

CRN

9318

9353

DAILY LOG

INSTITUTE OF OCEAN SCIENCES
OCEAN PHYSICS

DATE

May 24-30 /

VESSEL

Various.

PROJECT

Prince Rupert Harbour Study

Captain: _____ First Officer: _____

Second Officer: _____ Third Officer: _____

Cruise Participants/Agencies:

1st Field Trip

Scientific Personnel: Party Chief:

T. Juhász

Name

Watch Cabin

Name

Watch Cabin

D. Tuel

Field Trip

Second leg of cruise: Party Chief:

D. Stucchi

Tom Juhász

Field Trip

Third leg of cruise: Party Chief:

Data logging system: Unit number:

Program version:

CTD deck unit make:

model:

serial no.:

Computer make:

model:

serial no.:

Monitor make:

model:

serial no.:

Printer make:

model:

serial no.:

1st CTD make: *Seabird*

model: *SeaCat V30*

serial no.: *1030*

Temperature sensor

model:

serial no.: *1030*

coefficients: slope:

offset:

Conductivity sensor

model:

serial no.: *1030*

coefficients: slope:

offset:

Pressure sensor range:

300

psi

serial no.: *154898*

coefficients: FSP:

dB

offset:

~~Transmissometer~~

model: *"YSI" SBE 23*

serial no.: *230326*

coefficients: slope:

offset:

Comments:

pumped DO sensor.

May 26 to 28

1993

2nd CTD make: AML model: ST12 serial no.: 474 } July 15 to 17
 Temperature sensor model: serial no.:
 coefficients: slope: offset: +
 Conductivity sensor model: serial no.:
 coefficients: slope: offset: Sept. 30
 Pressure sensor range: psi serial no.:
 coefficients: FSP: dB offset: Oct 1
 Transmissometer model: serial no.:
 coefficients: slope: serial no.:
+ Royce DO Sensor

WINCHES:

CTD	make:	model:	serial no.:
counter	make:	model:	serial no.:
HYDRO	make:	model:	serial no.:
counter	make:	model:	serial no.:
Spooling	make:	model:	serial no.:
Drag	make:	model:	serial no.:
Other	make:	model:	serial no.:

Salinometer make: model: serial no.:

SAIL System:

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

Comments:

ADCP Setup:

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

Comments:

Project 9318

Prince Rupert Harbour Study - 1st Field Trip

Date Time (local)

May 21 1730 - truck packed and loaded at
I.O.S. ready for departure.
- using white box van.

May 24 0830 - T. Juhász picks up loaded truck
at I.O.S. - final check
1030 - T. Juhász picks up D. Tuel at
residence
- field party commences drive to
Port Hardy
1830 - arrive Port Hardy check into Thunderbird
Hotel.

May 25 0630 - check in at B.C. Ferry Terminal in
Port Hardy
0730 - Ferry (Queen of Rupert) sails for
Prince Rupert
- transit time will be 17 hrs.
2000 - contacted Union Ore from
Queen of North to check if
operations on schedule for next day
2400 - arrive + check in Crest Hotel

Date

Time

May 26

0730

- meet Uriali at Crest
- head for Fish Habitat warehouse

0830

- on board Robson Reef at Fisheries base
- meet crew Capt - Phil
Mate - Dan.
- called in to office

1000

- loaded for 1st day ops
 - tentatively deployment RUP1-A
 - stations 3 or 4 to 6
- prep along side - opened instrument observed 1115 PDT cycling tape transport + settings.
- depart for RUP1 all-ready on deck for deployment

1230

1330

- on station RUP1 ready to deploy

1357

- launched RUP1
54° 19.57' 130° 19.83'
42.2 m datum depth

1359

- head for Tuck Inlet station
(CTD)/Hydro

1450

- on station PRH6 Tuck Inlet.
54° 24.4'
130° 16.72'
46 m

1505

- messenger time
54° 24.377' 130° 16.710'
depths 0, 2, 5, 10, 15, 20, 25, 30, 40, 45
bottom 46.5 m
- 40 + 45 m bottles miscasted. CTD turned off.
- repeated cast for 45 + 40 m
- CTD turned on for recast

File =
PRH6.Hex

Converted to
PRH6.CNV by DJS

Date Time (Z+7)

May 26 1517

- repeat cast for 40 + 45m bottles started
- CTD on for calibration file
- messenger 3° L

1519

54° 24.37'
130° 16.693'

- CTD Cal. on repeat cast
- % # 001 PRH6 45m .Hex

File =

PRH6a

.Hex

#T 577 = 7.932

converted to

PRH6a.CNV

#T 431 = 7.935

1550

- depart for station PRH5
- displayed data and backed it up in computer
- could plot but not list data

1613

- on station PRH5 depth 58.5m

1616

- start CTD/Hydro. cast #002

54° 22.114'
130° 15.843'

File = PRH5.Hex

converted to PRH5.CNV

1625

- messenger time

- cast to 55m

1629

- cast on board CTD off

- 32768.188 free space

- data spiking badly

T 577 # 7.904

T 431 # 7.914

% #002

Date Time

May 26

1707

- Seabird cast # 5

- on station PRH4

- start CTD/Hydro cast
in water 1708:40

54° 20.264'

130° 17.322'

- cast to 45 m

- down 1719:05

50 m depth

File = PRH4.Hex

(Converted to PRH4.CNV)

52 m

1719

- messenger

1719:25

1724:10

- on board CTD off.

54° 20.31'

130° 17.261'

1724

- head for Fisheries base

‰ # 003

T577 = 8.092

T431 = 8.056

1748

- tied up

2240

- finish O₂ analysis and data
handling of CTD casts

NB

- the spiking in the data from the CTD
proved to be caused by a communications
setup problem. Term 19 was setup
to communicate at 38400 baud which
the Seabird could handle but not the
286 computer, therefore missed and
erroneous data communications. This was
change to 9600 baud - all data files were
again downloaded from the CTD
overwriting the bad files. All casts were
replotted with a better set of limits on
axis in the plots.

Date.

Time (local)

May 27

0700

- meet ship at Fisheries base
- load new set of equipment

0715

- depart for RUP 2
- preparation of equipment enroute.

- moved RUP 2 position approx. 1/4 mi to SE of channel marker buoy into 37 m water (datum).

0800

- during preparations noted acoustic release failure - #015 electronics responding OK, but not the mechanics i.e. motor end
- turned XPD ON - sent XPD and felt reply pulse
- sent release - electronics OK - shaft not turning
- sent repeated release commands without success - sent Rearm / XPD ON / Release
- accessed connectors to motor leads and could see $\oplus$ and $\ominus$ 6.5 Volts on commands
- when motor reconnected it does not respond
- checked cleaned and ensured connection is made at motor leads - no success
- removed hook check plates check motor shaft.
 - corrosion apparent.
- shaft in proper position.
- commanded unit again observed shaft - shaft made partial turn then stuck. (this was more felt than visible.)
- called in to Dario + Les.
- decided mooring will not be deployed today.
 - groundline not desirable because of lack of adequate vessel to pull up weight

Date Time

- suggested release be prepared and air couriered up asap

converted to PRH1.CNV

* May 27 0853
0855

- Seabird cast #6 | File = PRH1.HEX
- on station PRH1 depth 41m.
- CTD/Hydro to 35m #004
%00 #004 at 35m

Note this station is close to mooring RUP2 not at the 1992 position for PRH1.

54° 11.9'
130° 21.36'

tide = 5.7 - 2.7
= 3.0m

0904

- messenger time L 5°

0910

- all on board off to PRH2

#T577 = 8.705

#T431 = 8.715

0926

- received call from I.O.S. - Dario
- replacement release being shipped out from T+C
- release will arrive same day air freight express, hold for pick up at airport

Cast at
PRH1
DIRECTED
PRH2

- Dario requested an additional station be completed near the RUP1 mooring consisting of 2 CTD/Hydro casts. This would be a calibration site.

PRH2.CNV

* →

0959

- Seabird cast #7 | File = PRH2.HEX
- on station PRH2 59m

54° 18.403'
130° 21.754'

1001

- start CTD/Hydro cast #005 to 55m.

1010

- cast down L 0°

1011

- messenger.

54° 18.4' 62.8m
130° 21.7'

Date

Time (PDT) (Z+7)

May 27

1017

- depart for PRH3

MB #

%00

005

- not taken

T 577

=

8.608

sample dumped
too soon. OOPS!

T 431

=

8.617

*

→ Seabird cast # 8

(PRH3.CNV)

File = PRH3.HEX

1034

- on station PRH3

1039

- start CTD/Hydro

#006

43.5 m

54° 19.505'

130° 19.599'

1048

- messenger time

25°

54° 19.543'

130° 19.571'

T 577

8.045

%00 006

T 431

8.056

1058

- maneuver into position for repeat
station nearer to mooring RUP1

- call station RUP1 app. 200' off
- CTD mooring site

(RUP1.CNV)

*

→ Seabird cast # 9

File = RUP1.HEX

1105

- on site RUP1-CTD

54° 19.516

43.2 m

130° 19.809

Canadian
Air Freight.
624-661

1107

- start CTD #007 to 40 m.

1115

- Dario called release on way Canadian
018-46020564 1800 Van to 2000 PR.
marked DFO T.J. Hold for Pick Up.

1117

- messenger time

20°

54° 19.482' 130° 19.827'

Date Time

May 27 1122

- all on board

%00 = #007

T577 8.060

T431 8.070

1130

- checked mooring RUP1 by ship sonar to see if it is of use during ~~near~~ dragging or diving ops.

- mooring located easily and could be scanned top to bottom

- sonar gives a horizontal and vertical distance derived from slant range. - very useful

1140

- listened to acoustic release to check it.

- no response to XPND

- sent CDF

- sent XPND - good response

- sent XPND "

- sent CDFG

- sent XPND - no response

- sent CDFG

- sent XPND - no response

1215

- alongside fisheries jetty.

packed +

1315

- offloaded unnecessary equipment

- " samples to warehouse for analysis

Date

Time

1430

- contacted Uriah re-change in program
- also to discuss servicing
- proceed with analysis of O₂ samples

1600

- met with Uriah at Fisheries Warehouse
- discussed future ops.
- Arrow Post suggested at crew change point for mooring work only
- CTD/Hydro to be completed by Fisheries 18' cabin aluminium cruiser.

1700

- called Canadian Air Freight + confirmed release is on its way to us.
- pick up at downtown office at 2050.

1830

- O₂ analysis finished + packed up at warehouse.

2050

- picked up acoustic release at Canadian office downtown.

Date

Time

May 28

0730

- meet Robson Reef
- load and prep equipment

0745

- depart for mooring RUP2
- assembly of mooring completed
- new release checks out O.K.

0830

- observed tape transport and cycling of instruments - check instrument settings - resealed. (cleaned sealing surfaces).

0930

- site selection completed.
- app. $1\frac{1}{2}$ cable SSW channel marker buoy
- channel buoy at most southern extension of watch circle on running ebb tide app. $\frac{1}{2}$ through ebb to low water
- crab trap string to E of marker buoy and mooring site by 1-2 cables.
- depth at site = 37.5 m. corrected chart datum for tide and draft.

148.708

1004

- launched RUP2-A in
- 37.3 m water corrected depth
- $54^{\circ}11.912'$ $130^{\circ}21.603'$

1010

- return to base
- checked with Phil to issue Notices to Mariners.
- checked that we contact crab fisherman in area and notify him directly.

<u>Date</u>	<u>Time</u>	
May 28.	1145	- arrive Fisheries base & unload
		- return key to Uriah
		- check truck & gas up.
	1230	- depart Prince Rupert
		- called into office en route.
	2300	- arrive & check in Coast Hotel Prince George.

May 29	0700	- depart Prince George for Victoria.
	1900	- board B.C. Ferry. Van. to Vic.
	2100	- arrive I.O.S.
	2130	- off load. partially

- End deployment portion of cruise.
- See "over" for equipment stored
at Fisheries warehouse in Rupert.

Equipment Left at Fisheries Warehouse

4 RCM4 boxes
2 AR boxes
3 tires
2 cobs salinities + caps
30 m x $\frac{1}{8}$ " ss 7x19 wire.
4 Endeco foam protectors

Calibration Checks

CONS#	RT	Seabird Temp	Temp Diff	Audosed Salinity	Seabird Salinity	Salinity Diff	Depth
001 (PRH6a)	7.932 7.935	7.98	-0.05	30.403	30.40	0.00	45m (41.8)
002 (PRH5)	7.904 7.914	7.91	0.00	31.189	31.17	0.02	55m (52.6)
003 (PRH4)	8.092 8.056	8.05	0.02	31.104	31.08	0.02	45m (47.2)
004 (PRH1) [actually RUP2]	8.705 8.715	8.64	0.07	31.451	31.47	-0.02	35m (37.7)
005 (PRH2)	8.608 8.617			—			?
006 (PRH3)	8.045 8.056	8.06	-0.01	31.091	31.07	0.02	40m (41.5)
007 (RUP1)	8.060 8.070	8.07	0.00	31.084	31.06	0.02	40m (43.6)

$$\bar{\mu} = 0.01$$

$$\bar{\mu} = 0.01$$

July 15, 1993 Thursday

0705-0820 - left hotel + met Uriah at DFO boat wharf.
- drove to Port Edward in IOS Van and loaded all our recovery and sampling gear aboard the Lewis Reef - capt. Jack Robinson

0830 - - setup STD12 + computers
- air calibration saved to file AIR-JUL15.CAL.

0850 - - left jetty proceeding to mooring RUP-2

0930 - - on mooring site RUP-2
- verified that mooring in place - release rope laid

0935 Hydro cast / STD12 cast # 008 at RUP-2

- water depth 40m
- sunrise at 0946 $\phi \sim 0-5^\circ$
- sal sample + RT's at 35m.

0953 - all bottles onboard
- Salinity sample #1 at 35m [* Niskin bottle ~ 2m above STD12]
- Reversing Therm at 35m
T451 8.212
T446 8.215
P20995 35.1 db

1005 - proceeding back to mooring location.

1013 - on mooring site

1018 - X ponding $\rightarrow$ mooring-up.

1028 - top RCM # 1184 on deck

- blue line tangled around RCM + vane

1038 - bottom RCM # 1184 on deck -

1045 - proceeding to next mooring RUP-1

top RCM - rotor spinning freely

- some growth on top plate

- blue synthetic line tangled around RCM body and vane may have obstructed rotation of vane as we don't know what line got tangled with mooring

top 1184 - looks good only slight growth on sensor

July 15, 1993 - Thursday

bottom RCM - clean, virtually no growth
- rotor spinning freely

bottom 1181 - clean
- membrane in good condition

- downloaded raw STD12 data to rup2-008.dat } using
- downloaded cal STD12 data to rup2-008.raw } terminal
program

- downloaded STD12 data using program STD menu
RUP2.raw and RUP2-008.REJ 136 records

1138 - at mooring RUP-1
- passed J.P. TULLY anchored in harbour

1142 - transponded with release - it responded

- began STD12/Hydrocast #209 at RUP-1
- depth 45m.

1156 - messenger Δ 1.50
- salinity & RT sample at 45m next to STD-12

1203 - cast 009 completed
- noticed that STD12 dummy plug was lost

- salinity sample #2 at 45m
- RT's at 45m

Niskin bottle Δ 1m above STD12

RT451 - 8.410
RT446 - 8.413
RT20995 - 44.0 db

1217 - next to mooring RUP-1

1230 - release side set - mooring up

1235 - mooring recovered and returning to base

July 15, 1993 - Thursday

top RCM - moderate growth on shield (rotor) and
top end plate
- rotor turning freely

top 1180 - some growth, more than at RUP-2, on
probe guard + probe
- no growth on membrane
- membrane clean + in good condition

bottom RCM - clean
- rotor turning freely

bottom 1184 - clean
- membrane in good shape.

1330 - 1530: Worked on ENDECO's - downloaded data from EPRM
- checked old battery voltages
- installed and checked new batteries
- started #1078 + 1079
- cleaned "O" rings + grooves
- produced reports for 1078 + 1079; data
looks OK, Temp is sensible + DO
is varying.
- checked membrane.

1600 downloading STD12 data from RUP-1 cast 009
rup1_009.raw using terminal commands.

rup1.raw } downloaded using STD.EYE
rup1-009.REL } menu #3.

- re-programmed data logging

1650 - left marine base for RUP2

1 - setting up mooring RUP2

1810 - at mooring site + beginning deployment

1833 - mooring on bottom in 37m (bridge scanner)

54° 11.85' N 130° 21.57' W

July 15, 1993 - Thursday

- 1841 - STD12/Hydrocast #010 at RUP2
- 1852 - messenger $\approx 10^\circ$
- 1858 - all bottles up and heading back to base

Salinity sample #3 at 40m [Niskin bottle close to STD12 $< 1m$]
RT's at 40m.

RT 451 - $-7.928^\circ C$

RT 446 - $-7.931^\circ C$

PT 20995 - 41.4 db

2013 - tied up at marine base

Downloading data from cast #010

RUP1_010.RAW

Terminal program "0" command

RUP2.RAW

} using STD.EXE + download option

RUP2_010.REL

July 16, 1993 - Friday

- 0900-1230:
- setup mooring RUP1
 - assembled components, checked RCM's, cleaned 1184's probe and guards.
 - did air calibration of STD12 saved to file AIR-JUL16.CAL
 - programmed STD12 to log on $\Delta P = 0.5m$

1300 - left the jolly board for mooring location RUP1

1341 - begin mooring deployment (looking for 45-46m under keel)

1346 - buoy released, RCM in water

1351 - glass floats in + 2nd RCM in water

1353 - anchor in water towing to mooring location

1409 - anchor released in 45.8m keel depth 46.8 water position same as original $54^\circ 19.57'N$, $130^\circ 19.83'W$

1410 - STD12/Hydrocast #011 at RUP1

July 16, 1993 Friday
1414 - started Hydrocast

1421 - messenger released 70°

Salinity sample #4 at 45m 40m.
RT's at 40m.

- 1432 - missed cal sample redoing at 40m.
- messenger for cal sample at 40m
- conductivity sensor clogged with mud must redo cal sample again

Salinity sample #4
RT 451 - 8.597°C
RT 446 - 8.602°C
P20995 - 38.8 db

- 1449 - redoing cast for salinity cal sample at
1451 - messenger at $54^\circ 19.71' \text{N}$ $130^\circ 19.24' \text{W}$

Salinity sample #5 at 40m
RT's at 40m.
RT 451 - 8.487°C
RT 446 - 8.491°C
P20995 - 39.2

downloading STD12 data to **RUP2.D11.RAW** - Terminal mode.

A **rupl.d11.raw**
" **Rup1.d11.rel** } using STD.EXE mnu.

- 1530 - tied up to jolly at marine base
- unloaded boat and loaded van.

July 17, 1993 - Saturday

1230 - launched "The Habitat" at Hospital Beach
- strong inflow wind in main fjord

1248 - arrived Minette Bay, after lumpy crossing of inlet

STD12/Hydrocast #012 in Minette Bay

1313 - messenger $\rightarrow 30^\circ$
sal sample at 35m? #6
RT's at 35m?
RT 451 - 6.211
RT 446 - 6.214
P20995 - 30.6

*Note: strong wind blowing
~ 20-30 knots
- drifting quickly because of
wind

1324 - completed cast
- proceeding back to do second cast

1344 - back on station
- shallow STD12/Hydrocast to complete station

1349 - messenger $\rightarrow 20^\circ$

1405 - tied up to float near boat launch ramp
- Urish downloaded STD12 cast using STD.EYE

MIN BAY 1. RAW

Urish caught taxi to Hospital Beach boat launch
and drove back with his truck + trailer. He did
this because there was a strong up inlet wind and
the crossing by boat would have been too bumpy.

1303 Stn Minette Bay

1314 Messenger

STD12 data file index

July 15 to 17, 1993

Station	CONS#	File name
5/7/93 RUP2	008	rup2-008.dat } Terminal output rup2-008.raw } rup2.raw } STD.EXE download rup2-008.rel }
7/7/93 RUP1	009	rup1-009.raw rup1.raw } STD.EXE download rup1-009.rel }
7/7/93 RUP2	010	rup2-010.raw rup2B.raw } STD.EXE download rup2-010.rel }
6/2/93 RUP1	011	rup1-011.raw rup1-b11.raw } STD.EXE download rup1-011.rel }
7/7/93 Minette Bay	012	MINBAY1.RAW } STD.EXE download

Air Calibration Values for DO sensor

15 July, 1993; Thursday:

air-JL15.CAL

rawtemp = 18,881 : rawDO = 31,435

16 July, 1993; Friday:

air-JL16.CAL

rawtemp = 18,673 : rawDO = 31,718

17 July, 1993; Saturday:

air-JL17.RAW

rawtemp = 18,884 : rawDO = 31,191

Calibration Check

CONS#	RT	STD12	DIFF	AutoSal	STD12	DIFF	PRES
008	8.212 8.215	8.23	-0.02	31.599	31.64	-0.04	35.1
009	8.410 8.413	8.44	-0.03	31.354	31.39	-0.04	44.0
010	7.928 7.931	/		31.757	31.74	+0.02	41.4
011-a	8.597 8.602	8.62	-0.02	31.251	31.21 *	+0.04	38.8
011-b	8.487 8.491	/		31.328	31.22 *	+0.11	39.2
012	6.211 6.214	6.20	+0.01	29.710	29.94	-0.23	30.6

* STD12 salinity did not take at same time used previous profile at this same station

Prince Rupert Trips + Data 1993

Cruise #	Dates	Con#	Station	CTD files	Comments
9318	May 26 to 28	001	PRH6	PRH6.CNV	Sea bird CTD + DO sensor
				PRH6a.CNV	
		002	PRH5	PRH5.CNV	Darren T. + Tom J.
		003	PRH4	PRH4.CNV	
		004	RUP2	PRH1.CNV	
		005	PRH2	PRH2.CNV	
		006	PRH3	PRH3.CNV	
		007	RUP1	RUP1.CNV	
	July 15 to 17	008	RUP2	RUP2_008.CAL	DJS + Tom Jakes
		009	RUP1	RUP1_009.CAL	STD 12 #474
		010	RUP2	RUP2_010.CAL	+ Royce DO sensor
		011	RUP1	RUP1_011.CAL	
		012	Minnelapa Bay	MBAY_012.CAL	
	Sept 30 to Oct 1	013	RUP2	no profile obtained	DJS + Roy B
		014	PRH1	PRH1_014.CAL	STD 12 #474
		015	PRH2	PRH2_015.CAL	
		016	PRH3	PRH3_016.CAL	
		017	PRH4	PRH4_017.CAL	
		018	PRH5	PRH5_018.CAL	
		019	RUP1	RUP1_019.CAL	

Sept 30 - Thursday

D. Stacchi

Reg Bigham

Vessel: Lewis Reef

John Heritz

captain (Dana + Ponti)

Air calibration of STD/R is warehouse

saved to file AIR-SP30.CAL

0930 left marine base

STD/Hydro Cons # 013

- on station RUP2 at 1100
- listened to mooring with pinger receiver
- wire $\times$ 17⁰
- messenger at 1135
- salinity sample at 30 m
- RT's

T451	8.566
T446	8.570
P2099	26.8 dbar

- 0.6 at surface

Mooring RUP2

- release code set at 1203 - on surface
- heavy growth on buoys + instruments
- RCMV rotor both turning freely
 - filamentous growth on rotor + paddle wheel, handles + top and plates

- ENDECO's

- top {
 - heavy filamentous growth on top 1184
 - growth on guard cage + on probe shank + less on membrane

bottom - less filamentous growth on guard cage but growth on probe shank + membrane is heavy and comparable to shallower 1184

STD/R

- downloaded data

raw data to file RUP2-013.RAW

Engineering unit to file RUP2-013.REL

Note did not get profile because STD/R logged by time and not depth!
We got file with all 384 records at the surface.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1993

MONTH 9

TIME ZONE / aol

SHIP Lewis Reef

CRUISE 9318-3

PAGE OF

[illegible]

Station PRH1

PRH1 STD12/Hydrocast cons # 014 on station 1320
- messenger at 1328
- wire $\times$ 0
downloading to file raw data - PRH1-014.RAW
177 records cal data - PRH1-014.REL
file looks OK.

Salinity sample at 45m bottle tripped at surface.
RT T451 9.818
T446 9.816
P2099 2.5

PRH2 - STD12/Hydrocast Cons # 015 on station at 1420
- wire angle 0°
- messenger time 1432
downloading STD12 data - raw data PRH2-015.RAW
- cal data PRH2-015.REL

Salinity sample at 40m
RT: T451 8.780
T446 8.783
P2099 40.4

PRH3 - STD12/Hydrocast Cons # 016 on station at 1456
wire angle 0°
messenger time 1504
RT T451 8.185
T446 8.187
P2099 40.3

Downloading STD12 data - raw data PRH3-016.RAW
155 records - cal data PRH3-016.REL

1515 - tied up to fueling dock

PRH4 - STD12/Hydrocast Cons # 017 on station at 1604
- messenger time 16:16
- wire $\nearrow$ 13°

- missed 40m bottle but messenger tipped bottom bottle at 45m - lanyards jammed
- recasting for 40m sample
- messenger at 16:23

Salinity sample at 45m #17

RT	T451	8.800
	T446	8.803
	P2099	45.6

downloading STD12 data - raw file PRH4_017.RAW
- cal file PRH4_017.REL

PRH5 - STD12/Hydrocast Cons # 018 on station at 1645
- messenger time 16:58
- wire angle 0

Salinity sample #18 at 50m

RT	T451	8.819
	T446	8.821
	P2099	50.4

Downloading of STD12 192 records - raw file PRH5_018.RAW
- cal file PRH5_018.REL

Sept 30, 1993

STD-12 air calibration for DO sensor.
SN#474

Time	S/N	Time	Pres	Temp	Cond	DO
0745 -	00474,	00149,	19684,	26366,	19997,	29504
0749 -	00474,	00235,	19685,	26350,	19997,	29521
0751 -	00474,	00347,	19684,	26313,	19996,	29539
0753 -	00474,	00461,	19683,	26279,	19997,	29561
0756 -	00474,	00636,	19683,	26098,	19997,	29572
0801 -	00474,	00686,	19682,	26068,		29590
0804		00739,		19993,		29611
0808 -		00860,		19966,		29631
0814 -	00474,	00976,	19681,	19849,		29662
0818		01074,		19874,		29685
0824	00474,	01176,		19775,		29712.

Oct 1, 1993 - Lewis Reef

0830 - loaded gear aboard boat and unloaded RUP2 mooring components.

air calibration of STD12 DO sensor

Time	SN	Time	Pres	Temp	Cond	DO
0905	00474	00030	19691	23022	19996	28636
0908	00474	00134	19691	22474	19996	28688
0910	00474	00247	19691	22495	19995	28710
0913		00295	19691	22480		28732
0916		00339		22418		28746
0919		00391		22547		28759
0920		00451		22614		28758

- re programmed STD12 to sample on depth change of 50m.

air calibration file is AIR_OCT1.CAL

RUP1 STD12/Hydrocast cons # 019 on station 1000

messenger time 10:12
wire $\rightarrow$ 0

Salinity sample #19 at 40m
RT T451 8.862
T446 8.865
P2099 40.5

10:56 - popped up RUP1 after several abortive attempts to release the mooring. Changing deck aints and moving closer made the difference.

- this mooring was heavily fouled with fibrous or filamentous growth all the way down to the acoustic release.

RUP1 - morning (cm X)

- RCM4 5391
 - 3" long filaments on rotor
 - rotor turns but threshold is probably higher
 - Filaments all over handle, top end plate + rotor.
- RCM4 6462
 - not as much growth as on 5391
 - Filaments about 1-2" long on rotor magnet
 - growth on handle, rotor + top end plate
 - rotor spinning freely

ENDECO #1061 - lots of filamentous growth on protective cage ~~and~~ probe guard; filaments about 2cm long
- no growth on probe shank or membrane

ENDECO 1007 - heavier growth on probe guard and attached bracket
- minor growth on probe shank and some on membrane

Downloading 57012 data in - raw

RUP1_019_RAW

RUP1_019_RSL

STD12 Data File Index

Date	Station	Const#	Filename	Comments
30/9/93	RUP2	013	RUP2-013.RAW RUP2-013.REL	Did not get profile only at surface.
	PRH1	014	PRH1-014.RAW PRH1-014.REL	
	PRH2	015	PRH2-015.RAW PRH2-015.REL	Calibration bottle tripped at surface.
	PRH3	016	PRH3-016.RAW PRH3-016.REL	
	PRH4	017	PRH4-017.RAW PRH4-017.REL	
	PRH5	018	PRH5-018.RAW PRH5-018.REL	
1/10/93	RUP1	019	RUP1-019.RAW RUP1-019.REL	

Air Calibration Values for DO Sensor

30/9/93 is file AIR_SF30.CAL

1/10/93 is file AIR_OCT1.CAL

Calibration Charts

Cons #	Temp			Salinity			Pres.
	RT	STD12	Diff	AutoSal	STD12	Diff	
013	8.566 8.570	/	/	32.013	/	/	26.8
014	9.818 9.810	/	/	29.142	/	/	2.5
015	8.780 8.783	8.78	0.00	31.516	31.54	-0.02	40.4
016	8.185 8.187	8.79	-0.61	31.607	31.64	-0.03	40.3
017	8.800 8.803	8.80	0.00	31.634	31.67	-0.04	45.6
018	8.819 8.821	8.82	0.00	31.672	31.70	-0.03	50.4
019	8.862 8.865	8.86	0.00	31.600	31.63	-0.03	40.5

$$\bar{\pi}_T = 0.00^{\circ}\text{C}$$

$$\bar{\pi}_{\text{Sal}} = -0.03 \text{ psu}$$

CRUISE 9353NORTH COAST DIVISION SURVEYS

① Friday September 17, 1993

Vessel:

Technician: Roberta Paterson

CONS#	Station	Time	filename	Calibrated file	P _{surf}	Salinity Sample
001	RUP1	09:14	RUP1.RAW	RUP1.CAL	-3.17	40
002	RUP2	10:51	RUP2.RAW	RUP2.CAL	-2.93	33
003	PRH1	11:25	PRH1.RAW	PRH1.CAL	-2.88	40
004	PRH2	12:04	PRH2.RAW	PRH2.CAL	-2.83	65
005	PRH3	12:21	PRH3.RAW	PRH3.CAL	-2.91	46
006	PRH4	13:12	PRH4.RAW	PRH4.CAL	-2.96	47
007	PRH5	13:35	PRH5.RAW	PRH5.CAL	-2.81	50
008	PRH6	14:11	PRH6.RAW	PRH6.CAL	-2.83	52

* Calibrated data file produced by STD12 OXY.BAS SL20 = 1578.16

Note: The STD12 DO sensor was not calibrated in air before the survey. Consequently the air calibration values for the survey of Sept. 24th were used.

CRUISE 9353

NORTH COAST DIVISION SURVEYS

(2) Friday September 24, 1993

Vessel:

Technician: Roberta Polara

Cons#	Station	Time	Filename	Cal file	P _{surf}	Salinity Sample
009	RUP1	10:30	RUP01.RAW	RUP01.CAL	-3.13	45
010	RUP2	1145	RUP02.RAW	RUP02.CAL	-2.88	39
011	PRH1	12:30	PRH01.RAW	PRH01.CAL	-2.71	50
012	PRH2	1320	PRH02.RAW ^①	PRH02.CAL	-3.03	60
013	PRH3	1405	PRH03.RAW ¹	PRH03.CAL	-2.81	40
014	PRH4	1430	PRH04.RAW	PRH04.CAL	-2.96	48
015	PRH5	1500	PRH05.RAW	PRH05.CAL	-2.76	55

0730 STD12 ON

0830 STD12 air calibration values:

00474, 00373, 19671, 20119, 19997, 29285

① 2 casts in this file use second cast.

Calibration Checks for the surveys of 17+24/9/93

Filename	Station	AutoSal	STD12	Diff	Sample Depth	
RUP1.CAL	RUP1	31.522	31.56	-0.04	40 (57)	17/9/93
RUP2.CAL	RUP2	32.209	32.27	-0.06	33 (30)	↓
PRH1.CAL	PRH1	31.944	31.97	-0.03	40	
PRH2.CAL	PRH2	31.476	31.50	-0.02	65	
PRH3.CAL	PRH3	31.505	31.57	-0.07	46	
PRH4.CAL	PRH4	31.566	31.60	-0.03	47	
PRH5.CAL	PRH5	31.637	31.67	-0.03	50	
PRH6.CAL	PRH6	30.722	30.74	-0.02	52	
RUP11.CAL	RUP1	31.648	31.64	0.01	45 (44)	24/9/93
RUP22.CAL	RUP2	32.265	32.29	-0.03	39 (40)	↓
PRH11.CAL	PRH1	31.852	32.09	-0.24 [?]	40 (46.5)	
PRH22.CAL	PRH2	31.818	31.83	-0.01	60	
PRH33.CAL	PRH3	31.490	31.70	-0.21 [?]	40 (46)	
PRH44.CAL	PRH4	31.495	31.51	-0.02	48	
PRH55.CAL	PRH5	31.422	31.49	-0.07	55	

$$\bar{\mu}_{\text{SAL}} = -0.03 \pm 0.02$$