

# HYDROGRAPHICAL DATA

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## INTRODUCTION

The hydrographic work undertaken during the Galathea Expedition was closely connected with the chief aim of the expedition – the exploration of animal life at the greatest depths. In general, therefore, one series of observations was taken from the surface to the bottom in each of the localities which were subjected to biological, deep-water studies. At the same time, hydrographical data were taken in

connexion with investigations of plankton production in the upper water layers. However, sections of hydrographic stations placed for the sole purpose of hydrographic studies were not included in the expedition's programme, as investigations of this character would have demanded more time and more equipment than were available.

## EQUIPMENT

The hydrographers had at their disposal one electrically driven winch with a 4 mm wire of more than 10000 m in length, together with a smaller hand-operated winch, which was used for taking samples from the upper 100 m. Both winches were fitted with a meter wheel which had a scale of up to 10000 m depth.

**Water Bottles.** Two Knudsen isolating water bottles were available in connexion with plankton examinations in the upper 80-100 m, and Nansen Reversing Water Bottles were used for all other depths; five of the latter, however, were lost at Station 276 north of the Seychelles (6 May 1951). In general, the water bottles functioned satisfactorily but at the second station (St. 430) of the Philippine Trench the messenger mechanism suddenly failed to release, and time and time again the whole series of four water bottles emerged from great depths without having been turned. In the first series, which had been at depths of 7558 m, 8503 m, 9165 m, and 6936 m (plus an additional two bacteriological water bottles at depths of 9669 m and 9703 m), the top water bottle was only half-released and its messenger was not freed to release the next water bottle, which in turn led to the failure of the whole series. As it was not possible to see the cause of the failure, the topmost water bottle was then replaced and the series again lowered to the same depths.

Unfortunately, however, the result was exactly the same.

It was noticed that during the second attempt a large amount of a cold, stiff fatty substance was present on the messenger. This was identified as a grease used in the manufacture of the wire, and had been pressed out by the pull of the 10000 m wire, weighing about 600 kg, when it was hauled in at the first station (St. 412) in the Philippine Trench. At the low temperature of around 1.5°C it acted as a strong brake on the messenger at St. 430.

For the third attempt, therefore, two messengers were joined together when sent off from the ship, the result being that although the topmost water bottle was released correctly, the messenger released from it did not have enough weight to overcome the resistance of the grease during the next 1000 m, and once again, the following water bottle could not be released.

Eventually, the whole wire was washed with fuel oil, and when each water bottle at the following station (St. 431) was provided with two messengers joined together, the series was finally successful. At the following stations the grease was again completely removed by the wire being washed during paying out as well as during hauling in. From then on the difficulty occurred again on only one more occasion – when a series of water bottles, together with a

Kullenberg Core Sampler (48 kg) placed at the end of the wire, had been submerged to a depth of more than 10000 m.

At another of the deep stations in the Philippine Trench, however, the water bottle series failed once more, but now it was due to the fact that filaments of siphonophores had become entwined around the

wire. The filaments were actually so strong that they had to be cut off with a knife.

Thermometers. At the start of the expedition in October 1950 there were thirty reversing thermometers and three thermometers for isolating water bottles. The reversing thermometers were of the following make:

8 Richter & Wiese type,	-2-+16°C, divisions of 1/10°, protected
5 Negretti & Zambra type,	-2-+ 8°C, divisions of 1/20°, protected
6 Negretti & Zambra type,	+3-+13°C, divisions of 1/10°, protected
7 Negretti & Zambra type,	+10-+30°C, divisions of 1/10°, protected
2 Negretti & Zambra type,	-2-+30°C, divisions of 1/10°, unprotected
2 Negretti & Zambra type,	0-+60°C, divisions of 1/5°, unprotected

Of the protected thermometers, five Negretti & Zambra type failed very early on. The expedition then acquired a further five Richter & Wiese type, -2-+8°C, with divisions of 1/20°. Nine protected thermometers and one unprotected thermometer were lost with the five water bottles at St. 276, and they were replaced by six protected thermometers in Singapore.

At the start of the hydrographic work in East Indian Waters, 17 usable protected and two unprotected reversing thermometers were available, but at the first station in the Philippine Trench (St. 412), four thermometers, all of them Richter & Wiese type, were broken by the pressure at depths of 7783 m and 8595 m. They were replaced by four new thermometers borrowed from the University of California, -4-+8°C, and sent by airmail. Unfortunately, two of them were defective on arrival, and

the remaining two were very quickly broken by water pressure at Sts. 430 and 435 in depths of 9637 m and 9654 m respectively.

The thermometers from Richter & Wiese seemed to be the most reliable. However, as the circumference of the glass casing of these thermometers is larger than that of the Negretti & Zambra type, they were less able to withstand strong pressure, and consequently more of this type were lost. Since both types of reversing thermometers were only tested to withstand a pressure of 500 kg per cm<sup>2</sup>, it is not surprising that many of them could not withstand a pressure in the region of 1000 kg per cm<sup>2</sup>. Nevertheless, in cases where they did not break, both types gave a correct temperature reading.

The thermometers broke in such a way that the casing was pressed in at a place that happened to be the weakest spot. Subsequently, the remaining part exploded with such force that the metal frame, in which the two thermometers were mounted, was torn apart, and glass splinters became deeply embedded in the surface of the water bottles (Fig. 1).

Further tests to determine the influence of pressure on the glass were attempted by attaching hollow glass balls onto the lowest end of the wire, where they would be exposed to a pressure of about 1000 kg per cm<sup>2</sup>. The balls were the size of a tennis ball and had roughly the same wall thickness. Some of them withstood the pressure, despite the fact that in several cases the water penetrated through the glass, half filling the ball. Others broke, however, and as with the thermometers, they exploded with such force that even the strongest casings of copper or iron tubing were torn open (for further reference see CLAUDE E. ZOBELL: Some effects of high hydrostatic pressure on apparatus observed on the Danish Galathea Deep-Sea Expedition. - Deep-Sea Res. 2: 24-32, 1954).

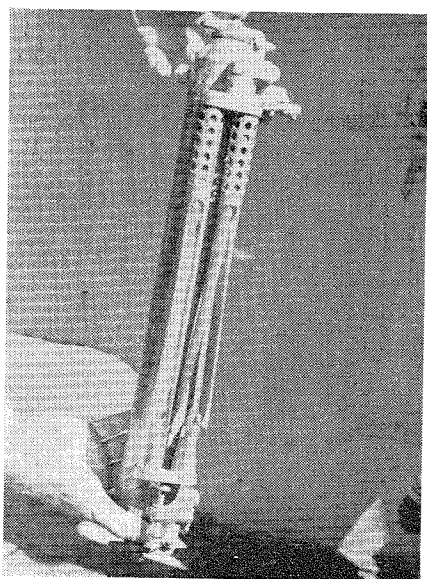


Fig. 1. Nansen Bottle with both thermometers crushed and the metal frame partly torn apart. (I. CROSSLAND phot.).

Before the expedition left Copenhagen, all the thermometers were standardized, and certificates issued for calculation of corrections. However, in Singapore, the seven reversing thermometers from Negretti & Zambra with a scale of 10°-30°, were, with the kind assistance of Prof. ALEXANDER of the University of Malaya, again standardized by comparison with a platinum resistance thermometer. The resulting corrections, which in most cases only differed by a few hundredths of a degree from the original, were used during the rest of the expedition.

The scale of the thermometers from Richter & Wiese was ground flat and could be read with a magnifying glass to an accuracy of less than a hundredth of a degree, whereas, having a cylindrical scale, the other thermometers were more difficult to read, owing to the possibility of parallax (especially under electric light). Thus, the degree of accuracy could only be 0.02°.

**Depth Observations.** During the course of studies at great depths in the Philippine Trench it was noticed that the depth reading on the meter wheel of the hydrographic winch did not exactly correspond to that on the echo-sounder (even though, on every station, the ship was manoeuvred into position until the hydrographic wire was absolutely vertical). During a break in the work the expedition's physicist, Mr. POUL ANDREASEN, undertook a thorough control measurement of the meter wheel. This was done partly by direct measurement of the diameter of the sheave, and partly by running a plaited string many times back and forth through the sheave and the meter wheel of the hand winch, which had not been subjected to wear. The same controls were repeated with still better aids on return to Copenhagen.

The result of Mr. ANDREASEN's measurements were that the meter wheel, which had earlier been

used on the *Atlantide* Expedition 1945-46, showed 4.0% too much at the beginning of the Galathea Expedition. This figure grew to 4.5% at the Philippine Trench, and to 5.5% at the end of the expedition. Therefore, all depth observations originating from the meter wheel of the electric winch were corrected as follows upon return:

St. 1-130	with -4,00%
St. 131-240	with -4,25%
St. 261-430	with -4,50%
St. 431-440	with -4,75%
St. 445-517	with -5,00%
St. 575-608	with -5,25%
St. 677-747	with -5,50%

However, for all stations where the observation series were taken to the bottom, another mode of operation was introduced. This started at St. 435 and the correction found in this way has not been altered in accordance with the above table. The method was as follows:

In place of the usual small lead weight at the end of the hydrographic wire, a Kullenberg Core Sampler of 48 kg was used, and even though four or five water bottles were placed up the wire, the dynamometre (in which the meter wheel was suspended) gave a clear response when the core sampler reached the bottom. This depth measurement was taken with great care. When it was calculated as to how many percent the reading differed from the reading on the echo-sounder, a correction was found which could be conveniently added to the reading on the meter wheel of the depths of the water samplers. When this correction was made during normal weather and current conditions, it was very close to Mr. ANDREASEN's calculation - the difference being never more than 1% of the depth.

## STATION LIST DATA

The depth at hydrographic stations is given in accordance with that registered by the echo-sounder and the later corrected depth, at the time when the examination was made. At those stations which were spread over a longer period, the depth is given at the time when the deepest series of water bottles was released. Thus, the station depth for a hydrographic station may deviate from the depth of a biological station with the same number and position (cf. the List of Deep-Sea Stations, Galathea Rep. 1, 1957-59).

**m** The depth in which the thermometer was released is corrected according to the methods given above.

**C°** The corrected temperature (centigrade) of the sea water. From the surface to a depth of 80 m isolating water bottles with one thermometer were generally used. At greater depths the reversing water bottles with two thermometers were used, and the mean of the corrected readings from these was recorded. For all deep stations concerned the corrected mean temperature is controlled graphically,

and the dynamic temperature curves have also been critically examined. In cases where the reading of the two thermometers on the same water bottle differed, the curves were taken into consideration before the temperature was recorded in the list of data.

**S ‰** The salinity in ‰ has been calculated according to MARTIN KNUDSEN's tables from the amount of chlorine determined by titration according to the Mohr-Knudsen method. Titration took place on board as quickly as possible after the samples had been collected. Each sample was titrated twice, and the curves on salinity were later drawn up to control the result.

**$\sigma_t$**  The density of the sea water calculated from S ‰ according to MARTIN KNUDSEN's tables (den-

sity at the given temperature and at the atmospheric pressure =  $1 + \sigma_t \cdot 10^{-3}$ ).

**O<sub>2</sub> ml/L** The amount of oxygen shown in milliliter per liter sea water calculated by titration according to Winkler's method.

**O<sub>2</sub> %** The proportion in percent between the amount of oxygen observed per liter sea water, and the amount of oxygen which could be absorbed into the same amount of sea water at the given temperature and at the atmospheric pressure.

**Phosphate  $\mu\text{g-atoms P/l}$**  Sea water content of inorganic phosphate calculated according to Wattenberg's method, and corrected for salt error. This is given in the table in gram-atoms of P  $\cdot 10^{-6}$  per liter sea water.

#### Physical and Chemical Data.

Depth m	Temperature °C	Salinity ‰	Density $\sigma_t$	Oxygen ml/L	Oxygen %	Phosphate $\mu\text{g-atoms P/L}$
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**Station 1:** Bay of Biscay. 46°28'N, 8°01'W. Date 22.10.50.  
LMT 1115-1515. Depth 4533 m.

0	15.53	35.68	26.40	5.28	93.3
10	.41	.64	.38	.53	97.6
25	.38	.64	.40	.55	.8
35	.03	.61	.46	.51	96.5
50	14.85	.59	.47	.46	95.7
72	13.05	.64	.90	.51	93.2
96	12.42	.64	27.02	.42	90.5
144	11.85	.61	.11	.30	87.8
192	.65	.59	.13	.44	9.6
288	.47	.55	.13	.41	.2
384	.19	.53	.18	.21	85.0
480	10.82	.52	.23	4.22	68.3
576	.60	.52	.27	.65	75.1
672	.36	.55	.35	.48	72.1
768	.10	.53	.38	.35	69.3
864	9.87	.57	.45	.24	67.5
960	.63	.62	.53	.20	66.4
1152	8.20	.57	.71	.28	65.7
1440	5.82	.21	.76	5.20	75.6
1920	4.06	.01	.82	.75	79.7
2400	3.35	34.99	.84	.81	.8
2880	.01	.99	.88	.48	74.2
3360	2.81	.97	.91	.46	73.5
3840	.69	.96	.90	.40	72.4
4320	.58	.92	.88	.32	71.2

**Station 2:** Lisboa-Tenerife. 38°08'N, 14°00'W. Date 29.10.50.  
LMT 1100-1130. Depth 4231 m.

0	21.26	36.76	25.81
20	.26	.76	.81
40	.23	.76	.81

**Station 3:** Lisboa-Tenerife. 31°17'N, 14°20'W. Date 29.10.50.  
LMT 1630-1730. Depth 4212 m.

0	21.53	36.78	25.82
20	.53	.78	.82
40	.55	.78	.82

Depth m	Temperature °C	Salinity ‰	Density $\sigma_t$	Oxygen ml/L	Oxygen %	Phosphate $\mu\text{g-atoms P/L}$
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**Station 4:** Tenerife-Dakar. 22°20'N, 17°05'W. Date 2.11.50.  
LMT 1150-1200. Depth 62 m.

0	19.93	36.40	26.07
20	.80	.40	.07
40	.53	.38	.05

**Station 5:** Tenerife-Dakar. 21°30'N, 17°08'W. Date 2.11.50.  
LMT 1200-1215. Depth 62 m.

0	19.57	36.31	25.90
20	18.54	.26	26.12
40	16.55	35.97	.39

**Station 6:** Tenerife-Dakar. 18°20'N, 18°21'W. Date 3.11.50.  
LMT 0910-0917. Depth 2925 m.

0	26.83	35.03	22.81
20	.83	.03	.81
40	24.65	.65	23.93

**Station 7:** Tenerife-Dakar. 17°10'N, 18°30'W. Date 3.11.50.  
LMT 1630-1650. Depth 3119 m.

0	26.84	35.08	22.85
20	.33	.35	23.22
40	17.33	.70	25.99

**Station 11:** Dakar-Monrovia. 14°30'N, 17°30'W.  
Date 7.11.50. LMT 1340-1355. Depth 94 m.

0	27.33	34.60	22.33
20	21.77	35.59	24.74
40	17.13	.59	25.95

**Station 12:** Dakar-Monrovia. 14°08'N, 17°46'W.  
Date 7.11.50. LMT 1645-1650. Depth 975 m.

0	27.67	34.97	22.51
20	26.16	35.43	23.33
40	18.26	.61	25.70

Depth	Tem- perature	Salinity	Density	Oxygen	Oxygen	Phosphate
m	°C	‰	σ <sub>t</sub>	ml/L	%	μg-atoms P/L

**Station 13:** Dakar-Monrovia. 11°35'N, 19°34'W.  
Date 8.11.50. LMT 1510-1520. Depth 4630 m.

0	28.04	34.58	22.10			
20	.27	.97	.33			
40	20.91	35.53	24.93			

**Station 14:** Dakar-Monrovia. 9°30'N, 17°00'W.  
Date 9.11.50. LMT 1033-1039. Depth 800 m.

0	27.81	34.83	22.35			
20	.71	.92	.38			
40	23.43	35.53	24.24			

**Station 15:** Dakar-Monrovia. 9°30'N, 16°00'W.  
Date 9.11.50. LMT 1640-1700. Depth 333 m.

0	28.25	33.73	21.38			
20	27.13	34.72	22.49			
40	20.59	35.55	25.05	3.80	73.0	
75	15.45	.55	26.32	1.83	32.4	

**Station 16:** Dakar-Monrovia. 7°29'N, 13°44'W.  
Date 10.11.50. LMT 1200-1210. Depth 330 m.

0	28.44	31.20	19.43	4.19	91.2	
40	19.03	35.66	25.54			
90	15.83	.57	26.25			

**Station 22:** Monrovia-Takoradi. 6°01'N, 6°51'W.  
Date 14.11.50. LMT 1217-1230. Depth 330 m.

0	28.37	33.69	21.31		0.0	
40	20.53	35.57	25.08		.6	
80	16.74	.59	26.05		.7	

**Station 23:** Monrovia-Takoradi. 5°31'N, 10°42'W.  
Date 14.11.50. LMT 1621-1631. Depth 2027 m.

0	27.91	34.40	21.99		0.1	
40	19.93	35.66	25.30		1.0	
80	16.14	.61	26.21		.4	

**Station 24:** Monrovia-Takoradi. 3°54'N, 8°22'W.  
Date 15.11.50. LMT 1620-1631. Depth 3196 m.

0	27.41	34.67	22.36		0.0	
40	22.80	35.26	24.22		.4	
80	17.09	.66	26.01		1.7	

**Station 25:** Monrovia-Takoradi. 2°06'N, 5°58'W.  
Date 16.11.50. LMT 1340-1350. Depth 4923 m.

0	26.45	35.39	23.21		0.0	
40	24.83	.64	.89		.0	
75	16.23	.61	26.20		1.7	

**Station 28:** Monrovia-Takoradi. 1°47'N, 5°49'W.  
Date 17.11.50. LMT 1255-1305. Depth 5020 m.

0	26.19	35.48	23.36		0.2	
40	25.16	.59	.76		.0	
80	15.99	.61	26.24		1.7	

Depth	Tem- perature	Salinity	Density	Oxygen	Oxygen	Phosphate
m	°C	‰	σ <sub>t</sub>	ml/L	%	μg-atoms P/L

**Station 30:** Monrovia-Takoradi. 0°42'N, 5°59'W.  
Date 18.11.50. LMT 1625-1645. Depth 5098 m.

0	25.77	35.46	23.46			0.1
40	.43	.48	.59			.2
80	19.49	.68	25.43			1.1

**Station 31:** Monrovia-Takoradi. 1°56'N, 4°37'W.  
Date 19.11.50. LMT 0923-1615. Depth 4933 m.

0	26.05	35.39	23.33			0.0
10	25.93	.39	.37	4.67	97.3	
25	.86	.41	.42	.67	.3	
40	24.84	.46	.76			.0
55	21.47	.64	24.86	.08	79.4	
80	15.13	.57	26.40			1.5

96	.33	.55	.34	2.68	47.2	
144	14.05	.43	.53	.58	44.5	
192	13.43	.34	.58	.50	42.5	
288	11.18	.07	.81	.23	36.3	
384	9.62	34.92	.97	.36	37.0	
480	7.77	.70	27.10	.10	31.8	
576	6.56	.56	.15			
672	5.52	.51	.25	.55	36.6	
768	.02	.51	.31	.87	40.6	
864	4.74	.49	.32	3.20	45.0	
960	.65	.52	.36	.15	44.1	
1152	.41	.56	.41	.39	47.3	
1440	.09	.90	.72	4.68	65.0	
1920	3.63	.96	.81	5.51	75.6	
2400	.23			.45	74.0	
2880	2.99	.90	.83			
3360	.50	.90	.87	5.37	71.6	
3840	.39	.87	.85	.35	.2	
4320	.34	.87	.86	.27	70.0	
4704	.25	.87	.86	.27	69.8	

**Station 32:** Monrovia-Takoradi. 4°05'N, 2°13'W.  
Date 20.11.50. LMT 1640-1650. Depth 2047 m.

0	27.81	34.79	22.33			0.0
40	26.93	35.07	.81			.0
80	16.27	.61	26.18			1.3

**Station 41:** Volta River. 5°45'N, 0°45'E. Date 26.11.50.  
LMT 0832. Depth 10 m.

0	27.13	33.33	21.44	3.98	83.1	
9	.41	34.45	22.19	4.36	92.1	

**Station 42:** Volta River. 5°42'N, 0°45'E. Date 26.11.50.  
LMT 0930-0935. Depth 19.5 m.

0	27.32	33.08	21.20			0.1
17	26.81	34.83	22.02			.3
19	.77			3.56	74.5	

**Station 43:** Volta River. 5°37'N, 0°44'E. Date 26.11.50.  
LMT 1030-1100. Depth 30 m.

0	27.21	34.69	22.44	4.39	92.5	
20	.28	.74	.47	.58	96.6	
28	26.28	35.08	23.02	.27	89.0	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
<b>Station 44:</b> Volta River. 5°36'N, 0°45'E. Date 26.11.50. LMT 1210. Depth 40 m.						
38	26.09	35.08	23.09	4.26	88.6	
<b>Station 45:</b> Volta River. 5°36'N, 0°45'E. Date 26.11.50. LMT 1245. Depth 210 m.						
192	13.42	35.32	26.58	1.77	30.1	
<b>Station 46:</b> Volta River. 5°36'N, 0°48'E. Date 26.11.50. LMT 1600-1700. Depth 280 m.						
0	28.44	34.63	21.99			0.1
14	27.13	.72	22.48			.1
29	26.34	.99	.94			.3
307	10.28	.97	26.91	1.34	21.5	
<b>Station 47:</b> Accra-San Tomé. 2°54'N, 3°50'E. Date 27.11.50. LMT 1530-1550. Depth 4059 m.						
0	27.95	33.66	21.42			0.1
40	25.82	35.62	23.58			.1
80	16.00	.61	26.24			1.8
<b>Station 49:</b> Anchorage, San Tomé. 0°00'N, 6°32'E. Date 29.11.50. LMT 0910-0915. Depth 42 m.						
0	26.43	34.11	22.23			0.0
10	.47	.22	.29			.0
<b>Station 52:</b> San Tomé-Victoria. 1°42'N, 7°51'E. Date 30.11.50. LMT 1745-1755. Depth 2556 m.						
0	26.54	24.51	15.02			0.0
39	19.44	35.61	25.39			.9
864	4.57	34.56	27.40			
<b>Station 59:</b> Anchorage, Port Victoria. 4°00'N, 9°11'E. Date 1.12.50. LMT 1430. Depth 9 m.						
0	28.04	19.13	10.56			
9	26.18	30.88	19.91			
<b>Station 63:</b> Off Gabon. 2°00'N, 9°14'E. Date 2.12.50. LMT 1600-1915. Depth 1520 m.						
0	27.15	21.27	12.42	4.73	92.1	
19	26.99	28.28	17.70	.41	89.6	
38	20.27	35.50	25.09	.04	77.3	
48		.48		3.88	73.2	
77	17.43	.61	.90	.50	63.8	
96	16.60	.55	26.05	.43	61.8	
144	14.94	.50	.39	2.90	50.5	
192	.43	.44	.46	.81	48.8	
288	9.68	34.87	.92	1.67	26.3	
384	8.80	.78	27.00	.67	25.8	
480	6.94	.64	.16	.97	29.2	
576	6.00	.52	.20	2.75	39.8	
672	5.34	.51	.27	.99	42.7	
768	4.88	.51	.32	3.19	45.1	
864	.52	.56	.40	.32	46.5	
960	.35	.63	.48	.59	50.1	
1152	.33	.76	.58	4.00	55.9	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
<b>Station 64:</b> Off Gabon. 0°16'S, 8°12'E. Date 3.12.50. LMT 1445-1511. Depth 2187 m.						
0	26.98	32.36	20.76			0.0
20	.30	33.96	22.18			.2
40	19.93	35.75	25.41			1.1
80	17.73	.75	.93			.3
<b>Station 65:</b> Off Gabon. 2°17'S, 8°10'E. Date 4.12.50. LMT 1510-1530. Depth 2610 m.						
0	26.43	34.04	22.19			0.0
20	24.83	.94	23.37			.1
40	22.78	35.41	24.33			.1
80	16.26	.70	26.25			1.2
<b>Station 66:</b> Off Gabon. 4°00'S, 8°25'E. Date 5.12.50. LMT 1600-1626. Depth 4018 m						
0	26.98	32.59	20.93			0.0
20	24.57	35.64	23.98			.2
40	18.06	.53	25.69			.9
63	15.80	.64	26.31			1.7
<b>Station 67:</b> Off Gabon. 5°00'S, 9°15'E. Date 6.12.50. LMT 0930-0950. Depth 2757 m.						
0	26.69	29.43	18.66			0.1
10	.66	.69	.85			.3
20	24.47	35.59	23.97			.9
40	18.45	.70	25.72			1.3
<b>Station 68:</b> Off River Congo. 5°19'S, 10°55'E. Date 6.12.50. LMT 1603-1622. Depth 1793-1713 m.						
0	26.83	28.73	18.09			0.0
10	.10	30.93	19.96			.4
20	24.18	35.55	24.02			.3
40	18.89	.62	25.54			.9
<b>Station 69:</b> Off River Congo. 5°18'S, 11°08'E. Date 6.12.50. LMT 2135-2230. Depth 1434 m.						
1381	4.01	34.92	27.74	4.60	63.7	
<b>Station 70:</b> Off River Congo. 5°17'S, 11°18'E. Date 7.12.50. LMT 0000-0420. Depth 1227 m.						
1171	4.27	34.76	27.58	3.45	48.0	
<b>Station 71:</b> Off River Congo. 5°23'S, 11°28'E. Date 7.12.50. LMT 0700-1042. Depth 877-935 m.						
0	25.43	25.99	21.00			0.0
10	.36	34.83	23.04			.3
17	24.20	35.57	24.03			.4
41	23.53	.61	.26			.4
806	4.70					
<b>Station 72:</b> Off River Congo. 5°31'S, 11°25'E. Date 7.12.50. LMT 1345-1455. Depth 788 m.						
0	25.92	23.06	14.13			
720	4.85	34.52	27.33	2.87	40.5	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 73:** Off River Congo. 5°41'S, 11°26'E.  
Date 7.12.50. LMT 1615-1800. Depth 450 m.

0	25.33	23.93	19.34			0.0
10	.25	34.94	23.25			.2
35.5	23.15	35.68	24.42			.3
38.5	c.21.9	.62				
418	c. 9.15	34.85		1.38	21.2	

**Station 74:** Off River Congo. 5°41'S, 11°38'E.  
Date 7.12.50. LMT 1900-1955. Depth 291 m.

240	11.21	35.09	26.83	1.32	21.5	
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**Station 75:** Off River Congo. 5°41'S, 11°38'E.  
Date 7.12.50. LMT 2030-2125. Depth 201 m.

0	24.92	26.94	17.30			
187	14.12	35.41	26.47	1.68	28.9	

**Station 76:** Off River Congo. 5°42'S, 11°40'E.  
Date 7.12.50. LMT 2200-2310. Depth 201 m.

0	24.70	27.52	17.83			
84	17.01	35.61	26.00	2.43	43.9	

**Station 77:** Off River Congo. 5°43'S, 11°45'E.  
Date 8.12.50. LMT 0010-0025. Depth 79 m.

71	18.51	35.50	25.65	3.42	63.5	
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**Station 78:** Off River Congo. 5°40'S, 11°54'E.  
Date 8.12.50. LMT 0220-0240. Depth 58 m.

0	23.92					
54	19.84	35.44	25.15	4.17	79.2	

**Station 79:** Off River Congo. 5°37'S, 12°02'E.  
Date 8.12.50. LMT 0530-0550. Depth 42 m.

0	23.93					
37	21.20	35.37	24.74	3.72	72.0	

**Station 80:** Off River Congo. 5°42'S, 12°01'E.  
Date 8.12.50. LMT 0630-0655. Depth 30 m.

0	24.02	18.17	11.01			
25	21.84	35.34	24.53	3.85	75.2	

**Station 81:** Off River Congo. 5°42'S, 12°03'E.  
Date 8.12.50. LMT 0720-0810. Depth 20 m.

0	24.29	18.03	10.82			
15	22.72	35.30	24.27	3.46	68.4	

**Station 82:** Victoria-Loanda. 5°53'S, 12°04'E.  
Date 8.12.50. LMT 1000-1040. Depth 25 m.

0	24.99	18.78	11.20			
10	22.89	35.50	24.36			0.3
16	21.87	.34	.53			.5

**Station 83:** Victoria-Loanda. 6°02'S, 12°03'E.  
Date 8.12.50. LMT 1240-1515. Depth 797 m.

0	25.54					
696		34.65		1.87	27.2	
696	6.08	34.67	27.31	.95	28.3	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 84:** Victoria-Loanda. 6°16'S, 12°12'E.  
Date 8.12.50. LMT 1750-1920. Depth 22 m.

0	24.46	34.09	22.83			
19	21.22	35.39	24.74	4.01	77.8	

**Station 85:** Victoria-Loanda. 6°17'S, 12°12'E.  
Date 8.12.50 LMT 1940-2025. Depth 31 m.

0	24.21	34.33	23.09			
27	20.99	35.41	24.83	3.60	69.5	

**Station 86:** Victoria-Loanda. 6°19'S, 12°05.5'E.  
Date 8.12.50. LMT 2045-2110. Depth 39 m.

0	24.20	34.33	23.10			
36	20.35	35.44	25.03	3.96	75.7	

**Station 87:** Victoria-Loanda. 6°21'S, 12°05'E.  
Date 8.12.50. LMT 2134-2200. Depth 50 m.

0	24.31	34.22	22.97			
46	20.09	35.44	25.09	3.93	74.7	

**Station 88:** Victoria-Loanda. 6°24'S, 12°01'E.  
Date 8.12.50. LMT 2235-2320. Depth 75 m.

0	24.50	34.00	22.76			
73	17.53	35.57	25.85	5.47	38.6	

**Station 89:** Victoria-Loanda. 6°26'S, 11°56'E.  
Date 9.12.50. LMT 0005-0045. Depth 100 m.

0	24.51	34.09	22.83			
91	17.21	35.61	25.96	2.79	50.7	

**Station 90:** Victoria-Loanda. 6°34'S, 11°45'E.  
Date 9.12.50. LMT 0235-0255. Depth 206 m.

0	25.36	34.42	22.82			
192	14.50	35.46	26.46			

**Station 91:** Victoria-Loanda. 6°35'S, 11°42'E.  
Date 9.12.50. LMT 0500-0512. Depth 301 m.

0	25.51	34.40	22.75			
288	9.90	.96	26.95	1.14	18.1	

**Station 92:** Victoria-Loanda. 6°40'S, 11°35'E.  
Date 9.12.50. LMT 0605-0710. Depth 396 m.

0	25.63	34.38	22.70			
360	8.98	.83	26.85	1.26	19.5	

**Station 93:** Victoria-Loanda. 6°38'S, 11°32'E.  
Date 9.12.50. LMT 0807-1048. Depth 709 m.

0	25.74	34.27	22.59			0.0
20	.63	.42	.72			.1
40	21.63	35.55	24.75			.4
80	16.75	.73	26.14			1.9
672	5.30	34.51	27.27	2.25	32.1	

**Station 94:** Victoria-Loanda. 6°48'S, 11°19'E.  
Date 9.12.50. LMT 1250-1425. Depth 994 m.

0	26.29	33.95	22.17			
941	4.38	34.56	27.41	3.18	44.4	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
<b>Station 95:</b> Victoria-Loanda. 6°51'S, 11°15'E.						
Date 9.12.50. LMT 1500-1715. Depth 1172 m.						
0	26.61	34.36	22.37			0.1
20	.34	.49	.56			.1
39	18.45	35.79	25.77			.5
80	15.93	.62	26.26			2.2
1110	4.25	34.74	27.58	3.75	52.3	
<b>Station 96:</b> Victoria-Loanda. 7°00'S, 11°10'E.						
Date 9.12.50. LMT 1820-1930. Depth 1510 m.						
0	26.11	34.13	22.36			
1392	3.92	.94	27.77	4.72	65.2	
<b>Station 97:</b> Victoria-Loanda. 8°22'S, 11°08'E.						
Date 10.12.50. LMT 1030-1052. Depth 2737 m.						
0	26.98	33.30	21.44			0.0
20	22.95	35.81	24.57			.4
40	16.21	.66	26.24			2.0
80	15.24	.55	.35			.2
<b>Station 98:</b> Victoria-Loanda. 8°52'S, 11°09'E.						
Date 10.12.50. LMT 1540-1605. Depth 2807 m.						
0	26.83	34.74	22.60			0.2
20	19.80	35.77	25.42			.5
40	16.51	.70	26.20			1.8
80	15.53	.57	.32			2.0
<b>Station 101:</b> Victoria-Loanda. 8°50'S, 12°32'E.						
Date 12.12.50. LMT 1510-1545. Depth 994 m.						
0	25.84	35.05	23.14			0.2
10	.79	.05	.15			.2
20	.28	.50	.66			.2
40	19.80	.62	25.32			1.1
75	16.76	.68	26.11			2.2
<b>Station 105:</b> Loanda-Lobito. 11°03'S, 10°45'E.						
Date 18.12.50. LMT 0345-0905. Depth 4043 m.						
0	25.34	36.06	24.06	4.64	96.1	0.1
20	23.65					.1
24	21.45	35.81	25.00	5.52	107.0	
40	16.80					2.0
48	.28	.66	26.22	1.63	29.2	
72	15.42	.59	.35	.71	30.1	
96	.14	.55	.39	.60	28.0	
144	14.34	.46	.49	.45	25.0	
192	13.57	.37	.57	.22	20.8	
288	11.64	.35	.94			
384	9.67	34.92	.96	0.61	9.7	
480	7.81	.72	27.10	.76	11.6	
576	6.52	.61	.21	1.00	14.6	
672	5.50	.54	.28	.78	25.5	
768	4.77	.49	.31	2.34	33.0	
864	.41	.51	.37	.78	38.8	
960	.22	.56	.43	3.01	41.9	
1152	.01	.69	.55	.58	49.5	
1440	3.80	.87	.73	4.43	61.1	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
1920	.34	.92	.81	5.05	68.7	
2400	2.90	.92	.85	.00	67.6	
2880	.63	.90	.86	.08	.9	
3360	.49	.92	.88	.09	.8	
3744	.41	.87	.85	4.99	66.4	
<b>Station 106:</b> Loanda-Lobito. 11°24'S, 11°15'E.						
Date 18.12.50. LMT 1630-1650. Depth 3777 m.						
0	25.83	35.82	23.72			0.1
20	23.08	.79	24.53			.2
40	16.46	.64	26.16			2.2
<b>Station 109:</b> Loanda-Lobito. 12°06'S, 13°06'E.						
Date 19.12.50. LMT 1030-1110. Depth 1192 m.						
0	26.99	34.94	22.70			0.2
20	21.79	35.21	24.46			.4
40	18.36	.64	25.69			1.7
80	15.71	.61	26.30			2.4
1128	3.99	34.74	27.61	3.36	49.2	
<b>Station 112:</b> Loanda-Lobito. 12°16'S, 13°17'E.						
Date 20.12.50. LMT 0030-0110. Depth 735 m.						
0	26.91					
701	4.96	34.51	27.31	2.13	30.1	
<b>Station 114:</b> Loanda-Lobito. 12°13'S, 13°24'E.						
Date 20.12.50. LMT 0250-0305. Depth 293 m.						
0	26.71	35.07	22.87			
278	10.11	34.96	26.92	0.76	12.1	
<b>Station 116:</b> Loanda-Lobito. 12°12'S, 13°27'E.						
Date 20.12.50. LMT 0500-0552. Depth 100 m.						
0	26.60	35.16	22.98			
94	15.06	.50	26.36	0.96	16.9	
<b>Station 117:</b> Loanda-Lobito. 12°14'S, 13°32'E.						
Date 20.12.50 LMT. 0650-0705. Depth 75 m.						
0	24.91					
56	17.73	35.62	25.83			
<b>Station 118a:</b> Lobito. 12°20'S, 13°40'E. Date 20.12.50.						
LMT 1330. Depth 30 m.						
0	24.5					0.4
10	21.0					1.5
<b>Station 125:</b> Lobito, NW of Lighthouse. Date 20.12.50.						
LMT 1820-1825. Depth 60 m.						
0	24.06					
42	18.76	35.52	25.49			
<b>Station 126:</b> Lobito-Walvis Bay. 14°35'S, 12°06'E.						
Date 21.12.50. LMT 1120-1150. Depth 1917 m.						
0	24.03	35.55	24.08			0.3
20	19.49	.64	25.40			1.2
40	15.84	.53	26.22			2.4



Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
<b>Station 129:</b> Lobito-Walvis Bay, Off Kunene River. 17°13'S, 11°42'E. Date 22.12.50. LMT 0550-0603. Depth 50 m.						
0	15.59					
47	.21	35.44	26.29	1.61	28.2	
<b>Station 131:</b> Off Kunene River. 17°13'S, 11°42'E. Date 22.12.50. LMT 0735-0810. Depth 100 m.						
0	15.95					
95	14.55	35.43	26.42	0.74	12.9	
<b>Station 132:</b> Off Kunene River. 17°13'S, 11°27'E. Date 22.12.50. LMT 0945-1100. Depth 201 m.						
0	16.77	35.52	25.99			1.7
15	.72	.52	.99			.7
30	.70	.55	26.03			2.0
182	12.97	.28	.64	0.68	11.4	
<b>Station 135:</b> Off Kunene River. 17°13'S, 11°16'E. Date 22.12.50. LMT 1345-1500. Depth 708 m.						
0	17.51					
680	4.80	34.51	27.33	2.53	35.7	
<b>Station 136:</b> Off Kunene River. 17°13'S, 11°12'E. Date 22.12.50. LMT 1630-1650. Depth 977 m.						
0	17.53	35.57	25.85			1.3
14	.52	.57	.85			.4
33	16.33	.43	26.02			.5
<b>Station 138:</b> Off Walvis Bay. 22°45'S, 14°15'E. Date 24.12.50. LMT 0810-0845. Depth 81 m.						
0	15.73	35.05	25.86			1.7
15	12.48	.10	26.60			2.4
30	.20	.08	.63			.4
<b>Station 139:</b> Walvis Bay, Anchorage. Date 24.12.50. LMT 2334-0040. Depth 6 m.						
0	19.80	35.26	25.04	0.86	16.2	> 2.2
1	18.03	.14	.39	1.44	26.6	> .2
2	17.93	.10	.41	2.34	42.8	> .2
3	.03	.07	.58	.94	53.1	> .4
5	16.66	.05	.64	.33	41.9	> .2
6	.66	.08	.67	.61	46.9	> .7
<b>Station 140:</b> Walvis Bay. 22°55'S, 14°27'E. Date 25.12.50. LMT 0136. Depth 10 m.						
10	16.12	35.05	25.77	3.48	62.0	
<b>Station 141:</b> Walvis Bay, Entrance of Bay. Date 25.12.50. LMT 0220. Depth 17 m.						
17	13.83	35.03	26.27	0.26	4.40	
<b>Station 142:</b> Off SW. Africa. 23°15'S, 13°37'E. Date 25.12.50. LMT 0800-0845. Depth 200 m.						
0	15.42					
192	11.06	34.99	26.78	0.54	8.8	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
<b>Station 143:</b> Off SW Africa. 23°16'S, 14°02'E. Date 25.12.50. LMT 1140-1215. Depth 148 m.						
0	15.43	35.03	25.91	5.30	93.2	1.7
15	13.73	.01	26.27	4.23	72.1	.7
30	12.63	.05	.52	2.29	38.3	2.2
142	10.96	34.99	.80	0.16	2.6	
<b>Station 144:</b> Off SW Africa. 23°16'S, 14°02'E. Date 25.12.50. LMT 1420. Depth 99 m.						
95	11.54	35.01	26.71	0.28	4.60	
<b>Station 145:</b> Off SW Africa. 23°16'S, 14°02'E. Date 25.12.50. LMT 1528. Depth 50 m.						
45	11.73	35.03	26.68	0.29	4.8	
<b>Station 146:</b> Off SW Africa. 23°15'S, 14°26'E. Date 25.12.50. LMT 1556. Depth 35 m.						
30	11.91	35.01	26.64	0.09	1.5	
<b>Station 147:</b> Conception Bay. 23°54'S, 14°29'E. Date 25.12.50. LMT 2010-2025. Depth 22 m.						
0	15.01					
20	11.93	34.99	26.62	0.33	5.4	
<b>Station 148:</b> Conception Bay. 23°54'S, 14°26'E. Date 25.12.50. LMT 2045-2055. Depth 40 m.						
0	14.80					
38	11.81	34.99	26.64	0.18	3.0	
<b>Station 150:</b> Conception Bay. 23°54'S, 14°22'E. Date 25.12.50. LMT 2140-2220. Depth 76 m.						
71	11.57	35.01	26.70	0.06	1.0	
<b>Station 151:</b> Conception Bay. 23°54'S, 14°19'E. Date 25.12.50. LMT 2245-2325. Depth 99 m.						
0	14.81					
92	11.54	35.01	26.70	0.03	0.5	
<b>Station 152:</b> Conception Bay. 23°54'S, 14°19'E. Date 26.12.50. LMT 0023-0100. Depth 148 m.						
139	11.01	34.99	26.79	0.25	4.1	
<b>Station 153:</b> Off SW Africa. 29°00'S, 15°29'E. Date 27.12.50. LMT 1610-1620. Depth 180 m.						
0	16.74	34.97	25.59			0.4
15	.73	.96	.57			.4
<b>Station 154:</b> Off SW Africa. 32°37'S, 17°25'E. Date 28.12.50. LMT 1400-1514. Depth 254 m.						
0	13.48	34.88	26.21			0.2
15	12.63	.94	.44			.4
30	.72	.90	.39			.4
237	6.89	.51	27.06			
<b>Station 156:</b> Off SW Africa. 32°37'S, 17°25'E. Date 28.12.50. LMT 1920-1948. Depth 116 m.						
0	14.81	34.97	26.01			
105	8.68	.69	.94	3.41	52.5	

Depth	Tem- perature	Salinity	Density	Oxygen	Oxygen	Phosphate
m	°C	‰	σ <sub>t</sub>	ml/L	%	μg-atoms P/L

**Station 158:** Off Cape Town. 33°52'S, 18°21'E.  
Date 2.1.51. LMT 0714. Depth 43 m.  
38 8.23 34.61 26.96 4.62 70.5

**Station 159:** Off Sea Point, Cape Town. 38°58'S, 18°09'E.  
Date 2.1.51. LMT 0940-1015. Depth 120 m.  
0 10.61 34.76 26.68 1.1  
14 .27 .76 .74 .3  
29 9.92 .78 .87 .5  
91 7.74 .67 27.07 4.38 66.0 2.2

**Station 160:** Off Sea Point, Cape Town. 34°01'S, 18°01'E.  
Date 2.1.51. LMT 1305-1325. Depth 200 m.  
0 16.11  
187 5.49

**Station 161:** Off Sea Point, Cape Town. 34°07'S, 17°47'E.  
Date 2.1.51. LMT 1530-1610. Depth 301 m.  
0 18.87 0.4  
14 .94 35.50 25.44 .1  
29 .50 .1  
282 6.77

**Station 162:** Robbin Island. 34°11'S, 17°36'E. Date 2.1.51.  
LMT 1815-1830. Depth 496 m.  
0 18.31  
460 6.98 34.52 27.07 4.34 64.4

**Station 163:** Off Cape Peninsula. 34°15'S, 18°14'E.  
Date 2.1.51. LMT 0015-0055. Depth 170 m.  
0 15.35  
153 7.49 34.56 27.02 4.23 63.4

**Station 164:** Off Cape Point, Cape Peninsula.  
34°30'S, 18°30'E. Date 3.1.51. LMT 0540-0550.  
Depth 160 m  
0 19.01  
148 9.6 34.78 26.87

**Station 165:** Off Cape Point, Cape Peninsula.  
34°16'S, 18°48'E. Date 3.1.51. LMT 0700-0740.  
Depth 100 m.  
0 18.11  
96 9.62 34.79 26.88

**Station 166:** Off Cape Point, Cape Peninsula.  
34°20'S, 18°31'E. Date 3.1.51. LMT 0815-0835.  
Depth 75 m.  
0 15.53 35.21 26.04  
72 9.68 34.79 .88

**Station 167:** False Bay. 34°16'S, 18°32'E. Date 3.1.51.  
LMT 1000-1015. Depth 50 m.  
0 15.45 35.19 26.04 0.7  
14 .36 .17 .05 .4  
29 13.66 .10 .35 1.3  
43 12.91 .07 .46 .3

Depth	Tem- perature	Salinity	Density	Oxygen	Oxygen	Phosphate
m	°C	‰	σ <sub>t</sub>	ml/L	%	μg-atoms P/L

**Station 168:** False Bay. 34°16'S, 18°32'E. Date 3.1.51.  
LMT 1145-1210. Depth 40 m.  
0 17.67  
34 12.79 35.01 26.46

**Station 169:** Anchorage off Simonstown, False Bay.  
34°11'S, 18°27'E. Date 3.1.51. LMT 1405-1420.  
Depth 20 m.  
0 18.33 35.37 25.50 0.2  
14 .34 .34 .47 .2

**Station 175:** Simonstown-Durban. 35°00'S, 27°22'E.  
Date 21.1.51. LMT 1110-1130. Depth 4459 m.  
0 21.46 35.61 24.85 0.2  
38 .17 .59 .92 .1  
75 19.97 .57 25.23 1.7

**Station 177:** Simonstown-Durban. 35°13'S, 27°45'E.  
Date 22.1.51. LMT 0405-1110. Depth 4514 m.  
0 21.60 35.62 24.83 4.96 97.1  
25 .43 .62 .88 .98 96.9  
50 20.91 .61 25.01 5.02 97.0  
75 .23 .59 .18 4.97 95.1  
96 19.12 .59 .47 .81 90.3  
144 18.36 .57 .64 .73 87.7  
192 17.84 .57 .77 .70 86.5  
287 .06 .55 .95 .68 84.9  
383 15.60 .50 26.24 .63 82.0  
479 14.26 .37 .45 .30 74.4  
574 13.19 .25 .56 .63 78.3  
670 12.20 .12 .66 .88 81.0  
766 11.37 .01 .74 .85 79.1  
862 10.12 34.83 .83 .86 77.1  
957 9.02 .72 .92 .54 70.2  
1149 7.25 .58 27.08 .04 60.1  
1436 4.66 .52 .36 3.60 50.6  
1915 3.12 .65 .61 .77 51.0  
2394 2.66 .78 .77 4.43 59.2  
2872 .47 .83 .82 .86 64.8  
3351 .16 .83 .85 .95 65.3  
3830 1.59 .79 .86 .89 63.7  
4261 .23 .74 .85

**Station 178:** Simonstown-Durban. 35°07'S, 30°35'E.  
Date 23.1.51. LMT 1640-1656. Depth 4603 m.  
0 21.94 35.64 24.74 0.2  
40 .10 .64 .97 .2  
80 20.98 .57 .96 .3

**Station 180:** Simonstown-Durban. 34°56'S, 36°02'E.  
Date 25.1.51. LMT 0910-0930. Depth 5389 m.  
0 21.27 35.57 24.88 0.2  
40 19.71 .57 25.30 .1  
80 18.60 .59 .29 .3

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 181:** Simonstown-Durban. 34°54'S, 38°02'E.  
Date 26.1.51. LMT 0940-1005 – 1300-1945.  
Depth 5388 m.

0	22.09	35.73	24.77	4.98	98.0	0.1
40	20.96	.73	25.08	5.06	97.8	.1
80	19.30	.68	.47	.36	100.9	.1
144	16.94	.61	26.01	4.98	90.0	
383	14.07	.37	.48	.88	84.0	
574	12.37	.16	.66	.98	83.0	
766	10.45	34.88	.80	.96	79.2	
862	9.33	.74	.89	.86	75.9	
957	7.98	.61	27.00	.66	70.8	
1149	5.43	.42	.18	.51	64.4	
1436	3.78	.45	.39	.05	55.6	
1915	2.83	.70	.69			
2394	.53	.79	.78	.52	60.3	
2872	.25	.79	.81	.71	62.4	
3351	1.94	.79	.83	.85	63.7	
3830	.46	.78	.86	.88	.5	
4309	0.97	.74	.86	.92	.2	
4788	.68	.72	.86			
5123	.66	.69	.83	.91	62.5	

**Station 184:** Simonstown-Durban. 33°06'S, 35°21'E.  
Date 29.1.51. LMT 1445-1930. Depth 1470 m.

0	23.60	35.50	24.15			0.1
40	.41	.50	.15			.1
80	21.74	.52	.70			.1
144	18.93	.55	25.48	4.47	83.6	
192	17.83	.59	.78	.61	84.9	
383	15.11	.44	26.31	.71	82.6	
574	12.71	.19	.62	.86	81.6	
766	10.44	34.87	.80	.82	77.0	
957	7.99	.63	27.01	.51	68.5	
1149	5.87	.51	.20	.21	60.8	
1412	4.03	.54	.44	.67	50.7	

**Station 185:** Simonstown-Durban. 32°31'S, 35°36'E.  
Date 30.1.51. LMT 1053-1113. Depth 1680 m.

0	22.72	35.55	24.45			0.2
40	.72	.53	.44			.2
80	20.55	.55	25.05			.2

**Station 186:** Simonstown-Durban. 32°33'S, 32°01'E.  
Date 31.1.51. LMT 1100-1335. Depth 3615 m.

0	23.53	35.55	24.22			0.2
40	.02	.55	.37			.2
80	21.00	.53	.92			.5
1436	4.46	34.52	27.38	3.68	51.4	
1915	2.93	.69	.66	.80	.2	
2872	.39	.78	.79	4.81	63.9	
3514	1.17	.72	.83	.83	62.2	

**Station 188:** Off Durban. 29°55'S, 31°13'E. Date 2.2.51.  
LMT 1717-1735. Depth 467 m.

0	24.83	35.46	23.76			0.1
30	22.85	.41	24.31			.2
40	20.93	.37	.82			.4

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 191:** Off Durban. 31°49'S, 32°52'E. Date 4.2.51.  
LMT 1630-1645. Depth 3474 m.

0	23.30	35.48	24.23			0.1
40	22.93	.52	.36			.1
80	21.22	.44	.79			.3

**Station 197:** Off Durban. 29°57'S, 31°26'E. Date 14.2.51.  
LMT 1415-1500. Depth 631 m.

0	24.39	35.44	23.87			0.1
20	23.10	.37	24.21			.2
40	21.15	.34	.73			.7
287	13.12	.21	26.56	4.42	74.6	
283	11.50	.01	.72	.59	75.0	
479	8.33	34.69	27.00	.22	64.4	
575	.00	.67	.04	.23	.2	

**Station 198:** Off Durban. 30°32'S, 34°27'E. Date 15.2.51.  
LMT 1425-1440. Depth 2690 m.

0	24.63	35.55	23.89			0.2
39	.20	.55	24.04			.2
74	20.30	.50	25.09			.2

**Station 200:** Off Natal. 29°39'S, 37°01'E. Date 17.2.51.  
LMT 1120-1135 -- Date 18.2.51. LMT 0500-1610.  
Depth 5108 m.

0	24.58	35.59	23.93			0.1
40	23.16	.57	24.36			.1
80	20.00	.50	25.16			.2
96	19.67	.46	.22	3.96	74.7	
192	17.27	.55	.88	4.52	82.3	
287	15.85	.46	26.16	.38	77.8	
383	14.23	.35	.43	.81	83.0	
574	11.92	.08	.68	.96	81.9	
766	9.84	34.79	.84	.83	76.2	
957	7.42	.58	27.06	.39	65.7	
1149	5.41	.49	.24	.00	57.0	
1436	3.72	.56	.49	3.70	50.8	
1915	2.87	.69	.67	.83	51.6	
2872	.11	.81	.84			
3351	1.57	.78	.85	4.85	63.2	
3830	.08	.74	.86	.78	61.5	
4309	0.74	.72	.86	.91	62.5	
4979	.54	.69	.84	.95	.8	

**Station 201:** Off Natal. 28°04'S, 35°25'E. Date 20.2.51.  
LMT 1030-1045. Depth 2055 m.

0	27.08	35.48	23.07			0.2
40	26.00	.55	.45			.2
80	22.21	.43	.49			.2

**Station 206:** Off Beira. 20°01'S, 35°10'E. Date 24.2.51.  
LMT 1015-1020. Depth 30 m.

0	28.45	35.82	22.90			0.0
15	.40	.82	.91			.0

Depth	Temperature	Salinity	Density	Oxygen	Oxygen	Phosphate
m	°C	‰	σ <sub>t</sub>	ml/L	%	μg-atoms P/L

**Station 208:** Off Beira. 20°08'S, 35°33'E. Date 24.2.51.

LMT 1305-1350. Depth 52 m.

20	27.71	35.52	22.90	4.45	95.0	
30	.61	.52	.93	.30	91.5	
40	.37	.48	.98	.22	89.4	
50	.22	.46	23.01	.19	88.6	

**Station 209:** Off Beira. 20°08'S, 35°33'E. Date 24.2.51.

LMT 1630-1645. Depth 75 m.

0	29.15	35.35	22.30			.02
30	26.65	.41	23.16			.2
60	19.00?	.32	25.28			.9

**Station 211:** Off Beira. 20°08'S, 35°33'E. Date 24.2.51.

LMT 1832-1850. Depth 150 m.

72	21.93	35.32	24.49	3.57	69.8	
96	18.60	.34	25.40	.63	68.5	
139	16.92	.35	.83	.37	61.0	

**Station 215:** Off Beira. 20°12'S, 35°15'E. Date 24.2.51.

LMT 2220-2246. Depth 720 m.

192	14.16	35.30	26.41	3.75	64.7	
287	12.47	.16	.63	4.10	68.6	
383	10.79	34.96	.80	.25	.3	
670	7.39	.78	27.21	3.12	46.8	

**Station 216:** Mozambique Channel. 16°24'S, 42°29'E.

Date 26.2.51. LMT 1321-1334. Depth 2760 m.

0	27.77	34.34	21.98			0.2
40	28.10	.81	.25			.2
80	23.12	35.25	24.10			.9

**Station 217:** Mozambique Channel. 14°20'S, 42°29'E.

Date 27.2.51. LMT 0945-1445. Depth 3525 m.

77	22.78	35.25	24.19	4.05	80.2	
96	21.93	.26	.46	3.84	75.0	
144	18.55	.37	25.46	.24	60.1	
192	16.29	.35	.98	.22	57.7	
287	13.41	.21	26.50	.76	64.0	
383	11.36	.03	.74	4.23	68.9	
574	8.96	34.79	.99	3.92	60.8	
766	7.31	.74	27.20	2.98	44.6	
957	6.17	.78	.38	.33	34.0	
1149	5.37	.81	.51	.13	30.5	
1436	3.88	.78	.65	.64	36.5	
1915	2.75	.78	.76	3.25	43.6	
2394	.23	.78	.80	.46	45.9	
2872	1.85	.74	.80	.55	46.5	
3351	.57	.74	.82	.73	48.5	
3438	.49					

**Station 218:** Mozambique Channel. 13°41'S, 46°40'E.

Date 28.2.51. LMT 1225-1240. Depth 3216 m.

0	27.47	34.25	22.02			0.1
40	26.93	.99	.73			.2
80	22.23	35.28	24.42			.3

Depth	Temperature	Salinity	Density	Oxygen	Oxygen	Phosphate
m	°C	‰	σ <sub>t</sub>	ml/L	%	μg-atoms P/L

**Station 228:** Madagascar-Mombasa. 9°31'S, 49°29'E.

Date 5.3.51. LMT 1045-1100. Depth 4887 m.

0	28.48	34.92	22.20			0.2
40	26.34	.97	.93			.0
80	21.14	35.21	24.64			.0

**Station 229:** Madagascar-Mombasa. 8°40'S, 49°25'E.

Date 5.3.-6.3.51. LMT 2055-0745.

Depth 4290 m.

96	17.46	35.23	25.59	2.64	48.1	
144	13.95	.14	26.33	.58	44.3	
192	.14	.12	.47	3.02	51.0	
287	10.95	34.96	.77	.57	57.9	
383	9.89	.87	.89	4.02	63.6	
479	.31	.83	.96	3.43	53.5	
574	8.61	.76	27.01	.44	.0	
670	7.89	.76	.12	2.65	40.1	
766	.33	.79	.24	.14	32.0	
957	6.01	.78	.40	.29	33.3	
1053	5.55	.76	.44	.30	.0	
1149	4.99	.76	.51	.38	.8	
1436	3.72	.72	.61	.84	39.0	
1915	2.65	.72	.72	3.20	42.8	
2394	.12	.74	.78	.39	44.8	
2872	1.71	.74	.81	.64	47.5	
3351	.58	.72	.80	.83	49.9	
3830	.43	.70	.81	4.04	52.4	
4165	.33	.69	.79	.21	54.5	

**Station 230:** Madagascar-Mombasa. 9°02'S, 49°27'E.

Date 7.3.51. LMT 1024-1033. Depth 4866 m.

0	29.16	34.92	21.97			0.2
40	26.39	35.21	22.78			.3
80	19.30	.23	25.13			1.1

**Station 232:** Madagascar-Mombasa. 9°03'S, 49°22'E.

Date 8.3.51. LMT 1120-1315. Depth 4969 m.

4070	1.36	34.70	27.80	4.08	52.8	
4309	.34					

**Station 234:** Madagascar-Mombasa. 5°25'S, 47°09'E.

Date 10.3.51. LMT 1245-1255. Depth 4805 m.

0	29.21	35.50	22.39			0.3
40	25.70	.34	23.40			.3
80	18.60	.32	25.38			1.3

**Station 236:** Madagascar-Mombasa. 3°22'S, 45°50'E.

Date 12.3.51. LMT 1125-1250. Depth 4773 m.

48	26.6	35.59	23.31	4.36	91.4	
96	23.92	.61	24.16	3.83	77.4	
144		.34		.15	54.1	
3830	1.88	34.78	28.82	.40	44.6	
4070	.81	.76	.81	.52	46.1	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 240:** Off Kenya. 4°32'S, 41°26'E. Date 15.3.51.

LMT 0224-0430. Depth 2653 m.

947	6.89	34.97	27.50	1.16	17.2	
1149	5.87	.90	.51	.64	20.8	
1436	4.61	.83	.61	.98	28.0	
1915	2.78	.76	.74	2.60	34.9	
2537	.09	.74	.78	3.37	44.5	

**Station 261:** Off Mombasa. 4°06'S, 39°43'E. Date 22.3.51.

LMT 1925-2030. Depth 191 m.

0	28.66	35.16	22.31			
48	25.12	.16	23.44	4.35	89.2	
95	17.96	.30	25.54	3.38	62.2	
143	16.76	.30	.82	.33	60.0	
172	14.14	.21	26.34	.69	63.4	

**Station 262:** Mombasa-Seychelles. 4°16'S, 41°33'S.

Date 23.3.51. LMT 1040-1055. Depth 2744 m.

0	28.02	35.55	22.83			0.3
40	26.56	.59	23.33			.3
80	25.59	.64	.66			.4

**Station 263:** Mombasa-Seychelles. 4°14'S, 44°52'E.

Date 24.3.51. LMT 1320-1335. Depth 4650 m.

0	29.90	35.34	22.03			0.2
40	27.47	.59	23.02			.3
80	24.90	.59	.84			.4

**Station 264:** Mombasa-Seychelles. 3°12'S, 47°01'E.

Date 25.3.51. LMT 1440-1455. Depth 4928 m.

0	30.27	35.28	21.87			0.2
40	27.50	.35	22.83			.2
80	19.38	.32	25.18			.9

**Station 265:** Mombasa-Seychelles. 3°30'S, 50°20'E.

Date 26.3.51. LMT 1440-1455. Depth 5206 m.

0	30.63	35.53	21.93			0.5
40	27.90	.44	22.78			0.5
80	26.02	.44	23.39			0.5

**Station 266:** Mombasa-Seychelles. 3°38'S, 52°43'E.

Date 27.3.51. LMT 0840-1515. Depth 4629 m.

0	29.72	35.30	22.08			0.2
40	27.45	.35	.86			.3
85	24.41	.39	23.83			.4
95	19.91	.34	25.07	3.34	63.4	
143	14.00	.23	26.38	.21	55.1	
191	13.21	.17	.61	.17	53.5	
287	10.70	34.97	.84	.00	48.2	
382	.12	.96	.92	2.56	40.8	
478	9.46	.92	27.00	.38	37.3	
573	.34	.96	.05	.25	35.5	
668	.10	.97	.10	1.79	27.8	
764	8.06	.92	.22	.67	25.4	
859	7.42	.90	.30	.46	21.9	
955	.00	.92	.37	.49	22.1	
1146	6.42	.92	.44	.29	18.9	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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1433	5.09	.85	.56	.91	27.2	
1910	3.29	.79	.71	2.72	37.0	
2388	2.38	.78	.79	3.26	43.4	
2865	1.87	.76	.81	.49	45.8	
3342	.68	.76	.82	.69	48.2	
3820	.54	.72	.80	.82	49.6	
4297	.32	.74	.84	.92	50.7	

**Station 267:** Mombasa-Seychelles. 3°07'S, 54°09'E.

Date 28.3.51. LMT 1455-1510. Depth 4032 m.

0	30.15	35.32	21.94			0.3
40	27.00	.39	23.03			.3
80	19.75	.32	25.09			.3

**Station 272:** Seychelles-Ceylon. 3°20'S, 57°16'E.

Date 2.4.51. LMT 1445-1455. Depth 3843 m.

0	29.30	35.41	22.30			0.4
40	28.81	.46	.49			.3
80	25.24	.44	23.62			.3

**Station 273:** Seychelles-Ceylon. 2°54'S, 60°26'E.

Date 3.4.51. LMT 1450-1500. Depth 4187 m.

0	29.20	35.35	22.28			0.4
40	.07	.41	.38			.4
80	28.31	.46	.66			.3

**Station 274:** Seychelles-Ceylon. 2°04'S, 64°00'E.

Date 4.4.51. LMT 1440-1450. Depth 4344 m.

0	29.10	35.25	22.23			0.4
40	28.55	.41	.55			.3
80	24.30	.39	23.86			.5

**Station 275:** Seychelles-Ceylon. 1°15'S, 67°25'E.

Date 5.4.51. LMT 1425-1435. Depth 2354 m.

0	28.72	35.19	22.33			
40	.58	.23	.39			
80	24.91	.48	23.75			

**Station 276:** Seychelles-Ceylon. 0°42'S, 71°07'E.

Date 6.4.51. LMT 1145-1155. Depth 4513 m.

0	29.38	35.14	22.06			0.3
40	28.59	.16	.33			.3
80	24.96	.52	23.76			.5

**Station 278:** Seychelles-Ceylon. 0°10'S, 74°02'E.

Date 7.4.51. LMT 1440-1450. Depth 2593 m.

0	29.03	35.05	22.11			0.3
40	28.29	.14	.42			.2
80	24.75	.46	3.77			.5

**Station 279:** Seychelles-Ceylon. 1°00'N, 76°17'E.

Date 8.4.51. LMT 1040-1050. Depth 4303 m.

0	28.75	34.69	21.93			0.3
40	.62	35.03	22.24			.3
80	24.08	.48	23.99			.9

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 281:** Seychelles-Ceylon. 3°38'N, 78°15'E.  
Date 10.4.51. LMT 0940-0950. Depth 3302 m.

0	29.51	34.72	21.79			
40	.26	.97	.98			
80	28.40	35.17	22.42			

**Station 282:** Seychelles-Ceylon. 5°32'N, 78°41'E.  
Date 11.4.51. LMT 1040-1050. Depth 3934 m.

0	29.70	34.25	21.29			0.3
40	28.58	.67	.98			.3
80	25.56	.69	22.95			.8

**Station 283:** Seychelles-Ceylon. 7°05'N, 79°37'E.  
Date 12.4.51. LMT 1140. Depth 802 m.

10	29.55	34.05	21.17			0.2
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**Station 286:** Ceylon-Calcutta. 7°50'N, 81°43'E.  
Date 20.4.51. LMT 1125-1135. Depth 28 m.

0	29.70	34.16	21.22			0.2
10	28.77	.27	.62			.2
20	.28	.20	.73			.2

**Station 298:** Ceylon-Calcutta. 14°21'N, 82°00'E.  
Date 23.4.51. LMT 1055-1105. Depth 3323 m.

0	29.40	33.75	21.02			0.1
40	28.12	.91	.56			.2
80	26.67	34.40	22.40			.2

**Station 299:** Ceylon-Calcutta. 17°10'N, 84°30'E.  
Date 24.4.51. LMT 1015-1025. Depth 2862 m.

0	28.52	33.96	21.47			0.2
40	24.70	34.70	23.24			1.1
80	18.29	.90	25.15			3.2

**Station 303:** Ceylon-Calcutta. 20°37'N, 87°33'E.  
Date 26.4.51. LMT 0955-1005. Depth 62 m.

0	27.28	34.02	21.92			
20	.10	.00	.96			
40	25.48	.29	22.68			

**Station 313:** Bay of Bengal. 19°53'N, 89°05'E.  
Date 2.5.51. LMT 1510-1520. Depth 1521 m.

0	29.20	32.65	20.25			0.0
40	27.53	33.28	21.28			.0
80	24.47	34.63	23.25			1.7

**Station 315:** Bay of Bengal. 13°58'N, 91°03'E.  
Date 4.5.51. LMT 1025-1035. Depth 2940 m.

0	30.19	32.54	19.85			0.1
40	28.12	33.62	21.02			.2
80	25.61	34.20	22.57			.4

**Station 317:** Bay of Bengal. 10°32'N, 90°59'E.  
Date 5.5.51. LMT 1040-1050. Depth 724 m.

0	29.89	32.66	20.02			0.2
40	.22	.99	.49			.2
80	22.48	34.40	23.64			2.0

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 325:** Strait of Malacca. 4°20'N, 98°54'E.  
Date 10.5.51. LMT 1110-1120. Depth 46 m.

0	30.17	30.72	18.48			0.0
20	29.90	31.24	.96			.1
40	.32	32.56	20.14			.3

**Station 327:** Strait of Malacca. 1°55'N, 102°27'E.  
Date 11.5.51. LMT 1530-1540. Depth 45 m.

0	30.16	30.73	18.50			0.2
10	.05	.75	.55			.2
20	.04	.72	.52			.2

**Station 372:** Singapore-Bangkok. 03°48'N, 103°40'E.  
Date 6.6.51. LMT 1130-1140. Depth 25 m.

0	29.30	32.72	20.28			0.2
10	28.79	.74	.45			.2
20	.77	.72	.46			.2

**Station 381:** Bay of Siam. 07°00'N, 103°18'E.  
Date 8.6.51. LMT 1120-1225. Depth 55 m.

0	30.21	31.49	19.05			
10	.08	.51	.11			
20	.10					
25	28.70	33.01	20.69			
30	27.60					
40	.50					
50	.50	.13	21.18			
54	.50	.12	.17	4.28	90.0	

**Station 382:** Bay of Siam. 07°57'N, 102°32'E.  
Date 9.6.51. LMT 1045-1125. Depth 78 m.

0	30.30	31.40	18.95			0.0
10	.11	.35	.97			
25	.02					
30	29.83					
35	.75	.60	19.28			
40	28.87	.73	.67			.2
50	27.80	32.97	20.95			
68	26.91	33.08	21.33			.7

**Station 384:** Bay of Siam. 10°11'N, 101°37'E.  
Date 10.6.51. LMT 1045-1120. Depth 72 m.

0	29.73	31.51	19.22			0.1
10	.75	.49	.20			
20	.75					
30	.40	.67	.46			.2
35	.02	.82	.69			
40	27.72	.83	20.88			
55	.39					
66	.40	.86	21.00			1.4

**Station 390:** Bay of Siam. 13°02'N, 100°33'E.  
Date 11.6.51. LMT 0940-0955. Depth 22 m.

0	29.82	31.78	19.39			
10	.82	.74	.36			
20	.82	.73	.35			

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 391:** Gulf of Siam. 13°07'N, 100°33'E.  
Date 11.6.51. LMT 1120-1125. Depth 20 m.

0	29.99					
19	.90					

**Station 393:** Gulf of Siam. 13°09'N, 100°45'E.  
Date 11.6.51. LMT 1400. Depth 12 m.

0	30.08					
8	.07					

**Station 394:** Gulf of Siam. 13°13'N, 100°34'E.  
Date 11.6.51. LMT 1735. Depth 20 m.

0	30.09	31.60	19.17			
17	29.90	.62	.24			

**Station 395:** Gulf of Siam. 13°15'N, 100°33'E.  
Date 11.6.51. LMT 1818-1825. Depth 18 m.

0	30.08	31.02	18.74			
15	29.81	.13	.88			

**Station 404:** South China Sea. 05°09'N, 106°47'E.  
Date 30.6.51. LMT 1635-1705. Depth 63 m.

0	29.59	32.65	20.12			
10	.76	.63	.05			
24	.70	.59	.05			
34	.69	.61	.06			
48	27.00	33.57	21.66			
53	25.08	.66	22.32			
57	23.91	.75	.75			

**Station 406:** South China Sea. 10°34'N, 112°51'E.  
Date 2.7.51. LMT 2020-2130. Depth 2307 m.

1480	2.92	34.61	27.61	2.05	27.6	
1719	.63	.63	.65	.10	28.0	
2050	.49	.61	.65	.16	.7	
2196	.42	.63	.66	.29	30.4	

**Station 407:** South China Sea. 12°10'N, 114°56'E.  
Date 3.7.51. LMT 1100-1630. Depth 4386 m.

0	28.79	33.31	20.90			
24	.70	.30	.91	4.40	94.3	
48	24.47	.49	22.38	.66	93.6	
72	22.49	34.16	23.47	2.88	56.6	
95	19.15	.23	24.42	.30	42.8	
191	14.52	.54	25.76	.29	38.6	
287	12.19	.49	26.17	.17	35.9	
382	10.22	.47	.53	1.84	29.2	
478	9.09	.45	.69	.83	28.4	
573	8.15	.47	.86	.72	26.1	
764	6.03	.49	27.16	.71	24.8	
955	4.54	.56	.40	.79	25.0	
1146	3.69	.60	.52	.84	.2	
1433	.04	.61	.60	.95	26.3	
1900	2.49	.63	.57	2.24	29.8	
2388	.37	.63	.59	.35	31.2	
2865	.35	.63	.59	.43	32.3	
3342	.39	.63	.58	.29	30.4	
3820	.46	.63	.57	.44	32.5	
4202	.48	.61	.56	.40	31.9	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 409:** South China Sea. 13°44'N, 118°56'E.  
Date 5.7.51. LMT 1400-1430. Depth 3856 m.

0	28.88	33.08	20.69			0.9
50	.92	.35	.88			.2
100	23.03	34.29	23.40			.2

**Station 412:** Philippine Trench. 11°13'N, 126°21'E.  
Date 12.7.51. LMT 1800. – Date 13.7.51.  
LMT 1055. Depth 8870 m.

0	29.60	34.20	21.46			
24	.15	.15	.41	4.38	94.0	
47	.00	.28	.54	.41	95.3	
71	28.70	.43	.76	.36	94.5	
94	.38	.58	.97	.50	97.2	
142	23.42	35.00	23.83	3.94	81.6	
189	18.78	34.83	24.98	.55	68.8	
283	12.44	.49	26.13	2.71	45.5	
378	8.94	.33	.65	.10	32.4	
472	7.55	.39	.92	1.62	24.3	
567	6.40	.39	27.07	.67	.4	
756	5.00	.51	.34	.80	25.8	
945	4.45	.55	.43	2.17	30.7	
1133	3.77	.56	.50	.06	28.7	
1417	.26	.58	.57	.20	30.2	
1890	2.33	.60	.67	.39	32.5	
2362	1.93	.62	.71	.66	35.8	
2835	.72	.64	.74	.96	39.6	
3307	.59	.66	.76	3.38	45.0	
3779	.59					
4252	.63	.67	.77	.08	41.1	
4724	.71	.68	.77	.32	44.5	
5669	.81	.68	.76	2.92	39.1	
6755	.95	.66	.74	.26	30.4	
7700		.66		3.13	42.3	
8076	2.22	.68	.73	.22	43.7	
8503		.66		.06	41.5	

**Station 414:** Tubajan Bay, Dinagat I., Philippines.  
10°20'N, 125°32'E. Date 17.7.51.  
LMT 1040-1055. Depth 40 m.

0	28.03	34.34	21.92			
15	.02	.33	.90			0.1
30	27.84	.34	.98			0.1

**Station 422:** W of Philippine Trench. 10°47'N, 126°02'E.  
Date 24.7.51. LMT 1215-1230.  
Depth 1829 m.

0	29.95	34.34	21.27			0.4
60	28.75	.36	.69			.3

**Station 430:** Philippine Trench. 10°20'N, 126°37'E.  
Date 3.8.51. LMT 1315. – Date 4.8.51.  
LMT 0245. Depth 10025 m.

945	4.82	34.51	27.35	1.16		
1606	2.99	.58	.59	1.62		
2079	.16	.61	.69	1.92		
7558	.12					

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 431:** Philippine Trench. 10°21'N, 126°38'E.  
Date 4.8.51. LMT 1800. – Date 5.8.51.  
LMT 0030. Depth 10058 m.

7558	2.01	34.69	27.75	3.04	40.0	
8503	.27	.69	.73	.11	41.1	
9165	.35	.67	.71	2.88	38.3	
9636	.50	.67	.70	3.27	43.5	

**Station 433:** Philippine Trench. 09°51'N, 126°51'E.  
Date 6.8.51. LMT 0630-1630. Depth 9995 m.

3779	1.57	34.67	27.77	3.27	42.6	
4252	.57	.69	.78	.15	41.0	
4724	.70	.67	.76	.11	40.6	
5669	.80	.69	.76	.12	41.0	
6614	.95	.69	.75	.36	44.1	
7511	.97	.68	.75	.20	42.1	
8456	2.18	.66	.72	.16	41.8	
9498	.28	.66	.71	2.93	38.9	
9589	.47	.69	.71	3.31	44.0	

**Station 435:** Philippine Trench. 10°20'N, 126°41'E.  
Date 7.8.51. LMT 0420-1327. Depth 9984 m.

0	29.19				0.5	
60	28.28				.3	
120	25.62				.4	

**Station 440:** Philippine Trench. 10°25'N, 126°40'E.  
Date 14.8.51. LMT 0845-1800. Depth 10016 m.

3068	1.61	34.65	27.75	2.92	38.1	
5900	.83	.67	.75	3.01	39.4	
7788	2.13	.68	.74	2.90	38.2	
9770	.56	.67	.70	3.19	42.6	
9864	.55	.67	.70	.11	41.5	

Philippine Trench. Interpolated mean values from Stations  
412, 430, 431, 433 and 440.

0	29.40	34.20	21.46			
25	.14	.15	.40	4.4		
50	28.97	.30	.57	.4		
75	.65	.46	.79	.4		
100	.10	.63	22.11	.5		
150	22.65	.99	24.04	3.9		
200	18.15	.79	25.09	.5		
300	11.75	.47	26.24	2.7		
400	8.50	.34	.74	.0		
500	7.12	.39	.98	1.6		
600	6.05	.40	27.12	.7		
800	4.86	.52	.36	.9		
1000	4.22	.55	.45	2.1		
1200	3.62	.56	.53	.1		
1500	.05	.58	.59	.2		
2000	2.22	.60	.67	.4		
2500	1.84	.62	.72	.6		
3000	.64	.65	.74	.9		
3500	.57	.66	.76	3.3		
4000	.60	.67	.77	.2		

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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4500	.66	.67	.77	.1		
5000	.73	.68	.76	.1		
5500	.79	.68	.76	.0		
6000	.85	.68	.76	.0		
6500	.92	.68	.75	.0		
7000	2.00	.67	.74	2.3		
7500	.09	.67	.73	3.0		
8000	.18	.68	.73	.0		
8500	.26	.67	.72	.1		
9000	.34	.67	.71	.0		
9500	.45	.67	.71	2.9		
9864	.56	.67	.70	3.1		

**Station 445:** Sulu Sea. 7°45'N, 121°34'E. Date 18.8.51.  
LMT 0245-0755. Depth 4973 m.

0	28.44	33.75	21.33			
25	.50	.69	.27			
50	.17	.87	.52			
100	21.64	34.31	23.81			
145	18.79	.37	24.61	1.89	35.0	
239	14.25	.46	25.75	.54	26.4	
335	12.72	.45	26.04	.41	23.6	
383	.15	.46	.16	.39	.0	
430	11.70	.46	.25	.45	.7	
574	10.60	.48	.47	.51	24.2	
861	.12	.47	.55	.48	23.5	
1483	.09	.48	.57	.27	20.1	
2918	.27	.47	.52	.32	21.0	
3874	.40	.46	.49	.36	.7	
4831	.64	.48	.46	.34	.4	
4879	.63	.46	.46	.35	.6	

**Station 447:** Celebes Sea. 3°05'N, 120°10'E. Date 20.8.51.  
LMT 1615-1625. Depth 4663 m.

0	30.00	34.04	21.03			
50	27.61	.47	22.15			
100	23.80	.79	23.59			

**Station 449:** Celebes Sea. 2°13'N, 119°42'E. Date 21.8.51.  
LMT 0232-0935. Depth 5157 m.

0	29.50	34.20	21.31			
25	.12	.20	.43			
50	28.60	.29	.64			
100	26.90	.60	22.47			
190	17.03	.71	25.32	3.54	51.9	
285	10.54	.43	26.44	2.72	43.5	
380	8.15	.44	.84	.33	35.4	
570	6.77	.54	27.11	.25	33.2	
760	5.30	.56	.31	.18	31.1	
1140	4.23	.58	.45	.07	29.2	
1615	3.74	.60	.51	.07	28.8	
2142	.60	.58	.52	1.89	27.7	
3092	.61	.58	.52	.94	25.9	
4039	.71	.58	.51	.97	26.6	
4992	.86	.58	.49	.97	27.2	
5063	.85	.58	.49	2.02	.2	



Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
<b>Station 453: Makassar Strait. 3°56'S, 118°26'E.</b>						
Date 24.8.51. LMT 1800-2145. Depth 1989 m.						
0	28.20	34.16	21.78			
23	27.89	.11	.78	4.5	95.5	
70	.68	.22	.94	.22	89.5	
112	26.32	.58	22.65	.06	84.2	
186	16.44	.41	25.21	3.18	56.8	
279	10.49	.43	26.44	2.70	43.1	
372	8.78	.51	.79	.33	36.0	
465	7.44	.51	.99	.32	34.7	
558	.16	.54	27.06	.29	.1	
651	6.42	.54	.16	.20	32.2	
837	5.15					
1115	4.25	.59	.46	1.90	26.4	
1395	3.88	.59	.50	.91	21.6	
1673	.74	.58	.50	.96	22.1	
1952	.64	.57	.50	.88	21.2	

<b>Station 454: Java Sea. 5°23'S, 116°02'E. Date 25.8.51.</b>						
LMT 1415-1424. Depth 60 m.						
0	27.79	34.18	21.88			0.0
15	.65	.04	.81			.0
50	25.11	.04	22.61			.7

<b>Station 456: Java Sea. 5°26'S, 111°54'E. Date 26.8.51.</b>						
LMT 1545-1554. Depth 60 m.						
0	28.08	33.48	21.24			0.1
25	27.83	.75	.52			.1
50	.74	.86	.61			.1

<b>Station 458: Java Sea. 6°08'S, 107°57'E. Date 27.8.51.</b>						
LMT 1540-1545. Depth 20 m.						
0	28.25	31.18	19.48			0.1
15	27.73	.09	.58			.1

<b>Station 463: Sunda Trench. 10°16'S, 109°51'E.</b>						
Date 4.9.61. LMT 0700-1830. Depth 7128 m.						
0	25.51	34.53	23.02			
24	.61	.41	22.73	4.61	94.6	
48	.11	.49	.94	.54	92.6	
72	23.53	.69	23.57	3.50	68.3	
96	.10	.80	.78	.56	70.7	
144	17.71	.56	25.02	2.75	50.2	
192	16.36	.51	.32	.72	48.6	
287	10.54	.56	26.54	.20	35.2	
383		.65		1.89		
479	8.44	.65	.95	.95	29.5	
575	7.77	.65	27.06	.88	28.4	
671	6.70	.64	.20	.69	25.0	
862	5.62	.64	.35	.86	26.8	
1150	4.41	.63	.47	2.07	28.9	
1437	3.65	.64	.56	.35	32.3	
1916	2.50	.73	.75	3.03	40.3	
2874	1.74	.73	.80	.54	46.1	
3832	.19	.70	.82	4.12	53.1	
4216	.18	.71	.83	.23	54.5	
4666	.18	.71	.83	.16	53.7	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
5145	.24	.71	.82	.27	55.0	
6103	.36	.71	.82	.27	.3	
7062	.52	.71	.81	.35	56.4	

<b>Station 466: Sunda Trench. 10°21'S, 110°12'E.</b>						
Date 6.9.51. LMT 1525-1535. Depth 7128 m.						
0	26.09	34.34	22.53			0.2
34	25.85	.34	.61			.1
60	.48	.36	.72			.2

<b>Station 472: Sunda Trench. 10°24'S, 114°07'E.</b>						
Date 10.9.51. LMT 1510-1520. Depth 2472 m.						
0	25.39	34.23	22.67			0.1
15	24.60	.23	.91			.2
30	23.44	.27	23.28			.4

<b>Station 475: South of Bali. 9°02'S, 114°48'E.</b>						
Date 11.9.51. LMT 1635-1645. Depth 2753 m.						
0	25.60	34.14	22.54			0.2
15	.58	.14	.54			.2
28	24.40	.16	.91			.3

<b>Station 492: Banda Trench. 5°31'S, 131°01'E.</b>						
Date 20.9.51. LMT 0646-1700. Depth 7251 m.						

0	26.19	34.72	22.79			
142	19.21	.61	24.69	2.90	54.1	
189	15.59	.61	25.57	.62	46.1	
236	13.50	.55	.98	.52	42.7	
283	11.71	.55	26.32	.23	38.8	
378		.56		.13		
566	7.15	.57	27.08	.13	31.7	
755	5.67	.58	.29	.41	30.6	
944	4.82	.60	.40	.18	.7	
1416	3.69	.59	.51	.17	29.8	
1888	.28	.60	.56	.21	30.0	
2360	.11	.61	.58	.25	.5	
2965	.07	.60	.58	.16	29.2	
3399	.10	.60	.58	.18	.5	
3909	.15	.60	.57	.26	30.6	
5797	.40	.61	.56	.13	29.0	
6930	.58	.60	.53	.02	27.6	
7213	.63	.58	.51	.12	29.0	

<b>Station 498: Banda Trench. 5°18'S, 131°06'E.</b>						
Date 24.9.51. LMT 1200-1210. Depth 7273 m.						
0	26.68	34.60	22.54			0.3
30	.30	.59	.65			.4
63	23.11	.52	23.56			1.3

<b>Station 517: New Britain Trench. 6°31'S, 153°58'E.</b>						
Date 11.10.51. LMT 0550. - Date 12.10.51.						
LMT 1815. Depth 8821 m.						
0	28.09	34.69	22.15			0.4
24	.13	.63	.10	4.40	94.0	.3
47	.22	.63	.08			.4
95	.05	35.23	.57	.13	88.3	.5

Depth m	Temperature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
142	26.70	.57	23.40	3.33	69.8	
189	23.17	.75	24.48	2.88	57.5	
284	14.61	.14	26.19	.65	46.0	
379	9.57	34.70	.82	.70	42.4	
473	7.62	.54	27.00	3.70	55.7	
568	6.29	.51	.15	.82	.8	
663	5.63	.49	.22	.82	54.9	
852	4.68	.52	.35	3.48	48.9	
946	.27	.52	.40	.43	47.7	
1136	3.75			.19	43.8	
1420	.09	.56	.55	2.88	38.9	3.0
1893	2.36	.63	.67	3.00	39.8	
2366	.01	.65	.71	2.96	.0	
3095	1.91	.69	.75	3.45	45.2	
3313	.93	.70	.77	.56	46.7	.0
3786	.99	.69	.74	.59	47.2	
4732	2.11	.70	.75	.64	48.0	.0
5935	.27	.72	.75	.65	.4	
6881	.44	.72	.73	.66	.7	
8300	.69	.70	.70	.45	46.1	
8725	.76	.70	.70	.59	48.1	

**Station 522:** Lousiade Island Group. 11°27'S, 151°48'E.  
Date 18.10.51. LMT 1210-1225. Depth 2450 m.

0	27.22	35.17	22.81		0.3
40	26.25	.16	23.09		.4
80	25.10	.16	.45		.4

**Station 523:** Off Port Moresby. 9°35'S, 147°05'E.  
Date 19.10.51. LMT 1600-1615. Depth 960 m.

0	25.75	35.08	23.20		0.2
40	.30	.12	.37		.2
80	24.95	.17	.52		.3

**Station 538:** Coral Sea. 26°27'S, 153°27'E. Date 5.11.51.  
LMT 1440-1450. Depth 55 m.

0	22.44	35.48	24.48		0.3
20	.20	.48	.54		.3
40	.19	.48	.54		.3

**Station 550:** Tasman Sea. 31°27'S, 153°33'E. Date 12.11.51.  
LMT 1420-1430. Depth 4087 m.

0	21.24	35.61	24.92		
38	20.80	.57	25.01		
72	.20	.62	.21		

**Station 553:** Bass Strait. 39°03'S, 144°04'E. Date 4.12.51.  
LMT 1615-1625. Depth 84 m.

0	14.75	35.39	26.35		0.1
30	.00	.39	.51		.1
60	13.94	.39	.52		.1

**Station 564:** Great Australian Bight. 36°18'S, 138°29'E.  
Date 6.12.51. LMT 1505-1515. Depth 60 m.

0	18.34	35.71	25.76		0.1
25	16.21	.68	.24		.1
45	15.43	.75	.47		.1

Depth m	Temperature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 573:** Tasman Sea. 39°25'S, 154°56'E.  
Date 17.12.51. LMT 1545-1555. Depth 4486 m.

0	17.53	35.55	25.83			0.2
30	.30	.55	.89			.1
60	16.64	.52	26.01			.1

**Station 575:** Tasman Sea. 40°11'S, 163°35'E.  
Date 19.12.51. LMT 1830-2145. Depth 3691 m.

0	14.52	35.05	26.12			
1153	4.30	34.45	27.34	4.06	56.5	
2075	2.27	.69	.72	3.83	50.8	
2998	1.48					
3552	.20	.72	.82	4.37	56.5	

**Station 576:** Cook Strait. 40°31'S, 173°20'E.  
Date 21.12.51. LMT 1140. Depth 60 m.

0	15.44	34.65	25.62			0.2
14	.33	.69	.68			.3
28	12.20	35.07	26.62	4.77	79.2	1.5
52	.14	.10	.66	.65	77.0	

**Station 577:** Cook Strait. 40°44'S, 174°34'E.  
Date 21.12.51. LMT 1743. Depth 136 m.

133	12.81	35.19	26.59	4.83	81.1	
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**Station 578:** Cook Strait. 40°50'S, 174°51'E.  
Date 21.12.51. LMT 2020. Depth 120 m.

0	16.27	34.79	25.56			
95	13.37	35.16	26.47	5.06	85.8	

**Station 280:** Perseverance Harbour, Campbell Island.  
52°33'S, 169°08'E. Date 3.1.52.  
LMT 1250-1310. Depth 26 m.

0	8.90	34.18	26.51			1.3
19	.39	.25	.64			.3

**Station 593:** Off Perseverance Harbour, Campbell Island.  
52°35'S, 169°14'E. Date 4.1.52.  
LMT 1520. Depth 110 m.

0	8.59	34.31	26.66			1.3
24	.39	.29	.67	6.37	96.7	.3
33	.41	.31	.69	.35	.9	
43	.34	.31	.69	.35	.7	.3
71	.31	.31	.70	.35	.7	
95	.26	.29	.69	.29	95.7	

**Station 594:** Off Perseverance Harbour, Campbell Island.  
52°33'S, 169°10'E. Date 4.1.52. LMT 1735.  
Depth 46 m.

0	8.65	34.25	26.60	6.40	98.0	1.3
24	.53	.23	.61	.59	100.6	
33	.47	.27	.64	.42	98.0	
43	.38	.31	.70	.34	96.7	

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
<b>Station 601: Tasman Sea. 45°51'S, 164°32'E. Date 14.1.52.</b> LMT 1400-2000. Depth 4360 m.						
0	12.71	34.81	26.33			0.4
23	.20	.76	.38	6.21	102.8	.4
47	.03	.78	.43	.10	.8	.4
94	11.45	.84	.58	5.89	96.1	
282	9.82	.78	.83	.44	85.9	
375	.02	.67	.80	.48	84.9	
469	8.34	.58	.92	.40	82.3	
563	7.76	.54	.98	.12	77.4	
535	.94	.54	.95	.26	79.5	
629	.35	.52	27.01	4.88	73.0	
723	6.80	.50	.07	.60	67.9	
817	.02			.64	.2	
1127	4.06	.45	.36	.34	60.0	
1408	3.08	.54	.54	3.73	50.4	
1878	2.52	.58	.62	.70	49.2	
3027	1.52	.74	.83	4.25	55.2	
3590	.26	.72	.82	.29	.5	
3966	.16	.72	.83	.35	56.1	
4247	.15	.72	.83	.31	55.6	

<b>Station 603: Milford Sound, N.Z. 44°31'S, 167°55'E.</b> Date 16.1.52. LMT 1300-1305. Depth 30 m.						
0	14.83	20.81	15.15			0.1
15	12.45	33.26	25.17			.4

<b>Station 608: Milford Sound, N.Z. 44°37'S, 167°52'E.</b> Date 18.1.52. LMT 1600-1735. Depth 290 m.						
0	13.31	21.69	16.10			
24	12.65	34.34	25.98	5.90	98.3	
47	.33	.83	26.42	.31	88.1	
71	11.73	35.01	.67	4.97	81.7	
95	.70	.05	.70	.77	78.4	
142	.59	.04	.72	.83	79.1	
189	.58	.04	.72	.88	80.1	
242	.58	.05	.72	.84	79.3	
285	.53	.04	.73			

<b>Station 615: Milford Sound, N.Z. 44°37'S, 167°53'E.</b> Date 19.1.52. LMT 1250-1540. Depth 292 m.						
0	13.34	16.65	12.23			0.0
1	.38	28.78	21.53			
2	.31	32.05	24.08			
3	.28	.10	.12			
4	.18	.61	.53			
5	.02	.88	.77			
10	12.92	33.26	25.08			.1
15	.72	.73	.46			.1
20	.68	.96	.65			.1

<b>Station 625: Tasman Sea. 42°08'S, 170°20'E.</b> Date 20.1.52. LMT 1500-1510. Depth 598 m.						
0	15.85	35.05	25.83			0.3
25	14.94	.04	26.02			.3
50	.31	.06	.18			.3

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
<b>Station 630: Wellington-Auchland. 39°45'S, 117°41'E.</b> Date 25.1.52. LMT 1340-1350. Depth 320 m.						
0	18.28	35.21	25.38			0.1
30	17.43	.31	.66			.1
60	15.76	.33	26.07			.3

<b>Station 637: Wellington-Auchland. 37°28'S, 178°18'E.</b> Date 26.1.52. LMT 1240-1250. Depth c. 300 m.						
0	18.63	35.25	25.32			0.1
25	.29	.27	.42			.2
50	16.58	.35	.90			.4

<b>Station 641: Hauraki Gulf, Auckland. 36°34'S, 174°59'E.</b> Date 27.1.52. LMT 1035-1045. Depth 45 m.						
0	19.00	35.21	25.20			0.2
20	18.90	.24	.24			.2
40	14.79	.19	26.18			1.3

<b>Station 669: Kermadec Trench. 36°10'S, 177°50'E.</b> Date 29.2.52. LMT 1525-1535. Depth 800 m.						
0	21.28	35.50	24.81			0.2
40	20.58	.58	25.07			.2
80	17.85	.53	.73			.3

<b>Station 670: Kermadec Trench. 34°07'S, 179°20'E.</b> Date 1.3.52. LMT 1440-1450. Depth 3896 m.						
0	21.75	35.34	24.56			0.1
40	19.76	.41	25.16			.2
80	15.93	.44	26.12			.7

<b>Station 677: Kermadec Trench. 28°38'S, 175°53'W.</b> Date 4.3.52. LMT 1045 - Date 5.3.53. LMT 0730. Depth 9127 m.						
0	24.02	35.63	24.14			0.1
47	c. 22	.58	.68	5.15	102.2	.1
94	17.92	.55	25.74	.02	92.5	.2
182	16.08	.46	26.10	4.55	81.2	
376	11.77	.97	.63	.35	71.5	
564	8.25	.58	.93	.61	70.4	
766	6.42	.39	27.03	.97	72.6	
956	5.13	.37	.18	.50	63.9	
1145	4.07	.37	.30	.16	57.6	
2822	1.89	.68	.74	3.37	44.1	
3762	.35	.72	.83	4.44	57.3	
4232	.19	.72	.83	.52	58.3	
4723	.09	.72	.84	.58	.9	
5194	.07	.72	.84	.48	57.6	
5665	.16	.70	.83	.56	58.9	
6496	.27	.72	.82	.62	59.7	
7905	.46	.70	.81	.60	.7	
8845	.68	.72	.81	.56	.5	

<b>Station 680: Kermadec Trench. 23°24'S, 175°01'W.</b> Date 7.3.52. LMT 1505-1515. Depth 7598 m.						
0	27.17	35.03	22.71			0.1
60	25.30	.23	23.44			.1
120	22.28	.32	24.40			.2

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 685:** Tonga Trench. 21°06'S, 173°33'W.  
Date 11.3.52. LMT 0615-0650. Depth 9841 m.

0	26.51	35.53	23.30			
47	.35	.61	.41	4.61	96.3	
94	24.30	.63	24.05	.68	94.8	
142	22.78	.43	.36	.34	86.1	

**Station 686:** Tonga Trench. 20°53'S, 173°51'W.  
Date 11.3.52. LMT 0750-1500. Depth 9818 m.

7428	1.40	34.71	27.81	4.52	58.6	
8373	.60	.71	.80	.46	.1	
9318	.74	.71	.79	.48	.6	

**Station 688:** Tonga-Samoa. 13°42'S, 170°37'W.  
Date 15.3.52. LMT 1445-1500. Depth 4650 m.

0	29.60	35.28	22.09			0.3
60	28.07	36.04	23.17			.3
120	25.00	.22	24.28			.3

**Station 689:** Tonga-Samoa. 13°03'S, 170°46'W.  
Date 15.3.52. LMT 1800-2150. Depth 4978 m.

0	29.41	35.12	22.04			
248	19.82	.71	25.37	3.52	66.9	
345		.07		.11		
439	9.27	34.60	26.76	2.71	42.2	
3878	1.35	.70	27.80	4.11	53.3	
4357	.13	.72	.82	.48	57.6	
4835	.07	.70	.82	.58	58.9	

**Station 690:** Samoa-Hawaii. 11°01'S, 171°07'W.  
Date 16.3.52. LMT 1130-1140. Depth 600 m.

0	29.58	34.99	21.88			0.2
55	.48	35.01	.93			.2
105	26.59	.97	23.60			.5

**Station 691:** Samoa-Hawaii. 6°30'S, 169°42'W.  
Date 17.3.52. LMT 1400-1415. Depth 5639 m.

0	29.45	35.19	22.08			0.3
60	.22	.35	.27			.3
105	27.59	.97	23.28			.7

**Station 692:** Samoa-Hawaii. 2°47'S, 167°41'W.  
Date 18.3.52. LMT 1535-1545. Depth 5433 m.

0	27.80	35.35	22.75			0.7
50	.70	.41	.83			.7
85	.86	.62	.94			.7

**Station 693:** Samoa-Hawaii. 4°23'N, 164°44'W.  
Date 20.3.52. LMT 1415-1425. Depth 5128 m.

0	28.02	35.08	22.48			0.4
40	27.80	.08	.54			.4
70	.63	.10	.61			.4

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 694:** Samoa-Hawaii. 12°07'N, 161°28'W.  
Date 22.3.51. LMT 1445-1455. Depth —

0	26.30	34.40	22.50			0.2
45	.21	.45	.58			.2
60	.18	.42	.73			.2

**Station 695:** Samoa-Hawaii. 16°00'N, 159°58'W.  
Date 23.3.52. LMT 1440-1455. Depth —

0	24.74	34.40	22.99			0.2
45	.19	.63	23.33			.2
70	.11	.69	.39			.2

**Station 696:** Samoa-Hawaii. 19°57'N, 158°10'W.  
Date 24.3.52. LMT 1545-1600. Depth —

0	24.02	34.83	23.54			0.1
55	23.95	.82	.53			.1
100	.57	35.01	.80			.1

**Station 698:** Hawaii-San Francisco. 22°28'N, 155°40'W.  
Date 29.3.52. LMT 1440-1450. Depth 4588 m.

0	22.63					0.2
50	.50	35.16	24.22			.1
90	.50	.12	.19			.1

**Station 699:** Hawaii-San Francisco. 33°37'N, 134°53'W.  
Date 3.4.52. LMT 1155-1210. Depth 5126 m.

0	14.60	33.57	24.98			0.2
60	.56	.71	25.11			.2
115	15.38	34.11	.23			.2

**Station 700:** Hawaii-San Francisco. 35°45'N, 129°10'W.  
Date 4.4.52. LMT 1455-1510. Depth 4636 m.

0	13.43	33.10	24.86			0.4
40	12.20	32.94	.97			.5
80	11.63	.86	25.02			.4

**Station 701:** Hawaii-San Francisco. 37°16'N, 124°36'W.  
Date 5.4.52. LMT 1130-1140. Depth —

0	11.50	32.86	25.04			0.3
30	.06	.88	.14			.5
60	.04	.97	.21			.4

**Station 705:** California, off La Jolla. 32°50'N, 117°32'W.  
Date 22.4.52. LMT 1450-1500. Depth 16 m.

0	16.37	33.24	24.34			0.3
10	15.41	.28	.59			.4

**Station 707:** Off Baia California. 26°00'N, 113°55'W.  
Date 24.4.52. LMT 1440-1455. Depth 1560 m.

0	17.01	33.60	24.46			0.3
30	16.40	.66	.64			.4
60	15.40	.71	.91			.5

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 708:** Off Baja California. 22°50'N, 110°06'W.  
Date 25.4.52. LMT 1435-1450. Depth 783 m.

0	18.34	34.38	24.75			0.5
20	17.15	.31	25.01			1.0
40	15.52	.20	.27			2.0
60	14.21	.18	.54			.4

**Station 709:** Off Mexico. 20°08'N, 106°17'W.  
Date 26.4.52. LMT 1550-1600. Depth 3510 m.

0	23.53	34.81	23.67			0.5
25	20.30	.63	24.42			.8
50	17.03	.56	25.20			2.3

**Station 715:** Acapulco-Panama. 13°31'N, 95°45'W.  
Date 4.5.52. LMT 1440-1450. Depth 4482 m.

0	29.62	34.16	21.23			0.2
40	21.22	.42	24.02			> 2.7
80	13.91	.85	26.11			> 2.7

**Station 717:** Acapulco-Panama. 8°41'N, 86°12'W.  
Date 7.5.52. LMT 1115-1125. Depth 3227 m.

0	29.10	33.48	20.92			0.3
25	23.20	34.33	23.38			1.3
50	18.79	.81	24.95			2.7

**Station 720:** Gulf of Panama. 5°36'N, 79°31'W.  
Date 11.5.52. LMT 1130-1145. Depth 2926 m.

0	26.72	33.78	21.91			0.4
25	21.38	34.43	23.99			1.7
43	16.60	.90	25.60			2.7

**Station 747:** Gulf of Panama. 6°39'N, 80°32'W.  
Date 17.5.57. LMT 1040-1615. Depth 3490 m.

0	28.46	32.72	20.56			
191	13.70	34.92	26.21	0.75	12.8	
224	.17	.90	.31	.55	9.3	
258	12.86	.90	.36			
306	.42	.87	.44	.21	3.5	
368		.78		.10		
477	8.94	.67	.89	.08	1.2	
831	5.67	.58	27.29	.65	9.4	
1022	4.64	.56	.39	.95	13.3	
1432	3.39	.61	.57	1.41	19.2	
1910	2.49	.63	.66	.90	25.3	
2454	.12	.67	.72	2.15	28.4	
2932	.05	.69	.74	.02	26.7	
3409	.04	.67	.73	.37	31.2	

**Station 755:** Caribbean Sea. 11°01'N, 77°27'W.  
Date 22.5.52. LMT 1445-1505. Depth 3487 m.

0	28.63	35.99	22.94			0.1
42	26.93	36.42	23.83			.1
71	24.01	.76	25.00			.1

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 756:** Caribbean Sea. 14°51'N, 71°16'W.  
Date 24.5.52. LMT 1545-1605. Depth 4181 m.

0	28.06	35.97	23.13			0.1
35	27.70	.97	.25			.2
49	26.94	.95	.48			.2

**Station 757:** Off Puerto Rico. 18°33'N, 65°36'W.  
Date 30.5.52. LMT 1530-1545. Depth 954 m.

0	27.70	36.00	23.28			0.1
48	25.93	.31	24.06			.1
92	24.20	.78	.92			.1

**Station 760:** Sargasso Sea. 22°43'N, 60°54'W. Date 2.6.52.  
LMT 1445-1500. Depth 6020 m.

0	26.87	36.09	23.61			0.1
59	24.82	.55	24.58			.1
118	22.51	.89	25.52			.1

**Station 762:** Sargasso Sea. 25°03'N, 56°06'W. Date 4.6.52.  
LMT 1650-1705. Depth 6038 m.

0	26.00	36.92	24.51			0.1
66	22.79	.74	25.33			.1
115	21.14	.74	.80			.1

**Station 763:** Sargasso Sea. 29°27'N, 47°53'W.  
Date 6.6.52. LMT 1445-1500. Depth 4595 m.

0	22.22	36.64	25.42			0.1
56	20.13	.62	.98			.1
112	18.57	.49	26.29			.1

**Station 764:** Sargasso Sea. 31°35'N, 43°31'W.  
Date 7.6.52. LMT 1440-1500. Depth 3595 m.

0	22.71	36.94	25.51			0.1
60	21.46	.96	.88			.1
120	19.82	.74	26.15			.1

**Station 765:** Atlantic Ocean. 35°16'N, 33°50'W.  
Date 9.6.52. LMT 1440-1455. Depth c. 2000 m.

0	21.13	36.24	25.41			0.1
40	18.34	.20	26.13			.1
80	16.34	.17	.61			.3

**Station 766:** Atlantic Ocean. 36°50'N, 28°50'W.  
Date 10.6.52. LMT 1535-1550. Depth 3127 m.

0	19.90	36.29	25.79			0.0
50	17.15	.17	26.40			.1
100	16.07	.11	.60			.3

**Station 769:** Atlantic Ocean. 43°10'N, 17°04'W.  
Date 16.6.52. LMT 1430-1445. Depth 4359 m.

0	17.32	35.73	26.02			0.1
20	.23	.71	.01			.1
40	14.90	.71	.55			.1

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 770:** Atlantic Ocean. 45°53'N, 12°27'W.  
Date 17.6.52. LMT 1530-1545. Depth 4943 m.

0	17.00	35.64	26.02			0.1
30	15.00	.62	.47			.1
60	12.10	.62	27.08			.3

**Station 772:** Bay of Biscay. 48°00'N, 8°18'W.  
Date 18.6.52. LMT 1605-1615. Depth 1506 m.

0	15.31	35.59	26.37			0.1
20	.00	.59	.44			.2
38	13.25	.59	.82			.3

**Station 775:** The Channel. 49°37'N, 4°35'W.  
Date 19.6.52. LMT 1530-1545. Depth 80 m.

0	14.70	35.17	26.19			0.1
20	.30	.16	.26			.1
39	11.53	.23	.83			.3

Depth m	Tem- perature °C	Salinity ‰	Density σ <sub>t</sub>	Oxygen ml/L	Oxygen %	Phosphate μg-atoms P/L
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**Station 780:** The Channel. 51°10'N, 1°10'E.  
Date 25.6.52. LMT 1540-1555. Depth 44 m.

0	13.71	35.05	26.30			0.1
14	.70	34.97	.25			.1
25	.70	.97	.25			.1

**Station 781:** North Sea. 54°50'N, 4°28'E. Date 26.6.52.  
LMT 1445-1500. Depth 45 m.

0	12.13	34.63	26.31			0.1
20	11.93	.60	.38			.1
40	< 8.0	.67				.3

**Station 782:** Tannis Bay. 57°43'N, 10°11'E. Date 28.6.52.  
LMT 0955-1005. Depth 16 m.

0	12.40	33.24	25.17			0.1
10	.35	.28	.21			.1