

DAILY LOG

CRUISE
NUMBER

2001-09

INSTITUTE OF OCEAN SCIENCES

OCEAN SCIENCES AND PRODUCTIVITY DIVISION

DATE

9 - 25 MARCH 2001

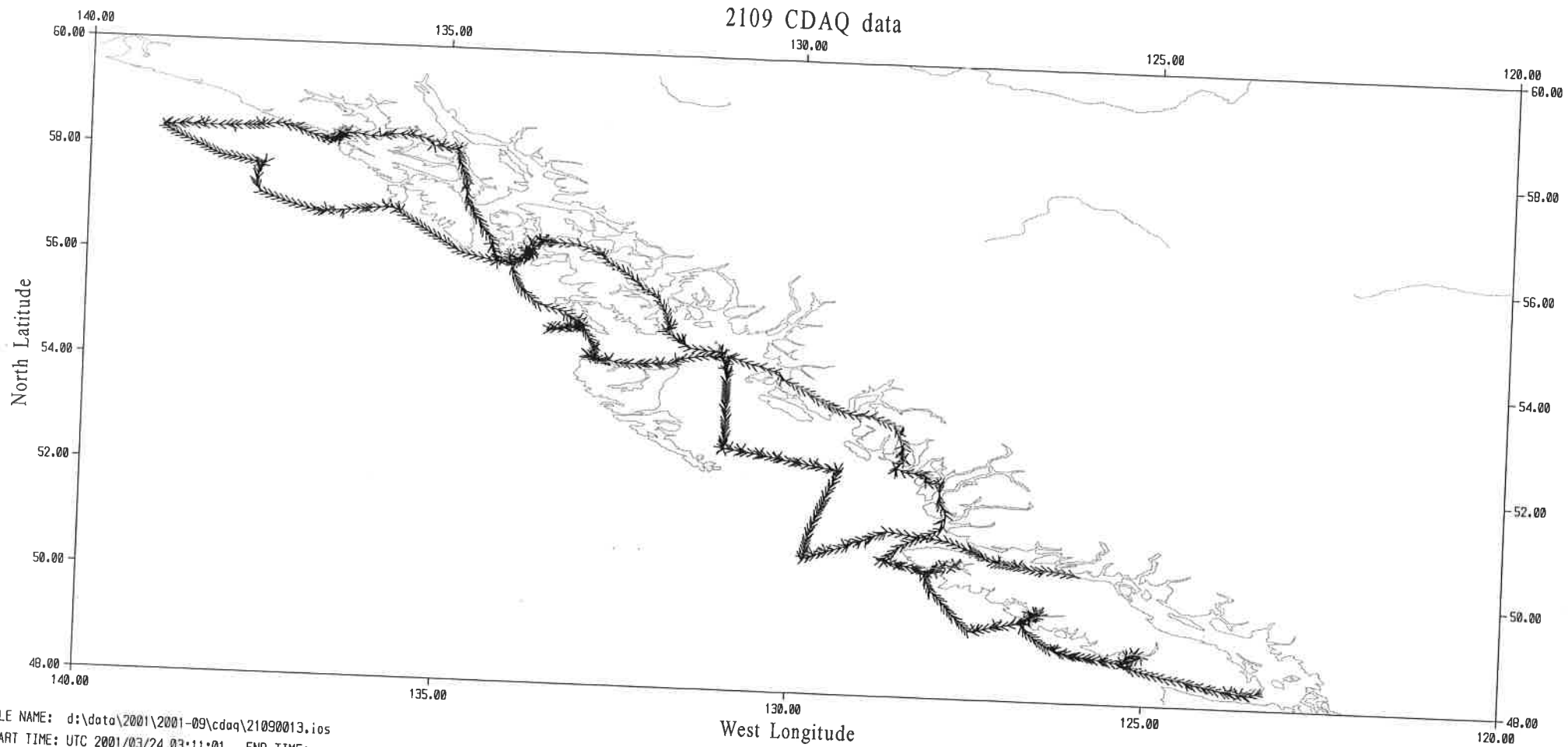
VESSEL

W. E. RICKER

PROJECT

HIGH SEAS SALMON

PLOTTED: 2001/04/09 09:54:02



FILE NAME: d:\data\2001\2001-09\cdaq\21090013.ios
START TIME: UTC 2001/03/24 03:11:01 END TIME: o

Comments:

CRUISE 2001-09

PROCESSING NOTES

CTD #0506

Deck unit: #0471

Configuration file: 0506ctd.con for the first 2 casts, 0506hss.con for all the other casts.

91 casts done, number 1 to 96.

- The first 2 casts were done with wrong values in the configuration file. File 0506ctd.con had the values of conductivity cell 2278 for both the primary and the secondary cells. So there was a difference of 0.5 in the salinity values for those 2 casts. For the third cast i made a new configuration file 0506hss.con with the following sensor numbers:

Primary temperature:	2095
Primary conductivity:	2278
Secondary temperature:	2710
Secondary conductivity:	2280

The salinity values seem to be good after that.

- There has been a surface sample taken for salinity, nutrients, and chlorophyll, from the Niskin bottle, for each cast, except for cast 21090054
- In addition, deep samples were taken for salinity and nutrients at stations:
 - X19 at 1000 m at the bottom of the cast
 - X26 at 250 m on the way up
 - X31 at 265 m on the way up
 - X68 at 584 m on the way up
 - X78 at 275 m on the way up
 - X89 at 1000 m at the bottom of the cast
 - X90 at 1000 m at the bottom of the cast
 - X91 at 1000 m at the bottom of the cast

Note: according to the pressure from the CTD when the Niskin bottle is at the surface, there is about 10 m between the Niskin and the CTD.

- There are no cast 21090030 – 21090058 – 21090059 – 21090063 – 21090067
- Cast 21090003 : problem with primary salinity 0-20 m on the way down.
- Temperature profile very different too between way down and up.
- Cast 21090007 : different profiles down and up 0-10 m, and different T profile between 20-30 m down and up
- Cast 21090014 : different profile between down and up, 0 – 15 m, both T and S.
- Cast 21090016 : different profile between down and up, 0 – 15 m. both T and S.

- The following casts had very different salinity profiles on the way down from the surface to about 20 – 30 m, (big difference between the two sensors), but same salinity values on the way up:
21090017 – 21090018 – 21090019 – 21090020 – 21090021 – 21090022 – 21090023 – 21090024 – 21090026 – 21090027 – 21090028 – 21090029 – 21090031 – **21090032** – 21090033 (very bad) – 21090034 (very bad, both T & S) – 21090036 – 21090037 – 21090039 – 21090040 – 21090041 – 21090042 – 21090043 – 21090044 – 21090046 – 21090047 – 21090048 – 21090050 – 21090051 – 21090052 – 21090053 – 21090054 – 21090055 – 21090056 – 21090057 – 21090060 – 21090062 – 21090064 – 21090065 – 21090066 – 21090071 – 21090072 – 21090074 – 21090075 – 21090081 – 21090082 – 21090083 – 21090084 – 21090086 – 21090087 – 21090088 – 21090090 – 21090092 – 21090093 – 21090094 -

Note : 21090032 is a good example of how the primary sensor seemed to be able to detect the fresh water, as the secondary sensor was "reading saltier". Maybe the primary pump doesn't work as well to flush the fresh water in the cell, even though the pump was always running for 2 minutes before starting to log the data. This would be a good cast to determine which sensor is good using the surface salinity sample taken from the Niskin bottle at the end of the cast.

Note: cast 21090083 is an example of how fresh water was detected on the way down but not on the way up.

- Cast 21090076: the 2nd salinity is bad ?????? For this cast we went down to 35 m to thaw the sensors, then back up to the surface, then did the cast.
- Cast 21090077: the 1st salinity is bad at the surface, but both salinities are exactly the same in depth

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Year 2001					Month MARCH			Ship W.E. RICKER				Cruise I.D. 2001-09		
Day UTC	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
9	X01	CTD	2041	BE	1	48°17.43	123°36.09		169					Juan de Fuca
			2046	BO	1	48°17.37	123°36.84			165		1		T: 7.9 S: 31.8
			2050	EN	1	48°17.32	123°36.67							.5 # in salinity
9	X02	CTD	2306	BE	2	48°19.05	123°47.36		171					Surface water
			2309	BO	2	48°19.04	123°47.31			167				T: 8.0 S: 31.8
			2313	EN	2	48°19.01	123°47.20							
	WRONG	CON	FILE	CAST	1 and 2.	See note next page								
10	X03	CTD	0209	BE	3	48°24.52	124°08.38		92					CONFIG FILE 0506155.CON
			0212	BO	3	48°24.55	124°08.43			87				T: 8.5 S: 31.8
			0214	EN	3	48°24.57	124°08.50							PRIM SAL WRONG 20 m on way down.
10	X04	CTD	0356	BE	4	48°28.94	124°22.91		101					T: 7.8 S: 31.7
			0358	BO	4	48°28.97	124°22.94			95				
			0400	EN	4	48°29.01	124°22.99							
10	X05	CTD	1323	BE	5	48°58.07	125°06.47		92					T: 8.4 S: 30.0
			1326	BO	5	48°58.07	125°06.48			85				Imperial Channel
			1329	EN	5	48°58.08	125°06.44							NO BOTTOM

Cast type:

BOT = otter cast
CTD = CTD
MOR = mooring

ROS = Rosette
NET = net haul
DRF = drifter

USW = sea water loop

Time Code

BE = beginning time of cast
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MR = messenger release time
RE = recover mooring time

0506CTD, CON, Cast 1 and 2

T PRIMARY:

2095

Cal date 30-Nov-00

G: 4.13052745 E-03

H: 6.28682064 E-04

I: 2.08200911 E-05

J: 2.12990014 E-06

FO: 1000.00

Slope 1, Offset 0

COND. PRIM: 2278

Cal date 06-Dec-00

G: -1.04632134 E+01

H: 1.43028031 E+00

I: -2.29468881 E-03

J: 2.36808408 E-04

CTcor: -9.5700 E-08

CPror: -9.5700 E-08

Slope 1, Offset 0

T SECONDARY:

2710

Cal date 30-Nov-00

G: 4.36719670 E-03

H: 6.46797964 E-04

I: 2.35720645 E-05

J: 2.24011580 E-06

FO: 1000.0

Slope 1, Offset 0

COND. SEC: 2278

Cal date 06-Dec-00

G: -1.04632134 E+01

H: 1.43028031 E+00

I: -2.29468881 E-03

J: 3.36808408 E-04

CTcor: -9.5700 E-08

CPror: -9.5700 E-08

Slope: -1.0, Offset 0.0

TRANS:

197

Cal date 14-Dec-00

M: 20.431

B: -0.020

Path Length: 0.25 m

PRESSURE

69698

Cal date 11-12-1997

C1: -4.957807 E+04

C2: -1.280011 E+00

C3: 1.485710 E-02

D1: 4.021200 E-02

D2: 0.000000 E+00

T1: 3.037224 E+01

T2: -6.969188 E-04

T3: 3.897170 E-06

T4: 3.287590 E-09

T5: 0.000000 E-00

AD590 M: 1.280810 E-02

AD590 B: -9.796400 E+00

Slope 1 offset 0

I change the values of SEZ COND for the following:

SEZ COND: 2280
Cal date: 06-Dec-00s
G: $-1.06066395 \text{ E } +01$
H: $1.41993462 \text{ E } +00$
I: $-1.59426578 \text{ E } -03$
J: $1.82293102 \text{ E } -04$
CTcor: $3.25 \text{ E } -06$ nominal ???
C Pcor: $-957 \text{ E } -08$ nominal
Slope 1 Offset 0.

also change PRIM COND. CTcor from $-957 \text{ E } -08$ to $3.25 \text{ E } -06$.

Call this file OS06HSS.CON

Display cast 1 and 2 on the screen with OS06HSS.CON Looks much better.

Try CReating OS06TRY.CON with sensors the way i think they are, c.p.

PRIM TO. 2710

PRIM COND: 2280

SEZ TO. 2095

SEZ COND 2278

} Does not work.

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Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
10	X06	CTD	1513	BE	6	48° 55.00	125° 12.22		96					BARCLAY SOW HIB
			1515	BO	6	48° 55.00	125° 12.22			90		SURF NISIL		T: 8.3 S: 30.1
			1519	EN	6	48° 55.01	125° 12.23							
10	X07	CTD	1706	BE	7	48° 47.25	125° 16.24		92					T: 8.3 S: 31.6
			1709	BO	7	48° 47.26	125° 16.27			85		SURF NISIL		
			1712	EN	7	48° 47.26	125° 16.30							
10	X08	CTD	1905	BE	8	48° 49.92	125° 31.64		102					T: 8.1 S: 31.3
			1908	BO	8	48° 49.89	125° 31.69			96		SURF NISIL		
			1912	EN	8	48° 49.86	125° 31.76							
10	X09	CTD	2104	BE	9	48° 52.12	125° 44.22		50					T: 8.1 S: 31.5
			2105	BO	9	48° 52.11	125° 44.24			47		SURF NISIL		
			2107	EN	9	48° 52.10	125° 44.25							
10	X10	CTD	2314	BE	10	48° 54.16	125° 57.19		56					T: 8.2 S: 31.4
			2316	BO	10	48° 54.08	125° 57.20			51		SURF NISIL		
			2317	EN	10	48° 54.07	125° 57.25							
11	X11	CTD	0121	BE	11	48° 57.78	126° 09.47		84					T: 8.1 S: 31.5
			0123	BO	11	48° 57.77	126° 09.49			76		SURF NISIL		
			0125	EN	11	48° 57.76	126° 09.52							

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11	X12	CTD	0356	BE	12	49°01.61	126°19.17		112					T: 8.1 S: 31.6
			0359	BO	12	49°01.59	126°19.24		115	111	SURF NISIC			
			0402	EN	12	49°01.60	126°19.30							NO BOWO
11	X13	CTD	1318	BE	13	49°39.57	126°27.80		182					T: 8.4 S: 28.9
			1319	BO	13	49°39.58	126°27.78			175	SURF NISIC			
			1322	EN	13	49°39.60	126°27.79							
11	X14	CTD	1613	BE	14	49°35.77	126°32.17		136					T: 8.4 S: 29.6
			1616	BO	14	49°35.77	126°32.18			131	SURF NISIC			
			1620	EN	14	49°35.76	126°32.19							
11	X15	CTD	1738	BE	15	49°34.44	126°36.46		81					T: 8.3 S: 30.9
			1741	BO	15	49°34.42	126°36.46			75	SURF NISIC			
			1744	EN	15	49°34.40	126°36.45							
11	X16	CTD	1906	BE	16	49°31.11	126°40.81		45					T: 8.0 S: 30.9
			1908	BO	16	49°31.11	126°40.81			42	SURF NISIC			≠ sal @ surface
			1910	EN	16	49°31.11	126°40.78							
11	X17	CTD	2026	BE	17	49°29.00	126°45.63		50					T: 8.0 S: 31.5
			2027	BO	17	49°29.00	126°45.63			46	SURF NISIC			Big diff between
			2028	EN	17	49°28.99	126°45.63							salinities @ surface to 25m. up ok.

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11	X18	CTD	2238	BE	18	49°24.07	127°02.84		137					T: 8.1 S: 31.5
			2240	BO	18	49°24.08	127°02.83		140	136		SURF NISK		
			2243	EN	18	49°24.09	127°02.83							
12	X19	CTD	0102	BE	19	49°18.24	127°21.67		~1400					T: 8.4 S: 32.1
			0120	BO	19	49°18.20	127°21.78			1006		SURF NISK	DEEP NISK	Waited 5 min for messenger.
			0143	EN	19	49°18.16	127°21.98							NO BONGO
12	X20	CTD	1308	BE	20	50°31.60	127°39.83		125			SURF NISK		T: 8.2 S: 30.7
			1310	BO	20	50°31.61	127°39.82			120				# sal, 0-25 m d
			1314	EN	20	50°31.61	127°39.83							
12	X21	CTD	1524	BE	21	50°29.25	127°50.89		122					T: 8.3 S: 31.1
			1527	BO	21	50°29.24	127°50.88		133	127		SURF NISK		# sal, 0-30 m d ok ↑
			1530	EN	21	50°29.23	127°50.86							
12	X22	CTD	1719	BE	22	50°25.55	127°59.03		132					T: 8.2 S: 31.5
			1723	BO	22	50°25.55	127°59.03			125		SURF NISK		# sal 0-32 m d
			1727	EN	22	50°25.55	127°59.05							
12	X23	CTD	1845	BE	23	50°22.94	128°03.93		75					T: 8.1 S: 31.6
			1847	BO	23	50°22.97	128°03.96			70		SURF NISK		Lost hose dump on bongo, only gravel in other sock.
			1850	EN	23	50°23.00	128°04.03							NO BONGO SAMPLE

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12	X24	CTD	2019	BE	24	50°25.66	128°10.21		92					T: 7.9 S: 31.8
			2021	BO	24	50°25.66	128°10.22			88		SURF NISKIN		# sal. in pycnocline
			2024	EN	24	50°25.64	128°10.19							No pickled bottle sample; lost hose clamp again.
12	X25	CTD	2234	BE	25	50°29.72	128°25.58		183					T: 7.9 S: 31.8
			2237	BO	25	50°29.63	128°25.53			180		SURF NISKIN		No Concord
			2242	EN	25	50°29.58	128°25.52							Take sal sample @ 250m way up
13	X26	CTD	0042	BE	26	50°33.70	128°39.94		350					T: 8.0 S: 31.9
			0048	BO	26	50°33.69	128°39.91			308		SURF NISKIN	250m sample	No Concord
			0057	EN	26	50°33.65	128°39.90							
13	X27	CTD	1446	BE	27	52°13.43	128°09.49		131					T: 6.7 S: 30.4
			1449	BO	27	52°13.43	128°09.53			127		SURF NISKIN		# sal 0-30
			1452	EN	27	52°13.42	128°09.57							No pickled sample; lost hose clamp
13	X28	CTD	1719	BE	28	52°18.18	128°32.32		172					T: 6.8 S: 31.3
			1722	BO	28	52°18.19	128°32.36		176	170		SURF NISKIN		# sal 0-60
			1726	EN	28	52°18.17	128°32.39							
13	X29	CTD	1941	BE	29	52°29.82	128°26.51		490					T: 6.9 S: 30.0
			1949	BO	29	52°29.81	128°26.45		484	474		SURF NISKIN		
			1957	EN	29	52°29.77	128°26.44							

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14	X31	CTD	0004	BE	31	52°55.64	128°30.80		430					T: 7.1 S: 31.3
			0011	BO	31	52°55.64	128°30.84		424	418		SURF NISK		Very # sal @ 0
			0022	EN	31	52°55.64	128°30.88					DEEP @ 265 f		ok @ ~30m
14	X32	CTD	1519	BE	32	54°19.46	130°56.96		77					T: 6.5 S: 31.8
			1521	BO	32	54°19.47	130°56.95			70		SURF NISK		Sal test?
			1523	EN	32	54°19.48	130°56.94							
14	X33	CTD	1924	BE	33	54°12.33	131°42.43		59					T: 6.3 S: 31.4
			1925	BO	33	54°12.	131°42.			55		SURF NISK		
			1928	EN	33	54°12.38	131°42.31							
14	X34	CTD	2127	BE	34	54°08.00	131°56.03		38					T: 6.4 S: 31.4
			2128	BO	34	54°08.00	131°56.02			33		SURF NISK		
			2130	EN	34	54°07.99	131°56.01							
14	X35	CTD	2320	BE	35	54°08.37	132°10.82		42					T: 6.5 S: 31.9
			2321	BO	35	54°08.37	132°10.81			39		SURF NISK		SAL OK!
			2323	EN	35	54°08.37	132°10.77							NO BONGO CRANE BROKEN
15	X36	CTD	0054	BE	36	54°07.57	132°25.15		55					T: 6.6 S: 31.6
			0055	BO	36	54°07.57	132°25.11			51		SURF NISK		
			0057	EN	36	54°07.57	132°25.09							NO BONGO

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15	X37	CTD	0223	BE	37	54°10.16	132°38.88		62					T: 6.4 S: 31.9
			0224	BO	37	54°10.17	132°38.91		64	60		SURF NISK		SAL OK
			0226	EN	37	54°10.19	132°38.94							
15	X38	CTD	0350	BE	38	54°12.76	132°53.60		135					T: 6.6 S: 32.0
			0352	BO	38	54°12.77	132°53.59			131		SURF NISK		
			0356	EN	38	54°12.79	132°53.55							
15	X39	CTD	1301	BE	39	54°47.12	133°03.29		128			SURF NISK		T: 6.3 S: 31.7
			1304	BO	39	54°47.12	133°03.32			124				START BOMBS AGAIN
			1307	EN	39	54°47.11	133°03.32							
15	X40	CTD	1505	BE	40	54°46.75	133°09.51		190					T: 6.3 S: 31.8
			1509	BO	40	54°46.78	133°09.64			186		SURF NISK		
			1514	EN	40	54°46.81	133°09.73							
15	X41	CTD	1634	BE	41	54°45.93	133°17.66		110					T: 6.3 S: 31.8
			1636	BO	41	54°45.93	133°17.73		126	121		SURF NISK		
			1640	EN	41	54°45.95	133°17.82							
15	X42	CTD	1802	BE	42	54°45.29	133°25.06		148					T: 6.3 S: 31.6
			1805	BO	42	54°45.30	133°25.11			144		SURF NISK		SAL 0-30
			1808	EN	42	54°45.32	133°25.18							

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Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
15	X43	CTD	2137	BC	43	54°48.53	133°01.13		153					T: 6.4 S: 31.5
			2139	BO	43	54°48.50	133°01.14		140	135		SURF NISK		
			2143	EN	43	54°48.45	133°01.13							
15	X44	CTD	2326	BC	44	54°54.22	133°06.20		90					T: 6.3 S: 31.6
			2328	BO	44	54°54.23	133°06.20		86	81		SURF NISK		
			2330	EN	44	54°54.24	133°06.22							
16	X45	CTD	0116	BC	45	55°00.68	133°15.63		98					T: 6.4 S: 31.6
			0118	BO	45	55°00.66	133°15.63			92		SURF NISK		
			0120	EN	45	55°00.62	133°15.60							
16	X46	CTD	1302	BC	46	56°13.22	133°50.73		221					T: 6.3 S: 31.7
			1306	BO	46	56°13.19	133°50.68			216		SURF NISK		
			1311	EN	46	56°13.17	133°50.62							
16	X47	CTD	1517	BC	47	56°07.31	133°51.75		260					T: 6.3 S: 31.8
			1522	BO	47	56°07.29	133°51.75		262	257		SURF NISK		
			1527	EN	47	56°07.23	133°51.77							
16	X48	CTD	1728	BC	48	56°04.24	134°04.02		147					T: 6.3 S: 31.6
			1731	BO	48	56°04.26	134°04.02		149	145		SURF NISK		NO BONGO SAMPLE HIT THE BOTTOM
			1735	EN	48	56°04.29	134°04.03							# sal 0-30

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Year 2001					Month MARCH			Ship WE RICKER				Cruise I.D. 2001-09		
Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
16	X49	CTD	1918	BE	49	55° 59.03	134° 09.89		118					T: 6.3 S: 31.8
			1920	BO	49	55° 59.04	134° 09.93			115		SURF NISK		Sal ok!
			1923	EN	49	55° 59.05	134° 09.97							
16	X50	CTD	2112	BE	50	56° 01.90	134° 15.48		107					T: 6.3 S: 31.8
			2114	BO	50	56° 01.93	134° 15.46			102		SURF NISK		Sal ok 0-30
			2117	EN	50	56° 01.93	134° 15.39							
16	X51	CTD	2254	BE	51	56° 09.54	134° 18.54		125					T: 6.4 S: 31.8
			2256	BO	51	56° 09.59	134° 18.57		126	121		SURF NISK		Sal ok 0-20
			2259	EN	51	56° 09.65	134° 18.62							
17	X52	CTD	0037	BE	52	56° 18.45	134° 21.09		402					T: 6.3 S: 31.8
			0044	BO	52	56° 18.53	134° 21.02		407	403		SURF NISK		Sal ok? not, # 0-30
			0051	EN	52	56° 18.59	134° 20.97							
17	X53	CTD	1320	BE	53	58° 02.96	134° 51.99		530?					T: 4.9 S: 31.1
			1329	BO	53	58° 03.01	134° 52.02			521		SURF NISK		Sal ok 0-30
			1338	EN	53	58° 03.02	134° 52.02							
17	X54	CTD	1527	BE	54	58° 05.91	135° 07.00		113					T: 4.9 S: 31.2
			1529	BO	54	58° 05.90	135° 06.99			106		Ø		No NISKIN
			1532	EN	54	58° 05.89	135° 06.98							Sal very # 0-25

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Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
17	X55	CTD	1827	BE	55	58°18.20	135°31.02		159					T: 5.0 S: 31.1
			1830	BO	55	58°18.21	135°31.05			156		SURF NISK		very # sal 0-30m.
			1833	EN	55	58°18.20	135°31.08							
17	X56	CTD	2020	BE	56	58°17.21	135°50.15		106					T: 5.2 S: 31.4
			2022	BO	56	58°17.21	135°50.16			101		SURF NISK		very # sal 0-30
			2024	EN	56	58°17.19	135°50.20							
17	X57	CTD	2305	BE	57	58°17.26	136°25.16		247					T: 5.4 S: 31.4
			2310	BO	57	58°17.27	136°25.21		250	246		SURF NISK		# sal 0-30
			2314	EN	57	58°17.28	136°25.25							
18	X60	CTD	0344	BE	60	58°10.34	136°32.70		155					T: 5.7 S: 31.7
			0346	BO	60	58°10.35	136°32.69		140	137		SURF NISK		# sal 0-10.
			0349	EN	60	58°10.36	136°32.67							
18	X61	CTD	1257	BE	61	58°21.94	137°07.99		150					T: 5.7 S: 31.8
			1300	BO	61	58°21.98	137°08.04			145		SURF NISK		TOUCHED THE BOTTOM? NO
			1304	EN	61	58°22.02	137°08.10							
18	X62	CTD	1556	BE	62	58°22.43	137°38.17		190					T: 5.5 S: 31.6
			1559	BO	62	58°22.43	137°38.16			189				NO PICKED SAMPLE BOTTOM
			1604	EN	62	58°22.44	137°38.12							# sal 0-30

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Ocean Sciences and Productivity Division

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Year 2001					Month MARCH			Ship W. E. RICKER				Cruise I.D. 2001-03		
Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
18	X64	CTD	1844	BE	64	58°21.63	138°01.05		136					T: 5.6 S: 31.7 ✓
			1846	BO	64	58°21.64	138°01.08			130		SURF NISK		# sal 0-20m
			1851	EN	64	58°21.63	138°01.17							
18	X65	CTD	2200	BE	65	58°20.81	138°24.98		130					T: 5.6 S: 31.7 ✓
			2202	BO	65	58°20.81	138°25.05			122		SURF NISK		# sal 0-15m.
			2205	EN	65	58°20.84	138°25.10							
18	X66	CTD	2344	BE	66	58°20.11	138°47.04		125					# sal 0-20
			2346	BO	66	58°20.12	138°47.11			120		SURF NISK		T: 6.1 S: 32.1 ✓
			2349	EN	66	58°20.13	138°47.17							
19	X68	CTD	1949	BE	68	56°48.14	136°39.97		2000+					T: 6.3 S: 32.5
			2001	BO	68	56°48.33	136°40.09			651		SURF NISK+	NISK @ 584m	sal ok ✓
			2017	EN	68	56°48.44	136°40.35							NO BONGO
19	X69	CTD	2127	BE	69	56°49.89	136°26.08		2000+					T: 6.4 S: 32.5
			2135	BO	69	56°49.94	136°26.10			504		SURF NISK		sal ok ✓
			2144	EN	69	56°50.00	136°26.06							NO BONGO
19	X70	CTD	2259	BE	70	56°52.43	136°08.53		1200					T: 6.8 S: 32.3
			2308	BO	70	56°52.51	136°08.82			506		SURF NISK		✓
			2317	EN	70	56°52.56	136°09.13							NO BONGO

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Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Year 2001					Month MARCH			Ship W.E. RICKER				Cruise I.D. 2001-09		
Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
20	X71	CTD	0103	BE	71	56°54.86	135°50.92		145					T: 6.0 S: 31.5
			0106	BO	71	56°54.90	135°50.94		142	136		SURF NISK		# sal 0-30
			0109	EN	71	56°54.95	135°50.98							NO BONGO
20	X72	CTD	0227	BE	72	56°52.70	135°41.52		148					T: 6.1 S: 31.6
			0230	BO	72	56°52.74	135°41.57			142		SURF NISK		# sal 0-25
			0233	EN	72	56°52.80	135°41.62							very bad
														NO BONGO
20	X73	CTD	1408	BE	73	56°08.79	133°46.75		360					T: 6.2 S: 31.7
			1414	BO	73	56°08.82	133°46.81		368	359		SURF NISK		
			1422	EN	73	56°08.83	133°46.94							BONGO
20	X74	CTD	1615	BE	74	56°17.30	133°46.22		353					T: 6.2 S: 31.6
			1622	BO	74	56°17.28	133°46.19			346		SURF NISK		# sal 0-25m
			1628	EN	74	56°17.29	133°46.23							
20	X75	CTD	1834	BE	75	56°22.65	133°36.18		313					T: 5.6 S: 31.0
			1839	BO	75	56°22.68	133°36.26		308	299		SURF NISK		very # sal 0-30m
			1845	EN	75	56°22.69	133°36.51							
21	X76	CTD	0359	BE	76	56°07.05	132°46.15		196					DOWN TO 32 m TO THAW SENSORS, THEN
			0406	BO	76	56°07.08	132°46.27		223	217				BACK TO 0, THEN CAST
			0411	EN	76	56°07.07	132°46.36							2nd sal not good ???
														T: 5.6 S: 30.8

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Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Year 2001					Month MARCH			Ship W.C. RICKER				Cruise I.D. 2001-09		
Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
21	X77	CTD	1259	BE	77	54° 50.98	131° 47.76		405					T: 6.1 S: 31.6
			1307	BO	77	54° 50.99	131° 47.83		407	400		SURF NISK		PRIM SAC NO 0000 0-20m ✓
			1314	EN	77	54° 51.01	131° 47.87							SACS REALLY GOOD IN DEPTH
21	X78	CTD	1653	BE	78	54° 35.11	131° 38.47		325					T: 6.2 S: 31.8
			1700	BO	78	54° 35.14	131° 38.38			320		SURF NISK+	NISK @ 275m	≠ sal 0-10 ✓
			1710	EN	78	54° 35.24	131° 38.23							
21	X79	CTD	2102	BE	79	54° 24.41	131° 03.59		97					T: 6.7 S: 31.8
			2104	BO	79	54° 24.41	131° 03.63		100	98		SURF NISK		≠ sal 0-20m ✓
			2107	EN	79	54° 24.42	131° 03.67							
21	X80	CTD	2345	BE	80	54° 11.01	131° 00.69		75					T: 6.7 S: 31.9
			2346	BO	80	54° 11.02	131° 00.69			70		SURF NISK		≠ sal 0-15m ✓
			2348	EN	80	54° 11.04	131° 00.68							
22	X81	CTD	0256	BE	81	53° 57.99	130° 58.64		59					≠ sal 0-30m
			0258	BO	81	53° 57.98	130° 58.64			55		SURF NISK		T: 6.6 S: 31.8 ✓
			0259	EN	81	53° 57.99	130° 58.65							
22	X82	CTD	1256	BE	82	52° 35.63	131° 00.21		117					T: 7.1 S: 32.1
			1258	BO	82	52° 35.59	131° 00.21		113	108		SURF NISK		≠ sal 0-30m ✓
			1302	EN	82	52° 35.57	131° 00.20							

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Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
22	X 83	CTD	1537	BE	83	52° 32.27	130° 44.72		119					T: 7.0 S: 31.9
			1540	BO	83	52° 32.28	130° 44.71			115		SURF NISK		Sal little # 0-30m
			1544	EN	83	52° 32.28	130° 44.70							
22	X 84	CTD	1740	BE	84	52° 29.09	130° 29.13		174					T: 7.1 S: 32.1
			1744	BO	84	52° 29.12	130° 29.08			168		SURF NISK		# sal 0-30
			1748	EN	84	52° 29.14	130° 29.06							
22	X 85	CTD	1943	BE	85	52° 25.65	130° 13.33		328					T: 7.3 S: 32.1
			1948	BO	85	52° 25.68	130° 13.28			324		SURF NISK		
			1954	EN	85	52° 25.73	130° 13.27							
22	X 86	CTD	2149	BE	86	52° 22.41	129° 57.89		216					T: 7.5 S: 32.1
			2152	BO	86	52° 22.42	129° 57.92			210		SURF NISK		# sal 0-20
			2157	EN	86	52° 22.42	129° 57.97							
22	X 87	CTD	2354	BE	87	52° 18.97	129° 41.96		208					T: 7.4 S: 32.2
			2358	BO	87	52° 18.95	129° 41.95			203		SURF NISK		# sal 0-25m
23			0002	EN	87	52° 18.92	129° 41.92							NO BONGOS
23	X 88	CTD	0300	BE	88	52° 15.13	129° 21.29		126					T: 7.1 S: 31.8
			0303	BO	88	52° 15.15	129° 21.29			121		SURF NISK		# sal 0-25
			0306	EN	88	52° 15.17	129° 21.29							NO BONGOS

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Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
23	X89	CTD	1428	BE	89	50°32.36	129°49.24		2000+					T: 7.8 S: 32.3
			14 ⁴⁷ ₅₂	BO	89	50°32. ⁴⁹ ₅₄	129°49. ²⁸ ₂₇			1002		SURF NISK+	NISK @ 1000m	
			1508	EN	89	50°32.71	129°49.21							
23	X90	CTD	1618	BE	90	50°37.30	129°39.21		2000+					T: 7.9 S: 32.4
			16 ³⁵ ₄₀	BO	90	50°37. ³⁷ ₃₈	129°38. ⁹⁹ ₉₂			1005		SURF NISK+	NISK @ 1000m	T sal 0-20m
			1651	EN	90	50°37.43	129°38.76							
23	X91	CTD	1801	BE	91	50°42.10	129°29.02		150+					T: 8.0 S: 32.4
			18 ¹⁹ ₂₄	BO	91	50°42. ²² ₂₃	129°28. ⁷⁷ ₇₁			1004		SURF NISK+	NISK @ 1000m	Sal ok!
			1836	EN	91	50°42.24	129°28.56							
23	X92	CTD	2008	BE	92	50°49.15	129°12.97		98					T: 7.8 S: 32.4
			2010	BO	92	50°49.15	129°12.96			94		SURF NISK		Sal 0-25m
			2012	EN	92	50°49.13	129°12.95							
23	X93	CTD	2208	BE	93	50°56.12	129°00.14		62					T: 7.7 S: 32.2
			2210	BO	93	50°56.12	129°00.16			57		SURF NISK		Sal 0-25m
			2211	EN	93	50°56.11	129°00.21							
23	X94	CTD	2342	BE	94	50°59.95	128°52.15		62					T: 7.7 S: 32.0
			2343	BO	94	50°59.93	128°52.20			56		SURF NISK		
			2345	EN	94	50°59.93	128°52.21							

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