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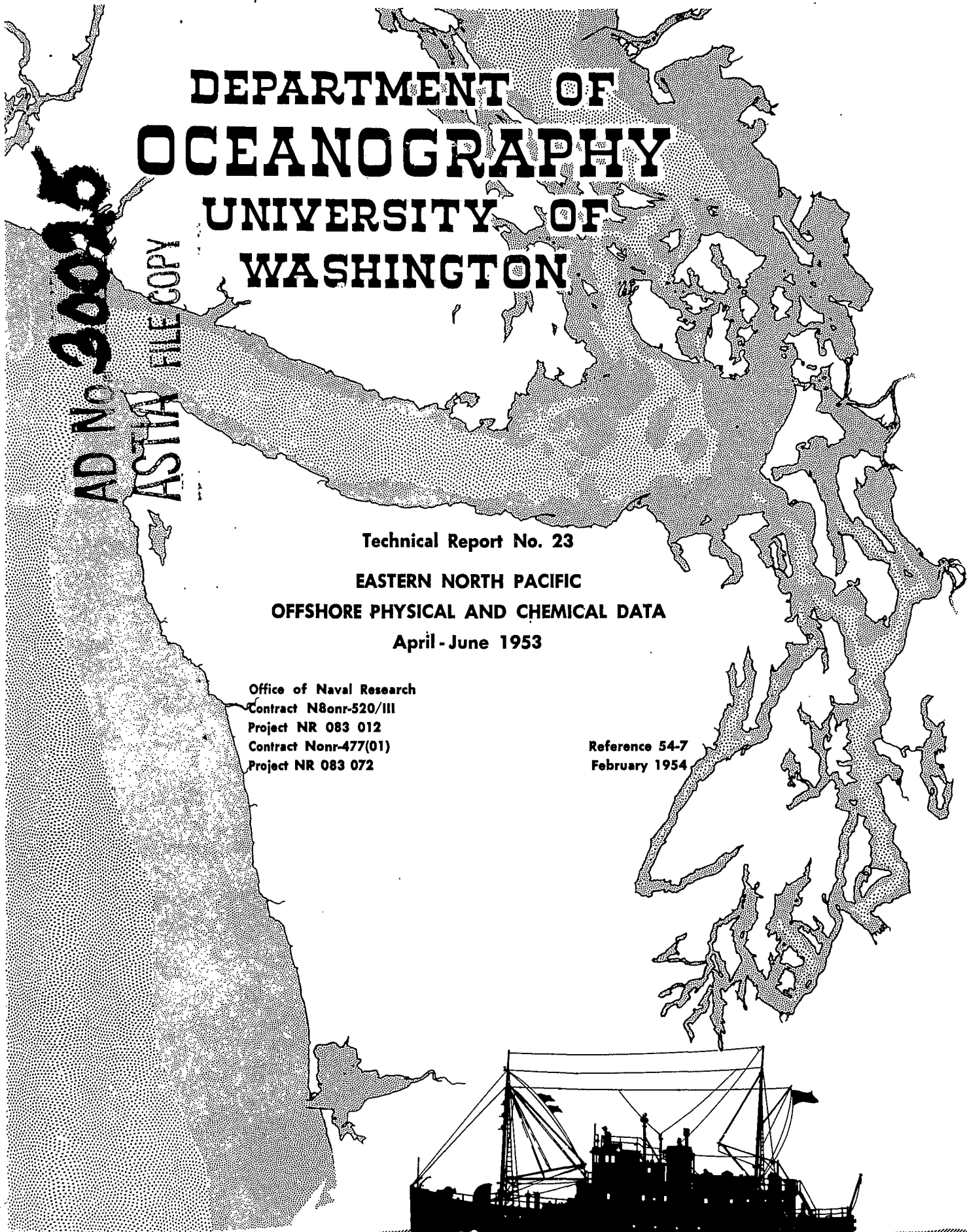
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A detailed map of the Eastern North Pacific coastline, showing the Gulf of Alaska, the Aleutian Islands, and the coast of North America from Alaska down to California. The map is rendered in a stippled style.

DEPARTMENT OF OCEANOGRAPHY UNIVERSITY OF WASHINGTON

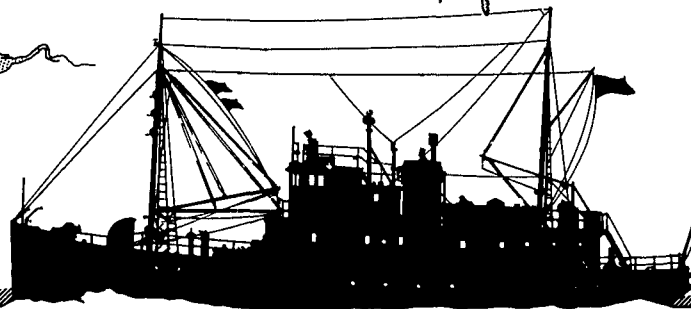
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Technical Report No. 23

EASTERN NORTH PACIFIC
OFFSHORE PHYSICAL AND CHEMICAL DATA
April-June 1953

Office of Naval Research
Contract N8onr-520/III
Project NR 083 012
Contract Nonr-477(01)
Project NR 083 072

Reference 54-7
February 1954



SEATTLE 5, WASHINGTON

UNIVERSITY OF WASHINGTON DEPARTMENT OF OCEANOGRAPHY
(Formerly Oceanographic Laboratories)
Seattle, Washington

EASTERN NORTH PACIFIC
OFFSHORE PHYSICAL AND CHEMICAL DATA
April - June 1953

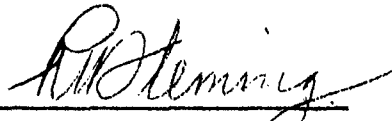
by

Robert G. Paquette, Eugene E. Collias,
and Cuthbert M. Love

Technical Report No. 23

Office of Naval Research
Contract N8onr-520/III
Project NR 083 012
Contract Nonr-477(01)
Project NR 083 072

Reference 54-7
February 1954


Richard H. Fleming
Executive Officer

INTRODUCTION

This report contains all of the offshore data from April through June, 1953 (Cruises 26 and 29) collected by University of Washington personnel aboard the Department of Oceanography research vessel BROWN BEAR. Station location charts are presented before the data for each cruise (see pages 1 and 10).

Technical Report No. 22 presents all the offshore data collected during 1952, and subsequent reports will contain data for stations inside the Strait of Juan de Fuca and Puget Sound.

Station Numbering System

All stations occupied by the BROWN BEAR are numbered consecutively, independent of their location.

Sampling Bottles

Water samples were taken with Nansen bottles and Fjarlie bottles (1).

Determination of Properties

Deep-sea reversing thermometers were used to determine temperature. Copenhagen standard sea water was used exclusively as the standard in the determination of salinity of the sea water. Dissolved oxygen was determined by the modified Winkler method described by Thompson and Robinson (2). Soluble phosphate, observed only on

Cruise 26, was determined by the method described by Thompson and Robinson (3), except that the color intensity was measured by an electric eye photometer (4) instead of using Nessler tubes. The phosphate data are reported conventionally to the second decimal place in microgram-atoms per liter, although it is realized that the individual determinations may be in error by 5 to 10 per cent. The depths reported for sub-surface observations were calculated from measured wire angle, unprotected reversing thermometer readings, and curves of wire length minus thermometric depth versus wire length (L-Z), as described by LaFond (5).

Data

The time at which the messenger was dropped on the first cast is listed for the +8 time zone. Positions are given to the nearest minute. Depth in fathoms was obtained with the aid of a Navy NMC echo sounder. Weather is reported in the Navy bathythermograph weather code given in H. O. Publication No. 606-c, except in cases where the only weather phenomenon reported is the state of the sky. For the state of the sky the following symbols were used: b., clear sky; b.c., blue sky with detached clouds; c., sky mainly cloudy; and o., sky overcast. Wind direction is reported in degrees true; the wind velocity is given in knots. Air temperature is recorded in degrees Fahrenheit, with the dry bulb reading given first, followed by a virgule (/) and then the wet bulb reading. Type of clouds is reported in the bathythermograph weather code, the amount of clouds in tenths of the sky covered.

All data are actual observed values. The maximum depth of sampling was 2000 meters wherever the depth of the water permitted. Clearly questionable data have been excluded.

The presentation of these data in this form does not constitute publication. Subsequent, more rigorous analyses of these data may disclose errors which are not apparent at this time.

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1953. A Seawater Sampling Bottle. Jour. Mar. Res., 12(1):21-30.
- (2) Thompson, T. G. and R. J. Robinson
1939. Notes on the Determination of Dissolved Oxygen in Sea Water. Jour. Mar. Res., 2(1):1-8.
- (3) Thompson, T. G. and R. J. Robinson
1948. The Determination of Phosphates in Sea Water. Jour. Mar. Res., 7(1):33-41.
- (4) Ford, William L.
1950. Seagoing Photoelectric Colorimeter. Anal. Chem., 22:1431-1435.
- (5) LaFond, E. C.
1951. Processing Oceanographic Data, U. S. Navy H. O. Publication No. 614, Washington, D. C.

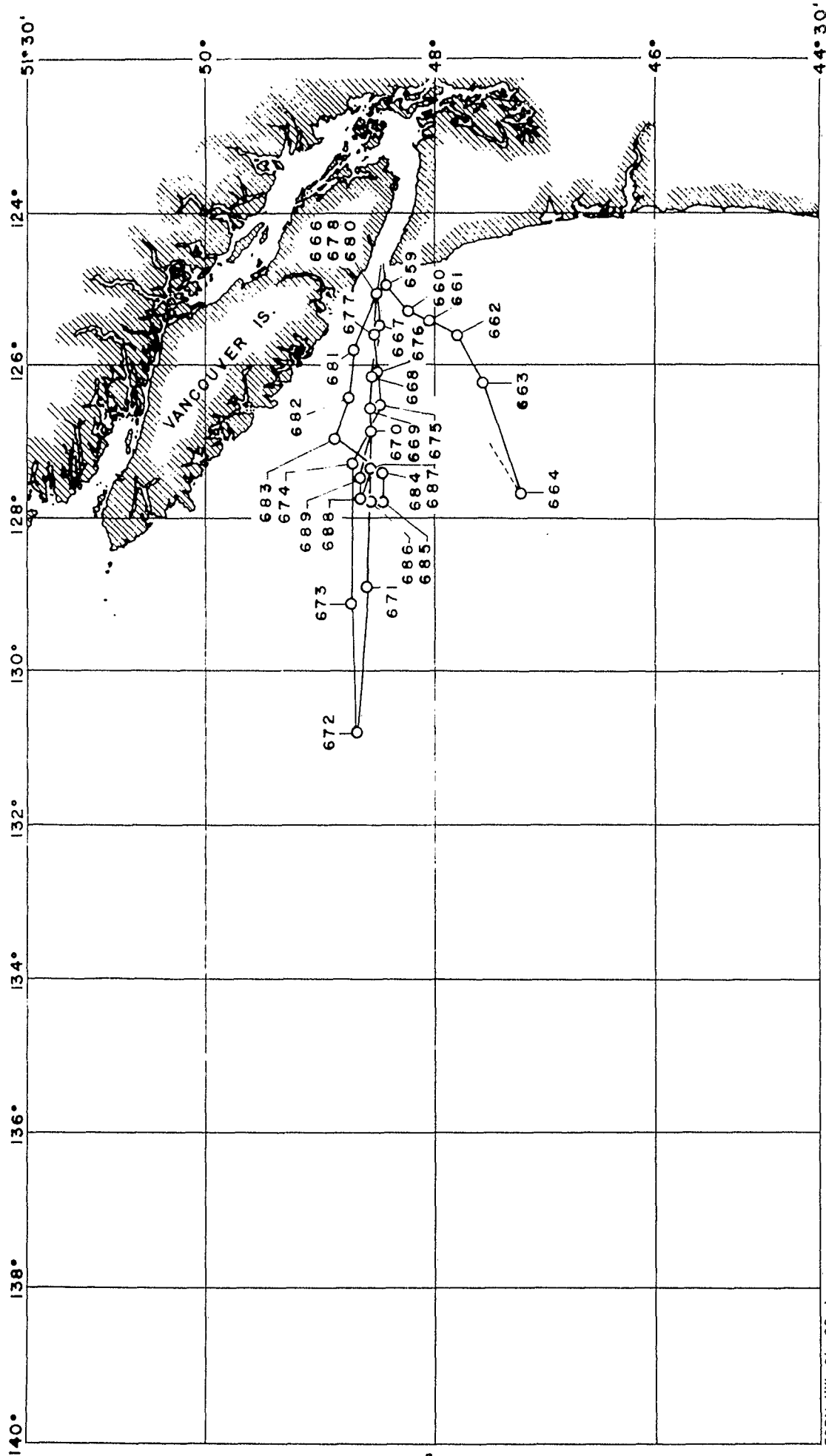
PERSONNEL

AT SEA

Collias, Eugene E.	Research Associate
Eager, Lawrence C.	Laboratory Technician
Ethier, W. E.	First Officer
Hanson, Donald S.	Laboratory Assistant
Jackson, Hewitt R.	Draftsman
Lincoln, John H.	Research Associate
Love, Cuthbert M.	Research Associate
Princehouse, Franklin W.	Master

ASHORE

Andrew, Charles C.	Electronics Technician
Barnes, Dr. Clifford A.	Associate Professor of Oceanography
Duxbury, Alyn C.	Laboratory Helper
Fenton, Betty	Secretary
Jackson, Esther L.	Laboratory Technician
Joyner, Marion E.	Laboratory Technician
Paquette, Dr. Robert G.	Research Oceanographer
Toner, Roberta J.	Clerk



Oceanographic station Location
Brown Bear Cruise No. 26
30 April - 13 May 1953

STA 659 48° 25' N WEATHER c.
30 Apr 53 124° 55' W WIND 200° 12
1000 (+8) DEPTH 134 fm 50°/45° F
CLOUDS 5-7/10

Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	10.56	28.55	0.593	0.31
5	10.27	29.14	0.595	0.37
10	10.20	29.40	0.575	0.46
20	9.12	31.40	0.525	0.76
30	8.47	32.05	0.518	1.22
50	8.13	32.24	0.433	1.28
75	7.82	32.94	0.367	1.56
100	7.27	33.39	0.279	1.90
150	6.85	33.73	0.212	2.04
200	6.69	33.84	0.201	2.12
230	6.58	33.86	0.192	2.04

STA 661 48° 02' N WEATHER b.c.
30 Apr 53 125° 22' W WIND 180° 12
1750 (+8) DEPTH 290 fm 52°/47° F
CLOUDS 8-3/10

Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	10.03	31.91	0.577	0.34
5	10.01	31.91	0.572	0.39
9	10.00	31.91	0.570	0.34
19	9.13	32.03	0.554	0.54
28	8.98	32.21	0.524	0.48
47	8.51	32.38	0.488	0.82
70	8.37	32.56	0.463	0.88
93	7.72	33.07	0.344	1.23
140	7.20	33.75	0.221	1.72
187	6.95	33.82	0.198	1.92
281	6.21	33.94	0.167	2.07
375	5.47	34.04	0.105	2.16

STA 660 48° 14' N WEATHER b.c.
30 Apr 53 125° 13' W WIND 240° 10
1344 (+8) DEPTH 105 fm 52°/48° F
CLOUDS 8-3/10

Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	10.16	31.71	0.570	0.34
5	10.18	31.72	0.571	0.39
10	10.12	31.73	0.568	0.43
19	9.80	31.89	0.580	0.46
29	8.78	32.15	0.532	0.69
48	8.32	32.35	0.500	0.88
73	7.94	32.91	0.389	1.33
92	7.58	33.31	0.304	1.52
133	6.98	33.66	0.219	1.88
173	6.69	33.84	0.197	2.02

STA 662 47° 47' WEATHER b.c.
30 Apr 53 125° 32' W WIND 170° 12
2157 (+8) DEPTH 600 fm 48°/45° F
CLOUDS 8-3/10

Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	9.92	31.95	0.595	0.39
5	9.90	31.95	0.589	0.43
10	9.88	31.95	0.593	0.51
20	9.55	32.06	0.556	0.58
30	8.98	32.28	0.556	0.64
50	8.66	32.34	0.524	0.74
75	8.57	32.53	0.515	0.91
100	8.10	32.83	0.443	1.34
150	7.47	33.49	0.289	1.79
200	6.35	33.87	0.173	2.18
500	4.75	34.09	0.051	3.26
750	4.05	34.25	0.026	----
1000	3.55	34.38	0.025	----

STA 663 47° 34' N WEATHER b.c.
 1 May 53 126° 11' W WIND 160° 9
 0421 (+8) DEPTH 1200 fm 48°/46° F
 CLOUDS 8-3/10

Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	9.73	32.43	0.570	0.52
5	9.68	32.44	0.573	0.63
10	9.67	32.44	0.571	0.58
20	9.34	32.43	0.565	0.72
30	8.67	32.50	0.561	0.61
50	8.38	32.51	0.531	0.74
74	7.83	32.54	0.510	0.90
100	7.29	33.08	0.399	1.36
148	7.30	33.76	0.241	1.59
197	6.80	33.87	0.188	1.84
493	4.92	34.05	0.054	2.11
738	4.11	34.27	0.025	3.26
985	3.57	34.38	0.017	3.39
1473	2.58	34.46	0.021	3.20
1957	1.93	34.46	0.089	3.27

STA 666 48° 29' N WEATHER b.c.
 4 May 53 125° 03' W WIND 090° 20
 1241 (+8) DEPTH 62 fm 58°/54° F
 CLOUDS 2,4-4/10

Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	10.97	28.08	0.596	0.31
5	10.68	28.29	0.589	0.39
9	9.90	30.13	0.581	0.49
18	9.79	31.41	0.589	---
27	9.58	31.68	0.579	0.60
46	9.67	32.17	0.546	0.93
68	7.92	32.76	0.433	1.45
82	7.77	32.90	0.394	1.60

STA 664 47° 11' N WEATHER o.
 1 May 53 127° 39' W WIND 180° 20
 1738 (+8) DEPTH 1390 fm 50°/48° F
 CLOUDS 8,5-10/10

Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	10.08	32.45	0.585	0.56
5	10.06	32.43	0.582	0.60
9	10.05	32.40	0.578	0.53
17	9.93	32.42	0.577	0.73
25	9.68	32.42	0.577	0.47
42	9.09	32.48	0.559	0.68
63	8.84	32.54	0.546	0.82
84	8.80	32.65	0.516	0.95
126	7.48	33.53	0.312	1.66
168	7.39	33.84	0.228	1.89
417	5.29	34.01	0.094	3.34
622	4.31	34.12	0.042	3.41
821	3.87	34.29	0.026	3.58
1238	2.97	34.43	0.037	3.26
1682	2.30	34.51	0.085	3.38

STA 667 48° 29' N WEATHER c.
 4 May 53 125° 28' W WIND 090° 9
 1506 (+8) DEPTH 74 fm 60°/55° F
 CLOUDS 2-8/10

Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	10.45	31.55	0.614	0.66
5	10.30	31.54	0.616	0.66
10	9.91	31.55	0.623	0.85
20	9.58	31.61	0.600	0.84
30	8.47	31.99	0.510	1.35
50	7.99	32.40	0.440	1.34
75	7.44	33.13	0.312	1.74
100	7.06	33.39	0.258	2.12
120	7.03	33.53	0.247	2.17

STA 668 48° 32' N WEATHER o. 4 May 53 126° 05' W WIND 090° 4 1827 (+8) DEPTH 92 fm 58°/54° F CLOUDS 5,6-10/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	10.38	32.22	0.607	0.38
5	9.95	32.21	0.612	0.53
10	9.45	32.28	0.607	0.42
20	9.35	32.27	0.604	0.43
30	9.36	32.28	0.589	0.51
50	8.06	32.47	0.539	0.78
75	7.82	32.85	0.457	1.34
100	7.64	33.48	0.312	1.64
150	6.74	33.75	0.208	2.00

STA 670 48° 32' N WEATHER 10 5 May 53 126° 50' W WIND 135° 4 0133 (+8) DEPTH 1220 fm 53°/49° F CLOUDS 5-10/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	9.91	32.45	0.585	0.70
5	9.75	32.45	0.596	0.63
10	9.43	32.46	0.591	0.77
20	9.39	32.46	0.583	0.61
30	9.41	32.46	0.576	0.72
50	8.85	32.57	0.559	0.82
75	8.48	32.57	0.562	0.84
100	8.26	32.82	0.474	1.15
150	7.19	33.63	0.312	1.60
200	6.85	33.87	0.244	1.80
500	4.66	34.07	0.070	2.93
750	4.16	34.30	0.022	3.93
1000	3.55	34.38	0.036	3.43
1500	2.51	34.52	0.057	3.41
2000	1.88	34.62	0.136	3.31

STA 669 48° 32' N WEATHER c. 4 May 53 126° 32' W WIND 090° 5 2204 (+8) DEPTH 750 fm 53°/52° F CLOUDS 5-8/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	10.25	32.24	0.590	0.60
5	9.59	32.30	0.608	0.68
10	9.41	32.31	0.614	0.60
20	9.38	32.32	0.601	0.66
30	9.36	32.31	0.585	0.49
50	9.08	32.41	0.574	0.69
75	8.00	32.66	0.505	1.05
100	7.78	33.07	0.402	1.40
150	7.14	33.79	0.248	1.64
199	6.83	33.93	0.215	1.84
498	4.87	34.07	0.074	2.08
746	4.14	34.27	0.022	3.16
994	3.52	34.41	0.023	3.27
1242	2.90	34.47	0.040	3.32

STA 671 48° 34' N WEATHER 45 5 May 53 128° 52' W WIND 135° 4 1414 (+8) DEPTH 1503 fm 52°/51° F CLOUDS 0-10/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	9.57	32.44	0.590	0.72
5	9.46	32.46	0.597	0.77
10	9.27	32.45	0.591	0.73
20	9.26	32.45	0.586	0.78
30	9.28	32.44	0.578	0.71
50	8.98	32.52	0.565	0.86
75	8.51	33.11	0.403	1.35
100	8.25	33.44	0.336	1.74
150	7.78	33.73	0.253	2.18
200	7.36	33.88	0.201	2.13
500	5.03	34.04	0.086	3.56
750	4.04	34.24	0.031	3.98
1000	3.48	34.37	0.026	3.63
1488	2.54	34.51	0.072	3.30
1985	1.97	34.60	0.106	3.40

STA 672 48° 40' N WEATHER 62 6 May 53 130° 48' W WIND 135° 17 0256 (+8) DEPTH 1500 fm 48°/49° F CLOUDS 6-10/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	8.16	32.47	0.622	0.88
5	8.14	32.48	0.589	0.90
10	8.10	32.47	0.612	0.97
20	8.08	32.48	0.609	0.89
30	8.01	32.48	0.613	0.88
49	7.13	32.53	0.606	0.94
73	6.90	32.55	0.602	1.13
98	6.51	32.84	0.540	1.42
148	6.15	33.70	0.367	1.94
190	5.86	33.85	0.304	2.10
478	4.23	34.09	0.097	3.33
718	3.72	34.26	0.034	3.64
964	3.26	34.42	0.029	3.98
1440	2.42	34.51	0.071	3.92
1921	2.00	34.60	0.119	3.75

STA 674 48° 42' N WEATHER 50 7 May 53 127° 12' W WIND 168° 12 0253 (+8) DEPTH 1120 fm 50°/49° F CLOUDS 5-5/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	9.96	32.48	0.596	0.68
5	9.93	32.50	0.601	0.72
10	9.91	32.47	0.598	0.81
20	9.48	32.46	0.607	0.71
30	9.44	32.46	0.595	0.83
50	8.48	32.54	0.592	0.96
75	8.09	32.59	0.584	1.10
100	8.40	33.19	0.410	1.82
150	7.71	33.77	0.263	3.13
182	7.29	33.88	0.222	3.09
470	4.84	34.04	0.096	3.79
709	4.20	34.27	0.028	4.39
955	3.57	34.40	0.025	4.23
1433	2.69	34.48	0.055	4.42
1918	1.93	34.60	0.131	4.51

STA 673 48° 42' N WEATHER 0. 6 May 53 129° 08' W WIND 112° 8 1523 (+8) DEPTH 1320 fm 50°/49° F CLOUDS 0-10/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	9.25	32.46	0.608	0.74
5	9.02	32.44	0.606	0.77
10	8.99	32.47	0.602	0.80
20	8.96	32.45	0.598	0.88
30	8.81	32.45	0.594	0.82
50	7.84	32.53	0.583	0.87
75	7.58	32.61	0.565	----
100	7.77	33.15	0.407	1.53
150	7.38	33.66	0.291	2.07
200	6.76	33.93	0.215	3.14
493	4.73	34.12	0.067	4.15
736	4.05	34.27	0.029	4.26
985	3.53	34.39	0.025	4.23
1465	2.49	34.54	0.055	3.49
1960	2.00	34.60	0.124	3.74

STA 675 48° 29' N WEATHER 25 7 May 53 126° 30' W WIND 135° 17 0907 (+8) DEPTH 700 fm 47°/46° F CLOUDS 6,8-5/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	9.79	32.38	0.610	0.55
5	9.79	32.37	0.613	0.77
8	9.79	32.36	0.611	0.68
17	9.79	32.38	0.595	0.94
25	9.71	32.37	0.588	0.61
42	9.31	32.38	0.583	0.76
60	8.41	32.57	0.550	1.12
81	8.07	32.74	0.505	1.31
118	7.58	33.38	0.334	1.82
155	7.14	33.76	0.250	2.09
376	5.55	34.05	0.107	3.58
580	4.60	-----	0.093	----
808	3.94	34.33	0.024	4.32

STA 676 48° 30' N WEATHER b.c. 7 May 53 126° 06' W WIND 170° 19 1202 (+8) DEPTH 94 fm 50°/48° F CLOUDS 8-4/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	9.97	32.37	0.615	0.60
5	9.94	32.37	0.613	0.58
10	9.90	32.37	0.615	0.67
19	9.83	32.37	0.611	0.57
29	9.45	32.41	0.606	0.69
48	8.34	32.47	0.578	0.89
72	7.97	32.59	0.527	1.13
99	7.71	33.12	0.392	1.75
149	7.06	33.78	0.230	2.15

STA 678 48° 31' N WEATHER c. 7 May 53 125° 03' W WIND 205° 19 1806 (+8) DEPTH 133 fm 51°/49° F CLOUDS 8-5/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	11.26	28.36	0.609	0.52
5	11.21	28.40	0.611	0.39
10	11.20	28.39	0.613	0.51
20	8.98	30.94	0.495	1.37
30	8.48	31.64	0.425	1.58
50	7.70	32.28	0.370	1.91
75	7.62	32.68	0.336	2.02
90	7.45	33.25	0.313	1.96

STA 677 48° 30' N WEATHER c. 7 May 53 125° 32' W WIND 180° 16 1501 (+8) DEPTH 70 fm 53°/50° F CLOUDS 8-8/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	10.57	31.01	0.608	0.57
5	10.54	31.00	0.606	0.66
10	10.17	31.22	0.608	0.68
20	9.53	31.91	0.594	0.58
30	8.82	32.14	0.550	0.88
50	8.02	32.46	0.448	1.48
75	7.24	33.28	0.288	1.85
100	7.13	33.38	0.261	3.13
120	7.09	33.39	0.255	3.07

STA 680 48° 30' N WEATHER b.c. 9 May 53 125° 03' W WIND 225° 10 1238 (+8) DEPTH 69 fm 50°/46° F CLOUDS 8-2/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (μg-at/L)
0	10.79	-----	0.584	0.57
5	10.77	29.46	0.581	0.60
10	10.67	29.46	0.582	0.61
20	9.22	31.00	0.505	1.23
30	8.28	31.77	0.425	1.55
50	7.73	32.71	0.378	1.62
70	7.32	33.29	0.299	1.93
90	7.11	33.49	0.267	1.99

STA 681 48° 41' N WEATHER b.c. 9 May 53 125° 45' W WIND 260° 12 1729 (+8) DEPTH 66 fm 50°/46° F CLOUDS 3,8-4/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	11.07	29.94	0.646	0.37
5	10.90	30.11	0.654	0.41
10	10.18	31.46	0.610	0.60
20	9.16	31.91	0.529	0.81
30	8.36	32.09	0.443	1.44
50	7.96	32.36	0.411	1.55
75	7.77	32.57	0.367	2.00

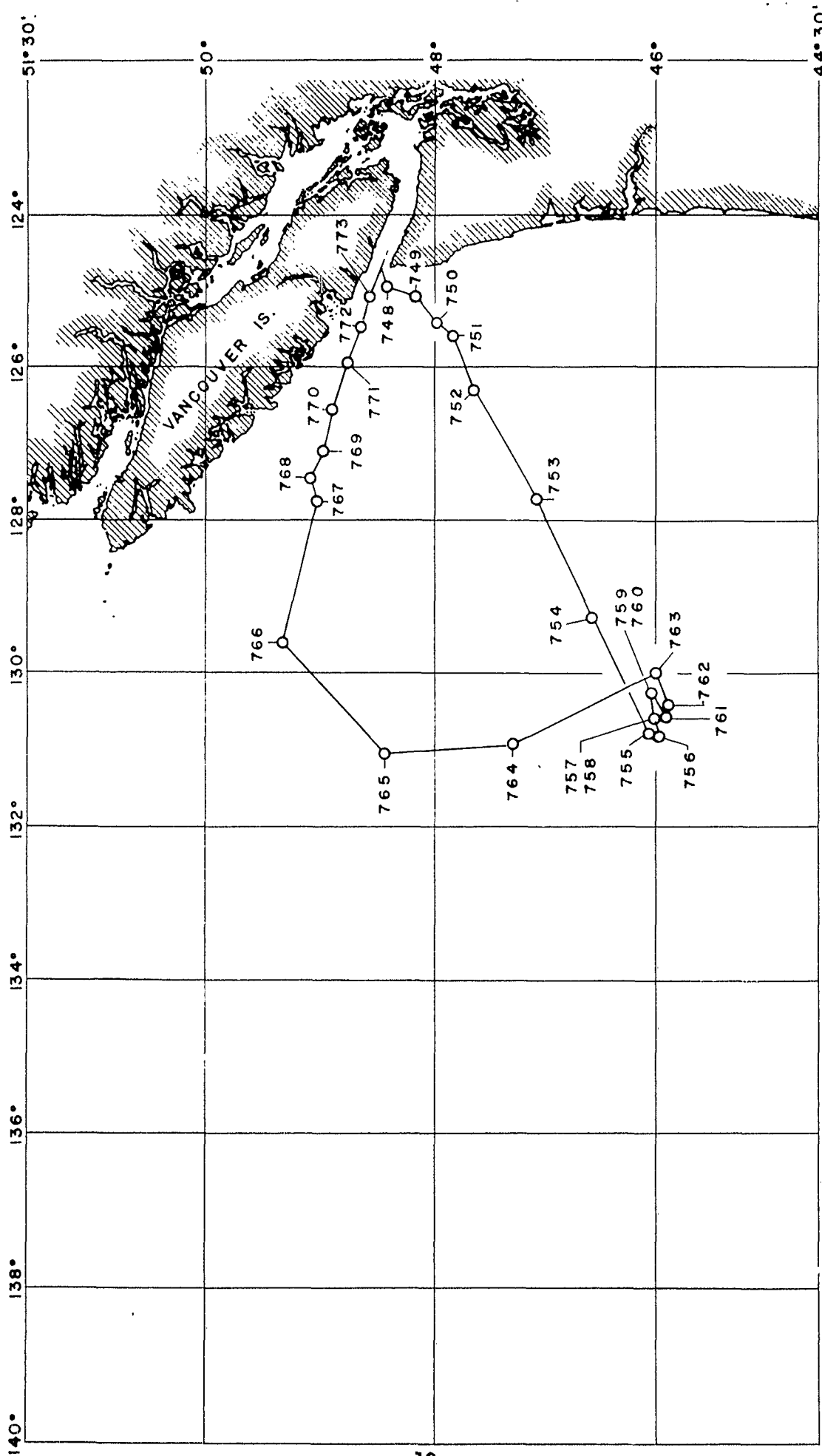
STA 683 48° 51' N WEATHER 51 9-10 May 53 126° 57' W WIND 160° 8 0011 (+8) DEPTH 500 fm 49°/46° F CLOUDS -- 10/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	10.08	32.42	0.608	0.61
5	10.05	32.43	0.610	0.64
10	9.82	32.43	0.606	0.67
19	9.68	32.44	0.604	0.64
28	9.59	32.47	0.589	0.64
47	8.89	32.58	0.570	0.60
72	8.49	32.58	0.567	0.87
94	8.50	32.94	0.469	0.93
142	7.47	33.57	0.330	1.31
189	7.10	33.87	0.257	1.81
285	5.91	33.93	0.221	1.97
477	4.91	34.07	0.074	3.36
674	4.32	34.23	0.028	3.55

STA 682 48° 45' N WEATHER c. 9 May 53 126° 24' W WIND 203° 2 2051 (+8) DEPTH 167 fm 48°/45° F CLOUDS 3-9/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	10.18	32.07	0.626	0.51
5	10.17	32.06	0.623	0.47
10	9.84	32.28	0.619	0.60
20	9.44	32.29	0.611	0.64
30	8.58	32.36	0.550	0.93
50	8.40	32.48	0.567	0.97
75	8.10	32.94	0.463	1.30
100	7.46	33.57	0.299	2.07
150	7.19	33.86	0.242	1.93
200	6.76	33.92	0.208	2.13
250	6.13	33.95	0.187	3.26

STA 684 48° 27' N WEATHER 51 10 May 53 127° 22' W WIND 180° 15 0630 (+8) DEPTH 1350 fm 49°/48° F CLOUDS 6-10/10				
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (µg-at/L)
0	10.09	32.39	0.492	0.57
5	10.10	32.40	0.553	0.60
10	10.09	32.39	0.589	0.67
19	9.95	32.41	0.570	0.60
28	9.74	32.45	0.566	0.62
47	8.42	32.48	0.502	0.92
72	7.87	32.57	0.544	1.03
93	8.06	33.06	0.431	1.28
142	7.43	33.74	0.274	1.75
188	6.83	33.89	0.230	2.04
472	5.08	34.05	0.087	3.41
709	4.30	34.22	0.033	3.52
941	3.64	34.37	0.023	3.47
1182	3.05	34.44	0.039	3.35

STA 689 48° 38' N WEATHER b.c.
 11 May 53 127° 23' W WIND 135° 11
 0918 (+8) DEPTH 1370 fm 51°/49° F
 CLOUDS 2-1/10

Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)	PO ₄ (ug-at/L)
0	10.09	32.29	0.610	0.60
5	10.11	32.32	0.608	0.60
10	10.01	32.34	0.605	0.64
20	9.83	32.34	0.609	0.62
29	9.63	32.44	0.607	0.75
48	9.38	32.47	0.597	0.73
70	8.25	32.50	0.575	0.95
94	7.83	32.73	0.511	1.36
141	7.49	33.67	0.295	1.84
189	7.07	33.88	0.245	1.79
478	4.92	34.06	0.086	3.34
720	4.21	34.26	0.030	3.74
964	3.58	34.38	0.024	3.43
1210	2.99	34.46	0.042	3.58



Oceanographic Station Location
Brown Bear Cruise No. 29
4-15 June 1953

STA 748 48° 27' N WEATHER c. 4 June 53 124° 54' W WIND 270° 5 0429 (+8) DEPTH 142 fm 50°/48° F CLOUDS 4,8-6/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	11.04	31.14	0.641
5	10.70	31.24	0.620
10	9.28	31.78	0.471
19	8.11	32.47	0.382
29	7.96	32.55	0.334
48	7.40	33.13	0.266
72	7.13	33.50	0.224
95	6.92	33.64	0.202
142	6.67	33.76	0.184
190	6.40	33.86	0.168
239	6.16	33.95	0.153

STA 750 47° 59' N WEATHER b.c. 4 June 53 125° 22' W WIND 280° 5 1029 (+8) DEPTH 340 fm 54°/49° F CLOUDS 8-2/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	12.00	31.29	0.598
5	11.69	31.54	0.600
10	11.42	31.60	0.587
20	10.57	31.88	0.573
30	9.93	32.25	0.541
50	8.60	32.52	0.550
75	8.02	32.64	0.528
100	7.86	33.15	0.399
150	7.27	33.77	0.224
187	6.71	33.89	0.200
200	6.64	33.92	0.207
280	5.87	34.04	0.128
477	5.10	34.09	0.072
576	4.72	34.15	0.054

STA 749 48° 10' N WEATHER b.c. 4 June 53 125° 01' W WIND 295° 2 0737 (+8) DEPTH 157 fm 58°/56° F CLOUDS ----			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	11.32	31.06	0.622
5	11.27	31.06	0.610
10	11.16	31.08	0.607
20	9.94	31.30	0.544
30	9.50	31.62	0.468
50	7.94	32.54	0.330
75	7.44	33.15	0.279

STA 751 47° 49' N WEATHER b.c. 4 June 53 125° 32' W WIND 200° 2 1330 (+8) DEPTH 550 fm 54°/48° F CLOUDS 8-2/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	12.58	31.62	0.580
5	12.30	31.63	0.571
10	11.98	31.68	0.573
20	11.10	31.88	0.568
30	10.38	32.33	0.565
50	8.40	32.56	0.567
75	8.04	32.69	0.507
100	7.94	33.17	0.386
150	7.27	33.80	0.236
200	6.92	33.90	0.208
299	6.13	33.96	0.162
499	.94	34.09	0.063
748	.08	34.26	0.038
898	7.68	34.38	0.029

STA 752 47° 38' N WEATHER b.c. 4 June 53 126° 14' W WIND 180° 6 1931 (+8) DEPTH 1220 fm 55°/51° F CLOUDS 8-2/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	12.54	32.44	0.572
5	12.35	32.43	0.573
10	11.22	32.40	0.580
20	11.08	32.41	0.584
29	10.78	32.41	0.577
49	8.78	32.57	0.563
74	8.28	32.61	0.540
98	7.88	33.01	0.440
147	7.44	33.72	0.272
194	6.64	33.86	0.266
197	6.52	33.86	0.270
292	5.86	33.94	0.166
486	4.92	34.07	0.062
727	4.10	34.28	0.023
969	3.60	34.39	0.026
1458	2.59	34.49	0.061
1953	1.90	34.58	0.132

STA 754 46° 35' N WEATHER c. 6 June 53 129° 14' W WIND 225° 16 0350 (+8) DEPTH 1400 fm 50°/47° F CLOUDS 0,5-9/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	10.28	32.47	0.570
5	10.25	32.48	0.567
10	10.28	32.47	0.564
19	10.16	32.48	0.576
29	10.16	32.47	0.556
48	9.34	32.48	0.560
72	7.90	32.56	0.576
97	7.51	32.62	0.556
147	6.74	33.52	0.385
190	6.54	33.81	0.328
195	6.48	33.80	0.322
278	5.49	33.88	0.253
468	4.30	34.04	0.086
696	3.80	34.24	0.050
940	3.22	34.36	0.039
1430	2.43	34.51	0.048
1912	1.95	34.60	0.112

STA 753 47° 04' N WEATHER o. 5 June 53 127° 42' W WIND 235° 8 1453 (+8) DEPTH 1449 fm 55°/54° F CLOUDS 0,6-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	11.66	32.39	0.559
5	11.64	32.39	0.558
10	11.49	32.41	0.562
20	11.21	32.44	0.563
30	10.48	32.46	0.559
50	8.80	32.58	0.553
75	8.18	32.58	0.548
100	----	33.30	0.352
150	7.93	33.72	0.244
194	7.20	33.87	0.216
200	7.18	33.86	0.218
289	5.87	33.94	0.197
485	4.73	34.04	0.073
718	4.10	34.23	0.024
961	3.56	34.35	0.020
1452	2.55	34.52	0.048
1946	1.97	34.59	0.105

STA 755 46° 03' N WEATHER o. 6 June 53 130° 48' W WIND 270° 17 1730 (+8) DEPTH 1531 fm 50°/48° F CLOUDS 0,6-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	10.21	32.52	0.563
5	10.22	32.52	0.565
10	10.22	32.48	0.572
20	10.00	32.52	0.576
30	9.98	32.53	0.560
50	9.38	32.54	0.544
75	8.21	32.60	0.561
100	7.40	32.83	0.519
150	6.92	33.63	0.342
199	6.37	33.84	0.284
292	5.37	33.94	0.213
492	4.34	34.02	0.081
727	3.76	34.22	0.021
972	3.33	34.38	0.019
1470	2.46	34.52	0.078
1962	1.94	34.61	0.108

STA 756 46° 00' N WEATHER 25 7 June 53 130° 49' W WIND 270° 20 0700 (+8) DEPTH 1500 fm 50°/49° F CLOUDS 0,6-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	10.12	32.52	0.563
5	10.13	32.51	0.565
10	10.14	32.51	0.562
20	10.14	32.50	0.563
29	10.13	32.48	0.544
48	10.01	32.50	0.531
73	8.86	32.58	0.563
97	8.18	32.67	0.546
147	7.16	33.71	0.398
153	6.86	33.67	0.333
193	6.41	33.84	0.292
233	6.04	33.92	0.258
389	4.78	34.01	0.121
602	4.08	34.16	0.045
820	3.64	34.33	0.021

STA 758 46° 01' N WEATHER c. 8 June 53 130° 36' W WIND 335° 16 0752 (+8) DEPTH 1500 fm 52°/51° F CLOUDS 6-6/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	10.32	32.54	0.569
5	10.32	32.54	0.560
10	10.34	32.56	0.567
20	10.31	32.56	0.565
30	10.32	32.56	0.555
50	10.10	32.54	0.564
75	8.51	32.61	0.565
99	7.48	33.02	0.493
149	6.99	33.78	0.376
197	6.43	33.87	0.333
288	5.43	33.89	0.244
484	4.44	34.08	0.083
734	3.78	34.29	0.029
983	3.27	34.40	0.022

STA 757 46° 01' N WEATHER o. 7 June 53 130° 37' W WIND 270° 16 1628 (+8) DEPTH 1498 fm 51°/50° F CLOUDS 6-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	10.36	32.52	0.566
5	10.36	32.55	0.566
9	10.36	32.52	0.563
18	10.36	32.54	0.561
27	10.36	32.54	0.550
45	10.22	32.54	0.545
68	8.12	-----	-----
164	6.87	33.75	0.328
244	6.01	33.92	0.363
421	4.78	34.04	0.092
653	3.87	34.20	0.037
898	3.44	34.36	0.023

STA 759 46° 03' N WEATHER b.c. 8 June 53 130° 17' W WIND 020° 8 1907 (+8) DEPTH 1350 fm 51°/50° F CLOUDS 6,8-2/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	10.56	32.52	0.571
5	10.54	32.53	0.564
10	10.47	32.47	0.573
20	10.28	32.50	0.572
30	10.24	32.48	0.566
50	9.34	32.50	0.571
75	7.94	32.58	0.580
100	7.34	32.62	0.560
150	6.96	33.58	0.358
193	6.60	33.80	0.311
200	6.34	33.87	0.306
283	5.56	33.90	0.255
471	4.49	34.02	0.098
714	3.80	34.21	0.033
954	3.37	34.37	0.024

STA 760 46° 01' N WEATHER b.c. 9 June 53 130° 14' W WIND 270° 8 0748 (+8) DEPTH 1300 fm 53°/52° F CLOUDS 4,8-1/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	10.52	32.47	0.574
5	10.51	32.49	0.580
10	10.48	32.47	0.573
20	10.28	32.47	0.580
30	10.23	32.47	0.576
50	9.87	32.50	0.572
75	7.90	32.56	0.563
100	7.36	32.65	0.570
150	6.96	33.59	0.365
193	6.44	33.86	0.305
291	5.42	33.90	0.245
485	4.40	34.03	0.093
722	3.77	34.29	0.026
968	3.32	34.36	0.033

STA 762 45° 52' N WEATHER o. 10 June 53 130° 26' W WIND 340° 9 0919 (+8) DEPTH 1020 fm 51°/50° F CLOUDS 0-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	11.04	32.56	0.566
5	11.02	32.54	0.571
10	10.93	32.56	0.568
20	10.52	32.54	0.575
30	10.43	32.53	0.569
50	10.27	32.55	0.566
75	8.46	32.55	0.577
100	8.00	32.69	0.545
150	7.22	33.64	0.393
200	6.72	33.92	0.341
295	5.74	33.97	0.207
495	4.62	34.07	0.079
744	3.89	34.24	0.026
994	3.34	34.39	0.028

STA 761 45° 53' N WEATHER c. 9 June 53 130° 35' W WIND 325° 10 1943 (+8) DEPTH 1498 fm 51°/49° F CLOUDS 6-9/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	11.19	32.53	0.566
5	10.88	32.51	0.559
10	10.60	32.52	0.563
20	10.55	32.51	0.561
30	10.40	32.53	0.568
50	9.56	32.56	0.571
75	8.60	32.59	0.563
100	8.08	32.74	0.538
150	7.21	33.76	0.373
197	6.65	33.89	0.279
200	6.57	33.92	0.273
295	5.63	33.95	0.192
493	4.65	34.09	0.075
741	3.89	34.25	0.025
988	3.32	34.40	0.028

STA 763 46° 00' N WEATHER c. 10 June 53 130° 00' W WIND 325° 6 2046 (+8) DEPTH 848 fm 52°/51° F CLOUDS 0-8/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	11.22	32.48	0.563
5	11.15	32.46	0.563
10	10.71	32.47	0.563
20	10.31	32.47	0.573
30	10.24	32.47	0.566
50	9.42	32.51	0.564
75	8.26	32.58	0.557
100	7.55	32.73	0.535
150	7.04	33.67	0.374
197	6.78	33.86	0.331
200	6.79	33.87	0.334
296	5.46	33.92	0.234
493	4.20	34.08	0.078
743	3.80	34.26	0.024
993	3.33	34.39	0.024

STA 764 47° 18' N WEATHER o. 11 June 53 130° 58' W WIND 160° 7 2051 (+8) DEPTH 1560 fm 52°/51° F CLOUDS 0,6-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	10.55	32.45	0.566
5	10.52	32.42	0.560
10	10.41	32.41	0.565
20	10.04	32.42	0.569
30	9.97	32.42	0.566
50	8.24	32.49	0.574
75	7.21	32.64	0.538
100	6.84	33.07	0.453
150	6.51	33.76	0.294
200	5.98	33.88	0.249
300	5.32	33.95	0.142
498	4.47	34.12	0.047
744	3.80	34.27	0.023
995	3.22	34.41	0.021
1494	2.35	34.52	0.065
1992	1.90	34.57	0.130
2482	1.69	34.61	0.177
2779	1.68	34.64	0.198

STA 766 49° 19' N WEATHER b.c. 13 June 53 129° 34' W WIND 220° 6 0015 (+8) DEPTH 1255 fm 52°/51° F CLOUDS ----			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	11.16	32.45	0.585
5	11.18	32.44	0.590
10	11.07	32.44	0.591
20	9.81	32.44	0.605
30	9.52	32.46	0.607
50	7.44	32.53	0.615
75	6.79	32.62	0.597
100	6.57	32.94	0.517
150	6.12	33.64	0.366
199	5.69	33.81	0.301
298	5.06	33.97	0.155
496	4.44	34.13	0.063
744	3.76	34.28	0.028
992	3.24	34.40	0.026
1490	2.38	34.52	0.065
1987	1.93	34.57	0.131
2186	1.84	34.60	0.149

STA 765 48° 27' N WEATHER o. 12 June 53 131° 01' W WIND 125° 6 1050 (+8) DEPTH 1550 fm 53°/51° F CLOUDS 0-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	10.64	32.45	0.574
5	10.62	32.42	0.577
10	10.48	32.47	0.582
20	10.06	32.47	0.585
30	9.94	32.47	0.585
50	8.38	32.51	0.602
75	7.31	32.56	0.594
100	7.00	32.90	0.501
150	6.62	33.65	0.358
197	6.07	33.86	0.297
296	5.18	33.90	0.202
495	4.38	34.08	0.070
734	3.92	34.30	0.024
984	3.34	34.42	0.026
1483	2.40	34.52	0.064
1975	1.93	34.60	0.126
1980	1.90	34.61	0.130
2470	1.70	34.64	0.179
2768	1.66	34.66	0.193

STA 767 49° 02' N WEATHER o. 14 June 53 127° 43' W WIND 225° 6 0227 (+8) DEPTH 1350 fm 54°/53° F CLOUDS 0-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	12.86	32.35	0.577
5	12.85	32.35	0.577
10	12.76	32.33	0.581
20	11.72	32.31	0.597
30	10.84	32.37	0.603
50	9.59	32.42	0.581
75	7.92	32.58	0.570
100	7.57	32.86	0.485
150	7.36	33.71	0.277
189	6.93	33.86	0.247
200	6.83	33.88	0.251
276	6.08	33.95	0.184
462	5.08	34.12	0.074
696	4.22	34.27	0.028
930	3.62	34.38	0.025
1400	2.58	34.51	0.054
1889	2.00	34.57	0.116
2289	1.80	34.65	0.158

STA 768 49° 04' N WEATHER o. 14 June 53 127° 28' W WIND 280° 5 0656 (+8) DEPTH 1050 fm 53°/-- F CLOUDS 6,8-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	12.64	32.08	0.580
5	12.62	32.17	0.586
10	12.39	32.24	0.586
20	10.97	32.26	0.610
30	10.62	32.38	0.591
50	8.88	32.41	0.576
75	7.75	32.57	0.576
100	7.83	33.05	0.427
150	7.30	33.75	0.271
200	6.72	33.90	0.242
298	5.80	33.96	0.190
495	4.86	34.12	0.063
732	4.20	34.28	0.024
980	3.52	34.40	0.028
1480	2.46	-----	0.068
1780	2.02	34.55	0.114

STA 770 48° 53' N WEATHER o. 14 June 53 126° 31' W WIND 225° 6 1653 (+8) DEPTH 95 fm 57°/54° F CLOUDS 0,8-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	13.22	31.84	0.575
5	13.22	31.82	0.579
10	12.64	31.92	0.590
20	11.00	-----	0.590
29	10.60	32.31	0.596
48	8.72	32.49	0.574
73	7.52	32.73	0.525
98	7.40	33.18	0.400
147	6.52	33.94	0.178

STA 769 48° 58' N WEATHER o. 14 June 53 127° 07' W WIND 315° 6 1213 (+8) DEPTH 650 fm 56°/55° F CLOUDS 0-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	12.91	32.21	0.583
5	12.86	32.21	0.585
10	12.37	32.26	0.592
20	11.29	32.27	0.608
30	10.60	32.30	0.612
50	8.96	32.47	0.574
75	7.96	32.70	0.510
100	7.72	33.06	0.437
150	7.10	33.76	0.284
188	6.69	33.90	0.257
200	6.58	-----	0.254
277	6.06	33.97	0.193
472	4.96	-----	0.078
720	4.26	34.22	0.029
969	3.58	34.41	0.026

STA 771 48° 46' N WEATHER o. 14 June 53 125° 57' W WIND 315° 8 2052 (+8) DEPTH 40 fm 54°/52° F CLOUDS 6,8-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	12.83	30.98	0.636
5	12.84	30.99	0.635
10	12.84	30.99	0.638
20	11.48	31.32	0.619
30	9.80	31.57	0.484
50	7.82	32.71	0.303
70	7.72	32.81	0.284

STA 772 48° 38' N WEATHER o. 14 June 53 125° 26' W WIND 292° 9 2352 (+8) DEPTH 49 fm 54°/52° F CLOUDS 6,8-10/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	11.97	31.07	0.674
5	11.96	31.10	0.679
10	11.00	31.41	0.569
19	9.42	31.94	0.447
29	8.57	32.23	0.377
48	8.34	32.90	0.347
72	7.95	33.09	0.305

STA 773 48° 34' N WEATHER c. 15 June 53 125° 03' W WIND 325° 4 0236 (+8) DEPTH 48 fm 53°/-- F CLOUDS 6,8-8/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	10.41	31.51	0.542
5	10.21	31.56	0.523
10	10.23	31.54	0.526
20	9.86	31.74	0.498
30	9.64	31.81	0.471
50	8.82	32.23	0.393
75	7.62	33.07	0.276

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