

PRELIMINARY CRUISE REPORT, W0009A Leg 1
R/V WECOMA, 7-12 September 2000
GLOBEC/ENSO Long-Term Observations off Oregon

Submitted by Jane Fleischbein
College of Oceanic & Atmospheric Sciences
Oregon State University
Corvallis, Oregon 97331-5503
flej@oce.orst.edu, 541.737.5698

FILING DATE: 16 October 2000

CONTRACT/GRANT NUMBER: NOAA Award NA86OP0589 and NSF Grants OCE-9732386 and OCE-0000733.

PRINCIPAL INVESTIGATOR(S): GLOBEC: Adriana Huyer, Robert L. Smith, P. Michael Kosro, P. A. Wheeler, W. T. Peterson and Jack A. Barth

PURPOSE: To determine physical, plankton and nutrient/chemical conditions over the continental margin for climate change studies in NE Pacific. In particular, to make CTD and CTD/rosette and net tow stations along 5 lines (off Newport, Heceta Head, Coos Bay, the Rogue River, OR. and Crescent City, CA.), to make continuous bio-acoustic observations between the 50-500m. isobaths along the 5 lines, to deploy drifters at selected locations on the Newport line, and to make continuous observations of currents using ADCP and of surface-layer temperature, salinity and fluorescence by means of ship's thru-flo system. Figure 1 shows the location of the CTD stations. Table 1 shows the CTD station positions, and Table 2 shows the biochemical sampling depths.

SAMPLING PLAN:

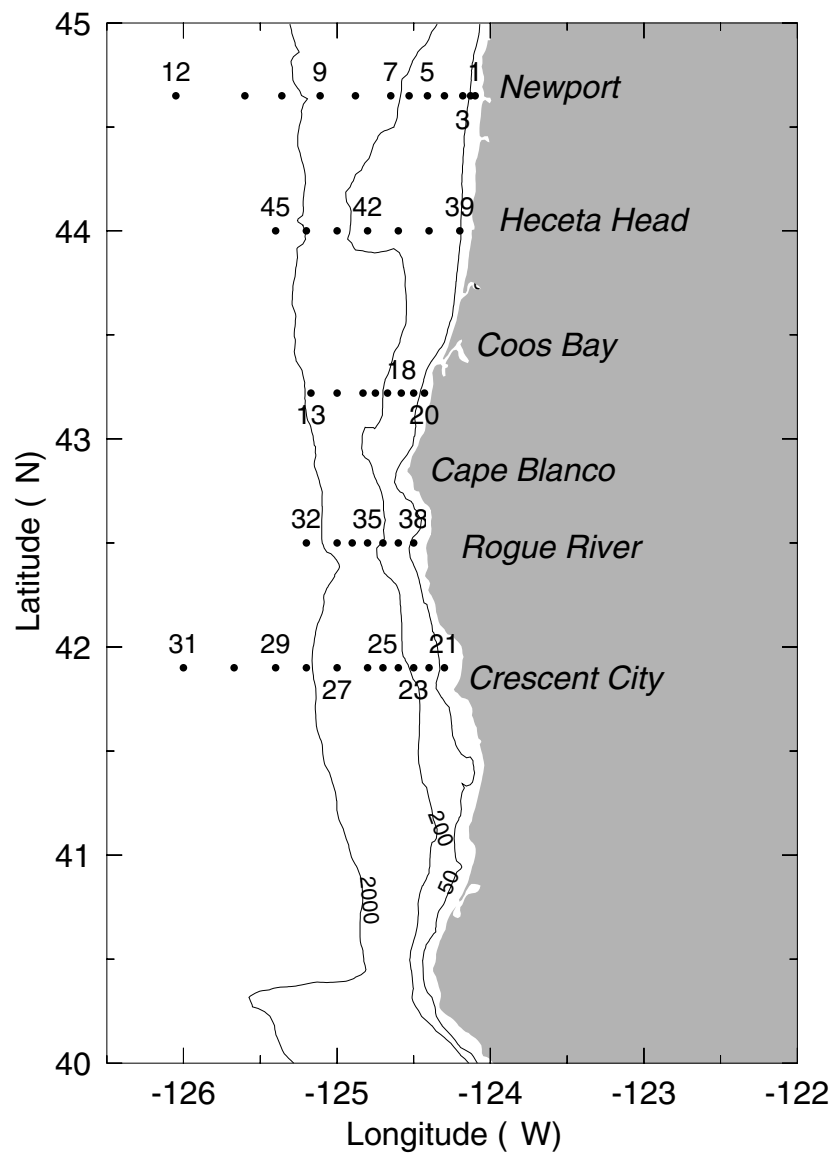
1. Use ship's intake continuously for Temperature, Salinity, and Fluorescence
2. Continuous ADCP Profiling (150 kHz transducer) for water velocity and backscattering for bio-acoustics.
3. Standard CTD Stations using SBE 9/11 plus CTD system for Temperature, Salinity, Fluorescence, Light Transmission, Oxygen, PAR.
4. Rosette sampling: 5 liter bottles for nutrients, and chlorophyll.
5. Deploy surface drifters at selected NH-line stations.
6. Vertical net tows: 1/2 meter nets 100 m to surface; Horizontal net tows with 1 m² MOCNESS.
7. Continuous bio-acoustic observations between the 50-500m isobath along 5 sections using a Hydroacoustics Technology, Inc., system towed alongside the ship.

CRUISE NARRATIVE

A brief overview of the cruise is presented here. An event log is provided in Table 3, and the participating personnel are listed in Table 4. Wecoma departed Newport at 1000 PDT on 7 September 2000. CTD sampling started at NH-1. At NH-3, the HTI (bio-acoustic system) was deployed, and MOCNESS tows were started. After releasing five drifters and completing CTD's and net tows along the Newport Line at 1200 PDT, 8 September, we transited to FM-9, arriving at 2031 PDT, 8 September. Finishing the CTD station at FM-1 at 1010 PDT, 9 September, we headed to the inshore end of the Crescent City line, arriving at CR-1 at 1707 PDT, 9 September and finishing the line at 1450 PDT. The ship transited to RR-7, arriving 1915 PDT, 10 September. The Rogue River line was

completed at 0833 PDT, 11 September. The ship transited to the Heceta Head line, and began HH-1 at 1730 PDT, 11 September, and finishing HH-9, began the transit to Newport at 0800, 12 September. We arrived alongside the pier at Newport at 1410 PDT on 12 September 2000.

Figure 1. W0009A CTD stations along the Newport, Heceta Head, Five Mile, Rogue River and Crescent City Hydrographic Lines.



PRELIMINARY RESULTS

Winds during the cruise were moderate (except off Crescent City), allowing us to complete the entire survey on the first leg. Winds off Newport had been unfavorable for upwelling during the previous few days, and surface temperatures inshore exceeded 12 C. Nevertheless, salinities over the inner shelf all exceeded 33 psu, and the permanent halocline intersected the sea surface over the midshelf.

The Columbia River Plume was thin (~20 m), and relatively dilute, with minimum salinities of about 32 psu at NH-25 and NH-85. Low surface salinities were also observed on each of the other lines: <32 psu at HH-9, <32.6 at FM-9, <32.8 at RR-7, and <33 psu at CR-8, -9, -10 and -11.

Downward sloping isotherms and isopycnals suggest that there was poleward flow on all sections: over the inner shelf off Newport and Heceta Head, over the inshore flank of Heceta Bank, and over the upper slope or shelf-break off Coos Bay, Rogue River, and Crescent City. Poleward flow is consistent with the relatively warm temperatures of high salinity surface waters inshore. In spite of high surface salinities inshore, fluorescence was generally low in comparison with the high values observed in early July.

The attached zooplankton report was provided by Dr. Wm. Peterson.

Table 4. Names, affiliations, and responsibilities of scientific personnel participating on W0007A.

Robert L. Smith	Chief Scientist	OSU	CTD
Adriana Huyer	Co-Chief Scientist	OSU	CTD
Jane Fleischbein	Technician	OSU	CTD
Joe Jennings	Technician	OSU	CTD, oxygen
Margaret Sparrow	Technician	OSU	CTD
Julie Arrington	Technician	OSU	nuts, chl
Lee Karp-Boss	Post-doc	OSU	nuts, chl
Holly Corwith	Graduate Student	OSU	nuts, chl
Jennifer Harman	Undergraduate Student	OSU	nuts, chl
Woody Moses	Graduate Student	OSU	nuts, chl
William T. Peterson	Co-Chief Scientist	NOAA	
Julie Keister	Technician	HMSC	zooplankton
Leah Feinberg	Technician	HMSC	zooplankton
Anders Roestad	Technician	ODFW	zooplankton
Linda Fayler	Technician	OSU	martec
Daryl Swensen	Technician	OSU	martec

Table 1. CTD station positions during W0009A, and sampling at each station (C: Bio/Chem bottle sampling, N:half-meter vertical net tows, M:Mocness, D:drifter, P:Pigment, O:Oxygen samples)

Station		Distance	Lat.	Long.	Bottom	Cast	Sampling
Name	No.	from shore	°N	°W	Depth	Depth	Type
NH-1	1	3.0	44.65	-124.10	29	24	N
NH-3	2	5.6	44.65	-124.13	48	43	P
NH-5	3	8.9	44.65	-124.18	58	52	C,N,M
NH-10	4	18.5	44.65	-124.30	82	76	P,N,D
NH-15	5	27.6	44.65	-124.41	94	90	C,N,M,D
NH-20	6	36.9	44.65	-124.53	144	139	P,N
NH-25	7	46.5	44.65	-124.65	295	280	C,N,M,D
NH-35	8	65.0	44.65	-124.88	441	430	C,N,M
NH-45	9	83.2	44.65	-125.11	693	680	C,N,M,D
NH-55	10	103.0	44.65	-125.36	2865	1006	P
NH-65	11	121.5	44.65	-125.60	2860	1005	C,N,D
NH-85	12	157.2	44.65	-126.05	2884	1007	C,O
FM-1	20	3.3	43.22	-124.43	36	32	N
FM-3	19	8.7	43.22	-124.50	64	60	C,N,M
FM-4	18	15.4	43.22	-124.58	87	82	C,N,M
FM-5	17	22.2	43.22	-124.67	153	145	C,N,M
FM-6	16	28.9	43.22	-124.75	308	300	
FM-7	15	35.7	43.22	-124.83	342	335	C,N,M
FM-8	14	49.1	43.22	-125.00	1082	1005	C,N,O
FM-9	13	62.6	43.22	-125.17	1663	1006	C,N
CR-1	21	7.6	41.90	-124.30	41	35	C,N
CR-2	22	15.9	41.90	-124.40	68	64	N,M
CR-3	23	24.4	41.90	-124.50	139	130	C,N,M
CR-4	24	32.8	41.90	-124.60	508	500	C,N,M
CR-5	25	40.9	41.90	-124.70	660	651	C
CR-6	26	49.3	41.90	-124.80	698	686	N,M
CR-7	27	65.7	41.90	-125.00	837	811	C,N
CR-8	28	82.2	41.90	-125.20	2718	1006	
CR-9	29	98.9	41.90	-125.40	3098	1007	C,N
CR-10	30	120.9	41.90	-125.67	2930	1006	O
CR-11	31	148.5	41.90	-126.00	3323	1005	C,N,O
RR-1	38	7.2	42.50	-124.50	37	32	C,N
RR-2	37	15.6	42.50	-124.60	86	82	C,N,M
RR-3	36	23.7	42.50	-124.70	124	120	C,N,M
RR-4	35	31.9	42.50	-124.80	600	591	C,N,M
RR-5	34	40.0	42.50	-124.90	1160	1005	O
RR-6	33	48.3	42.50	-125.00	1678	1006	C,N
RR-7	32	64.6	42.50	-125.20	2978	1005	C,N
HH-1	39	5.0	44.00	-124.20	53	49	C,N
HH-2	40	20.9	44.00	-124.40	121	116	C,N
HH-3	41	36.9	44.00	-124.60	155	145	C,N,M,O
HH-4	42	53.0	44.00	-124.80	112	100	C,N,M
HH-5	43	69.1	44.00	-125.00	951	940	C,N,M,O
HH-7	44	84.8	44.00	-125.20	1695	1005	C
HH-9	45	100.9	44.00	-125.40	3020	1005	C

Table 2. Actual sample depths and types of subsamples for biochemical sampling during the Sept.-00' LTOP GLOBEC cruise.

Station, Depth, Dist. From Shore	Sample Collection Depths (m)	Type of Sample Collected
NH-03, 48m, 6km	42, 31, 11, 1	Slide Samples and Pigments at 11m and 1.0 m
NH-05, 58m, 9km	51, 50, 41, 30, 25, 22, 21, 15, 10, 5, 1	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON
NH-10, 82m, 18km	76, 66, 20, 1	Slide Samples and Pigments at 20 m and 1 m
NH-15, 94m, 28km	90, 85, 70, 60, 50, 40, 30, 20, 15, 10, 5, 1.5	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON
NH-20, 144m, 37km	139, 97, 8, 1.0	Slide Samples and Pigments at 8 m and 1.0 m
NH-25, 295m, 46km	270, 200, 150, 100, 70, 50, 40, 30, 20, 15, 10, 2.0	TOC (all depths), Nutrients, TN (all depths); Chl and POC/PON (at all depths)
NH-35, 441m, 65km	374, 310, 149, 100, 69, 50, 40, 30, 23, 20, 10, 1.0	TOC (surface), Nutrients, TN (surface), Chl, POC/PON (except 374m and 310m)
NH-45, 693m, 83km	650, 500, 150, 100, 70, 50, 40, 30, 26, 20, 10, 1.0	TOC (surface), Nutrients, TN (surface), both Chl and POC/PON (except 650m, 500m and 150m)
NH-55, 2865m, 103km	1005, 770, 430, 36, 4.0	Slide Samples and Pigments at 36 m and 4.0 m
NH-65, 2860m, 121km	1004, 861, 150, 100, 70, 48, 40, 30, 20, 15, 10, 1.0	TOC (surface), Nutrients, TN (surface), both Chl and POC/PON (except 1004m, 861m and 150m)
NH-85, 2884m, 157km	1005, 900, 150, 100, 70, 50, 40, 30, 25, 20, 10, 1.0	TOC (all depths), Nutrients, TN (all depths), both Chl and POC/PON (except 1000m, 800m and 150m)

Station, Depth, Dist. From Shore	Sample Collection Depths (m)	Type of Sample Collected
HH-1, 53m, 5km	49, 45, 39, 30, 24, 20, 15, 10, 5.0, 1.0	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON
HH-2, 121m, 21km	110, 100, 70, 60, 50, 40, 30, 25, 20, 10, 5.0, 1.0	TOC (surface), Nutrients, TN (surface), Chl, POC/PON
HH-3, 155m, 37km	145, 135, 100, 70, 60, 50, 40, 30, 21, 16, 11, 1.5	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON
HH-4, 112m, 53km	100, 85, 70, 60, 50, 40, 30, 20, 15, 10, 6.0, 1.2	TOC (surface), Nutrients, TN (surface), Chl, POC/PON
HH-5, 951m, 69km	885, 501, 300, 150, 100, 70, 50, 40, 30, 20, 11, 2.0	TOC (all depths), Nutrients, TN (all depths), both Chl and POC/PON (except 885m, 501m, 300m and 150m)
HH-7, 1695m, 85km	1005, 350, 150, 100, 70, 50, 40, 30, 20, 12, 10, 1.0	TOC (surface), Nutrients, TN (surface), both Chl and POC/PON (except 1005m, 350m and 150m)
HH-9, 3020m, 101km	1005, 150, 100, 70, 50, 40, 30, 20, 16, 10, 5.0, 1.0	TOC (surface), Nutrients, TN (surface), both Chl and POC/PON (except 1005m, 150m and 100m)

Station, Depth, Dist. From Shore	Sample Collection Depths (m)	Type of Sample Collected
FM-3, 64m, 9km	59, 55, 41, 30, 25, 23, 21, 15, 10, 5.0, 1.0	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON
FM-4, 87m, 15km	80, 71, 60, 50, 40, 30, 20, 10, 5.0, 2.0	TOC (surface), Nutrients, TN (surface), Chl, POC/PON
FM-5, 153m, 22km	142, 108, 100, 70, 60, 50, 40, 30, 20, 13, 10, 1.0	TOC (surface), Nutrients, TN (surface), Chl, POC/PON
FM-7, 308m, 35km	302, 175, 150, 100, 71, 50, 40, 30, 20, 15, 10, 1.0	TOC (all depths), Nutrients, TN (all depths), both Chl and POC/PON (except 302m, 175m and 150m)
FM-8, 1082m, 49km	1005, 885, 225, 150, 100, 70, 50, 40, 30, 20, 10, 1.0	TOC (surface), Nutrients, TN (surface), both Chl and POC/PON (except 1005m, 885m and 225m)
FM-9, 1663m, 63km	980, 625, 151, 100, 68, 50, 40, 30, 26, 20, 10, 1.6	TOC (all depths), Nutrients, TN (all depths), both Chl and POC/PON (except 980m, 625m and 151m)

Station, Depth, Dist. From Shore	Sample Collection Depths (m)	Type of Sample
RR-1, 37m, 7km	32, 30, 25, 20, 10, 10, 8.6, 9, 5.0, 3.0, 1.0	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON
RR-2, 86m, 15km	81, 70, 60, 50, 40, 30, 19, 15, 11, 5.0, 2.0	TOC (surface), Nutrients, TN (surface), Chl, POC/PON
RR-3, 124m, 23km	120, 100, 70, 61, 50, 40, 30, 20, 15, 10, 5.0, 2.0	TOC (surface), Nutrients, TN (surface), Chl, POC/PON
RR-4, 600m, 33km	500, 440, 150, 100, 70, 50, 40, 30, 20, 15, 10, 2	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON (except 500m, 440m and 150m)
RR-6, 1678m, 47km	1006, 815, 150, 100, 71, 38, 29, 23, 19, 10, 1.5	TOC (surface), Nutrients, TN (surface), both Chl and POC/PON (except 1006m, 815m and 150m)
RR-7, 2978m, 64km	1007, 830, 150, 100, 70, 50, 40, 30, 20, 18, 10, 1	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON (except 1007m, 830m and 150m)

Station, Depth, Dist. From Shore	Sample Collection Depths (m)	Type of Sample
CR-1, 41m, 8km	35, 30, 25, 20, 15, 10, 5, 2.0	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON
CR-3, 139m, 24km	129, 100, 80, 71, 61, 50, 40, 30, 19, 10, 5.0, 1.4	TOC (surface), Nutrients, TN (surface), Chl, POC/PON
CR-4, 508m, 33km	444, 320, 150, 100, 70, 50, 40, 30, 20, 10, 2.0	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON (except 444m, 320m and 150m)
CR-5, 660m, 41km	650, 500, 151, 101, 70, 51, 40, 30, 19, 10, 4.0	TOC (surface), Nutrients, TN (surface), Chl, POC/PON (except 650m, 500m and 150m)
CR-7, 837m, 66km	590, 500, 150, 100, 70, 50, 40, 30, 23, 20, 10, 1.0	TOC (surface), Nutrients, TN (surface), Chl, POC/PON (except 590m, 500m, and 150m)
CR-9, 3098m, 99km	1005, 830, 150, 100, 70, 50, 40, 30, 25, 20, 10, 1.0	TOC (all depths), Nutrients, TN (all depths), Chl, POC/PON (except 1005m, 830m and 150m)
CR-11, 3323m, 148km	1004, 630, 151, 100, 70, 50, 40, 34, 30, 20, 10, 1.0	TOC (surface), Nutrients, TN (surface), Chl, POC/PON (except 1004m, 630m and 151m)

Subsample	Replicates
TOC	3
Nutrients	1
TN	3
Chl	2
POC/PON	1
Pigments	3
Slides	2

Table 3. Event Log for W0009A

(UT)	Start Time (UT)	End Time (UT)	Sta. No.	Sta. Name	Latitude (deg) (min)	Longitude (deg) (min)	Bottom Depth (m)	Atmos Press (mbar)	Wind Dir. (deg T)	Wind Speed (kts)	Event	Event ID
	1608										Start DAS	
7-Sep	1700										Depart Newport	
	1707										Start echosounder	
	1708										Start ADCP	
	1805										Start flo-thru	
	1819		1	NH-1	44 39.1	-124 06.0	29	1019.3	350	5	CTD	WE25100.01
	1837	1840			44 39.1	-124 06.1					vertical net tow, 25 m	WE25100.02
	1912				44 39.1	-124 07.9		1018.9	350	5	HTI deployed	WE25100.03
	1922		2	NH-3	44 39.1	-124 07.9	48	1018.9	350	5	CTD with pigments at 1m, 12m	WE25100.04
	2009		3	NH-5	44 39.2	-124 10.5	58	1018.3	350	10	CTD with biochem	WE25100.05
	2028	2032			44 39.2	-124 10.5					vertical net tow, 52 m	WE25100.06
	2032				44 39.2	-124 10.5					secchi disk	WE25100.07
	2047				44 39.3	-124 10.7					Mocness deployed	WE25100.08
		2107			44 39.7	-124 11.3					Mocness aboard	WE25100.09
	2028	2112									flo-thru off, to correct underway S	
	2122										air calibration of transmissometer	
	2156		4	NH-10	44 39.0	-124 17.8	82	1017.3	340	10	CTD with pigments at 1m, 20m	WE25100.10
	2211	2214			44 39.0	-124 18.0					vertical net tow, 78 m	WE25100.11
	2217	2217			44 39.0	-124 18.0					secchi disk	WE25100.12
	2221				44 38.97	-124 18.14					drifter 23184	WE25100.13
	2308		5	NH-15	44 39.1	-124 24.7	94	1016.9	320	5	CTD with biochem	WE25100.14
	2328	2329			44 39.1	-124 24.7					secchi disk	WE25100.15
	2330	2335			44 39.1	-124 24.7					vertical net tow, 62 m	WE25100.16
	2348				44 39.3	-124 24.8					Mocness deployed	WE25100.17
8-Sep		0011			44 39.9	-124 25.2					Mocness aboard	WE25200.01
	0015				44 39.98	-124 25.22					drifter 23185	WE25200.02
	0100		6	NH-20	44 39.1	-124 31.7	144	1015.5	310	6	CTD with pigments at 1m, 8 m	WE25200.03
	0125	0131			44 39.1	-124 31.7					vertical net tow, 100 m	WE25200.04
	0131										shut off flo-thru to diagnose un'way S	
	0151										DAS off to correct un'way S	
	0153										DAS, flow-thru back on line	
	0220		7	NH-25	44 39.0	-124 39.0	297	1014.8	290	7	CTD with biochem	WE25200.05
	0255	0301			44 39.0	-124 39.1					vertical net tow, 100 m	WE25200.06
	0311				44 39.2	-124 39.4					Mocness deployed	WE25200.07
		0416			44 40.8	-124 40.8					Mocness aboard	WE25200.08
	0421				44 40.92	-124 40.87					drifter 23186	WE25200.09

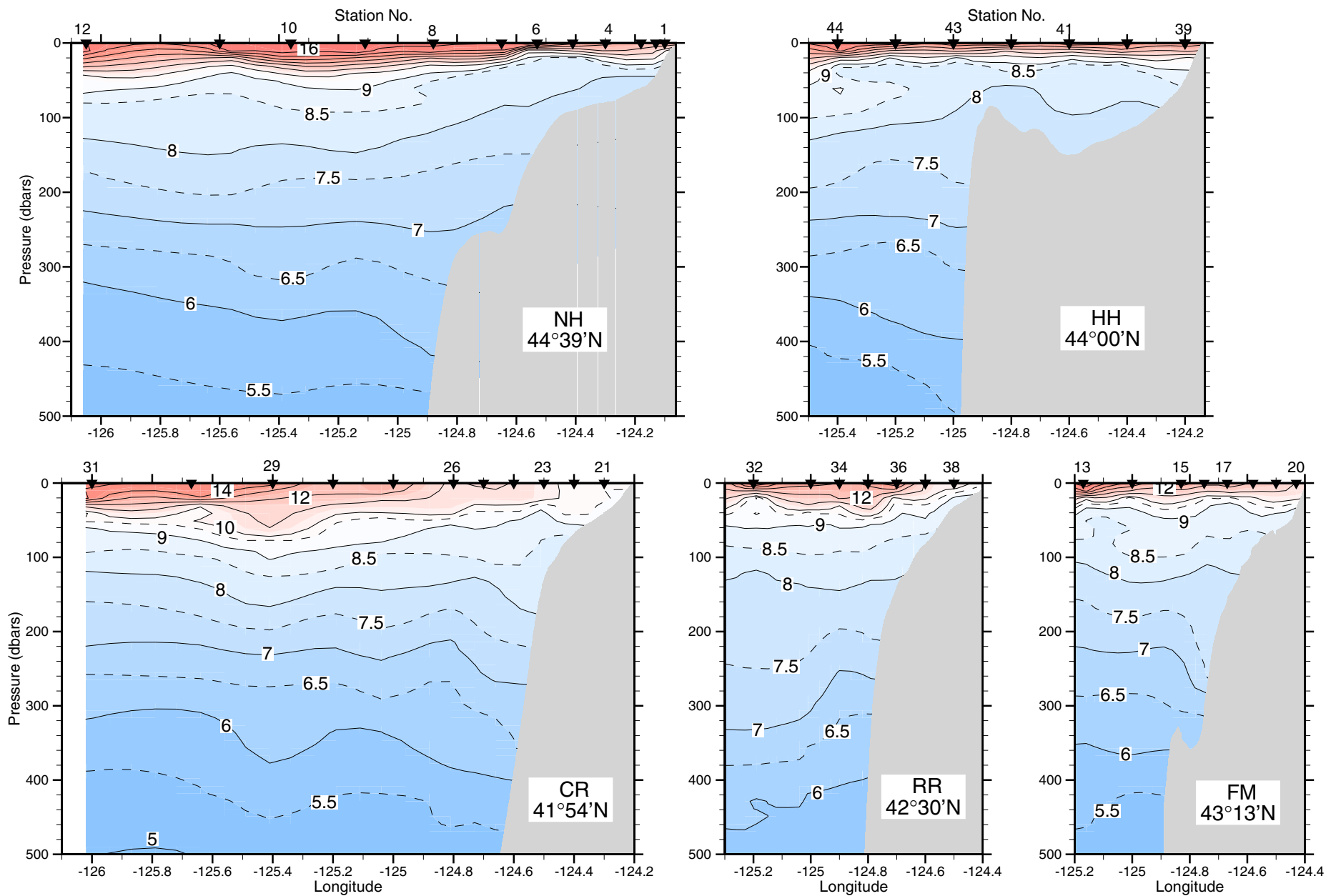
	Start	End	Sta.	Sta.	Latitude		Longitude		Bottom	Atmos	Wind	Wind	Event	Event ID
(UT)	Time	Time	No.	Name	(deg)	(min)	(deg)	(min)	Depth	Press	Dir.	Speed		
	(UT)	(UT)							(m)	(mbar)	(deg T)	(kts)		
	0538		8	NH-35	44	39.1	-124	53.0	441	1013.0	210	13	CTD with biochem	WE25200.10
	0619	0625			44	39.0	-124	52.9					vertical net tow, 100 m	WE25200.11
	0634				44	39.1	-124	53.1					Mocness deployed	WE25200.12
		0731			44	40.4	-124	54.9					Mocness aboard	WE25200.13
	0854		9	NH-45	44	39.1	-125	06.9	701	1012.0	270	15	CTD with biochem	WE25200.14
	0946	0953			44	38.8	-125	06.8					vertical net tow, 100 m	WE25200.15
	1001				44	38.8	-125	07.0					Mocness deployed	WE25200.16
		1112			44	40.8	-125	08.4					Mocness aboard	WE25200.17
	1122				44	40.8	-125	08.4					HTI recovered	WE25200.18
	1126				44	40.86	-125	08.35					drifter 15907	WE25200.19
	1248		10	NH-55	44	39.1	-125	21.9	2865	1010.0	250	21	CTD with pigments at 4m, 36m	WE25200.20
	1350												Cleaned flo-thru filters	
	1503												Cleaned fluorometer	
	1457		11	NH-65	44	39.1	-125	36.0	2860	1010.8	280	19	CTD with biochem	WE25200.21
	1559	1605			44	39.0	-125	36.0					vertical net tow, 100 m	WE25200.22
					44	39.01	-125	36.06					drifter 19514	WE25200.23
	1806		12	NH-85	44	39.1	-125	03.0	2884	1012.5	295	19	CTD with biochem, oxygen	WE25200.24
	1900												begin transit to FM-9	
	2019												air calibration of transmissometer	
	2128												flushed CTD sensors with triton-x	
	2346	2348											DAS shutdown, restarted	
9-Sep	0331		13	FM-9	43	13.0	-125	10.0	1683	1015.9	345	5	CTD with biochem	WE25300.01
	0423	0429			43	13.0	-125	09.9					vertical net tow, 100 m	WE25300.02
	0525		14	FM-8	43	13.0	-125	00.0	1095	1016.2	335	4	CTD with biochem, oxygen	WE25300.03
	0616	0621			43	13.0	-125	00.0					vertical net tow, 100 m	WE25300.04
	0628				43	13.0	-124	00.0					deploy HTI	WE25300.05
	0739		15	FM-7	43	13.0	-124	50.0	342	1016.2	320	6	CTD with biochem	WE25300.06
	0814	0820			43	12.9	-124	49.8					vertical net tow	WE25300.07
	0824				43	12.9	-124	49.9					Mocness deployed	WE25300.08
		0925			43	13.6	-124	52.1					Mocness aboard	WE25300.09
	1025		16	FM-6	43	13.1	-124	45.0	310	1016.2	320	5	CTD	WE25300.10
	1132		17	FM-5	43	13.0	-124	40.0	153	1016.1	040	2	CTD with biochem	WE25300.11
	1204	1209			43	13.0	-124	40.0					vertical net tow	WE25300.12
	1218				43	13.0	-124	40.0					Mocness deployed	WE25300.13
		1248			43	13.7	-124	40.5					Mocness aboard	WE25300.14
	1332		18	FM-4	43	13.0	-124	35.0	87	1016.2	020	7	CTD with biochem	WE25300.15
	1353	1358			43	13.0	-124	35.0					vertical net tow, 80m	WE25300.16
	1418				43	13.1	-124	35.3					Mocness deployed	WE25300.17
		1433			43	13.6	-124	36.2					Mocness aboard	WE25300.18

	Start	End	Sta.	Sta.	Latitude		Longitude		Bottom	Atmos	Wind	Wind	Event	Event ID
(UT)	Time	Time	No.	Name	(deg)	(min)	(deg)	(min)	Depth	Press	Dir.	Speed		
	(UT)	(UT)							(m)	(mbar)	(deg T)	(kts)		
	1519		19	FM-3	43	13.0	-124	30.0	64	1017	075	5	CTD with biochem	WE25300.19
	1537	1542			43	13.0	-124	30.0					vertical net tow, 64m	WE25300.20
	1549				43	13.1	-124	30.2					Mocness deployed	WE25300.21
		1608			43	13.05	-124	30.8					Mocness aboard	WE25300.22
	1615				43	13.5	-124	30.9					HTI recovered	WE25300.23
	1648	1651			43	13.0	-124	26.0					vertical net tow	WE25300.24
	1657		20	FM-1	43	13.0	-124	26.1					CTD	WE25300.25
	1710												begin transit to CR-Line	
	1725												moved fluorometer on rosette (away from pump)	
	1732												cleaned underway fluorometer	
	1735												Cleaned flo-thru filters	
	1754												flushed CTD sensors with tritonx	
	2243	2245											DAS stopped, restarted	
	2257												air calibration of transmissometer	
10-Sep	0007		21	CR-1	41	53.9	-124	17.8	41	1011.2	320	25	CTD with biochem	WE25400.01
	0024	0027			41	53.9	-124	18.1					vertical net tow, 35 m	WE25400.02
	0124		22	CR-2	41	54.1	-124	23.9	68	1011.9	320	30	CTD	WE25400.03
	0142				41	54.0	-124	24.0					HTI deployed	WE25400.04
	0147	0150			41	54.0	-124	24.0					vertical net tow, 64 m	WE25400.05
	0158				41	54.2	-124	24.1					Mocness deployed	WE25400.06
		0221			41	54.8	-124	24.6					Mocness aboard	WE25400.07
	0312		23	CR-3	41	54.0	-124	30.0	139	1012.6	335	24	CTD with biochem	WE25400.08
	0333												Cleaned flo-thru filters	
	0334	0339			41	53.8	-124	30.5					vertical net tow, 100 m	WE25400.09
	0348				41	53.9	-124	30.2					Mocness deployed	WE25400.10
		0228			41	54.9	-124	31.3					Mocness aboard	WE25400.11
			24	CR-4	41		-124		508	1013.8	330	20	CTD with biochem	WE25400.12
	0547	0552			41	54.0	-124	36.1					vertical net tow, 100m	WE25400.13
	0559				41	54.2	-124	36.2					Mocness deployed	WE25400.14
		0657			41	56.0	-124	37.0					Mocness aboard	WE25400.15
	0746		25	CR-5	41	54.0	-124	42.0	660	1014.1	330	20	CTD with biochem	WE25400.16
	0910		26	CR-6	41	54.0	-124	48.0	698	1014.3	325	12	CTD	WE25400.17
	0950	0956			41	54.0	-124	48.3					vertical net tow, 100m	WE25400.18
	1007				41	54.1	-124	48.5					Mocness deployed	WE25400.19
		1122			41	56.0	-124	50.7					Mocness aboard	WE25400.20
	1129				41	56.1	-124	50.9					HTI recovered	WE25400.21
	1226	1233		CR-7	41	54.0	-125	00.0					vertical net tow, 100 m	WE25400.22
	1240		27	CR-7	41	54.0	-125	00.0	837	1014.9	var	3	CTD with biochem	WE25400.23
	1426		28	CR-8	41	54.0	-125	12.0					CTD	WE25400.24

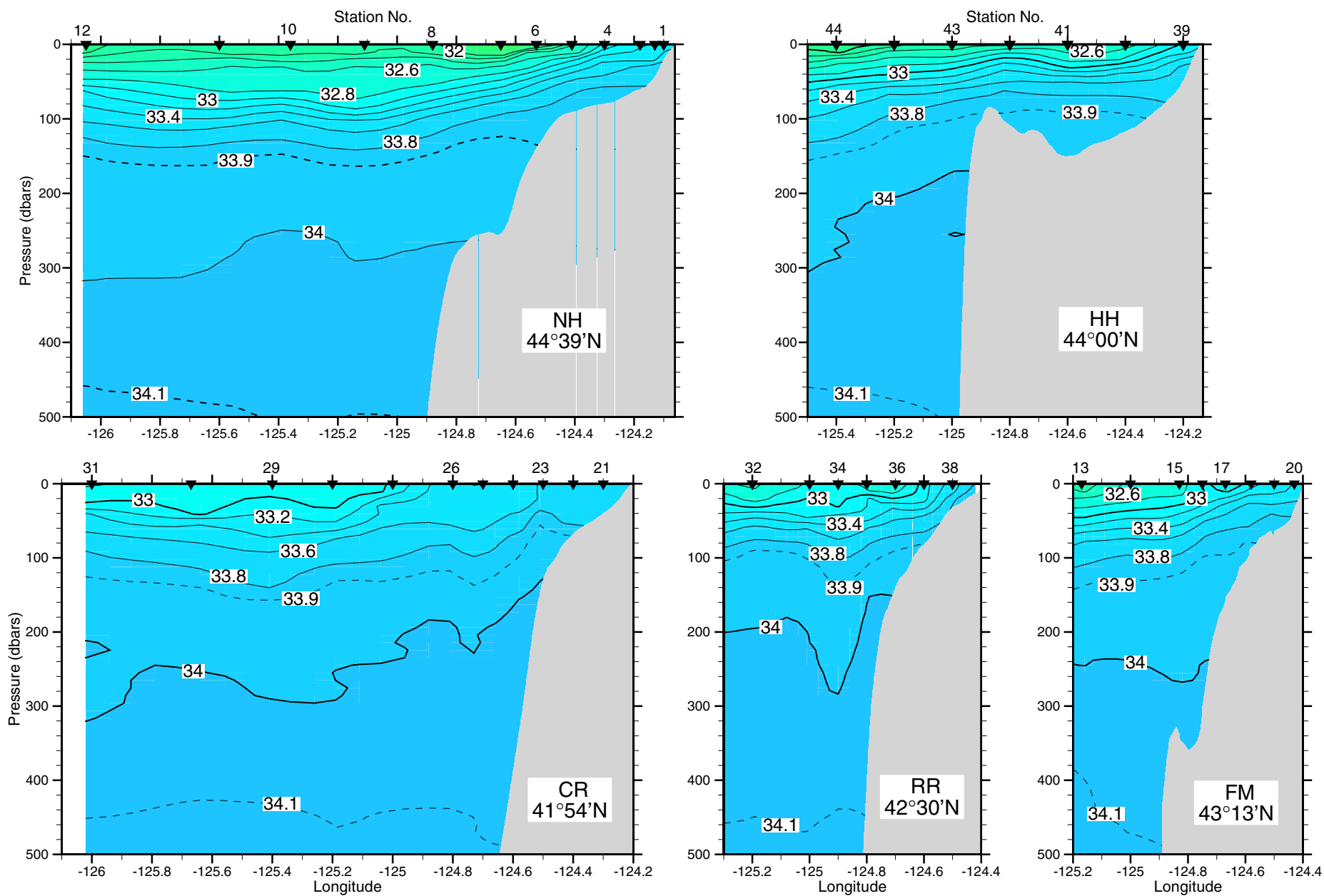
	Start	End	Sta.	Sta.	Latitude		Longitude		Bottom	Atmos	Wind	Wind	Event	Event ID
(UT)	Time	Time	No.	Name	(deg)	(min)	(deg)	(min)	Depth	Press	Dir.	Speed		
	(UT)	(UT)							(m)	(mbar)	(deg T)	(kts)		
	1610		29	CR-9	41	54.0	-125	24.0	3098	1015.6	250	1	CTD with biochem	WE25400.25
	1704	1709			41	54.0	-125	24.0					vertical net tow, 100m	WE25400.26
	1822		30	CR-10	41	54.0	-125	40.0	2930	1016.3	270	7	CTD with few oxygens	WE25400.27
	2041		31	CR-11	41	54.0	-126	00.0	3323	1016.3	270	5	CTD with biochem, oxygen	WE25400.28
	2136	2142			41	53.7	-125	59.9					vertical net tow, 100m	WE25400.29
	2150												begin transit to RR line	
	2228												air calibration of transmissometer	
	2326												cleaned underway fluorometer	
11-Sep	0123												Cleaned flo-thru filters	
	0215		32	RR-7	42	30.0	-125	12.0	2978	1015.9	335	12	CTD with biochem	WE25500.01
	0309	0315			42	30.1	-125	12.0					vertical net tow, 100 m	WE25500.02
	0412		33	RR-6	42	30.0	-125	00.1	1678	1015.9	000	14	CTD with biochem	WE25500.03
	0502	0507			42	30.0	-125	00.1					vertical net tow, 100 m	WE25500.04
	0542		34	RR-5	42		-124		1160	1015.9	350	15	CTD with oxygen	WE25500.05
	0637				42	30.0	-124	54.1		1016.0	355	15	HTI deployed	WE25500.06
	0729		35	RR-4	42	30.0	-124	48.0	600	1016.2	350	15	CTD with biochem	WE25500.07
	0809	0813			42	30.0	-124	48.2					vertical net tow, 100 m	WE25500.08
	0824				42	29.9	-124	48.4					Mocness deployed	WE25500.09
		0925											Mocness aboard	WE25500.10
	1057		36	RR-3	42	29.9	-124	42.0	124	1016.0	340	24	CTD with biochem	WE25500.11
	1124	1131			42	30.0	-124	42.0					vertical net tow, 100 m	WE25500.12
	1138				42	30.0	-124	42.1					Mocness deployed (into canyon)	WE25500.13
		1214			42	31.0	-124	43.1					Mocness aboard	WE25500.14
	1310			RR-2	42	30.1	-124	36.0					Mocness deployed	WE25500.15
		1335			42	30.8	-124	36.6					Mocness aboard	WE25500.16
	1359		37	RR-2	42	30.1	-124	36.0	86	1015.0	340	22	CTD with biochem	WE25500.17
	1422	1426			42	30.0	-124	36.0					vertical net tow, 80 m	WE25500.18
	1431				42	29.0	-124	36.0					HTI recovered	WE25500.19
	1512		38	RR-1	42	30.0	-124	30.0	37	1016.1	345	11	CTD with biochem	WE25500.20
	1528	1530			42	30.0	-124	30.0					vertical net tow, 32 m	WE25500.21
	1533												begin transit to HH-1	
	2113												Cleaned flo-thru filters	
12-Sep	0022												air calibration of transmissometer	
	0030		39	HH-1	44	00.0	-124	12.0	53	1015.1	350	15	CTD with biochem	WE25600.01
	0048	0051			43	59.9	-124	12.2					vertical net tow, 50 m	WE25600.02
	0056				43	59.9	-124	12.3					HTI deployed	WE25600.03
	0212		40	HH-2	44	00.0	-124	24.0	121	1015.0	350	16	CTD with biochem	WE25600.04
	0236	0242			44	00.0	-124	24.0					vertical net tow, 100 m	WE25600.05
	0355		41	HH-3	44	00.0	-124	36.0	155	1015.3	355	16	CTD with biochem, few oxygens	WE25600.06

	Start	End	Sta.	Sta.	Latitude		Longitude		Bottom	Atmos	Wind	Wind	Event	Event ID
(UT)	Time	Time	No.	Name	(deg)	(min)	(deg)	(min)	Depth	Press	Dir.	Speed		
	(UT)	(UT)							(m)	(mbar)	(deg T)	(kts)		
	0416	0422			43	59.9	-124	36.0					vertical net tow, 100 m	WE25600.07
	0429				44	00.0	-124	36.0					Mocness deployed	WE25600.08
		0522			44	01.2	-124	36.5					Mocness aboard	WE25600.09
	0619		42	HH-4	44	00.0	-124	48.0	112	1015.8	355	16	CTD with biochem	WE25600.10
	0641	0646			43	59.9	-124	48.0					vertical net tow, 100 m	WE25600.11
	0652				44	00.0	-124	48.0					Mocness deployed	WE25600.12
		0718			44	00.7	-124	48.0					Mocness aboard	WE25600.13
	0847		43	HH-5	44	00.0	-125	00.2	951	1016.1	355	14	CTD with biochem, oxygen	WE25600.14
	0949	0956			43	59.9	-125	00.8					vertical net tow, 100 m	WE25600.15
													HTI calibration	
	1026				43	59.9	-125	01.2					Mocness deployed	WE25600.16
		1128			44	01.8	-125	02.0					Mocness aboard	WE25600.17
	1135				44	01.8	-125	02.1					HTI recovered	WE25600.18
	1224		44	HH-7	44	00.0	-125	11.9	1695	1016.0	355	15	CTD with biochem	WE25600.19
	1407		45	HH-9	44	00.0	-125	24.0	3020	1016.0	355	17	CTD with biochem	WE25600.20
	1458												power to Met instruments off	
	1500												begin transit to Newport	
	1629												air-calibration of transmissometer	
	1732												power to Met instruments back on	
	2039												shut down flow through system	
	2057												shut down ADCP and DAS	
	2110												arrive at pier in Newport	

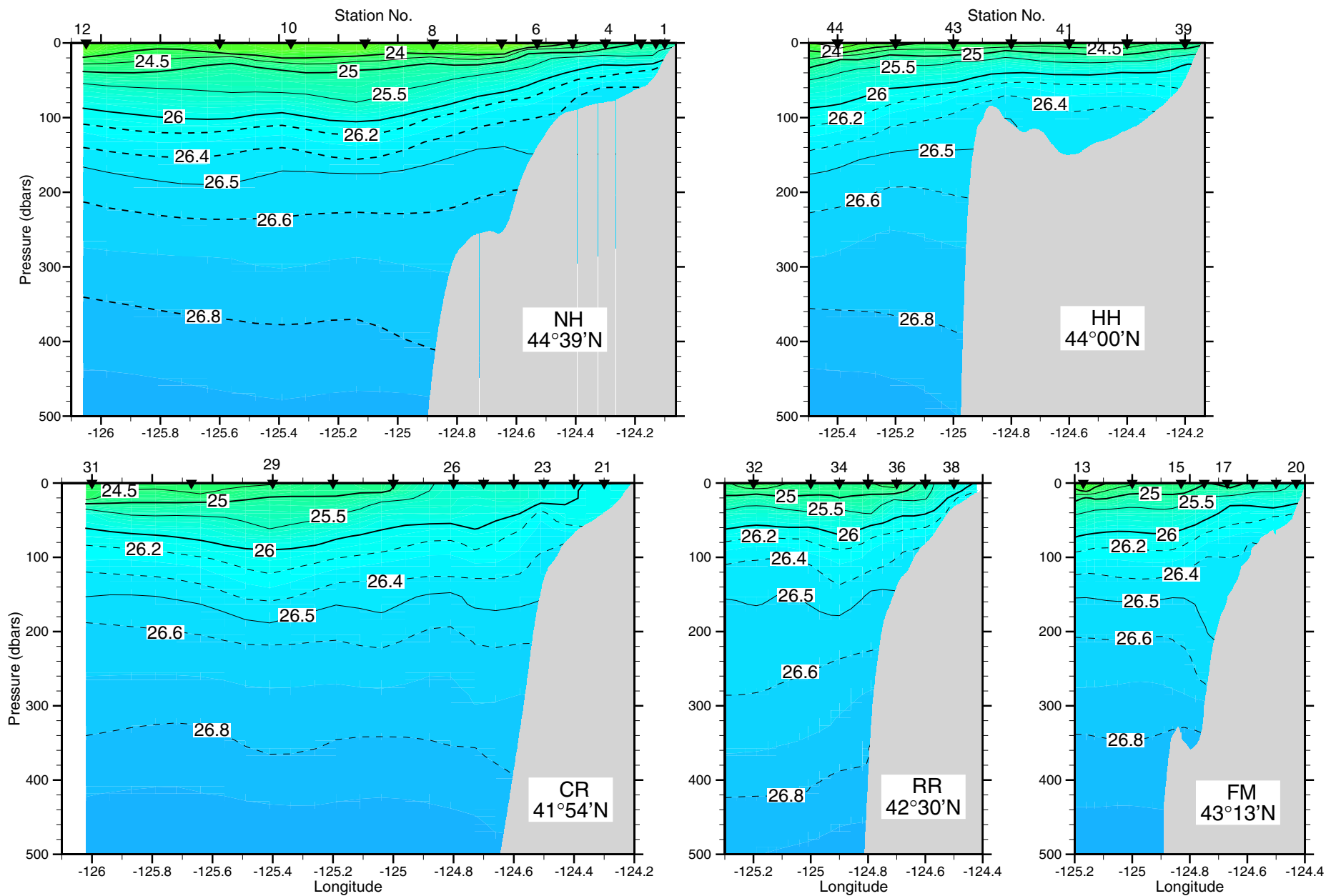
Temperature, 7-12 September 2000



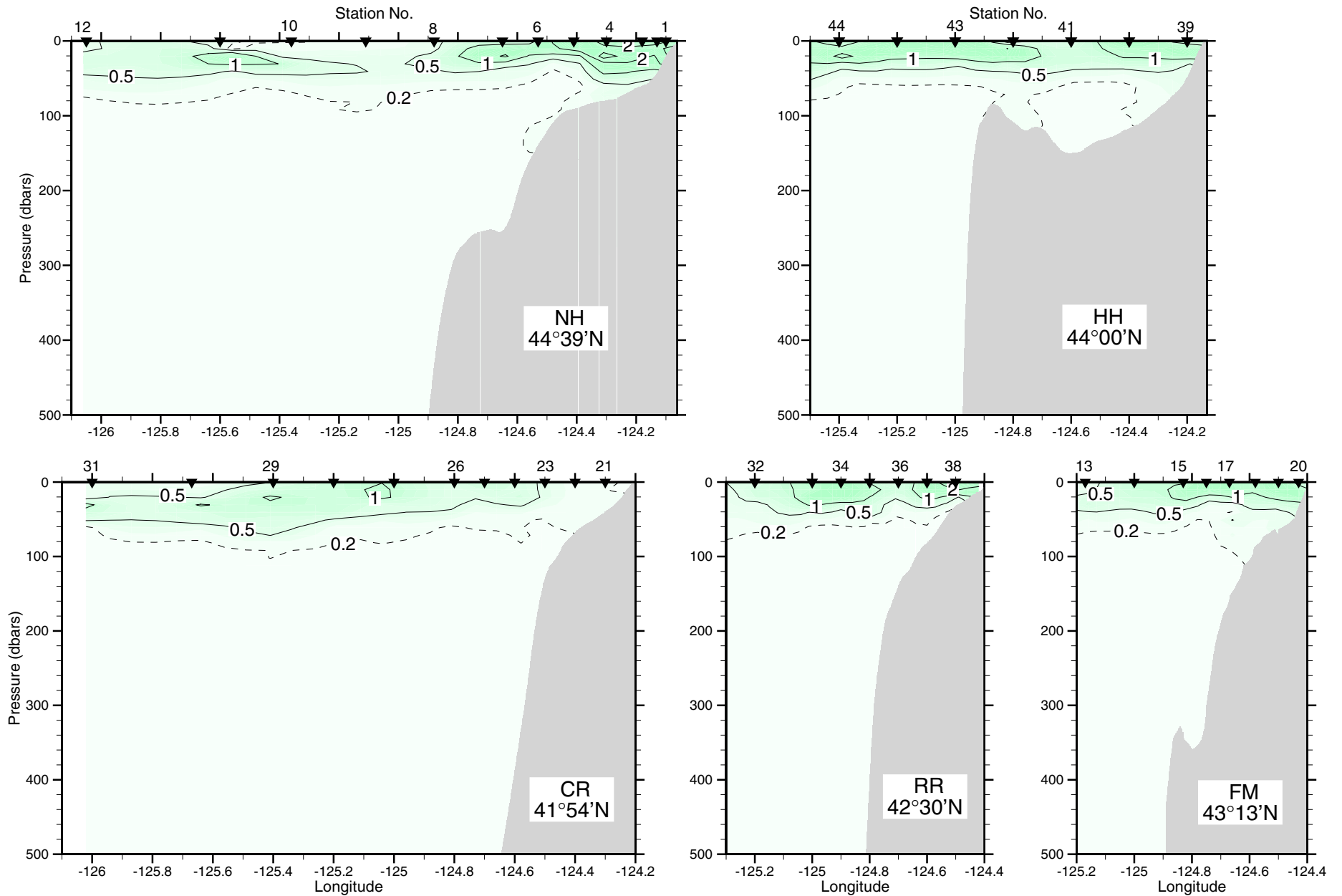
Salinity, 7-12 September 2000



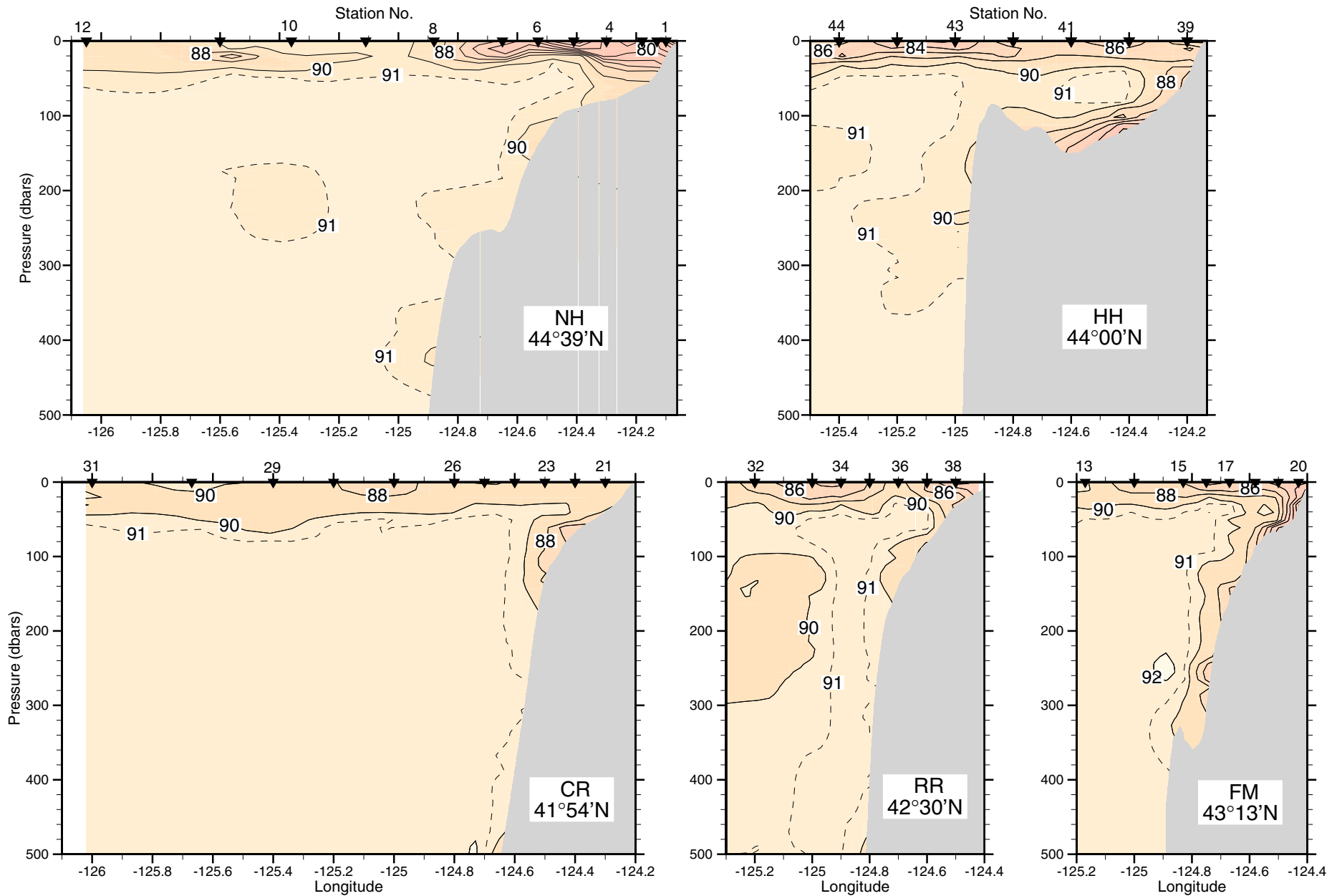
Sigma-theta, 7-12 September 2000



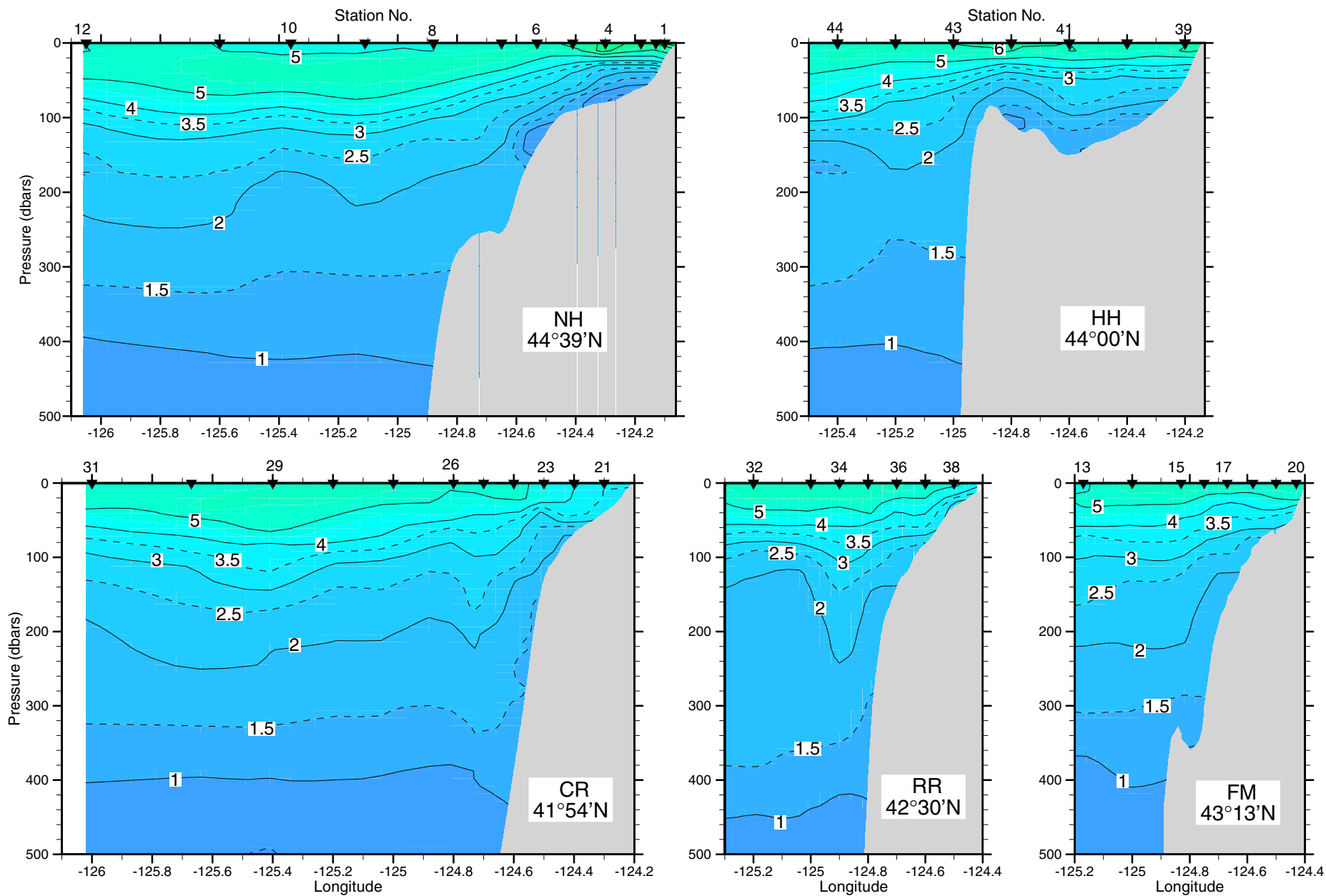
Fluorescence Voltage, 7-12 September 2000



% Light Transmission, 7-12 September 2000



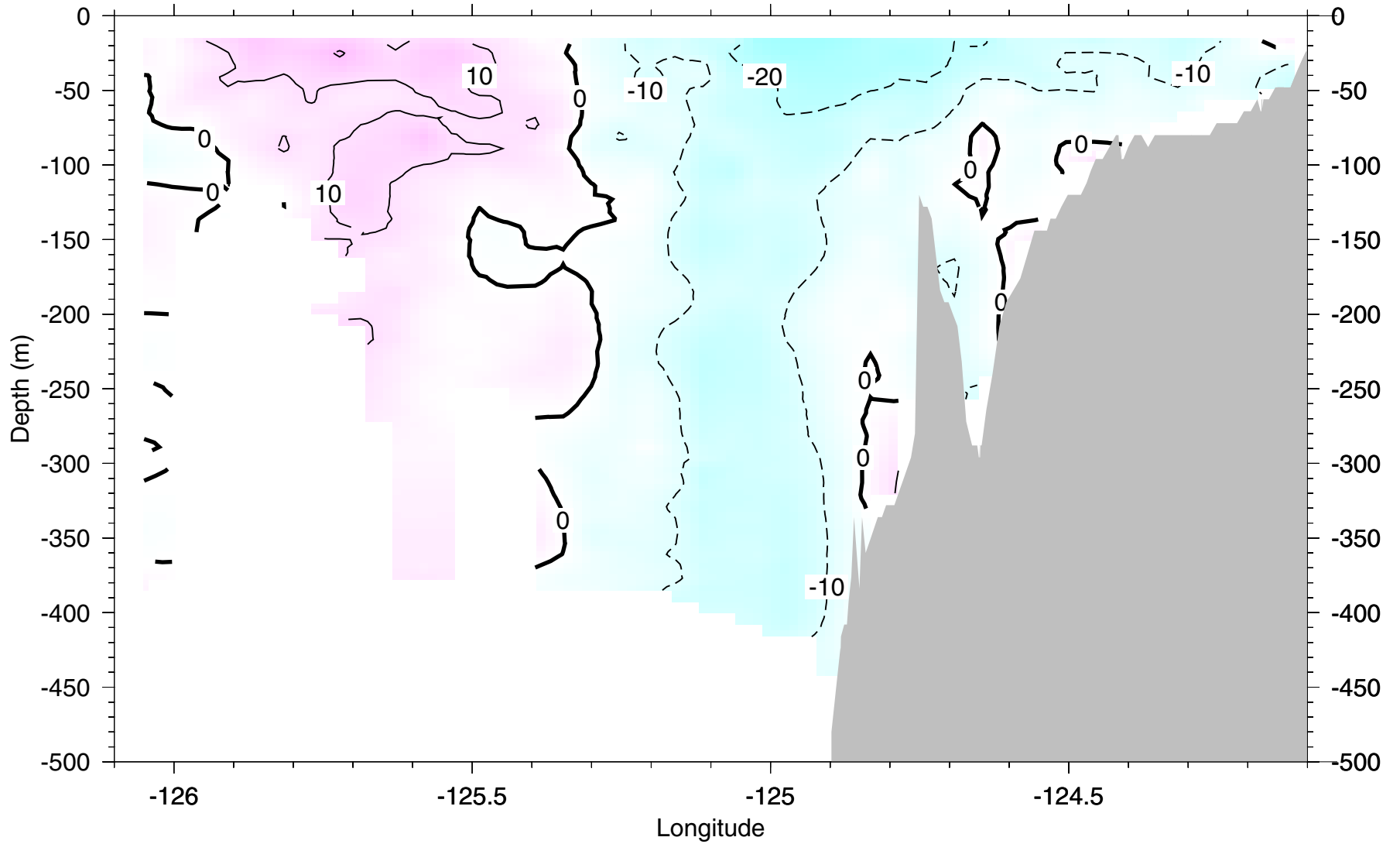
Oxygen, 7-12 September 2000



Newport Hydrographic Line 44.6°N

7-8 Sept 2000

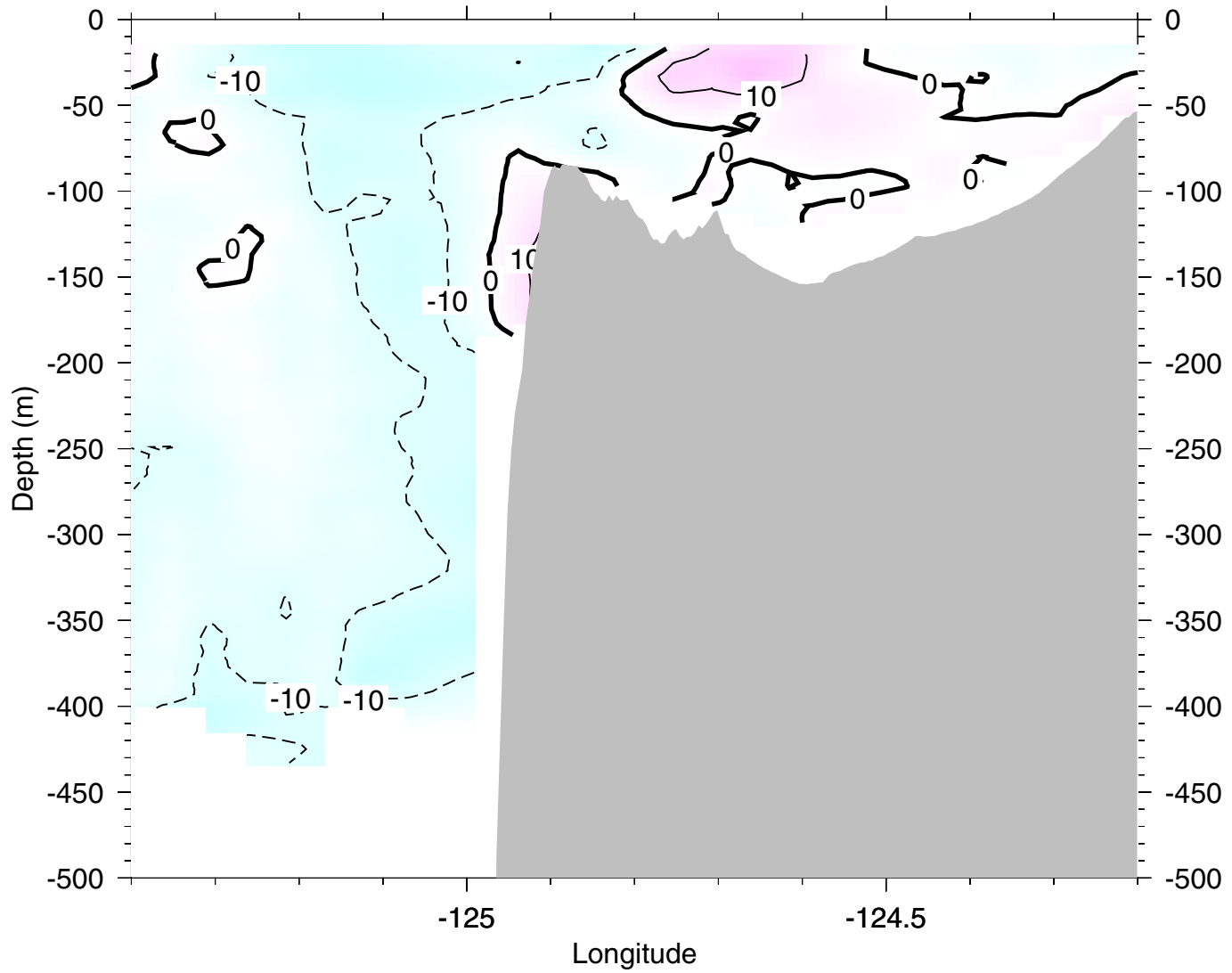
ADCP: Northward current (cm/s)



Heceta Head ADCP Line 44.0°N

12 Sept 2000

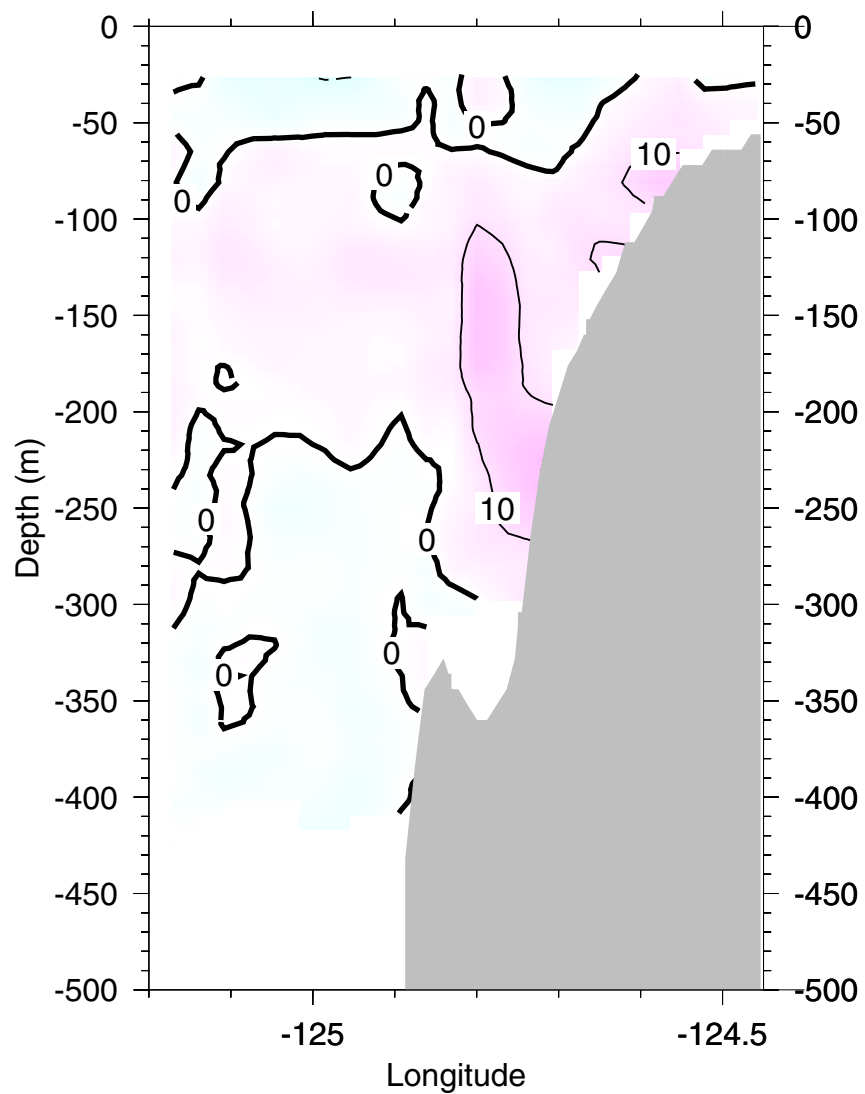
ADCP: Northward current (cm/s)



Five Mile Hydrographic Line 43.2°N

9 Sept 2000

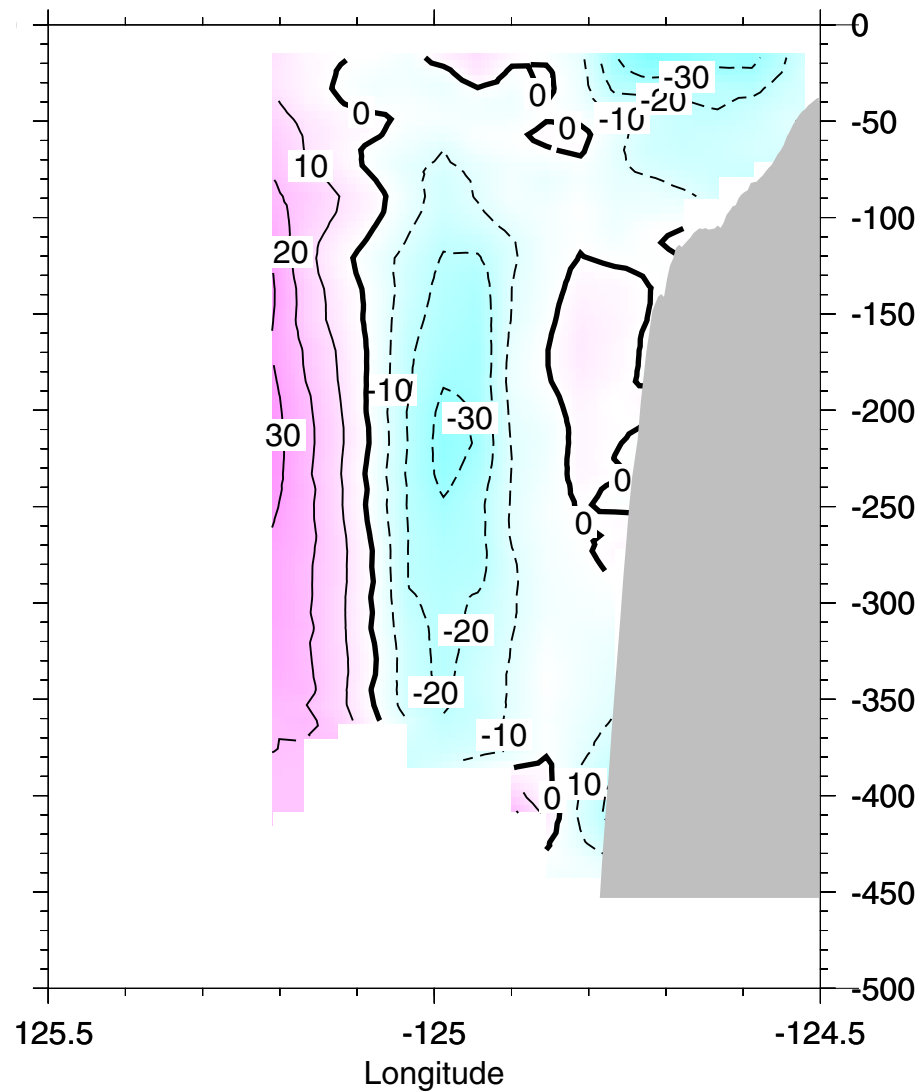
ADCP: Northward current (cm/s)



Rogue River Line 42.5°N

11 Sept 2000

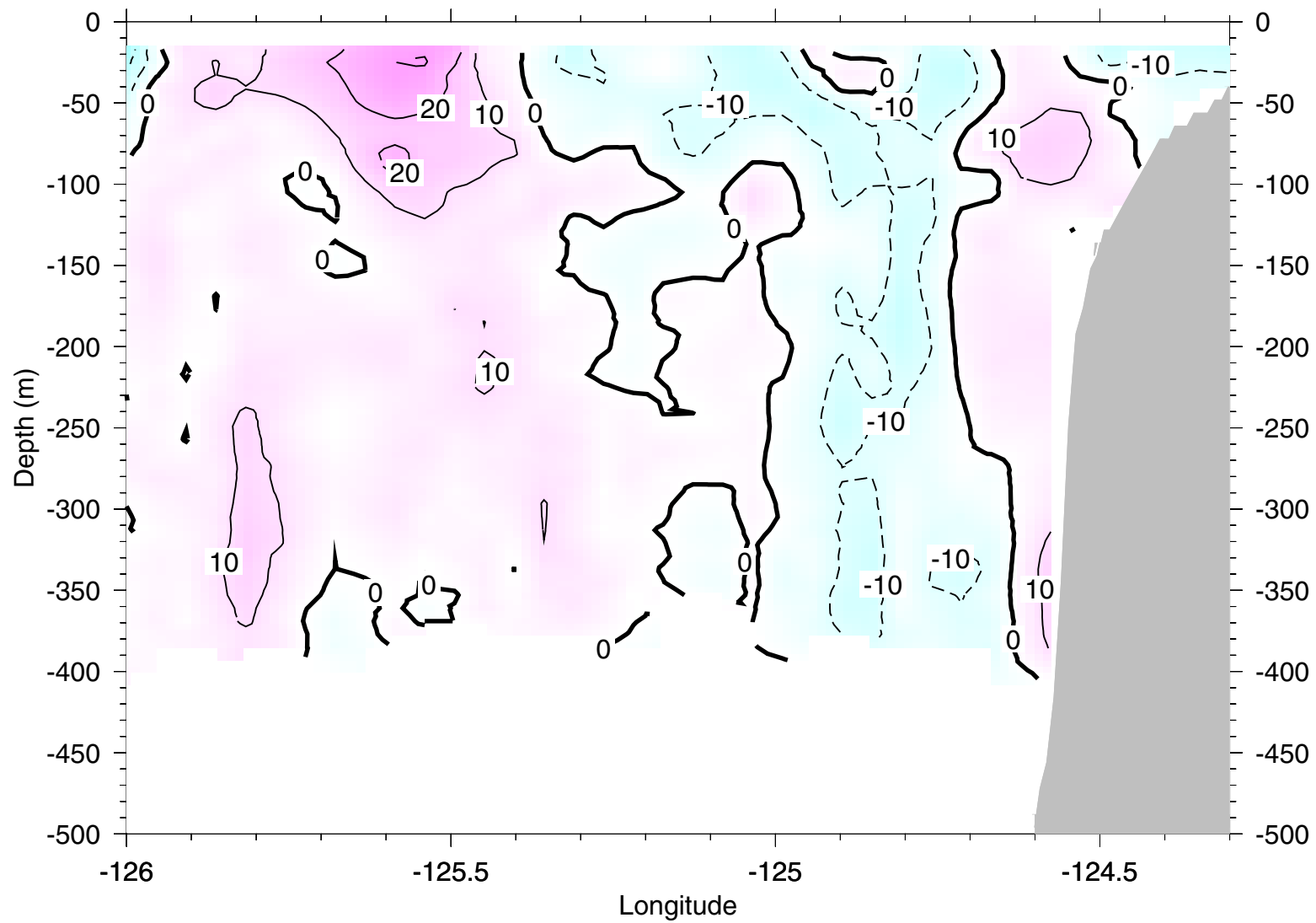
ADCP: Northward current (cm/s)



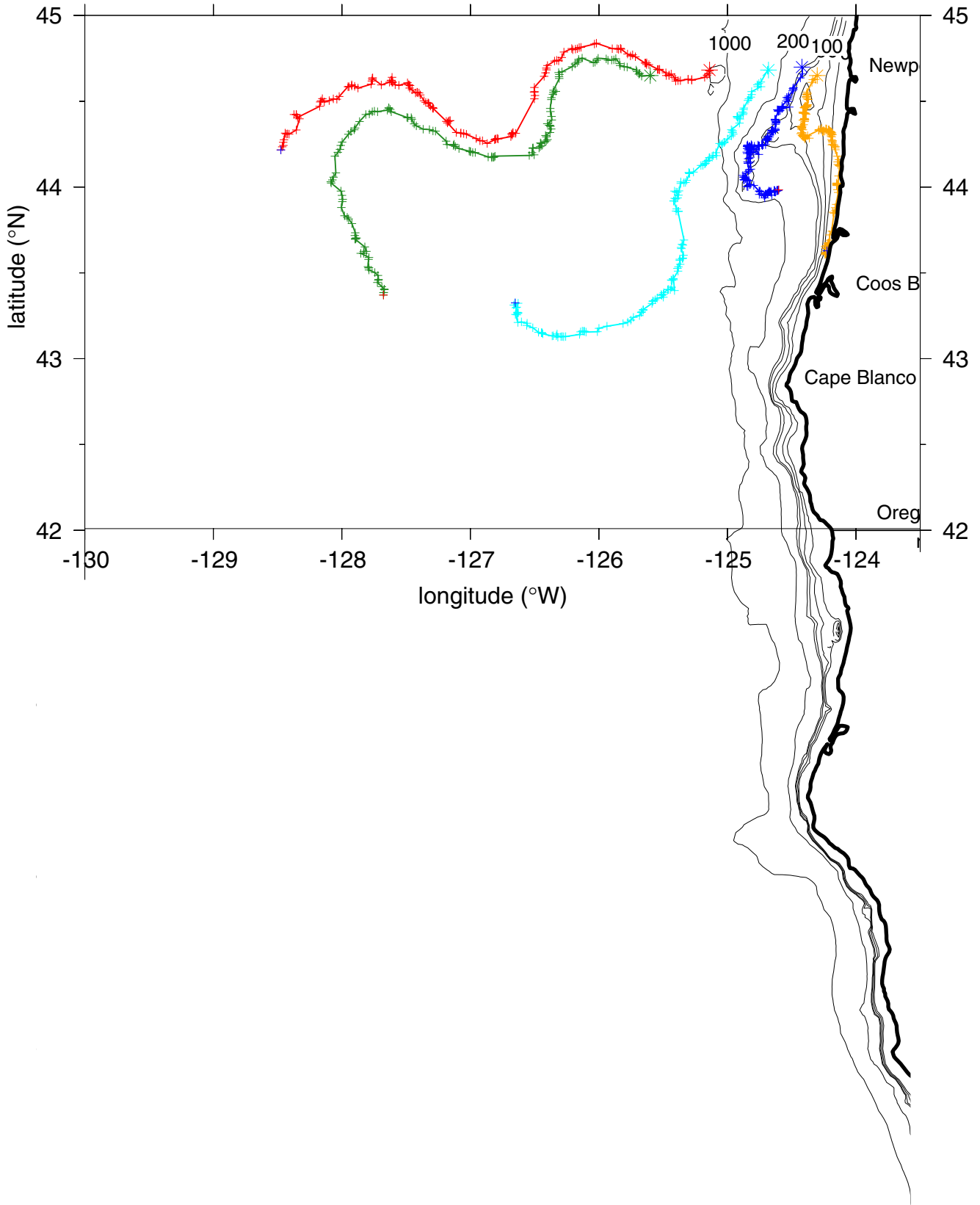
Crescent City Hydrographic Line 41.9°N

09-10 Sept 2000

ADCP: Northward current (cm/s)



Drifter data from Sep 7 2000 to Sep 24 2000
(dates on land indicate last transmission from failed drifters)



GLOBEC L-TOP Cruise 7-12 September 2000

Zooplankton Report

This was the MOCNESS centenary cruise — we completed our 100th successful tow, at FM 4. By the end of the cruise we had knocked off 111 MOCNESS tow. And, we've not even looked at one of them yet!!!! Processing time for these tows is 111 divided by 2 weeks per tow or 222 weeks or 4 man-years, and this after only a few months of use of this marvelous instrument.

This should be an interesting cruise from the zooplankton standpoint in terms of ecological zonation because we had strongly contrasting hydrographic conditions from north to south. Off Newport isopycnals were flat with the 25.0 intersecting the sea surface at NH 5 (five miles from shore); neither 25.5 or 26.0 intersected the sea surface. Along the FM line the 25.0 isopycnal intersected between FM 4 and 5 (about 16 miles from shore at 135 m isobath) and the 25.5 came to the surface just offshore of FM 1. Along RR line, the 25.0 isopycnal surfaced between RR2 and 3, about 11 miles from shore in 100 m water depth 25.5 surfaced between RR1 and 2, about 6 miles from shore. Along CR line, 25.0 surfaced about 30 miles offshore, between CR 6 and 7, in 800 m of water. The 25.5 and 26.0 both came to the surface, the 25.5 line between CR 5 and 6, and the 26.0 at CR 1. What this all means is that we may find coastal animals farther offshore along CR line than along Newport. Also, coastal species should be displaced a bit further offshore off FM and RR lines. The Heceta Head line offered the following contrasts:

We seem to have to re-sampled the warm eddy on southern Heceta Bank that was present during the recent Mesoscale survey. Surface water temperatures this time were > 16 C at HH 3. Did MOCNESS there and found all the euphausiids to be below the mixed layer, in cooler water.

Stations at which Vertical Tows were completed (n = 35):

NH 1, 5, 10, 15, 20, 25, 35, 45, 65

FM 1, 3, 4, 5, 7, 8, 9

CR 1, 2, 3, 4, 6, 7, 9, 11

RR 1, 2, 3, 4, 6, 7

HH 1, 2, 3, 4, 5

Stations at which MOCNESS Tows completed (n = 19):

	Day	Night
NH	5, 15	25, 35, 45
FM	3, 4	5, 7
CR	2	3, 4, 6
RR		2, 3, 4
HH		3, 4, 5

MOCNESS Sample Descriptions

	NH 5	7 Sept 00	water depth 58 m	1345 h
Net 0	0-50 m	Pink, 15 Aequorea, copepods, Furcilia, amphipods		
Net 1	50-20 m	Pink, 14 Aequorea, furcilia, Pseudocalanus, small Limacina, amphipods		
Net 2	20-10 m	Pink, 13 Aequorea, Phialidium, furcilia, Pseudocalanus, C. marshallae, Limacina, amphipods, lg. pink trochophores		
Net 3	10- 0 m	Pink, 9 Aequorea, Pseudocalanus, Philalidium		
	NH 15	7 Sept 00	water depth 98 m	1645 h
Net 0	0-90 m	20 Pleurobrachia, C. marshallae, 1 megalopa, amphipods		
Net 1	90-50 m	Pink, C. marshallae, furcilia, 30 amphipods, 3 megalopae		
Net 2	50-20 m	Pink, C. marshallae, Pseudocalanus, 3 amphipods, 30 Pleurobrachia		
Net 3	20-10 m	Pink, Pseudocalanus, a few marshallae, 30 Pleurobrachia, nothing else		
Net 4	10- 0 m	Not pink (slight greenish), Acartia longiremis, 1 Pleurobrachia		
	NH 25	7 Sept 00	water depth 288 m	2012 (Night)
Net 0	0-275 m	Pink, 2 large shrimp, 400 Pleurobrachia, small copepods		
Net 1	275-200 m	1 Aequorea, many chaetognaths, juv. euphausiids, amphipods, radiolaria, copepods		
Net 2	200-150 m	1 large shrimp, Sagitta scrippsae, radiolaria		
Net 3	150-100 m	9 Sergestes, 1 squid, juv. euphausiids, chaetognaths, radiolaria		
Net 4	100-50 m	15 E. pacifica (1 purple female), 20 T. spinifera (?), 5 shrimp, 30 Sergestes, small copepods		
Net 5	50-30 m	22 E. pacifica (2 purple females), Limacina, 13 Sergestes, jelly, small copepods, juv. euphausiids		
Net 6	30-20 m	Pink; 26 E. pacifica (3 purple females), small copepods, 1 Pleurobrachia, 10 Sergestes		
Net 7	20-10 m	Pink: 150 E. pacifica, 50 Sergestes, 10 Pleurobrachia, 2 squids, small copepods, few furcilia		
Net 8	10- 0 m	Pink; 100 Pleurobrachia, 25 Sergestes, 30 adult E. pacifica, juv. euphausiids, small copepods		
	NH 35	7 July 00	water depth = 400 m	2335 h (Night)
Net 0	0-350 m	3 myctophids, euphausiids, radiolaria, Pleurobrachia		
Net 1	350-300 m	2 large siphonophores, 1 myctophid, misc. mesopelagics		

Net 2	300-200 m	3 myctophids, chaetognaths, radiolaria
Net 3	200-150 m	chaetognaths, 2 Sergestes, 1 squid, crab megalopae (galatheid-like)
Net 4	150-100 m	1 myctophid, radiolaria, a few euphausiids, more galatheids
Net 5	100- 50 m	100 euphausiids, juv. euphausiids, rads, 2 juv. Fish, 1 squid, 30 Sergestes, 1 myctophid, chaetognaths
Net 6	50 - 20 m	30 Pleurobrachia, 2 larval fish, 50 euphausiids, juv. euphausiids, 26 Sergestes, 3 myctophids, Limacina, amphipods, chaetognaths
Net 7	20-10 m	Pink; small copepods, 100 Pleurobrachia, 100 E. pacifica, doliolids, 1 silver dollar
Net 8	10 - 0 m	Somewhat pinkish; amphipod, larval fish, Pleurobrachia, euphausiids, furcilia, jellies

NH 45 8 July 00 water depth = 713 m 0305 (Night)

Net 0	0-350 m	Limacina, megalopae, big squid, larval fish, Beroe, amphipods, gelatinous stuff
Net 1	350-300 m	5 Atolla, 1 silver dollar, gelatinous stuff (rads??)
Net 2	300-200 m	myctophids, siphonophores, amphipods, megalopae
Net 3	200-150 m	Sagitta scrippsae, rads, little else
Net 4	150-100 m	1 Sergestes, rads, Limacina, juv. euphausiids, amphipods, chaetognaths
Net 5	100- 50 m	4 Beroe, 1 juv. fish, 10 juv.,. euphausiids, rad, 2 silver dollars, S. scrippsae
Net 6	50 - 20 m	50 euphausiids, juv. euphausiids, 18 juv. fish, rads, Limacina, amphipods, 15 somethings, chaetognaths, 5 shrimp
Net 7	20 - 10 m	Pink; 50 small Pleurobrachia, 50 amphipods, juv. euphausiids, Tomopteris
Net 8	10 - 0 m	Amphipods, Pleurobrachia, 3 Beroe

FM 3 9 September 00 water depth = 60 m 0850 h (Day)

Net 0	0- 50 m	500 Pleurobrachia; copepods, furcilia, amphipod
Net 1	50-40 m	Pink; 70 Pleurobrachia, copepods,.furcilia
Net 2	40-20 m	Pleurobrachia, amphipods, copepods, furcilia, Limacina
Net 3	20-10 m	Pleurobrachia, furcilia, calanus, amphipods
Net 4	10- 0 m	Pleurobrachia, nothing more

FM 4 9 Sept 00 water depth = 92 m 0710 h (Day)

Net 0	90 - 0 m	1000's of Pleurobrachia, 1000's furcilia, Calanus, plum bobs
Net 1	90-50 m	Furcilia, 100s Pleurobrachia, Calanus, Pseudocalanus
Net 2	50-20 m	Pleurobrachia, Furcilia
Net 3	20-10 m	200 Pleurobrachia, Calanus

Net 4	10- 0 m	25 Pleurobrachia, Copepods, 30 Phialidium, amphipods
	FM 5	9 Sept 00 water depth = 161 m 0517 h (Night)
Net 0	0-145 m	1000 Pleurobrachia, euphausiids, amphipods, larval fish, jelly
Net 1	145-100 m	2 ½" medusae, 4 Beroe, 1 large polychaete, few euphausiids
Net 2	100-50 m	100 euphausiids, 10 Pleurobrachia
Net 3	50-20 m	100 euphausiids, 10 Pleurobrachia, copepods, Limacina
Net 4	20-10 m	400 Pleurobrachia, 50 euphausiids, copepods
Net 5	10 - 0 m	1000 Pleurobrachia, 10 euphausiids
	FM 7	9 Sept 00 water depth = 343 m 0130 h (NIGHT)
Net 0	0-350 m	Hit bottom
Net 1	350-300 m	4 silver dollars, 20 euphausiids, 10 Sergestes, 1 myctophid, Muggea, chaetognaths
Net 2	300-200 m	400 E. pacifica, 10 Sergestes
Net 3	200-150 m	50 E. pacifica, 2 odd mesopelagic fish (puffer; white guy), pyrosome piece, rads
Net 4	150-100 m	200 E. pacifica, 50 Pleurobrachia, 5 Sergestes, Limacina, rads, no copepods
Net 5	100- 50 m	4 Beroe, 1 Fish, 100's of E. pacifica, 10 Sergestes, Limacina
Net 6	50- 20 m	200 E. pacifica, 50 Pleurobrachia, 5 Sergestes, Limacina, rads, no copepods
Net 7	20- 10 m	1 Pyrosome (55x85mm= discarded), Pleurobrachia, many E. pacifica, amphipods
Net 8	10 - 0 m	10 Corolla, 300 euphausiids, 1 silver dollar, other jellies, Pleurobrachia
	CR 2	9 Sept 00 water depth = 69 m 1900 h (Day)
Net 0	0-55	Pleurobrachia, copepods, furcilia, amphipods, random jellies
Net 1	55-20 m	Pleurobrachia, pink copepods, furcilia, amphipods
Net 2	20-10 m	100 Pleurobrachia, Phialidium, juv. euphausiids, small copepods
Net 3	10- 0 m	same as net 2
	CR 3	9 Sept 00 water depth = 140 m 2050 h (Night)
Net 0	0-130 m	copepods, euphausiids, Pleurobrachia, amphipods
Net 1	130-110 m	radiolaria, 20 euphausiids, small copepods, chaetognaths
Net 2	110-100 m	a few juv + adult euphausiids, goop

Net 3	100- 50 m	1 squid, Pleurobrachia, euphausiids, chaetognaths
Net 4	50 - 20 m	200 Pleurobrachia, 1000 juv. + adult euphausiids
Net 5	20 - 10 m	2 Beroe, 30 Pleurobrachia, 1000's adult euphausiids, amphipods, copepods
Net 6	10 - 0 m	1000's of adult euphausiids, 5 Beroe
CR 4		
	9 Sept 00	water depth = 515 m 2300 h (Night)
Net 0	0- 350 m	10000 small euphausiids, Pleurobrachia, copepods, myctophids
Net 1	350-300 m	1 myctophid, 1 squid, Sagitta scrippsae, euphausiids
Net 2	300-200 m	radiolarians, siphonophores, S. scrippsae, 1 myctophid, 3 Sergestes
Net 3	200-150 m	radiolarians, chaetognaths, 2 Sergestes, 2 myctophids, copepods
Net 4	150-100m	radiolarians, S. scrippsae, 1 myctophid, 3 Sergestes, 5 big ctenophores
Net 5	100- 50 m	radiolarians, 1000's juv.euphausiids, 2 myctophids, 10 big ctenophores
Net 6	50- 20 m	10 ⁵ euphausiids, 5 Beroe, Pleurobrachia, a few copepods
Net 7	20- 10 m	circle salps, 50 Pleurobrachia, 10 ⁴ small adult euphausiids
Net 8	10- 0 m	10 ⁶ juv. euphausiids, copepods, Beroe, Pleurobrachia
CR 6		
	10 Sept 00	water depth = 708 m 0310 h (Night)
Net 0	0-350 m	Euphausiid, euphausiids, euphausiids
Net 1	350-300 m	2 glass fish, 1 myctiohid, 1 huls, 1 Atolla, S. scrippsae, small jellies, mesopelagic copepods
Net 2	300-200 m	radiolarians, 5 Atolla, 5 fish larvae, chaetognaths, amphipods
Net 3	200-150 m	jelly bits, radiolaria, squid
Net 4	150-100 m	radiolarians 1 big squid, Limacina, 10 euphausiids, chaetognaths, copepods, amphipods
Net 5	100- 50 m	radiolarians, Pleurobrachia, Beroe, fish larvae
Net 6	50- 20 m	1000 euphausiids, 200 Pleurobrachia, copepods, Beroe, 1 myctophid
Net 7	20- 10 m	500 euphausiids, 1 Pleurobrachia, copepods, amphipods
Net 8	10 - 0 m	1000 euphausiids, 20 Pleurobrachia, 3 Beroe, copepods, amphipods
RR 2		
	11 Sept 00	water depth = 87 m 0614 h (Night - barely but OK)
Net 0	0-75 m	200 Pleurobrachia, Limacina, small copepods

Net 1	75-50 m	siphonophores, Limacina, 10 euphausiids, 6 Pleurobrachia, radiolaria
Net 2	50-30 m	Limacina, radiolaria, 18 Pleurobrachia, chaetognaths, small copepods
Net 3	30-20 m	300 Pleurobrachia, circle salps, small copepods
Net 4	20-10 m	150 Pleurobrachia, copepods, amphipods, 1 jelly (3" diameter)
Net 5	10- 0 m	200 Pleurobrachia, small copepods, amphipods

RR-3 11Sept 00 water depth = 200 m 0441 h (Night)

MOCNESS offshore of vertical haul by quite a lot in terms of water depth. VPT was in approx. 130; MOC done in approx. 200 m, off the shelf break. Acoustic targets seen chiefly at the shelf break, were high there but with very few targets offshore.

Net 0	0-150 m	Pleurobrachia, 100 small euphausiids
Net 1	150-100 m	1000 euphausiids, 4 Pleurobrachia, 2 Corolla, radiolarians
Net 3	100- 50 m	1000 euphausiids, 4 Pleurobrachia, radiolarians
Net 3	50- 20 m	small adult euphausiids, 10 Pleurobrachia, radiolarians
Net 4	20- 10 m	same as Net 3 + a few <i>Clio pyrimadata</i>
Net 5	10- 0 m	lots of euphausiids, a few radiolaria, Pleurobrachi, doliolids, amphipods

RR 4 11 Sept 00 water depth = 547 m 0128 h (Night)

Net 0	0-350 m	10 ⁵ euphausiids, myctophids, Pleurobrachia
Net 1	350-300 m	Muggiea, chaetognaths, 5 fish larvae, a few copepods and amphipods
Net 2	300-200 m	Muggiea, chaetognaths, 2 myctophids, Pleurobrachia, copepods, radiolarians, shrimp
Net 3	200-150 m	Chaetognaths, 5 Pleurobrachia, 10 euphausiids, 1 sergestid, radiolarians, 1 silver dollar
Net 4	150-100 m	20 euphausiids, radiolarians, 2 silver dollars, chaetognaths
Net 5	100- 50 m	200 euphausiids, radiolarians, 3 silver dollars, 6 Pleurobrachia, 3 Myctophids, 15 sergestes
Net 6	50 - 20 m	6 Myctophids, 800 adult euphausiids, 20 Pleurobrachia, 1 Beroe
Net 7	20- 10 m	40 Pleurobrachia, 1 Corolla, copepods, amphipods, young adult euphausiids
Net 8	10 - 0 m	amphipods, 1 myctophid, juvy euphausiids

HH-3 11 Sept 00 water depth = 155 m 2130 h (Night)

Net 0	0-140 m	1 gallon Pleurobrachia, 10,000 adult euphausiids, small copepods
-------	---------	--

Net 1	140-100 m	200 euphausiids, some Calanus, 2 Pleurobrachia
Net 2	100- 50 m	1000 euphausiids, copepods
Net 3	50- 30 m	1000 euphausiids, few small copepods (removed 8 <i>T. spinifera</i> for gut pigments)
Net 4	30- 20 m	30 Pleurobrachia, 100 euphausiids, 2 Beroe, lots of Acartia
Net 5	20- 10 m	1000 Pleurobrachia, 100 euphausiids, small copepods
Net 6	10- 0 m	1000 Pleurobrachia, 100 euphausiids, Pink copepods
HH-4		
	11 Sept 00	water depth = 112 m 2357 h (Night)
Net 0	0-100 m	200 Pleurobrachia, small copepods, 50 adult euphausiids
Net 1	100- 50 m	4 Pleurobrachia, small copepods, 50 euphausiids, 3 silver dollars, 1 larval fish
Net 2	50-20 m	50 Pleurobrachia, 20 adult euphausiids, 10 ⁶ copepods (Calanus + Pseudocalanus)
Net 3	20-10 m	200 Pleurobrachia, small copepods, 10 adult euphausiids
Net 4	10- 0 m	400 Pleurobrachia, small copepods, some furcilia
HH-5		
	12 Sept 00	water depth = 1085 m 0330 h (Night)
Net 0	0-350 m	One HUGE amphipod (~10 cm long!), myctophid, 1000 euphausiids, Sergestids, weird white goo
Net 1	350-300 m	Radiolaria, Chaetognaths, 1 silver dollar, 2 nipple jellies, copepods
Net 2	300-200 m	1 Sergestid, Chaetognaths, 5 Pleurobrachia, Muggeia, Radiolaria, 1 squid
Net 3	200-150 m	2 euphausiids, chaetognaths, amphipods, radiolaria, 2 Sergestes
Net 4	150-100 m	10 Sergestes, 2 squid, 100 euphausiids, copepods
Net 5	100- 50 m	400 adult euphausiids, 2 myctophids, 10 Sergestes, 1 megalopae, removed 7 guts for <i>E. pacifica</i>)
Net 6	50-20 m	15 Sergestes, 2 myctophids, 300 large euphausiids, circle salps
Net 7	20-10 m	small copepods, 1 Aequorea, 40 Pleurobrachia, a few sergestids
Net 8	10- 0 m	small copepods, 50 Pleurobrachia, 1 fish w/barble, 1 megalopae

Gut Pigments.

CR3	12 individuals (<i>E. Pacifica</i>)
RR4	15 individuals (<i>E. Pacifica</i>)
RR3	15 individuals (<i>E. Pacifica</i>)
HH3	10 individuals (<i>T. Spinifera</i>)
HH 5	10 individuals (<i>E. Pacifica</i>)

Egg Production Measurements

None were made on this trip as we saw very very few largish adult euphausiids (*Euphausia pacifica*) and only a few with purple ovaries. It appears that the adults from the early spring cohort have all been consumed but that another cohort is coming on line now as most of the larger (and probably adult) euphausiids were small, in the 12 mm size range. This contrasts with what we saw during MESO-2 (last month) when the larger euphausiid were in the 18-19 mm category. Large *E. pacifica* were seen only at our last station, HH5.

Miscellaneous Notes

Mola mola at NH 5 and NH 15; FM 3; 2 at CR 11

Three, huge (1 m+ in diameter) yellow scyphomedusae at CR 1

RR3 seems too close to the shelf break. Need more precise steering of the ship during MOCNESS so that we stay at the shelf edge!

Picked 20-30 individual living female Pseudocalanus from NH 25 MOCNESS tow for genetics specimens for Bruce Frost and Ann Bucklin. Tried for Metridia as well but only got one or two females and a male. Picked again at CR 3 but just got Pseudocalanus. Successfully picked Metridia at RR4, two vials. Also picked two vials at RR 3.

Very few euphausiids along NH line but high numbers of Sergestes similis. Euphausiids seen by day along outer part of shelf off Newport in acoustics, from about 8 miles offshore to 20 miles out; all animals were clustered very near the bottom. Since we didn't sample at night in these waters we don't know the species.

Birds and Mammals. Very spotty observations on this trip chiefly because 75-80% of our work was done at night. We did not see any albatross.

NH 5	100 Sooty Shearwaters (SS)
NH 10	10 SS; 10 fulmars
NH 15	20 SS; 7 fulmars
NH 20	no bird obs; 5-6 Pacific white-sided dolphins close to boat.
NH 25	40 fulmars sitting behind boat
FM 3	Sooty shearwaters
CR 3	Phalaropes flying around the boat
CR 4	2 fulmars in lights behind ship
CR 11	Pacific white-sided dolphins
RR6	10 Phalaropes flying around
Transit RR -->HH	at approx 2 pm Bob Smith saw an Orca "spy hopping"
HH 2	2 Sooties