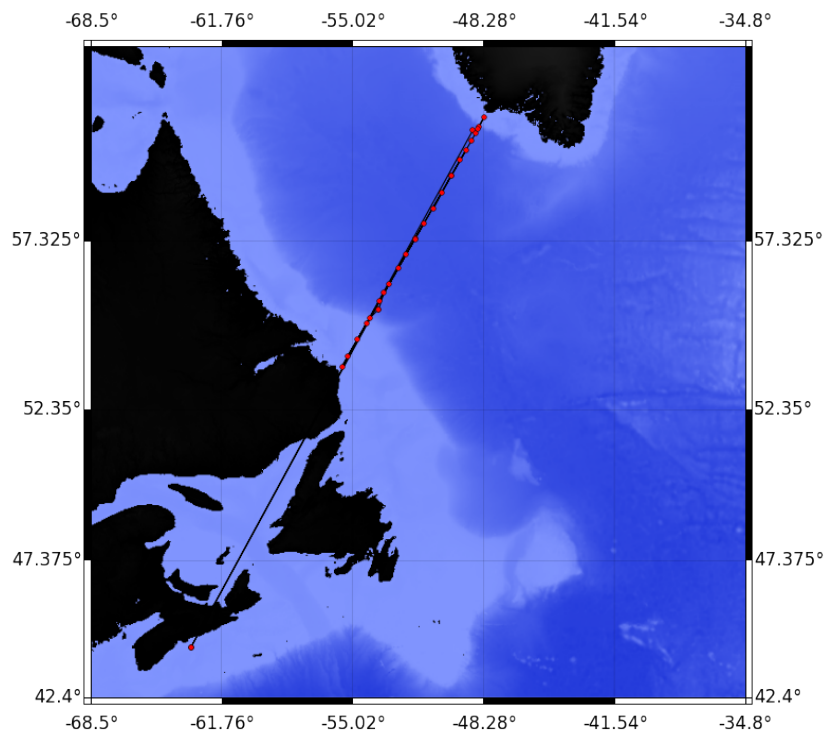


CRUISE REPORT: AR07W

(Updated June 2014)



Highlights

Cruise Summary Information

WOCE Section Designation	AR07W
Expedition designation (ExpoCodes)	18HU20021129
Chief Scientists	Erica Head / BIO
Dates	2002 NOV 29 – 2002 DEC 12
Ship	CCGS <i>Hudson</i>
Ports of call	St. John's - Greenland
Geographic Boundaries	60° 34' 45" 63° 19' 15" W 48° 14' 35" W 44° 16' 58"
Stations	30
Floats and drifters deployed	0
Moorings deployed or recovered	2 deployed

Recent Contact Information:

Dr. Erica Head

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Links To Select Topics

Shaded sections are not relevant to this cruise or were not available when this report was compiled.

Cruise Summary Information	Hydrographic Measurements
Description of Scientific Program	CTD Data:
Geographic Boundaries	Acquisition
Cruise Track (Figure): PI CCHDO	Processing
Description of Stations	Calibration
Description of Parameters Sampled	Temperature Pressure
Bottle Depth Distributions (Figure)	Salinities Oxygens
Floats and Drifters Deployed	Bottle Data
Moorings Deployed or Recovered	Salinity
	Oxygen
Principal Investigators	Nutrients
Cruise Participants	Carbon System Parameters
	CFCs
Problems and Goals Not Achieved	Helium / Tritium
Other Incidents of Note	Radiocarbon
Underway Data Information	References
Navigation Bathymetry	
Acoustic Doppler Current Profiler (ADCP)	
Thermosalinograph	
XBT and/or XCTD	
Meteorological Observations	Acknowledgments
Atmospheric Chemistry Data	
Data Processing Notes	

CRUISE REPORT OF THE CCGS HUDSON MISSION 2002-075

PARTICIPANTS:

Erica Head (Senior Scientist, OSD, BIO)
Glen Harrison (OSD, BIO)
Allyn Clarke (OSD, BIO)
Edward Horne (OSD, BIO)
Jeff Anning (OSD, BIO)
Jay Bugden (OSD, BIO)
Tim Perry (Contractor in OSD, BIO)
Paul Dickie (OSD, BIO)
Igor Yashayaev (OSD, BIO)
Lidia Yebra Mora (Plymouth Marine Laboratory, UK)
Jerome Cuny (Univ. of Washington, USA)
Wade Blanchard (Dalhousie Univ.)
Murray Scotney (TOS, BIO)

OBJECTIVES:

The main objective of the mission was to determine the overwintering vertical depth distribution of the copepod *Calanus finmarchicus* along the AR7W section across the Labrador Sea. This organism dominates the zooplankton biomass in North Atlantic waters north of the Gulf Stream, although its abundance and distribution is influenced by changes in hydrography resulting from climatic variations. There is currently an international collaboration to determine life history parameters, including overwintering depth distribution, in order to model the space/time dynamics of *C. finmarchicus* in the northwest sub-polar gyre, with a view to predicting how they might be affected by global warming. This cruise, together with one conducted in June/July (Mission no. 2002032), and alligned cruises in the Irminger sea, by a group from the UK, will provide data for modelling. Secondary objectives were: to measure a series of other biological/environmental variables (concentrations of the copepod *Oithona*, phytoplankton, bacterial, nutrient, oxygen and dissolved organic carbon concentrations); to determine biological rates (primary and bacterial production and microbial respiration); to determine levels of metabolism in zooplankton (by use of biochemical indices); to determine underwater light fields; and, to make standard hydrographic measurements (temperature, salinity). A final objective of the mission was the deployment of a mooring on Makkovik Bank. Further details of these activities are given in the reports of the individual scientists included below.

SCIENTIFIC BRIDGE LOG - CCGS HUDSON MISSION 2002075

DATE	TIME (z)	EVENT #	STN #	LAT (N)		LONG (W)		DEPTH (m)	WIND S(kt) D	ACTIVITY	
				Deg.	Min.	Deg.	Min.				
01/12/02	1407		1 L3_01	53	40.56	55	33.03	152	13 N	CTD in water	
	1429		1 L3_01	53	40.17	55	32.31	152	13 N	CTD on board	
	1439		2 L3_01	53	39.94	55	32.88	144	10 NE	Light meter in water	
	1452		2 L3_01	53	39.71	55	32.75	141	10 NE	Light meter on board	
	1512		3 L3_01	53	39.34	55	32.67	141	10 NE	Ring net in water	
	1525		3 L3_01	53	39.19	55	32.63	141	10 NE	Ring net on board	
	1532		4 L3_01	53	39.05	55	32.64	140	10 NE	Ring net in water	
	1544		4 L3_01	53	39.89	55	32.65	140	10 NE	Ring net on board	
	1549		5 L3_01	53	38.80	55	32.72	137	10 NE	Ring net in water	
	1555		5 L3_01	53	38.72	55	32.80	137	10 NE	Ring net on board	
	1606		6 L3_01	53	38.60	55	33.08	134	10 NE	Mooring release test in water	
	1613		6 L3_01	53	38.52	55	33.24	134	10 NE	Mooring release test on board	
	02/12/02	302		7 Makk.Bnk.	55	24.60	58	3.80	100	20 NW	Mooring deployment
		303		8 Makk.Bnk.	55	24.49	58	3.55	100	20 NW	Mooring deployment
		1809		9 L3_03	53	59.30	55	15.09	150	30 W	Light meter in water
		1817		9 L3_03	53	59.30	55	15.09	150	30 W	Light meter on board
1837			10 L3_03	53	59.39	55	15.20	146	30 W	Ring net in water	
1847			10 L3_03	53	59.38	55	15.32	146	30 W	Ring net on board	
1851			11 L3_03	53	59.33	55	15.23	148	25 W	Ring net in water	
1858			11 L3_03	53	59.37	55	15.26	148	25 W	Ring net on board	
1905			12 L3_03	53	59.39	55	15.17	146	25 W	Ring net in water	
1913			12 L3_03	53	59.45	55	15.13	147	25 W	Ring net on board	
1929			13 L3_03	53	59.63	55	15.25	147	25 W	CTD in water	
1956			13 L3_03	53	59.73	55	14.91	150	25 W	CTD on board	
2238			14 L3_05	54	29.55	54	45.33	196	15/20 W	CTD in water	
2306			14 L3_05	54	29.56	54	45.08	197	20/25 W	CTD on board	
2324			15 L3_05	54	29.56	54	44.85	199	15/20 W	Ring net in water	
2334			15 L3_05	54	29.56	54	44.60	199	15/20 W	Ring net on board	
2338			16 L3_05	54	29.56	54	44.41	199	15/20 W	Ring net in water	
2347			16 L3_05	54	29.58	54	44.16	198	20/25 W	Ring net on board	
2354		17 L3_05	54	29.55	54	43.84	200	20/25 W	Ring net in water		
03/12/02	2		17 L3_05	54	29.57	54	43.63	200	20/25 W	Ring net on board	
	7		18 L3_05	54	29.58	54	43.47	200	20/25 W	Ring net in water	
	14		18 L3_05	54	29.53	54	43.34	200	20/25 W	Ring net on board	
	102		19	54	36.92	54	35.52		20/25 W	XBT drop	
	139		20	54	45.09	54	27.67		20/25 W	XBT drop	
	144		21	54	46.22	54	26.43		20/25 W	XBT drop	
	216		22	54	52.78	54	20.24		20/25 W	XBT drop	
	252		23 L3_07	54	57.38	54	16.75	360	20/25 W	CTD in water	
	321		23 L3_07	54	57.20	54	15.95		20/25 W	CTD on board	
	406		24	55	2.60	54	10.48		20/25 W	XBT drop	
	410		25	55	3.14	54	10.05		20/25 W	XBT drop	
	523		26 L3_08	55	6.48	54	7.65	1034	20/25 W	CTD in water	
	613		26 L3_08	55	6.41	54	8.17		25/30 W	CTD on board	
	654		27 L3_08	55	6.73	54	8.22	1130	25/30 W	Multi-net in water	
	740		27 L3_08	55	6.92	54	7.70		25/30 W	Multi-net on board	
801		28 L3_08	55	6.95	54	7.57		25/30 W	Ring net in water		

	810	28 L3_08	55	6.97	54	7.59	25/30 W	Ring net on board
	816	29 L3_08	55	6.97	54	7.66	25/30 W	Ring net in water
	823	29 L3_08	55	7.02	54	7.61	25/30 W	Ring net on board
	829	30 L3_08	55	7.06	54	7.66	25/30 W	Ring net in water
	837	30 L3_08	55	7.08	54	7.63	25/30 W	Ring net on board
	856	31	55	9.00	54	5.65	25/30 W	XBT drop
	920	32	55	14.30	54	0.60	25/30 W	XBT drop
	934	33	55	17.18	53	57.67	25/30 W	XBT drop
	952	34	55	21.05	53	53.75	25/30 WSW	XBT drop
	1052	35 L3_10	55	24.55	53	48.03	25/30 WSW	Multi-net in water
	1150	35 L3_10	55	23.90	53	47.36	25/30 WSW	Multi-net on board
	1216	36 L3_10	55	23.46	53	46.91	25/30 WSW	Multi-net in water
	1409	36 L3_10	55	22.59	53	45.66	25/30 WSW	Multi-net on board
	1451	37 L3_10	55	22.29	53	44.74	25/30 WSW	Ring net in water
	1502	37 L3_10	55	22.19	53	44.38	25/30 WSW	Ring net on board
	1506	38 L3_10	55	22.13	53	44.07	25/30 WSW	Ring net in water
	1518	38 L3_10	55	21.91	53	43.45	25/30 WSW	Ring net on board
	1524	39 L3_10	55	21.89	53	43.29	25/30 WSW	Ring net in water
	1534	39 L3_10	55	21.91	53	42.81	25/30 WSW	Ring net on board
	1552	40 L3_10	55	22.00	53	41.21	25/30 WSW	CTD in water
	1740	40 L3_10	55	22.10	53	40.59	25/30 WSW	CTD on board
	1756	41 L3_10	55	21.92	53	40.66	30/36 SW	Light meter in water
	1807	41 L3_10	55	21.89	53	40.61	25/30 SW	Light meter on board
	1840	42 L3_10	55	21.63	53	40.38	25/30 WSW	CTD in water
	1900	42 L3_10	55	21.51	53	40.24	25/30 WSW	CTD on board
	1924	43	55	25.16	53	37.25	25/30 WSW	XBT drop
	1943	44	55	29.21	53	34.69	25/30 WSW	XBT drop
	1959	45	55	32.45	53	32.80	25/30 WSW	XBT drop
	2014	46	55	35.74	53	30.89	25/30 WSW	XBT drop
	2035	47	55	40.66	53	28.20	25/30 WSW	XBT drop
	2054	48	55	45.18	53	25.96	25/30 WSW	XBT drop
	2148	49 L3_12	55	50.73	53	23.58	25/30 SW	Multi-net in water
	2242	49 L3_12	55	51.22	53	23.54	25/30 W	Multi-net on board
	2317	50 L3_12	55	51.64	53	23.47	25/30 W	CTD in water
04/12/02	118	50 L3_12	55	51.59	53	22.65	25/30 W	CTD on board
	138	51 L3_12	55	51.61	53	22.57	15 W	Ring net in water
	148	51 L3_12	55	51.61	53	22.55	15 W	Ring net on board
	152	52 L3_12	55	51.61	53	22.55	15/20 W	Ring net in water
	202	52 L3_12	55	51.65	53	22.52	15/20 W	Ring net on board
	206	53 L3_12	55	51.65	53	22.47	15/20 W	Ring net in water
	216	53 L3_12	55	51.66	53	22.44	15/20 W	Ring net on board
	243	54	55	55.33	53	18.89	15/20 W	XBT drop
	303	55	55	59.61	53	14.50	15/20 W	XBT drop
	323	56	56	3.85	53	10.11	15/20 W	XBT drop
	343	57	56	8.00	53	5.84	15/20 W	XBT drop
	406	58	56	12.85	52	0.80	15/20 W	XBT drop
	428	59	56	17.62	52	55.78	15/20 W	XBT drop
	453	60	56	22.94	52	50.33	15/20 W	XBT drop
	513	61	56	27.23	52	46.04	15/20 W	XBT drop
	555	62 L3_14	56	32.25	52	40.58	10/15 WNW	Ring net in water
	603	62 L3_14	56	32.35	52	40.53	10/15 WNW	Ring net on board
	607	63 L3_14	56	32.34	52	40.45	10/15 WNW	Ring net in water

	616	63 L3_14	56	32.37	52	40.24	10/15 WNW	Ring net on board
	623	64 L3_14	56	32.38	52	40.19	10/15 WNW	Ring net in water
	631	64 L3_14	56	32.42	52	39.96	10/15 WNW	Ring net on board
	705	65 L3_14	56	32.38	52	39.65	10/15 WNW	Multi-net in water
	803	65 L3_14	56	32.91	52	39.25	10/15 WNW	Multi-net on board
	848	66 L3_14	56	32.89	52	39.72	10/15 WNW	CTD in water
	1057	66 L3_14	56	32.82	52	38.57	10/15 WNW	CTD on board
	1123	67	56	35.96	52	34.70	20/25 NNW	XBT drop
	1145	68	56	40.73	52	30.16	25/30 NNW	XBT drop
	1210	69	56	45.47	52	25.50	25/30 WNW	XBT drop
	1232	70	56	49.93	52	20.93	25/30 WNW	XBT drop
	1252	71	56	54.13	52	16.68	20 NWN	XBT drop
	1257	72	56	55.40	52	15.41	20 NWN	XBT drop
	1312	73	56	49.47	52	26.28	20/25 NWN	XBT drop
	1333	74	57	2.88	52	7.87	20/25 NNW	XBT drop
	1353	75	57	7.18	52	3.57	15/20 N	XBT drop
	1414	76	57	11.59	51	59.31	15/20 N	XBT drop
	1519	77 L3_16	57	22.50	51	47.80	5/10 N	CTD in water
	1538	77 L3_16	57	22.28	51	47.66	5/10 N	CTD on board
	1552	78 L3_16	57	22.09	51	47.28	5/10 N	Light meter in water
	1601	78 L3_16	57	22.13	51	47.34	5/10 N	Light meter on board
	1630	79 L3_16	57	22.22	51	47.62	5/10 N	CTD in water
	1847	79 L3_16	57	21.73	51	46.91	5/10 N	CTD on board
	1903	80 L3_16	57	21.98	51	46.79	5/10 N	Multi-net in water
	2004	80 L3_16	57	22.24	51	46.20	5/10 N	Multi-net on board
	2033	81 L3_16	57	22.20	51	46.02	5/10 N	Multi-net in water
	2127	81 L3_16	57	22.34	51	46.07	5/10 N	Multi-net on board
	2151	82 L3_16	57	22.37	51	46.13	5/10 N	Ring net in water
	2200	82 L3_16	57	22.29	51	46.13	5/10 N	Ring net on board
	2204	83 L3_16	57	22.19	51	46.17	5/10 N	Ring net in water
	2213	83 L3_16	57	22.16	51	46.16	5/10 N	Ring net on board
	2219	84 L3_16	57	22.15	51	46.18	5/10 N	Ring net in water
	2227	84 L3_16	57	22.11	51	46.19	10/15 N	Ring net on board
	2244	85 L3_16	57	22.16	51	46.31	10/15 N	Multi-net in water
05/12/02	56	85 L3_16	57	22.11	51	46.93	15 NW	Multi-net on board
	121	86	57	23.22	51	46.45	10 NW	XBT drop
	132	87	57	25.73	51	44.11	10 NW	XBT drop
	148	88	57	29.00	51	40.61	10/15 NWN	XBT drop
	204	89	57	32.30	51	37.08	10/15 NWN	XBT drop
	225	90	57	36.72	51	32.35	30/35 NNW	XBT drop
	243	91	57	40.50	51	28.28	30 NNW	XBT drop
	247	92	57	41.40	51	27.29	30 NNW	XBT drop
	256	93	57	43.22	51	25.36	30/35 NWN	XBT drop
	307	94	57	45.50	51	22.87	30/35 NWN	XBT drop
	319	95	57	47.90	51	20.24	30/35 NWN	XBT drop
	322	96	57	50.43	51	17.55	30/35 NWN	XBT drop
	346	97	57	55.43	51	14.28	30/35 NWN	XBT drop
	357	98	57	55.82	51	11.71	30/35 NWN	XBT drop
	408	99	57	58.08	51	9.23	30/35 NWN	XBT drop
	419	700	58	0.46	51	6.66	30/35 NWN	XBT drop
	434	101	58	3.45	51	3.39	30/35 NWN	XBT drop
	448	102	58	6.54	51	0.02	30/35 NWN	XBT drop

	504	103	58	9.88	50	57.00	30/35 NWN	XBT drop
	541	104 L3_18	58	12.78	50	52.53	3475 20/25 NWN	Multi-net in water
	644	104 L3_18	58	13.57	50	51.93	30/35 NW	Multi-net on board
	728	105 L3_18	58	12.82	50	52.34	30/35 NW	Ring net in water
	739	105 L3_18	58	12.77	50	51.88	30/35 NW	Ring net on board
	742	106 L3_18	58	12.78	50	51.78	30/35 NW	Ring net in water
	750	106 L3_18	58	12.67	50	51.46	30/35 NW	Ring net on board
	756	107 L3_18	58	12.43	50	51.27	30/35 NW	Ring net in water
	805	107 L3_18	58	12.44	50	50.99	30/35 NW	Ring net on board
	821	108 L3_18	58	12.19	50	50.37	30/35 NW	CTD in water
	1051	108 L3_18	58	12.57	50	47.80	30/35 W	CTD on board
	1123	109	58	16.60	50	43.87	30/35 W	XBT drop
	1134	110	58	18.89	50	41.84	30/35 W	XBT drop
	1152	111	58	22.78	50	38.37	25/30 WNW	XBT drop
	1212	112	58	26.40	50	34.50	35/40 W	XBT drop
	1230	113	58	30.22	50	30.49	25/30 WNW	XBT drop
	1252	114	58	35.02	50	25.14	30/35 NWW	XBT drop
	1313	115	58	39.35	50	20.22	25/30 W	XBT drop
	1332	116	58	43.40	50	15.87	25/30 W	XBT drop
	1352	117	58	41.75	50	11.62	25/30 W	XBT drop
	1413	118	58	52.37	50	7.00	35/40 W	XBT drop
	1433	119	58	56.77	50	2.83	35/40 W	XBT drop
	1519	120 L3_20	59	3.92	49	56.84	30/35 W	CTD in water
	1539	120 L3_20	59	3.86	49	56.76	30/35 WNW	CTD on board
	1559	121 L3_20	59	3.93	49	56.65	30/35 WNW	Light meter in water
	1615	121 L3_20	59	3.94	49	56.67	30/35 WNW	Light meter on board
	1650	122 L3_20	59	4.07	49	56.44	35/40 WNW	CTD in water
	1907	122 L3_20	59	4.80	49	54.83	25/30 WNW	CTD on board
	1916	123 L3_20	59	4.77	49	54.86	20/25 WNW	Multi-net in water
	2028	123 L3_20	59	5.08	49	56.26	30/40 WNW	Multi-net on board
	2121	124	59	7.92	49	50.05	30/40 WNW	XBT drop
	2155	125	59	11.24	49	42.39	35 W	XBT drop
	2209	126	59	12.16	49	38.29	35 W	XBT drop
	2226	127	59	13.78	49	33.86	35/40 WS	XBT drop
	2247	128	59	18.26	49	29.78	35/40 WS	XBT drop
	2348	129	59	27.14	49	27.83	35/40 WN	XBT drop
06/12/02	120	130	59	35.12	49	31.80	25/30 W	XBT drop
	136	131	59	36.89	49	27.27	30/35 W	XBT drop
	204	132	59	39.94	49	19.22	30/35 W	XBT drop
	219	133	59	41.82	49	14.45	30/35 W	XBT drop
	315	134 L3_22	59	44.85	49	9.71	3155 25/30 W	Multi-net in water
	408	134 L3_22	59	44.72	49	10.18	3155 35/40 W	Multi-net on board
	447	135 L3_22	59	44.66	49	10.13	3155 25/30 W	CTD in water
	700	135 L3_22	59	45.10	49	8.55	3155 15/25 W	CTD on board
	720	136 L3_22	59	45.11	49	9.02	15/20 W	Ring net in water
	730	136 L3_22	59	45.20	49	8.66	15/20 W	Ring net on board
	736	137 L3_22	59	45.20	49	8.54	15/20 W	Ring net in water
	744	137 L3_22	59	45.25	49	8.37	15/20 W	Ring net on board
	749	138 L3_22	59	45.28	49	8.24	20/25 W	Ring net in water
	758	138 L3_22	59	45.38	49	8.11	20/25 W	Ring net on board
	829	139	59	49.27	49	3.20	20/25 W	XBT drop
	841	140	59	51.94	49	0.14	15/20 W	XBT drop

	857	141	59	55.48	48	56.56	15/20 W	XBT drop
	910	142	59	58.50	48	53.48	15/20 W	XBT drop
	922	143	60	1.12	48	50.85	15/20 W	XBT drop
	936	144	60	4.16	48	47.94	15/20 W	XBT drop
	949	145	60	7.24	48	45.01	10/15 SW	XBT drop
	1003	146	60	10.49	48	41.99	10/15 SW	XBT drop
	1034	147 L3_24	60	11.06	48	41.48	15/20 W	Multi-net in water
	1138	147 L3_24	60	12.76	48	42.97	15/20 SW	Multi-net on board
	1159	148 L3_24	60	13.09	48	43.12	15/20 S	Multi-net in water
	1350	148 L3_24	60	14.19	48	45.82	15/20 S	Multi-net on board
	1409	149 L3_24	60	14.38	48	46.28	15/20 SW	Light meter in water
	1420	149 L3_24	60	14.42	48	46.61	15/20 SW	Light meter on board
	1450	150 L3_24	60	14.47	48	47.06	15/20 SW	Ring net in water
	1500	150 L3_24	60	14.48	48	48.24	15/20 SW	Ring net on board
	1505	151 L3_24	60	14.51	48	48.34	15/20 SW	Ring net in water
	1513	151 L3_24	60	14.55	48	48.56	15/20 SW	Ring net on board
	1518	152 L3_24	60	14.60	48	48.70	15/20 SW	Ring net in water
	1527	152 L3_24	60	14.72	48	48.84	15/20 SW	Ring net on board
	1544	153 L3_24	60	14.82	48	49.44	10/15 SW	CTD in water
	1600	153 L3_24	60	15.01	48	49.78	20/25 SW	CTD on board
	1706	154 L3_24	60	10.54	48	40.10	10/15 SW	CTD in water
	1857	154 L3_24	60	11.98	48	41.09	15/20 SW	CTD on board
	1921	155	60	14.67	48	37.36	5/10 SW	XBT drop
	1932	156	60	16.94	48	34.82	5/10 SW	XBT drop
	1945	157	60	19.35	48	32.28	5/10 SW	XBT drop
	2029	158 L3_26	60	22.53	48	22.48	610 5/15 SW	Multi-net in water
	2057	158 L3_26	60	23.02	48	29.11	5/115 SW	Multi-net on board
	2151	159 L3_26	60	20.73	48	31.20	5/10 SWS	CTD in water
	2302	159 L3_26	60	22.31	48	33.42	10/15 SW	CTD on board
	2326	160 L3_26	60	22.68	48	34.89	10/15 SW	Ring net in water
	2336	160 L3_26	60	22.89	48	35.37	10/15 S	Ring net on board
	2340	161 L3_26	60	22.99	48	35.57	10/15 S	Ring net in water
	2348	161 L3_26	60	23.17	48	35.90	5/10 S	Ring net on board
	2353	162 L3_26	60	23.28	48	36.05	10/15 S	Ring net in water
07/12/02	1	162 L3_26	60	23.40	48	36.27	5/10 S	Ring net on board
	20	163	60	25.31	48	33.43	10/15 SES	XBT drop
	30	164	60	26.87	48	30.51	10/15 SES	XBT drop
	45	165	60	29.02	48	25.81	5/10 SES	XBT drop
	134	166 L3_28	60	34.15	48	13.75	131 5/10 SE	Ring net in water
	141	166 L3_28	60	34.21	48	13.90	126 15/20 SE	Ring net on board
	146	167 L3_28	60	34.31	48	14.00	146 15/20 SE	Ring net in water
	152	167 L3_28	60	34.46	48	14.11	15/20 SE	Ring net on board
	157	168 L3_28	60	34.59	48	14.19	15/20 SE	Ring net in water
	203	168 L3_28	60	34.63	48	14.29	15/20 SE	Ring net on board
	217	169 L3_28	60	34.81	48	14.71	15/20 SE	CTD in water
	229	169 L3_28	60	34.94	48	14.98	15/20 SE	CTD on board
	434	170 L3_25	59	17.68	48	32.72	2630 15/20 SSE	CTD in water
	545	170 L3_25	59	19.19	48	35.40	10/15 SSE	CTD on board, Cable shortout
	807	171 L3_23	59	59.03	48	53.60	5/15 SE	CTD in water
	840	171 L3_23	59	59.31	48	53.66	5/15 SE	CTD on board, Cable shortout
	907	172 L3_23	59	59.38	48	53.63	10/15 S	Multi-net in water
	1007	172 L3_23	59	59.24	48	53.89	10/15 S	Multi-net on board

	1315	173 L3_21	59	29.03	49	28.38	15/20 SEE	CTD in water
	1448	173 L3_21	59	29.30	49	28.82	10/15 SEE	CTD on board
	1458	174 L3_21	59	29.32	49	28.89	5/10 SEE	Light meter in water
	1508	174 L3_21	59	29.34	49	28.90	10/15 SEE	Light meter on board
	1523	175 L3_21	59	29.33	49	29.04	10/15 SSE	Multi-net in water
	1610	175 L3_21	59	29.18	49	29.14	10/15 SE	Multi-net on board
	1631	176 L3_21	59	29.10	49	28.76	10 S	Multi-net in water
	1800	176 L3_21	59	28.97	49	28.17	5 S	Multi-net on board
	2056	177 L3_20	59	3.80	49	51.12	10/15 N	Multi-net in water
	2145	177 L3_20	59	3.88	49	56.88	10/15 N	Multi-net on board
	2225	178 L3_20	59	3.14	49	57.94	15 NEN	Ring net in water
	2231	178 L3_20	59	3.14	49	58.08	15/20 E	Ring net on board
	2236	179 L3_20	59	3.09	49	58.10	15/20 E	Ring net in water
	2241	179 L3_20	59	3.06	49	58.17	15/20 E	Ring net on board
	2246	180 L3_20	59	3.02	49	58.23	15/20 E	Ring net in water
	2251	180 L3_20	59	3.03	49	58.34	15/20 E	Ring net on board
08/12/02	127	181 L3_19	58	38.25	50	25.50	15/20 NNE	Multi-net in water
	312	181 L3_19	58	38.29	50	24.80	15/20 NE	Multi-net on board
	345	182 L3_19	58	38.13	50	25.32	15/20 E	Multi-net in water
	432	182 L3_19	58	37.71	50	24.91	15/20 E	Multi-net on board
	512	183 L3_19	58	37.91	50	25.60	15/20 E	CTD in water
	624	183 L3_19	58	37.36	50	26.81	15/20 E	CTD on board
	724	184	58	29.13	50	41.99	15/20 E	XBT drop
	738	185	58	26.96	50	46.04	15/20 E	XBT drop
	755	186	58	24.29	50	50.87	15/20 E	XBT drop
	819	187	58	20.44	50	57.82	15/20 E	XBT drop
	824	188	58	19.69	50	59.25	15/20 E	XBT drop
	843	189	58	16.75	51	4.55	15/20 E	XBT drop
	900	190	58	13.91	51	9.71	15/20 E	XBT drop
	915	191	58	11.19	51	14.66	25/30 WNW	XBT drop
	934	192	58	8.63	51	1.31	25/30 WNW	XBT drop
	944	193	58	6.60	51	20.41	25/30 NW	XBT drop
	954	194	58	4.24	51	20.40	25/30 NW	XBT drop
	1004	195	58	2.00	51	20.39	25/30 NW	XBT drop
	1015	196	57	54.46	51	20.40	25/30 NW	XBT drop
	1026	197	57	57.06	51	20.40	25/30 NW	XBT drop
	1038	198	57	54.28	51	20.39	25/30 NW	XBT drop
	1050	199	57	51.61	51	20.41	20/25 NW	XBT drop
	1124	200 L3_17	57	47.83	51	20.62	20/25 NWW	Multi-net in water
	1215	200 L3_17	57	48.00	51	20.60	20/25 NWW	Multi-net on board
	1249	201 L3_17	57	47.88	51	20.98	20 W	CTD in water
	1419	201 L3_17	57	47.30	51	21.26	15/25 W	CTD on board
	1436	202 L3_17	57	47.17	51	20.99	10/20 W	Light meter in water
	1446	202 L3_17	57	47.00	51	21.06	15/20 W	Light meter on board
	2039	203 L3_15	56	57.32	52	14.32	10/15 SE	Multi-net in water
	2126	203 L3_15	56	57.01	52	14.52	5/10 SE	Multi-net on board
	2156	204 L3_15	56	57.41	52	14.39	15/20 E	CTD in water
	2255	204 L3_15	56	57.40	52	14.48	10/20 SSW	CTD on board
09/12/02	341	205 L3_13	56	6.72	53	7.15	3310 20/25 SW	Multi-net in water
	523	205 L3_13	56	6.53	53	7.23	3310 20/25 SW	Multi-net on board
	555	206 L3_13	56	6.82	53	6.92	15/20 SSW	Multi-net in water
	648	206 L3_13	56	6.60	53	7.24	20 SSW	Multi-net on board

	729	207 L3_13	56	6.82	53	6.84	15/20 SSW	CTD in water
	825	207 L3_13	56	6.79	53	6.92	15/20 SSW	CTD on board
	922	208	55	57.33	53	16.80	20/25 SSW	XBT drop
	1118	209 L3_11	55	36.77	53	37.58	15/20 SW	Multi-net in water
	1205	209 L3_11	55	36.50	53	37.00	10/15 SW	Multi-net on board
	1215	210 L3_11	55	36.50	53	36.79	10/15 SW	CTD in water
	1317	210 L3_11	55	36.45	53	36.53	Light airs	CTD on board
12/12/02	1103	211 HL_2	44	17.04	63	19.03	20/25 E	CTD in water
	1119	211 HL_2	44	17.00	63	18.97	20/25 E	CTD on board
	1147	212 HL_2	44	16.97	63	18.98	20/25 E	CTD in water
	1200	212 HL_2	44	17.01	63	19.98	25/30 SEE	CTD on board
	1218	213 HL_2	44	17.05	63	19.13	25/30 SEE	Ring net in water
	1227	213 HL_2	44	17.00	63	19.10	160 20/25 SE	Ring net on board
	1236	214 HL_2	44	17.00	63	19.13	120 20/25 SE	Ring net in water
	1244	214 HL_2	44	16.94	63	19.10	169 15/20 SE	Ring net on board
	1250	215 HL_2	44	16.96	63	19.19	166 20/25 SE	Ring net in water
	1300	215 HL_2	44	17.00	63	19.17	20/30 SE	Ring net on board
	1313	216 HL_2	44	17.06	63	19.21	20/25 SE	CTD in water
	1330	216 HL_2	44	17.09	63	19.34	15/20 E	CTD on board

REPORTS ON INDIVIDUAL PROJECTS:

Mooring programme (M. Scotney)

Two instrumented moorings were deployed December 1st, 2002 on Makkovik Bank, approximate position 55 24.50 N and 58 03.70 W. One mooring contained an Ice Profiling Sonar to measure ice thickness and the other an Acoustic Doppler Current Profiler to measure ice movement and water currents.

These moorings are to monitor the freshwater flux within the pack ice along the Labrador Shelf as part of Climate studies and contributing to international ASOF (Arctic, Sub-Arctic Ocean Flux) program. Funded through PERD Climate program sector.

Recovery is scheduled for July 2003.

Overwintering vertical and spatial distribution of *Calanus finmarchicus* along the AR7W section across the Labrador Sea. (Erica Head, Ed Horne, Tim Perry)

The main aim of the cruise was to collect samples to enable us to establish the overwintering depth distribution of the copepod *Calanus finmarchicus* in the Labrador Sea. We sampled zooplankton using a Multi-net sampler fitted with 200 µm mesh nets at a total of 17 stations of the L3 (AR7W) section between Hamilton Bank and Cape Desolation (Greenland). At 11 of these stations we sampled to 1000 m or to the bottom (in the slope regions), while at 6 we sampled to 2000 m. Depth strata were every 200 m between 1000 m and the surface, and every 250 m between 2000 and 1000 m. The Multi-net system worked flawlessly and while most

times wind strengths were below 35 knots, at one station we managed a totally successful recovery when wind strengths had reached 40-50 knots. A total of 111 formalin preserved samples were taken for species identification and enumeration. Some tows were given to a colleague (Lidia Yebra Mora) from the Plymouth Marine Laboratories in UK for the analysis of levels of enzyme indicative of levels of metabolic activity in selected stages and species of copepods. These samples were preserved in liquid nitrogen.

Sampling stations at which Multi-net tows were carried out.

Tow #	Event #	Station	Date	Start time (local)	Depth ranges
01	26	L3-8	3.12.02	01.26	840-800, 800-600, 600-400, 400-200, 200-0
02	35	L3-10	3.12.02	06.45	800-600, 600-400, 400-200, 200-0
03	36	L3-10	3.12.02	08.20	1500-1250, 1250-1000, 1000-800, 800-0*
04	49	L3-12	3.12.02	17.40	1000-800, 800-600, 600-400, 400-200, 200-0
05	65	L3-14	4.12.02	03.05	1000-800, 800-600, 600-400, 400-200, 200-0
06	80	L3-16	4.12.02	15.00	1000-800, 800-600, 600-400, 400-200, 200-0
07	81	L3-16	4.12.02	18.45	2000-1750, 1750-1500, 1500-1250, 1250-1000, 1000-0*
08	104	L3-18	5.12.02	01.45	1000-800, 800-600, 600-400, 400-200, 200-0
09	123	L3-20	5.12.02	15.20	1000-800, 600-400, 400-200, 200-0
10	134	L3-22	5.12.02	23.15	1000-800, 800-600, 600-400, 400-200, 200-0
11	147	L3-24	6.12.02	06.30	1000-800, 800-600, 600-400, 400-200, 200-0
12	148	L3-24	6.12.02	08.00	2000-1750, 1750-1500, 1500-1250, 1250-1000, 1000-0*
13	158	L3-26	6.12.02	16.30	540-400, 400-300, 300-200, 200-100, 100-0
14	172	L3-23	7.12.02	05.13	1000-800, 800-600, 600-400, 400-200, 200-0
15	175	L3-21	7.12.02	11.15	1000-800, 800-600, 600-400, 400-200, 200-0
16	176	L3-21	7.12.02	12.32	2000-1750, 1750-1500, 1500-1250, 1250-1000, 1000-0*
17	177	L3-20	7.12.02	16.52	1000-800, 800-600, 600-400, 400-200, 200-0
18	181	L3-19	7.12.02	21.30	2000-1750, 1750-1500, 1500-1250, 1250-1000, 1000-0*
19	182	L3-19	7.12.02	23.53	1000-800, 800-600, 600-400, 400-200, 200-0
20	200	L3-17	8.12.02	07.25	1000-800, 800-600, 600-400, 400-200, 200-0
21	203	L3-15	8.12.02	16.39	1000-800, 800-600, 600-400, 400-200, 200-0
22	205	L3-13	8.12.02	23.44	2000-1750, 1750-1500, 1500-1250, 1250-1000, 1000-0*
23	206	L3-13	9.12.02	02.00	1000-800, 800-600, 600-400, 400-200, 200-0
24	209	L3-11	9.12.02	07.19	1000-800, 800-600, 600-400, 400-200, 200-0

*Samples given to Lidia Yebra Mora for biochemical analysis.

Continuous Flow Multisensor System (Jeff Anning)

Water from approximately 4m was continuously pumped to the forward lab. The temperature, conductivity and fluorescence was measured and logged every 30 sec. The temperature and conductivity were measured with Seabird sensors and the fluorescence by a Wetlabs flowthrough fluorometer. Incident Photosynthetically Active Radiation was measured with a Li-Cor Spherical Quantum Sensor and these data were merged with the sea water parameters. Exact time and positions were provided by a Northstar GPS and logged with the other data. In addition discrete water samples were collected every 15 minutes by an auto sampler for later analysis for

nitrate and silicate. The times and positions of these samples were also logged by the computer. Sampling was terminated on Dec. 10 when the GPS signal was lost due to icing conditions.

Sampling of Phytoplankton in Rosette Profiles (Erica Head, Tim Perry, Jeff Anning)

Chlorophyll samples were taken in duplicate from all depths sampled in the upper 100 m. of the water column. Integrated phytoplankton samples were collected from 50 m to the surface and preserved in 5% Lugols solution. Particulate organic Carbon (POC), photosynthetic pigments and absorption spectra samples were collected from all stations at the surface and also at the same depths as the PI incubations when these were conducted.

2002-075 Station

Log

Station	Event	Date
L3-01	1	12/01/02
L3-03	13	12/02/02
L3-05	14	12/02/02
L3-07	23	12/03/02
L3-08	27	12/03/02
L3-10	42	12/03/02
L3-12	50	12/03/02
L3-14	66	12/04/02
L3-16	77	12/04/02
L3-18	108	12/05/02
L3-20	120	12/05/02
L3-22	135	12/06/02
L3-24	153	12/06/02
L3-26	159	12/06/02
L3-28	169	12/06/02
L3-21	173	12/07/02
L3-19	183	12/08/02
L3-17	201	12/08/02
L3-15	204	12/08/02
L3-13	207	12/09/02
L3-11	210	12/09/02

Determination of Primary Production rates (Jeff Anning)

Water samples for primary production experiments were collected from the rosette. For each incubation, 33 aliquots were inoculated with sodium bicarbonate ^{14}C and then incubated at in situ temperatures at 30 light levels (+ 3 dark bottles) for approximately 3 hours. At the end of

the incubation period the cells were harvested onto GF/F glass fibre filters for later counting in a scintillation counter.

Photosynthesis/Irradiance incubations were conducted at the following stations:

2002-075 PI Log

Station	Event/ CTD	Date	Time GMT	ID	Depth
L3-01	1	12/01/02	14:00	259575	4
				259567	20
L3-03	13	12/02/02	19:30	259592	4
				259584	30
L3-10	42	12/03/02	19:00	259666	4
				259660	10
L3-16	77	12/04/02	15:30	259732	4
				259724	30
L3-20	120	12/05/02	15:30	259794	4
				259787	20
L3-24	153	12/06/02	16:00	259856	4
				259849	20
L3-21	173	12/07/02	10:45	259938	4
				259931	30
L3-17	201	12/08/02	14:20	259974	4
				259967	20
L3-11	210	12/09/02	13:15	260033	4

Optical Measurements (Edward Horne)

Once per day for the period Dec 1- Dec 8 an optical profile was made with a Biospherical Instruments Mer2040 profiler to a depth of 100m. The locations for the stations are the same as those for the PI measurements. In addition, water samples were drawn in the upper 100m of the CTD profile at the station and analyzed for Colored Dissolved Organic Matter (CDOM). CDOM was low for all stations and with chlorophyll concentrations of less than 1 micro gram per liter the water was very clear and blue light penetrated best.

Stable Isotope Studies of Carbon and Nitrogen (nitrate and ammonium) Utilization by Phytoplankton (Glen Harrison)

This work represents a continuation of research begun in 1994 to determine the primary productivity (in terms of inorganic carbon and nitrogen) of phytoplankton in the Labrador Sea. Carbon dioxide (CO₂), nitrate (NO₃) and ammonium (NH₄) utilization rate measurements, due to the expectation of icing weather conditions on deck this time of year, were modified from the standard deck incubation protocol to P-I style experiments performed in the lab, similar to those

described by J. Anning. A total of 8 experiments were conducted (see Table). Carbon and nitrogen-based primary productivity rates along the L3 line will be related to vertical fluxes of particulate biogenic carbon and nitrogen derived from our sediment trap deployed on the “Bravo” mooring in July and scheduled for recovery in July, 2003.

In addition to productivity measurements, samples from one deep cast (L3_17) were collected for determination of suspended particulate organic carbon (POC) and nitrogen (PON) from surface to ~1,000 m.

Date	Site	EV#	¹⁵ N/ ¹³ C	POC/PON
01-Dec-02	L3_01	001	X	
02-Dec-02	L3_03	013	X	
03-Dec-02	L3_10	042	X	
04-Dec-02	L3_16	077	X	
05-Dec-02	L3_20	120	X	
06-Dec-02	L3_24	153	X	
07-Dec-02	L3_21	173	X	
08-Dec-02	L3_17	201	X	X

Table. Sampling for stable isotope productivities and particulates.

Bacterial abundance and production (Paul Dickie for Dr. Bill Li)

Samples were collected for subsequent Flow Cytometric analysis from almost all depths of all CTDs at all stations occupied on the cruise. These samples were preserved with 1% final concentration of filtered paraformaldehyde and frozen in liquid nitrogen. They will be analyzed at BIO by Dr. Bill Li for marine pico-phytoplankton, bacteria and viruses.

At all stations occupied (except #s 8 and 18), water from all depths from surface down to at least 100 meters was incubated with tritiated leucine to determine rates of increase of heterotrophic (bacterial) biomass. A total of 19 Depth Profiles were obtained.

For most stations (17/24), the uppermost sample (closest to the surface) was checked for nano-zooplankton. These samples were preserved with 1% formaldehyde, filtered in 30 ml aliquots onto 0.8 micron polycarbonate filters and stained with DAPI dye. They will be kept frozen until counting can be done with a fluorescence microscope.

Zooplankton studies (Lidia Yebra Mora)

Oithona project

In order to study distribution of *Oithona* and other species in the Labrador Sea, vertical nets were performed every other station from St. Johns to Greenland along the L3 transect. Samples were collected with Bongo (63 um) and WP2 nets (200 um), from 0 to 100 m, and fixed

with formalin 4%. At PML, species abundance and distribution will be determined, and compared with the data obtained at the same time in the Irminger Sea.

Zooplankton biomass and growth

Bongo and WP2 nets were used also to collect ZP from 0-100 m, along line L3. On board, samples were fractionated by size: 63-200, 200-450, 450-1000 and >1000 µm, and frozen in liquid Nitrogen. At PML (Plymouth Marine Laboratory), biomass and structural growth will be determined. Biomass will be estimated as protein content, following the method of Lowry *et al.* (1951), modified by Rutter (1967). Growth will be approached by the method of Chang *et al.* (1984), modified by Yebra (2002). Relationship between hydrography and growth will be also studied.

Calanus finmarchicus, growth or dormancy?

When available groups of 20 CV of *C. finmarchicus* were selected from the vertical hauls and from the MultiNet, and stored in liquid Nitrogen. At PML, biomass and growth of copepods collected with vertical nets (0-100 m) will be compared with the ones from the MultiNet (0-1000 m). Growth rates will be also compared with growth of *C. finmarchicus* collected in the same period in the Irminger basin with the ARIES net.

When available, groups of 10 CV *C. finmarchicus* were collected from the Multinet tows (0-1000 m) and frozen in liquid Nitrogen. Samples will be sent to Aberdeen to analyse lipid content. Data will be also compared with the ones from the Irminger Sea, at the same period.

Stations sampled for zooplankton studies by L. Yebra Mora

Event	Station	Date	Oithona	Zooplankt	CV surf g	CV MN g	CV Mn l
3-5	L3-1	1/12/02	X	X			
10-12	L3-3	2/12/02	X	X			
15-18	L3-5	2/12/02	X	X			
28-30	L3-8	3/12/02	X	X			
37-39	L3-10	3/12/02	X	X	X	X	X
51-53	L3-12	4/12/02	X	X			
62-64	L3-14	4/12/02	X	X			
82-84	L3-16	4/12/02	X	X	X	X	X
105-107	L3-18	5/12/02	X	X			
136-138	L3-22	6/12/02	X	X			
150-152	L3-24	6/12/02	X	X	X	X	
160-162	L3-26	6/12/02	X	X			
166-168	L3-28	7/12/02	X	X			
176	L3-21	7/12/02				X	X
178-180	L3-20	7/12/02	X	X			
181	L3-19	8/12/02				X	X
	L3-13	9/12/02				X	X

Organic carbon inventory and utilization rate (J. Bugden for P. Kepkay)

In order to better understand the cycling of carbon and the mechanisms controlling it in the Labrador Sea, it is necessary to examine the pool of total organic carbon (TOC), and look at the activity of the microbial community in the water column. By examining the rate of respiration and size fractionating the TOC, information on the fate of carbon in this marine environment may be elucidated.

During CCGS Hudson cruise 2002-075 nine (9) stations were sampled at the surface and at the chlorophyll maximum (usually between 10 and 30m depth) for gross microbial community respiration, and for the same stations only the surface was sampled for size fractionation of TOC (ultrafiltration). The stations sampled are listed below. TOC depth profiles were also collected from the stations indicated in the table below.

List of stations and what was sampled by Jay Bugden on CCGS Hudson cruise 2002-075.

Station	Respiration	Ultrafiltration	DOC Profile
AR7W site 1	X	X	X
AR7W site 2			
AR7W site 3	X	X	X
AR7W site 4			
AR7W site 5			X
AR7W site 6			
AR7W site 7			X
AR7W site 8			X
AR7W site 9			
AR7W site 10	X	X	X
AR7W site 11	X	X	X
AR7W site 12			X
AR7W site 13			X
AR7W site 14			X
AR7W site 15			X
AR7W site 16	X	X	X
AR7W site 17	X	X	X
AR7W site 18			X
AR7W site 19			X
AR7W site 20	X	X	X
AR7W site 21	X	X	X
AR7W site 22			X
AR7W site 23			
AR7W site 24	X	X	X
AR7W site 25			
AR7W site 26			X
AR7W site 27			
AR7W site 28			X

Physical Oceanography (Allyn Clarke / Igor Yashayaev)

CTD stations

Full depth CTD profiles were obtained along WOCE Hydrographic Repeat section AR7W using a Seabird Model 9 dual sensor system mounted in a 24 bottle Seabird rosette. The following sensors were used on all casts:

Sensor	Primary or Secondary	Serial #	Manufacture Date
Temperature	primary	03P2129	14-Jun-2000
Conductivity	primary	041730	07-Jun-1996
Pressure		51403	20-Nov-1992
Temperature	secondary	03P2303	03-Dec-1997
Conductivity	secondary	041874	21-Feb-1997
Altimeter			
Fluorometer, chelsea		088172	10-Feb-1997
Oxygen, SBE	primary	430042	16-May-2001
Oxygen, SBE	secondary	430133	16-May-2001

The following sites were sampled

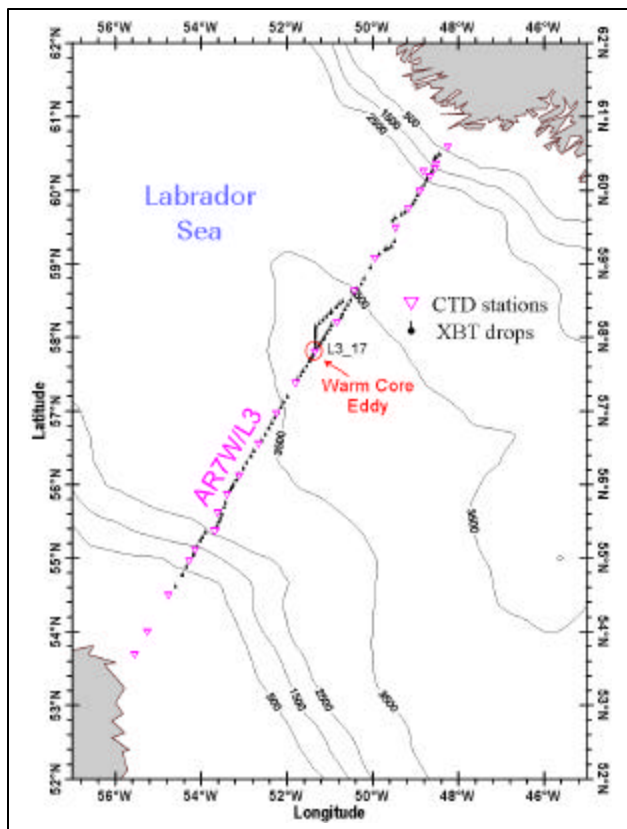
Site	Operation #	Maximum Depth	Site	Operation #	Maximum Depth
L3_01	1	full depth	L3_15	204	1600 metres
L3_02		not sampled	L3_16	79	full depth
L3_03	13	full depth	L3_17	201	2300 metres
L3_04		not sampled	L3_18	108	full depth
L3_05	15	full depth	L3_19	183	2100 metres
L3_06		not sampled	L3_20	122	full depth
L3_07	23	full depth	L3_21	173	2300 metres
L3_08	27	full depth	L3_22	135	full depth
L3_09		not sampled	L3_23	171	804 metres (splice failure)
L3_10	40	full depth	L3_24	154	full depth
L3_11	210	1450 metres	L3_25	170	full depth
L3_15	50	full depth	L3_29	159	full depth

2			6		
L3_1	207	1600 metres	L3_2		not sampled
3			7		
L3_1	66	full depth	L3_2	169	full depth
4			8		

Water samples were drawn for oxygen concentration, nutrients and salinities. The samples for oxygen and salinity were processed at sea. The nutrient samples were frozen and returned to BIO for analysis.

Thermal structure of the upper ocean from XBT (Expendable Bathythermographs).

Every spring-summer BIO carries out physical, chemical and biological observations in the Labrador Sea along WOCE Hydrographic Repeat section AR7W (map). In 2002 this line was resurveyed in the end of the year, providing unique early winter measurements of the seawater state and biomass (Cruise 2002075, CCGS Hudson, Nov.29–Dec.12, 2002, Chief scientist: Erica Head).



In addition to the CTD profiles along section AR7W/L3 (map), 105 XBT (Sparton T7) probes were dropped with a spacing of 5 miles and less providing the measurements from the sea surface to 830 m at the full cruising speed of the ship (15 knots). The vertical resolution of the measurements is 0.6-0.8 m. Continuous deployment of XBT along with the CTD casts provides a detailed thermal survey of the upper 800 m between the Labrador and Greenland shelves (the section plot is based on the data from the eastward passage of the line). A homogeneous layer up to 160 m thick created by the vertical mixing of the cold season is clearly seen through the western and central regions.

The warm ($>4.5^{\circ}\text{C}$) and salty Irminger Current (on the Greenland side), its warm core ($>6^{\circ}\text{C}$) and sharp front are clearly resolved by the XBT profiles. A chain of small eddies with the warm cores between 150 and 200 m and horizontal scales between 20 and 45 km span over 200 km

from the Irminger Current and are presumably shed from this current. This relatively deep location of their cores indicates that the cooling and mixing of the upper 150 m has also already started in the eastern part.

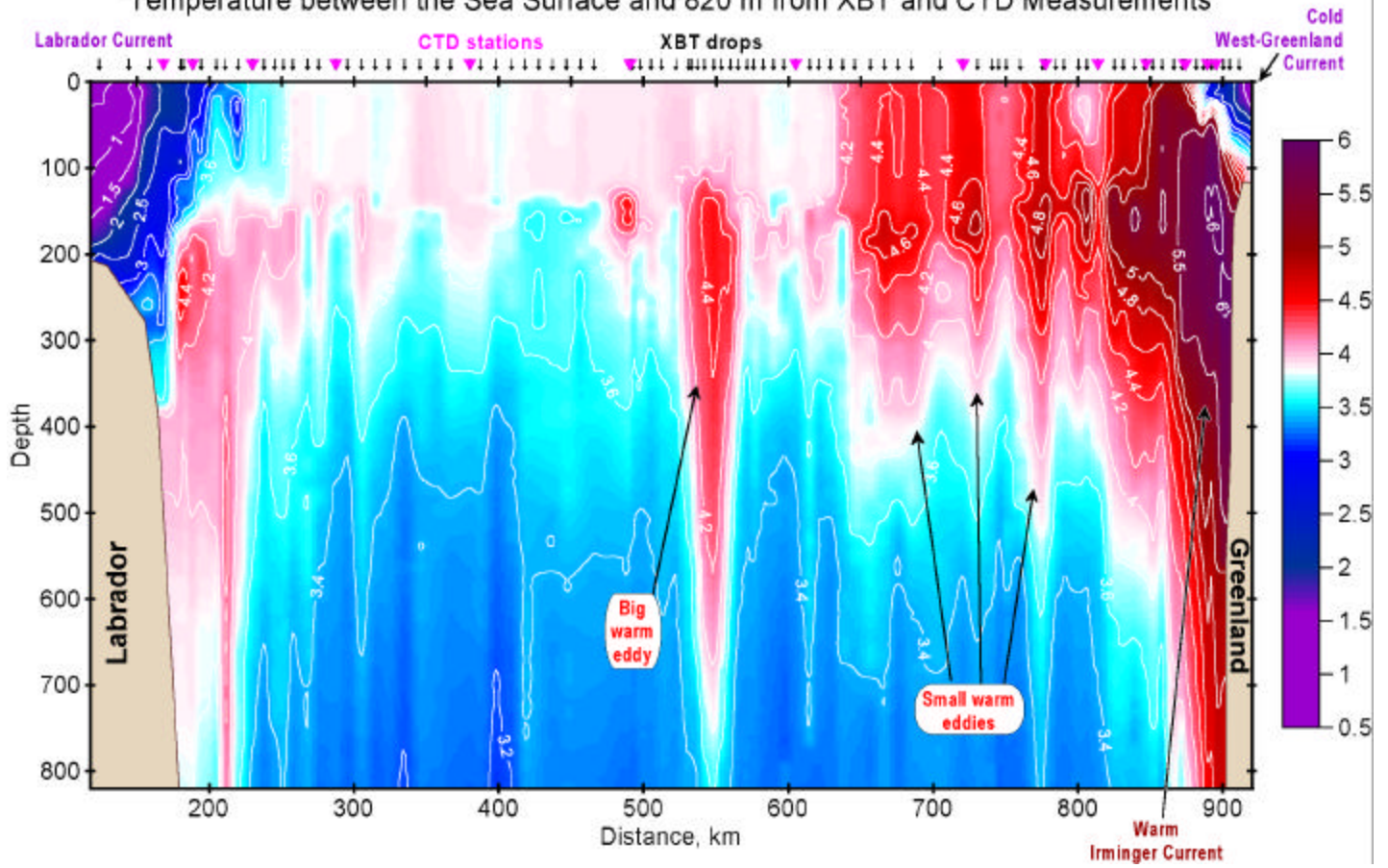
Another warm water flow can be identified offshore the Labrador slope. It is 1.6C colder than the Irminger Current, but still forms a strong contrast with the shelf and Labrador Current above and inshore. This warm flow has been strongly altered by the mixing and was capped by 150 m of cold water.

The XBT profiles collected on the eastward passage of ARW7/L3 reveal a strong warm core eddy, coincidentally centred at the deepest point in the middle of the line. This eddy was deeper than 800 m and at the crossing with the section its size was about 45 km (resolved by 12 XBT profiles). However, we were unable to identify the exact location of the centre of the eddy off to the section line. Below 110 m the eddy was up to 1C warmer the surrounding water, above 100 m the eddy was covered with cold mixed water similar to that in the other XBT profiles. Four days later after we found the eddy we dropped 16 more XBTs along a north to south section approaching L3_17 in order to better define this eddy and planned a deep CTD station at the station L3_17, where the warmest core was first found. This section captured the eddy, however it was shifted 25 km north from its previous location. The CTD cast at L3_17 8th as of December did not show any signs of the eddy (on the 4th the eddy's centre was found right at the location of L3_17, but a CTD cast wasn't conducted at that time).

Warm and cold eddies play an important role in physical and biological processes in the Labrador Sea and are well described by moored and remote measurements, however we lack direct observations of water mass and biological structure of these formations. Hence, in the planning of future missions to the Labrador Sea, we suggest to consider a research opportunity if a distinct and deep eddy was identified from XBT or remote observations.

Labrador Sea, December 2002

Temperature between the Sea Surface and 820 m from XBT and CTD Measurements



CCHDO Data Processing Notes

Date	Person	Data Type	Action	Summary
2013-12-02	Staff, CCHDO	CrsRpt	Website Update	Available under 'Files as received' The following files are now available online under 'Files as received', unprocessed by the CCHDO. cr2002075.pdf
2013-12-02	Staff, CCHDO	CTD	Website Update	Available under 'Files as received' The following files are now available online under 'Files as received', unprocessed by the CCHDO. 18HU20021129_CTD.zip

2014-06-09 Lee, Rox Maps Website Update Map created
 =====
 18HU20021129 processing - Maps
 =====

2014-06-09

R Lee

.. contents:: :depth: 2

Process

=====

- Maps created from 18HU20021129_CTD.zip

Directories

=====

:working directory:

/data/co2clivar/atlantic/ar07w/ar07w_18HU20021129/original/2014.06.09_Maps_RJL

:cruise directory:

/data/co2clivar/atlantic/ar07w/ar07w_18HU20021129

Updated Files Manifest

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file stamp

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18HU20021129_trk.jpg

18HU20021129_trk.gif

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2014-06-18 Kappa, Jerry CrsRpt Website Update PDF version online

I've placed a new PDF version of the cruise report: 18HU20021129do.pdf

into the directory: http://cchdo.ucsd.edu/data/co2clivar/atlantic/ar07w/ar07w_18HU20021129/

It includes all the reports provided by the cruise PIs, summary pages and CCHDO data processing notes, as well as a linked Table of Contents and links to figures, tables and appendices.