

CRN

94 06

Book #1 of 2

DAILY LOG

INSTITUTE OF OCEAN SCIENCES
OCEAN PHYSICS

DATE

24 Mar 94

VESSEL

CCGS Narwhal

PROJECT

PERD (T & C)

Salinity samples
to Ocean Physics
cooperation.

2 - 221

Captain: E. Lien
Second Officer: _____

First Officer: S. Doan
Third Officer: _____

Cruise Participants/Agencies: IOS/T&C (PERD)

Scientific Personnel:		Party Chief: <u>M. Woodward 4-8</u>	
name	watch cabin	name	watch cabin
<u>B. de Lange Boom</u>	<u>8-12</u>		
<u>N. Sutherland</u>	<u>8-12</u>		
<u>L. Dorosh</u>	<u>12-4</u>		
<u>D. Sinnott</u>	<u>4-8</u>		
<u>D. Popejoy</u>	<u>12-4</u>		

second leg of cruise: Party Chief: _____

third leg of cruise: Party Chief: _____

DATA LOGGING SYSTEM: Unit number: _____ program ver. _____
CTD deck unit make: Guildline model: 87107 serial no.: 57,160
Computer make: HP model: Verde 5/20 serial no.: System 2
monitor make: NEC model: MSync 2A serial no.: _____
printer make: Raven model: PR 7102 serial no.: _____

1st CTD make: Guildline model: 8705 serial no.: 43,825
temperature sensor model: _____ serial no.: _____
coefficients: slope: 1 offset: 0.0005
conductivity sensor model: _____ serial no.: _____
coefficients: slope: 1 offset: 0
pressure sensor range: _____ psi serial no.: _____
coefficients: FSP: 1000 dB offset: 0
transmissometer model: _____ serial no.: _____
coefficients: slope: _____ offset: _____
Comments: _____

2nd CTD make: _____ model: _____ serial no.: _____
 temperature sensor model: _____ serial no.: _____
 coefficients: slope: _____ offset: _____
 conductivity sensor model: _____ serial no.: _____
 coefficients: slope: _____ offset: _____
 pressure sensor range: _____ psi serial no.: _____
 coefficients: FSP: _____ dB offset: _____
 transmissometer model: _____ serial no.: _____
 coefficients: slope: _____ offset: _____
 Comments: _____

WINCHES:

CTD make: IOS? model: electric serial no.: _____
 counter make: _____ model: _____ serial no.: _____
 HYDRO make: _____ model: _____ serial no.: _____
 counter make: _____ model: _____ serial no.: _____
 Spooling make: _____ model: _____ serial no.: _____
 Drag make: _____ model: _____ serial no.: _____
 other make: _____ model: _____ serial no.: _____

Salinometer make: _____ model: _____ serial no.: _____

SAIL System:

program version: V4.00 rev. A time zone: UTC
 sampling interval: 20 sec. (C,T,F)
 CTF module no.: 11 serial no.: 9111
 remote temperature model: N/A serial no.: not installed
 flow sensor model: N/A serial no.: N/A
 Other sensors: (special for this cruise)
 name: Magellan GPS module I.D.: 04 serial no.: N/A
 name: _____ module I.D.: _____ serial no.: _____
 Comments: pump failed near end of cruise

ADCP Setup:

Program version: _____ number of depth bins: _____
 time zone: _____ bin length (2^x): _____
 sampling interval: _____ sec. pulse length: _____
 blank beyond transmit: _____ pings per ensemble: _____
 pulse cycle time: _____
 percent pings good threshold: _____
 Comments: _____

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1994

MONTH Mar

TIME ZONE UTC

SHIP CCGS Narwhal

CRUISE 9406

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[illegible]

YEAR	1994	MONTH	MAR	TIME ZONE	UTC	SHIP	CCGS NARWHAL	CRUISE	9406	PAGE	2 OF		
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
25	GG13	191	23 30 51 10.00 23 42 128 22.54	13	2333	/	/	/	/	/	/	/	CTD DEPTH 188
26	GG04	29	0142 50 54.99 0147 128 07.16	14	0145	/	-	-	-	-	-	/	CTD to 25m
26	GG1A	44	0225 50 51.61 0230 128 17.44	15	0226	/	-	-	-	-	-	/	CTD to 40m
26	JS15	69	0331 50-46.68 128 30.9	16	0332	/	-	-	-	-	-	/	Stn. appears off posn. check w/ bridge log!! OK
26	JS14	115	0448 50-47.34 0458 128-47.63	17	0452	/	-	-	-	-	-	/	CTD to 112 m
26	JS13	115	0542 50-49.62 0551 128-58.27	18	0545	/	-	-	-	-	-	/	CTD to 111 m
26	JS12	62	0642 50-53.05 0648 129-08.15	19	0645	/	-	-	-	-	-	/	CTD to 56 m
26	JS11	189	0746 51-00.06 129-20.92	20	0748	/	-	-	-	-	-	/	CTD to 185 m
26	JS10	268	0855 51 07.85 0908 129 34.76	21	0900	/	-	-	-	-	-	/	CTD to 265m
26	JS09	264	1007 51 16.10 1024 129 49.28	22	1015	/	-	-	-	-	-	/	CTD to 259m.
26	MC03	61	1247 51 35.30 1252 129 18.30	23	1249	/	-	-	-	-	-	/	CTD to 55m
26	GLO1	60	1318 51 36.35 1323 129 24.90	24	1320	/	-	-	-	-	-	/	CTD to 55m

STN GLO6

Cal. Bottle

1736 Z messenger time

Note: Bottle 2 m. above T & C sensors

1740 CTD

<u>T</u>	<u>C</u>	<u>S</u>	<u>P</u>
3.800	0.74825	34.277	745
± 0.003	± 0.00004		± 0.5

1741 start CTD up
Sal. sample bottle #1

Thermometers	T446	3.809 °C
	T798	3.814 °C

DAILY LOG

OCEAN PHYSICS

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YEAR	1994	MONTH	March	TIME ZONE	UTC	SHIP	Narwhal	CRUISE	9406	PAGE	3	OF	
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC. #	STD TIME	HYDRO CONSEC. #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
26	GLO2 146	1417	51-30.35	25	1418	/					/		CTD to 140m
		1423	129-37.50			/					/		
26	GLO3 224	1517	51-23.91	26	1520	/					/		CTD to 200m
		1523	129-50.20			/					/		lat. (written) off posn.; log file ok
26	GLO4 254	1555	51-21.28	27	1558	/					/		CTD to 250 m
		1605	129-56.40			/					/		loop T _c 8.614°C 0.7972 32.289 *
26	GL05 344	1636	51-18.21	28	1639	/					/		N.B. loop intake ~ 4 m
		1650	130-02.69			/					/		CTD to 338 m
26	GL06 815	1720	51-15.14	29	1724	/	1736	#1			/		CTD to 750 m; cal bottle at 745m (see adjacent pg)
		1750	130-09.07			/					/		CTD to 700 m
26	JS08 672	1841	51-24.31	30	1844	/					/		
		1901	130-03.79			/					/		
26	JS07 1001	2004	51-32.38	31	2007	/					/		CTD to 730 m.
		2028	130-10.77			/					/		
26	NM04 252	2134	51-45.77	32	2137	/					/		CTD to 249 m
		2143	130-21.74			/					/		
26	NM02 200	2229	51-51.82	33	2231	/					/		CTD to 199 m
		2238	130-11.75			/					/		
27	GG12 103	2129	51-38.08	34	2134	/					/		CTD to 100 m.
		2139	128-14.30			/					/		
27	GG11 92	2204	51-32.92	35	2207	/					/		CTD to 90 m.
		2211	128-13.14			/					/		
27	GH04 194	2253	51-29.03	36	2258	/					/		CTD to 191 m
		2304	128-26.55			/					/		

← x'ferred to Dell 26/3/94

DAILY LOG

OCEAN PHYSICS

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YEAR 1994

MONTH MARCH

TIME ZONE UTC

SHIP NARWHAL

CRUISE 9406

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YEAR 1994		MONTH MARCH		TIME ZONE UTC		SHIP NARWHAL		CRUISE 9406		PAGE 4 OF			
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC. #	STD TIME	HYDRO CONSEC. #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
27	GG10	147	2343 51-25.16	37	2345	/	/	/	/	/	/	/	CTD to 144 m
			2357 128-14.33										
28	GG15	38	0048 51-51.01 14.99	38	0050	/	/	/	/	/	/	/	CTD to 36m
			0053 128 07.04										
28	GG13	189	0201 51°09.97	39	0203	/	/	/	/	/	/	/	CTD to 86m
			0210 128°22.50										
28	C018	81	0405 58°57.41	40	0407	/	/	/	/	/	/	/	CTD to 77 m
			0410 128°41.12										
28	C015	66	0503 51-05.13	41	0504	/	/	/	/	/	/	/	CTD to 60 m
			0507 128-46.22										
28	C012	132	0600 51-12.52	42	0602	/	/	/	/	/	/	/	CTD to 125 m
			0607 128-50.28										
28	C009	239	0652 51-21.17	43	0653	/	/	/	/	/	/	/	CTD to 235 m
			0701 128-54.36										
28	C005	105	0736 51-28.03	44	0738	/	/	/	/	/	/	/	CTD to 101 m
			0743 128-54.35										
28	C000	51	0815 51-35.31	45	0821	/	/	/	/	/	/	/	CTD to 48 m.
			0825 128-54.35										
28	MC02	51	0915 51-35.29	46	0917	/	/	/	/	/	/	/	CTD to 48 m.
			0920 129-10.10										
28	MC03	64	0947 51-35.30	47	0949	/	/	/	/	/	/	/	CTD to 60m.
			0953 129-18.38										
28	MC04	65	1021 51-40.09	48	1025	/	/	/	/	/	/	/	CTD to 61 m.
			1029 129-23.14										

YEAR 1994 MONTH MARCH TIME ZONE UTC SHIP NARWHAL CRUISE 9406 PAGE 5 OF

DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC. #	STD TIME	HYDRO CONSEC. #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	Probe depth (dbars)	NOTES
28	MC06	210	1107	51-46.08	49	1111	/				/		209	CTD to 209 m.
			1117	129-30.09										
28	MC08	276	1145	51-50.38	50	1147	/				/		273	CTD to 273 m
			1155	129-35.04										
28	GH12	341	1247	51-43.27	51	1249	/				/		336	CTD to 336 dbars calm.
			1300	129-49.78										
28	NM02	199	1416	51-51.79	52	1417	/				/		196	calm, low W swell.
			1424	130-11.78										
* 28	MC16	426	1518	51-56.94	53	1520	/						491	Wrong station ID (NM02 instead of MC15) *
			1536	130-11.70										
* 28	MC16	426		51-56.94	54	1527	/	#2	L 5.128°C (T446)					Calibration file only *
			1536	130-11.70					R 5.099°C (T798)					
28	MC15	300	1609	51-57.34	55	1611	/							Deployed ARGOS drifter #21218 (Dec)
			1624	130-18.34										
28	MC14	181	1728	51-57.45	56	1737	/				/			CTD to 176 m
			1743	130-10.42										light wind, low W swell
28	MC13	144	1816	51-57.33	57	1817	/				/			Sail system shut down ~15 min to test fire pump
			1822	130-02.31										CTD to 140 m
28	MC12	133	1849	51-57.34	58	1852	/				/			CTD to 126 m
			1936	129-54.20										Deploy ARGOS drifter #21220
28	MC11	129	2005	51-57.32	59	2007	/				/			CTD to 127 m.
			2011	129-45.93										-flat calm-
28	GH14	211	2057	52-00.08	60	2100	/				/			CTD to 208 m
			2106	129-29.90										

x turned to Dell 2013/199

8.977
loop T = 8.968 C_F = 0.8023
S = 32.187

DAILY LOG

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28	GM12	176	2156 52-03.94 2209 129-14.55	61	2159	/								CTD system clock ~15s slow, reset before stn GM12
28	GM06	180	2302 52-07.89 2312 128-58.83	62	2306	/								CTD to 173 m. Deploy Argos Drifter #21221 CTD to 177 m.
29	GK05	200	0006 52 14.73 0014 128 49.13	63	0008	/		Check bridge log for pressure				195		CTD to 195 days Computer file GPS position may be in error.
29	GK10	256	0010 52 16.76 0122 128 35.00	64	0114	/						250		
29	GK04	230	0158 52 10.32 0208 128 39.80	65	0200	/						225		Wind calm.
29	GK03	57	0244 52 04.09 0249 128 33.60	66	0247	/						50		"
29	GK02	163	0340 52 00.08 0345 128 22.00	67	0342	/						160		"
29	GK01	164	0422 51-52.30 0432 128-21.89	68	0425	/						161		Wind calm
29	GI08	141	0512 51-45.86 0520 128-16.17	69	0515	/						136		Wind light
29	GI07	146	0539 51-44.76 0546 128-20.01	70	0540	/						140		" "
29	GI06	149	0604 51-43.84 0613 128-24.53	71	0605	/						146		" "
29	GI05	150	0628 51-42.17 0637 128-28.27	72	0630	/						147		Wind light

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YEAR	1994	MONTH	March	TIME ZONE	UTC	SHIP	Narwhal	CRUISE	9406	PAGE	7 OF			
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	Max. probe depth (dbar)	NOTES
29	GI03	40	0705	51-40.35	73	0707	/				/	37		Wind picking up 10 to 12 kt
29	GI01	43	0749	51-37.29	74	0751	/				/	20		Wind 30 kt
			0803	128-46.25										Cast aborted, wire against ship's side
29	GI01	40	1707	51-37.34	75*	1710	/				/	38		Wind light
			1713	128-46.53										<u>Error</u> N.B. Conseq #77 in header
29	C000	48	1811	51-35.31	76	1814	/				/	46		Wind light
			1817	128-54.39										
29	C003	46	1915	51-31.10	77	1918	/				/	44		N.B. conseq #78 in header
			1922	128-54.39										<u>Error</u>
29	C005	106	2008	51-27.98	78	2014	/				/	103		Wind 25 knots SSW
			2029	128-54.42										Wire angle at end 25°
														Deployed drifter #31
29	C007	211	2158	51-24.39	79	2201	/				/	207		Wind 20-25 kts. SSW.
				128-54.46										
29	C009	239	2229	51-21.11	80	2232	/				/	236		Sea settling, less wind.
			2445	128-54.41										Deployed drifter #32
29	C011	210	2319	51-15.32	81	2322	/				/	207		
			2328	128-52.04										
29	C012	133	2345	51-12.47	82	2349	/				/	131		Deployed Drifter #33
			0004	128-50.33										
30	C013	116	0025	51 09.94	83	0028	/				/	110		Start time in log file doesn't match
			0026	128 49.00										
30	C015	67	0055	51 04.91	84	0056	/				/	60		Sea 1-2m chop.
			0100	124 46.30										

YEAR	1994	MONTH	March	TIME ZONE	UTC	SHIP	Narwhal	CRUISE	9406	PAGE	8	OF		
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	Probe maximum depth (dbars)	NOTES
30	C017	75	0138 50 59.38 0145 128 43.30	85	0141	/					/	70	1-2m chop.	
30	C019	73	0217 50 55.05 0220 128 37.27	86	0219	/					/	70	"	
30	C021	51	0248 50 51.25 0252 128 32.07	87	0250	/					/	45	2m chop.	
30	C023	50	0318 50 48.20 0322 128 27.24	88	0320	/					/	45	2-3m chop/swell	
*30	JS15	70	0341 50 46.70 0346 128 38.85	89 30.80	0343	/					/	60	Bad GPS fix, see bridge log.	
30	GG14	43	0434 50-51.55 0441 128-17.29	90	0438	/					/	38	2-3m chop/swell CTD time uncertain 1 m chop/swell	
30	GG04	25	0517 50-55.05 0522 128-06.96	91	0520	/					/	20		
30	GG05	85	0550 50-59.64 0555 128-00.44	92	0551	/					/	81		
30	GG06	157	0622 51-04.05 0632 127-54.59	93	0626	/					/	151		
30	GG07	77	0709 51-08.21 0714 127-48.09	94	0711	/					/	72		
30	GG08	138	0754 51-14.57 0801 127-54.63	95	0756	/					/	135		
30	GG09	188	0849 51-20.25 0859 128-03.28	96	0852	/					/	187		

* turned to bell 29/3/94

DAILY LOG

OCEAN PHYSICS

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YEAR	1994	MONTH	MARCH	TIME ZONE	UTC	SHIP	NARWHAL	CRUISE	9406	PAGE	9 OF			
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC. #	STD TIME	HYDRO CONSEC. #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	MAXIMUM DEPTH	NOTES
30	GG10	149	0941 51- ²⁵ 52.26 0950 128-14.46	97	0944	/					/	147		
30	GH04	195	1030 51-29.03 1040 128-26.53	98	1034	/					/	191		
30	GH05	223	1134 51-23.98 1143 128-42.50	99	1137	/					/	220		
30	GG13	192	1316 51 10.05 128 22.55	100	1318	/					/	190		Waiting at this station for tritium deployment
03	GH04	192	0001 51 29.05 128 26.39	101	0006	/					/	185		Low W swell.
03	GG10	149	0055 51 26.24 128 14.30	102	0056	/					/	145		SAIL Temp - 8.949° CR - 0.741 Salinity - 30.962
03	FHS1	146	0238 51 30.01 0244 127 50.03	103	0241	/					/	140		Bad cast: ignore
03	FHS1	146	1431 51 29.96 127 47.89	104	1433	/					/	140		
03	GG09	182	1547 51-20.21 1556 128-03.27	105	1549	/					/	177		slight muddy green colour to water (silt?)
03	GG08	137	1642 51-14.48 1650 127-54.76	106	1644	/					/	133		
03	GG07	74	1730 51-08.18 1735 127-48.18	107	1731	/					/	72		
03	GG06	156	1809 51-03.95 1815 127-54.61	108	1810	/					/	152		

* x'ferred to Dell 30/3/99

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STN C009

Cal. Bottle

Thermometers

T 446

6.228 °C

T 798

6.230 °C

Sal. samples #3 & #4

Cal. Bottle ~ 2 m above C & T sensors

YEAR	1994	MONTH	MARCH	TIME ZONE	UTC	SHIP	NARWHAL	CRUISE	9406	PAGE	10 OF			
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC. #	STD TIME	HYDRO CONSEC. #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	Depth of CTD CAST	NOTES
03	GG05	83	2108 50-59.48 2110 128-00.60	109	2106	/						80		
03	GG04	27	2139 50-55.02 2144 128 07.10	110	2142	/						26		
03	GG14	42	2222 50-51.53 2227 128-17.25	111	2224	/						40		
03	C023	48	2306 50°48.09 2315 128°27.17	112	2311	/						40		
03	JS15	70	2330 5046.76 2335 12830.86	113	2332	/						60	Wind NW 25	
04	C021	51	2359 5051.33 0003 12832.12	114	0001	/						45	Wind NW 20	
04	C018	82	0133 5057.28 0138 12841.00	115	0135	/						75	Wind NW ~30	
04	C015	67	0221 51 05.00 0228 12846.25	116	0223	/						60	Wind NW 12kn	
04	C012	132	0308 51-12.48 0315 128-50.33	117	0311	/						127		
04	C009	239	0400 51-21.11 128-54.43	118	0401	/						235	Bottle mistripped.	
04	C009	239	0415 51-21.07 128-54.46	119	0418	/	0418:15	P=226 T=6.222 S _r =78480 S=33.888				227	Nice steady readings see adjoining page for readings of thermometers	
04	C009	239	51-21.06 ~0440 128-54.41	120	0431	/	0431:57	3 P=227 T=6.222 4 S _r =78481 S=33.889				227	Nice steady readings ± 1 in least sig digit	

STN C000

Cal. Bottle

Thermometers

T 446

8.529 °C

T 798

8.530 °C

4/4/94 0608 UTC

Sal. Samples #5 + #6

Cal. bottle ~ 2 m above T & C sensors

YEAR		MONTH		TIME		ZONE		SHIP		CRUISE		PAGE								
1994		April		UTC		Narwhal		9406		11		OF								
DAY	STATION	IDENTIFICATION	DEPTH	SOUNDING (m)	SHIP STOP	START TIME	LATITUDE	LONGITUDE	STD CONSEC. #	STD TIME	HYDRO CONSEC. #	MESSANGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE	SALINITY	LOOP SALINITY #	Depth of CTD	Cart	NOTES
04	C005	104	0513	51-28.00	121	0517											101			
			0522	128-54.42																
04	C000	49	0600	51-35.32	122	0603:50											43			
				128-54.52																
04	C000	49		51-35.27	123	0606														
			0612	128-54.46																
																				Cal. cast at 22m
04	MC02	48	0703	51-38.31	124	0705											47			
			0707	129-10.13																
04	MC04	61	0752	51-40.07	125	0756											59			
			0759	129-23.15																
04	MC06	204	0836	51-46.13	126	0839											201			
			0847	129-30.01																
04	MC08	272	0911	51-50.36	127	0914											271			
			0923	129-34.95																
04	GM04	99	1115	51 56.45	128	1118											91			Wind NW 7
				128 56.38																(on) W swell.
04	GM02	69	1217	51 46.05	129	1219											60			Wind NW 15
			1223	128 54.59																
04	GI01	42	1312	51 37.34	130	1315											40			
			1317	128 46.37																
04	GI02	40	1342	51 39.18	131	1344											36			Wind NW 7
			1348	128 40.43																
04	GI03	40	1405	51 40.25	132	1409											36			Wind NW 7
			1412	128 36.30																

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YEAR 1994 MONTH April TIME ZONE UTC SHIP Narwhal CRUISE 9406 PAGE 12 OF

DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/LONGITUDE	STD CONSEC *	STD TIME	HYDRO CONSEC *	MESSENGER TIME	HYDRO SALINITY *	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY *	Probe max depth [dbt]	NOTES
04	GI04	127	1421 1427	51°41.01 128°34.01	133	1423	/				/	125		
04	GI05	151	1458 1458	51°42.22 128°29.31	134	1458	/				/	147		Times wrong? subtract 10 min from written times * Wind NW 4
04	GI06	150	1508 1516	51-43.75 128-24.50	135	1511	/				/	146		
04	GI07	147	1533 1537	51-44.73 128-19.97	136	1534	/				/	142		Wind NW 4
04	GI08	142	1555 1602	51-45.79 128-16.13	137	1557	/				/	137		
04	GG12	101	1639 1646	51-38.16 128-14.12	138	1640	/				/	96		recover drifter #30 en route GG11
04	GG11	94	1729 1735	51-32.98 128-13.00	139	1731	/				/	90		
04	GH04	193	1818	51-28.99 128-26.53	140	1820	/				/	90		Stopped short
04	GH04	193	1830	51-28.96 128-26.63	141	1824	/				/	190		2nd try Touched bottom
04	GH05	222	1943 1955	51-23.97 128-42.50	142	1945	/				/	219		Wrong cast seq. # in header *
05	GG13	191	2020 2028	51-09.97 128-22.49	143	2023	/				/	188.5		Touched bottom
05	GG15	41	2245 2250	51-15.06 128-07.03	144	2047 2247	/				/	37		Touched bottom

YEAR	1994	MONTH	April	TIME ZONE	UTC	SHIP	Narwhal	CRUISE	2406	PAGE	13	OF	
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC. #	STD TIME	HYDRO CONSEC. #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
				03.31									
05	GG09183	2320	51°02.24	128°30.24	145	2322						176	Wind & sea CALM
06	FHSL 144	0044	51°29.99	127°50.00	146	0045						141	
08	GG06159	1638	51°03.97	127°54.67	147	1641						1	Cast aborted for ship to maneuver.
08	GG06159	1650	51-04.01	127-54.78	148	1645						154	Wind SE 25 G 32 kt.
08	GG0591	1720	50-59.63	128-00.54	149	1722						86	Wind SE 40
08	GG0431	1806	50-54.90	128-07.06	150	1807						25	Wind SE 35
08	GG1445	1852	50-51.66	128-17.23	151	1853						41	Wind SE 15
08	JS1572	1946	50-46.64	128-30.90	152	1948						65	Wind SE 8-10
08	JS1491	2050	50-47.24	128-47.73	153	2054						90	
08	JS14115	2102	50-47.23	128-47.74	154	2058						111	second cast depth got deeper
08	LQ02159	2132	50-43.56	128-54.62	155	2134						157	
08	LQ03111	2209	50-39.85	129-02.13	156	2217						348	Early depth of 187m But unable to get new reading

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YEAR	1994	MONTH	APRIL	TIME ZONE	UTC	SHIP	NARWHAL	CRUISE	9406	PAGE	14 OF			
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	CTD max depth [depth]	NOTES
08	LQ04	(Jew)	2258 50°35'N 2323 129°09.35'	157 2300	/						/			Firing up cable stowing
09	JS13	108	0037 50°49.68' 0042 128°58.40'	158 0039	/						/	97		
09	JS12	60	0127 50°53.12' 129°08.29'	159 0129	/						/	55		Wind VE 30
09	JS11	186	0219 51°00.01' 0225 129°20.83'	160 0220	/						/	180		Wind NE 16
09	JS10	267	0322 51-07.85 0333 129-34.74	161 0324	/						/	259		Wind NE 12 to 16 touched bottom
09	JS09	259	0433 51-16.11 0442 129-49.37	162 0435	/						/	255		False reading of 259m at bottom of cast
09	GL01	64	0636 51-36.32 0640 129-24.80	163 0637	/						/	60		
09	GL02	149	0733 51-30.35 0741 129-37.48	164 0736	/						/	145		touched bottom.
09	GL03	226	0832 51-24.30 0841 129-50.16	165 0834	/						/	221		touched bottom
09	GL04	257	0906 51-21.27 129-56.55	166 0909	/						/	249		Wind. NE 15-20
09	GL05	301	0941 51-18.14 0957 130-02.84	167 0946	/						/	338		Bridge gave false depth to 345m.
09	GL06	890	1024 51-15.21 1059 130-09.08	168 1027	/						/	801		

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YEAR	1994	MONTH	April	TIME ZONE	UTC	SHIP	Narwhal	CRUISE	9406	PAGE	15 of			
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP START TIME	LATITUDE LONGITUDE	STD CONSEC. #	STD TIME	HYDRO CONSEC. #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE / SALINITY	LOOP SALINITY #	CTD max depth [depth]	NOTES
09	JS08	678	1200	51°24.23 130°08.80	169	1204						676		
09	JS08	678		51°24.24 130°03.80	170	1218	38	1219	1.8 Ref	4.435 4.441		600		Temperature on screen mostly ~ 4.432°
09	GH11	243	1330	51°35.02 130°00.04	171	1333	/					239		Wind. NW 10Kt
09	GH12	342	1430	51°43.25 129°50.04	172	1433	/							Wind NW at 7Kt
09	MC08	273	1608	51-50.47 129-34.97	173	1609	/					266		Wind NW 10 kt Problems w/ spooling gear
09	GH14	210	1709	51-59.98 129-29.82	174	1713	/					206		Wind NW 8 kt Computer hung before cast
09	GM12	174	1812	52-03.99 129-14.48	175	1814	/					170		
09	GM06	180	1909	52-07.80 128-58.74	176	1911	/					176		
09	GK05	200	1959	52-14.75 128-49.23	177	2002	/					198		touched bottom
09	GK10	259	2052	52-16.89 128-34.98	178	2056	/					252		
09	GK04	232	2137	52-10.46 128-39.52	179	2139	/					228		
09	GK03	59	2227	52-04.13 128-33.59	180	2229	/					56		

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YEAR	1994	MONTH	April	TIME ZONE	UTC	SHIP	Narwhal	CRUISE	9406	PAGE	17 OF			
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC. #	STD TIME	HYDRO CONSEC. #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	CTD Max depth (d bar)	NOTES
10	GG11	94	0642	51-33.03	193	0644	/				/	91	wind S 15 kt	
			0649	128-13.01										
10	GH04	195	0738	51-28.92	194	0741	/				/	190	touched bottom.	
			0747	128-26.41										
10	GG10	149	0829	51-25.19	195	0833	/				/	143	wind S, 15 kts.	
			0839	128-14.38										
10	GG09	183	0923	51-20.23	196	0927	/				/	180	wind SE 15 kts.	
			0934	128-03.31										
10	GG08	139	1020	51-14.52	197	1024	/				/	136	wind SE 15-20 kts touched bottom.	
			1030	127-54.62										
10	GG15	39	1135	51-15.02	198	1144	/				/	35	wind SE 14 low W swell	
				128-07.04										
12	GI08	138	0304	51-45.88	199	0307	/				/	132	wind W 15 kt swell SW 1.5 to 2 m	
			0312	128-16.12										
12	GI07	146	0328	51-44.76	200	0330	/				/	142		
			0335	128-20.05										
12	GI06	148	0352	51-43.82	201	0354	/				/	143	touched bottom? Note: Header Lat/Long wrong!	
			0400	128-24.48										
12	GI05	148	0417	51-42.22	202	0419	/				/	144		
			0424	128-28.30										
12	GI04	126	0446	51-40.99	203	0448	/				/	122		
			0453	128-34.02										
12	GI03	37	0503	51-40.29	204	0505	/				/	34		
			0508	128-36.38										

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YEAR	1994	MONTH	April	TIME ZONE	UTC	SHIP	Narwhal	CRUISE	9406	PAGE	18 OF
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DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	CTD Max. depth (dbar)	NOTES
12	GI02	39	0524 51-39.13 0529 128-40.42	205	0526	/					/	33		
12	GI01	41	0553 51-37.31 0558 128-46.39	206	0555	/					/	37		
12	C000	49	0628 51-35.32 0634 128-54.35	207	0631	/					/	45		
12	C003	45	0658 51-31.10 0704 128-54.33	208	0700	/					/	41		Wind 15 kts SW.
12	C005	104	0725 51-28.05 0733 128-54.29	209	0728	/					/	100		
12	C007	208	0756 51-24.46 0805 128-54.33	210	0759	/					/	202		
12	C009	239	0826 51-21.14 0836 128-54.40	211	0829	/					/	234		
12	C011	209	0910 51-15.39 0922 128-51.98	212	0914	/					/	205		
12	C012	133	0951 51-12.53 1000 128-50.33	213	0954	/					/	130		
12	C013	113	1029 51-10.04 1036 128-48.79	214	1032	/					/	111		
12	C015	68	1106 51-04.98 128-46.30	215	1108	/					/	65		Wind W 10-15 Low W swell.
12	C018	82	1156 50-57.22 128-41.02	216	1158	/					/	81		Wind SW 18-22k Low W swell.

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YEAR	1994	MONTH	April	TIME ZONE	UTC	SHIP	Narwhal.	CRUISE	9406	PAGE	19 OF		
DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
12	C019	69	1222 50°55.17	217 1224	/							67	Wind W 10-15 low W swell
12	C021	52	1258 50°51.25	218 1259	/							49	Wind W 10-15 low W swell
13	GG03	131	0119 50-51.41	219 0122	/							126	E 12 kt. wind
13	GG02	177	0150 50-47.81	220 0151	/							172	Wind E 12 kt
13	GG01	168	0221 50-43.84	221 0224	/							164	Wind E light
END OF CTD STNS													