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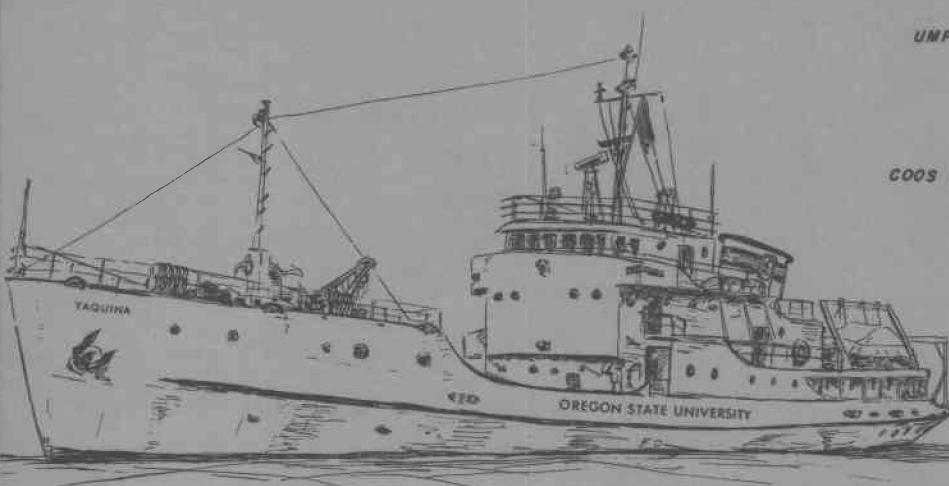
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SIUSLAW R.

UMPQUA R.

COOS BAY



Hydrographic Data from Oregon Waters

1967

by

Dennis Barstow, William Gilbert,
and Bruce Wyatt

Office of Naval Research
Contract Nonr 1286(10)
Project NR 083-102

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Date Report No. 35

Reference 69-3

February 1969

DEPARTMENT OF OCEANOGRAPHY
SCHOOL OF SCIENCE
OREGON STATE UNIVERSITY
Corvallis, Oregon 97331

HYDROGRAPHIC DATA FROM OREGON WATERS

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John V. Byrne
Chairman

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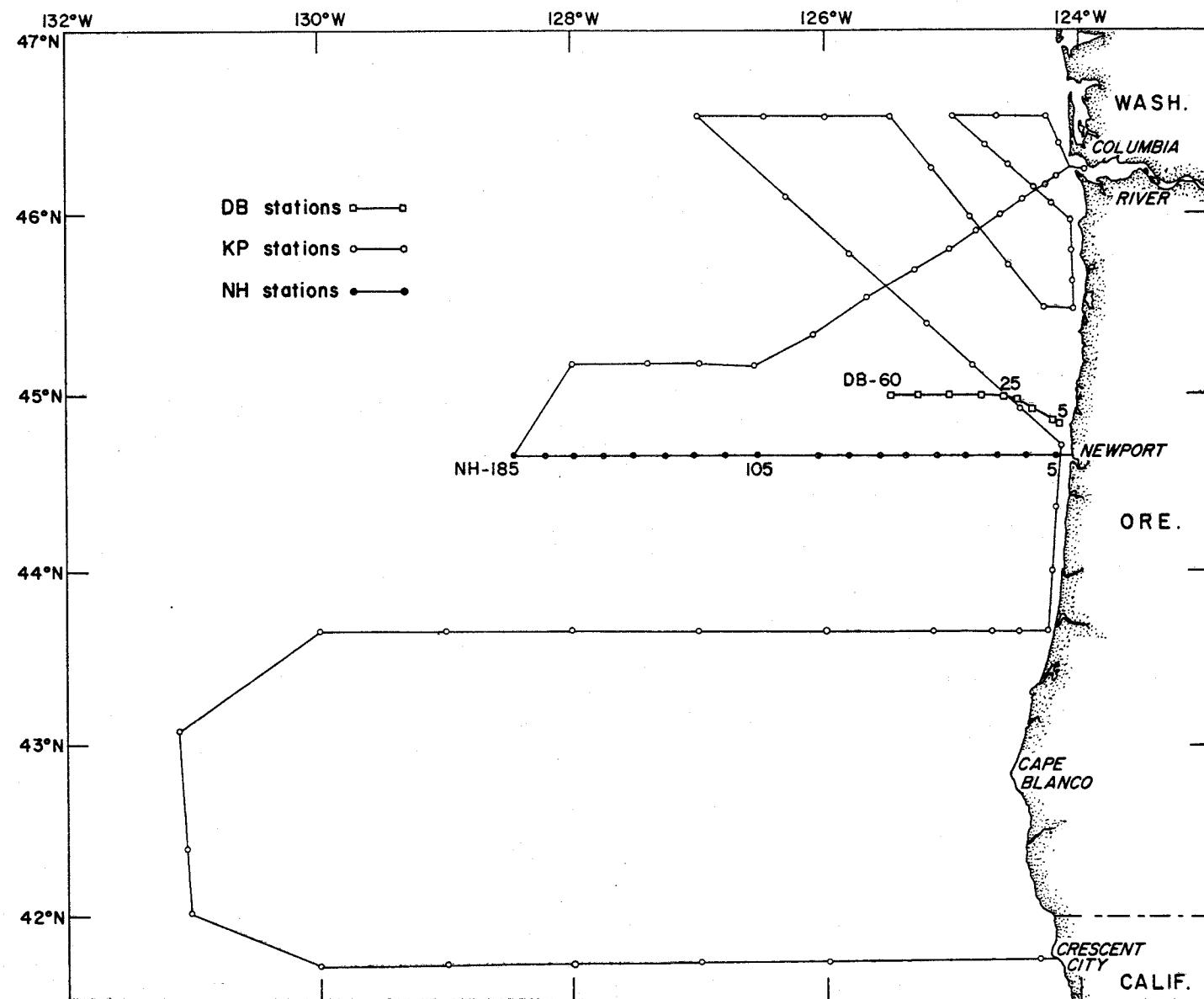
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INTRODUCTION

This is the seventh report of data collected during a study designed to determine the currents and water masses along the Oregon coast. The study was begun in 1958 and reports have been published for these periods:

Period Covered	Authors	Date Published
July 1958 - July 1959	Wyatt and Callaway	1961
July 1959 - June 1960	Wyatt and Kujala	1961
June 1960 - May 1961	Wyatt and Kujala	1962
June 1961 - December 1961	Wyatt and Kujala	1963
January 1962 - December 1964	Wyatt and Gilbert	1967
January 1965 - December 1965	Wyatt, Still, Barstow, and Gilbert	1967
January 1966 - December 1966	Barstow, Gilbert, Park, Still and Wyatt	1968

DATA COLLECTING AND PROCESSING

Data were collected by Oregon State University personnel aboard the R/V YAQUINA. The observations were planned to survey conditions off the Oregon coast and particularly to monitor temperature and salinity distributions along a latitudinal tract at $44^{\circ} 39.1'N$. Each station is identified by a letter-number code. Letters are identified in the table below. Numerals usually give distance from the shore in nautical miles. Thus, NH-45 is a hydrographic station on the "Newport line" 45 miles off the coast from Newport.

For a time series at one position BT slides are numbered consecutively. A hydrographic cast taken in conjunction with a BT gets the number of the BT. Thus if 22 hydrographic casts were taken during a BT time series, of 54 lowerings, at NH-45 the hydrographic casts would be numbered from NH 45-1 to NH 45-54.

Station Prefix	<u>Explanation</u>
<u>Letter</u>	
D	NH-163 to NH-158
DB	off of Depoe Bay, Oregon from $44^{\circ} 50.3'N$ to $45^{\circ} 00.0'N$
HB, HC	NH-115
KP	Columbia River Plume Cruise from $41^{\circ} 41.6'N$ to $46^{\circ} 32.6'N$
NH	off of Newport, Oregon along $44^{\circ} 39.1'N$

Salinity

Salinity determinations were made with an inductive salinometer model II manufactured in Australia by Industria Manufacturing Engineers Pty. Ltd. The method used for the determinations was described by Brown and Hamon (1961). Substandard water was prepared from seawater that had been collected 100 miles off Oregon and stored for three months prior to use.

The inductive salinometer is subject to some drift in conductivity because of changes in room temperature during analysis of a series of samples from a station. However, the approximate average accuracy of determinations was believed to be 0.003% as reported by Brown and Hamon (1961).

Temperature

Thermometer calibrations were done by our personnel using Scripps Institution of Oceanography standard thermometers and tank. The accuracy of temperature readings is believed to be $\pm 0.02^\circ\text{C}$ for reversing thermometers. In all cases two protected reversing thermometers were mounted on each Nansen bottle. Below 200 meters an unprotected reversing thermometer was also mounted on each bottle.

Depth

Depth determinations were made by the "depth-difference" method described in Hydrographic Office Publication 607(1955). At least once each year three to six calibration casts were made to monitor the pressure coefficients (Q) for unprotected thermometers. Depth estimates have an approximate accuracy of 1.5 percent at 750 m depth.

Oxygen

The modified Winkler method of oxygen analysis as described by Strickland and Parsons (1955) was employed. Precision was believed to be at $\pm 0.03 \text{ ml/L}$ of dissolved oxygen. Values for cruise 6702-C appear high. They were pickled and stored for a week before being run.

Inorganic Phosphate

Inorganic phosphate determinations were made by the method described in the manual of Strickland and Parsons (1965). Precision was estimated at ± 3 percent ($\pm 0.1 \mu\text{M}$). Samples were frozen and analyzed at a later time in the laboratory.

pH

A Beckman pH meter, model 7600, expanded scale was used for pH determinations. The method used is that of Park (1966). Precision was ± 0.03 pH units. Values for cruise 6707-A have not been corrected for pressure.

Alkalinity

Nitrates were analyzed from frozen samples. The method used is that of Anderson and Robinson (1946). Precision is about ± 0.02 milliequivalent/liter.

Silicate

Silicates were analyzed from frozen samples with a Beckman DU using the method described in the manual of Stickland and Parsons (1965). Probable precision is $\pm 15\mu M$. Samples from cruise 6707-A were run on a Technicon Autoanalyser using the method of Hager, Gordon and Park (1968).

Total CO₂

Total CO₂ was analyzed aboard ship by a Fisher-Hamilton gas partitioner by the method of Park, Kennedy and Dobson (1964). Precision is about ± 3 percent.

Computations

All hydrographic data were processed with the aid of the CDC 3300 computer. Auxiliary temperature corrections and index corrections obtained from laboratory thermometer calibrations were completed with a computer program. Interpolation of property values to standard depths was accomplished by three-point parabolic interpolation. (Two observed property points above the standard depth and one point below were interpolated parabolically; the result was averaged with similar interpolation by using one observed point above the standard depth and two points below.) The specific volume anomaly, dynamic height, and sigma-t were computed by using interpolated properties. The same computer program has been used to give this published output as was used in all previous Oregon State University hydrographic publications.

Weather codes and cloud cover codes were adopted from U. S. Hydrographic Office Publication Number 607(1955).

REFERENCES

- Anderson, D. H. and R. J. Robinson, 1946. Rapid electrometric determination of the alkalinity of seawater using a glass electrode. Ind. Engng. Chem. Analyt. Edn. 18: 767-769.
- Barstow, Dennis, William Gilbert, Kilho Park, Robert Still, and Bruce Wyatt, 1968. Hydrographic Data From Oregon Waters 1966. Data Report 33, Dept. of Oceanography, Oregon State University, Ref. 68-34, 109 pp.
- Brown, N. L. and B. V. Hamon, 1961. An inductive salinometer. Deep-Sea Res. 7(4): 65-75.
- Hager, S. W., Gordon, L. I. and Park, P. K., 1968. A Practical Manual for use of the Technicon Analyzer in Seawater Nutrient Analyses. A Final Report to Bureau of Commercial Fisheries, Dept. of Oceanography, Oregon State University, Ref. 68-33, 31 pp.
- Park, Kilho, 1966. Surface pH of the northeastern Pacific Ocean. J. Oceanol. Soc. Korea 1: 1-6.
- Park, Kilho, G. H. Kennedy and H. H. Dobson, 1964. Comparison of gas chromatographic method and pH-alkalinity method for determination of total carbon dioxide in seawater. Anal. Chem. 36: 1686.
- Strickland, J. D. H. and T. R. Parsons, 1965. A manual of seawater analysis. Fish Res. Bd. Canada Bull. No. 125. Revised edition, 203 pp.
- U.S. Hydrographic Office, 1955. Instruction Manual for Oceanographic Observations, H. O. Pub. 605, 210 pp.
- Wyatt, Bruce and R. Callaway, 1961. Physical Hydrographic Data Offshore from Newport, Oregon, for July 1958 to July 1959, Data Report 4, Dept. of Oceanography, Oregon State University, Ref. 61-1, 15 p.
- Wyatt, Bruce and N. Kujala, 1961. Physical Oceanographic Data Offshore from Newport and Astoria, Oregon, for July 1959 to June 1960, Data Report 5, Dept. of Oceanography, Oregon State University, Ref. 61-3, 17 pp.
- Wyatt, Bruce and N. Kujala, 1962. Hydrographic Data from Oregon Coastal Waters, June 1960 through May 1961, Data Report 7, Dept. of Oceanography, Oregon State University, Ref. 62-6, 77 pp.

Wyatt, Bruce and N. Kujala, 1963. Hydrographic Data from Oregon Waters
June through December 1961, Data Report 12, Dept. of Oceanography,
Oregon State University, Ref. 63-33, 36 pp.

Wyatt, Bruce and W. E. Gilbert, 1967. Hydrographic Data from Oregon
Waters 1962 through 1964, Data Report 24, Dept. of Oceanography,
Oregon State University, Ref. 67-1, 175 pp.

Wyatt, Bruce, R. Still and W. E. Gilbert, 1967. Hydrographic Data
from Oregon Waters 1965, Data Report 27, Dept. of Oceanography
Oregon State University, Ref. 67-28, 56 pp.

TABLE I

Cruise Dates, Stations, Observations, and Personnel for Hydrographic Cruises for 1967.

CRUISE	DATE	STATIONS	OBSERVATIONS ^d	PERSONNEL
6701-D ^a	13-16 Jan.	NH-5 to 165	BT, drift, MWT, VMN, O ₂ , PO ₄ , NO ₃ , SiO ₄	Dennis Barstow ^c , James Seabrooke, Lynn Buffo, Keith Reichow, John Hinrichs, Robert Bourke, Haertel, Arthur Albin, Clifford Trump, Leonor Coleman, Duane Erdmann
6702-B	11-15 Jan.	NH-65	MWT, VMN	William Pearcy, Colin Nicol, Leonard Coleman, Rodney Eagle, David Tenant, Michael McCormick, Herman Wyandt, Michael Smiles, Paul Bernick
6702-C	20-24 Feb.	NH-5 to 165, anchor station at NH-165	BT, drift, MWT, VMN, O ₂	Robert Still, George Yao, Joseph Bottero, Ma- shall Earle, Donald Heinrichs, Hasong Pak, He- Lee, Kendall Carder, Charles Culberson
6702-E	25 Feb. - 7 March	NH-450	AD, MWT, OT, SMG, VMN	Leonard Coleman, Rodney Eagle, Roger Paul, Ge- Phelps, Henry Donaldson, Michael McCormick
6703-A	11-15 March	anchor stations at NH-115	BT, drogues	Steve Neshyba, Dennis Barstow, James Seabrook, Niels Skov, Keh-gong Shih, James Rinker, Har- Lorz, Suelynn Williams, Lillie Bogert, Sally Plumley, Diane Frischnecht, Duane Erdmann
6703-B	17-18 March	NH-35, 45, 65		George Beardsley, Sr., Dale Pillsbury, Ronald Zaneveld, William Plank, Marshall Earle, Ron Tipper, George Beardsley, Jr.
6704-B	10-13 April	NH-5 to 165	BT, drift, MWT, VMN, O ₂ , PO ₄ , NO ₃ , SiO ₄	Dennis Barstow, John Hinrichs, Keith Reichow, Rodney Eagle, Milton Cissell, Robert Bourke, Angus Mackay, Duane Erdmann, Joseph Bottero, Rick Sweet
6705-B	7-13 May	DB-5 to 40, anchor station at DB-25, DB-20 to 1, DB-3 to 40, NH-5 to 165	BT, drift, MWT, VMN. O ₂ , PO ₄ , NO ₃ , SiO ₄ taken on Newport line only	Robert Smith, Robert Still, Dale Pillsbury, R- Hinrichs, David Cutchin, Christopher Mooers, Larry Swanson, Niels Skov, Felix Favorite, R- Tipper, Duane Erdmann, Wesley Bradford, Rod- Eagle

^a Cruise number gives date of occurrence. First two figures are the year; the second two, the month. The letter suffix indicates the order of the cruise within a month.

^b Station identification code is explained in the text.

^c First person listed was party chief.

^d Observation identifiers: temperature and salinity taken on all stations.

AD	anchor box dredge	VMN	vertical meter net, usually 0-200
BT	bathythermograph, 0-200 meters	O ₂	oxygen
drift	drift bottles released	PO ₄	phosphate
GEK	geomagnetic electrokinetograph	pH	pH
MWT	6-foot Isaacs-Kidd Midwater Trawl, usually 0-200 meters	alk	alkalinity
OMN	oblique meter net	NO ₃	nitrate
OT	Otter Trawl	SiO ₂	silicate
SMG	Smith-McIntyre Grab	ΣCO ₂	total CO ₂

Table I - cont.

CRUISE	DATE	STATIONS	OBSERVATIONS ^a	PERSONNEL
6706-A	2-6 June	NH-5 to 165 DB-1 to 15	BT, drift, GEK, towed thermistor. O_2 , PO_4 , NO_3 , SiO_4 taken on Newport line only	Dennis Barstow, Rodney Eagle, Jackson Blanton, Jack Query, Duane Erdmann, William Quinn, David Jennings, Robert Holton, Keh-gong Shih, William Renfro
6706-B	7-8 June	DB-10 to 1	BT	Dale Pillsbury, Robert Still, Robert Smith, Ronald Tipper, Kenneth Russell, June Pattullo, David Cutchin, Stephen Pond, Elizabeth Strong, Christopher Mooers
6706-C	9-14 June	DB-60 to 30, anchor station at DB-25, DB-20 to 1, anchor sta- tion at DB-7, DB-15 to 1	Optics and wave measurements	George Beardsley, Robert Smith, Robert Still, Dale Pillsbury, James Washburn, Diane Frisch- knecht, Jack Query, William Plank, Kendall Car- der, Ronald Tipper, Hasong Pak, Ronald Zaneveld, Steven Tucker, Kim Weers, Marshall Earle
6706-D	23-30 June	NH-362	MWT, OT, SMG, trace elements	Leonard Coleman, Rodney Eagle, Gary Hufford, Edward Nievard, Richard Gates, Charles Jenkens, Donald Edwards, George Rieck, Earl Wendling
6707-A	5-15 July	NH-5 to 185 KP-1 to 62	BT, drift, optics O_2 PO_4 , pH, alk, NO_3 , SiO_4 , ΣCO_2	Kiilo Park, Dennis Barstow, Jack Query, James Washburn, Milton Cissell, Wesley Bradford, Made- line Catalfomo, Diane Frischknecht, Hasong Pak, Emery Sutton, John Brooke, Louis Gordon, Stephen Hager, Asa Robinson, Douglas Coughenower, Yoshio Sugiyura
6708-D	29 Aug. - 1 Sept.	NH-3 to 165	BT, drift, GEK, optics measurements, O_2 , PO_4	Robert Still, John Brooke, James Washburn, Wil- liam Plank, Mark Jones, Milton Cissell, Dean Satterlee, Douglas Coughenower, Hasong Pak, Ken- dall Carder, George Yao
6710-A	16-19 Oct.	NH-3 to 165	BT, drift, GEK, secchi dick readings, towed thermistor, O_2 , PO_4 , NO_3 , SiO_4	Stephen Pond, Dennis Barstow, John Brooke, George Phelps, Kelson Slayman, Carl Fisher, Deryl Mc- Keel, Ronald Johnson, Thomas Curtin, Robert Hodg- son, Hewitt Jeter, Hasong Pak, Douglas Coughenower, Robert Still
6711-D	13-17 Nov.	NH-65	BT, MWT, OMN, VMN	Rodney Eagle, John Brooke, Michael Smiles, David Menzies, Gerald Romberg, Charles Brownell, John Butler, Gerald Fowler
6711-E	18-22 Nov.	NH-3 to 125	Drift, GEK, optics and wave measurements, secchi disk readings, O_2 , PO_4 , NO_3 , SiO_4	George Beardsley, Dennis Barstow, John Brooke, Clifford Trump, Henry Pittock, Thomas Curtin, Louis Gordon, Hasong Pak, Kendall Carder, Ronald Zaneveld, William Plank, Marshall Earle, Thomas Sholes, Douglas Coughenower, Zygmunt Kowalik

TABLE II. Hydrographic Data from the Newport Line for 1967.

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ⁶)	ΔD (dyn.m)
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NH-65 44 39.1 N 125.35.0 W DATE 14 JAN 67 1407 GCT WIRE 03 DRY 50.0 WET 49.5
WIND DIRECTION 23 VEL KTS BAR 27 SWELL DIRECTION 28 H 06 T 10 CLOUD 00 AMT 08 WEATHER 03

0	10.60	32.494	6.55	.53		2.8	3			0	10.60	32.50	24.93	304.6	0
10	10.60	32.490	6.60	.60		2.4	2			10	10.60	32.50	24.92	305.0	.030
30	10.62	32.490	6.54	.61		2.2	3			20	10.61	32.49	24.92	305.7	.061
50	10.60	32.511	6.57	.63		2.4	4			30	10.63	32.50	24.92	305.7	.092
75	10.11	32.957	5.46	1.27		12.3	11			50	10.60	32.52	24.94	304.2	.153
101	9.23	33.415	4.70	1.69		21.5	25			75	10.11	32.96	25.37	263.7	.224
125	8.26	33.566	4.37	1.70		21.6	25			100	9.27	33.40	25.85	218.3	.284
150	7.89	33.703	4.42	1.60		20.3	26			150	7.90	33.71	26.30	176.0	.382
175	7.43	33.822	3.95	1.84		23.9	31			200	7.23	33.88	26.53	154.8	.465
200*	7.23	33.874	3.61	2.03		28.0	41			250	6.60	33.94	26.67	142.3	.539
201	7.16	33.880	3.70	2.08		29.3	38			300	6.25	33.96	26.73	137.2	.609
250	6.60	33.939	2.86	2.16		28.1	43			400	5.50	34.05	26.89	122.7	.739
251*	6.71	33.943	2.86	2.24		34.2	51			500	4.98	34.12	27.01	111.6	.856
302*	6.11	33.961	2.37	2.50		36.6	58			600	4.55	34.18	27.11	103.3	.963
402*	5.49	34.051	1.34	2.87		42.8	76			700	4.21	34.25	27.20	94.9	1.063
603*	4.54	34.186	.37	3.09		42.4	92			800	3.94	34.32	27.27	87.8	1.154
802*	3.94	34.317	.24	3.23		46.6	121			1000	3.59	34.41	27.39	78.0	1.320
1005*	3.58	34.417	.25	3.31		47.2	131			1200	3.15	34.48	27.48	69.6	1.467
1205*	3.14	34.477	.44	3.36		47.5	143			1500	2.55	34.54	27.59	59.6	1.661
1406*	2.74	34.522	.66	3.29		46.5	151			2000	1.91	34.61	27.70	49.3	1.933
1607*	2.36	34.563	.97	3.08		46.4	165			2500	1.76	34.65	27.74	47.2	2.174
1806*	2.09	34.591	1.26	3.06		43.7	166								
2006*	1.91	34.615	1.56	3.17		45.1	169								
2204*	1.83	34.629	1.75	2.96		42.1	174								
2403*	1.77	34.642	2.00	2.96		42.7	174								
2600*	1.75	34.656	2.02			42.3	165								

NH-85 44 39.6 N 126 2.7 W DATE 14 JAN 67 2014 GCT WIRE 07 DRY 50.3 WET 49.3
WIND DIRECTION 21 VEL 10 KTS BAR 26 SWELL DIRECTION 28 H 07 T 10 CLOUD 04 AMT 08 WEATHER 11

0	10.52	32.496	6.69	.37		1.1	2			0	10.52	32.50	24.94	303.1	0
10	10.52	32.492	6.64	.44		1.2	2			10	10.52	32.50	24.94	303.6	.030
50	10.03	32.559	6.45	.57		3.3	5			20	10.40	32.51	24.97	300.8	.061
75	7.85	32.811	6.05	1.26		11.9	12			30	10.27	32.53	25.00	297.8	.090
100	7.69	33.210	5.04	1.46		19.6	21			50	10.03	32.56	25.07	291.4	.149
125	7.87	33.547	4.50	1.60		25.4	25			75	7.85	32.82	25.61	240.6	.216
150	7.68	33.786	3.66	1.70		27.8	32			100	7.69	33.21	25.94	209.0	.272
174	7.51	33.862	3.53	1.78		29.2	33			150	7.69	33.79	26.40	166.8	.366
200	7.36	33.945	2.86	1.89		33.8	38			200	7.36	33.95	26.57	151.3	.446
250	6.86	34.015	2.07	1.91		27.9	41			250	6.86	34.02	26.69	140.1	.518
301	6.07	33.997	2.02	1.96		29.1	42			300	6.09	34.00	26.78	132.4	.586
401	5.23	34.050	1.31	1.91		27.8	52			400	5.24	34.05	26.92	119.5	.712
600	4.54	34.188	.67	2.52		47.5	96			500	4.79	34.12	27.03	109.7	.827
799	4.02	34.314	.24	2.49		46.5	114			600	4.55	34.19	27.11	102.6	.933
998	3.45	34.404	.44	2.50		48.4	127			700	4.27	34.25	27.19	95.5	1.032
1196	3.14	34.468	.37	2.59		47.3	139			800	4.02	34.31	27.27	88.7	1.124
										1000	3.45	34.40	27.40	77.2	1.290
										1200	3.13	34.47	27.48	69.9	1.437

NH-105 44 39.0 N 126 30.7 W DATE 14 JAN 67 2338 GCT WIRE 08 DRY 51.5 WET 51.0
WIND DIRECTION 22 VEL 17 KTS BAR 25 SWELL DIRECTION 28 H 06 T 00 CLOUD 00 AMT 08 WEATHER 12

0	10.61	32.522	6.52	.57		2				0	10.61	32.53	24.95	302.7	0
10	10.62	32.522	6.59	.60		3.8	5			10	10.63	32.53	24.94	303.0	.030
30	10.59	32.520	6.54	.71		3.1	7			20	10.61	32.52	24.94	303.4	.061
50	10.57	32.532	6.47	.58		4.0	4			30	10.59	32.52	24.95	303.0	.091
75	8.28	33.155	5.11	1.08		17.3	21			50	10.57	32.54	24.96	302.1	.151
100	8.02	33.563	4.13	1.53		19.4	24			75	8.28	33.16	25.81	221.1	.217
125	7.66	33.786	3.66	1.55		23.0	32			100	8.02	33.57	26.17	187.4	.268
150	7.42	33.865	3.76	1.74		28.6	38			150	7.43	33.87	26.50	157.4	.354
175	7.22	33.902	3.02	1.80		32.6	45			200	6.93	33.95	26.63	145.7	.430
200	6.92	33.941	2.79	1.82		34.8	49			250	6.33	33.96	26.72	137.6	.501
201*	6.78	33.955	2.69	2.27		32.1	50			300	5.84	33.99	26.80	130.0	.567
250	6.33	33.955	2.77			36.8	54			400	5.30	34.05	26.92	119.9	.692
251*	6.12	33.955	2.79	2.40		35.6	57			500	4.93	34.15	27.03	109.1	.807
302*	5.83	33.991	2.02	2.98		37.3	55			600	4.62	34.23	27.14	100.5	.911
403*	5.29	34.057	1.24	2.96		41.2	66			700	4.29	34.29	27.21	93.4	1.008
604*	4.61	34.237	.49	3.22		43.7	99			800	3.98	34.33	27.28	87.5	1.099
804*	3.97	34.328	.25	3.38		45.6	114			1000	3.46	34.43	27.41	75.9	1.262
1006*	3.45	34.428	.34	3.18		45.2	116			1200	2.98	34.49	27.50	66.9	1.405
1206*	2.97	34.487	.59	3.06		43.7	129			1500	2.44	34.54	27.60	58.3	1.592
1409*	2.59	34.528	.76	3.20		45.8	142			2000	1.87	34.62	27.70	48.3	1.858
1610*	2.28	34.561	1.01	3.26		43.7	154			2500	1.75	34.64	27.73	47.5	2.097
1809*	2.05	34.599	1.34			42.1	158								
2008*	1.86	34.621	1.60			43.8	153								
2205*	1.82	34.630	1.76	3.08		43.3	167								
2403*	1.77	34.640	1.93			42.5	154								
2600*	1.74	34.648	2.15	2.87		37.4	164								

*indicates second cast where more than one used on one station

OBSERVED

INTERPOLATED

DERIVED

D	T	S	O ₂	PO ₄	pH	Alk.	NO ₃	SiO ₂	ΣCO ₂	Z	T	S	σ_t	S	ΔD
(m)	(°C)	(‰)	(ml/l)	(µM)		(meq/l)	(µM)	(µM)	(mM)	(m)	(°C)	(‰)		(x10 ⁶)	(dyn.m)

NH-125 44 39.1 N 126 59.1 W DATE 15 JAN 67 0535 GCT WIRE 02 DRY 51.5 WET 50.6
WIND DIRECTION 19 VEL 20 KTS BAR 24 SWELL DIRECTION 28 H 06 T 10 CLGUD 06 AMT 06 WEATHER 01

0	10.38	32.470	6.55	.60		2.9	1			0	10.38	32.47	24.94	302.8	0
10	10.40	32.473	6.72	.58		1.4	2			10	10.40	32.48	24.94	303.0	.030
49	10.41	32.473	6.57	.64		1.6	3			20	10.40	32.47	24.94	303.5	.061
74	8.58	33.284	4.70	1.40		13.8	14			30	10.41	32.47	24.94	303.7	.091
100	7.94	33.540	4.27	1.85		23.5	29			50	10.34	32.50	24.98	300.7	.151
124	7.73	33.725	3.86	2.02		24.6	27			75	8.54	33.30	25.89	214.4	.216
149	7.56	33.842	3.28	2.24		28.4	34			100	7.94	33.54	26.17	188.0	.266
174	7.23	33.893	3.21	2.22		30.3	36			150	7.55	33.84	26.46	160.9	.353
200	6.97	33.923	3.06	2.38		29.4	38			200	6.97	33.93	26.60	147.7	.430
250	6.57	33.980	2.25	2.52		34.5	52			250	6.57	33.99	26.70	138.9	.502
300	6.15	34.010	1.78	2.96		36.4	56			300	6.16	34.01	26.78	132.0	.570
400	5.34	34.066	1.09	2.74		36.8	68			400	5.34	34.07	26.93	119.2	.695
600	4.52	34.216	.39							500	4.84	34.14	27.04	108.5	.809
801	4.00	34.328	.24	2.95		44.8	101			600	4.53	34.22	27.14	100.3	.913
1001	3.45	34.426	.39	3.40		45.6	124			700	4.24	34.27	27.21	93.6	1.010
1202	3.03	34.485	.57							800	4.00	34.33	27.28	87.6	1.101
										1000	3.45	34.43	27.41	75.7	1.264
										1200	3.03	34.48	27.50	67.6	1.407

NH-145 44 38.1 N 127 27.1 W DATE 15 JAN 67 1228 GCT WIRE DRY 52.5 WET 50.8
WIND DIRECTION 28 VEL 18 KTS BAR 24 SWELL DIRECTION 28 H 06 T 08 CLOUD 06 AMT 08 WEATHER 02

0	9.87	32.388	6.72	.69		2.2	1			0	9.88	32.39	24.97	300.7	0
10	9.87	32.383	6.82	.74		3.4	10			10	9.88	32.39	24.96	301.2	.030
50	9.76	32.457	6.45	.78		5.5	4			20	9.84	32.40	24.98	299.9	.060
75	8.22	33.173	4.96	1.62		19.0	22			30	9.81	32.42	25.00	298.3	.090
100	7.97	33.454	4.13	1.79		23.6	29			50	9.76	32.46	25.04	294.7	.149
125	7.79	33.695	3.60	2.06		28.8	43			75	8.22	33.18	25.84	218.9	.214
150	8.16	33.932	2.54	2.26		31.4	40			100	7.97	33.46	26.09	194.8	.285
175	7.55	33.910	2.91	2.32		32.2	48			150	8.16	33.94	26.44	162.8	.355
200	7.05	33.934	2.77							200	7.06	33.94	26.60	147.9	.432
250	6.36	33.957	2.59							250	6.36	33.96	26.71	137.9	.504
301	5.81	33.965	2.28							300	5.82	33.96	26.78	131.5	.571
402	5.41	34.086	1.08	2.95		40.4	75			400	5.41	34.08	26.93	119.1	.696
603	4.49	34.222	.32	3.14		42.0	94			500	4.95	34.16	27.04	108.1	.810
804	3.95	34.336	.25	3.32		45.5	113			600	4.50	34.22	27.14	100.1	.914
1005	3.42	34.422	.54							700	4.21	34.28	27.22	92.8	1.010
1206	3.04	34.476	.45	3.12		44.5	141			800	3.96	34.33	27.29	86.6	1.100
										1000	3.43	34.42	27.41	75.9	1.262
										1200	3.05	34.47	27.49	68.5	1.406

NH-165 44 39.0 N 127 54.6 W DATE 15 JAN 67 1641 GCT WIRE 10 DRY 52.8 WET 47.5
WIND DIRECTION 29 VEL 22 KTS BAR 27 SWELL DIRECTION 30 H 05 T 05 CLOUD 08 AMT 04 WEATHER 03

0	10.01	32.526	6.72	.60		1.6	0			0	10.01	32.53	25.05	292.7	0
10	10.01	32.522	6.72	.64		2.3	2			10	10.01	32.53	25.05	293.2	.029
30	10.01	32.521	6.64	.62		1.5	3			20	10.01	32.52	25.04	293.7	.059
49	10.01	32.517	6.64	.68		2.1	4			30	10.01	32.53	25.05	293.6	.048
74	10.00	32.519	6.65	.77		1.8	2			50	10.01	32.52	25.04	294.5	.147
99	7.56	32.775	6.22	1.22		12.0	13			75	9.90	32.52	25.06	292.6	.220
124	7.48	33.238	5.63	1.44		14.6	21			100	7.53	32.79	25.64	238.3	.246
149	7.55	33.635	4.79	1.68		21.4	30			150	7.54	33.65	26.30	175.7	.390
173	7.35	33.823	4.37	1.81		25.3	39			200	7.10	33.90	26.57	151.5	.472
199*	7.17	33.901	3.75	1.88		27.7	34			250	6.31	33.93	26.69	139.6	.544
201	7.02	33.897	3.65	2.08		29.3	41			300	6.04	33.94	26.74	135.8	.613
248	6.32	33.899	3.68	2.15		30.4	46			400	5.12	33.98	26.88	123.4	.743
249*	33.919	3.46	2.10			30.9	43			500	4.62	34.06	27.00	111.7	.860
299*	6.05	33.943	2.82	2.44		35.6	54			600	4.35	34.16	27.11	102.6	.967
399*	5.13	33.978	1.86	2.69		42.3	73			700	4.12	34.25	27.20	94.0	1.066
598*	4.35	34.160	.59	3.00		46.7	94			800	3.93	34.33	27.28	86.9	1.166
797*	3.94	34.324	.24	3.28		47.5	112			1000	3.44	34.41	27.40	76.8	1.270
997*	3.45	34.408	.29	3.38		47.2	126			1200	3.04	34.47	27.48	69.0	1.366
1192*	3.06	34.465	.74	3.64		46.3	143			1500	2.42	34.53	27.59	58.8	1.687
1389*	2.62	34.507	.84	3.32		45.0	157			2000	1.90	34.61	27.70	49.1	1.927
1581*	2.29	34.550	1.09	3.14		46.2	170								
1768*	2.08	34.582	1.41	3.26		45.9	174								
1950*	1.91	34.607	1.68	3.10		44.2	163								
2124*	1.87	34.626	1.76	3.14		42.8	173								
2291*	1.78	34.634	1.92	2.90		43.4	167								

Second cast at NH-165 dragged on the bottom.

NH 5 44 39.1 N 124 10.4 W DATE 20 FEB 67 1952 GCT WIRE 00 DRY 50.7 WET 45.4
WIND DIRECTION 12 VEL 12 KTS BAR 27 SWELL DIRECTION 30 H 02 T 11 CLOUD 01 AMT 02 WEATHER 00

0	9.09	30.648	7.42	*						0	9.09	30.45	23.58	433.0	0
10	9.20	30.864	7.34	*						10	9.20	30.87	23.89	403.8	.042
15	9.31	31.172	7.18	*						20	9.56	31.44	24.28	366.5	.080
30	9.78	32.128	6.74	*						30	9.78	32.13	24.78	319.0	.115
40	9.09	33.213	4.58	*						50	8.80	33.448	3.94	206.6	.167

*By comparisons of deep oxygen samples taken on other cruises during the period of this data report it was determined that oxygen samples from this cruise are approximately 10 to 15% too high. The variability between samples is also greater than samples taken during other cruises. Oxygen samples taken during this cruise were run 3 to 6 days after the reagents were added.

OBSERVED

INTERPOLATED

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D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk. (meq/l)	NO ₃ (µM)	SiO ₂ (µM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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NH 85 44 39.2 N 126 31.0 W DATE 21 FEB 67 1407 GCT WIRE 03 DRY 49.0 WET 46.0
WIND DIRECTION 04 VEL 10 KTS BAR 29 SWELL DIRECTION 30 H 06 T 10 CLOUD 06 AMT 09 WEATHER 02

0	9.87	32.587	6.97							0	9.88	32.59	25.12	286.0	0
10	9.88	32.579	7.23							10	9.88	32.58	25.11	286.9	.029
30	9.90	32.590	6.83							20	9.89	32.58	25.11	287.4	.057
49	9.89	32.621	6.83							30	9.90	32.59	25.12	286.7	.086
74	9.58	33.000	5.92							50	9.88	32.63	25.15	283.8	.143
99	9.80	33.393	4.77							75	9.60	33.02	25.50	251.4	.210
123	8.64	33.661	3.92							100	9.76	33.41	25.78	225.4	.270
148	8.32	33.712	3.73							150	9.29	33.73	26.26	180.3	.371
173	7.96	33.892	3.07							200	7.67	33.94	26.52	156.1	.455
198	7.68	33.939	2.94							250	7.29	33.99	26.61	147.9	.531
247	7.33	33.993	2.52							300	6.62	34.00	26.71	138.8	.603
299	6.63	34.004	2.32							400	5.65	34.04	26.86	125.6	.735
398	5.67	34.035	1.72							500	5.00	34.10	26.99	113.4	.854
599	4.58	34.178	.65							600	4.58	34.18	27.10	104.0	.963
798	4.18	34.332	.33							700	4.35	34.26	27.19	95.9	1.063
999	3.57	34.412	.72							800	4.17	34.33	27.26	89.2	1.155
1198	3.07	34.467	.57							1000	3.57	34.41	27.39	78.0	1.322
										1200	3.06	34.47	27.48	69.2	1.469

NH 105 44 39.3 N 126 31.1 W DATE 21 FEB 67 2006 GCT WIRE 03 DRY 47.7 WET 44.1
WIND DIRECTION 08 VEL 08 KTS BAR 30 SWELL DIRECTION 32 H 06 T 11 CLOUD 06 AMT 07 WEATHER 02

0	9.90	32.572	7.03							0	9.90	32.58	25.10	287.6	0
25	9.82	32.566	7.03							10	9.81	32.57	25.11	286.9	.029
49	9.84	32.584	6.87							20	9.83	32.57	25.11	287.4	.057
74	9.60	32.607	6.83							30	9.83	32.57	25.11	287.7	.086
89	8.98	33.169	5.30							50	9.83	32.57	25.11	288.0	.144
99	8.98	33.342	4.74							75	9.55	32.64	25.21	278.3	.215
139	8.25	33.723	4.01							100	8.97	33.36	25.86	217.0	.276
163	7.75	33.823	4.01							150	8.01	33.78	26.34	172.6	.374
198	7.49	33.956	3.01							200	7.46	33.96	26.56	152.1	.455
223	7.13	33.970	2.91							250	6.93	34.00	26.66	142.8	.529
243	7.00	33.991	2.73							300	6.39	34.02	26.75	134.8	.598
301	6.38	34.018	2.21							400	5.51	34.07	26.90	121.5	.726
401	5.50	34.067	1.64							500	4.86	34.07	26.98	113.9	.844
601	4.41	34.092	.65							600	4.41	34.09	27.05	108.6	.955
802	3.97	34.344	.65							700	4.16	34.21	27.17	97.2	1.058
1004	3.46	34.422	.47							800	3.97	34.34	27.29	86.2	1.149
1199*	3.01	34.478	.65							1000	3.47	34.42	27.41	76.7	1.312
1205	3.01	34.476	.65							1200	3.01	34.48	27.49	67.8	1.456
1399*	2.67	34.524	.90							1500	2.48	34.54	27.59	58.9	1.646
1598*	2.30	34.552	1.18							2000	1.91	34.61	27.70	49.4	1.916
1797*	2.05	34.585	1.47							2500	1.75	34.64	27.73	47.8	2.159
1997*	1.91	34.612	1.72												

*By comparison of deep oxygen samples taken on other cruises during the period of this data report it was determined that oxygen samples from this cruise are approximately 10 to 15% too high. The variability between samples is also greater than samples taken during other cruises. Oxygen samples taken during this cruise were run 3 to 6 days after the reagents were added.

NH 125 44 39.0 N 126 59.0 W DATE 21 FEB 67 2321 GCT WIRE 06 DRY 50.0 WET 45.5
WIND DIRECTION 14 VEL 05 KTS BAR 29 SWELL DIRECTION 30 H 05 T 12 CLOUD 02 AMT 02 WEATHER 02

0	9.61	32.469								0	9.61	32.47	25.07	290.7	0
9	9.40	32.460								10	9.40	32.46	25.10	288.5	.029
48	9.33	32.458								20	9.38	32.46	25.10	288.5	.058
73	8.32	32.827								30	9.39	32.46	25.10	288.8	.087
82	7.82	33.157								50	9.27	32.47	25.12	286.7	.144
87	7.87	33.254								75	8.18	32.90	25.63	238.6	.210
97	7.94	33.512								100	7.93	33.56	26.18	186.6	.263
122	7.71	33.755								150	7.43	33.87	26.49	157.8	.349
146	7.48	33.854								200	6.83	33.94	26.63	144.8	.425
196	6.88	33.939								250	6.29	33.96	26.72	137.4	.495
245	6.34	33.953								300	5.89	34.00	26.80	130.0	.562
294	5.94	33.994								400	5.25	34.05	26.92	119.6	.687
394	5.28	34.046								500	4.85	34.13	27.03	109.5	.801
594	4.59	34.206								600	4.57	34.21	27.12	101.6	.907
794	4.08	34.334								700	4.31	34.28	27.21	94.1	1.005
995	3.48	34.411								800	4.06	34.34	27.28	87.8	1.095
1195	3.00	34.479								1000	3.47	34.41	27.40	76.8	1.260
										1200	2.99	34.48	27.50	67.3	1.404

OBSERVED

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D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S • (%)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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NH 025 44 39.1 N 124 38.6 W DATE 11 APR 67 0420 GCT WIRE 07 DRY 48.5 WET 45.0
WIND DIRECTION 00 VEL 20 KTS BAR 05 SWELL DIRECTION 31 H 09 T 09 CLOUD 05 AMT 06 WEATHER 03

0	9.68	32.068	6.79		.1	4		0	9.68	32.07	24.75	321.5	0	
10	9.68	32.074	6.87		.0	6		10	9.68	32.08	24.75	321.2	.032	
20	9.40	32.315	6.60		1.4	9		20	9.40	32.32	24.99	299.2	.063	
40	9.38	32.467	6.48		1.7	3		30	9.39	32.43	25.07	291.3	.093	
66	9.29	32.506	6.48		1.9	3		50	9.36	32.48	25.12	287.0	.150	
91	8.96	33.046	4.90		11.0	19		75	9.20	32.67	25.29	270.7	.220	
116	8.35	33.555	3.39		18.8	29		100	8.75	33.25	25.81	221.7	.282	
141	7.92	33.780			19.6	30		150	7.81	33.83	26.41	165.8	.379	
168	7.61	33.890	3.00		31.4	40								
192	7.33	33.935	2.74											

NH 035 44 39.5 N 124 52.4 W DATE 11 APR 67 1736 GCT WIRE 00 DRY 51.0 WET 49.5
WIND DIRECTION 00 VEL 20 KTS BAR 12 SWELL DIRECTION 32 H 09 T 09 CLOUD 06 AMT 01 WEATHER 01

0	9.58	32.069	6.94					0	9.58	32.07	24.76	319.9	0
10	9.56	32.063	6.90					10	9.56	32.07	24.76	320.2	.032
20	9.54	32.122	6.86					20	9.54	32.13	24.81	315.6	.064
30	9.41	32.379	6.63					30	9.41	32.38	25.03	294.7	.094
50	9.39	32.463	6.56					50	9.39	32.47	25.10	288.5	.153
76	9.19	32.721	5.76					75	9.20	32.71	25.32	248.3	.222
101	8.73	33.127	4.19					100	8.75	33.30	25.86	217.5	.283
127	8.60	33.453	3.81					150	8.19	33.73	26.27	178.7	.382
151	8.17	33.740	3.32					200	7.34	33.93	26.55	152.7	.465
177	7.85	33.846	2.98					250	6.50	34.00	26.73	136.7	.537
202	7.29	33.933	2.66					300	5.95	34.01	26.80	129.7	.604
252	6.47	34.002	1.98										
303	5.93	34.012	1.71										
353	5.60	34.045	1.37										

NH 045 44 39.0 N 125 6.7 W DATE 11 APR 67 2005 GCT WIRE 10 DRY 51.5 WET 48.5
WIND DIRECTION 34 VEL 20 KTS BAR 13 SWELL DIRECTION 32 H 08 T 09 CLOUD 08 AMT 01 WEATHER 01

0	9.70	32.388	6.74					0	9.70	32.39	24.99	298.1	0
21	9.70	32.386	6.74					10	9.79	32.34	24.94	303.4	.030
46	9.49	32.486	6.60					20	9.71	32.38	24.98	299.2	.060
71	9.03	32.891	5.40					30	9.65	32.40	25.01	297.3	.090
97	8.23	33.340	4.58					50	9.43	32.54	25.15	243.8	.148
121	8.18	33.604	3.94					75	8.89	32.96	25.57	244.5	.214
172	7.66	33.852	3.39					100	8.21	33.38	26.00	204.1	.270
223	7.03	33.959	2.66					150	7.93	33.78	26.35	171.1	.364
273	6.57	33.996	2.32					200	7.31	33.92	26.55	152.5	.445
374	5.46	34.011	1.60					250	6.78	33.98	26.68	141.6	.518
474	5.04	34.078	.95					300	6.25	34.00	26.76	134.2	.587
576	4.70	34.196	.47					400	5.31	34.02	26.89	122.3	.715
673	4.39	34.270	.34					500	4.95	34.11	27.00	112.2	.833
774	4.16		.29					600	4.62	34.22	27.13	101.6	.940
								700	4.32	34.26	27.19	95.5	1.038

NH 065 44 39.1 N 125 35.6 W DATE 12 APR 67 0230 GCT WIRE 02 DRY 47.0 WET 45.6
WIND DIRECTION 32 VEL 20 KTS BAR 14 SWELL DIRECTION 31 H 06 T 09 CLOUD 08 AMT 04 WEATHER 02

0	9.66	32.443	6.73		1.9	3		0	9.66	32.45	25.04	293.4	0
10	9.64	32.440	6.81		2.4	4		10	9.64	32.44	25.04	293.4	.029
20	9.54	32.466	6.76		2.7	5		20	9.54	32.47	25.08	290.1	.059
50	9.32	32.494	6.68		2.0	4		30	9.45	32.47	25.10	288.9	.087
75	9.21	32.637	6.27		4.8	11		50	9.32	32.50	25.14	285.1	.145
101	8.66	33.310	4.58		20.2	24		75	9.21	32.64	25.27	273.2	.215
126	8.23	33.608	3.89		18.1	24		100	8.68	33.28	25.85	218.2	.276
151	7.92	33.800	3.37		27.8	40		150	7.93	33.79	26.36	170.1	.373
177	7.64	33.899	3.11		30.6	43		200	7.32	33.93	26.56	152.4	.454
201	7.31	33.929	3.06		49			250	6.73	33.97	26.67	141.7	.527
251	6.72	33.975	2.58		34.4	52		300	6.28	33.98	26.74	135.9	.597
301	6.27	34.983	2.19		34.9	57		400	5.53	34.04	26.88	124.0	.726
400	5.52	34.031	1.45		34.3	62		500	4.99	34.11	27.00	112.6	.845
561	4.74	34.161			39.5	88		600	4.55	34.22	27.13	100.8	.951
800	3.98	34.330			43.6	119		700	4.18	34.31	27.25	90.1	1.047
808*	3.98	34.321	.24		45.0	117		800	3.98	34.33	27.29	86.9	1.135
1000	3.49	34.405	.29		43.9	129		1000	3.49	34.41	27.39	77.3	1.299
1008*	3.53	34.411	.31					1200	3.16	34.48	27.48	69.3	1.446
1208*	3.12	34.483	.45		45.6	142		1500	2.54	34.54	27.58	59.9	1.639
1409*	2.70	34.523	.65		45.3	153		2000	1.92	34.61	27.69	50.0	1.914
1608*	2.37	34.551	.90		44.5	162		2500	1.76	34.64	27.73	48.0	2.158
1808*	2.10	34.581	1.26		43.4	169							
2007*	1.92	34.607	1.58										
2205*	1.82	34.625	1.69		42.3	174							
2403*	1.78	34.637	1.89		43.2	173							
2600*	1.75	34.641	2.02		42.8	179							

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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NH 085 44 39.1 N 126 32.6 W DATE 12 APR 67 0836 GCT WIRE 02 DRY 46.0 WET 42.9
WIND DIRECTION 27 VEL 12 KTS BAR 15 SWELL DIRECTION 31 H 08 T 10 CLOUD 06 AMT 08 WEATHER 02

0	9.59	32.514	6.79							0	9.59	32.52	25.11	287.0	0
20	9.58	32.510	6.80							10	9.58	32.51	25.11	287.6	.029
51	9.59	32.512	6.69							20	9.58	32.51	25.11	287.5	.057
76	8.66	33.055	5.16							30	9.58	32.51	25.11	287.9	.046
101	8.77	33.507	4.03							50	9.59	32.51	25.11	288.2	.144
126	8.70	33.680	3.39							75	8.70	33.03	25.65	236.7	.209
151	8.32	33.799	3.23							100	8.76	33.49	26.00	203.7	.264
177	8.12	33.866	2.90							150	8.34	33.80	26.30	175.9	.359
202	7.67	33.917	2.90							200	7.71	33.91	26.49	158.9	.443
252	7.13	33.967	2.58							250	7.15	33.97	26.61	148.0	.520
302	6.61	34.000	2.08							300	6.63	34.00	26.71	139.3	.592
402	5.56	34.033	1.44							400	5.58	34.03	26.87	124.9	.724
604	4.56	34.183	.42							500	4.95	34.10	26.99	112.9	.842
804	4.04	34.344	.24							600	4.57	34.18	27.10	103.9	.951
1003	3.61	34.415	.29							700	4.28	34.27	27.20	94.7	1.050
1202	3.12	34.475	.45							800	4.05	34.34	27.28	87.1	1.141
										1000	3.62	34.41	27.39	78.4	1.306
										1200	3.13	34.47	27.48	69.4	1.454

NH 105 44 38.9 N 126 32.3 W DATE 12 APR 67 1245 GCT WIRE 03 DRY 49.0 WET 47.0
WIND DIRECTION 24 VEL 15 KTS BAR 15 SWELL DIRECTION 30 H 07 T 09 CLOUD 06 AMT 08 WEATHER 02

0	9.49	32.556	6.69							0	9.49	32.56	25.16	282.4	0
10	9.48	32.553	6.76							10	9.48	32.56	25.16	282.6	.028
20	9.48	32.558	6.74							20	9.48	32.56	25.16	282.4	.056
30	9.48	32.558	6.74							30	9.48	32.56	25.16	282.5	.085
50	9.45	32.889	6.71							50	9.45	32.89	25.42	257.9	.139
76	8.44		5.56							75	8.48	33.13	25.76	226.2	.199
101	7.95	33.335	4.74							100	7.96	33.33	25.99	204.4	.253
126	7.65	33.634	4.40							100	7.49	33.77	26.41	166.0	.346
151	7.48	33.769	4.10							150	7.49	33.91	26.58	150.3	.425
177	7.31	33.867	3.39							200	7.07	33.91	26.70	139.2	.497
178*	7.29	33.869	3.36							250	6.52	33.97	26.70	131.7	.565
202	7.00	33.913	3.31							300	6.01	33.99	26.78	121.0	.691
203*	6.93	33.905	3.31							400	5.34	34.05	26.91	110.1	.807
252*	6.50	33.982	2.34							500	4.86	34.12	27.02	101.4	.912
303*	5.98	33.995	1.95							600	4.50	34.20	27.13	93.8	1.010
404*	5.32	34.048	1.16							700	4.22	34.27	27.21	87.4	1.100
606*	4.48	34.206	.35							800	3.99	34.33	27.28	87.4	1.265
808*	3.97	34.332	.24							1000	3.53	34.42	27.40	77.2	1.410
1010*	3.51	34.422	.39							1200	3.02	34.47	27.49	68.2	1.601
1209*	3.00	34.476	.42							1500	2.48	34.54	27.59	59.2	1.873
1408*	2.66	34.521	.65							2000	1.89	34.61	27.69	49.6	1.002
1608*	2.29	34.553	1.00							2500	1.76	34.63	27.72	48.5	1.250
1806*	2.04	34.583	1.35												
2004*	1.89	34.606	1.55												
2201*	1.83	34.615	1.76												
2396*	1.79	34.626	1.87												
2590*	1.74	34.638	2.10												

NH 125 44 39.2 N 126 59.0 W DATE 12 APR 67 1833 GCT WIRE 02 DRY 47.9 WET 47.1
WIND DIRECTION 28 VEL 16 KTS BAR 12 SWELL DIRECTION 30 H 06 T 09 CLOUD 06 AMT 08 WEATHER 02

0	9.40	32.504	6.76							0	9.40	32.51	25.13	284.9	0
20	9.38	32.508	6.77							10	9.38	32.51	25.14	284.8	.028
51	9.37	32.508	6.77							20	9.38	32.51	25.14	284.6	.057
76	8.52	33.104	5.02							30	9.38	32.51	25.14	285.0	.085
101	7.94	33.473	4.02							50	9.38	32.51	25.14	285.3	.142
126	7.78	33.740	3.48							75	8.56	33.08	25.71	231.2	.207
151	7.62	33.851	3.23							100	7.96	33.46	26.10	194.4	.260
177	7.29	33.916	3.06							150	7.53	33.85	26.46	160.4	.349
201	6.90	33.934	2.90							200	6.92	33.93	26.62	146.5	.426
252	6.46	33.978	2.19							250	6.47	33.98	26.71	138.2	.497
301	5.93	33.986	1.97							300	5.94	33.99	26.79	131.4	.564
402	5.34	34.072	1.15							400	5.35	34.07	26.92	119.3	.689
603	4.58	34.243	.29							500	4.93	34.16	27.04	108.1	.803
804	3.94	34.360	.23							600	4.59	34.24	27.15	99.6	.907
1003	3.41	34.436	.39							700	4.26	34.31	27.23	91.5	1.002
1202	2.91	34.483	.55							800	3.95	34.36	27.31	84.8	1.090
										1000	3.42	34.44	27.42	74.6	1.250
										1200	2.91	34.48	27.51	66.4	1.390

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	8 (x10 ⁵)	ΔD (dyn.m)
NH 145	44	39.2	N	126	26.6	W	DATE 12 APR 67	2220 GCT	WIRE 03	DRY 51.0	WET 49.0				
WIND DIRECTION 26 VEL 11 KTS	BAR 11	SWELL DIRECTION 29 H 04 T 04	CLOUD 06 AMT 08 WEATHER 02												
0	9.40	32.528	6.74							0	9.40	32.53	25.15	283.1	0
20	9.36	32.520	6.77							10	9.38	32.52	25.15	283.5	.028
51	9.31	32.508	6.74							20	9.36	32.52	25.15	283.4	.057
76	8.01	33.140	5.00							30	9.34	32.52	25.15	283.9	.085
101	7.80	33.550								50	9.32	32.51	25.15	284.4	.142
126	7.60	33.745								75	8.06	33.11	25.81	221.5	.205
150	7.30	33.835								100	7.81	33.54	26.18	186.6	.256
176	6.90	33.874								150	7.31	33.84	26.49	157.9	.342
201	6.77	33.922								200	6.77	33.92	26.63	145.6	.418
251	6.25	33.951								250	6.26	33.95	26.72	137.4	.489
301	5.80	33.980								300	5.81	33.98	26.80	130.3	.556
401	5.20	34.058								400	5.20	34.06	26.93	118.5	.680
602	4.39	34.216								500	4.75	34.14	27.05	107.6	.793
803	3.94	34.352								600	4.40	34.21	27.15	99.3	.896
1004	3.35	34.427								700	4.16	34.29	27.23	91.7	.992
1204	2.95	34.479								800	3.95	34.35	27.30	85.3	1.080
										1000	3.36	34.43	27.42	74.6	1.240
										1200	2.96	34.48	27.50	67.2	1.382

NH 165 44 39.5 N 127 54.4 W DATE 13 APR 67 0249 GCT WIRE 02 DRY 49.0 WET 47.5
WIND DIRECTION 25 VEL 12 KTS BAR 09 SWELL DIRECTION 29 H 06 T 09 CLOUD 06 AMT 08 WEATHER 03

0	9.31	32.510	6.74		3.5	2		0	9.31	32.51	25.15	283.1	0
10	9.30	32.504	6.81		2.1	4		10	9.30	32.51	25.15	283.5	.028
30	9.27	32.506	6.77		1.6	1		20	9.28	32.50	25.15	283.6	.057
51	9.27	32.508	6.74		2.3	1		30	9.27	32.51	25.16	283.2	.085
76	8.87	32.677	6.05		7.4	9		50	9.27	32.51	25.15	283.7	.142
101	8.22	33.448	4.27			26		75	8.89	32.66	25.33	266.9	.211
126	7.95	33.734	3.63		18.9	26		100	8.24	33.42	26.02	201.9	.269
152*	7.67	33.829	2.98		23.3	29		150	7.69	33.83	26.42	164.4	.361
177*	7.31	33.912	2.81		31.2	42		200	7.07	33.95	26.61	147.0	.438
201*	7.06	33.955	2.69		32.1	48		250	6.47	33.99	26.72	136.8	.509
251*	6.46	33.995	2.05		33.7	51		300	5.95	34.00	26.80	130.2	.576
301*	5.94	34.004	1.84		38.7	64		400	5.33	34.07	26.92	119.3	.701
402*	5.32	34.068	1.05					500	4.89	34.14	27.03	109.4	.815
603*	4.54	34.207	.32			81		600	4.55	34.20	27.12	101.8	.921
804*	3.98	34.334	.34		45.3	111		700	4.25	34.27	27.21	93.9	1.018
1003*	3.49	34.415	.24			132		800	3.99	34.33	27.28	87.2	1.109
1204*	2.99	34.475	.45		45.9	143		1000	3.50	34.41	27.40	77.1	1.273
1405*	2.64	34.515	.65		43.9	151		1200	3.00	34.47	27.49	68.0	1.418
1605*	2.32	34.554	.95		44.7	160		1500	2.48	34.53	27.59	59.4	1.609
1805*	2.06	34.581	1.31		40.1	171		2000	1.92	34.60	27.69	50.1	1.882
2006*	1.92	34.605	1.47		43.0	177							
2203*	1.82	34.626	1.85		41.5	173							
2402*	1.78	34.632	2.00		40.6	178							

NH-45 44.39.3 N 125.6.7 W DATE 10 MAY 67 1446 GCT WIRE 00 DRY 50.0 WET 48.5
WIND DIRECTION 20 VEL 06 KTS BAR 10 SWELL DIRECTION 30 H 06 T 09 CLOUD 08 AMT 06 WEATHER 01

0	10.98	32.089	6.65		6		0	10.98	32.09	24.55	340.8	0	
10	10.98	32.109	6.79	.47		.4	8	10	10.98	32.11	24.56	339.5	.034
20	10.75	32.279	6.84	.54		.9	5	20	10.75	32.28	24.73	323.3	.067
30	10.17	32.414	6.98	.79		.1	3	30	10.17	32.42	24.94	304.0	.099
51	9.56	32.516	6.73	.81		2.6	3	50	9.58	32.51	25.11	287.9	.158
76	9.04	32.597	6.09	1.74		6.1	8	75	9.06	32.59	25.25	274.7	.228
101	8.72	33.161	4.97	2.24		16.9	22	100	8.73	33.14	25.73	229.8	.291
152	7.98	33.782	3.44	2.23		27.8	41	150	8.01	33.77	26.33	172.9	.392
177	7.75	33.859	3.20	2.48		30.8	42	200	7.38	33.91	26.54	154.2	.473
202	7.34	33.918	2.85	2.42		31.9	46	250	6.71	33.98	26.68	141.3	.547
252	6.69	33.978	2.26	2.71		32.5	53	300	6.25	34.00	26.75	134.7	.616
303	6.23	33.996	2.08	2.75		37.0	60	400	5.39	34.06	26.91	120.8	.744
404	5.36	34.059	1.22	3.19		35.1	65	500	4.90	34.14	27.03	109.2	.859
506	4.88	34.145				41.3	81						

OBSERVED

INTERPOLATED

DERIVED

D (ml)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (μeq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (ml)	T (°C)	S (%)	σ _t (x10 ³)	8 (dpm/ml)	ΔD
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NH-65 44 40.2 N 125 34.8 W DATE 10 MAY 67 2033 GCT WIRE 00 DRY 53.0 WET 49.0
WIND DIRECTION VEL 00 KTS BAR 12 SWELL DIRECTION 30 H 06 T 08 CLOUD 08 AMT 04 WEATHER 03

0	11.29	32.220	6.70	0.51		0.01	002			0	11.29	32.22	24.59	336.4	0
10	10.87	32.220	6.74	0.44		0.03	005			10	10.88	32.22	24.67	329.5	.033
20	10.52	32.247	6.87	0.60		0.04	001			20	10.52	32.25	24.75	321.9	.066
30	10.24	32.262	6.89	0.60		0.08	001			30	10.26	32.27	24.80	316.7	.098
51	9.37	32.317	6.41	0.75		0.34	003			50	9.41	32.31	24.98	300.2	.149
76	9.29	32.559	6.10	0.86		0.63	005			75	9.29	32.54	25.18	281.8	.232
101	8.67	33.287	4.33	1.62		1.63	016			100	8.70	33.26	25.83	220.3	.295
126	8.38	33.598	3.59	1.65		2.36	020			150	7.96	33.79	26.35	171.0	.303
152	7.92	33.798	3.12			2.88				200	7.54	33.90	26.50	157.4	.475
201	7.53	33.900	2.76	1.98		2.27	030			250	7.08	33.96	26.61	147.6	.581
301	6.57	33.990	2.10	2.27		2.48	040			300	6.58	33.99	26.71	139.4	.623
402	5.57	34.016	1.59	2.43		2.81	051			400	5.59	34.02	26.85	126.3	.786
603	4.66	34.192	0.40	3.16		0.96				500	5.02	34.09	26.98	114.0	.876
804*	4.08	34.328	0.32	3.05		3.77	092			600	4.67	34.19	27.10	104.3	.945
805	4.06	34.320	0.24	3.16		4.22	107			700	4.38	34.26	27.18	96.5	1.045
1006*	3.55	34.414	0.37	3.10						800	4.12	34.33	27.26	89.2	1.178
1196	3.09	34.472	0.43	3.36		4.72	144			1000	3.57	34.39	27.37	79.9	1.347
1408*	2.70	34.513	0.64	3.31		4.64	151			1200	3.08	34.47	27.48	69.0	1.496
1607*	2.13	34.555	0.96							1500	2.52	34.53	27.58	59.9	1.649
1807*	2.06	34.577	1.22	3.05		4.36				2000	1.92	34.60	27.69	50.3	1.964
2005*	1.92	34.603	1.62	2.92		3.84	159			2500	1.76	34.64	27.73	48.1	2.209
2201*	1.81	34.621	1.86	2.96											
2396*	1.78	34.633	1.89	2.91											
2584*	1.75	34.642	2.18	2.97											
						3.88	172								

NH-85 44 39.3 N 126 3.5 W DATE 11 MAY 67 0112 GCT WIRE 0 DRY 52.5 WET 47.9
WIND DIRECTION 31 VEL 04 KTS BAR 13 SWELL DIRECTION 31 H 07 T 08 CLOUD 8 AMT 5 WEATHER 2

0	11.22	31.827	.36			1.1	2			0	11.22	31.83	24.30	364.2	0
10	10.90	31.861	.45			.8	3			10	10.90	31.87	24.38	356.5	.036
20	10.59	32.466	.48			.8	2			20	10.59	32.47	24.91	306.8	.069
30	9.90	32.492	.49			1.7				30	9.90	32.50	25.04	294.0	.099
51	9.69	32.543	.76			2.6	4			50	9.70	32.54	25.11	288.0	.157
76	8.92	32.873	1.20			11.0	8			75	8.96	32.86	25.47	253.5	.225
101	8.23	33.354	1.83			16.7	19			100	8.25	33.33	25.96	208.0	.283
126	7.96	33.677	2.08			26.2	35			150	7.53	33.83	26.45	161.6	.375
152	7.49	33.840	2.19			25.5	33			200	7.01	33.92	26.60	148.4	.453
202	7.00	33.925	2.15			32.8	44			250	6.48	33.97	26.70	138.7	.524
303	5.95	34.001	2.36			33.6	54			300	5.98	34.00	26.79	130.9	.592
404	5.26	34.045	3.01			41.1	75			400	5.28	34.04	26.91	120.5	.717
604	4.52	34.217	3.14			38.4	83			500	4.84	34.12	27.03	109.6	.832
803	3.98	34.325	3.15			37.7	96			600	4.53	34.21	27.13	100.9	.938
1000	3.47	34.414	3.32			43.2	120			700	4.25	34.27	27.21	93.7	1.035
1192	3.05	34.497				46.4	147			800	3.99	34.32	27.28	87.7	1.126
										1000	3.47	34.42	27.40	76.4	1.290
										1200	3.03	34.50	27.51	66.4	1.432

NH-105 44 39.1 N 124 31.5 W DATE 11 MAY 67 0720 GCT WIRE 00 DRY 49.6 WET 47.2
WIND DIRECTION 29 VEL 10 KTS BAR 15 SWELL DIRECTION 30 H 06 T 08 CLOUD 08 AMT 06 WEATHER 02

0	11.24	31.841	6.68	0.40		0.07	010			0	11.24	31.85	24.31	363.5	0
10	11.05	31.829	6.89	0.34		0.02	008			10	11.05	31.83	24.33	361.4	.036
20	10.64	32.023	7.31	0.35		0.04	005			20	10.64	32.03	24.55	340.4	.071
30	9.99	32.384	7.69	0.34		0.02	002			30	9.99	32.39	24.94	303.4	.104
51	9.47	32.490	6.90	0.44		0.16	003			50	9.48	32.48	25.10	288.6	.163
76	8.91	32.968	5.57	1.25		1.59	017			75	8.93	32.95	25.55	246.5	.230
101	8.33	33.381	4.63	1.52		1.40	018			100	8.35	33.37	25.97	207.0	.286
126	8.13	33.636	4.12	1.53		1.35	018			150	7.80	33.79	26.38	168.4	.390
151	7.79	33.798	3.60	1.66		1.64	022			200	7.42	33.92	26.54	154.4	.461
201	7.41	33.919	3.08	2.07		2.84	038			250	6.90	33.97	26.65	144.3	.535
302	6.33	33.992	2.32	2.22		2.76	045			300	6.35	33.99	26.74	136.2	.605
403	5.51	34.055	1.27	2.44		2.96	054			400	5.53	34.05	26.89	122.8	.735
604	4.48	34.212	0.90	3.36		4.25	082			500	4.93	34.13	27.02	110.3	.841
803	3.99	34.339	0.59	3.23		4.28	090			600	4.49	34.21	27.13	100.8	.957
1006*	3.56	34.415	0.38	3.40		4.13				700	4.21	34.28	27.22	92.9	1.054
1208*	3.11	34.475	0.43	3.15		4.16	129			800	4.00	34.34	27.29	86.8	1.144
1409*	2.72	34.516	0.64							1000	3.57	34.41	27.39	78.0	1.308
1609*	2.36	34.545	1.04	2.91		3.81	142			1200	3.13	34.47	27.48	69.5	1.456
1808*	2.09	34.574	1.20			3.89				1500	2.55	34.53	27.58	60.5	1.640
2006*	1.93	34.601	1.57							2000	1.93	34.60	27.68	50.5	1.958
2202*	1.83	34.619	1.71							2500	1.78	34.64	27.73	48.3	2.175
2397*	1.80	34.630	1.87	2.97											
2587*	1.75	34.644	2.02												

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OBSERVED

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D	T	S	O ₂	PO ₄	pH	Alk.	NO ₃	SiO ₂	ΣCO ₂	Z	T	S	σ _t	δ	ΔD
(m)	(°C)	(‰)	(ml/l)	(µM)		(meq/l)	(µM)	(µM)	(mM)	(m)	(°C)	(‰)		(x10 ⁻⁵)	(dyn.m)

NH-125 44 39.6 N 126 58.8 W DATE 11 MAY 67 1032 GCT WIRE 09 DRY 49.0 WET 46.0
WIND DIRECTION 31 VEL 10 KTS BAR 16 SWELL DIRECTION 30 H 05 T08 CLOUD 08 AMT 01 WEATHER 02

0	10.95	32.412		0	10.95	32.42	24.80	316.4	0
10	10.78	32.466		10	10.78	32.47	24.87	309.8	.031
20	10.50	32.506		20	10.50	32.51	24.95	302.4	.062
30	9.76	32.516		30	9.76	32.52	25.08	290.0	.092
51	8.89	32.541		50	8.92	32.54	25.23	276.2	.148
76	8.22	32.902		75	8.24	32.88	25.60	241.0	.213
101	8.13	33.440		100	8.13	33.42	26.04	200.0	.268
126	7.88	33.635		150	7.53	33.79	26.42	164.4	.359
152	7.50	33.806		200	6.95	33.91	26.60	148.5	.437
201	6.94	33.913		250	6.45	33.96	26.70	139.0	.509
301	6.01	33.985		300	6.02	33.98	26.78	132.5	.577
401	5.32	34.043		400	5.33	34.04	26.91	121.1	.704
601	4.45	34.186		500	4.83	34.11	27.02	110.4	.819
799	3.89	34.321		600	4.45	34.19	27.12	102.1	.925
994	3.45	34.407		700	4.14	34.26	27.21	93.8	1.023
1185	3.05	34.473		800	3.89	34.32	27.29	86.7	1.114
				1000	3.44	34.41	27.40	76.7	1.277
				1200	3.02	34.48	27.49	67.9	1.421

NH-145 44 39.1 N 127 26.7 W DATE 11 MAY 67 1350 GCT WIRE 00 DRY 49.1 WET 45.0
WIND DIRECTION 32 VEL 06 KTS RAR 17 SWELL DIRECTION 30 H 05 T 08 CLOUD 08 AMT 03 WEATHER 02

0	10.40	32.517	.50		.8	3		0	10.40	32.52	24.98	299.6	0
10	10.36	32.514	.49		.5	2		10	10.36	32.52	24.98	299.4	.030
20	10.27	32.514	.40		.2	3		20	10.27	32.52	25.00	298.1	.060
30	9.86	32.514	.39		.5	1		30	9.86	32.52	25.07	291.7	.089
51	9.16	32.522	.56		1.3	5		50	9.19	32.52	25.18	281.5	.147
76	8.63	32.686	.94		6.8	6		75	8.65	32.67	25.38	262.4	.215
101	7.96	33.199	1.39		14.8	20		100	7.98	33.18	25.87	215.9	.274
126	8.02	33.564	1.69		20.0	26		150	7.81	33.73	26.33	172.8	.371
152	7.78	33.743	2.17		32.5	41		200	6.97	33.93	26.61	147.4	.452
201	6.95	33.933	2.42		33.9	51		250	6.31	34.00	26.75	134.1	.522
302	5.79	34.022	2.78		39.1	67		300	5.81	34.02	26.83	127.2	.587
402	5.13	34.096	2.98		41.5	84		400	5.14	34.09	26.97	115.0	.708
603	4.37	34.239	3.10		42.6	105		500	4.70	34.17	27.08	104.7	.818
804	3.87	34.343	3.28		44.6	115		600	4.38	34.24	27.17	97.4	.919
1002	3.39	34.427	3.29			137		700	4.11	34.29	27.24	90.8	1.013
1197	2.97	34.470	3.48		45.2			800	3.88	34.34	27.30	85.2	1.101
								1000	3.39	34.43	27.42	75.0	1.261
								1200	2.96	34.47	27.49	67.8	1.404

NH-165 44 39.1 N / 127 55.0 W DATE 11 MAY 67 1930 GCT WIRE 00 DRY 51.0 WET 49.0
WIND DIRECTION 29 VEL 06 KTS BAR 20 SWELL DIRECTION 30 H 05 T 09 CLOUD 06 AMT 08 WEATHER 02

OBSERVED

INTERPOLATED

DERIVED

D T S O₂ PO₄ pH Alk. NO₃ SiO₂ ΣCO₂ Z T S σ_t 8 ΔD
 (m) (°C) (‰) (ml/l) (µM) (meq/l) (µM) (µM) (mM) (m) (°C) (‰) (x10⁵) (dyn.m)
 NH-45 44 39.1 N 125 6.7 W DATE 13 MAY 67 0510 GCT WIRE 01 DRY 52.2 WET 49.0
 WIND DIRECTION 000 VEL 10 KTS BAR 30 SWELL DIRECTION 30 H 04 T 09 CLOUD 08 AMT 02 WEATHER 01

DATA FOR 1000Z 10 MAY 1998 30 DEGREES DIRECTION 30 KTS 041004Z CLOUDS 08 AMT 02 WEATHER 01

0	11.92	31.794	7.03	.33		.0	5		0	11.92	31.80	24.15	378.7	0
10	10.76	32.331	7.35	.43		.0	1		10	10.76	32.34	24.77	319.4	.035
20	10.13	32.305	7.45	.40		.0	2		20	10.13	32.31	24.86	311.3	.066
30	9.77	32.448	7.37	.50		.2	1		30	9.77	32.45	25.03	295.2	.097
51	9.31	32.539	6.84	.76		4.5	6		50	9.32	32.54	25.17	282.3	.154
76	9.04	32.752	6.09	.89		6.4	7		75	9.05	32.74	25.37	263.4	.223
110	8.51	33.234	4.84	1.37		15.0	18		100	8.67	33.08	25.70	232.7	.285
152	8.01	33.747	3.68	2.06		28.3	36		150	8.03	33.73	26.30	176.4	.387
177	7.73	33.862	3.43	2.17		30.3	41		200	7.45	33.91	26.52	155.7	.470
202	7.43	33.910	3.12	2.27		31.6	47		250	6.86	33.97	26.66	143.5	.545
252	6.84	33.976	2.80	2.41		34.2	55		300	6.30	34.00	26.75	135.3	.614
303	6.27	33.996	2.47	2.60		36.3	61		400	5.49	34.04	26.89	123.1	.744
403	5.47	34.043	1.68	2.88		40.3	78		500	4.99	34.11	27.00	112.7	.861
502	4.98	34.108	1.12	3.05		42.9	87							

NH-35 44 39.2 N 124 53.2 W DATE 12 MAY 67 0700 GCT WIRE 00 DRY 53.0 WET 49.0
WIND DIRECTION 01 VEL 10 KTS BAR 30 SWELL DIRECTION 30 H 03 T 09 CLOUD 08 AMT 02 WEATHER 02

0	11.70	31.437		0	11.70	31.44	23.91	401.2	0
10	10.91	31.692		10	10.91	31.70	24.25	369.2	.039
20	10.00	32.299		20	10.00	32.30	24.88	309.7	.072
30	9.45	32.361		30	9.45	32.37	25.01	296.7	.103
52	9.15	32.519		50	9.18	32.50	25.16	282.9	.161
76	8.92	32.984		75	8.93	32.96	25.56	245.3	.227
101	8.46	33.460		100	8.48	33.44	26.01	203.2	.283
126	8.13	33.682		150	7.72	33.83	26.42	164.7	.375
152	7.69	33.836		200	7.23	33.94	26.58	150.3	.453
176	7.46	33.906							
202	7.21	33.940							

NH-25 44 38.8 N 124 38.6 W DATE 13 MAY 67 0935 GCT WIRE 00 DRY 51.7 WET 48.3
WIND DIRECTION 00 VEL 10 KTS BAR 30 SWELL DIRECTION 30 H 03 T 08 CLOUD 08 ANT 02 WEATHER 02

0	11.89	31.572	6.97	.42		.7	5		0	11.89	31.58	23.98	394.6	0
10	11.83	31.591	7.05	.56		.5	4		10	11.83	31.60	24.01	392.3	.039
20	11.16	31.879	7.31	.45		.4	5		20	11.16	31.88	24.35	359.7	.077
41	10.12	31.870	7.31	.44			4		30	10.62	31.87	24.44	351.5	.112
66	9.12	32.448	6.82	.74		2.7	2		50	9.71	32.07	24.74	323.0	.180
91	8.81	32.571	6.49	.99		7.2	6		75	8.97	32.50	25.19	280.1	.255
116	8.41	33.002	5.40	1.33		13.1	14		100	8.66	32.71	25.41	260.1	.323
142	8.18	33.374	4.49	1.75		19.1	22		150	8.11	33.45	26.07	197.9	.437
167	7.97	33.581	3.92	1.78		19.7	25							
192	7.75	33.678	2.60	2.03		23.8	34							

NH-15 44 39.1 N 124 24.5 W DATE 13 MAY 63 1008 GCT WIRE 03 DRY 51.0 WET 48.2
WIND DIRECTION 00 VEL 10 KTS BAR 30 SWELL DIRECTION 30 H 03 T OR CLOUD 08 AMT 01 WEATHER 02

0	11.14	30.360		0	11.14	30.36	23.18	471.4	0
10	10.80	30.795		10	10.80	30.80	23.57	433.7	.045
20	10.10	31.844		20	10.10	31.85	24.50	345.0	.084
30	9.70	32.387		30	9.70	32.39	24.99	298.6	.116
51	9.01	32.508		50	9.04	32.50	25.19	280.6	.174
76	8.40	33.300		75	8.42	33.25	25.87	216.0	.236

NH-5 44 39.3 N 120° 10.6 W DATE 13 MAY 67 1140 GCT WIRE 01 DRY 50.3 WET 47.7
WIND DIRECTION 02 VEL 07 KTS BAR 30 SWELL DIRECTION 29° H 03 T 09 CLOUD 01 AMT 01 WEATHER 2

0	10.78	31.255	7.05	.66	3.5	12	0	10.78	31.26	23.93	399.2	0
10	9.49	32.339	6.65	.89	5.1	11	10	9.49	32.34	24.99	298.6	.035
20	8.52	32.486	5.22	1.43	14.4	18	20	8.52	32.89	25.57	24.37	.062
30	8.28	33.380	3.97	1.82	22.2	29	30	8.28	33.38	25.99	203.7	.084
39	8.09	33.647	3.14	2.24	26.6	38	50	7.86	33.75	26.34	170.7	.122
51	7.84	33.762	2.93	2.35	24.3	47						

WIND DIRECTION VEL 00 KTS BAR 20 SWELL DIRECTION 28 H 03 T 06 CLOUD 06 AMT 08 WEATHER 02

0	11.95	32.071	9.63	.04		.4	0	0	11.95	32.08	24.36	358.8	0
10	11.08	32.827	8.03	.46		1.0	4	10	11.08	32.83	25.10	288.2	.032
20	9.85	32.995	5.75	1.10		9.4	14	20	9.85	33.00	25.44	255.8	.060
30	7.69	33.714	2.79	1.64		19.4	25	30	7.69	33.72	26.34	170.6	.081
40	7.64	33.790	2.91	1.87		21.2	31	50	7.60	33.81	26.43	162.7	.114
50	7.60	33.807	2.61	1.85		15.9	25						

NH-15 44 39.3 N 124 24.8 W DATE 06 JUN 67 2300 GCT WIRE 00 DRY 57.6 WET 54.0
WIND DIRECTION 26 VEL 08 KTS BAR 20 SWELL DIRECTION 32 H 04 T 08 CLOUD 06 AMT 08 WEATHER 03

0	12.32	31.130	7.19	.45	2.4	15	0	12.32	31.13	23.56	434.8	0
10	9.11	32.004	5.51	1.48	13.7	26	10	9.11	32.01	24.79	317.8	.038
20	8.86	32.395	6.34	.83	4.5	8	20	8.86	32.40	25.13	285.2	.068
30	8.54	32.496	6.15	.91	6.2	8	30	8.54	32.50	25.26	273.1	.096
40	8.35	32.664	5.48	1.16	10.1	14	50	8.11	32.87	25.61	240.1	.147
50	8.11	32.862	4.48	1.64	19.8	28	75	7.42	33.83	26.46	159.4	.197
60	8.07	33.194	3.89	1.86	21.5	31						
75	7.41	33.821	2.62	2.17	29.9	51						

OBSERVED

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D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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NH-85 44 39.6 N 126 30 W DATE 06 JUN 67 0608 GCT WIRE 01 DRY 57.4 WET 55.7
WIND DIRECTION 00 VEL 16 KTS BAR 16 SWELL DIRECTION 32 H 06 T 08 CLOUD 06 AMT 08 WEATHER 01

0	13.27	31.981	6.44	.32		1.1	2		0	13.27	31.99	24.03	389.5	0
10	13.25	31.978	6.46	.28		.2	15		10	13.25	31.98	24.04	389.6	.039
30	10.19	32.291	7.08	.28		.8	11		20	11.83	32.12	24.41	353.8	.076
50	9.42	32.432	6.49	.72		.3	10		30	10.19	32.30	24.84	313.5	.109
76	9.01	32.862	5.32	1.12		11.4	15		50	9.42	32.44	25.07	291.3	.170
101	8.48	33.485	3.84	1.75		20.7	31		75	9.02	32.84	25.45	255.6	.238
126	8.14	33.719	3.31	2.28		23.8	35		100	8.50	33.46	26.02	202.2	.295
151	7.97	33.800	3.11						150	7.98	33.80	26.36	170.4	.389
201	7.61	33.901	2.79	2.20		25.0	43		200	7.62	33.90	26.49	158.6	.471
252	7.07	33.974	2.45	2.30		31.9	58		250	7.09	33.97	26.62	146.8	.547
303	6.53	34.009	2.04	2.52		31.4	38		300	6.56	34.01	26.72	137.8	.618
404	5.88	34.035	1.63	2.73		37.9	67		400	5.90	34.03	26.83	128.8	.751
604	4.63	34.200	.46	3.22		44.8	94		500	5.24	34.11	26.97	115.7	.874
804	4.00	34.337	.25						600	4.65	34.20	27.10	103.6	.983
1003	3.54	34.413	.27	3.35		45.4	81		700	4.28	34.27	27.20	94.3	1.082
1201	3.07	34.473	.49	3.29		47.5	92		800	4.01	34.33	27.28	87.2	1.173
									1000	3.55	34.41	27.39	77.8	1.338
									1200	3.07	34.47	27.48	68.9	1.484

NH-105 44 39.4 N 126 31.4 W DATE 05 JUN 67 1609 GCT WIRE 03 DRY 55.0 WET 54.1
WIND DIRECTION 01 VEL 18 KTS BAR 16 SWELL DIRECTION 33 H 06 T 09 CLOUD 00 AMT 08 WEATHER 03

0	13.66	31.663	6.33	.50		1.7	8		0	13.66	31.67	23.71	420.3	0
10	13.48	31.740	6.36	.47		.1	6		10	13.48	31.75	23.81	411.4	.042
30	11.16	32.630	7.06	.44		.6	1		20	12.40	32.18	24.35	359.6	.080
50	10.22	32.657	7.01	.59		1.4	3		30	11.16	32.63	24.93	304.4	.113
76	8.72	32.636	6.76	.58		3.3	2		50	10.22	32.66	25.12	287.2	.172
101	8.28	33.087	5.24	1.40		15.5	17		75	8.77	32.64	25.33	267.0	.242
126	8.14	33.603	3.97	1.83		24.6	29		100	8.29	33.06	25.74	228.6	.304
151	7.98	33.759	3.63	2.23		29.4	34		150	7.99	33.76	26.33	173.7	.404
201	7.09	33.903	3.58	2.15		26.0	40		200	7.11	33.90	26.57	151.4	.485
251	6.63	33.944	3.04	2.25		29.1	45		250	6.64	33.94	26.66	142.8	.559
302	6.04	33.957	2.45	2.22		27.6	53		300	6.06	33.96	26.75	135.1	.628
402	4.99	33.993	1.62	2.95		42.6	79		400	5.01	33.99	26.90	121.0	.756
604	4.52	34.188	.42	3.35		44.8	105		500	4.63	34.08	27.02	110.3	.872
802*	4.04	34.321	.58			114			600	4.53	34.18	27.11	103.1	.979
805	3.95	34.335	.24			116			700	4.29	34.25	27.19	95.8	1.078
1002*	3.44	34.418	.43	3.44		47.6	134		800	4.07	34.32	27.26	89.3	1.171
1199	2.98	34.473	.40	3.42		46.7	150		1000	3.45	34.42	27.41	76.2	1.336
1203*	3.06	34.479	.68						1200	3.00	34.47	27.49	67.9	1.480
1404*	2.69	34.530	.92						1500	2.53	34.55	27.59	58.9	1.670
1605*	2.36	34.563	1.20	3.41		46.3	160		2000	1.92	34.62	27.70	49.1	1.940
1805*	2.08	34.591	1.44	3.18		44.6	165		2500	1.76	34.65	27.74	46.9	2.180
2004*	1.92	34.619	1.74	3.13		44.9	180							
2203*	1.82	34.634	1.91											
2401*	1.78	34.649	2.95			40.9	172							
2597*	1.74	34.658	2.93			40.0	181							

NH-125 44 39.5 N 126 59.0 W DATE 04 JUN 67 2255 GCT WIRE 00 DRY 57.0 WET 55.2
WIND DIRECTION 00 VEL 18 KTS BAR 18 SWELL DIRECTION 33 H 06 T 08 CLOUD 06 AMT 06 WEATHER 01

0	12.72	32.554	6.43	.31		4			0	12.72	32.56	24.58	337.1	0
10	12.36	32.572	6.49	.43		3			10	12.36	32.58	24.67	329.4	.033
30	10.12	32.530	7.08	.38		4			20	11.30	32.55	24.85	312.5	.065
50	8.96	32.548	6.93	.47		2			30	10.13	32.53	25.04	294.6	.096
75	8.23	32.652	5.81	.98		11			50	8.96	32.55	25.24	275.7	.153
100	7.97	33.407	4.66	1.58		27			75	8.23	32.86	25.58	242.9	.218
125	7.85	33.665	4.57	2.01		34			100	7.97	33.41	26.06	198.3	.273
150	7.70	33.821	3.73	2.08		38			150	7.70	33.83	26.42	164.5	.363
199	6.89	33.953	3.07	2.36		49			200	6.88	33.95	26.64	144.5	.441
250	6.39	33.976	2.54	2.41		54			250	6.40	33.98	26.72	136.8	.511
301	5.99	33.996	2.18						300	6.00	34.00	26.79	131.4	.578
401	5.28	34.062	1.45						400	5.29	34.06	26.93	119.2	.703
602	4.49	34.210	.78	3.11		93			500	4.82	34.14	27.04	108.6	.817
804	3.94	34.325	.56	3.15					600	4.50	34.21	27.13	100.9	.922
1004	3.52	34.424	.57	3.27		93			700	4.20	34.27	27.21	93.6	1.019
1200	3.04	34.483	.58	3.10		121			800	3.95	34.32	27.28	87.3	1.109
									1000	3.53	34.42	27.40	76.8	1.273
									1200	3.04	34.48	27.50	67.8	1.418

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk. (meq/l)	NO ₃ (µM)	SiO ₂ (µM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ _i	8 (x10 ⁵)	ΔD (dyn.m)
NH-145 44 39.2 N 127 27.0 W DATE 04 JUN 67 1855 GCT WIRE 00 DRY 57.0 WET 55.1															
0	12.58	32.518	6.32	.38				7		0	12.58	32.52	24.58	337.2	0
10	12.51	32.517	6.32	.36				6		10	12.51	32.52	24.60	336.2	.034
30	12.10	32.526	6.42	.33				5		20	12.46	32.52	24.61	335.4	.067
50	9.55	32.504	7.00	.50				4		30	12.10	32.53	24.68	328.5	.100
75	8.56	32.844	5.48	1.13				14		50	9.55	32.51	25.11	287.9	.162
100	8.03	33.431	4.11	1.52				30		75	8.56	32.85	25.53	248.2	.229
125	7.75	33.718	3.46	1.61				26		100	8.03	33.44	26.07	197.4	.285
149	7.58	33.820	3.13					61		150	7.57	33.82	26.44	162.9	.375
199	7.08	33.923	2.54	2.36				51		200	7.07	33.92	26.59	149.2	.453
250	6.48	33.953	2.17	2.46				59		250	6.48	33.98	26.69	139.7	.525
300	5.94	33.970	1.84	2.56				65		300	5.94	33.97	26.78	132.3	.593
400	5.27	34.051	1.01	2.81				78		400	5.28	34.06	26.92	119.4	.719
600	4.44	34.210	.29	3.30				87		500	4.79	34.13	27.04	108.4	.833
801	3.91	34.330	.34	3.16				103		600	4.44	34.21	27.14	99.8	.937
1001	3.42	34.396	.34	2.92				137		700	4.15	34.28	27.22	92.5	1.033
1198	2.99	34.448	.58	2.85				149		800	3.91	34.33	27.29	86.4	1.122
										1000	3.42	34.40	27.39	77.6	1.286
										1200	2.99	34.45	27.47	69.7	1.433

NH-165 44 40.1 N 127 54.0 W DATE 04 JUN 67 1311 GCT WIRE 01 DRY 56.0 WET 54.0

WIND DIRECTION 04 VEL 15 KTS BAR 16 SWELL DIRECTION 32 H 05 T 09 CLOUD 06 AMT 06 WEATHER 01

0	12.96	32.073	6.09	.44				.6	5	0	12.96	32.08	24.17	377.0	0
10	12.56	32.408	6.34	.38				1.0	1	10	12.56	32.41	24.50	345.1	.036
30	10.38	32.506	6.92							20	11.52	32.46	24.73	323.5	.070
50	9.26	32.507	6.73							30	10.38	32.51	24.97	300.6	.101
76	8.54	32.833	5.48							50	9.26	32.51	25.16	283.3	.159
101	8.14	33.307	4.28	1.62				20.6	24	75	8.56	32.82	25.50	250.6	.226
126	7.94	33.564	3.70	1.84				24.1	29	100	8.15	33.29	25.94	210.0	.283
150	7.75	33.730	3.04	2.20				29.7	35	150	7.76	33.74	26.34	172.0	.379
200	6.94	33.925	2.26	2.46				33.0	48	200	6.94	33.93	26.61	147.1	.459
250	6.22	33.979	1.77	2.69				38.8	56	250	6.22	33.98	26.75	134.4	.529
301	5.79	34.001	1.49	2.86				39.0	66	300	5.80	34.00	26.82	128.5	.595
402	5.13	34.070	.86	2.74				35.8	74	400	5.14	34.07	26.95	116.9	.717
604	4.41	34.209	.25	3.23				44.3	87	500	4.72	34.14	27.05	107.1	.829
802*	3.93	34.312	.28	3.26				46.9	112	600	4.42	34.21	27.14	100.1	.933
805	3.90	34.322	.25	3.29				43.1	113	700	4.35	34.26	27.19	96.0	1.031
1003*	3.40	34.397	.30	3.19				47.1	116	800	3.94	34.31	27.27	88.3	1.123
1006	3.37	34.405	.25	3.33				46.0	130	1000	3.41	34.40	27.39	77.3	1.289
1203*	2.90	34.458	.45	3.24				45.8	133	1200	2.98	34.46	27.48	69.0	1.435
1204	2.84	34.457	.41	3.20				46.0		1500	2.38	34.51	27.58	60.0	1.628
1405*	2.52	34.496	.74	2.88				143		2000	1.88	34.59	27.68	50.9	1.905
1605*	2.29	34.526	1.01	3.16				45.0	152	2500	1.75	34.61	27.71	49.8	2.156
1806*	2.09	34.558	1.32	3.07											
2006*	1.87	34.587	1.66	3.04											
2206*	1.81	34.598	1.80	2.86											
2404*	1.77	34.608	1.95	2.86											
2601*	1.73	34.614	2.11	2.53											

NH5 44 39.1 N 124 10.7 W DATE 05 JUL 67 1848 GCT WIRE 00 DRY 57.2 WET 55.0

WIND DIRECTION 28 VEL 09 KTS BAR 18 SWELL DIRECTION 32 H 02 T 02 CLOUD 00 AMT 01 WEATHER 02

0	8.93	33.103	5.31	1.66	8.00	2.33	19.0	35	2.19	0	8.93	33.11	25.67	233.3	0
10	7.64	33.439	3.68	2.00	7.91	2.34	26.0	46	2.21	10	7.65	33.44	26.13	190.1	.021
20	7.60	33.600	3.51	2.05	7.91	2.38	26.9	42	2.17	20	7.60	33.60	26.26	177.7	.040
30	7.38	33.831	3.28	2.32	7.83	2.43	31.6	54	2.18	30	7.39	33.84	26.48	157.7	.056
40	7.00	33.915	2.57	2.54	7.80	2.43	33.3	55	2.14	50	6.93	33.95	26.63	143.1	.086

NH15 44 38.9 N 124 24.8 W DATE 05 JUL 67 2023 GCT WIRE 00 DRY 57.1 WET 56.5

WIND DIRECTION 34 VEL 11 KTS BAR 18 SWELL DIRECTION 33 H 03 T 04 CLOUD 00 AMT 01 WEATHER 02

0	12.26	32.136	8.06	.41	8.31	2.43	3.1	6	1.87	0	12.26	32.14	24.35	359.5	0
10	8.58	32.350	6.27	.93	8.13	2.41	6.2	3	2.00	10	8.58	32.35	25.14	284.3	.032
20	7.94	32.522	5.78	1.13	8.12	2.44	10.3	13	2.00	20	7.94	32.53	25.37	262.6	.060
30	7.75	32.807	5.06	1.47	8.04	2.44	17.6	21	2.05	30	7.76	32.81	25.62	238.9	.085
40	7.70	33.037	4.68	1.64	7.99	2.47	20.3	25	2.12	50	7.82	33.27	25.97	206.2	.129
50	7.81	33.261	4.41	1.68	7.99	2.50	21.0	27	2.13	75	7.56	33.80	26.42	163.4	.175
60	7.63	33.429	4.02	1.88	7.93	2.50	24.5	32	2.21						
75	7.55	33.793	2.35	2.44	7.77	2.54	32.5	50	2.27						

NH25 44 39.2 N 124 38.7 W DATE 05 JUL 67 2220 GCT WIRE 07 DRY 60.0 WET 58.0

WIND DIRECTION 35 VEL 10 KTS BAR 19 SWELL DIRECTION 33 H 03 T 04 CLOUD 00 AMT 01 WEATHER 02

0	13.47	31.759	7.30	.37	8.26	2.44	5.0	5	2.00	0	13.47	31.76	23.82	409.6	0
10	11.31	32.036	7.90	4.80	2.48	.0	6	1.88		10	11.31	32.04	24.45	350.5	.038
20	9.54	32.330	6.85	.75	8.24	2.48	3.3	8	1.87	20	9.54	32.33	24.97	300.2	.071
30	9.02	32.439	6.96	.64	8.11	2.50	1.2	3	1.93	30	9.02	32.44	25.14	284.4	.100
50	8.23	32.713	5.61	1.25	7.98	2.51	11.3	12	1.94	50	8.23	32.72	25.48	252.9	.153
75	7.86	33.207	4.27	1.77	7.92	2.55	22.5	27	2.16	75	7.86	33.21	25.92	211.3	.211
100	7.91	33.597	3.55	2.03	7.81	2.56	26.3	34	2.21	100	7.92	33.60	26.22	183.4	.261
149	6.94	33.041	2.24	2.51	7.81	2.60	25.5	52	2.31	150	6.93	33.04	26.42	145.2	.343
199	6.65	34.014	2.10	2.64	7.77	2.60	25.4	58	2.35	200	6.65	34.02	26.72	136.8	.413
249	6.35	34.044	1.68	2.78	7.73	2.61	36.8	63	2.33	250	6.34	34.04	26.78	131.5	.480

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk. (meq/l)	NO ₃ (µM)	SiO ₂ (µM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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NH35 44 39.8 N 124 53.4 W DATE 06 JUL 67 0005 GCT WIRE 03 DRY 60.0 WET 59.5
WIND DIRECTION 00 VEL 11 KTS BAR 18 SWELL DIRECTION 00 H 02 T 05 CLOUD 04 AMT 06 WEATHER 03

0	13.77	31.613	6.88							6	14.95	0	13.77	31.62	23.65	426.1	0
10	11.67	32.025	7.93							10	11.67	32.03	24.37	357.5	.039		
20	9.93	32.125	6.93							20	9.93	32.13	24.75	321.5	.073		
30	9.24	32.467	6.83							30	9.24	32.47	25.13	285.6	.103		
50	8.24	32.746	5.44							50	8.24	32.75	25.50	250.5	.157		
75	8.18	33.259	4.41							75	8.18	33.26	25.91	211.9	.215		
100	7.90	33.657	3.62							100	7.91	33.66	26.26	178.8	.264		
150	7.33	33.935	2.63							150	7.33	33.94	26.56	150.9	.346		
200	6.93	33.989	2.16							200	6.94	33.99	26.66	142.2	.419		
250	6.64	34.020	1.91							250	6.65	34.02	26.73	136.8	.489		
300	6.35	34.055	1.59							300	6.35	34.06	26.79	131.2	.556		
400	5.96	34.095	1.21							400	5.96	34.09	26.87	125.0	.684		

NH45 44 39.4 N 125 6.6 W DATE 06 JUL 67 0156 GCT WIRE 00 DRY 60.2 WET 58.2
WIND DIRECTION 35 VEL 12 KTS BAR 19 SWELL DIRECTION 35 H 02 T 03 CLOUD 08 AMT 02 WEATHER 01

0	13.03	32.015	7.48	.37	8.29		.1	6	1.95	0	13.03	32.02	24.11	382.5	0
10	11.82	32.065	7.43	.43	8.28		.0	5	1.81	10	11.82	32.07	24.38	357.1	.037
20	9.84	32.283	7.32	.56	8.25		.0	5	1.76	20	9.84	32.29	24.89	308.3	.070
30	9.29	32.478	6.79	.64	8.24		1.9	4	2.03	30	9.29	32.48	25.13	285.6	.100
50	8.04	32.819	5.26	1.40	8.11		14.7	16	2.03	50	8.04	32.82	25.59	242.3	.153
75	8.07	33.268	4.36	1.72	8.01		20.2	26	2.09	75	8.07	33.27	25.93	209.7	.209
101	7.65	33.493	3.02	2.23	7.85		28.9	41	2.16	100	7.67	33.68	26.31	174.2	.257
126	7.49	33.879	2.71	2.31	7.83		32.0	45	2.19	150	7.25	33.94	26.57	150.1	.338
151	7.24	33.937	2.60	2.37	7.83		32.2	48	2.19	200	6.89	34.04	26.71	137.9	.410
176	7.12	33.996	2.17	2.50	7.79		35.0	52	2.29	250	6.60	34.07	26.77	132.8	.478
202	6.87	34.048	1.85	2.52	7.77		32.4	56	2.27	300	6.33	34.10	26.83	127.7	.543
252	6.59	34.071	1.66	2.73	7.75		31.2	62	2.26	400	5.97	34.14	26.90	122.2	.668
303	6.32	34.106	1.38	2.83	7.71		37.7	67	2.40	500	5.54	34.17	26.98	115.1	.786
404	5.96	34.136	1.04	2.98	7.70		39.2	73	2.35	600	4.96	34.24	27.10	104.4	.896
505	5.52	34.168	.83	3.08	7.67		87	2.38		101	2.38				

NH65 44 39.1 N 125 35.0 W DATE 06 JUL 67 0535 GCT WIRE 00 DRY 57.9 WET 56.6
WIND DIRECTION 34 VEL 17 KTS BAR 20 SWELL DIRECTION 34 H 02 T 03 CLOUD 08 AMT 06 WEATHER 02

0	14.88	30.979	6.12	.34	8.25	2.20	.0	10	1.91	0	14.88	30.98	22.93	494.6	0
10	14.35	31.402	6.30	.37	8.27	2.25	.0	7	1.90	10	14.35	31.41	23.37	453.1	.047
30	9.59	32.486	6.67	.56	8.23	2.33	.4	3	1.98	20	12.01	31.99	24.28	366.6	.088
50	9.09	32.521	6.34	.72	8.20	2.33	4.0	3	2.09	30	9.59	32.49	25.09	289.6	.121
75	8.32	32.952	4.98	1.39	8.05	2.30	16.5	16	2.13	50	9.09	32.53	25.20	279.7	.178
101	7.99	33.463	3.74	1.87	7.94	2.33	26.2	32	2.18	75	8.32	32.96	25.65	236.7	.243
126	7.85	33.824	2.90	2.16	7.85	2.35	30.0	41	2.18	100	8.00	33.44	26.08	196.2	.297
151	7.46	33.892	2.40	2.32	7.81	2.37	46	2.22		150	7.48	33.89	26.50	156.6	.385
202	6.96	34.010	2.07	2.53	7.78	2.38	33.1	54	2.30	200	6.97	34.01	26.67	141.8	.460
252	6.64	34.051	1.80	2.62	7.75	2.30	36.2	59	2.31	250	6.65	34.05	26.74	135.0	.529
303	6.38	34.078	1.51	2.62	7.71	2.42	2.31			300	6.39	34.08	26.80	130.5	.595
404	5.86	34.110	.99	2.92	7.69	2.41	39.8	73	2.29	400	5.88	34.11	26.89	123.0	.722
606	4.65	34.208	.46	3.18	7.64	2.45	43.8	106	2.40	500	5.26	34.15	27.00	112.6	.839
808	4.08	34.330	.27	3.29	7.66	2.48				600	4.68	34.20	27.11	103.4	.947
1007	3.65	34.421	.44	3.30	7.67	2.49	45.1	140	2.39	700	4.34	34.27	27.19	95.4	1.047
1010*	3.61	34.420	.38	3.26	7.59	2.46	44.8	138	2.41	800	4.10	34.33	27.27	88.9	1.139
1207	3.22	34.478	.78	3.28	7.68	2.54	43.8	153	2.37	1000	3.70	34.42	27.38	78.9	1.307
1212*	3.17	34.483	.49	3.25	7.62	2.44	46.0	150	2.46	1200	3.22	34.47	27.47	70.7	1.456
1412*	2.77	34.518	.64	3.20	7.66	2.47	45.6	162	2.49	1500	2.62	34.53	27.57	61.0	1.653
1613*	2.43	34.553	.97	3.14	7.70	4.24	42.6	173		2000	1.95	34.61	27.69	50.2	1.931
1814*	2.12	34.579	1.18	3.09	7.73	2.48	44.0	182	2.49	2500	1.75	34.64	27.73	47.7	2.175
2013*	1.94	34.610	1.50	3.00	7.74	2.49									
2213*	1.80	34.631	1.78	2.95	7.79	2.49									
2412*	1.77	34.639	1.78	2.91	7.78	2.49	42.0	189	2.33						
2608*	1.73	34.643	2.90	7.80	2.49	41.4	191	2.33							

NH85 44 39.5 N 126 3.5 W DATE 06 JUL 67 1142 GCT WIRE 02 DRY 57.2 WET 56.1
WIND DIRECTION 35 VEL 14 KTS BAR 20 SWELL DIRECTION 32 H 05 T 08 CLOUD 06 AMT 08 WEATHER 03

0	15.40	30.436	6.57	.31	2.25	.0	11	1.91	0	15.40	30.44	22.41	545.0	0	
10	15.30	30.875	6.19	.32	8.20	2.26	.0	11	1.94	10	15.30	30.88	22.76	510.9	.053
30	10.49	32.399	7.04	.45	8.17	2.34	.0	3	2.05	20	13.04	31.67	23.84	408.5	.099
50	9.53	32.484	6.60	.59	8.11	2.31	1.1	3	2.05	30	10.49	32.40	24.87	310.3	.135
75	9.05	32.967	5.82	.99	8.08	2.35	8.1	8	2.08	50	9.53	32.49	25.10	289.1	.195
101	8.38	33.278	4.34	1.61	7.93	2.37				75	9.05	32.97	25.55	246.4	.262
126	8.10	33.624	3.56	1.97	7.89	2.36	25.4	33		100	8.40	33.27	25.88	215.2	.319
151	7.84	33.789	3.08	2.18	7.82	2.38	28.6	45		150	7.85	33.78	26.37	169.6	.415
202	7.01	33.968	2.31	2.42	7.76	2.39	34.1	51		200	7.04	33.96	26.62	145.9	.494
252	6.45	34.028	1.91	2.61	7.71	2.39	34.7	59		250	6.47	34.03	26.75	134.4	.564
303	6.03	34.047	1.56	2.69	7.69	2.41	35.0	70		300	6.05	34.05	26.82	128.3	.630
403	5.35	34.120	1.14	2.96	7.61	2.41	38.6	81		400	5.37	34.12	26.96	116.0	.752
604	4.60	34.230	.32	3.17	7.59	2.43	44.9	105		500	4.93	34.18	27.06	106.8	.863
805	3.99	34.344	.30	3.26	7.59	2.48	43.2	124		600	4.61	34.23	27.13	100.8	.987
1004	3.43	34.442	.31	3.31	7.60	2.50	40.8	142		700	4.30	34.29	27.21	93.5	1.064
1204</td															

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ³)	ΔD (dyn.m)
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NH105 44 39.0 N 126 30.1 W DATE 06 JUL 67 1700 GCT WIRE 00 DRY 58.4 WET 55.1
WIND DIRECTION 34 VEL 13 KTS BAR 22 SWELL DIRECTION 32 H 03 T 06 CLOUD 06 AMT 08 WEATHER 02

0	15.82	30.042	6.03	.26	8.28	2.15	.0	10	1.85	0	15.82	30.05	22.01	58.5	0
10	15.74	30.532	6.05	.33	8.28	2.19	.0	10	1.95	10	15.74	30.54	22.41	54.5	.056
30	10.95	32.493	6.99	.44	8.27	2.26	.0	3	2.06	20	13.52	31.55	23.65	426.6	.105
50	9.49	32.534	6.72	.59	8.26	2.28	.8	3	2.07	30	10.95	32.50	24.86	311.0	.142
75	8.73	32.811	5.59	1.13	8.15	2.28	10.3	10	2.16	50	9.49	32.54	25.14	244.8	.201
101	7.89	33.347	4.48	1.66	8.06	2.31	17.4	22	2.21	75	8.73	32.82	25.48	253.2	.269
126	7.72	4.20	7.99		19.4	30	2.27	100	7.92	33.33	26.00	203.9	.326		
150	7.68	33.764	3.78	1.98	7.97	2.34	20.1	35	2.25	150	7.69	33.77	26.38	168.5	.419
201	7.28	33.924	2.91	2.27	7.98	2.38	20.6	44	2.25	200	7.29	33.92	26.56	152.4	.499
251	6.53	33.935	2.78	2.38	7.85	2.39	29.8	51	2.26	250	6.55	33.93	26.67	142.2	.573
302	6.11	33.962	2.27	2.53	7.82	2.44	30.1	59	2.27	300	6.12	33.96	26.74	135.6	.642
402	5.49	34.037	1.27	2.93	7.71	2.44	28.2	72	2.33	400	5.50	34.04	26.88	123.7	.772
603	4.54	34.206	.38	3.27	7.66	2.48	30.0	107	2.32	500	4.98	34.12	27.01	111.6	.889
804	3.95	34.331	.30	3.35	7.67	2.49	39.1	128	2.36	600	4.55	34.20	27.12	101.9	.996
1005	3.48	34.422	.37	3.36	7.68	2.50		142	2.36	700	4.23	34.27	27.21	93.7	1.094
1006*	34.443	.34	3.37	7.66	2.47	45.3	138	2.40	800	3.96	34.33	27.28	87.0	1.184	
1205	3.06	34.484	.50	3.37	7.69	2.49		154	2.35	1000	3.49	34.37	27.36	80.2	1.351
1206*			.59	3.30	7.67	2.53	46.3	151	2.48	1200	3.07	34.48	27.49	68.1	1.499
1407*	2.71	34.517	.71	3.26	7.71	2.54	45.1	163	2.43	1500	2.54	34.53	27.58	60.4	1.692
1608*	2.36	34.546	.89	3.10	7.74	2.57	43.4	173	2.48	2000	1.91	34.60	27.69	49.9	1.967
1809*	2.08	34.577	1.22	3.11	7.77	2.56	42.9	180	2.50	2500	1.77	34.63	27.72	48.5	2.213
2011*	1.90	34.606	1.53	3.00	7.79	2.55	42.6	187	2.47						
2212*	1.83	34.620	1.72	3.01	7.84	2.54	41.1	189							
2412*	1.78	34.631	1.93	3.00	7.84	2.55	40.8	192							
2609*	1.76	34.635	1.99	2.96	7.85	2.55	42.5	193	2.47						

NH125 44 39.2 N 126 59.3 W DATE 06 JUL 67 2006 GCT WIRE 02 DRY 59.2 WET 58.6
WIND DIRECTION 32 VEL 10 KTS BAR 24 SWELL DIRECTION 35 H 04 T 05 CLOUD 06 AMT 07 WEATHER 02

0	16.44	29.804	5.88	.24	8.20	2.15	.1	9	1.90	0	16.44	29.81	21.70	613.1	0
10	16.47	29.851	6.05	.24	8.21	2.14	.0	9	1.93	10	16.48	29.86	21.72	610.5	.061
30	10.26	32.347	6.98	.45	8.24	2.25	.0	3	2.05	20	13.55	31.04	23.25	464.6	.115
50	9.44	32.556	6.26	.73	8.17	2.26	4.0	4	2.10	30	10.26	32.35	24.87	310.4	.154
75	9.01	32.883	5.15	1.28	8.05	2.29	12.0	13	2.18	50	9.44	32.56	25.17	282.4	.213
101	8.44	33.469	3.72	1.71						75	9.01	32.89	25.49	252.0	.280
126	7.96	33.788	2.89	2.15						100	8.46	33.45	26.01	202.8	.337
151	7.85	33.827	2.87	2.21						150	7.85	33.83	26.40	166.6	.429
202	7.56	33.904	2.65	2.28						200	7.57	33.90	26.50	157.9	.510
252	7.00	33.973	2.33	2.43						250	7.02	33.97	26.63	145.9	.586
303	6.53	34.008	1.97	2.54						300	6.56	34.01	26.72	137.8	.657
404	5.67	34.034	1.42	2.81						400	5.70	34.03	26.85	126.4	.789
606	4.60	34.203	.44	3.23						500	5.08	34.11	26.99	113.8	.909
806	3.99	34.335	.26	3.29						600	4.62	34.20	27.11	103.2	1.017
1006	3.42	34.416	.29	3.28						700	4.28	34.27	27.20	94.4	1.116
1201	3.02	34.477	.56	3.27						800	4.00	34.33	27.28	87.3	1.207
										1000	3.44	34.41	27.40	76.4	1.370
										1200	3.02	34.48	27.49	68.0	1.515

NH145 44 39.4 N 127 26.9 W DATE 06 JUL 67 2327 GCT WIRE 03 DRY 59.1 WET 58.0
WIND DIRECTION 32 VEL 12 KTS BAR 24 SWELL DIRECTION 00 H 04 T 06 CLOUD 08 AMT 03 WEATHER 01

0	16.45	30.798	6.14	.71	8.16	2.17	.0	7	2.03	0	16.46	30.80	22.45	540.6	0
10	16.34	30.844	6.03	.29	8.16		.1	7	2.04	10	16.34	30.85	22.51	535.1	.054
30	12.98	32.578	6.56	.42	8.18	2.28	.1	2	2.07	20	14.93	31.68	23.46	444.8	.103
50	9.52	32.620	7.28	.47	8.21	2.26	.1	1	2.10	30	12.98	32.58	24.55	340.8	.142
75	8.59	32.735	6.60	.74	8.19	2.26	4.1	4	2.14	50	9.52	32.63	25.20	278.9	.204
101	7.90	33.192	5.14	1.40				16.2	16	75	8.59	32.74	25.44	256.8	.271
126	7.83	33.611	4.36	1.74				21.0		100	7.92	33.17	25.88	215.4	.330
151	7.48	33.754	4.09	1.84				24.2		150	7.50	33.75	26.39	167.2	.426
202	7.00	33.929	3.17	2.16				26.8		200	7.02	33.93	26.60	148.5	.504
252	6.28	33.935	2.91	2.30				31.2		250	6.31	33.93	26.70	139.1	.576
302	6.06	33.981	2.18	2.57				29.1		300	6.06	33.98	26.76	133.5	.564
402	5.33	34.041	1.35	2.89				38.9		400	5.35	34.04	26.90	121.5	.772
604	4.57	34.221	.44	3.22				43.2		500	4.89	34.13	27.02	110.0	.888
804	3.95	34.336	.25	3.30				43.2		600	4.58	34.22	27.13	101.2	.993
1003	3.45	34.421	.37	3.30				44.5		700	4.26	34.28	27.22	93.2	1.090
1203	3.02	34.466	.44	3.30				41.6		800	3.96	34.33	27.29	86.6	1.180
										1000	3.46	34.42	27.41	76.2	1.343
										1200	3.03	34.47	27.48	68.9	1.488

OBSERVED

INTERPOLATED

DERIVED

D T S O₂ PO₄ pH Alk. NO₃ SiO₂ ΣCO₂ Z T S σ_t g ΔD
 (m) (°C) (‰) (m/l) (µM) (meq/l) (µM) (µM) (mM) (m) (°C) (‰) (x10⁵) (dyn/m)

NH165 44 39.4 N 127 53.7 W DATE 07 JUL 67 0233 OCT WIRE 00 DRY 58.9 WET 57.4
WIND DIRECTION 32 VEL 14 KTS BAR 24 SWELL DIRECTION 32 H 04 T 05 CLOUD 08 ANT 05 WEATHER 03

0	16.41	30,177	5.96	.27	8.20	2.15	.0	8	1.90	0	16.42	30.18	21.99	585.2	0
10	16.43	30,191	6.12	.27	8.19	2.17	.0	8	2.03	10	16.44	30.20	21.99	584.8	.058
30	17.16	32,601	6.64	.44	8.22	2.26	.0	1	1.99	20	14.58	31.35	23.28	462.0	.111
50	9,03	32,558	7.10	.55	8.22	2.26	.5	2	1.99	30	12.16	32.61	24.73	324.1	.150
75	8.41	32,711	6.43	.88	8.14	2.26	7.0	6	2.00	50	9.03	32.56	25.23	276.0	.210
101	8.04	33,150	4.95	1.49	8.02	2.29	17.2	18	2.09	75	8.41	32.72	25.65	255.9	.277
126	7.87	33,585	6.34	1.75	7.96	2.32	20.0	29	2.22	100	8.05	33.13	25.83	220.3	.336
151	7.39	33,698	4.29	1.78	7.95	2.38	15.2	33	2.16	150	7.41	33.70	26.36	170.0	.434
202	7.01	33,888	3.39	2.07	7.88	2.36	20.8	43	2.17	200	7.02	33.88	26.56	151.6	.514
252	6.46	33,928	3.04	2.26	7.83	2.37	32.3	51	2.17	250	6.48	33.93	26.67	141.9	.587
303	5.82	33,957	2.52	2.42	7.78	2.39	29.0	64	2.26	300	5.86	33.96	26.77	132.6	.656
403	5.29	34,039	1.30	2.92	7.66	2.40	33.2	80	2.46	400	5.30	34.04	26.90	121.2	.783
605	4.54	34,209	.40	3.19	7.60	2.43	106	2.49	500	4.89	34.12	27.02	110.4	.869	
806	3.95	34,335	.25	3.30	7.60	2.47	33.5	126	2.39	600	4.56	34.21	27.12	101.8	1.005
1001*	3.44	34,432	.38	3.32	7.67	2.45	35.9	141	2.49	700	4.25	34.27	27.21	93.8	1.102
1006	3.41	34,427	.35	3.31	7.62	2.47	42.6	142	2.45	800	3.97	34.33	27.29	86.9	1.193
1202*	3.02	34,484	.49	3.24	7.69	2.47	154	2.53	1000	3.44	34.43	27.42	75.2	1.355	
1205	2.99	34,478	.43	3.32	7.67	2.49	45.2	154	2.42	1200	3.03	34.48	27.50	67.6	1.497
1400*	2.62	34,523	.75	3.18	7.70	2.48	40.3	165	2.47	1500	2.45	34.54	27.59	58.5	1.686
1600*	2.29	34,557	1.00	3.08	7.73	2.51	174	2.48	2000	1.90	34.62	27.70	49.0	1.955	
1800*	2.06	34,588	1.23	3.05	7.77	2.51	179	2.49	2500	1.75	34.65	27.74	47.3	2.105	
1999*	1.90	34,616	1.51	2.99	7.80	2.52	42.1	183	2.53						
2197*	1.82	34,632	1.65	2.92	7.83	2.54		188	2.46						
2395*	1.78	34,641	1.87	2.92	7.84	2.54	40.0	188	2.49						
2590*	1.73	34,655	2.07	2.90	7.85	2.55	38.4	2.43							

NH185 44 39.3 N 128 22.0 W DATE 07 JUL 67 0741 GCT WIRE 05 DRY 57.8 WET 57.6
WIND DIRECTION 34 VEL 13 KTS BAR 23 SWELL DIRECTION 35 H 04 T 05 CLOUD 06 AMT 08 HEADING 00

0	16.18	30.376	5.88	.26	8.20	2.16	.0	7	1.87	0	16.18	30.38	22.19	565.7	0
5	16.22	30.375	5.88	.25	8.21	2.18	.0	7	1.88	10	16.18	30.38	22.19	566.0	.057
10	16.18	30.375	5.92	.27	8.22	2.18	.0	7	1.92	20	15.38	31.17	22.97	491.6	.109
20	15.37	31.162	6.02	.31	8.22	2.21	.0	6	1.99	30	13.08	32.14	24.19	375.2	.153
35	11.83	32.531	7.00	.46	8.25	2.26	.0	1	1.94	50	9.79	32.51	25.07	291.3	.219
50	9.79	32.509	7.08	.49	8.29	2.31	.0	2	2.01	75	8.46	32.77	25.49	252.3	.287
75	8.46	32.769	5.82	1.06	8.18	2.31	7.1	9	2.10	100	8.01	33.36	26.01	202.6	.344
100	8.01	33.357	4.36	1.76	8.02	2.33	24.1	26	2.18	150	7.56	33.85	26.46	161.0	.435
151	7.55	33.849	3.12	2.19	7.91	2.38	32.1	40	2.25	200	7.05	33.93	26.60	148.4	.512
201	7.04	33.934	2.75	2.31	7.88	2.37	35.4	46	2.26						

NH-3 44 39.6 N 124 7.8 W DATE 29 AUG 67 2200 GCT WIRE DRY 57.0 WET 55.0
WIND DIRECTION 32 VEL 06 KTS BAR 19 SWELL DIRECTION 28 H 03 T 06 CLOUD 01 AMT 02 WEATHER 02

0 9.58 33.602 7.54 .99% Reagents were not added to phosphate samples until after optical measurements
 10 8.67 33.681 5.56 1.50% were taken. Samples set several hours at times before they were frozen. The
 29 7.53 33.829 1.82 2.61% data appears more variable compared to samples taken from other cruises

NH-5 44 39.2 N 124 10.8 W DATE 29 AUG 67 2241 GCT WIRE 00 DRY 57.5 WET 55.2
WIND DIRECTION 32 VEL 06 KTS RAR 19 SWELL DIRECTION 28 H T CLOUD 01 AMT 02 WEATHER 02

	0	10.19	33.534	6.35	2.13*		0	16.18	33.54	24.61	334.8	0
10	8.69	33.657	5.22	1.70*			10	16.18	33.66	24.70	326.1	.033
29	7.85	33.816	2.88	2.48*			20	15.38	33.75	24.95	302.4	.064
39	0	33.857	1.40	2.94*			30	13.08	33.82	25.10	287.4	.054

NH-15 44 39.1 N 124 24.6 W DATE 30 AUG 67 0037 GCT WIRE DRY 57.5 WET 56.6
WIND DIRECTION VEL KTS BAR 18 SWELL DIRECTION 28 H 05 T 10 CLOUD 01 AMT 01 HEATED

NH-25 44 39.1 N 124 38.5 W DATE 30 AUG 67 0212 GCT WIRE 00 DRY 58.1 WET 56.6
WIND DIRECTION VEL 00 KTS BAR 18 SWELL DIRECTION 26 H 06 T 10 CLOUD 04 AMT 02 WEATHER 03

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk. (meq/l)	NO ₃ (µM)	SiO ₂ (µM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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NH-35 44 39.1 N 124 53.0 W DATE 30 AUG 67 0356 GCT WIRE 00 DRY 59.0 WET 58.0
WIND DIRECTION VEL 00 KTS BAR 18 SWELL DIRECTION 26 H 06 T 10 CLOUD 06 AMT 08 WEATHER 02

0	14.60	32.349	6.82	.36*						0	14.60	32.35	24.05	388.5	0
10	10.50	32.492	7.25	.58*						10	10.50	32.50	24.94	303.3	.035
29	8.27	32.841	5.22	1.18*						20	8.68	32.65	25.36	263.8	.063
40	8.36	33.169	4.52	1.69*						30	8.28	32.87	25.59	241.8	.088
75	8.13	33.585	3.46	2.27*						50	8.35	33.34	25.95	207.9	.133
100	7.79	33.783	2.87	2.47*						75	8.13	33.59	26.17	187.0	.183
126	7.47	33.868	2.03	2.04*						100	7.80	33.79	26.38	167.8	.227
150	7.54	33.961	2.00	2.13*						150	7.55	33.97	26.55	151.9	.307
176	7.57	33.992	1.76	2.10*						200	7.38	34.00	26.61	147.7	.382
201	7.37	34.003	1.74	2.08*											

NH-45 44 39.1 N 125 6.9 W DATE 30 AUG 67 0532 GCT WIRE 00 DRY 60.7 WET 59.6
WIND DIRECTION 24 VEL 04 KTS BAR 19 SWELL DIRECTION 26 H 06 T 10 CLOUD 06 AMT 08 WEATHER 02

0	15.31	32.241	6.12	.46*						0	15.31	32.25	23.81	410.9	0
10	12.82	32.370	6.76	.56*						10	12.82	32.38	24.42	352.7	.038
29	9.57	32.517	6.82	.69*						20	10.85	32.45	24.85	312.4	.071
40	8.67	32.609	6.18	.99*						30	9.47	32.52	25.13	285.2	.101
75	8.26	33.462	4.26	*						50	8.36	32.84	25.56	245.3	.154
100	7.98	33.663	3.99	1.86*						75	8.26	33.47	26.06	198.0	.210
126	7.81	33.826	3.01	1.92*						100	7.98	33.67	26.26	179.4	.257
149*	7.69	33.886	2.80	2.12*						150	7.56	33.91	26.51	156.2	.341
150	7.55	33.905	2.66	2.14*						200	7.14	33.98	26.63	145.7	.416
175*	7.35	33.942	2.31	2.27*						250	6.81	34.04	26.71	138.1	.487
176	7.24	33.950	2.23	2.45*						300	6.52	34.06	26.77	133.0	.555
200*	7.13		2.16	2.43*						400	5.93	34.11	26.89	123.6	.683
201	7.11	33.985	2.23	2.50*						500	5.09	34.13	27.00	112.2	.801
253*	6.79	34.040	1.78	2.64*											
302*	6.51	34.065	1.53	2.76*											
403*	5.91	34.111	.94	2.98*											
503*	5.06	34.130	.72	3.05*											

NH-65 44 38.8 N 125 35.5 W DATE 30 AUG 67 0943 GCT WIRE 00 DRY 61.5 WET 60.8
WIND DIRECTION VEL 00 KTS BAR 17 SWELL DIRECTION 26 H 04 T 07 CLOUD 06 AMT 08 WEATHER 02

0	15.20	32.141	6.13	.35*						0	15.20	32.15	23.76	415.9	0
9	14.27	32.285	6.35	.46*						10	14.04	32.30	24.12	381.4	.040
29	9.64	32.514	6.65	.64*						20	11.71	32.42	24.67	329.2	.075
40	8.69	32.602	5.85	.73*						30	9.52	32.52	25.12	286.2	.106
76	8.39	33.130	4.51	1.52*						50	8.40	32.73	25.46	254.6	.160
100	8.09	33.527	3.89	1.75*						75	8.40	33.11	25.76	226.3	.220
126	7.86	33.733	3.44	1.96*						100	8.09	33.53	26.13	191.1	.272
149	7.64	33.845	3.13	2.03*						150	7.66	33.87	26.46	160.5	.360
150*	7.65	33.866	2.97	*						200	6.95	33.96	26.63	145.3	.437
175*	7.38	33.918	2.79	*						250	6.64	34.01	26.71	138.2	.508
176	7.31	33.920	2.78	2.20*						300	6.07	34.01	26.79	131.1	.575
200*	6.95	33.952	2.53	2.15*						400	5.46	34.06	26.90	121.3	.701
201	6.97	33.964	2.42	2.33*						500	5.03	34.15	27.02	110.3	.817
253*	6.58	34.009	1.91	2.34*						600	4.69	34.23	27.13	101.2	.922
302*	6.05	34.012	1.71	2.69*						700	4.29	34.29	27.22	93.2	1.020
403*	5.45	34.064	1.14	*						800	4.06	34.33	27.28	87.9	1.110
604*	4.68	34.238	.33	3.15*						1000	3.75	34.41	27.37	79.9	1.278
804	4.05	34.334	.23	*						1200	3.23	34.46	27.46	71.7	1.429
806*	4.05	34.335	.22	3.10*						1500	2.56	34.54	27.58	60.0	1.627
1006	3.62	34.417	.27	3.18*						2000	1.90	34.61	27.69	49.4	1.900
1007*	3.58	34.413	.26	3.31*						2500	1.75	34.65	27.73	47.4	2.142
1207	3.22	34.469	.36	*											
1208*	3.23	34.467	.41	3.41*											
1409	2.76	34.515	.58	3.23*											
1609	2.34	34.561	1.03	2.94*											
1809	2.08	34.589	1.23	2.89*											
2007	1.90	34.612	1.49	2.97*											
2207	1.88	34.631	1.70	2.91*											
2406	1.76	34.642	1.98	2.88*											
2604	1.74	34.648	1.97	2.82*											

*Reagents were not added to phosphate samples until after optical measurements were taken. Samples set several hours at times before they were frozen. The data appears more variable compared to samples taken from other cruises.

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D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk. (meq/l)	NO ₃ (µM)	SiO ₂ (µM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ _t	S (x10 ⁶)	ΔD (dyn.m)
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NH-145 44 39.1 N 127 27.1 W DATE 31 AUG 67 0727 GCT WIRE 00 DRY 68.0 WET 64.8
WIND DIRECTION 1R VEL 10 KTS BAR 12 SWELL DIRECTION 25 H 05 T 07 CLOUD 06 AMT 08 WEATHER 02

0	20.26	30.908	5.52	.18						0	20.26	30.91	21.61	621.1	0
10	19.83	30.978	5.56	.15						10	19.83	30.98	21.78	605.6	.061
29	16.31	32.132	6.15	.54						29	16.47	31.54	22.54	532.7	.118
40	12.25	32.519	6.70	.55						30	15.98	32.17	23.62	430.0	.166
75	8.66	32.706	5.94	.98						75	10.31	32.62	25.07	291.8	.239
100*	8.37	33.268	4.22	1.61						100	8.66	32.71	25.41	259.9	.308
126	8.02	33.680	3.38	1.79						126	8.38	33.27	25.89	214.4	.367
149*	7.80	33.814	3.07							149*	7.70	33.85	26.44	163.0	.461
150	7.70	33.842	3.02	1.96						150	7.35	33.92	26.54	153.5	.540
175*	7.66	33.863	2.98							175*	6.79	33.96	26.66	143.2	.614
176	7.44	33.904	2.89	2.02						176	6.48	34.00	26.73	137.0	.684
200*	7.35	33.914	2.85	2.12						200*	6.50	34.05	26.89	122.3	.814
201	7.18	33.939	2.65	2.25						201	4.98	34.12	27.01	111.3	.931
252*	6.77	33.965	2.46	2.22						252*	6.00	34.20	27.10	103.7	1.038
301*	6.47	34.004	1.97	2.44						301*	4.36	34.27	27.19	95.6	1.138
402*	5.48	34.055	1.19	2.87						402*	4.06	34.33	27.27	88.4	1.230
602*	4.68	34.201	.40	3.22						602*	3.49	34.42	27.40	76.9	1.395
803*	4.05	34.328	.22	3.28						803*	3.10	34.48	27.49	68.9	1.541
1004*	3.68	34.417	.27							1004*	3.09	34.477	3.16		

NH-165 44 39.7 N 127 54.7 W DATE 31 AUG 67 1312 GCT WIRE 02 DRY 68.1 WET 65.2
WIND DIRECTION 16 VEL 15 KTS BAR 10 SWELL DIRECTION 25 H 05 T 10 CLOUD 06 AMT 07 WEATHER 02

0	20.17	31.095	5.43	.17						0	20.17	31.10	21.78	605.2	0
10	20.09	31.101	5.52	.12						10	20.09	31.11	21.80	603.1	.060
29	14.13	32.326	6.52	.40						29	17.64	31.72	22.92	496.1	.115
40	10.57	32.515	6.95	.48						40	13.78	32.35	24.21	373.0	.159
75	9.46	33.200	4.38	1.50						75	10.25	32.72	25.16	283.5	.224
100	9.33	33.530	3.38	1.80						100	9.46	33.21	25.67	235.4	.289
126	9.03	33.617	3.14	1.78						126	9.33	33.54	25.94	209.4	.345
149*	8.80	33.707	2.93	2.14						149*	8.71	33.76	26.22	183.9	.443
150*	8.71	33.758	2.80	1.98						150*	8.19	33.89	26.40	167.5	.531
175*	8.53	33.816	2.84	2.15						175*	7.58	33.88	26.48	160.6	.613
176	8.59	33.779	2.80	2.12						176	6.94	33.97	26.65	145.3	.689
200*	8.19	33.886	2.62	2.13						200*	5.45	33.97	26.83	128.4	.826
201	33.824	2.68	2.27							201	4.88	34.05	26.97	115.4	.948
252*	7.56	33.942	2.57	2.29						252*	6.00	34.17	27.08	106.0	1.059
301*	6.93	33.975	2.28	2.37						301*	4.40	34.24	27.17	97.9	1.161
401*	5.44	33.965	1.95	2.70						401*	4.15	34.31	27.25	90.7	1.255
601*	4.70	34.173	.70	3.13						601*	3.62	34.40	27.38	79.5	1.425
802	4.10	34.315	.24	3.17						802	3.06	34.47	27.48	69.1	1.573
803*	4.05	34.320	.24	3.25						803*	2.52	34.53	27.58	59.9	1.767
1002	3.58	34.404	.25	3.25						1002	1.91	34.60	27.69	50.0	2.041
1003*	3.49	34.411	.25	3.26						1003*	1.06	34.64	27.73	47.9	2.286
1202*	3.06	34.470	.35	3.28						1202*	3.04	34.474	.46		
1203	3.04	34.474	.46							1203	2.35	34.553	.82	3.12	*Reagents were not added to phosphate samples until after optical measurements were taken. Samples set several hours at times before they were frozen. The data appears more variable compared to samples taken from other cruises.
1402	2.69	34.514	.55	3.18						1402	1.91	34.605	1.15	3.07	
1608	2.35	34.553	.82	3.12						1608	1.80	34.630	1.68	2.97	
2003	2.10	34.580	1.15	3.07						2003	1.91	34.638	1.84	2.80	
2203	1.80	34.630	1.68	2.97						2203	1.76	34.648	1.96	2.92	

NH-3 44 39.0 N 124 7.8 W DATE 16 OCT 67 1925 GCT WIRE 00 DRY 56.8 WET 55.0
WIND DIRECTION 02 VEL 08 KTS BAR 27 SWELL DIRECTION 31 H 06 T 09 CLCUD 05 AMT 02 WEATHER

0	13.85	32.034	6.34	.60						0	13.85	32.04	23.96	396.7	0
10	13.66	32.069	6.21	.70						10	13.66	32.07	24.02	390.7	.039
20	12.54	32.591	5.70	.93						20	12.54	32.60	24.65	331.5	.075
30	11.48	32.874	5.13	1.19						30	11.48	32.88	25.06	291.9	.107

NH-5 44 38.1 N 124 10.0 W DATE 16 OCT 67 2128 GCT WIRE 00 DRY 57.0 WET 55.0
WIND DIRECTION 35 VEL 12 KTS BAR 26 SWELL DIRECTION 29 H 06 T 08 CLCUD 01 AMT 02 WEATHER 02

0	14.21	32.043	6.40	.44						0	14.21	32.05	23.89	403.1	0
10	14.16	32.044	6.33	.51						10	14.16	32.05	23.90	402.3	.040
20	13.87	32.234	5.98	.61						20	13.88	32.24	24.11	382.9	.080
30	12.14	32.729	5.58	1.05						30	12.14	32.73	24.83	314.3	.114
40	11.63	32.901	5.45	1.14						40	8.4	12			

NH-15 44 38.9 N 124 24.0 W DATE 16 OCT 67 2338 GCT WIRE 05 DRY 58.4 WET 56.9
WIND DIRECTION 05 VEL 16 KTS BAR 25 SWELL DIRECTION 30 H 06 T 08 CLCUD 01 AMT 03 WEATHER 03

0	14.95	32.047	6.12	.35						0	14.95	32.05	23.74	417.7	0
10	14.85	32.049	6.08	.39						10	14.85	32.05	23.76	415.7	.042
20	13.54	32.348	5.78	.65						20	13.54	32.35	24.26	368.1	.081
30	12.19	32.725	5.65	.99						30	12.30	32.70	24.77	319.9	.115
41	11.46	32.811	5.07	1.12						41	11.05	32.95	25.20	279.5	.175
51	11.01	32.969	4.91	1.33						51	9.33	33.30	25.76	226.3	.238
76	9.24	33.311	4.17	1.70						76	20.2	25			

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D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk. (meq/l)	NO ₃ (µM)	SiO ₂ (µM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ_t	B (x10 ⁵)	ΔD (dyn.m)
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NH-65 44 39.3 N 125 40.0 W DATE 17 OCT 67 1817 GCT WIRE 02 DRY 60.0 WET 58.0
WIND DIRECTION 11 VEL 08 KTS BAR 18 SWELL DIRECTION 31 H 06 T 11 CLOUD 01 AMT 06 WEATHER 02

0	14.61	32,359	6.04	.51		.5	1		0	14.61	32,36	24.05	387.9	0
10	14.47	32,383	6.10	.57		.4	1		10	14.47	32,39	24.10	383.6	.039
20	14.17	32,413	6.04	.60		.9	2		20	14.17	32,42	24.18	375.6	.077
31	12.72	32,554	5.76	.82		3.0	3		30	12.92	32,53	24.53	343.1	.112
40	10.13	32,845	5.34	1.36		9.8	10		50	8.34	32,94	25.63	237.9	.171
50	8.34	32,936	4.87	1.53		16.0	17		75	8.04	33,43	26.07	197.2	.225
75	8.04	33,430	3.75	2.03		24.0	29		100	7.78	33,71	26.32	173.6	.271
101	7.77	33,715	3.01	2.29		22.2	32		150	7.47	33,89	26.51	156.5	.354
126	7.63	33,810	2.91	2.32		27.9	40		200	6.99	33,96	26.63	145.2	.429
148*	7.54	33,877	2.82	2.08		24.8	35		250	6.47	33,99	26.72	137.1	.500
152	7.40	33,902	2.77	2.32		30.1	43		300	6.12	34.01	26.78	131.7	.567
173*	7.14	33,947	2.49	2.34		31.2	43		400	5.69	34.11	26.91	120.8	.693
177	7.16	33,947	2.49	2.39		30.9	46		500	5.10	34.12	26.99	113.0	.810
198*	7.01	33,963	2.31	2.23					600	4.73	34.19	27.09	105.1	.919
203	6.96	33,965	2.38	2.49		32.6	49		700	4.63	34.19	27.10	104.4	1,024
249*	6.48	33,990	2.03	2.56		35.2	56		800	4.19	34.33	27.26	89.8	1,121
298*	6.13	34,010	1.78	2.63		35.6	60		1000	3.64	34.41	27.38	78.8	1,289
398*	5.70	34,105	1.03	2.89					1200	3.23	34.47	27.47	71.2	1,439
497*	5.11	34,118	.95	3.17		41.8	79		1500	2.62	34.53	27.57	61.2	1,638
598*	4.74	34,188	.76	3.30		44.6	84		2000	1.84	34.62	27.70	48.2	1,911
800*	4.19	34,324	.28	3.42		44.4	103		2500	1.75	34.64	27.73	47.7	2,151
803	4.16	34,334	.28			43.6	109							
999*	3.64	34,412	.46	3.57		43.5								
1006	3.62	34,412	.52	3.28		44.6								
1200*	3.23	34,462	.46	3.38		46.4	108							
1206	3.19	34,467	.36	3.18		43.7	134							
1407	2.84	34,510	.73	3.27		43.8	146							
1605	2.37	34,553	.93	3.17		43.8	162							
1809	2.01	34,590	1.36	3.04		43.8	169							
2016	1.83	34,618	1.61	2.99		41.8								
2215	1.79	34,629	1.86	2.95		41.4	175							
2417	1.76	34,639	1.98	2.87		38.2	172							
2617	1.75	34,643	2.10	2.90		41.3	175							

NH-85 44 39.3 N 126 2.0 W DATE 17 OCT 67 2324 GCT WIRE 02 DRY 60.0 WET 57.8
WIND DIRECTION 18 VEL 16 KTS BAR 16 SWELL DIRECTION 30 H 04 T 08 CLOUD 05 AMT 07 WEATHER 03

OBSERVED

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D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ⁸)	ΔD (dyn.m)
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NH-105 44 38.9 N 126 29.8 W DATE 18 OCT 67 0754 GCT WIRE 00 DRY 60.6 WET 58.1
WIND DIRECTION 21 VEL 11 KTS BAR 16 SWELL DIRECTION 30 H 04 T 08 CLOUD 06 AMT 06 WEATHER 01

0	15.76	32.140	5.83	.37		.1	0		0	15.76	32.14	23.63	427.7	0
9	15.76	32.137	5.83	.38		.0	0		10	15.76	32.14	23.63	428.4	.043
19	15.76	32.134	5.78	.39		.0	0		20	15.39	32.16	23.73	419.1	.085
31	10.78	32.476	7.03	.50		.0	1		30	11.24	32.45	24.77	319.6	.122
40	9.10	32.530	6.79	.69		1.0	3		50	8.43	32.65	25.39	261.1	.180
50	8.43	32.641	5.94	1.02		8.6	8		75	8.48	33.33	25.92	211.6	.239
75	8.48	33.322	4.16	1.80		21.2	24		100	8.18	33.62	26.19	186.0	.289
100	8.18	33.613	3.59	1.99		24.2	31		150	7.63	33.84	26.44	162.5	.376
124	7.81	33.731	3.60	1.96		24.9	33		200	6.88	33.91	26.61	167.5	.454
150*	7.62	33.833	3.23	2.08		27.4	36		250	6.58	34.00	26.72	137.7	.525
151	7.46	33.848	3.32	2.08		27.7	37		300	6.32	34.05	26.79	131.4	.592
175*	7.21	33.888	3.21	2.15		28.6	37		400	5.74	34.10	26.90	122.2	.719
200*	6.87	33.907	3.05	2.13		30.7	41		500	5.09	34.14	27.01	111.7	.836
201	6.83	33.936	2.77	2.29		32.2	44		600	4.78	34.21	27.10	104.0	.943
250*		33.996	2.04	2.51		37.3	49		700	4.45	34.26	27.18	96.9	1.044
300*	6.32	34.047	1.47	2.64		38.8	47		800	4.23	34.32	27.25	91.0	1.138
400*	5.74	34.092	1.08	2.95		40.7	64		1000	3.55	34.41	27.39	78.1	1.307
502*	5.08	34.138	.71	3.09		43.1	71		1200	3.19	34.48	27.48	70.0	1.455
604*	4.77	34.214	.40	3.17		44.5	85		1500	2.57	34.53	27.57	60.8	1.651
703*	4.44	34.265	.36	3.18		46.3	97		2000	1.93	34.60	27.69	50.3	1.928
804*	4.22	34.320	.31	3.29		46.9	108		2500	1.78	34.63	27.72	48.6	2.175
997	3.59	34.408	.47	3.28										
1005*	3.49	34.411	.26	3.29		43.7	110							
1196	3.21	34.473	.48	3.21		46.4	122							
1207*	3.16	34.482	.51	3.27		43.2								
1395	2.79	34.512	.71	3.18		47.6	139							
1594	2.40	34.544	.92	3.12										
1795	2.21	34.572	1.43	3.07		42.4								
1998	1.93	34.603	1.50	2.99		42.2	145							
2195	1.87	34.619	1.72	2.95		41.6	159							
2396	1.79	34.630	1.86	2.89		40.0								
2594	1.78	34.639	2.06	2.90		39.7								
						39.0	166							

NH-125 44 39.2 N 126 59.2 W DATE 18 OCT 67 1340 GCT WIRE 12 DRY 55.2 WET 55.2
WIND DIRECTION 22 VEL 13 KTS BAR 14 SWELL DIRECTION 30 H 04 T 08 CLOUD 01 AMT 08 WEATHER 55

0	15.59	32.072	5.87			.1	0		0	15.59	32.08	23.62	429.1	0
10	15.59	32.067	5.84			.2	0		10	15.59	32.07	23.62	429.7	.043
19	15.60	32.067	5.81			.1	0		20	15.60	32.07	23.61	430.2	.086
30	15.55	32.083	5.82			.0	0		30	15.55	32.09	23.64	428.2	.129
40	9.75	32.529	6.33			1.8	3		50	9.01	32.60	25.27	273.0	.199
50	9.01	32.595	5.83			2.8	3		75	8.43	32.99	25.66	236.0	.263
74	8.45	32.968	4.79			10.5	12		100	8.03	33.43	26.06	197.8	.317
100	8.03	33.426	4.00			14.6	19		150	7.80	33.84	26.42	164.7	.407
124	8.25	33.733	3.58			23.6	29		200	7.39	33.95	26.57	151.3	.486
150	7.79	33.835	2.96			24.9	35		250	6.88	34.01	26.69	140.6	.559
175	7.54	33.893	2.74						300	6.39	34.03	26.76	134.0	.628
200	7.38	33.949	2.40						400	5.87	34.08	26.87	125.0	.757
250*	6.83	34.003	2.04						500	5.20	34.13	26.99	113.8	.877
300*	6.38	34.022	1.78						600	4.80	34.20	27.09	105.0	.986
401*	5.87	34.082	1.13						700	4.52	34.27	27.18	97.4	1.087
501*	5.19	34.126	.78			36.9	81		800	4.28	34.33	27.25	91.0	1.181
603*	4.79	34.203	.44			34.3	82		1000	3.67	34.41	27.38	79.3	1.352
804*	4.27	34.328	.25			37.0	103		1200	3.19	34.46	27.46	71.2	1.502
1006*	3.65	34.412	.33			31.8	108							
1207*	3.18	34.462	.42			32.6	115							

NH-145 44 39.5 N 127 26.8 W DATE 18 OCT 67 1835 GCT WIRE 04 DRY 58.0 WET 51.9
WIND DIRECTION 29 VEL 22 KTS BAR 18 SWELL DIRECTION 30 H 05 T 09 CLOUD 06 AMT 06 WEATHER 01

0	15.54	32.073	5.86	.28		.0	0		0	15.54	32.08	23.63	428.0	0
10	15.54	32.073	5.86	.26		.0	0		10	15.54	32.08	23.63	428.2	.043
20	15.54	32.071	5.81	.26		.1	0		20	15.54	32.08	23.63	428.6	.086
30	15.02	32.159	5.87	.33		.0	0		30	15.02	32.16	23.81	411.6	.128
40	9.85	32.543	6.33	.57		1.0	2		50	8.96	32.60	25.27	272.2	.196
50	8.96	32.595	6.20	.86		3.9	5		75	8.67	33.10	25.71	231.0	.259
74	8.69	33.087	6.31	1.47		12.8	17		100	8.31	33.44	26.03	201.2	.313
99	8.31	33.425	4.04	1.60		16.0	22		150	7.81	33.80	26.39	167.7	.405
124	8.29	33.696	3.59	1.53		12.8	19		200	7.31	33.96	26.58	150.1	.485
142*	7.88	33.788	3.18	1.58		11.8	19		250	6.68	33.99	26.69	140.0	.557
150	7.80	33.797	3.35	1.69		14.7	23		300	6.17	33.99	26.76	133.9	.625
169*	7.43	33.880	3.01	1.89		21.3	34		400	5.57	34.07	26.90	121.7	.753
174	7.35	33.881	3.06	1.82					500	5.04	34.13	27.01	111.6	.870
193*	7.31	33.954	2.39	2.17		24.5	40		600	4.74	34.20	27.09	104.7	.978
200	7.30	33.951	2.36						700	4.43	34.26	27.18	96.7	1.078
242*	6.78	33.990	2.20	2.40		30.3	47		800	4.14	34.32	27.26	89.5	1.171
290*	6.25	33.986	2.10						1000	3.66	34.41	27.38	78.9	1.340
388*	5.65	34.068	1.19	2.67		31.6	57							
485*	5.09	34.120	.79	2.84		34.2	68							
584*	4.79	34.185	.52											
778*	4.20	34.312	.34	2.91		36.0	102							
974*	3.72	34.404	.30	3.27		41.2	128							
1169*	3.23	34.457	.46	3.15		40.0	140							

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk. (meq/l)	NO ₃ (µM)	SiO ₂ (µM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ _t	B (x10 ⁶)	ΔD (dyn.m)
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NH-165 44 39.8 N 124 53.4 W DATE 18 OCT 67 2307 GCT WIRE 10 DRY 57.2 WET 51.8
WIND DIRECTION 30 VEL 18 KTS BAR 22 SWELL DIRECTION 32 H 04 T 08 CLOUD 08 AMT 03 WEATHER 02

0	15.88	32.071	5.86	.28			0	0		0	15.88	32.08	23.55	435.3	0
10	15.88	32.069	5.81	.32			0	0		10	15.88	32.07	23.55	435.7	.044
20	15.89	32.069	5.78	.35			0	0		20	15.89	32.07	23.55	436.1	.087
30	15.86	32.068	5.81	.32			0	0		30	15.86	32.07	23.56	435.8	.131
40	12.17	32.413	6.46	.52			0	0		50	9.69	32.59	25.15	284.0	.203
50	9.69	32.586	6.25	.85			3.0	4		75	8.38	33.01	25.68	233.7	.267
75	8.37	33.003	4.93	1.45			14.8	16		100	8.03	33.40	26.04	200.2	.322
100	8.03	33.393	4.21	1.76			20.0	25		150	7.69	33.80	26.41	165.9	.413
125	7.87	33.690	3.45	1.98			25.7	33		200	7.09	33.93	26.59	149.1	.492
150	7.68	33.798	3.28					29		250	6.56	33.98	26.70	139.4	.564
175	7.42	33.868	3.10	2.16			26.7	38		300	6.10	34.01	26.79	131.4	.632
200	7.09	33.926	2.79	2.27			29.2	43		400	5.31	34.06	26.92	119.5	.757
251*	6.55	33.976	2.28	2.21			25.2	39		500	4.97	34.14	27.02	110.3	.872
301*	6.09	34.013	1.78	2.03						600	4.58	34.22	27.13	101.2	.978
402*	5.30	34.062	1.11	2.21						700	4.55	34.25	27.16	99.3	1.078
501*	4.97	34.137	1.00	2.87			33.8	74		800	4.03	34.34	27.29	86.8	1.171
603*	4.57	34.220	.39					0		1000	3.51	34.42	27.40	76.8	1.334
800	4.02	34.337	.24				44.4	110		1200	3.06	34.47	27.49	68.6	1.480
805*	3.95	34.347	.24							1500	2.51	34.54	27.59	59.5	1.672
1001	3.51	34.420	.32				44.3	137		2000	1.91	34.61	27.69	49.8	1.945
1005*	3.47	34.424	.32							2500	1.78	34.64	27.73	48.0	2.189
1203	3.05	34.475	.52				38.1	131							
1207*	3.04	34.480	.52	3.02			39.4								
1403	2.71	34.518	.73												
1602	2.31	34.553	.98												
1804	2.13	34.574	1.36												
2008	1.90	34.608	1.67				36.1	177							
2204	1.82	34.623	1.78												
2405	1.79	34.641	1.94				32.6	166							
2605	1.78	34.644	1.95												

NH-3 44 39.0 N 124 7.6 W DATE 18 NOV 67 2003 GCT WIRE 01 DRY 54.0 WET 50.5
WIND DIRECTION 29 VEL 05 KTS BAR 21 SWELL DIRECTION 29 H 05 T 09 CLOUD 08 AMT 06 WEATHER 02

0	12.79	32.262	6.17	.66			3.1	6		0	12.79	32.27	24.34	359.9	0
5	12.76	32.260	6.17	.61			3.0	6		10	12.80	32.30	24.37	357.5	.036
10	12.80	32.300	6.13	.59			2.4	5		20	12.88	32.33	24.38	357.4	.072
15	12.85	32.312	6.13	.59			2.5	5		30	12.90	32.46	24.47	348.7	.107
20	12.87	32.322	6.13	.65			2.8	5							
25	12.94	32.342	6.08	.55			2.0	4							
30	12.90	32.451	5.90	.73			3.4	5							

NH-5 44 39.1 N 124 10.7 W DATE 18 NOV 67 2210 GCT WIRE 02 DRY 53.0 WET 50.8
WIND DIRECTION 30 VEL 06 KTS BAR 19 SWELL DIRECTION 30 H 09 T 12 CLOUD 06 AMT 06 WEATHER 02

0	12.95	32.302	6.15	.55			2.3	5		0	12.95	32.31	24.34	359.9	0
5	12.94	32.301	6.09	.48			1.7	4		10	12.94	32.31	24.35	359.9	.036
10	12.94	32.302	6.14	.55			2.0	4		20	12.96	32.34	24.37	358.3	.072
15	12.94	32.310	6.10	.58			1.9	4		30	12.78	32.52	24.54	341.5	.107
20	12.96	32.332	6.05	.60			2.1	4							
25	12.99	32.353	6.03	.54			1.8	4							
30	12.78	32.518	5.82	.73			3.6	6							
35	12.21	32.606	5.57	.88			5.2	8							
40	12.15	32.659	5.49	.96			6.1	10							

NH-15 44 39.1 N 124 24.8 W DATE 19 NOV 67 0105 GCT WIRE 00 DRY 51.8 WET 50.0
WIND DIRECTION 30 VEL 04 KTS BAR 19 SWELL DIRECTION 30 H 10 T 10 CLOUD 06 AMT 05 WEATHER 01

0	12.92	32.392	6.14	.50			1.3	3		0	12.92	32.40	24.42	352.7	0
5	12.94	32.397	6.09	.48			.9	2		10	12.93	32.42	24.43	351.7	.035
10	12.93	32.411	6.05	.57			2.0	3		20	12.70	32.52	24.56	339.7	.070
15	12.88	32.463	5.94	.64			2.2	3		30	12.05	32.67	24.80	317.2	.103
20	12.70	32.520	5.83	.72			2.8	4		50	9.73	33.42	25.79	223.1	.157
25	12.41	32.578	5.69	.75			3.4	5							
30	12.05	32.668	5.51	.84			4.3	6							
35	11.29	32.881	4.92	1.13			8.2	11							
40	11.08	32.996	4.76	1.28			11.8	14							
45	10.17		4.04	1.75			17.6	25							
50	9.73	33.418	3.72	1.87			19.5	28							
55	9.51	33.478	3.51	1.84			17.2	26							
60	9.39	33.500	3.45	1.89			16.3	26							
65	9.38	33.506	3.47	2.09			23.4	34							

OBSERVED

INTERPOLATED

DERIVED

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk.	NO ₃ (meq/l)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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NH-45 44 39.1 N 126 3.7 W DATE 21 NOV 67 0702 GCT WIRE 01 DRY 53.0 WET 51.8
WIND DIRECTION 01 VEL 20 KTS BAR 23 SWELL DIRECTION 30 H 07 T 09 CLOUD 05 AMT 03 WEATHER 01

0	13.09	32.255	6.16	.45			.9	2		0	13.09	32.26	24.28	366.0	0
10	13.11	32.255	6.04	.45			.8	2		10	13.11	32.26	24.28	366.6	.037
30	13.12	32.240	6.06	.43			.7	1		20	13.12	32.25	24.27	367.7	.073
50	9.74	32.295	5.47	1.15			9.9	10		30	13.13	32.25	24.26	368.3	.110
75	9.49	33.278	4.33	1.73			21.5	22		50	9.74	32.00	25.30	269.3	.174
100	8.58	33.262	3.65	2.05			25.6	32		75	8.49	33.28	25.98	215.0	.234
125	8.39	33.781						37		100	8.58	33.63	26.14	190.9	.285
151	8.02	33.864	2.87	2.27			29.9	39		150	8.03	33.86	26.40	166.6	.374
200	7.58	33.065	2.44							200	7.58	33.97	26.55	152.9	.454
250	7.02	34.008	2.20	2.30				43		250	7.03	34.01	26.66	142.8	.528
301	6.47	34.019	1.92	2.44						300	6.48	34.02	26.74	135.9	.598
401	5.73	34.075	1.18	2.98			41.5	63		400	5.74	34.07	26.88	123.7	.728
602	4.72	34.216	.44	3.03				73		500	5.17	34.14	27.00	112.1	.846
803	4.08	34.331	.27	3.38			46.9	98		600	4.73	34.21	27.11	103.1	.953
1005	3.62	34.411	.38	3.45			47.5	116		700	4.37	34.28	27.20	95.1	1.052
1206	3.15	34.474	.50	3.29			44.1	129		800	4.09	34.33	27.27	88.5	1.144
										1000	3.63	34.41	27.38	79.0	1.311
										1200	3.16	34.47	27.48	70.0	1.460

NH-105 44 38.7 N 126 30.7 W DATE 21 NOV 67 1517 GCT WIRE 01 DRY 54.2 WET 51.0
WIND DIRECTION 02 VEL 19 KTS BAR 24 SWELL DIRECTION 28 H 08 T 10 CLOUD 01 AMT 01 WEATHER 01

0	13.10	32.291	6.13	.46			00.8	1		0	13.10	32.30	24.31	363.5	0
10	13.11	32.289	6.02	.46			00.5	1		10	13.11	32.29	24.30	364.1	.036
30	13.10	32.286	6.07	.45			00.5	1		20	13.10	32.29	24.30	364.6	.073
50	11.23	32.891	5.03	1.23			11.5	12		30	13.10	32.29	24.30	364.5	.109
75	9.08	33.331	4.33	1.78			20.0	24		50	11.23	32.90	25.12	286.7	.174
100	8.47	33.655	3.48	2.09			26.3	31		75	9.08	33.34	25.83	219.8	.238
125	8.20	33.777	1.95				22.1	29		100	8.47	33.66	26.18	187.1	.289
151	7.78	33.832	2.24				28.0	36		150	7.80	33.83	26.41	165.5	.377
200	7.46	33.951	2.40				31.4	40		200	7.46	33.96	26.56	152.3	.456
250	6.96	34.000	2.53				33.9	45		250	6.96	34.00	26.67	142.6	.530
301	6.42	34.014	2.64				34.3	52		300	6.43	34.01	26.75	135.6	.599
401	5.68	34.072	2.74				66			400	5.69	34.07	26.89	123.3	.729
603	4.58	34.195	3.12				41.2	93		500	5.06	34.13	27.01	111.9	.846
805	4.18	34.346	3.28				46.0	118		600	4.59	34.19	27.11	103.1	.954
1006	3.58	34.408	3.28				46.6	124		700	4.36	34.27	27.20	95.2	1.053
1207	3.20	34.481	3.29				46.8	135		800	4.19	34.34	27.27	88.7	1.145
1396*	2.80	34.507	3.33				46.9			1000	3.60	34.41	27.38	78.8	1.312
1597*	2.43	34.542								1200	3.21	34.48	27.48	70.1	1.461
1795*	2.12	34.576	3.14				46.6	143		1500	2.60	34.52	27.57	61.5	1.658
1995*	1.95	34.600	2.98							2000	1.95	34.60	27.68	50.7	1.938
2194*	1.84	34.619	3.07				44.2	149		2500	1.75	34.63	27.72	48.6	2.186
2393*	1.77	34.620	2.70				34.1	149							
2593*	1.75	34.643	2.49				30.7	145							

NH-125 44 39.1 N 126 59.1 W DATE 21 NOV 67 1837 GCT WIRE 04 DRY 55.0 WET 53.0
WIND DIRECTION 01 VEL 16 KTS BAR 26 SWELL DIRECTION 31 H 07 T 09 CLOUD 01 AMT 02 WEATHER 01

0	13.27	32.253	6.13							0	13.27	32.26	24.24	369.5	0
10	13.28	32.253	6.18	.47			.4	1		10	13.28	32.26	24.24	369.9	.037
30	13.27	32.253	6.05	.45			.6	1		20	13.27	32.25	24.24	370.3	.074
50	8.86	32.663	5.74	1.08			7.3	8		30	13.27	32.26	24.24	370.2	.111
75	8.40	33.166	4.43	1.68			17.4	21		50	8.86	32.67	25.34	245.7	.175
100	8.07	33.576	3.69	2.05			24.4	30		75	8.40	33.17	25.81	222.0	.236
125	7.79	33.785	3.25	2.16			27.0	34		100	8.07	33.58	26.18	187.2	.287
151	7.53	33.883	2.74	2.17			29.7	39		150	7.54	33.88	26.49	158.1	.373
201	7.10	33.973	2.18	2.49			32.5	46		200	7.11	33.97	26.62	146.2	.449
251	6.78	34.006	1.99	2.43			46			250	6.79	34.01	26.69	140.1	.521
302	6.24	34.032	1.61	2.62			54			300	6.26	34.03	26.78	132.1	.589
402	5.53	34.074	1.09	2.99			40.4	72		400	5.54	34.07	26.90	121.4	.715
604	4.74	34.211	.44	3.23			43.8	93		500	5.08	34.14	27.01	111.6	.832
805	4.09	34.341	.26	3.33			45.6	118		600	4.75	34.21	27.10	103.9	.940
1006	3.52	34.427	.36							700	4.42	34.28	27.19	95.5	1.039
1203	3.17	34.479	.56	3.31			41.0	138		800	4.10	34.34	27.28	88.0	1.131
										1000	3.53	34.42	27.40	76.7	1.296
										1200	3.17	34.48	27.48	69.6	1.442

OBSERVED

INTERPOLATED

DERIVED

TABLE III. Other Hydrographic Data for 1967.

OBSERVED								INTERPOLATED				DERIVED			
D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ _t	δ (x10 ⁶)	ΔD (dyn.m)
NH-65	44 39.0 N	125 35.2 W	DATE 15 FEB 67	0235 GCT	WIRE	DRY	WET								
WIND DIRECTION	VEL	KTS	BAR	SWELL DIRECTION	H	DRY CLOUD	WET AMT	WEATHER							
0	9.64					0	9.64								
10	9.65					10	9.65								
25	9.64					20	9.64								
50	9.65					30	9.64								
75	9.62					50	9.65								
101	7.52					75	9.63								
125	7.53					100	7.60								
150	7.51					150	7.52								
201	7.19					200	7.20								
251	6.61					250	6.62								
302	6.13					300	6.15								
402	5.29					400	5.30								
603	4.80					500	4.86								
804	4.02					600	4.60								
1006	3.46					700	4.31								
						800	4.03								
						1000	3.48								
D-2	44 36.5 N	127 52.7 W	DATE 22 FEB 67	1215 GCT	WIRE	DRY	46.5	WET	45.4						
WIND DIRECTION	27 VEL	04 KTS	BAR	27 SWELL DIRECTION	33 H	05 T	11 CLCUD	05 AMT	08 WEATHER	02					
0	9.07	32.460				0	9.07	32.46	25.15	283.2	0				
10	9.05	32.458				10	9.05	32.46	25.15	283.2	.028				
51	9.00	32.458				20	9.04	32.46	25.15	283.4	.057				
80	8.19	32.938				30	9.03	32.46	25.15	283.4	.085				
85	8.00	33.185				50	9.01	32.46	25.16	283.4	.142				
89	7.98	33.275				75	8.37	32.78	25.51	250.3	.208				
95	7.93	33.292				100	7.94	33.35	26.02	202.1	.265				
100	7.93	33.348				150	7.55	33.85	26.46	160.8	.356				
125	7.81	33.697				200	7.03	33.93	26.60	148.1	.433				
175	7.25	33.894				250	6.62	33.97	26.68	140.8	.505				
226	6.82	33.951				300	6.22	33.99	26.76	134.5	.574				
301	6.21	33.992				400	5.57	34.04	26.87	124.2	.703				
402	5.56	34.041				500	5.07	34.11	26.99	113.7	.822				
602	4.66	34.181				600	4.67	34.18	27.09	105.0	.931				
803	4.01	34.320				700	4.32	34.25	27.18	96.2	1.032				
1004	3.49	34.412				800	4.02	34.32	27.27	88.5	1.124				
1204	3.07	34.472				1000	3.50	34.41	27.39	77.3	1.290				
						1200	3.08	34.47	27.48	69.1	1.436				
D-3	44 39.5 N	127 52.5 W	DATE 22 FEB 67	1445 GCT	WIRE	DRY	46.9	WET	43.0						
WIND DIRECTION	22 VEL	04 KTS	BAR	26 SWELL DIRECTION	33 H	05 T	10 CLOUD	06 AMT	08 WEATHER	02					
0	9.05	32.463				0	9.05	32.47	25.16	282.6	0				
25	9.02	32.458				10	9.04	32.47	25.16	282.8	.028				
50	9.02	32.456				20	9.03	32.46	25.16	282.9	.057				
74	8.98	32.472				30	9.02	32.46	25.15	283.4	.045				
84	8.21	32.880				50	9.02	32.46	25.16	283.4	.142				
95	7.96	33.114				75	8.90	32.51	25.21	278.2	.212				
110	8.07	33.468				100	7.98	33.25	25.93	210.8	.273				
125	7.92	33.543				150	7.72	33.71	26.33	173.3	.349				
175	7.50	33.857				200	7.17	33.91	26.56	151.8	.450				
201	7.16	33.910				250	6.72	33.96	26.67	142.5	.524				
235	6.85	33.953				300	6.29	33.98	26.74	136.2	.593				
301	6.28	33.981				400	5.53	34.05	26.89	123.1	.723				
401	5.52	34.049				500	5.02	34.12	27.00	112.2	.840				
602	4.64	34.190				600	4.65	34.19	27.10	104.1	.948				
802	4.04	34.324				700	4.33	34.26	27.19	95.7	1.048				
1003	3.49	34.410				800	4.05	34.32	27.27	88.5	1.140				
1203	3.03	34.481				1000	3.50	34.41	27.39	77.4	1.306				
						1200	3.04	34.48	27.49	67.9	1.452				

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
D-4 44 40.2 N 127 53.9 W DATE 22 FEB 67 1735 GCT WIRE 03 DRY WET															
WIND DIRECTION 26 VEL 04 KTS BAR 26 SWELL DIRECTION 32 H 04 T 10 CLOUD 06 AMT 08 WEATHER 02															
0	9.05	32.466								0	9.05	32.47	25.16	282.4	0
25	9.02	32.457								10	9.04	32.47	25.16	282.7	.028
74	8.55	32.711								20	9.03	32.46	25.16	282.9	.047
89	8.12	33.179								30	8.97	32.48	25.18	280.7	.085
99	7.92	33.284								50	8.91	32.59	25.27	272.4	.140
109	8.04	33.452								75	8.52	32.75	25.45	255.3	.266
119	7.92	33.509								100	7.93	33.30	25.98	205.9	.264
123	7.92	33.557								150	7.73	33.77	26.38	168.7	.367
168	7.52	33.855								200	7.19	33.93	26.58	150.4	.437
222	6.95	33.946								250	6.66	33.97	26.68	141.1	.510
247	6.69	33.968								300	6.18	34.00	26.77	133.4	.578
299	6.19	33.999								400	5.46	34.05	26.90	121.8	.766
399	5.47	34.054								500	4.93	34.13	27.02	110.5	.822
599	4.54	34.201								600	4.54	34.20	27.12	101.9	.928
798	4.03	34.323								700	4.26	34.27	27.20	94.3	1.026
998	3.51	34.405								800	4.02	34.32	27.27	88.1	1.118
1196	3.10	34.466								1000	3.51	34.41	27.39	77.8	1.283
										1200	3.09	34.47	27.48	69.5	1.461
D-5 44 40.2 N 127 51.6 W DATE 22 FEB 67 2045 GCT WIRE 04 DRY 50.2 WET 46.3															
WIND DIRECTION 22 VEL 06 KTS BAR 26 SWELL DIRECTION 32 H 03 T 10 CLOUD 06 AMT 08 WEATHER 02															
0	9.19	32.465								0	9.19	32.47	25.14	284.6	0
25	9.00	32.458								10	9.11	32.47	25.15	283.8	.028
49	8.97	32.454								20	9.04	32.46	25.15	283.1	.057
94	8.20	33.368								30	8.99	32.46	25.16	283.0	.045
104	8.03	33.480								50	8.96	32.47	25.17	281.7	.141
113	8.49	33.556								75	8.58	32.95	25.61	241.0	.207
123	7.96	33.634								100	8.05	33.44	26.07	197.4	.262
128	7.93	33.698								150	7.73	33.83	26.42	164.7	.352
168	7.53	33.857								200	7.16	33.93	26.58	149.8	.431
197	7.19	33.929								250	6.71	33.97	26.68	141.6	.504
246	6.75	33.970								300	6.25	34.00	26.76	134.0	.572
299	6.26	34.004								400	5.56	34.05	26.88	123.6	.701
398	5.57	34.045								500	5.06	34.11	26.99	113.5	.820
597	4.68	34.174								600	4.67	34.18	27.09	105.3	.929
996	3.57	34.411								700	4.33	34.24	27.18	96.9	1.030
1195	3.14	34.469								800	4.04	34.31	27.26	88.6	1.123
										1000	3.56	34.41	27.39	77.9	1.291
										1200	3.13	34.47	27.48	69.7	1.438
D-6 44 39.5 N 127 50.5 W DATE 22 FEB 67 2315 GCT WIRE 07 DRY 49.5 WET 46.4															
WIND DIRECTION 21 VEL 05 KTS BAR 25 SWELL DIRECTION 32 H 03 T 10 CLOUD 06 AMT 08 WEATHER 02															
0	9.17	32.464								0	9.17	32.47	25.14	284.4	0
25	9.03	32.458								10	9.11	32.47	25.15	283.8	.028
49	8.97	32.458								20	9.06	32.46	25.15	283.4	.057
74	9.09	32.456								30	9.00	32.46	25.16	283.1	.045
89	8.11	33.043								50	8.99	32.46	25.16	283.2	.142
95	7.99	33.300								75	9.02	32.49	25.18	281.8	.212
104	8.01	33.464								100	7.99	33.41	26.06	198.5	.272
109	7.98	33.522								150	7.70	33.80	26.40	166.5	.364
124	7.93	33.650								200	7.18	33.92	26.57	151.2	.443
172	7.45	33.872								250	6.71	33.96	26.67	142.2	.516
224	6.95	33.935								300	6.27	34.01	26.76	134.1	.585
299	6.28	34.006								400	5.61	34.05	26.87	124.2	.714
398	5.62	34.045								500	5.07	34.11	26.99	113.2	.833
597	4.66	34.187								600	4.65	34.19	27.10	104.1	.942
796	4.09	34.305								700	4.34	34.25	27.18	96.5	1.042
995	3.51	34.404								800	4.08	34.31	27.25	90.0	1.135
1193	3.10	34.468								1000	3.50	34.41	27.39	77.7	1.303
										1200	3.09	34.47	27.48	69.2	1.450
D-7 44 38.3 N 127 50.6 W DATE 23 FEB 67 0145 GCT WIRE 00 DRY 48.1 WET 45.8															
WIND DIRECTION 24 VEL 08 KTS BAR 24 SWELL DIRECTION 30 H 03 T 10 CLOUD 06 AMT 08 WEATHER 02															
0	9.13	32.455								0	9.13	32.46	25.14	284.4	0
50	8.94	32.449								10	9.11	32.46	25.14	284.3	.028
90	8.17	33.075								20	9.05	32.46	25.15	283.7	.057
95	8.05	33.256								30	9.02	32.46	25.15	283.4	.045
100	8.05	33.336								50	8.94	32.45	25.16	282.8	.142
105	8.09	33.436								75	8.53	32.71	25.42	258.3	.209
110	8.08	33.532								100	8.05	33.34	25.99	204.7	.247
151	7.77	33.836								150	7.78	33.84	26.42	164.9	.360
174	7.36	33.889								200	7.06	33.93	26.60	148.6	.438
215	6.95	33.949								250	6.78	33.98	26.67	142.3	.511
248	6.80	33.975								300	6.31	34.00	26.75	134.6	.580
300	6.30	34.000								400	5.57	34.06	26.89	123.1	.709
400	5.57	34.051								500	5.04	34.11	27.00	112.7	.827
600	4.64	34.184								600	4.65	34.19	27.10	104.1	.935
800	4.06	34.321								700	4.32	34.26	27.19	96.0	1.035
1000	3.54	34.404								800	4.06	34.33	27.27	88.5	1.127
1200	3.08	34.470								1000	3.54	34.40	27.39	78.4	1.294
										1200	3.08	34.47	27.48	69.2	1.441

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D	T	S	O ₂	PO ₄	pH	Alk.	NO ₃	SiO ₂	ΣCO ₂	Z	T	S	σ_t	S	ΔD
(m)	(°C)	(‰)	(ml/l)	(μM)		(meq/l)	(μM)	(μM)	(mM)	(m)	(°C)	(‰)		(x10 ⁵)	(dyn.m)

D-8 44 38.2 N 127 49.5 W DATE 23 FEB 67 0415 GCT WIPE 02 DRY WET
WIND DIRECTION 23 VEL 07 KTS BAR 23 SWELL DIRECTION 31 H 03 T 10 CLOUD 06 AMT 08 WEATHER 02

0	9.13	32.462								0	9.13	32.47	25.14	283.9	0
25	9.00	32.456								10	9.08	32.46	25.15	283.5	.028
50	8.99	32.454								20	9.03	32.46	25.15	283.4	.047
74	8.95	32.454								30	9.00	32.46	25.16	283.1	.045
84	8.33	32.439								50	8.99	32.46	25.16	283.1	.142
99	7.99	33.133								75	8.89	32.52	25.22	277.6	.212
109	8.00	33.302								100	7.99	33.15	25.85	217.9	.274
129	7.96	33.591								150	7.76	33.78	26.38	168.8	.370
159	7.64	33.830								200	7.11	33.93	26.58	149.7	.450
179	7.32	33.899								250	6.69	33.97	26.68	141.5	.523
199	7.12	33.925								300	6.32	34.00	26.75	135.2	.592
301	6.31	34.000								400	5.59	34.05	26.88	123.7	.721
401	5.58	34.050								500	5.03	34.12	27.00	112.3	.839
602	4.59	34.196								600	4.60	34.19	27.11	103.1	.947
802	4.00	34.328								700	4.27	34.26	27.20	94.7	1.046
1003	3.48	34.415								800	4.00	34.33	27.28	87.7	1.137
1202	3.10	34.470								1000	3.49	34.41	27.40	77.0	1.301
										1200	3.10	34.47	27.48	69.5	1.448

D-9 44 38.7 N 127 48.2 W DATE 23 FEB 67 0655 GCT WIPE 02 DRY 48.2 WET 46.5
WIND DIRECTION 19 VEL 06 KTS BAR 22 SWELL DIRECTION 31 H 03 T 10 CLOUD 06 AMT 08 WEATHER 02

0	9.14	32.461								0	9.14	32.47	25.14	284.1	0
20	8.97	32.443								10	9.05	32.46	25.15	283.6	.028
49	8.98	32.454								20	8.97	32.45	25.15	283.2	.057
81	8.21	32.498								30	8.97	32.45	25.15	283.4	.045
91	8.06	33.113								50	8.96	32.46	25.17	282.4	.142
99	8.09	33.151								75	8.37	32.78	25.51	250.3	.208
124	7.95	33.563								100	8.09	33.37	26.01	203.3	.265
133	7.86	33.655								150	7.77	33.77	26.37	169.7	.358
143	7.83	33.732								200	7.22	33.93	26.57	150.9	.498
217	6.97	33.940								250	6.60	33.98	26.69	139.9	.511
247	6.63	33.974								300	6.15	34.00	26.77	132.7	.579
299	6.16	34.004								400	5.50	34.05	26.89	122.6	.767
399	5.51	34.050								500	5.00	34.12	27.00	111.9	.824
599	4.61	34.195								600	4.61	34.20	27.11	103.1	.911
799	4.04	34.324								700	4.30	34.26	27.20	95.1	1.030
998	3.56	34.411								800	4.04	34.32	27.27	88.2	1.122
										1000	3.56	34.41	27.39	77.9	1.248

D-10 44 39.3 N 127 47.1 W DATE 23 FEB 67 0725 GCT WIPE 04 DRY 48.2 WET 46.5
WIND DIRECTION 19 VEL 08 KTS BAR 21 SWELL DIRECTION 30 H 03 T 10 CLOUD 05 AMT 08 WEATHER 02

0	9.03	32.445								0	9.03	32.45	25.15	283.7	0
39	8.88	32.441								10	8.99	32.45	25.15	283.3	.028
79	8.14	33.031								20	8.95	32.45	25.16	282.9	.057
84	8.13	33.118								30	8.92	32.45	25.16	282.7	.045
89	8.09	33.221								50	8.66	32.55	25.28	271.8	.140
93	8.09	33.343								75	8.21	32.95	25.66	235.9	.204
99	8.08	33.364								100	8.08	33.37	26.01	202.7	.259
144	7.76	33.774								150	7.70	33.80	26.40	166.1	.351
183	7.29	33.902								200	7.07	33.94	26.60	147.9	.429
199	7.08	33.940								250	6.60	33.98	26.70	139.5	.501
249	6.61	33.981								300	6.20	34.00	26.77	133.4	.569
298	6.22	34.003								400	5.46	34.05	26.90	122.1	.697
397	5.48	34.049								500	4.96	34.12	27.01	111.4	.814
596	4.62	34.192								600	4.61	34.19	27.11	103.2	.921
795	4.11	34.310								700	4.33	34.26	27.19	96.0	1.021
993	3.57	34.404								800	4.10	34.31	27.26	89.8	1.113
1193	3.11	34.470								1000	3.55	34.41	27.39	78.2	1.281
										1200	3.09	34.47	27.48	69.2	1.429

D-11 44 40.1 N 127 46.8 W DATE 23 FEB 67 1255 GCT WIPE 08 DRY 50.1 WET 48.8
WIND DIRECTION 24 VEL 08 KTS BAR 19 SWELL DIRECTION 30 H 04 T 10 CLOUD 06 AMT 08 WEATHER 02

0	9.03	32.446								0	9.03	32.45	25.15	283.6	0
49	8.98	32.470								10	9.02	32.46	25.15	283.2	.028
73	8.32	32.464								20	9.01	32.46	25.16	282.9	.057
78	8.11	33.027								30	9.00	32.46	25.16	282.5	.045
83	8.11	33.069								50	8.97	32.48	25.18	281.5	.141
87	8.08	33.083								75	8.22	32.93	25.65	237.0	.206
98	8.08	33.312								100	8.07	33.34	25.99	204.8	.261
124	7.92	33.613								150	7.69	33.80	26.41	166.0	.354
146	7.74	33.783								200	7.11	33.94	26.60	148.4	.433
196	7.14	33.937								250	6.71	33.98	26.68	140.9	.505
246	6.75	33.979								300	6.20	34.01	26.77	133.1	.573
294	6.25	34.004								400	5.45	34.05	26.90	121.9	.701
392	5.50	34.047								500	4.97	34.12	27.01	111.6	.817
588	4.68	34.184								600	4.64	34.19	27.10	103.9	.925
785	4.16	34.300								700	4.37	34.25	27.18	96.8	1.025
981	3.63	34.405								800	4.12	34.31	27.25	90.3	1.119
1176	3.12	34.460								1000	3.58	34.41	27.39	78.1	1.297
										1200	3.06	34.47	27.48	69.2	1.444

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D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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D-12 44 41.6 N 127 45.0 W DATE 23 FEB 67 1426 GCT WIRE 00 DRY WET
WIND DIRECTION 1A VEL 12 KTS BAR 17 SWELL DIRECTION 18 H 03 T 05 CLOUD 06 AMT 07 WEATHER 02

0	9.08	32.468								0	9.08	32.47	25.16	282.7	0
50	8.97	32.474								10	9.06	32.47	25.16	282.5	.029
69	8.34	32.794								20	9.04	32.47	25.16	282.3	.046
74	8.22	32.840								30	9.01	32.48	25.17	281.8	.045
84	7.94	33.197								50	8.97	32.48	25.18	281.4	.141
89	8.02	33.261								75	8.18	32.87	25.61	240.8	.266
100	7.95	33.451								100	7.95	33.46	26.10	194.8	.241
105	7.99	33.511								150	7.78	33.80	26.39	167.2	.341
151	7.77	33.808								200	7.28	33.95	26.58	150.5	.431
200	7.27	33.940								250	6.75	33.98	26.67	141.7	.554
251	6.74	33.978								300	6.32	34.00	26.75	135.3	.573
301	6.31	33.998								400	5.60	34.05	26.98	123.9	.702
401	5.59	34.049								500	5.07	34.11	26.99	113.1	.821
601	4.66	34.186								600	4.66	34.19	27.09	104.6	.930
801	4.06	34.320								700	4.34	34.25	27.19	96.2	1.030
1002	3.55	34.419								800	4.06	34.32	27.27	88.9	1.122
1201	3.12	34.470								1000	3.55	34.42	27.40	77.4	1.289
										1200	3.12	34.47	27.48	69.7	1.436

NH-450 44 47.2 N 135 02.0 W DATE 03 MAR 67 0115 GCT WIRE DRY 48.5 WET 48.2
WIND DIRECTION 01 VEL 18 KTS BAR 35 SWELL DIRECTION 00 H 04 T 07 CLOUD 04 AMT 08 WEATHER 20

0										0	8.77	32.75	25.42	257.5	0
15	8.77	32.746								10	8.76	32.73	25.41	258.9	.026
25	8.79	32.777								20	8.78	32.76	25.43	257.1	.052
45	8.82	32.771								30	8.80	32.78	25.44	256.5	.077
71	8.83	32.762								50	8.82	32.77	25.43	257.7	.129
97	8.86	32.791								75	8.83	32.77	25.42	258.3	.193
121	8.07	33.232								100	8.76	32.84	25.49	252.3	.257
146	8.04	33.554								150	7.99	33.59	26.19	186.4	.367
196	7.26	33.794								200	7.20	33.81	26.48	159.9	.453
246	6.55	33.892								250	6.49	33.90	26.64	144.4	.529
297	5.85									300	5.81	33.94	26.76	133.5	.599
398	4.77	33.968								400	4.75	33.97	26.91	119.8	.725
498	4.18	34.035								500	4.18	34.04	27.03	108.6	.839
599	4.04	34.119								600	4.04	34.12	27.11	102.2	.945
800	3.56	34.378								700	3.81	34.23	27.22	91.7	1.042
998	3.19									800	3.57	34.38	27.36	78.9	1.127
										1000	3.19	34.42	27.43	72.9	1.279

HC 1 44 38.9 N 126 45.2 W DATE 12 MAR 67 1341 GCT WIRE 00 DRY 45.1 WET 44.0
WIND DIRECTION 14 VEL 20 KTS BAR 06 SWELL DIRECTION 29 H 07 T 09 CLOUD 06 AMT 08 WEATHER 00

0	9.71	32.550								0	9.71	32.55	25.12	286.2	0
10	9.72	32.542								10	9.72	32.55	25.11	287.1	.029
20	9.70	32.544								20	9.70	32.55	25.12	286.8	.057
30	9.72	32.548								30	9.72	32.55	25.12	287.0	.086
50	9.63	32.558								50	9.63	32.56	25.14	285.2	.143
76	9.64	32.570								75	9.64	32.56	25.14	285.7	.215
101	8.68	33.355								100	8.72	33.32	25.87	216.0	.277
151	7.88	33.825								150	7.89	33.82	26.39	167.2	.373
202	7.33	33.951								200	7.35	33.95	26.57	151.1	.453
252	6.89	33.992								250	6.91	33.99	26.66	142.8	.526
303	6.32	33.985								300	6.35	33.99	26.73	136.7	.596
404	5.42	34.026								400	5.45	34.02	26.88	124.0	.726
505	4.92	34.124								500	4.94	34.12	27.01	111.2	.844
606	4.74	34.225								600	4.75	34.22	27.11	103.0	.951
808	4.11	34.338								700	4.47	34.29	27.20	95.4	1.050
1009	3.53	34.429								800	4.14	34.33	27.27	88.7	1.142
										1000	3.55	34.43	27.40	76.9	1.307

HC 2 44 39.2 N 126 45.7 W DATE 12 MAR 67 1648 GCT WIRE 02 DRY WET
WIND DIRECTION 11 VEL 18 KTS BAR 05 SWELL DIRECTION 30 H 06 T 09 CLOUD 06 AMT 08 WEATHER 03

0	9.72	32.553								0	9.72	32.56	25.12	286.2	0
10	9.72	32.546								10	9.72	32.55	25.11	286.8	.029
30	9.67	32.539								20	9.70	32.54	25.11	287.3	.057
50	9.63	32.553								30	9.67	32.54	25.12	286.9	.086
76	9.60	32.749								50	9.63	32.56	25.13	285.5	.143
101	8.72	33.331								75	9.61	32.74	25.20	272.4	.213
126	8.24	33.554								100	8.76	33.31	25.86	217.5	.274
152	7.81	33.841								150	7.84	33.83	26.41	166.1	.370
201	7.27	33.943								200	7.28	33.94	26.57	150.7	.449
252	6.54	33.968								250	6.57	33.97	26.69	140.1	.522
302	5.99	33.975								300	6.01	33.97	26.77	133.1	.590
402	5.45	34.047								400	5.46	34.05	26.89	122.5	.718
503	4.94	34.120								500	4.95	34.12	27.01	111.5	.835
604	4.74	34.216								600	4.75	34.21	27.11	103.5	.942
805	4.09	34.324								700	4.45	34.27	27.19	96.0	1.042
1007	3.51	34.426								800	4.11	34.32	27.26	89.2	1.135
										1000	3.53	34.42	27.40	76.8	1.301

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D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _i	δ (x10 ⁻⁵)	ΔD (dyn.m)
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HC 7 44 40.9 N 126 49.5 W DATE 13 MAR 67 0935 GCT WIRE 17 DRY 46.0 WET 42.2
WIND DIRECTION 12 VEL 10 KTS BAR 04 SWELL DIRECTION 30 H 06 T 07 CLOUD 06 AMT 08 WEATHER 02

0	9.68	32.559								0	9.68	32.56	25.13	285.1	0
10	9.67	32.552								10	9.67	32.56	25.13	285.6	.029
29	9.66	32.551								20	9.66	32.55	25.12	286.0	.057
48	9.43	32.558								30	9.65	32.55	25.13	285.9	.086
73	9.64	32.576								50	9.66	32.56	25.16	282.8	.143
97	8.47	33.302								75	9.55	32.63	25.20	279.3	.213
122	8.25	33.666								100	8.42	33.36	25.95	208.3	.274
146	8.03	33.760								150	7.96	33.77	26.34	172.1	.369
195	7.19	33.881								200	7.14	33.89	26.55	152.6	.450
245	6.73	33.953								250	6.68	33.96	26.67	142.3	.524
293	6.22	33.975								300	6.17	33.98	26.75	134.7	.593
391	5.60	34.053								400	5.54	34.06	26.89	122.3	.721
490	4.94	34.137								500	4.89	34.15	27.04	108.6	.837
588	4.50	34.221								600	4.46	34.23	27.15	99.0	.941
787	3.99	34.326								700	4.18	34.29	27.23	92.0	1.036
987	3.50	34.412								800	3.96	34.33	27.29	86.8	1.125
										1000	3.47	34.42	27.40	76.5	1.288

HC 8 44 41.4 N 126 51.3 W DATE 13 MAR 67 1225 GCT WIRE 01 DRY 45.7 WET 42.0
WIND DIRECTION VEL 00 KTS BAR 05 SWELL DIRECTION 30 H 05 T 09 CLOUD 06 AMT 08 WEATHER 02

0	9.57	32.529								10	9.59	32.53	25.12	286.1	.029
10	9.59	32.529								20	9.57	32.53	25.12	286.2	.057
30	9.54	32.529								30	9.54	32.53	25.13	285.6	.086
50	9.55	32.529								50	9.55	32.53	25.13	286.1	.143
76	9.20	32.625								75	9.22	32.62	25.24	275.3	.213
101	8.42	33.229								100	8.45	33.20	25.82	220.7	.275
125	7.94	33.560								150	7.50	33.70	25.35	171.3	.373
152	7.47	33.702								200	7.02	33.89	25.57	151.3	.454
201	7.01	33.890								250	6.80	34.00	25.68	140.9	.527
251	6.79	33.998								300	6.11	34.01	25.78	131.6	.595
301	6.09	34.011								400	5.32	34.05	25.91	120.5	.721
402	5.31	34.050								500	4.82	34.10	27.01	110.8	.836
502	4.81	34.106								600	4.47	34.18	27.11	102.6	.943
603	4.46	34.184								700	4.21	34.26	27.20	94.5	1.042
804	3.97	34.329								800	3.98	34.33	27.28	87.4	1.133
1006	3.40	34.424								1000	3.42	34.42	27.41	75.6	1.295

HC 9 44 41.0 N 126 53.5 W DATE 13 MAR 67 1459 GCT WIRE 05 DRY 46.5 WET 44.0
WIND DIRECTION 19 VEL 10 KTS BAR 05 SWELL DIRECTION 30 H 05 T 09 CLOUD 06 AMT 08 WEATHER 02

0	9.48	32.529								10	9.52	32.53	25.13	285.0	.028
10	9.52	32.529								20	9.52	32.53	25.13	285.4	.057
30	9.52	32.532								30	9.52	32.54	25.14	285.1	.085
50	9.56	32.544								50	9.56	32.55	25.14	284.8	.142
76	8.72	32.717								75	8.76	32.71	25.39	261.7	.211
101	7.90	33.106								100	7.92	33.09	25.81	221.7	.271
124	7.94	33.540								150	7.53	33.69	26.34	171.9	.370
152	7.49	33.700								200	7.06	33.88	26.55	152.4	.451
201	7.06	33.883								250	6.85	33.98	26.67	142.6	.524
252	6.84	33.987								300	6.25	34.01	26.77	133.2	.593
301	6.24	34.015								400	5.31	34.03	26.90	121.6	.721
402	5.30	34.034								500	4.89	34.08	26.99	113.4	.838
503	4.88	34.083								600	4.55	34.17	27.09	104.6	.947
603	4.54	34.170								700	4.30	34.24	27.18	96.6	1.048
805	4.07	34.315								800	4.08	34.31	27.26	89.7	1.141
1006	3.48	34.419								1000	3.50	34.42	27.40	76.9	1.307

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D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ _t	δ (x10 ⁶)	ΔD (dyn.m)
HR 1 43 58.4 N 127 19.3 W DATE 14 MAR 67 0031 GCT WIRE 01 DRY 48.1 WET 44.0															
WIND DIRECTION 15 VEL 10 KTS	BAR 02 SWELL DIRECTION 30 H 05 T 09 CLOUD 08 AMT 04 WEATHER 01														
0 9.30 32.495										0 9.30 32.50			25.14	284.0	0
10 9.00 32.495										10 9.00 32.50			25.19	279.7	.028
30 8.89 32.496										20 8.90 32.50			25.20	278.6	.056
51 8.89 32.511										30 8.89 32.50			25.21	278.2	.084
76 9.16 32.627										50 8.89 32.51			25.21	277.8	.140
91 9.05 32.777										75 9.15 32.62			25.26	273.9	.208
111 7.67 33.170										100 7.81 32.94			25.71	230.9	.272
131 7.63 33.539										150 7.77 33.75			26.35	171.1	.372
152 7.78 33.765										200 7.16 33.91			26.57	161.2	.453
202 7.12 33.920										250 6.40 33.92			26.68	141.0	.526
253 6.35 33.925										300 5.70 33.94			26.78	132.0	.594
303 5.66 33.938										400 5.17 34.03			26.92	119.8	.720
403 5.16 34.037										500 4.58 34.09			27.03	108.9	.834
504 4.56 34.096										600 4.40 34.19			27.13	101.2	.939
605 4.40 34.195										700 4.21 34.26			27.20	94.2	1.037
807 3.95 34.319										800 3.97 34.32			27.27	88.1	1.128
1009 3.36 34.413										1000 3.39 34.41			27.40	76.2	1.292
HR 2 43 58.6 N 127 16.5 W DATE 14 MAR 67 0242 GCT WIRE 03 DRY 47.1 WET 43.5															
WIND DIRECTION 18 VEL 10 KTS	BAR 01 SWELL DIRECTION 32 H 05 T 09 CLOUD 08 AMT 06 WEATHER 03														
0 9.20 32.506										0 9.20 32.51			25.17	281.7	0
10 9.15 32.506										10 9.15 32.51			25.17	281.1	.028
30 8.95 32.498										20 9.05 32.50			25.18	280.3	.056
51 8.92 32.504										30 8.95 32.50			25.20	279.0	.084
76 9.19 32.629										50 8.92 32.50			25.20	278.8	.140
91 7.71 32.832										75 9.18 32.62			25.26	274.3	.209
111 7.90 33.347										100 7.80 33.06			25.81	221.9	.271
131 7.70 33.633										150 7.71 33.80			26.40	166.7	.368
152 7.71 33.809										200 7.07 33.94			26.61	147.7	.447
201 7.05 33.945										250 6.62 33.99			26.70	139.3	.519
252 6.60 33.988										300 5.99 34.00			26.79	130.7	.586
302 5.96 34.004										400 5.02 34.00			26.91	120.4	.711
403 34.002										500 4.50 34.08			27.03	108.7	.826
504 4.49 34.089										600 4.45 34.19			27.12	101.7	.931
604 4.45 34.195										700 4.25 34.27			27.20	94.2	1.029
806 3.94 34.328										800 3.96 34.33			27.28	87.3	1.120
1008 3.39 34.426										1000 3.41 34.42			27.41	75.4	1.282
HR 3 43 59.1 N 127 18.0 W DATE 14 MAR 67 0459 GCT WIRE 08 DRY T CLOUD 08 AMT WEATHER															
WIND DIRECTION VEL KTS	BAR 01 SWELL DIRECTION H T CLOUD 08 AMT WEATHER														
0 9.08 32.506										0 9.08 32.51			25.19	279.9	0
25 9.08 32.506										10 9.08 32.51			25.19	280.0	.028
60 8.91 32.506										20 9.08 32.51			25.18	280.5	.056
76 9.18 32.634										30 9.03 32.51			25.19	279.9	.084
91 8.12 32.791										50 8.92 32.51			25.21	278.5	.140
111 7.76 33.384										75 9.16 32.62			25.26	273.8	.209
131 7.73 33.704										100 7.86 33.05			25.79	223.8	.271
152 7.69 33.927										150 7.70 33.82			26.42	164.8	.368
177 7.33 33.918										200 7.11 33.95			26.60	147.8	.446
201 7.10 33.951										250 6.59 33.99			26.70	139.1	.518
252 6.57 33.986										300 6.09 34.00			26.78	132.1	.586
302 6.07 34.002										400 5.00 34.01			26.92	119.8	.712
403 4.97 34.008										500 4.56 34.07			27.01	110.4	.827
503 4.55 34.072										600 4.49 34.18			27.11	102.8	.933
604 4.49 34.186										700 4.24 34.27			27.21	94.1	1.032
805 3.90 34.338										800 3.92 34.34			27.29	86.1	1.122
1007 3.37 34.426										1000 3.39 34.42			27.42	75.1	1.283
HR 4 43 58.6 N 127 18.3 W DATE 14 MAR 67 0725 GCT WIRE 08 DRY 46.5 WET 43.4															
WIND DIRECTION 22 VEL 16 KTS	BAR 00 SWELL DIRECTION 32 H 05 T 09 CLOUD 08 AMT 02 WEATHER 02														
0 9.10 32.51										0 9.10 32.51			25.18	279.9	0
25 9.05 32.510										10 9.07 32.51			25.18	280.0	.028
60 8.72 32.690										20 9.00 32.52			25.19	280.1	.056
76 7.57 32.881										30 8.98 32.61			25.28	271.8	.139
90 7.54 33.037										50 8.98 32.61			25.68	233.7	.202
110 7.63 33.482										75 7.63 32.87			25.68	233.7	.202
130 7.65 33.662										100 7.60 33.26			25.99	204.5	.257
151 7.73 33.803										150 7.73 33.80			26.40	166.9	.350
175 7.50 33.869										200 7.30 33.92			26.55	152.5	.430
200 7.29 33.916										250 6.73 33.94			26.65	144.3	.504
251 6.72 33.940										300 6.42 33.99			26.73	137.4	.574
300 6.41 33.982										400 5.11 33.96			26.86	124.8	.705
400 5.11 33.953										500 4.56 34.04			26.99	112.5	.824
501 4.56 34.044										600 4.55 34.17			27.09	104.4	.932
601 4.55 34.171										700 4.31 34.25			27.19	95.9	1.032
801 3.97 34.313										800 3.97 34.31			27.27	88.4	1.124
1001 3.45 34.404										1000 3.45 34.40			27.39	77.3	1.290

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D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk.	NO ₃ (meq/l)	SiO ₂ (µM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ _t	δ (x10 ⁸)	ΔD (dyn.m)
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HR 5 43 58.2 N 127 16.4 W DATE 14 MAR 67 1020 GCT WIRE 04 DRY 45.4 WET 41.2
WIND DIRECTION 19 VEL 20 KTS BAR 99 SWELL DIRECTION 32 H 06 T 08 CLOUD 05 AMT 02 WEATHER 02

25	9.07	32.504								0	9.20	32.51	25.16	281.8	0
60	8.91	32.508								10	9.14	32.50	25.17	281.5	.028
76	8.77	32.636								20	9.09	32.50	25.18	280.9	.056
91	7.50	32.883								30	9.05	32.50	25.19	280.3	.084
111	7.77	33.186								50	8.96	32.51	25.20	279.1	.140
131	7.76	33.401								75	8.80	32.62	25.32	268.3	.209
152	7.62	33.545								100	7.62	33.03	25.81	222.0	.270
177	7.72	33.765								150	7.63	33.53	26.20	185.3	.372
202	7.49	33.860								200	7.52	33.86	26.47	160.5	.458
253	6.92	33.947								250	6.96	33.94	26.52	147.0	.535
302	6.00									300	6.04	33.97	26.76	134.0	.605
402	5.13	33.974								400	5.14	33.97	26.87	124.0	.734
503	4.53	34.055								500	4.54	34.05	27.00	111.6	.852
603	4.45	34.176								600	4.45	34.17	27.11	103.0	.959
803	3.99	34.303								700	4.25	34.25	27.19	95.7	1.058
1002	3.49	34.398								800	4.00	34.30	27.26	89.5	1.151
										1000	3.50	34.40	27.38	78.3	1.319

HR 6 43 59.2 N 127 14.3 W DATE 14 MAR 67 1303 GCT WIRE 04 DRY 45.5 WET 43.9
WIND DIRECTION 20 VEL 28 KTS BAR 96 SWELL DIRECTION H T CLOUD 06 AMT 08 WEATHER 03

0	9.00	32.496								0	9.00	32.50	25.19	279.5	0
25	8.89	32.496								10	8.92	32.45	25.16	282.3	.028
60	9.17	32.607								20	8.89	32.48	25.19	279.6	.056
76	9.18	32.624								30	8.93	32.51	25.21	278.0	.084
91	8.08	32.877								50	9.08	32.57	25.23	275.9	.139
111	7.87	33.299								75	9.18	32.62	25.25	274.4	.208
131	7.80	33.487								100	7.89	33.08	25.31	222.1	.270
152	7.81	33.736								150	7.81	33.71	26.32	174.3	.369
177	7.49	33.869								200	7.24	33.92	26.56	152.1	.451
201	7.23	33.918								250	6.59	33.98	26.70	139.4	.524
252	6.56	33.982								300	5.89	33.98	26.79	131.0	.591
403	4.80	33.982								400	4.82	33.98	26.92	119.7	.717
504	4.62	34.120								500	4.62	34.11	27.04	107.8	.830
604	4.37	34.203								600	4.38	34.20	27.14	100.1	.934
806	3.86	34.331								700	4.13	34.27	27.22	92.7	1.031
1007	3.36	34.419								800	3.88	34.33	27.29	86.1	1.120
										1000	3.38	34.42	27.41	75.5	1.281

NH-35 44 39.4 N 124 51.7 W DATE 21 MAR 67 2222 GCT WIRE 03 DRY WET
WIND DIRECTION 17 VEL 14 KTS BAR 20 SWELL DIRECTION 22 H 06 T 06 CLOUD 05 AMT 08 WEATHER 03

0	9.60	32.266								0	9.60	32.27	24.92	305.6	0
10	9.56	32.272								10	9.56	32.28	24.93	304.7	.031
50	9.44	32.1								20	9.54	32.28	24.93	304.3	.061
98*	8.88	33. *								30	9.52	32.29	24.94	303.4	.091
273*	7.24	33.471								50	9.44	32.31	24.97	301.1	.152
415*	6.18	34.037								75	9.17	32.69	25.31	269.4	.223
										100	8.86	33.13	25.70	232.1	.286
										150	8.34	33.58	26.14	191.9	.392
										200	7.86	33.86	26.43	164.9	.481
										250	7.43	33.86	26.49	159.9	.562
										300	7.02	34.03	26.68	142.5	.638
										400	6.28	34.03	26.78	134.0	.776

NH-45 44 39.1 N 125 06.2 W DATE 22 MAR 67 0123 GCT WIRE 01 DRY WET
WIND DIRECTION 17 VEL 17 KTS BAR 18 SWELL DIRECTION 23 H 05 T 09 CLOUD 05 AMT 08 WEATHER 03

0	9.59	32.247								0	9.59	32.25	24.90	306.8	0
10	9.58	32.245								10	9.58	32.25	24.90	307.0	.031
50	9.49	32.279								20	9.56	32.25	24.91	306.4	.061
100*	8.75	33.424								30	9.57	32.26	24.91	306.1	.092
360*	5.96	33.994								50	9.49	32.28	24.94	303.7	.153
625*	4.60	34.237								75	9.16	32.80	25.40	261.0	.224
										100	8.75	33.43	25.95	208.4	.282
										150	8.09	33.90	26.42	164.7	.375
										200	7.49	33.64	26.31	175.8	.461
										250	6.94	33.75	26.47	161.0	.545
										300	6.46	33.86	26.62	147.2	.622
										400	5.66	34.05	26.87	124.4	.758
										500	5.05	34.16	27.03	109.2	.874
										600	4.66	34.23	27.13	101.4	.979

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D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	8 (x10 ⁵)	ΔD (dyn.m)
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DB40 45 00.0 N 124 56.7 W DATE 08 MAY 67 1230 GCT WIRE 01 DRY 49.8 WET 47.7
WIND DIRECTION 01 VEL 30 KTS BAR 24 SWELL DIRECTION 32 H 05 T 09 CLOUD 08 AMT 02 WEATHER 01

0	10.68	32.156
10	10.63	32.156
20	10.63	32.156
30	10.25	32.502
40	9.63	32.516
50	9.51	32.522
60	9.43	32.560
70	9.29	32.638
81	8.96	32.825
101	8.65	33.197
126	8.19	33.646
152	7.77	33.835
202	7.31	33.930
252	6.86	33.958
300*	6.35	33.990 2.60
301	6.31	33.995
401*	5.43	34.058 1.91
402	5.42	34.074
503*	4.69	34.149
604*	4.62	34.208 1.12
704*	4.29	34.274 .88
805*	3.93	34.349 .48

0	10.68	32.16	24.65	330.9	0
10	10.63	32.16	24.66	330.2	.039
20	10.63	32.16	24.66	330.4	.066
30	10.25	32.51	24.99	298.8	.098
50	9.51	32.53	25.13	286.0	.156
75	9.14	32.72	25.34	266.7	.225
100	8.66	33.18	25.77	225.6	.287
150	7.80	33.83	26.41	165.8	.394
200	7.32	33.93	26.55	152.6	.464
250	6.88	33.96	26.64	145.0	.538
300	6.35	34.00	26.74	136.0	.609
400	5.44	34.05	26.90	121.7	.737
500	4.90	34.15	27.04	108.6	.853
600	4.63	34.21	27.11	102.6	.958
700	4.30	34.27	27.20	94.6	1.057
800	3.95	34.35	27.30	85.7	1.147

DB251 44 59.3 N 124 34.8 W DATE 08 MAY 67 1255 GCT WIRE 01 DRY 55.2 WET 53.7
WIND DIRECTION 30 VEL 09 KTS BAR 19 SWELL DIRECTION 29 H 04 T 09 CLOUD 06 AMT 08 WEATHER 40

0	11.65	31.269
10	10.94	31.705
20	10.10	32.401
30	9.62	32.433
40	9.35	32.452
50	9.29	32.492
60	9.14	32.542
71	8.84	32.661
81	8.73	32.973
101	8.35	33.341
126	8.16	33.601
152	7.84	33.778
202	7.26	33.926
253	6.72	33.980
303	6.32	34.007

0	11.65	31.27	23.79	412.8	0
10	10.94	31.71	24.25	368.7	.039
20	10.10	32.41	24.94	303.7	.073
30	9.63	32.44	25.04	294.0	.103
50	9.29	32.50	25.14	284.8	.160
75	8.79	32.78	25.44	256.7	.228
100	8.37	33.33	25.93	210.2	.286
150	7.87	33.77	26.35	171.2	.392
200	7.28	33.92	26.56	152.2	.463
250	6.75	33.98	26.68	141.7	.536
300	6.34	34.01	26.75	135.0	.605

DB252 44 59.0 N 124 34.8 W DATE 08 MAY 67 2300 GCT WIRE 05 DRY 52.1 WET 51.4
WIND DIRECTION 33 VEL 14 KTS BAR 17 SWELL DIRECTION 29 H 05 T 09 CLOUD 06 AMT 07 WEATHER 40

0	11.39	31.238
10	10.86	31.762
20	10.12	32.328
30	9.69	32.427
40	9.45	32.481
50	9.26	32.494
60	9.01	32.587
71	8.77	32.763
81	8.65	33.017
101	8.31	33.348
126	8.14	33.611
152	8.21	33.761
202	7.30	33.914
253	6.76	33.971
303	6.28	34.006

0	11.39	31.24	23.81	410.6	0
10	10.86	31.77	24.31	363.2	.039
20	10.13	32.33	24.88	309.4	.072
30	9.69	32.43	25.03	295.5	.103
50	9.26	32.50	25.15	284.2	.161
75	8.72	32.86	25.52	249.4	.227
100	8.33	33.34	25.95	209.0	.285
150	8.21	33.75	26.29	177.1	.381
200	7.35	33.91	26.54	154.0	.464
250	6.79	33.97	26.66	142.8	.538
300	6.31	34.00	26.75	134.7	.607

DB253 44 57.5 N 124 34.1 W DATE 09 MAY 67 0100 GCT WIRE 02 DRY 51.5 WET 50.9
WIND DIRECTION 33 VEL 12 KTS BAR 16 SWELL DIRECTION 29 H 05 T 09 CLOUD 06 AMT 08 WEATHER 40

0	11.40	31.437
10	11.00	31.507
20	9.99	32.320
30	9.68	32.483
40	9.41	32.485
50	9.21	32.512
60	8.97	32.602
71	8.72	32.848
81	8.61	32.997
101	8.30	33.406
126	8.16	33.622
152	7.89	33.743
202	7.41	33.912
251	6.84	33.967
301	6.35	34.006

0	11.40	31.44	23.97	396.1	0
10	11.00	31.51	24.09	384.3	.039
20	9.99	32.32	24.89	308.0	.074
30	9.68	32.49	25.07	291.2	.104
50	9.21	32.52	25.17	282.1	.161
75	8.67	32.91	25.56	245.3	.227
100	8.31	33.39	25.99	205.1	.283
150	7.91	33.74	26.32	174.1	.378
200	7.43	33.91	26.52	155.4	.460
250	6.85	33.97	26.65	143.9	.535
300	6.36	34.01	26.75	135.3	.605

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D T S O₂ PO₄ pH Alk. NO₃ SiO₂ ΣCO₂ z T S σ_t δ ΔD

DB254 44 56.8 N 124 34.0 W DATE 09 MAY 67 0300 GCT WIRE 11 DRY 51.4 WET 51.0
WIND DIRECTION 34 VEL 17 KTS BAR 14 SWELL DIRECTION 29 H 05 T 09 CLOUD 06 AMT 08 WEATHER 40

0	11.31	31.112		0	11.31	31.12	23.73	418.6	0
10	11.12	31.270		10	11.13	31.27	23.89	403.9	.041
20	10.45	32.261		20	10.45	32.27	24.77	319.7	.077
30	9.74	32.410		30	9.74	32.42	25.00	297.5	.108
40	9.43	32.448		50	9.34	32.49	25.13	286.0	.166
50	9.34	32.487		75	8.82	32.71	25.38	262.6	.235
60	9.20	32.521		100	8.38	33.27	25.89	214.3	.295
71	8.88	32.635		150	7.92	33.77	26.35	171.5	.391
81	8.74	32.829		200	7.48	33.90	26.51	156.7	.473
101	8.36	33.297		250	6.89	33.97	26.65	144.6	.548
126	8.14	33.648		300	6.27	34.01	26.77	133.4	.618
152	7.90	33.778							
202	7.46	33.902							
247	6.93	33.962							
296	6.32	34.011							

DB255 44 55.5 N 124 33.7 W DATE 09 MAY 67 0500 GCT WIRE 01 DRY 50.9 WET 50.5
WIND DIRECTION 34 VEL 14 KTS BAR 14 SWELL DIRECTION 29 H 05 T 09 CLOUD 06 AMT DR WEATHER 40

0	11.30	31.098		0	11.30	31.10	23.72	419.4	0
10	11.29	31.109		10	11.29	31.11	23.73	418.6	.042
20	10.30	32.266		20	10.30	32.27	24.80	316.9	.079
30	9.49	32.423		30	9.49	32.43	25.06	292.7	.109
40	9.47	32.477		50	9.32	32.51	25.15	284.2	.167
50	9.32	32.506		75	8.80	32.85	25.50	251.3	.234
60	9.02	32.564		100	8.25	33.46	26.06	198.4	.290
71	8.93	32.738		150	7.83	33.81	26.39	167.3	.381
81	8.58	33.038		200	7.35	33.92	26.55	153.2	.461
101	8.24	33.480		250	6.76	33.97	26.67	142.1	.535
126	8.06	33.729		300	6.27	34.01	26.77	133.6	.604
152	7.81	33.815							
202	7.33	33.926							
250	6.75	33.969							
300	6.27	34.013							

DB256 44 54.5 N 124 33.0 W DATE 09 MAY 67 0700 GCT WIRE 01 DRY 50.3 WET 48.5
WIND DIRECTION 34 VEL 14 KTS BAR 14 SWELL DIRECTION 29 H 05 T 0A CLOUD 06 AMT 0R WEATHER 40

0	11.21	31.102		0	11.21	31.11	23.74	417.6	0
10	11.19	31.157		10	11.19	31.16	23.79	413.4	.042
20	9.78	32.413		20	9.78	32.42	25.00	297.8	.077
30	9.60	32.490		30	9.60	32.50	25.09	289.4	.106
40	9.45	32.490		50	9.26	32.53	25.17	282.0	.164
50	9.26	32.524		75	8.67	33.01	25.64	237.9	.229
60	8.91	32.643		100	8.24	33.50	26.09	195.7	.283
71	8.81	32.892		150	7.83	33.82	26.40	166.9	.373
81	8.44	33.178		200	7.36	33.92	26.55	153.3	.453
101	8.24	33.509		250	6.74	33.97	26.67	142.0	.527
126	8.11	33.706		300	6.21	34.02	26.77	132.6	.596
152	7.80	33.823							
201	7.35	33.924							
251	6.73	33.974							
301	6.20	34.016							

DB257 44 59.0 N 124 35.4 W DATE 09 MAY 67 0916 GCT WIRE 01 DRY 53.3 WET 52.2
WIND DIRECTION 32 VEL 12 KTS BAR 13 SWELL DIRECTION 29°H 05 T 08 CLOUD 06 AMT 08 WEATHER 40

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D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk. (meq/l)	NO ₃ (µM)	SiO ₂ (µM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (‰)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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DB2512 45 59.2 N 124 35.0 W DATE 09 MAY 67 1900 GCT WIRE 03 DRY 52.5 WET 47.5
WIND DIRECTION 28 VEL 05 KTS BAR 12 SWELL DIRECTION 29 H 04 T 08 CLOUD 08 AMT 06 WEATHER 02

0	11.18	31.57	24.11	382.5	0
10	10.84	32.032	24.53	342.9	.036
20	10.28	32.334	24.86	311.6	.069
30	9.87	32.425	24.99	298.5	.099
40	9.23	32.428	25.47	254.3	.225
50	9.28	32.475	25.47	254.3	.225
60	9.20	32.643	25.91	212.1	.284
71	9.06	32.771	26.35	171.1	.379
81	8.72	32.951	26.60	148.2	.459
101	8.41	33.330	26.57	142.0	.532
126	8.18	33.587	26.76	133.9	.601
152	7.85	33.782			
202	7.06	33.944			
253	6.72	33.973			
303	6.23	34.010			

DB2513 44 59.3 N 125 35.5 W DATE 09 MAY 67 2100 GCT WIRE 00 DRY 52.6 WET 47.7
WIND DIRECTION 28 VEL 06 KTS BAR 11 SWELL DIRECTION 29 H 04 T 08 CLOUD 01 AMT 02 WEATHER 02

0	11.24	31.568	24.10	383.7	0
10	10.74	32.222	24.69	327.2	.036
20	10.48	32.296	24.79	317.6	.068
30	9.85	32.407	24.98	299.5	.099
40	9.35	32.427	25.15	283.8	.157
50	9.23	32.494	25.41	259.2	.225
60	9.20	32.600	25.41	259.2	.225
71	9.15	32.709	25.88	215.3	.284
81	8.77	32.922	26.33	173.7	.381
101	8.45	33.293	26.58	150.0	.462
126	8.17	33.554	26.57	141.9	.535
152	7.91	33.759	26.77	132.7	.604
201	7.13	33.929			
252	6.71	33.971			
301	6.17	34.010			

DB20 B 44 57.5 N 124 29.7 W DATE 09 MAY 67 2235 GCT WIRE 01 DRY 52.0 WET 46.9
WIND DIRECTION 30 VEL 09 KTS BAR 11 SWELL DIRECTION 30 H 04 T 08 CLOUD 01 AMT 03 WEATHER 02

0	12.02	31.155	23.63	427.6	0
10	11.29	31.375	23.94	399.0	.041
20	10.43	32.184	24.71	325.1	.078
30	9.69	32.433	25.03	295.0	.109
40	9.34	32.456	25.14	284.7	.166
50	9.25	32.486	25.50	241.2	.232
60	8.97	32.584	25.60	202.1	.288
71	8.90	32.909	26.02	165.9	.380
81	8.65	33.099	26.41	150.5	.459
101	8.30	33.441	26.58		
126	8.05	33.686	26.70	139.3	.531
152	7.76	33.830	26.78	132.5	.599
199	7.24	33.934			
252	6.61	33.982			
299	6.18	34.010			

DB15 B 44 55.1 N 124 24.0 W DATE 09 MAY 67 2340 GCT WIRE 00 DRY 52.4 WET 47.9
WIND DIRECTION 25 VEL 06 KTS BAR 11 SWELL DIRECTION 30 H 05 T 09 CLOUD 08 AMT 04 WEATHER 02

0	11.57	29.979	22.81	506.7	0
10	10.33	31.988	24.58	337.8	.042
20	9.50	32.344	24.99	298.6	.074
30	9.27	32.437	25.10	288.3	.103
40	9.18	32.481	25.19	280.2	.160
51	8.98	32.504	25.71	230.7	.224
61	8.86	32.640	26.13	191.5	.277
71	8.66	32.970	26.44	162.7	.365
81	8.52	33.254			
89	8.39	33.398			
101	8.19	33.559			
126	7.90	33.761			
153	7.85	33.882			

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08-5 44 49.7 N 124 10.5 W DATE 02 JUN 67 2140 GCT WIHE DRY 60.5 WET 57.0
WIND DIRECTION 02 VEL 03 KTS BAR 15 SWELL DIRECTION 23 H 05 T 08 CLOUD 04 AMT 06 WEATHER 01

0	13.10	30.606		0	13.10	30.61	23.01	487.5	0
5	10.91	31.713		10	8.57	32.23	25.05	293.2	.039
10	8.57	32.229		20	8.33	32.63	25.39	260.3	.067
15	8.40	32.444		30	8.21	32.98	25.68	233.0	.091
20	8.33	32.627		50	7.54	33.80	26.43	162.7	.131
25	8.25	32.795							
30	8.21	32.973							
40	7.75	33.598							
50	7.53	33.794							
60	7.40	33.860							
65	7.32	33.871							

DB-7 44 50.0 N 124 13.5 W DATE 02 JUN 67 2222 GCT WIRE 00 DRY 60.0 WET 55.8
WIND DIRECTION 32 VEL 03 KTS BAR 15 SWELL DIRECTION 32 H 05 T 08 CLOUD 06 AUT 06 HEAEDER 07

0	13.23	30.640		0	13.23	30.65	23.01	487.5	0
5	11.53	31.624		10	9.47	31.65	24.45	350.0	.042
10	9.47	31.642		20	8.49	32.53	25.29	269.8	.073
15	8.68	32.392		30	8.23	32.85	25.58	243.1	.098
20	8.49	32.529		50	7.68	33.67	26.30	174.6	.140
25	8.41	32.658		75	7.16	33.92	26.57	149.0	.181
30	8.23	32.841							
40	8.02	33.286							
50	7.67	33.460							
60	7.50	33.814							
70	7.23	33.900							
80	7.11	33.929							
90	7.02	33.941							

DB-10 44 52.3 N 124 18.0 W DATE 02 JUN 67 2341 GCT WIRE 01 DRY 60.0 WET 56.1
WIND DIRECTION VEL 00 KTS BAR 15 SWELL DIRECTION 31 H 06 T 09 CLOUD 04 AMT 06 WEATHER 02

DB-15 44 54.7 N 124 24.4 W DATE 03 JUN 67 0105 GCT WIRE 00 DRY 59.0 WET 56.0
WIND DIRECTION VEL 00 KTS BAR 15 SWELL DIRECTION 311 H 06 T 09 CLOUD 06 AMT 07 WEATHER 03

DB 10 44 52.3 N 124 18.4 W DATE 08 JUN 67 0638 GCT WIRE 00 DRY 56.0 WET 53.5
WIND DIRECTION 34 VEL 16 KTS BAR 19 SWELL DIRECTION 33 H 06 T 09 CLOUD 06 ANT OR WEATHER

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D	T	S	O ₂	PO ₄	pH	Alk.	NO ₃	SiO ₂	ΣCO ₂	Z	T	S	σ_t	S	ΔD
(m)	(°C)	(%)	(ml/l)	(μM)		(meq/l)	(μM)	(μM)	(mM)	(m)	(°C)	(%)		(x10 ⁶)	(dyn.m)
DB 7 44 51.3 N 124 13.1 W DATE 08 JUN 67 0826 GCT WIRE 00 DRY 56.0 WET 53.5															
WIND DIRECTION 34 VEL 17 KTS	BAR 18 SWELL DIRECTION 33 H 06 T 08 CLOUD 06 AMT 08 WEATHER 02														
0 12.95 29.818										0 12.95	29.82	22.43	542.9	0	
5 11.57 31.134										10 9.51	32.09	24.79	317.5	.043	
10 9.51 32.088										20 8.49	32.39	25.18	280.7	.073	
15 8.57 32.266										30 8.17	32.60	25.40	260.2	.100	
20 8.49 32.383										50 7.94	33.28	25.96	207.0	.147	
25 8.39 32.462										75 7.36	33.87	26.50	155.7	.192	
30 8.17 32.599															
40 8.04 32.953															
51 7.93 33.314															
61 7.62 33.705															
71 7.42 33.838															
81 7.30 33.881															
DB 5 44 49.8 N 124 10.8 W DATE 08 JUN 67 1002 GCT WIRE 00 DRY 56.0 WET 53.5															
WIND DIRECTION 34 VEL 16 KTS	BAR 18 SWELL DIRECTION 33 H 06 T 07 CLOUD 06 AMT 08 WEATHER 02														
0 13.58 28.867										0 13.58	28.87	21.58	624.6	0	
5 11.35 31.282										10 8.88	32.15	24.94	303.5	.046	
10 8.87 32.148										20 8.38	32.67	25.41	258.5	.074	
15 8.69 32.330										30 7.98	33.15	25.85	216.7	.098	
20 8.38 32.661										50 7.50	33.81	26.44	161.7	.136	
25 8.20 32.925															
30 7.98 33.149															
40 7.81 33.585															
51 7.47 33.819															
61 7.41 33.886															
DB 3 44 49.6 N 124 7.8 W DATE 08 JUN 67 1111 GCT WIRE 00 DRY 56.0 WET 53.5															
WIND DIRECTION 34 VEL 14 KTS	BAR 18 SWELL DIRECTION 33 H 06 T 08 CLOUD 06 AMT 08 WEATHER 02														
0 11.90 30.846										0 11.90	30.85	23.42	448.3	0	
5 9.76 32.007										10 10.03	32.75	25.22	276.6	.036	
10 10.03 32.750										20 8.50	33.29	25.88	213.7	.061	
15 9.04 33.036										30 7.84	33.69	26.30	174.7	.080	
20 8.50 33.287															
25 8.28 33.479															
30 7.84 33.687															
40 7.78 33.778															
DB 1 44 48.7 N 124 5.7 W DATE 08 JUN 67 1208 GCT WIRE 00 DRY 56.0 WET 53.5															
WIND DIRECTION 00 VEL 08 KTS	BAR 18 SWELL DIRECTION 35 H 06 T 08 CLOUD 06 AMT 08 WEATHER 02														
0 11.77 31.731										0 11.77	31.74	24.13	380.7	0	
5 11.15 32.356										10 10.35	33.04	25.39	260.7	.032	
10 10.35 33.035										20 9.16	33.28	25.77	224.1	.056	
15 9.81 33.135															
20 9.16 33.278															
DB 7 44 49.9 N 124 13.2 W DATE 09 JUN 67 2354 GCT WIRE 00 DRY 62.0 WET 57.5															
WIND DIRECTION 32 VEL 10 KTS	BAR 17 SWELL DIRECTION 32 H 07 T 10 CLOUD 08 AMT 03 WEATHER 01														
0 13.51 29.680										0 13.51	29.69	22.21	563.4	0	
5 11.35 31.404										10 9.41	31.85	24.62	334.1	.045	
10 9.41 31.845										20 8.63	32.22	25.03	295.1	.076	
15 8.70 32.144										30 8.31	32.59	25.36	263.2	.104	
20 8.62 32.214										50 7.80	33.56	26.20	183.9	.149	
25 8.46 32.376										75 7.23	33.91	26.55	150.9	.191	
30 8.31 32.586															
34 8.10 32.854															
40 8.08 33.044															
45 7.94 33.357															
51 7.77 33.595															
56 7.58 33.741															
61 7.46 33.807															
66 7.36 33.867															
71 7.28 33.901															
81 7.17 33.914															
DB 60 45 0.3 N 125 28.2 W DATE 10 JUN 67 1037 GCT WIRE 01 DRY 55.2 WET 54.8															
WIND DIRECTION 32 VEL 12 KTS	BAR 18 SWELL DIRECTION 32 H 05 T 08 CLOUD 06 AMT 08 WEATHER 03														
0 14.33 30.079										0 14.33	30.08	22.36	549.7	0	
10 14.18 30.436										10 14.18	30.44	22.66	520.7	.054	
20 11.89 32.441										20 11.89	32.45	24.65	330.8	.096	
30 10.71 32.501										30 10.71	32.51	24.91	306.4	.128	
51 9.62 32.526										50 9.65	32.52	25.11	288.3	.187	
76 8.91 32.894										75 8.93	32.88	25.49	251.6	.255	
120 8.24 33.574										100 8.49	33.29	25.88	215.1	.313	
152 7.84 33.828										150 7.86	33.82	26.39	167.4	.409	
201 7.18 33.925										200 7.19	33.92	26.57	150.9	.488	
302 6.15 34.006										250 6.63	33.98	26.69	140.2	.561	
403 5.56 34.056										300 6.17	34.01	26.77	132.8	.629	
506 5.02 34.126										400 5.57	34.05	26.89	123.2	.757	
1007 3.53 34.411										500 5.05	34.12	27.00	112.3	.875	
										600 4.60	34.19	27.10	103.7	.983	
										700 4.22	34.25	27.19	95.4	1.082	
										800 3.92	34.30	27.27	88.3	1.174	
										1000 3.54	34.41	27.39	78.0	1.340	

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D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk. (meq/l)	NO ₃ (µM)	SiO ₂ (µM)	ΣCO ₂ (mM)	z (m)	T (°C)	S (‰)	σ _t	δ (x10 ⁶)	ΔD (dyn/m)
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DB 50 45 0.1 N 125 14.7 W DATE 10 JUN 67 1543 GCT WIRE 00 DRY 54.7 WET 52.1
WIND DIRECTION 31 VEL 14 KTS BAR 18 SWELL DIRECTION 31 H 04 T 09 CLCUD 06 AMT 08 WEATHER 02

0	14.01	31.598			0	14.01	31.60	23.59	431.9	0
15	11.16	32.176			10	11.69	32.02	24.36	358.3	.040
20	10.63	32.330			20	10.63	32.33	24.79	317.5	.073
25	10.15	32.435			30	9.95	32.48	25.02	296.3	.104
40	9.78	32.504			50	9.37	32.57	25.19	280.4	.162
56	9.14	32.646			75	8.79	32.94	25.57	244.6	.227
61	9.03	32.767			100	8.38	33.25	25.87	216.3	.285
251	6.76	33.986			150	7.68	33.70	26.33	173.3	.382
502	5.00	34.124			200	7.15	33.95	26.60	148.4	.463
753	4.17	34.298			250	6.77	33.98	26.67	141.8	.535
					300	6.32	34.08	26.81	129.4	.603
					400	5.57	34.07	26.90	122.2	.729
					500	5.01	34.12	27.01	111.8	.846
					600	4.57	34.19	27.11	103.2	.953
					700	4.27	34.26	27.20	95.1	1.052

DB 40 45 00.0 N 125 00.3 W DATE 10 JUN 67 2140 GCT WIRE 00 DRY 55.8 WET 50.8
WIND DIRECTION 29 VEL 07 KTS BAR 18 SWELL DIRECTION 32 H 04 T 06 CLOUD 05 AMT 06 WEATHER 02

0	14.90	29.960		0	14.90	29.96	22.15	569.7	0
5	14.84	29.974		10	14.26	31.48	23.44	446.2	.051
10	14.26	31.473		20	11.68	32.34	24.61	334.8	.090
20	11.68	32.338		30	10.47	32.52	24.97	301.2	.122
30	10.47	32.518		50	9.42	32.52	25.14	284.7	.180
40	9.83	32.529		75	8.84	32.99	25.60	241.6	.246
51	9.39	32.524		100	8.38	33.44	26.02	202.3	.301
61	9.04	32.561		150	7.78	33.82	26.41	166.1	.394
71	8.98	32.832		200	6.97	33.96	26.63	145.4	.471
81	8.61	33.214		250	6.26	34.05	26.80	129.9	.540
91	8.46	33.359		300	5.84	34.03	26.84	126.6	.604
101	8.37	33.443		400	5.56	34.11	26.93	119.0	.727
125	8.11	33.681		500	5.16	34.16	27.02	110.5	.842
148	7.78	33.814		600	4.83	34.22	27.10	104.3	.949
175	7.62	33.863		700	4.50	34.27	27.18	97.1	1.050
195	7.06	33.947		800	4.21	34.32	27.25	90.7	1.144
364*	5.74	34.088							
558*	4.98	34.192							
751*	4.35	34.296							
946*	3.85	34.378							

DB 30 45 0.2 N 124 46.3 W DATE 11 JUN 67 0059 GCT WIRE 01 DRY 54.8 WET 54.3
WIND DIRECTION 28 VEL 10 KTS BAR 18 SWELL DIRECTION 32 H 05 T 00 CLCUD 06 AMT 08 WEATHER 01

0	15.15	29.017		0	15.15	29.02	21.37	644.0	0
5	14.24	30.620		10	13.46	31.65	23.74	418.2	.053
10	13.46	31.643		20	11.36	32.48	24.78	318.9	.090
20	11.36	32.478		30	10.55	32.53	24.96	302.1	.121
30	10.55	32.524		50	9.49	32.55	25.15	284.0	.180
40	9.78	32.520		75	8.73	33.06	25.67	235.2	.244
51	9.47	32.553		100	8.37	33.52	26.08	196.4	.298
60	9.19	32.644		150	7.95	33.83	26.39	168.0	.389
71	8.84	32.958		200	7.37	33.93	26.55	152.7	.470
81	8.60	33.187							
91	8.44	33.330							
101	8.37	33.536							
125	8.28	33.744							
152	7.92	33.829							
201	7.36	33.935							

2501 44 59.2 N 124 34.9 W DATE 11 JUN 67 0500 GCT WIRE 00 DRY 55.5 WET 55.5
WIND DIRECTION 30 VEL 08 KTS BAR 17 SWELL DIRECTION 31 H 05 T 09 CLCUD 06 AMT 08 WEATHER 52

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D (m)	T (°C)	S (‰)	O ₂ (ml/l)	PO ₄ (µM)	pH	Alk. (meq/l)	NO ₃ (µM)	SiO ₂ (µM)	ΣCO ₂ (µM)	Z (m)	T (°C)	S (‰)	σ _t	δ (×10 ⁻⁵)	ΔD
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DB 20 44 57.7 N 124 28.5 W DATE 12 JUN 67 0630 GCT WIRE 00 DRY 57.2 WET 52.8
WIND DIRECTION 33 VEL 04 KTS BAR 10 SWELL DIRECTION 31 H 04 T 09 CLCUD 08 AMT 04 WEATHER 02

0	15.03	27.833
5	14.43	30.252
10	11.68	32.038
20	10.04	32.450
30	9.30	32.486
41	8.72	32.446
51	8.66	32.538
61	8.54	32.780
71	8.42	33.119
81	8.15	33.339
91	7.95	33.509
101	7.87	33.638
126	7.67	33.827
152	7.32	33.887
201	6.84	33.960

0	15.03	27.84	20.49	728.6	0
10	11.68	32.04	24.38	356.7	.054
20	10.04	32.46	24.99	299.1	.087
30	9.30	32.49	25.13	285.1	.116
50	8.67	32.52	25.26	273.6	.172
75	8.32	33.22	25.85	217.3	.233
00	7.88	33.63	26.24	181.0	.283
50	7.35	33.89	26.52	155.2	.367
00	6.85	33.96	26.65	143.7	.442

DB 15 44 55.0 N 124 22.9 W DATE 12 JUN 67 0835 GCT WIRE 05 DRY 58.0 WET 53.6
WIND DIRECTION 34 VEL 06 KTS BAR 10 SWELL DIRECTION 33 H 03 T 07 CLOUD 06 AMT 02 WEATHER 02

0	15.25	23.727
5	13.16	30.055
10	11.60	31.825
20	9.62	32.375
30	8.86	32.446
40	8.60	32.506
51	8.38	32.812
61	8.27	33.052
71	8.05	33.340
81	7.95	33.470
91	7.85	33.589
101	7.73	33.674
126	7.47	33.808
152	7.14	33.907

0	15.25	23.73	17.30	1035.5	0
10	11.60	31.83	24.23	371.0	.070
20	9.63	32.38	25.00	298.1	.104
30	8.86	32.45	25.17	281.5	.133
50	8.40	32.78	25.50	250.6	.186
75	8.00	33.40	26.05	199.1	.242
00	7.74	33.67	26.29	176.1	.289
50	7.17	33.00	26.64	171.5	.333

DB 10 44 52.3 N 124 16.5 W DATE 12 JUN 67 1015 GCT WIRE 00 DRY 56.5 WET 53.7
WIND DIRECTION 08 VEL 03 KTS BAR 09 SWELL DIRECTION 33 H 03 T 07 CLOUD 08 AMT 02 WEATHER 02

0	14.86	32.147
5	12.51	30.436
10	10.16	31.800
20	8.92	32.291
30	8.33	32.568
39	8.23	32.810
50	8.08	33.021
60	7.92	33.295
70	7.82	33.569
80	7.72	33.820

0	14.86	32.15	23.83	408.5	0
10	10.16	31.80	24.46	349.0	.038
20	8.92	32.30	25.04	293.8	.070
30	8.33	32.57	25.35	264.8	.098
50	8.08	33.03	25.74	227.8	.147
70	7.50	33.45	26.14	200.8	.192

DB 7 44 51.2 N 124 13.0 W DATE 12 JUN 67 1130 GCT WIRE 00 DRY 54.3 WET 51.9
WIND DIRECTION 100 KTS BAR 29 SWELL DIRECTION 30 W T CLOUD 08 AMT 20% WEATHER 00

0	13.81	27.951
5	10.90	31.644
10	8.93	32.145
20	8.41	32.465
30	8.12	32.852
39	8.31	33.419
50	7.96	33.583
60	7.43	33.843
70	7.22	33.914
80	7.05	33.942

0	13.81	27.96	20.83	696.4	0
10	8.93	32.15	24.93	304.6	.050
20	8.41	32.47	25.26	273.5	.079
30	8.12	32.86	25.60	240.7	.105
50	7.96	33.59	26.20	184.4	.147

DB 5 44 50.2 N 124 10.4 W DATE 12 JUN 67 1230 GCT WIRE 00 DRY 53.2 WET 51.7
WIND DIRECTION VEL 00 KTS BAR 08 SWELL DIRECTION 30 H 03 T 08 CLOUD 08 AUT 08 WEATHER 08

0	13.90	27.693
5	11.47	31.234
10	9.39	32.007
15	8.95	32.386
20	8.33	32.752
25	8.13	32.955
30	8.12	33.257
34	8.40	33.512
39	8.26	33.581
44	7.84	33.646
49	7.77	33.730
54	7.70	33.785
59	7.60	33.835
64	7.55	33.841

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D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ⁶)	ΔD (dyn.m)
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0704 44 50.3 N 124 12.8 W DATE 12 JUN 67 2300 GCT WIRE 00 DRY 64.6 WET 59.1
WIND DIRECTION 35 VEL 14 KTS BAR 12 SWELL DIRECTION 33 H 03 T 06 CLOUD 08 AMT 05 WEATHER 02

0	14.53	29.076
5	11.79	31.325
10	9.84	31.877
15	8.98	32.128
20	8.56	32.381
25	8.30	32.588
30	8.16	32.834
34	7.99	33.145
40	7.95	33.300
45	7.91	33.467
50	7.86	33.648
55	7.58	33.738
60	7.48	33.801
65	7.42	33.834
70	7.38	33.854
75	7.23	33.878

0	14.53	29.08	21.55	627.3	0
10	9.84	31.88	24.57	338.3	.048
20	8.56	32.39	25.17	281.8	.079
30	8.16	32.86	25.58	242.6	.105
50	7.86	33.65	26.26	178.1	.148
75	7.23	33.88	26.53	152.7	.189

0705 44 50.3 N 124 12.7 W DATE 13 JUN 67 0100 GCT WIRE 00 DRY 58.5 WET 56.0
WIND DIRECTION 00 VEL 16 KTS BAR 11 SWELL DIRECTION H T CLOUD 08 AMT 03 WEATHER 02

0	13.72	30.129
5	11.59	31.378
10	9.36	31.977
15	8.68	32.259
20	8.37	32.521
25	8.24	32.705
30	8.09	32.879
34	8.01	33.125
40	7.94	33.334
45	7.89	33.474
50	7.84	33.655
55	7.57	33.751
60	7.51	33.798
65	7.41	33.850
70	7.33	33.873
75	7.24	33.894

0	13.72	30.13	22.52	534.3	0
10	9.36	31.98	24.73	323.5	.043
20	8.38	32.53	25.31	268.7	.072
30	8.09	32.88	25.63	238.3	.098
50	7.84	33.66	26.27	177.3	.139
75	7.24	33.90	26.54	151.7	.181

0706 44 50.5 N 124 12.7 W DATE 13 JUN 67 0300 GCT WIRE 00 DRY 57.3 WET 55.4
WIND DIRECTION 35 VEL 17 KTS BAR 12 SWELL DIRECTION 35 H 04 T 05 CLOUD 06 AMT 08 WEATHER 02

0	13.29	30.191
5	12.51	30.814
10	9.33	32.094
20	8.28	32.551
25	8.20	32.725
30	8.10	32.861
34	8.08	32.938
40	7.96	33.284
45	7.90	33.456
50	7.83	33.569
55	7.79	33.684
60	7.54	33.771
65	7.51	33.827
70	7.42	33.866
75	7.34	33.891

0	13.29	30.20	22.65	521.6	0
10	9.33	32.10	24.82	314.4	.042
20	8.28	32.56	25.34	265.2	.071
30	8.10	32.87	25.61	239.8	.096
50	7.83	33.57	26.21	183.6	.138
75	7.34	33.90	26.53	153.3	.180

0707 44 50.3 N 124 12.8 W DATE 13 JUN 67 0500 GCT WIRE 00 DRY 57.0 WET 54.6
WIND DIRECTION 00 VEL 17 KTS BAR 13 SWELL DIRECTION 00 H 04 T 05 CLOUD 06 AMT 08 WEATHER 02

0	12.64	30.741
5	12.24	30.965
10	9.99	31.927
15	8.63	32.318
20	8.36	32.525
25	8.22	32.634
30	8.07	32.891
34	8.01	33.062
40	7.87	33.464
45	7.82	33.609
50	7.75	33.705
55	7.57	33.759
60	7.48	33.826
65	7.41	33.867
70	7.35	33.884
75	7.25	33.900

0	12.64	30.75	23.20	469.2	0
10	9.99	31.93	24.59	336.9	.040
20	8.36	32.53	25.31	268.3	.071
30	8.07	32.90	25.64	237.1	.096
50	7.76	33.71	26.32	172.4	.137
75	7.26	33.91	26.55	151.4	.177

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D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t (x10 ⁵)	δ (x10 ⁵)	ΔD (dyn.m)
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DR T 44 50.2 N 124 12.2 W DATE 14 JUN 67 1020 GCT WIRE 01 DRY 54.8 WET 51.9
WIND DIRECTION 00 VEL 13 KTS BAR 19 SWELL DIRECTION 32 H 04 T 06 CLOUD 06 AMT 08 WEATHER 02

0	10.43	31.885								0	10.43	31.89	24.48	346.9	0
5	9.71	31.966								10	8.60	32.33	25.12	286.4	.032
10	8.60	32.326								20	8.18	32.64	25.42	257.3	.059
15	8.33	32.508								30	7.93	33.07	25.79	222.4	.083
20	8.18	32.638								50	7.70	33.64	26.28	176.9	.123
25	8.05	32.877								75	7.20	33.90	26.55	151.3	.164
30	7.92	33.061													
34	7.90	33.262													
40	7.85	33.427													
45	7.77	33.536													
50	7.70	33.635													
55	7.63	33.736													
60	7.47	33.808													
65	7.39	33.851													
70	7.29	33.874													
80	7.13	33.920													

DR 5 44 50.4 N 124 10.2 W DATE 14 JUN 67 1140 GCT WIRE 02 DRY 52.8 WET 51.2
WIND DIRECTION 02 VEL 12 KTS BAR 19 SWELL DIRECTION 31 H 04 T 08 CLOUD 06 AMT 08 WEATHER 02

0	10.30	32.214								0	10.30	32.22	24.76	320.4	0
5	10.32	32.214								10	8.73	32.44	25.19	279.9	.030
10	8.73	32.439								20	8.13	32.88	25.62	239.2	.056
15	8.34	32.675								30	7.85	33.43	26.09	194.2	.078
20	8.13	32.872								50	7.57	33.83	26.44	161.0	.113
25	7.99	33.164													
31	7.82	33.468													
35	7.66	33.477													
40	7.68	33.783													
45	7.67	33.795													
50	7.57	33.824													
55	7.55	33.839													
60	7.47	33.867													

DR 3 44 49.5 N 124 7.8 W DATE 14 JUN 67 1220 GCT WIRE 01 DRY 52.0 WET 50.4
WIND DIRECTION 01 VEL 10 KTS BAR 19 SWELL DIRECTION 31 H 04 T 08 CLOUD 06 AMT 08 WEATHER 02

0	9.53	32.786								0	9.53	32.79	25.33	265.9	0
5	9.46	32.786								10	8.35	32.88	25.58	242.1	.025
10	8.35	32.873								20	8.02	33.51	26.13	190.4	.047
15	8.03	33.273								30	7.94	33.68	26.27	177.1	.065
20	8.02	33.508								50	7.56	33.84	26.45	160.2	.099
25	8.10	33.633													
30	7.94	33.673													
35	7.63	33.756													
40	7.60	33.798													
45	7.58	33.818													
50	7.55	33.831													

DB 1 44 48.6 N 124 5.4 W DATE 14 JUN 67 1330 GCT WIRE 00 DRY 51.0 WET 49.9
WIND DIRECTION 35 VEL 10 KTS BAR 19 SWELL DIRECTION 31 H 04 T 08 CLOUD 06 AMT 08 WEATHER 02

0	9.19	33.272								0	9.19	33.28	25.77	224.7	0
5	9.01	33.316								10	8.78	33.40	25.93	209.4	.022
10	8.78	33.397								20	7.91	33.66	26.26	177.8	.041
15	8.16	33.544													
20	7.90	33.655													
25	7.87	33.692													

NH-362 44 39.2 N 132 28.5 W DATE 26 JUN 67 2245 GCT WIRE 07 DRY WET
WIND DIRECTION 20 VEL 11 KTS BAR 22 SWELL DIRECTION 24 H 04 T 07 CLOUD 00 AMT 08 WEATHER 02

0	13.20	32.690								0	13.20	32.69	24.59	336.1	0
10	12.86	32.692								10	12.86	32.70	24.66	329.8	.033
19	11.47	32.759								20	11.39	32.76	24.99	299.0	.065
29	10.89	32.758								30	10.83	32.76	25.09	289.2	.094
39	10.07	32.799								50	8.65	32.76	25.44	256.0	.149
49	8.71	32.754								75	8.60	32.78	25.47	253.5	.212
100	8.49	32.918								100	8.49	32.92	25.60	242.1	.274
199	7.22	33.799								150	7.90	33.36	26.03	201.6	.385
299	6.27	33.928								200	7.21	33.80	26.47	160.2	.476
497	4.70	34.081								250	6.71	33.91	26.63	145.9	.552
696	4.01	34.227								300	6.26	33.93	26.70	139.7	.623
797	3.80	34.287								400	5.39	34.02	26.88	123.9	.755
897	3.57	34.349								500	4.68	34.08	27.01	110.9	.872
996	3.39	34.401								600	4.26	34.16	27.12	101.9	.979
1494		34.536								700	4.00	34.23	27.20	94.2	1.077
1992	1.98	34.608								800	3.79	34.29	27.27	88.1	1.168
										1000	3.38	34.40	27.40	76.6	1.332
										1200	3.04	34.47	27.49	68.5	1.477
										1500	2.59	34.54	27.58	60.4	1.671
										2000	1.97	34.61	27.69	50.3	1.947

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D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk.	NO ₃ (meq/l)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t (x10 ⁵)	δ (dyn.m)	ΔD
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KP1 45 10.0 N 128 0.3 W DATE 07 JUL 67 1154 GCT WIRE 03 DRY 58.0 WET 57.9
WIND DIRECTION 31 VEL 08 KTS BAR 22 SWELL DIRECTION 32 H 02 T 05 CLOUD 06 AMT 08 WEATHER 02

0	15.77	31.308	5.98	.29	8.15	2.15	.4	5	1.99	0	15.77	31.31	22.99	488.8	0
5	15.76	31.375	5.94	.30	8.13	2.13	.1	5	1.93	10	15.35	31.63	23.33	457.4	.047
10	15.35	31.620	6.07	.32	8.17	2.16	.0	4	1.96	20	15.03	32.11	23.77	415.6	.091
20	15.03	32.104	6.11	.36	8.16	2.17	.1	3	1.95	30	13.00	32.44	24.44	351.9	.129
35	11.81	32.537	7.04	.44	8.19	2.20	.0	1	1.96	50	9.75	32.54	25.10	288.4	.193
50	9.75	32.540	7.22	.51	8.21	2.20	.1	2	1.95	75	8.86	32.65	25.33	267.2	.263
75	8.86	32.648	6.49	.80	8.16	2.20	.4	5	2.00	100	8.23	33.01	25.71	231.7	.325
100	8.23	33.007	5.33	1.32	8.04	2.23	14.9	13	2.06	150	7.58	33.75	26.38	168.0	.425
151	7.57	33.767	3.77	1.97	7.91	2.26	27.2	34	2.18	200	7.00	33.90	26.58	149.8	.504
201	6.99	33.907	3.12	2.19	7.85	2.29	30.9	42	2.29						

KP2 45 10.2 N 127 29.6 W DATE 07 JUL 67 1443 GCT WIRE 00 DRY 57.6 WET 57.3
WIND DIRECTION 33 VEL 07 KTS BAR 22 SWELL DIRECTION 31 H 05 T 07 CLOUD 06 AMT 07 WEATHER 01

0	16.57	29.009	5.80	.22	8.24	2.06	.0	12	1.89	0	16.57	29.01	21.06	674.1	0
5	16.70	29.360	6.00	.22	8.25	2.08	0	11	1.88	10	16.29	30.10	21.95	588.7	.063
10	16.29	30.097	5.96	.26	8.26	2.11	0	9	1.92	20	13.44	32.53	24.42	353.0	.110
20	13.44	32.528	6.39	.42	8.24	2.19	.1	1	1.96	30	12.73	32.54	24.57	338.8	.145
35	12.56	32.552	6.68	.43	8.25	2.20	0	1	2.02	50	9.91	32.52	25.06	292.9	.208
50	9.91	32.516	6.78	.48	8.29	2.21	.4	2	2.01	75	8.47	32.81	25.51	249.8	.276
75	8.47	32.805	5.72	1.08	8.15	2.21	8.5	10	2.08	100	8.00	33.31	25.98	206.1	.333
100	8.00	33.308	4.54	1.67	8.02	2.25	16.8	24	2.10	150	7.68	33.76	26.37	169.1	.427
151	7.68	33.764	3.51	2.02	7.93	2.27	25.4	36	2.20	200	7.13	33.92	26.58	150.3	.506
201	7.12	33.922	2.96	2.23	7.88	2.29	27.2	45	2.19						

KP3 45 10.2 N 127 0.0 W DATE 07 JUL 67 1725 GCT WIRE 01 DRY 60.8 WET 57.5
WIND DIRECTION 34 VEL 08 KTS BAR 22 SWELL DIRECTION 32 H 04 T 06 CLOUD 06 AMT 07 WEATHER 02

0	16.43	30.091	5.92	.26	8.22	2.10	.0	8	1.89	0	16.44	30.10	21.92	591.9	0
5	16.44	30.089	5.95	.26	8.23	2.10	.0	8	2.01	10	16.35	30.10	21.93	590.4	.059
10	16.35	30.091	5.92	.25	8.26	2.11	.0	8	1.96	20	11.93	32.29	24.53	343.0	.106
20	11.93	32.286	6.82	.40	8.27	2.17	.0	4	2.05	30	10.41	32.37	24.86	311.2	.138
35	10.24	32.417	7.05	.45	8.27	2.19	.0	3	2.06	50	9.69	32.50	25.08	290.5	.199
50	9.69	32.499	6.82	.54	8.26	2.20	.0	3	2.08	75	9.15	32.76	25.37	263.7	.268
75	9.15	32.753	5.47	1.11	8.14	2.21	8.7	10	2.03	100	8.63	33.30	25.87	216.2	.328
100	8.62	33.293	4.16	1.71	8.00	2.25	19.2	25	2.18	150	8.00	33.76	26.33	173.3	.425
151	7.99	33.768	3.31	2.02	7.93	2.26	20.5	35	2.26	200	7.35	33.92	26.55	153.2	.507
201	7.34	33.923	2.89	2.19	7.88	2.28	28.6	43	2.21						

KP4 45 9.9 N 126 29.8 W DATE 07 JUL 67 2033 GCT WIRE 06 DRY 63.0 WET 58.8
WIND DIRECTION 33 VEL 11 KTS BAR 22 SWELL DIRECTION 33 H 04 T 06 CLOUD 06 AMT 07 WEATHER 02

0	16.89	28.876	5.88	.17	8.26	2.06	.1	14	1.89	0	16.90	28.84	20.85	693.7	0
10	16.06	31.27	6.02	.27	8.23	2.14	0	6	2.00	10	16.06	31.27	22.89	498.5	.060
30	10.39	32.466	7.08	.42	8.27	2.19	.2	3	2.08	20	13.27	32.22	24.22	372.4	.103
50	9.35	32.793	5.72	.98	8.16	2.20	.0	9	2.09	30	10.39	32.47	24.94	303.7	.137
75	9.46	33.433	3.89	1.74	7.97	2.23	17.1	24	2.18	50	9.35	32.80	25.37	263.4	.194
101	9.20	33.610	3.31	1.90	7.92	2.26	23.5	28	2.21	75	9.46	33.44	25.85	218.1	.254
126	9.00	33.688	3.00	2.01	7.91	2.26	20.4	31	2.21	100	9.21	33.61	26.02	202.0	.306
151	8.66	33.779	2.85	2.08	7.90	2.26	28.1	34	2.21	150	8.67	33.78	26.24	182.3	.402
202	8.24	33.877	2.70	2.14	7.87	2.26	26.3	30.0	37	225	8.26	33.87	26.38	169.6	.490
252	7.61	33.942	2.69	2.19	7.86	2.27	23.7	32.0	42	225	7.64	33.94	26.52	156.7	.572
303	6.88	33.998	2.25	2.35	7.83	2.28	31.3	50	2.24	300	6.92	34.00	26.66	143.5	.647
404	5.84	34.034	1.57	2.68	7.75	2.30	68	2.31	400	5.87	34.03	26.83	128.5	.783	
606	4.72	34.170	.50	3.03	7.67	2.33	44.7	95	2.37	500	5.20	34.09	26.96	116.3	.905
808	4.04	34.310	.24	3.15	7.66	2.36	45.7	116	2.38	600	4.74	34.17	27.07	107.0	1.017
1009	3.58	34.404	.34	3.15	7.67	2.38	46.9	131	2.42	700	4.36	34.24	27.17	97.8	1.119
1211	3.12	34.476	.45	3.17	7.70	2.40	46.3	146	2.47	800	4.06	34.30	27.25	90.0	1.213
										1000	3.60	34.40	27.38	79.2	1.382
										1200	3.14	34.47	27.48	69.7	1.531

KP5 45 20.2 N 126 5.6 W DATE 07 JUL 67 2330 GCT WIRE 00 DRY 61.5 WET 58.0
WIND DIRECTION 35 VEL 12 KTS BAR 21 SWELL DIRECTION 31 H T CLOUD 06 AMT 07 WEATHER 02

0	16.25	28.984	6.09	.13	8.31	2.05	.0	9	1.89	0	16.25	28.99	21.11	669.1	0
5	16.06	31.068	6.06	.27	8.24	2.14	.0	6	1.92	10	15.75	31.55	23.18	471.0	.057
10	15.75	31.548	6.00	.31	8.25	2.16	.0	5	1.98	20	14.95	32.06	23.75	417.2	.101
20	14.95	32.060	6.15	.32	8.23	2.17	.0	4	2.01	30	11.87	32.38	24.60	335.7	.139
35	10.30	32.468	7.20	.43	8.28	2.20	.0	3	2.00	50	9.48	32.53	25.14	285.3	.201
50	9.48	32.525	6.48	.68	8.24	2.21	.3	4	2.07	75	8.96	32.93	25.53	248.3	.268
75	8.96	32.923	4.94	1.29	8.11	2.22	15.0	15	2.09	100	8.51	33.42	25.99	205.2	.324
100	8.51	33.419	3.99	1.77	7.99	2.25	22.6	26	2.19	150	8.01	33.78	26.34	172.2	.419
151	8.00	33.792	3.17	2.07	7.93	2.26	28.6	36	2.24	200	7.35	33.94	26.56	152.1	.500
201	7.33	33.938	2.54	2.20	7.88	2.28	31.2	42	2.25						

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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KP12 46 8.7 N 124 18.6 W DATE 08 JUL 67 1315 GCT WIRES 02 DRY 58.0 WET 56.8
WIND DIRECTION 35 VEL 09 KTS BAR 18 SWELL DIRECTION 30 H 04 T 07 CLOUD 06 AMT 08 WEATHER 02

0	13.82	20.447	6.85	.67	8.21	1.70	5.5	49	1.63	0	13.82	20.45	15.07	1252.3	0
5	12.41	31.338	8.70	.18	8.46	2.15	.0	5	1.94	10	11.29	32.53	24.83	314.3	.078
10	11.29	32.521	8.30	.22	8.40	2.20	.0	0	1.94	20	8.14	33.32	25.96	206.6	.104
20	8.14	33.313	2.99	2.33	7.84	2.23	25.4	45	2.21	30	7.33	33.74	26.41	164.3	.123
30	7.33	33.733	1.31	2.82	7.69	2.25	33.8	62	2.25	50	7.18	33.90	26.55	150.6	.154
40	7.28	33.873	2.81	2.26	7.85	2.26	29.0	46	2.23	75	6.75	33.95	26.65	141.7	.191
50	7.17	33.891	2.70	2.34	7.86	2.25	21.3	48	2.23						
60	7.05	33.903	2.56	2.36	7.85	2.26	23.0	49	2.30						
70	6.86	33.934	1.76	2.67	7.76	2.26	28.1	60	2.35						
80	6.63	33.955	1.78	2.73	7.76	2.27	21.3	66	2.35						

KP13 46 13.4 N 124 10.5 W DATE 08 JUL 67 1452 GCT WIRES 08 DRY 58.6 WET 54.9
WIND DIRECTION 34 VEL 09 KTS BAR 18 SWELL DIRECTION 30 H 04 T 07 CLOUD 06 AMT 08 WEATHER 02

0	13.31	15.851	4.77	1.34	7.75	1.50	12.9	85	1.60	0	13.31	15.86	11.63	1587.2	0
5	8.15	32.787	3.04	2.08	7.80	2.21	24.9	55	2.19	10	7.36	33.73	26.40	164.9	.088
10	7.36	33.727	2.02	2.57	7.71	2.25	27.0	62	2.30	20	7.15	33.89	26.55	150.6	.103
15	7.29	33.830	1.93	2.48	7.75	2.25	31.7	56	2.27	30	6.95	33.93	26.61	145.3	.118
20	7.14	33.881	1.78	2.61	7.75	2.26	22.9	58	2.30						
25	7.04	33.898	1.52	2.68	7.73	2.26	33.7	63	2.32						
30	6.95	33.921	1.87	2.66	7.75	2.26	28.8	60	2.33						

KP14 46 14.8 N 123 59.6 W DATE 08 JUL 67 1640 GCT WIRES 01 DRY 60.0 WET 57.4
WIND DIRECTION 33 VEL 06 KTS BAR 19 SWELL DIRECTION 30 H T CLOUD 6 AMT 8 WEATHER 02

0	18.00	.185	7.21	.17	7.95		2.3	97	1.03	0	18.00	.19			
3	18.01	.192	7.32	.16	7.95		3.4	96	.98	10	18.02	.83			
6	18.03	.456	7.20	.38	7.98		1.7	97	1.03						
9	18.01	.777	7.31	.51	7.93		2.9	97	1.05						
12	18.05	.846	6.98	.23	7.93		2.4	98	1.04						

KP15 46 14.3 N 123 53.5 W DATE 08 JUL 67 1736 GCT WIRES 01 DRY 62.5 WET 58.0
WIND DIRECTION 28 VEL 04 KTS BAR 20 SWELL DIRECTION H T CLOUD 6 AMT 8 WEATHER 02

0	18.17	.103	7.20	.11	7.95		.9	97	1.00	0	18.17	.11			
2	18.15	.113	7.23	.11	8.01		1.3	97	.94	10	18.06	.09			
4	18.10	.103	7.25	.31	8.05		1.1	97	.98						
6	18.08	.101	7.20	.34	8.01		.9	98	.98						
8	18.12	.098	7.23	.04	8.00		2.2	99	.97						
10	18.06	.089	7.16	.11	8.05		1.9	99	1.00						
12	18.02	.093	7.13	.45	7.99		1.2	101	1.02						

KP16 46 23.1 N 124 14.9 W DATE 08 JUL 67 2005 GCT WIRES 03 DRY 59.8 WET 56.1
WIND DIRECTION VEL 03 KTS BAR 20 SWELL DIRECTION 32 H 04 T 06 CLOUD 08 AMT 02 WEATHER 01

0	14.13	19.535	6.81	.68	8.20	1.66		62	1.70	0	14.13	19.54	14.31	1325.7	0
5	13.50	29.876	8.80	.08	8.44	2.09	.3	5	1.85	10	12.60	31.48	23.77	414.6	.087
10	12.60	31.475	8.89	.11	8.47	2.15	.0	2	1.94	20	8.85	33.07	25.66	235.3	.119
20	8.85	33.065	4.29	1.50	7.96	2.21	17.4	8	2.21	30	7.39	33.58	26.27	176.7	.140
30	7.38	33.575	2.28	2.50	7.77	2.23	20.1	5	2.20						
40	7.07	33.852	1.53	2.53	7.72	2.30	34.8	60	2.32						

KP17 46 31.9 N 124 20.7 W DATE 08 JUL 67 2133 GCT WIRES 01 DRY 61.0 WET 56.8
WIND DIRECTION 24 VEL 05 KTS BAR 20 SWELL DIRECTION 32 H 05 T 06 CLOUD 8 AMT 1 WEATHER 01

0	13.16	32.909	8.85	.09	8.45	2.15	.1	1	1.90	0	13.16	32.91	24.77	319.2	0
5	11.10	32.724	9.38	.13	8.44	2.21	.3	4	1.96	10	8.22	32.77	25.52	248.3	.028
10	8.22	32.765	5.32	1.25	8.09	2.19	15.9	17	2.13	20	7.78	33.08	25.83	219.2	.052
20	7.77	33.074	3.52	2.08	7.88	2.20	28.6	38	2.22	30	7.52	33.33	26.06	197.1	.073
30	7.51	33.325	3.53	2.08	7.86	2.21	27.3	35	2.19	50	7.21	33.83	26.50	155.9	.108
40	7.37	33.629	2.54	2.38	7.79	2.23	31.2	44	2.24						
50	7.21	33.827	1.73	2.68	7.74	2.25	34.5	55	2.26						

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	8 (x10 ⁵)	ΔD (dyn.m)
KP18 46 31.9 N 124 39.1 W DATE 08 JUL 67 1122 GCT WIRE 01 DRY 62.1 WET 57.8 WIND DIRECTION VEL KTS BAR 20 SWELL DIRECTION 30 H 04 T 07 CLOUD 08 AMT 02 WEATHER 03															
0	13.73	32.294	7.12	.18	8.32	2.20	.3	3	1.99	0	13.73	32.30	24.18	375.3	0
5	13.03	32.276	7.72	.15	8.36	2.19	.1	3	2.01	10	12.13	32.18	24.40	354.5	.036
10	12.12	32.173	7.27	.31	8.32	2.17	.0	4	1.99	20	8.58	32.40	25.18	280.9	.068
20	8.58	32.398	6.89	.68	8.23	2.16	3.6	5	2.04	30	8.10	32.48	25.31	268.7	.096
35	7.86	32.500	6.36	.98	8.19	2.16	8.3	8	2.06	50	7.79	32.70	25.53	247.8	.147
50	7.78	32.697	5.70	1.21	8.13	2.18	12.0	14	2.19	75	7.65	33.18	25.93	210.5	.205
75	7.64	33.177	4.56	1.68	8.20	11.8	24	21.7	100	7.38	33.63	26.31	174.2	.253	
100	7.37	33.641	3.06	2.17	7.91	2.23	31.3	40	2.26	150	6.79	33.95	26.65	143.1	.332
151	6.78	33.949	2.45	2.41	7.84	2.26	25.8	51	2.28	200	6.32	33.98	26.73	135.1	.402
201	6.31	33.982	2.09	2.53	7.80	2.27	36.5	58	2.29						
KP19 46 31.9 N 125 0.1 W DATE 09 JUL 67 0128 GCT WIRE 00 DRY 61.4 WET 57.0 WIND DIRECTION 24 VEL 05 KTS BAR 20 SWELL DIRECTION 30 H 06 T 08 CLOUD 08 AMT 03 WEATHER 03															
0	15.46	31.981	6.10	.31	8.22	2.13	.1	6	2.01	0	15.46	31.99	23.58	433.0	0
5	15.05	31.982	6.18	.31	8.25		.0	6	2.00	10	14.26	32.02	23.86	406.5	.042
10	14.26	32.014	6.28	.32	8.28		.0	5	2.05	20	10.32	32.48	24.96	301.5	.077
20	10.32	32.479	7.08	.44	8.28	2.15	.0	2	2.08	30	9.13	32.50	25.17	282.0	.107
35	9.04	32.507	7.29	.53	8.29		.0	2	2.05	50	8.26	32.54	25.33	265.7	.161
50	8.26	32.532	6.61	.72	8.24		4.9	4	2.08	75	8.27	33.20	25.84	218.3	.222
75	8.27	33.190	4.63	1.59	8.04	2.17	20.9	20	2.20	100	8.25	33.61	26.17	187.7	.273
100	8.25	33.620	3.51	1.96	7.94	2.22	29.5	32	2.30	150	7.70	33.87	26.46	161.2	.360
151	7.69	33.871	2.97	2.16	7.90	29.9	40	2.29	200	7.18	33.95	26.60	148.5	.437	
201	7.17	33.954	2.52	2.34	7.85	2.25	33.6	47	2.31						
KP20 46 23.4 N 124 46.1 W DATE 09 JUL 67 0311 GCT WIRE 00 DRY 62.1 WET 58.0 WIND DIRECTION 30 VEL 08 KTS BAR 20 SWELL DIRECTION 26 H 04 T 04 CLOUD 08 AMT 02 WEATHER 02															
0	14.30	32.106	6.68	.29	8.28	2.15	.0	5	2.09	0	14.30	32.11	23.92	400.3	0
5	14.06	32.127	6.64	.27	8.30		.0	5	2.06	10	13.53	32.14	24.10	383.1	.039
10	13.53	32.138	6.73	.28	8.40		.0	4	2.05	20	9.86	32.27	24.87	310.2	.074
20	9.86	32.262	7.59	.47	8.41	2.15	.0	1	2.10	30	8.51	32.36	25.16	282.8	.103
35	8.33	32.415	6.46	.87	8.31		6.2	6	2.09	50	7.96	32.60	25.42	258.0	.158
50	7.96	32.593	5.95	1.13	8.27		10.7	12	2.09	75	8.00	33.24	25.91	211.5	.216
75	8.00	33.230	4.45	1.63	8.15	16.1	24	2.20	100	7.93	33.53	26.15	189.2	.266	
100	7.93	33.534	4.05	1.83	8.10	2.21	20.9	30	2.27	150	7.53	33.86	26.47	159.4	.353
151	7.52	33.866	3.10	2.11	8.02	25.3	41	2.32	200	6.60	33.96	26.68	140.2	.428	
201	6.58	33.965	2.07	2.56	7.89	2.25	31.6	59	2.36						
KP21 46 17.0 N 124 35.5 W DATE 09 JUL 67 0435 GCT WIRE 03 DRY 59.4 WET 57.0 WIND DIRECTION VEL 00 KTS BAR 19 SWELL DIRECTION 28 H 04 T 04 CLOUD 08 AMT 02 WEATHER 02															
0	13.85	32.265	7.13	.18	8.29	2.17	0	5	1.92	0	13.85	32.27	24.14	379.8	0
5	12.71	32.267	7.57	.15	8.33		0	5	1.82	10	11.63	32.31	24.60	335.7	.036
10	11.62	32.308	7.87	.18	8.33		0	5	1.84	20	9.39	32.38	25.03	294.8	.067
20	9.39	32.372	6.95	.58	8.23	2.15	1.3	5	1.92	30	8.06	32.36	25.22	276.5	.096
30	8.06	32.360	6.36	.86	8.19		4.3	7	1.97	50	7.82	32.83	25.62	239.1	.147
40	7.85	32.531	6.01	1.01	8.17		7.5	10	1.95	75	7.74	33.52	26.18	186.4	.201
50	7.82	32.821	5.19	1.36	8.10		12.2	18	2.01	100	7.60	33.83	26.44	162.1	.244
75	7.74	33.519	3.95	1.87	7.98	2.21	21.5	32	2.19	150	6.53	33.97	26.70	138.2	.319
100	7.59	33.836	3.12	2.13	7.91		25.8	41	2.15						
151	6.50	33.971	2.02	2.56	7.75	2.26	33.3	61	2.21						
KP22 46 10.3 N 124 24.8 W DATE 09 JUL 67 0551 GCT WIRE 03 DRY 59.1 WET 57.1 WIND DIRECTION VEL 04 KTS BAR 20 SWELL DIRECTION 28 H 02 T 05 CLOUD 06 AMT 02 WEATHER 02															
0	14.04	28.424	7.71	.17	8.34	2.03	.0	16	1.69	0	14.04	28.43	21.14	665.9	0
5	13.35	30.007	8.07	.14	8.37	2.09	.0	11	1.90	10	12.92	30.73	23.13	476.0	.057
10	12.92	30.720	8.06	.21	8.40	2.12	.0	9	1.85	20	9.77	32.61	25.15	283.6	.095
20	9.77	32.602	6.68	.82	8.22	2.19	5.1	13	2.07	30	7.93	32.73	25.53	247.6	.122
30	7.92	32.722	4.01	1.95	7.93		23.5	33	2.18	50	7.61	33.21	25.96	207.3	.167
40	7.72	32.997	3.81	1.96	7.95		22.7	33	2.10	75	7.20	33.79	26.46	159.4	.213
50	7.61	33.210	3.93	1.91	7.95	2.19	15.2	30	2.14	100	6.69	33.96	26.67	139.9	.250
75	7.20	33.783	2.14	2.48	7.81		29.2	52	2.23						
100	6.69	33.959	2.24	2.50	7.81	2.26	21.9	56	2.30						
KP23 46 3.9 N 124 14.0 W DATE 09 JUL 67 0736 GCT WIRE 02 DRY 59.0 WET 56.9 WIND DIRECTION 33 VEL 05 KTS BAR 19 SWELL DIRECTION 28 H 04 T 06 CLOUD 06 AMT 07 WEATHER 02															
0	12.29	28.659	9.57	.13	8.43	2.02	.0	4	1.76	0	12.29	28.66	21.66	616.7	0
5	10.68	32.119	7.20	.46	8.22	2.16	3.4	7	1.97	10	8.88	33.02	25.62	238.9	.043
10	8.88	33.020	3.52	1.84	7.89	2.19	20.6	7	2.18	20	7.46	33.55	26.24	180.0	.064
20	7.46	33.544	2.40	2.46	7.77	2.21	31.4	43	2.19	30	7.31	33.77	26.43	161.7	.081
30	7.30	33.762	1.24	2.78	7.70		34.3	59	2.23	50	6.94	33.91	26.60	146.5	.112
40	7.07	33.895	2.58	2.31	7.85		29.8	47		75	6.61	33.96	26.68	139.0	.147
50	6.94	33.906	2.42	2.40	7.83		32.6	50							
75	6.61	33.953	1.60	2.68	7.73	2.25	33.8	65	2.27						

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	P O ₄ (μM)	pH	Alk. (meq/l)	N O ₃ (μM)	S i O ₂ (μM)	Σ C O ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	8 (x10 ⁶)	Δ D (dyn.m)
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KP24 45 57.2 N 124 3.2 W DATE 09 JUL 67 0705 GCT WIRE 03 DRY 57.2 WET 55.7
WIND DIRECTION VEL 00 KTS BAR 19 SWELL DIRECTION 29 H 04 T 06 CLCUD 08 AMT 02 WEATHER 01

0	13.05	32.529	.06	8.52	2.19	.0	1	1.86	0	13.05	32.53	24.50	345.1	0	
5	9.82	32.832	6.77	.68	8.13	.34	7	2.09	10	8.12	33.13	25.81	220.4	.028	
10	8.12	33.122	3.63	1.90	7.91	18.2	32	2.14	20	7.58	33.66	26.31	173.1	.048	
20	7.58	33.658	2.44	2.35	7.82	2.21	31.3	42	2.25	30	7.34	33.76	26.42	162.9	.065
30	7.34	33.754	2.36	2.44	7.79	.46			50	6.91	33.94	26.62	143.8	.095	
40	7.03	33.908	1.89	2.54	7.78	34.3	57								
50	6.90	33.935	1.70	2.64	7.74	2.24	33.4	63	2.26						

KP25 45 47.4 N 124 3.4 W DATE 09 JUL 67 1025 GCT WIRE DRY 55.8 WET 53.9
WIND DIRECTION VEL 02 KTS BAR 19 SWELL DIRECTION 29 H 04 T 06 CLOUD 06 AMT 02 WEATHER 02

0	13.04	31.169	.03	8.49	2.13	.0	1	1.89	0	13.04	31.17	23.45	445.0	0	
5	10.50	32.740	8.16	.19	8.27	2.20	.6	2	2.02	10	8.74	32.82	25.48	251.9	.035
10	8.74	32.817	4.85	1.22	8.02		13.0	16	2.13	20	7.82	33.29	25.98	204.3	.058
20	7.81	33.282	2.72	2.24	7.82	2.20	29.1	38	2.20	30	7.48	33.73	26.38	166.7	.076
30	7.48	33.728	2.65	2.31	7.83		31.4	43		50	6.96	33.92	26.60	145.8	.107
40	7.24	33.830	2.24	2.38	7.80		31.2	47							
50	6.96	33.919	1.82	2.61	7.76	2.25	33.9	58	2.30						

KP26 45 37.3 N 124 3.6 W DATE 09 JUL 67 1155 GCT WIRE 01 DRY 54.0 WET 52.9
WIND DIRECTION VEL KTS BAR 19 SWELL DIRECTION 30 H 06 T 08 CLOUD 08 AMT 02 WEATHER 02

0	8.44	33.157	5.10	1.44	8.00	2.20	17.4	22	2.13	0	8.44	33.16	25.79	222.2	0
5	7.68	33.111	3.96	1.89	7.92		21.5	30	2.13	10	8.69	33.48	26.00	202.6	.021
10	8.69	33.471	4.69	1.74	7.95		21.6	30	2.14	20	8.36	33.53	26.09	193.9	.041
20	8.36	33.526	4.02	1.97	7.90	2.22	24.5	34	2.15	30	8.31	33.70	26.24	180.5	.060
30	8.31	33.698	4.03	2.09	7.89		25.5	39		50	7.32	33.86	26.50	155.3	.093
40	7.85	33.807	3.26	2.33	7.83		29.1	48							
50	7.31	33.854	2.29	2.48	7.78	2.24	33.0	53	2.30						

KP27 45 27.2 N 124 3.3 W DATE 09 JUL 67 1323 GCT WIRE 04 DRY 56.6 WET 55.5
WIND DIRECTION 13 VEL 04 KTS BAR 19 SWELL DIRECTION 30 H 04 T 08 CLOUD 06 AMT 02 WEATHER 02

0	11.85	31.898	8.41	.20	8.39	2.17	.6	4	1.95	0	11.85	31.90	24.24	369.8	0
5	9.44	32.433	5.54	1.13	8.10	2.19	7.6	18	2.11	10	8.01	32.77	25.55	245.5	.031
10	8.01	32.763	4.53	1.51	8.01		15.9	14	2.12	20	7.64	33.08	25.84	217.6	.054
20	7.63	33.070	4.39	1.72	8.00	2.21	20.1	25	2.14	30	7.64	33.48	26.16	187.8	.074
30	7.63	33.472	2.62	2.33	7.81		28.5	40	2.26	50	7.21	33.87	26.52	153.3	.108
40	7.42	33.757	2.92	2.34	7.83		30.0	43							
50	7.21	33.862	2.70	2.42	7.83	2.26	32.6	47	2.22						

KP28 45 27.0 N 124 15.5 W DATE 09 JUL 67 1445 GCT WIRE 03 DRY 59.3 WET 57.8
WIND DIRECTION VEL 00 KTS BAR 20 SWELL DIRECTION 30 H 04 T 08 CLOUD 06 AMT 07 WEATHER 03

0	14.65	27.374	9.44	.05	8.47	1.99	.0	5	1.72	0	14.65	27.38	20.22	754.9	0
5	11.78	32.109	7.93	.21	8.31		.1	5	1.98	10	10.85	32.29	24.72	324.1	.054
10	10.85	32.288	7.03	.59	8.22	2.19	2.4	12	1.98	20	7.94	32.51	25.36	263.8	.083
20	7.94	32.507	5.79	1.10	8.13	2.18	7.4	8	2.00	30	7.79	32.79	25.60	241.1	.109
30	7.78	32.783	5.32	1.35	8.08		8.4	16	2.04	50	7.57	33.28	26.01	202.1	.153
40	7.64	33.076	4.88	1.63	8.01		11.1	22	2.16	75	7.56	33.78	26.41	164.8	.199
50	7.56	33.271	4.28	1.83	7.95	2.21	12.5	28	2.20	100	7.21	33.92	26.57	149.9	.238
75	7.55	33.775	3.18	2.17	7.86		0	16.9	40	2.28	150	6.49	33.95	26.69	138.8
100	7.19	33.922	3.02	2.27	7.83	2.26	22.9	45	2.27						
151	6.48	33.954	2.40	2.46	7.80	2.28	31.4	53	2.26						

KP29 45 42.5 N 124 33.0 W DATE 09 JUL 67 1831 GCT WIRE 07 DRY 61.1 WET 57.5
WIND DIRECTION VEL 00 KTS BAR 20 SWELL DIRECTION 30 H 05 T 05 CLOUD 06 AMT 07 WEATHER 03

0	16.19	21.753	8.84	.08	8.56	1.76	.1	18	1.58	0	16.19	21.76	15.61	119.9	0
5	13.89	31.219	7.27	.13	8.35	2.14	.0	8	1.93	10	12.66	31.56	23.83	409.4	.080
15	11.85	31.910	7.06	.39	8.28	2.15	.0	4	1.98	20	10.62	32.10	24.61	334.8	.118
31	8.61	32.308	6.76	.70	8.22	2.15	2.4	3	2.08	30	8.61	32.31	25.10	288.1	.149
45	8.26	32.453	5.82	1.12	8.15		9.5	10	2.10	50	8.11	32.49	25.32	267.9	.204
70	7.60	32.682	4.81	1.64	8.02	2.19	18.5	24	2.15	75	7.55	32.76	25.61	240.8	.268
95	7.43	33.097	2.92	2.34	7.82	2.24	28.9	43	2.22	100	7.35	33.20	25.98	205.4	.324
146	6.60	33.956	1.74	2.69	7.77	2.26	35.5	61	2.29	150	6.55	33.95	26.68	139.6	.410
196	6.23	33.921	1.74	2.76	7.76		35.6	66	2.31	200	6.20	33.92	26.70	138.3	.479

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	P O ₄ (μM)	pH	Alk.	N O ₃ (meq/l)	S I O ₂ (μM)	Σ C O ₂ (μM)	Z (m)	T (°C)	S (%)	σ _t	δ (x 10 ⁶)	Δ D (dyn.m)
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KP35 46 32.5 N 127 0.0 W DATE 10 JUL 67 1150 GCT WIRE 00 DRY 59.1 WET 55.9
WIND DIRECTION VEL 00 KTS BAR 20 SWELL DIRECTION 30 H 04 T 08 CLOUD 01 AMT 08 WEATHER 03

0	16.38	32.220	5.83	.30	8.21	2.19	.0	3	1.92	0	16.38	32.22	23.56	435.1	0
10	15.06	32.324	6.02	.33	8.22	2.19	.0	2	1.90	10	15.06	32.33	23.93	399.9	.042
30	11.58	32.517	6.75	.41	8.26	2.20	.0	1	1.88	20	13.34	32.43	24.36	388.4	.080
50	8.91	32.551	7.34	.46	8.29	2.21	.2	2	1.90	30	11.58	32.52	24.77	320.0	.114
75	8.10	32.555	6.91	.72	8.24	2.21	3.5	5	1.98	50	8.91	32.56	25.25	274.7	.173
101	7.44	32.899	5.63	1.30	8.14	2.23	12.5	16	2.02	75	8.10	32.56	25.37	263.1	.240
151	7.39	33.648	3.91	1.91	7.97	2.26	24.2	34	2.13	100	7.46	32.88	25.72	230.6	.302
202	6.86	33.872	3.39	2.05	7.93	2.29	23.2	43	2.10	150	7.39	33.64	26.32	174.4	.403
252	6.38	33.927	2.75	2.40	7.84	2.29	28.8	52	2.18	200	6.88	33.87	26.57	150.8	.484
303	5.93	33.938	2.43	2.63	7.79	2.29	31.5	65	2.18	250	6.40	33.93	26.68	140.9	.557
403	5.20	34.026	1.25	2.95	7.73	2.31	36.3	80	2.27	300	5.96	33.94	26.75	135.2	.626
605	4.35	34.144	.46	3.22	7.85	2.34	39.5	107	2.29	400	5.22	34.02	26.90	121.2	.754
806	3.82	34.317	.28	3.35	7.66	2.37	41.2	128	2.35	500	4.72	34.08	27.01	111.2	.871
983*	3.42	34.406	.39	3.27	7.59	2.39	142	2.31	600	4.36	34.14	27.09	104.3	.978	
1006	3.37	34.399	.35	3.35	7.67	2.39	38.2	142	2.34	700	4.07	34.23	27.19	95.2	1.078
1186*	2.95	34.455	.40	3.22	7.65	2.40	155	2.43	800	3.83	34.31	27.28	86.8	1.169	
1205	2.93	34.456	.38	3.30	7.68	2.40	42.8	157	2.41	1000	3.38	34.40	27.40	76.7	1.333
1386*	2.63	34.500	.60	3.17	7.66	2.42	166	2.38	1200	2.94	34.44	27.47	70.1	1.479	
1587*	2.32	34.539	.84	3.12	7.69	2.43	40.2	175	2.34	1500	2.45	34.53	27.58	59.6	1.674
1787*	2.09	34.569	1.14	3.03	7.74	2.44	181	2.34	2000	1.91	34.60	27.68	50.3	1.948	
1986	1.92	34.598	1.49	2.98	7.76	2.44	43.4	192	2.33	2500	1.76	34.64	27.73	48.0	2.194
2184	1.83	34.619	1.72	2.93	7.80	2.45	37.5	2.32							
2382	1.78	34.633	1.80	2.94	7.82	2.45	42.1	197	2.35						
2578	1.76	34.642	1.88	2.95	7.84	2.46	41.5	206	2.33						

KP36 46 5.8 N 126 17.0 W DATE 10 JUL 67 1820 GCT WIRE 02 DRY 63.0 WET 58.5
WIND DIRECTION VEL 00 KTS BAR 22 SWELL DIRECTION 30 H 02 T 03 CLOUD 06 AMT 03 WEATHER 03

0	16.13	32.031	5.88	.32	8.13	2.15	.2	4	1.90	0	16.13	32.04	23.47	443.6	0
5	16.14	32.096	5.91	.32	8.19	2.15	.0	3	1.90	10	15.50	32.20	23.74	418.2	.043
10	15.50	32.198	5.98	.34	8.19	2.15	.0	3	1.93	20	14.92	32.32	23.95	398.1	.084
20	14.92	32.312	6.06	.36	8.20	2.16	.2	3	1.94	30	11.74	32.47	24.70	326.6	.120
35	10.06	32.538	7.18	.47	8.25	2.17	.1	3	1.98	50	8.93	32.58	25.27	273.0	.180
50	8.93	32.579	7.19	.51	8.25	2.18	.1	2	1.95	75	8.06	32.61	25.41	259.1	.247
75	8.06	32.602	6.95	.72	8.22	2.17	3.5	6	1.95	100	7.69	32.98	25.76	226.7	.307
100	7.69	32.972	5.58	1.27	8.11	2.20	10.9	15	2.02	150	7.86	33.73	26.32	174.2	.407
151	7.87	33.738	3.57	1.98	7.93	2.20	23.9	34	2.12	200	7.35	33.90	26.53	155.1	.490
201	7.33	33.899	3.26	2.09	7.90	2.25	26.3	40	2.15						

KP37 45 48.8 N 125 51.0 W DATE 10 JUL 67 2113 GCT WIRE 04 DRY 61.8 WET 59.8
WIND DIRECTION VEL 00 KTS BAR 22 SWELL DIRECTION 30 H 03 T 07 CLOUD 08 AMT 02 WEATHER 02

0	17.23	30.269	5.88	.18	8.23	2.09	.0	8	1.80	0	17.23	30.27	21.87	596.3	0
5	16.12	31.475	6.02	.26	8.24	2.14	.0	6	1.83	10	15.71	31.76	23.35	454.9	.053
10	15.71	31.757	5.99	.29	8.23	2.15	.0	5	1.84	20	12.38	32.32	24.47	348.3	.093
20	12.37	32.320	6.83	.35	8.25	2.15	.1	3	1.89	30	10.56	32.48	24.92	305.4	.125
35	10.07	32.488	7.15	.46	8.29	2.16	.0	3	1.95	50	9.45	32.52	25.13	285.6	.184
50	9.45	32.515	6.52	.62	8.24	2.17	1.8	3	1.99	75	9.01	32.80	25.42	258.2	.252
75	9.01	32.799	5.52	1.08	8.15	2.18	10.4	10	2.02	100	8.44	33.28	25.88	215.1	.312
100	8.42	33.296	4.33	1.65	8.03	2.21	18.7	23	2.09	150	7.95	33.77	26.34	172.0	.408
151	7.94	33.776	3.28	2.05	7.94	2.25	27.4	36	2.18	200	7.37	33.92	26.54	154.0	.490
201	7.36	33.918	2.83	2.21	7.88	2.26	31.0	43	2.14						

KP38 45 23.3 N 125 11.7 W DATE 11 JUL 67 0131 GCT WIRE 02 DRY 62.8 WET 59.0
WIND DIRECTION 33 VEL 11 KTS BAR 21 SWELL DIRECTION 31 H 04 T 08 CLOUD 08 AMT 02 WEATHER 02

0	17.53	26.611	7.38	.04	8.54	1.98	.0	1	1.64	0	17.53	26.62	19.01	870.6	0
5	16.67	27.281	7.60	.04	8.55	2.00	.0	1	1.69	10	15.11	30.38	22.42	543.8	.071
10	15.11	30.374	6.29	.16	8.34	2.11	.3	3	1.91	20	12.17	31.86	24.15	378.9	.117
20	12.17	31.857	6.67	.46	8.24	2.16	.0	5	1.98	30	10.13	32.39	24.92	305.5	.151
35	9.45	32.448	6.65	.56	8.22	2.19	.0	3	2.01	50	8.78	32.52	25.24	275.7	.209
50	8.78	32.513	6.36	.76	8.20	2.19	4.5	5	2.00	75	8.38	32.83	25.54	247.0	.274
75	8.38	32.826	5.35	1.24	8.10	2.34	12.3	14	2.04	100	8.16	33.38	26.01	203.2	.331
100	8.15	33.403	4.04	1.82	7.97	2.23	21.8	27	2.06	150	7.63	33.85	26.45	161.5	.422
151	7.62	33.856	3.26	2.19	7.86	2.26	29.3	40	2.19	200	7.18	33.95	26.59	149.0	.499
201	7.17	33.949	2.73	2.32	7.83	2.27	32.2	46	2.24						

OBSERVED										INTERPOLATED				DERIVED		
D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ ₁	δ (x10 ⁶)	ΔD (dyn.m)	
KP39	45	9.6 N	124	49.9 W	DATE 11 JUL 67	0426 GCT	WIRe 04	DRY 68.2	WET 59.4							
WIND DIRECTION 01 VEL 07 KTS					BAR 21 SWELL DIRECTION 01 H 02 T 02 CLOUD 08 AMT 01 WEATHER 01											
0	17.44	25.979	7.04	.02	8.54	1.96	.2	4	1.68	0	17.44	25.98	18.55	915.0	0	
5	15.94	28.166	7.96	.04	8.52	2.03	.0	1	1.66	10	13.88	30.61	22.85	502.6	.071	
10	13.88	30.604	5.68	.21	8.21	2.12	.0	4	1.86	20	11.22	32.39	24.74	323.0	.112	
20	11.22	32.390	6.31	.53	8.19	2.18	.0	3	1.93	30	10.07	32.46	24.99	299.1	.143	
35	9.83	32.499	6.78	.55	8.21	2.19	.0	3	1.95	50	9.36	32.55	25.17	282.0	.201	
50	9.36	32.544	6.30	.73	8.19	2.20	3.1	4	2.01	75	8.57	32.91	25.57	243.9	.267	
75	8.57	32.904	5.27	1.26	8.09	2.21	12.3	13	2.08	100	8.13	33.34	25.98	206.0	.323	
100	8.12	33.356	4.28	1.72	7.98	2.25	19.3	24	2.12	150	7.58	33.79	26.41	165.3	.416	
151	7.57	33.797	3.09	2.15	7.86	2.26	29.1	39	2.23	200	6.99	33.96	26.62	145.9	.494	
201	6.98	33.956	2.30	2.46	7.79	2.28	33.0	51	2.23							
KP40	44	55.2 N	124	27.6 W	DATE 11 JUL 67	0703 GCT	WIRe 03	DRY 59.9	WET 58.5							
WIND DIRECTION 01 VEL 07 KTS					BAR 22 SWELL DIRECTION 01 H 02 T 02 CLOUD 01 AMT 04 WEATHER 03											
0	15.06	30.498	7.43	.07	8.46	2.14	.1	2	1.71	0	15.06	30.50	22.53	533.5	0	
5	12.93	32.158	6.81	.20	8.29	2.19	.0	1	1.92	10	12.56	32.22	24.35	359.6	.045	
10	10.56	32.211	6.84	.22	8.29	2.20	.0	1	1.91	20	10.33	32.27	24.79	317.8	.079	
20	10.33	32.261	6.48	.46	8.20	2.18	.0	2	1.91	30	8.77	32.43	25.17	282.0	.108	
35	8.27	32.521	6.11	.95	8.14	2.18	7.1	7	1.96	50	8.00	32.72	25.51	249.7	.162	
50	8.00	32.712	5.56	1.20	8.11	2.20	10.6	12	2.04	75	7.82	33.16	25.88	214.4	.220	
75	7.81	33.156	4.52	1.65	8.00	2.21	17.9	23	2.09	100	7.79	33.60	26.23	181.9	.269	
100	7.79	33.614	3.45	2.00	7.88	2.25	26.8	33	2.13	150	7.03	33.91	26.59	148.8	.352	
151	7.01	33.914	2.23	2.50	7.79	2.27	49	49	2.16	200	6.67	34.00	26.70	138.4	.424	
201	6.67	34.000	2.15	2.60	7.76	2.28	27.8	54	2.22							
KP41	44	48.6 N	124	18.3 W	DATE 11 JUL 67	0833 GCT	WIRe 03	DRY 58.0	WET 57.0							
WIND DIRECTION 34 VEL 09 KTS					BAR 22 SWELL DIRECTION 00 H 03 T 06 CLOUD 06 AMT 01 WEATHER 01											
0	13.18	32.018	8.17	.08	8.41	2.20	.1	1	1.88	0	13.18	32.02	24.08	385.1	0	
5	10.93	32.367	7.69	.31	8.31	2.21	.0	4	1.91	10	8.18	32.46	25.28	270.8	.033	
10	8.18	32.455	6.37	.80	8.18	2.19	4.4	6	1.90	20	7.89	32.58	25.42	257.8	.059	
20	7.88	32.576	5.82	1.06	8.12	2.19	8.2	8	1.99	30	7.76	32.76	25.57	243.2	.084	
35	7.73	32.870	5.11	1.45	8.04	2.20	14.8	17	1.99	50	7.64	33.33	26.04	198.9	.128	
50	7.63	33.326	3.91	1.86	7.94	2.24	20.8	29	2.08	75	7.61	33.71	26.34	171.1	.175	
75	7.61	33.701	3.04	2.20	7.87	2.25	23.6	37	2.16	100	7.24	33.88	26.53	153.6	.215	
100	7.24	33.873	2.62	2.29	7.82	2.26	26.2	44	2.10							
KP42	44	43.2 N	124	8.3 W	DATE 11 JUL 67	1037 GCT	WIRe	DRY 52.4	WET 52.0							
WIND DIRECTION 00 VEL 05 KTS					BAR 21 SWELL DIRECTION 31 H 03 T 06 CLCUD 06 AMT 01 WEATHER 02											
0	9.46	33.537	6.84	.95	8.10	2.26	12.3	23	2.03	0	9.46	33.54	25.93	209.2	0	
5	9.36	33.516	6.60	1.03	8.10	2.26	13.3	24	2.05	10	8.70	33.62	26.11	192.1	.020	
10	8.70	33.615	4.48	1.97	7.93	2.26	16.8	42	2.15	20	8.08	33.79	26.34	170.3	.038	
20	8.08	33.789	3.33	2.46	7.80	2.27	32.8	54	2.15	30	7.59	33.83	26.44	161.2	.055	
40	7.22	33.861	2.39	2.32	7.79	2.26	32.8	52	2.19							
KP43	44	23.6 N	124	10.1 W	DATE 11 JUL 67	1254 GCT	WIRe 02	DRY 54.2	WET 53.0							
WIND DIRECTION VEL 00 KTS					BAR 21 SWELL DIRECTION 29 H 03 T 08 CLOUD AMT WEATHER 02											
0	11.75	33.743	7.66	.65	8.11	2.28	9.2	34	2.08	0	11.75	33.75	25.69	232.0	0	
5	10.18	33.657	8.11	.53	8.16	2.27	5.2	28	2.04	10	8.74	33.74	26.19	184.0	.021	
10	8.74	33.731	5.20	.66	7.97	2.26	21.9	42	2.07	20	7.58	33.82	26.44	161.3	.038	
20	7.58	33.817	2.64	2.40	7.78	2.26	32.7	50	2.12	30	7.23	33.87	26.52	153.3	.055	
30	7.23	33.863	2.50	2.50	7.75	2.26	33.0	52	2.15							
KP44	44	0.0 N	124	12.7 W	DATE 11 JUL 67	1520 GCT	WIRe 01	DRY 51.0	WET 49.9							
WIND DIRECTION 34 VEL 07 KTS					BAR 22 SWELL DIRECTION 30 H 02 T 04 CLCUD 06 AMT 04 WEATHER 03											
0	9.68	33.482	6.91	.87	8.15	2.26	9.8	28	2.01	0	9.68	33.49	25.85	216.7	0	
5	9.60	33.497	6.74	.94	8.14	2.26	12.9	28	2.02	10	9.47	33.60	25.97	205.1	.021	
10	9.47	33.597	6.14	1.36	8.08	2.26	15.8	36	2.13	20	8.66	33.62	26.11	192.0	.041	
20	8.66	33.610	4.19	2.20	7.86	2.25	23.3	46	2.15	30	7.80	33.67	26.29	175.5	.059	
30	7.79	33.666	3.13	2.30	7.82	2.25	16.6	45	2.17							

OBSERVED

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DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _i	δ (x10 ⁶)	ΔD (dyn.m)
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KP45 43 40.7 N 124 14.8 W DATE 11 JUL 67 1718 GCT WIRES 02 DRY 54.5 WET 53.5
WIND DIRECTION 30 VEL 07 KTS BAR 22 SWELL DIRECTION 30 H 03 T 03 CLOUD 04 AMT 01 WEATHER 01

0	10.58	30.947	5.30	1.34	7.99	2.11	17.8	46	1.93	0	10.58	30.95	23.73	418.8	0
5	10.09	32.123	6.14	1.10	8.09	2.18	12.8	35	2.04	10	8.90	33.41	25.91	211.0	.031
10	8.90	33.400	4.42	1.74	7.97	2.25	22.0	35	2.12	20	8.32	33.75	26.27	177.2	.051
20	8.32	33.743	3.93	2.09	7.88	2.26	27.4	43	2.09	30	8.04	33.77	26.33	171.4	.068
30	8.04	33.769	3.39	2.34	7.83	2.26	20.1	48	2.20						

KP46 43 40.0 N 124 29.3 W DATE 11 JUL 67 1918 GCT WIRES 02 DRY 60.0 WET 57.4
WIND DIRECTION 34 VEL 10 KTS BAR 22 SWELL DIRECTION 34 H 01 T 01 CLOUD 01 AMT 01 WEATHER 02

0	13.14	32.530	8.83	.19	8.37	2.19	.2	4	1.91	0	13.14	32.53	24.48	346.7	0
5	11.56	32.504	8.17	.37	8.28	2.20	.4	6	1.91	10	9.80	32.51	25.07	291.2	.032
10	9.80	32.504	6.68	.80	8.19	2.19	5.2	11	1.99	20	9.04	32.72	25.35	264.1	.060
20	9.04	32.715	5.64	1.31	8.10	2.20	9.9	19	2.01	30	8.49	32.99	25.65	235.7	.085
35	8.29	33.139	4.21	1.79	7.99	2.22	19.1	29	2.07	50	8.02	33.52	26.14	190.1	.127
50	8.02	33.517	3.20	2.09	7.25	2.25	22.1	38	2.19	75	7.83	33.76	26.35	169.9	.172
75	7.83	33.758	3.18	2.09	7.91	2.25	29.6	39	2.22	100	7.58	33.89	26.49	157.4	.213
100	7.58	33.884	2.70	2.22	7.45	2.26	27.7	44	2.18						

KP47 43 39.7 N 124 42.3 W DATE 11 JUL 67 2045 GCT WIRES DRY 60.1 WET 58.7
WIND DIRECTION 34 VEL 10 KTS BAR 22 SWELL DIRECTION 34 H 02 T 02 CLOUD 01 AMT 01 WEATHER 02

0	13.52	32.513	8.18	.26	8.33	2.19	.0	5	1.97	0	13.52	32.52	24.39	355.2	0
5	11.92	32.419	8.47	.32	8.33	2.19	.0	6	1.92	10	10.04	32.35	24.90	307.0	.033
10	10.04	32.341	6.67	.70	8.23	2.17	2.9	10	1.97	20	9.26	32.51	25.15	283.1	.063
20	9.26	32.503	6.02	.99	8.18	2.18	7.4	11	2.07	30	8.89	32.66	25.33	266.5	.090
35	8.77	32.744	5.49	1.37	8.05	2.20	12.9	19	2.09	50	8.26	33.10	25.77	224.8	.139
50	8.26	33.096	4.12	1.78	7.97	2.21	20.3	27	2.10	75	7.72	33.50	26.16	188.1	.191
75	7.72	33.492	2.96	2.18	7.87	2.25	29.6	38	2.13	100	7.49	33.80	26.43	162.6	.235
100	7.49	33.797	2.41	2.35	7.81	2.26	31.4	45	2.16	150	7.27	33.93	26.56	151.0	.313
151	7.27	33.930	2.78	2.22	7.86	2.26	19.8	44	2.22	200	6.92	33.97	26.64	143.9	.387
201	6.91	33.970	2.46	2.38	7.81	2.26	36.0	50	2.22						

KP48 43 40.3 N 125 10.9 W DATE 11 JUL 67 1334 GCT WIRES DRY 66.0 WET 61.0
WIND DIRECTION 34 VEL 14 KTS BAR 21 SWELL DIRECTION 32 H 04 T 09 CLOUD 00 AMT 01 WEATHER 02

0	15.62	31.923	6.07	.39	8.24	.0	6	1.82	0	15.63	31.94	23.51	439.9	0	
5	15.63	31.924	6.11	.39	8.24	.0	6	1.97	10	15.33	32.03	23.64	427.1	.043	
10	15.33	32.028	6.12	.39	8.25	.0	5	1.97	20	12.95	32.18	24.25	369.5	.083	
20	12.95	32.177	6.74	.40	8.27	.0	5	1.91	30	11.53	32.34	24.64	332.7	.118	
35	11.04	32.406	7.02	.47	8.28	.0	4	1.98	50	9.84	32.53	25.08	291.0	.181	
50	9.84	32.523	6.66	.66	8.23	.8	5	2.04	75	8.63	32.94	25.59	242.3	.247	
75	8.62	32.936	5.10	1.31	8.09	9.6	14	2.09	100	8.14	33.36	25.99	204.6	.303	
100	8.13	33.374	4.31	1.73	8.01	22.5	26	2.10	150	7.85	33.79	26.37	169.1	.397	
151	7.85	33.797	3.35	2.06	7.94	17.6	37	2.19	200	7.30	33.96	26.58	150.0	.476	
201	7.29	33.958	2.44	2.38	7.83	34.0	47	2.26							

KP49 43 39.8 N 126 1.0 W DATE 12 JUL 67 0346 GCT WIRES DRY 62.7 WET 59.5
WIND DIRECTION 34 VEL 12 KTS BAR 21 SWELL DIRECTION 33 H 04 T 05 CLOUD 06 AMT 05 WEATHER 03

0	16.70	30.878	5.90	.28	8.18	2.14	.0	8	1.92	0	16.71	30.88	22.46	540.2	0
10	16.06	31.153	6.09	.32	8.21	2.14	.0	8	1.91	10	16.06	31.16	22.81	506.5	.052
30	11.95	32.294	6.02	.42	8.24	2.19	.0	4	1.98	20	14.11	31.73	23.67	424.6	.099
50	9.89	32.491	6.90	.53	8.23	2.19	.0	3	2.03	30	11.95	32.30	24.53	342.9	.137
75	8.96	32.757	5.69	1.06	8.14	2.21	.8	2.02	50	9.89	32.50	25.04	294.2	.201	
101	7.97	33.264	4.77	1.62	8.03	2.25	20.1	23	2.15	75	8.96	32.76	25.40	260.6	.270
151	7.71	33.786	3.59	2.08	7.91	2.27	27.9	37	2.14	100	8.00	33.24	25.92	211.2	.329
201	7.13	33.893	3.51	2.15	7.89	2.28	29.9	43	2.22	150	7.72	33.78	26.38	168.0	.424
301	6.19	33.979	1.99	2.62	7.78	2.30	36.3	60	2.41	200	7.14	33.89	26.55	152.7	.504
402	5.41	34.042	1.17	2.72	7.69	2.31	37.0	82	2.34	250	6.64	33.95	26.67	142.5	.578
604	4.63	34.208	.35	3.27	7.64	2.34	38.5	106	2.37	300	6.20	33.98	26.75	135.2	.647
804	4.04	34.322	.29	3.37	7.65	2.37	122	240	400	5.42	34.04	26.89	122.4	.776	
1003	3.62	34.414	.36	3.37	7.65	2.39	45.1	137	2.35	500	4.96	34.12	27.01	111.1	.893
1203	3.04	34.462	.42	3.28	7.68	2.39	45.4	155	2.35	600	4.64	34.20	27.11	102.8	1.000
1503	2.50			2.57	7.78	2.40		2.24		700	4.32	34.27	27.20	95.1	1.099
										800	4.05	34.32	27.27	88.7	1.191
										1000	3.63	34.41	27.38	78.6	1.358
										1200	3.05	34.46	27.48	69.5	1.506
										1500	2.50	33.98	27.14	100.1	1.760

OBSERVED

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D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	S (x10 ⁶)	ΔD (dyn.m)
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KP50 43 39.9 N 127 00.5 W DATE 12 JUL 67 0858 GCT WIRE 02 DRY 63.2 WET 60.0
WIND DIRECTION 33 VEL 08 KTS BAR 20 SWELL DIRECTION 33 H 02 T 02 CLOUD 06 AMT 08 WEATHER 03

0	17.22	31.054	5.80	.28	8.21	2.15	.0	6	1.91	0	17.23	31.06	22.47	538.8	0
5	17.29	31.052	5.82	.28	8.22		.0	6	1.88	10	16.40	31.13	22.71	515.8	.053
10	16.39	31.123	5.90	.29	8.21		.0	6	1.89	20	15.92	31.50	23.10	478.7	.102
20	15.92	31.495	5.96	.31	8.22		.0	5	1.90	30	13.40	32.31	24.26	368.3	.145
35	11.99	32.688	6.80	.44	8.23		.0	2	1.92	50	10.18	32.68	25.14	284.8	.210
50	10.18	32.680	7.03	.53	8.25		.0	3	1.92	75	8.94	32.68	25.34	266.1	.279
75	8.94	32.678	6.34	.80	8.20		5.0	5	1.96	100	8.38	33.38	25.97	206.3	.338
100	8.37	33.376	4.31	1.72	8.02		19.2	25	2.08	150	7.90	33.76	26.34	171.9	.433
151	7.89	33.770	3.56	2.02	7.92		26.4	34	2.14	200	7.37	33.93	26.55	153.3	.514
201	7.36	33.926	3.00	2.25	7.86		22.0	42	2.18						

KP51 43 40.0 N 128 0.0 W DATE 12 JUL 67 1404 GCT WIRE 01 DRY 60.8 WET 59.9
WIND DIRECTION 27 VEL 05 KTS BAR 21 SWELL DIRECTION 28 H 03 T 07 CLOUD 6 AMT 8 WEATHER 02

0	16.15	32.215	5.99	.40	8.20	2.19	.0	3	1.99	0	16.15	32.22	23.60	430.5	0
10	15.22	32.297	6.03	.38	8.22	2.20	.0	2	1.97	10	15.22	32.30	23.87	405.2	.042
30	12.02	32.506	6.74	.42	8.26	2.21	.0	2	1.94	20	13.72	32.41	24.27	367.6	.080
50	9.04	32.586	7.14	.54	8.27	2.21	.4	2	2.00	30	12.02	32.51	24.68	328.6	.115
75	8.42	32.685	6.44	.82	8.27	2.21	5.7	5	2.01	50	9.04	32.59	25.25	274.1	.175
101	7.80	33.156	5.04	1.43	8.05	2.24	11.9	19	2.17	75	8.42	32.69	25.43	250.0	.242
151	7.63	33.684	4.02	1.83	7.95	2.26	13.4	32	2.14	100	7.82	33.14	25.86	216.7	.301
202	7.00	33.871	3.15	2.14	7.91	2.28	25.3	44	2.19	150	7.63	33.68	26.32	174.5	.399
302	6.06	33.983	1.94	2.63	7.78	2.30	61	2.23		200	7.03	33.87	26.55	152.9	.481
402	5.18	34.057	1.11	2.97	7.69	2.33	39.7	85	2.32	250	6.52	33.95	26.68	140.9	.554
606	4.44	34.199	.43	3.23	7.63	2.34	42.8	107	2.32	300	6.08	33.98	26.77	133.4	.623
801	3.86	34.321	.32	3.30	7.63	2.38	127	2.37		400	5.20	34.06	26.93	118.5	.749
999	3.34	34.417	.28	3.33	7.65	2.40	44.2	144	2.38	500	4.73	34.13	27.04	108.0	.862
1198	3.01	34.477	.45	3.28	7.67	2.42	43.4	153	2.33	600	4.45	34.20	27.13	101.2	.967
1498	2.44	34.534	.86	3.18	7.70	2.43		172	2.42	700	4.14	34.26	27.21	93.5	1.064
										800	3.86	34.32	27.29	86.5	1.154
										1000	3.34	34.42	27.42	75.0	1.315
										1200	3.01	34.48	27.49	67.8	1.458
										1500	2.44	34.53	27.59	58.8	1.648

KP52 43 39.0 N 128 59.7 W DATE 12 JUL 67 1925 GCT WIRE 00 DRY 64.6 WET 62.1
WIND DIRECTION 27 VEL 07 KTS BAR 23 SWELL DIRECTION 28 H 04 T 06 CLOUD 06 AMT 02 WEATHER 01

0	17.80	31.236	5.77	.29	8.19		.0	6	1.93	0	17.80	31.24	22.47	518.6	0
5	16.90	31.491	5.87	.31	8.21		.0	5	1.93	10	15.24	32.23	23.81	411.1	.047
10	15.24	32.221	6.10	.37	8.22		.0	3	1.94	20	14.54	32.51	24.18	376.0	.087
20	14.54	32.509	6.15	.39	8.22		.0	2	1.97	30	11.92	32.51	24.70	326.4	.122
35	10.55	32.517	7.22	.46	8.27		.0	2	1.94	50	9.41	32.55	25.17	282.4	.183
50	9.41	32.550	7.23	.50	8.30		.0	2	1.96	75	8.68	32.74	25.43	257.8	.250
75	8.68	32.739	5.92	1.00	8.17		9.0	9	1.99	100	8.16	33.16	25.84	219.3	.310
100	8.14	33.182	4.68	1.58	8.06		15.5	22	2.11	150	7.73	33.71	26.33	173.4	.408
151	7.72	33.717	3.72	1.95	7.97		25.9	34	2.14	200	7.15	33.90	26.56	152.4	.490
201	7.14	33.897	3.21	2.17	7.92		20.4	43	2.15						

KP53 43 39.0 N 129 58.5 W DATE 13 JUL 67 0031 GCT WIRE 03 DRY 63.7 WET 59.9
WIND DIRECTION 34 VEL 11 KTS BAR 24 SWELL DIRECTION 29 H 04 T 08 CLOUD 08 AMT 04 WEATHER 03

0	16.63	32.286	5.96	.44	8.20	2.19	.0	3	1.89	0	16.63	32.29	23.55	435.8	0
10	15.79	32.312	6.09	.42	8.22	2.19	.2	3	1.92	10	15.79	32.32	23.76	416.0	.043
30	11.11	32.668	6.89	.56	8.26	2.21	.0	1	1.93	20	13.52	32.49	24.37	357.5	.081
50	9.34	32.614	7.13	.56	8.30	2.21	.0	1	2.01	30	11.11	32.67	24.97	300.8	.114
75	8.76	32.740	6.81	.68	8.25	2.21	1.9	3	1.96	50	9.34	32.62	25.23	276.5	.172
101	8.25	32.853	6.19	.95	8.20	2.23	6.8	7	1.99	75	8.76	32.75	25.42	248.9	.239
151	7.96	33.696	4.98	1.52	8.09	2.25	17.7	23	2.09	100	8.27	32.85	25.57	244.4	.302
202	7.18	33.862	4.29	1.87	8.02	2.29	22.3	35	2.17	150	7.96	33.68	26.27	179.1	.408
303	5.72	33.911	2.85	2.50	7.86	2.30	34.9	57	2.22	200	7.21	33.86	26.51	156.3	.491
403	5.31	34.014	1.49	2.94	7.74		37.3	76	2.28	250	6.41	33.91	26.66	142.7	.566
604	4.32	34.174	.42	3.29	7.67	2.31	43.0	105	2.34	300	5.75	33.91	26.75	134.8	.635
804	3.93	34.328	.26	3.43	7.65	2.37	36.1	123	2.36	400	5.32	34.01	26.88	123.3	.764
1002	3.44	34.408	.29	3.43	7.67	2.39	45.1	138	2.39	500	4.81	34.10	27.01	111.4	.882
1201	3.07	34.478	.48	3.39	7.68	2.40	44.5	149	2.37	600	4.34	34.17	27.12	101.8	.988
1501	2.50	34.539	.79	3.36	7.72	2.43	45.9	168	2.41	700	4.10	34.25	27.21	93.6	1.086
										800	3.94	34.33	27.28	87.0	1.176
										1000	3.44	34.41	27.40	77.0	1.340
										1200	3.07	34.48	27.49	68.5	1.486
										1500	2.50	34.54	27.59	59.3	1.677

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk. (meq/l)	NO ₃ (μM)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	B (x10 ⁶)	ΔD (dyn.m)
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KP54 43 03.0 N 131 08.5 W DATE 13 JUL 67 0945 GCT WIHE 02 DRY 59.8 WET 56.9
WIND DIRECTION 32 VEL 10 KTS BAR 27 SWELL DIRECTION 31 H 04 T 07 CLOUD AMT 00 WEATHER 01

0	15.93	32.616	6.08	.31	8.19	2.20	.1	1	1.90	0	15.93	32.62	23.96	396.5	0
5	15.98	32.609	6.09	.33	8.18	2.18	.0	1	1.96	10	15.88	32.63	23.98	395.0	.040
10	15.88	32.625	6.09	.38	8.19	2.20	.0	1	1.91	20	13.73	32.67	24.47	348.6	.077
20	13.73	32.664	6.37	.43	8.22	2.20	.0	0	1.94	30	12.17	32.65	24.76	320.9	.110
35	11.47	32.636	6.96	.45	8.23	2.19	.0	0	1.92	50	9.01	32.62	25.28	271.7	.169
50	9.01	32.612	7.34	.58	8.24	2.19	.6	2	1.94	75	6.44	32.68	25.42	258.7	.236
75	8.44	32.679	6.94	.67	8.21	2.20	2.5	3	1.96	100	6.47	32.76	25.47	254.0	.300
100	8.47	32.753	6.79	.72	8.22	2.20	2.5	4	1.96	150	7.89	33.42	26.08	197.3	.413
151	7.87	33.434	5.23	1.39	8.10	2.23	15.0	20	2.16	200	7.12	33.81	26.49	158.6	.502
201	7.10	33.811	3.82	2.00	7.94	2.26	23.6	40	2.19	250	6.49	33.86	26.62	146.8	.578
301	5.97	33.919	2.43	2.50	7.81	2.28	33.7	60	2.24	300	5.98	33.92	26.73	137.0	.649
402	5.12	33.975	1.66	2.84	7.71	2.30	38.2	81	2.28	400	5.13	33.97	26.87	123.9	.779
603	4.24	34.147	.56	3.15	7.63	2.33	49.3	110	2.35	500	4.60	34.06	27.00	111.9	.897
803	3.73	34.285	.27	3.29	7.62	2.36	50.7	131	2.33	600	4.25	34.14	27.11	102.8	1.004
808*	3.76	34.293	.28	3.08	7.65		130	2.32		700	3.76	34.19	27.20	94.2	1.103
1004	3.40	34.287	.27	3.31	7.64	2.38	42.2	145	2.36	800	3.74	34.28	27.27	88.0	1.194
1009*	3.39	34.395	.35	3.29	7.64		144	2.35		1000	3.42	34.29	27.30	85.6	1.367
1258*	2.86	34.492	.42	3.18	7.68	2.42	159	2.36		1200	2.98	34.47	27.49	68.1	1.521
1507*	2.46	34.542	.77	3.23	7.74	2.43	33.8	170	2.41	1500	2.47	34.54	27.59	58.7	1.711
1757*	2.14	34.579	1.21	3.10	7.76	2.43	35.7	178	2.45						

KP55 42 23.5 N 131 1.0 W DATE 13 JUL 67 1530 GCT WIHE 02 DRY 63.0 WET 58.9
WIND DIRECTION 32 VEL 09 KTS BAR 28 SWELL DIRECTION 31 H 04 T 03 CLOUD 08 AMT 01 WEATHER 03

0	16.06	32.787	5.89	.52	8.20	2.21	.0	1	1.98	0	16.06	32.79	24.06	386.8	0
30	13.25	32.766	6.38	.49	8.23	2.20	.0	1	1.95	10	15.09	32.79	24.27	367.1	.098
50	9.55	32.785	7.13	.78	8.28	2.21	.0	2	1.96	20	14.13	32.78	24.67	348.2	.073
101	8.49	32.788	6.56	.81	8.23	2.21	1.8	4	2.00	30	13.25	32.77	24.64	339.1	.107
202	7.53	33.853	4.24	1.82	8.00	2.26	22.3	33	2.10	50	9.55	32.79	25.33	267.1	.167
404	5.07	33.967	1.84	2.83	7.74	2.30	36.7	73	2.27	75	9.03	32.79	25.41	259.8	.233
606	4.67	34.217	.33	3.33	7.62	2.33	27.0	109	2.37	100	8.51	32.79	25.49	252.4	.297
808	3.87	34.327	.25	3.38	7.54	2.36	27.1	129	2.39	150	7.94	33.26	25.94	210.0	.413
1009	3.49	34.430	.35	3.40	7.68	2.38	24.7	142	2.41	200	7.54	33.83	26.45	162.8	.506
1211	3.02	34.478	.49	3.33	7.69	2.40	18.7	154	2.39	250	6.88	33.88	26.58	150.8	.584
										300	6.25	33.91	26.69	141.1	.647
										400	5.11	33.96	26.87	124.3	.790
										500	4.78	34.09	27.00	111.7	.908
										600	4.68	34.21	27.11	103.0	1.015
										700	4.30	34.28	27.21	94.1	1.114
										800	3.90	34.32	27.29	86.7	1.204
										1000	3.50	34.43	27.41	76.2	1.367
										1200	3.05	34.48	27.49	68.3	1.511

KP56 42 00.8 N 131 03.5 W DATE 13 JUL 67 2120 GCT WIHE 04 DRY 63.9 WET 55.9
WIND DIRECTION 34 VEL 07 KTS BAR 29 SWELL DIRECTION 31 H 03 T 05 CLOUD 08 AMT 02 WEATHER 03

0	16.58	32.774	5.91	.42	8.20	2.21	.0	1	1.98	0	16.58	32.78	23.93	399.0	0
30	14.26	32.778	6.16	.42	8.23	2.20	.0	1	2.02	10	15.81	32.78	24.11	382.5	.099
50	9.08	32.700	7.05	.53	8.27	2.19	1.1	2	2.00	20	15.03	32.78	24.28	366.3	.077
101	8.41	32.921	6.02	.94	8.17	2.20	7.4	8	2.10	30	14.26	32.78	24.45	350.9	.112
202	7.56	33.808	4.18	1.79	7.97	2.26	24.0	33	2.21	50	9.08	32.71	25.34	266.2	.174
404	5.65	34.028	1.37	2.87	6.69	2.30	38.1	70	2.37	75	8.75	32.76	25.43	257.5	.240
606	4.58	34.199	.37	3.23	7.64	2.33	43.5	107	2.39	100	8.42	32.91	25.60	241.8	.32
808	3.99	34.347	.29	3.34	7.60	2.36	43.1	127	2.42	150	7.96	33.35	26.01	203.8	.413
1010	3.47	34.398	.29	3.32	7.63	2.37	44.7	143	2.48	200	7.57	33.79	26.41	166.1	.546
1010*	3.36	34.412	.29	1.67	2.39	45.5	145	2.45		250	7.08	33.96	26.61	147.8	.584
1211	3.11	34.430	.52	3.27	7.67	2.39	*	145	2.45	300	6.60	33.91	26.65	145.2	.647
1212	3.02	34.480	.51	3.27	7.70	2.40	45.1	154	2.46	400	5.69	34.02	26.85	126.9	.793
1515*	2.48	34.533	.80	3.21	7.73	2.42	44.5	171	2.45	500	5.06	34.11	26.99	113.0	.913
2013*	1.91	34.612	1.66	2.98	7.80	2.44	37.3	185	2.44	600	4.60	34.19	27.11	103.2	1.021
2511*	1.83	34.639	2.13	2.90	7.85	2.43	37.6	186	2.47	700	4.27	34.28	27.21	93.9	1.120
3000*	1.62	34.653	2.54	2.77	7.87	2.44	38.8	190	2.40	800	4.01	34.36	27.29	86.6	1.210
										1000	3.50	34.40	27.38	78.4	1.375
										1200	3.12	34.43	27.45	72.7	1.526
										1500	2.51	34.53	27.58	60.0	1.725
										2000	1.92	34.61	27.69	49.6	1.998
										2500	1.83	34.64	27.72	46.9	2.245
										3000	1.62	34.65	27.75	46.6	2.443

OBSERVED

INTERPOLATED

DERIVED

D (m)	T (°C)	S (%)	O ₂ (ml/l)	PO ₄ (μM)	pH	Alk.	NO ₃ (meq/l)	SiO ₂ (μM)	ΣCO ₂ (mM)	Z (m)	T (°C)	S (%)	σ _t	δ (x10 ⁵)	ΔD (dyn.m)
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KP57 41 42.2 N 130 0.0 W DATE 14 JUL 67 0426 GCT WIPE 02 DRY 62.0 WET 57.8
WIND DIRECTION 34 VEL 10 KTS BAR 28 SWELL DIRECTION 34 H 05 T 05 CLOUD 01 AMT 01 WEATHER 01

0	16.32	32.844	5.89	.55	8.20	2.21	.0	1	2.08	0	16.32	32.85	24.05	388.3	0
30	12.63	32.815	6.49	.44	8.23	2.19	.0	1	2.07	10	15.09	32.84	24.31	363.2	.078
50	10.51	32.805	6.74	.46	8.24	2.19	.0	2	2.03	20	13.86	32.83	24.57	339.3	.073
101	9.29	32.800	6.51	.58	8.23	2.21	.8	2	2.05	30	12.63	32.82	24.80	316.9	.105
202	7.49	33.772	4.79	1.49	8.08	2.25	18.6	23	2.16	50	10.51	32.81	25.18	281.0	.145
404	5.45	33.956	2.28	2.67	7.82	2.29	33.6	66	2.35	75	9.51	32.84	25.38	262.8	.233
605	4.37	34.163	1.08	3.21	7.64	2.31	47.9	111	2.41	100	9.31	32.94	25.48	253.4	.208
806	3.84	34.296	.39	3.35	7.62	2.34	47.6	130	2.44	150	8.52	33.33	25.91	213.2	.414
1008	3.41	34.390	.29	3.41	7.62	2.38	48.6	145	2.45	200	7.91	33.75	26.34	173.5	.511
1207	3.03	34.458	.55	3.45	7.63	2.40	47.6	159	2.44	250	7.23	33.90	26.55	153.6	.593
										300	6.59	33.86	26.60	149.0	.668
										400	5.49	33.95	26.81	129.8	.808
										500	4.82	34.06	26.98	114.3	.930
										600	4.39	34.16	27.10	103.3	1.039
										700	4.08	34.23	27.20	94.8	1.138
										800	3.85	34.29	27.27	88.4	1.229
										1000	3.43	34.39	27.38	78.3	1.396
										1200	3.04	34.46	27.47	69.8	1.544

KP58 41 41.6 N 129 0.4 W DATE 14 JUL 67 0850 GCT WIPE 03 DRY 61.0 WET 58.0
WIND DIRECTION 00 VEL 15 KTS BAR 28 SWELL DIRECTION 33 H 05 T 07 CLOUD 08 AMT 01 WEATHER 02

0	16.21	32.669	5.82	.41	8.17	2.19	.0	2	2.03	0	16.21	32.67	23.94	398.7	0
5	16.23	32.665	5.90	.41	8.20	2.19	.0	2	1.99	10	16.18	32.66	23.94	399.0	.040
10	16.18	32.659	5.89	.41	8.20	2.20	.0	2	1.94	20	15.15	32.62	24.13	380.6	.079
20	15.15	32.616	5.99	.41	8.21	2.20	.0	2	1.96	30	14.24	32.72	24.40	355.2	.116
35	13.68	32.781	6.23	.42	8.22	2.20	.0	1	2.00	50	10.91	32.84	25.14	285.4	.180
50	10.91	32.836	6.72	.49	8.25	2.20	.0	2	2.00	75	9.74	32.83	25.33	267.3	.249
75	9.74	32.828	6.56	.56	8.20	2.20	1.6	2	1.98	100	9.30	32.91	25.46	255.4	.314
100	9.30	32.902	6.30	.63	8.22	2.21	2.6	4	2.01	150	8.35	33.48	26.05	199.5	.428
151	8.33	33.492	4.93	1.37	8.09	2.25	17.8	19	2.08	200	7.61	33.84	26.45	163.0	.518
201	7.60	33.844	4.04	1.80	7.98	2.26	17.4	33	2.16						

KP59 41 42.8 N 128 0.7 W DATE 14 JUL 67 1421 GCT WIPE 04 DRY 62.0 WET 59.0
WIND DIRECTION 00 VEL 20 KTS BAR 26 SWELL DIRECTION 33 H 06 T 09 CLOUD 08 AMT 05 WEATHER 03

0	16.29	32.259	5.86	.39	8.22	2.16	.0	3	1.94	0	16.29	32.26	23.41	430.3	0
30	14.66	32.622	6.14	.43	8.22	2.19	.0	2	1.95	10	15.75	32.38	23.82	410.2	.042
50	11.57	32.772	6.72	.47	8.23	2.21	.0	1	1.96	20	15.20	32.51	24.03	390.0	.082
101	9.01	32.890	6.04	.82	8.20	2.21	6.1	6	2.02	30	14.66	32.63	24.24	370.4	.120
200	7.73	33.889	3.54	1.97	7.96	2.24	28.4	36	2.19	50	11.57	32.78	24.97	301.4	.187
401	5.19	33.975	1.91	2.77	7.79	2.30	30.6	80	2.29	75	9.76	32.84	25.33	267.2	.248
602	4.51	34.200	.40	3.26	7.62	2.33	38.4	107	2.32	100	9.02	32.89	25.49	259.4	.323
803	3.93	34.340	.26	3.32	7.65	2.37	45.5	129	2.40	150	8.07	33.36	26.00	204.3	.437
1004	3.50	34.435	.59	3.38	7.65	2.39	34.0	142	2.36	200	7.73	33.89	26.47	160.7	.529
1205	3.08	34.489	.52	3.33	7.68	2.39	30.7	153	2.35	250	7.01	33.91	26.59	150.2	.606
										300	6.35	33.93	26.69	140.6	.679
										400	5.20	33.97	26.87	124.6	.811
										500	4.73	34.08	27.01	111.5	.929
										600	4.51	34.20	27.12	101.9	1.036
										700	4.21	34.28	27.22	93.1	1.124
										800	3.94	34.34	27.29	86.1	1.223
										1000	3.51	34.43	27.41	75.7	1.345
										1200	3.09	34.49	27.50	68.0	1.528

KP60 41 43.9 N 127 0.5 W DATE 14 JUL 67 2010 GCT WIPE 00 DRY 63.7 WET 60.8
WIND DIRECTION 35 VEL 22 KTS BAR 26 SWELL DIRECTION 32 H 04 T 06 CLOUD 04 AMT 01 WEATHER 01

0	15.67	32.436	5.96	.37	8.22	2.18	.2	3	1.96	0	15.67	32.44	23.88	404.1	0
5	15.71	32.432	5.98	.39	8.21	2.18	.0	2	1.96	10	15.67	32.43	23.87	405.1	.040
10	15.67	32.427	5.97	.39	8.21	2.19	.0	2	1.92	20	15.54	32.47	23.93	399.9	.081
20	15.54	32.463	5.98	.40	8.21	2.19	.0	2	2.00	30	13.78	32.59	24.40	355.4	.118
35	12.78	32.656	6.62	.40	8.22	2.19	.0	2	1.98	50	11.60	32.68	24.89	309.2	.185
50	11.60	32.674	6.90	.40	8.25	2.19	.0	2	1.99	75	9.51	32.75	25.30	270.1	.257
75	9.51	32.742	6.48	.75	8.19	2.20	3.9	5	2.02	100	8.78	32.97	25.59	243.0	.321
100	8.78	32.963	5.56	1.15	8.11	2.21	11.4	12	2.08	150	8.07	33.64	26.22	183.8	.428
151	8.06	33.648	4.04	1.83	7.98	2.25	25.2	29	2.15	200	7.49	33.87	26.49	158.7	.514
201	7.48	33.875	3.94	1.90	7.97	2.26	27.6	35	2.18						

OBSERVED

INTERPOLATED

DERIVED

D T S O₂ PO₄ pH Alk. NO₃ SiO₂ ΣCO₂ Z T S σ_t δ ΔD
(m) (°C) (%) (ml/l) (μM) (meq/l) (μM) (μM) (mM) (m) (°C) (%) (x10⁵) (dyn.m)

KP61 41 43.0 N 126 0.6 W DATE 15 JUL 67 0153 GCT WIRE 12 DRY 59.8 WET 58.0
WIND DIRECTION 35 VEL 25 KTS BAR 21 SWELL DIRECTION 35 H 08 T 06 CLOUD AMT 00 WEATHER 01

0	13.13	33.133	6.65	.56	8.24	2.23	4.4	1	2.00	0	13.13	33.14	24.95	302.2	0
30	9.20	33.447	4.92	1.67	8.03	2.25	20.1	21	2.12	10	11.81	33.24	25.29	270.5	.029
50	8.06	33.524	4.28	1.81	7.96	2.25	22.9	26	2.11	20	10.51	33.35	25.60	240.7	.054
101	8.03	33.795	3.26	2.07	7.93	2.26	29.0	34	2.17	30	9.20	33.45	25.90	212.3	.077
202	6.88	33.969	2.47	2.42	7.82	2.28	34.6	47	2.20	50	8.06	33.53	26.14	190.2	.117
404	5.51	34.096	.98	3.01	7.69	2.31	40.9	91	2.32	75	8.05	33.66	26.24	180.7	.163
606	4.58	34.240	.31	3.31	7.64	2.36	47.2	111	2.31	100	8.03	33.79	26.35	171.0	.207
808	4.22	34.370	.34	3.36	7.67	2.37	45.0	127	2.39	150	7.54	33.91	26.51	155.7	.249
1010	3.57	34.439	.48	3.36	7.67	2.39	47.4	142	2.38	200	6.91	33.97	26.65	143.8	.364
1211	3.10	34.490	.53	3.31	7.69	2.40	47.6	157	2.42	250	6.47	34.01	26.74	135.6	.434
										300	6.10	34.05	26.81	128.9	.500
										400	5.53	34.09	26.92	119.6	.624
										500	5.06	34.16	27.03	109.3	.738
										600	4.70	34.24	27.13	101.2	.844
										700	4.45	34.31	27.21	93.8	.941
										800	4.24	34.37	27.28	87.5	1.012
										1000	3.60	34.44	27.41	76.6	1.196
										1200	3.12	34.49	27.49	68.4	1.341

KP62 41 43.4 N 124 26.0 W DATE 15 JUL 67 1030 GCT WIRE 00 DRY 55.2 WET 51.5
WIND DIRECTION 00 VEL 10 KTS BAR 17 SWELL DIRECTION 33 H 04 T 06 CLOUD AMT WEATHER 02

0	10.10	33.672	5.15	1.50	16.0	24	2.03	0	10.10	33.68	25.93	209.3	0
5	10.13	33.649	5.19	1.52	11.0	26	2.04	10	10.10	33.67	25.92	209.8	.021
10	10.10	33.668	5.10	1.53	6.7	25		20	9.64	33.71	26.03	200.0	.041
20	9.64	33.704	4.61	1.66	12.8	28	2.14	30	8.75	33.80	26.24	179.7	.060
35	8.33	33.848	3.44	2.11	10.3	38	2.16	50	8.12	33.91	26.42	162.9	.095
50	8.12	33.902	3.27	2.14	26.1	39	2.12	75	8.01	33.92	26.45	160.7	.135
75	8.01	33.916	3.17	2.16	12.9	40	2.10	100	7.78	33.98	26.53	153.5	.174
100	7.77	33.982	3.03	2.50	13.9	48	2.14						

NH-65 44 40.9 N 125 36.1 W DATE 17 NOV 67 0012 GCT WIRE 09 DRY 53.0 WET 52.2
WIND DIRECTION 01 VEL 30 KTS BAR 24 SWELL DIRECTION H T CLCUD 08 AMT 02 WEATHER 03

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