



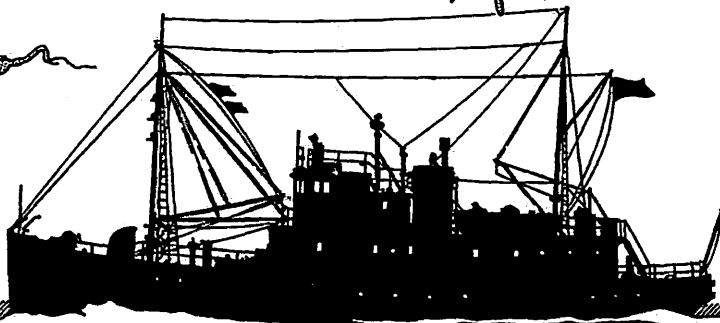
DEPARTMENT OF OCEANOGRAPHY UNIVERSITY OF WASHINGTON

Technical Report No. 34

EASTERN NORTH PACIFIC
OFFSHORE PHYSICAL AND CHEMICAL DATA
July - September 1953

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

Reference 54-20
June 1954



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

EASTERN NORTH PACIFIC
OFFSHORE PHYSICAL AND CHEMICAL DATA
July - September 1953

by

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

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Richard H. Fleming
Executive Officer

INTRODUCTION

This report contains all of the offshore data from July through September, 1953 (Cruises 31 and 33) 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 8).

Technical Report No. 22 presents all the offshore data collected during 1952, and Technical Report No. 23 presents the offshore data collected from April through June, 1953. Other reports in this series 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). 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 vs. L), as described by LaFond (3).

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 virgrile (/) 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. During Cruise 31 the maximum depth of sampling was 2000 meters wherever the depth of the water permitted. On Cruise 33 the maximum depth of sampling was 250 meters for the majority of stations, with a few stations at 1250 meters. 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.

REFERENCES

- (1) Fjarlie, R. L. I.
1953. A Seawater Sampling Bottle.
Jour. Mar. Res., 12(1):21-30.
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1939. Notes on the Determination of Dissolved Oxygen in
Sea Water. Jour. Mar. Res., 2(1):1-8.
- (3) LaFond, E. C.
1951. Processing Oceanographic Data. U. S. Navy H. O.
Publication No. 614, Washington, D. C.

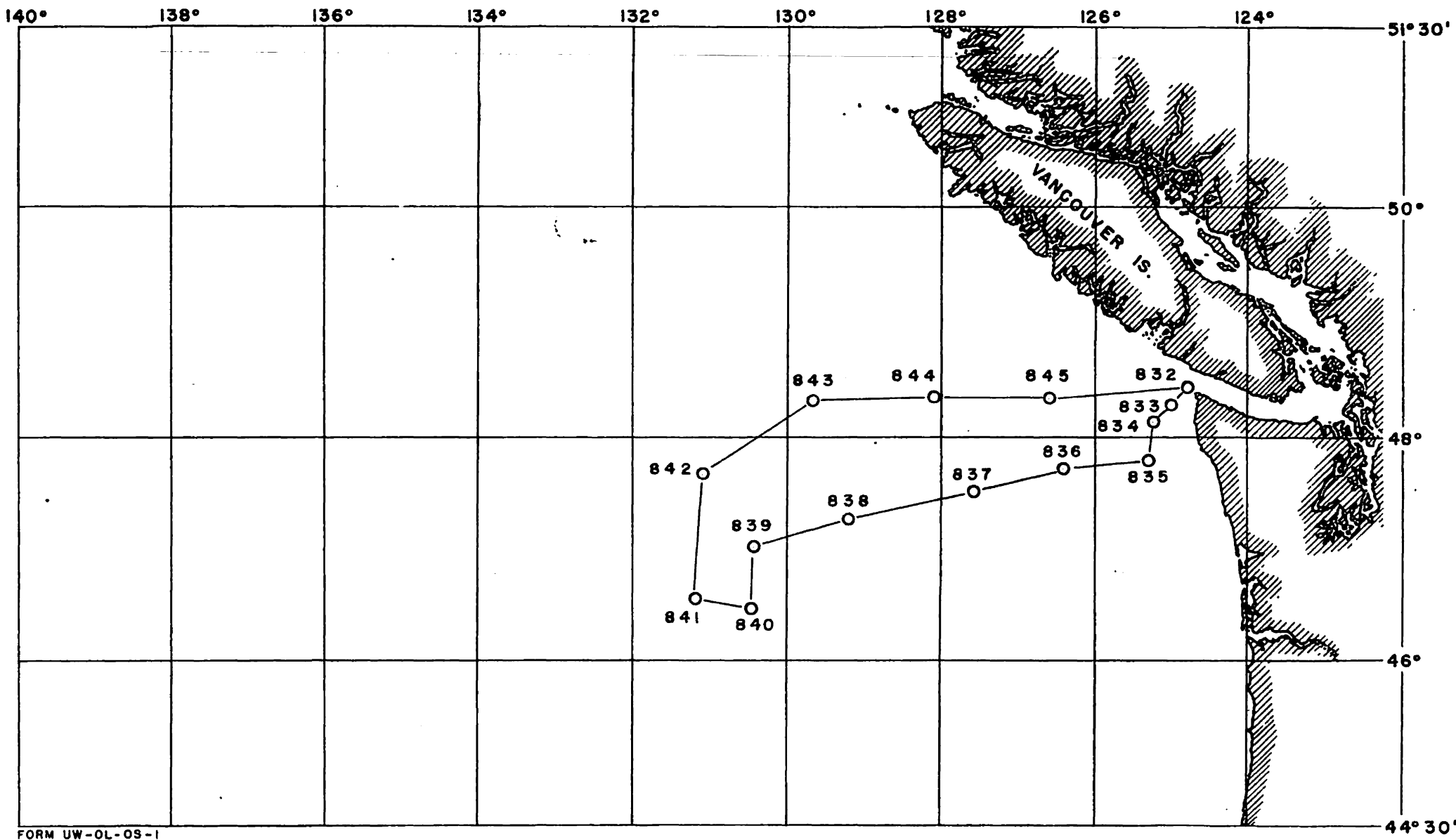
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FORM UW-OL-OS-1

Oceanographic Station Locations
 Brown Bear Cruise No. 31
 1-13 August 1953

STA 840 46° 28' N WEATHER o.
 4 Aug 53 130° 27' W WIND 293° 8
 0230 (+8) DEPTH 1220 fm 55°/--° F
 CLOUDS 6-10/10

Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	14.84	32.50	0.513
5	14.80	32.51	0.510
10	14.70	32.50	0.524
20	14.28	32.52	0.523
29	12.48	32.51	0.558
48	10.70	32.51	0.575
72	8.44	32.58	0.573
96	7.62	32.78	0.528
145	6.89	33.39	0.357
193	6.23	33.87	0.291
292	5.46	33.91	0.211
486	4.36	34.01	0.089
730	3.73	34.26	0.027
974	3.34	34.41	0.021
1470	2.42	34.52	0.063
1966	1.99	34.60	0.117

STA 841 46° 32' N WEATHER c.
 4 Aug 53 131° 12' W WIND 335° 7
 0905 (+8) DEPTH 1400 fm 62°/59° F
 CLOUDS 1, 6, 8-6/10

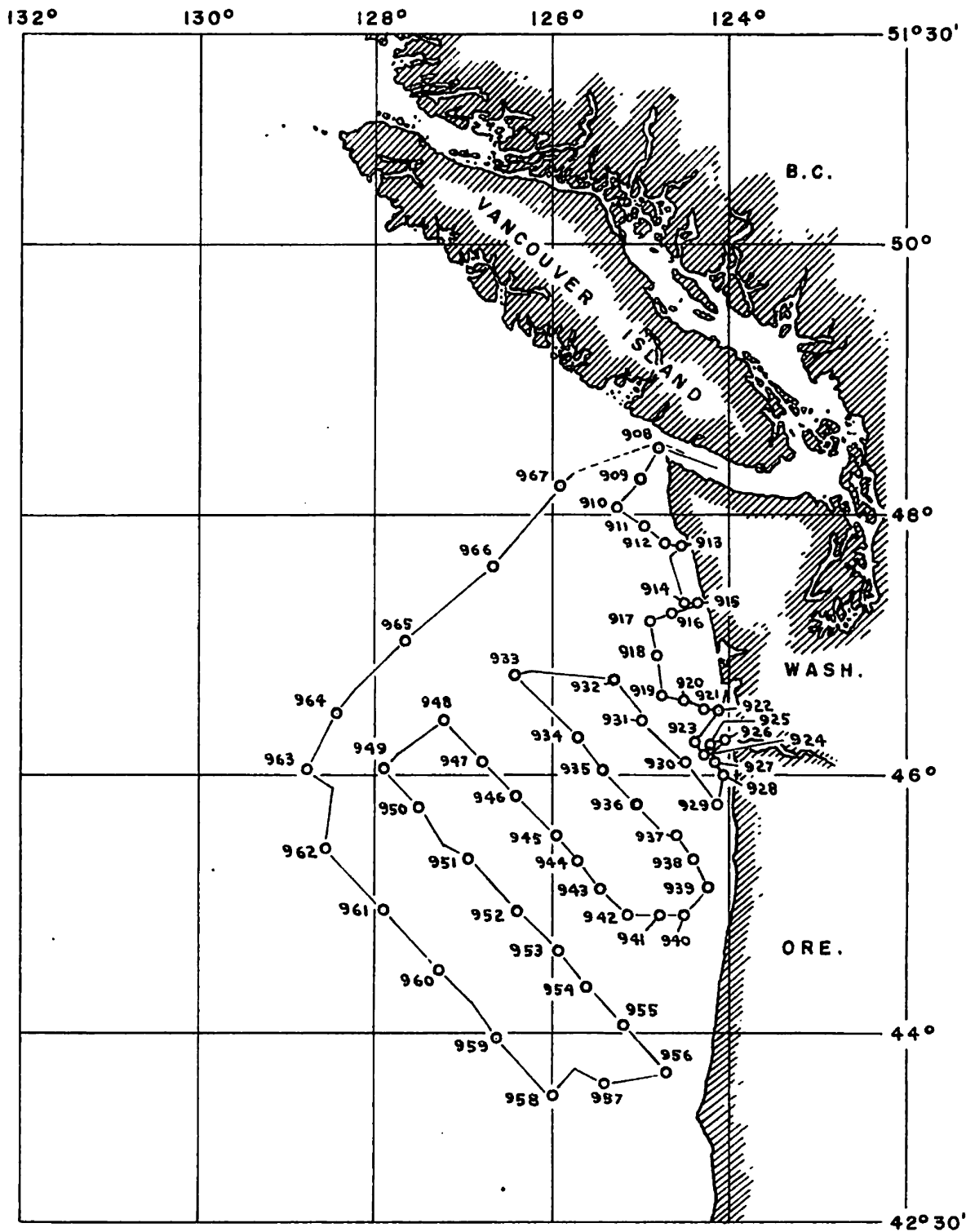
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	14.82	32.48	0.522
5	14.79	32.48	0.525
10	14.70	32.48	0.532
20	12.47	32.48	0.564
30	10.92	32.50	0.573
50	8.62	32.57	0.577
74	7.44	32.59	0.576
99	6.88	32.65	0.567
148	6.68	32.98	0.441
192	6.27	33.86	0.322
290	5.26	33.91	0.225
485	4.40	34.07	0.085
733	3.78	34.25	0.027
980	3.32	34.40	0.020
1476	2.42	34.49	0.066
1972	1.97	34.60	0.129

STA 842 47° 40' N WEATHER b.c.
 11 Aug 53 131° 05' W WIND 350° 13
 2326 (+8) DEPTH 1540 fm 60°/58° F
 CLOUDS 6-4/10

Depth (m)	Temp (°C)	Sal (‰)	O ₂ (mg-at/L)
0	15.43	32.49	0.545
5	15.41	32.49	0.545
10	15.44	32.48	0.549
19	15.42	32.48	0.548
29	14.12	32.48	0.585
48	10.40	32.53	0.617
72	7.92	32.57	0.611
96	7.19	32.68	0.572
144	6.69	33.60	0.346
191	6.34	33.87	0.274
263	5.72	33.96	0.170
285	5.52	-----	-----
448	4.68	-----	-----
473	4.57	34.15	0.068
683	3.95	34.29	0.024
717	3.86	34.30	0.026
923	3.34	34.41	0.025
954	3.28	-----	0.027
1405	2.48	34.53	0.058
1892	1.93	34.61	0.119

STA 843 48° 18' N WEATHER b.c.
 12 Aug 53 129° 41' W WIND 333° 16
 1521 (+8) DEPTH 1380 fm 62°/58° F
 CLOUDS 6-2/10

Depth (m)	Temp (°C)	Sal (‰)	O ₂ (mg-at/L)
0	15.60	32.33	0.534
5	15.60	32.34	0.534
9	15.59	32.34	0.533
18	15.55	32.33	0.531
28	15.51	32.33	0.534
46	9.99	32.47	0.637
69	7.99	32.54	0.604
93	7.26	32.70	0.562
140	7.37	33.74	0.389
156	7.26	33.82	0.268
185	6.90	33.89	0.245
230	6.27	33.95	0.205
388	5.26	-----	0.111
590	4.53	34.22	0.035
806	3.93	34.34	0.024
1252	2.86	34.47	0.038
1706	2.22	34.56	0.088



Oceanographic Station Locations
 Brown Bear Cruise No. 33
 3-12 September 1953

STA 948 46° 24' N WEATHER b. 7 Sept 53 127° 13' W WIND 350° 16 2327 (+8) DEPTH 1430 fm 60°/57° F CLOUDS -- 0/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	16.82	32.37	0.496
10	16.82	32.37	0.490
20	16.82	32.37	0.491
30	12.94	32.55	0.602
50	9.44	32.58	0.593
75	8.20	32.62	0.541
99	7.60	33.04	0.456
148	7.05	33.71	0.346
198	6.67	33.90	0.284
294	5.84	33.98	0.182
488	5.00	34.14	0.079
735	4.14	34.31	0.038
982	3.56	34.42	0.034
1230	2.93	34.51	0.050

STA 950 45° 43' N WEATHER c. 8 Sept 53 127° 28' W WIND 355° 12 0940 (+8) DEPTH 1510 fm 64°/60° F CLOUDS 0-6/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	17.20	31.64	0.494
10	17.17	31.64	0.492
20	16.39	32.23	0.521
29	14.34	32.57	0.562
49	10.84	32.57	0.615
72	8.76	32.63	0.543
96	8.17	32.85	0.492
144	7.35	33.62	0.326
192	6.75	33.91	0.271
240	6.27	33.97	0.219

STA 949 46° 01' N WEATHER b.c. 8 Sept 53 127° 51' W WIND 340° 12 0519 (+8) DEPTH 1500 fm 62°/59° F CLOUDS 0-3/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	16.97	32.24	0.492
10	16.97	32.25	0.488
20	16.89	32.47	0.494
29	16.77	32.48	0.491
49	11.08	32.55	0.596
73	8.54	32.62	0.563
97	7.67	32.70	0.536
145	7.13	33.61	0.358
151	7.12	33.75	0.356
192	6.72	33.88	0.307
235	6.28	-----	-----
419	5.30	34.09	0.097
587	4.52	34.23	0.040
808	3.98	34.38	0.028
1038	3.44	34.43	0.031

STA 951 45° 19' N WEATHER b.c. 8 Sept 53 126° 55' W WIND 350° 16 1415 (+8) DEPTH 1520 fm 68°/63° F CLOUDS 8-4/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	17.36	31.92	0.493
10	17.30	31.91	0.486
20	16.30	32.43	0.527
30	13.66	32.57	0.595
50	10.22	32.58	0.582
75	8.56	32.66	0.538
100	7.84	33.04	0.452
150	7.40	33.72	0.291
198	6.95	33.90	0.243
246	6.26	33.95	0.254

STA 960 44° 26' N WEATHER b.c. 10 Sept 53 127° 18' W WIND 020° 13 1717 (+8) DEPTH 1560 fm 64°/63° F CLOUDS 8-3/10			
Depth (m)	Temp (°C)	Sal (‰)	O ₂ (mg-at/L)
0	17.42	31.95	0.486
9	17.38	31.94	0.483
19	17.26	31.94	0.492
28	14.17	32.57	0.547
47	10.53	32.59	0.563
71	9.20	32.67	0.515
93	8.68	32.88	0.450
141	8.02	33.59	0.317
196	7.30	33.83	0.289
294	6.32	34.01	0.198
491	5.20	34.16	0.065
737	4.44	34.34	0.031
983	3.60	34.42	0.029
1222	3.04	-----	-----

STA 962 45° 25' N WEATHER o. 11 Sept 53 128° 33' W WIND 015° 4 0708 (+8) DEPTH 1500 fm 61°/59° F CLOUDS 6-10/10			
Depth (m)	Temp (°C)	Sal (‰)	O ₂ (mg-at/L)
0	17.42	32.04	0.492
10	17.41	32.09	0.495
20	17.40	32.10	0.489
30	16.90	32.28	0.505
50	11.43	32.56	0.595
75	8.70	32.61	0.540
100	7.80	32.90	0.487
149	7.20	33.73	0.342
196	6.75	33.91	0.263
294	5.89	33.97	0.181
490	4.68	-----	-----
735	3.88	34.24	0.038
978	3.36	34.39	0.036
1220	2.89	34.48	0.042

STA 961 44° 55' N WEATHER b.c. 11 Sept 53 127° 54' W WIND 030° 12 0146 (+8) DEPTH 1530 fm 61°/60° F CLOUDS 8-4/10			
Depth (m)	Temp (°C)	Sal (‰)	O ₂ (mg-at/L)
0	17.68	31.84	0.482
10	17.67	31.83	0.481
20	17.55	31.85	0.483
30	14.42	32.63	0.540
50	11.06	32.65	0.576
75	9.04	32.79	0.493
100	8.22	33.17	0.416
148	7.70	33.78	0.275
196	7.14	33.95	0.213
246	6.71	33.95	0.183

STA 963 46° 01' N WEATHER c. 11 Sept 53 128° 47' W WIND 225° 16 1346 (+8) DEPTH 1470 fm 63°/60° F CLOUDS 6-8/10			
Depth (m)	Temp (°C)	Sal (‰)	O ₂ (mg-at/L)
0	17.50	32.38	0.499
10	17.35	32.40	0.499
20	17.11	32.46	0.485
30	15.98	32.48	0.519
50	11.18	32.56	0.584
74	8.66	32.61	0.559
99	7.58	32.74	0.539
149	7.16	33.43	0.405
198	6.66	33.86	0.312
247	6.11	33.92	0.262

STA 964 46° 28' N WEATHER c. 11 Sept 53 128° 28' W WIND 195° 5 2038 (+8) DEPTH 1450 fm 62°/60° F CLOUDS 6-8/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	17.12	32.47	0.487
10	17.08	32.47	0.489
20	16.90	32.48	0.492
30	14.50	32.55	0.593
50	10.58	32.56	0.578
75	8.78	32.60	0.561
100	7.91	32.69	0.539
117	7.48	33.13	0.449
195	6.50	33.88	0.316
241	5.94	33.91	0.289

STA 966 47° 36' N WEATHER 15 12 Sept 53 126° 41' W WIND 180° 12 1055 (+8) DEPTH 1250 fm 63°/62° F CLOUDS 6-7/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	16.82	32.45	0.493
10	16.83	32.46	0.491
19	16.80	32.46	0.498
28	16.76	32.41	0.495
46	10.89	32.53	0.635
70	8.66	32.62	0.570
93	7.52	32.63	0.569
139	7.16	33.57	0.357
186	6.79	33.83	0.269
233	6.10	33.92	0.288

STA 965 47° 00' N WEATHER 52 12 Sept 53 127° 41' W WIND 220° 12 0246 (+8) DEPTH 1400 fm 62°/60° F CLOUDS 6-8/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	16.90	32.45	0.488
10	16.90	32.45	0.487
20	16.85	32.45	0.492
30	16.29	32.46	0.508
50	9.36	32.68	0.551
75	9.08	32.75	0.516
100	8.82	33.39	0.325
734	4.09	34.27	0.027
980	3.50	34.41	0.028
1228	3.05	34.47	0.039

STA 967 48° 11' N WEATHER c. 12 Sept 53 125° 51' W WIND 175° 12 1709 (+8) DEPTH 300 fm 62°/61° F CLOUDS 6-7/10			
Depth (m)	Temp (°C)	Sal (°/oo)	O ₂ (mg-at/L)
0	15.67	31.50	0.536
10	13.76	32.21	0.559
20	10.36	32.41	0.553
30	9.19	32.52	0.551
49	7.87	32.63	0.534
73	7.62	33.11	0.390
97	7.36	33.60	0.319
146	6.90	33.87	0.175
194	6.57	33.94	0.202
242	6.39	33.98	0.162

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