | 14.97 | 35.185 | 26.13 | 3.42 | 62 | 1.01 | *** | 13.8 |
| 2 | 285 | 13.32 | 35.190 | 26.49 | 3.93 | 68 | 1.01 | 1.09 | 14.8 |
| 2 | 380 | 10.66 | 34.943 | 26.81 | 5.01 | 82 | 1.06 | *** | 16.4 |
| 2 | 477 | 9.01 | 34.746 | 26.94 | 4.92 | 78 | 1.30 | 1.39 | 23.1 |
| 2 | 672 | 6.76 | 34.643 | 27.19 | 2.52 | 37 | 2.12 | 2.24 | 35.7 |
| 2 | 868 | 5.72 | 34.655 | 27.33 | 2.08 | 30 | 2.38 | 2.45 | 37.5 |
| 1 | 1078 | 4.85 | 34.659 | 27.44 | 2.20 | 31 | 2.36 | 2.40 | 37.5 |
| 1 | 1275 | 4.32 | 34.669 | 27.51 | 2.40 | 33 | 2.40 | 2.50 | 37.7 |
| 1 | 1472 | 3.70 | 34.674 | 27.58 | 2.70 | 37 | 2.37 | 2.43 | *** |
| 1 | 1964 | 2.51 | 34.726 | 27.73 | 3.25 | 43 | 2.27 | 2.29 | 38.0 |
| 1 | 2457 | 2.04 | 34.738 | 27.78 | 3.57 | 47 | 2.22 | 2.29 | 38.9 |
| 1 | 2954 | 1.65 | 34.734 | 27.80 | 3.88 | 50 | 2.16 | 2.24 | 36.4 |
| 1 | 3450 | 1.36 | 34.728 | 27.82 | 4.07 | 52 | 2.10 | 2.22 | 37.8 |
| 1 | 3946 | 1.21 | 34.722 | 27.83 | 4.33 | 56 | 2.09 | 2.22 | 36.4 |
| 1 | 4442 | 1.20 | 34.720 | 27.82 | 4.33 | 56 | 2.07 | 2.19 | 33.3 |
| 1 | 4940 | 1.18 | 34.723 | 27.83 | 4.43 | 57 | 1.92 | 2.17 | 34.2 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 67/63 | 13/ 5/63 | 2000 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5577 | 22.8 | 26.1 | 12 | 04 | 16 | 8 | 2 | 8 | 12 | 2 | 19 | 1 | 1012.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 27.49 | 34.639 | 22.30 | *** | *** | *** | *** | *** |
| 1 | 24 | 27.51 | 34.659 | 22.31 | *** | *** | *** | *** | *** |
| 1 | 48 | 25.98 | 34.769 | 22.88 | *** | *** | *** | *** | *** |
| 1 | 72 | 23.63 | 34.849 | 23.65 | *** | *** | *** | *** | *** |
| 1 | 97 | 22.02 | 35.088 | 24.29 | *** | *** | *** | *** | *** |
| 1 | 121 | 21.14 | 35.199 | 24.62 | *** | *** | *** | *** | *** |
| 1 | 145 | 18.86 | 34.990 | 25.06 | *** | *** | *** | *** | *** |
| 1 | 195 | 16.78 | 35.047 | 25.61 | *** | *** | *** | *** | *** |
| 1 | 243 | 14.43 | 34.953 | 26.07 | *** | *** | *** | *** | *** |
| 1 | 292 | 12.46 | 34.919 | 26.45 | *** | *** | *** | *** | *** |
| 1 | 389 | 10.45 | 34.872 | 26.79 | *** | *** | *** | *** | *** |
| 1 | 486 | 8.67 | 34.693 | 26.95 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 68/63 | 14/ 5/63 | 0800 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 | 22.8 | 26.7 | 13 | 04 | 16 | 8 | 3 | 8 | 13 | 2 | 09 | 1 | 1013.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 27.58 | 34.286 | 21.97 | 4.61 | 104 | 0.08 | 0.38 | 02.1 |
| 2 | 25 | 27.64 | 34.312 | 22.01 | 4.61 | 104 | 0.09 | *** | 04.5 |
| 2 | 50 | 26.24 | 34.670 | 22.72 | 4.90 | 109 | 0.19 | 0.35 | 03.5 |
| 2 | 75 | 24.78 | 34.673 | 23.17 | 4.49 | 97 | 0.26 | *** | 01.9 |
| 2 | 100 | 21.85 | 34.777 | 24.10 | 3.30 | 68 | 0.68 | 0.91 | 07.5 |
| 2 | 125 | 21.32 | 35.068 | 24.47 | 3.70 | 75 | 0.58 | *** | 05.8 |
| 2 | 150 | 18.81 | 34.735 | 24.88 | 2.69 | 52 | 1.04 | *** | 15.2 |
| 2 | 200 | 15.55 | 34.849 | 25.75 | 2.70 | 49 | 1.22 | 1.43 | 18.7 |
| 2 | 250 | 14.25 | 34.890 | 26.06 | 2.76 | 49 | 1.31 | *** | 20.5 |
| 2 | 300 | 12.66 | 34.837 | 26.35 | 2.76 | 47 | 1.39 | 1.55 | 22.9 |
| 2 | 400 | 10.07 | 34.827 | 26.82 | 4.02 | 65 | 1.32 | *** | 22.5 |
| 2 | 500 | 8.50 | 34.689 | 26.97 | 3.02 | 47 | 1.58 | 1.89 | 27.5 |
| 2 | 700 | 6.47 | 34.641 | 27.22 | 2.07 | 30 | 2.25 | 2.36 | 34.9 |
| 2 | 900 | 5.32 | 34.626 | 27.36 | 2.16 | 31 | 2.30 | 2.55 | 37.1 |
| 2 | 1100 | 4.55 | 34.635 | 27.46 | 2.16 | 30 | 2.35 | 2.53 | 37.7 |
| 1 | 1278 | 4.00 | 34.654 | 27.53 | 2.37 | 33 | 2.35 | 2.48 | *** |
| 1 | 1472 | 3.57 | 34.686 | 27.60 | 2.55 | 35 | 2.35 | 2.48 | 36.6 |
| 1 | 1959 | 2.58 | 34.761 | 27.75 | 3.16 | 42 | 2.27 | 2.31 | 35.8 |
| 1 | 2447 | 2.01 | 34.748 | 27.79 | 3.57 | 47 | 2.24 | 2.36 | 34.0 |
| 1 | 2938 | 1.70 | 34.735 | 27.80 | 3.85 | 50 | 2.11 | 2.29 | 35.8 |
| 1 | 3431 | 1.43 | 34.728 | 27.81 | 4.04 | 52 | 2.10 | 2.25 | 34.6 |
| 1 | 3925 | 1.29 | 34.723 | 27.82 | 4.19 | 54 | 2.08 | 2.24 | 33.7 |
| 1 | 4420 | 1.20 | 34.727 | 27.83 | 4.42 | 57 | 2.07 | 2.19 | 33.1 |
| 1 | 4914 | 1.21 | 34.718 | 27.80 | 4.43 | 57 | 2.01 | 2.16 | 31.8 |
| 1 | 5409 | 1.23 | 34.724 | 27.83 | 4.41 | 57 | 1.98 | 2.12 | 30.6 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 69/63 | 14/ 5/63 | 2000 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4572 | 23.3 | 27.2 | 12 | 04 | 16 | 6 | 8 | 7 | 12 | 2 | 11 | 1 | 1010.5 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 28.15 | 34.186 | 21.74 | *** | *** | *** | *** | *** |
| 1 | 25 | *** | 34.197 | *** | *** | *** | *** | *** | *** |
| 1 | 50 | 28.13 | 34.219 | 21.77 | *** | *** | *** | *** | *** |
| 1 | 75 | 24.91 | 34.413 | 22.94 | *** | *** | *** | *** | *** |
| 1 | 100 | 23.60 | 34.606 | 23.47 | *** | *** | *** | *** | *** |
| 1 | 125 | 20.92 | 34.470 | 24.12 | *** | *** | *** | *** | *** |
| 1 | 150 | 17.34 | 34.578 | 25.12 | *** | *** | *** | *** | *** |
| 1 | 200 | 14.79 | 34.728 | 25.82 | *** | *** | *** | *** | *** |
| 1 | 250 | 12.62 | 34.715 | 26.26 | *** | *** | *** | *** | *** |
| 1 | 300 | 11.30 | 34.734 | 26.53 | *** | *** | *** | *** | *** |
| 1 | 400 | 9.83 | 34.784 | 26.83 | *** | *** | *** | *** | *** |
| 1 | 500 | 8.25 | 34.690 | 27.01 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 70/63 | 15/ 5/63 | 0800 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4846 | 24.4 | 27.8 | 13 | 04 | 16 | 6 | 1 | 8 | 13 | 2 | 15 | 1 | 1009.8 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 27.99 | 33.904 | 21.58 | 4.59 | 104 | 0.14 | 0.21 | 00.3 |
| 2 | 24 | 27.95 | 33.896 | 21.59 | 4.50 | 102 | 0.14 | *** | 00.7 |
| 2 | 48 | 28.04 | 34.447 | 21.98 | 4.64 | 106 | 0.15 | 0.27 | 00.5 |
| 2 | 72 | 25.61 | 34.553 | 22.83 | 3.52 | 77 | 0.50 | *** | 03.2 |
| 2 | 97 | 23.35 | 34.598 | 23.54 | 3.02 | 63 | 0.74 | 0.91 | 08.6 |
| 2 | 121 | 21.10 | 34.568 | 24.15 | 2.77 | 56 | 0.90 | *** | 11.7 |
| 2 | 145 | 17.91 | 34.557 | 24.97 | 2.68 | 51 | 1.04 | *** | 15.0 |
| 2 | 195 | 13.66 | 34.557 | 25.93 | 2.67 | 46 | 1.35 | 1.46 | 19.2 |
| 2 | 244 | 11.76 | 34.565 | 26.31 | 2.38 | 40 | 1.65 | *** | 26.3 |
| 2 | 293 | 10.96 | 34.634 | 26.51 | 2.27 | 37 | 1.66 | 1.75 | 27.1 |
| 2 | 389 | 9.77 | 34.726 | 26.79 | 2.11 | 34 | 1.75 | *** | 30.2 |
| 2 | 487 | 8.61 | 34.728 | 26.98 | 1.93 | 30 | 2.04 | 2.10 | 34.5 |
| 2 | 681 | 7.15 | 34.718 | 27.19 | 1.76 | 26 | 2.17 | 2.12 | 39.2 |
| 2 | 875 | 5.95 | 34.674 | 27.32 | 1.92 | 28 | 2.24 | 2.56 | 37.5 |
| 1 | 1067 | 4.87 | 34.653 | 27.43 | 2.21 | 31 | 2.28 | 2.48 | 38.6 |
| 1 | 1261 | 4.26 | 34.658 | 27.51 | 2.17 | 30 | 2.36 | 2.50 | 36.9 |
| 1 | 1455 | 3.80 | 34.706 | 27.59 | 2.41 | 33 | 2.38 | 2.43 | 38.5 |
| 1 | 1943 | 2.61 | 34.751 | 27.74 | 3.07 | 41 | 2.31 | 2.36 | 37.7 |
| 1 | 2434 | 2.04 | 34.747 | 27.78 | 3.48 | 46 | 2.17 | 2.34 | 38.3 |
| 1 | 2925 | 1.65 | 34.748 | 27.81 | 3.70 | 48 | 2.17 | 2.41 | 35.0 |
| 1 | 3417 | 1.38 | 34.734 | 27.82 | 3.96 | 51 | 2.10 | 2.28 | 35.9 |
| 1 | 3909 | 1.18 | 34.747 | 27.83 | 4.15 | 53 | 2.10 | 2.25 | 33.9 |
| 1 | 4402 | 1.22 | 34.745 | 27.84 | 4.29 | 55 | 2.01 | 2.17 | 36.3 |
| 1 | 4599 | 1.18 | 34.738 | 27.84 | 4.17 | 53 | 1.95 | 2.11 | 33.9 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 71/63 | 15/ 5/63 | 2035 H | 09 27 S | 109 51 E |

| SONIC DEPTH | AIR TEMP. WET | AIR TEMP. DRY | WIND DIR. | WIND SP. | ANEM. HEIGHT | CLOUD TYPE | CLOUD AMT. | VIS. | SEA DIR. | SEA AMT. | SWELL DIR. | SWELL AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 | WIRE ANGLES CAST2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1280 | 24.4 | 26.7 | 13 | 04 | 16 | 8 | 8 | 7 | 13 | 3 | 14 | 1 | 1008.5 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 28.29 | 34.229 | 21.73 | 4.59 | 105 | 0.12 | 0.32 | 00.3 |
| 1 | 24 | 28.28 | 34.214 | 21.72 | 4.61 | 105 | 0.12 | *** | 00.5 |
| 1 | 47 | 24.80 | 34.294 | 22.88 | 3.79 | 82 | 0.55 | 0.63 | 03.4 |
| 1 | 71 | 22.97 | 34.558 | 23.62 | 2.97 | 62 | 0.79 | *** | 08.5 |
| 1 | 94 | 21.12 | 34.554 | 24.13 | 2.94 | 59 | 0.98 | 1.04 | 10.9 |
| 1 | 118 | 18.34 | 34.578 | 24.88 | 2.72 | 52 | 1.12 | *** | 14.0 |
| 1 | 141 | 15.44 | 34.529 | 25.52 | 2.82 | 51 | 1.23 | *** | 16.8 |
| 1 | 187 | 12.91 | 34.563 | 26.09 | 2.48 | 42 | 1.51 | 1.32 | 21.3 |
| 1 | 234 | 11.10 | 34.638 | 26.49 | 2.22 | 36 | 1.58 | *** | 27.0 |
| 1 | 281 | 10.70 | 34.734 | 26.64 | 1.88 | 30 | 1.69 | 1.95 | 28.9 |
| 1 | 376 | 10.09 | 34.858 | 26.84 | 1.82 | 29 | 1.92 | *** | 28.6 |
| 1 | 470 | 8.85 | 34.801 | 27.02 | 1.74 | 27 | 1.94 | 2.21 | 31.3 |
| 1 | 660 | 7.75 | 34.783 | 27.16 | 1.52 | 23 | 2.29 | 2.38 | 34.4 |
| 1 | 851 | 5.85 | 34.675 | 27.33 | 1.92 | 28 | 2.18 | 2.41 | 35.3 |
| 1 | 1044 | 4.84 | 34.649 | 27.43 | 2.19 | 31 | 2.16 | 2.36 | 36.0 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 72/63 | 16/ 5/63 | 1840 H | 08 55 S | 105 01 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5852 | 24.4 | 27.8 | 11 | 04 | 16 | 5 | 4 | 8 | 11 | 2 | 13 | * | 1009.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 28.38 | 34.175 | 21.66 | 4.54 | 104 | 0.08 | 0.28 | 00.5 |
| 2 | 24 | 28.34 | 34.146 | 21.65 | 4.55 | 104 | 0.12 | *** | 00.4 |
| 2 | 47 | 28.29 | 34.158 | 21.68 | 4.59 | 105 | 0.13 | 0.28 | 00.3 |
| 2 | 71 | 25.11 | 34.564 | 22.99 | 4.19 | 92 | 0.31 | *** | 00.0 |
| 2 | 93 | 21.62 | 34.688 | 24.10 | 2.70 | 55 | 0.92 | 0.99 | 10.2 |
| 2 | 117 | 19.16 | 34.688 | 24.75 | 2.33 | 45 | 1.12 | *** | 13.9 |
| 2 | 140 | 16.50 | 34.658 | 25.38 | 2.46 | 45 | 1.27 | *** | 18.0 |
| 2 | 183 | 13.28 | 34.626 | 26.06 | 2.53 | 44 | 1.65 | 1.75 | 24.7 |
| 2 | 225 | 11.53 | 34.677 | 26.44 | 1.99 | 33 | 1.81 | *** | 24.3 |
| 2 | 266 | 10.85 | 34.728 | 26.61 | 1.79 | 29 | 1.86 | 1.94 | 30.2 |
| 2 | 357 | 10.33 | 34.859 | 26.80 | 1.76 | 28 | 1.89 | *** | 32.6 |
| 2 | 447 | 8.36 | 34.852 | 27.12 | 1.88 | 29 | 1.94 | 2.05 | 32.2 |
| 2 | 630 | 7.63 | 34.751 | 27.15 | 1.56 | 23 | 2.30 | 2.38 | 34.4 |
| 2 | 821 | 6.09 | 34.662 | 27.29 | 1.79 | 26 | 2.38 | 2.41 | 37.1 |
| 2 | 1016 | 5.04 | 34.650 | 27.41 | 2.05 | 29 | 2.31 | 2.36 | *** |
| 1 | 1287 | 4.33 | 34.708 | 27.54 | 2.16 | 30 | 2.41 | 2.43 | 39.8 |
| 1 | 1483 | 3.82 | 34.734 | 27.61 | 2.38 | 33 | 2.40 | 2.43 | 39.8 |
| 1 | 1974 | 2.74 | 34.757 | 27.73 | 3.03 | 40 | 2.29 | 2.36 | 36.1 |
| 1 | 2468 | 2.05 | 34.739 | 27.78 | 3.51 | 46 | 2.27 | 2.34 | 35.5 |
| 1 | 2963 | 1.72 | 34.728 | 27.79 | 3.82 | 50 | 2.17 | 2.24 | 36.5 |
| 1 | 3461 | 1.43 | 34.718 | 27.81 | 4.03 | 52 | 2.03 | 2.18 | 35.5 |
| 1 | 3958 | 1.27 | 34.715 | 27.82 | 4.23 | 54 | 2.10 | 2.16 | 36.7 |
| 1 | 4454 | 1.14 | 34.714 | 27.82 | 4.48 | 57 | 2.01 | 2.17 | 35.3 |
| 1 | 4952 | 1.20 | 34.714 | 27.82 | 4.41 | 57 | 1.94 | 2.12 | 36.3 |
| 1 | 5450 | 1.24 | 34.730 | 27.83 | 4.53 | 58 | 2.07 | 2.16 | 35.1 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 73/63 | 25/ 5/63 | 0935 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 30.0 | 25.6 | 99 | * | 16 | * | * | 8 | 00 | * | 12 | 1 | 1006.8 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 28.20 | 33.968 | 21.56 | 4.56 | 104 | 0.07 | 0.45 | 00.4 |
| 2 | 25 | 27.89 | 34.073 | 21.74 | 4.55 | 103 | 0.07 | *** | 00.5 |
| 2 | 49 | 24.83 | 33.743 | 22.46 | 4.30 | 92 | 0.32 | 0.41 | 00.7 |
| 2 | 74 | 22.46 | 34.080 | 23.40 | 3.50 | 72 | 0.66 | *** | 06.1 |
| 2 | 98 | 19.83 | 34.592 | 24.51 | 2.70 | 53 | 0.99 | 1.01 | 08.7 |
| 2 | 123 | 17.37 | 34.541 | 25.09 | 2.73 | 51 | 1.27 | *** | 16.0 |
| 2 | 147 | 15.16 | 34.573 | 25.62 | 2.57 | 46 | 1.30 | *** | 18.3 |
| 2 | 197 | 12.33 | 34.641 | 26.26 | 2.19 | 37 | 1.66 | 1.72 | 24.6 |
| 2 | 246 | 11.18 | 34.745 | 26.56 | 1.82 | 30 | 1.92 | *** | 28.0 |
| 2 | 295 | 10.75 | 34.835 | 26.71 | 1.67 | 27 | 1.79 | 1.91 | 29.4 |
| 2 | 394 | 9.88 | 34.903 | 26.91 | 1.80 | 29 | 2.08 | *** | 30.5 |
| 2 | 492 | 8.99 | 34.821 | 27.00 | 2.02 | 32 | 1.89 | 2.21 | 31.8 |
| 2 | 689 | 7.07 | 34.701 | 27.19 | 1.75 | 26 | 2.28 | 2.43 | 35.8 |
| 2 | 887 | 5.71 | 34.687 | 27.36 | 1.87 | 27 | 2.45 | 2.60 | 38.2 |
| 2 | 1084 | 5.07 | 34.708 | 27.45 | 1.96 | 28 | 2.40 | 2.60 | 35.9 |
| 1 | 1283 | 4.67 | 34.777 | 27.55 | 1.97 | 28 | 2.41 | 2.63 | 36.3 |
| 1 | 1480 | 3.94 | 34.763 | 27.62 | 2.36 | 32 | 2.24 | 2.50 | 35.2 |
| 1 | 1972 | 2.69 | 34.760 | 27.74 | 3.04 | 41 | 2.23 | 2.35 | 35.2 |
| 1 | 2466 | 2.10 | 34.787 | 27.81 | 3.41 | 45 | 2.21 | 2.29 | 35.9 |
| 1 | 2961 | 1.73 | 34.749 | 27.81 | 3.63 | 47 | 2.23 | 2.38 | 38.2 |
| 1 | 3458 | 1.45 | 34.732 | 27.82 | 3.96 | 51 | 2.18 | 2.31 | 33.8 |
| 1 | 3956 | 1.19 | 34.731 | 27.83 | 4.27 | 55 | 2.11 | 2.31 | 33.3 |
| 1 | 4452 | 1.18 | 34.727 | 27.83 | 4.34 | 56 | 2.08 | 2.21 | 33.3 |
| 1 | 4950 | 1.19 | 34.731 | 27.83 | 4.47 | 57 | 2.08 | 2.15 | 32.5 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 74/63 | 26/ 5/63 | 1240 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 23.3 | 31.1 | 05 | 01 | 16 | 2 | 6 | 8 | * | * | 21 | 2 | 1005.5 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 27.59 | 32.933 | 20.99 | *** | *** | *** | *** | *** |
| 1 | 23 | 27.53 | 34.186 | 21.94 | *** | *** | *** | *** | *** |
| 1 | 45 | 23.60 | 33.474 | 22.62 | *** | *** | *** | *** | *** |
| 1 | 68 | 23.32 | 34.208 | 23.25 | *** | *** | *** | *** | *** |
| 1 | 90 | 17.92 | 34.549 | 24.96 | *** | *** | *** | *** | *** |
| 1 | 113 | 15.96 | 34.563 | 25.43 | *** | *** | *** | *** | *** |
| 1 | 135 | 13.53 | 34.561 | 25.96 | *** | *** | *** | *** | *** |
| 1 | 181 | 12.65 | 34.558 | 26.13 | *** | *** | *** | *** | *** |
| 1 | 229 | 11.68 | 34.577 | 26.34 | *** | *** | *** | *** | *** |
| 1 | 275 | 10.84 | 34.647 | 26.54 | *** | *** | *** | *** | *** |
| 1 | 370 | 9.87 | 34.776 | 26.81 | *** | *** | *** | *** | *** |
| 1 | 466 | 8.50 | 34.754 | 27.02 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 75/63 | 26/ 5/63 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4984 | 23.9 | 26.7 | * | * | 16 | 1 | 2 | 7 | * | * | 22 | 1 | 1008.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-t | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 27.28 | 32.857 | 21.03 | *** | *** | *** | *** | *** |
| 1 | 25 | 27.90 | 34.041 | 21.72 | *** | *** | *** | *** | *** |
| 1 | 50 | 28.34 | 34.430 | 21.87 | *** | *** | *** | *** | *** |
| 1 | 75 | 25.27 | 34.472 | 22.87 | *** | *** | *** | *** | *** |
| 1 | 100 | 22.21 | 34.429 | 23.74 | *** | *** | *** | *** | *** |
| 1 | 125 | 20.06 | 34.543 | 24.41 | *** | *** | *** | *** | *** |
| 1 | 150 | 17.70 | 34.487 | 24.97 | *** | *** | *** | *** | *** |
| 1 | 200 | 14.66 | 34.556 | 25.72 | *** | *** | *** | *** | *** |
| 1 | 250 | 12.21 | 34.538 | 26.20 | *** | *** | *** | *** | *** |
| 1 | 300 | 11.25 | 34.555 | 26.40 | *** | *** | *** | *** | *** |
| 1 | 400 | 9.33 | 34.631 | 26.79 | *** | *** | *** | *** | *** |
| 1 | 500 | 9.17 | 34.785 | 26.94 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 76/63 | 27/ 5/63 | 0750 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 23.9 | 26.1 | 19 | 04 | 16 | 6 | 8 | 7 | 20 | 2 | 21 | 1 | 1008.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 27.51 | 33.213 | 21.22 | 4.88 | 109 | 0.15 | 0.34 | 00.2 |
| 2 | 25 | 27.85 | 33.934 | 21.65 | 4.80 | 109 | 0.15 | *** | 00.4 |
| 2 | 49 | 27.32 | 34.259 | 22.07 | 4.53 | 102 | 0.34 | 0.47 | 00.3 |
| 2 | 74 | 25.52 | 34.435 | 22.77 | 3.46 | 76 | 0.68 | *** | 04.6 |
| 2 | 98 | *** | 34.560 | *** | 3.10 | *** | 0.87 | 1.04 | 08.3 |
| 2 | 123 | 20.97 | 34.534 | 24.18 | 3.00 | 60 | 1.05 | *** | 11.5 |
| 2 | 147 | 18.51 | 34.626 | 24.87 | 2.81 | 54 | 1.16 | *** | 15.2 |
| 2 | 197 | 14.65 | 34.582 | 25.74 | 2.81 | 50 | 1.51 | 1.58 | 19.7 |
| 2 | 247 | 12.75 | 34.560 | 26.12 | 2.70 | 46 | 1.75 | *** | 23.0 |
| 2 | 297 | 11.67 | 34.583 | 26.34 | 2.46 | 41 | 1.78 | 1.91 | 27.9 |
| 2 | 396 | 9.86 | 34.661 | 26.73 | 2.48 | 40 | 2.03 | *** | 28.3 |
| 2 | 496 | 8.47 | 34.667 | 26.96 | 2.37 | 37 | 2.03 | 2.16 | 32.5 |
| 2 | 695 | 6.59 | 34.644 | 27.21 | 2.13 | 31 | 2.36 | 2.44 | 35.2 |
| 2 | 893 | 5.50 | 34.626 | 27.34 | 2.28 | 33 | 2.48 | 2.62 | 37.4 |
| 2 | 1091 | 4.64 | 34.633 | 27.44 | 2.38 | 33 | 2.50 | 2.53 | 37.4 |
| 1 | 1284 | 4.09 | 34.684 | 27.54 | 2.39 | 33 | 2.44 | 2.61 | 38.7 |
| 1 | 1483 | 3.63 | 34.708 | 27.61 | 2.66 | 36 | 2.42 | 2.50 | 37.4 |
| 1 | 1978 | 2.61 | 34.752 | 27.74 | 3.29 | 44 | 2.25 | 2.34 | 36.1 |
| 1 | 2474 | 2.03 | 34.752 | 27.79 | 3.73 | 49 | 2.34 | 2.57 | 34.7 |
| 1 | 2971 | 1.63 | 34.747 | 27.82 | 3.93 | 51 | 2.29 | 2.38 | 35.7 |
| 1 | 3468 | 1.38 | 34.745 | 27.83 | 4.31 | 56 | 2.19 | 2.36 | 33.4 |
| 1 | 3965 | 1.22 | 34.734 | 27.83 | 4.51 | 58 | 2.15 | 2.29 | 34.8 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 77/63 | 27/ 5/63 | 2000 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 23.3 | 26.1 | 15 | 04 | 16 | 6 | 6 | 8 | 20 | 3 | 15 | 1 | 1008.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 28.03 | 34.005 | 21.65 | *** | *** | *** | *** | *** |
| 1 | 25 | 27.91 | 33.994 | 21.68 | *** | *** | *** | *** | *** |
| 1 | 50 | 27.90 | 33.986 | 21.68 | *** | *** | *** | *** | *** |
| 1 | 75 | 25.16 | 34.401 | 22.85 | *** | *** | *** | *** | *** |
| 1 | 100 | 23.70 | 34.620 | 23.46 | *** | *** | *** | *** | *** |
| 1 | 125 | 20.38 | 34.478 | 24.28 | *** | *** | *** | *** | *** |
| 1 | 150 | 18.77 | 34.601 | 24.79 | *** | *** | *** | *** | *** |
| 1 | 200 | 15.36 | 34.732 | 25.70 | *** | *** | *** | *** | *** |
| 1 | 250 | 13.29 | 34.723 | 26.13 | *** | *** | *** | *** | *** |
| 1 | 300 | 11.56 | 34.692 | 26.45 | *** | *** | *** | *** | *** |
| 1 | 400 | 9.78 | 34.677 | 26.75 | *** | *** | *** | *** | *** |
| 1 | 500 | 8.68 | 34.664 | 26.92 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 78/63 | 28/ 5/63 | 0800 H | 15 30 S | 110 04 E |

| SONIC DEPTH | AIR TEMP. WET | AIR TEMP. DRY | WIND DIR. | WIND SP. | ANEM. HEIGHT | CLOUD TYPE | CLOUD AMT. | VIS. | SEA DIR. | SEA AMT. | SWELL DIR. | SWELL AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 | WIRE ANGLES CAST2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 21.7 | 25.0 | 17 | 03 | 16 | 6 | 8 | 8 | 17 | 2 | 20 | 1 | 1008.5 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 27.49 | 34.440 | 22.15 | 4.73 | 107 | 0.14 | 0.33 | 00.4 |
| 2 | 25 | 27.42 | 34.434 | 22.17 | 4.78 | 108 | 0.15 | *** | 00.4 |
| 2 | 49 | 27.41 | 34.432 | 22.17 | 4.73 | 107 | 0.15 | 0.30 | 00.2 |
| 2 | 74 | 24.76 | 34.759 | 23.24 | 4.66 | 101 | 0.37 | *** | 00.0 |
| 2 | 98 | 22.27 | 34.796 | 24.00 | 3.62 | 75 | 0.68 | 0.86 | 05.0 |
| 2 | 123 | 20.36 | 34.699 | 24.45 | 2.82 | 56 | 1.03 | *** | 10.4 |
| 2 | 147 | 18.66 | 34.822 | 24.98 | 2.78 | 54 | 1.03 | *** | 11.9 |
| 2 | 197 | 16.08 | 34.950 | 25.70 | 2.88 | 53 | 1.23 | 1.42 | 13.9 |
| 2 | 247 | 14.01 | 34.954 | 26.16 | 2.93 | 51 | 1.37 | *** | 15.9 |
| 2 | 296 | 12.78 | 34.927 | 26.39 | 3.04 | 52 | 1.39 | 1.52 | 16.7 |
| 2 | 395 | 10.63 | 34.906 | 26.78 | 4.57 | 75 | 1.25 | *** | 15.0 |
| 2 | 495 | 8.67 | 34.695 | 26.95 | 3.71 | 58 | 1.71 | 1.75 | 23.5 |
| 2 | 694 | 6.85 | 34.695 | 27.22 | 2.22 | 33 | 2.22 | 2.29 | 34.3 |
| 2 | 893 | 5.65 | 34.648 | 27.34 | 2.01 | 29 | 2.54 | 2.50 | 36.6 |
| 2 | 1091 | 4.87 | 34.638 | 27.42 | 2.13 | 30 | 2.41 | 2.49 | 37.6 |
| 1 | 1287 | 4.19 | 34.648 | 27.50 | 2.37 | 33 | 2.50 | 2.45 | 39.6 |
| 1 | 1484 | 3.68 | 34.672 | 27.58 | 2.71 | 37 | 2.44 | 2.44 | 38.6 |
| 1 | 1978 | 2.54 | 34.727 | 27.73 | 3.15 | 42 | 2.41 | 2.40 | 36.4 |
| 1 | 2472 | 2.08 | 34.741 | 27.78 | 3.59 | 47 | 2.27 | 2.36 | 38.6 |
| 1 | 2969 | 1.71 | 34.733 | 27.80 | 3.95 | 51 | 2.27 | 2.30 | 36.2 |
| 1 | 3467 | 1.43 | 34.725 | 27.81 | 4.08 | 53 | 2.22 | 2.30 | 33.9 |
| 1 | 3966 | 1.24 | 34.720 | 27.82 | 4.46 | 57 | 2.18 | 2.21 | 35.8 |
| 1 | 4464 | 1.23 | 34.743 | 27.84 | 4.56 | 59 | 2.16 | 2.16 | 33.9 |
| 1 | 4962 | 1.20 | 34.724 | 27.83 | 4.64 | 60 | 2.15 | 2.22 | 36.6 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 79/63 | 28/ 5/63 | 1945 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 20.6 | 24.4 | * | 01 | 16 | 5 | 6 | 8 | 00 | 0 | 21 | 1 | 1009.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 27.18 | 34.475 | 22.27 | *** | *** | *** | *** | *** |
| 1 | 25 | 27.00 | 34.555 | 22.39 | *** | *** | *** | *** | *** |
| 1 | 50 | 25.38 | 34.736 | 23.04 | *** | *** | *** | *** | *** |
| 1 | 75 | 23.16 | 34.822 | 23.76 | *** | *** | *** | *** | *** |
| 1 | 100 | 22.03 | 35.057 | 24.26 | *** | *** | *** | *** | *** |
| 1 | 125 | 20.39 | 35.029 | 24.69 | *** | *** | *** | *** | *** |
| 1 | 150 | 19.16 | 35.078 | 25.05 | *** | *** | *** | *** | *** |
| 1 | 200 | 16.85 | 35.091 | 25.63 | *** | *** | *** | *** | *** |
| 1 | 250 | 15.13 | 35.185 | 26.10 | *** | *** | *** | *** | *** |
| 1 | 300 | 13.19 | 35.143 | 26.48 | *** | *** | *** | *** | *** |
| 1 | 400 | 10.62 | 34.912 | 26.79 | *** | *** | *** | *** | *** |
| 1 | 500 | 8.91 | 34.727 | 26.93 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 80/63 | 29/ 5/63 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 20.0 | 23.9 | * | 01 | 16 | 6 | 7 | 8 | * | * | 20 | 1 | 1009.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 27.01 | 34.704 | 22.50 | 4.63 | 104 | 0.12 | 0.34 | 00.3 |
| 2 | 25 | 26.97 | 34.702 | 22.51 | 4.65 | 104 | 0.12 | *** | 00.2 |
| 2 | 50 | 26.96 | 34.704 | 22.52 | 4.68 | 105 | 0.13 | 0.34 | 00.1 |
| 2 | 75 | 26.96 | 34.708 | 22.52 | 4.68 | 105 | 0.12 | *** | 00.0 |
| 2 | 99 | 23.91 | 34.552 | 23.34 | 3.89 | 83 | 0.45 | 0.71 | 01.2 |
| 2 | 124 | 21.29 | 34.511 | 24.06 | 3.08 | 62 | 0.86 | *** | 08.2 |
| 2 | 149 | 19.07 | 34.512 | 24.64 | 2.89 | 56 | 0.97 | *** | 13.0 |
| 2 | 198 | 15.36 | 34.624 | 25.62 | 2.75 | 50 | 1.28 | 1.51 | 17.4 |
| 2 | 297 | 14.32 | 35.343 | 26.40 | 4.23 | 75 | 0.80 | 1.03 | 08.2 |
| 2 | 395 | 10.70 | 34.917 | 26.78 | 4.43 | 73 | 1.14 | *** | 13.8 |
| 2 | 495 | 8.60 | 34.687 | 26.95 | 4.33 | 67 | 1.42 | 1.69 | 18.0 |
| 2 | 693 | 6.54 | 34.619 | 27.20 | 2.48 | 37 | 2.14 | 2.48 | 32.9 |
| 2 | 891 | 5.56 | 34.641 | 27.34 | 2.08 | 30 | 2.37 | 2.61 | 36.4 |
| 2 | 1090 | 4.83 | 34.640 | 27.43 | 2.21 | 31 | 2.35 | 2.71 | 38.2 |
| 1 | 1281 | 4.17 | 34.652 | 27.51 | 2.44 | 34 | 2.35 | 2.62 | 38.2 |
| 1 | 1479 | 3.59 | 34.672 | 27.58 | 2.82 | 38 | 2.34 | 2.56 | 33.6 |
| 1 | 1975 | 2.55 | 34.724 | 27.72 | 3.22 | 43 | 1.27 | 2.50 | 33.9 |
| 1 | 2472 | 2.03 | 34.737 | 27.78 | 3.53 | 46 | 2.16 | 2.45 | 35.4 |
| 1 | 2968 | 1.70 | 34.731 | 27.80 | 3.89 | 51 | 2.15 | 2.42 | 33.9 |
| 1 | 3465 | 1.37 | 34.727 | 27.82 | 4.19 | 54 | 2.11 | 2.42 | 34.5 |
| 1 | 3963 | 1.26 | 34.723 | 27.82 | 4.41 | 57 | 2.04 | 2.29 | 34.7 |
| 1 | 4462 | 1.19 | 34.721 | 27.83 | 4.47 | 57 | 2.04 | 2.37 | 35.8 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| OM 2/ 81/63 | 29/ 5/63 | 1945 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 21.1 | 24.4 | * | 01 | 16 | * | * | 8 | 00 | 0 | 21 | 1 | 1008.6 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 26.33 | 34.900 | 22.87 | *** | *** | *** | *** | *** |
| 1 | 24 | 26.30 | 34.902 | 22.88 | *** | *** | *** | *** | *** |
| 1 | 47 | 26.18 | 34.963 | 22.96 | *** | *** | *** | *** | *** |
| 1 | 71 | 25.68 | 34.905 | 23.07 | *** | *** | *** | *** | *** |
| 1 | 93 | 23.01 | 34.935 | 23.89 | *** | *** | *** | *** | *** |
| 1 | 140 | 21.16 | 35.037 | 24.49 | *** | *** | *** | *** | *** |
| 1 | 187 | 18.62 | 35.107 | 25.21 | *** | *** | *** | *** | *** |
| 1 | 280 | 16.47 | 35.493 | 26.03 | *** | *** | *** | *** | *** |
| 1 | 469 | 9.82 | 34.831 | 26.87 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 82/63 | 30/ 5/63 | 0800 H | 21 30 S | 110 08 E |

| SONIC DEPTH | AIR TEMP. WET | AIR TEMP. DRY | WIND DIR. | WIND SP. | ANEM. HEIGHT | CLOUD TYPE | CLOUD AMT. | VIS. | SEA DIR. | SEA AMT. | SWELL DIR. | SWELL AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 | WIRE ANGLES CAST2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 20.6 | 22.2 | 27 | 04 | 16 | 6 | 3 | 8 | 27 | 2 | 25 | 1 | 1008.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 25.42 | 34.956 | 23.19 | 4.71 | 103 | 0.13 | 0.35 | 00.2 |
| 2 | 25 | 25.41 | 34.960 | 23.20 | 4.73 | 104 | 0.15 | *** | 00.3 |
| 2 | 49 | 24.88 | 35.067 | 23.44 | 4.85 | 105 | 0.19 | 0.41 | 00.1 |
| 2 | 74 | 24.63 | 35.085 | 23.53 | 4.85 | 105 | 0.19 | *** | 00.0 |
| 2 | 98 | 22.25 | 35.114 | 24.25 | 4.13 | 86 | 0.50 | 0.63 | 01.8 |
| 2 | 147 | 20.66 | 35.340 | 24.86 | 3.93 | 79 | 0.57 | *** | 03.6 |
| 2 | 196 | 18.14 | 35.296 | 25.47 | 3.54 | 68 | 0.83 | 0.98 | 08.2 |
| 2 | 295 | 14.04 | 35.207 | 26.35 | 3.82 | 67 | 1.00 | 1.11 | 12.1 |
| 2 | 492 | 9.41 | 34.777 | 26.89 | 4.54 | 72 | 1.27 | 1.37 | 18.8 |
| 2 | 689 | 6.28 | *** | *** | 3.71 | *** | 1.97 | 2.03 | 33.6 |
| 2 | 886 | 5.33 | 34.615 | 27.35 | 2.47 | 35 | 2.36 | 2.45 | 36.8 |
| 2 | 1083 | 4.58 | 34.630 | 27.45 | 2.54 | 36 | 2.34 | 2.15 | 39.6 |
| 1 | 1288 | 4.07 | 34.668 | 27.53 | 2.62 | 36 | 2.45 | 2.53 | 39.6 |
| 1 | 1486 | 3.55 | 34.674 | 27.59 | 2.97 | 41 | 2.45 | 2.50 | 37.3 |
| 1 | 1982 | 2.47 | 34.724 | 27.73 | 2.72 | 36 | 2.31 | 2.40 | 37.8 |
| 1 | 2476 | 2.04 | 34.732 | 27.77 | 3.71 | 49 | 2.27 | 2.29 | 36.2 |
| 1 | 2971 | 1.68 | 34.760 | 27.82 | 4.05 | 53 | 2.24 | 2.27 | 35.0 |
| 1 | 3466 | 1.36 | 34.726 | 27.82 | 4.34 | 56 | 2.19 | 2.24 | 32.9 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 83/63 | 30/ 5/63 | 2000 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 18.9 | 21.7 | 24 | 05 | 16 | 6 | 4 | 7 | 24 | 3 | 25 | 4 | 1007.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 24.48 | 35.191 | 23.65 | *** | *** | *** | *** | *** |
| 1 | 21 | 24.43 | 35.144 | 23.63 | *** | *** | *** | *** | *** |
| 1 | 41 | 24.41 | 35.145 | 23.64 | *** | *** | *** | *** | *** |
| 1 | 62 | 24.39 | 35.146 | 23.65 | *** | *** | *** | *** | *** |
| 1 | 82 | 22.07 | 35.191 | 24.35 | *** | *** | *** | *** | *** |
| 1 | 123 | 20.94 | 35.419 | 24.84 | *** | *** | *** | *** | *** |
| 1 | 171 | 19.42 | 35.551 | 25.34 | *** | *** | *** | *** | *** |
| 1 | 257 | 16.51 | 35.731 | 26.20 | *** | *** | *** | *** | *** |
| 1 | 428 | 9.96 | 34.838 | 26.85 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 84/63 | 31/ 5/63 | 0755 H | 24 27 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 15.6 | 20.6 | 24 | 06 | 16 | 6 | 6 | 7 | 24 | 3 | 23 | 4 | 1008.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 22.87 | 35.345 | 24.24 | 4.88 | 103 | 0.14 | 0.45 | 00.8 |
| 2 | 25 | 22.83 | 35.349 | 24.26 | 4.90 | 103 | 0.11 | *** | 02.1 |
| 2 | 50 | 22.82 | 35.352 | 24.26 | 4.89 | 103 | 0.12 | 0.38 | 00.7 |
| 2 | 75 | 22.85 | 35.350 | 24.25 | 4.96 | 104 | 0.12 | *** | 00.2 |
| 2 | 100 | 22.35 | 35.656 | 24.63 | 5.10 | 106 | 0.18 | 0.38 | 00.3 |
| 2 | 150 | 19.66 | 35.686 | 25.39 | 4.67 | 93 | 0.33 | *** | 01.3 |
| 2 | 200 | 18.06 | 35.782 | 25.87 | 4.71 | 91 | 0.38 | 0.53 | 01.3 |
| 2 | 300 | 14.87 | 35.625 | 26.49 | 5.07 | 92 | 0.50 | 0.68 | 02.7 |
| 2 | 500 | 10.09 | 34.858 | 26.84 | 5.58 | 90 | 0.94 | 1.10 | 10.8 |
| 2 | 700 | 7.48 | 34.560 | 27.02 | 4.78 | 72 | 1.50 | 1.71 | 22.1 |
| 2 | 900 | 5.45 | 34.562 | 27.29 | 3.03 | 43 | 2.14 | 2.27 | 27.2 |
| 1 | 1090 | 4.73 | 34.621 | 27.42 | 2.62 | 37 | 2.24 | 2.37 | 37.1 |
| 1 | 1286 | 4.06 | 34.625 | 27.50 | 2.78 | 38 | 2.29 | 2.48 | 37.9 |
| 1 | 1483 | 3.39 | 34.635 | 27.58 | 3.24 | 44 | 2.24 | 2.34 | 37.9 |
| 1 | 1975 | 2.42 | 34.735 | 27.74 | 3.59 | 48 | 2.22 | 2.27 | 37.1 |
| 1 | 2467 | 2.02 | 34.735 | 27.78 | 3.81 | 50 | 2.10 | 1.92 | 33.1 |
| 1 | 2961 | 1.68 | 34.625 | 27.71 | 3.72 | 48 | 2.04 | 2.21 | 32.4 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 85/63 | 31/ 5/63 | 2000 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 16.1 | 20.0 | 25 | 05 | 16 | 6 | 6 | 8 | 25 | 3 | 24 | 4 | 1008.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 22.23 | 35.538 | 24.57 | *** | *** | *** | *** | *** |
| 1 | 25 | 22.24 | 35.534 | 24.57 | *** | *** | *** | *** | *** |
| 1 | 50 | 22.22 | 35.535 | 24.57 | *** | *** | *** | *** | *** |
| 1 | 75 | 21.77 | 35.686 | 24.81 | *** | *** | *** | *** | *** |
| 1 | 100 | 20.47 | 35.887 | 25.32 | *** | *** | *** | *** | *** |
| 1 | 149 | 19.34 | 35.773 | 25.54 | *** | *** | *** | *** | *** |
| 1 | 198 | 18.40 | 35.789 | 25.79 | *** | *** | *** | *** | *** |
| 1 | 297 | 16.35 | 35.777 | 26.28 | *** | *** | *** | *** | *** |
| 1 | 495 | 8.84 | 34.687 | 26.91 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 86/63 | 1/ 6/63 | 0800 H | 27 30 S | 110 30 E |

| SONIC DEPTH | AIR TEMP. WET | AIR TEMP. DRY | WIND DIR. | WIND SP. | ANEM. HEIGHT | CLOUD TYPE | CLOUD AMT. | VIS. | SEA DIR. | SEA AMT. | SWELL DIR. | SWELL AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 | WIRE ANGLES CAST2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 18.3 | 16.7 | 31 | 02 | 16 | 8 | 2 | 8 | 31 | 2 | 24 | 4 | 1007.0 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 21.90 | 35.368 | 24.54 | 4.91 | 101 | 0.20 | 0.45 | 00.2 |
| 2 | 25 | 21.81 | 35.373 | 24.56 | 5.01 | 103 | 0.19 | *** | 00.7 |
| 2 | 49 | 21.81 | 35.372 | 24.57 | 4.96 | 102 | 0.19 | 0.42 | 00.2 |
| 2 | 73 | 21.79 | 35.359 | 24.56 | 4.99 | 103 | 0.21 | *** | 32.3 |
| 2 | 97 | 20.42 | 35.434 | 24.99 | 4.12 | 83 | 0.45 | 0.60 | 03.0 |
| 2 | 146 | 19.45 | 35.694 | 25.45 | 4.66 | 92 | 0.33 | *** | 01.1 |
| 2 | 194 | 18.32 | 35.805 | 25.82 | 4.99 | 97 | 0.30 | 0.45 | 00.6 |
| 2 | 291 | 15.09 | 35.618 | 26.44 | 5.35 | 97 | 0.40 | 0.53 | 02.1 |
| 2 | 485 | 10.13 | 34.862 | 26.84 | 5.77 | 93 | 0.93 | 1.06 | 10.7 |
| 2 | 680 | 8.47 | 34.641 | 26.94 | 5.57 | 87 | 1.23 | 1.51 | 15.8 |
| 2 | 876 | 5.42 | 34.429 | 27.19 | 4.63 | 67 | 1.85 | 2.14 | 27.3 |
| 1 | 1055 | 4.35 | 34.498 | 27.37 | 4.24 | 59 | 2.16 | 2.34 | 34.1 |
| 1 | 1248 | 3.73 | 34.549 | 27.47 | 3.41 | 47 | 2.23 | 2.55 | 36.0 |
| 1 | 1442 | 3.23 | 34.593 | 27.56 | 3.55 | 48 | 2.17 | 2.36 | 37.1 |
| 1 | 1930 | 2.48 | 34.704 | 27.71 | 3.74 | 50 | 2.18 | 2.36 | 00.4 |
| 1 | 2420 | 2.07 | 34.731 | 27.77 | 3.89 | 51 | 2.10 | 2.41 | 35.8 |
| 1 | 2908 | 1.75 | 34.734 | 27.80 | 4.18 | 54 | 2.11 | 2.41 | 34.5 |
| 1 | 3400 | 1.52 | 34.731 | 27.81 | 4.29 | 56 | 2.08 | 2.24 | 33.1 |
| 1 | 3890 | 1.31 | 34.723 | 27.82 | 4.52 | 58 | 2.05 | 2.27 | 34.3 |
| 1 | 4380 | 1.21 | 34.731 | 27.83 | 4.57 | 59 | 1.98 | 2.11 | 34.7 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 87/63 | 1/ 6/63 | 2000 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *** | 13.9 | 17.8 | 22 | 05 | 16 | 6 | 4 | 7 | 22 | 3 | 26 | 4 | 999.5 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 20.72 | 35.696 | 25.11 | *** | *** | *** | *** | *** |
| 1 | 24 | 20.69 | 35.652 | 25.08 | *** | *** | *** | *** | *** |
| 1 | 47 | 20.45 | 35.669 | 25.16 | *** | *** | *** | *** | *** |
| 1 | 71 | 20.22 | 35.694 | 25.24 | *** | *** | *** | *** | *** |
| 1 | 93 | 19.10 | 35.816 | 25.63 | *** | *** | *** | *** | *** |
| 1 | 140 | 18.13 | 35.827 | 25.88 | *** | *** | *** | *** | *** |
| 1 | 188 | 16.57 | 35.746 | 26.20 | *** | *** | *** | *** | *** |
| 1 | 281 | 13.17 | 35.323 | 26.62 | *** | *** | *** | *** | *** |
| 1 | 473 | 9.42 | 34.737 | 26.86 | *** | *** | *** | *** | *** |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 88/63 | 2/ 6/63 | 0800 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5303 | 14.4 | 16.7 | 22 | 05 | 16 | 8 | * | 7 | 23 | 4 | 26 | 4 | 1003.4 | * | * |

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 18.79 | 35.864 | 25.75 | 5.52 | 108 | 0.33 | 0.45 | 00.5 |
| 2 | 25 | 18.71 | 35.881 | 25.78 | 5.45 | 106 | 0.30 | *** | 00.0 |
| 2 | 49 | 18.78 | 35.885 | 25.76 | 5.44 | 106 | 0.27 | 0.42 | 00.1 |
| 2 | 74 | 18.79 | 35.890 | 25.76 | 5.43 | 106 | 0.47 | *** | 00.0 |
| 2 | 98 | 17.20 | 35.785 | 26.08 | 5.63 | 107 | 0.76 | 0.80 | 00.0 |
| 2 | 147 | 14.30 | 35.470 | 26.50 | 5.64 | 101 | 0.57 | *** | 01.2 |
| 2 | 197 | 12.93 | 35.295 | 26.65 | 5.78 | 100 | 0.64 | 0.76 | 03.0 |
| 2 | 296 | 11.65 | 35.098 | 26.75 | 5.85 | 98 | 1.32 | 1.30 | 05.9 |
| 2 | 495 | 9.30 | 34.721 | 26.87 | 5.86 | 93 | 1.18 | 1.45 | 13.6 |
| 2 | 695 | 7.71 | 34.539 | 26.97 | 5.32 | 81 | 1.53 | 1.73 | 20.2 |
| 2 | 893 | 4.84 | 34.392 | 27.23 | 4.76 | 67 | 1.92 | 2.07 | 30.9 |
| 1 | 1027 | 3.92 | 34.439 | 27.37 | 4.20 | 58 | 2.03 | 2.34 | 33.0 |
| 1 | 1229 | 3.44 | 34.517 | 27.48 | 3.82 | 52 | 2.25 | 2.45 | 33.3 |
| 1 | 1410 | 3.15 | 34.601 | 27.57 | 3.57 | 48 | 2.40 | 2.48 | 33.5 |
| 1 | 1893 | 2.49 | 34.704 | 27.71 | 3.72 | 49 | 2.22 | 2.07 | 17.8 |
| 1 | 2375 | 2.01 | 34.732 | 27.77 | 3.94 | 52 | 2.24 | 2.36 | 43.4 |
| 1 | 2861 | 1.76 | 34.735 | 27.80 | *** | *** | 2.17 | 2.31 | 29.3 |
| 1 | 3352 | 1.51 | 34.733 | 27.81 | 4.34 | 56 | 2.04 | 2.29 | 33.1 |
| 1 | 3846 | 1.30 | 34.733 | 27.83 | 4.59 | 59 | 2.08 | 2.29 | 34.1 |
| 1 | 4339 | 1.18 | 34.721 | 27.83 | 4.79 | 61 | 2.12 | 2.24 | 36.5 |

# DATA

## PART 2

## PRIMARY PRODUCTION

## EXPLANATION OF HEADINGS

| Part 2 | Primary Production |
|---|---|
| STATION | Gives the station identification. For example, Dm2/55/63 signifies the 55th station worked from Diamantina in 1963, on her 2nd cruise for that year |
| DATE | Given as day/month/year |
| TIME | Given in Zone Time (Table 2, p.16) |
| LATITUDE<br>LONGITUDE | Given in degrees and minutes |
| INCUBATION METHOD | IN SITU 5: Incubation in situ<br><br>SIMULATED IN SITU 7: Incubation in a simulated in situ incubator using sunlight and blue glass filters<br><br>ARTIFICIAL CONSTANT LIGHT 0: Incubation in artificial constant light of 1100 ft candles<br><br>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

PRODUCTION B — The integrated rate of production per day under one square metre of sea surface from the surface to the depth given. For artificial constant light, the production per day is assumed to equal 10 times the hourly production

** — Indicates no data available

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 55/63 | 7/ 5/63 | 0820 H | 31 57 S | 111 50 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 22 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 | 122 | 14 | 14 | 108 | 04.00 | 00.07 | 00.00 |
| 25 | 118 | 7 | 7 | 111 | 04.00 | 00.07 | 00.02 |
| 50 | 169 | 21 | 21 | 148 | 04.00 | 00.09 | 00.04 |
| 75 | 35 | 13 | 13 | 22 | 04.00 | 00.01 | 00.05 |
| 100 | 26 | 32 | 32 | - 6 G | 04.00 | 00.00 | 00.05 |
| 150 | 8 | 15 | 15 | - 7 G | 04.00 | 00.00 | 00.05 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 55/63 | 7/ 5/63 | 1150 H | 31 57 S | 111 50 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU | NOON - SUNSET | NO. 15 | 9.59 MILLION | 22 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 | 301 | 51 B | 28 E | 273 | 00.50 | 01.40 | CC.CO |
| 12 | 335 | 30 | 30 | 305 | 00.50 | 01.56 | CO.02 |
| 28 | 241 | 15 | 15 | 226 | 00.50 | 01.16 | 00.04 |
| 43 | 174 | 24 | 24 | 150 | 00.50 | 00.77 | CC.05 |
| 60 | 188 | 41 | 41 | 147 | 00.50 | 00.75 | CO.07 |
| 77 | 151 | 31 | 31 | 120 | 00.50 | 00.61 | CO.08 |

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

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 56/63 | 8/ 5/63 | 0755 H | 32 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ART. CONST. LIGHT | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 227 | ** | 20 F | 207 | 04.00 | 00.13 | 00.00 |
| 25 | 341 | ** | 20 F | 321 | 04.00 | 00.21 | 00.04 |
| 50 | 252 | ** | 20 F | 232 | 04.00 | 00.15 | 00.09 |
| 75 | 282 | ** | 20 F | 262 | 04.00 | 00.17 | 00.13 |
| 100 | 10 | ** | 20 F | - 10 G | 04.00 | 00.00 | 00.15 |
| 150 | 30 | ** | 20 F | 10 | 04.00 | 00.01 | 00.15 |

F ARBITRARY DARK USED
G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 56/63 | 8/ 5/63 | 0755 H | 32 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 387 | 13 | 13 | 374 | 04.00 | 00.24 | 00.00 |
| 25 | 344 | 13 | 13 | 331 | 04.00 | 00.21 | 00.06 |
| 50 | 363 | 14 | 14 | 349 | 04.00 | 00.22 | 00.11 |
| 75 | 181 | 13 | 13 | 168 | 04.00 | 00.11 | 00.15 |
| 100 | 30 | 12 | 12 | 18 | 04.00 | 00.01 | 00.17 |
| 150 | 13 | 10 | 10 | 3 | 04.00 | 00.00 | 00.17 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 57/63 | 8/ 5/63 | 2005 H | 30 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGRCUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 115 | 30 | 30 | 85 | 04.00 | 00.05 | 00.00 |
| 25 | 103 | 25 | 25 | 78 | 04.00 | 00.05 | 00.01 |
| 50 | 131 | 25 | 25 | 106 | 04.00 | 00.07 | 00.03 |
| 75 | 55 | 14 | 14 | 41 | 04.00 | 00.03 | 00.04 |
| 100 | 33 | 15 | 15 | 18 | 04.00 | 00.01 | 00.05 |
| 150 | 17 | 7 | 7 | 10 | 04.00 | 00.01 | 00.05 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 58/63 | 9/ 5/63 | 0805 H | 29 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ART. CONST. LIGHT | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 181 | ** | 20 F | 161 | 04.00 | 00.10 | 00.00 |
| 25 | 195 | ** | 20 F | 175 | 04.00 | 00.11 | 00.03 |
| 50 | 205 | ** | 20 F | 185 | 04.00 | 00.12 | 00.06 |
| 75 | 69 | ** | 20 F | 49 | 04.00 | 00.03 | 00.07 |
| 100 | 94 | ** | 20 F | 74 | 04.00 | 00.05 | 00.08 |
| 150 | 30 | ** | 20 F | 10 | 04.00 | 00.01 | 00.10 |

F ARBITRARY DARK USED

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 27 58/63 | 9/ 5/63 | 0805 H | 29 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 277 | 18 | 18 | 259 | 04.00 | 00.17 | 00.00 |
| 25 | 327 | 20 | 20 | 307 | 04.00 | 00.20 | 00.05 |
| 50 | 268 | 5 | 5 | 263 | 04.00 | 00.17 | 00.09 |
| 75 | 42 | 5 | 5 | 37 | 04.00 | 00.02 | 00.12 |
| 100 | 145 | 15 | 15 | 130 | 04.00 | 00.08 | 00.13 |
| 150 | 6 | 11 | 11 | - 5 G | 04.00 | 00.00 | 00.15 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 59/63 | 9/ 5/63 | 2010 H | 27 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 97 | 22 | 22 | 75 | 04.00 | 00.05 | 00.00 |
| 25 | 101 | 29 | 29 | 72 | 04.00 | 00.05 | CC.01 |
| 50 | 105 | 23 | 23 | 82 | 04.00 | 00.05 | CC.03 |
| 75 | 33 | 12 | 12 | 21 | 04.00 | 00.01 | 00.03 |
| 100 | 21 | 9 | 9 | 12 | 04.00 | 00.01 | C0.04 |
| 150 | 14 | 25 | 25 | - 11 G | 04.00 | 00.00 | C0.04 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 27 60/63 | 10/ 5/63 | 0805 H | 26 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ART. CONST. LIGHT | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 198 | ** | 20 F | 178 | 04.00 | 00.11 | 00.00 |
| 25 | 278 | ** | 20 F | 258 | 04.00 | 00.17 | 00.04 |
| 50 | 210 | ** | 20 F | 190 | 04.00 | 00.12 | 00.07 |
| 75 | 152 | ** | 20 F | 132 | 04.00 | 00.08 | 00.10 |
| 100 | 38 | ** | 20 F | 18 | 04.00 | 00.01 | 00.11 |
| 150 | 49 | ** | 20 F | 29 | 04.00 | 00.02 | 00.12 |

** F ARBITRARY DARK USED

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 60/63 | 10/ 5/63 | 0805 H | 26 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 399 | 8 | 8 | 391 | 04.00 | 00.25 | 00.00 |
| 25 | 416 | 10 | 10 | 406 | 04.00 | 00.26 | 00.06 |
| 50 | 451 | 6 | 6 | 445 | 04.00 | 00.28 | 00.13 |
| 75 | 106 | 5 | 5 | 101 | 04.00 | 00.06 | 00.17 |
| 100 | 45 | 8 | 8 | 37 | 04.00 | 00.02 | 00.18 |
| 150 | 10 | 7 | 7 | 3 | 04.00 | 00.00 | 00.19 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 60/63 | 10/ 5/63 | 1210 H | 26 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU ? | NOON - SUNSET | NO. 15 | 9.59 MILLION | 13 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 | 467 | 74 B | 17 E | 450 | 00.50 | 02.30 | 00.00 |
| 12 | 505 | 17 | 17 | 488 | 00.50 | 02.50 | 00.03 |
| 24 | 437 | 19 | 19 | 418 | 00.50 | 02.14 | 00.06 |
| 42 | 181 | 16 | 16 | 165 | 00.50 | 00.84 | 00.08 |
| 53 | 153 | 24 | 24 | 129 | 00.50 | 00.66 | 00.09 |
| 73 | 141 | 12 | 12 | 129 | 00.50 | 00.66 | 00.10 |

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

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 61/63 | 10/ 5/63 | 2000 H | 24 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 162 | 27 | 27 | 135 | 04.00 | 00.09 | 00.00 |
| 25 | 139 | 27 | 27 | 112 | 04.00 | 00.07 | 00.02 |
| 50 | 171 | 25 | 25 | 146 | 04.00 | 00.09 | 00.04 |
| 75 | 56 | 13 | 13 | 43 | 04.00 | 00.03 | 00.06 |
| 100 | 46 | 12 | 12 | 34 | 04.00 | 00.02 | 00.06 |
| 150 | 4 | 21 | 21 | - 17 G | 04.00 | 00.00 | 00.07 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 62/63 | 11/ 5/63 | 0805 H | 23 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ART. CONST. LIGHT | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 166 | ** | 20 F | 146 | 04.25 | 00.09 | 00.00 |
| 25 | 193 | ** | 20 F | 173 | 04.25 | 00.10 | 00.02 |
| 50 | 230 | ** | 20 F | 210 | 04.25 | 00.13 | 00.05 |
| 75 | 104 | ** | 20 F | 84 | 04.25 | 00.05 | 00.08 |
| 100 | 19 | ** | 20 F - 1 G | | 04.25 | 00.00 | 00.08 |
| 150 | 15 | ** | 20 F - 5 G | | 04.25 | 00.00 | 00.08 |

F ARBITRARY DARK USED
G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 62/63 | 11/ 5/63 | 0805 H | 23 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 441 | 11 | 11 | 430 | 04.25 | 00.26 | CC.CO |
| 25 | 414 | 17 | 17 | 397 | 04.25 | 00.24 | 00.06 |
| 50 | 446 | 10 | 10 | 436 | 04.25 | 00.26 | 00.13 |
| 75 | 125 | 11 | 11 | 114 | 04.25 | 00.07 | CC.17 |
| 100 | 13 | 8 | 8 | 5 | 04.25 | 00.00 | C0.18 |
| 150 | 14 | 6 | 6 | 8 | 04.25 | 00.00 | C0.18 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 62/63 | 11/ 5/63 | 1220 H | 23 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU | NOON - SUNSET | NO. 15 | 9.59 MILLION | 13 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 | 328 | 40 | 40 | 288 | 00.50 | 01.47 | CC.CO |
| 12 | 255 | 27 | 27 | 228 | 00.50 | 01.17 | C0.02 |
| 27 | 255 | 17 | 17 | 238 | 00.50 | 01.22 | 00.03 |
| 53 | 154 | 19 | 19 | 135 | 00.50 | 00.69 | CC.C6 |
| 62 | 137 | 16 | 16 | 121 | 00.50 | 00.62 | CC.C6 |
| 73 | 111 | 16 | 16 | 95 | 00.50 | C0.49 | 00.07 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 63/63 | 11/ 5/63 | 2000 H | 21 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 70 | 17 | 17 | 53 | 04.00 | 00.03 | C0.00 |
| 25 | 100 | 21 | 21 | 79 | 04.00 | 00.05 | 00.01 |
| 50 | 102 | 20 | 20 | 82 | 04.00 | 00.05 | 00.02 |
| 75 | 150 | 18 | 18 | 132 | 04.00 | 00.08 | C0.04 |
| 100 | 12 | 12 | 12 | 0 | 04.00 | 00.00 | C0.05 |
| 150 | 4 | 24 | 24 | - 20 G | 04.00 | 00.00 | C0.05 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 64/63 | 12/ 5/63 | 0805 H | 20 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ART. CONST. LIGHT | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 199 | ** | 20 F | 179 | 04.00 | 00.11 | 00.00 |
| 25 | 351 | ** | 20 F | 331 | 04.00 | 00.21 | 00.04 |
| 50 | 310 | ** | 20 F | 290 | 04.00 | 00.19 | 00.09 |
| 75 | 210 | ** | 20 F | 190 | 04.00 | 00.12 | 00.13 |
| 100 | 29 | ** | 20 F | 9 | 04.00 | 00.01 | 00.15 |
| 150 | 8 | ** | 20 F - | 12 G | 04.00 | 00.00 | 00.15 |

F ARBITRARY DARK USED
G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 64/63 | 12/ 5/63 | 0805 H | 20 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 377 | 14 | 14 | 363 | 04.00 | 00.23 | C0.00 |
| 25 | 482 | 12 | 12 | 470 | 04.00 | 00.30 | C0.07 |
| 50 | 407 | 7 | 7 | 400 | 04.00 | 00.26 | C0.14 |
| 75 | 299 | 13 | 13 | 286 | 04.00 | 00.18 | C0.19 |
| 100 | 27 | 3 | 3 | 24 | 04.00 | 00.02 | 00.22 |
| 150 | 10 | 2 | 2 | 8 | 04.00 | 00.01 | C0.22 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 64/63 | 12/ 5/63 | 1210 H | 20 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU | NOON - SUNSET | NO. 15 | 9.59 MILLION | 13 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 | 167 | 92 B | 22 E | 145 | 00.50 | 00.74 | 00.00 |
| 16 | 187 | 27 | 27 | 160 | 00.50 | 00.82 | 00.01 |
| 26 | 275 | 26 | 26 | 249 | 00.50 | 01.27 | 00.02 |
| 34 | 203 | 15 | 15 | 188 | 00.50 | 00.96 | 00.03 |
| 56 | 146 | 17 | 17 | 129 | 00.50 | 00.66 | 00.05 |
| 72 | 103 | 27 | 27 | 76 | 00.50 | 00.39 | 00.06 |

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

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 65/63 | 12/ 5/63 | 1930 H | 18 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 85 | 24 | 24 | 61 | 04.00 | 00.04 | C0.00 |
| 25 | 72 | 28 | 28 | 44 | 04.00 | 00.03 | 00.01 |
| 50 | 91 | 21 | 21 | 70 | 04.00 | 00.04 | C0.C2 |
| 75 | 90 | 19 | 19 | 71 | 04.00 | 00.05 | CC.03 |
| 100 | 14 | 14 | 14 | 0 | 04.00 | 00.00 | C0.04 |
| 150 | 6 | 6 | 6 | 0 | 04.00 | 00.00 | C0.04 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 66/63 | 13/ 5/63 | 0800 H | 17 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 439 | 13 | 13 | 426 | 04.25 | 00.26 | 00.00 |
| 25 | 555 | 10 | 10 | 545 | 04.25 | 00.33 | 00.07 |
| 50 | 538 | 14 | 14 | 524 | 04.25 | 00.32 | 00.16 |
| 75 | 139 | 36 | 36 | 103 | 04.25 | 00.06 | 00.20 |
| 100 | 13 | 8 | 8 | 5 | 04.25 | 00.00 | 00.21 |
| 150 | 16 | 15 | 15 | 1 | 04.25 | 00.00 | 00.21 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 66/63 | 13/ 5/63 | 1215 H | 17 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU 7 | NOON - SUNSET | NO. 15 | 9.59 MILLION | 13 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 | 507 | 97 B | 31 E | 476 | 00.50 | 02.44 | 00.00 |
| 10 | 674 | 48 | 48 | 626 | 00.50 | 03.20 | 00.03 |
| 25 | 652 | 32 | 32 | 620 | 00.50 | 03.17 | 00.08 |
| 43 | 362 | 34 | 34 | 328 | 00.50 | 01.68 | 00.12 |
| 60 | 303 | 23 | 23 | 280 | 00.50 | 01.43 | 00.15 |
| 78 | 133 | 20 | 20 | 113 | 00.50 | 00.58 | 00.16 |

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

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 67/63 | 13/ 5/63 | 2000 H | 15 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 76 | 21 | 21 | 55 | 04.00 | 00.04 | 00.00 |
| 25 | 78 | 23 | 23 | 55 | 04.00 | 00.04 | 00.01 |
| 50 | 93 | 32 | 32 | 61 | 04.00 | 00.04 | 00.02 |
| 75 | 50 | 22 | 22 | 28 | 04.00 | 00.02 | 00.03 |
| 100 | 9 | 9 | 9 | 0 | 04.00 | 00.00 | 00.03 |
| 150 | 8 | 11 | 11 | - 3 G | 04.00 | 00.00 | 00.03 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 68/63 | 14/ 5/63 | 0800 H | 14 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 512 | 18 | 18 | 494 | 04.00 | 00.32 | C0.00 |
| 25 | 367 | 21 | 21 | 346 | 04.00 | 00.22 | C0.07 |
| 50 | 477 | 11 | 11 | 466 | 04.00 | 00.30 | C0.13 |
| 75 | 211 | 20 | 20 | 191 | 04.00 | 00.12 | 00.19 |
| 100 | 156 | 11 | 11 | 145 | 04.00 | 00.09 | 00.21 |
| 150 | 22 | 7 | 7 | 15 | 04.00 | 00.01 | C0.24 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 68/63 | 14/ 5/63 | 1220 H | 14 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU | NOON - SUNSET | NO. 15 | 9.59 MILLION | 13 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 | 294 | 73 B | 34 E | 260 | 00.50 | 01.33 | 00.00 |
| 18 | 737 | 46 | 46 | 691 | 00.50 | 03.54 | 00.04 |
| 29 | 244 | 40 | 40 | 204 | 00.50 | 01.04 | 00.07 |
| 49 | 377 | 39 | 39 | 338 | 00.50 | 01.73 | 00.10 |
| 61 | 185 | 22 | 22 | 163 | 00.50 | 00.83 | 00.11 |
| 71 | 332 | 26 | 26 | 306 | 00.50 | 01.57 | 00.12 |

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

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 69/63 | 14/ 5/63 | 2000 H | 12 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 91 | 26 | 26 | 65 | 04.00 | 00.04 | 00.00 |
| 25 | 110 | 24 | 24 | 86 | 04.00 | 00.06 | 00.01 |
| 50 | 108 | 21 | 21 | 87 | 04.00 | 00.06 | 00.03 |
| 75 | 96 | 12 | 12 | 84 | 04.00 | 00.05 | 00.04 |
| 100 | 48 | 10 | 10 | 38 | 04.00 | 00.02 | 00.05 |
| 150 | 13 | 18 | 18 | - 5 G | 04.00 | 00.00 | 00.06 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 70/63 | 15/ 5/63 | 0805 H | 11 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 905 | 25 | 25 | 880 | 04.00 | 00.56 | 00.00 |
| 25 | 1032 | 17 | 17 | 1015 | 04.00 | 00.65 | 00.15 |
| 50 | 671 | 79 B | 14 E | 657 | 04.00 | 00.42 | 00.29 |
| 75 | 42 | 11 | 11 | 31 | 04.00 | 00.02 | 00.34 |
| 100 | 10 | 9 | 9 | 1 | 04.00 | 00.00 | 00.34 |
| 150 | 27 | 10 | 10 | 17 | 04.00 | 00.01 | 00.35 |

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

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 71/63 | 15/ 5/63 | 2040 H | 09 27 S | 109 51 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 203 | 51 B | 22 E | 181 | 04.00 | 00.12 | 00.00 |
| 25 | 156 | 37 | 37 | 119 | 04.00 | 00.08 | 00.03 |
| 50 | 385 | 94 B | 22 E | 363 | 04.00 | 00.23 | 00.06 |
| 75 | 45 | 19 | 19 | 26 | 04.00 | 00.02 | 00.10 |
| 100 | 12 | 17 | 17 | - 5 G | 04.00 | 00.00 | 00.10 |
| 150 | 23 | 16 | 16 | 7 | 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 2/ 72/63 | 16/ 5/63 | 1845 H | 08 55 S | 105 01 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 15 | 9.59 MILLION | 13 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 | 159 | 35 | 35 | 124 | 04.00 | 00.08 | 00.00 |
| 25 | 108 | 30 | 30 | 78 | 04.00 | 00.05 | 00.02 |
| 50 | 139 | 48 | 48 | 91 | 04.00 | 00.06 | 00.03 |
| 75 | 94 | 56 B | 25 E | 69 | 04.00 | 00.04 | 00.04 |
| 100 | 24 | 4 | 4 | 20 | 04.00 | 00.01 | 00.05 |
| 150 | 13 | 10 | 10 | 3 | 04.00 | 00.00 | 00.05 |

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

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 73/63 | 25/ 5/63 | 1240 H | 09 00 S | 105 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| IN SITU 5 | NOON - SUNSET | NO. 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 | 538 | ** | 20 F | 518 | 00.50 | 02.65 | 00.00 |
| 17 | 961 | ** | 20 F | 941 | 00.50 | 04.82 | 00.06 |
| 32 | 761 | ** | 20 F | 741 | 00.50 | 03.79 | 00.13 |
| 42 | 708 | ** | 20 F | 688 | 00.50 | 03.52 | 00.16 |
| 55 | 267 | ** | 20 F | 247 | 00.50 | 01.26 | 00.20 |
| 61 | 152 | ** | 20 F | 132 | 00.50 | 00.68 | 00.20 |

F ARBITRARY DARK USED

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 73/63 | 25/ 5/63 | 1240 H | 09 00 S | 105 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU 7 | NOON - SUNSET | NO. 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 | 118 | 14 | 14 | 104 | 00.50 | 00.53 | 00.00 |
| 17 | 307 | 20 | 20 | 287 | 00.50 | 01.47 | 00.02 |
| 32 | 300 | 18 | 18 | 282 | 00.50 | 01.44 | 00.04 |
| 42 | 341 | 17 | 17 | 324 | 00.50 | 01.66 | 00.05 |
| 55 | 322 | 14 | 14 | 308 | 00.50 | 01.58 | 00.08 |
| 61 | 203 | 17 | 17 | 186 | 00.50 | 00.95 | 00.08 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 73/63 | 25/ 5/63 | 1340 H | 09 00 S | 105 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 420 | 18 | 18 | 402 | 04.00 | 00.26 | C0.00 |
| 25 | 482 | 28 | 28 | 454 | 04.00 | 00.29 | 00.07 |
| 50 | 657 | 23 | 23 | 634 | 04.00 | 00.41 | 00.16 |
| 75 | 75 | 20 | 20 | 55 | 04.00 | 00.04 | 00.21 |
| 100 | 13 | 12 | 12 | 1 | 04.00 | 00.00 | C0.22 |
| 150 | 103 | 11 | 11 | 92 | 04.00 | 00.06 | 00.23 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 74/63 | 26/ 5/63 | 1250 H | 09 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 2693 | 79 | 79 | 2614 | 04.00 | 01.67 | 00.00 |
| 25 | 3837 | 25 | 25 | 3812 | 04.00 | 02.44 | 00.51 |
| 50 | 276 | 21 | 21 | 255 | 04.00 | 00.16 | 00.84 |
| 75 | 65 | 31 | 31 | 34 | 04.00 | 00.02 | 00.86 |
| 100 | 16 | 21 | 21 | - 5 G | 04.00 | 00.00 | 00.86 |
| 150 | 19 | 24 | 24 | - 5 G | 04.00 | 00.00 | 00.86 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 75/63 | 26/ 5/63 | 2025 H | 11 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 543 | 99 B | 30 E | 513 | 04.00 | 00.33 | 00.00 |
| 25 | 2779 | 53 | 53 | 2726 | 04.00 | 01.74 | 00.26 |
| 50 | 432 | 17 | 17 | 415 | 04.00 | 00.27 | 00.51 |
| 75 | 65 | 18 | 18 | 47 | 04.00 | 00.03 | 00.55 |
| 100 | 20 | 31 | 31 | - 11 G | 04.00 | 00.00 | 00.55 |
| 150 | 31 | 31 | 31 | 0 | 04.00 | 00.00 | 00.55 |

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

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 76/63 | 27/ 5/63 | 0800 H | 12 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 2677 | 33 | 33 | 2644 | 04.00 | 01.69 | 00.00 |
| 25 | 1316 | 15 | 15 | 1301 | 04.00 | 00.83 | 00.32 |
| 50 | 540 | 22 | 22 | 518 | 04.00 | 00.33 | 00.46 |
| 75 | 33 | 11 | 11 | 22 | 04.00 | 00.01 | 00.50 |
| 100 | 15 | 9 | 9 | 6 | 04.00 | 00.00 | 00.50 |
| 150 | 3 | 9 | 9 | - 6 G | 04.00 | 00.00 | 00.50 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 76/63 | 27/ 5/63 | 1220 H | 12 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU 7 | NOON - SUNSET | NO. 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 | 1278 | 117 | 117 | 1161 | 00.50 | 05.94 | 00.00 |
| 15 | 1784 | 88 | 88 | 1696 | 00.50 | 08.68 | 00.11 |
| 25 | 816 | 39 | 39 | 777 | 00.50 | 03.98 | 00.17 |
| 36 | 710 | 35 | 35 | 675 | 00.50 | 03.46 | 00.21 |
| 47 | 472 | 25 | 25 | 447 | 00.50 | 02.29 | 00.25 |
| 60 | 477 | 22 | 22 | 455 | 00.50 | 02.33 | 00.28 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 77/63 | 27/ 5/63 | 1955 H | 14 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 112 | 41 | 41 | 71 | 04.00 | 00.05 | 00.00 |
| 25 | 109 | 41 | 41 | 68 | 04.00 | 00.04 | 00.01 |
| 50 | 104 | 35 | 35 | 69 | 04.00 | 00.04 | 00.02 |
| 75 | 86 | 26 | 26 | 60 | 04.00 | 00.04 | 00.03 |
| 100 | 11 | 13 | 13 | - 2 G | 04.00 | 00.00 | 00.04 |
| 150 | 8 | 15 | 15 | - 7 G | 04.00 | 00.00 | 00.04 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 78/63 | 28/ 5/63 | 0800 H | 15 30 S | 110 04 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 594 | 48 | 48 | 546 | 04.00 | 00.35 | 00.00 |
| 25 | 641 | 27 | 27 | 614 | 04.00 | 00.39 | 00.09 |
| 50 | 571 | 38 | 38 | 533 | 04.00 | 00.34 | 00.18 |
| 75 | 217 | 17 | 17 | 200 | 04.00 | 00.13 | 00.24 |
| 100 | 61 | 12 | 12 | 49 | 04.00 | 00.03 | 00.26 |
| 150 | 9 | 13 | 13 | - 4 G | 04.00 | 00.00 | 00.27 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 78/63 | 28/ 5/63 | 1215 H | 15 30 S | 110 04 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU 7 | NOON - SUNSET | NO. 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 | 448 | 163 B | 41 E | 407 | 00.50 | 02.08 | 00.00 |
| 12 | 680 | 52 | 52 | 628 | 00.50 | 03.21 | 00.03 |
| 28 | 591 | 49 | 49 | 542 | 00.50 | 02.77 | 00.08 |
| 42 | 347 | 58 B | 41 E | 306 | 00.50 | 01.57 | 00.11 |
| 59 | 160 | 45 | 45 | 115 | 00.50 | 00.59 | 00.13 |
| 73 | 187 | 19 | 19 | 168 | 00.50 | 00.86 | 00.14 |

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

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 79/63 | 28/ 5/63 | 1945 H | 17 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 143 | 65 B | 21 | 122 | 04.00 | 00.08 | 00.00 |
| 25 | 119 | 36 | 36 | 83 | 04.00 | 00.05 | 00.02 |
| 50 | 391 | 30 | 30 | 361 | 04.00 | 00.23 | 00.05 |
| 75 | 28 | 16 | 16 | 12 | 04.00 | 00.01 | 00.08 |
| 100 | 17 | 9 | 9 | 8 | 04.00 | 00.01 | 00.08 |
| 150 | 7 | 15 | 15 | - 8 G | 04.00 | 00.00 | 00.09 |

B ABERRANT VALUE, NOT USED
G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 80/63 | 29/ 5/63 | 0810 H | 18 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 547 | 8 | 8 | 539 | 04.00 | 00.34 | 00.00 |
| 25 | 574 | 32 | 32 | 542 | 04.00 | 00.35 | 00.09 |
| 50 | 560 | 21 | 21 | 539 | 04.00 | 00.34 | 00.17 |
| 75 | 395 | 37 | 37 | 358 | 04.00 | 00.23 | 00.24 |
| 100 | 36 | 14 | 14 | 22 | 04.00 | 00.01 | 00.27 |
| 150 | 8 | 15 | 15 | - 7 G | 04.00 | 00.00 | 00.28 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 80/63 | 29/ 5/63 | 1215 H | 18 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU 7 | NOON - SUNSET | NO. 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 | 846 | 4 | 4 | 842 | 00.50 | 04.31 | 00.00 |
| 17 | 598 | 40 | 40 | 558 | 00.50 | 02.86 | 00.06 |
| 31 | 619 | 27 | 27 | 592 | 00.50 | 03.03 | 00.10 |
| 43 | 482 | 24 | 24 | 458 | 00.50 | 02.34 | 00.13 |
| 62 | 225 | 26 | 26 | 199 | 00.50 | 01.02 | 00.17 |
| 70 | 154 | 26 | 26 | 128 | 00.50 | 00.66 | 00.17 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 81/63 | 29/ 5/63 | 1955 H | 20 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 105 | 32 | 32 | 73 | 04.00 | 00.05 | C0.00 |
| 25 | 90 | 46 | 46 | 44 | 04.00 | 00.03 | C0.01 |
| 50 | 88 | 28 | 28 | 60 | 04.00 | 00.04 | 00.02 |
| 75 | 145 | 26 | 26 | 119 | 04.00 | 00.08 | 00.03 |
| 100 | 11 | 12 | 12 | - 1 G | 04.00 | 00.00 | C0.04 |
| 150 | 11 | 11 | 11 | 0 | 04.00 | 00.00 | C0.04 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 82/63 | 30/ 5/63 | 0750 H | 21 30 S | 110 08 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 489 | 34 | 34 | 455 | 04.00 | 00.29 | C0.00 |
| 25 | 514 | 31 | 31 | 483 | 04.00 | 00.31 | C0.08 |
| 50 | 525 | 27 | 27 | 498 | 04.00 | 00.32 | 00.15 |
| 75 | 413 | 17 | 17 | 396 | 04.00 | 00.25 | C0.23 |
| 100 | 137 | 18 | 18 | 119 | 04.00 | 00.08 | C0.27 |
| 150 | 10 | 11 | 11 | - 1 G | 04.00 | 00.00 | C0.29 |

G NEGATIVE VALUE, ASSUMED ZERO

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 84/63 | 31/ 5/63 | 1210 H | 24 27 S | 109 59 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU 7 | NOON - SUNSET | NO. 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 | 1057 | 28 | 28 | 1029 | 00.50 | 05.27 | 00.00 |
| 7 | 1060 | 19 | 19 | 1041 | 00.50 | 05.33 | 00.04 |
| 20 | 808 | 18 | 18 | 790 | 00.50 | 04.04 | 00.10 |
| 37 | 568 | 25 | 25 | 543 | 00.50 | 02.78 | 00.16 |
| 55 | 297 | 22 | 22 | 275 | 00.50 | 01.41 | 00.19 |
| 70 | 208 | 38 | 38 | 170 | 00.50 | 00.87 | 00.21 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 83/63 | 30/ 5/63 | 2000 H | 23 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 206 | 27 | 27 | 179 | 04.00 | 00.11 | 00.00 |
| 25 | 208 | 43 | 43 | 165 | 04.00 | 00.11 | 00.03 |
| 50 | 196 | 30 | 30 | 166 | 04.00 | 00.11 | 00.06 |
| 75 | 197 | 28 | 28 | 169 | 04.00 | 00.11 | 00.08 |
| 100 | 40 | 16 | 16 | 24 | 04.00 | 00.02 | 00.10 |
| 150 | 167 | 33 | 33 | 134 | 04.00 | 00.09 | 00.13 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 84/63 | 31/ 5/63 | 0805 H | 24 27 S | 109 59 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 832 | 15 | 15 | 817 | 04.00 | 00.52 | 00.00 |
| 25 | 1032 | 15 | 15 | 1017 | 04.00 | 00.65 | 00.15 |
| 50 | 613 | 10 | 10 | 603 | 04.00 | 00.39 | 00.28 |
| 75 | 737 | 20 | 20 | 717 | 04.00 | 00.46 | 00.38 |
| 100 | 108 | 7 | 7 | 101 | 04.00 | 00.06 | 00.45 |
| 150 | 95 | 13 | 13 | 82 | 04.00 | 00.05 | 00.48 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 82/63 | 30/ 5/63 | 1210 H | 21 30 S | 110 08 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU 7 | NOON - SUNSET | NO. 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 | 457 | 42 | 42 | 415 | 00.50 | 02.12 | 00.00 |
| 16 | 451 | 56 B | 24 E | 427 | 00.50 | 02.19 | 00.03 |
| 31 | 402 | 25 | 25 | 377 | 00.50 | 01.93 | 00.07 |
| 45 | 419 | 21 | 21 | 398 | 00.50 | 02.04 | 00.09 |
| 62 | 230 | 15 | 15 | 215 | 00.50 | 01.10 | 00.12 |
| 71 | 133 | 20 | 20 | 113 | 00.50 | 00.58 | 00.13 |

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

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 85/63 | 31/ 5/63 | 2000 H | 26 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 213 | 20 | 20 | 193 | 04.00 | 00.12 | 00.00 |
| 25 | 209 | 31 | 31 | 178 | 04.00 | 00.11 | 00.03 |
| 50 | 177 | 17 | 17 | 160 | 04.00 | 00.10 | 00.06 |
| 75 | 300 | 21 | 21 | 279 | 04.00 | 00.18 | 00.09 |
| 100 | 37 | 11 | 11 | 26 | 04.00 | 00.02 | 00.12 |
| 150 | 74 | 16 | 16 | 58 | 04.00 | 00.04 | 00.13 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 86/63 | 1/ 6/63 | 0755 H | 27 30 S | 110 03 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 1566 | 17 | 17 | 1549 | 04.00 | 00.99 | 00.00 |
| 25 | 1568 | 30 | 30 | 1538 | 04.00 | 00.98 | 00.25 |
| 50 | 1329 | 16 | 16 | 1313 | 04.00 | 00.84 | C0.47 |
| 75 | 1542 | 21 | 21 | 1521 | 04.00 | 00.97 | 00.70 |
| 100 | 167 | 14 | 14 | 153 | 04.00 | 00.10 | 00.83 |
| 150 | 60 | 9 | 9 | 51 | 04.00 | 00.03 | C0.87 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 86/63 | 1/ 6/63 | 1225 H | 27 30 S | 110 03 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| SIMULATED IN SITU 7 | NOON - SUNSET | NO. 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 | 1307 | 24 | 24 | 1283 | 00.50 | 06.57 | 00.00 |
| 8 | 920 | 17 | 17 | 903 | 00.50 | 04.62 | C0.04 |
| 25 | 613 | 16 | 16 | 597 | 00.50 | 03.06 | C0.11 |
| 40 | 417 | 13 | 13 | 404 | 00.50 | 02.07 | 00.15 |
| 55 | 164 | 18 | 18 | 146 | 00.50 | 00.75 | 00.17 |
| 62 | 113 | 24 | 24 | 89 | 00.50 | 00.46 | C0.17 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 87/63 | 1/ 6/63 | 2005 H | 29 00 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 375 | 26 | 26 | 349 | 04.00 | 00.22 | 00.00 |
| 25 | 784 | 4 | 4 | 780 | 04.00 | 00.50 | 00.09 |
| 50 | 850 | 12 | 12 | 838 | 04.00 | 00.54 | 00.22 |
| 75 | 988 | 5 | 5 | 983 | 04.00 | 00.63 | 00.37 |
| 100 | 153 | 4 | 4 | 149 | 04.00 | 00.10 | 00.46 |
| 150 | 26 | 6 | 6 | 20 | 04.00 | 00.01 | 00.49 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 88/63 | 2/ 6/63 | 0810 H | 30 30 S | 110 00 E |

| INCUBATION METHOD | PERIOD | 14C STOCK | ACTIVITY CPM | BACKGROUND |
|---|---|---|---|---|
| ARTIFICIAL CONSTANT LIGHT 0 | 4 HOURS | NO. 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 | 810 | 18 | 18 | 792 | 04.00 | 00.51 | 00.00 |
| 25 | 837 | 9 | 9 | 828 | 04.00 | 00.53 | 00.13 |
| 50 | 752 | 16 | 16 | 736 | 04.00 | 00.47 | 00.26 |
| 75 | 253 | 10 | 10 | 243 | 04.00 | 00.16 | 00.33 |
| 100 | 117 | 10 | 10 | 107 | 04.00 | 00.07 | 00.36 |
| 150 | 14 | 2 | 2 | 12 | 04.00 | 00.01 | 00.38 |

# DATA

# PART 3

# PIGMENTS

## EXPLANATION OF HEADINGS

| Part 3 | Pigments |
|---|---|
| STATION | Gives the station identification. For example, Dm2/55/63 signifies the 55th station worked from Diamantina in 1963, on her 2nd 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<br>A B C | A and B given in $mg/m^3$<br>C given in $MSPU/m^3$ |
| ASTACIN<br>NON-ASTACIN | Given in $MSPU/m^3$ |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 55/63 | 7/ 5/63 | 0800 H | 31 57 S | 111 50 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.17 | 0.01 | 0.34 | 0.05 | 0.09 |
| 25 | 0.17 | 0.04 | 0.34 | 0.10 | 0.04 |
| 50 | 0.22 | 0.07 | 0.46 | 0.06 | 0.08 |
| 75 | 0.38 | 0.06 | 0.59 | 0.08 | 0.11 |
| 100 | 0.31 | 0.13 | 0.52 | 0.06 | 0.12 |
| 150 | 0.08 | 0.06 | 0.31 | 0.07 | 0.00 |



| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 56/63 | 8/ 5/63 | 0800 H | 32 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.11 | 0.00 | 0.41 | 0.03 | 0.02 |
| 25 | 0.20 | 0.05 | 0.21 | 0.05 | 0.07 |
| 50 | 0.22 | 0.07 | 0.42 | 0.07 | 0.04 |
| 75 | 0.26 | 0.05 | 0.45 | 0.08 | 0.06 |
| 100 | 0.34 | 0.13 | 0.41 | 0.03 | 0.14 |
| 150 | 0.14 | 0.08 | 0.49 | 0.07 | 0.04 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 57/63 | 8/ 5/63 | 2000 H | 30 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.15 | 0.05 | 0.32 | 0.03 | 0.05 |
| 25 | 0.16 | 0.05 | 0.37 | 0.05 | 0.03 |
| 50 | 0.19 | 0.08 | 0.47 | 0.06 | 0.05 |
| 75 | 0.22 | 0.09 | 0.30 | 0.03 | 0.07 |
| 100 | 0.33 | 0.14 | 0.48 | 0.02 | 0.15 |
| 150 | 0.08 | 0.05 | 0.17 | 0.01 | 0.04 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 58/63 | 9/ 5/63 | 0800 H | 29 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.13 | 0.01 | 0.34 | 0.03 | 0.02 |
| 25 | 0.25 | 0.12 | 0.86 | 0.10 | - 0.01 |
| 50 | 0.16 | 0.01 | 0.10 | 0.01 | 0.06 |
| 75 | 0.24 | 0.00 | 0.45 | 0.02 | 0.10 |
| 100 | 0.17 | 0.03 | 0.32 | 0.03 | 0.05 |
| 150 | 0.05 | 0.01 | 0.05 | 0.01 | 0.03 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 59/63 | 9/ 5/63 | 2000 H | 27 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.24 | 0.16 | 0.90 | 0.12 | - 0.02 |
| 25 | 0.17 | 0.06 | 0.57 | 0.07 | 0.01 |
| 50 | 0.23 | 0.12 | 0.75 | 0.07 | 0.02 |
| 75 | 0.50 | 0.19 | 0.88 | 0.09 | 0.09 |
| 100 | 0.27 | 0.09 | 0.85 | 0.07 | 0.03 |



| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 60/63 | 10/ 5/63 | 0800 H | 26 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.14 | 0.01 | 0.11 | 0.01 | 0.06 |
| 25 | 0.11 | 0.01 | 0.12 | 0.01 | 0.04 |
| 50 | 0.14 | 0.03 | 0.12 | 0.01 | 0.06 |
| 75 | 0.31 | 0.09 | 0.31 | 0.02 | 0.12 |
| 100 | 0.26 | 0.11 | 0.37 | 0.03 | 0.09 |
| 150 | 0.13 | 0.10 | 0.60 | 0.07 | 0.00 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 61/63 | 10/ 5/63 | 2000 H | 24 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.23 | 0.07 | 0.59 | 0.07 | 0.01 |
| 25 | 0.11 | 0.00 | 0.08 | 0.01 | 0.06 |
| 50 | 0.19 | 0.08 | 0.80 | 0.09 | 0.00 |
| 75 | 0.32 | 0.07 | 0.41 | 0.01 | 0.15 |
| 100 | 0.63 | 0.26 | 1.91 | 0.18 | 0.06 |
| 150 | 0.07 | 0.08 | 0.25 | 0.06 | 0.00 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 62/63 | 11/ 5/63 | 0800 H | 23 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.20 | 0.06 | 0.34 | 0.06 | 0.04 |
| 25 | 0.18 | 0.05 | 0.39 | 0.03 | 0.05 |
| 50 | 0.15 | 0.04 | 0.19 | 0.02 | 0.06 |
| 75 | 0.42 | 0.17 | 0.44 | 0.02 | 0.19 |
| 100 | 0.19 | 0.10 | 0.37 | 0.04 | 0.07 |
| 150 | 0.12 | 0.14 | 0.92 | 0.09 | 0.02 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 63/63 | 11/ 5/63 | 2000 H | 21 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.14 | 0.03 | 0.83 | 0.08 | - 0.01 |
| 25 | 0.20 | 0.08 | 0.55 | 0.10 | 0.00 |
| 50 | 0.23 | 0.12 | 0.67 | 0.11 | 0.00 |
| 75 | 0.38 | 0.10 | 0.88 | 0.10 | 0.06 |
| 100 | 0.24 | 0.26 | 1.23 | 0.12 | 0.06 |
| 150 | 0.19 | 0.16 | 0.99 | 0.12 | - 0.02 |



| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 64/63 | 12/ 5/63 | 0800 H | 20 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.18 | 0.04 | 0.37 | 0.04 | 0.07 |
| 25 | 0.09 | 0.01 | 0.06 | 0.01 | 0.06 |
| 50 | 0.22 | 0.07 | 0.93 | 0.09 | 0.00 |
| 75 | 0.37 | 0.09 | 0.99 | 0.08 | 0.07 |
| 100 | 0.25 | 0.15 | 0.52 | 0.03 | 0.09 |
| 150 | 0.14 | 0.09 | 0.64 | 0.09 | - 0.01 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 65/63 | 12/ 5/63 | 1920 H | 18 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.12 | 0.04 | 0.41 | 0.07 | 0.01 |
| 25 | 0.22 | 0.07 | 0.73 | 0.11 | 0.00 |
| 75 | 0.56 | 0.21 | 1.07 | 0.10 | 0.16 |
| 100 | 0.26 | 0.17 | 0.67 | 0.09 | 0.04 |
| 150 | 0.08 | 0.05 | 0.46 | 0.08 | - 0.01 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 66/63 | 13/ 5/63 | 0800 H | 17 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.15 | 0.05 | 0.26 | 0.03 | 0.06 |
| 25 | 0.23 | 0.08 | 0.39 | 0.08 | 0.01 |
| 50 | 0.21 | 0.05 | 0.44 | 0.06 | 0.04 |
| 75 | 0.46 | 0.16 | 0.55 | 0.07 | 0.14 |
| 100 | 0.33 | 0.18 | 0.57 | 0.06 | 0.12 |
| 150 | 0.09 | 0.04 | 0.50 | 0.07 | 0.00 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 67/63 | 13/ 5/63 | 2000 H | 15 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.12 | 0.02 | 0.12 | 0.04 | 0.03 |
| 25 | 0.10 | 0.02 | 0.12 | 0.03 | 0.05 |
| 50 | 0.24 | 0.06 | 0.35 | 0.02 | 0.09 |
| 75 | 0.45 | 0.16 | 0.44 | 0.01 | 0.23 |
| 100 | 0.23 | 0.13 | 0.57 | 0.03 | 0.11 |
| 150 | 0.04 | 0.05 | 0.22 | 0.02 | 0.03 |



| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 68/63 | 14/ 5/63 | 0800 H | 14 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.14 | 0.02 | 0.36 | 0.03 | 0.05 |
| 25 | 0.16 | 0.11 | 0.33 | 0.06 | 0.02 |
| 50 | 0.15 | 0.00 | 0.21 | 0.02 | 0.08 |
| 75 | 0.23 | 0.08 | 0.53 | 0.08 | 0.01 |
| 100 | 0.30 | 0.10 | 0.36 | 0.03 | 0.12 |
| 150 | 0.15 | 0.06 | 0.27 | 0.04 | 0.05 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 69/63 | 14/ 5/63 | 2000 H | 12 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.16 | 0.01 | 0.32 | 0.03 | 0.05 |
| 25 | 0.10 | 0.04 | 0.26 | 0.03 | 0.05 |
| 50 | 0.22 | 0.02 | 0.31 | 0.03 | 0.11 |
| 75 | 0.56 | 0.18 | 0.80 | 0.04 | 0.20 |
| 100 | 0.24 | 0.06 | 0.32 | 0.03 | 0.09 |
| 150 | 0.09 | 0.10 | 0.64 | 0.07 | - 0.02 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 70/63 | 15/ 5/63 | 0800 H | 11 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.29 | 0.03 | 0.26 | 0.06 | 0.07 |
| 25 | 0.27 | 0.06 | 0.34 | 0.06 | 0.03 |
| 50 | 0.49 | 0.04 | 0.38 | 0.05 | 0.12 |
| 75 | 0.41 | 0.16 | 1.08 | 0.07 | 0.12 |
| 100 | 0.14 | 0.06 | 0.27 | 0.03 | 0.05 |
| 150 | 0.10 | 0.06 | 0.60 | 0.09 | - 0.02 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 71/63 | 15/ 5/63 | 2035 H | 09 27 S | 109 51 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.23 | 0.07 | 0.58 | 0.09 | 0.01 |
| 25 | 0.17 | 0.02 | 0.25 | 0.04 | 0.07 |
| 50 | 0.68 | 0.15 | 0.90 | 0.05 | 0.23 |
| 75 | 0.41 | 0.15 | 0.54 | 0.02 | 0.21 |
| 100 | 0.19 | 0.09 | 0.30 | 0.02 | 0.08 |
| 150 | 0.06 | 0.02 | 0.30 | 0.05 | 0.00 |



| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 72/63 | 16/ 5/63 | 1840 H | 08 55 S | 105 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.10 | 0.01 | 0.11 | 0.03 | 0.06 |
| 25 | 0.08 | 0.03 | 0.10 | 0.03 | 0.04 |
| 50 | 0.28 | 0.05 | 0.45 | 0.04 | 0.07 |
| 75 | 0.65 | 0.21 | 0.87 | 0.04 | 0.27 |
| 100 | 0.31 | 0.16 | 0.38 | 0.04 | 0.13 |
| 150 | 0.12 | 0.06 | 0.51 | 0.06 | 0.00 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 73/63 | 25/ 5/63 | 0935 H | 09 00 S | 105 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.13 | 0.01 | 0.27 | 0.04 | 0.03 |
| 25 | 0.13 | - 0.02 | 0.06 | 0.03 | 0.06 |
| 50 | 0.85 | 0.22 | 1.03 | 0.05 | 0.31 |
| 75 | 0.43 | 0.14 | 0.49 | 0.04 | 0.20 |
| 100 | 0.25 | 0.10 | 0.30 | 0.03 | 0.10 |
| 150 | 0.17 | 0.07 | 0.77 | 0.07 | 0.01 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 74/63 | 26/ 5/63 | 1240 H | 09 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.33 | 0.04 | 0.29 | 0.05 | 0.10 |
| 25 | 0.87 | 0.05 | 0.69 | 0.08 | 0.19 |
| 50 | 0.20 | 0.03 | 0.17 | 0.03 | 0.06 |
| 75 | 0.07 | 0.00 | 0.17 | 0.02 | 0.03 |
| 100 | 0.14 | 0.05 | 0.38 | 0.07 | - 0.02 |
| 150 | 0.10 | 0.03 | 0.14 | 0.05 | 0.00 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 75/63 | 26/ 5/63 | 2030 H | 11 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.15 | 0.01 | 0.13 | 0.02 | 0.08 |
| 25 | 1.10 | 0.07 | 0.65 | 0.05 | 0.40 |
| 50 | 0.45 | 0.07 | 0.64 | 0.05 | 0.13 |
| 75 | 0.33 | 0.16 | 0.35 | 0.03 | 0.17 |
| 100 | 0.14 | 0.06 | 0.28 | 0.03 | 0.06 |
| 150 | 0.10 | 0.01 | 0.25 | 0.02 | 0.03 |



| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 76/63 | 27/ 5/63 | 0750 H | 12 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.25 | 0.02 | 0.14 | 0.03 | 0.10 |
| 25 | 0.24 | 0.05 | 0.37 | 0.06 | 0.05 |
| 50 | 0.52 | 0.12 | 0.46 | 0.00 | 0.25 |
| 75 | 0.20 | 0.05 | 0.41 | 0.03 | 0.08 |
| 100 | 0.17 | 0.06 | 0.57 | 0.07 | 0.04 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 77/63 | 27/ 5/63 | 2000 H | 14 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.17 | 0.00 | 0.33 | 0.02 | 0.09 |
| 25 | 0.16 | 0.00 | 0.21 | 0.03 | 0.07 |
| 50 | 0.21 | 0.06 | 0.65 | 0.08 | 0.01 |
| 75 | 0.60 | 0.22 | 1.01 | 0.10 | 0.18 |
| 100 | 0.18 | 0.07 | 0.31 | 0.01 | 0.10 |
| 150 | 0.06 | 0.05 | 0.20 | 0.05 | 0.01 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 78/63 | 28/ 5/63 | 0800 H | 15 30 S | 110 04 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.17 | 0.00 | 0.41 | 0.02 | 0.07 |
| 25 | 0.16 | 0.03 | 0.29 | 0.04 | 0.07 |
| 50 | 0.16 | 0.03 | 0.23 | 0.04 | 0.07 |
| 75 | 0.41 | 0.12 | 0.55 | 0.03 | 0.17 |
| 100 | 0.44 | 0.17 | 0.58 | 0.05 | 0.16 |
| 150 | 0.09 | 0.03 | 0.18 | 0.04 | 0.01 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 79/63 | 28/ 5/63 | 1945 H | 17 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.14 | 0.04 | 0.46 | 0.08 | 0.00 |
| 25 | 0.20 | 0.09 | 0.49 | 0.08 | 0.00 |
| 50 | 0.37 | 0.05 | 0.64 | 0.08 | 0.03 |
| 75 | 0.35 | 0.16 | 0.69 | 0.05 | 0.11 |
| 100 | 0.26 | 0.15 | 0.74 | 0.08 | 0.03 |
| 150 | 0.09 | 0.07 | 0.41 | 0.06 | 0.00 |



| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 80/63 | 29/ 5/63 | H | 18 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.27 | 0.10 | 0.66 | 0.09 | - 0.01 |
| 25 | 0.21 | 0.04 | 0.34 | 0.04 | 0.04 |
| 50 | 0.31 | 0.13 | 0.78 | 0.11 | - 0.01 |
| 75 | 0.23 | 0.12 | 0.45 | 0.06 | 0.02 |
| 100 | 0.33 | 0.16 | 0.63 | 0.04 | 0.10 |
| 150 | 0.10 | 0.06 | 0.52 | 0.06 | 0.01 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 81/63 | 29/ 5/63 | 1945 H | 20 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.17 | 0.04 | 0.57 | 0.08 | 0.00 |
| 25 | 0.13 | 0.04 | 0.39 | 0.06 | 0.01 |
| 50 | 0.21 | 0.08 | 0.49 | 0.08 | 0.00 |
| 75 | 0.38 | 0.07 | 0.62 | 0.07 | 0.07 |
| 100 | 0.26 | 0.15 | 0.58 | 0.05 | 0.09 |
| 150 | 0.10 | 0.05 | 0.47 | 0.07 | 0.00 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 82/63 | 30/ 5/63 | 0800 H | 21 30 S | 110 08 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.17 | 0.05 | 0.50 | 0.08 | - 0.01 |
| 25 | 0.21 | 0.04 | 0.57 | 0.09 | 0.00 |
| 50 | 0.18 | 0.06 | 0.27 | 0.05 | 0.03 |
| 75 | 0.55 | 0.17 | 0.88 | 0.09 | 0.11 |
| 100 | 0.36 | 0.14 | 0.78 | 0.09 | 0.07 |
| 150 | 0.14 | 0.08 | 0.47 | 0.05 | 0.03 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 83/63 | 30/ 5/63 | 2000 H | 23 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.19 | 0.05 | 0.43 | 0.07 | 0.01 |
| 25 | 0.24 | 0.06 | 0.49 | 0.07 | 0.01 |
| 75 | 0.60 | 0.20 | 0.79 | 0.05 | 0.19 |
| 80 | 0.23 | 0.07 | 0.48 | 0.07 | 0.02 |
| 100 | 0.25 | 0.14 | 0.49 | 0.05 | 0.05 |
| 150 | 0.14 | 0.07 | 0.49 | 0.06 | 0.00 |



| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 84/63 | 31/ 5/63 | 0755 H | 24 27 S | 109 59 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.26 | 0.04 | 0.45 | 0.07 | 0.01 |
| 25 | 0.26 | 0.05 | 0.41 | 0.05 | 0.03 |
| 50 | 0.29 | 0.03 | 0.35 | 0.05 | 0.05 |
| 75 | 0.23 | 0.04 | 0.31 | 0.04 | 0.03 |
| 100 | 0.38 | 0.11 | 0.69 | 0.06 | 0.09 |
| 150 | 0.14 | 0.07 | 0.36 | 0.04 | 0.04 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 85/63 | 31/ 5/63 | 2000 H | 26 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.19 | 0.06 | 0.37 | 0.06 | 0.01 |
| 25 | 0.18 | 0.03 | 0.30 | 0.04 | 0.03 |
| 50 | 0.18 | 0.01 | 0.29 | 0.03 | 0.06 |
| 75 | 0.39 | 0.15 | 0.87 | 0.04 | 0.08 |
| 100 | 0.26 | 0.06 | 0.47 | 0.06 | 0.03 |
| 150 | 0.07 | 0.05 | 0.36 | 0.06 | 0.00 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 86/63 | 1/ 6/63 | 0800 H | 27 30 S | 110 03 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.48 | 0.08 | 0.82 | 0.11 | 0.04 |
| 25 | 0.43 | 0.07 | 0.58 | 0.06 | 0.10 |
| 50 | 0.42 | 0.09 | 0.48 | 0.08 | 0.06 |
| 75 | 0.50 | 0.07 | 0.77 | 0.05 | 0.12 |
| 100 | 0.14 | 0.07 | 0.41 | 0.04 | 0.03 |
| 150 | 0.10 | 0.06 | 0.34 | 0.05 | 0.00 |

| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 87/63 | 1/ 6/63 | 2000 H | 29 00 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.34 | 0.16 | 0.59 | 0.10 | 0.03 |
| 25 | 0.26 | 0.01 | 0.39 | 0.04 | 0.05 |
| 50 | 0.31 | 0.03 | 0.56 | 0.04 | 0.08 |
| 75 | 0.35 | 0.08 | 0.50 | 0.07 | 0.05 |
| 100 | 0.21 | 0.09 | 0.40 | 0.12 | - 0.01 |
| 150 | 0.06 | 0.04 | 0.34 | 0.04 | 0.02 |



| STATION | DATE | TIME | LATITUDE | LONGITUDE |
|---|---|---|---|---|
| DM 2/ 88/63 | 2/ 6/63 | 0800 H | 30 30 S | 110 00 E |

| DEPTH | CHLOROPHYLL A | CHLOROPHYLL B | CHLOROPHYLL C | ASTACIN | NON-ASTACIN |
|---|---|---|---|---|---|
| 0 | 0.30 | 0.06 | 0.73 | 0.09 | 0.00 |
| 25 | 0.25 | 0.06 | 0.74 | 0.06 | 0.04 |
| 50 | 0.32 | 0.08 | 0.43 | 0.05 | 0.06 |
| 75 | 0.19 | 0.03 | 0.43 | 0.04 | 0.04 |
| 100 | 0.18 | 0.10 | 0.27 | 0.03 | 0.06 |
| 150 | 0.12 | 0.08 | 0.44 | 0.09 | 0.00 |

DATA

PART 4

ZOOPLANKTON

## EXPLANATION OF SYMBOLS

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

A blank indicates no data available

VERTICAL HAULS 200-0 m : INDIAN OCEAN STANDARD NET

| STATION POSITION | DATE | TIME | ESTIMATED VOLUME FILTERED ($m^3$) | TOTAL WEIGHT (g) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|
| Dm2/55/63 | 7/5/63 | 1140 | 205 | 4.08 | 20 |
| 31°57'S. 111°50'E. | | 1200 | 200 | 3.41 | 17 x |
| Dm2/56/63 | 8/5/63 | 1015 | 231 | 0.69 | 3 x |
| 32°00'S. 110°00'E. | | 1032 | 240 | 1.08 (2.45) | 5 (10) |
| Dm2/57/63 | 8/5/63 | 2045 | 240 | 6.80 | 28 |
| 30°30'S. 110°00'E. | | 2110 | 210 | 4.01 | 19 x |
| Dm2/58/63 | 9/5/63 | 1150 | 210 | 2.95 | 14 |
| 29°00'S. 110°00'E. | | 1200 | 200 | 2.97 | 15 x |
| Dm2/59/63 | 9/5/63 | 2040 | 210 | 3.86 | 18 |
| 27°30'S. 110°00'E. | | 2055 | 210 | 2.47 | 12 x |
| Dm2/60/63 | 10/5/63 | 1000 | 205 | 5.00 | 24 |
| 26°00'S. 110°00'E. | | 1015 | 220 | 3.26 | 15 x |
| Dm2/61/63 | 10/5/63 | 2030 | 231 | 7.00 | 30 |
| 24°30'S. 110°00'E. | | 2045 | 220 | 6.22 | 28 x |
| Dm2/62/63 | 11/5/63 | 1015 | 200 | 5.51 | 28 |
| 23°00'S. 110°00'E. | | 1025 | 200 | 4.82 | 24 x |
| Dm2/63/63 | 11/5/63 | 2035 | 205 | 8.24 | 40 |
| 21°30'S. 110°00'E. | | 2045 | 200 | 5.30 | 27 x |

VERTICAL HAULS 200-0 m : INDIAN OCEAN STANDARD NET

| STATION POSITION | DATE | TIME | ESTIMATED VOLUME FILTERED ($m^3$) | TOTAL WEIGHT (g) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|
| Dm2/64/63 | 12/5/63 | 1020 | 210 | 3.98 | 19 |
| 20°00'S. 110°00'E. | | 1030 | 205 | 5.31 | 26 x |
| Dm2/65/63 | 12/5/63 | 2000 | 210 | 7.56 | 36 |
| 18°30'S. 110°00'E. | | 2010 | 200 | 8.54 | 43 x |
| Dm2/66/63 | 13/5/63 | 1020 | 205 | 8.13 | 40 |
| 17°00'S. 110°00'E. | | 1030 | 205 | 7.90 | 39 x |
| Dm2/67/63 | 13/5/63 | 2030 | 200 | 11.05 | 55 |
| 15°30'S. 110°00'E. | | 2040 | 200 | 6.67 | 33 x |
| Dm2/68/63 | 14/5/63 | 1052 | 210 | 4.16 | 20 |
| 14°00'S. 110°00'E. | | 1105 | 200 | 4.72 | 24 x |
| Dm2/69/63 | 14/5/63 | 2030 | 205 | 5.87 | 29 |
| 12°30'S. 110°00'E. | | 2045 | 205 | 7.65 | 37 x |
| Dm2/70/63 | 15/5/63 | 1300 | 244 | 10.13 | 42 |
| 11°00'S. 110°00'E. | | 1310 | 240 | 9.40 | 39 x |
| Dm2/71/63 | 15/5/63 | 2115 | 210 | 12.95 | 62 |
| 9°27'S. 109°51'E. | | 2130 | 210 | 14.10 (17.28) | 67 (82) x |

VERTICAL HAULS 200-0 m : INDIAN OCEAN STANDARD NET

| STATION POSITION | DATE | TIME | ESTIMATED VOLUME FILTERED ($m^3$) | TOTAL WEIGHT (g) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|
| Dm2/72/63 | 16/5/63 | 2135 | 213 | 9.50 (12.90) | 45 (61) |
| 8°55'S. 105°00'E. | | 2145 | 240 | 10.78 | 45 x |
| Dm2/73/63 | 25/5/63 | 0950 | 205 | 13.12 (16.22) | 64 (79)x |
| 9°00'S. 105°00'E. | | 1005 | 205 | 11.63 | 57 |
| Dm2/74/63 | 26/5/63 | 1245 | 220 | 18.73 | 85 x |
| 9°30'S. 110°00'E. | | 1255 | 205 | 17.38 | 85 |
| Dm2/75/63 | 26/5/63 | 2105 | 220 | 30.10 | 137 |
| 11°00'S. 110°00'E. | | 2115 | 220 | 36.10 | 164 x |
| Dm2/76/63 | 27/5/63 | 1010 | 200 | 9.30 | 47 |
| 12°30'S. 110°00'E. | | 1015 | 205 | 10.35 | 50 x |
| Dm2/77/63 | 27/5/63 | 2035 | 220 | 6.35 (11.65) | 29 (53) |
| 14°00'S. 110°00'E. | | 2045 | 200 | 6.92 ( 8.92) | 35 (45)x |

VERTICAL HAULS 200–0 m : INDIAN OCEAN STANDARD NET

| STATION POSITION | DATE | TIME | ESTIMATED VOLUME FILTERED ($m^3$) | TOTAL WEIGHT (g) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|
| Dm2/78/63 | 28/5/63 | 1030 | 205 | 3.83 | 19 |
| 15°30'S. 110°04'E. | | 1045 | 210 | 3.90 | 19 x |
| Dm2/79/63 | 28/5/63 | 2018 | 200 | 4.62 | 23 |
| 17°00'S. 110°00'E. | | 2030 | 200 | 5.95 | 30 x |
| Dm2/80/63 | 29/5/63 | 1020 | 200 | 3.48 | 17 |
| 18°30'S. 110°00'E. | | 1030 | 200 | 3.40 | 17 x |
| Dm2/81/63 | 29/5/63 | 2025 | 205 | 5.30 | 26 |
| 20°00'S. 110°00'E. | | 2040 | 205 | 7.22 | 35 x |
| Dm2/82/63 | 30/5/63 | 1123 | 240 | 5.05 | 21 |
| 21°30'S. 110°00'E. | | 1130 | 220 | 4.65 | 21 x |
| Dm2/83/63 | 30/5/63 | 2035 | 200 | 6.50 | 33 |
| 23°00'S. 110°00'E. | | 2045 | 200 | 6.42 | 32 x |

VERTICAL HAULS 200-0 m : INDIAN OCEAN STANDARD NET

| STATION POSITION | DATE | TIME | ESTIMATED VOLUME FILTERED ($m^3$) | TOTAL WEIGHT (g) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|
| Dm2/84/63 | 31/5/63 | 1000 | 230 | 4.47 (6.12) | 19 (27)x |
| 24°27'S. 109°58.5'E. | | 1015 | 230 | 4.34 | 19 |
| Dm2/85/63 | 31/5/63 | 2035 | 210 | 6.79 | 32 |
| 26°00'S. 110°00'E. | | 2045 | 200 | 14.20 | 71 * x |
| Dm2/86/63 | 1/6/63 | 1030 | 210 | 8.67 | 41 |
| 27°30'S. 110°03'E. | | 1045 | 203 | 6.67 (9.95) | 33 (49)x |
| Dm2/87/63 | 1/6/63 | 2045 | 200 | 3.71 | 19 |
| 29°00'S. 110°00'E. | | 2055 | 205 | 4.58 (19.63*) | 22 (96*) |
| Dm2/88/63 | 2/6/63 | 1120 | 210 | 2.83 | 13 |
| 30°30'S. 110°00'E. | | 1125 | 210 | 3.75 | 18 x |

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

| STATION POSITION | DATE | TIME | DEPTH STRATUM RANGE (m) | MODE (m) | VOLUME FILTERED ($m^3$) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|---|
| Dm2/55/63 | 7/5/63 | 1122 | 0-10 | 0 | 19.5 | 24 |
| 31°57'S. 111°50'E. | | " | 60-75 | 65 | 12.2 | 19 |
| | | " | 125-140 | 130 | 20.7 | 14 |
| | | " | 240 | 240 | 25.1 | 13 |
| Dm2/56/63 | 8/5/63 | 1105 | 0-10 | 0 | 30.9 | 8 |
| 32°00'S. 110°00'E. | | " | 50-0 + | 45 | 32.1 | 15 |
| | | " | 100-0 + | 85 | 37.4 | 7 |
| | | " | 200-0 + | 175 | 45.4 | 11 |
| Dm2/59/63 | 9/5/63 | 2115 | 0-10 | 0 | 25.8 | 27 |
| 27°30'S. 110°00'E. | | " | 30-60 | 55 | 22.8 | 15 |
| | | " | 60-125 | 120 | 26.1 | 22 |
| | | " | 145-240 | 230 | 25.0 | 16 |
| Dm2/60/63 | 10/5/63 | 1045 | 0-10 | 0 | 22.3 | 14 |
| 26°00'S. 110°00'E. | | " | 35-60 | 50 | 19.5 | 8 |
| | | " | 75-120 | 105 | 26.4 | 34 |
| | | " | 150-230 | 210 | 30.4 | 13 |

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

| STATION POSITION | DATE | TIME | DEPTH STRATUM RANGE (m) | MODE (m) | VOLUME FILTERED ($m^3$) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|---|
| Dm2/61/63 | 10/5/63 | 2110 | 0-10 | 0 | 29.6 | 29 |
| 24°30'S. 110°00'E. | | " | 45-0 + | 35 | 31.9 | 89 |
| | | " | 90-0 + | | 34.0 | 58 |
| | | " | 180-0 + | 140 | 54.3 | 17 |
| Dm2/63/63 | 11/5/63 | 2110 | 0-10 | 0 | 21.3 | 26 |
| 21°30'S. 110°00'E. | | " | 45-50 | 45 | 14.5 | 15 |
| | | " | 95-120 | 100 | 29.7 | 37 |
| | | " | 160-240 | 200 | 26.8 | 7 |
| Dm2/64/63 | 12/5/63 | 1054 | 0-10 | 0 | 22.5 | 13 |
| 20°00'S. 110°00'E. | | " | 40-50 | 50 | 19.1 | 8 |
| | | " | 80-100 | 90 | 24.5 | 14 |
| | | " | 160-210 | 200 | 26.8 | 2 |
| Dm2/65/63 | 12/5/63 | 2020 | 0-10 | 0 | 24.9 | 37 |
| 18°30'S. 110°00'E. | | " | 35-50 | 45 | 24.3 | 42 |
| | | " | 75-100 | 90 | 29.3 | 19 |
| | | " | 155-200 | 180 | 40.7 | 10 |

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

| STATION POSITION | DATE | TIME | DEPTH STRATUM RANGE (m) | MODE (m) | VOLUME FILTERED ($m^3$) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|---|
| Dm2/66/63 | 13/5/63 | 1050 | 0-10 | 0 | 23.6 | 12 |
| 17°00'S. 110°00'E. | | " | 30-70 | 70 | 18.3 | 29 |
| Dm2/67/63 | 13/5/63 | 2100 | 0-10 | 0 | 21.9 | 72 |
| 15°30'S. 110°00'E. | | " | 45-55 | 50 | 21.3 | 30 |
| | | " | 100-120 | 100 | 21.9 | 17 |
| | | " | 200-220 | 210 | 25.4 | 9 |
| Dm2/68/63 | 14/5/63 | 1013 | 0-10 | 0 | 19.1 | 16 |
| 14°00'S. 110°00'E. | | " | 45-60 | 50 | 15.4 | 53 |
| | | " | 100-125 | 100 | 14.0 | 21 |
| | | " | 190-240 | 200 | 25.7 | 11 |
| Dm2/69/63 | 14/5/63 | 2050 | 0-10 | | | |
| 12°30'S. 110°00'E. | | " | 40-75 | 45 | 23.4 | 26 |
| | | " | 90-160 | 90 | 24.2 | 15 |
| | | " | 165-300 | 200 | 30.9 | 8 |
| Dm2/70/63 | 15/5/63 | 1145 | 0-10 | 0 | 18.7 | 13 |
| 11°00'S. 110°00'E. | | " | 50-75 | 55 | 13.6 | 77 |
| | | " | 100-150 | 110 | 21.8 | 30 |
| | | " | 200-250 | 200 | 24.0 | 24 |

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

| STATION POSITION | DATE | TIME | DEPTH RANGE (m) | STRATUM MODE (m) | VOLUME FILTERED ($m^3$) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|---|
| Dm2/71/63 | 15/5/63 | 2152 | 0-10 | 0 | 18.4 | 71 |
| 9°27'S. 109°51'E. | | " | 35-45 | 45 | 25.8 | 86 |
| | | " | 60-90 | 80 | 33.3 | 57 |
| | | " | 120-200 | 160 | 52.2 | 6 |
| Dm2/72/63 | 16/5/63 | 2212 | 0-10 | 0 | 21.0 | 60 |
| 8°55'S. 105°00.5'E. | | " | 35-65 | 50 | 20.6 | 28 |
| | | " | 75-125 | 100 | 28.7 | 43 |
| | | " | 150-240 | 200 | 37.0 | 11 |
| Dm2/73/63 | 25/5/63 | 1015 | 0-10 | 0 | 25.4 | 32 |
| 9°00'S. 105°00'E. | | " | 50-65 | 55 | 15.2 | 98 |
| | | " | 100-120 | 115 | 17.7 | 51 |
| | | " | 210-240 | 230 | 21.8 | 24 |
| Dm2/74/63 | 26/5/63 | 1230 | 0-10 | 0 | 24.3 | 64 |
| 9°30'S. 110°00'E. | | " | 35-65 | 40 | 27.3 | 155 |
| | | " | 70-95 | 85 | 34.0 | 33 |
| | | " | 100-150 | 140 | 44.4 | 30 |

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

| STATION POSITION | DATE | TIME | DEPTH RANGE (m) | STRATUM MODE (m) | VOLUME FILTERED ($m^3$) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|---|
| Dm2/75/63 | 26/5/63 | 2145 | 0-10 | 0 | 12.9 | 253 |
| 11°00'S. 110°00'E. | | " | 20-75 | 75 | 21.5 | 182 |
| | | " | C. 85-175 | 130 | 20.8 | 119 |
| | | " | 100-260 | 260 | 28.1 | 27 |
| Dm2/76/63 | 27/5/63 | 1040 | 0-10 | 0 | 23.5 | 72 |
| 12°30'S. 110°00'E. | | " | 40-50 | 40 | 26.5 | 43 |
| | | " | 75-130 | 80 | 27.1 | 31 |
| | | " | 160-240 | 160 | 36.2 | 21 |
| Dm2/77/63 | 27/5/63 | 2100 | 0-10 | 0 | 21.3 | 40 (198*) |
| 14°00'S. 110°00'E. | | " | 50-60 | 50 | 21.4 | 80 |
| | | " | 100-120 | 100 | 19.2 | 49 |
| | | " | 200-240 | 200 | 29.7 | 11 |
| Dm2/78/63 | 28/5/63 | 1105 | 0-10 | 0 | 18.9 | 15 |
| 15°30'S. 110°04'E. | | " | 40-75 | 50 | 15.7 | 17 |
| | | " | 80-150 | 100 | 21.1 | 17 |
| | | " | 160-260 | 200 | 26.7 | 23 |

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

| STATION POSITION | DATE | TIME | | DEPTH STRATUM RANGE (m) | MODE (m) | VOLUME FILTERED ($m^3$) | BIOMASS (mg/m3) |
|---|---|---|---|---|---|---|---|
| Dm2/79/63 | 28/5/63 | 2055 | | 0-10 | 0 | 8.9 | 39 |
| 17°00'S. 110°00'E. | | " | | 25-75 | 30 | 25.7 | 28 |
| | | " | | 70-140 | 80 | 26.5 | 28 |
| | | " | | 100-240 | 110 | 26.1 | 19 |
| Dm2/80/63 | 29/5/63 | 1105 | C. | 0-10 | 0 | 24.8 | 6 |
| 18°30'S. 110°00'E. | | " | C. | 39-59 | 49 | 24.9 | 19 |
| | | " | C. | 82-116 | 99 | 25.7 | 31 |
| | | " | C. | 168-225 | 196 | 30.8 | 9 |
| Dm2/81/63 | 29/5/63 | 2145 | | 0-10 | 0 | 24.0 | 42 |
| 20°00'S. 110°00'E. | | " | | 45-60 | 45 | 19.0 | 56 |
| | | " | | 90 | 90 | 26.2 | 23 |
| | | " | | 170-200 | 170 | 33.7 | 10 |
| Dm2/82/63 | 30/5/63 | 1022 | | 0-10 | 0 | 15.2 | 14 |
| 21°30'S. 110°08'E. | | " | | 50-55 | 55 | 17.2 | 36 |
| | | " | | 110-120 | 120 | 21.1 | 19 |
| | | " | | 230 | 230 | 25.0 | 14 |

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

| STATION POSITION | DATE | TIME | DEPTH STRATUM RANGE (m) | MODE (m) | VOLUME FILTERED ($m^3$) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|---|
| Dm2/83/63 | 30/5/63 | 2105 | 0-10 | 0 | 17.9 | 20 |
| 23°00'S. 110°00'E. | | " | 50-75 | 55 | 19.4 | 42 |
| | | " | 110-130 | 110 | 23.2 | 22 |
| | | " | 220-240 | 220 | 27.5 | 13 |
| Dm2/84/63 | 31/5/63 | 1039 | 0-10 | 0 | 23.8 | 19 |
| 24°27'S. 110°00'E. | | " | 45-60 | 50 | 16.4 | 10 |
| | | " | 100-120 | 110 | 17.7 | 54 |
| | | " | 190-235 | 210 | 30.7 | 9 |
| Dm2/85/63 | 31/5/63 | 2125 | 0-10 | 0 | 25.6 | 22 |
| 26°00'S. 110°00'E. | | " | 45-70 | 55 | 22.1 | 12 |
| | | " | 110-130 | 110 | 21.0 | 11 |
| | | " | 210-240 | 210 | 22.4 | 5 |
| Dm2/86/63 | 1/6/63 | 1100 | 0-10 | 0 | 23.8 | 30 |
| 27°30'S. 110°00'E. | | " | 45-55 | 45 | 21.9 | 41 |
| | | " | 90-120 | 90 | 22.1 | 20 |
| | | " | 190-220 | 190 | 28.3 | 16 |

HORIZONTAL TOWS : CLARKE-BUMPUS SAMPLER

| STATION POSITION | DATE | TIME | DEPTH RANGE (m) | STRATUM MODE (m) | VOLUME FILTERED ($m^3$) | BIOMASS ($mg/m^3$) |
|---|---|---|---|---|---|---|
| Dm2/87/63 | 1/6/63 | 2100 | 0-10 | 0 | 15.3 | 33 |
| 29°00'S. 110°00'E. | | " | 50-60 | 60 | 19.6 | 30 |
| | | " | 100-125 | 120 | 19.2 | 15 |
| | | " | 210-240 | 230 | 24.2 | 9 |
| Dm2/88/63 | 2/6/63 | 1235 | 0-10 | 0 | 25.7 | 10 |
| 30°30'S. 110°00'E. | | " | 35-65 | 50 | 24.5 | 12 |
| | | " | 70-125 | 90 | 21.1 | 5 |
| | | " | 150-240 | 190 | 38.4 | 10 |

# DATA

# PART 5

# MICRONEKTON

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 |

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 |
| Dm2/59/63 27°30'S. 110°E. | 9/5/63 | 2223 2356 | 9290 | 196 | 168 | 1032 | 714 | 5360 |
| Dm2/61/63 24°30'S. 110°E. | 10/5/63 | 2215 2355 | 11358 | 160 | 192 | 2640 | 742 | 1877 |
| Dm2/63/63 21°30'S. 110°E. | 11/5/63 | 2215 2355 | 10000 | 195 | 272 | 1200 | 2187 | 3755 |
| Dm2/65/63 18°30'S. 110°E. | 12/5/63 | 2131 2303 | 9198 | 180 | 536 | 1680 | 2887 | 5104 |
| Dm2/67/63 15°30'S. 110°E. | 13/5/63 | 2203 2344 | 10154 | 200 | 232 | 2160 | 4145 | 4082 |
| Dm2/69/63 12°30'S. 110°E. | 14/5/63 | 2155 2336 | 10154 | 200 | 376 | 2040 | 6213 | 5516 |
| Dm2/71/63 9°27'S. 109°51'E. | 15/5/63 | 2257 0041 | 10402 | 175 | 336 | 2160 | 9564 | 14687 |

\+ 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 tow

OBLIQUE TOWS : 5 FT ISAACS-KIDD MIDWATER TRAWL

| STATION POSITION | DATE | TIME | ESTIMATED LENGTH OF COLUMN FILTERED (m) | MAX. DEPTH (m)+ | DRY WEIGHT: mg for a 10,000 m* column | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | x JELLY ORG. | x PLANKTON ORG. | x MACRO-PLANKTON ORG. | x MICRO-NEKTON |
| Dm2/75/63 11°S. 110°E. | 26/5/63 | 2246 2427 | 10154 | 195 | 440 | 3600 | 6448 | 8772 |
| Dm2/77/63 14°S. 110°E. | 27/5/63 | 2202 2342 | 9938 | 195 | 216 | 2160 | 4841 | 6100 |
| Dm2/79/63 17°S. 110°E. | 28/5/63 | 2158 2337 | 9908 | 196 | 136 | 1560 | 3641 | 8373 |
| Dm2/81/63 20°S. 110°E. | 29/5/63 | 2207 2346 | 9784 | 190 | 232 | 1680 | 2596 | 2358 |
| Dm2/83/63 23°S. 110°E. | 30/5/63 | 2212 2350 | 9814 | 200 | 304 | 1320 | 6492 | 3946 |
| Dm2/85/63 26°S. 110°E. | 31/5/63 | 2228 0008 | 10000 | 210 | 288 | 2040 | 1398 | 4822 |
| Dm2/87/63 29°S. 110°E. | 1/6/63 | 2203 2342 | 9908 | 215 | 304 | 1560 | 1898 | 4146 |

+ 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 tow

# 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 |
|---|---|---|---|---|---|---|
| 55 | 46 | 26 | 46 | 23 | 21 | 32 |
| 56 | 38 | 32 | 19 | 19 | 9 | 23 |
| 57 | 27 | 24 | 22 | 14 | 10 | 20 |
| 58 | 19 | 21 | 19 | 13 | 13 | 17 |
| 59 | 21 | 20 | 18 | 14 | 18 | 19 |
| 60 | 14 | 17 | 17 | 11 | 11 | 14 |
| 61 | 22 | 24 | 17 | 32 | 10 | 22 |
| 62 | 23 | 18 | 14 | 11 | 10 | 14 |
| 63 | 29 | 24 | 20 | 12 | 12 | 19 |
| 64 | 25 | 20 | 20 | 12 | 10 | 17 |
| 65 | 24 | 17 | 16 | 11 | 8 | 15 |
| 66 | 18 | 11 | 12 | 11 | 19 | 13 |
| 67 | 26 | 17 | 10 | 8 | 11 | 13 |
| 68 | 54 | 27 | 16 | 23 | 10 | 24 |
| 69 | 11 | 26 | 17 | 9 | 10 | 16 |
| 70 | 19 | 35 | 12 | 9 | 11 | 18 |
| 71 | 24 | 29 | 12 | 10 | 10 | 17 |

PARTICULATE CARBON

Values are in µg/l

| STATION | 0 m | 50 m | 100 m | 150 m | 200 m | COLUMN AVERAGE |
|---|---|---|---|---|---|---|
| 72 | 25 | 20 | 28 | 11 | 8 | 19 |
| 73 | 25 | 23 | 14 | 15 | 10 | 17 |
| 74 | 34 | 16 | 24 | 16 | 11 | 20 |
| 75 | 50 | 36 | 20 | 13 | 13 | 25 |
| 76 | 32 | 17 | 14 | 11 | 11 | 16 |
| 77 | 23 | 29 | 13 | 9 | 13 | 17 |
| 78 | 26 | 24 | 19 | 23 | 18 | 22 |
| 79 | 25 | 17 | 19 | 9 | 11 | 16 |
| 80 | 20 | 13 | 17 | 10 | 17 | 15 |
| 81 | 23 | 32 | 13 | 9 | 7 | 17 |
| 82 | 17 | 23 | 23 | 10 | 9 | 17 |
| 83 | 20 | 20 | 13 | 11 | 9 | 15 |
| 84 | 17 | 21 | 26 | 11 | 9 | 18 |
| 85 | 20 | 17 | 13 | 8 | 11 | 13 |
| 86 | 21 | 24 | 9 | 11 | 9 | 15 |
| 87 | 25 | 22 | 11 | 10 | 9 | 15 |
| 88 | 19 | 25 | 13 | 11 | 10 | 16 |

## OCEANOGRAPHICAL CRUISE REPORTS

1. Oceanographical observations in the Indian Ocean in 1959. H.M.A.S. *Diamantina* Cruises Dm1/59 and Dm2/59.
2. Oceanographical observations in the Indian Ocean in 1960. H.M.A.S. *Diamantina* Cruise Dm1/60.
3. Oceanographical observations in the Indian Ocean in 1960. H.M.A.S. *Diamantina* Cruise Dm2/60.
4. Oceanographical observations in the Indian Ocean in 1960. H.M.A.S. *Diamantina* Cruise Dm3/60.
5. Oceanographical observations in the Pacific Ocean in 1960. H.M.A.S. *Gascoyne* Cruise G1/60 and G2/60.
6. Oceanographical observations in the Pacific Ocean in 1960. H.M.A.S. *Gascoyne* Cruise G3/60.
7. Oceanographical observations in the Indian Ocean in 1961. H.M.A.S. *Diamantina* Cruise Dm1/61.
8. Oceanographical observations in the Pacific Ocean in 1961. H.M.A.S. *Gascoyne* Cruise G1/61.
9. Oceanographical observations in the Indian Ocean in 1961. H.M.A.S. *Diamantina* Cruise Dm2/61.
11. Oceanographical observations in the Indian Ocean in 1961. H.M.A.S. *Diamantina* Cruise Dm3/61.
14. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm1/62.
15. Oceanographical observations in the Indian Ocean in 1962. H.M.A.S. *Diamantina* Cruise Dm2/62.
21. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Gascoyne* Cruise G1/63.
23. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Diamantina* Cruise Dm1/63.
24. Oceanographical observations in the Indian Ocean in 1963. H.M.A.S. *Diamantina* Cruise Dm2/63.