

DAILY LOG BOOK

MISSION
NUMBER

2002-32

DATE:

From: SEPT. 16

to:

VESSEL:

J. P. TULLY

PROJECT:

INSTITUTE OF OCEAN SCIENCES
OCEAN SCIENCES AND PRODUCTIVITY DIVISION
SIDNEY, BC, CANADA

Captain: Paul Frost First Officer: _____
Second Officer: _____ Third Officer: _____

Mission Participants / Agencies: I-OS. DEAP

Scientific Personnel:		Party Chief:	
Name	Watch	Cabin	Name
FRANK		DOUG	VELLAND

Name	Watch	Cabin	Name	Watch	Cabin
TOM JUHASE	8-12	H			
DAUG MOORE	12-4	19			
KEN MORGAN		B			
LUCIUS PERRAULT	12-4	C			
TANYA PETERSON	8-12	G			
RACHELLE PROVENCAL	8-12	G			
STEVE ROMAINE	4-8	F			
DAVE SPEAR	4-8	D			
SHEILA TOWNS	12-4	E			

Second leg of Mission:	Party Chief:	_____	Watch Cabin	Watch Cabin
Name			Name	

Data logging computer: F502
 Data acquisition program: _____
 CTD deck unit make: DOE model: 11 serial number: 0508
 Primary CTD _____

Make: Seabird model: 911 serial number: 0550

Primary temperature serial number: 03P2371

Primary conductivity serial number: 042399

Secondary temperature serial number: 03P2663

Secondary conductivity serial number: 042424

Transmissometer: Model: Seatech wetlab s/n: 498-DR

Fluorometer: Model Seapoint Cable gain: 10x s/n: 2239 P, S or NO pump?

Oxygen sensor: Model: s/n: P, S or NO pump?

PAR sensor: Model: Licor s/n: 4601 P, S or NO pump?

Other sensors: Pump - XT 6000 s/n: 24V 638 P, S or NO pump?

Other sensors: 10 Pump 5T-1050nm s/n: P, S or NO pump?

Other sensors: 20 Pump 5T-10500nm s/n: 052462 P, S or NO pump?

Other sensors: Pessard - Digiquartz s/n: 75636 P, S or NO pump?

ary CTD

Secondary CTD

Make: _____ model: _____ serial number: _____

Primary temperature serial number: _____

Primary conductivity serial number: _____

Secondary temperature serial number: _____

Secondary conductivity serial number: _____

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model _____ Cable gain: _____ P, S or NO pump?

Oxygen sensor: _____ Model: _____ s/n: _____ P, S or NO pump?

PAR sensor: _____ Model: _____ s/n: _____

Other sensors: _____ s/n: _____ P, S or NO pump?

Other sensors: _____ s/n: _____ P, S or NO pump?

Other sensors: _____ s/n: _____ P, S or NO pump?

Other sensors: _____ s/n: _____ P, S or NO pump?

CTD calibration bottle location (height above CTD in metres): _____

17/09/02 - LAB GPS
48°36.553' > 14:39
125°55.060'

BOAT GPS
48°36.628' > 12:39
125°54.819'

THERMOSALINOGRAPHY
(NMEA NOT WORKING)
TIME 0938

} just for comparison
purposes. S.F.

1119 PDT 17/09/02 deployed mooring B10-1-B in 395m water at
position 48°37.995' 126°11.251'

1800 PDT 17/09/02 changed outer O rings on bottle spigots (S.T.)

0309 PDT 19/09/02 - bad weather - blowing 40-50 - O₂ chemicals spilled - Manganous Chloride &
Alkaline Iodide - used spill kit - notified bridge (Shore) S.T. + L.P.

DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <i>Sept</i>					Year			Ship				Cruise ID		
Day	Station Name	Time (UTC)	Cast type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch keeper	Trans. cleaned	Comments
						Latitude	Longitude							
<i>19</i>	<i>Loop 1</i>	<i>0514</i>	<i>Loop</i>		<i>0001</i>	<i>50°25.730</i>	<i>129°41.658</i>					<i>ST.</i>		<i>50°25.699</i> <i>02:12</i>
	<i>Loop 2</i>	<i>1123</i>	<i>Loop</i>		<i>0002</i>	<i>50°34.735</i>	<i>129°38.676</i>	<i>~2050</i>	<i>Near</i>	<i>CS01</i>		<i>DS</i>		<i>129°41.476</i> <i>lab</i> <i>(SAL ONLY)</i> <i>GPS</i> <i>NO NITS - DORS.</i>
<i>19</i>	<i>CS01</i>	<i>1333</i>	<i>CTD</i>	<i>BE</i>	<i>0003</i>	<i>50°34.72</i>	<i>129°41.50</i>	<i>2105</i>	<i>2095</i>	<i>C1-3</i>	<i>3</i>			<i>SAL at 2096</i>
		<i>1414</i>		<i>Bo</i>		<i>50°34.66</i>	<i>129°41.94</i>							
		<i>1454</i>		<i>EN</i>		<i>50°34.76</i>	<i>129°42.23</i>	<i>2</i>	<i>250</i>					
	<i>CS01</i>	<i>1542</i>	<i>NET</i>	<i>Bo</i>	<i>0004</i>	<i>50°34.95'</i>	<i>129°41.81'</i>	<i>2105</i>	<i>250</i>					<i>BONGO TO 250m.</i>
	<i>CS01</i>	<i>1605</i>	<i>NET</i>	<i>Bo</i>	<i>0005</i>	<i>50°34.91</i>	<i>129°41.61</i>	<i>2105</i>	<i>50</i>					<i>BONGO TO 50m.</i>
	<i>LOOP 3</i>	<i>1808</i>	<i>LOOP</i>		<i>0006</i>	<i>50°50.652</i>	<i>129°53.924</i>					<i>TU</i>		<i>lab</i>
	<i>ODAS</i>	<i>1906</i>	<i>CTD</i>	<i>BE</i>	<i>0007</i>	<i>50°51.42</i>	<i>129°51.944</i>	<i>2058.6</i>	<i>2048</i>					<i>GPS locked up</i>
		<i>1929</i>		<i>Bo</i>		<i>50°51.44</i>	<i>129°52.01</i>	<i>2059</i>	<i>2000</i>					
		<i>1958</i>		<i>EN</i>		<i>50°51.41</i>	<i>129°51.98</i>			<i>1</i>	<i>1</i>			<i>1 SAL. SAMPLE @ 2000m</i>
		<i>2015</i>	<i>Bongo</i>		<i>0008</i>	<i>50°51.403</i>	<i>129°51.983</i>							
		<i>2030</i>	<i>Bongo</i>		<i>0009</i>	<i>50°51.404</i>	<i>129°52.017</i>							
	<i>CS02</i>	<i>2305</i>	<i>Bongo</i>		<i>0100</i>	<i>50°41.418</i>	<i>129°27.972</i>							<i>First attempt aborted due to nasty wire angle.</i>
		<i>2327</i>	<i>Bongo</i>		<i>0101</i>	<i>50°41.418</i>	<i>129°27.972</i>							
		<i>2351</i>	<i>CTD/R</i>	<i>BE</i>	<i>0102</i>	<i>50°41.85</i>	<i>129°27.80</i>	<i>1070</i>		<i>002-022</i>	<i>21</i>			<i>Pacific White Sided Dolphin</i>
		<i>0022</i>		<i>Bo</i>		<i>50°41.73</i>	<i>129°27.94</i>							<i>Sighted ~ 12</i>
		<i>0103</i>		<i>EN</i>		<i>50°42.25</i>	<i>129°28.40</i>							<i>Wind 15 Seas to 5m still</i>

Cast type:

- BOT = bottle cast, no CTD
- CTD = CTD without Rosette
- ROS = Rosette plus CTD

USW = sea water loop

- MOR = mooring
- NET = net haul
- DRF = drifter

bottle firing method:

- US = up / stop
- UN = up / no stop
- DN = down / no stop

Time Code

- BE = beginning time of cast
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Transmissometer to be cleaned for each cast, do not use Ammonia products

22 March 2002
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Additional comments

Sept 19

1123 UTC Wind 30 knots stations cancelled until daylight or marked improvement in weather

DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT					Year			Ship				Cruise ID		
Day	Station Name	Time (UTC)	Cast type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch keeper	Trans. cleaned	Comments
						Latitude	Longitude							
20	LOOP 4	0139	LOOP		013	50°44.086'	129°23.942'							
20	CS3	0245	CTD	BE	014	50°45.577	-129°19.993	225	218					No NMEA in CTD
		0251		BO		50°45.575	-129°20.010							File
		0255		EN		50°45.579	-129°20.018							
20	CS3		NET		015	50°45.829'	129°19.552'							Bongo 250-0
20	CS3		NET		016	50°45.829'	129°19.552'							Bongo 50-0
20	CS4		NET		17	50°49.221'	129°12.902'							Bongo 95-0
	CS4		NET		18	50°49.221'	129°12.902'							Bongo 50-0
	CS4	0538	CTD	BE	19	50°49.179	129°13.011	97	90	23-29				*extra bottle tripped
		0546		BO										at surface - no sample
		0557		EN		50°49.205	129°12.963							number - called 'extra'
	CS5	0721	CTD	BE	20	50°55.98	128°59.97	65						NMEA OK again
		0722		BO		"	"		58					
		0724		EN		50°55.98	128°59.97							
			Net		21							only 1 bongo needed		Bongo 65-0X
		0741	Net		21	50°55.97	128°59.951		65					Bongo 50-0
	LOOP 5	0700	loop		22	50°55.530	129°00.394							(Lab GPS 45°38.44)
20	CS6	0838	Net		23	50°59.999	128°52.178	67					✓	(wanky 126°47.44)

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Additional comments

(SHIP GPS 50°59.991 20131 PDT VS LAB GPS 50°59.985 20134 PDT)
 128°52.151 128°52.144

! BONGO LOG SHEETS: CS 3 CTD cast should be 14, events should be 15 (0-250m) and 16 (0-50m)!

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Day	Station Name	Time (UTC)	Cast type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch keeper	Trans. cleaned	Comments
						Latitude	Longitude							
20	CS06	0857	CTD/R	BE	24	50°59.95	128°52.13	67		30-35	6	ST	✓	may have hit bottom
		0858		BO		50°59.97	128°52.11							ugly profile!
		0906		EN		50°59.97	128°52.11							I rinsed off CTD/R
20	CS07	1017	CTD	RE	25	51°04.48	128°44.16	67						with the hose
		1019		BO		51°04.48	128°44.16							
		1021		EN		51°04.49	128°44.17		61					
		1033	BONGO		26	51°04.487	128°44.148							
20	CS08	1130	NET	BO	27	51°08.48	-128°36.00							
20	CS08	1145	NET	BO	28	51°08.48	-128°36.00							
20	CS08	1205	CTD	BE	29	51°08.48	-128°36.00	142	136					
		1209		BO		51°08.50	-128°36.01							
		1211		EN		51°08.49	-128°36.01							
20	CS08	1209	LOOP		30	51°08.50	-128°36.01							
20	CS09	1307	CTD/R	BE	31	51°12.50	-128°27.97	191	186	36-46				
		1312		BO		51°12.50	-128°27.98							
		1325		EN		51°12.50	-128°27.99							
20	CS09	1355	NET	BO	32	51°12.63	-128°27.49	191	50					Bongo VNH
20	CS09	1407	NET	BO	33	51°12.63	-128°27.49	191	135					
20	CS09	1408	LOOP		33	51°12.63	-128°27.49							

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Day	Station Name	Time (UTC)	Cast type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch keeper	Trans. cleaned	Comments	
						Latitude	Longitude								
20	CS10	1530	NET		34	51°16.502	128°19.994	78.2	72					Bongo VNH	
	CS10		CTD	BE	35	51°16.515	128°19.974	79.2	73					Loop 7	
				BO		51°16.56	128°19.96								
				EN		51°16.64	128°19.96								
	CS10	1520	Loop 7		36									Loop 7	
	Loop 8	1855	Loop 8		37	50°55.114	128°43.413							Lab GPS 50°55.066	
	Loop 9	2000	Loop 9		38	50°46.34	128°53.84							128°43.448	
	LR03	2130	CTD	BO	39	50°39.65	129°01.89								
		2141		BO		50°39.62	129°01.84	750		47	1			1 SAL @ 722m	
		2154		EN		50°39.62	129°01.87								
		2207	NET	BO	40	50°39.650	129°01.972		55					BONGO TO 50m	
		2219	NET	BO	41	50°39.66	129°01.99		249					BONGO TO 250m	
21	CPE2	0014	NET	BO	42	50°43.95	128°39.94							BONGO TO 50	
	CPE2	0025	NET	BO	43	50°43.95	128°39.94							BONGO TO 250	
	CPE2	0046	CTD	BE	44	50°42.95	128°39.86	126	120						
		0051		BO		50°42.98	128°39.80								
		0054		EN		50°42.99	128°39.79								
21	CPE2	0046	Loop 10		45	50°42.99	128°39.79							Loop 10	

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <i>September</i>					Year <i>2002</i>			Ship <i>Tully</i>			Cruise ID <i>2002-32</i>			
Day	Station Name	Time (UTC)	Cast type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch keeper	Trans. cleaned	Comments
						Latitude	Longitude							
<i>21</i>	<i>LBP1</i>	<i>0610</i>	<i>LOOP11</i>		<i>46</i>	<i>50°04.843</i>	<i>127°52.875</i>	<i>52.2</i>	<i>47</i>					
		<i>0620</i>	<i>CTD</i>	<i>BE</i>	<i>47</i>	<i>50°04.96</i>	<i>127°52.99</i>							
		<i>0621</i>		<i>BO</i>		<i>50°04.97</i>	<i>127°53.01</i>							
		<i>0623</i>		<i>EN</i>		<i>50°04.99</i>	<i>127°53.03</i>							
<i>21</i>	<i>LBP2</i>	<i>0646</i>	<i>LOOP12</i>		<i>48</i>	<i>50°04.004</i>	<i>127°54.182</i>							
		<i>0653</i>	<i>CTD</i>	<i>BE</i>	<i>49</i>	<i>50°04.001</i>	<i>127°54.183</i>	<i>100</i>	<i>95</i>					
		<i>0654</i>		<i>BO</i>		<i>50°03.99</i>	<i>127°54.23</i>							
		<i>0656</i>		<i>EN</i>		<i>50°03.99</i>	<i>127°54.23</i>							
		<i>0715</i>	<i>NET</i>	<i>BO</i>	<i>50</i>	<i>50°04.053</i>	<i>127°54.198</i>	<i>169</i>	<i>160</i>					
<i>21</i>	<i>LBP3</i>	<i>0742</i>	<i>NET</i>	<i>BO</i>	<i>51</i>	<i>50°03.179</i>	<i>127°55.242</i>	<i>172</i>						
		<i>0755</i>	<i>CTD/R</i>	<i>BE</i>	<i>52</i>	<i>50°03.14</i>	<i>127°55.25</i>	<i>171</i>						
		<i>0759</i>		<i>BO</i>		<i>50°03.15</i>	<i>127°55.25</i>		<i>161</i>	<i>48-57</i>	<i>10</i>			
		<i>0811</i>		<i>EN</i>		<i>50°03.17</i>	<i>127°55.29</i>							
	<i>LBP4</i>	<i>0843</i>	<i>CTD</i>	<i>BE</i>	<i>53</i>	<i>50°01.38</i>	<i>127°58.09</i>							
		<i>0854</i>		<i>BO</i>		<i>50°01.40</i>	<i>127°58.09</i>	<i>~985</i>	<i>985</i>		<i>1</i>			<i>(depth sounder bouncing around btwn 985+)</i>
		<i>0909</i>		<i>EN</i>		<i>50°01.42</i>	<i>127°58.10</i>							<i>but 1000m</i>
	<i>LBP5</i>	<i>0937</i>	<i>CTD/R</i>	<i>BE</i>	<i>54</i>	<i>49°60.00</i>	<i>127°59.98</i>							<i>-pings working! wow</i>
		<i>0956</i>		<i>BO</i>		<i>50°00.01</i>	<i>128°00.00</i>	<i>1278</i>		<i>58-75</i>	<i>18</i>			
		<i>1033</i>		<i>EN</i>		<i>50°00.02</i>	<i>127°60.00</i>		<i>1265</i>					

Cast type:
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USW = sea water loop
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DRF = drifter

• bottle firing method:
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Transmissometer to be cleaned for each cast, do not use Ammonia products

<u>Date</u>	<u>Time</u>	<u>PDT</u>
Sep. 21	1715	- on site EOI-II for recovery. - made contact with mooring range 206, 207, 208 while standing by for dinner to end.
	1742	- range 216 m - sent ABEG received positive response - not sighted on surface - sent ABEG again positive response - sent ABEG " " "
	1751	- range 251, 254, 256, 257 - not on surface - moving closer. - passing directly over spot - ranges 110 111
	1757	- sent ABEG again positive response but does not surface - range 350, 352 - not rising setting up drag. - sent CDFG + then ABEG - positive response - repeated " " - range 345 - strong pinger signals both pingers.
	1831	- started first drag app. 1 cable radius 1700 m out on drag winch - turned on Telonics and located + set up Gonio on bridge
	1902	- completed encirclement + started heaving in.
	1936	- sighted on surface. 600m wire left to go. - release hook not open! - poly cut away!

Receiving Argo on Telonics
Gonio setup not completed.

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						Latitude	Longitude							
21	LBP5	1054	NET	BO	55	50°00.02'	127° 60.00'	1265	250					Bongo to 250 m.
21	LBP6	1157	CTD	BE	56	49° 56.28	-128° 05.49	740						
		1212		BO		49° 56.29	-128° 05.41							
		1227		EN		49° 56.33	-128° 05.54							
21	LBP6	1145	Loop ^B		57	49° 56.28	-128° 05.53	740						
	LBP7	1351	CTD/R	BE	58	49° 52.56	-128° 11.09	2235	2226	75-96	22			Nice sunrise over Brooks!
		1438		BO		49° 53.04	-128° 10.30							Surface bottle did not trip
		1545		EN		49° 52.70	-128° 11.56							
21	LBP7	1330	NET		59	49° 52.56	-128° 11.09							Bongo
21	LBP7	1353	Loop ^A		60	49° 52.56	-128° 11.09							
	LBP8	1638	CTD/R	BE	61	49° 48.62	128° 16.83	2072	2050	97	1.			Salinity not taken at LBP7, so taken here
		1712		BO		49° 48.93	128° 16.80							
		1736		EN		49° 49.01	128° 16.83							
22	LC12	0928	CTD	BE	62	48° 15.00	126° 40.10	1400						
		0953		BO		48° 15.04	126° 40.03		1402	98	1.			1 sal @ 1400 m
		1019		EN		48° 15.04	126° 39.97							
		1019	Loop ¹⁵		63	48° 15.04	126° 39.98							
		1045	Net		64	48° 14.72	126° 39.97		250					

Cast type:

BOT = bottle cast, no CTD
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USW = sea water loop

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Additional comments

no 076 or 097 samples

DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month					Year			Ship				Cruise ID			
Day	Station Name	Time (UTC)	Cast type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch keeper	Trans. cleaned	Comments	
						Latitude	Longitude								
22	LB16	1321	CTD	BE	65	48° 0.49	-126° 17.03	1784	1780					Pacific White Sided Dolphins	
		1354		BO		48° 0.52	-126° 17.05								
		1415		EN		48 0.54	-126 17.01								
22	LB16	1315	Loop 16		66	48° 00.50	-126° 17.04								
22	LB15		CTD	BE	67	48 4.37	126 8.44	1542	1	99	1.			Loop Sal #17	
		1541		BO		48 4.49	126 8.50	1540						99% cal. bottle	
		1607		EN		48 4.63	126 8.45								
		1610	Loop 17		68										
22	LB14	1700	CTD/R	BE	69	48 8.46	126 0.00	1172		99-117	19				
		1724		BO		48 8.51	125 59.95		1153						
				EN		48 8.56	125 59.90								
22	LB14		Loop 13		70										
22	LB14		NET		71									Bongo 250-0	
22	LB13	1901	CTD	BE	72	48°10.60	125°56.07	11000	901						
		1921		BO		48°10.58	125°56.08								
		1940		EN		48°10.59	125°56.08								
	LB12	2025	NET (scor)	BO	73	48°12.92	125°51.88								

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Day	Station Name	Time (UTC)	Cast type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch keeper	Trans. cleaned	Comments	
						Latitude	Longitude								
22	LB12	2014Z	CTD/R	BE	74	48° 12.90'	125° 51.84"	507							
				BO		48° 12.91'	125° 51.86"		509	119-133	15				
		2102Z		EN		48° 12.88'	125° 51.84"								
22	LB11	2200	CTD/R	BE	75	48° 15.19'	125° 47.70"								
		2204		BO		48° 15.18'	125° 47.70"	206		134-144	11.				
		2218		EN		48° 15.16'	125° 47.72"		201						
22	Loop 18	2216	Loop ¹⁹		76	48° 15.16'	125° 47.72"		←	Don't think the sample was taken					
22	LB10	2304	CTD	BE	77	48° 18.57'	125° 41.29"	153							
		2310		BO		48° 18.58'	125° 41.27"								
				EN		48° 18.58'	125° 41.26"								
22	LB10	2311	Loop ²⁰		78	48° 18.58'	125° 41.27"								
23	LB9	0001	CTD/R	BE	79	48° 21.96'	125° 34.74"	150		145-153	9.				
		0006		BO		48° 21.97'	125° 34.72"								
		0017		EN		48° 21.98'	125° 34.73"								
	LB9	0003	Loop ²¹		80	48° 21.96'	125° 34.74"								
23	LB08	0104	ROS	BE	81	48° 25.24'	125° 28.63"	137		154-162	9.				
		0108		BO		48° 25.24'	125° 28.59"								
		0113		EN		48° 25.30'	125° 28.51"								
		0107	Loop ²²		82	48° 25.24'	125° 28.59"								

Cast type: LISW = sea water loop, bottle firing method

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						Latitude	Longitude							
23	C3	0204	CTD/R	BE	83	48°23.50	-125°20.77	121	115	163-170				Opps... forgot to
		0207		BO		48°23.51	-125°20.77							set bottles - redo
		0215		EN		48°23.46	-125°20.80							cast as #86
23	C3	0211	Loop23		84	48°23.51	-125°20.77							
23	C3		NET		85	48°23.45	-125°20.77							Bongo
23	C3	0223	CTD/R	BE	86	48°23.45	-125°20.73	121	116	163-170	8			
		0227		BO		48°23.46	-125°20.79							
		0235		EN		48°23.45	-125°20.77							
23	B7	0427	NET		87	48°32.065	125°35.526							
		0457	CTD	BE	88	48°32.069	125°35.526	78	73					
		0458		BO		48°32.07	125°35.53							
		0501		EN		48°32.06	125°35.53							
23	B8	0546	CTD	BE	89	48°34.52	125°30.03	115	110					
		0548		BO		48°34.51	125°30.04							
		0555		EN		48°34.52	125°30.03							
		0610	NET		90	48°34.012	125°29.381							BONGO
23	LBO7	0712	CTD	BE	91	48°28.66	125°22.10	152						
		715		BO		48°28.65	125°22.10		145					
		0717		EN		48°28.64	125°22.10							

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Day	Station Name	Time (UTC)	Cast type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch keeper	Trans. cleaned	Comments	
						Latitude	Longitude								
23	C2	0834	CTD/R	BE	92	48°25.45	125°07.82	140							
		0837		BO		48°25.45	125°07.79		130	171-179	9	ST			
		0847		EN		48°25.41	125°07.77					↓			
	C2	0910	NET	BO	93	48°25.43	125°07.78								BONGO
	C1	1013	CTD	BE	95	48°28.95	125°15.26	153							
		1016		BO		48°28.95	125°15.26		143						
		1018		EN		48°28.95	125°15.27								
	C1	0955	NET	BO	94	48°28.94	125°15.298	153	140			ST			Bongo
	LB06	1052	CTD/R	BE	96	48°32.21	125°15.50								
		1054		BO		48°32.21	125°15.51	110		180-186	7.				
		1101		EN		48°32.17	125°15.49		105						
23	LB05	1133	CTD	BE	97	48°33.96	-125°11.44	102	97						
		1137		BO		48°33.95	-125°11.90								
		1139		EN		48°33.95	-125°11.89								
23	E1	1226	CTD/R	BE	98	48°31.69	-125°03.78	117	113	187-194	8.				
		1230		BO		48°31.65	-125°03.82								
		1239		EN		48°31.68	-125°03.77								
23	E1	1258	NET		99	48°31.68	-125°03.77	117	110						

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Month <i>September</i>					Year <i>2002</i>			Ship <i>Tully</i>				Cruise ID <i>2002-32</i>		
Day	Station Name	Time (UTC)	Cast type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch keeper	Trans. cleaned	Comments
						Latitude	Longitude							
23	LB04	1346	CTD/R	BE	100	48°35.65	-125°08.73	111	105	195-202	8.			
		1349		BO		48°35.68	-125°08.73							
		1357		EN		48°35.68	-125°08.73							
23	LB03	1427	CTD	BE	101	48°32.31	-125°05.63	93	90					
		1432		BO		48°32.30	-125°05.60							
		1434		EN		48°32.32	-125°05.60							
23	LB02	1509	CTD/R	BE	102	48°39.00	125°02.52	56.4	51	203-207	5			
		1510		BO		48°39.00	125°02.56							
		1519		EN		48°39.05	125°02.68							
23	LB01	1547	CTD/R	BE	103	48°40.41	124°59.41	35	30	208-211	4.			
23	LB01	1548	CTD/R	BO		48°40.41	124°59.40							
		1557		EN		48°40.44	124°59.33	99	94					
23	LC01	1819	CTD/R	BE	104	48°50.39	125°27.76	99	86	212-218	7			hit bottom
		1824		BO		48°50.43	125°27.67							
		1835		EN		48°50.52	125°27.47							
	LC02	1909	CTD/R	BE	105	48°48.69	125°30.91	108		219-225	7			
		1911		BO		48°48.69	125°30.91							
		1919		EN		48°48.66	125°30.90							
	loop 24	1939	LOOP		106	48°49.74	125°34.70							

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						Latitude	Longitude							
23	B-3	20:08	CTD	BE	107	48° 51' 14	125° 39.13	53						
		2009		BO		48° 51.14	125° 39.13							
		2010		EN		48° 51.14	125° 39.13							
		2021	NET	BO	108	48° 51.06	125° 39.16							BONGO
23	LC03	2114	CTD	BE	109	48° 46.96	125° 34.26	136						
		2114		BO		48° 47.00	125° 34.26							
		2117		EN		48° 47.03	125° 34.27							
23	LC04	2205	CTD/R		110	48° 43.46	125° 40.72	162		226-235	10			
		2211				48° 43.48	125° 40.72							
		2222				48° 43.41	125° 40.74							
23	LC05	2313	CTD	BE	111	48° 39.88	-125° 47.31	65	60					≈ B5 plankton station
		2315		BO		48° 39.91	-125° 47.29							
		2317		EN		48° 39.92	-125° 47.28							
23	LC05	2330	NET		112	48° 39.92	-125° 47.28							Bongo
24	LC06	0044	NET		113	48° 36.38N	125° 53.92'W	93	85					
24	LC06	0057	CTD/R	BE	114	48° 36.48	-125° 53.99	92	87	236-242	7			
		0102		BO		48° 36.49	-125° 53.98							
		0111		EN		48° 36.51	-125° 53.88							

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						Latitude	Longitude							
24	LC87	0201	CTD	BE	115	48°32.92	-126°0.38	126	120					
		0206		BO		48°32.92	-126°0.35							
		0210		EN		48°32.91	-126°0.39							
24	LC8/A1	0305	CTD/R	BE	116	48°29.38	126°7.02	197	192	243-253	11			
		0311		BO		48°29.39	126°7.00							
		0333		EN		48°29.38	126°7.01							
24	LC8/A1		NET	B	117	48°28.709	126°06.87	197	190					Bowyo
24	A2	0455	NET	BE	118	48°22.644	126°03.674	356	280					BONKO
		0521	CTD	BE	119	48°22.62	126°3.70	356	350					
		0531		BO		48°22.64	126°3.76							
		0540		EN		48°22.63	126°3.77							

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