

GLOBEC CRUISE REPORT

Cruise WEC0307a, July 5-13, 2003

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Scientific Purpose:

The purpose of the NE Pacific GLOBEC Program is to develop a mechanistic understanding of the response of this marine ecosystem to climate variability. Toward that end, the GLOBEC cruises on the Gulf of Alaska shelf will determine the physical-chemical structure, primary production, the distribution and abundance of zooplankton, YOY salmon, other planktivorous fishes, and marine birds and mammals. These interdisciplinary cruises will occur over a seven-year period and throughout the year so that seasonal and interannual comparisons of the oceanography of this shelf can be made. Some of the data will be compared with historical data sets, whereas other data sets will be a product of the first systematic sampling effort from this shelf.

The July 2003 cruise marked the fourth July cruise conducted as part of the Gulf of Alaska GLOBEC program Long Term Observation Program (LTOP). Cruise activities concentrated on physical oceanography (circulation and thermohaline structure), nutrient and chlorophyll concentrations, zooplankton, microzooplankton, seabird and marine mammal distributions. Zooplankton were sampled for C-N stable isotope composition and experiments were established to estimate zooplankton growth rates and egg production and primary production. July characterizes mid-summer in the northern Gulf of Alaska, well past the peak of the spring phytoplankton bloom.

Cruise Objectives:

1. Determine thermohaline, velocity, and nutrient structure of the Gulf of Alaska shelf, emphasizing Seward Line, C. Fairfield Line, Prince William Sound stations, and offshore PWS stations (Table 1). Other lines as time permits.
2. Determine primary production and phytoplankton biomass distribution.
3. Determine the distribution and abundance of zooplankton and microzooplankton.
4. Determine the distribution and abundance of seabirds and marine mammals.
5. Determine copepod and euphausiid rates of growth and egg production.
6. Characterize the carbon and nitrogen stable isotope concentrations in zooplankton.

SAMPLING

DAYTIME ACTIVITIES

1. Occupied the hydrographic transects (Table 1) and collected vertical CTD-chlorophyll-PAR profiles.
2. Collected ADCP, sea surface salinity (SSS), temperature (SST) and fluorescence (SSF) using seacrest sensors,
3. Collected discrete bottle samples at these stations for nutrients and chlorophyll pigments. Chlorophyll Size Fractionation was done at the whole numbered Seward Line stations and at every other C. Fairfield Line station.
4. Measured Primary Productivity at Stations GAK1, GAK4, GAK9, GAK13, and KIP2.
5. Observed and documented marine mammal and seabird distributions from the bridge.
6. One CalVet Net cast was done (the CalVet frame has 4 nets) on the Seward Line stations and at selected PWS stations. There were two fine mesh nets (.053mm) and two large mesh nets (.150mm) on each tow.
7. At Seward Line stations GAK1, GAK4, GAK9, GAK13) and KIP2 station Liu performed 3-6 casts with the 10-liter Niskins/Rosette to collect water (from 10-20m) for zooplankton incubations. This was accompanied by two to three ring net tows over the upper 50m.
8. We did deep MOCNESS tows (to 600 m) near the end of the Seward Line at station GAK13 and at station PWS2.
9. Performed a number of neuston tows with a 1-m surface trawl.

NIGHTTIME ACTIVITIES

1. Hydroacoustic samples and MOCNESS discrete samples were taken along the Seward Line, and at select PWS and Hinchinbrook Entrance Stations (see Event Log for details).
2. In addition to the normal .5mm mesh nets, fine mesh nets (.100 mm) were swapped into the MOCNESS at intermittent stations for euphausiid collection.

A detailed sampling schedule is contained in the Cruise Event Log appended to this report.

Cruise Chronology:

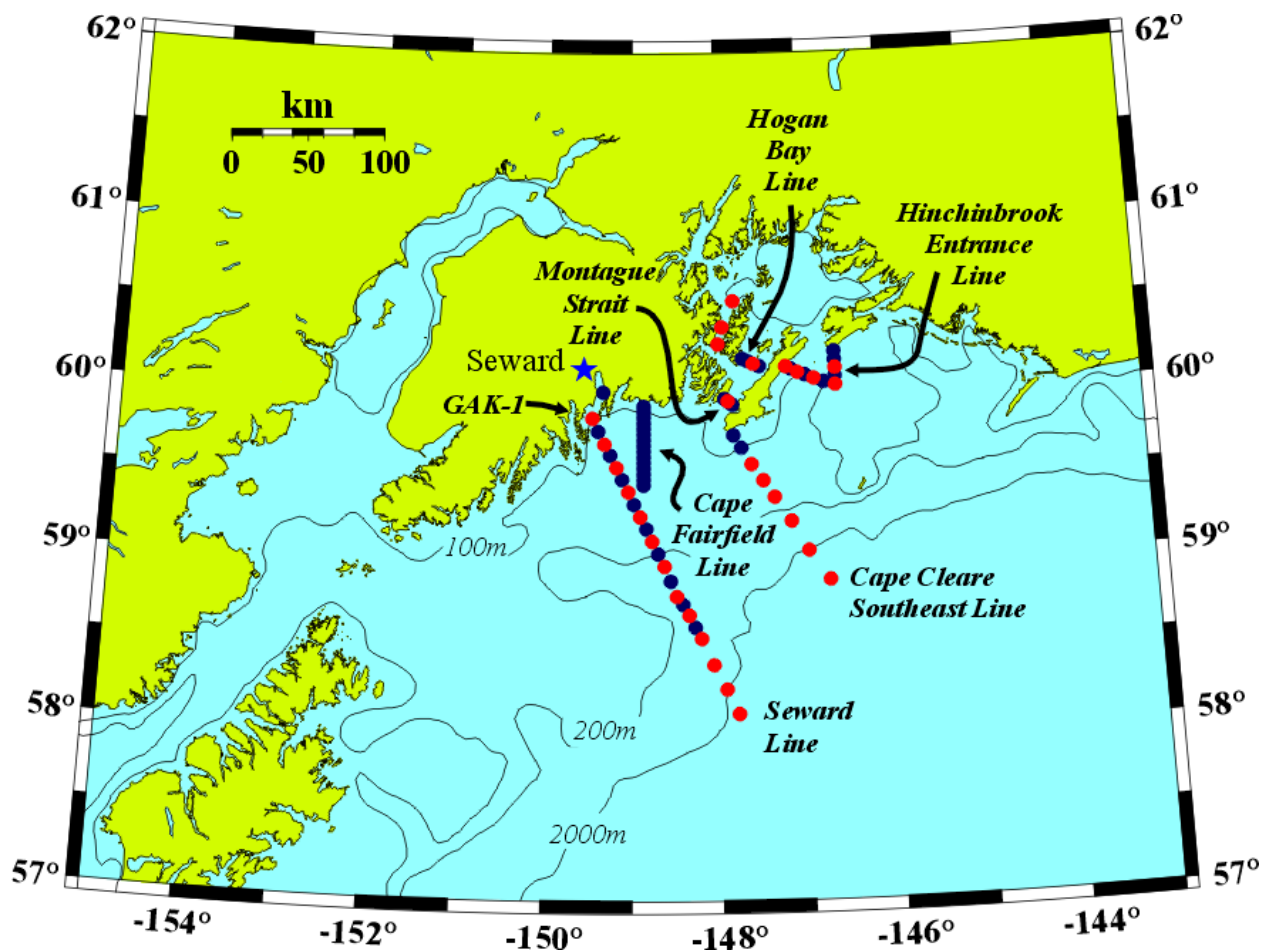
For the first time, we occupied the LTOP stations on the UNOLS vessel the R/V Wecoma. We departed from Seward on July 5 and began sampling on the Seward Line, working our way from inshore to offshore. Weather cooperated nicely and we finished Seward Line work on 7/10. On our way to Prince William Sound, S. Danielson tripped going through the door leading to the main deck and injured his left elbow, we dropped him off in Seward that night and he received treatment for a fractured radial head in the left forearm. Upon leaving Seward we then commenced work on Hinchinbrook Entrance Line on July 11 and then to the Prince William Sound stations on July 12 and July 13 and finally terminated the cruise on July 13 back in Seward.

Table 1.

NEP GLOBEC LTOP STANDARD STATIONS				
Latitude N (degrees, minutes)		Longitude W (degrees, minutes)		Station Name
<i>Resurrection Bay Station</i>				
60	1.5	149	21.5	RES2.5
<i>Seward Line</i>				
59	50.7	149	28	GAK1
59	46	149	23.8	GAK1I
59	41.5	149	19.6	GAK2
59	37.6	149	15.5	GAK2I
59	33.2	149	11.3	GAK3
59	28.9	149	7.1	GAK3I
59	24.5	149	2.9	GAK4
59	20.1	148	58.7	GAK4I
59	15.7	148	54.5	GAK5
59	11.4	148	50.3	GAK5I
59	7	148	46.2	GAK6
59	2.7	148	42	GAK6I
58	58.3	148	37.8	GAK7
58	52.9	148	33.6	GAK7I
58	47.5	148	29.4	GAK8
58	44.6	148	25.2	GAK8I
58	40.8	148	21	GAK9
58	36.7	148	16.7	GAK9I
58	32.5	148	12.7	GAK10
58	23.3	148	4.3	GAK11
58	14.6	147	56	GAK12
58	5.9	147	47.6	GAK13
<i>Cape Fairfield Line</i>				
59	54.5	148	52	CF1
59	53	148	52	CF2
59	51	148	52	CF3
59	49	148	52	CF4
59	47	148	52	CF5
59	45	148	52	CF6
59	43	148	52	CF7
59	41	148	52	CF8
59	39	148	52	CF9
59	37	148	52	CF10
59	35	148	52	CF11
59	33	148	52	CF12

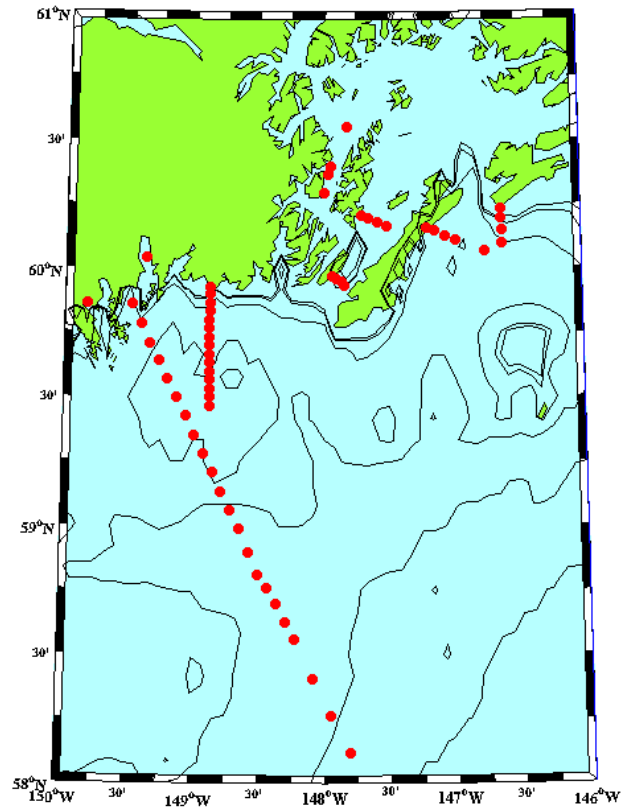
59	31	148	52	CF13
59	29	148	52	CF14
59	27	148	52	CF15
Prince William Sound Stations				
60	22.78	147	56.17	PWS1
60	32.1	147	48.2	PWS2
Knight Island Passage Station				
60	16.7	147	59.2	KIP2
Hogan Bay Line				
60	11.57	147	42	HB1
60	10.754	147	38.5	HB2
60	9.855	147	34.508	HB3
60	8.807	147	30.04	HB4
Montague Strait Line				
59	57.465	147	56.225	MS0i
59	57.257	147	55.602	MS1
59	56.982	147	54.761	MS1i
59	56.6	147	53.7	MS2
59	56.282	147	52.633	MS2i
59	55.9	147	51.4	MS3
59	55.56	147	50.611	MS3i
59	55.2	147	49.7	MS4
Hinchinbrook Entrance Line				
60	13	146	36.5	HE1
60	10.8	146	36.5	HE2
60	7.8	146	36.5	HE3
60	4.8	146	36.5	HE4
60	3.126	146	44.19	HE6.5
60	5.6	146	57.7	HE8
60	6.6	147	3	HE9
60	7.8	147	8	HE10
60	8.6	147	11.5	HE11
Cape Cleare Southeast				
59	44.5	147	49	CCSE1
59	40	147	43.6	CCSE2
59	34.25	147	36.5	CCSE3
59	28.5	147	28.5	CCSE4
59	22.5	147	21	CCSE5
59	14	147	9.5	CCSE6
59	3.5	146	58	CCSE7
58	53	146	44	CCSE8

NEP GLOBEC Standard Station Map

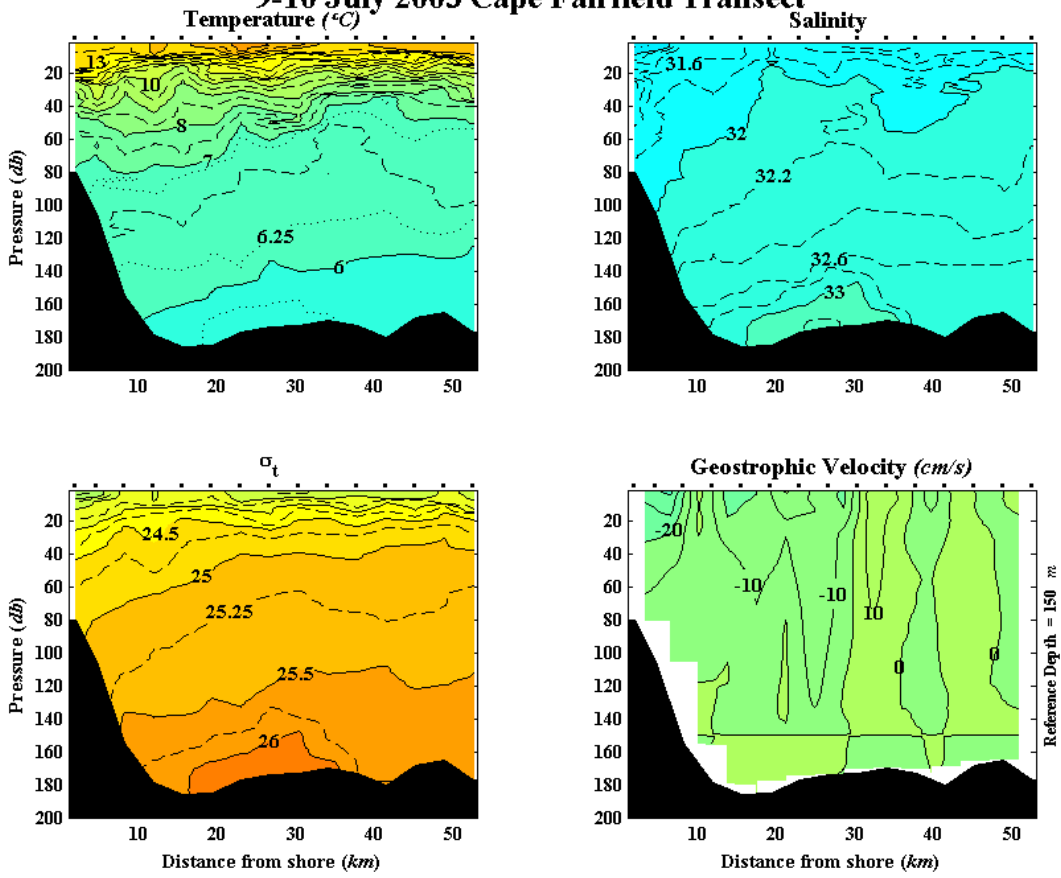


Note: The Cape Cleare Southeast Line is a standard line only in select cruises during the Process Study sampling years.

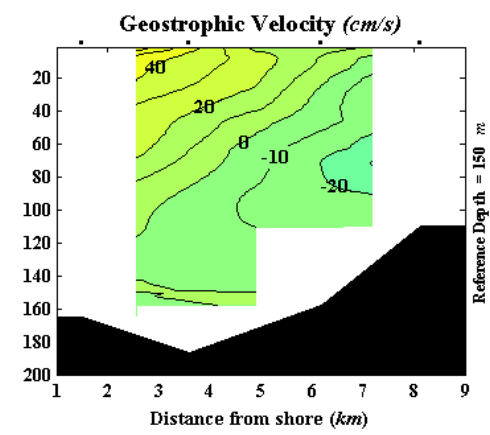
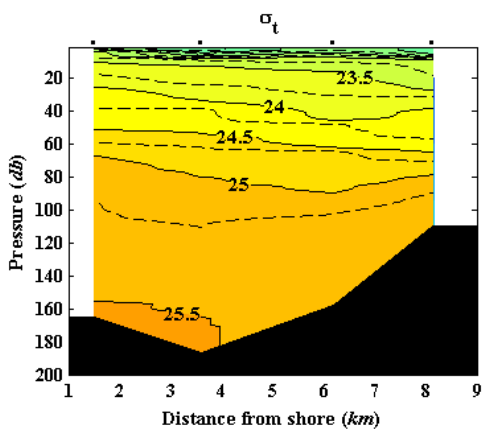
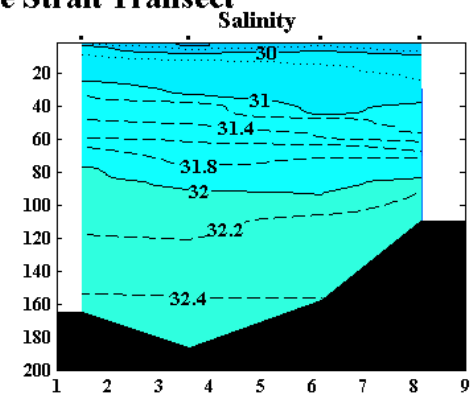
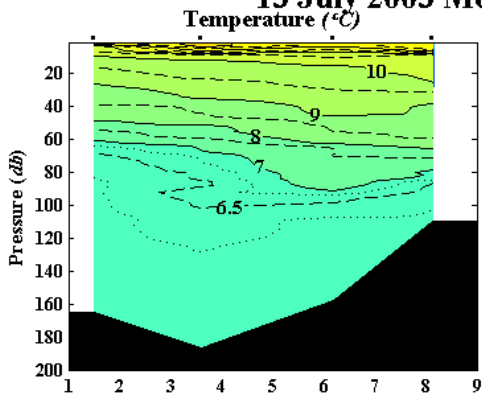
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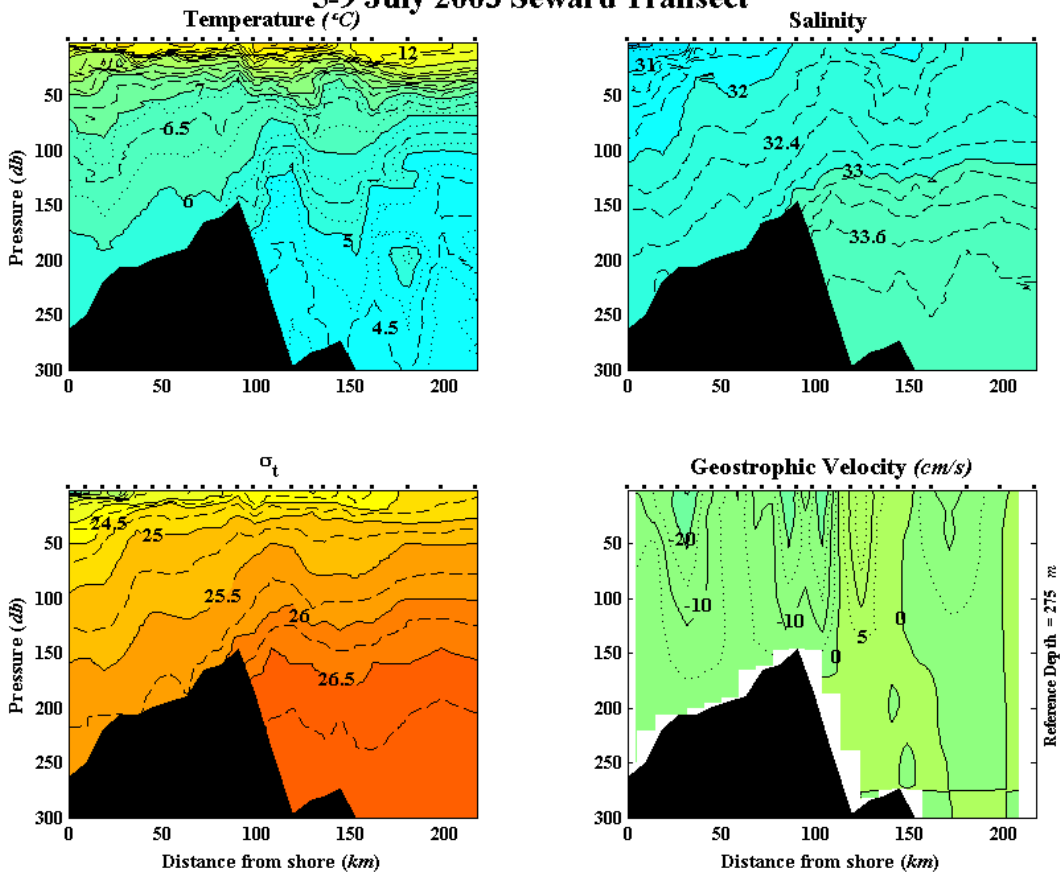
9-10 July 2003 Cape Fairfield Transect



13 July 2003 Montague Strait Transect



5-9 July 2003 Seward Transect



Unless otherwise noted, CTDs were taken for T. Weingartner and T. Royer.
 Water samples taken for T. Whitledge and D. Stockwell Nutrient and Chlorophyll analysis.
 CalVet samples were taken for K. Coyle and R. Hopcroft.
 HTI and MOCNESS samples were taken for K. Coyle.
 Ring Net samples were taken for R. Hopcroft and K. Coyle.

event	Description	Station	Date	GMT	lat	lon	Depth	si	comments
W0307a18603.01	CTD1-Start	GAK1	7/5/03	1827	59.8449	149.4668	269	Weingartner	
W0307a18603.02	CTD1-End	GAK1	7/5/03	1827	59.8449	149.4668	269	Weingartner	
W0307a18603.03	CTD2-Start	GAK1	7/5/03	1923	59.8449	149.4668	271	Hopcroft	zoop cast 1
W0307a18603.04	CTD2-End	GAK1	7/5/03	1926	59.8449	149.4666	271	Hopcroft	
W0307a18603.05	CTD3-Start	GAK1	7/5/03	2000	59.8449	149.4668	271	Hopcroft	zoop cast 2
W0307a18603.06	CTD3-End	GAK1	7/5/03	2007	59.8449	149.4666	271	Hopcroft	
W0307a18603.07	CTD4-Start	GAK1	7/5/03	2029	59.8451	149.4670	271	Hopcroft	zoop cast 3
W0307a18603.08	CTD4-End	GAK1	7/5/03	2033	59.8451	149.4670	271	Hopcroft	
W0307a18603.09	CTD5-Start	GAK1	7/5/03	2103	59.8452	149.4668	272	Stockwell	prim prod
W0307a18603.10	CTD5-End	GAK1	7/5/03	2113	59.8450	149.4661	272	Stockwell	
W0307a18603.11	CTD6-Start	GAK1	7/5/03	2133	59.8449	149.4662	272	Hopcroft	zoop cast 4
W0307a18603.12	CTD6-End	GAK1	7/5/03	2143	59.8449	149.4666	272	Hopcroft	
W0307a18603.13	CTD7-Start	GAK1	7/5/03	2207	59.8446	149.4666	272	Hopcroft	zoop cast 5
W0307a18603.14	CTD7-End	GAK1	7/5/03	2223	59.8447	149.4656	272	Hopcroft	
W0307a18603.15	CalVET Net Tow-Start	GAK1	7/5/03	2242	59.8453	149.4660	272	Hopcroft	
W0307a18603.16	CalVET Net Tow-End	GAK1	7/5/03	2250	59.8446	149.4673	272	Hopcroft	
W0307a18603.17	Ring Net-Start	GAK1	7/5/03	2252	59.8452	149.4652	272	Hopcroft	ring 1
W0307a18603.18	Ring Net-End	GAK1	7/5/03	2300	59.8452	149.4652	272	Hopcroft	
W0307a18603.19	Ring Net-Start	GAK1	7/5/03	2304	59.8450	149.4663	272	Hopcroft	ring 2
W0307a18603.20	Ring Net-End	GAK1	7/5/03	2311	59.8442	149.4675	272	Hopcroft	
W0307a18603.21	Ring Net-Start	GAK1	7/5/03	2312	59.8445	149.4674	272	Hopcroft	ring 3
W0307a18603.22	Ring Net-End	GAK1	7/5/03	2319	59.8445	149.4674	272	Hopcroft	
W0307a18603.23	Ring Net-Start	GAK1	7/5/03	2328	59.8435	149.4688	272	Hopcroft	
W0307a18603.24	Ring Net-End	GAK1	7/5/03	2328	59.8435	149.4688	272	Hopcroft	
W0307a18603.25	Neuston NIO- Start	GAK1	7/5/03	2330	59.8447	149.4686	272	Hopcroft	
W0307a18603.26	Neuston NIO- End	GAK1	7/5/03	2340	59.8535	149.4713	272	Hopcroft	
W0307a18703.01	HTI Transect start	GAK1	7/6/03	0051	59.8804	148.4360	272	Coyle	
W0307a18703.02	HTI Transect end	GAK1	7/6/03	0132	59.9410	148.3900	272	Coyle	
W0307a18703.03	CTD8 start	RES2.5	7/6/03	0207	60.0258	148.3580	299	Weingartner	
W0307a18703.04	CTD8 end	RES2.5	7/6/03	0237	60.0258	148.3580	299	Weingartner	
W0307a18703.05	CTD9-Start	GAK2	7/6/03	0515	59.6920	149.3268	230	Weingartner	
W0307a18703.06	CTD9-End	GAK2	7/6/03	0539	59.6916	149.3267	230	Weingartner	
W0307a18703.07	CalVET Net Tow-Start	GAK2	7/6/03	0548	59.6916	149.3267	230	Hopcroft	
W0307a18703.08	CalVET Net Tow-End	GAK2	7/6/03	0554	59.6917	149.3268	230	Hopcroft	
W0307a18703.09	CTD10-Start	GAK1I	7/6/03	0628	59.7664	149.3967	262	Weingartner	
W0307a18703.10	CTD10-End	GAK1I	7/6/03	0701	59.7658	149.3940	262	Weingartner	

W0307a18703.11	Mocness-Start	GAK1	7/6/04	0749	59.8409	149.4620	272	Coyle	
W0307a18703.12	Mocness-End	GAK1	7/6/05	0844	59.8168	149.4280	272	Coyle	
W0307a18703.13	HTI Transect-Start	GAK1	7/6/03	0947	59.8162	149.4452	262	Coyle	
W0307a18703.14	HTI Transect-End	GAK2	7/6/03	1108	59.6902	149.3235	225	Coyle	
W0307a18703.15	MOCNESS-Start	GAK2	7/6/03	1201	59.6893	149.3250	225	Coyle	
W0307a18703.16	MOCNESS-End	GAK2	7/6/03	1242	59.7115	149.3551	225	Coyle	
W0307a18703.17	HTI Transect-Start	GAK2	7/6/03	1311	59.6907	149.3253	225	Coyle	
W0307a18703.18	HTI Transect-End	GAK3	7/6/03	1441	59.5533	149.1888	217	Coyle	
W0307a18703.19	CTD11-Start	GAK4	7/6/03	1556	59.4092	149.0477	203	Weingartner	
W0307a18703.20	CTD11-End	GAK4	7/6/03	1617	59.4086	149.0482	203	Weingartner	
W0307a18703.21	CTD12-Start	GAK4	7/6/03	1634	59.4085	149.0481	203	Stockwell	prim prod cast
W0307a18703.22	CTD12-End	GAK4	7/6/03	1643	59.4082	149.0484	203	Stockwell	
W0307a18703.23	CTD13-Start	GAK4	7/6/03	1705	59.4083	149.0478	203	Hopcroft	zoop cast 1
W0307a18703.24	CTD13-End	GAK4	7/6/03	1712	59.4084	149.0479	203	Hopcroft	
W0307a18703.25	CTD14-Start	GAK4	7/6/03	1727	59.4084	149.0480	203	Hopcroft	zoop cast 2
W0307a18703.26	CTD14-End	GAK4	7/6/03	1730	59.4084	149.0479	203	Hopcroft	
W0307a18703.27	CTD15-Start	GAK4	7/6/03	1744	59.4085	149.0479	203	Hopcroft	zoop cast 3
W0307a18703.28	CTD15-End	GAK4	7/6/03	1748	59.4085	149.0476	203	Hopcroft	
W0307a18703.29	CTD16-Start	GAK4	7/6/03	1803	59.4084	149.0473	203	Hopcroft	zoop cast 4
W0307a18703.30	CTD16-End	GAK4	7/6/03	1806	59.4084	149.0473	203	Hopcroft	
W0307a18703.31	CTD17-Start	GAK4	7/6/03	1822	59.4084	149.0478	203	Hopcroft	zoop cast 5
W0307a18703.32	CTD17-End	GAK4	7/6/03	1825	59.4085	149.0478	203	Hopcroft	
W0307a18703.33	Ring Net-Start	GAK4	7/6/03	1841	59.4084	149.0476	203	Hopcroft	ring 1
W0307a18703.34	Ring Net-End	GAK4	7/6/03	1847	59.4084	149.0476	203	Hopcroft	
W0307a18703.35	Ring Net-Start	GAK4	7/6/03	1849	59.4083	149.0477	203	Hopcroft	ring 2
W0307a18703.36	Ring Net-End	GAK4	7/6/03	1856	59.4084	149.0474	203	Hopcroft	
W0307a18703.37	Ring Net-Start	GAK4	7/6/03	1901	59.4081	149.0486	203	Hopcroft	ring 3
W0307a18703.38	Ring Net-End	GAK4	7/6/03	1906	59.4081	149.0482	203	Hopcroft	
W0307a18703.39	CalVET Net Tow-Start	GAK4	7/6/03	1914	59.4083	149.0491	203	Hopcroft	
W0307a18703.40	CalVET Net Tow-End	GAK4	7/6/03	1922	59.4085	149.0484	203	Hopcroft	
W0307a18703.41	Neuston NIO-Start	GAK4	7/6/03	1930	59.4087	149.0492	203	Hopcroft	
W0307a18703.42	Neuston NIO-End	GAK4	7/6/03	1947	59.4129	149.0682	203	Hopcroft	
W0307a18703.43	CTD18-Start	GAK3I	7/6/03	2015	59.4816	149.1189	206	Weingartner	
W0307a18703.44	CTD18-End	GAK3I	7/6/03	2030	59.4820	149.1190	206	Weingartner	
W0307a18703.45	CTD19-Start	GAK3	7/6/03	2112	59.5532	149.1888	214	Weingartner	
W0307a18703.46	CTD19-End	GAK3	7/6/03	2135	59.5535	149.1872	214	Weingartner	
W0307a18703.47	Neuston NIO-Start	GAK3	7/6/03	2136	59.5541	149.1879	214	Hopcroft	
W0307a18703.48	Neuston NIO-End	GAK3	7/6/03	2147	59.5578	149.1994	214	Hopcroft	
W0307a18703.49	CalVET Net Tow-Start	GAK3	7/6/03	2202	59.5529	149.1851	215	Hopcroft	
W0307a18703.50	CalVET Net Tow-End	GAK3	7/6/03	2208	59.5524	149.1837	215	Hopcroft	

W0307a18703.51	CTD20-Start	GAK2I	7/6/03	2248	59.6264	149.2587	215	Weingartner	
W0307a18703.52	CTD20-End	GAK2I	7/6/03	2306	59.6265	149.2574	215	Weingartner	
W0307a18803.01	CTD21-Start	GAK4I	7/7/03	0054	59.3347	148.9792	199	Weingartner	
W0307a18803.02	CTD21-End	GAK4I	7/7/03	0107	59.3349	148.9784	199	Weingartner	
W0307a18803.03	CTD22-Start	GAK5	7/7/03	0148	59.2616	148.9100	174	Weingartner	
W0307a18803.04	CTD22-End	GAK5	7/7/03	0203	59.2617	148.9086	172	Weingartner	
W0307a18803.05	CalVET Net Tow-Start	GAK5	7/7/03	0213	59.2618	148.9091	172	Hopcroft	
W0307a18803.06	CalVET Net Tow-End	GAK5	7/7/03	0217	59.2619	148.9091	172	Hopcroft	
W0307a18803.07	Neuston NIO-Start	GAK5	7/7/03	0222	59.2618	148.9112	172	Blamey	
W0307a18803.08	Neuston NIO-Start	GAK5	7/7/03	0233	59.2595	148.9213	172	Blamey	
W0307a18803.09	HTI Transect-Start	GAK8	7/7/03	0533	58.7916	148.4912	280	Coyle	
W0307a18803.10	HTI Transect-End	GAK9	7/7/03	0745	58.6793	148.3492	280	Coyle	
W0307a18803.11	MOCNESS-Start	GAK9	7/7/03	0749	58.6759	148.3453	280	Coyle	
W0307a18803.12	MOCNESS-End	GAK9	7/7/03	0838	58.6428	148.3035	280	Coyle	
W0307a18803.13	HTI Transect-Start	GAK9	7/7/03	0935	58.6790	148.3516	280	Coyle	
W0307a18803.14	HTI Transect-End	GAK10	7/7/03	1105	58.5394	148.2089	1426	Coyle	
W0307a18803.15	MOCNESS-Start	GAK10	7/7/03	1115	58.5351	148.2191	1426	Coyle	
W0307a18803.16	MOCNESS-End	GAK10	7/7/03	1157	58.5232	148.2661	1426	Coyle	
W0307a18803.17	HTI Transect-Start	GAK10	7/7/03	1238	58.5440	148.2151	1426	Coyle	
W0307a18803.18	HTI Transect-End	GAK11	7/7/03	1419	58.3854	148.0723	1434	Coyle	
W0307a18803.19	CTD23-Start	GAK9	7/7/03	1637	58.6795	148.3499	282	Stockwell	prim prod
W0307a18803.20	CTD23-End	GAK9	7/7/03	1646	58.6799	148.3499	282	Stockwell	
W0307a18803.21	CTD24-Start	GAK9	7/7/03	1706	58.6800	148.3498	280	Weingartner	
W0307a18803.22	CTD24-End	GAK9	7/7/03	1729	58.6799	148.3498	280	Weingartner	
W0307a18803.23	CTD25-Start	GAK9	7/7/03	1743	58.6800	148.3497	280	Hopcroft	zoop cast 1
W0307a18803.24	CTD25-End	GAK9	7/7/03	1748	58.6800	148.3497	280	Hopcroft	
W0307a18803.25	CTD26-Start	GAK9	7/7/03	1803	58.6800	148.3492	280	Hopcroft	zoop cast 2
W0307a18803.26	CTD26-End	GAK9	7/7/03	1807	58.6799	148.3492	280	Hopcroft	
W0307a18803.27	CTD27-Start	GAK9	7/7/03	1822	58.6800	148.3499	280	Hopcroft	zoop cast 3
W0307a18803.28	CTD27-End	GAK9	7/7/03	1825	58.6800	148.3498	280	Hopcroft	
W0307a18803.29	CTD28-Start	GAK9	7/7/03	1841	58.6797	148.3493	280	Hopcroft	zoop cast 4
W0307a18803.30	CTD28-End	GAK9	7/7/03	1844	58.6797	148.3490	280	Hopcroft	
W0307a18803.31	CTD29-Start	GAK9	7/7/03	1900	58.6800	148.3495	280	Hopcroft	zoop cast 5
W0307a18803.32	CTD29-End	GAK9	7/7/03	1903	58.6798	148.3494	280	Hopcroft	
W0307a18803.33	Ring Net-Start	GAK9	7/7/03	1920	58.6799	148.3501	282	Hopcroft	
W0307a18803.34	Ring Net-End	GAK9	7/7/03	1927	58.6800	148.3501	282	Hopcroft	
W0307a18803.35	Ring Net-Start	GAK9	7/7/03	1928	58.6800	148.3501	282	Hopcroft	
W0307a18803.36	Ring Net-End	GAK9	7/7/03	1933	58.6798	148.3496	282	Hopcroft	
W0307a18803.37	Ring Net-Start	GAK9	7/7/03	1935	58.6798	148.3502	282	Hopcroft	
W0307a18803.38	Ring Net-End	GAK9	7/7/03	1940	58.6797	148.3496	282	Hopcroft	

W0307a18803.39	CalVet Net-Start	GAK9	7/7/03	1947	58.6798	148.3503	282	Hopcroft	
W0307a18803.40	CalVet Net-End	GAK9	7/7/03	1952	58.6794	148.3497	282	Hopcroft	
W0307a18803.41	Neuston NIO-Start	GAK9	7/7/03	2000	58.6794	148.3548	282	Blamey	
W0307a18803.42	Neuston NIO-End	GAK9	7/7/03	2011	58.6765	148.3654	282	Blamey	
W0307a18803.43	CTD30-Start	GAK9I	7/7/03	2044	58.6109	148.2785	689	Weingartner	
W0307a18803.44	CTD30-End	GAK9I	7/7/03	2114	58.6099	148.2797	689	Weingartner	
W0307a18803.45	CTD31-Start	GAK10	7/7/03	2151	58.5416	148.2133	1472	Weingartner	
W0307a18803.46	CTD31-End	GAK10	7/7/03	2245	58.5414	148.2128	1472	Weingartner	
W0307a18803.47	Neuston NIO-Start	GAK10	7/7/03	2252	58.5413	148.2169	1472	Blamey	
W0307a18803.48	Neuston NIO-End	GAK10	7/7/03	2302	58.5363	148.2267	1472	Blamey	
W0307a18803.49	CalVET Net Tow-Start	GAK10	7/7/03	2316	58.5413	148.2107	1472	Hopcroft	
W0307a18803.50	CalVET Net Tow-End	GAK10	7/7/03	2321	58.5412	148.2125	1472	Hopcroft	
W0307a18903.01	CalVET Net Tow-End	GAK10	7/8/03	0019	58.3880	148.0726	1472	Hopcroft	
W0307a18903.02	CTD32-Start	GAK11	7/8/03	0023	58.3880	148.0726	1433	Weingartner	
W0307a18903.03	CTD32-End	GAK11	7/8/03	0125	58.3884	148.0715	1433	Weingartner	
W0307a18903.04	CalVET Net Tow-Start	GAK11	7/8/03	0130	58.3883	148.0715	1436	Hopcroft	
W0307a18903.05	CalVET Net Tow-End	GAK11	7/8/03	0135	58.3884	148.0715	1436	Hopcroft	
W0307a18903.06	Neuston NIO-Start	GAK11	7/8/03	0141	58.3893	148.0738	1436	Blamey	
W0307a18903.07	Neuston NIO-End	GAK11	7/8/03	0151	58.3855	148.0827	1436	Blamey	
W0307a18903.08	CTD33-Start	GAK12	7/8/03	0250	58.2434	147.9335	2171	Weingartner	
W0307a18903.09	CTD33-End	GAK12	7/8/03	0406	58.2436	147.9332	2171	Weingartner	
W0307a18903.10	CalVET Net Tow-Start	GAK12	7/8/03	0410	58.2436	147.9333	2166	Hopcroft	
W0307a18903.11	CalVET Net Tow-End	GAK12	7/8/03	0418	58.2436	147.9339	2166	Hopcroft	
W0307a18903.12	Neuston NIO-Start	GAK12	7/8/03	0421	58.2432	147.9361	2166	Blamey	
W0307a18903.13	Neuston NIO-End	GAK12	7/8/03	0432	58.2446	147.9472	2166	Blamey	
W0307a18903.14	MOCNESS-Start	GAK11	7/8/03	0705	58.4000	148.0143	1456	Coyle	
W0307a18903.15	MOCNESS-End	GAK11	7/8/03	0749	58.3912	148.0577	1456	Coyle	
W0307a18903.16	HTI Transect-Start	GAK11	7/8/03	0801	58.3878	148.0740	1456	Coyle	
W0307a18903.17	HTI Transect-End	GAK12	7/8/03	0944	58.2425	147.9331	2175	Coyle	
W0307a18903.18	MOCNESS-Start	GAK12	7/8/03	0949	58.2393	147.9261	2175	Coyle	
W0307a18903.19	MOCNESS-End	GAK12	7/8/03	1037	58.2526	147.8730	2175	Coyle	
W0307a18903.20	HTI Transect-Start	GAK12	7/8/03	1109	58.2416	147.9330	2175	Coyle	
W0307a18903.21	HTI Transect-End	GAK13	7/8/03	1248	58.0995	147.7945	2089	Coyle	

W0307a18903.22	MOCNESS-Start	GAK13	7/8/03	1256	58.0958	147.7908	2089	Coyle	
W0307a18903.23	MOCNESS-End	GAK13	7/8/03	1340	58.0760	147.7670	2089	Coyle	
W0307a18903.24	MOCNESS-Start	GAK13	7/8/03	1428	58.0871	147.7679	2089	Coyle	
W0307a18903.25	MOCNESS-End	GAK13	7/8/03	1615	58.1126	147.8122	2089	Coyle	
W0307a18903.26	CTD34-Start	GAK13	7/8/03	1631	58.0981	147.7943	2076	Stockwell	prim prod
W0307a18903.27	CTD34-End	GAK13	7/8/03	1641	58.0980	147.7941	2076	Stockwell	
W0307a18903.28	CTD35-Start	GAK13	7/8/03	1726	58.0978	147.7945	2076	Weingartner	
W0307a18903.29	CTD35-End	GAK13	7/8/03	1837	58.0990	147.7953	2094	Weingartner	
W0307a18903.30	CTD36-Start	GAK13	7/8/03	1854	58.0978	147.7922	2094	Hopcroft	zoop cast 1
W0307a18903.31	CTD36-End	GAK13	7/8/03	1856	58.0980	147.7926	2094	Hopcroft	
W0307a18903.32	CTD37-Start	GAK13	7/8/03	1909	58.0977	147.7929	2094	Hopcroft	zoop cast 2
W0307a18903.33	CTD37-End	GAK13	7/8/03	1912	58.0980	147.7930	2094	Hopcroft	
W0307a18903.34	CTD38-Start	GAK13	7/8/03	1925	58.0981	147.7926	2094	Hopcroft	zoop cast 4
W0307a18903.35	CTD38-End	GAK13	7/8/03	1928	58.0984	147.7932	2094	Hopcroft	
W0307a18903.36	CTD39-Start	GAK13	7/8/03	1943	58.0982	147.7930	2094	Hopcroft	zoop cast 4
W0307a18903.37	CTD39-End	GAK13	7/8/03	1946	58.0985	147.7935	2094	Hopcroft	
W0307a18903.38	Ring Net-Start	GAK13	7/8/03	2001	58.0987	147.7924	2094	Hopcroft	
W0307a18903.39	Ring Net-End	GAK13	7/8/03	2006	58.0994	147.7936	2094	Hopcroft	
W0307a18903.40	Ring Net-Start	GAK13	7/8/03	2008	58.0997	147.7942	2094	Hopcroft	
W0307a18903.41	Ring Net-End	GAK13	7/8/03	2012	58.1006	147.7958	2094	Hopcroft	
W0307a18903.42	Ring Net-Start	GAK13	7/8/03	2016	58.1013	147.7970	2094	Hopcroft	
W0307a18903.43	Ring Net-End	GAK13	7/8/03	2018	58.1020	147.7980	2094	Hopcroft	
W0307a18903.44	CalVET Net Tow-Start	GAK13	7/8/03	2028	58.1045	147.8014	2094	Hopcroft	
W0307a18903.45	CalVET Net Tow-End	GAK13	7/8/03	2035	58.1059	147.8038	2094	Hopcroft	
W0307a18903.46	Neuston NIO-Start	GAK13	7/8/03	2041	58.1064	147.8031	2094	Blamey	
W0307a18903.47	Neuston NIO-End	GAK13	7/8/03	2051	58.1035	147.7959	2094	Blamey	
W0307a18903.48	Ring Net-Start	GAK13	7/8/03	2055	58.1030	147.7956	2094	Hopcroft	
W0307a18903.49	Ring Net-End	GAK13	7/8/03	2059	58.1034	147.7963	2094	Hopcroft	
W0307a19003.01	CTD40-Start	GAK8I	7/9/03	0054	58.7427	148.4205	291	Weingartner	
W0307a19003.02	CTD40-End	GAK8I	7/9/03	0112	58.7429	148.4205	291	Weingartner	
W0307a19003.03	CTD41-Start	GAK8	7/9/03	0141	58.7916	148.4910	293	Weingartner	
W0307a19003.04	CTD41-End	GAK8	7/9/03	0209	58.7910	148.4916	293	Weingartner	
W0307a19003.05	CalVET Net Tow-Start	GAK8	7/9/03	0213	58.7910	148.4916	293	Hopcroft	
W0307a19003.06	CalVET Net Tow-End	GAK8	7/9/03	0219	58.7918	148.4935	293	Hopcroft	
W0307a19003.07	Neuston NIO-Start	GAK8	7/9/03	0226	58.7911	148.4880	293	Blamey	
W0307a19003.08	Neuston NIO-End	GAK8	7/9/03	0233	58.7901	148.4818	293	Blamey	
W0307a19003.09	CTD42-Start	GAK7I	7/9/03	0313	58.8818	148.5600	307	Weingartner	
W0307a19003.10	CTD42-End	GAK7I	7/9/03	0335	58.8817	148.5598	307	Weingartner	
W0307a19003.11	CTD43-Start	GAK7	7/9/03	0413	58.9717	148.6303	248	Weingartner	
W0307a19003.12	CTD43-End	GAK7	7/9/03	0433	58.9720	148.6305	248	Weingartner	
W0307a19003.13	CalVET Net Tow-Start	GAK7	7/9/03	0440	58.9712	148.6296	245	Hopcroft	

W0307a19003.14	CalVET Net Tow-End	GAK7	7/9/03	0444	58.9713	148.6296	245	Hopcroft	
W0307a19003.15	Neuston NIO- Start	GAK7	7/9/03	0451	58.9710	148.6296	245	Blamey	
W0307a19003.16	Neuston NIO- End	GAK7	7/9/03	0501	58.9659	148.6316	245	Blamey	
W0307a19003.17	MOCNESS- Start	GAK8	7/9/03	0732	58.8152	148.5086	295	Coyle	
W0307a19003.18	MOCNESS- End	GAK8	7/9/03	0805	58.7944	148.4882	295	Coyle	
W0307a19003.19	HTI Transect- Start	GAK8	7/9/03	0823	58.7937	148.4916	295	Coyle	
W0307a19003.20	HTI Transect- End	GAK7	7/9/03	1034	58.9738	148.6313	248	Coyle	
W0307a19003.21	MOCNESS- Start	GAK7	7/9/03	1036	58.9749	148.6314	248	Coyle	
W0307a19003.22	MOCNESS- End	GAK7	7/9/03	1128	58.9808	148.6974	248	Coyle	
W0307a19003.23	HTI Transect- Start	GAK7	7/9/03	1208	58.9744	148.6327	248	Coyle	
W0307a19003.24	HTI Transect- End	GAK6	7/9/03	1342	59.1146	148.7682	154	Coyle	
W0307a19003.25	MOCNESS- Start	GAK6	7/9/03	1347	59.1187	148.7653	154	Coyle	
W0307a19003.26	MOCNESS- End	GAK6	7/9/03	1423	59.1076	148.7238	154	Coyle	
W0307a19003.27	CTD44-Start	GAK6I	7/9/03	1501	59.0447	148.6999	193	Weingartner	
W0307a19003.28	CTD44-End	GAK6I	7/9/03	1518	59.0449	148.7014	193	Weingartner	
W0307a19003.29	CTD45-Start	GAK6	7/9/03	1552	59.1167	148.7710	153	Weingartner	
W0307a19003.30	CTD45-End	GAK6	7/9/03	1614	59.1168	148.7706	153	Weingartner	
W0307a19003.31	CalVET Net Tow-Start	GAK6	7/9/03	1618	59.1169	148.7695	153	Hopcroft	
W0307a19003.32	CalVET Net Tow-End	GAK6	7/9/03	1625	59.1170	148.7714	153	Hopcroft	
W0307a19003.33	Neuston NIO- Start	GAK6	7/9/03	1630	59.1171	148.7710	153	Blamey	
W0307a19003.34	Neuston NIO- End	GAK6	7/9/03	1640	59.1170	148.7642	153	Blamey	
W0307a19003.35	CTD46-Start	GAK5I	7/9/03	1717	59.1898	148.8373	169	Weingartner	
W0307a19003.36	CTD46-End	GAK5I	7/9/03	1735	59.1897	148.8387	169	Weingartner	
W0307a19003.37	CTD47-Start	CF15	7/9/03	1901	59.4501	148.8663	185	Weingartner	
W0307a19003.38	CTD47-End	CF15	7/9/03	1921	59.4501	148.8662	185	Weingartner	
W0307a19003.39	CTD48-Start	CF14	7/9/03	1935	59.4834	148.8664	173	Weingartner	
W0307a19003.40	CTD48-End	CF14	7/9/03	1947	59.4833	148.8665	173	Weingartner	
W0307a19003.41	CTD49-Start	CF13	7/9/03	2005	59.5168	148.8666	175	Weingartner	
W0307a19003.42	CTD49-End	CF13	7/9/03	2017	59.5167	148.8665	175	Weingartner	
W0307a19003.43	CTD50-Start	CF12	7/9/03	2035	59.5506	148.8678	187	Weingartner	
W0307a19003.44	CTD50-End	CF12	7/9/03	2050	59.5500	148.8646	187	Weingartner	
W0307a19003.45	CTD51-Start	CF11	7/9/03	2104	59.5833	148.8646	179	Weingartner	
W0307a19003.46	CTD51-End	CF11	7/9/03	2118	59.5833	148.8646	179	Weingartner	
W0307a19003.47	CTD52-Start	CF10	7/9/03	2133	59.6168	148.8667	179	Weingartner	
W0307a19003.48	CTD52-End	CF10	7/9/03	2144	59.6174	148.8662	179	Weingartner	
W0307a19003.49	CTD53-Start	CF9	7/9/03	2201	59.6499	148.8663	180	Weingartner	
W0307a19003.50	CTD53-End	CF9	7/9/03	2214	59.6506	148.8662	180	Weingartner	
W0307a19003.51	CTD54-Start	CF8	7/9/03	2231	59.6836	148.8659	180	Weingartner	

W0307a19003.52	CTD54-End	CF8	7/9/03	2244	59.6840	148.8665	180	Weingartner	
W0307a19003.53	CTD55-Start	CF7	7/9/03	2259	59.7165	148.8663	183	Weingartner	
W0307a19003.54	CTD55-End	CF7	7/9/03	2312	59.7164	148.8653	183	Weingartner	
W0307a19003.55	CTD56-Start	CF6	7/9/03	2329	59.7500	148.8669	191	Weingartner	
W0307a19003.56	CTD56-End	CF6	7/9/03	2344	59.7560	148.8669	191	Weingartner	
W0307a19003.57	CTD57-Start	CF5	7/9/03	2359	59.7837	148.8682	194	Weingartner	
W0307a19103.01	CTD57-End	CF5	7/10/03	0014	59.7837	148.8668	194	Weingartner	
W0307a19103.02	CTD58-Start	CF4	7/10/03	0030	59.8166	148.8674	185	Weingartner	
W0307a19103.03	CTD58-End	CF4	7/10/03	0042	59.8161	148.8662	185	Weingartner	
W0307a19103.04	CTD59-Start	CF3	7/10/03	0100	59.8499	148.8677	162	Weingartner	
W0307a19103.05	CTD59-End	CF3	7/10/03	0111	59.8499	148.8683	162	Weingartner	
W0307a19103.06	CTD60-Start	CF2	7/10/03	0126	59.8830	148.8687	114	Weingartner	
W0307a19103.07	CTD60-End	CF2	7/10/03	0138	59.8822	148.8683	114	Weingartner	
W0307a19103.08	CTD61-Start	CF1	7/10/03	0156	59.9086	148.8665	85	Weingartner	
W0307a19103.09	CTD61-End	CF1	7/10/03	0208	59.9085	148.8670	85	Weingartner	
W0307a19103.10	CTD62-Start	GAK1	7/10/03	0359	59.8445	149.4671	274	Weingartner	
W0307a19103.11	CTD62-End	GAK1	7/10/03	0415	59.8441	149.4668	274	Weingartner	
W0307a19103.12	Neuston NIO-Start	GAK1	7/10/03	0424	59.8417	149.4656	274	Blamey	
W0307a19103.13	Neuston NIO-End	GAK1	7/10/03	0434	59.8357	149.4633	274	Blamey	
W0307a19103.14	Neuston NIO-Start	GAK2	7/10/03	0533	59.6893	149.3296	280	Blamey	
W0307a19103.15	Neuston NIO-End	GAK2	7/10/03	0539	59.6847	149.3349	280	Blamey	
W0307a19103.16	MOCNESS-Start	GAK3	7/10/03	0705	59.5795	149.1383	209	Coyle	
W0307a19103.17	MOCNESS-End	GAK3	7/10/03	0739	59.5673	149.1639	209	Coyle	
W0307a19103.18	HTI Transect-Start	GAK3	7/10/03	0758	59.5518	149.1861	209	Coyle	
W0307a19103.19	HTI Transect-End	GAK4	7/10/03	0936	59.4070	149.0465	202	Coyle	
W0307a19103.20	MOCNESS-Start	GAK4	7/10/03	0938	59.4052	149.0432	202	Coyle	
W0307a19103.21	MOCNESS-End	GAK4	7/10/03	1022	59.4001	148.9861	202	Coyle	
W0307a19103.22	HTI Transect-Start	GAK4	7/10/03	1057	59.4071	149.0489	202	Coyle	
W0307a19103.23	HTI Transect-End	GAK5	7/10/03	1231	59.2593	148.9125	170	Coyle	
W0307a19103.24	MOCNESS-Start	GAK5	7/10/03	1235	59.2572	148.9157	170	Coyle	
W0307a19103.25	MOCNESS-End	GAK5	7/10/03	1312	59.2458	148.9586	170	Coyle	
W0307a19103.26	HTI Transect-Start	GAK5	7/10/03	1339	59.2618	148.9091	170	Coyle	
W0307a19103.27	HTI Transect-End	GAK6	7/10/03	1512	59.1159	148.7693	152	Coyle	
W0307a19103.28	ADCP Line-Start	CF15	7/10/03	1710	59.4551	148.8666	184	Weingartner	
W0307a19103.29	ADCP Line-End	CF1	7/10/03	2052	59.9089	148.8665	88	Weingartner	
W0307a19203.01	CTD63-Start	HE11	7/11/03	1512	60.1434	147.1921	175	Weingartner	
W0307a19203.02	CTD63-End	HE11	7/11/03	1537	60.1433	147.1916	175	Weingartner	
W0307a19203.03	CTD64-Start	HE10	7/11/03	1556	60.1295	147.1334	218	Weingartner	

W0307a19203.04	CTD64-End	HE10	7/11/03	1618	60.1298	147.1333	218	Weingartner	
W0307a19203.05	CalVET Net Tow-Start	HE10	7/11/03	1641	60.1300	147.1333	218	Hopcroft	
W0307a19203.06	CalVET Net Tow-End	HE10	7/11/03	1647	60.1299	147.1333	218	Hopcroft	
W0307a19203.07	Neuston NIO-Start	HE10	7/11/03	1653	60.1294	147.1308	218	Blamey	
W0307a19203.08	Neuston NIO-End	HE10	7/11/03	1703	60.1272	147.1213	218	Blamey	
W0307a19203.09	CTD65-Start	HE9	7/11/03	1724	60.1110	147.0505	280	Weingartner	
W0307a19203.10	CTD65-End	HE9	7/11/03	1744	60.1110	147.0505	280	Weingartner	
W0307a19203.11	CTD66-Start	HE8	7/11/03	1810	60.0933	146.9606	150	Weingartner	
W0307a19203.12	CTD66-End	HE8	7/11/03	1833	60.0940	146.9507	150	Weingartner	
W0307a19203.13	CTD67-Start	HE6.5	7/11/03	1915	60.0524	146.7360	127	Weingartner	
W0307a19203.14	CTD67-End	HE6.5	7/11/03	1928	60.0528	146.7351	127	Weingartner	
W0307a19203.15	CalVET Net Tow-Start	HE6.5	7/11/03	1938	60.0522	146.7362	127	Hopcroft	
W0307a19203.16	CalVET Net Tow-End	HE6.5	7/11/03	1945	60.0520	146.7357	127	Hopcroft	
W0307a19203.17	Neuston NIO-Start	HE6.5	7/11/03	1947	60.0506	146.7365	127	Blamey	
W0307a19203.18	Neuston NIO-End	HE6.5	7/11/03	1957	60.0466	146.7405	127	Blamey	
W0307a19203.19	CTD68-Start	HE4	7/11/03	2035	60.0801	146.6082	120	Weingartner	
W0307a19203.20	CTD68-End	HE4	7/11/03	2045	60.0799	146.6081	120	Weingartner	
W0307a19203.21	CalVET Net Tow-Start	HE4	7/11/03	2051	60.0800	146.6086	120	Hopcroft	
W0307a19203.22	CalVET Net Tow-End	HE4	7/11/03	2058	60.0800	146.6087	120	Hopcroft	
W0307a19203.23	Neuston NIO-Start	HE4	7/11/03	2103	60.0811	146.6134	120	Blamey	
W0307a19203.24	Neuston NIO-End	HE4	7/11/03	2113	60.0806	146.6232	120	Blamey	
W0307a19203.25	CTD69-Start	HE3	7/11/03	2139	60.1303	146.6076	118	Weingartner	
W0307a19203.26	CTD69-End	HE3	7/11/03	2149	60.1286	146.6089	118	Weingartner	
W0307a19203.27	CTD70-Start	HE2	7/11/03	2322	60.1795	146.6081	195	Weingartner	
W0307a19203.28	CTD70-End	HE2	7/11/03	2334	60.1801	146.6085	195	Weingartner	
W0307a19203.29	CalVET Net Tow-Start	HE2	7/11/03	2345	60.1796	146.6094	195	Weingartner	
W0307a19203.30	CTD71-Start	HE2	7/11/03	2354	60.1797	146.6072	195	Weingartner	
W0307a19303.01	CTD71-End	HE2	7/12/03	0015	60.1796	146.6073	195	Weingartner	
W0307a19303.02	Neuston NIO-Start	HE2	7/12/03	0018	60.1809	146.6056	195	Blamey	
W0307a19303.03	Neuston NIO-End	HE2	7/12/03	0029	60.1854	146.5994	195	Blamey	
W0307a19303.04	CTD72-Start	HE1	7/12/03	0050	60.2167	146.6083	81	Weingartner	
W0307a19303.05	CTD72-End	HE1	7/12/03	0100	60.2166	146.6084	81	Weingartner	
W0307a19303.06	MOCNESS-Start	PWS2	7/12/03	0521	60.5362	147.8009	751	Coyle	
W0307a19303.07	MOCNESS-End	PWS2	7/12/03	0647	60.5801	147.7319	751	Coyle	
W0307a19303.08	MOCNESS-Start	PWS2	7/12/03	0725	60.5675	147.7517	751	Coyle	
W0307a19303.09	MOCNESS-End	PWS2	7/12/03	0758	60.5528	147.7747	751	Coyle	
W0307a19303.10	MOCNESS-	PWS1	7/12/03	0949	60.3894	147.9298	352	Coyle	

	Start								
W0307a19303.11	MOCNESS-End	PWS1	7/12/03	1037	60.3568	147.9495	352	Coyle	
W0307a19303.12	CTD73-Start	PWS1	7/12/03	1052	60.3522	147.9534	352	Coyle	no ending record for CTD73
W0307a19303.13	MOCNESS-Start	KIP2	7/12/03	1137	60.2723	147.9899	588	Coyle	
W0307a19303.14	MOCNESS-End	KIP2	7/12/03	1216	60.2458	147.9923	588	Coyle	
W0307a19303.15	CTD74-Start	KIP2	7/12/03	1338	60.2781	147.9868	590	Weingartner	
W0307a19303.16	CTD74-End	KIP2	7/12/03	1419	60.2783	147.9866	590	Weingartner	
W0307a19303.17	CTD75-Start	KIP2	7/12/03	1507	60.2783	147.9866	590	Hopcroft	zoop 1
W0307a19303.18	CTD75-End	KIP2	7/12/03	1513	60.2783	147.9866	590	Hopcroft	
W0307a19303.19	CTD76-Start	KIP2	7/12/03	1525	60.2783	147.9865	590	Hopcroft	zoop2
W0307a19303.20	CTD76-End	KIP2	7/12/03	1531	60.2783	147.9866	590	Hopcroft	
W0307a19303.21	CTD77-Start	KIP2	7/12/03	1545	60.2783	147.9866	590	Hopcroft	zoop3
W0307a19303.22	CTD77-End	KIP2	7/12/03	1549	60.2783	147.9868	590	Hopcroft	
W0307a19303.23	CTD78-Start	KIP2	7/12/03	1603	60.2785	147.9866	590	Hopcroft	zoop4
W0307a19303.24	CTD78-End	KIP2	7/12/03	1608	60.2784	147.9865	590	Hopcroft	
W0307a19303.25	CTD79-Start	KIP2	7/12/03	1628	60.2785	147.9865	590	Stockwell	prim prod
W0307a19303.26	CTD79-End	KIP2	7/12/03	1635	60.2784	147.9861	590	Stockwell	
W0307a19303.27	CalVET Net Tow-Start	KIP2	7/12/03	1648	60.2779	147.9873	590	Hopcroft	
W0307a19303.28	CalVET Net Tow-End	KIP2	7/12/03	1658	60.2781	147.9859	590	Hopcroft	
W0307a19303.29	Ring Net-Start	KIP2	7/12/03	1658	60.2782	147.9860	590	Hopcroft	
W0307a19303.30	Ring Net-End	KIP2	7/12/03	1702	60.2784	147.9863	590	Hopcroft	
W0307a19303.31	Ring Net-Start	KIP2	7/12/03	1705	60.2784	147.9863	590	Hopcroft	
W0307a19303.32	Ring Net-End	KIP2	7/12/03	1712	60.2784	147.9863	590	Hopcroft	time changed from 1719->1712
W0307a19303.33	Ring Net-Start	KIP2	7/12/03	1716	60.2784	147.9863	590	Hopcroft	time changed from 1712->1716
W0307a19303.34	Ring Net-End	KIP2	7/12/03	1719	60.2784	147.9859	590	Hopcroft	time changed from 1716->1719
W0307a19303.35	Neuston NIO-Start	KIP2	7/12/03	1722	60.2798	147.9849	590	Blamey	
W0307a19303.36	Neuston NIO-End	KIP2	7/12/03	1733	60.2861	147.9825	590	Blamey	
W0307a19303.37	CTD80-Start	PWS2	7/12/03	1903	60.5351	147.8028	745	Weingartner	
W0307a19303.38	CTD80-End	PWS2	7/12/03	1948	60.5350	147.8033	745	Weingartner	
W0307a19303.39	CalVET Net Tow-Start	PWS2	7/12/03	1952	60.5350	147.8030	745	Hopcroft	
W0307a19303.40	CalVET Net Tow-End	PWS2	7/12/03	1956	60.5350	147.8030	745	Hopcroft	
W0307a19303.41	Neuston NIO-Start	PWS2	7/12/03	2002	60.3205	147.4830	745	Blamey	
W0307a19303.42	Neuston NIO-End	PWS2	7/12/03	2015	60.3170	147.4870	745	Blamey	
W0307a19303.43	CTD81-Start	PWS1	7/12/03	2108	60.3793	147.9363	355	Weingartner	
W0307a19303.44	CTD81-End	PWS1	7/12/03	2127	60.3794	147.9371	355	Weingartner	
W0307a19303.45	CalVET Net Tow-Start	PWS1	7/12/03	2132	60.3788	147.9374	355	Hopcroft	

W0307a19303.46	CalVET Net Tow-End	PWS1	7/12/03	2138	60.3791	147.9363	355	Hopcroft	
W0307a19303.47	Neuston NIO-Start	PWS1	7/12/03	2140	60.3781	147.9373	355	Blamey	
W0307a19303.48	Neuston NIO-End	PWS1	7/12/03	2152	60.3713	147.9402	355	Blamey	
W0307a19403.01	CTD82-Start	MS1	7/13/03	0018	59.9538	147.9268	172	Weingartner	
W0307a19403.02	CTD82-End	MS1	7/13/03	0025	59.9538	147.9268	172	Weingartner	
W0307a19403.03	CTD83-Start	MS2	7/13/03	0055	59.9424	147.8962	180	Weingartner	
W0307a19403.04	CTD83-End	MS2	7/13/03	0109	59.9432	147.8956	180	Weingartner	
W0307a19403.05	CalVET Net Tow-Start	MS2	7/13/03	0118	59.9435	147.8961	180	Hopcroft	
W0307a19403.06	CalVET Net Tow-End	MS2	7/13/03	0122	59.9434	147.8963	180	Hopcroft	
W0307a19403.07	Neuston NIO-Start	MS2	7/13/03	0124	59.9439	147.8960	180	Blamey	
W0307a19403.08	Neuston NIO-End	MS2	7/13/03	0134	59.9485	147.8940	180	Blamey	
W0307a19403.09	CTD84-Start	MS3	7/13/03	0155	59.9316	147.8555	180	Weingartner	
W0307a19403.10	CTD84-End	MS3	7/13/03	0208	59.9314	147.8556	180	Weingartner	
W0307a19403.11	CTD85-Start	MS4	7/13/03	0226	59.9201	147.8282	118	Weingartner	
W0307a19403.12	CTD85-End	MS4	7/13/03	0240	59.9199	147.8284	118	Weingartner	
W0307a19403.13	CTD86-Start	HB1	7/13/03	0414	60.1923	147.6998	250	Weingartner	
W0307a19403.14	CTD86-End	HB1	7/13/03	0437	60.1924	147.6983	250	Weingartner	
W0307a19403.15	CTD87-Start	HB2	7/13/03	0458	60.1791	147.6405	173	Weingartner	
W0307a19403.16	CTD87-End	HB2	7/13/03	0512	60.1794	147.6407	177	Weingartner	
W0307a19403.17	CalVET Net Tow-Start	HB2	7/13/03	0518	60.1795	147.6404	177	Hopcroft	
W0307a19403.18	CalVET Net Tow-End	HB2	7/13/03	0523	60.1796	147.6403	177	Hopcroft	
W0307a19403.19	Neuston NIO-Start	HB2	7/13/03	0528	60.1792	147.6409	177	Blamey	
W0307a19403.20	Neuston NIO-End	HB2	7/13/03	0537	60.1766	147.6461	177	Blamey	
W0307a19403.21	CTD88-Start	HB3	7/13/03	0605	60.1642	147.5757	93	Weingartner	
W0307a19403.22	CTD88-End	HB3	7/13/03	0618	60.1649	147.5749	93	Weingartner	
W0307a19403.23	CTD89-Start	HB4	7/13/03	0640	60.1468	147.5007	111	Weingartner	
W0307a19403.24	CTD89-End	HB4	7/13/03	0651	60.1469	147.5003	111	Weingartner	
W0307a19403.25	MOCNESS-Start	HB2	7/13/03	0738	60.1800	147.6709	261	Coyle	
W0307a19403.26	MOCNESS-End	HB2	7/13/03	0828	60.1517	147.7433	261	Coyle	
W0307a19403.27	MOCNESS-Start	MS2	7/13/03	0959	59.9461	147.9001	192	Coyle	
W0307a19403.28	MOCNESS-End	MS2	7/13/03	1033	59.9264	147.9157	192	Coyle	
W0307a19403.29	ADCP Line-Start	MS2	7/13/03	1052	59.9107	147.9633	192	Coyle	
W0307a19403.30	ADCP Line-End	HA	7/13/03	1907	59.8423	149.6100	140	Weingartner	End in Holgate Arm
W0307a19403.31	CTD90-Start	HA	7/13/03	1907	60.1468	147.5007	111	Weingartner	
W0307a19403.32	CTD90-End	HA	7/13/03	1916	60.1469	147.5003	111	Weingartner	
W0307a19503.01	CTD91-Start	GAK1	7/14/03	0008	59.8454	149.4652	274	Weingartner	
W0307a19503.02	CTD91-End	GAK1	7/14/03	0022	59.8451	149.4659	274	Weingartner	
W0307a19503.03	CTD92-Start	RES2.5	7/14/03	0158	60.0246	149.3590	300	Weingartner	

W0307a19503.04	CTD92-End	RES2.5	7/14/03	0214	60.0248	149.3589	300	Weingartner	
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