

OCEANOGRAPHICAL STATION LIST

**of Investigations made by the Division of Fisheries,
Commonwealth Scientific and Industrial Research
Organization, Australia**

Volume 1

Hydrological and Planktological Observations

by F.R.V. *Warreen* in South-eastern

Australian Waters, 1938-39

**COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH
ORGANIZATION, AUSTRALIA
MELBOURNE 1951**

OCEANOGRAPHICAL STATION LIST

OBSERVATIONS MADE BY F.R.V. WARREEN IN SOUTH-EASTERN
AUSTRALIAN WATERS 1938-39

I. INTRODUCTION

Fisheries research was first undertaken by the Council for Scientific and Industrial Research, Division of Fisheries, in 1937. The research programme of the Division was designed to study both oceanic and estuarine waters and to include hydrology, which also covers the analyses of bottom deposits, particularly estuarine muds, and planktology. The data from these observations have been collected and will appear in a series of volumes, of which this is the first.

In 1938, the Fisheries Research Vessel *Warreen* was built and commissioned to undertake a survey of pelagic fish stocks in Australian waters. It was decided that the designers should be asked to produce a vessel on the general lines of a purse seiner, at the same time providing a craft that could be used also for carrying out general fishery operations and for working both inshore and offshore hydrological stations.

Warreen (Fig. 1) is a steel, diesel-driven craft, whose principal dimensions and particulars are as follows:

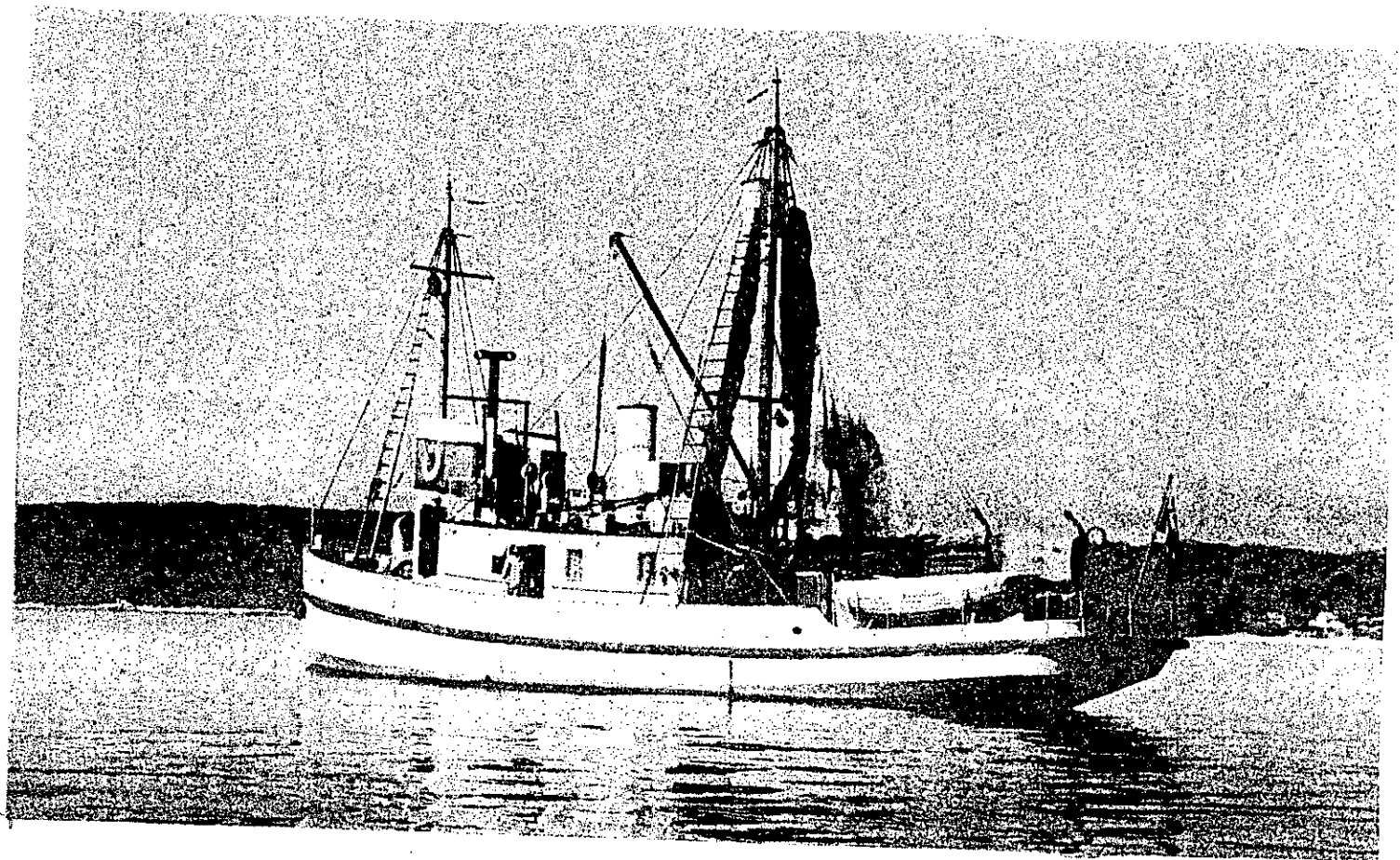
Length overall	82 ft.,
Beam	19 ft.,
Draft	8 ft. 4 in.,
Displacement tonnage	108.5 tons,
Fuel capacity	3,428 gal.,
Range	3,000 miles approx.
Fresh water	12½ tons.

She was built at Williamstown Navy Yard, Victoria, the builders being the Melbourne Harbour Trust, under the supervision of Lloyds', to whose highest class she was constructed throughout.

She is a single-screw vessel, powered by a British Polar engine of 215 b.h.p. turning at 450 r.p.m., her designed speed being nine knots. As in her original layout the emphasis was on purse seining, she was fitted with a standard turntable for handling the purse seine and a standard type of winch for hauling the net.

When the vessel was being refitted for Danish seining in Western Australia, it was decided not to use either of these fittings, and a Danish seining winch was installed.

Though trawling operations are considered part of the vessel's yearly programme, no attempt has been made to use the gear in deep water, the deck winch being suitable only for rope warps.



For hauling long lines, she is provided with a standard-type, horizontal-sheaved line-hauler, powered by a 1-h.p. electric motor, through a 30-1 reduction gear. Arrangements are also provided for carrying out fishing tests of a general nature. Among other equipment is an electrically driven hydrological winch, installed in the forepart of the vessel, which carries 2,000 metres of 4-mm. wire and is driven by a 3-h.p. motor. She is also provided with gear for the towing of plankton nets. A whale-marking gun and marks are carried.

A naval-type Hughes echosounder is fitted with visual and recording instruments in the wheelhouse alongside the radio equipment. The laboratory is situated at the after end of the superstructure and contains, apart from its scientific equipment, accommodation for two scientists. Cabins are provided for the master, chief engineer, mate, and wireless operator, while the remainder of the crew, consisting of boatswain, assistant engineer, cook, three deckhands, and two boys, are accommodated forward below the main deck. Leading off this accommodation is a small messroom for the ship's officers and scientific staff. Washroom and lavatory are situated on the main deck in an alleyway dividing the forward superstructure.

In 1942, *Warreen* was taken over by the Royal Australian Navy and employed on survey work on the north-east coast of New Guinea and elsewhere. She was handed back to the C.S.I.R. at Fremantle on October 29, 1946, and after an extensive refit she resumed fishery survey work in western and southern Australian waters.

II. OCEANOGRAPHY

The 1938-39 cruises of F.R.V. *Warreen* were exploratory in nature and were designed principally to obtain biological information about the occurrence of pelagic fish. Oceanographic observations could, therefore, be made only as opportunity permitted and not with any planned regularity throughout the year. The data are valuable for a preliminary description of the water masses and their properties in south-eastern Australia, but on the whole are insufficient for the demonstration of secular trends in any particular locality. Stations were not worked at geographical intervals of less than one degree of latitude and were normally worked in a pair consisting of a shelf and a slope station per degree interval.

The chart (Fig. 2) gives the area covered by oceanographical stations during 1938-39, and also the frequency of sampling of shelf and slope stations at each locality indicated by these section lines. Shelf stations were worked at 10-metre intervals to 50 metres, whilst slope stations were extended by sampling at 100, 150, 200, 300, 400, and 600 metres.

Plankton hauls were taken at most stations. The nets used were standard "Discovery"-type N50 and N70 nets, made of bolting silk, and N100 and N200 nets of stramin.

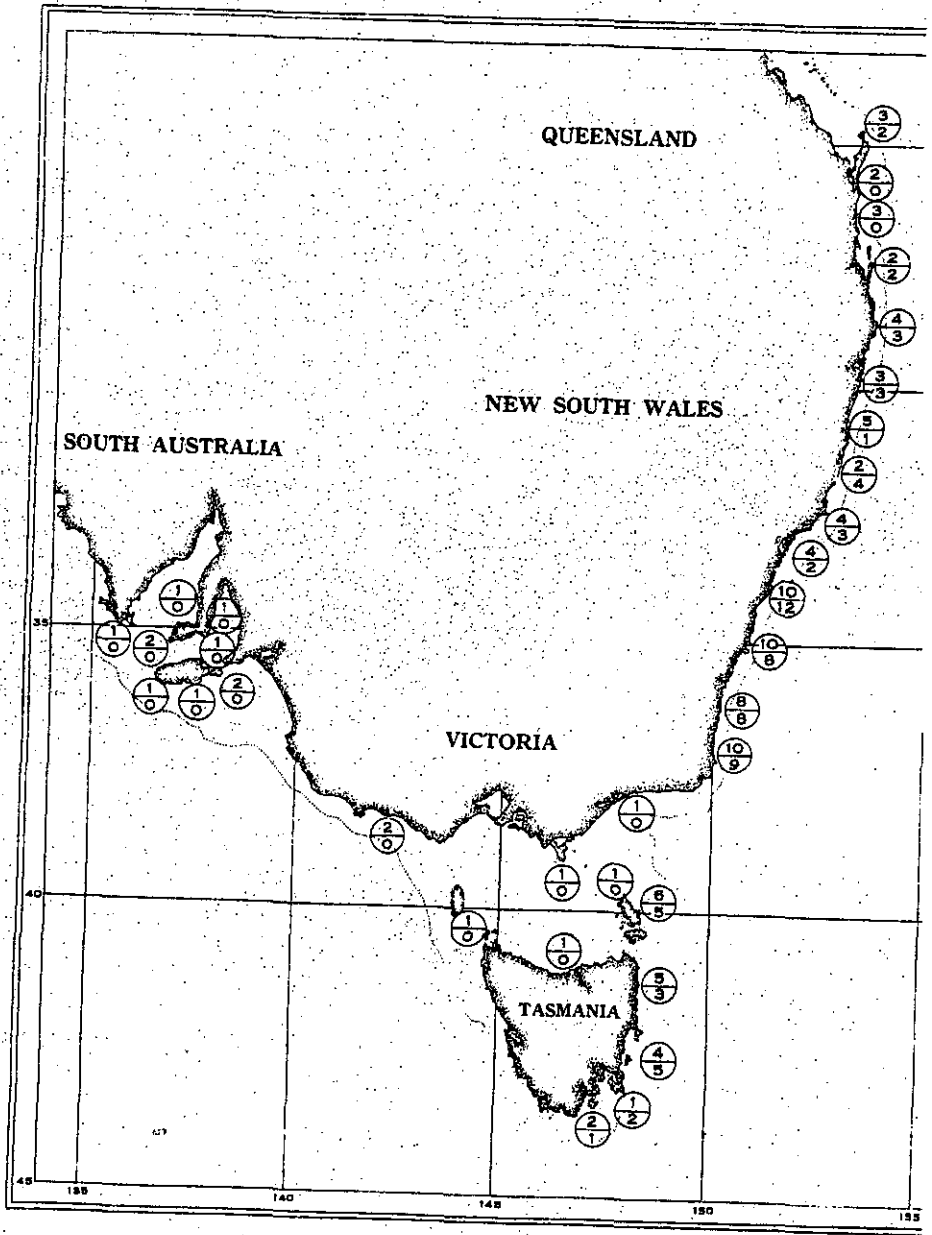


Fig. 2. Map of Southeast Australia showing Location and Frequency of sampling by F.R.V. Warren.

III. HYDROLOGICAL OBSERVATIONS

(i) *Depth*.—The depth given is the wire depth. No unprotected thermometers were available on these cruises and deck wire angles only were recorded as the measure of stray. Where the surface stray angle exceeded 20°, a corrected depth entry, using a stray formula based upon a constant angle of deviation, has been substituted. These corrected depth observations are marked in the tables. An echosounder was used on the vessel with a sounding limit of 360 fathoms and the slope station was normally worked at that depth. The shelf station was normally marked on the 32-fathom contour.

(ii) *Temperature*.—Temperatures were taken with Richter-Wieser deep-sea reversing thermometers, read with a glass to a probable precision of ± 0.015 and with an accuracy as judged by variation between side-mounted duplicates ± 0.02 . All temperature observations have been corrected by Shumacher's formula.

(iii) *Chlorinity*.—Chlorinities were determined by the Mohr method, using Knudsen type burettes and pipettes, and according to the procedure laid down by Oxner (1920). International Standard Sea-water from the Copenhagen Laboratories was used as a reference standard. All burette reading corrections and σ_t calculations were performed by the use of Knudsen's (1948) and Matthews's (1932) tables.

IV. PLANKTOLOGICAL OBSERVATIONS

As the records of the observations of fish made on the early cruises of F.R.V. *Warreen* have appeared elsewhere (Blackburn and Tubb 1950), the biological data on these tables have been restricted to a summary of planktological observations.

Two groups of the *Warreen* plankton collections have already been discussed in detail, the pelagic Tunicates by Thompson (1942, 1948) and the Chaetognaths by Thomson (1947).

Plankton hauls were made on the hydrological traverses (see Fig. 1). At the shelf stations the following hauls were made where practicable:

Vertical haul 50 m. to the surface with N70 net.

Horizontal surface haul for 15 min. with N70 net and N200 net.

Oblique haul 0-50 m. with N70 and N100 net.

At the slope stations the following hauls were made:

Vertical haul, using N70 closing-type net, sampling four depth sections, namely 500-250 m., 250-100 m., 100-50 m., 50-0 m.

Horizontal surface hauls, 15 min., N70 and N200 nets.

Oblique haul, 0-200 m., N70 and N100 nets.

The following notes refer to each of the columns of planktological observations:

(i) *Type of Gear*.—N50, N70, N100, N200 "Discovery"-type nets were used. A Hardy indicator was used at certain stations though the

resulting catches were not studied in detail. The following abbreviations have been used:

V = Vertical haul,
O = Oblique haul,
H = Horizontal haul.

(ii) *Depth*.—The depth is expressed in metres and gives detail of the depth of oblique hauls and the sections covered in vertical hauls.

(iii) *Duration*.—The duration of oblique and horizontal hauls is given in minutes.

(iv) *Volume*.—The hauls were preserved in formalin and upon receipt at Cronulla the volume was determined. This is given in cc.

(v) *Dominant Organism (D.O.)*.—As the catches were being studied a note was made of the animal group which from visual inspection was obviously the main constituent. The following abbreviations have been used:

C = Crustacea,
Cp = Copepoda,
Ch = Chaetognatha,
Co = Coelenterata,
F = Fish eggs and larvae,
M = Mollusca,
T = Tunicata (Thaliaceae, Copelata).

(vi) *Counts*.—A tenth was taken from each of the N70 hauls (see Thompson 1942, p. 9). Though the hauls contained representatives of many groups, counts were made of only a few and in these lists the numbers are given for only four, listed in column seven of the planktological observations under numbers I-IV:

I = Nyctiphanes (Crustacea, Euphausiacea),
II = Thaliaceae (Tunicata),
III = Copelata (Tunicata),
IV = Chaetognatha.

V. PERSONNEL

The programme of work done by F.R.V. *Warveen* in 1938-39 was designed after consultation by the Chief of the Division, Dr. H. Thompson, with research officers: Mr. D. J. Rochford, the oceanographer and hydrologist, Mr. E. J. F. Wood, the bacteriologist, and the fisheries biologists, Dr. D. L. Serventy working on tuna, Mr. M. Blackburn working on clupeoids, and Mr. J. A. Tubb working on Australian salmon and barracouta. The observations and data collected on fish have been incorporated in other publications and are not included in this series.

The hydrology programme was under the direction of Mr. D. J. Rochford, who accompanied the vessel on many of the cruises and directed

the laboratory analyses, the results of which appear in this series. The technical work of water sampling and taking of temperatures was done by the Sea-going Technical Officer, Mr. Graham Clarke.

The planktological work was under the direction of Dr. H. Thompson. The hauls were made and the nets and collections cared for by Mr. Graham Clarke, to whose enthusiasm and painstaking accuracy the Division is indebted for the collections made in the early years of the *Warreen's* investigations. When the collections reached the laboratory at Cronulla they were volumed, tented, sorted, counted, and recorded by Miss F. V. Murray.

VI. REFERENCES

- BLACKBURN, M., and TUBB, J. A. (1950).—Measures of abundance of certain pelagic fish in some south-eastern Australian waters. C.S.I.R.O. Aust. Bull. No. 251.
- KNUDSEN, M. (1948).—Hydrographical tables according to the measurements of Torch, J. P. Jacobsen, M. Knudsen, and A. P. L. Sorensen.
- MATTHEWS, D. J. (1932).—Tables for the determination of the density of seawater under normal pressure, σ_t .
- OXNER, M. (1920).—Chloruration par la méthode de Knudsen. Bull. Comm. Int. Explor. Médit. 1.
- THOMPSON, H. (1942).—Pelagic Tunicates in the plankton of south-eastern Australian waters, and their place in oceanographic studies. Coun. Sci. Industr. Res. Aust. Bull. No. 153.
- THOMPSON, H. (1948).—"Pelagic Tunicates of Australia." (Council for Scientific and Industrial Research: Melbourne.)
- THOMSON, J. M. (1947).—The Chaetognatha of south-eastern Australia. Coun. Sci. Industr. Res. Aust. Bull. No. 222.

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl ^o /oo	S ^o /oo	σ _t	
1938									
26.v	1/38	44° 20' S. 147° 8' E.		0	11.15	19.43	35.09	26.84	
				10	12.45				
				20	12.35				
				30	12.35				
				40	12.29				
				50	12.20				
				100	12.30				
				150	12.20				
				200	11.38				
				300	10.26	.36	34.97	.91	
				400	8.93				
				600	8.28	.15	.60	.93	
27.v	2/38	43° 33' S. 147° 18' 30" E.	30	0	13.85	19.49	35.21	26.39	
				10	13.85				
				20	13.95				
				30	14.00	.51	.24	.39	
				40	14.05				
				50	14.05	.54	.30	.43	
28.v	3/38	43° 44' S. 147° 17' E.	68	0	14.15	19.50	35.23	26.35	
				10	14.25				
				20	14.21				
				30	14.25				
				40	14.25				
				50	14.29	.52	.26	.35	
				100	14.24				
				150	14.19	.50	.23	.35	
1.vi	4/38	42° 39' S. 148° 26' 30" E.	80	0	13.84	19.49	35.21	26.40	
				10	13.90				
				20	13.81				
				30	13.90				
				40	13.92				
				50	13.92	.51	.24	.40	
				100	13.74				
				140	13.59	.45	.14	.40	

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O. D.	Count			
						I	II	III	IV
1/38	N70	V 50-0		4	Cp			1	2
	N70	V 100-50		8	Cp			6	4
	N70	V 250-100		15	Cp			7	7
	N70	V 500-250		5				1	1
	N70	O 100		20	Cp		7	5	9
	N100	O 100		15	F				
2/38	N70	V 50-0		8	Cp				
3/38	N70	V 50-0		20	C	10		1	3
	N70	V 100-50		5	Cp	1		1	3
	N70	O 100		20	Cp	1		5	53
	N100	O 100-0		10	C				
4/38	N70	V 50-0		5	Cp			6	3
	N70	V 100-50		10	Cp		1	13	4
	N70	O 100		25	Cp			14	5
	N100	O 100		10	Ch				

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS								
				Depth (m.)	Temp °C.	Cl ^o /∞	S ^o /∞	σ _t				
1938	1. vi	42° 39' S. 148° 19' 30" E.	60	0	13.70	19.42	35.08	26.33				
				10	13.79							
20				13.84								
30				13.85								
40				13.83								
50				13.80	.43				.10	.33		
100				13.91	.52				.26	.43		
6/38				42° 39' S. 148° 12' E.	0				13.75	19.45	35.14	26.36
10				13.72								
20				13.75								
30	13.80											
40	13.70											
50	13.80	.47	.17	.38								
90	13.75	.46	.16	.38								
2. vi	7/38	42° 38' 30" S. 148° 40' E.	0	14.44	19.63	35.45	26.46					
10	14.50											
20	14.45											
30	14.48											
40	14.44											
50	14.45											
100	13.43											
150	12.77											
200	11.66											
300	12.52											
400	11.46											
600	8.33	.25	34.78	27.07								
800	7.31											
1000	6.46	.12	.53	.14								

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	D.O.	Count			
						I	II	III	IV
5/38	N70	V 50-0		8	Cp	6	1	7	7
	N70	V 100-50		5	Cp			8	9
6/38	N70	V 50-0		20	Cp	17		6	6
7/38	N70	V 50-0		50	Cp	3	26		
	N70	V 100-50		5	Cp		1	1	2
	N70	V 250-100		25	Cp			3	13
	N70	V 500-250		30	Cp		2		17
	N70	V 1000-500		40	Cp	8	5		19
	N70	O		390	T		37		3
	N100	O		75	T				
	N200	O		300	T				

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl‰	S‰	σ_t
1938								
29. vii	8/38	39° 32' S. 148° 49' E.	230	0	13.40	19.46	35.16	26.45
				10	13.39			
				20	13.40			
				30	13.35			
				40	13.39			
				50	13.30			
				100	13.34	.55	.32	.58
				150	13.19			
				200	12.89	.55	.31	.68
				300	12.28			
5. viii	10/38	39° 45' S. 148° 35' E.	48	0	13.14	19.52	35.26	26.58
				10	13.05			
				20	13.10	.51	.24	.58
				30	13.05			
				40	13.10			
				50	12.94	.51	.24	.61
				80	12.64	.56	.33	.73
14. viii	11/38	37° 14' S. 150° 23' E.		0	14.88	19.65	35.50	26.40
				10	14.84			
				20	14.84	.67	.53	.44
				30	14.79			
				40	14.79			
				50	14.88	.68	.55	.44
				100	14.89	.70	.58	.47
				150	14.02			
				200	12.81	.53	.28	.66
				300	11.48	.41	.06	.75
				400	10.42	.30	34.86	.78
				600	8.58	.21	.70	.97
				800	7.66	.15	.60	27.04
				1000	6.40	.11	.52	.14
	12/38	37° 10' 30" S. 150° 15' 30" E.	63	0	14.80	19.68	35.54	26.45
				10	14.80	.68	.54	.45
				20	14.75			
				30	14.69	.75	.68	.58
				40	14.59			
				50	14.29	.69	.56	.58
				100	13.27	.74	.65	.86

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	D.O.	Count			
						I	II	III	IV
8/38	N70	V 50-0		5	Cp			2	2
	N70	V 100-50		3	C		1		1
	N70	V 250-100		2	Cp				1
	N70	O 100		5	Cp		1		1
	N100	O		10	Ch				
10/38	N70	V 50-0		20	Cp	1		5	3
11/38	N70	V 50-0		3	Cp			1	1
	N70	V 100-50		10	Cp			2	1
	N70	V 250-100		10	C			7	21
	N70	V 500-250		20	Cp	2			18
	N70	O 100		35	Cp		3	146	60
	N100	O		20	Ch				
	N200	O	20	300	Co				
12/38	N70	V 50-0		8	Cp	5	2	5	5
	N70	V 100-50		10	Cp	4		5	4

F.R.V. Warreen

Date	Station	Position.	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl ^o /oo	S ^o /oo	σ _t
1938								
5. ix	22/38	30° 45' S. 153° 6' 15" E.	24	0 10 20 30 40	17.60 17.55 17.60 17.55 17.55	19.54 .53 .54 .56	35.29 .27 .30 .33	25.60 .61 .63 .65
6. ix	23/38	28° 53' 12" S. 153° 37' 37" E.	18	0 10 20 30	18.00 18.05 18.05 18.05	19.56 .57 .57 .61	35.34 .35 .35 .42	25.55 .55 .55 .61
7. ix	24/38	28° S. 153° 31' 30" E.	22	0 10 20 30	20.95 20.70 21.05 20.75	19.51 .52 .59 .56	35.25 .26 .38 .33	24.71 .79 .79 .82
12. ix	25/38	26° 54' S. 153° 24' 30" E.	27	0 10 20 30 40	19.70 19.80 19.80 19.55 19.50	19.58 .60 .60 .56 .55	35.37 .41 .41 .33 .32	25.15 .15 .15 .15 .15
13. ix	26/38	25° 50' S. 153° 20' E.	32	0 10 20 30 40 50	20.55 20.60 20.60 20.60 20.53 20.60	19.60 .61 .61 .61 .61 .61	35.40 .43 .43 .43 .43 .43	24.94 .94 .94 .94 .94 .94
	27/38	24° 48' S. 153° 25' 30" E.	23	0 10 20 30 40	22.25 22.35 22.35 21.43 21.22	19.51 .55 .55 .57 .64	35.25 .32 .32 .35 .48	24.35 .37 .37 .66 .82
14. ix	28/38	24° 41' 30" S. 152° 45' E.	13	0 10 20	19.58 19.53 19.50	19.64 .64 .65	35.47 .48 .50	25.25 .26 .29

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cgs.)	D.O.	Count			
						I	II	III	IV
22/38	N70	H 0	30	75	Cp		202	223	17
	N100	H 15	30	50	T				
	N200	H 15	30	125	T				
23/38	N70	H 0	15	125	Cp		9	469	8
	N100	H 5	15	10	F				
24/38	N70	H 0	30	125	Cp	12	172	93	128
	N100	H 15	30	80	M				
25/38	N70	H 0-25	60		Cp	15	436	74	42
	N70	O	60						
	N100	H 0-25	60	175	T				
26/38	N70	H 0-25	30	70	Cp		38	423	21
	N70	O 0-25		400					
	N100	H 0-25	30	50	Co				
27/38	N70	H 0	30	70	Cp		31	204	38
	N100	H 20	30	75	T				
	N200	H 5	30	125	M				
28/38	N70	H 0	30	5500	T		463		16
	N100	H 14	30	625	T				
	N200	H 5	30	1400	T				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t	
1938									
14. ix	29/38	24° 3' S. 151° 50' 30" E.	15	0	19.30	19.66	35.51	25.35	
				10	19.35	.68	.55	.37	
				20	19.30	.71	.61	.43	
17. ix	30/38	23° 5' S. 152° 3' E.	28	0	21.35	19.68	35.55	24.83	
				10	20.84	.69	.57	.99	
				20	20.74				
				30	20.74	.68	.55	.99	
				40	20.74				
				50	20.74	.68	.55	.99	
19. ix	31/38	24° 20' S. 153° 2' E.	28	0	21.65	19.68	35.55	24.74	
				10	21.55	.68	.54	.77	
				20	21.55				
				30	21.55	.69	.57	.79	
				40	21.55	.69	.57	.79	
20. ix	32/38	24° 29' 30" S. 153° 26' 30" E.		0	22.45	19.65	35.49	24.50	
				10	22.40	.65	.50	.50	
				20	22.44	.66	.51	.50	
				30	22.39	.67	.53	.53	
				40	22.45	.68	.54	.53	
				50	22.44	.68	.54	.53	
				100	21.13	.68	.54	.89	
				150	18.83				
				200	17.20	.66	.49	25.86	
				300	16.54				
				400	14.21	.62	.44	26.50	
				600	12.00	.50	.23	.78	
	33/38	25° 50' S. 153° 20' E.	30	0	22.50	19.71	35.60	24.55	
				10	21.75	.68	.55	.72	
				20	21.63				
				30	21.64	.70	.58	.78	
				40	21.18				
				50	20.98	.64	.47	.87	

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
						I	II	III	IV
29/38	N50	H 0	30	500	T		778	38	
	N70	H 10	30	3120	T		1254	9	
	N100	H 5	30	300	T				
	N200	H 15	30	1840	T				
30/38	N70	H 25	30	120	Ch	10	9	43	113
	N70	V 50-0		10	T		20	68	
	N100	H 0	30	160	T				
	N200	H 25	30	450	Ch				
31/38	N50	H 0	30	30	C			24	
	N70	H 25	30	110	Cp				
	N70	V 50-0		15	Cp		1	13	19
	N100	H 0	30	100	Ch				
	N200	H 25	30	150	C				
32/38	N50	H 0	30	25					
	N70	H 100	30	200	Cp	79	161	258	105
	N70	V 50-0		20	T	5	17	148	
	N70	V 100-50		15	Cp	1	1	12	
	N70	V 250-100		10	Cp	1	1	2	
	N70	V 500-250		15	Cp	4		2	
	N100	H 0	30	200	T				
	N200	H 100	30	450	T				
33/38	N70	H 25	30	60	Cp	7	24	789	34
	N70	V 50-0		15	Cp		3	234	
	N100	H 0	30	30	Cp				
	N200	H 25	30	35	F				

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	O. D.	Count			
						I	II	III	IV
34/38	N50	H 0	30	25	Cp		36	1	
	N70	H 0-25	30	190	T		382	56	
	N100	H 0	30	200	T				
	N200	H 0-25	30	425	T				
35/38	N70	H 0-50	30	600	Cp		724	140	59
	N70	H 0-50	30	1250	T		1570	110	90
	N70	V 50-0		50	T	1	141	23	
	N70	V 100-50		25	Cp		58	10	
	N70	V 250-100		10	C	19		2	
	N100	H 0-50	30	600	T				
36/38	N50	H 0	30	10					
	N70	H 25	30	75	Cp		200	95	28
	N70	V 50-0		10	Cp		15	129	
	N100	H 0	30	50	T				
	N200	H 25	30	125	T				
37/38	N70	H 100	30	900	T		1877	16	80
	N70	H 100	30	1040	T	5	156	2	8
	N70	V 50-0		120	T	1	378	44	
	N70	V 100-50		50	T	3	215	3	
	N70	V 200-100		10	Cp	2	1	8	
	N100	H 0	30	700	T				
	N200	H 100	30	1600	T				
38/38	N70	H 0-25	30	30	Cp		103	54	13
	N70	V 40-0		15	T		56	54	
	N100	H 0	30	25	F				
	N200	H 0-25	30	40	F				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ	
1938									
20. ix	34/38	26° 54' S. 153° 24' 30" E.	31	0 10 20 30 40 50	19.60 19.60 19.50 19.15 18.94 18.83	19.66 .66 .64 .67	35.51 .51 .47 .53	25.	
21. ix	35/38	27° 2' S. 153° 45' E.	150	0 10 20 30 40 50 100 150 200 250	20.60 20.70 20.69 20.60 20.60 20.60 16.23 14.68 13.38 13.18	19.68 .70 .69 .68 .68 .68 .61 .47	35.55 .59 .57 .55 .55 .54 .43 .17	25. 26.	
	36/38	28° 37' S. 153° 42' E.	30	0 10 20 30 40 50	21.05 21.05 20.80 20.50 18.97 17.89	19.64 .64 .64 .58	35.48 .48 .47 .37	24. . . 25. . .	
22. ix	37/38	28° 37' S. 153° 54' E.	125	0 10 20 30 40 50 100 150 200	20.51 20.55 20.55 20.55 19.53 19.70 18.68 18.13 16.86				
23. ix	38/38	30° 14' S. 153° 15' E.	25	0 10 20 30 40	19.20 19.25 19.24 17.97 17.67	19.67 .68 .62 .66	35.53 .55 .44 .51	25.1 .1 .6 .7	

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl‰	S‰	σ _t	
1938									
23. ix	39/38	30° 16' S. 153° 32' E.		0	20.60	19.62	35.44	24.9	
				10	20.70	.64	.48	.9	
				20	20.49	.63	.46	25.0	
				30	20.40	.63	.46	.C	
				40	19.69	.66	.52	.2	
				50	18.97	.61	.43	.3	
				100	16.12	.59	.38	26.C	
				150	14.62				
				200	14.11	.50	.23	.3	
				300	12.46				
				400	11.32	.33	34.92	.6	
600	8.43	.10	.51	.8					
26. ix	40/38	31° 2' 30" S. 153° 6' 30" E.	30	0	19.04	19.67	35.53	25.4	
				10	18.20	.74	.65	.7	
				20	17.48				
				30	17.36	.70	.58	.9	
				40	17.07				
	50	16.77	.65	.50	.9				
	41/38	31° 6' S. 153° 20' E.			0	19.95	19.72	35.62	25.2
					10	19.74	.69	.57	.2
					20	19.44	.68	.55	.3
					30	17.93	.67	.53	.7
					40	17.36	.63	.46	.8
50					17.00	.63	.46	.8	
100	15.36	.60	.41	26.2					
150	14.65								
200	13.59	.53	.28	.5					
300	11.71								
400	10.43	.33	34.91	.8					
600	8.41	.12	.53	.8					
27. ix	42/38	32° 40' S. 152° 22' E.	40	0	16.68	19.66	35.51	26.0	
				10	16.65	.65	.50	.0	
				20	16.60				
				30	16.49	.68	.55	.0	
				40	15.57				
				50	15.19	.58	.37	.2	
				60	15.07				
				70	15.07				

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS												
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	O. D.	Count						
						I	II	III	IV			
39/38	N70	H 100	30	175	T	4	215	50	18			
	N100	H 0	30	300	T							
	N200	H 100	30	700	T							
40/38	N50	H 0	30	7		3	18	38	16			
	N70	V 50-0		10	Cp							
	N70	H 25	30	350	C					25	1407	79
	N100	H 0	30	250	T							
	N200	H 25	30	1400	T							
41/38	N70	V 50-0		35	T	4	85	3	10			
	N70	V 100-50		5	Cp							
	N70	V 250-100		10	Cp							
	N70	V 500-250		25	Cp					4	5	1
	N70	V 500-0		95	T					4	138	10
	N70	H 100	30	125	T					139	15	20
	N100	H 0	30	1600	T							
	N200	H 100	30	400	T							
42/38	N70	H 25	30	225	Cp	294	736	65	34			
	N70	V 50-0		25	Cp					38	106	9
	N100	H 0	30	790	T							
	N200	H 25	30	1000	T							

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS			
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo
1938							
27. ix	43/38	32° 50' 30" S. 152° 44' E.	310	0	17.79	19.68	35.55
				10	17.69	.70	.58
				20	17.64	.69	.57
				30	17.64	.69	.57
				40	17.59	.70	.58
				50	17.59	.70	.58
				100	16.23	.68	.55
				150	14.65		
				200	13.08	.46	.16
				300	11.52		
				400	9.86	.24	34.76
				500	8.80		
28. ix	44/38	33° 14' S. 151° 43' 30" E.	30	0	17.10	19.61	35.43
				10	16.19	.61	.43
				20	15.59		
				30	15.43	.60	.40
				40	15.22		
				50	15.17	.60	.40
29. ix	45/38	34° 14' S. 151° 35' E.	340	0	18.15	19.73	35.63
				10	17.99	.70	.59
				20	17.89	.68	.55
				30	18.00	.70	.59
				40	17.94	.69	.57
				50	17.89	.70	.59
				100	17.89	.70	.59
				150	17.18		
				200	16.06	.61	.43
				300	16.67		
				400	14.23	.59	.39
				600	12.70	.59	.39

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS										
	Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
							I	II	III	IV
76	43/38	N70	H 100	30	75	Ch	10	38	19	64
81		N70	V 50-0		10	Cp	1	7	8	12
82		N70	V 100-50		10	C		2	2	14
82		N70	V 250-100		10	Cp	1	3		16
84		N70	V 500-250		5	Cp	4	2		
84		N100	H 0	30	100	T				
13		N200	H 100	30	185	Ch				
51										
80										
83	44/38	N70	H 25	30	40	Cp	13	9		42
05		N70	V 50-0		5	Cp	55	2		23
		N100	H 0	30	300	C				
20		N200	H 25	30	125	C				
		N100	H 0	60	7200	T				
26		N200	H 15	60	1125	T				
74	45/38	N50	H 0	15	60					
74		N70	H 100	15	175	T	13	279	69	231
74		N70	V 50-0		150	T	2	85	27	14
74		N70	V 100-50		5	Cp		2	1	
74		N70	V 250-100		20	C		23	20	
77		N70	V 500-250		40	Cp	14	4	1	9
77		N100	H 0	15	600	T				
	N200	H 100	15	650	T					
08										
46										
77										

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATION			
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞
1938							
29. ix	46/38	34° 4'15" S. 151° 16'30" E.	48	0 16.05 10 15.95 20 16.00 30 15.70 40 15.29 50 14.89 60 14.42 80 13.81	19.58 .56 .61 .58	35.37 .34 .43 .36	21
11. x	47/38	35° 7' S. 150° 50' E.	32	0 15.94 10 15.00 20 14.90 30 14.79 40 14.34 50 14.04	19.73 .57 .57 .61 .61 .56	35.64 .35 .35 .43 .43 .34	21
	48/38	35° 16'20" S. 150° 58'40" E.		0 17.49 10 17.44 20 16.89 30 16.69 40 16.43 50 16.38 100 15.08 150 13.46 200 12.63 300 11.31 400 10.89 600 8.39	19.76 .74 .72 .73 .74 .78 .69 .46 .49 .43 .37 .25	35.70 .66 .62 .64 .65 .72 .56 .16 .21 .10 34.98 .77	21 21

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	O. D.	Count			
						I	II	III	IV
46/38	N70	H 25	30	400	C	1200	137	2	30
	N70	V 50-0		30	C	39	18		1
	N100	H 0	30	360	C				
	N200	H 25	30	800	C				
	N70	O 0-25		800	C				
	N100	H 25	30	1400	T				
	N100	O	30		C				
	N200	H 50	30	350	C				
	47/38	N70	H 25	30	500	Cp	139	15	
N70		V 50-0		15	C	11			1
N100		H 0	30	650	C				
N200		H 25	30	1025	C				
48/38	N50	H 0	30	10					
	N70	H 100	30	150	Cp	16	72	50	209
	N70	V 50-0		25	Cp	3	18	1	
	N70	V 100-50		25	Cp	9	11	7	31
	N70	V 250-100		30	Cp	8	3	2	
	N70	V 500-250		25	Cp	11		1	
	N100	H 0	30	230	Cp				
	N200	H 100	30	430	C				

4
4
5
9
6
6
8
6
6
6
4
4
3
9
7
3
0
3
5
1
1
5

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl‰	S‰	σ _t
1938								
12. x	49/38	36° 19' 40" S. 150° 24' 48" E.		0	16.60	19.71	35.60	26.08
				10	16.70	.72	.62	.08
				20	16.14	.71	.61	.16
				30	16.09	.68	.54	.16
				40	16.09	.70	.58	.19
				50	15.59	.68	.54	.28
				100	14.48	.61	.42	.43
				150	13.35	.58	.36	.62
				200	12.64	.56	.33	.73
	300	12.50	.56	.33	.77			
	400	12.28	.56	.33	.81			
	600	11.64	.53	.28	.89			
	50/38	36° 15' 40" S. 150° 15' 45" E.	30	0	15.27	19.59	35.38	26.23
				10	15.29	.63	.46	.28
				20	15.19	.63	.46	.30
				30	15.09	.62	.43	.30
				40	14.74	.59	.38	.34
				50	14.14	.59	.39	.48
	51/38	37° 9' S. 150° 3' E.	32	0	14.97	19.63	35.45	26.34
10				14.09	.64	.48	.34	
20				13.79	.64	.48	.61	
30				13.82	.65	.49	.62	
40				13.57	.61	.42	.62	
50				13.53	.63	.45	.63	
13. x	52/38	37° 14' S. 150° 23' E.		0	16.10	19.63	35.46	26.10
				10	16.05	.66	.51	.14
				20	16.05	.66	.51	.14
				30	16.05	.66	.51	.14
				40	15.64	.66	.51	.24
				50	14.87	.63	.45	.36
				100	14.64	.63	.46	.42
				150	13.61	.60	.41	.60
				200	13.31	.56	.33	.60
				300	11.44	.46	.15	.83
				400	12.00	.54	.29	.83
600	8.68	.23	34.73	.98				

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
						I	II	III	IV
49/38	N70	H 100	30	200	Cp	116	34	5	119
	N70	V 50-0		20	Cp	9		19	14
	N70	V 100-50		10	Cp	3			4
	N70	V 250-100		3	Cp	1			
	N70	V 500-250		30	Cp			2	15
	N100	H 0	30	150	T				
	N200	H 100	30	460	C				
50/38	N70	H 25	30		T	5	103		1
	N70	V 50-0		540	T	3	402		2
	N100	H 0	30		T				
	N200	H 25	30		Co				
51/38	N70	H 25	30	150	Cp	139	12		15
	N70	V 50-0		40	Cp	11	51		
	N100	H 0	30	450	T				
	N200	H 25	30	600	Co				
52/38	N70	H 100	30	300	Cp	3	263	7	119
	N70	V 50-0		20	Cp		1	1	
	N70	V 100-50		50	T		55	2	
	N70	V 250-100		5	Ch		1		
	N70	V 500-250		10	T	1			3
	N100	H 0	30	350	T				
	N200	H 100	30	380	T				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl ^o /oo	S ^o /oo	σ
1938								
16. x	53/38	39° 58' 30" S. 148° 23' E.	22	0 10 20 30 40	12.90 12.90 12.75 12.95 12.95	19.59 .59 .60 .63 .63	35.38 .38 .41 .45 .45	26.
	54/38	39° 32' S. 148° 49' E.	230	0 10 20 30 40 50 100 150 200 300 400	13.29 13.04 13.04 12.93 12.89 12.94 12.64 12.44 12.23 10.86 9.84	19.55 .52 .52 .51 .53 .53 .52 .53 .52 .39 .28	35.32 .26 .26 .24 .27 .28 .26 .27 .26 .02 34.83	26.
	55/38	39° 58' S. 148° 57' E.		0 10 20 30 40 50 100 150 200 300 400 600	15.55 13.37 14.94 14.69 14.44 13.30 13.03 12.62 12.68 12.67 12.52 12.38	19.66 .69 .64 .61 .63 .54 .53 .53 .54 .55 .53 .53	35.52 .56 .48 .43 .45 .29 .27 .27 .29 .32 .28 .28	26.
18. x	58/38	42° 39' S. 148° 12' E.	53	0 10 20 30 40 50 60 80	12.25 12.20 12.14 12.20 12.15 12.20 12.10 11.95	19.48 .47 .47 .47 .46 .47 .46 .54	35.19 .17 .17 .17 .15 .17 .16 .30	26.

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O. D.	Count			
						I	II	III	IV
53/38	N70	H 0	30	75	Cp	51	9	1	
	N70	V 38-0		25	Cp				
	N100	H 0	30	75	Co				
	N200	H 20	30	760	Co				
54/38	N70	H 0	30	120	Cp	3		44	4
	N70	V 50-0		30	Cp	11		35	
	N70	V 100-50		20	Cp			10	
	N70	V 250-100		20	Cp	3		7	
	N70	V 400-250		15	Cp	4			
	N100	H 0	30	420	Cp				
	N200	H 100		500	T				
55/38	N70	H 0	30	280	Cp		15	27	30
	N70	V 50-0		40	Cp			9	1
	N70	V 100-50		10	Cp		1	1	1
	N70	V 250-100		40	Cp			4	9
	N70	V 500-250		45	Cp		4		
	N100	H 0	30	130	T				
	N200	H 100	30	700	C				
58/38	N70	H 0	30	40	T		38		
	N70	V 50-0		25	T		15		
	N100	H 0	30	600	T				
	N200	H 25	30	2700	T				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS								
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t				
1938												
21. x	59/38	43° 33' S. 147° 18' 30" E.	30	0	12.10	19.42	35.08	26.6				
				10	12.15	.43	.09	.6				
				20	12.20	.43	.10	.6				
				30	12.20	.43	.10	.6				
				40	12.19	.43	.10	.6				
				50	12.20	.43	.10	.6				
				60/38	43° 16' 10" S. 148° 13' 4" E.	230	0	11.75	19.56	35.34	26.9	
	10	11.69	.56	.33	.9							
	20	11.59	.54	.30	.9							
	30	11.55	.56	.34	.9							
	40	11.50	.56	.33	.9							
	50	11.50	.56	.33	.9							
	100	11.59	.58	.36	.9							
	24. x	61/38	42° 38' 30" S. 148° 40' E.	55	0	12.50	19.48	35.19	26.6			
10					12.45	.47	.17	.65				
20					12.44	.46	.16	.65				
30					12.39	.47	.17	.65				
40					12.34	.49	.21	.70				
50					12.29	.48	.19	.70				
100					11.84	.46	.15	.75				
150					11.23	.38	.00	.75				
200					10.51	.39	.02	.90				
300					9.71	.30	34.86	.90				
400					8.84	.20	.69	.90				
600					7.83	.10	.51	.90				
2. xi					62/38	34° 4' 15" S. 151° 16' 30" E.	55	0	18.85	19.56	35.33	25.33
								10	18.40	.79	.75	.76
	20	18.10	.74	.65				.76				
	30	16.39	.58	.37				.97				
	40	15.86	.57	.35				26.07				
	50	15.46	.51	.24				.07				
	60	14.36	.43	.10				.21				
	80	13.33	.34	34.94				.30				

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	O. O.	Count			
						I	II	III	IV
59/38	N70	H 0	30	200	T		13		
	N70	V 50-0		115	T		7		
	N100	H 0	30	2500	T				
	N200	H 25	30	2600	T				
60/38	N70	H 0	30	20	Cp	1			19
	N70	V 50-0		5	Cp	1			
	N70	V 100-50		10	Cp	1	1		1
	N70	V 250-100		20	Cp	1			4
	N70	V 400-250		5	Cp				1
	N100	H 0	30	75	T				
	N200	H 100	30	800	C				
61/38	N70	V 50		25	Cp		3	34	
	N70	V 100-50		30	Cp	1	9	28	
	N70	V 250-100		25	Cp		1	27	
	N70	V 500-250		25	Cp				
	N100	H 0	30	300	Cp				
	N200	H 100	30	360	C				
62/38	N70	H 0	30	200	T	8	159	25	12
	N70	V 50-0		40	T	1	29	2	
	N100	H 0	30	600	T				
	N200	H 25	30	600	T				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp. °C.	Cl°/oo	S°/oo	σ
1938								
2. xi	63/38	34° 14' S. 151° 35' E.		0	18.95	19.61	35.42	25.
				10	19.00	.61	.42	.
				20	18.74	.60	.40	.
				30	18.40	.63	.46	.
				40	17.93	.63	.46	.
				50	17.88	.70	.59	.
				100	14.81	.53	.28	26.
				150	13.63	.50	.23	.
				200	12.53	.49	.20	.
				300	10.89	.55	.31	27.
				400	9.76	.40	.04	.
				600	7.95	.32	34.90	.
10. xi	64/38	34° 4' 30" S. 151° 14' E.	45	0	18.40	19.51	35.24	25.
				10	15.59	.54	.29	26.
				20	15.57	.61	.42	.
				30	14.86	.60	.41	.
				40	14.85	.60	.41	.
				50	14.67	.60	.40	.
				60	14.43	.58	.36	.
				80	13.95	.58	.36	.
11. xi	65/38	34° 6' S. 151° 37' 30" E.	350	0	19.89	19.70	35.59	25.
				10	19.49	.69	.57	.
				20	18.98	.69	.57	.
				30	18.84	.70	.59	.
				40	18.38	.70	.59	.
				50	17.06	.69	.57	.
				100	15.26	.61	.43	26.
				150	14.29	.61	.43	.
				200	13.08	.50	.23	.
				300	11.31	.43	.09	.
				400	9.56	.27	34.81	.
				600	7.65	.17	.62	27.

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
						I	II	III	IV
63/38	N70	V 50-0		5	Cp	1	1		
	N70	V 100-50		20	Cp	8	16	2	
	N70	V 250-100		40	Cp	6			
	N70	V 500-250		20	Cp	2	4		
	N70	H 0	30	230	Cp	51	252	51	38
	N100	H 0	30	600	T				
	N200	H 100	30	350	C				
64/38	N70	V 50-0		10	Cp	3	3	10	4
	N70	H 0	30	250	Cp	1740	840	130	30
	N100	H 0	30	300	T				
	N200	H 25	30	1000	C				
65/38	N70	V 50-0		20	Cp		70	6	
	N70	V 100-50		5	Cp		2		
	N70	V 250-100		10	Cp	2	1	1	
	N70	V 500-250		4	C	11	1		
	N70	O 100	30	150	T	1	390	3	9
	N100	H 0	30	125	T				
	N200	H 100	30	250	T				

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl ^o /oo	S ^o /oo	σ _t	
1938									
12. xi	66/38	35° 7' S. 150° 50' E.	30	0	18.33	19.61	35.42	25.53	
				10	17.83	19.58	.36	.61	
				20	16.57	19.58	.36	.91	
				30	15.67	19.55	.31	26.08	
				40	14.67	19.55	.31	.30	
				50	14.34	19.57	.35	.40	
13. xi	67/38	35° 15' 40" S. 150° 59' E.		0	19.99	19.65	35.50	25.16	
				10	19.04	.65	.50	.41	
				20	18.69	.69	.56	.55	
				30	18.38	.68	.54	.62	
				40	17.26	.70	.59	.92	
				50	16.09	.66	.52	26.14	
				100	13.96	.61	.42	.54	
				150	13.13	.58	.37	.68	
				200	12.62	.51	.25	.68	
				300	11.31	.41	.06	.78	
				400	9.88	.32	34.90	.92	
				600	8.26	.22	.72	27.03	
16. xi	68/38	35° 58' S. 150° 19' E.	60	0	18.46	19.60	35.41	25.49	
				10	18.50	19.61	.42	.49	
				20	17.90	19.61	.43	.64	
				30	15.65	19.65	.49	26.22	
				40	14.67	19.61	.42	.39	
				50	13.93	19.58	.36	.50	
				100	13.26	19.55	.31	.60	
18. xi	69/38	36° 33' 40" S. 150° 22' E.	-	0	19.30	19.70	35.58	25.41	
				10	19.29	.69	.57	.41	
				20	19.29	.70	.58	.42	
				30	19.20	.72	.62	.47	
				40	19.20	.72	.62	.47	
				50	18.94	.70	.58	.50	
				100	15.06	.60	.41	26.30	
				150	13.41	.57	.35	.60	
				200	12.34	.43	.09	.61	
				300	11.51	.40	.05	.73	
				400	10.63	.37	34.98	.85	
				600	8.47	.25	.77	27.04	

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
						I	II	III	IV
66/38	N70	H 25	30	1100	T	-	542	-	-
	N70	V 50-0	-	40	Cp	3	20	-	2
	N100	H 0	30	300	T				
	N200	H 25	30	2800	T				
67/38	N70	H 100	30	550	T	2	641	20	17
	N70	V 50-0	-	250	T	-	217	38	-
	N70	V 100-50	-	30	T	-	24	-	3
	N70	V 250-100	-	5	Cp	1	2	-	-
	N70	V 500-250	-	30	Cp	13	2	2	8
	N100	H 0	30	1800	T				
	N200	H 100	30	1980	T				
68/38	N70	H 0	30	256	T	12	330	-	1
	N70	V 50-0	-	400	T	3	353	-	4
	N70	V 100-50	-	5	Cp	1	1	-	-
	N100	H 0	30	4200	T				
	N200	H 25	30		T				
69/38	N70	H 100	30	350	T	-	310	-	9
	N100	H 0	30	1200	T				
	N200	H 100	30	3120	T				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ_t	
1938									
25. xi	73/38	39° 57' S. 148° 35' E.	30	0	14.85	19.60	35.40	26.33	
				10	14.85	19.60	.40	.33	
				20	14.70	19.57	.35	.33	
				30	14.70	19.60	.40	.37	
				40	14.70	19.60	.40	.37	
				50	14.54	19.58	.36	.37	
	74/38	39° 54' 30" S. 148° 57' E.	-	0	16.84	19.71	35.60	26.03	
				10	16.54	.66	.52	.03	
				20	16.39	.70	.59	.12	
				30	16.34	.70	.59	.13	
				40	16.34	.70	.58	.13	
				50	15.78	.74	.65	.31	
				100	14.38	.68	.54	.55	
				150	13.25	.58	.36	.64	
				200	12.63	.51	.25	.67	
				300	11.94	.49	.21	.78	
				400	10.66	.38	35.00	.86	
				600	8.13	.19	34.66	27.01	
28. xi	76/38	37° 9' S. 150° 22' 40" E.	-	0	19.34	19.64	35.47	25.31	
				10	19.24	.64	.47	.59	
				20	19.10	.63	.46	.62	
				30	19.09	.64	.47	.63	
				40	17.32	.69	.57	.90	
				50	16.55	.64	.47	26.00	
				100	15.17	.59	.38	.25	
				150	13.48	.51	.24	.50	
				200	12.78	.48	.18	.60	
				300	12.43	.51	.25	.71	
				400	10.36	.39	.03	.91	
				600	8.52	.22	34.71	.99	
29. xi	77/38	37° 8' 36" S. 150° 3' 8" E.	30	0	18.45	19.61	35.42	25.50	
				10	16.49	19.60	.40	.96	
				20	15.07	19.59	.39	26.27	
				30	15.07	19.59	.39	.27	
				40	14.41	19.60	.40	.43	
				50	14.35	19.61	.42	.46	

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	O. D.	Count			
						I	II	III	IV
73/38	N70	H 25	30	4400	Cp	8	4		11
	N70	V 50-0		25	Cp	2	4	25	3
	N100	H 0	30	200	Co				
	N200	H 25	30	1650	Co				
74/38	N70	H 100	30	640	T	6	320		5
	N70	V 50-0		300	T		273		
	N70	V 100-50		5	Cp	1	2		1
	N70	V 250-100		25	C		2	3	6
	N70	V 250-100			C				
	N70	V 500-250		25	Cp	10			10
	N70	V 500-250			C				
	N100	H 0	30	420	T				
	N200	H 100	30	1280	T				
	76/38	N70	H 100	30	720	T		643	
N70		V 50-0		180	T		234	1	
N70		V 100-50		20	T		135		
N70		V 250-100		175	T	1	363		
N70		V 500-250		25	Cp	2			1
N100		H 0	30	800	T				
N200		H 100	30	1600	T				
77/38	N70	H 25	30	350	Cp	101	767		15
	N70	V 50-0		50	Cp	19	24	2	1
	N100	H 0	30	1000	T				
	N200	H 25	30	600	T				

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞	σ _t
1938								
5. xii	84/38	36° 22' 10" S. 150° 14' 12" E.	-	0	17.92	19.64	35.47	25.67
12. xii	96/38	36° 18' S. 150° 28' E.	-	0	19.80	19.69	35.57	25.27
				10	19.80	.69	.57	.27
				20	18.20	.69	.57	.68
				30	17.58	.68	.54	.81
				40	17.01	.66	.51	.93
				50	16.76	.63	.45	.93
				100	16.08	.65	.49	26.12
				150	15.77	.65	.49	.19
				200	14.55	.62	.44	.43
				300	12.57	.44	.11	.58
				400	11.08	.38	.00	.78
				600	8.35	.17	34.63	.95
	97/38	36° 13' S. 150° 15' E.	32	0	16.95	19.63	35.45	25.89
				10	17.00	19.63	.46	.89
				20	16.85	19.66	.51	.96
				30	16.85	19.66	.51	.96
				40	16.65	19.65	.50	26.00
				50	16.53	19.63	.46	.00
13. xii	100/38	35° 7' S. 150° 50' E.	34	0	19.21	19.66	35.52	25.38
				10	18.98	19.65	.50	.43
				20	18.74	19.68	.54	.52
				30	18.78	19.68	.54	.52
				40	18.07	19.66	.51	.66
				50	17.36	19.65	.50	.83

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	D.O.	Count			
						I	II	III	IV
84/38	N100	H 0	30	200	T				
96/38	N70	H 100	30	75	Cp	8	27	25	29
	N100	H 0	30	700	Co				
	N200	H 100	30	300	Co				
97/38	N70	H 0	30	800	T	74	613	-	-
	N70	V 50-0	-	125	Cp	56	136	-	3
	N100	H 0	30	1400	T				
	N200	H 25	30	7000	C				
100/38	N70	H 25	30	80	C	229	121	130	3
	N70	V 50-0	-	10	Cp	47	-	10	-
	N100	H 0	30	50	C				
	N200	H 25	30	70	T				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞	σ _t	
1938									
14. xii	102/38	35° 6' S. 151° 14' E.	-	0	21.64	19.75	35.67	24.84	
				10	21.60	.74	.66	.85	
				20	21.04	.72	.62	.97	
				30	19.92	.72	.62	25.27	
				40	19.79	.71	.61	.30	
				50	19.68	.70	.59	.31	
				100	16.69	.70	.59	26.05	
				150	15.53	.66	.51	.26	
				200	14.79	.65	.49	.41	
				300	13.24	.56	.33	.61	
				400	11.96	.55	.31	.85	
				600	8.94	.28	34.82	27.01	
	103/38	34° 5' S. 151° 14' E.	40	0	20.06	19.69	35.56	25.18	
				10	20.06	19.69	.56	.18	
				20	20.00	19.67	.53	.18	
				30	19.80	19.71	.61	.30	
				40	18.93	19.71	.61	.52	
				50	18.21	19.66	.51	.63	
15. xii	104/38	34° 3' 30" S. 151° 39' E.	-	0	21.25	19.69	35.57	24.87	
				10	21.30	.70	.59	.87	
				20	21.30	.70	.58	.87	
				30	21.30	.73	.64	.91	
				40	19.68	.66	.51	25.25	
				50	17.53	.66	.51	.79	
				100	15.09	.56	.34	26.23	
				150	14.58	.59	.39	.38	
				200	13.01	.48	.18	.55	
				300	11.04	.34	34.93	.73	
				400	9.85	.26	.79	.83	
				600	7.64	.16	.61	27.04	

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	D.O.	Count			
						I	II	III	IV
102/38	N70	H 100	30	40	Cp	1	63	6	55
	N70	V 50-0	-	10	Cp	-	6	18	2
	N70	V 100-50	-	25	Cp	2	6	17	11
	N70	V 250-100	-	3	T	-	5	-	-
	N70	V 500-250	-	5	C	8	-	-	-
	N100	H 0	30	60	T				
	N200	H 100	30	100	Co				
103/38	N70	H 0	30	150	T	238	484	11	-
	N70	V 50-0	-	45	Cp	57	20	2	-
	N100	H 0	30	75	C				
	N200	H 25	30	700	C				
104/38	N70	H 0	30	300	T	40	440	-	-
	N100	H 0	30	200	T				
	N200	H 100	30	450	C				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ_t
1938 17. xii	105/38	33° 33' 30" S. 151° 33' 00" E.	35	0	20.63	19.71	35.61	25.07
				10	20.48	.72	.62	.13
				20	19.72	.71	.61	.32
				30	19.27	.68	.55	.39
				40	18.00	.68	.54	.71
				50	17.31	.70	.59	.91
	106/38	33° 31' S. 152° 11' 30" E.	350	0	21.74	19.70	35.59	24.75
				10	20.98	.72	.62	.99
				20	19.97	.73	.63	25.27
				30	19.07	.71	.61	.48
				40	17.64	.68	.54	.79
				50	16.86	.65	.50	.94
				100	14.69	.60	.41	26.37
				150	13.82	.54	.30	.47
				200	13.37	.47	.17	.47
				300	12.42	.44	.11	.61
	107/38	32° 47' S. 152° 14' E.	31	0	20.35	19.65	35.49	25.05
				10	19.79	.68	.54	.25
				20	19.08	.67	.53	.43
				30	18.83	.63	.45	.43
				40	18.17	.66	.51	.64
19. xii	108/38	32° 48' S. 152° 48' E.		0	23.33			
				10	23.08			
				20	23.04			
				30	23.04			
				40	22.94			
				50	22.48			
				100	19.01			
				150	17.38			
				200	14.75			
				300	12.87			
				400	10.77			
				600	8.48			

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O. D.	Count			
						I	II	III	IV
105/38	N70	H 0	30	40	Cp	-	7	50	25
	N70	V 50-0	-	5	Cp	6	-	60	-
	N100	H 0	30	5					
	N200	H 25	30	75					
106/38	N70	H 100	30	125	T	4	156	1	48
	N70	V 100-50	-	5	Cp	-	2	-	-
	N100	H 0	30	100	T				
	N200	H 100	30	150	T				
107/38	N70	H 0	30	40	C				
	N100	H 0	30	15	F				
	N200	H 25	30	70	T				
108/38	N70	H 100	30	50	Cp	2	10	-	25
	N70	V 100-50	-	5	Cp	1	1	-	-
	N70	V 250-100	-	2		-	1	-	1
	N70	V 500-250	-	15	Cp	33	-	1	3
	N100	H 0	30	100	T				
	N200	H 100	30	700	Co				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/‰	S°/‰	σ _t
1939								
5.i	1/39	34° 8' S. 151° 32' E.	-	0	22.10	19.72	35.62	24.68
				10	22.00	.72	.62	.70
				20	21.44	.69	.56	.81
				30	20.59	.66	.52	25.01
				40	19.36	.65	.49	.22
				50	18.69	.65	.49	.49
				100	17.36	.65	.49	.82
				150	15.38	.54	.30	26.14
				200	14.25	.48	.18	.30
				300	11.72	.34	34.94	.62
				400	9.88	.21	.70	.76
				600	7.90	.08	.47	.89
	2/39	34° 4'30" S. 151° 13' E.	31	0	20.85	19.58	35.37	24.83
				10	19.88	.60	.40	25.12
				20	17.66	.58	.37	.66
				30	17.32	.60	.40	.76
				40	16.40	.54	.30	.90
				50	15.63	.53	.27	26.06
6.i	5/39	35° 9' S. 151° 6'30" E.	-	0	21.94	19.66	35.51	24.64
				10	21.95	.66	.52	.64
				20	20.93	.69	.57	.69
				30	20.74	.72	.62	25.05
				40	19.51	.68	.54	.32
				43	18.58	.69	.57	.58
				86	17.20	.60	.41	.80
				129	15.46	.60	.41	26.20
				172	14.41	.50	.22	.29
				258	13.77	.52	.26	.45
				344	12.19	.46	.15	.69
				516	10.61	.34	34.94	.80
7.i	6/39	35° 5'30" S. 150° 50'30" E.	30	0	19.10	19.62	35.44	25.35
				10	18.58	.62	.44	.48
				20	16.26	.59	.39	26.00
				30	16.02	.60	.40	.07
				40	15.79	.59	.38	.11
				50	15.60	.63	.46	.21

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	O D	Count			
						I	II	III	IV
1/39	N70	H 100	30	50	Cp	10	7	3	27
	N100	H 0	30	75	T				
	N200	H 100	30	120	Ch				
2/39	N100	H 0	30	25	F			341	3
	N200	H 25	30	60					
	N70	H 25	30	20	Cp				
5/39	N70	H 0	30	75	Cp	6	54	6	29
	N100	H 0	30	30	Co				
	N200	H 100	30	175	C				
6/39	N70	V 50-0	-	5	Cp	11	-	3	5
	N100	H 0	30	25	M				
	N200	H 25	30	60	C				
	N70	H 25	30	50	Cp				

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t	
1939									
8. i	10/39	37° 28' 30" S. 150° 2' E.	32	0	18.18	19.71	35.60	25.70	
11. i	19/39	42° 33' S. 148° 2' E.	12	0	16.63	19.40	35.04	25.65	
19. i	24/39	43° 13' S. 148° 4' 30" E.	-	0	13.95	19.30	34.87	26.11	
				10	13.84	19.31	.88	.14	
				20	13.39	19.34	.94	.28	
				30	13.13	19.33	.91	.32	
				40	13.04	19.33	.91	.34	
				50	12.99	19.32	.90	.34	
				100	12.78	19.33	.92	.39	
20. i	26/39	41° 14' S. 148° 27' E.	57	0	16.00	19.55	35.31	26.01	
				10	15.95	19.54	.30	.01	
				20	15.65	19.51	.25	.03	
				30	15.18	19.45	.14	.06	
				40	15.10	19.44	.11	.06	
				50	14.99	19.44	.11	.07	
				100	13.45	19.42	.08	.17	
	29/39	39° 55' S. 148° 31' E.	28	0	16.05	19.54	35.29	25.97	
				10	16.00	19.54	.30	.98	
				20	16.00	19.53	.28	.98	
				30	15.97	19.52	.26	.98	
				40	15.97	19.55	.31	26.02	
				50	15.95	19.55	.31	.02	
21. i	31/39	39° 23' S. 147° 15' E.	32	0	16.15	19.63	35.45	26.08	
				10	16.10	19.62	.44	.08	
				20	16.05	19.63	.46	.11	
				30	16.04	19.64	.48	.12	
				40	16.00	19.63	.46	.12	
				50	16.00	19.65	.49	.14	

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D. O.	Count			
						I	II	III	IV
10/39	N100	H 0	30	25	C				
19/39	N70	H 0	30	75	C				
24/39	N70	H 100	30	200	Cp	11	14	-	13
	N70	V 50-0	-	10	Cp	3	1	-	-
	N70	V 100-50	-	20	Cp	1	1	-	-
	N100	H 0	30	230	C				
	N200	H 100	30	1100	T				
26/39	N70	H 25	30	185	Cp	1	1	-	6
	N70	V 50-0	-	100	Cp	-	-	-	3
	N70	V 100-50	-	15	Cp	-	-	2	-
	N100	H 0	30	50	M				
	N200	H 25	30	200	C				
29/39	N70	H 0	30	130	C	138	-	-	-
	N100	H 0	30	40	C				
	N200	H 25	30	900	C				
31/39	N70	H 25	30	70	Cp	3	-	-	2
	N100	H 0	30	5	C				
	N200	H 25	30	120	Ch				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞	σ _t
1939								
23.1	36/39	37° 08' S. 150° 25' E.	-	0	20.35	19.75	35.67	25.20
				10	20.35	19.74	.65	.20
				20	20.04	19.72	.62	.29
				30	20.05	19.76	.70	.30
				40	19.59	19.74	.65	.39
				50	18.89	19.66	.51	.46
				100	17.02	19.64	.48	.89
				150	15.49	19.58	.37	26.17
				200	14.57	19.63	.45	.44
				300	13.62	19.50	.22	.46
				400	11.72	19.39	.02	.72
				600	9.18	19.24	34.76	.92
24.1	37/39	37° 03' S. 150° 01' E.	32	0	18.59	19.61	35.42	25.47
				10	17.47	19.59	.39	.72
				20	16.52	19.61	.43	.97
				30	16.37	19.58	.37	.97
				40	16.07	19.58	.37	26.04
				50	15.70	19.58	.37	.12
25.1	40/39	35° 06' S. 150° 51' E.	38	0	19.60	19.59	35.39	25.18
				10	19.55	19.63	.45	.24
				20	18.78	19.59	.39	.39
				30	18.38	19.63	.46	.55
				40	17.71	19.60	.41	.68
				50	15.78	19.58	.37	26.10
	41/39	35° 2' 30" S. 151° 3' E.	-	0	21.54	19.70	35.59	24.80
				10	21.55	.74	.65	.86
				20	21.50	.73	.64	.86
				30	21.34	.70	.58	.86
				40	19.26	.70	.59	25.42
				50	17.73	.63	.46	.72
				100	15.96	.63	.45	26.13
				150	14.07	.51	.25	.37
				200	13.21	.50	.22	.55
				300	10.89	.30	34.87	.71
				400	9.18	.20	.68	.86
				600	7.84	.10	.50	.93

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	D.O.	Count			
						I	II	III	IV
36/39	N70	H 100	30	20	C	1		3	3
	N100	H 0	30	25	Co				
	N200	H 100	30	100	Ch				
37/39	N70	H 25	30	10	Cp	5	9	6	2
	N100	H 0	30	340	T				
	N200	H 25	30	560	T				
40/39	N70	H 25	30	280	Cp	16	177	7	37
	N100	H 0	30	400	T				
	N200	H 25	30	900	T				
41/39	N70	H 100	30	160	T	1	117	6	20
	N100	H 0	30	150	T				
	N200	H 100	30	250	T				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t
1939								
25. i	43/39	34° 14' S. 151° 28' E.	-	0	21.44	19.61	35.43	24.71
				10	21.45	.61	.43	.71
				20	19.47	.64	.47	25.28
				30	18.48	.63	.46	.52
				40	17.49	.60	.41	.73
				50	16.83	.58	.37	.86
				100	14.85	.51	.24	26.20
				150	12.91	.46	.16	.55
				200	12.04	.41	.07	.65
				300	10.07	.25	34.77	.79
				400	8.89	.15	.60	.84
				600	7.59	.09	.48	.95
26. i	44/39	34° 02' S. 151° 15' 30" E.	34	0	21.30	19.66	35.51	24.81
				10	20.40	19.65	.50	25.05
				20	20.18	19.64	.48	.09
				30	19.34	19.63	.46	.30
				40	16.95	19.61	.42	.87
				50	16.03	19.59	.39	26.06
4. ii	45/39	36° 02' S. 151° 15' 30" E.	40	0	19.60	19.61	35.42	25.21
				10	19.13	19.61	.42	.33
				20	18.38	19.61	.42	.52
				30	18.08	19.59	.38	.57
				40	15.87	19.54	.29	26.02
				50	15.63	19.68	.55	.27
	46/39	34° 3' S. 151° 11' 30" E.	-	0	21.95	19.68	35.54	24.65
				10	22.00	.68	.55	.65
				20	22.00	.68	.55	.65
				30	22.00	.68	.55	.65
				40	22.00	.68	.55	.65
				50	21.74	.68	.55	.72
				100	17.40	.66	.51	25.83
				150	15.82	.58	.37	26.09
				200	12.92	.46	.16	.54
				300	10.91	.34	34.94	.77
				400	9.37	.23	.73	.87
				600	7.89	.12	.53	.96

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O. D.	Count			
						I	II	III	IV
43/39	N70	H 100	30	160	Cp	47		10	20
	N100	H 0	30	100	Ch				
	N200	H 100	30	275	C				
44/39	N70	H 25	30	200	Cp	92	36	20	25
	N100	H 0	30	400	T				
	N200	H 25		250	T				
45/39	N70	H 25	30	10	Cp	2	22	216	3
	N70	V 50-0		15	Cp				
	N200	H 25	30	30	Ch				
	N100	H 0	30	5	F				
46/39	N70	H 0	30	50	Cp	7	38	122	25
	N70	V 500-250		10	Cp				
	N70	V 250-100		15	Cp				
	N70	V 100-50		5	Cp				
	N70	V 50-0		10	Cp				
	N100	H 0	30	50	Co				
	N200	H 100	30	200	C				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl ^o /oo	S ^o /oo	σ _t
1939								
7. 11	48/39	35° 07' S. 150° 50' E.	33	0 10 20 30 40 50	19.50 18.94 17.88 16.87 16.15 15.79	19.66 19.68 19.76 19.63 19.63 19.63	35.52 .54 .69 .45 .45 .45	25.30 .47 .85 .91 26.08 .16
8. 11	51/39	37° 07' S. 150° 1' 30" E.	32	0 10 20 30 40 50	18.90 17.82 16.77 16.58 16.31 16.06	19.59 19.61 19.62 19.60 19.57 19.61	35.38 .42 .44 .41 .35 .42	25.36 .66 .92 .94 .96 26.08
13. 11	61/39	38° 34' 30" S. 142° 18' 30" E.	30	0 10 20 30 40 50	17.20 17.00 16.68 16.08 14.71 14.51	19.63 19.63 19.62 19.65 19.56 19.56	35.45 .45 .44 .49 .34 .34	25.83 .88 .94 26.12 .31 .36
18. 11	69/39	34° 54' S. 138° 02' E.	18	0 10 20 30	20.85 20.72 20.90 21.00	20.35 20.37 20.40 20.48	36.75 .80 .85 .99	25.89 .95 .95 26.02
	71/39	35° 25' S. 136° 50' E.	32	0 10 20 30 40 50	19.10 19.15 18.95 18.90 18.95 18.33	20.02 20.03 20.05 20.05 20.08 20.00	36.17 .18 .21 .21 .27 .13	25.90 .90 .98 .99 26.02 .07
20. 11	76/39	33° 53' S. 137° 10' E.	10	0 10 15	23.08 23.24 23.20	20.95 20.98 21.04	37.84 .90 38.00	26.08 .08 .17

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O. D.	Count			
						I	II	III	IV
48/39	N70	H 25	30	50	M	1	10	59	11
	N70	V 50-0		200	Cp	2	20	27	10
	N100	H 0	30	350	T				
	N200	H 25	30	600	T				
51/39	N70	H 25	30	1080	T		27	4	
	N70	V 50-0		90	Cp	5	7	53	2
	N100	H 0	30	50	T				
	N200	H 25	30	7800	T				
61/39	N70	H 25	30	10	Cp				3
	N70	V 50-0		5	Cp				
	N100	H 0	30	5	C				
	N200	H 25	30	75	C				
69/39	N70	H 15	30	100	Cp	6		900	4
	N70	V 30-0		10	Cp			52	1
	N100	H 0	30	150					
	N200	H 15	30	550	Co				
71/39	N70	H 25	30	130	C		129	461	
	N100	H 0	30	50	C				
	N200	H 25	30	180	T				
76/39	N70	H 0	30	90	Cp	5		78	5
	N70	V 15-0		10	Cp				14
	N100	H 10	30	250	F				

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	CT°/oo	S°/oo	σ _t	
1939									
22. ii	83/39	35° 31' S. 136° 08' E.	59	0	18.58	19.84	35.83	25.78	
				10	17.69	19.82	.80	.97	
				20	17.48	19.82	.81	26.03	
				30	17.58	19.84	.84	.03	
				40	16.67	19.79	.75	.18	
				50	15.45	19.69	.56	.32	
				60	14.86	19.63	.46	.37	
				80	12.51	19.49	.20	.66	
				100	12.45	19.48	.19	.66	
2. iii	92/39	35° 23' S. 137° 59' E.	22	0	21.03	20.54	37.10	26.10	
				10	20.18	20.53	.08	.31	
				20	20.14	20.52	.07	.31	
				30	20.13	20.52	.07	.31	
				40	20.08	20.54	.10	.35	
5. iii	98/39	36° 35' S. 138° 50' E.	32	0	16.80	19.68	35.54	25.99	
				10	16.55	19.68	.54	26.05	
				20	16.13	19.65	.50	.12	
				30	16.03	19.64	.47	.12	
				40	16.05	19.65	.49	.12	
				50	15.98	19.66	.52	.16	
9. iv	100/39	40° 15' S. 144° 03' E.	32	0	16.76	19.58	35.36	25.86	
				10	16.75	19.57	.35	.86	
				20	16.80	19.58	.36	.86	
				30	16.80	19.59	.39	.88	
				40	16.65	19.59	.38	.91	
				50	16.60	19.59	.39	.92	
	103/39	40° 28' S. 146° 13' E.	40	0	17.10	19.50	35.22	25.68	
				10	17.10	19.64	.47	.87	
				20	17.05	19.63	.46	.87	
				30	17.05	19.64	.48	.88	
				40	16.80	19.64	.48	.94	
				50	16.64	19.67	.53	26.02	

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	D.O.	Count			
						I	II	III	IV
83/39	N70	H 25	30	1860	T		661	1	3
	N70	V 50-0		430	T		674	7	8
	N70	V 100-50		45	Cp	2	37	8	22
	N100	H 0	30	6000	T				
	N200	H 25	30	7200	T				
92/39	N70	H 25	30	100	Cp				
	N100	H 0	30	5	F				
	N200	H 25	30	200	Co				
98/39	N70	H 0	30	150	Cp				
	N100	H 0	30	150	T				
	N200	H 25	30	550	T				
100/39	N70	H 25	30	100	Cp		2		3
	N70	V 50-0		20	Cp				2
	N100	H 0	30	350	Co				
	N200	H 25	30	150	Co				
103/39	N70	H 0	30	150	C		19		
	N70	V 50-0		20	Cp				4
	N100	H 0	30	100	C				
	N200	H 25	30	200	C				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS								
				Depth (m.)	Temp °C.	Cl ^o /oo	S ^o /oo	σ _t				
1939 10. iv	105/39	41° 17' S. 148° 26' E.	32	0	17.10	19.61	35.42	25.83				
				10	16.85	19.59	.39	.86				
				20	16.53	19.61	.43	.96				
				30	16.18	19.57	.35	.99				
				40	16.09	19.57	.35	26.01				
				50	15.73	19.57	.35	.10				
	106/39	41° 19' S. 148° 45' E.	335	0	17.40	19.61	35.43	25.76				
				10	17.40	.64	.47	.80				
				20	17.40	.65	.49	.82				
				30	16.95	.63	.46	.90				
				40	16.84	.63	.46	.92				
				50	16.58	.65	.49	26.01				
				100	14.17	.50	.22	.35				
				150	13.24	.50	.22	.54				
				200	12.49	.43	.09	.59				
				300	11.03	.35	34.96	.75				
				400	9.93	.25	.77	.81				
				600	7.81	.10	.50	27.08				
				11. iv	107/39	42° 37' S. 148° 35' E.	-	0	16.55	19.61	35.43	25.96
								10	16.60	.62	.44	.96
20	16.55	.61	.43					.96				
30	16.53	.61	.43					.97				
40	16.54	.61	.43					.97				
50	16.50	.62	.44					.98				
108/39	42° 34' S. 148° 11' E.	47	0		16.48	19.57	35.35	25.92				
			10		16.49	19.59	.39	.95				
			20		16.45	19.59	.39	.95				
			30		16.38	19.59	.38	.97				
			40		16.19	19.57	.35	.95				
			50		15.83	19.57	.35	26.07				

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cgs.)	D. O.	Count			
						I	II	III	IV
105/39	N70	H 25	30	40	Cp	5	4	50	62
	N70	V 50-0		10	Cp	20		14	
	N100	H 0	30	100	T				
	N200	H 25	30	200	Co				
106/39	N70	H 0	30	70	Cp	8	14	10	2
	N70	V 50-0		5	Cp	1			
	N70	V 100-50		5	Cp	1			1
	N70	V 250-100		20	Cp				
	N70	V 500-250		25	C	9			
	N100	H 0	30	650	T				
	N200	H 100	30	150	C				
107/39	N70	H 100	30	50	Cp			10	8
	N70	V 50-0		10	Cp				
	N70	V 100-50		5	Cp				
	N70	V 250-100		10	Cp	1			
	N70	V 500-250		20	Cp	4			
	N100	H 0	30	50	T				
	N200	H 100	30	900	T				
108/39	N70	H 25	30	50	Cp	6	13	4	25
	N70	V 50-0		10	Cp	2		7	2
	N100	H 0	30	30	T				
	N200	H 25	30	120	Co				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ_t
1939								
17. iv	118/39	37° 10' S. 150° 24' E.	-	0	20.60	19.60	35.41	24.93
				10	20.75	.63	.45	.93
				20	20.74	.63	.45	.93
				30	20.45	.70	.58	25.10
				40	18.87	.64	.48	.43
				50	18.05	.64	.48	.64
				100	15.36	.55	.31	26.15
				150	13.67	.50	.22	.45
				200	13.27	.49	.21	.52
				300	12.02	.43	.10	.68
				400	10.27	.29	34.85	.80
			600	7.90	.18	.64	27.03	
	119/39	37° 07' S. 150° 03' 30" E.	35	0	18.20	19.59	35.39	25.54
				10	18.05	19.59	.39	.57
				20	17.79	19.59	.38	.64
				30	17.69	19.60	.40	.68
				40	17.70	19.61	.43	.70
				50	17.63	19.60	.41	.70
18. iv	120/39	36° 16' S. 150° 16' 30" E.	40	0	20.72	19.55	35.31	24.82
				10	20.75	19.56	.33	.82
				20	20.56	19.56	.33	.88
				30	20.82	19.61	.42	.88
				40	20.45	19.57	.35	.93
				50	18.61	19.54	.30	25.37
	122/39	34° 56' S. 150° 53' 30" E.	25	0	20.46			

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
						I	II	III	IV
118/39	N70	H 100	30	140	T	36	50		
	N70	V 50-0		80	T		41	2	
	N70	V 100-50		5	Cp				
	N70	V 250-100		15	Cp			7	5
	N70	V 500-250		20	Cp	1			3
	N100	H 0	30	130	T				
	N200	H 100	30	75	T				
119/39	N70	H 50	30	150	Cp	160	40	295	41
	N70	V 50-0		70	Cp	40	8	98	3
	N100	H 0	30	200	T				
	N200	H 50	30	100	T				
120/39	N70	H 0	30	100	Cp	3	16	130	61
	N70	V 50-0		20	Cp	8		38	5
	N100	H 0	30	80	T				
	N200	H 50	30	125	T				
122/39	N70	V 50-0		15	Cp	1	4	36	13

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl ^o /oo	S ^o /oo	σ _t	
1939									
1. v	124/39	34° 8' S. 151° 32' E.		0	20.85	19.73	35.63	25.03	
				10	20.85	.73	.63	.03	
				20	20.80	.73	.63	.04	
				30	20.80	.73	.63	.04	
				40	20.80	.73	.63	.04	
				50	20.80	.74	.66	.06	
				100	20.80	.74	.66	.06	
				150	18.95	.71	.61	.52	
				200	18.29	.69	.57	.66	
				300	16.94	.73	.63	26.03	
400	14.51	.54	.30	.33					
600	10.40	.33	34.91	.84					
2. v	125/39	34° 4' 30" S. 151° 13' E.	35	0	19.86	19.54	35.30	25.07	
				10	19.90	.56	.34	.07	
				20	19.75	.56	.33	.10	
				30	19.25	.56	.34	.24	
				40	18.27	.56	.33	.47	
				50	17.40	.55	.31	.68	
3. v	126/39	33° 17' 30" S. 151° 42' 30" E.	33	0	21.58	19.60	35.40	24.65	
				10	21.60	.60	.41	.65	
				20	21.60	.60	.41	.65	
				30	21.49	.60	.40	.67	
				40	20.43	.58	.36	.93	
	50	16.35	.49	.20	25.84				
	127/39	33° 18' S. 152° 13' E.			0	21.69	19.56	35.34	24.58
					10	21.69	.58	.37	.60
					20	21.54	.63	.45	.71
					30	21.44	.64	.47	.75
40					21.09	.64	.47	.84	
50					20.16	.63	.45	25.08	
100	18.76	.68	.54	.52					
150	17.54	.63	.45	.77					
200	16.41	.54	.29	.90					
300	14.00	.46	.15	26.32					
400	11.84	.37	34.98	.63					
600	8.59	.26	.79	27.04					

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O. D.	Count			
						I	II	III	IV
124/39	N70	H 0	60	120	Cp	12	161	27	60
	N70	V 50-0		20	Cp	3	5	29	4
	N70	V 100-50		20	Cp	4	3	15	7
	N70	V 250-100		25	Cp			4	10
	N70	V 500-250		20	Cp			7	6
	N100	H 0	30						
125/39	N70	H 0	30	75	Cp		15	89	15
	N100	H 25	30	50	Ch				
	N100	H 0	30	25	T				
	N70	V 50-0		25	Cp	5	6	16	8
	N100	H 25	30	50	C				
126/39	N70	H 0	60	10	Cp	1	4	75	3
	N70	V 50-0		20	Cp			23	
	N100	H 0	60	25	F				
	N100	H 25	60	30	C				
127/39	N70	H 100	60	50	Cp	1	33	47	49
	N70	V 500-250		20	Cp	2			
	N70	V 250-100		5	Cp	1	1	1	
	N70	V 50-0		5	Cp	1	1	6	2
	N70	V 100-50		5	Cp	1	1	2	3
	N100	H 0	60	25	T				
	N100	H 100	60	40	C				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞	σ _t	
1939									
3. v	128/39	32° 27' S. 152° 22' 30" E.	32	0	-	19.56	35.34		
				10	-	19.58	.36		
				20	-	19.58	.36		
				30	20.50	-	-		
				40	20.20	19.52	.26		
				50	19.85	-	-		
	129/39	32° 34' S. 152° 55' E.	-	0	21.10	19.59	35.38	24.78	
				10	21.10	.60	.40	.79	
				20	20.89	.60	.40	.85	
				30	20.95	.61	.43	.85	
				40	20.74	.59	.38	.92	
				50	19.82	.54	.29	25.32	
				100	16.51	.52	.26	.85	
				150	15.47	.50	.23	26.06	
				200	15.43	.50	.23	.07	
				300	15.29	.50	.23	.10	
				400	12.49	.42	35.08	.57	
				600	9.03	.20	34.69	.88	
5. v	131/39	30° 17' S. 153° 16' 30" E.	31	0	23.15	19.59	35.39	24.20	
				10	23.15	19.60	.40	.21	
				20	23.10	19.62	.44	.25	
				30	22.03	19.56	.33	.47	
				40	21.02	19.60	.40	.53	
				50	20.41	19.52	.26	.87	
	132/39	30° 15' S. 153° 33' E.	-	0	23.35	19.62	35.44	24.18	
				10	23.40	.63	.45	.18	
				20	23.40	.63	.46	.18	
				30	23.30	.61	.43	.18	
				40	23.40	.63	.46	.18	
				50	23.45	.64	.47	.18	
				100	19.91	.68	.54	25.20	
				150	18.16	.59	.39	.29	
				200	16.85	.56	.33	.91	
				300	14.39	.46	.16	26.24	
				400	12.32	.40	.05	.58	
				600	9.60	.22	34.72	.82	

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	O.D.	Count			
						I	II	III	IV
128/39	N70	H 0	60	50	Cp	2	17	115	62
	N100	H 25	60	75	T				
129/39	N50	H 0	60	25	Cp	3		23	13
	N70	H 0	60	220	Cp	97	21	23	325
	N70	V 50-0		20	Cp	1		12	
	N100	H 100	60	300	C				
131/39	N70	H 0-25	60	200	Cp	4	47	416	203
	N70	V 50-0		15	Cp		1	35	3
	N100	H 0	60	75	Ch				
	N100	H 0-25	60	50	M				
132/39	N70	V 50-0		20	Cp	1	5	47	5
	N70	V 100-50		15	Cp			22	5
	N70	V 250-100		15	Cp			2	6
	N70	V 500-250		10	Cp	2	1	52	12
	N70	H 100	60	250	Cp	38	30	162	298
	N100	H 0	60	75	C				
	N100	H 100	60	100	C				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t
1939								
6.v	133/39	28° 38' S. 153° 43' 30" E.	33	0 23.50 10 23.55 20 23.49 30 23.45 40 23.10 50 22.73	19.54 .54 .59 .60 .54 .56	35.29 .30 .39 .41 .29 .33	24.02 .02 .10 .14 .14 .27	
	134/39	28° 36' S. 153° 57' E.	-	0 24.25 10 24.30 20 24.24 30 24.30 40 24.30 50 24.09 100 22.02 150 18.46 200 16.02 300 13.50 400 11.03 600 10.20	19.50 .48 .50 .50 .50 .56 .58 .60 .51 .41 .30 .29	35.23 .19 .23 .23 .33 .36 .40 .24 .06 34.87 .86	23.75 .75 .75 .75 .88 24.51 25.48 .95 26.35 .69 .82	
14.v	135/39	27° 2' S. 153° 48' E.	-	0 23.80 10 23.85 20 23.74 30 23.69 40 23.59 50 23.49 100 22.93 150 20.24 200 18.00 300 18.23 400 17.09 600 15.43	19.55 .56 .54 .54 .59 .64 .64 .66 .60 .64 .61 .56	35.33 .34 .30 .29 .39 .47 .47 .51 .41 .48 .43 .34	23.96 .96 .96 .96 24.08 .17 .33 25.10 .61 .61 .84 26.15	
	136/39	27° 3' S. 153° 31' 30" E.	35	0 23.51 10 23.60 20 23.60 30 23.60 40 22.69 50 20.59	19.54 .52 .54 .53 .53 .58	35.29 .26 .29 .27 .27 .37	23.98 .98 .99 .99 24.25 .91	

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccr.)	O. D.	Count			
						I	II	III	IV
133/39	N70	H 25	60	220	Cp	19	59	256	594
	N70	V 50-0		25	Cp		8	49	23
	N100	H 0	60	100	Ch				
	N100	H 25		50	Ch				
134/39	N70	H 100	60	110	Cp	1	23	141	118
	N100	H 0	60	140	Cp				
	N100	H 100	60	40	Co				
135/39	N70	H 0-100	60	75	Cp		25	75	77
	N70	V 50-0		10	Cp			6	
	N70	V 100-50		15	Cp	1	1	4	3
	N70	V 250-100		15	Cp	2	1	6	5
	N70	V 500-0		20	Cp	1		16	8
	N70	V 500-250		20	Ch			4	
	N100	H 0	60	40	Co				
	N100	H 0-100	60	50	Co				
	136/39	N50	H 0	30	5	C	1	1	2
N70		H 0-25	30	200	Cp	18	26	21	
N100		H 0	60	100	C				
N100		H 0-25	60	160	Cp				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞	σ _t	
1939									
16.v	137/39	30° 55' S. 153° 08' E.	36	0	22.30	19.56	35.33	24.40	
				10	22.10	19.56	.34	.46	
				20	21.74	19.58	.37	.59	
				30	21.74	19.58	.37	.59	
				40	21.39	19.56	.34	.66	
				50	20.57	19.60	.40	.93	
	138/39	30° 56' S. 153° 21' E.		0	23.55	19.56	35.33	24.04	
				10	23.55	.56	.33	.04	
				20	23.09	.57	.34	.18	
				30	22.54	.57	.34	.34	
				40	22.43	.63	.45	.46	
				50	22.38	.63	.45	.47	
				100	20.77	.65	.50	.95	
				150	18.89	.66	.51	25.46	
				200	17.66	.65	.50	.76	
				300	17.23	.65	.50	.86	
				400	16.60	.65	.50	26.01	
				600	15.86	.64	.47	.16	
17.v	139/39	31° 51' 30" S. 152° 50' E.	34	0	19.69	19.50	35.23	25.02	
				10	20.45	19.63	.46	.02	
				20	20.45	19.64	.47	.02	
				30	19.59	19.61	.43	.30	
				40	19.19	19.60	.41	.30	
				50	17.98	19.63	.45	.63	

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O.	Count			
						I	II	III	IV
137/39	N70	V 50-0		10	Cp		1	51	
	N70	H 25	60	175	Cp	4	45	664	451
	N100	H 0	60	100	C				
	N100	H 25	60	70	T				
138/39	N50	H 0	60	75	Cp	7	14	81	91
	N70	V 50-0		5	Cp	2	3	4	
	N70	V 100-50		20	Cp	4	2	12	20
	N70	V 250-100		30	Ch			10	12
	N70	V 500-250		20	Cp			51	8
	N70	H 100	60	150	Cp	76	30	32	134
	N100	H 0	60	230	C				
	N100	H 100	60	150	Co				
139/39	N70	V 50-0		20	Cp	2		9	5
	N70	H 25	60	180	Cp	22	7	192	696
	N100	H 25	60	150	C				
	N100	H 0	60	150	C				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t	
1939									
29. v	140/39	34° 9' S. 151° 35' E.		0	19.20	19.69	35.56	25.43	
				10	19.20	.70	.58	.43	
				20	19.20	.69	.56	.43	
				30	19.10	.68	.54	.44	
				40	19.09	.68	.54	.44	
				50	19.04	.68	.54	.45	
				100	17.68	.65	.50	.75	
				150	15.31	.57	.35	26.19	
				200	13.58	.53	.27	.51	
				250	12.42	.45	.13	.63	
				300	11.94	.43	.10	.70	
				350	11.29	.34	34.94	.70	
				400	10.24	.34	.93	.88	
				450	9.31	.32	.89	27.01	
				600	8.34	.21	.70	.01	
30. v	141/39	34° 04' S. 151° 15' E.	38	0	18.55	19.62	35.44	25.48	
				10	18.90	19.68	.54	.48	
				20	19.02	19.70	.58	.48	
				30	18.50	19.65	.49	.52	
				40	18.90	19.71	.60	.52	
				50	18.92	19.71	.60	.52	
	142/39	35° 3' S. 151° 8' E.		0	19.25	19.71	35.61	25.44	
				10	19.31	.73	.63	.44	
				20	19.30	.72	.62	.44	
				30	19.20	.70	.58	.44	
				40	19.19	.70	.58	.44	
				50	19.20	.74	.65	.53	
				100	16.27	.59	.39	26.00	
				150	14.37	.54	.29	.35	
				200	13.46	.52	.26	.52	
				300	11.70	.38	.00	.67	
				400	10.26	.28	34.82	.79	
				600	8.25	.15	.59	.94	

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	C/D	Count			
						I	II	III	IV
140/39	N50	H 0	15	20	Gp		1	28	3
	N70	V 50-0		15	Gp	4		17	5
	N70	V 100-50		5	Gp	1			
	N70	V 250-100		25	Gp	1		7	7
	N70	V 500-250	20	C	2	3	2	4	
	N70	H 100	60	175	C	142	10	5	47
	N100	H 0	30	100	T	5	58	2	
	N100	H 100	30	175	C	145	16		
141/39	N70	H 0	60	45	Gp	7		167	31
	N70	H 25	30	260	Gp	402	28	224	
	N70	V 50-0		25	Gp	5	3	25	
	N100	H 0	30	275	C	74	25	10	
	N100	H 25	30	50	Gp	7	32	2	
142/39	N70	H 100	30	250	Gp	88	29	94	5 4 4
	N70	V 50-0		25	Gp	10	3	16	
	N70	V 100-50		20	Gp	3	1		
	N70	V 250-100		25	Gp		2		
	N70	V 500-250	20	Gp	4	1	7		
	N100	H 0	30	50	C		23		
	N200	H 100	30	750	T				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl ^o /oo	S ^o /oo	σ _t
1939								
31. v	143/39	35° 07' S. 150° 50' E.	36	0	19.00	19.70	35.59	25.49
				10	18.90	19.70	.58	.51
				20	18.72	19.67	.53	.51
				30	18.70	19.68	.55	.54
				40	18.50	19.66	.52	.57
				50	17.90	19.65	.49	.69
	144/39	36° 15' S. 150° 25' E.		0	19.50	19.68	35.55	25.33
				10	19.55	.69	.56	.33
				20	19.50	.68	.55	.33
				30	19.50	.68	.55	.33
				40	19.50	.70	.58	.36
				50	19.40	.69	.56	.36
				100	18.09	.65	.49	.64
				150	16.70	.63	.45	.95
				200	14.42	.48	.19	26.27
				300	13.11	.48	.19	.54
				400	13.10	.47	.17	.54
				600	8.79	.18	34.65	.89
	145/39	36° 16' S. 150° 16' E.	34	0	19.05	19.62	35.44	25.36
				10	19.20	19.65	.49	.36
				20	19.21	19.64	.48	.36
				30	19.20	19.65	.49	.36
				40	19.00	19.66	.52	.43
				50	18.90	19.68	.55	.48
11. vi	183/39	43° 13' S. 148° 19' E.		0	13.70	19.41	35.07	26.32
				10	13.65	.41	.07	.33
				20	13.64	.41	.07	.33
				30	13.65	.41	.07	.33
				40	13.60	.40	.06	.33
				50	13.59	.43	.10	.37
				100	13.70	.45	.13	.37
				150	13.60	.45	.13	.39
				200	13.19	.44	.11	.47
				300	11.91	.41	.07	.67
				400	10.43	.32	34.89	.82
				600	8.71	.18	.65	.90

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
						I	II	III	IV
143/39	N70	H 25	30	160	T		471	421	
	N70	V 50-0		20	Cp	3	143	88	4
	N100	H 0	30	75	C	1	350	7	
	N200	H 25	30	125	T	11	31	14	
144/39	N70	H 100	30	110	T	10	24	39	
	N70	V 50-0		15	Cp	1	3	7	
	N70	V 100-50		5	Co			1	
	N70	V 250-100		3	Co			1	1
	N70	V 500-250		10	Cp	2	3	8	
	N100	H 0	30	150	T	4	234	1	
	N200	H 100	30	175	T				
145/39	N70	H 25	30	500	Cp	6	238	60	42
	N70	V 50-0		25	Cp	1	10	21	4
	N100	H 0	30	100	T				
	N200	H 25	30	600	T				
183/39	N70	H 100	30	3400	T		4		1
	N100	H 0	30	20	M				
	N200	H 100	30	900	T				
	N200	H 100	30	350	T				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t	
1939									
11. vi	184/39	42° 38' S. 148° 13' E.	45	0	13.79	19.43	35.09	26.32	
				10	13.80	19.43	.10	.32	
				20	13.85	19.45	.13	.33	
				30	13.85	19.45	.13	.33	
				40	13.80	19.43	.10	.33	
				50	13.80	19.43	.10	.33	
	185/39	42° 37' S. 148° 32' E.		0	13.45	19.41	35.07	26.37	
				10	13.45	.41	.07	.37	
				20	13.45	.41	.07	.37	
				30	13.50	.41	.07	.37	
				40	13.50	.44	.11	.40	
				50	13.50	.44	.11	.40	
				100	13.45	.43	.09	.40	
				150	13.50	.44	.11	.40	
				200	12.78	.43	.10	.53	
				300	12.38	.43	.09	.61	
				400	11.36	.45	.13	.84	
				600	9.98	.36	34.97	.96	
12. vi	186/39	41° 16' S. 148° 25' E.	35	0	13.80	19.38	35.01	26.26	
				10	13.85	19.39	.03	.26	
				20	13.85	19.39	.03	.26	
				30	13.87	19.39	.03	.26	
				40	13.89	19.40	.05	.26	
				50	13.90	19.43	.10	.31	
	187/39	41° 14' S. 148° 40' E.		0	16.10	19.59	35.38	26.04	
				10	16.20	.62	.44	.05	
				20	16.20	.61	.42	.05	
				30	15.85	.60	.41	.12	
				40	15.39	.53	.28	.12	
				50	15.18	.50	.22	.13	
				100	14.79	.45	.14	.14	
				150	14.33	.50	.22	.31	
				200	13.36	.45	.14	.45	
				300	12.20	.40	.05	.60	
				400	10.20	.32	34.89	.85	
				600	9.44	.30	.86	.96	

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O.D.	Count			
						I	II	III	IV
184/39	N70	H 25	30	520	C	1050	3	10	92
	N70	V 50-0		10	Cp	18			1
	N100	H 0	30	800	C				
	N100	H 0	30	250	C				
	N200	H 25	30	850	C				
185/39	N70	H 100	30	350	Cp	31	9	1	7
	N70	V 50-0		15	Cp	1	1		1
	N70	V 100-50			T				
	N70	V 250-100		20	Cp	3			8
	N70	V 500-250		10	Cp	18			
	N100	H 0	30	500	T				
	N200	H 100	30	350	T				
	N200	H 100	30	550	T				
186/39	N70	H 25	30	75	Cp	6	5	2	38
	N70	V 50-0		5	Cp	1			1
	N100	H 0	30	100	C				
	N200	H 25	30	150	Co				
187/39	N70	H 100	30	200	Cp	12	47	37	13
	N70	V 50-0		20	Cp		9	17	5
	N70	V 100-50		5	Cp			1	1
	N70	V 250-100		3	Cp				3
	N70	V 500-250		20	Cp	4			18
	N100	H 0	30	200	Co				
	N200	H 100	30	620	T				
	N200	H 100	30	350	T				

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞	σ _t
1939								
13. vi	188/39	39° 54' S. 148° 36' E.	37	0	14.74	19.58	35.37	26.33
				10	15.05	19.63	.45	.33
				20	14.85	19.60	.40	.33
				30	14.69	19.58	.36	.33
				40	14.49	19.58	.36	.38
				50	13.41	19.56	.33	.58
	189/39	39° 31' S. 148° 51' E.		0	16.50	19.62	35.44	25.98
				10	16.55	.63	35.45	.98
				20	16.60	.63	35.46	.98
				30	16.50	.63	35.45	.99
				40	16.55	.63	35.46	.99
				50	16.60	.64	35.47	.99
				100	15.24	.58	35.37	26.23
				150	14.66	.55	35.32	.31
				200	14.01	.51	35.25	.39
				300	12.80	.43	35.10	.53
				400	10.64	.33	34.91	.80
				600	8.88	.18	34.65	.88
14. vi	192/39	37° 13' S. 150° 22' E.		0	17.41	19.66	35.51	25.82
				10	17.10	.65	.50	.89
				20	16.79	.65	.49	.97
				30	16.50	.64	.48	26.01
				40	16.38	.63	.45	.03
				50	16.28	.64	.48	.06
				100	16.05	.65	.49	.14
				150	15.79	.64	.48	.18
				200	15.43	.62	.44	.23
				300	12.43	.44	.12	.61
				400	10.47	.32	34.90	.82
				600	8.13	.18	.65	27.00
	193/39	37° 05' S. 150° 04' E.	36	0	16.95	19.62	35.44	25.87
				10	17.00	19.63	.45	.87
				20	16.95	19.64	.47	.90
				30	16.49	19.62	.44	.98
				40	16.29	19.65	.49	26.07
				50	16.23	19.64	.47	.07

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ca.)	O. D.	Count			
						I	II	III	IV
188/39	N70	H 25	15	220	C	61	20	75	94
	N70	V 50-0		5	Cp				4
	N100	H 0	30	850	T				
	N200	H 25	30	600	Co				
189/39	N70	H 100	15	110	Cp	6	78	20	49
	N70	V 50-0		5	Cp	1	3	1	1
	N70	V 100-50		10	Cp		5	1	6
	N70	V 250-100		30	Cp	3	3		6
	N70	V 500-250		25	Cp	4			9
	N100	H 0	30	50	T				
	N200	H 100	30	700	T				
192/39	N70	V 50-0		5	Cp	1	1	1	2
	N70	V 100-50		40	Cp		5	4	16
	N70	V 250-100		35	Cp	4	4	4	16
	N70	V 500-250		50	Cp	2		1	11
	N70	H 100	30	400	Cp	7	44	25	167
	N100	H 0	30	150	T				
	N200	H 100	30	700	T				
193/39	N70	H 25	15	90	C	115	36	109	22
	N70	V 50-0		10	Cp	16	7	73	5
	N100	H 0	30	100	T				
	N200	H 25	30	700	T				

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t
1939								
6. vii	194/39	27° 02' S. 153° 31' 30" E.	29	0	21.10	19.57	35.35	24.74
				10	21.25	19.59	.38	.74
				20	20.95	19.59	.39	.82
				30	20.95	19.59	.38	.82
				40	20.77	19.59	.38	.87
				50	20.63	19.57	.35	.88
7. vii	195/39	24° 21' S. 153° 22' E.		0	22.65			
				10	22.69	19.59	35.38	24.33
				20	22.75	.60	.41	.33
				30	22.80	.61	.42	.33
				40	22.61	.59	.38	.36
				50	22.59			
				100	22.54	.61	.43	.40
				150	19.86	.70	.58	25.27
				200	18.12	.70	.58	.71
				300	15.52	.59	.38	26.18
				400	13.76	.51	.25	.44
				600	9.82			
				780	8.20			
	196/39	24° 15' S. 153° 03' E.	36	0	22.34	19.54	35.29	24.35
				10	22.44	19.55	.32	.35
				20	22.43	19.57	.35	.38
				30	22.35	19.59	.38	.43
				40	22.05	19.60	.40	.53
				50	21.95	19.58	.37	.53
15. vii	197/39	27° 02' S. 153° 55' E.		0	21.44	19.68	35.54	24.80
				10	21.45	.68	.54	.80
				20	21.13	.72	.62	.95
				30	20.89	.69	.57	.97
				40	20.79	.68	.54	.98
				50	20.68	.71	.61	25.06
				100	20.54	.70	.58	.08
				150	18.71	.70	.58	.56
				200	17.69	.67	.53	.78
				300	15.11	.52	.26	26.17
				400	12.70	.48	.18	.62
				600	9.00	.28	34.83	27.00

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O. D.	Count			
						I	II	III	IV
194/39	N70	H 0	15	200	Co		373	2	
	N70	V 50-0		10	Cp		6	5	
	N70	O 0-15		110	T	16	193	8	
	N70	O 0-200		100	C	193	113	20	
	N100	H 0	15	150	T	7	401	2	
	N100	O 0-25		230	T	5	224	10	
	N200	O 0		500	T		676	13	
195/39	N70	H 0	10	50	Cp		32	52	
	N70	V 50-0		5	Cp	1	1	1	
	N70	V 100-50		5	Cp	1	1	1	
	N70	V 250-100		3	C		1	1	
	N70	V 500-250		10	C	2	1		
	N100	O 0-200	15	150	C	237	18	3	
	N200	H 0		160	Cp	5	62	3	
196/39	N70	H 0	15	50	Cp	5	20	116	
	N70	V 50-0		5	Cp	1	1	6	
	N70	O 0-25		50	Cp	1	21	198	
	N100	H 0	15	40	T	12	26	2	
	N100	O 0-25		40	C	3	12	2	
	N200	H 0	15	100	Ch	13	46	7	
197/39	N70	H 0	15	90	Cp	7	46	437	
	N70	V 50-0		20	Cp	1		149	11
	N70	V 100-50		5	Cp	6	5	34	
	N70	V 250-100		5	Cp	5		14	
	N70	V 500-250		10	Cp			2	2
	N70	O 0-200	15	125	T	30	19	469	
	N100	O 0-200		100	C	44	21	6	
	N200	H 0		300	Cp	18	54	7	

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t
1939								
16. vii	198/39	28° 39' S. 153° 44' E.	34	0	19.80	19.64	35.48	25.20
				10	19.90	19.66	.51	.20
				20	19.90	19.66	.51	.20
				30	19.85	19.65	.50	.20
				40	19.85	19.65	.50	.20
				50	19.80	19.64	.48	.20
	199/39	28° 47' S. 153° 56' E.		0	21.45	19.61	35.43	24.70
				10	21.45	.61	.43	.70
				20	21.50	.62	.44	.70
				30	21.35	.60	.40	.70
				40	21.45	.63	.46	.73
				50	21.50	.66	.51	.76
				86	21.60	.73	.63	.83
				129	19.31	.66	.51	25.35
				172	17.42	.61	.43	.76
				258	16.71	.59	.39	.90
				344	14.35	.57	.35	26.40
				516	10.35	.39	.03	.93
	200/39	30° 19' S. 153° 33' E.		0	21.10	19.69	35.56	24.91
				10	21.15	.69	.56	.92
				20	21.15	.69	.56	.92
				30	21.20	.72	.62	.93
				40	21.15	.72	.62	.93
				50	20.94	.73	.63	25.01
				100	20.05	.68	.54	.18
				150	18.70	.66	.51	.51
				200	16.36	.61	.43	26.01
				300	15.10	.56	.33	.22
				400	13.80	.48	.19	.39
				600	10.66	.38	.00	.86
17. vii	201/39	30° 28' S. 153° 17' E.	35	0	19.42	19.60	35.41	25.24
				10	19.60	19.63	.46	.24
				20	19.49	19.69	.56	.34
				30	18.85	19.68	.55	.50
				40	18.84	19.68	.55	.50
				50	18.38	19.71	.61	.66

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
						I	II	III	IV
198/39	N70	H 0	15	45	F		2	418	
	N70	V 50-0		5	T		4	681	
	N70	O 0-25		10	F			68	
	N100	H 0	15	5	F				
	N100	O 0-25		5	F			2	
	N200	H 0		25	F				1
199/39	N70	H 0	15	50	Cp		12	211	
	N70	V 50-0		10	Cp		2	17	4
	N70	V 100-50		20	Cp		2	14	16
	N70	V 250-100		10	Cp	2	6	8	5
	N70	V 500-250		25	Cp	2	2	15	6
	N70	O 0-200		110	Cp	24	27	388	
	N70	O 0-200		70	C	13	22	4	
	N200	H 0		50	Cp		8	3	
200/39	N70	H 0	15	150	Cp	30	42	352	
	N70	V 50-0		20	Cp		6	153	
	N70	V 100-50		20	Cp	4		21	6
	N70	V 250-100		10	Cp	2	10		
	N70	V 500-250		5	Cp	12		11	
	N70	O 0-200		120	C	34	47	317	91
	N100	O 200		100	Cp	35	32	7	
	N200	H 0		275	Cp	24	62	21	
201/39	N70	H 0	15	80	Cp	47	22	267	
	N70	V 50-0		20	Cp		6	91	9
	N70	O 0-25		95	Cp	24	23	403	
	N100	H 0	15	60	Cp	14	6	1	
	N100	O 0-25		40	C	6	4	2	
	N200	H 0		110	Cp	25	41	3	

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS					
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ_t	
1939									
18. vii	202/39	31° 03' S. 153° 06' 30" E.		0	19.70	19.65	35.49	25.23	
				10	19.60	.66	.52	.28	
				20	19.35	.65	.50	.33	
				30	19.34	.65	.50	.33	
				40	18.82	.70	.58	.54	
				50	18.67	.71	.61	.59	
	203/39	31° 09' S. 153° 21' E.		0	20.44	19.65	35.49	25.03	
				10	20.44	.65	.49	.03	
				20	20.08	.64	.47	.11	
				30	20.04	.63	.45	.11	
				40	19.84	.64	.47	.19	
				50	19.69	.62	.44	.20	
				100	18.78	.71	.61	.56	
				150	16.84	.64	.47	.94	
				200	15.88	.55	.32	26.03	
				300	13.96	.50	.22	.39	
				400	11.59	.40	.04	.72	
				600	8.50	.17	34.63	.93	
24. vii	204/39	32° 48' S. 152° 24' E.		0	18.07	19.70	35.58	25.72	
				10	18.15	.71	.61	.72	
				20	18.15	.71	.61	.72	
				30	18.02	.71	.61	.75	
				40	18.12	.73	.63	.75	
				50	18.12	.73	.63	.75	
4. viii	205/39	34° 03' S. 151° 11' 30" E.		0	18.51	19.64	35.47	25.53	
				10	18.60	.66	.52	.53	
				20	18.20	.66	.52	.63	
				30	18.20	.66	.52	.63	
				40	18.24	.69	.56	.66	
				50	18.20	.72	.62	.72	
				100	18.22	.72	.62	.72	
				150	17.99	.69	.56	.73	
				200	14.25	.49	.21	26.32	
				300	12.29	.36	34.97	.53	
				400	10.64	.23	.74	.66	
				600	9.02	.14	.57	.80	

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O. D.	Count			
						I	II	III	IV
202/39	N70	H 0	15	50	Cp	1	15	416	7
	N70	V 50-0		15	Cp		11	47	
	N70	O 0-25	15	60	Cp	22	513	43	
	N100	O 0-25		20	Cp		9		9
	N100	H 0	15	20	Cp	22	6		
	N200	H 0	15	75	Cp	30	10		
203/39	N70	V 250-100	15	5	Cp	12	4	14	20
	N70	V 50-0		20	Cp		1	6	
	N70	V 500-250	15	15	Cp	5	3	23	3
	N70	V 100-50		20	Cp		5	29	
	N70	O 0-200	15	85	Cp	29	15	313	12
	N70	H 0		100	Cp		9	137	
	N100	O 0-200	15	75	Cp	14	23	10	
	N200	H 0		150	Cp		1	47	
204/39	N70	H 0	15	75	T		3	68	
	N70	V 50-0		40	Cp		8	85	
	N70	O 0-25	15	200	Co	5	238	4	
	N100	H 0		50	T		15		
	N100	O 0-25	15	300	Co	20	4	3	
	N200	H 0		200	Co		27		
N200	H 0	15	320	Co	36	1			
205/39	N70	H 0	15		Cp	7	48	72	98
	N70	V 50-0		5	Cp		1	1	
	N70	V 100-50	15	5	Cp	2	1	1	1
	N70	V 500-250		10	Cp		1	1	
	N70	V 250-100	15	3	C	1			88
	N70	O 250		270	C		24	21	
	N200	H 0	15	700	C	64	225	121	

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl ^o /oo	S ^o /oo	σ _t
1939								
4. viii	206/39	33° 56' S. 151° 19' E.		0	16.91	19.65	35.49	25.93
				10	17.00	.66	.52	.93
				20	16.90	.65	.49	.93
				30	16.71	.64	.47	.96
				40	16.29	.60	.41	26.01
				50	15.97	.59	.38	.07
23. viii	210/39	35° 07' S. 150° 50' E.	32	0	15.35	19.71	35.61	26.38
				10	15.30	.71	.61	.39
				20	14.74	.63	.46	.40
				30	14.72	.66	.52	.45
				40	14.64	.69	.57	.51
				50	14.59	.68	.55	.51
25. viii	211/39	37° 01' S. 150° 02' E.	30	0	12.40	19.57	35.35	26.80
				10	12.40	.57	.35	.80
				20	12.40	.57	.35	.80
				30	12.40	.57	.35	.80
				40	12.35	.57	.35	.81
				50	12.30	.57	.35	.82
	212/39	37° 10' S. 150° 24' E.		0	14.35	19.57	35.35	26.40
				10	14.35	.68	.55	.55
				20	14.40	.70	.59	.57
				30	14.35	.70	.59	.58
				40	14.35	.70	.59	.58
				50	14.35	.70	.59	.58
				100	13.94	.66	.52	.61
				150	13.69	.62	.44	.61
				200	12.77	.54	.30	.68
				300	11.59	.44	.12	.77
				400	11.23	.41	.06	.79
				600	10.70	.37	34.98	.84
3. ix	213/39	36° 15' S. 150° 16' E.	35	0	14.30	19.63	35.46	26.50
				10	14.30	.65	.50	.53
				20	14.30	.65	.50	.53
				30	14.29	.65	.50	.53
				40	14.15	.64	.48	.54
				50	13.94	.61	.43	.54

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O. D.	Count			
						I	II	III	IV
206/39	N70	H 0	15	80	Cp	8		64	33
	N70	O 50		20	Cp	6		100	32
	N70	V 50-0		5	Cp				
	N100	O 50		20	O	5			2
	N200	H 0		60	C	24	6		
210/39	N70	H 0	15	170	Cp	12	93		26
	N70	V 50-0		10	Cp	6	3	2	5
	N70	O 50		150	T		184		11
	N100	O 50		100	T		129		2
	N200	H 0		300	T	16	269		41
211/39	N70	H 0	15	50	Cp	2	4	30	
	N70	V 50-0		10	Cp				2
	N70	O 50		50	Cp	2	4	31	
	N100	O 50		50	Co			5	
	N200	H 0		90	Co		8		1
212/39	N70	H 0	15	10	Cp			5	31
	N70	V 50-0		10	Cp				
	N70	V 100-50		10	Cp				
	N70	V 250-100		15	Cp				5
	N70	V 500-250		25	Cp	1		7	23
	N70	O 200		50	Cp	4		17	43
	N100	O 200		30	Co		1		1
N200	H 0	80	Co	1			2		
213/39	N70	H 0	15	75	Cp			8	21
	N70	V 50-0		20	Cp	7		1	2
	N70	O 50		80	Cp	5		8	10
	N100	O 50		160	Co	15	4		29
	N200	H 0		500	Co		6		37

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl ^o /oo	S ^o /oo	σ _t
1939								
3. ix	214/39	36° 14' S. 150° 25' E.		0	14.60	19.64	35.48	26.44
				10	14.60	.69	.57	.52
				20	14.60	.69	.57	.52
				30	14.60	.69	.57	.52
				40	14.60	.69	.57	.52
				50	14.60	.69	.57	.52
				100	14.30	.65	.50	.53
				150	13.99	.61	.43	.53
				200	12.92	.60	.41	.75
				300	12.16	.50	.23	.75
				400	12.05	.49	.21	.76
				600	10.44	.44	.12	.98
5. ix	215/39	35° 9' S. 151° 6' 30" E.		0	14.64	19.66	35.52	26.46
				10	14.64	.68	.55	.49
				20	14.64	.68	.55	.49
				30	14.64	.68	.55	.49
				40	14.59	.68	.55	.49
				50	14.39	.65	.50	.51
				100	13.28	.60	.41	.67
				150	12.61	.60	.40	.80
				200	12.67	.60	.41	.80
				300	12.37	.57	.35	.80
				400	12.37	.58	.37	.82
				600	12.07	.56	.34	.86
6. ix	216/39	34° 04' S. 151° 15' E.		0	16.62	19.68	35.55	26.04
				10	16.00	19.70	.59	.21
				20	15.84	19.69	.57	.21
				30	15.83	19.67	.53	.21
				40	15.84	19.69	.57	.24
				50	15.78	19.71	.61	.31

F.R.V. Warren.

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cca.)	O. D.	Count			
						I	II	III	IV
214/39	N70	H 0	15	120	Cp	32	12	18	21
	N70	V 50-0		50	Cp	6		12	
	N70	V 100-50		20	Cp	1		4	2
	N70	V 250-100		15	Cp	2		2	7
	N70	O 200		100	Cp	13	3	7	45
	N100	O 200		250	Cp	9			1
	N200	H 0		400	C	214	18		6
	215/39	N70	V 50-0		20	Cp			1
N70		V 100-50	5		Cp			3	3
N70		V 250-100	20		Cp			8	11
N70		V 500-250	25		Cp	8			12
N70		O 200	100		Co	2	11	81	5
N70		H 0	15	25	Cp		8	26	
N100		O 200		75	Cp	7	3	1	45
N200		H 0	15	30	M				
216/39		N70	H 0	15	300	T		74	
	N70	H 0	15	480	T		215		
	N70	V 50-0		20	Cp		15		
	N70	O 0-50		533	T		253		
	N100	O 50		100	T		41		
	N200	H 0	15	6750	T		150		

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞	σ _t
1939								
6. ix	217/39	34° 10' 30" S. 151° 32' E.		0	17.65	19.70	35.59	25.82
				10	17.45	.70	.59	.87
				20	17.44	.72	.62	.90
				30	17.35	.73	.64	.93
				40	17.34	.72	.62	.93
				50	17.34	.72	.62	.93
				100	17.24	.72	.62	.95
				150	17.14	.72	.62	.97
				200	16.99	.69	.57	.98
				300	15.31	.59	.39	26.22
				400	13.87	.52	.26	.43
				600	10.81	.33	34.92	.76
15. ix	218/39	28° 42' S. 153° 44' E.	30	0	18.50	19.70	35.59	25.61
				10	18.50	19.70	.59	.61
				20	18.50	19.70	.59	.61
				30	18.50	19.70	.59	.61
				40	18.30	19.68	.55	.63
				50	18.20	19.70	.59	.70
	219/39	28° 45' S. 153° 56' E.		0	20.29	19.68	35.55	25.11
				10	20.29	.69	.57	.13
				20	20.29	.69	.57	.13
				30	20.29			
				40	20.29	.69	.57	.13
				50	20.29	.69	.57	.13
				100	19.33	.73	.64	.43
				150	18.21	.68	.55	.66
				200	16.63	.67	.53	26.03
				300	15.98	.68	.55	.19
				400	15.14	.63	.46	.31
				600	13.72	.55	.32	.56
16. ix	220/39	31° 02' S. 153° 07' E.		0	18.19	19.72	35.62	25.72
				10	17.90	19.73	.64	.80
				20	17.85	19.74	.65	.82
				30	17.88	19.74	.66	.82
				40	17.68	19.76	.70	.90
				50	17.38	19.73	.64	.93

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
						I	II	III	IV
217/39	N70	H 0	15	120	Op	2	139	21	37
	N70	V 50-0		70	Cp	8	4	2	5
	N70	V 100-50		50	Op	9		4	18
	N70	V 250-100		100	Cp	1		7	28
	N70	V 500-250		25	Cp		1		5
	N70	O 200		250	Cp	135	53	30	164
	N100	O 200		300	C	256	38		31
	N200	H 0		400	T	58	518		31
218/39	N70	H 0	15	125	Cp	5	166	289	15
	N70	V 50-0		20	Cp		11	89	3
	N70	O 0-50		100	Cp	4	113	378	10
	N100	O 0-50		80	T		112	3	3
	N200	H 0		200	Co	201	231	3	4
219/39	N70	H 0	15	100	T		88	87	7
	N70	V 50-0		50	Cp		4	1	3
	N70	V 100-50		10	Cp	1	2		3
	N70	V 250-100		20	Cp	5			5
	N70	V 50-250		25	Cp	8		3	2
	N70	O 200							
	N100	O 0-200		150	Cp		80		11
	N200	H 0		100	T	1	45	8	14
220/39	N70	H 0	15	270	T		285		
	N70	V 50-0		250	Co		240		
	N70	O 50		150	T		376	99	3
	N100	O 50		350	T		630		
	N100	H 0		4000	T		510		

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞	σ _t
1939								
16. ix	221/39	31° 09' S. 153° 22' E.		0	18.39	19.78	35.73	25.75
				10	18.29	.76	.70	.75
				20	18.14	.74	.66	.76
				30	18.10	.76	.70	.80
				40	18.10	.77	.71	.81
				50	17.99	.80	.76	.87
				100	17.84	.77	.71	.87
				150	16.87	.65	.50	.95
				200	15.90	.60	.41	26.11
				300	13.06	.49	.21	.57
				400	11.52	.35	34.96	.66
				600	8.78	.18	.65	.90
2. x	222/39	34° 4' 30" S. 151° 13' E.	30	0	16.63	19.66	35.52	26.01
				10	15.76	.67	.53	.23
				20	15.73	.67	.53	.23
				30	15.78	.67	.53	.23
				40	15.59	.67	.53	.27
				50	15.12	.65	.50	.35
	223/39	34° 05' S. 151° 36' E.		0	18.20	19.72	35.62	25.72
				10	18.10	.72	.62	.74
				20	17.48	.69	.57	.85
				30	17.48	.70	.59	.86
				40	16.49	.70	.59	26.10
				50	16.13	.66	.52	.13
				100	15.92	.70	.59	.23
				150	14.24	.59	.39	.46
				200	12.66	.51	.25	.66
				300	11.93	.45	.14	.73
				400	13.11	.48	.19	.73
				600	10.75	.43	.10	.92

F.R.V. Warreen

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	D.O.	Count			
						I	II	III	IV
221/39	N70	V 50-0		170	T		120	8	4
	N70	V 100-50		25	Cp		12		8
	N70	V 250-100		25	Cp		10		8
	N70	V 500-250		50	Cp	1		2	16
	N70	O 0-200		225	Cp	21	387	6	21
	N70	H 0	15	175	T		657	12	17
	N100	O 0-200		400	T	20	895		7
	N200	H 0	15	350	T		170		7
222/39	N70	H 0	15	430	T		402	2	
	N70	V 50-0		25	Cp		136	3	
	N70	O 0-50		60	Cp	3	248	18	
	N70	O 0-50		150	T		408	32	2
	N100	O 0-50		200	T		1168	1	
	N200	H 0	15	300	T		335		
	N200	H 30	15	150	T		360		
223/39	N70	H 0	15	110	Cp	4	274	103	30
	N70	V 50-0		25	Cp	2	15	16	13
	N70	V 100-50		25	Cp	2	2	4	20
	N70	V 250-100		20	Cp	4			17
	N70	V 500-250		50	Cp	5	13		19
	N70	O 200		250	Cp	39	115	59	99
	N100	O 200		200	C	55	48	2	37
	N200	H 0	15	160	T	21	74		17

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp. °C.	Cl°/oc	S°/oo	σ _t
1939								
4. x	224/39	35° 3' S. 151° 9' E.		0	15.95	19.68	35.55	26.20
				10	15.84	.67	.53	.21
				20	15.49	.68	.55	.30
				30	14.84	.69	.57	.47
				40	14.58	.69	.57	.52
				50	14.47	.67	.53	.52
				100	14.28	.65	.50	.53
				150	13.77	.64	.47	.62
				200	11.54	.41	.07	.74
				300	11.23	.40	.05	.78
				400	10.15	.33	34.92	.88
				600	7.83	.13	.56	.97
5. x	225/39	35° 07' S. 150° 50' 30" E.	32	0	14.54	19.61	35.43	26.42
				10	14.45	19.62	.44	.45
				20	14.10	19.64	.48	.55
				30	14.04	19.63	.46	.55
				40	13.84	19.64	.48	.60
				50	13.44	19.64	.48	.69
6. x	226/39	36° 15' S. 150° 16' E.	30	0	14.49	19.63	35.45	26.45
				10	14.44	19.62	.44	.45
				20	14.45	19.65	.50	.50
				30	14.34	19.64	.48	.50
				40	13.94	19.66	.52	.61
				50	13.07	19.61	.43	.73
	227/39	36° 18' S. 150° 25' E.		0	15.00	19.63	35.46	26.34
				10	15.00	.64	.48	.35
				20	15.00	.64	.48	.35
				30	15.00	.67	.53	.40
				40	14.95	.67	.53	.41
				50	14.89	.69	.57	.45
				100	14.34	.65	.50	.52
				150	13.57	.56	.34	.55
				200	12.46	.54	.30	.75
				300	11.59	.49	.21	.85
				400	10.46	.36	34.97	.87
				600	10.61	.43	35.10	.95

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	O. D.	Count			
						I	II	III	IV
224/39	N70	V 50-0	15	30	Op	15	2	19	6
	N70	V 100-50		25	C	3	2	9	11
	N70	V 250-100		12	Cp			3	3
	N70	V 500-250		40	Cp	2		2	8
	N70	O 200		220	Cp	75	25	30	55
	N70	H 0		150	Cp	110	5	29	91
	N100	O 200		150	Cp	15	7	1	15
	N200	H 0		300	Cp	276	16		54
225/39	N70	H 0	15	60	Cp		7	37	
	N70	V 50-0		20	Cp		5	42	2
	N70	O 50		150	Cp	20	1	36	11
	N100	O 50		300	Cp	1	9		
	N200	H 0		150	Co	1	10		
226/39	N100	O 50	15	400	C	3			
	N200	H 0		340	Co				
227/39	N70	H 0	15	100	Op		33	117	10
	N70	O 200		100	Cp	1	15	35	20
	N100	O 200		220	Co	4	2		2
	N200	H 0		250	Cp	2	8	1	10

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t
1939								
13. x	239/39	42° 31' S. 148° 12' E.	30	0	12.10	19.35	34.96	26.55
				10	12.05	19.35	.96	.56
				20	12.00	19.37	.99	.60
				30	12.05	19.38	35.00	.60
				40	11.89	19.41	.07	.68
				50	11.59	19.40	.05	.71
14. x	242/39	41° 02' 30" S. 148° 22' 30" E.	33	0	11.75	19.39	35.03	26.67
				10	11.80	19.39	.03	.67
				20	11.80	19.39	.03	.67
				30	11.74	19.39	.03	.68
				40	11.80	19.40	.05	.68
				50	11.70	19.40	.05	.70
16. x	244/39	39° 56' S. 148° 36' E.	32	0	12.69	19.46	35.16	26.59
				10	12.10	19.43	.10	.66
				20	12.10	19.43	.10	.66
				30	12.09	19.43	.10	.67
				40	12.09	19.43	.10	.67
				50	12.10	19.45	.14	.69
17. x	248/39	37° 05' 30" S. 150° 03' E.	33	0	13.25	19.54	35.30	26.60
				10	13.20	19.54	.30	.60
				20	13.10	19.54	.30	.62
				30	13.09	19.54	.29	.62
				40	13.09	19.54	.29	.62
				50	13.05	19.53	.28	.62
24. x	255/39	34° 6' S. 151° 14' E.		0	17.01	19.66	35.52	25.92
				10	17.00	19.66	.52	.92
				20	16.74	19.66	.52	.98
				30	16.57	19.64	.48	26.00
				40	15.77	19.63	.46	.17
				50	15.88	19.65	.49	.17

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	D.O.	Count			
						I	II	III	IV
239/39	N70	H 0	15	10	Cp				
	N70	V 50-0		10	C	5			1
	N70	O 50		30	Cp			4	1
	N100	O 50		20	Cp	4			1
	N200	H 0		20	Cp				
242/39	N70	H 0	15	15	Cp	1		5	18
	N70	V 50-0		40	Cp	9		6	
	N70	O 50		25	Cp	3		4	12
	N100	O 50		12	Cp	32			4
	N200	H 0		40	C	6			8
244/39	N70	H 0	15	25	Cp		2	5	
	N70	V 50-0		25	Cp	51		76	2
	N70	O 50		100	Cp	250	1	100	6
	N100	O 50		100	Cp	269	2		2
	N200	H 0		40	M	14			
248/39	N70	H 0	15	160	Cp			16	
	N70	V 50-0		250	Cp			25	2
	N70	O 50		90	Cp	7		35	4
	N100	O 50		150	Cp	20			11
	N200	H 0		160	Cp	4			7
255/39	N70	H 0	15	250	Cp	8		76	
	N70	V 50-0		25	Cp	4	2		4
	N70	O 50		100	Cp	38		2	25
	N100	O 50		80	Co	20	5		4
	N200	H 0		350	Cp	123	7		35

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp. °C.	Cl°/∞	S°/∞	σ _t
1939								
25. x	256/39	34° 12' S. 151° 34' E.		0	17.60	19.69	35.57	25.82
				10	17.40	.70	.59	.88
				20	17.39	.69	.57	.88
				30	17.21	.70	.59	.93
				40	17.04	.67	.53	.94
				50	16.88	.69	.57	26.00
				100	14.49	.69	.57	.54
				150	13.64	.56	.34	.54
				200	13.22	.56	.34	.63
				300	11.92	.51	.25	.80
				400	10.14	.27	34.80	.80
				600	7.78	.11	.52	.95
1. xi	265/39	36° 15' S. 150° 16' E.	35	0	15.80	19.62	35.44	26.15
				10	15.75	19.62	.44	.16
				20	15.75	19.64	.48	.19
				30	15.69	19.65	.50	.22
				40	15.70	19.65	.50	.22
				50	15.44	19.65	.50	.28
	266/39	36° 17' S. 150° 25' E.		0	17.18	19.70	35.59	25.94
				10	17.10	.69	.56	.94
				20	17.00	.70	.59	25.98
				30	16.87	.68	.55	.98
				40	16.43	.67	.53	26.08
				50	15.51	.65	.50	.26
				100	14.32	.59	.39	.44
				150	13.26	.57	.35	.63
				200	13.00	.56	.34	.66
				300	12.46	.53	.28	.73
				400	11.37	.46	.16	.84
				600	9.95	.35	34.96	.94
3. xi	269/39	37° 05' S. 150° 01' E.	35	0	15.93	19.60	35.41	26.10
				10	15.85	19.61	.43	.13
				20	15.14	19.65	.50	.34
				30	14.59	19.65	.50	.46
				40	13.66	19.58	.37	.57
				50	13.51	19.57	.35	.58

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	D.O.	Count			
						I	II	III	IV
256/39	N70	H 0	15	100	Cp	4	21	110	59
	N70	V 50-0		10	Cp		2	9	1
	N70	V 100-50		15	Cp	2		4	2
	N70	V 250-100		20	Cp	3		52	8
	N70	V 500-250		25	Cp	1		3	3
	N70	O 200		50	Cp	22	2	8	8
	N100	O 200		250	Cp	92	9		67
	N200	H 0		175	Cp	56	94	2	112
	265/39	N70	H 0	15	300	C	5		
N70		V 50-0	200		Cp	20			2
N70		O 50	350		Cp	9	1		3
N100		O 50	300		Co	14			
N200		H 0	700		Co	1			1
266/39		N70	H 0	15	150	Cp	240	3	1
	N70	V 50-0	10		Cp	4			2
	N70	V 100-50	20		Cp	16		2	4
	N70	V 250-100	20		Cp				3
	N70	V 500-250	10		Cp	3			7
	N70	O 200	260		Cp	143	9	2	167
	N100	O 200	210		Cp	196	12		33
	N200	H 0	600		C	347	36		70
	269/39	N70	H 0	15	15	Cp			24
N70		V 50-0	20		Cp			7	
N70		O 50	200		Cp			65	3
N100		O 50	250		Cp	3	8		
N200		H 0	150		Cp		4		

F.R.V. Warren

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t
1939								
12. xi	282/39	43° 13' S. 148° 04' E.	55	0	12.55	19.30	34.87	26.39
				10	12.40	19.35	.96	.49
				20	12.29	19.34	.94	.50
				30	12.27	19.34	.93	.50
				40	12.19	19.36	.97	.55
				50	12.14	19.38	35.01	.59
	283/39	42° 38' S. 148° 13' E.	40	0	13.05	19.32	34.90	26.32
				10	12.90	19.32	.90	.35
				20	12.29	19.34	.94	.50
				30	12.29	19.34	.94	.50
				40	12.19	19.33	.92	.50
				50	12.19	19.34	.94	.52
	284/39	42° 35' S. 148° 38' E.	330	0	13.80	19.60	35.41	26.56
				10	13.74	.59	.39	.56
				20	13.54	.59	.39	.60
				30	13.40	.59	.39	.63
				40	13.34	.59	.39	.64
				50	13.29	.59	.39	.66
100				12.28	.59	.39	.66	
150				12.23	.51	.25	.75	
200				11.46	.44	.12	.80	
300				10.66	.36	34.97	.84	
15. xi	299/39	38° 18' S. 148° 22' E.	35	0	15.90	19.63	35.46	26.15
				10	15.09	19.65	.50	.36
				20	14.99	19.67	.53	.40
				30	15.00	19.68	.55	.41
				40	14.95	19.67	.53	.41
				50	14.08	19.65	.50	.58

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	O. D.	Count			
						I	II	III	IV
282/39	N70	H 0	15	25	Cp	25			
	N70	V 50-0		25	Cp				1
	N70	O 50		650	Cp				16
	N100	O 50		900	Cp				21
	N200	H 0		50	C		72		1
283/39	N70	H 0	15	790	Cp				29
	N70	V 50-0		10	Cp				
	N70	O 50		300	Cp			6	
	N100	O 50		280	Cp	53		8	
	N200	H 0		1000	Cp	19		44	
284/39	N70	H 0	15	100	Cp				10
	N70	V 50-0		20	Cp			3	
	N70	V 100-50		10	C			1	
	N70	V 250-100		20	Cp	6		2	15
	N70	V 500-250		10	Cp				6
	N70	O 200		170	C	58	1		36
	N100	O 200		225	C		1		41
	N100	O 200			C				
	N200	H 0		15	C				
	N200	H 0		15	750	Cp	646	11	
299/39	N50	H 0	15	5	Cp				3
	N70	H 0	15	10	Cp				2
	N70	O 50		20	Co				6
	N100	O 50		50	C				5
	N200	H 0	15	25	Ch	3	1		25
	N70	V 50-0		10	Cp				

F.R.V. Warren.

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t
1939								
15. xi	302/39	37° 29' S. 150° 20' E.		0	16.95	19.67	35.53	25.96
				10	16.90	.68	.55	.98
				20	16.85	.67	.53	.98
				30	16.59	.68	.55	26.05
				40	15.98	.63	.46	.12
				50	15.11	.64	.48	.33
				100	13.97	.59	.39	.51
				150	13.10	.52	.26	.60
				200	12.02	.48	.19	.75
				300	11.14	.43	.10	.85
				400	11.12	.43	.09	.85
				600	7.91	.15	34.60	.99
22. xi	308/39	34° 55' S. 151° 15' E.	30	0	17.55	19.48	35.19	25.55
				10	17.55	19.53	.28	.61
				20	17.19	19.59	.39	.78
				30	16.63	19.58	.37	.91
				40	16.68	19.60	.40	.91
				50	14.84	19.59	.39	26.32
23. xi	309/39	34° 14' S. 151° 40' E.		0	21.05	19.72	35.62	24.97
				10	21.00	.72	.62	.98
				20	20.64	.72	.62	25.08
				30	20.54	.74	.66	.13
				40	20.08	.74	.66	.25
				50	19.92	.74	.66	.30
				100	17.66	.71	.61	.84
				150	16.37	.68	.55	26.10
				200	16.26	.68	.55	26.13
				300	13.63	.48	.19	.43
				400	12.25	.49	.21	.72
				600	8.93	.26	34.79	.99
6. xi	313/39	39° 10' S. 146° 25' E.	40	0	15.04	19.57	35.35	26.25
				10	15.00	19.56	.34	.25
				20	15.00	19.59	.39	.29
				30	14.99	19.60	.40	.30
				40	14.95	19.59	.39	.30
				50	14.94	19.59	.39	.30

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	O. D.	Count			
						I	II	III	IV
302/39	N70	O 200	15	100	Cp	32	1	1	34
	N100	O 200		100	C				7
	N200	H 0		50	C				41
308/39	N70	H 0	15	450	C	165	83		2
	N70	O 50		370	C		67		
	N70	V 50-0	20	Cp	443		2		
	N100	O 50	570	C					3
	N200	H 0	400	T					
309/39	N70	H 0	15	250	T	165	246	1	9
	N70	V 50-0		75	T		160	16	2
	N70	V 100-50	5	Cp	10		1		
	N70	V 250-100	20	Cp	10		1		
	N70	V 500-250	50	Cp	1		4		
	N70	O 200	250	T	288		16	35	
	N100	O 200	350	T	869		37		
	N200	H 0	325	T	1258		22		
313/39	N70	H 0	15	100	Cp	165	25	39	1
	N70	V 50-0		20	Cp		1	13	
	N70	O 50	100	Cp	58		53		
	N100	O 50	125	T	61				
	N200	H 0	250	Co	86				

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞	σ _t
1939								
10. xii	331/39	35° 30' S. 135° 49' E.	65	0	16.05	19.73	35.64	26.24
				10	16.05	19.73	.64	.24
				20	15.95	19.71	.60	.24
				30	15.95	19.71	.60	.24
				40	15.90	19.73	.64	.28
				50	15.80	19.73	.64	.30
				100	15.09	19.84	.84	.62
15. xii	341/39	35° 11' S. 138° 14' E.	20	0	17.96	20.43	36.90	26.75
				10	17.97	20.45	.94	.78
				20	17.80	20.43	.91	.79
				30	17.59	20.39	.83	.79
16. xii	342/39	35° 54' S. 138° 18' E.	20	0	16.20	19.81	35.79	26.32
				10	16.20	19.81	.79	.32
				20	16.20	19.84	.84	.36
				30	16.20	19.86	.88	.39
17. xii	343/39	38° 27' S. 140° 29' E.		0	14.69	19.56	35.34	26.32
				10	14.69	.56	.34	.32
				20	14.49	.55	.32	.34
				30	14.44	.60	.40	.42
				40	14.39	.61	.43	.45
				50	14.45	.63	.46	.47
				100	14.29	.71	.61	.62
				150	13.84	.67	.53	.65
				200	13.74	.65	.51	.65
				300	12.87	.54	.30	.67
				400	11.34	.43	.10	.81
				600	7.91	.06	34.43	.86
	344/39	38° 35' S. 142° 18' E.	30	0	15.47	19.58	35.36	26.16
				10	15.05	19.60	.41	.29
				20	14.95	19.58	.37	.29
				30	14.80	19.60	.41	.35
				40	14.74	19.62	.44	.38
				50	14.74	19.62	.44	.38

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (ccs.)	O. D.	Count			
						I	II	III	IV
331/39	N70	V 50-0		200	Cp		46	1	15
	N70	O 50		300	Cp		147		33
	N70	H 0	15	300	T		122		
	N100	O 50		600	T		364		
	N200	H 0	15	600	T		327		
341/39	N70	H 0	15	50	Cp			7	2
	N200	H 0	15	100	C				
342/39	N70	H 0	15	100	Cp			86	
	N200	H 0	15	125	Co		2		
343/39	N70	H 0	15	120	Cp		79	1	
	N70	V 50-0		50	Cp		12	2	4
	N70	V 100-50		30	Cp		4	3	5
	N70	V 100-50		20	Cp		5	4	3
	N70	V 500-250		10	Cp				2
	N70	O 200		200	Cp			72	82
	N100	O 200		200	T		60		4
	N200	H 0	15	275	T		396	1	
344/39	N70	H 0	15	175	Cp			2	24
	N70	V 50-0		20	Cp				7
	N70	O 50		65	Cp				27
	N100	O 50		75	Cp		3		8
	N200	H 0	15	390	Co		2		9

F.R.V. Warren

Date	Station	Position	Sounding (athoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/∞	S°/∞	σ _t
1939								
25. xii	345/39	38° 42' S. 149° 23' E.		0	16.15	19.69	35.57	26.17
				10	16.15	.69	.57	.17
				20	16.00	.67	.53	.18
				30	15.90	.67	.53	.20
				40	15.89	.70	.58	.24
				50	15.90	.70	.58	.24
				100	15.69	.67	.53	.25
				150	14.56	.66	.52	.48
				200	14.01	.63	.46	.56
				300	12.80	.47	.17	.58
				400	11.77	.41	.07	.70
				600	9.26	.23	34.74	.89
26. xii	346/39	37° 32' S. 150° 24' E.		0	17.28	19.67	35.53	25.87
				10	17.09	.67	.53	.92
				20	16.79	.67	.53	26.00
				30	16.79	.67	.53	.00
				40	15.67	.61	.43	.17
				50	15.46	.64	.48	.25
				100	13.89	.61	.43	.56
				150	13.55	.56	.34	.56
				200	13.05	.52	.26	.61
				300	11.78	.40	.05	.68
				400	10.50	.32	34.90	.79
				600	8.47	.17	.63	.93
	347/39	37° 05' 30" S. 150° 02' E.	25	0	18.35	19.64	35.48	25.56
				10	18.35	19.64	.48	.56
				20	17.29	19.59	.39	.76
				30	16.88	19.63	.46	.91
				40	16.11	19.60	.41	26.05
				50	15.95	19.58	.36	.05
27. xii	348/39	36° 18' S. 150° 15' E.	30	0	19.90	19.70	35.58	24.25
				10	18.83	19.67	.53	.49
				20	17.26	19.61	.43	25.79
				30	17.27	19.62	.44	.80
				40	17.01	19.65	.49	.89
				50	16.86	19.62	.44	.89

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
						I	II	III	IV
345/39	N70	H 0	15	300	T		272	4	1
	N70	V 50-0		200	T		316	1	
	N70	V 100-50		50	Cp		83	6	4
	N70	V 250-100		10	Cp		2	5	2
	N70	O 200		1000	T		538	5	27
	N70	V 500-250		50	Cp		2	2	6
	N100	O 200		330	T		568		1
	N200	H 0		320	T		662		3
346/39	N70	H 0	15	300	T		316	6	9
	N70	V 50-0		100	Cp		199	10	5
	N70	V 100-50		25	Cp		64	3	5
	N70	V 250-100		20	Cp		3		7
	N70	V 500-250		20	Cp				6
	N70	O 200		300	T		236		4
	N100	O 200		350	T		372	1	9
	N200	H 0		370	T		436		11
347/39	N70	H 0	15	30	Cp		9	144	
	N70	V 50-0		20	Cp		14	138	
	N70	O 50		75	Cp		22	47	3
	N100	O 50		200	C		3	3	
	N200	H 0		25	T		20	3	
348/39	N70	H 0	15	25	Cp		17	87	
	N70	V 50-0		10	Cp		6	108	2
	N70	O 50		20	Cp		1	13	
	N100	O 50		10	T		15	9	1
	N200	H 0		20	T		18	15	1

F.R.V. Warreen

Date	Station	Position	Sounding (fathoms)	HYDROLOGICAL OBSERVATIONS				
				Depth (m.)	Temp °C.	Cl°/oo	S°/oo	σ _t
1939								
27. xii	349/39	36° 19' S. 150° 30' E.		0	20.40	19.70	35.59	25.12
				10	20.40	.71	.61	.14
				20	19.99	.70	.59	.23
				30	19.90	.70	.59	.25
				40	19.08	.72	.62	.50
				50	17.95	.65	.50	.68
				100	16.06	.65	.50	26.14
				150	14.94	.63	.46	.36
				200	13.92	.52	.26	.42
				300	11.79	.41	.07	.70
				400	10.11	.26	34.79	.79
				600	8.11	.10	.51	.86
28. xii	350/39	35° 14' S. 150° 43' E.	30	0	19.80	19.66	35.52	25.22
				10	18.68	19.64	.48	.48
				20	17.82	.65	.50	.71
				30	16.97	.65	.50	.92
				40	16.56	.59	.39	.93
				50	15.79	.60	.41	26.13

F.R.V. Warren

PLANKTOLOGICAL OBSERVATIONS									
Station	Net	Depth (m.)	Duration (min.)	Volume (cc.)	D.O.	Count			
						I	II	III	IV
349/39	N70	H 0	15	110	T		64		1
	N70	O 200		250	C		9		6
	N100	O 200	15	255	C		12		4
	N200	H 0		340	T		157		2
350/39	N70	H 0	15	20	F			24	2
	N70	V 50-0		20	Cp			40	1
	N70	O 50	15	40	Cp	3	205	3	8
	N100	O 50		8	F	2	3	1	
	N200	H 0	10	T	7	5			