

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2014-23

DATE:

From: 15 JUNE 2014 to: 19 JUNE 2014

VESSEL:

CCGS VECTOR

PROJECT(S):

STRAIT OF GEORGIA / JUAN DE FUCA STRAIT
WATER PROPERTIES SURVEY

Water Properties Group
Fisheries and Oceans Canada
Institute of Ocean Sciences
Ocean Sciences Division
North Saanich, BC, Canada

WaterProperties.ca

Captain: Bob Barnett
Second Officer: _____
Fishing Master: _____

First Officer: Shane Loveless
Third Officer: El Ren

Mission Participants / Agencies:

[illegible][illegible]

Data logging computer: Vector Laptop

Data acquisition program: Sec save

CTD deck unit make: SBE model: 11+ serial number: 0619

Primary CTD

ry CTD
Make: SBCE model: 9+ serial number: 724 (Arctic unit)
Primary temperature serial number: 4397

Primary temperature serial number: 4397

Primary conductivity serial number: 2992

Secondary temperature serial number: 4402

Secondary conductivity serial number: 2984

Transmissometer: Wet Lab Model: C-STAR

Fluorometer: Model Seapoint Cable gain: 2

Oxygen sensor: 503E Model: 43

PAR sensor: B10 Model:

Other sensors: pH

Other sensors: Surface PAR

Other sensors:

Other sensors:

Secondary CTD

Make: _____ model: _____ serial number: _____

Primary temperature serial number: _____

Primary conductivity serial number:

Secondary temperature serial number: _____

Secondary conductivity serial number:

Transmissometer: _____ Model: _____

Fluorometer: Model _____ Cable gain: _____

Oxygen sensor: _____ Model: _____

PAR sensor: _____ Model: _____

Other sensors: _____

Other sensors:

Other sensors: _____

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

DAILY SCIENCE LOG

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Page 1 of

Month <u>June</u>				Year <u>2014</u>				Ship <u>Vector</u>				Cruise ID <u>2014-23</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments	
							Latitude	Longitude								
15	51	22 31	BE	ROS	US	1	48 39.65	123 30.18	175		1-7	7	PC	✓	test cast to 50 m	
		22 33	BO				39.65	30.18								
		22 39	EN				39.66	30.16								
16	58	00 39	BE	ROS		2	48 42.98	123 14.21	330				KS	✓	- phyto samples taken - strong current	
		00 51	BO				42.99	14.27		230					max depth 230	
		01 02	EN				42.99	14.25								
16	57	01 36	BE	ROS		3	48 43.92	123 8.16	154				KY	✓		
		01 40	BO				44.02	8.02		150						
		01 44	EN				44.14	7.91								
16	56	02 14	BE	ROS	US	4	48 46.22	123 1.81	220		8-21	14	PC	✓	air temp 12°C	
		02 19	BO				46.35	1.83		208						
		02 31	EN				46.63	1.43								
16	22	10 18	BE	ROS		5	49 40.195	124 16.277	352	347	-	-	SN	✓	hit bottom, moved on bottom	
		10 28	BO				49 40.204	124 16.256								
		10 34	EN				49 40.195	124 16.271								
16	N22	10 48	BO	NET		6	49 40.195	124 16.288	352	50	-	-	SN			
	N22	11 04	BO	NET		7	49 40.194	124 16.281	352	250	-	-	SN			

Cast Type:

BOT = Bottle cast, no CTD
CTD = CTD without Rosette
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USW = Sea Water Loop
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Transmissometer to be cleaned before each cast, do not use Ammonia products

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depart Port Bay 15h00, winds light, slightly overcast

- very strong current, stop descent @ 230 m, winch making strange noise on recovery
 - descent/ascent rate $< 1 \text{ m/s}$ 3:1 ratio, cable out: pressure depth
 - consider next station moving with current

- strong tide - drift through station to reduce wire angle

→ Not sure where trvs are saved? For next cast, give different directory, so changed back to CTD-DATA\2014-23\ —

184.151.118.119

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Page 2 of

Month <u>June</u>				Year <u>2014</u>			Ship <u>Ventura</u>				Cruise ID <u>2014-23</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
16	20	1236	BE	ROS		8	49 47.273	124 32.342	286	276	—	—	SN	/	☺
		1243	BO				49 47.359	124 32.353							
		1248	EN				49 47.358	124 32.378							
16	19	1453	BE	ROS		9	50 1.195	124 52.852	273	266	—	—	SN	/	☺
		1501	BO				50 1.201	124 52.934							
		1506	EN				50 1.198	124 52.950							
16	18	1543	BE	ROS		10	49 59.213	124 58.949	146	143	—	—	SN	/	☺
		1547	BO				49 59.221	124 58.955							
		1549	EN				49 59.218	124 58.943							
16	17	1620	BE	ROS		11	49 58.799	125 4.442	267	262	—	—	SN	—	☺
		1626	BO				49 58.808	125 4.429							
		1631	EN				49 58.793	125 4.396							
16	16	1700	BE	ROS		12	49 57.647	125 8.802	157	152	22-32	11	SN	—	Label printer is dead
		1703	BO				49 57.636	125 8.773							
		1714	EN				49 57.555	125 8.740							
16	15	1807	BE	ROS		13	49 51.608	125 1.598	125	117	—		SN	—	☺
		1812	BO				49 51.632	125 1.694							
		1815	EN				49 51.643	125 1.705							

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Page 3 of

Month <u>June</u>				Year <u>2014</u>			Ship <u>Vector</u>				Cruise ID <u>2014-23</u>				
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							Latitude	Longitude							
16	14	1834	BE	ROS	US	14	49.53.014	124 59.653	314	328	33-47	15	SR	✓	☺
		1842	BO				49 53.016	124 59.645							
		1901	EN				49 53.035	124 59.654							
16	13	1931	BE	ROS		15	49 55.29	124 55.20	232				R	✓	air temp 15°C
		1938	BO				55.30	55.21		229					
		1942	EN				55.30	55.20							
16	10	2122	BE	ROS		16	49 40.71	124 47.33	90				R	✓	air temp 19°C
		2125	BO				40.71	47.33		86					
		2127	EN				40.71	47.33							
16	11	2151	BE	ROS		17	49 42.39	124 43.37	298				R	✓	
		2159	BO				42.44	43.45		294					
		2205	EN				42.47	43.46							
16	NET 11	2212	BE	NET		18	49 42.46	124 43.45	298				KY		deep score net
		2221	BO				42.47	43.44		290					from - bottom → top
		2227	EN				42.48	43.46							
16	NET 11	2234	BE	NET		19	49 42.47	124 43.35	298				KY		shallow net from
		2235	BO				42.43	43.35		50					
		2238	EN				42.43	43.37							

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print labels using ship's (lab) printer networked into AD laptop

vertical for $\frac{1}{2}$ ms' descent, 1 ms' ascent

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Page _____ of _____

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							Latitude	Longitude								
16	12	22:55	BE	ROS	US	20	49 43.60	124 40.77	354		48-63		PC	✓		
		23:04	BO				43.60	40.77		349		16	VS			
		23:23	EN				43.61	40.79					KY			
17	8	00:32	BE	ROS		21	49 39.31	124 32.93	336				PC	✓		
		00:39	BO				39.31	32.98		333						
		00:46	EN				39.31	32.99								
17	9	01:23	BE	ROS	US	22	49 35.51	124 38.30	167		64-75		PC	✓		
		01:27	BO				35.50	38.29		164		12				
		01:40	EN				35.50	38.31								
17	7	02:42	BE	ROS		23	49 34.39	124 24.19	352				PC	✓		
		02:49	BO				34.40	24.19		347						
		02:55	EN				34.39	24.20								
17	6	03:30	BE	ROS	US	24	49 30.60	124 27.79	195		76-88		PC	✓		
		03:36	BO				30.61	27.76		189		13				
		03:50	EN				30.59	27.80								
17	CPE2	04:19	BE	NET		25	49 27.98	29.95	328							bottles to spc
		04:29	BO				27.98	29.96		325						
		04:35	EN				27.97	29.95								

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247/ 3525

DAILY SCIENCE LOG

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Page _____ of _____

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							Latitude	Longitude								
17	CPF2	0440	BE	NET		26	49 27.95	124 29.99	330				KY			
		0442	BO				27.95	29.99		50			KS			
		0443	EN				27.95	30.00								
17	5	0456	BE	ROS		27	49 27.41	124 30.85	318				PC	✓		
		0502	BO				27.39	30.80		313						
		0508	EN				27.37	30.79								
17	BS 17	0615	BE	ROS		28	49 29.00	124 45.99	60				PC	✓		
		0618	BO				29.01	45.99		55						
		0627	EN				29.01	46.00								
17	4	0811	BE	ROS		29	49 24.494	124 22.057	342	338			SN	-	u	
		0820	BO				49 24.436	124 22.056								
		0826	EN				49 24.437	124 21.929								
17	3	0855	BE	ROS		30	49 26.647	124 20.328	324	316	97-112	8	SN	-	u	
		0903	BO				49 26.648	124 20.266								
		0921	EN				49 26.609	124 20.116								
17	1	1020	BE	ROS		31	49 20.290	124 12.095	245	233			SN	-	u	
		1028	BO				49 20.248	124 12.093								
		1032	EN				49 20.224	124 12.086								

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- note: engineer looked @ wind - chattering noise in hydraulic line under load, assessed. no's which
shop inspection

Baynes Sound station: ship surrounded by tideline flotsam, mostly weed + organic beach material

DAILY SCIENCE LOG

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Page 6 of

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							Latitude	Longitude							
17	CPF1	1113	BE	ROS		32	49 21.974	124 5.123	244	240	—	—	sn	—	☺
		1120	BO				49 21.926	124 5.110							
		1124	EN				49 21.905	124 5.070							
17	CPF1	1133	BO	NET		33	49 22.034	124 5.154	244	50					50-0m
17	CPF1	1145	BO	NET		34	49 22.022	124 5.138	244	240					bottom-0m
17	2	1217	BE	ROS		35	49 24.098	124 9.324	278	272	113-127	15	sn	—	
		1224	BO				49 24.085	124 9.424							
		1241	EN				49 24.052	124 9.477							
17	25	1335	BE	ROS		36	49 27.658	124 7.490	290	286	—		sn	—	☺
		1342	BO				49 27.654	124 7.514							
		1348	EN				49 27.673	124 7.536							
17	24	1413	BE	ROS		37	49 30.354	124 5.981	427	421	—		sn	—	☺
	2	1425	BO				49 30.316	124 5.953							
		1432	EN				49 30.295	124 6.007							
17	28	1616	BE	ROS		38	49 24.096	123 45.284	134	130	—	—	sn	—	☺
		1621	BO				49 24.060	123 45.371							
		1627	EN				49 24.056	123 45.396							

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Page 7 of

Month <u>June</u>		Year <u>2014</u>		Ship <u>Vector</u>		Cruise ID <u>2014-23</u>									
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							Latitude	Longitude							
17	27	1704	BE	ROS		39	49 19.043	123 48.019	350	345	128-143	16	sn	/	3
		1713	BO				49 19.018	123 47.918							
		1732	EN				49 19.037	123 47.770							
	26		BE	ROS		43									
			BO												order changed.
			EN												
17	GEO 1	1809	BE	ROS		40	49 14.982	123 44.842	402	397	—	—	sn	—	3
		1819	BO				49 14.952	123 44.714							
		1826	EN				49 14.923	123 44.618							
17	GEO 1	1838	BO	NET		41	49 15.035	123 44.920	402	50			sn		50-0
17	GEO 1	1857	BO	NET		42	49 15.002	123 44.582	402	397					397-0
17	26	1934	BE	ROS		43	49 14.30	123 50.79	250				PC	✓	Kenny + Kelly
		1940	BO				14.29	50.80		245					
		1944	EN				14.30	50.81							
17	40	2057	BE	ROS		44	49 8.62	123 36.76	140				PC	✓	
		2102	BO				8.62	36.77		140					
		2105	EN				8.62	36.77							

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This page is for any notes or observations

switch to benchst 1307 on centre pedestal

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							Latitude	Longitude									
17	39	21 28	BE	ROS	US	45	49 9.80	123 32.98	376		144 - 160		PC	✓	air temp 15°C		
		21 36	BO				9.85	33.08		369		17	KS				
		21 54	EN				9.73	33.22									
17	38	22 30	BE	ROS		46	49 12.03	123 26.39	305				PC	✓			
		22 37	BO				12.01	26.41		300							
		22 42	EN				12.01	26.38									
17	37	23 10	BE	ROS		47	49 13.63	123 20.71	210				PC	✓			
		23 18	BO				13.61	20.74		208							
		23 21	EN				13.60	20.74									
18	108	00 29	BE	ROS		48	49 4.44	123 19.20	86				PC	✓	rosette out of sight at surface		
		00 36	BO				4.41	19.10		82					very brown water		
		00 37	EN				4.41	19.10									
18	41	00 55	BE	ROS		49	49 3.29	123 22.36	243				PC	✓			
		01 02	BO				3.29	22.36		240							
		01 06	EN				3.29	22.35									
18	NET41	01 12	BE	NET		50	49 3.29	123 22.33	242				KY				
		01 18	BO				3.29	22.33		237							
		01 23	EN				3.28	22.32									

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page _____ of _____

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							Latitude	Longitude											
18	NET41	0128	BE	NET		51	49 3.29	123 22.31	241				KY						
		0130	BO				3.29	22.31		50									
		0131	EN				3.29	22.31											
18	42	0157	BE	ROS	US	52	49 1.79	123 26.20	318		161-176		PC	✓					
		0205	BO				1.79	26.21		313		16	KS						
		0221	EN				1.80	26.20					KY						
18	43	0302	BE	ROS		53	49 0.19	123 30.11	198				PC	✓					
		0307	BO				0.21	30.08		195									
		0310	EN				0.21	30.07											
18	107	0405	BE	ROS		54	48 58.40	123 18.05	182				PC	✓					
		0411	BO				58.40	18.05		177									
		0415	EN				58.37	18.05											
18	106	0444	BE	ROS		55	49 0.97	123 13.17	76				PC	✓					
		0449	BO				0.97	13.17		75									
		0450	EN				0.97	13.17											
18	46	0601	BE	ROS	US	56	48 51.39	123 10.82	179		177-188		PC	✓					
		0607	BO				51.38	10.79		176		12							
		0619	EN				51.38	10.79											

Cast Type:

ROS = Bottle cast, no STD

USW = Sea Water Loop

USP

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DAILY SCIENCE LOG

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Page 10 of

Month				Year			Ship				Cruise ID				
JUNE				2014			VECTOR				2014-23				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
18	45	0652	BE	ROS		57	48 53.80	123 8.42	128						
		0656	BO				53.70	8.40		125					
		0658	EN				53.68	8.39							
18	44	0729	BE	ROS		58	48 56.812	123 5.987	120	115	—	—	SN	—	u
		0735	BO				48 56.816	123 5.953							
		0737	EN				48 56.820	123 5.928							
18	49	0813	BE	ROS		59	48 54.973	122 59.648	132	127	—	—	SN	—	u
		0817	BO				48 54.964	122 59.735							
		0820	EN				48 54.955	122 59.786							
18	47	0918	BE	ROS		60	48 49.294	123 6.190	183	179	—	—	SN	—	u
		0922	BO				48 49.289	123 6.178							
		0925	EN				48 49.283	123 6.173							
18	48	0954	BE	ROS		61	48 51.704	123 3.220	227	222	—	—	SN	—	u
		1000	BO				48 51.696	123 3.214							
		1003	EN				48 51.694	123 3.199							
18	58	1147	BE	ROS		62	48 42.948	123 14.430	337	338	—	—	SN	—	u drifting,
		1154	BO				48 42.916	123 14.854		315					not keeping station
		1159	EN				48 42.912	123 15.113							due to currents,
															traffic.

Cast Type:

BOT = Bottle cast, no CTD

USW = Sea Water Loop

MOR = Mooring

Bottle Firing Method:

Time Code:

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 ROS = Rosette plus CTD
 SET = Fish Set

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 NET = Plankton Net Haul
 DRF = Drifter

Bottle Firing Method:

US = Up / Stop
 UN = Up / No stop
 DN = Down / No stop

Notes:

Time Code:

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

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 11 of

Month <i>June</i>				Year <i>2014</i>			Ship <i>Vector</i>				Cruise ID <i>2014-23</i>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
18	59	1252	BE	ROS		63	48 37.630	123 14.587	225	220	189-202	14	SN	—	☺
		1259	BO				48 37.630	123 14.555							
		1314	EN				48 37.570	123 14.497							
18	60	1418	BE	ROS		64	48 33.904	123 12.776	290	284	—	—	SN	—	☺
		1426	BO				48 33.853	123 12.766							
		1431	EN				48 33.876	123 12.733							
18	61	1507	BE	ROS		65	48 29.186	123 9.212	285	280	—	—	SN	—	☺
		1514	BO				48 29.137	123 9.209							
		1520	EN				48 29.085	123 9.179							
18	62	1612	BE	ROS		66	48 22.793	123 2.550	146	144	203-213	11	SN	—	☺
		1617	BO				48 22.794	123 2.552							
		1623	EN				48 22.747	123 2.624							
18	63	1732	BE	ROS		67	48 14.612	122 58.524	151	145	—	—	SP	—	☺
		1737	BO				48 14.644	122 58.520							
		1739	EN				48 14.650	122 58.519							
18	64	1820	BE	ROS		68	48 12.800	123 5.815	108	103	—	—	SP	✓	☺
		1826	BO				48 12.756	123 5.868							
		1827	EN				48 12.787	123 5.858							

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102.1

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Page 12 of

Month <u>June</u>			Year <u>2014</u>				Ship <u>Vector</u>				Cruise ID <u>2014-23</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
18	65	1858	BE	ROS	US	69	48 15.89	123 9.83	124		214-223	10	PC	✓	
		1904	BO				15.90	9.83		120					
		1913	EN				15.89	9.81							
18	66	1943	BE	ROS		70	48 19.30	123 14.12	100				PC	✓	
		1947	BO				19.29	14.13		96					
		1949	EN				19.29	14.13							
18	67	2016	BE	ROS		71	48 22.48	123 17.76	112				PC	✓	position change
		2019	BO				22.50	17.79		109					due to heavy
		2021	EN				22.50	17.80							ship traffic
18	104	2042	BE	ROS		72	48 20.02	123 18.04	81				PC	✓	
		2045	BO				20.01	18.03		78					
		2046	EN				20.02	18.03							
18	ADCP	21:31	BE	ROS	US	73	48 13.99	123 18.02	118		224-233		PC	✓	
		21:33	BO				13.99	18.02		115	10				
		21:42	EN				13.99	18.02							
18	105	22:05	BE	ROS		74	48 11.01	123 19.02	82				PC	✓	
		22:08	BO				11.01	19.02		80					
		22:10	EN				11.01	19.02							

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Notes:

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This page is for any notes or observations

mid strat rosette stations only

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Page _____ of _____

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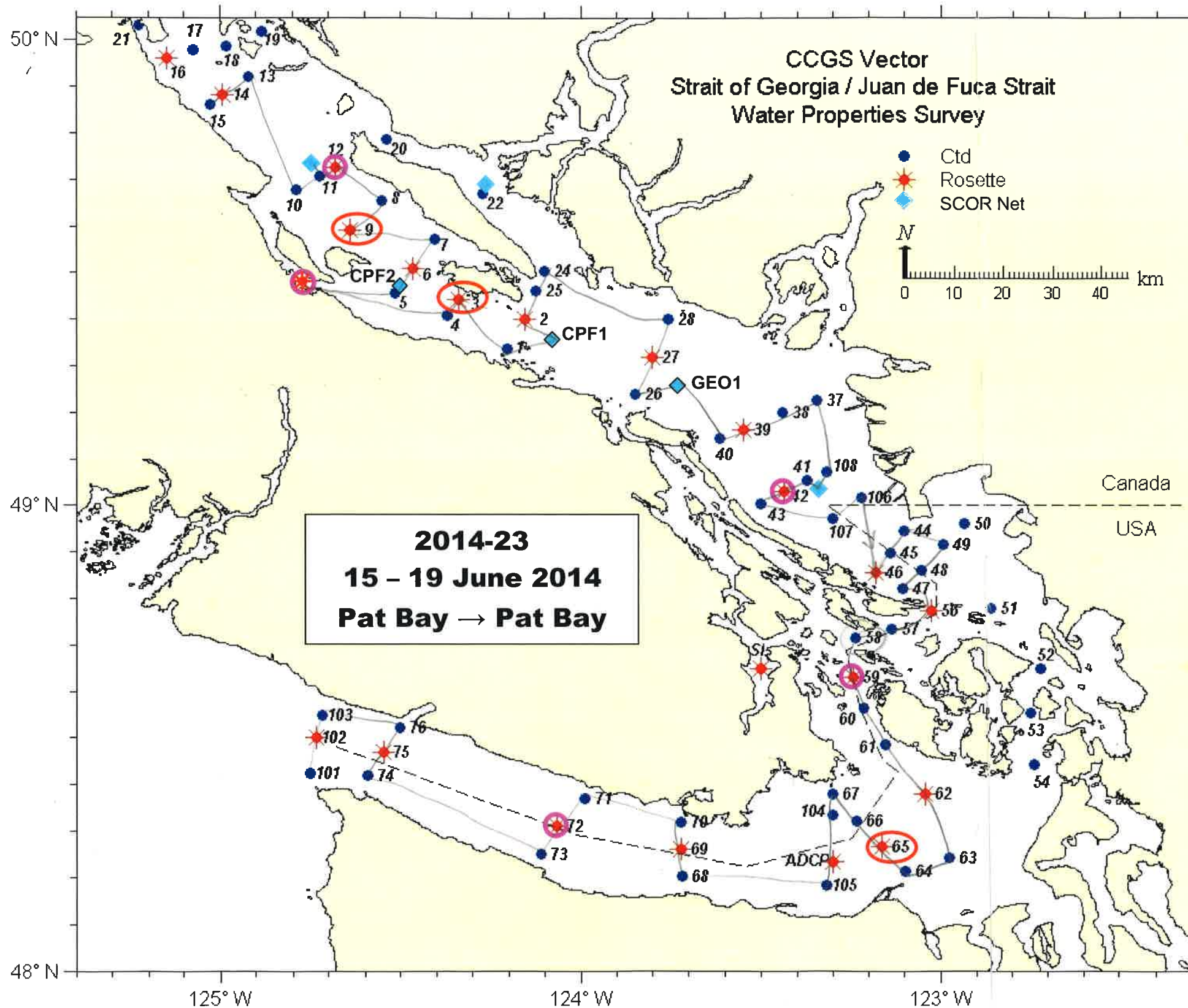
Transmissometer to be cleaned before each cast, do not use Ammonia products

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due to time pressure proceed to sample mid-stunt rosette stations only



Stn	Lat	mn	Lon	mn	Depth (m)	# Bot
1	49	20.3	124	12.1	247	
2	49	24.1	124	9.3	289	15
3	49	26.6	124	20.2	327	16
4	49	24.5	124	22.1	344	
5	49	27.4	124	30.8	315	
6	49	30.6	124	27.8	192	13
7	49	34.4	124	24.2	357	14
8	49	39.3	124	33.0	355	
9	49	35.5	124	38.3	170	12
10	49	40.7	124	47.3	95	
11	49	42.4	124	43.4	289	◆
12	49	43.6	124	40.8	357	16
13	49	55.3	124	55.2	219	
14	49	53.0	124	59.6	311	15
15	49	51.6	125	1.6	143	
16	49	57.7	125	8.8	146	11
17	49	58.8	125	4.3	265	
18	49	59.2	124	58.9	146	
19	50	1.2	124	52.9	283	
20	49	47.2	124	32.3	311	
23	50	15.0	125	23.0	240	
22	49	40.2	124	16.3	358	◆
21	50	2.0	125	13.6	72	
24	49	30.3	124	6.0	430	
25	49	27.7	124	7.5	320	
26	49	14.3	123	50.8	256	
27	49	19.1	123	48.0	347	16
28	49	24.1	123	45.3	134	
37	49	13.6	123	20.7	219	
38	49	12.0	123	26.4	296	
39	49	9.8	123	33.0	388	17
40	49	8.6	123	36.8	146	
41	49	3.3	123	22.3	247	◆
42	49	1.8	123	26.2	326	16
43	49	0.2	123	30.1	187	
44	48	56.8	123	6.0	119	
45	48	53.9	123	8.4	128	
46	48	51.4	123	10.8	179	12
47	48	49.3	123	6.2	188	
48	48	51.7	123	3.2	220	

Stn	Lat	mn	Lon	mn	Depth (m)	# Bot
49	48	55.0	122	59.6	132	
50	48	57.7	122	56.1	26	
51	48	46.7	122	51.6	155	
52	48	38.9	122	43.3	91	
53	48	33.2	122	45.0	60	
54	48	26.6	122	44.3	77	
56	48	46.4	123	1.6	214	14
57	48	44.0	123	8.1	163	
58	48	43.0	123	14.3	338	
59	48	37.8	123	14.6	227	14
60	48	33.9	123	12.8	298	
61	48	29.2	123	9.2	274	
62	48	22.8	123	2.6	150	11
63	48	14.6	122	58.5	154	
64	48	12.8	123	5.8	97	
65	48	15.9	123	9.8	121	10
66	48	19.3	123	14.1	104	
67	48	22.8	123	18.1	106	
68	48	12.2	123	43.0	137	
69	48	15.6	123	43.2	174	12
70	48	19.2	123	43.2	154	
71	48	22.2	123	59.4	115	
72	48	18.6	124	4.0	192	13
73	48	15.0	124	6.7	157	
74	48	25.1	124	35.6	192	
75	48	28.2	124	32.8	230	14
76	48	31.4	124	30.0	93	
101	48	25.4	124	45.1	143	
102	48	30.0	124	44.0	260	14
103	48	33.0	124	43.0	125	
104	48	20.0	123	18.0	70	
105	48	11.0	123	19.0	80	
106	49	1.0	123	13.2	75	
107	48	58.4	123	18.0	180	
108	49	4.4	123	19.1	90	
ADCP	48	14.0	123	18.0	113	10
SI	48	39.1	123	30.6	184	9
GEO1	49	15	123	44.9	400	◆
CPF1	49	22	124	5.1	250	◆
CPF2	49	28	124	30	320	◆
BS17	49	29.0	124	46.0	55	8

Notes: ◆ Vertical SCOR net tow GEO1, CPF1, CPF2, 11, 22, 42

○ Rosette (no oxygen, less time on station) 3, 9, 65

○ DIC/Alkalinity (more time on station) 12, 42, 59, 72, BS