

CRUISE
NUMBER

9906

DAILY LOG
INSTITUTE OF OCEAN SCIENCES
OCEAN PHYSICS

DATE

May 13 - 28, 1999

VESSEL

J. P. Tully

PROJECT

La Perouse, Juan de Fuca, Georgia
Strait, Effingham Inlet, CRD

Date Time PDT

May 13 0700 - Science crew: Tom J., Dave S., John L.,
Edmund F., Jane E.,
Julie B., Gilles A.,
Scott T., Mary A.
meet at I.O.S., along with
3rd Eng. Al Rosie, board 3
vehicles with equipment at head
out to join J.P. Tully in Port
Alberni
- Christine Roekmann joined ship May 12
evening.
- Brenda Burd arrives by own vehicle May 13.
- Ecology Science crew depart ship.
app. 1300 hours for Victoria
- UBC people left May 12 evening.

- Mary and Brenda set up sediment traps
for deployment by May 19, and depart
ship 1600 hours
- Science crew set up mooring equipment,
new oxygen titrator and secure lab.

1600.
- ship departs Port Alberni for Pillar Pt
to locate and recover drifting portion
of mooring reported by kayaker
Rod Lafferty May 16, 99.
See notes in mooring logs.

1830 - held safety meeting outlining safety procedures,
ships operations - cruise work, signed
CCG App VII ~~III~~ VIII and Ship's Articles.
- all science staff present, also Chief Officer
and Chief Engineer both contributing ship's
protocol regarding safe operations

May 14 0500 - arrive in Port Renfrew
0630 - arrive American side of Juan de Fuca
2 mile east of Pillar Pt. and begin
search of coast line out bound - west.
0710 - sighted mooring (2 yellow steel buoys)
app. 2 miles west of Pillar Pt.
- Dave Spear, Gilles Arfeuille, Janic and
Mike dispatched in launch to recover
and tow back to ship.
* - brought back top JF1A-B SS37 #503,
pinger 54 #1466, ID34 #5402, RCM8,
#106'98 - the array was firmly anchored
by trailing wire to the bottom - launch
pulled it free after some effort.

Date Time PDT

May 14

JFIA-B could

- wire end that was anchored looks like it was turned on a cleck cleat and the very end has a cut
- some boat was entangled with this mooring and cut itself free with out reporting it
- this may have been the incident reported by Argos date 064 when 7363 gave a single report with poor position. - typically ignored.
- this mooring may have been drift since then.
- PTT 7363 was missing on recovery.

0850 - conducted search along Washington coast to 1030 in case other portions of mooring are separated and washed ashore.

1030 - break off search at Seal Rk. without success
- sighted other items but no more buoys (from JFIA)

- heading for Effingham Inlet app. 6-7 hrs steam for CTD/Rosette sampling, grabs and mooring deployments.

1400 - W.E. Ricker calls that they have the complete EO3-BB mooring all the way to the release
- tomorrow we will meet and pick up equipment.

1705 - Ponar Grab - full sample at EFF11
48° 59.11' 125° 11.05' (CTC11)

*NB Longitude on inside lab may be wrong

- rinsed grab with .2 um netting filtered seawater
- add 2 L 100% formalin to app. 20 L sample + rinse water.

1810 Ponar Grab - full sample at EFF3
49° 04.25' 125° 09.40' (CTC3)
119.25 m depth

- rinsing and formalin addition same as above
- .2 um netting filtered seawater
- 2 L 100% formalin added to app. 20 L sample + rinse water

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1999			MONTH MAY			SHIP Tully				CRUISE 9906				PAGE 1 OF	
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS	
14	EFF011	Ponar Grab			-										
14	EFF03	Ponar Grab			-										
15	EFF01	ROS	0148	BE	001	49° 05.53'	125° 11.60'				1-4	4			
15	EFF01	ROS		BO	001				36m						
15	EFF01	ROS	0155	EN	001	49° 05.51'	125° 11.62'			31m					
15	EFF02	ROS	0219	BE	002	49° 04.98'	125° 10.33'		69m		5-10	6		pinger not on.	
15	EFF02	ROS	0221	BO	002					63m					
15	EFF02	ROS	0230	EN	002	49° 04.95'	125° 10.28'								
15	EFF03	ROS	0249	BE	003	49° 04.24	125° 09.39		119		11-18	8		micro turbid layer nr. bottom	
15	EFF03	ROS	0252	BO	003	49 04.24	125 09.37			113					
15	EFF03	ROS	0304	EN	003	49 4.23	125 09.33								
15	EFF04	ROS	0326	BE	004	49 03.13	125 08.59		54		19-23	5			
15	EFF04	ROS		BO	004	49 03.12	125 08.60								
15	EFF04	ROS	0334	EN	004	49 03.06	125 08.61			54					
15	EFF05	ROS	0352	BE	005	49 02.54	125 09.12		205		24-34	11			
15	EFF05	ROS	0355	BO	005	49 02.54	125 09.12			799m					
15	EFF05	ROS	0408	EN	005	49 02.51	125 09.12								
15	EFF06	ROS	0428	BE	006	49 01.85	125 09.17		152		35-43	9			

CAST TYPE -

BOT -

bottle cast

ROS -

rosette

USW -

sea water loop

TIME CODE -

BE -

beginning time of cast

DE -

deployment time

POSITION CODE -

RAD -

RADAR

CTD -

cid

NET -

net haul

BO -

bottom time of cast

MR -

messenger release

GPS -

GLOBAL

MOR -

mooring

DRF -

drifter

EN -

end of cast

RE -

recover mooring

LOR -

LORAN

Date Time PDT

May 15 1007 - deployed mooring CTC3-A
at position: $49^{\circ} 04.319'$
 $125^{\circ} 09.476'$
in 118m corrected depth.

1149 - deployed mooring CTC11-A
at position: $48^{\circ} 59.103'$
 $125^{\circ} 10.812'$
in 85.25m corrected depth.

- head out of Alberni Inlet to meet
W/E Ricker and retrieve mooring
E03-BB which they recovered
adrift.

1630 - meet Ricker. cross-loaded E03

- E03 came on board damaged.
but complete to the release.

- gimbal rods were bent + rotors
were missing - some/all of
this damage could have occurred
during the drift and recovery and
storage on Ricker.

- NB: the release hook was open
but the hook retaining shaft
was still rotated closed and reversed.

- motor lead connectors were
broken.

- side cheek plate retaining bolts
were loose

* - this instrument has been disassembled
to release hook.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1999			MONTH MAY			SHIP TULLY			CRUISE 9906				PAGE 2 OF	
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
15	EFF06	ROS	0431	BO	006	49 0177	125 0921		150	148				hit bottom (JL's fault)
15	EFF06	ROS	0443	EN	006	49 0176	125 0924							
15	EFF07	ROS	0503	BE	007	49 0125	125 0940		121		44-51	8		
15	EFF07	ROS	0506	BO	007	49 0125	125 0941			113				
15	EFF07	ROS	0505	EN	007	49 0122	125 0938							
15	EFF08	ROS	0539	BE	008	49 0067	125 1022		89		52-58	7		
15	EFF08	ROS	0542	BO	008	49 0067	125 1023			81				
15	EFF08	ROS	0551	EN	008	49 0067	125 1027							
15	EFF09	ROS		BE	009	49 0001	125 1084		63		59-64	6		
15	EFF09	ROS	0619	BO	009	49 0009	125 1083			59				
15	EFF09	ROS	0626	EN	009	49 0009	125 1083							
15	EFF10	ROS	0644	BE	010	48 5984	125 1121		101		65-71	7		
15	EFF10	ROS	0647	BO	010	48 5984	125 1121			95				
15	EFF10	ROS	0655	EN	010	48 5984	125 1124							
15	EFF11	ROS	0726	BE	011	48 5910	125 1108		89		72-77	6		
15	EFF11	ROS	0728	BO	011	48 5910	125 1108			76				
15	EFF11	ROS	0735	EN	011	48 5908	125 1110							
15	EFF12	ROS	0837	BE	012	48 5798	125 1050		95					

CAST TYPE -

BOT -
CTD -
MOR -bottle cast
ctd
mooringROS -
NET -
DRF -rosette
net haul
drifter

USW - sea water loop

TIME CODE -

BE -
BO -
EN -beginning time of cast
bottom time of cast
end of castDE -
MR -
RE -deployment time
messenger release
recover mooring

POSITION CODE -

RAD -
GPS -
LOR -RADAR
GLOBAL
LORAN

YEAR			MONTH			SHIP			CRUISE			PAGE		OF	
1999			MAY			Tully			9906			3			
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS	
15	EFF12	ROS	08:40	BO	012	48 57.97	125 10.50			86	78-84	7			
15	EFF12	ROS	08:46	EN	012	48 57.94	125 10.53								
15	EFF13	ROS	09:19	BE	013	48 56.50	125 10.74		108m						
15	EFF13	ROS	09:21	BO	013	48 56.50	125 10.74			96	85-91	7			
15	EFF13	ROS	09:28	EN	013	48 56.49	125 10.73								
16	LD11	ROS	03:32	BE	014	48 28.76	126 42.96		1599						
16	LD11	ROS	03:51	BO	014	48 28.95	126 42.95								
16	LD11	ROS	04:11	EN	014	48 29.08	126 42.95								
16	LD10	ROS	04:59	BE	015	48 32.19	126 36.72		1490		92-111				
16	LD10	ROS	05:21	BO	015	48 32.08	126 36.49			1485		20			
16	LD10	ROS	06:30	EN	015	48 32.22	126 36.77								
16	LD9	CTD	06:52	BE	016	48 35.65	126 30.07		1062					CTD only	
16	LD9	CTD	07:07	BO	016	48° 35.60	126° 30.28			1051					
16	LD9	CTD	07:21	EN	016	48° 35.56	126° 30.45								
16	LD08	ROS	08:12	BE	017	48° 39.18	126° 23.42		775+		112-128	17			
16	LD08	ROS	08:22	BO	017	48° 39.15	126° 23.50			778					
16	LD08	ROS	08:48	EN	017	48° 39.10	126° 23.63								

CAST TYPE - BOT - bottle cast
CTD - ctd
MOR - mooring

ROS - rosette
NET - net haul
DRF - drifter

USW - sea water loop

TIME CODE - BE - beginning time of cast
BO - bottom time of cast
EN - end of cast

DE - deployment time
MR - messenger release
RE - recover mooring

POSITION CODE - RAD - RADAR
GPS - GLOBAL
LOR - LORAN

Date Time PDT

May 16 0750

- on station A1-BB-2 for recovery

- 504, $\rightarrow$ 511 app 150 m away

- move off slightly range = 540 m = 340 m distance

0800

- sending AB EF for release

- received positive response range 459 rising

- sighted on surface. - flat calm conditions

0910

- all onboard - no damage - end cleaned up

- moving to A1-BB for recovery.

0930

- on position A1-BB for recovery

- directly over position app 100 off.

- 501 - 504 ranges

- moving off for release 560-590 ranges

0935

- stopped for release

- sending B C D F - received positive response

0938 - ranges 593 $\rightarrow$ 573 $\rightarrow$ 567 $\rightarrow$ 523

0938

- sighted on surface.

- remainder of mooring recovered but badly damaged

- 1 glass ball (middle) missing others show damage

- RCM4 - no rotor

- broken off gimbal rod and slid down to Andersaas eye at bottom of rod.

- Release - motor lead cover sheared off

- lucky motor leads were not damaged

- 222.1 m wire above 5530 999

was cut app 1 ft. above 2nd nico sleeve.

NB - there was no wire hanging down to foul REM.

- Black Cod long line or trap line app.

Date Time PDI

May 16 1025

- on station A2-BB

- ranging - no responses
- listened with Mesotech receiver
 - heard both pingers faintly.
- drifted off in process
- move back on station + setup OML Tow receiver.

1040 - on station again.

- listened with Mesotech again
 - confirmed 2 faint pinger signals.
 - declutched
 - all ship sounders off
- listened with OML Pinger DF
 - heard both pingers more clearly + much stronger - this unit seems to be more sensitive

- triangulated mooring position using OML Pinger DF 1100 - 1300 - with lunch break

1330 - moved over likely mooring position as determined by Pinger DF app 1 1/2 hr search effort

- listened with Mesotech receiver and heard a stronger pinger signal than from the deployment position - we have gotten closer

- moved app 1 cable north for release

- range - no response
- sent CDFG, CDF, BDH
- range - no response

1350 - sending ADEF and CDFG repeatedly with no response and no ranges

- using dunking transducer sent release and rearm codes repeatedly without result.
- no ranges.

1435 - popped to surface while we are setting up the drag for it.

- looks like it is all there.

DAILY LOG

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YEAR			MONTH			SHIP			CRUISE			PAGE		OF	
1999			05			TULLY			9906			4			
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS	
16	LD07	CTD	0937	BE	018	48° 42.67'	126° 16.87'		478						CTD only
16	LD07	CTD	0946	BO	018	48° 42.67'	126° 16.87'			475					temp. inversion @ 50m
16	LD07	CTD	0954	EN	018	48° 42.72	126° 16.97								
16	LD06	ROS	1040	BE	019	48° 46.17	126° 10.20		139		129-137	9			acquisition PC rebooted @ 11034
16	LD06	ROS	1046	BO	019	48° 46.15	126° 10.29			133	135				temp. inversion @ 80m
16	LD06	ROS	1056	EN	019	48° 46.16	126° 10.44								
16	LD05	CTD	1144	BE	020	48 49.66	126 03.66								
16	LD05	CTD	1146	BO	020	48 49.66	126 03.66		92						
16	LD05	CTD	1148	EN	020	48 49.67	126 03.67			83					
16	LD04	ROS	1233	BE	021	48 53.23	125 56.93		62						
16	LD04	ROS	1235	BO	021	48 53.23	125 56.97			53	135 - 142	5			
16	LD04	ROS	1240	EN	021	48 53.23	125 56.98								
17	LD03	CTD	0152	BE	022	48 56.60 N	125 50.45 W		48.0						
17	LD03	CTD	0155	BO	022	48 56.60	125 50.45 W			42.0					
17	LD03	CTD	0157	EN	022	48 56.60	125 50.44 W								
17	LD02	CTD/ OXY	1127	BE	023	48 58.33	125 46.97		44			5			
17	LD02	CTD/ OXY	1129	BO	023	48 58.32	125 46.97			35.0	143 - 147				
17	LD02	CTD/ OXY	1135	END	023	48 58.29	125 46.98								

CAST TYPE -

BOT -

bottle cast

ROS -

rosette

USW -

sea water loop

TIME CODE -

BE -

beginning time of cast

DE -

deployment time

POSITION CODE -

RAD -

RADAR

CTD -

ctd

NET -

net haul

BO -

bottom time of cast

MR -

messenger release

GPS -

GLOBAL

MOR -

mooring

DRF -

drifter

EN -

end of cast

RE -

recover mooring

LOR -

LORAN

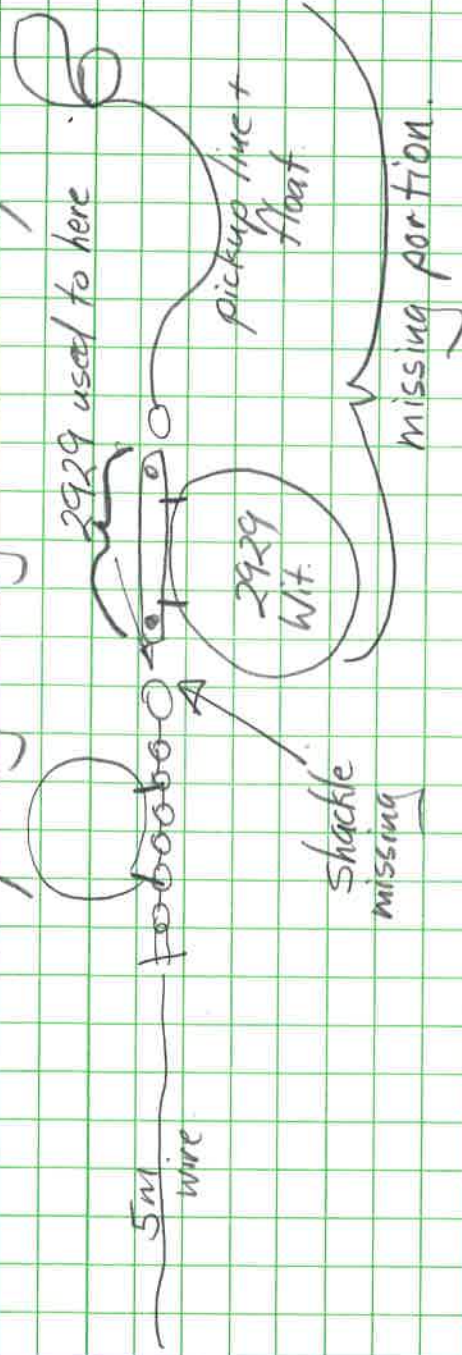
Date Time PDT

May 16 1430 - A1-BB recovery continues.
- bridge position for surfaced mooring 48° 29.603' 126° 13.26'
- recovery position 48° 29.602' 510 m depth
126° 13.265'

7461	out of water	1338 PST
5391	" " "	1344 PST

1453 - all on board. + cleared

- only thing missing is witness buoy



- tested release #206 on deck

- does not respond to transpond command

- rearmmed OK

- released OK

- gave very faint release response

* transducer or transducer battery is faulty.

1500 - head for LD Line to complete stations
then to BP1 - BB mooring for
next morning.

DAILY LOG

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INSTITUTE OF OCEAN SCIENCES

YEAR		MONTH		SHIP		CRUISE		PAGE		OF				
1999		05		TULLY.		9906		5		OF				
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
17	LD01	ROS	2:04	BE	024	49 0.07	125 43.80		36.			4.		
17	LD01	ROS	2:06	BO	024	49 0.06	125 43.89			30	148-151			
17	LD01	ROS	2:11	END	024	49 0.03	125 43.90							
17	LK01	ROS	20:03	BE	025	49 55 43	127 18 63		59		152-156	5		
17	LK01	ROS	20:05	BO	025	49 55 48	127 18 75			50				
17	LK01	ROS	20:11	EN	025	49 55 44	127 18 77							
17	LK02	ROS	20:36	BE	026	49 53.85	127 21.68		69	65	157-162	6		
17	LK02	ROS	20:38	BO	026	49 53.90	127 21.75							
17	LK02	ROS	20:45	EN	026	49 53.92	127 21.75							
17	LK03	CTD	21:22	BE	027	49 50 45	127 27 65		79	75				CTD ONLY.
17	LK03	CTD	21:24	BO	027									
17	LK03	CTD	21:27	EN	027	49 50 42	127 27 73							
17	LK04	ROS	22:06	BE	028	49 43.38	127 39 35		130		163-170	8		10m bottle wasn't trip.
17	LK04	ROS	22:09	BO	028	49 46 79	127 33 71			125				
17	LK04	ROS	22:22	EN	028	49 46 73	127 33 83							
17	LK05	CTD	22:58	BE	029	49° 43.26'	127° 39.57'		702+					CTD ONLY
17	LK05	CTD	23:08	BO	029	49° 43.22'	127° 39.60'			708				
17	LK05	CTD	23:17	EN	029	49° 43.22'	127° 39.57'							

CAST TYPE -

BOT -

bottle cast

ROS -

rosette

USW -

sea water loop

TIME CODE -

BE -

beginning time of cast

DE -

deployment time

POSITION CODE -

RAD -

RADAR

CTD -

cid

NET -

net haul

BO -

bottom time of cast

MR -

messenger release

GPS -

GLOBAL

MOR -

mooring

DRF -

drifter

EN -

end of cast

RE -

recover mooring

LOR -

LORAN

Date Time PDT

May 17 0740 - on station BP1-BB for recovery.

- ranges 113 m 114 m = app. 70 m off.

- too close moving off for release.

- range 361, 360, 358, 359 = 348 m distant

0755 - sent ABTH - received positive response

0756 - sighted on surface

0815 - all onboard being cleaned
- no damage

- top buoy and instrument lightly fouled - should not effect rotor.

- prepare BP1-CC for deployment.

1038 - deployed BP1-CC in 100 m water.
at position 50° 03.737',
127° 53.497'

- flat calm conditions.

- head for LK line for CTD/Rosettes.

May 17 2051 - short in termination cable, move
(sh/LK08) to H-line.

Station LK08 canceled due to CTD malfunction

Arcing in splice plug and extension lead and blown fuse in deck unit.

Splice repaired and 2 pin extension used to connect probe to wind cable.

Proceed to LH09 while repairs are made.

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18	LK06	ROS	0003	BE	030	49° 39.58'	127° 45.98'		1100±		171-189	19		temp inversion @ 80m	
18	LK06	ROS	0020	BO	030	49° 39.45'	127° 46.27'			1135					
18	LK06	ROS	0058	EN	030	49° 39.32'	127° 46.63'								
18	LK07	ROS	0138	BE	031	49° 35.67'	127° 52.10'		1748±		190-210	21		temp inversion @ 120m ^(bis)	
18	LK07	ROS	0202	BO	031	49° 35.67'	127° 52.08'			1763					
18	LK07	ROS	0244	EN	031	49° 35.57'	127° 52.39'								
18	LH09	CTD	0659	BE	032	49° 05.65'	127° 28.51'		2625±					Unclear of bottom depth	
18	LH09	CTD	0724	BO	032	49° 05.89'	127° 28.18'			2026					
18	LH09	CTD	0751	EN	032	49° 06.09'	127° 27.95'								
18	LH08	ROS	0836	BE	033	49° 09.69'	127° 22.30'		1924						
18	LH08	ROS	0903	BO	033	49° 09.74'	127° 22.29'			1930	211-231	21		LOOP TAKEN	
18	LH08	ROS	0938	EN	033	49° 09.75'	127° 22.33'								
18	LH07	CTD	1029	BE	034	49° 13.68'	127° 16.29'		1446					wind 30-35 kt @ 330°T	
18	LH07	CTD	1054	BO	034	49° 13.69'	127° 16.28'			1444					
18	LH07	CTD	1111	EN	034	49° 13.69'	127° 16.40'								
18	MUC1	ROS	2250	BE	035	49° 37.45'	126° 35.0'		130		232-239	8			
18	MUC1	ROS	2254	BO	035	49° 37.44'	126° 34.7'								
18	MUC1	ROS	2303	EN	035	49° 37.43'	126° 03.43'								

CAST TYPE -

BOT -
CTD -
MOR -bottle cast
ctd
mooringROS -
NET -
DRF -rosette
net haul
drifter

USW -

sea water loop

TIME CODE -

BE -
BO -
EN -beginning time of cast
bottom time of cast
end of castDE -
MR -
RE -deployment time
messenger release
recover mooring

POSITION CODE -

RAD -
GPS -
LOR -RADAR
GLOBAL
LORAN

Date Time PDI

May 18 0755 - on station E01-BB for recovery
- ranges 124-141 m
- turned to drift over mooring ranges =
89-92-106-124
-264 = 248m

0805 - sent BCGH received positive response
- sighted on surface

- recovered mooring & clean up.
- move to Nootka TCG for recovery

1045 - on station Nootka TCG for recovery.

1050 - lowered transducer app. 2 cables off

- sent call ping several times - no response
- sent Code 05 - no response
- repeated - no response

- moved closer $\leftarrow$ app. 1 cable off.
call pinged - no response

- sent Code 05 - no response
- repeated call ping - no response

1130 - dispatched rubber boat with Dave +
Julie and pinger receiver to
confirm it mooring in place.

- ship directs rubber boat onto station
and a strong pinger signal is
received.

1145 - rubber boat returns for lunch and
to load Release Command unit and
generator to power it.
NB: release deck unit battery is
faulty

1245 - rubber boat departs again with Dave
Spear

- ship positions boat over mooring

- Dave reports no response to call
pinger or release command after
several attempts.

1300

- boat has been drifting and is repositioned
on site for another attempt.

- repeated release + call ping attempts on
station not successful. $\leftarrow$ further attempts

$\rightarrow$ postponed until tomorrow when conditions improved
- winds picking up app 1m chop
- too much for small boat work.

Date Time PDT

May 18 1335 - heading up Muckshot Inlet for
CTD/Rosette stations

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR			MONTH		SHIP		CRUISE					PAGE		OF	
1999			MAY		TULLY		9906					7			
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS	
18	M5km	ROS	23:31	BE	036	49 38.97	126 5.47		172		240-249	10			
18	M5km	ROS		Bo	036					166					
18	M5km	ROS	23:46	EN	036	49 39.03	126 5.49								
19	MUC2	ROS	0013	BE	037	49° 40.17'	126° 09.57		369		250-263	14		calibration salts in	
19	MUC2	ROS	0019	Bo	037	49° 40.17	126° 09.53			362				well-mixed deep water	
19	MUC2	ROS	0037	EN	037	49° 40.20'	126° 09.48'								
19	MUC3	ROS	0121	BE	038	49° 39.24'	126° 14.23'				264-277	14			
19	MUC3	ROS	0127	Bo	038	49° 39.23'	126° 14.21'		370					a little off station due to a	
19	MUC3	ROS	0147	EN	038	49° 39.13'	126° 14.27'			364				log boom	
19	MUC4	ROS	0217	BE	039	49° 38.51	126° 20.69'		290		278-290	13			
19	MUC4	ROS		Bo	039					289					
19	MUC4	ROS	0239	EN	039	49° 38.48'	126° 20.73'								
19	MUC5	ROS	0318	BE	040	49 39.00	126 28.47		250		291-302	12			
19	MUC5	ROS	0323	Bo	040	49 39.00	126 28.43								
19	MUC5	ROS	0337	EN	040	49 39.30	126 28.34								
19	TLU1	ROS	0402	BE	041	49 41.58	126 31.01		264		303-314	12			
19	TLU1	ROS	0406	Bo	041	49 41.57	126 31.02								
19	TLU1	ROS	0420	EN	041	49 41.64	126 31.11								

CAST TYPE -

BOT -
CTD -
MOR -bottle cast
ctd
mooringROS -
NET -
DRF -rosette
net haul
drifter

USW - sea water loop

TIME CODE -

BE -
BO -
EN -beginning time of cast
bottom time of cast
end of castDE -
MR -
RE -deployment time
messenger release
recover mooring

POSITION CODE -

RAD -
GPS -
LOR -RADAR
GLOBAL
LORAN

PST

May 18

Oxygen samples are not taken

Top knobs are in open position, no sample.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR		MONTH			SHIP			CRUISE					PAGE		OF	
1999		MAY			TULLY			9906					8			
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS		
19	MUC6	ROS	0512	BE	042	49 35 71	126 35 25	✓	116		315-320	6		missing bottle @ 75m		
19	MUC6	ROS	0515	BO	042	49 35 68	126 35 77									
19	MUC6	ROS	0524	EN	042	49 35 63	126 35 80									
19	LH01	ROS	0618	BE	043	49 34 38	126 44 23		35					no oxygen sample		
19	LH01	ROS	0620	BO	043	49 34 40	126 44 26							knobs are in open position		
19	LH01	ROS	0625	EN	043	49 34 40	126 44 30							suppose to be 321-325		
19	LH02	ROS	0658	BE	044	49 32 15	126 47 35	✓	55		326-330					
19	LH02	ROS	0700	BO	044	49 32 16	126 47 35			50						
19	LH02	ROS	0705	EN	044	49 32 20	126 47 42									
19	LH03	CTD	0749	BE	045	49 28 67	126 52 76		101							
19	LH03	CTD	0752	BO	045	49 28 67	126 52 77			95				LOOP SALINITY TAKEN (DA 99/03/19)		
19	LH03	CTD	0754	EN	045	49 28 67	126 52 78									
19	LH04	ROS	0839	BE	046	49 24 93	126 58 79		138							
19	LH04	ROS	0843	BO	046	49 24 98	126 58 88	✓		132	331-338	8				
19	LH04	ROS	0850	EN	046	49 24 96	126 58 98									
19	LH05	CTD	0930	BE	047	49 21 28	127 04 55		162							
19	LH05	CTD	0933	BO	047	49 21 29	127 04 58			158						
19	LH05	CTD	0935	EN	047	49 21 29	127 04 59									

CAST TYPE -

BOT -

bottle cast

CTD -

ctd

MOR -

mooring

ROS -

rosette

NET -

net haul

DRF -

drifter

USW -

sea water loop

TIME CODE -

BE -

beginning time of cast

BO -

bottom time of cast

EN -

end of cast

DE -

deployment time

MR -

messenger release

RE -

recover mooring

POSITION CODE -

RAD -

RADAR

GPS -

GLOBAL

LOR -

LORAN

Date Time PDT

May 19 0800 - on station Nootka T7 for recovery.

- dragging was discussed and ruled out for lack of confidence in its success and the possibility of cutting of tide gauge or damaging pinger.

- conclusion divers recommended.

- dispatched rubber boat to confirm mooring is still in place and position it with pinger receiver and small GPS

- GPS battery failed in process
- Dave + Gilles in rubber boat

0820 - rubber boat returns - radio battery died
- lack of familiarization with GPS
- confusion in pinger signal due to active ship sounder
- the end result is the first run was useless

0830 - rubber boat departs again - above minor problems addressed.
- positioned by ship + GPS onto station

- rubber boat hears pinger signal faintly on sight but stronger to the east app

1 cable - positioned by ship.
Burwood P4 (most northerly) (10)

020° x 0.33 nm

Magellan GPS 49° 35' 18" N
126° 33' 63" W

0910 - boat back to pick up generator and Mesotech command unit to try releasing mooring again.

0930 - boat dispatched again

- goes on position - there is no communication from release after 6 attempts at call ping + release.

- pinger heard clearly.

- boat brought back for additional 15 min. in case mooring surfaces.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1999			MONTH MAY			SHIP J.P. Tully			CRUISE 9906				PAGE 9	OF
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
19	LH06	ROS	10:15	BE	048	49 17.61	127 10.50	✓	487					
19	LH06	ROS	10:22	BO	048	49 17.62	127 10.56			490	339 - 353	15	DA	Loop salinity taken
19	LH06	ROS	10:38	EN	048	49 17.60	127 10.56							
19	LG08	ROS	23:38	BE	049	48 55.26	127 13.26	✓		2075				
19	LG08	ROS	00:04	BO	49	48 55.17	127 13.52				354 - 358			CALIBRATION SAMPLES
19	LG08	ROS	00:42	EN	49	48 55.41	127 13.95							
20	LG07		1:32	BE	50	48 59.41	127 7.27		1770					Loop sample Taken
20	LG07		1:55	BO	50	48 59.38	127 7.15			1772				
20	LG07		02:13	END	50	48 59.42	127 7.12							
20	LG06	ROS	02:55	BE	51	49 3.52	127 1.17	✓	961	950	359-376	18		
20	LG06	ROS	03:08	BO	51	49 3.54	127 1.07							
20	LG06	ROS	03:41	END	51	49 3.54	127 1.28							
20	LG05	CTD	04:21	BE	52	49 7.41	126 55.26		276					
20	LG05	CTD	04:27	BO	52	49 7.40	126 55.25							
20	LG05	CTD	04:32	END	52	49 7.41	126 55.28							
20	LG04	ROS	05:14	BE	53	49 11.33	126 49.39	✓	146		377 385	9		Loop sample Taken
20	LG04	ROS	05:18	BO	53	49 11.32	126 49.37							
20	LG04	ROS	05:29	END	53	49 11.32	126 49.32							

CAST TYPE -

BOT -
CTD -
MOR -bottle cast
ctd
mooringROS -
NET -
DRF -rosette
net haul
dritter

USW -

sea water loop

TIME CODE -

BE -
BO -
EN -beginning time of cast
bottom time of cast
end of castDE -
MR -
RE -deployment time
messenger release
recover mooring

POSITION CODE -

RAD -
GPS -
LOR -RADAR
GLOBAL
LORAN

YEAR			MONTH			SHIP			CRUISE			PAGE		OF	
1999			MAY			J.P. Tully			9906			10			
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE		LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
20	LG03	CTD	6:06	BE	54	49	16.96	126 43.76		122					
20	LG03	CTD	6:11	BO	56	49	16.96	126 43.71							
20	LG03	CTD	6:13	END	54	49	16.97	126 43.68							
20	LG02A	CTD	6:39	BE	55	49	16.89	126 40.89		116					
20	LG02A	CTD	6:42	BO	55	49	16.89	126 40.87							
20	LG02A	CTD	6:44	END	55	49	16.87	126 40.85							
20	LG02	CTD	07:10	BE	56	49	18.65	126 38.13		101					
20	LG02	CTD	07:12	BO	56	49	18.66	126 38.12			97				
20	LG02	CTD	07:14	END	56	49	18.66	126 38.12							
20	LG01A	CTD	07:36	BE	57	49	19.64	126 36.55		78					
20	LG01A	CTD	07:38	BO	57	49	19.65	126 36.54			72				
20	LG01A	CTD	07:39	EN	57	49	19.67	126 36.53							
20	LG01	ROS	07:57	BE	58	49	20.47	126 35.05	✓	56					
20	LG01	ROS	07:59	BO	58	49	20.47	126 35.04			50	386 - 390	5		LOOP SAL TAKEN
20	LG01	ROS	08:02	EN	58	49	20.47	126 35.04							
20	LG00	CTD	08:27	BE	59	49	21.80	126 34.01		32					
20	LG00	CTD	08:24	BO	59	49	21.80	126 34.00			24				
20	LG00	CTD	08:30	EN	59	49	21.80	126 34.00							

CAST TYPE - BOT - bottle cast
CTD - ctd
MOR - mooring

ROS - rosette
NET - net haul
DRF - drifter

USW - sea water loop

TIME CODE - BE - beginning time of cast
BO - bottom time of cast
EN - end of cast

DE - deployment time
MR - messenger release
RE - recover mooring

POSITION CODE - RAD - RADAR
GPS - GLOBAL
LOR - LORAN

Date Time PDT

May 19 1248

- deployed mooring E01-CC
in 100.25 m corrected depth.
at position $49^{\circ} 17.35'$
 $126^{\circ} 35.84'$

- calm conditions - mooring deployed
without problems

1459

- deployed mooring E03-CC in
398 m water at position
 $49^{\circ} 05.598'$
 $126^{\circ} 56.267'$

- proceed to complete LG line
starting at the offshore end

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR			MONTH			SHIP			CRUISE			PAGE		OF	
1999			MAY			J. P. Tully			9906			11			
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS	
20	LF03	CTD	9:57	BE	60	49 07.63	126 21.90		89						
20	LF03	CTD	10:00	BO	60	49 09.64	126 21.89			82					
20	LF03	CTD	10:02	EN	60	49 09.66	126 21.87							* 99060061.DAT unfortunately erased — DA 99/05/20	
20	LF05	CTD	11:15	BE	61	49 01.98	126 33.18		156					LOOP SAL TAKEN	
20	LF05	CTD	11:18	BO	61	49 01.95	126 33.16			146				see note	
20	LF05	CTD	11:20	EN	61	49 01.95	126 33.14								
20	U9	ROS	23:31	BE	062	48 55.18	125 31.02		26						
20	U1	ROS	23:35	BO	062	48 55.18	125 31.02	✓		24	391-399	9			
20	U1	ROS	23:38	EN	062	48 55.18	125 31.02								
20	U3	ROS	23:56	BE	063	48 56.15	125 31.92	✓	18						
20	U3	ROS	23:57	BO	063	48 56.15	125 31.92			16	400-407	8			
21	U3	ROS	00:02	EN	063	48 56.16	125 31.95							Station U5 cancelled.	
21	LE01	ROS	03:35	BE	064	49 06.98	126 0.97	✓	46	44	408-412	5			
21	LE01	ROS	03:36	BO	064	49 06.96	126 0.97								
21	LE01	ROS	03:41	EN	064	49 06.96	126 0.97								
21	LE04	ROS	05:12	BE	065	48.56.56	126 15.07	✓	122	113	413-420	8			
21	LE04	ROS	05:14	BO	065										
21	LE04	ROS	05:23	END	065	48.56.53	126 14.95								

CAST TYPE - BOT - bottle cast
CTD - ctd
MOR - mooring

ROS - rosette
NET - net haul
DRF - drifter

USW - sea water loop

TIME CODE - BE - beginning time of cast
BO - bottom time of cast
EN - end of cast

DE - deployment time
MR - messenger release
RE - recover mooring

POSITION CODE - RAD - RADAR
GPS - GLOBAL
LOR - LORAN

Date Time PDT

May 20 0745 - on station for deployment A1-CC

0953 - deployed mooring A1-CC in 499 m
water at position
48° 31.937'
126° 12.247'

- heading for BC03-D for recovery.

1205 - on station BC03-D for recovery
have - to over lunch

- moved on station again. directly above
mooring - range 527 m

1217 - moving off for release
ranges
- 565 m = 200 m distance

1220 - sent ABFH - received positive
response.

1223 - sighted on surface.

- all on board cleaned up heading for
Uckelef Stations

* While setting up for cast #62, the file number was advanced. Finger
problems were occurring, and the very start of cast #62 overwrote #61.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR		MONTH		SHIP		CRUISE		PAGE		OF				
1999		MAY		J. P. TULLY		9906		12						
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
21	LE06	ROS	6:37	BE	066	48 48 52	126 26 20	✓	213		421-431	11		
21	LE06	ROS	6:40	BO	066	48 48 52	126 26 18			207				
21	LE06	ROS	6:51	EN	066	48 48 47	126 26 17							
21	LF08	ROS	0835	BE	067	48° 50.01'	126° 50.74'	✓	12354		432-450	19		loop & calib salinitiat taken
21	LF08	ROS	0856	BO	067	48° 50.00	126° 50.66			1241				
21	LF08	ROS	0923	EN	067	48° 49.95'	126° 50.57'							
21	LA10	CTD	1505	BE	068	47° 58 99	125° 43 44	✓	928		451-455	5		bad header
21	LA10	CTD	1518	BO	068	47° 58 91	125° 43 30			916				
21	LA10	CTD	1533	EN	068	47° 58 84	125° 43 17							
21	LA09	CTD	23:39	BE	069	48 2.34	125° 36.87		354					
21	LA09	CTD	23:43	BO	069	48 2.31	125° 36.81							
21	LA09	CTD	23:48	EN	069	48 2.30	125° 36.78							
22	LA08	ROS	0032	BE	70	48 05.84	125 30.24	✓	142		456-463		8	
22	LA08	ROS		BO	70					125				
22	LA08	ROS	0045	END	70	48 05.58	125 30.04							
22	LA07	CTD	01:30	BE	71	48 09.23	125 23.81	✓	115					
22	LA07	CTD	01:32	BO	71	48 09.23	125 23.80			105	464		1	cal sample taken
22	LA07	CTD	01:33	EN	71	48 09.23	125 23.80							

CAST TYPE -

BOT -

bottle cast

CTD -

ctd

MOR -

mooring

ROS -

rosette

NET -

net haul

DRF -

drifter

USW -

sea water loop

TIME CODE -

BE -

beginning time of cast

BO -

bottom time of cast

EN -

end of cast

DE -

deployment time

MR -

messenger release

RE -

recover mooring

POSITION CODE -

RAD -

RADAR

GPS -

GLOBAL

LOR -

LORAN

Date Time PDT

May 21 0930

- on station C1WASP-A for deployment.

- set up mooring on deck + locate position

1058

- deployed C1WASP-A in 180 m water at position $48^{\circ} 24' 38''$ $125^{\circ} 14' 51''$

- mooring launched without problem

1100

- ship responds to SAR call - small fishing boat in the area is without power and drifting.

1120

- we arrive at SAR location

$48^{\circ} 21' 855''$
 $125^{\circ} 14' 471''$

- engineer and mate go over in rubber boat to investigate

- US rescue boat expected from Neah Bay to take over.

1225

- SAR over with arrival of US boat
- we proceed to LA Line.

- check seawater pump en route.
- specs. for Bernard.

- new pump 10 l in 26 sec. not enough pressure to activate relief valve on port side.

- old pump 10 l in 18 sec. with relief valve passing overflow pressure.

- engineers tried to increase volume on new pump without success - loop running on old pump.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1999			MONTH MAY			SHIP J. P. Tully			CRUISE 9906			PAGE 13 OF		
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
22	LA06	ROS	02:13	BE	72	48 12.67	125 17.10	✓	114		465-472			
22	LA06	ROS	02:18	BO	72	48 12.66	125 17.11			105		8		
22	LA06	ROS	02:23	EN	72	48 12.66	125 17.16							
22	LA05	CTD	03:06	BE	73	48 16.11	125 10.62		123					
22	LA05	CTD	03:08	BO	73	48 16.08	125 10.61							
22	LA05	CTD	03:11	EN	73	48 16.07	125 10.59							
22	LA06	ROS	03:51	BE	74	48 19.42	125 4.039	✓	193					
22	LA06	ROS	3:54	BO	74	48 19.42	125 4.08			180	473-482	10		
22	LA06	ROS	03:58	END	74	48 19.42	125 4.08							
22	LAD3	CTD	4:45	BE	75	48 22.94	125 57.66		114					
22	LAD3	CTD	4:49	BO	75	48 22.94	125 57.66							
22	LAD3	CTD	4:51	END	75	48 22.93	125 57.66							
22	LA02	ROS	5:30	BE	76	48 26.24	124 51.33	✓	309					
22	LA02	ROS	5:36	BO	76	48 26.22	124 51.33			300	483-496	14		
22	LA02	ROS	5:53	END	76	48 26.18	124 51.49							
22	LA01	ROS	6:36	BE	77	48 29.194	124 43.87	✓	267					
22	LA01	ROS	6:40	BO	77	48 29.19	124 43.86			260	497-509	13		
22	LA01	ROS	6:55	END	77	48 29.39	124 44.01							

CAST TYPE -

BOT -
CTD -
MOR -bottle cast
ctd
mooringROS -
NET -
DRF -rosette
net haul
drifter

USW -

sea water loop

TIME CODE -

BE -
BO -
EN -beginning time of cast
bottom time of cast
end of castDE -
MR -
RE -deployment time
messenger release
recover mooring

POSITION CODE -

RAD -
GPS -
LOR -RADAR
GLOBAL
LORAN

Date Time PDT

May 22 0800 - on station VF2C-B for recovery.

0805 - maneuvering over station

- no ranges

0810 - sent CDF

- ranges 200, 202, 204 = app 60-70 m. off.

- moving to release position.

0817 - stopped 270 272 274 276

distance = 200m

0820 - sent BEFG - no response

- sent BEFG - positive response - double ping /

0825 - still not on surface - ranges 450 m

= app 415 m distance.

- moving closer again.

- sent CDF

- moving closer

430 - 420 → 325

309 → 296.

0835

- stopped again

- range 273 275

- sent BEFG. - received positive response.

- not rising acc. ranges

- sent BFGH - received positive response

double pings

- not rising

0845 - deployed dunking transducer.

225-226 ranges = 120m dia

- BFGH sent - received release response.

- BEFG sent - received release response.

double pings

0915 - sent CDFG - mooring surfaced

- probably from the last BEFG command.

- both hooks open and reasonably loose

- mud was washed out of both glass balls and release motor lead housing.

- perhaps mooring submerged in mud. - mud

- perhaps it was cocked over by current.

- will raise mooring by 1m + add 1 SG17

Date Time PDT

May 22 0930 - head for Victoria Harou St. base
to meet R. Thomson to give him
the ADCP. and to land CTD
winch #1233 for modifications and
service as spare winch for Stn P
cruise.

ETA 1330-1400

1400 - arrive CCG Base Harou St.
- met Rick. - received Oxygen Reagents
- landed ~~#~~1233 winch
- landed ADCP.

1600 - ship's business, taking on stores
- depart for Massou Stations in Haro Str.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR		MONTH				SHIP				CRUISE				PAGE		OF	
1999		May				Tully				9906				14			
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS			
22	JFG1	ROS	07:42	BE	78	48°34.08	124°39.95	✓			510-514	5					
22	JFG1	ROS		BO	78				<140	40				bottom was very steep			
22	JFG1	ROS	07:49	EN	78	48°34.10	124°39.97										
22	JFG2	ROS	08:12	BE	79	48°32.43	124°39.98	✓	134		515-522	8					
22	JFG2	ROS	08:14	BO	79	48°34.42	124°40.02			123							
22	JFG2	ROS	08:21	EN	79	48°32.42	124°40.02										
22	JFG3	CTD	08:42	BE	80	48°30.49	124°39.97										
22	JFG3	CTD	08:46	BO	80	48°30.51	124°39.99		235	220							
22	JFG3	CTD	08:49	EN	80	48°30.53	124°39.99										
22	JFG4	CTD	09:12	BE	81	48°28.44	124°40.02										
22	JFG4	CTD	09:17	BO	81	48°28.41	124°40.05		257	247							
22	JFG4	CTD	09:21	EN	81	48°28.39	124°40.08										
22	JFG5	ROS	09:41	BE	82	48°26.40	124°40.07	✓	222		523-533	11					
22	JFG5	ROS	09:46	BO	82	48°26.38	124°40.18			208							
22	JFG5	ROS	09:58	EN	82	48°26.30	124°40.43										
22	JFG6	ROS	10:26	BE	83	48°24.36	124°40.11	✓	83		534-539	6					
22	JFG6	ROS	10:29	BO	83	48°24.37	124°40.12			79							
22	JFG6	ROS	10:34	EN	83	48°24.42	124°40.19										

CAST TYPE -

BOT -
CTD -
MOR -bottle cast
ctd
mooringROS -
NET -
DRF -rosette
net haul
drifter

USW -

sea water loop

TIME CODE -

BE -
BO -
EN -beginning time of cast
bottom time of cast
end of castDE -
MR -
RE -deployment time
messenger release
recover mooring

POSITION CODE -

RAD -
GPS -
LOR -RADAR
GLOBAL
LORAN

Date Time PDT

May 23 0755 - on station ✓ F3B-B-2 for recovery
- ranges 145, 145, 151, 153

- drifting off 167 172 - 180
- 183, 185, 191 = 138 m horizontal

0800 - 204 m range =
- sending ABCH - received positive response

- sighted on surface.

0825 - all on board - cleaning up
- no damage to mooring.

0910 - on station ✓ F3A-B for recovery
- sent 6422 - received range 258
381
272
app 200 m = 277
horizontal. 279.
287
298 m.

0917 - sent 6421
sent 6484 rec'd + executed

- sighted on surface.

- cleaning up mooring

- top components are heavily fouled.

- pickup line top buoy have 10 ft long kelp fronds growing

- RCM, instrument also fouled but not enough to effect measurements

1100 - on station ✓ F2E-B for recovery
- sent 6432 to enable x3 - no response
- sent 9000 for range - no response

- sent several more range commands - no response
- listened with Mesotech and OML pinger receivers

1120 - no signal
- too far off station - moving back

1130 - back on station listening with pinger.

- no pinger signal on station.

- sent enable 6432 x 3 - no response

sent range 9000 x 3 - no response

- we will have to search for it

- decided to recover ✓ F2D-B first.

Date Time PDT

- lunch break.

May 23 1220 - on station JF2D-B for recovery.

- sent 6442 - 208' 204'
- we are directly over.

- drifting off for good release distance.

213 → 224 = 90
236 = 132
245 = 148 m.

1225 - sent 6441 sent 6484 received
executed

1228 - sighted on surface.

- missing
RCM4 wire.

Witness buoy + SG17 SS37
9049 and all of the 57.43 m

- only termination left on buoy
wire show tension break some
time ago - ball + socket ends
rusty

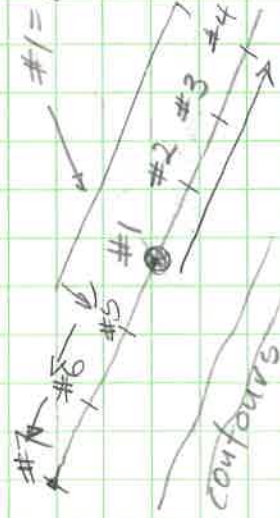
- all eyes grossly elongated.

- RCM4 6176 no rotor valve bent
- RCM4 7460 rotor too tight.

1345 - moved to start search for JF2E 3 stops
of 1/2 mile each along the contours

W

#1 = mooring
position



#1 stop. 48° 17.198' - no ranges
124° 14.501' - no pingers

#2 48° 17.144' - no ranges
124° 13.625' - no pingers

#3 — - no ranges
— - no pingers.

#4 48° 16.615' - no ranges
124° 12.635' - no pingers.

#5 48° 17.540' - no ranges
124° 15.555' - no pingers

#6 48° 17.643' - range 4467, 4453
124° 16.358' - no pingers.

#7 48° 18.072' - range 3236 3211
124° 17.200' - no pingers

moving 1 mile west. Over.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1999		MONTH MAY		SHIP J. P. Tully		CRUISE 9906		PAGE 15 OF						
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
23	60	CTD	0137	BE	84	48° 33.86'	123 12.79'		298					
23	60	CTD	0142	BO	84	48° 33.89'	123° 12.70'			280				
23	60	CTD	0147	EN	84	48° 33.86'	123° 12.49'							
23	61	CTD	0222	BE	85	48° 29.12'	123° 09.14'		281					
23	61	CTD	02:29	BO	85	48° 29.00	123° 09.24			270				
23	61	CTD	02:33	EN	85	48° 28.92	123° 09.26							
23	62	ROS	03:23	BE	86	48 22.92	123 02.64	✓	149	143	540-548	9		
23	62	ROS	03:25	BO	86	48 22.92	123 02.69							
23	62	ROS	03:34	END	86	48 23.16	123 02.60							
23	63	CTD	04:37	BE	87	48 14.59	122 58.45		154					
23	63	CTD	04:39	BO	87	48 14.61	122 58.45							
23	63	CTD	04:42	EN	87	48 14.66	122 58.38							
23	64	CTD	05:23	BE	88	48 12.84	123 05.78		110					
23	64	CTD	05:25	BO	88	48 12.86	123 05.77							
23	64	CTD	05:27	EN	88	48 12.88	123 05.77							
23	65	ROS	05:58	BE	89	48 15.90	123 09.02	✓	128	121	549-557	9		
23	65	ROS	06:01	BO	89	48 15.90	123 09.84							
23	65	ROS	06:08	EN	89	48 15.92	123 09.84							

CAST TYPE - BOT - bottle cast
CTD - ctd
MOR - mooring

ROS - rosette
NET - net haul
DRF - drifter

USW - sea water loop

TIME CODE -

BE - beginning time of cast
BO - bottom time of cast
EN - end of cast

DE - deployment time
MR - messenger release
RE - recover mooring

POSITION CODE -

RAD - RADAR
GPS - GLOBAL
LOR - LORAN

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR			MONTH			SHIP			CRUISE			PAGE			OF		
1999			MAY			TULLY			9906			16					
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE		LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS		
23	66	CTD	0642	BE	90	48	19 32	123 14 02		104							
23	66	CTD	0644	BO	90	48	19 33	123 14 02									
23	66	CTD	0646	EN	90	48	19 35	123 14 02									
23	67	CTD	0720	BE	91	48	22.79	123 22.79		109							
23	67	CTD	0723	BO	91	48	22.81	123 18.07			102						
23	67	CTD	0725	EN	91	48	22.82	123 18.07									
23	JFA1	ROS	0743	BE	92	48	22.13	123 19.97	✓	101							
23	JFA1	ROS	0746	BO	92	48	22.15	123 19.97			92	558-564	7				
23	JFA1	ROS	0752	EN	92	48	22.17	123 19.95									
23	JFA2	ROS	0809	BE	93	48	20.75	123 20.05	✓	46							
23	JFA2	ROS	0812	BO	93	48	20.74	123 20.07			41	565-569	5		LOOP SAL TAKEN		
23	JFA2	ROS	0817	EN	93	48	20.73	123 20.10									
23	JFA3	ROS	0846	BO	94	48	17.25	123 19.99	✓	94							
23	JFA3	ROS	0850	BO	94	48	17.27	123 20.01			92	570-576	7				
23	JFA3	ROS	0856	EN	94	48	17.33	123 19.99									
23	JFA4	ROS	0922	BE	95	48	14.34	123 20.05	✓	55							
23	JFA4	ROS	0924	BO	95	48	14.35	123 20.07			52	577-581	5				
23	JFA4	ROS	0928	EN	95	48	14.36	123 20.12									

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mooringROS -
NET -
DRF -rosette
net haul
drifter

USW -

sea water loop

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recover mooring

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RAD -
GPS -
LOR -RADAR
GLOBAL
LORAN

Date Time PDT

May 23 1520 - contacted #151 release (search) #7
- moving 1 mile west of position

#8 position 48° 18.628' - 1369 m.
124° 18.841' 1359 m
1292 m
1193 m

drifting closer, while
plotting triangulated ranges 1119 m.
1540 - moving closer onto likely spot
acc. triangulation.

1545 - on station #9 1544 m
48° 18.803' 1540 m
124° 19.810' 1534 m

1605 - 48° 19.546' #10 330 m
124° 18.931' 340 m

1606 - sent 6431 and 6434 270 m distance.
- received
- executed.

- range 526
- sent 6431 and 6434 again - received +
executed.

range 555

- mooring not rising, and we have drifted
too far
- move back onto position #10 to try again

sent 6431 and 6434
received + executed. →
range 567 48° 19.640'
124° 18.780'
588 591, 593, 594, 595
- sent 6431 and 6434 received and executed.
- moved to 48° 19.435' 963 m
124° 18.191'

48° 19.440' 909 m
124° 18.260'
19.450' 834 m
18.326'

- sent 6431 and 6434 720 m
received + executed range 695 drifting closer
643

627
48° 18.490' - 540
124° 19.600'

- sent 6431 and 6434 received + executed
drifting closer - 475
over.

Date Time PDT

May 23 1650 - search for FZE-B cont'd

48° 19.501' 449 m

124° 18.705'

- begin to hear pinger signal

48° 19.508' 403 m

124° 18.768'

- strong pinger signal

383 m

366 m

362 m

364

366

- sent 6431 and 6434 received + executed.

- mooring not rising

- heard strong pinger signal

- sent 6433 turning release off

- sent 9000 - no range received

1705 - head to JF3A-C for deployment.

- ship BBQ 1700-1800hrs.

1914 - deployed mooring JF3A-C in

188 m water.

position

48° 17.804'

123° 59.992'

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1999			MONTH MAY			SHIP J.P. Tully			CRUISE 9906			PAGE 17 OF		
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
23	JFA5	ROS	9:53	BE	96	48 11.86	123 20.07	✓	95					
23	JFA5	ROS	9:56	BO	96	48 11.86	123 20.17			92	582-588	7		
23	JFA5	ROS	10:01	EN	96	48 11.87	123 20.24							
23	JFA6	ROS	10:27	BE	97	48 09.24	123 20.05	✓	57					
23	JFA6	ROS	10:28	BO	97	48 09.25	123 20.05			52	589-593	5		
23	JFA6	ROS	10:33	EN	97	48 09.27	123 20.11							
23	105	CTD	10:54	BE	98	48 10.98	123 18.99		89					
23	105	CTD	10:56	BO	98	48 11.00	123 19.02			80				
23	105	CTD	10:57	EN	98	48 11.02	123 19.07							
24	JFD4	ROS	02:36	BE	99	48 17.44	124 00.03	✓	193					
24	JFD4	ROS	02:39	BO	99	48 17.44	124 00.03			186	394-604	11		
24	JFD4	ROS	02:51	EN	99	48 17.44	124 00.03							
24	JFD3	ROS	3:14	BE	100	48 19 76	123 59 95	✓	165		605-614	10		
24	JFD3	ROS	3:17	BO	100	48 19 75	123 59 91			158				
24	JFD3	ROS	3:25	EN	100	48 19 72	123 59 77							
24	JFD2	ROS	3:45	BE	101	48 21 85	123 59 83	✓	122		615-622	8		
24	JFD2	ROS	3:47	BO	101	48 21 86	123 59 76			116				
24	JFD2	ROS	3:53	EN	101	48 21 81	123 59 63							

CAST TYPE -

BOT -
CTD -
MOR -bottle cast
ctd
mooringROS -
NET -
DRF -rosette
net haul
dritter

USW -

sea water loop

TIME CODE -

BE -
BO -
EN -beginning time of cast
bottom time of cast
end of castDE -
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RE -deployment time
messenger release
recover mooring

POSITION CODE -

RAD -
GPS -
LOR -RADAR
GLOBAL
LORAN

Date Time PDT

May 24

0740

- on station JF2A-B for recovery.

- sent 6452 range 446

- move closer.

0750

- stopped range 160

193 = 161 m horizontal

0755

- sent 6451 and 6484

- received executed confirmation

0756

- sighted on surface.

10321 heavily fouled
rotor will be affected

0845

- on station JF2B-B

- sent 6412

range

276 = app. 230
horizontal.

0848

- sent 6411 and 6484

received range
290 m

- received and executed

0850 - sighted on surface.

- recovered complete

6491 had a
bent arch and
missing rotor.

4240 had a bent
gimbal rod

10320 fouled not
bad

0950

- on station JF1A-B for recovery.

- sent 6462 range 366 m

- sent 6461 and 6484 range 364 m. = app 300 m
received + executed. horizontal

0955 - sighted on surface

- recovered

SS30 3012 RCM4 7897

glass ball and release and pinger.

SS30 # M247 RCM4 # 7910 - Missing.

- cleaning up and setting up for deployment

Date Time PDT

May 24 1306 - deployed JFIA-C in 207 m
water at
48° 22.879'
124° 19.257'

1429 - deployed JF2E-C in 172 m
water at
48° 17.190'
124° 14.528'

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR			MONTH			SHIP			CRUISE			PAGE		OF		
1999			MAY			J.P. TULLY			9906			18				
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE		LONGITUDE		POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
24	JFD1	ROS	4:10	BE	102	48 23	11	124 0 0	✓	49			623-627	5		
24	JFD1	ROS	4:10	BO	102	48 23	11	124 0				43				
24	JFD1	ROS	4:15	EN	102	48 23	10	124 0 28								
24	JFE1	ROS	5:33	BE	103	48 27	25	124 14 85	✓	29			628-631	4		
24	JFE1	ROS	5:34	BO	103	48 27	24	124 14 82				25				
24	JFE1	ROS	5:36	EN	103	48 27	23	124 14 76								
24	JFE2	ROS	5:59	BE	104	48 25	19	124 14 78	✓	137			632-641	9		
24	JFE2	ROS	6:02	BO	104	48 25	18	124 14 68				130				
24	JFE2	ROS	6:08	EN	104	48 25	16	124 14 51								
24	JFE3	ROS	6:30	BE	105	48 23	23	124 15 03	✓	186			642-652	11		
24	JFE3	ROS	6:33	BO	105	48 23	22	124 14 98				180				
24	JFE3	ROS	6:43	EN	105	48 23	18	124 14 90								
24	JFE4	ROS	0705	BE	106	48° 21.24'		124° 14.98'	✓	227			653-664	12		very well mixed below
24	JFE4	ROS	0709	BO	106	48 21.25		124° 15.02'				218				125m
24	JFE4	ROS	0721	EN	106	48 21.23'		124° 15.01'								
24	JFE5	ROS	0745	BE	107	48° 19.24'		124° 15.02'	✓	214			665-676	12		
24	JFE5	ROS	0748	BO	107	48° 19.24'		124° 15.06'				207				
24	JFE5	ROS	0759	EN	107	48° 19.22'		124° 15.06'								

CAST TYPE - BOT - bottle cast
CTD - ctd
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ROS - rosette
NET - net haul
DRF - drifter

USW - sea water loop

TIME CODE - BE - beginning time of cast
BO - bottom time of cast
EN - end of cast

DE - deployment time
MR - messenger release
RE - recover mooring

POSITION CODE - RAD - RADAR
GPS - GLOBAL
LOR - LORAN

Date Time PDT

May 25 - 0800 - called to confirm truck has left for Sooke with ADCP - confirmed
 - 0810 - Tully arrives off Sooke to launch small boat (ship's launch) Jane and Christine go along for ride.
 - setting up mooring in the interim.

- 0900 - app. boat meets Peter Gamble with ADCP and double Interocean drop linkage

- 1010 - boat back on board and we sail for JF2A-C for deployment

Ric 10-406
 50-5082
 50-5080
 216 and
 800-200
 51-0
 51-5
 60

- arrive on station JF2A-C
 - 1247 - deployed JF2A-C in 105m depth at position 48° 24.780', 124° 09.880'

- proceed. to JF2C-C assembling mooring en route

- 1420 - deployed JF2C-C in 188m water at location 48° 21.250', 124° 12.269'

- 1430 - heading for CRD-10-A for recovery before dark

- 1945 arrive CRD10-A for recovery.

- on mooring position heard call ping response
 - moved to release position.

- 1950 - call ping again + received response
 - sent Code 10 - received positive release response.

- 1952 - sighted on surface.

- 2010 - all on board clean up and en route to Boundary Passage stations.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR			MONTH			SHIP			CRUISE					PAGE		OF	
1999			MAY			TULLY			9906					19			
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE		LONGITUDE		POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS	
24	JFE6	ROS	0819	BE	108	48° 17.77'	124° 15.04'	✓	177				677-686	10			
24	JFE6	ROS	0822	BO	108	48° 17.77'	124° 15.08'					170					
24	JFE6	ROS	0832	EN	108	48° 17.79'	124° 15.12'										
24	JFE7	ROS	0850	BE	109	48° 16.34'	124° 15.00'	✓	84				687-692	6			
24	JFE7	ROS	0853	BO	109	48° 16.37'	124° 15.04'					75					
24	JFE7	ROS	0858	EN	109	48° 16.39'	124° 15.08'										
24	JFD7	ROS	1014	BE	110	48° 11.90'	124° 00.08'	✓	56				693-697	5			
24	JFD7	ROS	1016	BO	110	48° 11.90'	124° 00.10'					47					
24	JFD7	ROS	1020	EN	110	48° 11.89'	124° 00.13'										
24	JFD6	ROS	1040	BE	111	48° 13.80'	124° 00.02'	✓	122				694-701	8			
24	JFD6	ROS	1043	BO	111	48° 13.79'	124° 00.04'					110					
24	JFD6	ROS	1051	EN	111	48° 13.83'	124° 00.07'										
24	JFD5	ROS	1109	BE	112	48° 15.87'	124° 00.05'	✓	183				702-706	5		ran out of oxy flashes.	
24	JFD5	ROS	1112	BO	112	48° 15.88'	124° 00.06'					174					
24	JFD5	ROS	1119	EN	112	48° 15.85'	124° 00.13'										
24	73	CTD	22:25	BZ	113	48 15.07	124 06.83				163						
24	73	CTD	22:28	BO	113	48 15.13	124 06.92										
24	73	CTD	22:30	EN	113	48 15.14	124 06.95										

CAST TYPE -

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MOR -bottle cast
ctd
mooringROS -
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drifter

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messenger release
recover mooring

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LORAN

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR			MONTH			SHIP				CRUISE					PAGE		OF
1999			MAY			Tully				9906							
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE		LONGITUDE		POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS	
24	72	ROS	23:13	BE	114	48	18.70	124	04.25	✓	188			11			
24	72	ROS	23:17	BO	114	48	18.74	124	04.27			150	711 - 721	11		LOOP SAL TAKEN	
24	72	ROS	23:30	END	114	48	18.76	124	04.25								
25	71	CTD	00:09	BE	115	48	22.19	123	59.46		110						
25	71	CTD	00:11	BO	115	48	22.19	123	59.47			101					
25	71	CTD	00:12	EN	115	48	22.20	123	59.47								
25	70	ROS	01:30	BE	116	48	19.24	123	43.30	✓	150						
25	70	ROS	01:33	BO	116	48	19.25	123	43.31			141	722 - 730	9			
25	70	ROS	01:42	EN	116	48	19.25	123	43.35								
25	69	ROS	02:16	BE	117	48	15.58	123	43.17	✓	179						
25	69	ROS	02:19	BO	117	48	15.56	123	43.23			173	731 - 740	10			
25	69	ROS	02:28	EN	117	48	15.65	123	43.36								
25	68	ROS	03:05	BE	118	48	12.20	123	43.17	✓	141						
25	68	ROS	03:07	BO	118	48	12.20	123	43.20			133	741 - 749			Salinity @ 123 bottle #2	
25	68	ROS	03:16	EN	118	48	12.22	123	43.36								
25	JFC6	CTD	03:39	BE	119	48	10.42	123	44.56		55						
25	JFC6	CTD	03:40	BO	119	48	10.41	123	44.95								
25	JFC6	CTD	03:42	EN	119	48	10.41	123	44.95								

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DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR		MONTH		SHIP		CRUISE		PAGE		OF						
1999		MAY		TULLY		9906										
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE		LONGITUDE		POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
25	JFCS	CTD	04:06	BE	120	48	12.39	123	45.05		141					
25	JFCS	CTD	04:08	BO	120	48	12.37	123	45.10							
25	JFCS	CTD	04:10	EN	120	48	12.33	123	45.14							
25	JFC4	CTD	04:43	BE	121	48	14.41	123	45.02		171					
25	JFC4	CTD	04:46	BO	121	48	14.47	123	45.00							
25	JFC4	CTD	04:49	EN	121	48	14.47	123	45.02							
25	JFC3	CTD	05:13	BE	122	48	16.61	123	45.04		185					
25	JFC3	CTD	05:17	BO	122	48	16.67	123	45.00							
25	JFC3	CTD	05:21	EN	122	48	16.67	123	45.01							
25	JFC2	CTD	05:44	BE	123	48	18.53	123	45.02		175					
25	JFC2	CTD	05:48	BO	123	48	18.55	123	45.02							
25	JFC2	CTD	05:51	EN	123	48	18.54	123	45.06							
25	JFC1	CTD	06:14	BE	124	48	20.21	123	45.04		61					
25	JFC1	CTD	06:16	BO	124	48	20.21	123	45.03							
25	JFC1	CTD	06:18	EN	124	48	20.22	123	45.03							
25	JFB1	ROS	07:12	BE	125	48	17.73	123	35.24	✓	152		750-758	9		
25	JFB1	ROS	07:16	BO	125	48	17.71	123	35.19			145				
25	JFB1	ROS	07:23	EN	125	48	17.68	123	35.19							

CAST TYPE - BOT - bottle cast
CTD - ctd
MOR - mooring

ROS - rosette
NET - net haul
DRF - drifter

USW - sea water loop

TIME CODE - BE - beginning time of cast
BO - bottom time of cast
EN - end of cast

DE - deployment time
MR - messenger release
RE - recover mooring

POSITION CODE - RAD - RADAR
GPS - GLOBAL
LOR - LORAN

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR		MONTH		SHIP		CRUISE		PAGE		OF				
1999		May		Tully		9906								
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
25	JFB2	ROS	07:49	BE	126	48 15.84	123 35.20	✓	190		759-769	11		
25	JFB2	ROS	07:53	BO	126	48 15.86	123 35.19			183				
25	JFB2	ROS	08:02	EN	126	48 15.88	123 35.23							
25	JFB3	ROS	08:29	BE	127	48 13.76	123 35.31	✓	160		770-778	9		
25	JFB3	ROS	08:33	BO	127	48 13.77	123 35.30			151				
25	JFB3	ROS	08:40	EN	127	48 13.80	123 35.34							
25	JFB4	ROS	09:08	BE	128	48 11.73	123 35.34	✓	137		779-786	8		
25	JFB4	ROS	09:11	BO	128	48 11.70	123 35.38			131				
25	JFB4	ROS	09:17	EN	128	48 11.80	123 35.33							
25	JFB5	ROS	09:44	BE	129	48 9.81	123 35.37	✓	54		787-791	5		
25	JFB5	ROS	09:46	BO	129	48 9.86	123 35.36			46				
25	JFB5	ROS	09:50	EN	129	48 9.90	123 35.35							
26	STN58	CTD	04:12	BE	130	48 42.98	123 14.32	✓	334					
26	STN58	CTD	04:18	BO	130	48 42.99	123 14.36							
26	STN58	CTD	04:23	EN	130	48 43.02	123 14.38							
26	STN56	ROS	05:28	BE	131	48 46.38	123 01.69	✓	210.		792-803	12		
26	STN56	ROS	05:31	BO	131	48 46.38	123 01.70			200.				
26	STN56	ROS	05:43	EN	131	48 46.45	123 01.77							

CAST TYPE -

BOT -
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MOR -bottle cast
ctd
mooringROS -
NET -
DRF -rosette
net haul
drifter

USW -

sea water loop

TIME CODE -

BE -
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EN -beginning time of cast
bottom time of cast
end of castDE -
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YEAR			MONTH			SHIP			CRUISE				PAGE	OF
DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
26	STN 46	ROS	7:01	BE	132	48 51. 45	123 10. 79	✓	178					
26	STN 46	ROS	7:05	BO	132	48 51. 48	123 10. 79			170	804-813	10		
26	STN 46	ROS	7:12	EN	132	48 51. 54	123 10. 83							
26	STN 45	CTD	7:41	BE	133	48 53. 85	123 08. 34		130					
26	STN 45	CTD	7:42	BO	133	48 53. 85	123 08. 35			120				
26	STN 45	CTD	7:45	EN	133	48 53. 85	123 08. 35							
26	STN 44	CTD	8:18	BE	134	48 56. 81	123 05. 96		121					
26	STN 44	CTD	8:20	BO	134	48 56. 82	123 05. 97			116				
26	STN 44	CTD	8:22	EN	134	48 56. 82	123 05. 97							
26	STN 43	CTD	9:59	BE	135	49 03. 29	123 22. 29		244					
26	STN 43	CTD	10:04	BO	135	49 03. 31	123 22. 28			233				
26	STN 43	CTD	10:06	EN	135	49 03. 31	123 22. 27							
26	STN 42	ROS	10:32	BE	136	49 01. 78	123 26. 24	✓	323					
26	STN 42	ROS	10:39	BO	136	49 01. 75	123 26. 27			313	814-823	14		Extra bottle at surface fired by mistake → no samples taken
26	STN 42	ROS	10:53	EN	136	49 01. 77	123 26. 27							
26	STN 41	CTD	11:20	BE	137	49 00. 22	123 30. 13		201					
26	STN 41	CTD	11:24	BO	137	49 00. 18	123 30. 15			190				
26	STN 41	CTD	11:26	EN	137	49 00. 16	123 30. 16							

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Date Time PDT

May 26 0745 - on station GSCMB - I for recovery

- ranges 390 391 = 181 m horizontal

- drifting off ranges 415 - 455

= 268 m horizontal

0855 - sent BEGH received positive response
478 - 485 mooring staying down as we drift off.

- sent BEGH repeatedly. - positive response each time

- sent CDFG + BEGH alternatively

- mooring not rising

- moving right over mooring to define position prior to drag

- CPA method produces position:

49° 06, 305' horizontal
123 29, 981' distance = 58 m.

- further narrowing down of position

49° 06, 315' horiz.
123° 29, 950' distance = 95 m

0900 - set up for #1 drag

2 cable 3 cable drift 4N

3 cable

2 cable

3 cable

go with drift.

1015 - mooring sighted on surface
- saw 2 steel balls and 1 cluster of glass balls.

1100 - drag on board.

1130 - on board - missing 3 x SG17
all traps and release + pinger.
RCM's.

- head for deployment of CRD10-B.

1503 - deployed CRD10-B in 2475 m water
at position 48° 37.870' 123° 23.430'

- packing up
Heading for IOS.