

DAILY LOG BOOK

MISSION
NUMBER

2003-07

DATE:

From: **APRIL 23** to: **APRIL 28**

VESSEL:

VECTOR

PROJECT:

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

Captain: Don Hardy First Officer: _____
Second Officer: _____ Third Officer: _____

Mission Participants / Agencies:

Scientific Personnel: *Patrick Cummings*
Party Chief:

[illegible][illegible]

Data logging computer: F502
 Data acquisition program: Seisplot ver 5.26 f
 CTD deck unit make: _____ model: 117 serial number: 0619
 Primary CTD _____

Make: Seabird model: serial number: 0585

Primary temperature serial number: 2023

Primary conductivity serial number: 1763

Secondary temperature serial number: 2106

Secondary conductivity serial number: 1706

Transmissometer: Model: s/n: 333 DR

Fluorometer: Model Cable gain: s/n: 2229 P, S or NO pump? P, S or NO pump?

Oxygen sensor: Model: s/n: 0047 P, S or NO pump? P, S or NO pump?

PAR sensor: Model: s/n:

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

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

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any CTD

Secondary CTD _____ s/n: _____

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: _____ s/n: _____

Oxygen sensor: _____ Model: _____ s/n: _____

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

Other sensors: _____ s/n: _____

Other sensors: _____ s/n: _____

Other sensors: _____ s/n: _____

Other sensors: _____ s/n: _____

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

Rosette Setup:

Number of bottles: 24 Batch # 2,
Manufacturer: IOS (Ocean Test Equip., General Oceanics, IOS)
Volume of bottles (litres): 10

Winches:

1. Make: _____ model: 329 serial #: 1307 used for: Rosette
2. Make: _____ model: 329 serial #: 1483 used for: Backing Rosette
3. Make: _____ model: _____ serial #: _____ used for: _____
4. Make: _____ model: _____ serial #: _____ used for: _____
5. Make: _____ model: _____ serial #: _____ used for: _____
6. Make: _____ model: _____ serial #: _____ used for: _____
7. Make: _____ model: _____ serial #: _____ used for: _____

Comments: _____

Salinometer:

make: _____ model: _____ serial number: _____

Comments: _____

Thermosalinograph System:

Program: _____ Version: _____
Sampling interval (seconds): _____
Fluorometer sensor serial number: _____
Comments: _____

ADCP Setup:

Computer time zone: _____ User Exits: Name: _____ Exit points: _____
Sampling interval (sec): _____ Name: _____ Exit points: _____
Bin Length: (2^x): _____ Name: _____ Exit points: _____
Pulse Length: _____ Work File: _____
Buffer (bytes): _____
Gyro Offset: _____

Comments: _____

Comments: _____

Trans 333 DR 110 d 02

$$M = 19.6395$$

$$B = -1.1293$$

27 April 03

air ratio

$$\cancel{4.576}$$

$$= 4.656$$

$$W_0 = 4.765$$

$$A_0 = 4.886$$

$$Y_0 = .057$$

$$Y_1 = .059$$

Blank

$$.059$$

$$M = T_w / W_0 * (A_0 - Y_0) / (A_1 - Y_1)$$

$$M = (91.3 / 4.765) * (4.886 - .059) / (4.656 - .059)$$

$$M = 19.8053$$

$$B = -MY_1$$

$$= -1.1685$$

DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month April					Year 2003			Ship Vector				Cruise ID 2003-07		
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							
24	59	0105	ROS	BE	1	48° 37.80	123° 14.58	234		1-14	14	ST	✓	
		0112		BO		48° 37.81	123° 14.58		225					
		0124		EN		48° 37.84	123° 14.61							
24	60	201	ROS	BE	2	48° 33.91	123° 12.71	289						
		208		BO		48° 33.90	123° 12.69		275					
		211		EN		48° 33.93	123° 12.69							
24	101	1129	ROS	BE	3	48° 25.43	124° 45.19	240						Toc vials in sink, in case ship rolls in the night
		1135		BO		48° 25.48	124° 45.63		200			ST		
		1139		EN		48° 25.50	124° 45.86							
24	102	1305	ROS	BE	4	48° 30.02	124° 44.08	260	260	15-29				
		1310		BO		48° 30.02	124° 44.11		249					
		1324		EN		48° 30.06	124° 44.27							
24	103	1357	ROS	BE	5	48° 32.99	124° 42.84	120						
		1400		BO		48° 33.01	124° 42.84							
		1402		EN		48° 33.02	124° 42.84							
24	76	1503	CTD	BE	6	48° 31.40	124° 29.91	92	86				✓	weight hit bottom.
		1505		BO		48° 31.39	124° 29.93							Depth sounder image
		1509		EN		48° 31.36	124° 29.98							hard to interpret

Cast type:

BOT = bottle cast, no CTD
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ROS = Rosette plus CTD

USW = sea water loop
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DRF = drifter

bottle firing method:
• US = up / stop
• UN = up / no stop
• DN = down / no stop

Time Code

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RE = recover mooring time

Transmissometer to be cleaned for each cast, do not use Ammonia products

22 March 2002
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April					2003			Vector				2003-07			
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						Latitude	Longitude								
24	75	1557	ROS		7	48°28.148'	124°32.850'	226	220	30-43	14	8	✓	0+5m nutrient bottles missed	
		1601				48°28.12'	124°32.88'								
		1615				48°28.03'	124°32.90								
24	74	1705	CTD		8	48°25.153	124°35.750	188	173		—				
		1710				48°25.16	124°35.85								
		1713				48°25.15	124°35.91								
24	73	1939	CTD	BE	9	48°14.93	124°06.76	163	158		—				
		1941		BO		48°14.90	124°06.85								
		1943		EN		48°14.89	124°06.91								
24	72	2041	ROS	BE	10	48°18.61	124°04.05	190	181	44-56	13	JSP	✓		
		2044		BO		48°18.63									
		2057		EN		48°18.60	124°04.38								
24	71	2135	CTD	BE	11	48°22.19	123°59.46	111	107	—	—	JSP			
		2137		BO		48°22.20	123°59.54								
		2139		EN		48°22.21	123°59.58								
24	70	2257	CTD	BE	12	48°19.21	123°43.21	153		—	—	ST			
		2301		BO		48°19.20	123°43.22								
		2303		EN		48°19.21	123°43.23								

Cast type: BOT = bottle cast, no CTD CTD = CTD without Rosette ROS = Rosette plus CTD

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22 March 2002
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INSTITUTE OF OCEAN SCIENCES

Month <i>April</i>					Year <i>2003</i>			Ship <i>Vector</i>			Cruise ID <i>2003-07</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>24</i>	<i>69</i>	<i>2331</i>	<i>ROS</i>	<i>BE</i>	<i>13</i>	<i>48°15.57</i>	<i>123°43.27</i>	<i>176</i>		<i>57-68</i>	<i>12</i>	<i>ST</i>	<i>✓</i>	
		<i>2335</i>		<i>BO</i>		<i>48°15.54</i>	<i>123°43.39</i>		<i>170</i>					
		<i>2344</i>		<i>EN</i>		<i>48°15.59</i>	<i>123°43.50</i>							
<i>25</i>	<i>68</i>	<i>0012</i>	<i>CTD</i>	<i>BE</i>	<i>14</i>	<i>48°12.21</i>	<i>123°43.03</i>	<i>143</i>				<i>ST</i>		
		<i>0015</i>		<i>BO</i>		<i>48°12.23</i>	<i>123°43.14</i>		<i>127</i>					
		<i>0017</i>		<i>EN</i>		<i>48°12.24</i>	<i>123°43.21</i>							
	<i>105</i>	<i>0215</i>	<i>CTD</i>	<i>BE</i>	<i>15</i>	<i>48°10.99</i>	<i>123°19.01</i>	<i>87</i>					<i>✓</i>	
		<i>0218</i>		<i>BO</i>		<i>48°10.99</i>	<i>123°19.01</i>		<i>80</i>					
		<i>0219</i>		<i>EN</i>		<i>48°10.98</i>	<i>123°19.01</i>							
	<i>105a</i>	<i>0220</i>	<i>CTD</i>		<i>16</i>	<i>48°10.98</i>	<i>123°19.01</i>	<i>50 + →</i>						<i>TEST (WAIT 30 SEC. = DIFFERENCE?)</i>
		<i>0223</i>				<i>48°10.98</i>	<i>123°19.01</i>	<i>70m</i>						
		<i>0225</i>				<i>48°10.96</i>	<i>123°19.00</i>							
<i>25</i>	<i>ADCP</i>	<i>0251</i>	<i>ROS</i>		<i>17</i>	<i>48°13.990</i>	<i>123°18.050</i>	<i>119</i>		<i>69-78</i>		<i>8</i>	<i>✓</i>	
		<i>0254</i>				<i>48°13.996</i>	<i>123°18.040</i>							
		<i>0303</i>				<i>48°14.008</i>	<i>123°17.971</i>							
<i>25</i>	<i>104</i>	<i>0343</i>	<i>CTD</i>	<i>BE</i>	<i>18</i>	<i>48°19.991</i>	<i>123°17.917</i>	<i>85</i>	<i>83</i>			<i>8</i>	<i>✓</i>	
		<i>0345</i>		<i>BO</i>		<i>48°20.00</i>	<i>123°17.91</i>							
		<i>0346</i>		<i>EN</i>		<i>48°20.005</i>	<i>123°17.914</i>							

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Month April					Year 2003			Ship Vector				Cruise ID 2003-07		
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						Latitude	Longitude							
25	104a	0349	CTD	BE	19	48°20.009	123°17.917	83	81					TEST - RATE OF
		0353		BO		48°20.000	123°17.913							DESCENT 1/2 speed all the way
		0355		EN		48°19.996	123°17.913							
25	67	0422	CTD	BE	20	48°22.830	123°18.068	107	105(?)				✓	
		0424		BO		48°22.834	123°18.034							
		0427		EN		48°22.833	123°18.024							(FOR 67 & 66)
25	66	0502	CTD	BE	21	48°19.316	123°14.061	96-104	92				✓	FLOOD TIDE: DENSE POOL NEAR BOTTOM ~15m
		0504		BO		48°19.333	123°14.010							thick; turbid advective of dense water over Vin. Shelf
		0506		EN		48°19.325	123°13.997							
25	65	0539	ROS	BE	22	48°15.909	123°09.763	125	114	79-88	10			
		0541		BO		48°15.912	123°09.717							
		0550		EN		48°15.902	123°09.652							
25	64	0620	CTD	BE	23	48°12.841	123°05.773	111	98	—				
		0623		BO		48°12.865	123°05.763							
		0626		EN		48°12.90	123°05.78							
25	63	0659	CTD	BE	24	48°14.61	122°58.49	158	146(?)	—				
		0703		BO		48°14.60	122°58.45							
		0706		EN		48°14.60	122°58.42							

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Month <i>APRIL</i>					Year <i>2003</i>			Ship <i>VECTOR</i>				Cruise ID <i>2003-07</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>25</i>	<i>62</i>	<i>0809</i>	<i>ROS</i>	<i>BE</i>	<i>25</i>	<i>48° 22.82</i>	<i>123° 02.56</i>	<i>151</i>	<i>141</i>	<i>89-99</i>	<i>11</i>	<i>JSP</i>		<i>restart down cast</i>
				<i>BO</i>										<i>(forgot pump on 1st descent)</i>
		<i>0823</i>		<i>EN</i>		<i>48° 22.97</i>	<i>123° 02.45</i>							
<i>25</i>	<i>61</i>	<i>0913</i>	<i>CTD</i>	<i>BE</i>	<i>26</i>	<i>48° 29.22</i>	<i>123° 09.39</i>	<i>290</i>	<i>268</i>	<i>—</i>	<i>—</i>	<i>JSP</i>		
		<i>0918</i>		<i>BO</i>		<i>48° 29.25</i>	<i>123° 09.61</i>							
		<i>0922</i>		<i>EN</i>		<i>48° 29.28</i>	<i>123° 09.75</i>							
<i>25</i>	<i>54</i>	<i>1146</i>	<i>CTD</i>	<i>BE</i>	<i>27</i>	<i>48° 26.60</i>	<i>122° 44.30</i>	<i>78</i>		<i>—</i>	<i>—</i>			
		<i>1148</i>		<i>BO</i>		<i>48° 26.61</i>	<i>122° 44.33</i>		<i>72</i>			<i>ST</i>		
		<i>1149</i>		<i>EN</i>		<i>48° 26.61</i>	<i>122° 44.34</i>							
	<i>53</i>	<i>1249</i>	<i>CTD</i>	<i>BE</i>	<i>28</i>	<i>48° 33.17</i>	<i>122° 44.96</i>	<i>58</i>		<i>/</i>		<i>ST</i>	<i>✓</i>	
		<i>1250</i>		<i>BO</i>		<i>48° 33.17</i>	<i>122° 44.96</i>		<i>51</i>	<i>/</i>				
		<i>1251</i>		<i>EN</i>		<i>48° 33.16</i>	<i>122° 44.96</i>			<i>/</i>				
	<i>52</i>	<i>1354</i>	<i>CTD</i>	<i>BE</i>	<i>29</i>	<i>48° 38.83</i>	<i>122° 43.27</i>	<i>84</i>		<i>/</i>		<i>ST</i>		
		<i>1357</i>		<i>BO</i>		<i>48° 38.83</i>	<i>122° 43.26</i>		<i>74</i>	<i>/</i>				
		<i>1358</i>		<i>EN</i>		<i>48° 38.84</i>	<i>122° 43.27</i>			<i>/</i>				
	<i>51</i>	<i>1511</i>	<i>CTD</i>	<i>BE</i>	<i>30</i>	<i>48° 46.715'</i>	<i>122° 51.211'</i>	<i>156</i>	<i>149</i>	<i>/</i>			<i>✓</i>	
		<i>1516</i>		<i>BO</i>		<i>48° 46.730'</i>	<i>122° 51.271'</i>			<i>/</i>				
		<i>1518</i>		<i>EN</i>		<i>48° 46.729'</i>	<i>122° 51.351'</i>			<i>/</i>				

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						Latitude N	Longitude W								
25	56	1625	ROS	BE	31	48°46'55.3"	123°01'42.2"	207	196	100-113	14	ML	✓		
		1630		BO		48°46'58.0"	123°01'35.6"								
		1643		EN		48°46'09.6"	123°01'11.2"								
25	57	1748	CTD	BE	32	48°43'99.1"	123°08'06.8"	162	153	—	—	ML	✓		
		1751		BO		48°44'00.6"	123°08'12.8"								
		1754		EN		48°44'00.3"	123°08'16.9"								
25	58	1823	CTD	BE	33	48°42'98.2"	123°14'35.4"	336	328	—	—	ML	✓		
		1831		BO		48°42'94.5"	123°14'47.0"								
		1838		EN		48°42'90.2"	123°14'50.6"								
25	47	2025	CTD	BE	34	48°49.30	123°06.16	186	181	—	—	JSP			
		2029		BO		48°49.31	123°06.14								
		2032		EN		48°49.30	123°06.15								
25	48	2055	CTD	BE	35	48°51.70	123°03.28	227	222	—	—	JSP			
		2100		BO		48°51.71	123°03.32								
		2104		EN		48°51.73	123°03.38								
25	49	2134	CTD	BE	36	48°54.99	122°59.61	132	124	—	—	JSP	✓		
		2137		BO		48°54.99	122°59.60								
		2139		EN		48°54.99	122°59.60								

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						Latitude	Longitude							
<i>25</i>	<i>50</i>	<i>2206</i>	<i>CTD</i>	<i>BE</i>	<i>37</i>	<i>48° 57.69</i>	<i>122° 56.09</i>	<i>29</i>	<i>22</i>			<i>JSP</i>	☒	
		<i>2207</i>		<i>BO</i>		<i>48° 57.69</i>	<i>122° 56.09</i>							
		<i>2208</i>		<i>EN</i>		<i>48° 57.68</i>	<i>122° 56.09</i>							
<i>25</i>	<i>44</i>	<i>2254</i>	<i>CTD</i>	<i>BE</i>	<i>38</i>	<i>48° 56.77</i>	<i>123° 05.92</i>	<i>120</i>				<i>ST</i>		
		<i>2258</i>		<i>BO</i>		<i>48° 56.75</i>	<i>123° 05.95</i>		<i>111</i>					
		<i>2259</i>		<i>EN</i>		<i>48° 56.75</i>	<i>123° 05.96</i>							
	<i>45</i>	<i>2323</i>	<i>CTD</i>	<i>BE</i>	<i>39</i>	<i>48° 53.99</i>	<i>123° 08.38</i>	<i>130</i>				<i>ST</i>		
		<i>2326</i>		<i>BO</i>		<i>48° 53.88</i>	<i>123° 08.35</i>		<i>115</i>					
		<i>2328</i>		<i>EN</i>		<i>48° 53.89</i>	<i>123° 08.34</i>							
	<i>46</i>	<i>2358</i>	<i>ROS</i>	<i>BE</i>	<i>40</i>	<i>48° 51.38</i>	<i>123° 10.73</i>	<i>180</i>		<i>114-125</i>		<i>ST</i>	☒	
		<i>2355</i>		<i>BO</i>		<i>48° 51.38</i>	<i>123° 10.73</i>							
<i>26</i>		<i>0006</i>		<i>EN</i>		<i>48° 51.35</i>	<i>123° 10.65</i>							
	<i>43</i>	<i>0149</i>	<i>CTD</i>	<i>BE</i>	<i>41</i>	<i>49° 00.25</i>	<i>123° 30.08</i>	<i>199</i>				<i>ST</i>		<i>* our remote readout on</i>
		<i>0153</i>		<i>BO</i>		<i>49° 00.18</i>	<i>123° 30.07</i>		<i>190</i>					<i>winch keeps going off</i>
		<i>0156</i>		<i>EN</i>		<i>49° 00.17</i>	<i>123° 30.07</i>							<i>+ on; looks like it could be</i>
	<i>42</i>	<i>0222</i>		<i>BE</i>	<i>*41a</i>	<i>49° 01.77</i>	<i>123° 26.24</i>	<i>323</i>		<i>126-141</i>				<i>* short in the cable (ST)</i>
		<i>0233</i>		<i>BO</i>		<i>49° 01.72</i>	<i>123° 26.25</i>		<i>310</i>					<i>TEST CAST-41a</i>
		<i>0238</i>		<i>EN</i>		<i>49° 01.70</i>	<i>123° 26.27</i>							<i>for bow wake</i>

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22 March 2002
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Additional comments

*41a was renamed 9941 in processing G. Gatten

DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <i>April</i>					Year <i>2003</i>			Ship <i>Vector</i>				Cruise ID <i>2003-07</i>		
Day (UTC)	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							
26	42	0239	ROS	BE	42	48°01.69	123°26.28	323	308	126-141	16	SP		Cast at normal
		0246		BO		49°01.657	123°26.316		310					speed. Compare with
		0303		EN		49°01.627	123°26.267							41a
26	41	0344	CTD	BE	43	49°03.274	123°22.354	247	236	—	—	SP	✓	Water brown @
		0349		BO		49°03.262	123°22.410							42+41 (Fraserplume)
		0352		EN		49°03.234	123°22.434							
26	37	0511	CTD	BE	44	49°13.591	123°20.669	211	210?	—	—	SP	✓	
		0516		BO		49°13.596	123°20.652							
		0519		EN		49°13.595	123°20.684							
26	38	0553	CTD	BE	45	49°12.008	123°26.312	310	294	—	—	SP	✓	
		0600		BO		49°12.055	123°26.275							
		0604		EN		49°12.041	123°26.313							
26	39	0643	ROS	BE	46	49°09.779	123°33.014	377		142-158	17			
		0649		BO		49°09.807	123°33.032							
		0707		EN		49°09.703	123°33.163							
26	40	0744	CTD	BE	47	49°08.506	123°36.834	153	132	—	—	SP		
		0746		BO		49°08.432	123°36.883							
		0748		EN		49°08.45	123°36.90							

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22 March 2002
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APRIL					2003			VECTOR				2003-07		
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							
26	26	0910	CTD	BE	48	49° 14.274	123° 50.794	254	241	—	—	JSP		
		0914		BO		49° 14.255	123° 50.795							
		0917		EN		49° 14.233	123° 50.819							
26	27	1009	ROS	BE	49	49° 19.100	123° 48.045	345	340	159-174	16	JSP		(air vents on Niskins)
		1		BO										(open on recovery)
		1030		EN		49° 19.135	123° 48.465							
26	28	1113	CTD	BE	50	49° 24.08	123° 45.28	139				ST		
		1116		BO		49° 24.08	123° 45.31		130					
		1119		EN		49° 24.07	123° 45.33							
	24	1257	CTD	BE	51	49° 30.27	124° 06.07	430				ST		
		1306		BO		49° 30.30	124° 06.13		422	175				took 1 sal. sample
		1313		EN		49° 30.34	124° 06.17							at bottom. ST.
	25	1350	CTD	BE	52	49° 27.66	124° 07.49	303						
		1356		BO		49° 27.68	124° 07.56		290					
		1401		EN		49° 27.68	124° 07.60							
	2	1428	ROS	BE	53	49° 24.10	124° 09.30	278		176-190				
		1433		BO		49° 24.07	124° 09.37							
		1446		EN		49° 24.04	124° 09.49							

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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							
26	1	1520	CTD	BE	54	49°20.311	124°12.127	250		—		8	✓	
		1525		BO		49°20.356	124°12.157							
		1530		EN		49°20.380	124°12.169							
26	4	1626	CTD	BE	55	49°24.578	124°22.098	351	340	—		8	✓	
		1632		BO		49°24.527	124°22.069							
		1636		EN		49°24.53	124°22.13							
26	3	1657	ROS	BE	56	49°26.582	124°20.209	330	317	-206		8	✓	
		1702		BO		49°26.475	124°20.237							
		1720		EN		49°26.441	124°20.330							
26	5	1808	CTD	BE	57	49°27.426	124°30.723	339	319	—		8	✓	Couldn't see ^{approach to} bottom
		1813		BO		49°27.465	124°30.657							on depth sounder.
		1817		EN		49°27.505	124°30.638					8	✓	(hit bottom)
26	6	1848	ROS	BE	58	49°30.625	124°27.825	195	185	207-219	13	JSP	✓	changed pinger
		1853		BO		49°30.604	124°27.797							
		1903		EN		49°30.573	124°27.717							
26	7	1937	CTD	BE	59	49°34.411	124°24.185	351	347	—		JSP		
		1944		BO		49°34.408	124°24.153							
		1948		EN		49°34.410	124°24.153							

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22 March 2002
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do not confuse with 225 forecast?
*

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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							
26	8	2035	CTD*	BE	60	49° 39.310	124° 32.007	349	329	220a*	1.	JSP		1 sal bottle sample
		2042		BO		49° 39.317	124° 32.997							@ 329 dbar, stn 8
		2046		EN		49° 39.330	124° 32.996							
26	9	2120	ROS	BE	61	49° 35.496	124° 38.334	173	160	220-231	12	JSP		
		2124		BO		49° 35.505	124° 38.355							
		2133		EN		49° 35.549	124° 38.393							
26	10	2222	CTD	BE	62	49° 40.693	124° 47.293	98	90			JSP		
		2225		BO		49° 40.691	124° 47.292							
		2227		EN		49° 40.695	124° 47.297							
26	11	2251	CTD	BE	63	49° 42.41	124° 43.39	302				ST.	✓	
		2257		BO		49° 42.37	124° 43.40		299					
		2301		EN		49° 42.36	124° 43.43							
	12	2320	ROS	BE	64	49° 43.60	124° 40.76	360		232-247		ST.		
		2326		BO		49° 43.61	124° 40.78		353					
		2343		EN		49° 43.64	124° 40.95							
27	13	0110	CTD	BE	65	49° 55.30	124° 55.23	245				ST		
		0115		BO		49° 55.32	124° 55.22		230					
		0117		EN		49° 55.33	124° 55.22							

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						Latitude	Longitude							
27	14	0143	ROS	BE	66	49°53.01	124°59.59	318		248-262	15	ST		
		0149		BO		49°53.03	124°59.59		310					
		0202		EN		49°53.09	124°59.63							
27	15	0228	CTD	BE	67	49°51.62	125°01.61	130				ST		
		0231		BO		49°51.63	125°01.61		120					
		0232		EN		49°51.64	125°01.61							
27	21	0354	CTD	BE	68	50°02.033	125°13.530	85	86			88	✓	
		0356		BO		50°02.028	125°13.533							
		0357		EN		50°02.029	125°13.536							
27	16	0448	ROS	BE	69	49°57.698	125°08.792	158	150	263-273	11	ML	✓	
		0453		BO		49°57.713	125°08.788							
		0505		EN		49°57.642	125°08.795							
27	17	0529	CTD	BE	70	49°58.773	125°04.330	265				ML	✓	Aborted cast. Redone
27	17A	0533	CTD	BE	71	49°58.729	125°04.325	265	267					
		0540		BO		49°58.669	125°04.344							
		0543		EN		49°58.650	125°04.378							
27	18	0613	CTD	BE	72	49°59.195	124°58.909	148	142			ML		Couldn't see bottom on depth sounder
		0616		BO		49°59.190	124°58.925							
		0618		EN		49°59.191	124°58.934							

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						Latitude	Longitude							
27	19	0701	CTD	BE	73	50°01.149'	124°52.857'	273	265	—	—	ML	✓	
		0706		BO		50°01.148'	124°52.887'							
		0710		EN		50°01.155'	124°52.953'							
27	20	0921	CTD	BE	74	49°47.195	124°32.323	313	315	—	—	JSP	✓	
		0926		BO		49°47.201	124°32.393							
		0930		EN		49°47.204	124°32.456							
27	22	1053	CTD	BE	75	49°40.18	124°16.23	357				ST		
		1058		BO		49°40.18	124°16.30		350					
		1103		EN		49°40.18	124°16.34							
27	39-2	1522	ROS	BE	76	49°09.777	123°32.970	380	375	274-290		SF	✓	Cast down to bottom
		1528		BO		49°09.773	123°32.975		375					as usual, then raised
		1529		50m OFF		49°09.777	123°32.967		325					CTD 50 m, waited 30s
		1531		BO-2		49°09.778	123°32.959		375					+ lowered @ 1/2 speed
		1549		EN		49°09.72	123°32.87							to the bottom. Fired
														bottles during final
														ascent. (Expt 3 in the
														bow wake series).
														(1st slowed @ 352m)

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