

CRN

9219

DAILY LOG

INSTITUTE OF OCEAN SCIENCES
OCEAN PHYSICS

DATE

92297

92307

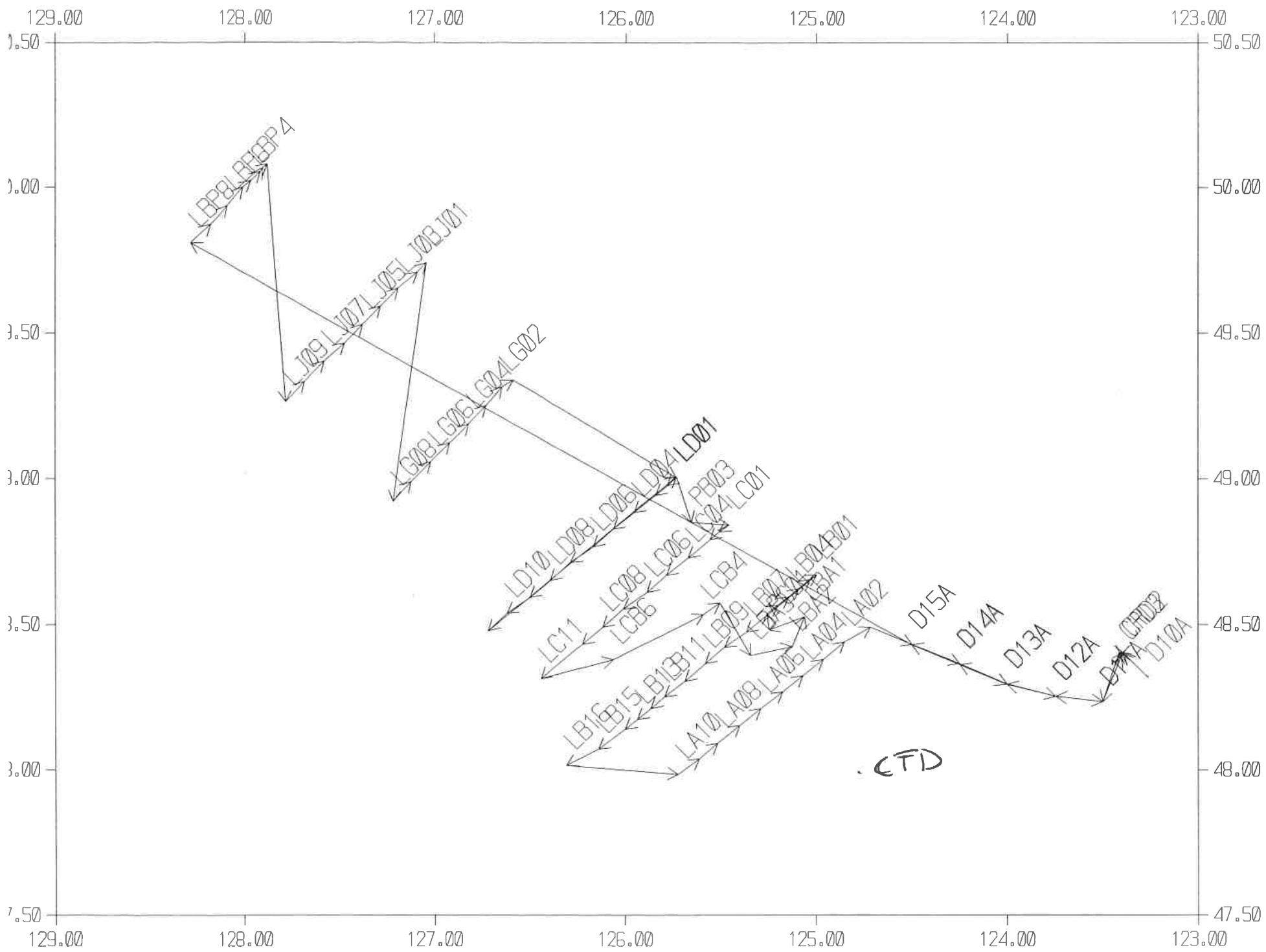
Oct. 23 - Nov. 2, 92

VESSEL

Tully

PROJECT

La Perouse Bank / CRD / MASS



West Longitude

Captain: Paul Frost

First Officer: Al Coombs

Second Officer: Brian Pennel

Third Officer: _____

Cruise Participants/Agencies: Ocean Physics / Ocean Ecology

Scientific Personnel: Party Chief: Tom Juhasz / D. Mackas

Name	Watch	Cabin	Name	Watch	Cabin
John Love	16-20	C	P. Thompson		F
R. Bigham	8-12	E	A. Kalaboukhov	12-16	F
B. Minkley	4-8	D	L. Timmermans	16-20	H
D. Tuele	12-16	B			
D. Yelland	8-12	G			
D. Moore	12-16	G			

Second leg of cruise: Party Chief: _____

Third leg of cruise: Party Chief: _____

Data logging system: Unit number: _____

Program version: _____

CTD deck unit make: Gouldline

model: 87107

serial no.: 58610

Computer make: HP Vectra QS/20

model: D1430A

serial no.: 2945A07169

Monitor make: _____

model: _____

serial no.: _____

Printer make: Roland PR-1212 A

model: _____

serial no.: _____

1st CTD make: _____

model: 8705

serial no.: 53501

Temperature sensor

model: _____

serial no.: _____

coefficients: slope: .9998

offset: .0120

Conductivity sensor

model: _____

serial no.: _____

coefficients: slope: 1.0009

offset: .0001

Pressure sensor range: _____

psi

serial no.: _____

coefficients: FSP: 2000

dB

offset: 0.0000

Transmissometer

model: _____

serial no.: 78

coefficients: slope: -2.0014

offset: 100.0215

Comments: _____

2nd CTD make: Buildline model: serial no.: 58483
 Temperature sensor model: serial no.:
 coefficients: slope: .9995 offset: .0055
 Conductivity sensor model: serial no.:
 coefficients: slope: 1.0041 offset: .0000
 Pressure sensor range: psi serial no.:
 coefficients: FSP: 3000 dB offset: .0000
 Transmissometer model: serial no.:
 coefficients: slope: serial no.:

WINCHES:

CTD	make: <u>SWAN</u>	model: <u>60329</u>	serial no.: <u>1482</u>
counter	make: <u>Reulis</u>	model:	serial no.:
HYDRO	make: <u>SWAN</u>	model: <u>310</u>	serial no.: <u>1083</u>
counter	make: <u>Reulis</u>	model:	serial no.:
Spooling	make: <u>SWAN</u>	model: <u>331</u>	serial no.: <u>1231</u>
Drag	make: <u>SWAN</u>	model: <u>329</u>	serial no.: <u>1304</u>
Other	make:	model:	serial no.:

Salinometer make: N/A model: serial no.:

SAIL System:

Program version: Time zone:
 Sampling interval: sec.
 CTF module no.: serial no.:
 Remote temperature model: serial no.:
 Flow sensor model: serial no.:
 Other sensors: (special for this cruise)
 Name: module I.D.: serial no.:
 Name: module I.D.: serial no.:

Comments:

ADCP Setup:

Program version: N/A. number of depth bins:
 Time zone: bin length (2°):
 Sampling interval: sec. pulse length:
 Blank beyond transmit: pings per ensemble:
 Pulse cycle time:
 Percent pings good threshold:

Comments:

Start Cruise 9219

Date	Hour. (local)	
Oct. 23	1350	Depart I.O.S. Jetty
	1340	Seawater loop on
		GPS set to NAD83
	1714	DIA CTD to 100m. #001 Hydro to 100m. #001.
	1849	CRD2 CTD to 60m #002
	1937	CRD1 CTD to 30m aborted #003 down and no data logged. - CTD #53501 exhibited pressure related shift in salinity reading at app. 30m salinity went to 36-37‰. - changed to probe #58483 until problem with #53501 is corrected - #58483 has not been converted to accept a transmissometer so it is desirable to get 53501 operational.
	2006	- CRD1 CTD to 60m #004
	2025	- CRD3 CTD to 65m #005
	2045	- CRD4 CTD to 60m. #006
	2056	- CRD4 test using cell from 53501 on probe 58483 - cell gives consistent 5‰ albeit with large offset. #007

CTD Calibration

cast	bottle	T/S	CTD T/S	Pressure	cal bottle 7. m above CTD
19	1.958 1.963	34.584	1.883 34.651	2033.	
		ΔT .075 .080	ΔS -.067		
29	2.072 2.073	34.561	1.944 34.639	1970.	
		ΔT .130	ΔS -.078		
43	1.942 1.941	—	1.917 34.649	1996	
		ΔT .025	ΔS —		
62	2.676 2.672	34.501	2.438 34.578	1530	cal bottle 6 m above CTD
		ΔT .238 .234	ΔS -.077		
81	2.691 2.687	34.497	2.694 34.549	1420	
		ΔT -.003 -.007	ΔS -.052		
82	12.887	31.943	12.832 31.992	17.	
		ΔT -.003	ΔS -.049		
108	2.551 2.554	34.519	2.501 34.575	1470	
		ΔT .050	ΔS -.056		
109	—	32.065	13.153 32.118	30.	
			ΔS -.053		
112	12.548 12.543	32.025	12.485 32.078	22.	
		ΔT .063 .058	ΔS -.053		

P.d time

Oct 23, 1992

- 2224 - Stn D11A CTD No. 008 using 53501 - Problem with 5th cell remains. Switch to #58483
- 2310 - Stn D11A CTD No 009 to 155m, looks OK

P.d.t.

OCT 24, 1992

12:30am STN 12A CTD 010 to 175m
hydro to 160 - 75m mess did not release
Lv STN 140 recast 75-160m

Sh D14A CTD to 202 ↓
Bottle cast to 200. 30m bottle did not close.

0617 Sh D15A CTD #13 to 235 ↓
loop sample taken as ship leaves station.

0730 Work stops after D15A and ship steams for the offshore end of BP Line.

- CTD 53501 repaired by changing salinity sensor connector.
- repaired Reulis counter on CTD winch
- mounted Transmissometer 78 in horizontal plane (cross-wise) on CTD sensor cage to see if it performs better.
- new configuration CTD #53501 and Trans. #78 (horizontal)

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 92 MONTH 10 TIME ZONE UTC SHIP Tully CRUISE 9219 PAGE 1 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 53501	NOTES
Oct 24	D10A	100	0014	48 19.07	001	0014	001	0100	1003	9.860	1	⊕		
			0019	123 15.81					1011	97.004				
24	CRD2	69.7	0149	48 24.066	002	0057	/	/		9.626		*		System crash gave back to Jov 122
			0202	123 23.48										
24	CRD1	63.0		48 23.91	003	0237	/	/				⊕		Problems with 53501 CTD
				123 24.13										Changed to 58483 CTD
24	CRD1	63.0	0451	48 23.95	004	0306	/	/		9.782				Cast using 58483
				123 24.21						31.424				
24	CRD3	65	0323	48 23.44			/	/		9.752				
			0333	123 24.30	005	0325	/	/		31.452				
			0343	48 24.27			/	/		9.709				
24	CRD4	61		123 24.84	006	0345	/	/		31.526				
24	CRD4		0355	48 24.38			/	/		9.660				
			0405	123 24.80	007	0356	/	/		35.034				TEST CAST WITH CELL FROM #53501 IN PROBE #58483
			0522	48 14.05			/	/		10.012		⊕		PROBE #53501 - PROBLEM WITH 5%.
24	D11A	160.	0524	123 30.00	008	0524	/	/		31.264				
				48° 14.08			/	/		9.986				RE-DO CAST WITH PROBE #58483 -
24	D11A	155	0624	123° 29.98	009	0610	/	/		31.424				CTD - 175m
24	D12A	175	0736	48 15.18			0817		1014	9.646				Hydro - 160
			0840	123 44.68	010	0749	10	0828	1028	31.913	2			
24	D13A	175	0958	48 17.62			/	/		9.647				CTD - 190m
			1013	123 59.96	011	1004	/	/		31.869				
24	D14A	205	1117	48 21.72					1030	10.185				48 21.44 Little pos.
				124 14.74	12	1121	12	1149	1040	31.548				124 14.71

24 Oct 92

- 1036 CTD #15 b Test CTD with rebuilt conductivity sensor
- CTD seems to be working after connector change.
 - little cast for Peter Thompson 7 bottles spaced between 20-30 m depth

- scientific crew has changes to PST from PDT effective 1800 Oct. 24 '92 prior to watches on BP line to avoid confusion.

Trans Coefficients for CTD program and #78 trans

factory Air 4.77 volt = A

92/05/11 AIR 4.5262 = B zero 4.0011

Guideline Slope = $-2 * (A/B)$

offset = $20.0 * (A/B) * (5.00 - \text{zero offset})$

$$\frac{A}{B} = \frac{4.77}{4.5262} = 1.053864$$

$$\text{ZERO offset} = 5.00 - \text{ZERO} = 4.9989$$

$$\text{Slope} = -2 * 1.053864 = -2.107728$$

$$\text{offset} = 105.36322$$

Now

No CSAIL data 25 Oct @ 13:20 $\frac{1}{2}$
27 Oct @ 14:11

DAILY LOG

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YEAR	92	MONTH	10	TIME ZONE	UTC	SHIP	Tully	CRUISE	92-19	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
24	DISA	242	1303	4825.84	13	1305				11.034	3		146-150 CTD 235 4825.73 12429.99
			1317	12429.91						29.170			
24	Test Sta.			4846.75						11.723		*	no #14 CTD.
				12528.51	15	1736				31.509			
25	LBP8	2030	0633	49°48.55						13.186			#16/#17 aborted casts at this station.
				128°17.14	18	0700				32.112			
25	LBP8			4949.12				CTD 1.883		4			CTD Cal. 1.959 1.963
25	CAUB.			12817.81	19	0748	0750	34.651		34.584			7 M. ABOVE PROBE
25	LBP7	2200	0915	4952.38						13.129			CTD - 2000m
			1015	1281108	20	0920				31.844			
25	LBP6	790	1045	4956.20					1003	13.002			CTD - 805m
			1217	12805.80	21	1049	21 1152	1028	31.929	5			122 m/sal deleted
25	LBP5	1310		5000.06						11.850			CTD # 1294 db
			1327	12800.66	23	1254				31.422			5002.21 12801.12
25	LBP4		1342	5001.42					1029	11.917			CTD 1006 db.
				12758.30	24	1347	24 1456	1049	31.838	6+7			Bongo
25	LBP3	167	1945	5023.27					1051	11.001			CTD to 157 m.
				12755.21	25	1952	25 2020	1064	31.713				
25	LBP2	100	2047	5004.3						10.961			CTD to 95 m.
				12754.38	26	2050				30.113			
25	LBP1	45	2115	5004.81					1065	11.007			CTD ~ 50m Bongo
			2142	12752.96	27	2116	27 2126	1079	30.990				Hydro - 40m Bongo
26	LJ09	2509	2110	4915.88						13.668			CTD - 2000 m
				12747.20	28	0215	0252			31.973	8		

Oct. 24

P.D.T.

2000

- contacted Mark Saunders on W.E. Ricker to coordinate effort off west coast between the 2 ships
- Tully will do LBP LJ, LG, LD, LC LB LA lines of La Perouse grid.
- Ricker will concentrate on northern lines off Quatsino and perhaps SK.
- Ricker goes back Nov. 6. and can pick up any priority lines we may miss due to bad weather or moving ops.

OCT 24

P.D.T.

2300

- Probe # 53501 with repaired S% sensor.
- Stn LBP8 after some false starts re operator density (Daug), to 2000 m.
- calm and cool, NW wind, 20 knots.
- a few saury on surface.

SUNDAY
Oct 25

0000

- CTD cast on board

LBP8

0030

- start bongo to 250m $49^{\circ}48.565$
 $128^{\circ}16.570$

0042 - bongo flow 1780

0105 - Temp from CTD at 19 #572 = 1.959 #451 = 1.963

LBP7 0115 -

25 Oct 92 (PST)

Sh LBP5

CTD #22 abraded, Jerkumot not on.

CTD #23 @ 1290 db

0526

depart sta

0547

0656

Sh LBP4

CTD #24 to

db

bottom cast for oxygen only to 900 m
plankton haul done twice as first cast had
insufficient weight on net. Second try used 50 lb
net weight.

1315 ~~PST~~ PST

LBP1

- CTD - 50m

- Hydro - 40m

mess. 3°

mess. 2126 UTC / 1326 pdt

1338 - Bongo to 40m

15° wire angle

50°04.716

127°53.365

Flow = 538

1343 - Leave STN

0851

BPI-O recovered on station without
incident

- mooring had light fishing line
fouling it.

1130

BPI-P redeployed. 1130 PST Oct. 25

50°03.709' 127°53.835' in 102m
depth.

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YEAR		MONTH		TIME		ZONE		SHIP		CRUISE		PAGE		OF															
92		10		UTC		TULLY		92-19		3		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 #	NOTES															
26	LJ09	2505	49 15.24	29	0300			CTD 1942		9				CTD Calibration file															
		3:55	127 47.12					34.639		34.561				T451 2.012°C T512 2.073°C															
26	LJ08	1780	0440 49 20.06							1003 13.460				CTD to 1787 m.															
		0708	127 41.25	30	0446	30	0632			1032 31.983	10	✓		O ₂ cast to 1500 m.															
		0747	49 24.23											CTD 1700m															
26	LJ07	1825	127 34.75	31	0752																								
										13.335																			
26	LJ06	1012	0919 49 27.98							1095 13.209				CTD - 996m															
		1115	127 28.47	32	0926	32	1045			2017 31.963	11			Hydro - 850m															
		1140	49 31.76											CTD - 1060m															
26	LJ05		127 22.81	33	1144					12.713				Net -															
										31.930	12																		
26	LJ04	157	13:10 49 35.61							2018 11.515				CTD - 157 m															
		1347	127 17.11	34	1316	34	1358			2032 32.017	13			Hydro - 150 m															
26	LJ03	125	1417 49 39.22							10.683																			
			1427 127 11.52	35	1420					30.931	14																		
26	LJ02	84	1459 49 42.63							1046 11.083				CTD 678db															
		1519	127 06.61	36	1502	36	1515			1052 31.815	15			Hydro 75m															
26	LJ01	60	1535 49 44.51							1054 11.082				CTD 655db															
			127 02.72	37	1543	37	1856			1060 30.594	16			Hydro to 55, net haul - 50															
27	LG08	2082	137 48 55.35							13.726				Consec # 38, 39, 40, 41 not used.															
			027 13.00	42	0147					32.014	17			CTD 6200db															
27	LG08		48 55.34					CTD 1.917						CALIB. FILE															
		0335	127 12.71	43	0236		0227			34.649				T451 1.942°C T512 1.941°C															
27	LG07	1769	0414 48 59.44							11863				CTD to 1760.1 m.															
		0504	127 07.39	44	0419					31.951	18																		

Monday Oct 26

PDT

0115-

L506-

CTD to 1000 m
Hydro

LJ05

CTD #33 to 1060 db

Bongo net haul to 250 m.
changed 250 m basket (#2314) to #1716 as
oxygen data from this depth is suspicious.

0743-

LJ01

CTD #37 to 55 db.

Hydro to 50 m.

Bongo haul 0-50 m.

- run to E01 immediately upon completion of
LJ01

1000

- fire & life boat drill.

1030

- resume course to E01.

1249

- recovered mooring E01-O on station without
incident.

1330

- run to E03 for recovery.

1519

- recovered mooring E03-O on station without
incident.

2014

- arrive on Stn LG07

2019

- CTD #44 to 1760 db. Loop # 18 ✓

2139

- CTD #45 to 987 db. Loop # 19 ✓

Tues Oct 27

1151 pdt - on stn LG05 CTD 266m

1224 pdt 49 07 70
126 55 08 Dongo Net 250m
Flow 3200 Wine 70
Doug asleep!

0105 - LG04 - CTD
Hydro

0420 complete CTD + LG01

0425 Hydro to 50 m for oxygen. Weight bounced on bottom

0610 SAIL computer "locked up" date time was
08 12 on 26/10/92.

Rebooted computer. CSAIL data missing from
250 d @ 1345 to 270 d @ 1410

0934 deployed mooring E01-P at 49° 17.905'
126° 36.455'
in 110 m of water.

1336 deployed mooring E03-P at 49° 04.934'
126° 57.055'
in 502 m of water.

1400 - run to LD01 to commence CTD/Hydro lines
on LD line over night.

2007 Stop on LD03

2010 CTD to 45m.

2051 CTD # 54, Stn LD04 (58.8 m)

Bottle cast to 55 m, # 54

2150 Stn LD05, CTD # 55 to 87 m.

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27	LG06	970	0535	49°03.53	✓		0543		1003	12.265			CTD to 987 db.
			0713	127°01.22	45	0539	45	2243	1030	31.915	19		O ₂ cast to 1000m.
			0751	49°07.45	✓					12.238			
27	LG05	279	0832	126°55.33	46	0753	/			31.953	20		CTD to 266 db.
27	LG04	149	0906	49°11.29	✓				1031	11.876			CTD - 145m
			0930	126°49.38	47	0907	47	0926	1040	31.978	21		Hydro - 140m
27	LG03	125	1005	49°15.06	✓					10.986			CTD - 116m
			1019	126°43.60	48	1009	/	/		30.335			
27	LG02		1130	49°18.95	✓				1046	10.788			CTD - 93m
			1155	126°38.62	49	1131	49	1148	1054	29.633	22		Hydro - Loop
27	LG01	59	1210	49°20.35	✓				1056	10.769			CTD to 53 db
			1239	126°35.02	50	1216	50	1225	1061	31.502	23		Hydro - 50m
28	LD01	34	0215	49°00.25	✓					11.265			CTD - 34m
			0248	125°44.00	51	0221	/	/		29.262	24		Hydro - cancelled.
28	LD02	35	301	48°58.62'	✓								Net Haul.
			0340	125°46.79'	52	0321	52	0330	1009	11.413			CTD - 39m
28	LD03	50	0407	48°56.64	✓				1016	30.645	25		Net haul
			0417	125°50.48	53	0410	/	/		11.740			Hydro - 35m
			0449	48°53.1	✓					31.751			CTD to 45m
28	LD04	60	0515	125°57.13	54	0451	54	0509	1017	11.947			CTD to 60 db.
			0548	48°49.72	✓				1027	32.060	26		O ₂ cast 0-55m.
28	LD05	91	0557	126°03.72	55	0550	/	/		11.889			CTD to 87.6 db
			0633	48°46.05	✓					32.081	27		* note depth of P.d.d.
28	LD06	139	0700	126°10.05	56	0636	56	0657	1028	11.435			CTD to 135 db.
									1036	32.071			O ₂ cast to 130m.

Oct. 28, 92.

0401 arrive Stn LD10
CTD # 60 to 1470 lb. Raining, wind at 10 knots
hydro to 1460 m

0426 CTD at 1470 4832.37 126 37.36

0444 CTD onboard.

0525 messenger sent

0640 Stn LD11 CTD # 61 ^{loop sample}
62 CTD calibration file. Ship drifting, so large
wire angle of 46°

Wind 6 knots stopped raining
- run to A1-O mooring.

0929 - recovered mooring A1-O on station without
incident.
- serviced mooring.

1344 - deployed mooring A1-P at $48^\circ 31.857'$
 $126^\circ 12.166'$
in 500 m water.

2105 - Stopped on LD01
- Rosette to 30 cm.
- CTD # 67 to 30 m
- O₂ cast to 25 cm

2132 - Depart Stn.

2306 - Stopped on PB03

2310 - CTD # 68 to 48 cm.

- Bongo to 45 cm.

2337 - depart Stn.

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YEAR 1992

MONTH OCT

TIME ZONE UTC

SHIP TULLY

CRUISE 92-19

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CRUISE 92-19														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 #	Rosette	NOTES	
28	LD07	520	0739 48 42.79	126 17.02	057	0745				13.286				CTD to 585 db	
28	LD08	760	0842 48 39.10	126 23.34	58	0847	58	0948	1038	13.229		28		LOOP TAKEN	
28	LD09		1049 48 35.61	126 29.94	59	1053			1060	31.875		29		CTD - 764m Hydro - 650m Loop	
28	LD10	1475	1121 48 32.32	126 36.92	60	1204	60	1325	1061	12.276		30		CTD - 1085.7 hit bottom	
28	LD11	1615	1438 48 28.70	126 42.85	61	1440			1097	31.692		31		CTD to 1470 Hydro to 1460m	
28	LD11		1531 48 28.38	126 42.36	62	1507	1501		11848	31.779		32		CTD to 1615m	
28	LD9		2330 48 36.063	126 30.479					CTD 2438	34.578		33	63	CTD CAL. 6m above CTD 1497 2.676 1512 2.672	
29	LD7		0106 48 42.705	126 16.851								34	64	#63 Rosette only	
29	LD5		0244 48 49.674	126 03.835								35	65		
29	LD03		0415 48 56.76	125 50.55		0422						36	66		
29	LD01		0505 49 00.44	125 43.91	67	0519	67	0528	1003	11.065		37	67	Rosette to 30m CTD to 30m 02 cast to 25m	
29	PB03	53	0706 48 51.08	125 39.20	68	0710			1008	29.120		38		CTD to 48 db. loop & Bongo to 45m	

29/10/92

0610 Sh LC05 Rosette, CTD
Wind 29 knots, raining

0723 Sh LC06 Rosette & CTD Bongo cancelled
due to high winds - gusting to 35 knots

0807 Depart Sh

LC11 #81 Calibration bottle on CTD

T457 2.691
T572 2.687

Salinity sample # 50

LC11 #82 Calibration file
of Surface. Depth of probe

20 M

T457 12.887
T572 12.887

Loop Sample #51

Calibration bottle salinity, # 52

2030 - LC09 - Stop on Sh.

2033 - Start Bongo down to 250 m.

2042 - 48° 26.30
126° 13.66

Position @ time of haul
(2042)
depth bottom - 500 m.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 92		MONTH 10		TIME ZONE		SHIP		CRUISE 92-19		PAGE 6 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
303													
29	LC01	99	0810 48 50.49	69	0857	69	0905		1009 31.634		39 7	Rosette 75m CTD 89m Hydro Loop ✓	
29	LC02	110	0925 125 27.33	70	1014	70	1039		1020 31.377		40 70	Rosette 75m CTD 104m Hydro 90m Loop ✓	
29	LC03	135	0947 48 49.12	71	1139	/	/	/	1022 31.586		41 71	Rosette 125m CTD 121m Loop ✓	
29	LC04	169	1045 125 30.34	72	1302	72	1318		1031 10.905		42 72	Rosette - 150m CTD - 169m Loop ✓	
29	LC05	67	1114 48 47.51	73	1424	/	/	/	1042 31.818		43 13	Rosette - 50m CTD - 65m Net haul Loop ✓	
29	LC06	91	1150 125 33.23	74	1548	/	/	/	10252 32.162		44 74	Rosette - 75m CTD - 81m Net haul Loop ✓	
29	LC07	125	1239 48 43.79	75	1705	75	1729		11437 32.069		45 75	Rosette - CTD - 121.3m 2nd cast -	
29	LC08	200	1325 125 40.18	76	1827	76	1857		1046 13.355		46 -	- Rosette cancelled (rough)	
29	LC09	598	1404 48 40.18	77	2000	77	2107		1056 32.001		47 -	- Rosette cancelled	
29	LC10	1260	1445 125 47.12	78	2252	/	/	/	1057 13.583		48	CTD 6589m Hydro 535	
304	LC11	1435	1523 48 36.62	79	0039	79	0110		1069 32.009		49	CTD - 1435 Loop ✓	
30	LC11		1607 125 53.02	80	0230	80			1072 13.169		50	CTD Calibration file	
30	LC11		1643 48 33.25	81	0120	81			2004 32.023			7457 2.691 01420	
			1739 126 00.50						2024 32.023			7522 2.687	
			1822 48 29.43						12.924 31.992				
			1906 126 07.10						1003 13.105				
			1956 48 25.94						1032 32.004				
			2145 126 13.41										
			2245 48 22.87										
			2336 126 20.21										

DAILY LOG

OCEAN PHYSICS

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OCEAN PHYSICS														INSTITUTE OF OCEAN SCIENCES													
YEAR 92		MONTH Oct.		TIME ZONE		SHIP TULLY				CRUISE 92-19				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 #	NOTES														
30	LC11	1450	0306 48 18.282 121 25.942	82	0307			CTD 12.832 31.992	12.878 31.989		51	52	sal 51-70 SURFACE CALIBRATION Bottle 12.887 @ 17.6.														
30	LC09	500	0430 48 26.30 0500 126 13.66					NET 2042 (P.S.T)					Bongo to 250 m.														
30	LCB6	350 327	0538 48 22.73 0622 126 03.88	83	0542			NET 2211 (P.S.T)	13.541 32.027		52		CTD to db. Bongo to 250 m.														
30	LC08	200	0704 48 29.66 0723 126 07.29	84				NET 2316 (P.S.T)			53		Bongo only Birds everywhere!														
30	LC06	95	0824 48 36.34 0841 125 54.20					NET TOW			54		Bongo to 90m up at 0835 Loop ✓														
30	LCB4	80	1010 48 32.04 1032 125 35.48	85	1012			NET TOW	10.032 32.048		55		CTD - 75m Flow 1105 Net 70m Loop ✓														
30	LCB3		1100 48 34.46 1130 125 30.13	86	1104			NET TOW	11.198 32.041		56		CTD - 137m Flow Loop ✓														
30	LBA3	125	1304 48 23.66 1330 125 20.54	87	1307				12.382 31.998		57		CTD - 120 m Loop ✓ Net to 120 m														
30	LBA2	115	1416 48 25.43 1438 125 07.52	88	1420				12.416 32.022		58		CTD - 105 m Loop ✓ Net														
30	LBA1	112	1515 48 31.60 1540 125 03.58	89	1517				11.734 31.883		59		CTD - 104 m Loop ✓														
30	PC01	150	Moorings 48 28.90 18:33 125 14.82	90	1823				11.788 32.089		60		CTD to 150														
30	PC01	153	48 28.88 125 14.44	91	1848			NET HAUL					Bongo haul to 145m.														

29 Oct 1992

Pacific Standard Time

2138 - Stn. LCB6 CTD #83 to 350m.

- Bongo #83 to 250m

Position - $48^{\circ} 23.02$

$126^{\circ} 03.60$

Time - 2211 (PST)

Water depth 327 m.

2304 - Stop on Stn LCO8 (Elsie 08) Bongo haul only.

- Bongo to 180 m. consec #84

- Time 2316 P.S.T.

- Bottom depth 200 m.

- Position (GST)

$48^{\circ} 29.66$ N.

$126^{\circ} 07.29$ W.

- Gulls following ship - very excited! - hungry?

- Counter 1775

0024 - LCO6 Bongo - 90m

0035 - on way to surf. from 90m

- $48^{\circ} 36.67$ $125^{\circ} 54.21$

- Flow = 818

0210 - on STN for CTD 75m LCB4

0228 - Bongo up 483198 $125^{\circ} 35.42$ Flow 1105

0232 - LV STN

0300 - on STN LCB3 - Net 125m CTD 137m

0323 - net up at 3.23 PST 1123 ut wire = 0°

- $48^{\circ} 34.35$ $125^{\circ} 30.12$

- Flow 1600

0330 - LV STN

0418

CTD program version 1.23 printer function does not work, as no data other than header is sent to printer file. Start and end position is not recorded.

0507

Stn LBA3 CTD #87

Bongo haul to 120 m

Raining heavily, wind 25-30 knots.

30/10/92 PST

0540 CTD program prints start and stop position to file only when printer flag is set to YES.

0553 Reset computer clock, was 2-minutes slow.

1002 C-1 Mooring - start deployment.

1009 C-1 Mooring - anchor released

48 29.28

Depth 150 m.

125 15.26

1048 - PC01 Bongo Haul to 145 m.

- Consec # 91

30/10/92

16:00 CTD #92 Bad conductivity on probe 53501 Many spikes in data trace

Salinity cell removed from probe and rebuilt with new tygon tubing

One of electrode connections was found to be a bad solder joint. All connections checked and resoldered.

Cell reinstalled on probe 53501

1500 Epibenthic Sled Station between LB04, LB03

at $43^{\circ}36.5'N$, $125^{\circ}06.80'W$

Sled was lowered on $\frac{1}{2}$ " cable to bottom, then cable was payed out a further $2\frac{1}{2} \times$ the depth; i.e. 250m. Once cable was fully out, ship pulled at 2.0 knots for 10 min. Sled was recovered, and sled was secured on deck.

1700 supper

1730

Sample was washed out of net. Many benthic organisms were found and sorted out of net. Many shrimps were captured by sled.

Total flowmeter count = 8985 revolutions.

1900 Sample was subsampled for keeping. Fraction = $\frac{1}{20}$

B 6
7
8
9
10
11
12

B 3 7 6
3 7 7
3 7 8
3 7 9
3 8 0
3 8 1
3 8 2

376

DAILY LOG

OCEAN PHYSICS

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YEAR 1992		MONTH OCT/NOV		TIME ZONE UTC		SHIP J P TULLY			CRUISE 92-19			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 #	NOTES
30	LB06	115	2000 48 32 30	92	2002	92	2027		1003	11.601	61	/	CTD - 116m
		2040	125 15 40						1016	32.124			Hydro - 100m Loop ✓
30	LB05	100	2054 48 34 02	93	2056	/	/	/	/	11.687	/	93	CTD - 101.4
		2128	125 12 07						/	32.083			Rosette - 96m
30	LB04	107	2154 48 35 62	94	2155	94	2218		1017	11.838	62	/	CTD - 105.9
		2223	125 08 62						1028	31.753			Hydro - 90m Loop ✓
30	LB03	95	2241 48 37 40	95	2245	95	/	/	/	11.833	/	95	CTD - 88.6m
		2311	125 05 53						/	31.617			Rosette - 85m Epi sled Tow
31	LB02	57	134 48 39.34	96	0226	96	0209	/	1029	11.823	63	/	CTD
		235	125 01.98						/	1033			31.529
31	LB01	39	0246 48 40 23	97	0249	97	0319	/	1034	11.708	64	97	CTD - touched bottom
		0328	124 59 82						/	1038			31.554
31	LB07	153	0524 48 28.47	98	0533	/	/	/	/	12.168	65	98	CTD to 154.1 db.
			125 21.85						/	32.004			
31	Rosette		48 28.30	99	0548	/	/	/	/	/	66	99	Rosette to 150m
31	LB07	156	0608 125 21.60						/	/			
31	LB08	154	0650 48 25.33	100	0652	100	0716	/	1046	11.973	67	/	CTD to 152.4
			0722 125 28.72						/	1057			32.041
31	LB09	152	0802 48 21 97	101	0807	101	0901	/	1058	13.102	68	101	CTD 146.9
			0912 125 34 29						/	1068			31.992
31	LB10	156	10 48 18.34	102	1007	/	/	/	/	13.285	/		CTD 152m
			1017 125 41.28						/	32.006			
31	LB11	207	1055 48 15.12	103	1056	103	1157	/	1069	12.743	69		CTD - 208m Hydro 250
			1213 125 47.77						/	1076			32.063

30 Oct 1992 cont.

2124 Stopped on Stn LB07
2133 CTD #98 to 154 m.
2147 Rosette #99 to 150 m. (8 depths sampled)
2208 Depart Stn.

Stn LB12, LB13 and LB14 no rain, large swells
no problems. Insufficient oxygen flocks by all depths
of LB14 hydro so will not sample at 10 and 20 m

Note: ↑ bring (4) cases next time.

1646- Bottle cast to 1200 m. - 800 1000 & 1200 m
bottles re-done as messenger on 600m bottle
literally fell apart on way down and
failed to trip 800m bottle.

1834 - LB15 Consec #107 CTD to clb.
- Calibration bottle S₀ Sample #74
temp.

T451 2.551

T572 2.554

LA 10 Surface calibration mix layer
bottle at 15M

T 451 12.548

T 572 12.543

77 Salinity calibration sample

LA 09.
2031 loop
CTD # 113 to 331. db.

LA 08
2143 CTD # 114 to 134 db.
O₂ cast to 125 m.

2306 CTD # 115 to 112 db.

YEAR	92	MONTH	Oct	TIME ZONE		SHIP	TULLY	CRUISE	92-19	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 #	Notes
305													
31	LB12	529	1238 48 12.66 1330 125 51.89	104	1240	104	1316		1097 12.947 2015 32.109		70		CTD - 520 m Hydro - 500 m Loop ✓
31	LB13	933	1356 48 10.41 1503 125 56.07	105	1358				13.118 32.116		71	105	CTD - 945 m Loop ✓ Rosette - 250 m
31	LB14	1180	1519 48 08.44 1749 125 59.99	106	1521	106	1646		2017 13.143 1045 32.124		72		CTD - 1192 m - bottom 2 bottles did not tip Loop ✓ repeated
31	LB15	1560	1831 48 04.30 126 08.46	107	1834		1907		13.143 32.125		73		CTD to 1563 db.
31	LB15		48 03.71 1940 126 08.23	108	1913			CTD 2501 34.575			74		Calibration file 2551 2554
31	LB16	1760	2025 48 00.94 126 18.34	109	2127				13.163 32.115				
31	LB16		48 00.27 1135 126 19.57	110	2232	107		CTD 13.153 32.118			75		30 m cal bottle 1600 m 5L for O ₂ *
1	LA10	940	351 47 59.06 125 43.52	111	0257				12.425 32.071		76		
1	LA10	15	0331 47 58.56 0334 125 44.01	112	0332			CTD 12.485 32.078			77		Surface calibration 12548 12.543
1	LA09	335	0428 48 02.30 0445 125 36.76	113	0431				12.172 32.065		78		loop ✓ CTD to 332 db.
1	LA08	144	0510 48 05.53 0620 125 30.85	114	0543	114	0610		1003 11.832 1014 32.141		79		CTD to 134.5 db O ₂ cast. to 125
	LA07	114	0703 48 09.19 0715 125 23.96	115	0706				12.060 32.073		80		CTD to 112 db. loop.

Sat Oct 31 0335 Sta LB16 Cons 109

CTD calibration 30m T451 =

No Go

1 Nov 92

0356 Sta LAO 2 CTD# 120 hydro & 300m
running, no wind.

0513 Sta LAO1 CTD# 121 cast aborted as we were
luffing to close & moving.
Repositioned CTD to 250m.

0538 Ship coming toward us, depart sta.

0555 start bottle cast. Wire angle of 30° northern of east
4830.91, 12441.52

0622 depart station.

2 Nov 92 P.S.T.

2117 - D-12A CTD# 125, Loop

2309 - D-11A CTD# 126, Loop

YEAR	1992	MONTH	Nov.	TIME ZONE	U.T.C.	SHIP	J.P. TULLY	CRUISE	92-19	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 #	NOTES
306			0800	48° 12.65'			481841						
01	LA06	117	0833	125° 17.39'	116	0803	116	0821	1016	12.056			CTD - 106 L=50
			0908	48 16 13					1028	32.064	81		Loop TAKEN AFTER LEAVING STATION
01	LA05	117	0921	125 10 35	117	0913	/	/	/	11.782	/		CTD 117
			0953	48 19 45			48	19.85	125 04.14	1029	11.853		
01	LA04	175	1046	125 04 20	118	0957	118	1036	1039	32.090	82		CTD - 188.4
			1110	48 22 80					/	12.378	/		Hydro 160m
01	LA03	112	1119	124 57 80	119	1110	/	/	/	32.118	/		CTD 104m
01	LA02	310	1154	48 26 44					1040	12.048			CTD to
			1244	124 51 09	120	1156	120	1232	1057	31.505	83		hydro 300 Loop ✓
1	LA01	265	1313	48 29 45					1058	11.881			
			1422	124 42 88	121	1327	121	1411	1079	31.602	84		CTD to Loop ✓
307			0020	48 25 904						11.770			CTD to 231
2	D15A	263	0036	124 29.85	122	0020	/	/	/	31.624	85		
2	D14A	189	0217	48 21 95					/	10.379			CTD to 185m Loop ✓
			0231	124 14 93	123	0220	/	/	/	31.454	86		
2	D13A	180	0338	48 17.75					/	9.269			CTD to 185
				124 00.02	124	0342	/	/	/	32.047	87		
2	D12A	175	0516	48 15.20			/	/	/	10.424			CTD to 170 db
			0525	123 44.84	125	0517	/	/	/	31.710	88		loop ✓
2	D11A	163	0705	48 14.09					/	9.677			CTD to 159.2 db.
				123 30.08	126	0709	/	/	/	31.579	89		loop ✓
2	CRD3	69		48 23.42					/	9.676	/		CTD to 65 db.
			1944	123 24 23	127	1939	/	/	/	31.486	/		

Nov 1/92 0842 - Second Sled Tow with Epibenthic Sled for
Ocean Environment & Fisheries

48°29.20' 124°54.20' 100-85 m

- Sled was towed in a NE (340°) direction
across a rising slope near Swiftsure Bank.

- Both large-mesh internal and small-mesh
external bags were full of gravel, indicating sled was
towing nose-down, scooping benthic material.

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