

GLOBEC CRUISE REPORT

Cruise HX272, May 23 – June 1, 2003

Funding Source: NSF-NOAA (NA-67-RJ-0147)

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Scientific Personnel:

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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 May 2003 cruise was the sixth May 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, 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. May characterizes late spring/early summer conditions in the Gulf of Alaska.

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.
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.
7. Retrieve gravity cores at select sites for UF researchers.

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.

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:

We departed from the IMS dock at 0906 on 23 May, made test casts with the CTD, MOCNESS and HTI at station RES2.5 and began sampling out the line from GAK1. We worked the Seward Line over the course of the next 5 days with the help of good weather, with winds generally 15 kts or less. On 26 May, we returned to Seward to have medical personnel examine the injured right ankle of scientist, M. Rhor, who fell in the general lab. Completed Seward Line work on 28 May and then proceeded to the Cape Fairfield Line. After the Fairfield Line, on the way to the Hinchinbrook entrance line, we did a gravity core at station 102 for W. Vienne. We finished the Hinchinbrook Entrance work on 29 May, did three more bottom cores and then began our work in Prince William Sound at station PWS2. After completing the Montague Strait stations on 31 May, we were able to also complete the Pye Island transect before heading back to Seward on 1 June.

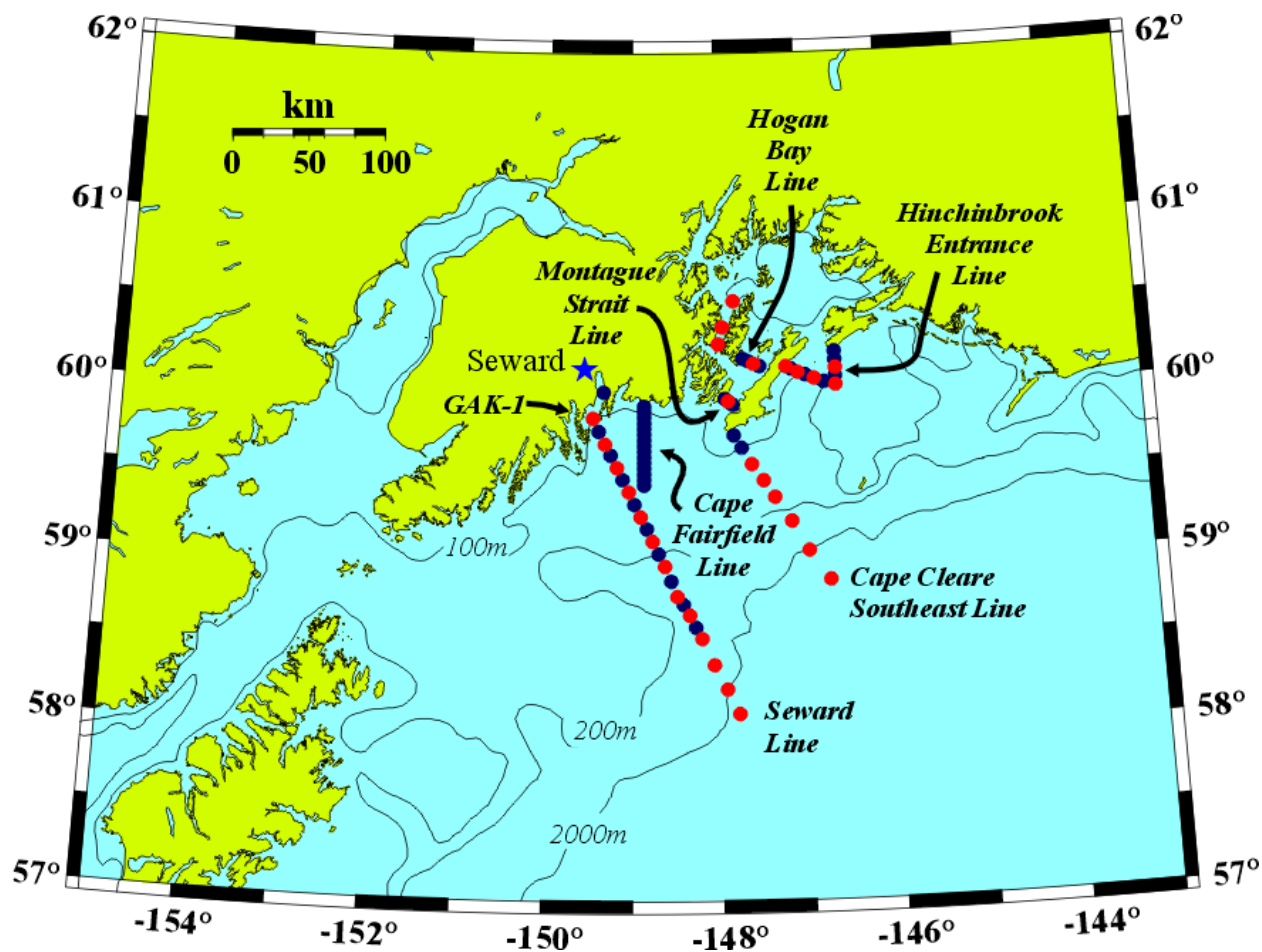
Table 1.

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
<i>Prince William Sound Stations</i>				
60	22.78	147	56.17	PWS1
60	32.1	147	48.2	PWS2
<i>Knight Island Passage Station</i>				
60	16.7	147	59.2	KIP2
<i>Hogan Bay Line</i>				
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
<i>Montague Strait Line</i>				
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

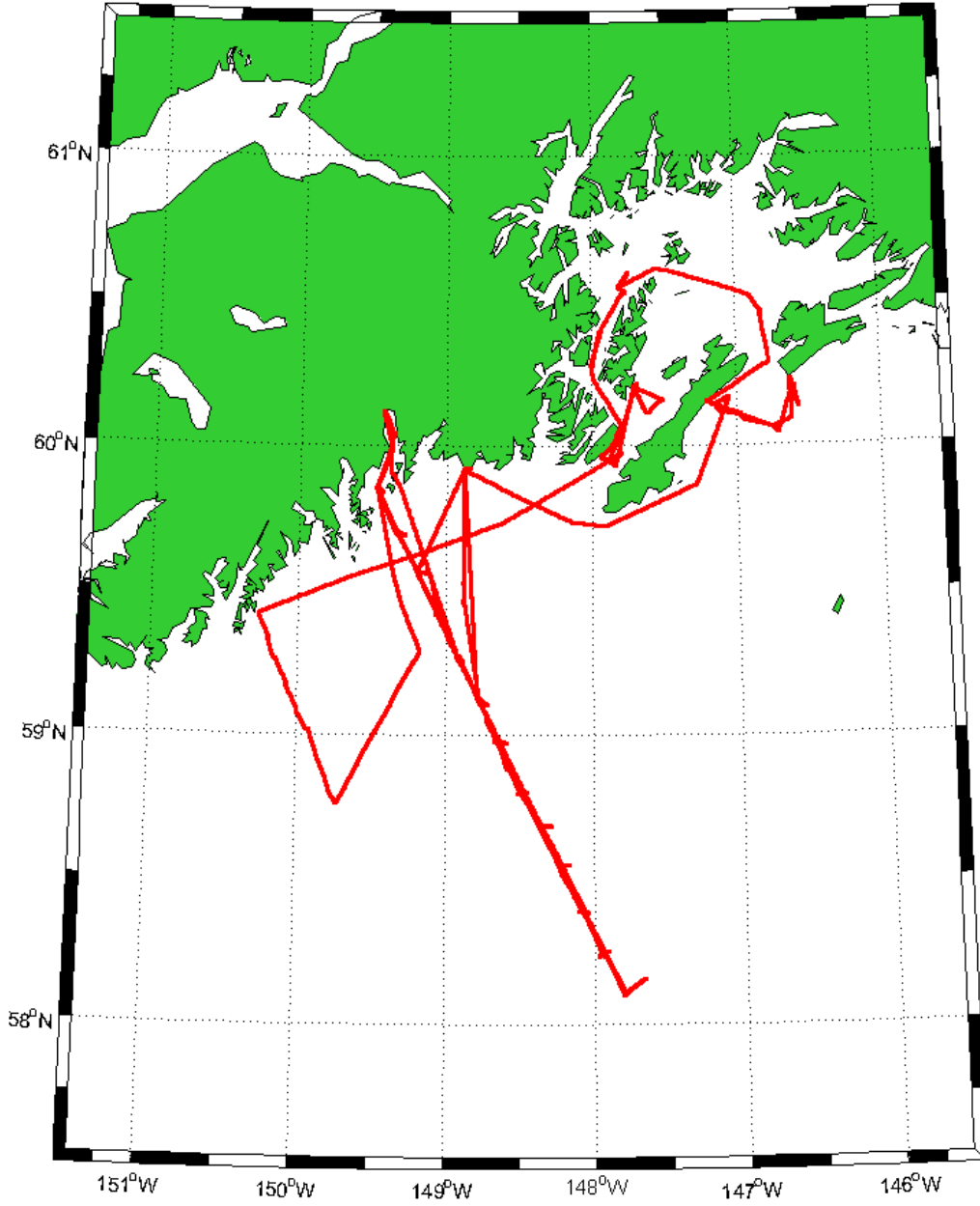
59	55.9	147	51.4	MS3
59	55.56	147	50.611	MS3i
59	55.2	147	49.7	MS4
<i>Hinchinbrook Entrance Line</i>				
60	13	146	36.5	HE1
60	10.8	146	36.5	HE2
60	7.8	146	36.5	HE3
60	4.8	146	36.5	HE4
60	3.126	146	44.19	HE6.5
60	5.6	146	57.7	HE8
60	6.6	147	3	HE9
60	7.8	147	8	HE10
60	8.6	147	11.5	HE11
<i>Cape Cleare Southeast</i>				
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

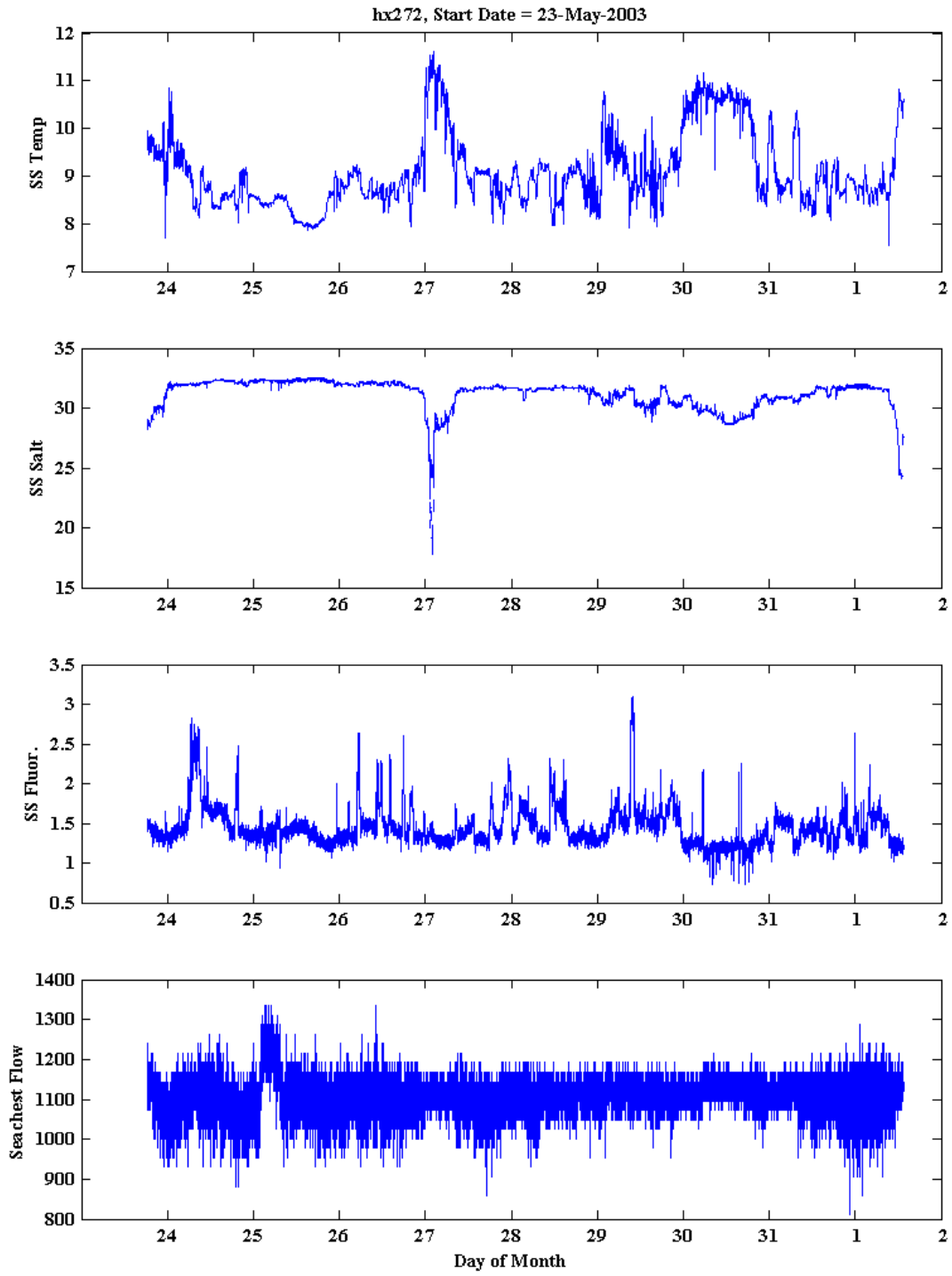
NEP GLOBEC Standard Station Map



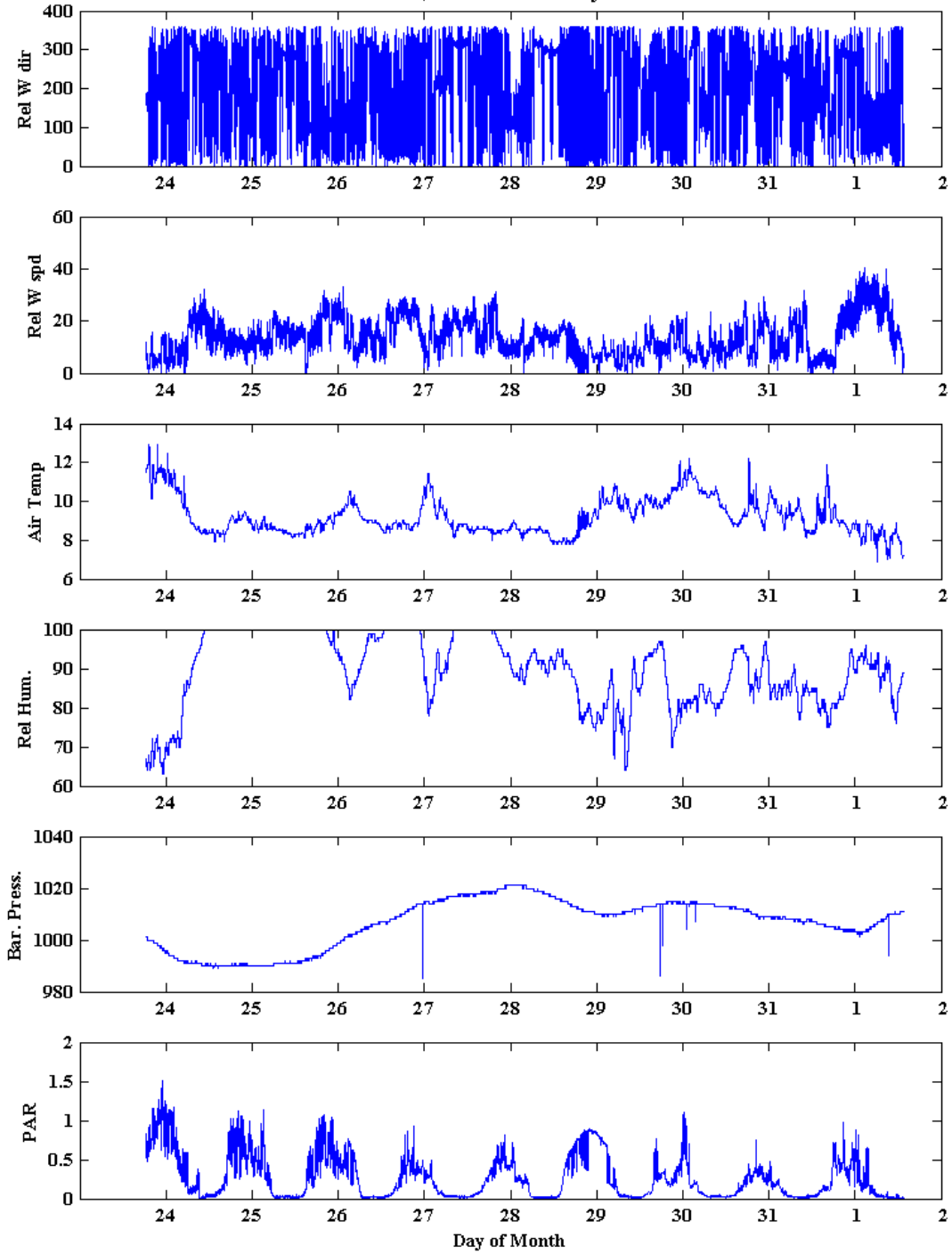
Note: The Cape Cleare Southeast Line is a standard line only in select cruises during the Process Study sampling years.

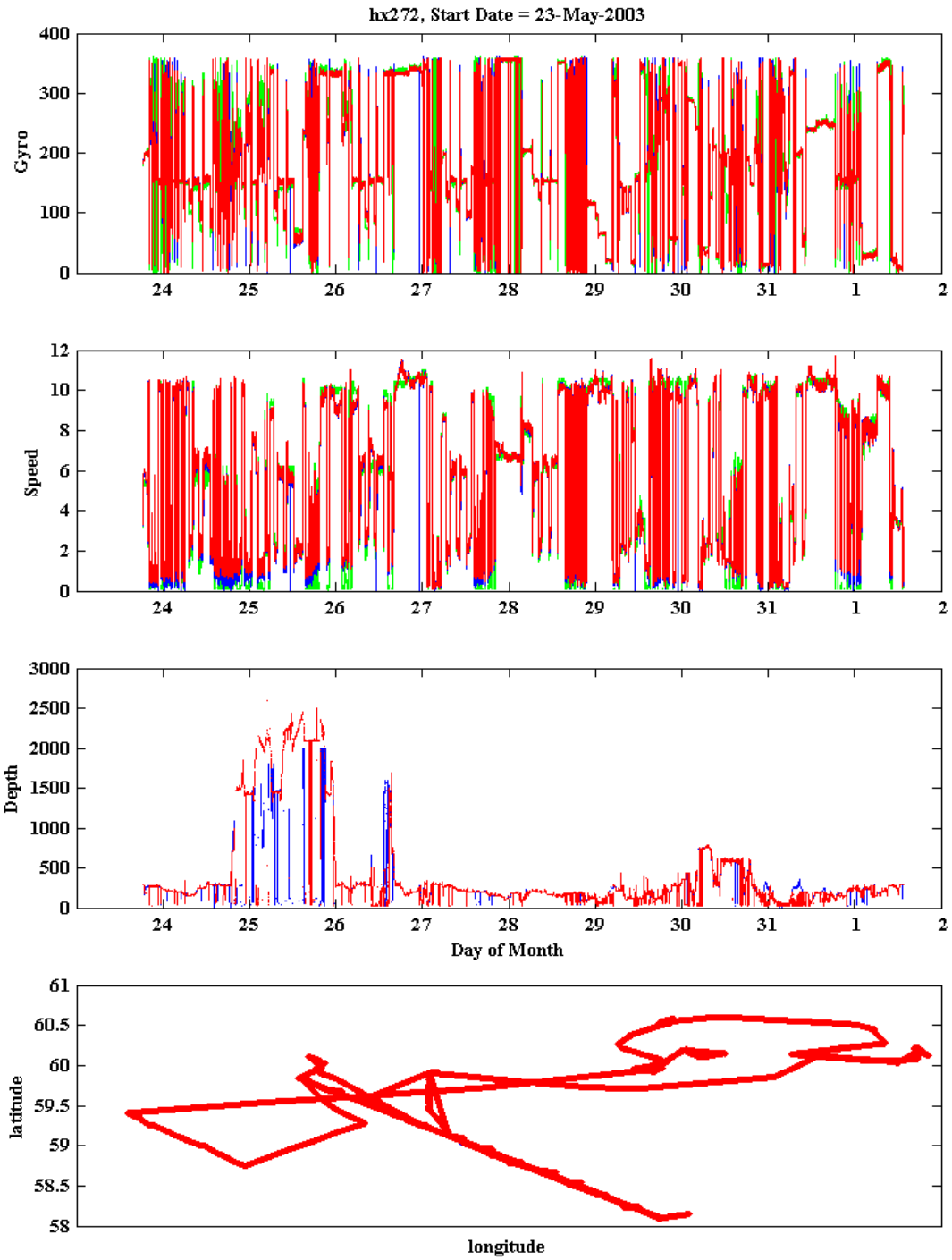
hx272 Cruise Track





hx272, Start Date = 23-May-2003





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	Latitude	Longitude	Depth	Scientist	Comments
HX27214303.001	CTD01-Start	Res2.5	5/23/03	1755	60.0238	-149.3593	295	Weingartner	
HX27214303.002	HTI Test-Start	Res2.5	5/23/03	1823	60.0238	-149.3593	295	Coyle	test tow
HX27214303.003	CTD02-Start	GAK1	5/23/03	2012	59.8445	-149.4650	270	Weingartner	
HX27214303.004	CalVet-Start	GAK1	5/23/03	2032	59.8448	-149.4693	270	Hopcroft	
HX27214303.005	CTD03-Start	GAK1	5/23/03	2046	59.8447	-149.4723	270	Weingartner	prod cast
HX27214303.006	Ring Net-Start	GAK1	5/23/03	2108	59.8447	-149.4695	270	Hopcroft	
HX27214303.007	CTD04-Start	GAK1	5/23/03	2117	59.8440	-149.4710	270	Weingartner	
HX27214303.008	CTD05-Start	GAK1	5/23/03	2130	59.8433	-149.4723	270	Weingartner	
HX27214303.009	CTD06-Start	GAK1	5/23/03	2143	59.8450	-149.4662	270	Weingartner	
HX27214303.010	CTD07-Start	GAK1	5/23/03	2157	59.8442	-149.4680	270	Weingartner	
HX27214303.011	CTD08-Start	GAK1	5/23/03	2208	59.8433	-149.4690	270	Weingartner	
HX27214303.012	Ring Net-Start	GAK1	5/23/03	2225	59.8423	-149.4703	270	Hopcroft	
HX27214303.013	Ring Net-End	GAK1	5/23/03	2238	59.8455	-149.4662	270	Hopcroft	
HX27214303.014	CTD09-Start	GAK11	5/23/03	2319	59.7658	-149.3960	258	Weingartner	
HX27214403.001	CTD10-Start	GAK2	5/24/03	0013	59.6920	-149.3268	226	Weingartner	
HX27214403.002	CalVet-Start	GAK2	5/24/03	0034	59.6918	-149.3303	226	Hopcroft	
HX27214403.003	CTD11-Start	GAK21	5/24/03	0109	59.6258	-149.2580	212	Weingartner	
HX27214403.004	CTD12-Start	GAK3	5/24/03	0158	59.5533	-149.1863	214	Weingartner	
HX27214403.005	CalVet-Start	GAK3	5/24/03	0215	59.5510	-149.1852	214	Hopcroft	
HX27214403.006	CTD13-Start	GAK31	5/24/03	0311	59.4818	-149.1183	205	Weingartner	
HX27214403.007	CTD14-Start	GAK4	5/24/03	0401	59.4087	-149.0467	200	Weingartner	
HX27214403.008	CalVet-Start	GAK4	5/24/03	0419	59.4068	-149.0457	200	Hopcroft	
HX27214403.009	CTD15-Start	GAK41	5/24/03	0457	59.3355	-148.9768	197	Weingartner	
HX27214403.010	CTD16-Start	GAK5	5/24/03	0546	59.2607	-148.9092	169	Weingartner	
HX27214403.011	CalVet-Start	GAK5	5/24/03	0603	59.2593	-148.9080	169	Hopcroft	
HX27214403.012	HTI-Start	GAK6	5/24/03	0715	59.1158	-148.7675	150	Coyle	
HX27214403.013	Mocness start	GAK6	5/24/03	0723	59.1135	-148.7605	152	Coyle	
HX27214403.014	Mocness end	GAK6	5/24/03	0808	59.0957	-148.7148	166	Coyle	
HX27214403.015	HTI end	GAK6	5/24/03	0813	59.0935	-148.7100	166	Coyle	
HX27214403.016	HTI start	GAK6	5/24/03	0832	59.1145	-148.7705	152	Coyle	
HX27214403.017	Mocness start	GAK7	5/24/03	1007	58.9702	-148.6273	244	Coyle	
HX27214403.018	Mocness end	GAK7	5/24/03	1052	58.9630	-148.6278	243	Coyle	
HX27214403.019	HTI end	GAK7	5/24/03	1119	58.9703	-148.6313	244	Coyle	
HX27214403.020	Mocness start	GAK8	5/24/03	1314	58.7912	-148.4852	289	Coyle	
HX27214403.021	Mocness end	GAK8	5/24/03	1347	58.7907	-148.4538	282	Coyle	
HX27214403.022	CTD17-Start	GAK8	5/24/03	1411	58.7920	-148.4948	290	Weingartner	
HX27214403.023	CalVet-Start	GAK8	5/24/03	1442	58.7910	-148.4907	290	Hopcroft	
HX27214403.024	CTD18-Start	GAK81	5/24/03	1514	58.7437	-148.4180	290	Weingartner	
HX27214403.025	CTD19-Start	GAK9	5/24/03	1604	58.6798	-148.3473	278	Weingartner	

HX27214403.026	CalVet-Start	GAK9	5/24/03	1629	58.6755	-148.3463	278	Hopcroft	
HX27214403.027	CTD20-Start	GAK9	5/24/03	1643	58.6807	-148.3502	278	Weingartner	prod cast
HX27214403.028	Ring Net-Start	GAK9	5/24/03	1656	58.6790	-148.3475	280	Hopcroft	
HX27214403.029	CTD21-Start	GAK9	5/24/03	1720	58.6785	-148.3482	280	Weingartner	
HX27214403.030	CTD22-Start	GAK9	5/24/03	1734	58.6762	-148.3485	280	Weingartner	
HX27214403.031	CTD23-Start	GAK9	5/24/03	1745	58.6795	-148.3497	280	Weingartner	
HX27214403.032	CTD24-Start	GAK9	5/24/03	1755	58.6775	-148.3492	280	Weingartner	
HX27214403.033	CTD25-Start	GAK9	5/24/03	1805	58.6803	-148.3493	280	Weingartner	
HX27214403.034	Ring Net-Start	GAK9	5/24/03	1817	58.0782	-148.3507	278	Hopcroft	
HX27214403.035	Ring Net-Start	GAK9	5/24/03	1826	58.6780	-148.3500	278	Hopcroft	
HX27214403.036	CTD026-Start	GAK9I	5/24/03	1907	58.6117	-148.2758	678	Weingartner	
HX27214403.037	CalVet-Start	GAK10	5/24/03	2014	58.5402	-148.2117		Hopcroft	
HX27214403.038	CTD27-Start	GAK10	5/24/03	2032	58.5410	-148.2120		Weingartner	
HX27214403.039	CalVet-Start	GAK11	5/24/03	2249	58.3885	-148.0712		Hopcroft	
HX27214403.040	CTD28-Start	GAK11	5/24/03	2259	58.3888	-148.0733		Weingartner	
HX27214503.001	CTD29-Start	GAK11	5/25/03	0029	58.3873	-148.0778		Weingartner	test ctd
HX27214503.002	CalVet-Start	GAK12	5/25/03	0204	58.2428	-147.9330		Hopcroft	
HX27214503.003	CTD30-Start	GAK12	5/25/03	0217	58.2418	-147.9363		Weingartner	test ctd
HX27214503.004	CTD31-Start	GAK12	5/25/03	0230	58.2435	-147.9353		Weingartner	
HX27214503.005	CTD32-Start	GAK12	5/25/03	0508	58.2437	-147.9350	2158	Weingartner	
HX27214503.011	CTD32 End	GAK12	5/25/03	0652	58.2395	-147.9426	2177	Weingartner	
HX27214503.006	HTI start	GAK11	5/25/03	0653	58.3877	-148.0710		Coyle	
HX27214503.007	Mocness start	GAK11	5/25/03	0656	58.3870	-148.0685		Coyle	
HX27214503.008	Mocness end	GAK11	5/25/03	0734	58.3768	-148.0422		Coyle	
HX27214503.009	HTI end	GAK11	5/25/03	0748	58.3880	-148.0748		Coyle	
HX27214503.014	HTI Transect Start	GAK11	5/25/03	0748	58.3855	-148.0726	1434	Coyle	
HX27214503.015	HTI Transect End	GAK12	5/25/03	0936	58.2431	-147.9313	2187	Coyle	
HX27214503.016	MOCNESS Start	GAK12	5/25/03	1017	58.2432	-147.9303	2187	Coyle	
HX27214503.017	MOCNESS End	GAK12	5/25/03	1034	58.2444	-147.9038	2187	Coyle	
HX27214503.018	HTI Transect Start	GAK12	5/25/03	1219	58.2389	-147.9321	2187	Coyle	
HX27214503.019	HTI Transect End	GAK13	5/25/03	1219	58.1004	-147.7906	2092	Coyle	
HX27214503.020	MOCNESS Start	GAK13	5/25/03	1300	58.1005	-147.7903	2092	Coyle	
HX27214503.021	MOCNESS End	GAK13	5/25/03	1339	58.1120	-147.7620	2092	Coyle	
HX27214503.022	MOCNESS Start	GAK13	5/25/03	1449	58.1258	-147.7269	2092	Coyle	
HX27214503.023	MOCNESS-End	GAK13	5/25/03	1525	58.1478	-147.6652	2414	Coyle	
HX27214503.024	CTD33-Start	GAK13	5/25/03	1630	58.0991	-147.7950	2087	Weingartner	
HX27214503.025	CTD33-End	GAK13	5/25/03	1640	58.0941	-147.8081	2086	Weingartner	
HX27214503.026	CTD34-Start	GAK13	5/25/03	1716	58.0986	-147.7940	2086	Weingartner	Prim prod
HX27214503.027	CTD34-End	GAK13	5/25/03	1722	58.0949	-147.7948	2086	Weingartner	

HX27214503.028	CalVet-Start	GAK13	5/25/03	1728	58.0970	-147.7940	2086	Hopcroft	
HX27214503.029	CalVet-End	GAK13	5/25/03	1741	58.0970	-147.7941	2086	Hopcroft	
HX27214503.030	CTD35-Start	GAK13	5/25/03	1802	58.0963	-147.7955	2096	Weingartner	Nutrient water
HX27214503.031	CTD35-End	GAK13	5/25/03	1811	58.0904	-147.7992	2096	Weingartner	
HX27214503.032	Ring Net-Start	GAK13	5/25/03	1817	58.0979	-147.7929	2096	Hopcroft	
HX27214503.033	Ring Net-End	GAK13	5/25/03	1828	58.0973	-147.7956	2096	Hopcroft	
HX27214503.034	CTD36-Start	GAK13	5/25/03	1832	58.0971	-147.7957	2087	Hopcroft	zoop cast 1
HX27214503.035	CTD36-End	GAK13	5/25/03	1837	58.0957	-147.7965	2087	Hopcroft	
HX27214503.036	CTD37-Start	GAK13	5/25/03	1841	58.0941	-147.7978	2087	Hopcroft	zoop cast 2
HX27214503.037	CTD37-End	GAK13	5/25/03	1850	58.0925	-147.7986	2087	Hopcroft	
HX27214503.038	CTD38-Start	GAK13	5/25/03	1900	58.0985	-147.7940	2087	Hopcroft	zoop cast 3
HX27214503.039	CTD38-End	GAK13	5/25/03	1901	58.0951	-147.7968	2087	Hopcroft	
HX27214503.040	CTD39-Start	GAK13	5/25/03	1904	58.0948	-147.7970	2087	Hopcroft	zoop cast 4
HX27214503.041	CTD39-End	GAK13	5/25/03	1912	58.0936	-147.7980	2087	Hopcroft	
HX27214503.042	Ring Net-Start	GAK13	5/25/03	1919	58.0962	-147.7980	2088	Hopcroft	
HX27214503.043	Ring Net-End	GAK13	5/25/03	1921	58.0961	-147.7959	2087	Hopcroft	
HX27214503.044	Ring Net-Start	GAK13	5/25/03	1928	58.0954	-147.7975	2087	Hopcroft	
HX27214503.045	Ring Net-End	GAK13	5/25/03				2087	Hopcroft	
HX27214503.046	CTD40-Start	GAK11	5/25/03	2140	58.3866	-148.0746	1429	Weingartner	
HX27214503.047	CTD40-End	GAK11	5/25/03				1429	Weingartner	
HX27214603.001	CTD41-Start	GAK7I	5/26/03	0208	58.8816	-148.5629	300	Weingartner	
HX27214603.002	CTD41-End	GAK7I	5/26/03	0256	58.8764	-148.5757	296	Weingartner	
HX27214603.003	CTD42-Start	GAK7	5/26/03	0315	58.9720	-148.6344	243	Weingartner	
HX27214603.004	CTD42-End	GAK7	5/26/03	0318	58.9696	-148.6499	246	Weingartner	
HX27214603.005	CalVET Net Tow-Start	GAK7	5/26/03	0322	58.9694	-148.6529	246	Hopcroft	
HX27214603.006	CalVET Net Tow-End	GAK7	5/26/03	0332	58.9692	-148.6576	246	Hopcroft	
HX27214603.007	CTD43-Start	GAK7	5/26/03	0407	58.9726	-148.6346	246	Weingartner	for water
HX27214603.008	CTD43-End	GAK7	5/26/03	0409	59.0455	-148.7024	246	Weingartner	
HX27214603.009	CTD44-Start	GAK6I	5/26/03	0424	59.0454	-148.7045	190	Weingartner	
HX27214603.010	CTD44-End	GAK6I	5/26/03	0652	59.0457	-148.7170	186	Weingartner	
HX27214603.011	HTI Transect- Start	GAK8	5/26/03	0808	58.7888	-148.4863	287	Coyle	
HX27214603.012	HTI Transect- End	GAK9	5/26/03	0811	58.6792	-148.3473	281	Coyle	
HX27214603.013	MOCNESS-Start	GAK9	5/26/03	0852	58.6787	-148.3436	281	Coyle	
HX27214603.014	MOCNESS-End	GAK9	5/26/03	0918	58.6754	-148.2878	281	Coyle	
HX27214603.015	HTI Transect- Start	GAK9	5/26/03	1039	58.6772	-148.3461	281	Coyle	
HX27214603.016	HTI Transect- End	GAK10	5/26/03	1046	58.5406	-148.2098	1500	Coyle	
HX27214603.017	MOCNESS-Start	GAK10	5/26/03	1112	58.5407	-148.2010	1500	Coyle	
HX27214603.018	MOCNESS-End	GAK10	5/26/03	1137	58.5406	-148.1682	1500	Coyle	

HX27214603.019	HTI Transect-Start	GAK10	5/26/03	1314	58.5385	-148.2079	1500	Coyle	
HX27214603.020	HTI Transect-End	GAK11	5/26/03	1431	58.3877	-148.0688	1500	Coyle	
HX27214603.021	CTD45-Start	GAK10	5/26/03	1449	58.5400	-148.2135	1463	Weingartner	
HX27214603.022	CTD45-End	GAK10	5/26/03	1533	58.5353	-148.2112	1491	Weingartner	
HX27214603.023	CTD46-Start	GAK9I	5/26/03	1553	58.6102	-148.2788	685	Weingartner	
HX27214603.024	CTD46-End	GAK9I	5/26/03				731	Weingartner	
HX27214603.025	Transit		5/26/03	1715					scientist injured ankle in fall; begin transit to Seward
HX27214703.001	Transit		5/27/03	0130					injured scientist offloaded via skiff to Seward
HX27214703.002	Core-Start	RES2.5	5/27/03	0331	60.0292	-149.3508	292	Jaeger	
HX27214703.003	Core-End	RES2.5	5/27/03					Jaeger	
HX27214703.004	Core-Start	RES2.5	5/27/03	0443	60.0275	-149.3592	292	Jaeger	
HX27214703.005	Core-End	RES2.5	5/27/03					Jaeger	
HX27214703.006	Ring Net-Start	RES2.5	5/27/03	0517	60.0310	-149.3631	295	Hopcroft	for centropages
HX27214703.007	Ring Net-End	RES2.5	5/27/03	0646	60.0318	-149.3634	295	Hopcroft	
HX27214703.008	MOCNESS-Start	GAK1	5/27/03	0728	59.8426	-149.4630	271	Coyle	
HX27214703.009	MOCNESS-End	GAK1	5/27/03	0749	59.8288	-149.4277	271	Coyle	
HX27214703.010	HTI Transect-Start	GAK1	5/27/03	0930	59.8437	-149.4638	271	Coyle	
HX27214703.011	HTI Transect-End	GAK2	5/27/03	0942	59.6908	-149.3235	226	Coyle	
HX27214703.012	MOCNESS-Start	GAK2	5/27/03	1015	59.6880	-149.3115	225	Coyle	
HX27214703.013	MOCNESS-End	GAK2	5/27/03	1039	59.6813	-149.2761	225	Coyle	
HX27214703.014	HTI Transect-Start	GAK2	5/27/03	1214	59.6909	-149.3268	225	Coyle	
HX27214703.015	HTI Transect-End	GAK3	5/27/03	1216	59.5528	-149.1865	212	Coyle	
HX27214703.016	MOCNESS-Start	GAK3	5/27/03	1304	59.5527	-149.1839	212	Coyle	
HX27214703.017	MOCNESS-End	GAK3	5/27/03	1425	59.5501	-149.1315	212	Coyle	
HX27214703.018	CTD47-Start	GAK4	5/27/03	1440	59.4082	-149.0473	198	Weingartner	
HX27214703.019	CTD47-End	GAK4	5/27/03	1444	59.4081	-149.0515	198	Weingartner	

HX27214703.020	CalVET Net Tow-Start	GAK4	5/27/03	1450	59.4084	-149.0481	198	Hopcroft	
HX27214703.021	CalVET Net Tow-End	GAK4	5/27/03	1454	59.4086	-149.0488	198	Hopcroft	
HX27214703.022	CTD48-Start	GAK4	5/27/03	1502	59.4081	-149.0485	198	Weingartner	Prim prod
HX27214703.023	CTD48-End	GAK4	5/27/03	1532	59.4081	-149.0510	198	Weingartner	
HX27214703.024	CTD49-Start	GAK4	5/27/03	1536	59.4088	-149.0469	199	Hopcroft	zoop cast 1
HX27214703.025	CTD49-End	GAK4	5/27/03	1547	59.4089	-149.0478	199	Hopcroft	
HX27214703.026	CTD50-Start	GAK4	5/27/03	1550	59.4089	-149.0507	199	Hopcroft	zoop cast 2
HX27214703.027	CTD50-End	GAK4	5/27/03	1559	59.4090	-149.0517	199	Hopcroft	
HX27214703.028	CTD51-Start	GAK4	5/27/03	1605	59.4082	-149.0478	199	Hopcroft	zoop cast 3
HX27214703.029	CTD51-End	GAK4	5/27/03	1609	59.4084	-149.0486	199	Hopcroft	
HX27214703.030	CTD52-Start	GAK4	5/27/03	1614	59.4088	-149.0504	199	Hopcroft	zoop cast 4
HX27214703.031	CTD52-End	GAK4	5/27/03	1621	59.4090	-149.0515	199	Hopcroft	
HX27214703.032	Ring Net-Start	GAK4	5/27/03	1625	59.4077	-149.0486	199	Hopcroft	
HX27214703.033	Ring Net-End	GAK4	5/27/03	1629	59.4084	-149.0503	199	Hopcroft	
HX27214703.034	Ring Net-Start	GAK4	5/27/03	1633	59.4084	-149.0504	199	Hopcroft	
HX27214703.035	Ring Net-End	GAK4	5/27/03	1640	59.4092	-149.0529	199	Hopcroft	
HX27214703.036	Ring Net-Start	GAK4	5/27/03	1643	59.4093	-149.0530	199	Hopcroft	
HX27214703.037	Ring Net-End	GAK4	5/27/03	1720	59.4094	-149.0532	199	Hopcroft	
HX27214703.038	CTD53-Start	GAK4I	5/27/03	1736	59.3356	-148.9779	197	Weingartner	
HX27214703.039	CTD53-End	GAK4I	5/27/03	1814	59.3361	-148.9836	196	Weingartner	
HX27214703.040	CTD54-Start	GAK5	5/27/03	1825	59.2620	-148.9072	168	Weingartner	
HX27214703.041	CTD54-End	GAK5	5/27/03	1903	59.2639	-148.9097	168	Weingartner	
HX27214703.042	CTD55-Start	GAK5I	5/27/03	1916	59.1906	-148.8383	168	Weingartner	
HX27214703.043	CTD55-End	GAK5I	5/27/03	1956	59.1920	-148.8450	168	Weingartner	
HX27214703.044	CTD56-Start	GAK6	5/27/03	2010	59.1175	-148.7702	152	Weingartner	
HX27214703.045	CTD56-End	GAK6	5/27/03	2020	59.1217	-148.7800	147	Weingartner	
HX27214703.046	CalVET Net Tow-Start	GAK6	5/27/03	2027	59.1201	-148.7761	147	Hopcroft	
HX27214703.047	CalVET Net Tow-End	GAK6	5/27/03	2029	59.1231	-148.7786	150	Hopcroft	
HX27214703.048	ADCP Transect-Start	GAK6	5/27/03	2030	59.1267	-148.7793	147	Weingartner	to CF15 to CF1 to GAK3
HX27214803.001	ADCP Transect-End	GAK3	5/28/03	0642	59.5570	-149.1907	200	Weingartner	
HX27214803.002	HTI Transect-Start	GAK3	5/28/03	0642	59.5519	-149.1877	212	Coyle	
HX27214803.003	HTI Transect-End	GAK4	5/28/03	0821	59.4048	-149.0438	212	Coyle	
HX27214803.004	MOCNESS-Start	GAK4	5/28/03	0902	59.4045	-149.0428	200	Coyle	
HX27214803.005	MOCNESS-End	GAK4	5/28/03	0927	59.3890	-149.0036	200	Coyle	
HX27214803.006	HTI Transect-Start	GAK4	5/28/03	0927	59.4074	-149.0473	200	Coyle	
HX27214803.007	HTI Transect-End	GAK5	5/28/03	1101	59.2607	-148.9063	167	Coyle	

HX27214803.008	MOCNESS-Start	GAK5	5/28/03	1134	59.2597	-148.9032	167	Coyle	
HX27214803.009	MOCNESS-End	GAK5	5/28/03	1154	59.2457	-148.8740	167	Coyle	
HX27214803.010	HTI Transect-Start	GAK5	5/28/03	1324	59.2601	-148.9066	167	Coyle	
HX27214803.011	HTI Transect-End	GAK6	5/28/03	1534	59.1159	-148.7689	149	Coyle	
HX27214803.012	CTD57-Start	CF15	5/28/03	1549	59.4511	-148.8681	184	Weingartner	
HX27214803.013	CTD57-End	CF15	5/28/03		59.4506	-148.8725	184	Weingartner	
HX27214803.014	CTD58-Start	CF14	5/28/03	1603	59.4833	-148.8680	171	Weingartner	
HX27214803.015	CTD58-End	CF14	5/28/03	1629	59.4826	-148.8715	171	Weingartner	
HX27214803.016	CTD59-Start	CF13	5/28/03	1642	59.5169	-148.8685	170	Weingartner	
HX27214803.017	CTD59-End	CF13	5/28/03	1657	59.5163	-148.8727	174	Weingartner	
HX27214803.018	CTD60-Start	CF12	5/28/03	1708	59.5502	-148.8686	184	Weingartner	
HX27214803.019	CTD60-End	CF12	5/28/03	1722	59.5500	-148.8714	185	Weingartner	
HX27214803.020	CTD61-Start	CF11	5/28/03	1735	59.5841	-148.8724	177	Weingartner	
HX27214803.021	CTD61-End	CF11	5/28/03	1750	59.5841	-148.8725	177	Weingartner	
HX27214803.022	CTD62-Start	CF10	5/28/03	1759	59.6169	-148.8681	175	Weingartner	
HX27214803.023	CTD62-End	CF10	5/28/03	1815	59.6179	-148.8693	176	Weingartner	
HX27214803.024	CTD63-Start	CF9	5/28/03	1828	59.6511	-148.8693	178	Weingartner	
HX27214803.025	CTD63-End	CF9	5/28/03	1842	59.6525	-148.8734	178	Weingartner	
HX27214803.026	CTD64-Start	CF8	5/28/03	1852	59.6851	-148.8704	179	Weingartner	
HX27214803.027	CTD64-End	CF8	5/28/03	1908	59.6851	-148.8704	179	Weingartner	
HX27214803.028	CTD65-Start	CF7	5/28/03	1920	59.7173	-148.8685	182	Weingartner	
HX27214803.029	CTD65-End	CF7	5/28/03	1932	59.7182	-148.8710	182	Weingartner	
HX27214803.030	CTD66-Start	CF6	5/28/03	1943	59.7502	-148.8663	190	Weingartner	
HX27214803.031	CTD66-End	CF6	5/28/03	2000	59.7512	-148.8709	190	Weingartner	
HX27214803.032	CTD67-Start	CF5	5/28/03	2012	59.7847	-148.8672	193	Weingartner	
HX27214803.033	CTD67-End	CF5	5/28/03	2027	59.7862	-148.8671	193	Weingartner	
HX27214803.034	CTD68-Start	CF4	5/28/03	2037	59.8173	-148.8679	184	Weingartner	
HX27214803.035	CTD68-End	CF4	5/28/03	2051	59.8188	-148.8702	187	Weingartner	
HX27214803.036	CTD69-Start	CF3	5/28/03	2102	59.8507	-148.8673	161	Weingartner	
HX27214803.037	CTD69-End	CF3	5/28/03	2118	59.8508	-148.8685	159	Weingartner	
HX27214803.038	CTD70-Start	CF2	5/28/03	2124	59.8840	-148.8670	114	Weingartner	
HX27214803.039	CTD70-End	CF2	5/28/03	2137	59.8847	-148.8669	112	Weingartner	
HX27214803.040	CTD71-Start	CF1	5/28/03	2142	59.9087	-148.8681	85	Weingartner	
HX27214803.041	CTD71-End	CF1	5/28/03	2200	59.9084	-148.8692	85	Weingartner	
HX27214903.001	CORE-Start	102	5/29/03	0514	60.1520	-147.0412	278	Jaeger	
HX27214903.002	CORE-End	102	5/29/03	nd	nd	nd	278	Jaeger	
HX27214903.003	MOCNESS-Start	HE10	5/29/03	0726	60.1239	-147.1275	217	Coyle	
HX27214903.004	MOCNESS-End	HE10	5/29/03	0759	60.1092	-147.1087	217	Coyle	
HX27214903.005	MOCNESS-Start	HE8	5/29/03	0831	60.0912	-146.9585	146	Coyle	
HX27214903.006	MOCNESS-End	HE8	5/29/03	0916	60.0779	-146.9338	116	Coyle	
HX27214903.007	MOCNESS-Start	HE6.5	5/29/03	0950	60.0505	-146.7347	125	Coyle	
HX27214903.008	MOCNESS-End	HE6.5	5/29/03	1106	60.0352	-146.7068	119	Coyle	
HX27214903.009	MOCNESS-Start	HE2	5/29/03	1138	60.1769	-146.6032	191	Coyle	

HX27214903.010	MOCNESS-End	HE2	5/29/03	1506	60.1542	-146.5825	124	Coyle	
HX27214903.011	CTD72-Start	HE1	5/29/03	1516	60.2158	-146.6143	82	Weingartner	
HX27214903.012	CTD72-End	HE1	5/29/03	1549	60.2139	-146.6219	82	Weingartner	
HX27214903.013	CTD73-Start	HE2	5/29/03	1602	60.1801	-146.6090	194	Weingartner	
HX27214903.014	CTD73-End	HE2	5/29/03	1606	60.1795	-146.6085	192	Weingartner	
HX27214903.015	CalVET Net Tow-Start	HE2	5/29/03	1613	60.1793	-146.6070	190	Hopcroft	
HX27214903.016	CalVET Net Tow-End	HE2	5/29/03	1632	60.1783	-146.6080	190	Hopcroft	
HX27214903.017	CTD74-Start	HE3	5/29/03	1641	60.1302	-146.6060	113	Weingartner	
HX27214903.018	CTD74-End	HE3	5/29/03	1704	60.1298	-146.6059	113	Weingartner	
HX27214903.019	CTD75-Start	HE4	5/29/03	1712	60.0797	-146.6074	113	Weingartner	
HX27214903.020	CTD75-End	HE4	5/29/03	1714	60.0789	-146.6088	113	Weingartner	
HX27214903.021	CalVET Net Tow-Start	HE4	5/29/03	1721	60.0781	-146.6127	114	Hopcroft	
HX27214903.022	CalVET Net Tow-End	HE4	5/29/03	1748	60.0781	-146.6130	114	Hopcroft	
HX27214903.023	CTD76-Start	HE6.5	5/29/03	1752	60.0525	-146.7386	123	Weingartner	
HX27214903.024	CTD76-End	HE6.5	5/29/03	1757	60.0521	-146.7411	123	Weingartner	
HX27214903.025	CalVET Net Tow-Start	HE6.5	5/29/03	1802	60.0520	-146.7413	123	Hopcroft	
HX27214903.026	CalVET Net Tow-End	HE6.5	5/29/03	1849	60.0521	-146.7419	123	Hopcroft	
HX27214903.027	CTD77-Start	HE8	5/29/03	1858	60.0953	-146.9615	149	Weingartner	
HX27214903.028	CTD77-End	HE8	5/29/03	1917	60.0969	-146.9621	149	Weingartner	
HX27214903.029	CTD78-Start	HE9	5/29/03	1934	60.1126	-147.0513	279	Weingartner	
HX27214903.030	CTD78-End	HE9	5/29/03	1953	60.1134	-147.0530	276	Weingartner	
HX27214903.031	CTD79-Start	HE10	5/29/03	2005	60.1298	-147.1370	217	Weingartner	
HX27214903.032	CTD79-End	HE10	5/29/03	2012	60.1283	-147.1434	217	Weingartner	
HX27214903.033	CalVET Net Tow-Start	HE10	5/29/03	2013	60.1285	-147.1436	217	Hopcroft	
HX27214903.034	CalVET Net Tow-End	HE10	5/29/03	2026	60.1281	-147.1464	217	Hopcroft	
HX27214903.035	CTD80-Start	HE11	5/29/03	2036	60.1433	-147.1922	175	Weingartner	
HX27214903.036	CTD80-End	HE11	5/29/03	2142	60.1417	-147.1963	145	Weingartner	
HX27214903.037	CORE-Start	102OLD	5/29/03	2201	60.2104	-146.9666	274	Jaeger	bottom core
HX27215003.001	CORE-End	102OLD	5/30/03	0015	60.2104	-146.9665	274	Jaeger	
HX27215003.002	CORE-Start	156NEW	5/30/03	0020	60.4515	-146.8107	353	Jaeger	bottom core
HX27215003.003	CORE-End	156NEW	5/30/03	0126	60.4508	-146.8105	353	Jaeger	
HX27215003.004	CORE-Start	156OLD	5/30/03		60.5010	-146.8815	430	Jaeger	bottom core
HX27215003.005	CORE-End	156OLD	5/30/03	0451				Jaeger	
HX27215003.006	CTD81-Start	PWS2	5/30/03	0523	60.5345	-147.8024	733	Weingartner	
HX27215003.007	CTD81-End	PWS2	5/30/03	0530	60.5362	-147.8047	733	Weingartner	
HX27215003.008	CalVET Net Tow-Start	PWS2	5/30/03	0535	60.5368	-147.8040	733	Hopcroft	

HX27215003.009	CalVET Net Tow-End	PWS2	5/30/03	0604	60.5366	-147.8038	733	Hopcroft	
HX27215003.010	MOCNESS-Start	PWS2	5/30/03	0719	60.5448	-147.7923	733	Coyle	deep mocness
HX27215003.011	MOCNESS-End	PWS2	5/30/03	0754	60.5832	-147.7382	733	Coyle	
HX27215003.012	MOCNESS-Start	PWS2	5/30/03	0833	60.5337	-147.7957	733	Coyle	
HX27215003.013	MOCNESS-End	PWS2	5/30/03	0943	60.5206	-147.7579	492	Coyle	
HX27215003.014	MOCNESS-Start	PWS1	5/30/03	1015	60.3808	-147.9328	332	Coyle	
HX27215003.015	MOCNESS-End	PWS1	5/30/03	1107	60.3942	-147.9187	282	Coyle	
HX27215003.016	MOCNESS-Start	KIP2	5/30/03	1141	60.2793	-147.9847	582	Coyle	
HX27215003.017	MOCNESS-End	KIP2	5/30/03	1402	60.2979	-147.9799	562	Coyle	
HX27215003.018	CTD82-Start	KIP2	5/30/03	1432	60.2768	-147.9870	585	Weingartner	
HX27215003.019	CTD82-End	KIP2	5/30/03	1443	60.2686	-147.9903	585	Weingartner	
HX27215003.020	CalVET Net Tow-Start	KIP2	5/30/03	1448	60.2777	-147.9861	585	Weingartner	
HX27215003.021	CalVET Net Tow-End	KIP2	5/30/03	1502	60.2760	-147.9870	585	Weingartner	
HX27215003.022	CTD83-Start	KIP2	5/30/03	1509	60.2771	-147.9878	585	Weingartner	Prim prod
HX27215003.023	CTD83-End	KIP2	5/30/03	1519	60.2748	-147.9895	585	Weingartner	
HX27215003.024	Ring Net-Start	KIP2	5/30/03	1525	60.2725	-147.9933	566	Hopcroft	
HX27215003.025	Ring Net-End	KIP2	5/30/03	1543	60.2746	-147.9887	566	Hopcroft	
HX27215003.026	CTD84-Start	KIP2	5/30/03	1546	60.2745	-147.9887	590	Hopcroft	zoop cast 1
HX27215003.027	CTD84-End	KIP2	5/30/03	1553	60.2738	-147.9889	585	Hopcroft	
HX27215003.028	CTD85-Start	KIP2	5/30/03	1556	60.2755	-147.9908	585	Hopcroft	zoop cast 2
HX27215003.029	CTD85-End	KIP2	5/30/03	1605	60.2748	-147.9919	585	Hopcroft	
HX27215003.030	CTD86-Start	KIP2	5/30/03	1608	60.2779	-147.9894	565	Hopcroft	zoop cast 3
HX27215003.031	CTD86-End	KIP2	5/30/03	1616	60.2771	-147.9908	565	Hopcroft	
HX27215003.032	CTD87-Start	KIP2	5/30/03	1619	60.2752	-147.9931	565	Hopcroft	zoop cast 4
HX27215003.033	CTD87-End	KIP2	5/30/03	1626	60.2745	-147.9936	565	Hopcroft	
HX27215003.034	Ring Net-Start	KIP2	5/30/03	1634	60.2788	-147.9875	565	Hopcroft	
HX27215003.035	Ring Net-End	KIP2	5/30/03	1638	60.2781	-147.9890	565	Hopcroft	
HX27215003.036	Ring Net-Start	KIP2	5/30/03	1649	60.2774	-147.9886	565	Hopcroft	
HX27215003.037	Ring Net-End	KIP2	5/30/03	1734	60.2771	-147.9899	565	Hopcroft	
HX27215003.038	CTD88-Start	PWS1	5/30/03	1756	60.3798	-147.9387	345	Weingartner	
HX27215003.039	CTD88-End	PWS1	5/30/03	1800	60.3754	-147.9415	345	Weingartner	
HX27215003.040	CalVET Net Tow-Start	PWS1	5/30/03	1807	60.3771	-147.9401	345	Hopcroft	
HX27215003.041	CalVET Net Tow-End	PWS1	5/30/03				345	Hopcroft	
HX27215003.042	CTD89-Start	MS1	5/30/03	2112	59.9522	-147.9288	168	Weingartner	
HX27215003.043	CTD89-End	MS1	5/30/03	2123	59.9503	-147.9279	168	Weingartner	
HX27215003.044	CTD90-Start	MS2	5/30/03	2136	59.9445	-147.8951	194	Weingartner	

HX27215003.045	CTD90-End	MS2	5/30/03				194	Weingartner	
HX27215003.046	CalVET Net Tow-Start	MS2	5/30/03	2150	59.9437	-147.8940	194	Hopcroft	
HX27215003.047	CalVET Net Tow-End	MS2	5/30/03	2156	59.9436	-147.8940	194	Hopcroft	
HX27215003.048	CTD91-Start	MS3	5/30/03	2209	59.9327	-147.8555	168	Weingartner	
HX27215003.049	CTD91-End	MS3	5/30/03	2219	59.9326	-147.8539	168	Weingartner	
HX27215003.050	CTD92-Start	MS4	5/30/03	2229	59.9216	-147.8271	114	Weingartner	
HX27215003.051	CTD92-End	MS4	5/30/03				114	Weingartner	
HX27215103.001	CTD93-Start	HB1	5/31/03	0026	60.1928	-147.7020	244	Weingartner	
HX27215103.002	CTD93-End	HB1	5/31/03	0044	60.1920	-147.7011	244	Weingartner	
HX27215103.003	CTD94-Start	HB2	5/31/03	0057	60.1803	-147.6416	178	Weingartner	
HX27215103.004	CTD94-End	HB2	5/31/03	0058	60.1803	-147.6412	178	Weingartner	
HX27215103.005	CalVET Net Tow-Start	HB2	5/31/03	0121	60.1803	-147.6413	176	Hopcroft	
HX27215103.006	CalVET Net Tow-End	HB2	5/31/03	0123	60.1656	-147.5765	176	Hopcroft	
HX27215103.007	CTD95-Start	HB3	5/31/03	0128	60.1655	-147.5769	86	Weingartner	
HX27215103.008	CTD95-End	HB3	5/31/03	0148	60.1652	-147.5776	86	Weingartner	
HX27215103.009	CTD96-Start	HB4	5/31/03	0158	60.1479	-147.5010	107	Weingartner	
HX27215103.010	CTD96-End	HB4	5/31/03				107	Weingartner	
HX27215103.011	MOCNESS-Start	HB2	5/31/03	0738	60.1814	-147.6792	254	Coyle	
HX27215103.012	MOCNESS-End	HB2	5/31/03	0932	60.2005	-147.6792	254	Coyle	
HX27215103.013	MOCNESS-Start	MS2	5/31/03	1003	59.9383	-147.8734	190	Coyle	
HX27215103.014	MOCNESS-End	MS2	5/31/03	1035	59.9492	-147.8443	190	Coyle	
HX27215103.015	CTD97-Start	PI1	5/31/03	1843	59.4060	-150.2592	96	Weingartner	
HX27215103.016	CTD97-End	PI1	5/31/03	1917	59.4039	-150.2614	96	Weingartner	
HX27215103.017	CTD98-Start	PI2	5/31/03	1927	59.3255	-150.1943	151	Weingartner	
HX27215103.018	CTD98-End	PI2	5/31/03	2009	59.3240	-150.1995	151	Weingartner	
HX27215103.019	CTD99-Start	PI3	5/31/03	2018	59.2421	-150.1279	155	Weingartner	
HX27215103.020	CTD99-End	PI3	5/31/03	2100	59.2414	-150.1339	155	Weingartner	
HX27215103.021	CTD100-Start	PI4	5/31/03	2109	59.1590	-150.0613	135	Weingartner	
HX27215103.022	CTD100-End	PI4	5/31/03	2152	59.1580	-150.0669	135	Weingartner	
HX27215103.023	CTD101-Start	PI5	5/31/03	2203	59.0749	-149.9921	205	Weingartner	
HX27215103.024	CTD101-End	PI5	5/31/03	2242	59.0735	-149.9973	205	Weingartner	
HX27215103.025	CTD102-Start	PI6	5/31/03	2252	59.0087	-149.9282	212	Weingartner	
HX27215103.026	CTD102-End	PI6	5/31/03	2342	59.0071	-149.9317	212	Weingartner	
HX27215103.027	CTD103-Start	PI7	5/31/03	2354	58.9254	-149.8602	240	Weingartner	
HX27215203.001	CTD103-End	PI7	6/1/03	0039	58.9237	-149.8625	254	Weingartner	
HX27215203.002	CTD104-Start	PI8	6/1/03	0051	58.8393	-149.7915	246	Weingartner	
HX27215203.003	CTD104-End	PI8	6/1/03	0130	58.8378	-149.7946	244	Weingartner	
HX27215203.004	CTD105-Start	PI9	6/1/03	0140	58.7583	-149.7270	209	Weingartner	
HX27215203.005	CTD105-End	PI9	6/1/03				206	Weingartner	
HX27215203.006	CTD106-Start	GAK1	6/1/03	1007	59.8446	-149.4675	275	Weingartner	
HX27215203.007	CTD106-End	GAK1	6/1/03	1016	59.8445	-149.4680	275	Weingartner	

HX27215203.008	Ring Net-Start	GAK1	6/1/03	1024	59.8444	-149.4681	275	Hopcroft	
HX27215203.009	Ring Net-End	GAK1	6/1/03	1325	59.8443	-149.4697	275	Hopcroft	
HX27215203.010	CTD107-Start	RES2. 5	6/1/03	1326	60.0250	-149.3627	295	Weingartner	
HX27215203.011	CTD107-End	RES2. 5	6/1/03		60.0249	-149.3628	295	Weingartner	