

CRN

94-26-02

DAILY LOG

INSTITUTE OF OCEAN SCIENCES
OCEAN PHYSICS

DATE

July 11 - July 29 /94

VESSEL

ENDEAVOUR

PROJECT

VENT CRUISE - BOOK #2

E945 cont.

E945 cont'd

Time	Location	Depth	E#	Wire	Pitch.
20:51	46:19.637 129:43.193	2044	304	3074	9.4 Winch again
20:55 - still in plane 2004m = 185 mgs. 1797 - coming out of plane.					
20:53	46:19.720 Net 3 129:43.249	1973	310	3033	-4.4 1FT. 21080t
2000-1800 1900-1950m looks like a scattering layer.					
- hydrographic package from USC					
21:12	46:20.102 Net 4 129:43.168	1802	348	2702	P 11.4 1FT
1800-1200 rising up slowly to 1200m - transmission steady					
21:18	46:20.256 43:173	1724	359		25 ft, P=15.7 which stopped again 1/p 9.9
21:26	46:20.395 129:43.161	1778	376		
21:36	46:20.584 129:43.163	1668	398	2308	P+13.4
Winch off 21:41 1624					
21:57	46:20.935 129:43.170	1717	438		P 9.6
22:05	46:21.032 129:43.078	1651	453	2037	P 12.4
22:15	46:21.137 129:42.985	1516	473	1800	P 15.3
22:20	Winch off	1461			
22:30	46:21.431 129:42.793	1382	504	1690	P-15.0
22:41	46:21.608 Net 5 129:42.658	1200	526	1442	P-11.3
1200-800 Winch off 22:44					
22:54	46:21.685 129:42.455	1275	552	1386	P 15.7

UTC

Time	Location	Depth	E#	Core	Pitch
23:05	46:21.845 129:42.317	1032	572	1124	10.3
23:10	Winch off			997	
23:21	46:21.985 129:42.041	917	607	969	P 6.9
23:22	46:22.843 129:41.965	797	617	835	8.7
Net 6	800-400	CyPS stop.		Restart	9421035
23:36	46:22.094 129:41.860	611	636	641	12.9
Winch off	23:41	458		470	
23:52	46:22.335 129:41.651	447	668	"	P 9.5
23:55	46:22.392 129:41.572	360	675	380	P 4.5
Net 7					
00:05	46:22.571 129:41.446	114	693	122	P 17.9
00:16	46:22.752 129:41.224	0	?		on Deck

July 24 2035 PDT. FLOC site

CTD in Area Comparison. Put SLID CTD on
foreward Rosette winch. NO transmission
We just completed a Rosette cast at this site
and quickly repaired CTDs

File # 94260077 46°17.964 129°43.089
CTD Comparison @ 0335 UTC.

Rosette just R9426-13
Completed.

Go to 1500 m SURCAST FLOC = 94260078
0406 UTC @ 1500 m FLOC = 94260078
46°17.825 129°43.081

UTC

Time	Location	Depth	E#	Wire	Pitch
23:05	46:21.815 129:42.317	1032	572	1124	10.3
23:10	Winch off			997	
23:21	46:21.985 129:42.041	917	607	969	P 6.9
23:26	46:22.043 129:41.965	797	617	835	8.7
Net 6					
800-400	CPs stop			Restart	9421035
23:36	46:22.094 129:41.960	611	636	641	12.9
Winch off	23:41	458		470	
23:52	46:22.335 129:41.657	447	668	"	P 9.5
23:55	46:22.392 129:41.572	360	675	380	P 4.5
Net 7					
00:05	46:22.571 129:41.446	118	693	122	P 17.9
00:16	46:22.752 129:41.224	0	?		on Deck

July 24 2035 PNT. FLOC site

CTD intercomparison. Put SLID CTD on foreward Rose. No transmission.
We just completed a Rose cast at this site and quickly repaired CTD.

File # 94260077 46°17.964 129°43.089
CTD Comparison @ 0338 UTC

Rose just R9426-13
Completed.

Go to 1500 m SURCAST FLOC = 94260078
0406 UTC @ 1500 m FLOC = 94260078
46 17.825 129 43.081

TRANSIT OVERNIGHT FROM Floc Site TO
ENDAVOUR RIDGE MOORING ERAZ. (Short-term sediment
trap mooring).

July 25

Arrive site @ 0700 PDT 47°56.519'N, 129°05.267'
Les trying to range on mooring.
CALM seas, very light wind.

PREVIOUS DAY (July 24)

- ① Recover CX01 Mooring (JCS/NOAA) mooring deployed
in Oct 1993 by Ed Baker, 46°20.05'N in COAXIAL
VALLEY.
- ② Connect SCUBA tow from South to North across Floc
site. 46°18.0', 129°48.48'N. Many problems with which
cutting out from overheating. Worked for 15-20 min
then cool for 10 min. Found wire with short in
breaker switch.
- ③ Talked with Rich Lutz on ATU in morning. They
took video footage for us from 270m when going
down on Alvin Battery power too low for video on
up [Floc Site].
- ④ We had a long slow tow through floc hitting a
good strong plume 150m ab. Suggests strong venting
here.
- ⑤ Cowen et al. conducted Rosette cast at the
Floc site. Again good strong plume on transect.
- ⑥ At termination of cast, took SCUBA CTD out and
put it on well-deck rosette cable. Intercompare
CTDs to 1500m.
- ⑦ Brenda drinking with crew.
- ⑧ Stop reconfigure SCUBA. Beam 3 now looking
forward. Tow tomorrow.
- ⑨ Transit to ER overnight.

0715 PDT July 25/

Acoustic release of ERA2. Recover after breakfast. Released at 0715.

Mooring set on surface by Bridge at 0739 PDT
bearing 340, 1/2 mile from 47 56.107
129 05.018 W.

TOP TWO FIRST [TOP SEDIMENT TRAP]

Time out of water 08:14 - top sediment trap
- seemed correct

current meter out of water - 08:19

2nd set of traps out of water 8:28

ONBOARD @ 0845. (release)

Proceed to Short-term Mooring ERA1
(1 km away).

Release ERA1 @ 0855 PDT

0920 PDT ERA1 on surface

Proceed to STEVE MITCHELL Tow Site

47 57.0, 129 09.0

Asked bridge to tow along 019°

E941K

Net 2 2380 - 1940

3 1940 - 1800

4 1800 - 1200

5 1200 - 800

6 800 - 200

7 200 - 0

E94K
 Time Location Depth F# Wire Pitch
 1744 47.57.505 9 19

SS only present to ~ 100m

transducer 3 pings forward
 CTD 94261037

17:56 47.57.655 353 4 348
 129.08.670

Second SS summit to peak @ 500m

18:03 47.57.750 768 63 840
 129.08.666

Uplift-finder call - crash

18:11 47.57.958 1060 78
 129.08.566

Wireout 94261038
 1150

18:25 47.58.125 1431 99 1550
 129.08.500

18:30 47.58.205 1614 109 1737
 129.08.469

18:37 47.58.325 1902 125 2040
 129.08.374

Small acoustic signal at @ 1900m
 acoustic duplication present ~ 2030m

280 mab

1845 47.58.422 2185 140 2337 250 mab
 129.08.322

Blanco 1, 2, 4 can see the bottom
 @ 2237 - possible scattering layer coming into view

2290m 130 mab. 2429

2332
 2347
 2370

80 bottom
 60
 45
 35

18:51 47.58.507 2381 153 2527
 Net 2 129.08.308
 2380-1140
 1900. 47.58.627 2276 169 2414
 129.08.251

Time	Location	Depth	EH	Wire	Notes
1912	4758.763 129 08 21	2036	194	2163	winch halted ship speed up

1919	4758.912	1939	209	2108	
Net 3	129.07.960				Local liberation

1940-1900 last 40 m on net 3 winch was stopped to increase total length of time of tow to 10 min

1929	4759.097	1800	227	2030	1 FT
Net 4	129.07.964				

1900-1200

* ship speed increased to 1.5 kn from 0.8 kn to improve fishing.

1933	47 59.217 129 07.778	1674	238	1944	
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1939	47 59.313 129 07.715	1587	244	1855	
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1 a bump @ 1000m

1947	47 59.597 129 07.604	1287	261	1714	ships speed
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another bump
Scattering layer 1260-1200m - any detected

1951	47 59.756 129 07.579	1197	271	1670	
Net 5					

1200 → 800 m
one false trigger
2.0 kn on the GFS

20:00	4800.013 129.07.493	983	290	1534	
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2005	48.00.193 129 07.47	870	300		
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2006	00.229 07 386	937	302	1927	0.63 M back
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transmission 830
liberation

Time	Location	Depth	E#	Wire	SL
2011	0.374 7.298	731	310	1320	strong SL

2015	48 0.537 129 7.247 wiring out of transducer wires	630	322	1200	peak SL
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horiz wire $\phi = \phi$
back $\angle = 135^\circ$

2021	0.734' 7.127'	549	332 back	1085 0.51 M	
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$$\cos^{-1}\left(\frac{1085}{549}\right) = \theta = 60^\circ \quad \text{calc}$$

measured $\theta = 60^\circ$

velocities

up = 0.25 m/s
forward 2.0 km/hr
1.03 m/s



$$\tan^{-1}\left(\frac{0.25}{1.03}\right) = \phi = 13.6$$

2033	1.139' 6.908'	380	356	788	
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big sharp eddies @ $\sim 360^\circ$

Time	Location	Depth	E#	Wire
2041	48° 15' 15"	279	376	SB
	129° 6.692			
2050	48° 1.756	193	390	420
net 7	129° 6.533			
2054	1.91	152	399	308
	6.42			100
	surface noted on beam 3			
21:07	48 02 19.6	Ø	423	(-15) on deck
	129 06 20.3			

Lat

Sounding line - ER - west to east
long depth

1600 - in water

local time

traps uppermost pair

#7 $\Rightarrow$ inverted

#33 $\Rightarrow$ conventional

} in water 1602

Mooring at ER. # ERA2-2

(second deployment)

bottom pair

#11 conventional

#36 inverted

} in water 1619

floats w/ current meter $\Rightarrow$ in water 1606

3 set floats $\Rightarrow$ 1615 in water

23:49

check GPS

47° 57.044

129° 05.639

- last set of traps in water

Final anchor away @

47° 56.983 N

16:28

129° 05.700

- depth within a meter - chief scientist back on board

Barbecue on deck -

Proceed to Cascadia Basin. Still flat calm, partly overcast.

July 26

0700 Arrive Cascadia Basin.

Sunny & calm.

Proceeded to start of E94L at 47° 49.0,
127° 37.173, going through 47° 51.517, 127° 37.173
(peak = 2420 m depth).

Tow E94L 1 Papa Bear

TIME	LT/LONG	Probe	ENS#	Winch WIRE	
15:09	47 48.938 127 37.168	-2.1	47		94261040
15:14	47 49.027 127 37.171	137	55	140	Nets:
15:24	47 49.190 127 37.090	469	75	490	2 Bot -2000 3 2000-1800
15:34	47 49.343 127 37.058	803	95	841	4 1800-1200 5 1200-800
15:44	47 49.496 127 37.077	1131	115	1170	6 800-200 7 200-0
15:54	47 49.626 127 37.112	1443	135	1485	
16:04	47 49.756 127 37.129	1738	155	1795	
16:14	47 49.849 127 37.121	1988	173	2047	Bottom
16:27	47 50.029 127 37.114	2340	201	2405	325
16:34	47 50.160 127 37.132	2508 2530 2552	215	2617	time of depth 165 150 130
	some thing funny	happening	@2582		
		2582	221		100
		2597		bottom sighted with forward looking beam	80

Time	Location	Depth	Est	Wire	
16:39:17		2626 2635			60 50
16:40:37		2653 2655 52			32 30 24
16:46	47:50.369 129:37.176	2651 2645 2640 2640 2644 2637 2642	237	2878	31 34 38 41 33 41 37
17:01 Net 2 Bot-2000	47:50.647 129:37.156	2648S 2638 2641 2646 2633 2642 2640	270	2915	33 41 37 33 43 33 33
17:15	47:50.972 127:37.211	2624 2623 2627 2630	294	3024 3072	46 47 42 38
17:25	47:51.284 127:33.288	2633 2620 2614	318	3267	35 40 47
asked bridge to slow down. Can't keep wire down at this speed					
stop wash		2600 2602			60 mab 57 mab
17:32	47:51.477 127:37.198	2613 2621 2653 2632	331 332 334 336		50 mab 45 mab 35 mab 30 mab
17:34	Ship at p.mael			3340 m	

	location	Depth	Roll	Wind at	
1737	47 51.572 127 37.135	2631			33 m/s

1739	47 51.605 127 37.110	2618	345	3311	42 m/s
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1742	Down slowly on winch.	2602			54 m/s
	Currents	2588		3388	

Will swing to south.
Can't maintain course and get wind out.

		2588			66
		2992			62
		2995			58
1752	47 51.065 129:37 103	2598		3338	53
		2604			50
		2611			43
		264			40
		2619			36
		2624			30
18:01	47:51.998 129:37.112	2625	389	3328	29

Sunfish on starboard quarter!
lots of sitting this time!

		2604			28
		2597			29
		2574			32
		2560			33
		2548			38
		2535			39
		2521			41
		2520			47
		2518			50
18109	47.52.109 127:37.170	2523		3162	47
		2525			46
		2525	409		45
		2525			42
		2520			43
		2510			46
		2497			60

Time	Location	Depth	EA	Wire	2 to Bottom
1815	47° 52' 239	2492	417		43
	127° 37' 209	2491			42
		2489	418		40
		2486			38
		2483			35
		2479			34
		2477			32
		2475			30
		2469	425		30
		2460			33
		2447			38
		2447			37
		2446			35
		2437			33
		2422			33
		2414			37
1824	47° 52' 49	2404	435	3062	40
	127° 37' 325	2404			40
		2403			36
		2401			35
		2396			34
		2374			33
		2370			34
		2365			36
1831	47° 52' 566	2357	449	3012	40
	127° 37' 369				
Peak of crest. Start up to surface					
Top of outcrop.					
1832	47° 52' 613	2345	453	2340	50 mab
	127° 37' 371				
Shark on the stbd quarter and no, nada, velella					
1839	47° 52' 77	2211	467	2890	
	127° 37' 32				
	355°				
1847	52.952	2061	481	2750	
	37.250				

TIME	FIX	DEPTH	E#	WIRE	
1850	47° 53.118 127° 37.282	1998	487	2699	* net 3 *
1859	47° 53.118 127° 37.200	1840	508	2548	
1905	47° 53.518 127° 37.169	1781	518	2557	* net 4 *
1913	53.617 37.231	1604	534	2321	Alb well numerous surfish and pretty big jumping tuna's, still no w'hella. very calm sunny and hot!
1920	53.774 37.213	1450	548	2148	
1927	47° 53.926 127° 37.248	1315	561	1964	
1932	47° 54.093 127° 37.286	1205	571	1790	* net 5 *
					one false trigger
1943	47° 54.386 127° 37.260	897	594	1360	
					ships speed ~ 1.6 kn over ground 1.5 kn in the water
					Whale on port beam 20 yds out /

TIME	FIX	DEPTH	E #	WRS	
1946	54.482 37.207	803	602	1232	* net 6 *
1951	54.582 37.204	720	609		begin some sort of scattering layer winch speed 0.6 m/s
1959	47 54.805 127 37.183	525	626	830	
2000	55.109 37.198	325	647		
2018	55.298 37.199	202.9	663	266	* net 7 *
2025	55.432 37.144	82.1	677	76	
2029	47 55.538 127 37.142	Ø	685		end of

CAST Complete. Whales to starboard.

Proceed to CB MORENO site. CB Ø 2
70 day @ 10 min in "Bare" light
1 current meter.

Time Current meter in water = 1453 PDT
Position: 47 44.280 127 44.898

Anchor away @ 1459 PDT: 47 44.005
127 44.881

Recover drift net — at this site. Turned
at to be foam — associated with Vela
convergence. Puffs of internal wave lines in water
WIND LINES all around ship

Roselle R94 14 Evening July 26
@ Papa Bear site 4751.539
127 37.132

Search for plume

July 27

C700 PDI Camera Profile @ Papa Bear

First File = 94260084.

* Camera takes 400 pictures every 5 seconds.

* Not really: The camera takes
one (1) photo every 5 seconds,
400 times!

Many sightings of a 3 constituent pod of sei whales
until we left site.