

CRUISE  
NUMBER

98-39

BOOK 1 of 2

DAILY LOG  
INSTITUTE OF OCEAN SCIENCES  
OCEAN PHYSICS

DATE

NOV. 16 - 28, 1998

VESSEL

J.P. Tully

PROJECT

PERD WIDE STRAITS  
JUAN DE FUCA STRAIT



DEPART IOS @ 0001 Nov 17/98

Overcast, calm. Major storm with strong winds and heavy rain fell over the weekend. Winds eased on Monday morning Nov 16.

ARRIVE FIRST DRIFTER DEPLOYMENT SITE JFB3 to the NW of Port Angeles.  
Calm, overcast.

0811 Launch buoy 20309 [JFB3]. Magnet was removed the previous evening.

0849 Launch 20307 Metocean @ JFC4. Wait for 3 inbound ships to pass

0906 Launch DRIFTER 20310 METOCEAN  
SITE JFB5. CALM, Sunny

0910 Proceed to station JFC4 for next deployment.

1000 Deploy Clearwater drifter 6003. Large white drogue from, LORAN C drifter.

1016 Deploy Metocean drifter 20305 at JFC5

Deploy Metocean drifter 20311 at JFC6

Proceed to CTD LINE B. JFB5 → JFB1 CTD only.  
Secondary conductivity sensor failed

1430 Added extra 100lb to chain, but this overstrained the winch -  
reduced to 35lb

| YEAR                                                                                                                          |            |           | MONTH      |           |                    | SHIP     |           |               | CRUISE           |                        |                 |              |      | PAGE                                                    |  | OF |  |
|-------------------------------------------------------------------------------------------------------------------------------|------------|-----------|------------|-----------|--------------------|----------|-----------|---------------|------------------|------------------------|-----------------|--------------|------|---------------------------------------------------------|--|----|--|
| 1998                                                                                                                          |            |           | Nov        |           |                    | Tully    |           |               | 98-39            |                        |                 |              |      | 1                                                       |  |    |  |
| 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                                                                                                                            | JFB5*      | CTD       | 1928       | BE        | 001                |          |           |               | 58 m             |                        |                 |              |      | *Secondary conductivity sensor data are off calibration |  |    |  |
| 17                                                                                                                            | JFB5       | CTD       |            | BO        | 001                |          |           |               |                  |                        |                 |              |      |                                                         |  |    |  |
| 17                                                                                                                            | JFB5       | CTD       |            | EN        | 001                |          |           |               |                  |                        |                 |              |      |                                                         |  |    |  |
| 17                                                                                                                            | JFB4*      | CTD       | 20:00      | BE        | 002                |          |           |               | 137 m            |                        |                 |              |      |                                                         |  |    |  |
|                                                                                                                               | JFB4       | CTD       | 20:04      | BO        | 002                |          |           |               |                  |                        |                 |              |      |                                                         |  |    |  |
|                                                                                                                               | JFB4       | CTD       |            | EN        | 002                |          |           |               |                  |                        |                 |              |      |                                                         |  |    |  |
| 17                                                                                                                            | JFB3       | CTD       | 20:36      | BE        | 003                | 48 13.70 | 123 35.23 |               | 158 m            |                        |                 | 1            |      |                                                         |  |    |  |
| 17                                                                                                                            | JFB3       | CTD       | 20:40      | BO        | 003                | 48 13.66 | 123 35.17 |               |                  | 155 m                  |                 |              |      |                                                         |  |    |  |
| 17                                                                                                                            | JFB3       | CTD       | 20:43      | EN        | 003                | 48 13.64 | 123 35.13 |               |                  |                        |                 |              |      |                                                         |  |    |  |
| 17                                                                                                                            | JFB2       | CTD       | 21:59      | BE        | 004                | 48 15.85 | 123 35.28 |               | 195 m            |                        |                 |              |      |                                                         |  |    |  |
| 17                                                                                                                            | JFB2       | CTD       | 22:05      | BO        | 004                | 48 15.87 | 123 35.21 |               |                  | 192                    |                 |              |      | Changed secondary cond. sensor to S/N 2158              |  |    |  |
| 17                                                                                                                            | JFB2       | CTD       | 22:08      | EN        | 004                | 48 15.86 | 123 35.24 |               |                  |                        |                 |              |      |                                                         |  |    |  |
| 17                                                                                                                            | JFB1       | CTD       |            | BE        | 005                |          |           |               | 135 m            |                        |                 |              |      | * Problem with conductivity                             |  |    |  |
| 17                                                                                                                            | JFB1       | CTD       | 22:36      | BO        | 005                | 48 17.67 | 123 35.23 |               |                  | 150 m                  |                 |              |      | was in primary conductivity                             |  |    |  |
| 17                                                                                                                            | JFB1       | CTD       | 22:40      | EN        | 005                | 48 17.67 | 123 35.23 |               |                  |                        |                 |              |      | coefficients, now corrected                             |  |    |  |
| 17                                                                                                                            | JFC1       | CTD       | 23:42      | BE        | 006                | 48 20.19 | 123 45.09 |               | 61 m             |                        |                 |              |      |                                                         |  |    |  |
| 17                                                                                                                            | JFC1       | CTD       | 23:44      | BO        | 006                | 48 20.19 | 123 45.10 |               |                  | 55                     |                 |              |      |                                                         |  |    |  |
| 17                                                                                                                            | JFC1       | CTD       | 23:45      | EN        | 006                | 48 20.20 | 123 45.11 |               |                  |                        |                 |              |      |                                                         |  |    |  |
| CAST TYPE - BOT - bottle cast ROS - rosette USW - sea water loop TIME CODE - BE - beginning time of cast DE - deployment time |            |           |            |           |                    |          |           |               |                  |                        |                 |              |      |                                                         |  |    |  |

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

228

- 1.03332446 E+01

1.48092300 E+00

- 2.44575971 E-03

2.63443285 E-04

## DAILY LOG

## OCEAN PHYSICS

## INSTITUTE OF OCEAN SCIENCES

| YEAR         |               |              | MONTH         |              |                       | SHIP     |       |           | CRUISE |                  |                     | PAGE                      |                    | OF              |      |                                                                                |
|--------------|---------------|--------------|---------------|--------------|-----------------------|----------|-------|-----------|--------|------------------|---------------------|---------------------------|--------------------|-----------------|------|--------------------------------------------------------------------------------|
| 1998         |               |              | Nov           |              |                       | TULLY    |       |           | 9839   |                  |                     | 2                         |                    |                 |      |                                                                                |
| DAY<br>(UTC) | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE |       | LONGITUDE |        | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS                                                                       |
| 18           | JFC2          | CTD          |               | BE           | 007                   |          |       |           |        |                  | 170                 |                           |                    |                 |      |                                                                                |
|              |               |              | 0014          | Bo           | 007                   | 48°      | 18.45 | 123°      | 44.63  |                  |                     | 164                       |                    |                 |      |                                                                                |
|              |               |              | 0016          | EN           | 007                   | 48°      | 18.95 | 123°      | 44.59  |                  |                     |                           |                    |                 |      |                                                                                |
| 18           | JFC3          | CTD          | 0044          | BE           | 008                   | 48°      | 16.47 | 123°      | 44.96  |                  | 182                 |                           |                    |                 |      |                                                                                |
|              |               |              | 0049          | Bo           | 008                   | 48°      | 16.39 | 123°      | 44.91  |                  |                     | 176                       |                    |                 |      |                                                                                |
|              |               |              | 0052          | EN           | 008                   | 48°      | 16.33 | 123°      | 44.87  |                  |                     |                           |                    |                 |      |                                                                                |
| 18           | JFC4          | CTD          | 0112          | BE           | 009                   | 48°      | 19.37 | 123°      | 45.12  |                  | 167                 |                           |                    |                 |      |                                                                                |
|              |               |              | 0116          | Bo           | 009                   | 48°      | 19.39 | 123°      | 45.21  |                  |                     | 165                       |                    |                 |      |                                                                                |
|              |               |              | 0119          | EN           | 009                   | 48°      | 19.40 | 123°      | 45.29  |                  |                     |                           |                    |                 |      |                                                                                |
| 18           | JFC5          | CTD          | 0145          | BE           | 010                   | 48°      | 12.47 | 123°      | 45.17  |                  | 140                 |                           |                    |                 |      |                                                                                |
|              |               |              | 0151          | Bo           | 010                   | 48°      | 12.48 | 123°      | 45.31  |                  |                     | 137                       |                    |                 |      |                                                                                |
|              |               |              | 0154          | EN           | 010                   | 48°      | 12.48 | 123°      | 45.37  |                  |                     |                           |                    |                 |      |                                                                                |
| 18           | JFC6          | CTD          | 0222          | BE           | 011                   | 48°      | 10.39 | 123°      | 44.99  |                  | 51                  |                           |                    |                 |      | deck unit word was 0910 <sup>at surface</sup><br>(CTD came out of water slight |
|              |               |              | 0223          | Bo           | 011                   | 48°      | 10.39 | 123°      | 45.00  |                  |                     | 49.5                      |                    |                 |      | no sounder trace.                                                              |
|              |               |              | 0224          | EN           | 011                   | 48°      | 10.39 | 123°      | 45.04  |                  |                     |                           |                    |                 |      |                                                                                |
| 18           | JFD7          | CTD          | 0332          | BE           | 012                   | 48°      | 11.84 | 124°      | 00.02  |                  | 52m                 |                           |                    |                 |      | no sounder trace                                                               |
|              |               |              | 0333          | Bo           | 012                   | 48°      | 11.83 | 124°      | 00.03  |                  |                     | 49                        |                    |                 |      |                                                                                |
|              |               |              | 0334          | EN           | 012                   | 48°      | 11.83 | 124°      | 00.04  |                  |                     |                           |                    |                 |      |                                                                                |

CAST TYPE -

BOT -  
CTD -  
MOR -bottle cast  
ctd  
mooring

ROS -

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 cast

DE -

MR -

RE -

deployment time  
messenger release  
recover mooring

POSITION CODE -

RAD -

GPS -

LOR -

RADAR  
GLOBAL  
LORAN

JFC2 weight winch still overheating  
1616

JFC3 winch overheated

Nov 18 @ 0400 PDT

- Problems encountered:
- ① Weight recovery unit overheats with 1 section of chain + 351b shot (~135/hr)  
Typical steps just at deck level.
  - ② There should be a tie-off point on the weight and the type of weight should be "standardized" Consider this component part of the CTD/Rosette system.
  - ③ FAX MODem SYSTEM IN THE LAB, OSAP should have the ability to receive and send faxes from the lab at a BAW-RATE > 4800 bps
  - ④

Nov 19 Complete CTD JFE1 @ 0500 PDT. Proceed to drifter recovery site near Dungeness Spit. Recovered 20307 near Port Angeles Harbour @ 1035 PDT. Buys were difficult to spot until we were within 1 km. Seas almost flat calm.

1236 PDT Recovered drifter 20309 among the crab pots behind Dungeness Spit in Dungeness Bay. Proceed to 20311 in Hoko Strait.

1510 PDT Recovered drifter 20310 near Bagnall Shoal off Victoria  
48° 27.9158 123° 10.010' WINDS SE 20-25 kts.

Proceed to JFC line - deploy 3.

1815 PDT Deploy CANSTAR-P Drifter #4759 @ JFC3 48° 16.498' 123° 45.030'. We shortened the tethers to 2m from 4m to make them much less of a hazard. More difficult to launch.

1830 PDT Deploy Cansarp drifter #24543 @ JFC4 48° 14.420' 123° 45.021'.

1846 PDT Deploy Metocean drifter 20307 (2nd deployment this unit) @ 48° 12.362 123° 45.040.

| YEAR      |            | MONTH     |            | SHIP      |                    | CRUISE   |           | PAGE          |                  | OF                     |                 |              |      |          |
|-----------|------------|-----------|------------|-----------|--------------------|----------|-----------|---------------|------------------|------------------------|-----------------|--------------|------|----------|
| 1998      |            | Nov       |            | TULLY     |                    | 9839     |           | 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 |
| 18        | JFD6       | CTD       | 04:33      | BE        | 013                | 48 13.86 | 123 59.93 |               | 130m             |                        |                 |              |      |          |
|           |            |           | 04:36      | BO        | 013                |          |           |               |                  |                        |                 |              |      |          |
|           |            |           |            | EN        | 013                |          |           |               |                  |                        |                 |              |      |          |
| 18        | JFD5       | CTD       | 05:00      | BE        | 014                | 48 15.88 | 123 59.89 |               | 182m             |                        |                 |              |      |          |
|           |            |           | 05:05      | BO        | 014                | 15.93    | 59.99     |               |                  |                        |                 |              |      |          |
|           |            |           | 05:07      | EN        | 014                |          |           |               |                  |                        |                 |              |      |          |
| 18        | JFD4       | CTD       | 05:35      | BE        | 015                | 48 17.80 | 123 59.99 |               | 187m             |                        |                 |              |      |          |
|           |            |           | 05:40      | BO        | 015                | 17.81    | 59.97     |               |                  |                        |                 |              |      |          |
|           |            |           | 05:43      | EN        | 015                | 17.78    | 59.97     |               |                  |                        |                 |              |      |          |
| 18        | JFD3       | CTD       | 06:07      | BE        | 016                | 48 19.75 | 124 0.12  |               | 165m             |                        |                 |              |      |          |
|           |            |           | 06:10      | BO        | 016                | 19.76    | 0.16      |               |                  |                        |                 |              |      |          |
|           |            |           | 06:13      | EN        | 016                | 19.79    | 0.18      |               |                  |                        |                 |              |      |          |
| 18        | JFD2       | CTD       | 06:38      | BE        | 017                | 48 21.91 | 124 0.02  |               | 121m             |                        |                 |              |      |          |
|           |            |           | 06:41      | BO        | 017                | 48 21.92 | 123 59.95 |               |                  |                        |                 |              |      |          |
|           |            |           | 06:43      | EN        | 017                | 21.93    | 59.89     |               |                  |                        |                 |              |      |          |
|           | JFD1       | CTD       | 07:08      | BE        | 018                | 48 23.04 | 123 59.96 |               | 56m              |                        |                 |              |      |          |
|           |            |           | 07:09      | BO        | 018                |          |           |               |                  |                        |                 |              |      |          |
|           |            |           | 07:11      | EN        | 018                |          |           |               |                  |                        |                 |              |      |          |

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

ROS - rosette  
NET - net haul  
DRF - drifter

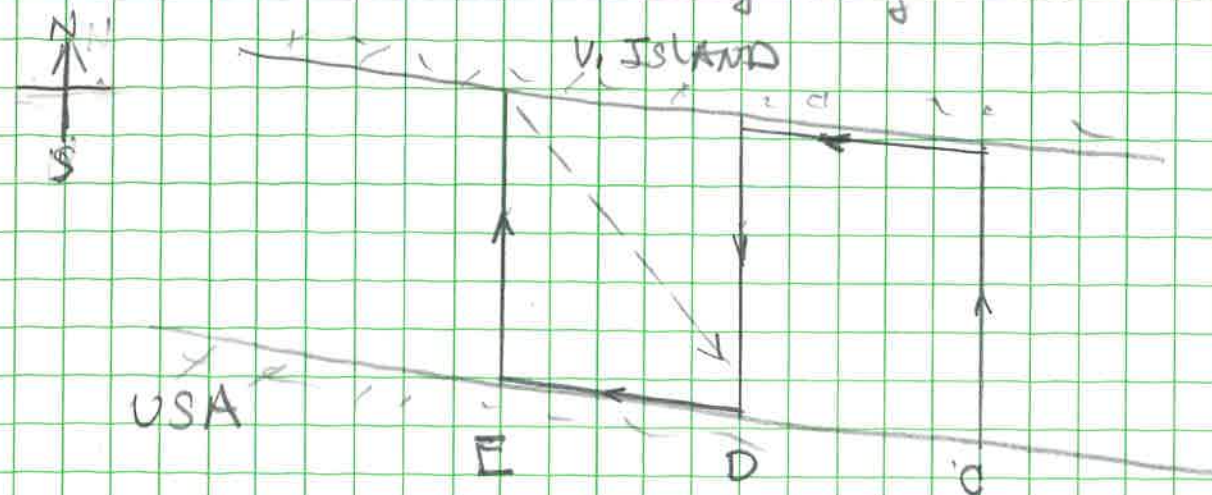
USW - sea water loop

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

Nov 19/20: Conduct CTD TS survey along lines JFC6 → JFE1.



TO DATE, This survey has been conducted  
3 times. Approximately 1 line per 4 hour  
shift.

Return to JFD6 to await drifter update.

Proceed to CTD line A (south end JFAB)

## DAILY LOG

## OCEAN PHYSICS

## INSTITUTE OF OCEAN SCIENCES

| YEAR<br>1998 |               | MONTH<br>NOV |               | SHIP<br>TULLY |                       | CRUISE<br>98-39 |           | PAGE<br>4 OF     |                     |                           |                    |                 |      |          |
|--------------|---------------|--------------|---------------|---------------|-----------------------|-----------------|-----------|------------------|---------------------|---------------------------|--------------------|-----------------|------|----------|
| DAY<br>(UTC) | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE  | STD/HYDRO<br>CONSEC # | LATITUDE        | LONGITUDE | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS |
| 18           | JFE1          | CTD          | 8:35          | BE            | 019                   | 48 27.20        | 124 14.96 |                  | 30m                 |                           |                    |                 |      |          |
|              |               | CTD          | 8:36          | BO            | 019                   | 48 27.20        | 124 14.95 |                  |                     |                           |                    |                 |      |          |
|              |               | CTD          | 8:36          | EN            | 019                   | 48 27.20        | 124 14.95 |                  |                     |                           |                    |                 |      |          |
| 18           | JFE2          | CTD          | 8:38          | BE            | 020                   | 48 25.16        | 124 15.02 |                  | 188m                |                           |                    |                 |      |          |
|              |               | CTD          |               | BO            | 020                   |                 |           |                  |                     | 131m                      |                    |                 |      |          |
|              |               | CTD          |               | EN            | 020                   |                 |           |                  |                     |                           |                    |                 |      |          |
| 18           | JFE3          | CTD          | 9:22          | BE            | 021                   | 48 23.23        | 124 15.08 |                  | 185m                |                           |                    |                 |      |          |
|              |               | CTD          |               | BO            | 021                   |                 |           |                  |                     | 181m                      |                    |                 |      |          |
|              |               | CTD          |               | EN            | 021                   |                 |           |                  |                     |                           |                    |                 |      |          |
| 18           | JFE4          | CTD          | 9:50          | BE            | 022                   | 48 21.21        | 124 15.04 |                  | 227m                |                           |                    |                 |      |          |
|              |               | CTD          |               | BO            | 022                   |                 |           |                  |                     |                           |                    |                 |      |          |
|              |               | CTD          |               | EN            | 022                   |                 |           |                  |                     |                           |                    |                 |      |          |
| 18           | JFE5          | CTD          | 10:20         | BE            | 023                   | 48 19.19        | 124 15.02 |                  | 214m                |                           |                    |                 |      |          |
|              |               | CTD          |               | BO            | 023                   |                 |           |                  |                     | 206m                      |                    |                 |      |          |
|              |               | CTD          |               | EN            | 023                   |                 |           |                  |                     |                           |                    |                 |      |          |
| 18           | JFE6          | CTD          | 10:48         | BE            | 024                   | 48 17.72        | 124 14.96 |                  | 175m                |                           |                    |                 |      |          |
|              |               | CTD          |               | BO            | 024                   |                 |           |                  |                     | 168m                      |                    |                 |      |          |
|              |               | CTD          |               | EN            | 024                   |                 |           |                  |                     |                           |                    |                 |      |          |

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

MOORING JF3B,  
EAST OF PILLAR POINT

SNM  
+ ORANGE  
PINT

#3905

5 1/2 shackles

Swivel

Pinger SN (orange)  
Helle

9400 19.1 Volts

1 1/2 shackles

30m — 1m @ 5 1/2" ANGAL



RCM4 SN 257 Paddle wheel

VANE # 2002

TIME IN WATER → 09:08

57.26m

ANGAL

1 1/2 shackles



#549

1 1/4 shackles

← 1m 5 1/2" ANGAL

90m —



RCM4 SN 4425

VANE # 3002

TIME IN WATER → 09:09:30

27.05m

ANGAL

1 1/2 shackles



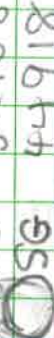
SG 47490



WB 7066 WITNESS BUOY



SG 32988



SG 44918

swivel

1 1/2 shackles

1 1/2 shackles

3 1/4 shackles

Pinger SN 6938

19.2V 11/18

Helle



20m poly

141m

INTERCOM 1090 SN 334

CODE: Release ABCD

REARM CODE CDEG

7 1/8 shackles

3 wheels, 2465lbs

TOTAL

141m

20m poly

141m

NOV 23/98

ANC HARC AWAY = 09:23 PST

Depth Sounder: 151m (lab)

48° 13.200 } LAB

124° 03.160 } LAB

48° 13.203 } BRIDGE

124° 03.162 } BRIDGE

2 mls east of Pillar Point

NOV 23/98

ANC HARC AWAY = 09:23 PST

Depth Sounder: 151m (lab)

48° 13.200 } LAB

124° 03.160 } LAB

48° 13.203 } BRIDGE

124° 03.162 } BRIDGE

2 mls east of Pillar Point

## DAILY LOG

## OCEAN PHYSICS

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| YEAR         |               |              | MONTH         |              |                       | SHIP      |            |                  | CRUISE              |                           |                    | PAGE            |      | OF                         |  |
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| 1998         |               |              | Nov.          |              |                       | Tully     |            |                  | 4839                |                           |                    | 5               |      |                            |  |
| DAY<br>(UTC) | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE  | LONGITUDE  | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS                   |  |
| 18           | JFE7          | CTD          | 11:14         | BE           | 025                   | 48° 16.35 | 124° 14.98 |                  | 86m                 |                           |                    |                 |      | CALM CONDITIONS, overcast. |  |
| 18           | "             | CTD          |               | BO           | 025                   |           |            |                  |                     | 85m                       |                    |                 |      |                            |  |
| 18           |               | CTD          |               | EN           | 025                   |           |            |                  |                     |                           |                    |                 |      |                            |  |
| 18           | JFF7          | CTD          | 1237          | BE           | 026                   | 48° 21.01 | 124° 30.07 |                  | 31                  |                           |                    |                 |      |                            |  |
|              | "             | CTD          |               | BO           | 026                   |           |            |                  |                     | 24m                       |                    |                 |      |                            |  |
|              | "             | CTD          | 1237          | EN           | 026                   | 48° 21.02 | 124° 30.08 |                  |                     |                           |                    |                 |      |                            |  |
| 18           | JFF6          | CTD          | 1256          | BE           | 027                   | 48° 22.52 | 124° 30.02 |                  | 109                 |                           |                    |                 |      |                            |  |
|              |               |              | 1257          | BO           | 027                   | 48° 22.52 | 124° 30.03 |                  |                     | 104                       |                    |                 |      |                            |  |
|              |               |              | 1259          | EN           | 027                   | 48° 22.52 | 124° 30.03 |                  |                     |                           |                    |                 |      |                            |  |
| 18           | JFF5          | CTD          | 1332          | BE           | 028                   | 48° 24.48 | 124° 29.99 |                  | 213                 |                           |                    |                 |      |                            |  |
|              |               |              | 1335          | BO           | 028                   | 48° 24.48 | 124° 30.01 |                  |                     | 211                       |                    |                 |      |                            |  |
|              |               |              | 1337          | EN           | 028                   | 48° 24.48 | 124° 30.03 |                  |                     |                           |                    |                 |      |                            |  |
| 18           | JFF4          | CTD          | 1433          | BE           | 029                   | 48° 26.52 | 124° 30.15 |                  | 232                 |                           |                    |                 |      |                            |  |
|              |               |              | 1438          | BO           | 029                   | 48° 26.50 | 124° 30.18 |                  |                     | 227                       |                    |                 |      |                            |  |
|              |               |              | 1442          | EN           | 029                   | 48° 26.48 | 124° 30.17 |                  |                     |                           |                    |                 |      |                            |  |
| 18           | JFF3          | CTD          | 1506          | BE           | 030                   | 48° 28.54 | 124° 30.12 |                  | 215                 |                           |                    |                 |      |                            |  |
|              |               |              | 1511          | BO           | 030                   | 48° 28.54 | 124° 30.17 |                  |                     | 212                       |                    |                 |      |                            |  |
|              |               |              | 1515          | EN           | 030                   | 48° 28.52 | 124° 30.23 |                  |                     |                           |                    |                 |      |                            |  |

CAST TYPE -

BOT - bottle cast  
CTD - ctd  
MOR - mooringROS - 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 castDE - deployment time  
MR - messenger release  
RE - recover mooring

POSITION CODE -

RAD - RADAR  
GPS - GLOBAL  
LOR - LORAN

JFF6 → JFF5 wait for traffic to clear.

JFF4 Turbid layer below 150m

JFF3 Turbid layer below 170m

## DAILY LOG

## OCEAN PHYSICS

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| 1998         |               |              | Nov           |              |                       | Tully    |       |           | 9839   |                  |                     | 6                         |                    |                 |      |                                      |
| DAY<br>(UTC) | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE |       | LONGITUDE |        | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS                             |
| 18           | JFF2          | CTD          | 1543          | BE           | 031                   | 48°      | 30.44 | 124°      | 30.14  |                  | 145                 |                           | 1+2                | 2               |      |                                      |
|              |               |              | 1548          | BO           | 031                   |          | 30.40 |           | 30.28  |                  |                     |                           |                    |                 |      |                                      |
|              |               |              | 1551          | EN           | 031                   |          | 30.37 |           | 30.37  |                  |                     |                           |                    |                 |      |                                      |
| 18           | JFF1          | CTD          | 1605          | BE           | 032                   | 48       | 31.04 | 124       | 30.42  |                  | 55                  |                           |                    |                 |      |                                      |
|              |               |              |               | BO           | 032                   |          |       |           |        |                  |                     |                           |                    |                 |      |                                      |
|              |               |              |               | EN           | 032                   |          | 31.89 |           | 30.89  |                  |                     |                           |                    |                 |      |                                      |
| 18           | JFG1          | CTD          | 1716          | BE           | 033                   | 48       | 34.07 | 124       | 40.13  |                  | 45                  |                           |                    |                 |      | clear skies / calm, low swell. cool. |
|              |               |              |               | BO           | 033                   |          |       |           |        |                  |                     |                           |                    |                 |      |                                      |
|              |               |              |               | EN           | 033                   |          | "     |           | "      |                  |                     |                           |                    |                 |      |                                      |
| 18           | JFG2          | CTD          | 1739          | BE           | 034                   | 48°      | 32.28 | 124°      | 40.05  |                  | 140                 |                           |                    |                 |      | Good bottom sample.                  |
|              |               |              |               | BO           | 034                   |          | 32.26 |           | 40.06  |                  |                     |                           |                    |                 |      |                                      |
|              |               |              | 1744          | EN           | 034                   |          | 32.24 |           | 40.05  |                  |                     |                           |                    |                 |      |                                      |
| 18           | JFG3          | CTD          | 1810          | BE           | 035                   | 48°      | 30.33 | 124°      | 40.20  |                  | 239                 |                           | 1+2                | 2               |      | Salinity Sample                      |
|              |               |              | 1815          | BO           | 035                   |          | 30.32 |           | 40.32  |                  |                     |                           |                    |                 |      |                                      |
|              |               |              | 1822          | EN           | 035                   |          | 30.32 |           | 40.46  |                  |                     |                           |                    |                 |      |                                      |
| 18           | JFG4          | CTD          | 1856          |              | 036                   | 48       | 28.38 | 124°      | 39.87  |                  | 256                 |                           | 3+4                | 2               |      | Salinity Sample                      |
|              |               |              | 1902          |              | 036                   |          | 28.39 |           | 39.92  |                  |                     |                           |                    |                 |      |                                      |
|              |               |              | 1909          |              | 036                   |          | 28.39 |           | 39.95  |                  |                     |                           |                    |                 |      |                                      |

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

## DAILY LOG

## OCEAN PHYSICS

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| 1998                                                                         |            | NOV       |            |           |                    | 9839       |             | 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                                                                           | JFG5       | CTD       | 19:39      | BE        | 037                | 48 26.16   | 124 40.04   |               | 185m             |                        |                 |              |      |          |
|                                                                              |            |           | 19:44      | BO        | 037                | 26.12      | 40.13       |               |                  |                        |                 |              |      |          |
|                                                                              |            |           | 19:48      | EN        | 037                | 26.10      | 40.15       |               |                  |                        |                 |              |      |          |
| 18                                                                           | JFGL       | CTD       | 20:11      | BE        | 038                | 48 24.38   | 124 40.17   |               | 86m              |                        |                 |              |      |          |
|                                                                              |            |           | 20:13      | BO        | 038                | 24.39      | 40.20       |               |                  | 81m                    |                 |              |      |          |
|                                                                              |            |           | 20:15      | EN        | 038                | 24.39      | 40.21       |               |                  |                        |                 |              |      |          |
| PROCEED TO CANSARP DRIFTER STATIONS 1, 2, 3 along Line midway between B & C. |            |           |            |           |                    |            |             |               |                  |                        |                 |              |      |          |
| 19                                                                           | JFC6       | CTD       | 0118       | BE        | 039                | 48° 10 40' | 123° 45 08' |               | 52               |                        |                 |              |      |          |
|                                                                              |            |           |            | BO        | 039                |            |             |               |                  | 48                     |                 |              |      |          |
|                                                                              |            |           | 0120       | EN        | 039                | 48° 10 42  | 123° 45 12  |               |                  |                        |                 |              |      |          |
| 19                                                                           | JFC5       | CTD       | 0139       | BE        | 040                | 48 12 41   | 123 44.99   |               | 140              |                        |                 |              |      |          |
|                                                                              |            |           | 0143       | BO        | 040                |            |             |               |                  | 1338                   |                 |              |      |          |
|                                                                              |            |           |            | EN        | 040                |            |             |               |                  |                        |                 |              |      |          |
| 19                                                                           | JFC4       | CTD       | 0210       | BE        | 041                | 48° 14 44' | 123° 45 16' |               | 167              |                        |                 |              |      |          |
|                                                                              |            |           | 0214       | BO        | 041                | 48° 14 44' | 123° 45 32' |               |                  | 162                    |                 |              |      |          |
|                                                                              |            |           | 0216       | EN        | 041                | 48° 14.43  | 123° 45.40  |               |                  |                        |                 |              |      |          |
| This space intentionally left blank.                                         |            |           |            |           |                    |            |             |               |                  |                        |                 |              |      |          |

CAST TYPE -

BOT -  
CTD -  
MOR -bottle cast  
ctd  
mooringROS -  
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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

## DAILY LOG

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| 1998      |            | Nov       |            | TULLY     |                    | 9839      |            | 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        | JFC3       | CTD       | 0253       | BE        | 042                | 48° 16.46 | 123° 45.08 |               | 181              |                        |                 |              |      |          |
|           |            |           | 0257       | BO        | 042                | 48° 16.41 | 123° 45.16 |               |                  | 177                    |                 |              |      |          |
|           |            |           | 0300       | EN        | 042                | 48° 16.39 | 123° 45.23 |               |                  |                        |                 |              |      |          |
| 19        | JFC2       | CTD       | 0323       | BE        | 043                | 48° 18.46 | 123° 45.03 |               | 173              |                        |                 |              |      |          |
|           |            |           | 0328       | BO        | 043                | 48° 18.45 | 123° 45.00 |               |                  | 167                    |                 |              |      |          |
|           |            |           | 0331       | EN        | 043                | 48° 18.46 | 123° 45.00 |               |                  |                        |                 |              |      |          |
| 19        | JFC1       | CTD       | 0359       | BE        | 044                | 48° 20.17 | 123° 45.04 |               | 61               |                        |                 |              |      |          |
|           |            |           | 0400       | BO        | 044                | 48° 20.16 | 123° 45.05 |               |                  | 56                     |                 |              |      |          |
|           |            |           | 0401       | EN        | 044                | 48° 20.15 | 123° 45.08 |               |                  |                        |                 |              |      |          |
| 19        | JFD1       |           | 05:15      | BE        | 045                | 48° 23.14 | 123° 59.99 |               | 45               |                        |                 |              |      |          |
|           |            |           | 05:17      | BO        | 045                | 23.15     | 59.92      |               |                  |                        |                 |              |      |          |
|           |            |           | 05:18      | EN        | 045                | 23.14     | 59.91      |               |                  |                        |                 |              |      |          |
| 19        | JFD2       |           | 05:37      | BE        | 046                | 48° 21.86 | 123 59.99  |               | 121              |                        |                 |              |      |          |
|           |            |           | 05:41      | BO        | 046                | 21.85     | 59.97      |               |                  |                        |                 |              |      |          |
|           |            |           | 05:43      | EN        | 046                | 21.86     | 59.98      |               |                  |                        |                 |              |      |          |
| 19        | JFD3       |           | 06:10      | BE        | 047                | 48° 19.69 | 123 59.96  |               | 165              |                        |                 |              |      |          |
|           |            |           | 06:14      | BO        | 047                | 19.67     | 59.93      |               |                  |                        |                 |              |      |          |
|           |            |           | 06:17      | EN        | 047                | 19.65     | 59.93      |               |                  |                        |                 |              |      |          |

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

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| 1998         |               | NOV          |               |              |                       | TULLY     |      |           |  | 9839             |                     |                           |                    | 9               |      |                             |  |
| DAY<br>(UTC) | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE  |      | LONGITUDE |  | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS                    |  |
| 19           | JFD4          | CTD          | 06:52         | BE           | 048                   | 48° 17.75 | 123  | 59.92     |  |                  | 188n                |                           |                    |                 |      |                             |  |
|              |               |              | 06:56         | BO           | 048                   | 17.71     |      | 59.89     |  |                  |                     |                           |                    |                 |      |                             |  |
|              |               |              | 06:59         | EN           | 048                   | 17.71     |      | 59.90     |  |                  |                     |                           |                    |                 |      |                             |  |
| 19           | JFD5          | CTD          | 07:22         | BE           | 049                   | 48° 15.77 | 124° | 0.00      |  |                  | 183                 |                           |                    |                 |      |                             |  |
|              |               |              | 07:26         | BO           | 049                   | 15.85     | 123° | 59.96     |  |                  |                     |                           |                    |                 |      |                             |  |
|              |               |              | 07:29         | EN           | 049                   | 15.86     |      | 59.94     |  |                  |                     |                           |                    |                 |      |                             |  |
| 19           | JFD6          | CTD          | 07:51         | BE           | 050                   | 48 13.82  | 124° | 0.06      |  |                  | 126                 |                           |                    |                 |      |                             |  |
|              |               |              | 07:55         | BO           | 050                   |           |      |           |  |                  |                     |                           |                    |                 |      |                             |  |
|              |               |              |               | EN           | 050                   |           |      |           |  |                  |                     |                           |                    |                 |      |                             |  |
| 19           | JFD7          | CTD          | 0825          | BE           | 051                   | 48 11.82  | 123  | 59.91     |  |                  | 53                  |                           |                    |                 |      |                             |  |
|              |               |              | 0827          | BO           | 051                   | 11.81     | 123  | 59.85     |  |                  | 478                 |                           |                    |                 |      |                             |  |
|              |               |              | 0829          | EN           | 051                   |           |      | "         |  |                  |                     |                           |                    |                 |      |                             |  |
|              | JFE7          | CTD          |               | BE           | 052                   |           |      |           |  |                  | 80                  | 7                         |                    |                 |      | wind increasing. > 20 knots |  |
|              |               |              | 0957          | BO           | 052                   | 48 16.48  | 124  | 15.02     |  |                  | 78                  |                           |                    |                 |      |                             |  |
|              |               |              | 0959          | EN           | 052                   | 48 16.56  | 124  | 15.02     |  |                  |                     |                           |                    |                 |      |                             |  |
|              | JFE6          | CTD          | 1019          | BE           | 053                   | 48 17.76  | 124° | 14.69     |  |                  | 176                 |                           |                    |                 |      | Pronounced Fresh layer      |  |
|              |               |              | 1023          | BO           | 053                   | 17.76     |      | 14.50     |  |                  | 173                 |                           |                    |                 |      | Very turbid @ bottom        |  |
|              |               |              | 1025          | EN           | 053                   | 17.75     |      | 14.46     |  |                  |                     |                           |                    |                 |      | wind still up.              |  |

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

## DAILY LOG

## OCEAN PHYSICS

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| 1998      |                                                  | Nov       |                                                                                                                                           | Tully     |                    | 9839      |            | 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                                         |
| 19        | JFE5                                             | CTD       | 1047                                                                                                                                      | BE        | 054                | 48 19.25  | 124 15.01  |               | 214              |                        |                 |              |      | Fresh at Surface                                 |
|           |                                                  |           | 1052                                                                                                                                      | BO        | 054                | 19.20     | 15.03      |               |                  | 200                    |                 |              |      | Turbid at bottom                                 |
|           |                                                  |           | 1055                                                                                                                                      | EN        | 054                | 19.17     | 15.08      |               |                  |                        |                 |              |      |                                                  |
|           | JFE4                                             | CTD       | 1119                                                                                                                                      | BE        | 055                | 48 21.25  | 124 15.02  |               | 228              |                        |                 |              |      | Fresh layer not there                            |
|           |                                                  |           | 1123                                                                                                                                      | BO        | 055                | 48 21.21  | 124 15.03  |               |                  | 220                    |                 |              |      |                                                  |
|           |                                                  |           | 1126                                                                                                                                      | EN        | 055                | 21.21     | 15.00      |               |                  |                        |                 |              |      |                                                  |
|           | JFE3                                             | CTD       | 1156                                                                                                                                      | BE        | 056                | 48° 23.29 | 124° 14.97 |               | 185              |                        |                 |              |      | Wings Down. New shift. 4-8.                      |
|           |                                                  |           | 1159                                                                                                                                      | BO        | 056                | 48° 23.27 | 124° 14.99 |               |                  | 183                    |                 |              |      |                                                  |
|           |                                                  |           | 1202                                                                                                                                      | EN        | 056                | 48° 23.26 | 124° 14.98 |               |                  |                        |                 |              |      |                                                  |
|           | JFE2                                             | CTD       | 1230                                                                                                                                      | BE        | 057                | 48° 25.25 | 124° 14.62 |               | 135              |                        |                 |              |      | 110°T @ 25 knots                                 |
|           |                                                  |           |                                                                                                                                           | BO        | 057                | 48° 25.24 | 124° 14.52 |               |                  | 126                    |                 |              |      | very low turbid layer at > 117 m. Deep intrusion |
|           |                                                  |           | 1237                                                                                                                                      | EN        | 057                | 48° 25.25 | 124° 14.48 |               |                  |                        |                 |              |      |                                                  |
|           | JFE1                                             | CTD       | 1259                                                                                                                                      | BE        | 058                | 48° 27.22 | 124° 15.02 |               | 29               |                        |                 |              |      |                                                  |
|           |                                                  |           | 1300                                                                                                                                      | BO        | 058                | 48° 27.23 | 124° 15.02 |               |                  | 27                     |                 |              |      |                                                  |
|           |                                                  |           | 1302                                                                                                                                      | EN        | 058                | 48° 27.22 | 124° 15.03 |               |                  |                        |                 |              |      |                                                  |
|           | 0510 PST off to find drifters off Dungeness Spit |           |                                                                                                                                           |           |                    |           |            |               |                  |                        |                 |              |      |                                                  |
|           | 1035 PDT                                         | 1035 PST  | Recovered drifter Metocean 20307 @ 48°09.148' N 123°19.345' very close to shore. Seas calm/no wind. Proceed to recovery of drifter 20309. |           |                    |           |            |               |                  |                        |                 |              |      |                                                  |

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

## DAILY LOG

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| 1998      |            | Nov       |                 | Tully     |                    | 9839        |              | 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       |
| 19        |            |           | 1236 PST        |           | Recover drifter    | 20309       | 48° 08.072   |               | 123                     | 01.882 (Recovery)      |                 |              |      | DUGGESS BAY    |
| 19        |            |           | 1512 PST        |           | Recover drifter    | 20310       | 48° 27.958   |               | 123° 10.010' (Recovery) |                        |                 |              |      | Beaumont Shoal |
| 19        |            |           | 1815 → 1846 PST |           | Deploy drifters    | 4759 @ JFC3 | 24543 @ JFC4 |               | 20309 @ JFC5            |                        |                 |              |      |                |
| 20        | JFC6       | CTD       | 0307            | BE        | 059                | 48° 10.40'  | 123° 45.04'  |               | 51                      |                        |                 |              |      |                |
|           |            |           | 0308            | BO        | 059                |             |              |               |                         | 47                     |                 |              |      |                |
|           |            |           | 0309            | EN        | 059                | 48° 10.39'  | 123° 45.07'  |               |                         |                        |                 |              |      |                |
| 20        | JFC5       | CTD       | 0331            | BE        | 060                | 48° 12.39'  | 123° 45.04'  |               | 139                     |                        |                 |              |      |                |
|           |            |           | 0334            | BO        | 060                | 48° 12.39'  | 123° 45.04'  |               |                         | 135                    |                 |              |      |                |
|           |            |           | 0337            | EN        | 060                | 48° 12.42'  | 123° 45.03'  |               |                         |                        |                 |              |      |                |
| 20        | JFC4       | CTD       | 0357            | BE        | 061                | 48° 14.42'  | 123° 45.03'  |               | 168                     |                        |                 |              |      |                |
|           |            |           | 0400            | BO        | 061                | 14.43       | 45.02        |               |                         |                        |                 |              |      |                |
|           |            |           | 0404            | EN        | 061                | 14.45       | 44.97        |               |                         |                        |                 |              |      | Watch change   |
| 20        | JFC3       | CTD       | 0427            | BE        | 062                | 48° 16.55   | 123° 45.04   |               | 183                     |                        |                 |              |      |                |
|           |            |           | 0431            | BO        | 062                | 16.54       | 45.07        |               |                         |                        |                 |              |      |                |
|           |            |           | 0435            | EN        | 062                | 16.53       | 45.13        |               |                         |                        |                 |              |      |                |
| 20        | JFC2       | CTD       | 0455            | BE        | 063                | 48° 18.49   | 123° 45.07   |               | 173                     |                        |                 |              |      |                |
|           |            |           | 0459            | BO        | 063                | 18.52       | 45.05        |               |                         |                        |                 |              |      |                |
|           |            |           | 0502            | EN        | 063                | 18.54       | 45.05        |               |                         |                        |                 |              |      |                |

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

## DAILY LOG

## OCEAN PHYSICS

## INSTITUTE OF OCEAN SCIENCES

| YEAR         |               | MONTH        |               | SHIP         |                       | CRUISE   |       | PAGE      |       | OF               |                     |                           |                    |                 |      |          |
|--------------|---------------|--------------|---------------|--------------|-----------------------|----------|-------|-----------|-------|------------------|---------------------|---------------------------|--------------------|-----------------|------|----------|
| 1998         |               | NOV          |               | TULLY        |                       | 9839     |       | 12        |       |                  |                     |                           |                    |                 |      |          |
| DAY<br>(UTC) | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE |       | LONGITUDE |       | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS |
| 20           | JFC1          | CTD          | 0521          | BE           | 064                   | 48°      | 20.12 | 123°      | 44.96 |                  | 63m                 |                           |                    |                 |      |          |
|              |               |              | 0523          | BO           | 064                   |          | 20.11 |           | 45.00 |                  |                     |                           |                    |                 |      |          |
|              |               |              | 0525          | EN           | 064                   |          | 20.11 |           | 45.02 |                  |                     |                           |                    |                 |      |          |
| 20           | JFD1          | CTD          | 06:31         | BE           | 065                   | 48°      | 23.06 | 124°      | 0.05  |                  | 59                  |                           |                    |                 |      |          |
|              |               |              | 06:32         | BO           | 065                   |          | 23.04 |           | 0.02  |                  |                     |                           |                    |                 |      |          |
|              |               |              | 06:34         | EN           | 065                   |          | 23.04 |           | 0.02  |                  |                     |                           |                    |                 |      |          |
| 20           | JFD2          | CTD          | 0701          | BE           | 066                   | 48°      | 21.80 | 123       | 59.99 |                  | 122                 |                           |                    |                 |      |          |
|              |               |              | 0703          | BO           | 066                   |          | 21.82 |           | 59.95 |                  |                     |                           |                    |                 |      |          |
|              |               |              | 0706          | EN           | 066                   |          | 21.82 |           | 59.94 |                  |                     |                           |                    |                 |      |          |
| 20           | JFD3          | CTD          | 0730          | BE           | 067                   | 48°      | 19.66 | 123       | 59.94 |                  |                     |                           |                    |                 |      |          |
|              |               |              | 0733          | BO           | 067                   |          | 19.62 |           | 59.89 |                  | 167                 |                           |                    |                 |      |          |
|              |               |              | 0737          | EN           | 067                   |          | 19.57 |           | 59.89 |                  |                     |                           |                    |                 |      |          |
| 20           | JFD4          | CTD          | 0755          | BE           | 068                   | 48°      | 17.71 | 123       | 59.97 |                  | 189                 |                           |                    |                 |      |          |
|              |               |              | 0759          | BO           | 068                   |          | 17.64 |           | 59.90 |                  |                     |                           |                    |                 |      |          |
|              |               |              | 0801          | EN           | 068                   |          | 17.60 |           | 59.90 |                  |                     |                           |                    |                 |      |          |
| 20           | JFD5          | CTD          | 0824          | BE           | 069                   | 48°      | 15.78 | 123       | 59.93 |                  | 183                 |                           |                    |                 |      |          |
|              |               |              | 0827          | BO           | 069                   |          | 15.79 |           | 59.91 |                  |                     |                           |                    |                 |      |          |
|              |               |              | 0830          | EN           | 069                   |          |       |           |       |                  |                     |                           |                    |                 |      |          |

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

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| 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        | JF06       | CTD       | 0902       | BE        | 070                | 48       | 13.78  | 123       | 59.99  |               |                  |                        |                 |              |      |                                 |
|           |            |           | 0904       | BO        | 070                |          | 13.80  |           | 59.99  |               |                  |                        |                 |              |      |                                 |
|           |            |           | 9051       | EN        | 070                |          | 13.79  |           | 59.97  |               |                  |                        |                 |              |      |                                 |
|           | JF07       | CTD       | 926        | BE        | 071                | 48       | 11.77  | 125       | 59.96  |               |                  |                        |                 |              |      |                                 |
|           |            |           | 0927       |           | 071                |          |        |           |        |               |                  |                        |                 |              |      |                                 |
|           |            |           | 0928       |           | 071                |          |        |           |        |               |                  |                        |                 |              |      |                                 |
|           | JFE7       | CTD       | 1057       | BE        | 072                | 48       | 16.38  | 124       | 14.96  |               | 85m              |                        |                 |              |      | Drifting Fast                   |
|           |            |           | 1102       | BO        | 072                |          | 16.50  |           | 14.78  |               |                  | 101                    |                 |              |      | Up & Down casts quite different |
|           |            |           | 1105       | EN        | 072                |          | 16.65  |           | 14.72  |               |                  |                        |                 |              |      | Wind ESE 30 Raining Hard        |
|           | JFE6       | CTD       | 1126       | BE        | 073                | 48       | 17.63  | 124       | 14.75  |               |                  | 177                    |                 |              |      | Head into wind & drift with     |
|           |            |           | 1130       | BO        | 073                |          | 17.58  |           | 14.53  |               |                  |                        | 173             |              |      | current still ~30'              |
|           |            |           |            | EN        | 073                |          | 17.54  |           | 14.37  |               |                  |                        |                 |              |      | Turbidity peak at ~108m         |
|           | JFE5       | CTD       | 1206       | BE        | 074                | 48°      | 19.24  | 124°      | 14.87  |               |                  | 215                    |                 |              |      |                                 |
|           |            |           | 1210       | BO        | 074                | 48°      | 19.26' | 124°      | 14.71' |               |                  |                        | 213             |              |      |                                 |
|           |            |           | 1213       | EN        | 074                |          | 19.26  |           | 14.65  |               |                  |                        |                 |              |      |                                 |
|           | JFE4       | CTD       | 1234       | BE        | 075                | 48°      | 21.27  | 124°      | 15.08  |               |                  | 228                    |                 |              |      | wind 100° @ 35 kts              |
|           |            |           | 1239       | BO        | 075                | 48°      | 21.29  | 124°      | 15.02  |               |                  |                        |                 |              |      | radio troubles @ 200m           |
|           |            |           | 1240       | EN        | 075                |          | 21.19  |           | 14.95  |               |                  |                        |                 |              |      |                                 |

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

JES

Turbid mixed layer below 150m

## DAILY LOG

## OCEAN PHYSICS

## INSTITUTE OF OCEAN SCIENCES

| YEAR                                                                                                                                                                                           |               | MONTH        |               | SHIP         |                       | CRUISE    |            | PAGE             |                     | OF                        |                    |                 |      |                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|---------------|--------------|-----------------------|-----------|------------|------------------|---------------------|---------------------------|--------------------|-----------------|------|------------------------------------|
| 1998                                                                                                                                                                                           |               | Nov          |               | Tully        |                       | 9839      |            | 14               |                     |                           |                    |                 |      |                                    |
| DAY<br>(UTC)                                                                                                                                                                                   | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE  | LONGITUDE  | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS                           |
| 20                                                                                                                                                                                             | JFE3          | CTD          | 1304          | BE           | 076                   | 48° 23.24 | 124° 14.95 |                  | 185                 |                           |                    |                 |      |                                    |
|                                                                                                                                                                                                |               |              | 1307          | BO           | 076                   | 48° 23.27 | 124° 14.95 |                  |                     | 184                       |                    |                 |      |                                    |
|                                                                                                                                                                                                |               |              | 1309          | EN           | 076                   | 48° 23.25 | 124° 14.91 |                  |                     |                           |                    |                 |      |                                    |
| 20                                                                                                                                                                                             | JFE2          | CTD          | 1331          | BE           | 077                   | 48° 25.24 | 124° 14.97 |                  | 136                 |                           |                    |                 |      |                                    |
|                                                                                                                                                                                                |               |              | 1334          | BO           | 077                   | 48° 25.26 | 124° 14.97 |                  |                     | 132                       |                    |                 |      | Wind 100° @ 35 kts<br>gusts → 40   |
|                                                                                                                                                                                                |               |              | 1336          | EN           | 077                   |           |            |                  |                     |                           |                    |                 |      |                                    |
| 20                                                                                                                                                                                             | JFE1          | CTD          | 1356          | BE           | 078                   | 48° 27.22 | 124° 15.03 |                  | 29                  |                           |                    |                 |      |                                    |
|                                                                                                                                                                                                |               |              |               | BO           | 078                   |           |            |                  |                     | 25                        |                    |                 |      | WINDS TO 40 knots<br>from east 100 |
|                                                                                                                                                                                                |               |              | 1359          | EN           | 078                   | 48° 27.20 | 124° 15.03 |                  |                     |                           |                    |                 |      |                                    |
| @ 0930 Wimps switched to westerlies 20 knots. Proceed to site JFD6 to wait for drifter positioning. Drifters up distributed in Strait and not heading out yet. Proceed to south end of A-line. |               |              |               |              |                       |           |            |                  |                     |                           |                    |                 |      |                                    |
| 20                                                                                                                                                                                             | JFA6          | CTD          | 20:38         | BE           | 079                   | 48° 09.25 | 123° 19.97 |                  | 58                  |                           |                    |                 |      |                                    |
|                                                                                                                                                                                                |               |              | 20:39         | BO           | 079                   | 48° 09.25 | 123° 19.97 |                  |                     | 51                        |                    |                 |      |                                    |
|                                                                                                                                                                                                |               |              | 20:41         | EN           | 079                   | 48° 09.20 | 123° 19.27 |                  |                     |                           |                    |                 |      |                                    |
| 20                                                                                                                                                                                             | JFA5          | CTD          | 21:07         | BE           | 080                   | 48° 11.88 | 123° 19.97 |                  | 95                  |                           |                    |                 |      |                                    |
|                                                                                                                                                                                                |               |              | 21:09         | BO           | 080                   | 48° 11.90 | 123° 19.97 |                  |                     | 86                        |                    |                 |      |                                    |
|                                                                                                                                                                                                |               |              | 21:10         | EN           | 080                   | 48° 11.91 | 123° 19.96 |                  |                     |                           |                    |                 |      |                                    |

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

JFE3 turbid mixed layer below 145m

## DAILY LOG

## OCEAN PHYSICS

## INSTITUTE OF OCEAN SCIENCES

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| 1998                              |               |              | Nov           |              |                       | TULLY    |       |           | 9839   |                  |                     | 15                        |                    |                 |      |          |
| DAY<br>(UTC)                      | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE |       | LONGITUDE |        | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS |
| 20                                | JFAH          | CTD          | 21:35         | BE           | 081                   | 48°      | 14.31 | 123°      | 19.83  |                  | 65m                 |                           |                    |                 |      |          |
|                                   |               |              | 21:37         | BO           | 081                   | 48°      | 14.31 | 123°      | 19.80  |                  |                     | 62                        |                    |                 |      |          |
|                                   |               |              | 21:38         | EN           | 081                   | 48°      | 14.31 | 123°      | 19.79  |                  |                     |                           |                    |                 |      |          |
| 20                                | JFA3          | CTD          | 22:06         | BE           | 082                   | 48°      | 17.24 | 123°      | 19.97  |                  | 96m                 |                           |                    |                 |      |          |
|                                   |               |              | 22:08         | BO           | 082                   | 48°      | 17.23 | 123°      | 19.95  |                  |                     | 90m                       |                    |                 |      |          |
|                                   |               |              | 22:09         | EN           | 082                   | 48°      | 17.23 | 123°      | 19.94  |                  |                     |                           |                    |                 |      |          |
| 20                                | JFA2          | CTD          | 22:43         | BE           | 083                   | 48°      | 20.92 | 123°      | 20.19  |                  | 46m                 |                           |                    |                 |      |          |
|                                   |               |              | 22:45         | BO           | 083                   | 48°      | 20.94 | 123°      | 20.20  |                  |                     | 42m                       |                    |                 |      |          |
|                                   |               |              | 22:46         | EN           | 083                   | 48°      | 20.94 | 123°      | 20.20  |                  |                     |                           |                    |                 |      |          |
| 20                                | JFA1          | CTD          | 23:05         | BE           | 084                   | 48°      | 22.78 | 123       | 20.07  |                  | 110m                |                           |                    |                 |      |          |
|                                   |               |              | 23:07         | BO           | 084                   | 48°      | 22.79 | 123°      | 20.07  |                  |                     | 101m                      |                    |                 |      |          |
|                                   |               |              | 23:09         | EN           | 084                   | 48°      | 22.81 | 123°      | 20.03  |                  |                     |                           |                    |                 |      |          |
| Proceed to Ogden Point for butter |               |              |               |              |                       |          |       |           |        |                  |                     |                           |                    |                 |      |          |
| 21                                | JFB1          | CTD          | 0145          | BE           | 085                   | 48°      | 17.71 | 123°      | 35.41  |                  | 153                 |                           |                    |                 |      |          |
|                                   |               |              | 0149          | BO           | 085                   | 48°      | 17.72 | 123°      | 35.48  |                  |                     | 143                       |                    |                 |      |          |
|                                   |               |              | 0152          | EN           | 085                   | 48°      | 17.72 | 123°      | 35.53  |                  |                     |                           |                    |                 |      |          |
|                                   |               |              | /             | /            | /                     |          |       |           |        |                  |                     |                           |                    |                 |      |          |
|                                   |               |              |               |              |                       |          |       |           |        |                  |                     |                           |                    |                 |      |          |

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

## DAILY LOG

## OCEAN PHYSICS

## INSTITUTE OF OCEAN SCIENCES

| YEAR 1998                                                                                                                                                                                                                                                                   |            |           | MONTH Nov  |           |                    | SHIP TULLY |             |               | CRUISE 9839      |                        |                 | PAGE 16 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                     |
| 21                                                                                                                                                                                                                                                                          | JFB2       | CTD       | 0216       | BE        | 086                | 48° 15.87' | 123° 35.45' |               | 194              |                        |                 |              |      |                              |
|                                                                                                                                                                                                                                                                             |            |           | 0220       | BO        | 086                | 48° 15.89' | 123° 35.53' |               |                  | 192                    |                 |              |      |                              |
|                                                                                                                                                                                                                                                                             |            |           | 0223       | EN        | 086                | 48° 15.90' | 123° 35.58' |               |                  |                        |                 |              |      |                              |
| 21                                                                                                                                                                                                                                                                          | JFB3       | CTD       | 0257       | BE        | 087                | 48° 13.78' | 123° 35.27' |               | 159              |                        |                 |              |      |                              |
|                                                                                                                                                                                                                                                                             |            |           | 0300       | BO        | 087                | 48° 13.76' | 123° 35.36' |               |                  | 152                    |                 |              |      |                              |
|                                                                                                                                                                                                                                                                             |            |           | 0303       | EN        | 087                | 48° 13.76' | 123° 35.38' |               |                  |                        |                 |              |      |                              |
| 21                                                                                                                                                                                                                                                                          | JFB4       | CTD       | 0329       | BE        | 088                | 48° 11.67' | 123° 35.42' |               | 137              |                        |                 |              |      | tidal current to west        |
|                                                                                                                                                                                                                                                                             |            |           | 0332       | BO        | 088                | 48° 11.69' | 123° 35.46' |               |                  | 133                    |                 |              |      | > 2.5 kts. large wave angle! |
|                                                                                                                                                                                                                                                                             |            |           | 0334       | EN        | 088                | 48° 11.70' | 123° 35.46' |               |                  |                        |                 |              |      |                              |
| 21                                                                                                                                                                                                                                                                          | JFB5       | CTD       | 0402       | BE        | 089                | 48° 09.77' | 123° 35.28' |               | 50               |                        |                 |              |      | fierce ebb---                |
|                                                                                                                                                                                                                                                                             |            |           | 0403       | BO        | 089                | 48° 09.76' | 123° 35.31' |               |                  | 47                     |                 |              |      |                              |
|                                                                                                                                                                                                                                                                             |            |           | 0405       | EN        | 089                | 48° 09.76' | 123° 35.32' |               |                  |                        |                 |              |      |                              |
| 21                                                                                                                                                                                                                                                                          | JFC6       | CTD       | 0509       | BE        | 090                | 48° 10.37  | 123° 44.87  |               | 51               |                        |                 |              |      |                              |
|                                                                                                                                                                                                                                                                             |            |           | 0511       | BO        | 090                | 10.35      | 44.83       |               |                  |                        |                 |              |      |                              |
|                                                                                                                                                                                                                                                                             |            |           | 0512       | EN        | 090                | 10.34      | 44.79       |               |                  |                        |                 |              |      |                              |
| Interrupted CTD sampling as the TULLY was tasked for a SAR mission - lost hikers on Juan de Fuca Trail. Proceeded cross-strait to Sherringham Point to Rendezvous with Sooke Auxillary SAR (3 men in open boat. Heavy winds & seas. Transfer radio for coordination of SAR) |            |           |            |           |                    |            |             |               |                  |                        |                 |              |      |                              |

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

## DAILY LOG

## OCEAN PHYSICS

## INSTITUTE OF OCEAN SCIENCES

| YEAR         |               | MONTH        |               | SHIP         |                       | CRUISE       |             | PAGE             |                     | OF                        |                    |                 |      |                                                                                                    |
|--------------|---------------|--------------|---------------|--------------|-----------------------|--------------|-------------|------------------|---------------------|---------------------------|--------------------|-----------------|------|----------------------------------------------------------------------------------------------------|
| 1998         |               | Nov.         |               | Tully        |                       | 98 39        |             | 17               |                     |                           |                    |                 |      |                                                                                                    |
| DAY<br>(UTC) | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE     | LONGITUDE   | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS                                                                                           |
| 21           | JFC3A         |              | 48° 15.467    |              |                       | 123° 45.005' | @ 0815 PST. | MetOcean         | 20308               |                           |                    |                 |      |                                                                                                    |
|              | JFC2A         |              | 48° 17.50     |              |                       | 123° 45.000  | @ 0835 PST. | MetOcean         | 20309               |                           |                    |                 |      |                                                                                                    |
|              | JFC1A         |              | 48 19.350     |              |                       | 123° 45.067  | @ 0850 PST  | MetOcean         | 20310               |                           |                    |                 |      |                                                                                                    |
| 21           | JFE1          | CTD          | 1909          | BE           | 091                   | 48° 27.22    | 124° 15.26  |                  | 20                  | 25                        |                    |                 |      | Ride Screwyed up DA<br>sequence / Reboot Comp.<br>DRIFTED OFF STATION.<br>31 m swells / Light wind |
|              |               |              |               | BO           | 091                   |              |             |                  |                     | 25                        |                    |                 |      |                                                                                                    |
|              |               |              | 1911          | EN           | 091                   | 48° 27.22    | 124° 15.25  |                  |                     |                           |                    |                 |      |                                                                                                    |
| 21           | JFE2          | CTD          | 1934          | BE           | 092                   | 48° 25.21    | 124° 14.91  |                  | 137                 |                           |                    |                 |      |                                                                                                    |
|              |               |              | 1936          | BO           | 092                   | 25.21        | 14.90       |                  |                     | 13                        |                    |                 |      |                                                                                                    |
|              |               |              | 1938          | EN           | 092                   | 25.21        | 14.91       |                  |                     | 137                       |                    |                 |      |                                                                                                    |
| 21           | JFE3          | CTD          | 2006          | BE           | 093                   | 48° 23.38    | 124° 14.99  |                  | 180                 |                           |                    |                 |      |                                                                                                    |
|              |               |              | 2010          | BD           | 11                    | 4 23.40      | 14.98       |                  |                     | 181                       |                    |                 |      |                                                                                                    |
|              |               |              | 2013          | EN           | 11                    | .38          | 97          |                  |                     |                           |                    |                 |      |                                                                                                    |
| 21           | JFE4          | CTD          | 2047          | BE           | 094                   | 48 21.25     | 124 14.91   |                  | 228                 |                           |                    |                 |      |                                                                                                    |
|              |               |              |               | BO           | 094                   |              |             |                  |                     |                           |                    |                 |      |                                                                                                    |
|              |               |              | 2056          | EN           | 094                   | 21.30        | 14.87       |                  | 215                 |                           |                    |                 |      |                                                                                                    |
| 21           | JFE5          | CTD          | 2123          | BE           | 095                   | 48 19.23     | 124 14 97   |                  |                     | 207                       |                    |                 |      |                                                                                                    |
|              |               |              | 2126          | BO           | 095                   | 1923         | 14.94       |                  |                     |                           |                    |                 |      |                                                                                                    |

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

## DAILY LOG

## OCEAN PHYSICS

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| 1998      |            | Nov       |            | TULLY     |                    | 9839       |             | 18            |                  |                        |                 |              |      |                                                                     |
| DAY (UTC) | STATION ID | CAST TYPE | TIME (UTC) | TIME CODE | STD/HYDRO CONSEC # | LATITUDE N | LONGITUDE W | POSITION CODE | BOTTOM DEPTH (m) | MAX SAMPLING DEPTH (m) | CONSEC SAMPLE # | # OF BOTTLES | INIT | COMMENTS                                                            |
| 21        | JFE5       | CTD       | 2123       | EN        | 095                | 48 19.23   | 124 14.89   |               |                  |                        |                 |              |      |                                                                     |
|           | JFE6       | CTD       | 2149       | BE        | 096                | 48 17.81   | 124 15.02   |               | 178              |                        |                 |              |      | Tx min at 45m                                                       |
|           |            |           | 2153       | BO        | 096                | 17.77      | 14.95       |               |                  | 175                    |                 |              |      |                                                                     |
|           |            |           | 2155       | EN        | 096                | 17.70      | 14.90       |               |                  |                        |                 |              |      |                                                                     |
| 21        | JFE7       | CTD       | 2215       | BE        | 097                | 48 16.38   | 124 14.97   |               | 92               |                        |                 |              |      |                                                                     |
|           |            |           | 2217       | BO        | 097                | 16.39      | 14.96       |               |                  |                        |                 |              |      |                                                                     |
|           |            |           | 2219       | EN        | 097                | 16.40      | 14.95       |               |                  |                        |                 |              |      |                                                                     |
| 21        | JFF7       | CTD       | 2343       | BE        | 098                | 48 21.05   | 124 30.07   |               | 32               |                        |                 |              |      |                                                                     |
|           |            |           | 2344       | BO        | 098                |            |             |               |                  |                        |                 |              |      |                                                                     |
|           |            |           | 2345       |           | 098                | 21.06      | 30.06       |               |                  |                        |                 |              |      |                                                                     |
| 22        | JFF6       | CTD       | 0005       | BE        | 099                | 48° 22.50' | 124° 30.02' |               | 110              |                        |                 |              |      | using heave compensator                                             |
|           |            |           | 0007       | BO        | 099                | 48° 22.51' | 124° 30.02' |               |                  | 109                    |                 |              |      |                                                                     |
|           |            |           | 0009       | EN        | 099                | 48° 22.51' | 124° 30.01' |               |                  |                        |                 |              |      |                                                                     |
| 22        | JFF5       | CTD       | 0032       | BE        | 100                | 48° 24.55' | 124° 29.99' |               | 216              |                        |                 |              |      | rain/hail squall at start of cast (while Rick & James were on deck) |
|           |            |           | 0036       | BO        | 100                | 48° 24.56' | 124° 29.98' |               |                  | 212                    |                 |              |      |                                                                     |
|           |            |           | 0040       | EN        | 100                | 48° 24.55' | 124° 30.01  |               |                  |                        |                 |              |      |                                                                     |
| 22        | JFD7       | CTD       | 0309       | BE        | 101                | 48° 11.82  | 123° 59.97' |               | 51               |                        |                 |              |      | Winner of the most boring trace award.                              |
|           |            |           | 0311       | BO        | 101                | 48 11.82   | 123° 59.94' |               |                  | 48                     |                 |              |      |                                                                     |

CAST TYPE -

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

USW - sea water loop

TIME CODE -

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POSITION CODE -

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GPS - GLOBAL  
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## DAILY LOG

## OCEAN PHYSICS

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| 1998      |            | Nov       |            |           | TULLY              |            | 9839        |               |                  |                        |                 |              |      | 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 |  |    |  |
| 22        | JFD7       | CTD       | 0312       | EN        | 101                | 48° 11.83' | 123° 59.92' |               |                  |                        |                 |              |      |          |  |    |  |
| 22        | JFD6       | CTD       | 0331       | BE        | 102                | 48° 13.85' | 124° 00.02' |               | 128              |                        |                 |              |      |          |  |    |  |
|           |            |           | 0334       | BO        | 102                | 48° 13.83' | 124° 00.03' |               |                  | 122                    |                 |              |      |          |  |    |  |
|           |            |           | 0336       | EN        | 102                | 48° 13.81' | 124° 00.03' |               |                  |                        |                 |              |      |          |  |    |  |
| 22        | JFD5       | CTD       | 0401       | BE        | 103                | 48° 15.85  | 124° 0.10'  |               | 182              |                        |                 |              |      |          |  |    |  |
|           |            |           | 0405       | BO        | 103                | 15.85      | 0.08        |               |                  |                        |                 |              |      |          |  |    |  |
|           |            |           | 0408       | EN        | 103                | 15.81      | 0.08        |               |                  |                        |                 |              |      |          |  |    |  |
| 22        | JFD4       | CTD       | 0430       | BE        | 104                | 48° 17.77' | 124° 0.12   |               | 188              |                        |                 |              |      |          |  |    |  |
|           |            |           | 0435       | BO        | 104                | 17.71      | 0.02        |               |                  |                        |                 |              |      |          |  |    |  |
|           |            |           | 0439       | EN        | 104                | 17.70      | 0.00        |               |                  |                        |                 |              |      |          |  |    |  |
| 22        | JFD3       | CTD       | 0501       | BE        | 105                | 48° 19.67  | 124° 0.12   |               | 166              |                        |                 |              |      |          |  |    |  |
|           |            |           | 0506       | BO        | 105                | 19.69      | 0.12        |               |                  |                        |                 |              |      |          |  |    |  |
|           |            |           | 0509       | EN        | 105                | 19.69      | 0.13        |               |                  |                        |                 |              |      |          |  |    |  |
| 22        | JFD2       | CTD       | 0532       | BE        | 106                | 48° 21.83  | 124° 0.02   |               | 121              |                        |                 |              |      |          |  |    |  |
|           |            |           | 0535       | BO        | 106                | 21.80      | 123° 59.99  |               |                  |                        |                 |              |      |          |  |    |  |
|           |            |           | 0537       | EN        | 106                | 21.80      | 59.99       |               |                  |                        |                 |              |      |          |  |    |  |
|           |            |           |            |           |                    |            |             |               |                  |                        |                 |              |      |          |  |    |  |
|           |            |           |            |           |                    |            |             |               |                  |                        |                 |              |      |          |  |    |  |

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

ROS - rosette  
 NET - net haul  
 DRF - drifter

USW - sea water loop

TIME CODE - BE - beginning time of cast  
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 MR - messenger release  
 RE - recover mooring

POSITION CODE - RAD - RADAR  
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## DAILY LOG

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| 1998         |               |              | Nov           |              |                       | TULLY    |       |           | 9839   |                  |                     | 20                        |                    |                 |      |          |
| DAY<br>(UTC) | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE |       | LONGITUDE |        | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS |
| 22           | JFD1          | CTD          | 0556          | BE           | 107                   | 48°      | 23.10 | 124°      | 0.06   |                  | 51m                 |                           |                    |                 |      |          |
|              |               |              | 0557          | BO           | 107                   |          | 23.09 |           | 0.06   |                  |                     |                           |                    |                 |      |          |
|              |               |              | 0558          | EN           | 107                   |          | 23.09 |           | 0.06   |                  |                     |                           |                    |                 |      |          |
| 22           | JFC1          | CTD          | 0720          | BE           | 108                   | 48°      | 20.16 | 123°      | 44.99  |                  | 63m                 |                           |                    |                 |      |          |
|              |               |              | 0722          | BO           | 108                   |          | 20.13 |           | 44.92  |                  |                     |                           |                    |                 |      |          |
|              |               |              | 0723          | EN           | 108                   |          | 20.13 |           | 44.96  |                  |                     |                           |                    |                 |      |          |
| 22           | JFC2          | CTD          | 0745          | BE           | 109                   | 48°      | 18.57 | 123°      | 45.06  |                  | 172m                |                           |                    |                 |      |          |
|              |               |              | 0749          | BO           | 109                   |          | 18.52 |           | 45.10  |                  |                     |                           |                    |                 |      |          |
|              |               |              | 0752          | EN           | 109                   |          | 18.46 |           | 45.18  |                  |                     |                           |                    |                 |      |          |
|              | JFC3          | CTD          | 0817          | BE           | 110                   | 48       | 16.51 | 123       | 44.93  |                  | 175                 |                           |                    |                 |      |          |
|              |               |              | 0819          | BO           | 110                   |          | 16.51 |           | 44.93  |                  |                     |                           |                    |                 |      |          |
|              |               |              | 0822          | EN           | 110                   |          | 16.52 |           | 44.96  |                  |                     |                           |                    |                 |      |          |
|              | JFC4          | CTD          | 0845          | BE           | 111                   | 48       | 14.34 | 123       | 45.00  |                  | 170                 |                           |                    |                 |      |          |
|              |               |              | 0847          | BO           | 111                   |          | 14.27 |           | 44.91  |                  |                     |                           |                    |                 |      |          |
|              |               |              | 0849          | EN           | 111                   |          | 14.24 |           | 44.88  |                  |                     |                           |                    |                 |      |          |
|              | JFC5          | CTD          | 0911          | BE           | 112                   | 48       | 12.42 | 123       | 44.97  |                  | 141                 |                           |                    |                 |      |          |
|              |               |              | 0913          | BO           | 112                   |          | 12.42 |           | 44.95  |                  |                     | 136                       |                    |                 |      |          |
|              |               |              | 0915          | EN           | 112                   |          | 12.42 |           | 44.95  |                  |                     |                           |                    |                 |      |          |

CAST TYPE -

BOT -  
CTD -  
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ctd  
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net haul  
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TIME CODE -

BE -  
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EN -beginning time of cast  
bottom time of cast  
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messenger release  
recover mooring

POSITION CODE -

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GPS -  
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GLOBAL  
LORAN

## DAILY LOG

## OCEAN PHYSICS

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| 1998      |            | Nov       |            | JPTully   |                    | 9839      |            | 21            |                  |                        |                 |              |      |                                     |
| 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                            |
|           | JFC6       | CTD       | 0936       | BE        | 113                | 48 10.44  | 123 44.98  |               | 54               |                        |                 |              |      |                                     |
|           |            |           | 0938       | BO        | 113                | 48 10.47  | 123 44.98  |               |                  | 51                     |                 |              |      |                                     |
|           |            |           | 0939       | EN        | 113                | 48 10.46  | 123 44.97  |               |                  |                        |                 |              |      |                                     |
|           | JFB5       | CTD       | 1027       | BE        | 114                | 48 9.84   | 123 35.26  |               | 55               |                        |                 |              |      |                                     |
|           |            |           | 1029       | BO        | 114                | 9.83      | 35.24      |               |                  | 49                     |                 |              |      |                                     |
|           |            |           | 1030       | EN        | 114                | 9.83      | 35.24      |               |                  |                        |                 |              |      |                                     |
|           | JFB4       | CTD       | 1054       | BE        | 115                | 48 11.77  | 123 35.21  |               | 135              |                        |                 |              |      | Sharp Thermo/Halocline @ 90m        |
|           |            |           | 1056       | BO        | 115                | 11.76     | 35.18      |               |                  | 131                    |                 |              |      |                                     |
|           |            |           | 1059       | EN        | 115                | 11.76     | 35.14      |               |                  |                        |                 |              |      |                                     |
|           | JFB3       | CTD       | 1125       | BE        | 116                | 48 13.78  | 123 35.21  |               | 160              |                        |                 |              |      |                                     |
|           |            |           | 1130       | BO        | 116                | 48 13.79  | 123 35.20  |               |                  | 155                    |                 |              |      |                                     |
|           |            |           | 1133       | EN        | 116                | 13.78     | 35.16      |               |                  |                        |                 |              |      |                                     |
| 22        | JFB2       | CTD       | 1156       | BE        | 117                | 48 15.93  | 123 35.30  |               | 190              |                        |                 |              |      | well mixed except for               |
|           |            |           | 1203       | BO        | 117                | 48° 15.93 | 123° 35.31 |               |                  | 181                    |                 |              |      | 15m bottom layer. Large wire angle. |
|           |            |           | 1207       | EN        | 117                | 48° 15.98 | 123° 35.30 |               |                  |                        |                 |              |      |                                     |
| 22        | JFB1       | CTD       | 1227       | BE        | 118                | 48° 17.74 | 123° 35.27 |               | 154              |                        |                 |              |      | transmissometer down &              |
|           |            |           | 1229       | BO        | 118                | 17.70     | 35.25      |               |                  | 151                    |                 |              |      | up casts quite different            |
|           |            |           | 1231       | EN        | 118                | 17.66     | 35.25      |               |                  |                        |                 |              |      | (by up to 100%)                     |

CAST TYPE -

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## DAILY LOG

## OCEAN PHYSICS

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| 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        | JFC1       | CTD       | 1343       | BE        | 119                | 48° 20.20' | 123° 44.96' |           |  |               | 64               |                        |                 |              |      |          | wind: 210°T @ 20-25kts                       |  |    |  |    |  |
|           |            |           | 1345       | BO        | 119                | 48° 20.22' | 123° 44.95' |           |  |               |                  | 60                     |                 |              |      |          |                                              |  |    |  |    |  |
|           |            |           | 1346       | EN        | 119                | 48° 20.19' | 123° 44.93' |           |  |               |                  |                        |                 |              |      |          |                                              |  |    |  |    |  |
| 22        | JFC2       | CTD       | 1406       | BE        | 120                | 48° 18.51' | 123° 44.89' |           |  |               | 175              |                        |                 |              |      |          | sharp step in StT at 100m                    |  |    |  |    |  |
|           |            |           | 1409       | BO        | 120                | 48° 18.54' | 123° 44.78' |           |  |               |                  | 168                    |                 |              |      |          | caught some kelp                             |  |    |  |    |  |
|           |            |           | 1412       | EN        | 120                | 48° 18.57' | 123° 44.67' |           |  |               |                  |                        |                 |              |      |          |                                              |  |    |  |    |  |
| 22        | JFC3       | CTD       | 1437       | BE        | 121                | 48° 16.48' | 123° 44.87' |           |  |               | 183              |                        |                 |              |      |          |                                              |  |    |  |    |  |
|           |            |           | 1441       | BO        | 121                | 48° 16.52' | 123° 44.79' |           |  |               |                  | 184                    |                 |              |      |          |                                              |  |    |  |    |  |
|           |            |           | 1444       | EN        | 121                | 48° 16.54' | 123° 44.73' |           |  |               |                  |                        |                 |              |      |          |                                              |  |    |  |    |  |
| 22        | JFC4       | CTD       | 1511       | BE        | 122                | 48° 14.53' | 123° 44.88' |           |  |               | 170              |                        |                 |              |      |          | well mixed layer 90-130m<br>also 150m-bottom |  |    |  |    |  |
|           |            |           | 1514       | BO        | 122                | 48° 14.60' | 123° 44.76' |           |  |               |                  | 168                    |                 |              |      |          |                                              |  |    |  |    |  |
|           |            |           | 1518       | EN        | 122                | 48° 14.64' | 123° 44.68' |           |  |               |                  |                        |                 |              |      |          |                                              |  |    |  |    |  |
| 22        | JFC5       | CTD       | 1547       | BE        | 123                | 48° 12.46' | 123° 44.94' |           |  |               | 141              |                        |                 |              |      |          |                                              |  |    |  |    |  |
|           |            |           | 1551       | BO        | 123                | 48° 12.46' | 123° 44.90' |           |  |               |                  | 139                    |                 |              |      |          | up/down casts different                      |  |    |  |    |  |
|           |            |           | 1553       | EN        | 123                | 48° 12.50' | 123° 44.90' |           |  |               |                  |                        |                 |              |      |          | below 110m                                   |  |    |  |    |  |
| 22        | JFC6       | CTD       | 1634       | BE        | 124                | 48° 10.39' | 123° 45.19' |           |  |               | 51m              |                        |                 |              |      |          |                                              |  |    |  |    |  |
|           |            |           | 1636       | BO        | 124                | 48° 10.38' | 123° 45.24' |           |  |               |                  |                        |                 |              |      |          |                                              |  |    |  |    |  |
|           |            |           | 1637       | EN        | 124                | 48° 10.37' | 123° 45.25' |           |  |               |                  |                        |                 |              |      |          |                                              |  |    |  |    |  |

CAST TYPE -

BOT -  
CTD -  
MOR -bottle cast  
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TIME CODE -

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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  
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| 1998      |            | Nov.      |            |           |                    | Tully      |             |               | 9839             |                        |                 |              |      |                                                          |
| 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        | JFC6       | DFT       | 1112       | PST       | 125                | 48° 07.70S | 123° 18.135 |               |                  |                        |                 |              |      | Recover drifter 6003 [clearwater]                        |
|           |            | DFT       | 1225       | PST       |                    | 48° 11.00  | 123° 06.80  |               |                  |                        |                 |              |      | Recover drifter 4759 [seimac] by ZODIAC. Fix from BRIDGE |
|           |            | DFT       | 1325       | PST       |                    | 48 08.918  | 123° 03.748 |               |                  |                        |                 |              |      | Recover drifter 4757 [seimac] by ZODIAC. Fix from Bridge |
| 23        | JFC6       | CTD       | 0103       | BE        | 125                | 48° 10.39  | 123° 44.94  |               | 52               |                        |                 |              |      | Quiet murky water with tide line                         |
|           |            |           | 0104       | BO        | 125                | 10.40      | 44.94       |               |                  | 49                     |                 |              |      |                                                          |
|           |            |           | 0106       | EN        | 125                | 10.41      | 44.94       |               |                  |                        |                 |              |      |                                                          |
| 23        | JFC5       | CTD       | 0129       | BE        | 126                | 48° 12.42' | 123° 45.04' |               | 140              |                        |                 |              |      |                                                          |
|           |            |           | 0133       | BO        | 126                | 48° 12.43' | 123° 45.06' |               |                  | 137                    |                 |              |      |                                                          |
|           |            |           | 0136       | EN        | 126                | 48° 12.43' | 123° 45.06' |               |                  |                        |                 |              |      |                                                          |
| 23        | JFC4       | CTD       | 0200       | BE        | 127                | 48° 14.53  | 123° 44.91  |               | 169              |                        |                 |              |      |                                                          |
|           |            |           | 0204       | BO        | 127                | 14.59      | 44.85       |               |                  | 169                    |                 |              |      |                                                          |
|           |            |           | 0207       | EN        | 127                | 14.63      | 44.78       |               |                  |                        |                 |              |      |                                                          |
| 23        | JFC3       | CTD       | 0228       | BE        | 128                | 48° 16.54  | 123° 45.06  |               | 184              |                        |                 |              |      |                                                          |
|           |            |           | 0232       | BO        | 128                | 16.49      | 45.08       |               |                  | 181                    |                 |              |      |                                                          |
|           |            |           | 0236       | EN        | 128                | 16.51      | 45.12       |               |                  |                        |                 |              |      |                                                          |
|           |            |           |            |           |                    |            |             |               |                  |                        |                 |              |      |                                                          |
|           |            |           |            |           |                    |            |             |               |                  |                        |                 |              |      |                                                          |

| YEAR      |            | MONTH     |            | SHIP      |                    | CRUISE    |             | PAGE          |                  | OF                     |                 |              |      |                                     |
|-----------|------------|-----------|------------|-----------|--------------------|-----------|-------------|---------------|------------------|------------------------|-----------------|--------------|------|-------------------------------------|
| 1998      |            | Nov.      |            | Tully     |                    | 9839      |             |               |                  |                        |                 |              |      |                                     |
| 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        | JFC2       | CTD       | 0259       | BE        | 129                | 48° 18.52 | 123° 44.99  |               | 173              |                        |                 |              |      | No wind. Noticeable Swell from west |
|           |            |           | 0303       | BO        | 129                | 48° 18.53 | 123° 45.01  |               |                  | 171                    |                 |              |      |                                     |
|           |            |           | 0307       | EN        | 129                | 48° 18.53 | 123° 45.00  |               |                  |                        |                 |              |      |                                     |
| 23        | JFC1       | CTD       | 0325       | BE        | 130                | 48° 20.19 | 123° 45.05  |               | 62               |                        |                 |              |      | James' 1st Time on logger           |
|           |            |           | 0328       | BO        | 130                | 48° 20.17 | 123° 45.06  |               |                  | 60                     |                 |              |      |                                     |
|           |            |           | 0329       | EN        | 130                |           |             |               |                  |                        |                 |              |      |                                     |
| 23        | JFD1       | CTD       | 0439       | BE        | 131                | 48° 23.07 | 124° 0.10 W |               |                  | 56m.                   |                 |              |      |                                     |
|           |            |           | 0440       | BO        | 131                | 23.07     | 0.10        |               |                  |                        |                 | 1            |      |                                     |
|           |            |           | 0441       | EN        | 131                | 23.08     | 0.10        |               |                  |                        |                 |              |      |                                     |
| 23        | JFD2       | CTD       | 0501       | BE        | 132                | 48° 21.86 | 124° 0.10   |               |                  | 121                    |                 |              |      |                                     |
|           |            |           | 0504       | BO        | 132                | 21.82     | 0.08        |               |                  |                        |                 |              |      |                                     |
|           |            |           | 0506       | EN        | 132                | 21.82     | 0.08        |               |                  |                        |                 |              |      |                                     |
| 23        | JFD3       | CTD       | 0527       | BE        | 133                | 48° 19.76 | 124° 0.02   |               |                  | 162                    |                 |              |      |                                     |
|           |            |           | 0531       | BO        | 133                | 19.76     | 0.06        |               |                  |                        |                 |              |      |                                     |
|           |            |           | 0534       | EN        | 133                | 19.73     | 0.10        |               |                  |                        |                 |              |      |                                     |
| 23        | JFD4       | CTD       | 0611       | BE        | 134                | 48° 17.72 | 124° 0.07   |               |                  | 188                    |                 |              |      |                                     |
|           |            |           | 0615       | BO        | 134                | 17.64     | 0.15        |               |                  |                        |                 |              |      |                                     |
|           |            |           | 0618       | EN        | 134                | 17.61     | 0.17        |               |                  |                        |                 |              |      |                                     |

| YEAR      |            |                                                                                                           | MONTH      |           |                                                           | SHIP                                                |       |           | CRUISE           |               |                  | PAGE                   | OF              |              |        |          |  |
|-----------|------------|-----------------------------------------------------------------------------------------------------------|------------|-----------|-----------------------------------------------------------|-----------------------------------------------------|-------|-----------|------------------|---------------|------------------|------------------------|-----------------|--------------|--------|----------|--|
| 1998      |            |                                                                                                           | NOV        |           |                                                           | TULLY                                               |       |           | 9839             |               |                  |                        |                 |              |        |          |  |
| 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        | JFD5       | CTD                                                                                                       | 0638       | BE        | 135                                                       | 48°                                                 | 15.84 | 123°      | 59.93            |               | 181              |                        |                 |              |        |          |  |
|           |            |                                                                                                           | 0642       | BO        | 135                                                       |                                                     | 15.77 |           | 59.93            |               |                  |                        |                 |              |        |          |  |
|           |            |                                                                                                           | 0645       | EN        | 135                                                       |                                                     | 15.75 |           | 59.92            |               |                  |                        |                 |              |        |          |  |
| 23        | JFD6       | CTD                                                                                                       | 0707       | BE        | 136                                                       | 48°                                                 | 13.84 | 123°      | 59.92            |               | 129              |                        |                 |              |        |          |  |
|           |            |                                                                                                           | 0710       | BO        | 136                                                       |                                                     | 13.83 |           | 59.93            |               |                  |                        |                 |              |        |          |  |
|           |            |                                                                                                           | 0712       | EN        | 136                                                       |                                                     | 13.82 |           | 59.93            |               |                  |                        |                 |              |        |          |  |
| 23        | JFD7       | CTD                                                                                                       | 0734       | BE        | 137                                                       | 48°                                                 | 11.88 | 123°      | 59.91            |               | 53m              |                        |                 |              |        |          |  |
|           |            |                                                                                                           | 0736       | BO        | 137                                                       |                                                     | 11.87 |           | 59.90            |               |                  |                        |                 |              |        |          |  |
|           |            |                                                                                                           | 0737       | EN        | 137                                                       |                                                     | 11.87 |           | 59.90            |               |                  |                        |                 |              |        |          |  |
| 23        | JFBR       | Recovery moorings 2 mi East of Pillar Point. 152 m water (sounder)                                        |            |           |                                                           |                                                     |       |           |                  |               |                  | 48°                    | 13.200          | 124          | 03.160 |          |  |
| 23        | /          | 0923 PST ANCHOR AWAY                                                                                      |            |           |                                                           |                                                     |       |           |                  |               |                  |                        |                 |              |        |          |  |
| 23        | DFT        |                                                                                                           | 1135       | PST       | Recover Metocean Drifter 20310                            |                                                     |       |           |                  |               |                  |                        |                 |              |        |          |  |
|           | DFT        |                                                                                                           | 1240       | PST       | Recover CANSTARP DRIFTER 24543 - Sooke, Secretary Island. |                                                     |       |           |                  |               |                  |                        |                 |              |        |          |  |
|           | DFT        |                                                                                                           | 1425       | PST       | Recover Metocean Drifter 20308, RACE PASSAGE              |                                                     |       |           |                  |               |                  |                        |                 |              |        |          |  |
|           | DFT        |                                                                                                           | 1450       | PST       | "                                                         | "                                                   | "     | 20309     | South RACE Rocks |               |                  |                        |                 |              |        |          |  |
|           | DFT        |                                                                                                           | 1540       | PST       | "                                                         | CANSTARP DRIFTER 24541, Eastern Juan de Fuca Strait |       |           |                  |               |                  |                        |                 |              |        |          |  |
|           | DFT        | 1630 - Attempted to find Metocean 20307 before dark. Not luck. Cancelled operations. No evening work as a |            |           |                                                           |                                                     |       |           |                  |               |                  |                        |                 |              |        |          |  |
|           |            | major 100 km/hr (55+ knots) storm was due to pass over SW BC during the evening.                          |            |           |                                                           |                                                     |       |           |                  |               |                  |                        |                 |              |        |          |  |

CAST TYPE -  
CTD -  
MOR -

BOT - bottle cast  
ctd  
mooring

ROS - rosette  
NET - net haul  
DRF - drifter

USW - sea water loop

TIME CODE -  
BE -  
BO -  
EN -

beginning time of cast  
bottom time of cast  
end of cast

DE -  
MR -  
RE -

deployment time  
messenger release  
recover mooring

POSITION CODE -  
RAD -  
GPS -  
LOR -

RADAR  
GLOBAL  
LORAN

MARK DECKER

13512 MOBERLY RD.

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Chief Engineer,

Tully

Copy of Oceanography  
of BC coast

CRUISE  
NUMBER

98-39

Book 2 of 2

DAILY LOG  
INSTITUTE OF OCEAN SCIENCES  
OCEAN PHYSICS

DATE

Nov. 16 - 28, 1998

VESSEL

J.P. Tully

PROJECT

PERD WIDE STRAITS/Juan de Fuca  
[Strait of Georgia]

- THIS LOG CONTINUES WITH DRIFTER RECOVERY WORK IN THE EASTERN END OF JUAN DE FUCA STRAIT [NOV. 24, 1998; A.M. First Light]
- 2 DRIFTERS IN THE AREA: Metowan 20307 and 20311, Recovered.  
Also recovered 4761 (CANSHARP). DID NOT WANT TO LEAVE THE STRAIT.

## DAILY LOG

## OCEAN PHYSICS

## INSTITUTE OF OCEAN SCIENCES

| YEAR      |            | 1998      |            | MONTH     |                    | Nov.       |  | SHIP        |  | TULLY                |                  | CRUISE                 |                 | 9839         |      | 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                             |  |    |  |
| 24        | DFT 2634   | 0830      | PT         |           |                    | 48° 20.580 |  | 122° 51.538 |  | Recovery             |                  |                        |                 |              |      | North of Smith Island.               |  |    |  |
|           | DFT 20367  | 0940      | PST        |           |                    | 48° 09.148 |  | 123° 19.345 |  | Recovery             |                  |                        |                 |              |      |                                      |  |    |  |
|           | DFT 4761   | 1214      | PST        |           |                    | 48° 09.00  |  | 123° 36.05  |  | Radar fix from ship. |                  |                        |                 |              |      | Freshwater Bay                       |  |    |  |
| 24        | MOOR       | CRD       | 1707       | PST       |                    | 48° 37.852 |  | 123° 23.320 |  |                      | 29 m             |                        |                 |              |      | w was 50 knots from South            |  |    |  |
| 25        | D8A        | CTD       | 0330       | BE        | 138                | 48° 42.12' |  | 123° 15.09' |  |                      | 368 m            |                        |                 |              |      | very well mixed                      |  |    |  |
|           |            |           | 0337       | BO        | 138                | 48° 42.10  |  | 123° 15.08' |  |                      |                  | 366 m                  | 6               | 1            |      |                                      |  |    |  |
|           |            |           | 0343       | EN        | 138                | 48° 42.04  |  | 123° 15.01  |  |                      |                  |                        |                 |              |      | sal @ 300m 31.063                    |  |    |  |
| 25        | D7A*       | ROS       | 1416       | BE        | 139                | 48° 43.99' |  | 123° 08.14' |  |                      | 166              |                        | 7-15            | 9            |      | * Station postponed                  |  |    |  |
|           |            |           | 1419       | BO        | 139                | 48° 44.01' |  | 123° 07.99' |  |                      | 156              |                        |                 |              |      | Winds 40-50 knots, gusts to 60 knots |  |    |  |
|           |            |           | 1431       | EN        | 139                | 48° 44.03' |  | 123° 07.45' |  |                      |                  |                        |                 |              |      | rosette touched bottom               |  |    |  |
| 25        | D6A        | CTD       | 1514       | BE        | 140                | 48° 46.01' |  | 123° 02.05' |  |                      | 235              |                        |                 |              |      | very well mixed                      |  |    |  |
|           |            |           | 1517       | BO        | 140                | 48° 46.08' |  | 123° 01.90' |  |                      |                  | 234                    |                 |              |      |                                      |  |    |  |
|           |            |           | 1520       | EN        | 140                | 48° 46.15' |  | 123° 01.80' |  |                      |                  |                        |                 |              |      |                                      |  |    |  |
| 25        | SI01       | CTD       | 1630       | BE        | 141                | 48° 49.29  |  | 123° 8.86   |  |                      |                  | 121                    |                 |              |      |                                      |  |    |  |
|           |            |           | 1633       | BO        | 141                | 49.30      |  | 8.87        |  |                      |                  |                        |                 |              |      |                                      |  |    |  |
|           |            |           | 1636       | EN        | 141                | 49.32      |  | 8.90        |  |                      |                  |                        |                 |              |      |                                      |  |    |  |

CAST TYPE - BOT - bottle cast

CTD - ctd  
MOR - mooringROS - rosette  
NET - net haul  
DRF - drifter

USW - sea water loop

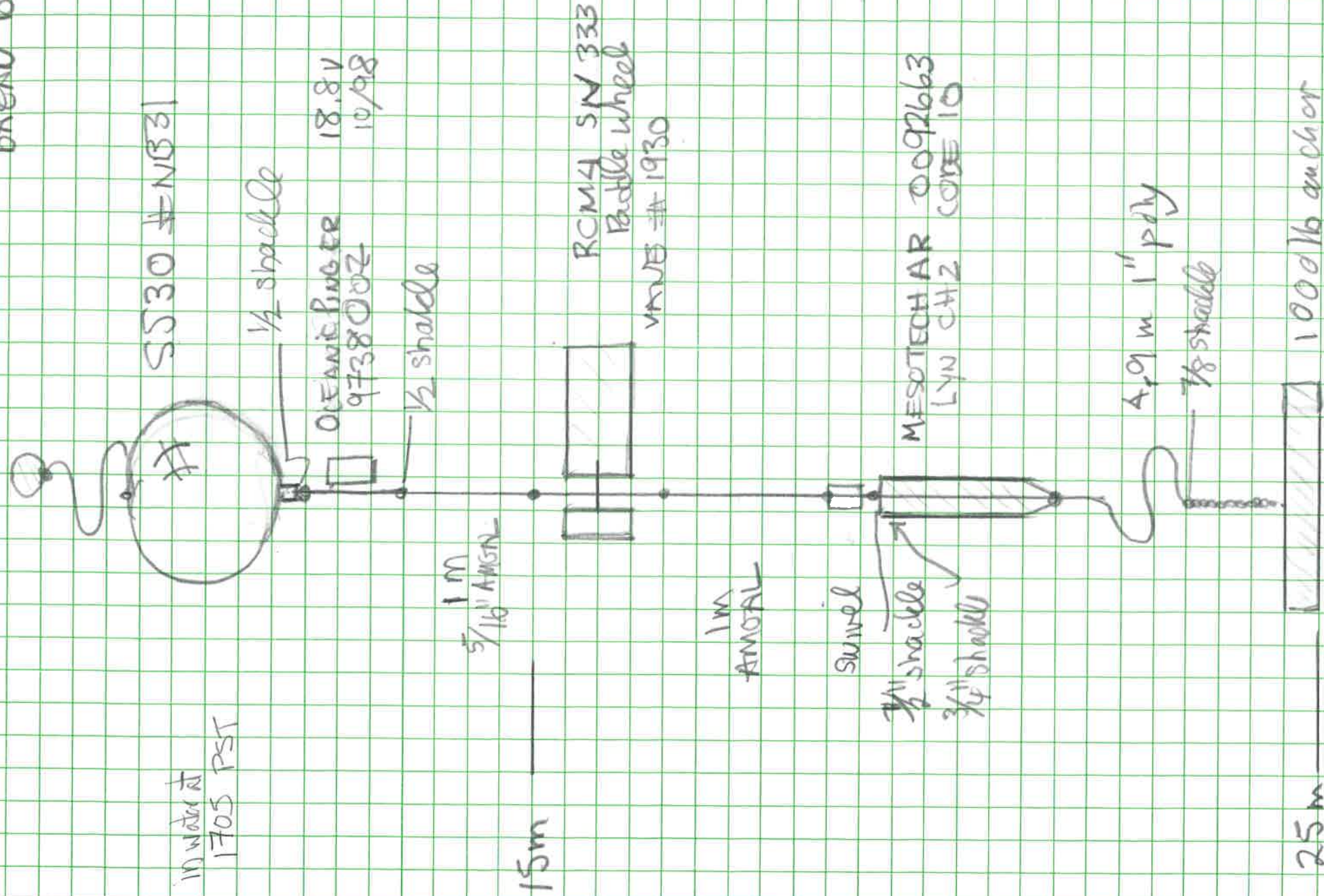
TIME CODE -

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

POSITION CODE -

RAD - RADAR  
GPS - GLOBAL  
LOR - LORAN

CRD Moore  
BAYOU BNY



ANCHOR ARMY: 1707 PST  
LAT. 48° 37.852  
LONG 123° 23.320  
LAB SONDER: 29m

Wind: 125°T @ 40kts with gusts

x Niskin bottles on the rosette feel slimy or oily on the outside.  
There is no odour and the inside of the bottles do not  
feel as slimy or oily. Jamie pointed this out last night.  
Not all bottles are affected only 1-12 (especially 7) appear  
to be oily than the others.  
All Bottles should be washed.

## DAILY LOG

## OCEAN PHYSICS

## INSTITUTE OF OCEAN SCIENCES

| YEAR      |            | MONTH     |            | SHIP      |                    | CRUISE    |            | PAGE          |                  | OF                     |                 |              |      |                      |
|-----------|------------|-----------|------------|-----------|--------------------|-----------|------------|---------------|------------------|------------------------|-----------------|--------------|------|----------------------|
| 1998      |            | NOV       |            | TULLY     |                    | 9839      |            |               |                  |                        |                 |              |      |                      |
| 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        | SI02       | CTD       | 1658       | BE        | 142                | 48° 50.56 | 123° 6.98  |               | 221              |                        | 16              | 1            |      |                      |
|           |            |           | 1707       | BO        | 142                | 50.58     | 7.04       |               |                  |                        |                 |              |      |                      |
|           |            |           | 1708       | EN        | 142                | 50.59     | 7.08       |               |                  |                        |                 |              |      |                      |
| 25        | SI03       | ROS       | 17:30      | BE        | 143                | 48° 51.87 | 123° 5.18  |               | 161              |                        | 18-26           | 9            |      | Note: No sample #17. |
|           |            |           | 17:33      | BO        | 143                | 51.90     | 5.24       |               |                  |                        |                 |              |      |                      |
|           |            |           |            | EN        | 143                |           |            |               |                  |                        |                 |              |      |                      |
| 25        | SI05       | CTD       | 18:18      | BE        | 144                | 48° 53.66 | 123° 2.74  |               | 163              |                        |                 |              |      |                      |
|           |            |           | 18:22      | BO        | 144                | 53.65     | 2.76       |               |                  |                        |                 |              |      |                      |
|           |            |           | 1824       | EN        | 144                | 53.65     | 2.77       |               |                  |                        |                 |              |      |                      |
| 25        | SI07       | CTD       | 1849       | BE        | 145                | 48° 55.62 | 123° 0.02  |               | 131              |                        |                 |              |      |                      |
|           |            |           | 1852       | BO        | 145                | 55.60     | 122° 59.98 |               |                  |                        |                 |              |      |                      |
|           |            |           | 1854       | EN        | 145                | 55.57     | 59.96      |               |                  |                        |                 |              |      |                      |
| 25        | MI07       | CTD       | 1943       | BE        | 146                | 48° 58.79 | 123° 5.77  |               | 49               |                        |                 |              |      |                      |
|           |            |           | 1945       | BO        | 146                | 58.78     | 5.77       |               |                  |                        |                 |              |      |                      |
|           |            |           | 1946       | EN        | 146                | 58.78     | 5.77       |               |                  |                        |                 |              |      |                      |
| 25        | MI05       | CTD       | 20:06      | BE        | 147                | 48° 57.76 | 123° 7.13  |               | 128              |                        |                 |              |      |                      |
|           |            |           | 20:08      | BO        | 147                | 57.95     | 7.17       |               |                  | 121                    |                 |              |      |                      |
|           |            |           | 20:10      | EN        | 147                | 57.98     | 7.23       |               |                  |                        |                 |              |      |                      |

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

## DAILY LOG

## OCEAN PHYSICS

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| YEAR         |               |              | MONTH         |              |                       | SHIP      |  |            |  | CRUISE           |                     |                           |                    |                 | PAGE |                                                   | OF |  |
|--------------|---------------|--------------|---------------|--------------|-----------------------|-----------|--|------------|--|------------------|---------------------|---------------------------|--------------------|-----------------|------|---------------------------------------------------|----|--|
| 1998         |               |              | Nov           |              |                       | TULLY     |  |            |  | 9839             |                     |                           |                    |                 |      |                                                   |    |  |
| DAY<br>(UTC) | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE  |  | LONGITUDE  |  | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS                                          |    |  |
| 25           | MIO4          | CTD          | 20:36         | BE           | 148                   | 48° 36.15 |  | 123° 09.53 |  |                  | 121 m               |                           |                    |                 |      | * header on 98390148 & 98390149 reads stn ID MIO3 |    |  |
|              |               | CTD          | 20:38         | BO           | 148/49                | 36.17     |  | 09.60      |  |                  |                     | 115 m                     |                    |                 |      |                                                   |    |  |
|              |               | CTD          |               | EN           | 149                   | 36.19     |  | 09.69      |  |                  |                     |                           |                    |                 |      |                                                   |    |  |
| 25           | MIO3          | ROS          | 21:05         | BE           | 150                   | 48° 55.15 |  | 123° 10.72 |  |                  | 129 m               |                           |                    |                 |      |                                                   |    |  |
|              |               | ROS          | 21:08         | BO           | 150                   | 55.15     |  | 10.73      |  |                  |                     | 122                       | 27-34              | 8               |      |                                                   |    |  |
|              |               | ROS          | 21:14         | EN           | 150                   | 55.14     |  | 10.76      |  |                  |                     |                           |                    |                 |      |                                                   |    |  |
| 25           | MIO2          | CTD          | 21:41         | BE           | 151                   | 48° 53.77 |  | 123° 12.62 |  |                  | 144                 |                           |                    |                 |      |                                                   |    |  |
|              |               | CTD          | 21:44         | BO           | 151                   | 53.80     |  | 12.61      |  |                  |                     | 136                       |                    |                 |      |                                                   |    |  |
|              |               | CTD          | 21:46         | EN           | 151                   | 53.81     |  | 12.62      |  |                  |                     |                           |                    |                 |      |                                                   |    |  |
| 25           | MIO1          | CTD          | 22:32         | BE           | 152                   | 48° 52.37 |  | 123° 14.41 |  |                  | 158                 |                           |                    |                 |      |                                                   |    |  |
|              |               | CTD          | 22:35         | BO           | 152                   | 52.38     |  | 14.43      |  |                  |                     | 154                       |                    |                 |      |                                                   |    |  |
|              |               | CTD          | 22:38         | EN           | 152                   | 52.39     |  | 14.45      |  |                  |                     |                           |                    |                 |      |                                                   |    |  |
| 25           | GIO1          | ROS          | 23:10         | BE           | 153                   | 48° 58.61 |  | 123° 16.31 |  |                  | 163                 |                           |                    |                 |      |                                                   |    |  |
|              |               | ROS          | 23:14         | BO           | 153                   | 58.63     |  | 16.37      |  |                  |                     | 159                       | 35-43              | 9               |      |                                                   |    |  |
|              |               | ROS          | 23:24         | EN           | 153                   | 58.47     |  | 16.35      |  |                  |                     |                           |                    |                 |      |                                                   |    |  |
| 26           | GIO2          | ROS          | 0012          | BE           | 154                   | 49° 02.69 |  | 123° 23.35 |  |                  | 269                 |                           | 44-55              | 12              |      |                                                   |    |  |
|              |               | ROS          | 0018          | BO           | 154                   | 49° 02.68 |  | 123° 23.38 |  |                  |                     |                           |                    |                 |      |                                                   |    |  |
|              |               | ROS          | 0038          | EN           | 154                   | 49° 02.65 |  | 123° 23.36 |  |                  |                     |                           |                    |                 |      |                                                   |    |  |

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 1998 |            |           | MONTH Nov  |           |                    | SHIP TULLY |             |               |                  | CRUISE 9839            |                 |              |      | 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        | VI01       | ROS       | 0152       | BE        | 155                | 49° 02.87  | 123° 35.37  |               | 114              | 1                      | 56-62           | 7            |      |                         |    |
|           |            |           | 0155       | BO        | 155                | 49° 02.94  | 123° 35.37  |               |                  | 111                    |                 |              |      |                         |    |
|           |            |           | 0204       | EN        | 155                | 49° 03.02  | 123° 35.56  |               |                  |                        |                 |              |      |                         |    |
| 26        | VI02       | ROS       | 0242       | BE        | 156                | 49° 04.41  | 123° 32.18  |               | 263              |                        | 63-74           | 12           |      |                         |    |
|           |            |           | 0247       | BO        | 156                | 49° 04.35  | 123° 32.24' |               |                  | 248                    |                 |              |      |                         |    |
|           |            |           | 0303       | EN        | 156                | 49° 04.31' | 123° 32.25' |               |                  |                        |                 |              |      |                         |    |
| 26        | VI03       | ROS       | 0343       | BE        | 157                | 49° 05.99' | 123° 29.03' |               | 343              |                        |                 |              |      |                         |    |
|           |            |           | 0349       | BO        | 157                | 05.99      | 29.08       |               |                  | 341                    | 75-87           | 13           |      | no sample #88           |    |
|           |            |           |            | EN        | 157                |            |             |               |                  |                        |                 |              |      | bottle #14 did not trip |    |
| 26        | VI04       | ROS       | 04159      | BE        | 158                | 49° 8.77   | 123° 23.41  |               | 189              |                        |                 |              |      |                         |    |
|           |            |           | 0503       | BO        | 158                | 8.78       | 23.33       |               |                  |                        | 89-98           | 10           |      |                         |    |
|           |            |           | 0518       | EN        | 158                | 8.71       | 23.32       |               |                  |                        |                 |              |      |                         |    |
| 26        | VI05       | ROS       | 0603       | BE        | 159                | 49° 11.45  | 123° 17.84  |               | 54               |                        |                 |              |      |                         |    |
|           |            |           | 0605       | BO        | 159                | 11.46      | 17.84       |               |                  |                        | 99-103          | 5            |      |                         |    |
|           |            |           | 0612       | EN        | 159                | 11.50      | 17.85       |               |                  |                        |                 |              |      |                         |    |
| 26        | GI03       | ROS       | 0726       | BE        | 160                | 49° 10.24  | 123° 33.50  |               | 377              |                        |                 |              |      |                         |    |
|           |            |           | 0733       | BO        | 160                | 10.23      | 33.49       |               |                  |                        | 104-117         | 14           |      |                         |    |
|           |            |           | 0801       | EN        | 160                | 10.19      | 33.44       |               |                  |                        |                 |              |      |                         |    |

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

## DAILY LOG

## OCEAN PHYSICS

## INSTITUTE OF OCEAN SCIENCES

| YEAR<br>1998 |               |              | MONTH<br>Nov  |              |                       | SHIP<br>TULLY |             |                  | CRUISE<br>9839      |                           |                    | PAGE<br>OF      |      |                                                           |
|--------------|---------------|--------------|---------------|--------------|-----------------------|---------------|-------------|------------------|---------------------|---------------------------|--------------------|-----------------|------|-----------------------------------------------------------|
| DAY<br>(UTC) | STATION<br>ID | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE      | LONGITUDE   | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS                                                  |
| 26           | G104          | ROS          | 0900          | BE           | 161                   | 49° 12.64     | 123° 40.22  |                  | 392 m               |                           |                    |                 |      |                                                           |
|              |               | ROS          | 0908          | BO           | 161                   | 12.65         | 40.23       |                  |                     | 385                       | 118-131            | 14              |      |                                                           |
|              |               | ROS          | 0925          | EN           | 161                   | 12.63         | 40.20       |                  |                     |                           |                    |                 |      |                                                           |
| 26           | N101          | ROS          |               | BE           | 162                   |               |             |                  | 118 m               |                           |                    |                 |      |                                                           |
|              |               | ROS          | 1027          | BO           | 162                   | 49° 13.36     | 123° 51.35  |                  |                     | 112 m                     | 132-138            | 7               |      |                                                           |
|              |               | ROS          | 1035          | EN           | 162                   | 13.42         | 51.27       |                  |                     |                           |                    |                 |      |                                                           |
| 26           | N103          | ROS          |               | BE           | 163                   |               |             |                  | 416                 |                           |                    |                 |      |                                                           |
|              |               | ROS          | 1131          | BO           | 163                   | 49° 15.99     | 123° 45.79  |                  |                     | 405                       | 139-152            | 14              |      | bottle 12 failed to close<br>at bottom (sample # 150)     |
|              |               | ROS          | 1150          | EN           | 163                   | 16.27         | 45.77       |                  |                     |                           |                    |                 |      |                                                           |
| 26           | N104          | ROS          | 1227          | BE           | 164                   | 49° 17.80     | 123° 42.33  |                  | 296                 |                           | 153                | 1               |      | sample #153 is at 20 m                                    |
|              |               |              | 1231          | BO           | 164                   | 49° 17.80     | 123° 42.33  |                  |                     | 296                       |                    |                 |      | to replace 20 m sample                                    |
|              |               |              | 1236          | EN           | 164                   | 49° 17.79'    | 123° 42.34' |                  |                     |                           |                    |                 |      | on cast 163 @ N103<br>Rosette touched.                    |
| 26           | N105          | ROS          | 1303          | BE           | 165                   | 49° 19.63'    | 123° 38.64' |                  | 263                 |                           | 154-165            | 12              |      | Bottle 1 had air supply chill gas                         |
|              |               |              | 1307          | BO           | 165                   | 49° 19.61'    | 123° 38.60  |                  |                     | 260                       |                    |                 |      | Bottle 1 failed - bottom cap got<br>hung up on data cable |
|              |               |              | 1324          | EN           | 165                   | 49° 19.61'    | 123° 38.59' |                  |                     |                           |                    |                 |      |                                                           |
| 27           | N106          | CTD          | 1400          | BE           | 166                   | 49° 21.33'    | 123° 34.92' |                  | 169                 |                           | 166                | 1               |      | Sample 166 @ 20 m to replace                              |
|              |               |              | 1404          | BO           | 166                   | 49° 21.35'    | 123° 34.91' |                  |                     | 169                       |                    |                 |      | #163 @ N105 which failed<br>Rosette touched               |
|              |               |              | 1408          | EN           | 166                   | 49° 21.36'    | 123° 34.88' |                  |                     |                           |                    |                 |      |                                                           |

CAST TYPE -

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sea water loop

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BE -  
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EN -beginning time of cast  
bottom time of cast  
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messenger release  
recover mooring

POSITION CODE -

RAD -  
GPS -  
LOR -RADAR  
GLOBAL  
LORAN

## DAILY LOG

## OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

| YEAR                         |                   | MONTH        |               | SHIP         |                       | CRUISE     |             | PAGE             |                     | OF                        |                    |                 |      |                                     |
|------------------------------|-------------------|--------------|---------------|--------------|-----------------------|------------|-------------|------------------|---------------------|---------------------------|--------------------|-----------------|------|-------------------------------------|
| 1998                         |                   | November     |               | Tully        |                       | 9839       |             |                  |                     |                           |                    |                 |      |                                     |
| DAY<br>(UTC)                 | STATION<br>ID     | CAST<br>TYPE | TIME<br>(UTC) | TIME<br>CODE | STD/HYDRO<br>CONSEC # | LATITUDE   | LONGITUDE   | POSITION<br>CODE | BOTTOM<br>DEPTH (m) | MAX SAMPLING<br>DEPTH (m) | CONSEC<br>SAMPLE # | # OF<br>BOTTLES | INIT | COMMENTS                            |
| 26                           | NI07 <sup>A</sup> | CTD          | 1438          | BE           | 167                   | 49° 22.70  | 123° 32.85  |                  | 46                  |                           | 167-171            |                 |      | Very fresh @ surface                |
|                              |                   |              |               | Bo           | 167                   |            |             |                  |                     | 27                        |                    |                 |      | drifted into shallow water          |
|                              |                   |              | 1441          | EN           | 167                   | 49° 22.73  | 123° 32.92  |                  |                     |                           |                    |                 |      | (too shallow to do the bottle cast) |
| 26                           | NI07              | ROS          | 1457          | BE           | 168                   | 49° 22.46' | 123° 33.14' |                  | 82                  |                           | 167-171            | 5               |      | on a slope                          |
|                              |                   |              | 1459          | Bo           | 168                   | 49° 22.45' | 123° 33.19' |                  |                     | 85                        |                    |                 |      |                                     |
|                              |                   |              | 1505          | EN           | 168                   | 49° 22.41' | 123° 33.36' |                  |                     |                           |                    |                 |      |                                     |
| END Program! Proceed to IOS, |                   |              |               |              |                       |            |             |                  |                     |                           |                    |                 |      |                                     |
|                              |                   |              |               |              |                       |            |             |                  |                     |                           |                    |                 |      |                                     |
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|                              |                   |              |               |              |                       |            |             |                  |                     |                           |                    |                 |      |                                     |
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|                              |                   |              |               |              |                       |            |             |                  |                     |                           |                    |                 |      |                                     |
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|                              |                   |              |               |              |                       |            |             |                  |                     |                           |                    |                 |      |                                     |
|                              |                   |              |               |              |                       |            |             |                  |                     |                           |                    |                 |      |                                     |
|                              |                   |              |               |              |                       |            |             |                  |                     |                           |                    |                 |      | </                                  |

|             |       |             |       |          |       |                |
|-------------|-------|-------------|-------|----------|-------|----------------|
| CAST TYPE - | BOT - | bottle cast | ROS - | rosette  | USW - | sea water loop |
|             | CTD - | ctd         | NET - | net haul |       |                |
|             | MOR - | mooring     | DRF - | drifter  |       |                |

|             |      |                        |
|-------------|------|------------------------|
| 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  |