GLOBEC CRUISE REPORT

Cruise HX267 October 1 – 9, 2002

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

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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 October 2002 cruise was the sixth October 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.

October is a transition month during which coastal discharge and downwelling or cyclonic wind stress increases, while solar radiation decreases. These changes result in a restructuring of the shelf from the highly stratified conditions of summer to the gradually less-stratified winter conditions.

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.

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 seachest sensors,
3. Collected discrete bottle samples at these stations for nutrients and chlorophyll pigments. Chlorophyll Size Fractionation was be 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 (CalVet cage has 4 nets again) 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. At each Hogan Bay section CTD station we attempted to locate, using a pole-mounted underwater ultrasonic receiver, two rockfishes that were tagged near the

south end of Green Island. This activity was successful--one of the two rockfish was identified.

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 Log*:**

9/30	Science party arrived in Seward and set up equipment.
10/1	Pre-cruise meeting. Departed from dock for RES 2.5 and inner Seward Line stations. MOCNESS and HTI sampling curtailed that night because of high winds and rough seas.
10/2 -5	Calm weather, completed most of Seward Line except primary production and zooplankton production casts at GAK4. Bad weather forced us into PWS.
10/5-6	Worked PWS stations.
10/7	Brief break in weather; occupied Hinchinbrook Entrance stations.
10/8	Completed PWS stations. Bad weather prevents return to shelf work. Return to GAK1 and standby for weather break.
10/9	Weather window - completed Cape Fairfield Line, occupied GAK 4 to start zooplankton production experiments.
10/10	Return to SMC; science party departs.

PHYSICAL OCEANOGRAPHY (*T. Weingartner*)

We collected CTD data along the Seward Line, Hinchinbrook Line, and Cape Fairfield Lines on the continental shelf and in Montague Strait, Knight Island Passage, and at other locations throughout western Prince William Sound. Continuous sea surface temperature, salinity, fluorescence data, ADCP data, and underway meteorological data were collected throughout the cruise. The shelf thermohaline structure was remarkably similar to conditions observed in August 2002 except that surface waters (upper 30 m) were about 2-3°C cooler than those observed in August and nearshore (within 30 km) salinities were substantially lower because of the seasonal increase of runoff. With the exception of stations inshore of the Alaska Coastal Current front, the deep temperature and salinity distribution over the shelf was virtually unchanged from August. These observations suggest that the fall increase in cyclonic wind stress is delayed in 2002

relative to previous years. This is particularly evident in that water with salinities $\geq$32.5 psu, and temperatures $\leq$ 6°C were observed at depths $\geq$ 50 m on the shelf. The August distribution of waters with these characteristics was similar. This observation suggests that little vertical mixing has occurred over the shelf and the deeper shelf waters have not begun being flushed offshore as occurs when cyclonic wind stress increase. Thus, it appears that the onset of the downwellng season in the Gulf of Alaska is delayed in 2002 relative to other years.

We found evidence that the ACC recirculates (flows eastward) along the outer end of the Cape Fairfield section. We suspect that this recirculation occurs in the vicinity of GAK3 – GAK4 and is associated with the ACC rounding the shoals south of the Chiswell Islands. A portion of this flow continues westward around the shoal while another branch swings eastward. More than likely, the eastward branch forms an eddy (probably intermittent) associated with the inertial overshoot of the ACC in the vicinity of the Chiswells.

ZOOPLANKTON STABLE ISOTOPES *(Kline*)

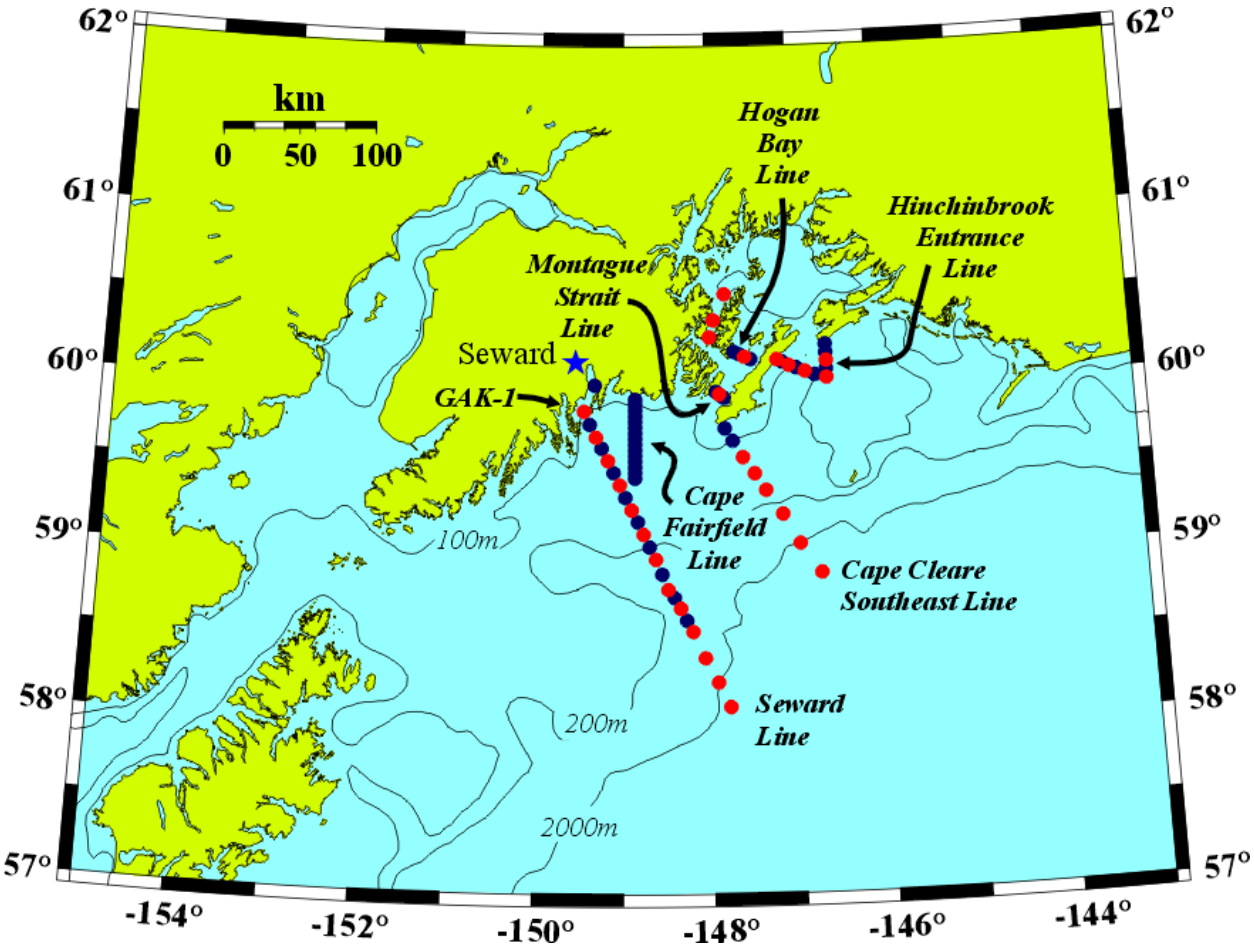
At each MOCNESS station, samples were saved for C and N stable isotope analysis from the contents of net #1. Additionally, samples of diapausing *Neocalanus*, were saved for C and N stable isotope analysis from Dr, Hopcrofts's MOCNESS sample taken at 400-600m at station PWS2 (Prince William Sound) and at GAK13 on the Gulf of Alaska continental slope. Zooplankton were saved as individuals in separate vials after identification to species level and frozen. They will be freeze-dried in the laboratory prior to isotopic analysis.

Table 1.

NEP GLOBEC LTOP STANDARD STATIONS				
Latitude N (degrees, minutes)		**Longitude W (degrees, minutes)**		**Station Name**
Resurrection Bay Station				
60	1.5	149	21.5	RES2.5
Seward Line				
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
Cape Fairfield Line				
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

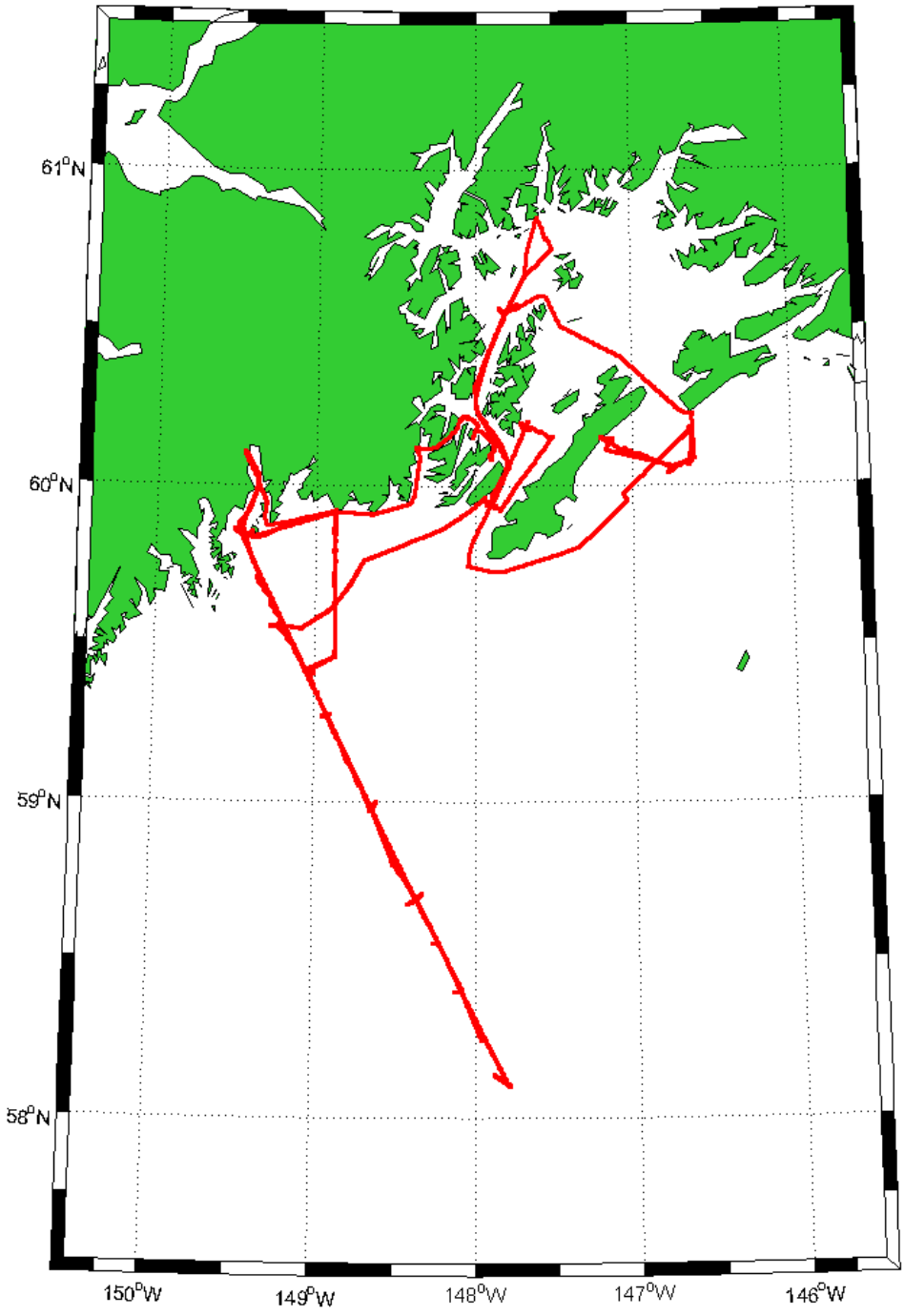
59	29	148	52	CF14
59	27	148	52	CF15
Prince William Sound Stations				
60	22.78	147	56.17	PWS1
60	32.1	147	48.2	PWS2
Knight Island Passage Station				
60	16.7	147	59.2	KIP2
Hogan Bay Line				
60	11.57	147	42	HB1
60	10.754	147	38.5	HB2
60	9.855	147	34.508	HB3
60	8.807	147	30.04	HB4
Montague Strait Line				
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

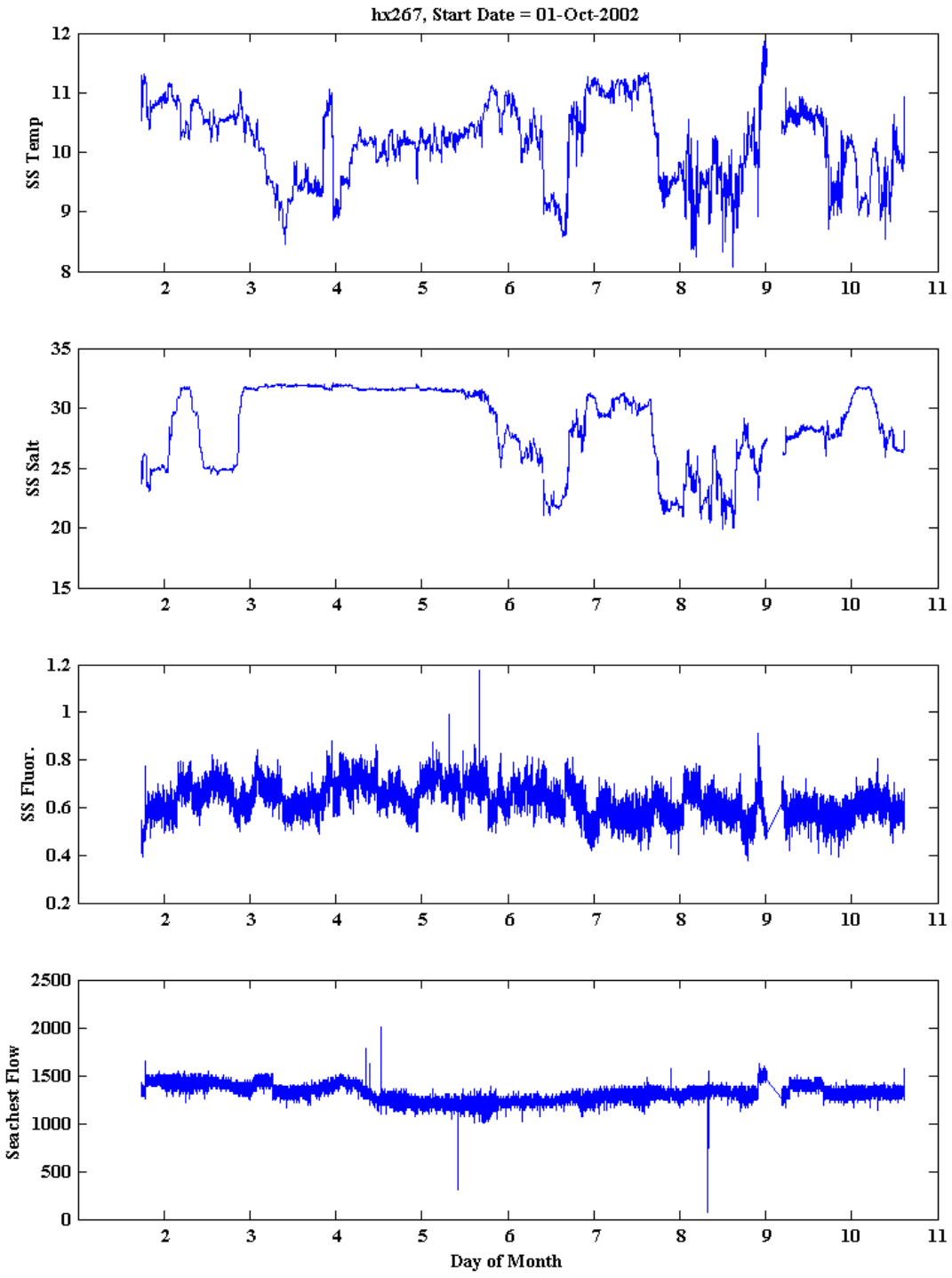
NEP GLOBEC Standard Station Map



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

hx267 Cruise Track

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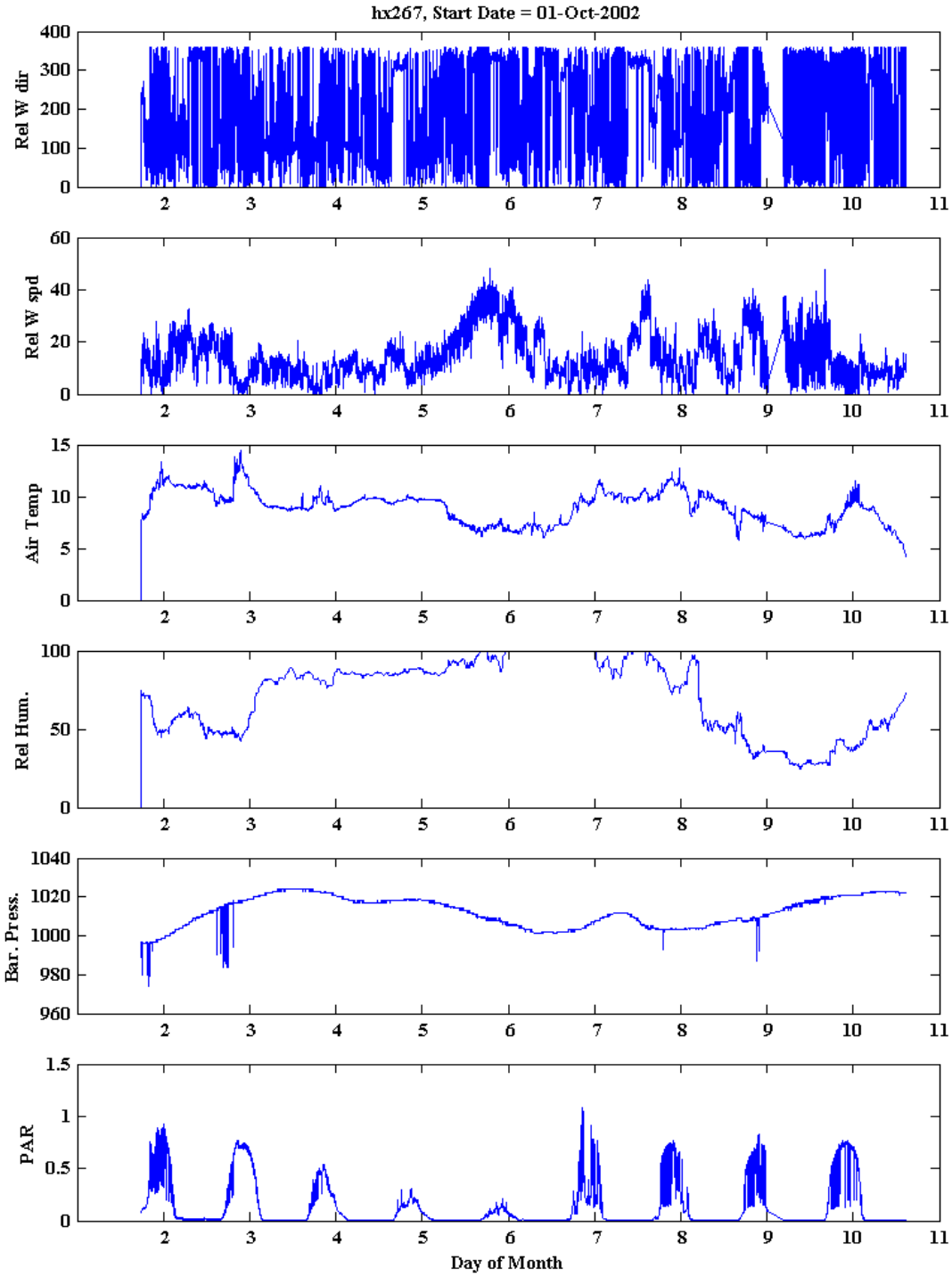
SS Salt
SS Fluor.
Seachest Flow
Day of Month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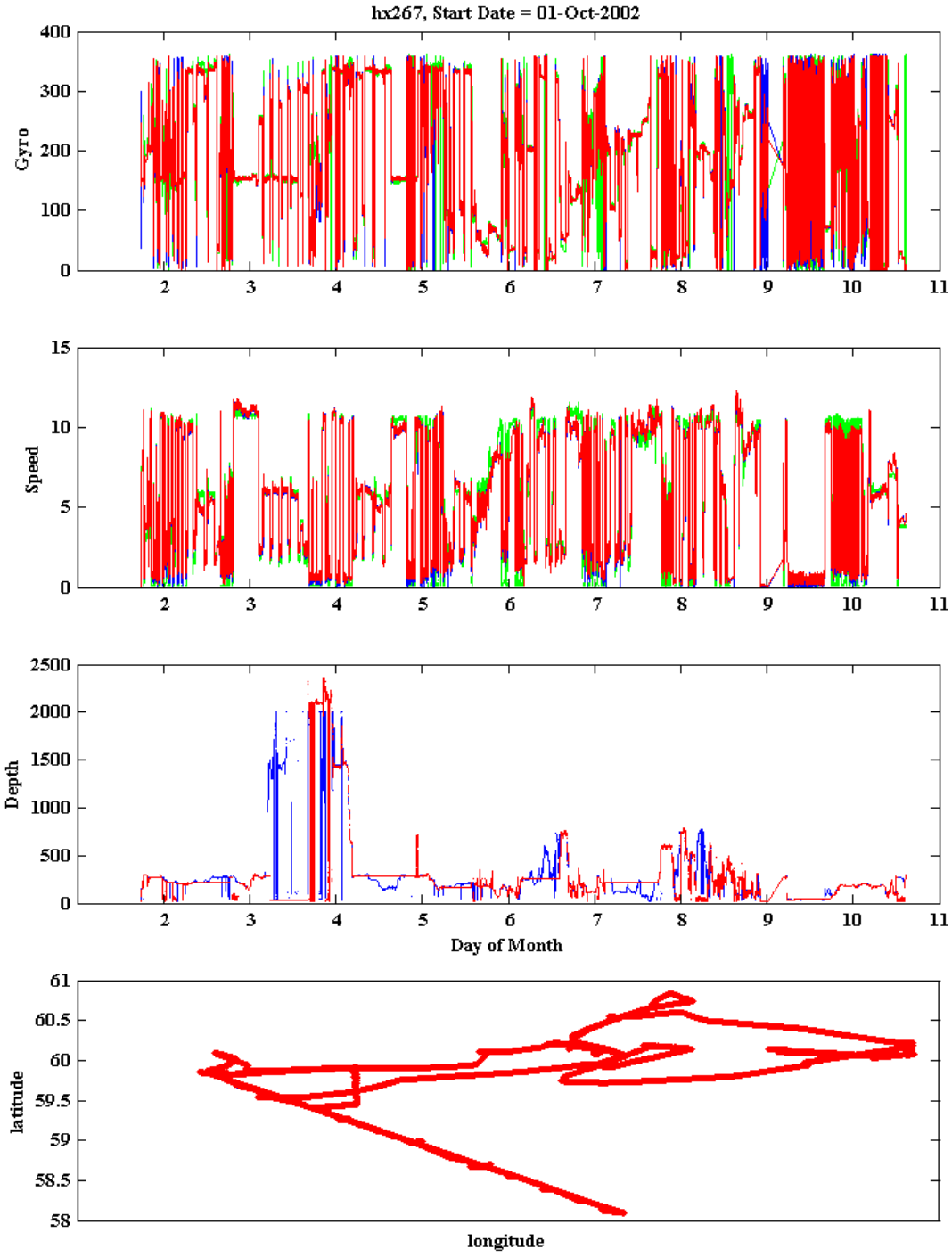
PAR
Day of Month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Gyro
Speed
Depth
Day of Month
latitude
longitude

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	Comments	Scientist
HX26727402.001	CTD1 Start	RES2.5	10/1/2002	18:32	60.0223	149.359	295		Weingartner
HX26727402.002	CTD1 End	RES2.5	10/1/2002	18:49	60.019	149.356	295		Weingartner
HX26727402.003	CTD2 Start	GAK 1	10/1/2002	20:46	59.8434	149.475	271		Weingartner
HX26727402.004	CTD2 End	GAK 1	10/1/2002	21:07	59.8432	149.475	271		Weingartner
HX26727402.005	CalVET Net Tow Start	GAK 1	10/1/2002	21:30	59.8451	149.466	270	100m	Hopcroft
HX26727402.006	CalVET Net Tow End	GAK 1	10/1/2002	21:35	59.8449	149.466	270		Hopcroft
HX26727402.007	CTD3 Start	GAK 1	10/1/2002	21:42	59.8434	149.468	270	zoop cast 1	Hopcroft
HX26727402.008	CTD3 End	GAK 1	10/1/2002	21:45	59.843	149.468	270		Hopcroft
HX26727402.009	CTD4 Start	GAK 1	10/1/2002	22:05	59.8442	149.469	270	zoop cast 2	Hopcroft
HX26727402.010	CTD4 End	GAK 1	10/1/2002	22:12	59.8442	149.471	270		Hopcroft
HX26727402.011	Ring Net Start	GAK 1	10/1/2002	22:13	59.8442	149.471	271		Hopcroft
HX26727402.012	Ring Net End	GAK 1	10/1/2002	22:17	59.8439	149.472	271	50m	Hopcroft
HX26727402.013	CTD5 Start	GAK 1	10/1/2002	22:21	59.8453	149.468	271	zoop cast 3	Hopcroft
HX26727402.014	CTD5 End	GAK 1	10/1/2002	22:25	59.845	149.468	271		Hopcroft
HX26727402.015	Ring Net Start	GAK 1	10/1/2002	22:27	59.8442	149.471	271		Hopcroft
HX26727402.016	Ring Net End	GAK 1	10/1/2002	22:31	59.8439	149.472	271	50m	Hopcroft
HX26727402.017	CTD6 Start	GAK 1	10/1/2002	22:36	59.8442	149.472	271	zoop cast 4	Hopcroft
HX26727402.018	CTD6 End	GAK 1	10/1/2002	22:40	59.8439	149.47	na		Hopcroft
HX26727402.019	Ring Net Start	GAK 1	10/1/2002	22:41	59.8442	149.471	271		Hopcroft
HX26727402.020	Ring Net End	GAK 1	10/1/2002	22:45	59.8439	149.472	271	50m	Hopcroft
HX26727402.021	CTD7 Start	GAK 1	10/1/2002	22:53	59.845	149.467	271	zoop cast 5	Hopcroft
HX26727402.022	CTD7 End	GAK1	10/1/2002	22:58	59.8447	149.467	na		Hopcroft
HX26727402.023	CalVET Net Tow Start	GAK 1	10/1/2002	21:59	59.8451	149.466	270	100 m	Hopcroft
HX26727402.024	CalVET Net Tow End	GAK 1	10/1/2002	22:04	59.8449	149.466	270		Hopcroft
HX26727402.025	CTD8 Start	GAK 1i	10/1/2002	23:43	59.765	149.398	260		Weingartner
HX26727502.001	CTD8 End	GAK 1i	10/2/2002	0:05	59.759	149.39	259		Weingartner
HX26727502.002	CTD9 Start	GAK2	10/2/2002	0:40	59.691	149.33	230		Weingartner
HX26727502.003	CTD9 End	GAK2	10/2/2002	0:55	59.675	149.3	230		Weingartner
HX26727502.004	CalVET Net Tow Start	GAK2	10/2/2002	0:59	59.675	149.3	na	100 m	Hopcroft
HX26727502.005	CalVET Net Tow End	GAK2	10/2/2002	1:04	59.675	149.345	230		Hopcroft
HX26727502.006	CTD10 Start	GAK2i	10/2/2002	1:35	59.6253	149.26	213		Weingartner
HX26727502.007	CTD10 End	GAK 2i	10/2/2002	1:53	59.6249	149.258	213		Weingartner
HX26727502.008	CTD11 Start	GAK3	10/2/2002	2:34	59.5533	149.188	212		Weingartner
HX26727502.009	CTD11 End	GAK3	10/2/2002	2:48	59.5537	149.192	212		Weingartner
HX26727502.010	CalVET Net Tow Start	GAK3	10/2/2002	2:58	59.5521	149.193	212		Hopcroft
HX26727502.011	CalVET Net	GAK3	10/2/2002	3:01	59.5517	149.193	212		Hopcroft

	Tow End								
HX26727502.012	CTD12 Start	GAK3i	10/2/2002	3:58	59.4827	149.117	205		Weingartner
HX26727502.013	CTD12 End	GAK3i	10/2/2002	4:13	59.4844	149.118	205		Weingartner
HX26727502.014	CTD13 Start	GAK4	10/2/2002	5:03	59.4104	149.046	202		Weingartner
HX26727502.015	CTD13 End	GAK4	10/2/2002	5:18	59.4125	149.045	202		Weingartner
HX26727502.016	CTD14 Start	GAK4i	10/2/2002	6:11	59.3363	148.974	195		Weingartner
HX26727502.017	CTD14 End	GAK4i	10/2/2002	6:24	59.338	148.97	195		Weingartner
HX26727502.018	HTI Transect Start	GAK3	10/2/2002	9:26	59.5543	149.192	213		Coyle
HX26727502.019	MOCNESS Start	GAK3	10/2/2002	8:27	59.5515	149.213	213		Coyle
HX26727502.020	MOCNESS End	GAK3	10/2/2002	8:58	59.5472	149.259	213		Coyle
HX26727502.021	MOCNESS Start	GAK2	10/2/2002	11:22	59.6926	149.329	224		Coyle
HX26727502.022	MOCNESS End	GAK2	10/2/2002	11:57	59.7002	149.358	224		Coyle
HX26727502.023	HTI Transect End	GAK1	10/2/2002	14:14	59.8455	149.467	269		Coyle
HX26727502.024	MOCNESS Start	GAK1	10/2/2002	14:17	59.857	149.473	269		Coyle
HX26727502.025	MOCNESS End	GAK1	10/2/2002	14:50	59.8636	149.475	269		Coyle
HX26727502.026	CTD15 Start	GAK1	10/2/2002	16:01	59.8441	149.469	270		Weingartner
HX26727502.027	CTD15 End	GAK1	10/2/2002	16:31	59.8472	149.466	270		Weingartner
HX26727502.028	CTD16 Start	GAK1	10/2/2002	16:32	59.8471	149.466	270	zoop cast 1	Hopcroft
HX26727502.029	CTD16 End	GAK1	10/2/2002	16:36	59.8462	149.467	270		Hopcroft
HX26727502.030	CTD17 Start	GAK1	10/2/2002	17:03	59.8441	149.47	270	zoop cast 2	Hopcroft
HX26727502.031	CTD17 Start	GAK1	10/2/2002	17:08	59.8429	149.471	270		Hopcroft
HX26727502.032	CTD18 Start	GAK1	10/2/2002	17:21	59.8405	149.471	270	zoop cast 3	Hopcroft
HX26727502.033	CTD18 End	GAK1	10/2/2002	17:25	59.8398	149.47	275		Hopcroft
HX26727502.034	CTD19 Start	GAK1	10/2/2002	17:40	59.8438	149.468	270	prim prod cast 30 m	Weingartner
HX26727502.035	CTD19 End	GAK1	10/2/2002	17:50	59.8417	149.468	270		Weingartner
HX26727502.036	CTD20 Start	GAK1	10/2/2002	18:15	59.841	149.467	270	Repeat prim prod water draw	Weingartner
HX26727502.037	CTD20 End	GAK1	10/2/2002	18:20	59.8401	149.466	270		Weingartner
HX26727502.038	Ring Net Start	GAK1	10/2/2002	18:26	59.8451	149.466	270	50 m	Hopcroft
HX26727502.039	Ring Net End	GAK1	10/2/2002	18:36	59.8426	149.466	270		Hopcroft
HX26727502.040	Ring Net Start	GAK1	10/2/2002	18:39	59.8419	149.466	270		Hopcroft
HX26727502.041	Ring Net End	GAK1	10/2/2002	18:42	59.8411	149.467	270	50 m	Hopcroft
HX26727502.042	Ring Net Start	GAK1	10/2/2002	18:45	59.8402	149.467	270		Hopcroft
HX26727502.043	Ring Net End	GAK1	10/2/2002	18:50	59.8389	149.468	270		Hopcroft
HX26727602.001	HTI Transect Start	GAK9	10/3/2002	3:57	58.6773	148.348	282		Coyle
HX26727602.002	HTI Transect End	GAK10	10/3/2002	5:33	58.5416	148.21	1458		Coyle
HX26727602.003	MOCNESS Start	GAK10	10/3/2002	5:36	58.542	148.214	1464		Coyle
HX26727602.004	MOCNESS End	GAK10	10/3/2002	6:07	58.5452	148.246	1462		Coyle

HX26727602.005	HTI Transect Start	GAK10	10/3/2002	6:28	58.5404	148.209	1465		Coyle
HX26727602.006	HTI Transect End	GAK11	10/3/2002	8:11	58.3883	148.07	1423		Coyle
HX26727602.007	MOCNESS Start	GAK11	10/3/2002	8:17	58.3893	148.076	1420		Coyle
HX26727602.008	MOCNESS End	GAK11	10/3/2002	8:47	58.3919	148.111	1415		Coyle
HX26727602.009	HTI Transect Start	GAK11	10/3/2002	9:06	58.3872	148.07	1424		Coyle
HX26727602.010	HTI Transect End	GAK12	10/3/2002	10:45	58.2432	147.932	2150		Coyle
HX26727602.011	MOCNESS Start	GAK12	10/3/2002	10:48	58.2446	147.936	2138		Coyle
HX26727602.012	MOCNESS End	GAK12	10/3/2002	11:16	58.2528	147.969	2095		Coyle
HX26727602.013	HTI Transect Start	GAK12	10/3/2002	11:30	58.244	147.936	2151		Coyle
HX26727602.014	HTI Transect End	GAK13	10/3/2002	13:05	58.1	147.794	2087		Coyle
HX26727602.015	MOCNESS Start	GAK13	10/3/2002	13:22	58.0998	147.795	2325		Coyle
HX26727602.016	MOCNESS End	GAK13	10/3/2002	13:57	58.1148	147.831	2310		Coyle
HX26727602.017	MOCNESS Start	GAK13	10/3/2002	14:47	58.0964	147.785	2300	deep tow	Coyle
HX26727602.018	MOCNESS End	GAK13	10/3/2002	16:08	58.1268	147.87	2327		Coyle
HX26727602.019	CTD21 Start	GAK13	10/3/2002	16:34	58.0974	147.795	2087	Begin zoop prod casts	Hopcroft
HX26727602.020	CTD21 Start	GAK13	10/3/2002	16:39	58.0976	147.794	2087		Hopcroft
HX26727602.021	CTD22 Start	GAK13	10/3/2002	16:49	58.0982	147.793	2087	zoop prod #2 all 12 m	Hopcroft
HX26727602.022	CTD22 End	GAK13	10/3/2002	16:50	58.0982	147.793	2087		Hopcroft
HX26727602.023	CTD23 Start	GAK13	10/3/2002	16:59	58.0988	147.791	2090	zoop cast 3	Hopcroft
HX26727602.024	CTD23 End	GAK13	10/3/2002	17:02	58.0991	147.791	2090		Hopcroft
HX26727602.025	CTD24 Start	GAK13	10/3/2002	17:09	58.0994	147.79	2090	zoop cast 4	Hopcroft
HX26727602.026	CTD24 End	GAK13	10/3/2002	17:11	58.0995	147.789	2090		Hopcroft
HX26727602.027	CTD25 Start	GAK13	10/3/2002	17:20	58.0998	147.788	2093	zoop cast 5	Hopcroft
HX26727602.028	CTD25 End	GAK13	10/3/2002	17:22	58.0999	147.787	2093		Hopcroft
HX26727602.029	Ring Net Start	GAK13	10/3/2002	17:37	58.0988	147.792	2093	50 m	Hopcroft
HX26727602.030	Ring Net end	GAK13	10/3/2002	17:41	58.0988	147.792	2093	50 m	Hopcroft
HX26727602.031	CTD26 Start	GAK13	10/3/2002	17:45	58.0987	147.791	2087	prim prod cast 42 m	Weingartner
HX26727602.032	CTD26 End	GAK13	10/3/2002	17:52	58.099	147.79	2087		Weingartner
HX26727602.033	Ring Net Start	GAK13	10/3/2002	17:55	58.0994	147.788	2087	50m	Hopcroft
HX26727602.034	Ring Net End	GAK13	10/3/2002	18:01	58.0996	147.788	2099		Hopcroft
HX26727602.035	Ring Net Start	GAK13	10/3/2002	18:05	58.0997	147.787	2099	50 m	Hopcroft
HX26727602.036	Ring Net End	GAK13	10/3/2002	18:11	58.0998	147.786	2099		Hopcroft
HX26727602.037	CTD27 Start	GAK13	10/3/2002	18:14	58.0998	147.785	2099	250m	Weingartner
HX26727602.038	CTD27 End	GAK13	10/3/2002	18:31	58.0997	147.783	2099		Weingartner
HX26727602.039	CTD28 Start	GAK13	10/3/2002	18:50	58.0965	147.793	2099	1505 db	Weingartner
HX26727602.040	CTD28 End	GAK13	10/3/2002	19:57	58.0942	147.785	2091		Weingartner

HX26727602.041	CalVET Net Tow Start	GAK13	10/3/2002	20:00	58.094	147.785	2091	100m	Hopcroft
HX26727602.042	CalVET Net Tow End	GAK13	10/3/2002	20:12	58.0929	147.784	2091		Hopcroft
HX26727602.043	CalVET Net Tow Start	GAK12	10/3/2002	21:35	58.2441	147.942	2151	100	Hopcroft
HX26727602.044	CalVET Net Tow End	GAK12	10/3/2002	21:38	58.2439	147.943	2151		Hopcroft
HX26727602.045	CTD29 Start	GAK12	10/3/2002	21:43	58.2427	147.933	2168	1506 db	Weingartner
HX26727602.046	CTD29 End	GAK12	10/3/2002	22:54	58.2392	147.956	2090		Weingartner
HX26727602.047	CalVET Net Tow Start	GAK11	10/3/2002	23:51	58.3896	148.073	1428	100 m	Hopcroft
HX26727602.048	CalVET Net Tow End	GAK11	10/3/2002	23:59	58.3908	148.075	1428		Hopcroft
HX26727602.049	CTD30 Start	GAK11	10/3/2002	23:59	58.3909	148.075	1428		Weingartner
HX26727702.001	CTD30 End	GAK11	10/4/2002	1:04	58.3946	148.069	1427		Weingartner
HX26727702.002	CalVET Net Tow Start	GAK11	10/4/2002	2:04	58.5416	148.214	1465	100 m	Weingartner
HX26727702.003	CalVET Net Tow End	GAK11	10/4/2002	2:11	58.543	148.212	1465		Hopcroft
HX26727702.004	CTD31 Start	GAK10	10/4/2002	2:14	58.5431	148.211	1460	1442db	Weingartner
HX26727702.005	CTD31 End	GAK10	10/4/2002	3:23	58.5485	148.218	1414		Weingartner
HX26727702.006	CTD32 Start	GAK9i	10/4/2002	3:53	58.6124	148.28	670		Weingartner
HX26727702.007	CTD32 End	GAK9i	10/4/2002	4:25	58.6156	148.287	643	650	Weingartner
HX26727702.008	MOCNESS Start	GAK9	10/4/2002	4:57	58.684	148.344	282		Coyle
HX26727702.009	MOCNESS End	GAK9	10/4/2002	5:32	58.6993	148.321	282		Coyle
HX26727702.010	HTI Transect Start	GAK9	10/4/2002	5:57	58.6818	148.352	282		Coyle
HX26727702.011	HTI Transect End	GAK8	10/4/2002	7:15	58.7923	148.492	291		Coyle
HX26727702.012	MOCNESS Start	GAK8	10/4/2002	7:20	58.7914	148.487	291		Coyle
HX26727702.013	MOCNESS End	GAK8	10/4/2002	7:49	58.7889	148.455	291		Coyle
HX26727702.014	HTI Transect Start	GAK8	10/4/2002	8:08	58.7941	148.492	291		Coyle
HX26727702.015	HTI Transect End	GAK7	10/4/2002	10:00	58.9706	148.629	242		Coyle
HX26727702.016	MOCNESS Start	GAK7	10/4/2002	10:05	58.9757	148.627	242		Coyle
HX26727702.017	MOCNESS End	GAK7	10/4/2002	10:35	58.9897	148.6	242		Coyle
HX26727702.018	HTI Transect Start	GAK7	10/4/2002	11:03	58.9735	148.631	242		Coyle
HX26727702.019	HTI Transect End	GAK6	10/4/2002	12:59	59.1175	148.771	149		Coyle
HX26727702.020	MOCNESS Start	GAK6	10/4/2002	13:02	59.1184	148.772	149		Coyle
HX26727702.021	MOCNESS End	GAK6	10/4/2002	13:30	59.1285	148.785	149		Coyle
HX26727702.022	HTI Transect Start	GAK6	10/4/2002	13:47	59.1187	148.77	149		Coyle
HX26727702.023	HTI Transect End	GAK5	10/4/2002	15:28	59.2631	148.91	166		Coyle
HX26727702.024	CTD33 Start	GAK9	10/4/2002	19:35	58.6814	148.35	280	Prim Prod Cast	Weingartner

HX26727702.025	CTD33 End	GAK9	10/4/2002	19:44	58.6816	148.351	280	42 m	Weingartner
HX26727702.026	CTD34 Start	GAK9	10/4/2002	20:09	58.6804	148.35	280		Weingartner
HX26727702.027	CTD34 End	GAK9	10/4/2002	20:27	58.6819	148.354	280	279 db	Weingartner
HX26727702.028	Ring Net Start	GAK9	10/4/2002	20:30	58.6821	148.354	280	50	Hopcroft
HX26727702.029	Ring Net End	GAK9	10/4/2002	20:34	58.683	148.355	280		Hopcroft
HX26727702.030	Ring Net start	GAK9	10/4/2002	20:42	58.6832	148.355	280	50 m	Hopcroft
HX26727702.031	Ring Net End	GAK9	10/4/2002	20:42	58.6832	148.356	280		Hopcroft
HX26727702.032	Ring Net Start	GAK9	10/4/2002	20:56	58.6845	148.358	280	50 m	Hopcroft
HX26727702.033	Ring Net End	GAK9	10/4/2002	20:59	58.6849	148.358	280		Hopcroft
HX26727702.034	CTD35 Start	GAK9	10/4/2002	21:02	58.6852	148.359	280	zoop cast 1	Hopcroft
HX26727702.035	CTD35 End	GAK9	10/4/2002	21:11	58.6862	148.36	280		Hopcroft
HX26727702.036	CalVET Net Tow Start	GAK9	10/4/2002	21:22	58.6808	148.35	288	100 m	Hopcroft
HX26727702.037	CalVET Net Tow End	GAK9	10/4/2002	21:28	58.681	148.35	288		Hopcroft
HX26727702.038	CTD36 Start	GAK9	10/4/2002	21:33	58.6814	148.351	288	zoop cast 2	Hopcroft
HX26727702.039	CTD36 End	GAK9	10/4/2002	21:34	58.6816	148.352	288		Hopcroft
HX26727702.040	CTD37 Start	GAK9	10/4/2002	21:43	58.6826	148.353	282	zoop cast 3	Hopcroft
HX26727702.041	CTD37 End	GAK9	10/4/2002	21:45	58.6828	148.353	282		Hopcroft
HX26727702.042	CTD38 Start	GAK9	10/4/2002	21:52	58.6837	148.354	282	zoop cast 4	Hopcroft
HX26727702.043	CTD38 End	GAK9	10/4/2002	21:54	58.684	148.354	282		Hopcroft
HX26727702.044	CTD39 Start	GAK9	10/4/2002	22:01	58.6848	148.354	282	zoop cast 5	Hopcroft
HX26727702.045	CTD39 End	GAK9	10/4/2002	22:03	58.685	148.354	282		Hopcroft
HX26727702.046	CTD40 Start	GAK8i	10/4/2002	23:38	58.7439	148.419	290		Weingartner
HX26727702.047	CTD40 End	GAK8i	10/4/2002	23:57	58.7442	148.42	289	288db	Weingartner
HX26727802.001	CTD41 Start	GAK8	10/5/2002	0:23	58.7933	148.493	290		Weingartner
HX26727802.002	CTD41 End	GAK8	10/5/2002	0:39	58.7932	148.494	292	291 db	Weingartner
HX26727802.003	CTD42 Start	GAK7i	10/5/2002	1:27	58.8816	148.559	300		Weingartner
HX26727802.004	CTD42 End	GAK7i	10/5/2002	1:46	58.8779	148.557	300	297 db	Weingartner
HX26727802.005	CTD43 Start	GAK7	10/5/2002	2:28	58.9712	148.63	242		Weingartner
HX26727802.006	CTD43 End	GAK7	10/5/2002	2:46	58.9658	148.635	242		Weingartner
HX26727802.007	CalVET Net Tow Start	GAK7	10/5/2002	2:48	58.9654	148.636	242	100m	Hopcroft
HX26727802.008	CalVET Net Tow End	GAK7	10/5/2002	2:56	58.9638	148.638	242		Hopcroft
HX26727802.009	CTD44 Start	GAK6i	10/5/2002	3:30	59.0455	148.702	189		Weingartner
HX26727802.010	CTD44 End	GAK6i	10/5/2002	3:45	59.0448	148.712	189	188m	Weingartner
HX26727802.011	CTD45 Start	GAK6	10/5/2002	4:15	59.1172	148.772	150		Weingartner
HX26727802.012	CTD45 End	GAK6	10/5/2002	4:27	59.1169	148.779	148	148 db	Weingartner
HX26727802.013	CalVET Net Tow Start	GAK6	10/5/2002	4:28	59.117	148.779	148	100 m	Hopcroft
HX26727802.014	CalVET Net Tow End	GAK6	10/5/2002	4:35	59.1176	148.783	148		Hopcroft
HX26727802.015	CTD46 Start	GAK5i	10/5/2002	5:06	59.1909	148.841	167		Weingartner
HX26727802.016	CTD46 End	GAK5i	10/5/2002	5:19	59.1929	148.85	168	162 db	Weingartner
HX26727802.017	CTD47 Start	GAK5	10/5/2002	5:48	59.2628	148.909	168		Weingartner
HX26727802.018	CTD47 End	GAK5	10/5/2002	6:02	59.2629	148.919	168		Weingartner
HX26727802.019	CalVET Net Tow Start	GAK5	10/5/2002	6:04	59.2632	148.921	168		Hopcroft

HX26727802.020	CalVET Net Tow End	GAK5	10/5/2002	6:11	59.2641	148.927	168		Hopcroft
HX26727802.021	MOCNESS Start	GAK5	10/5/2002	8:15	59.2629	148.923	172		Coyle
HX26727802.022	MOCNESS End	GAK5	10/5/2002	8:46	59.2671	148.895	172		Coyle
HX26727802.023	HTI Transect Start	GAK5	10/5/2002	9:03	59.2632	148.91	172		Coyle
HX26727802.024	HTI Transect End	GAK4	10/5/2002	10:33	59.4047	149.046	200		Coyle
HX26727802.025	MOCNESS Start	GAK4	10/5/2002	10:46	59.4028	149.032	200		Coyle
HX26727802.026	MOCNESS End	GAK4	10/5/2002	11:21	59.3987	148.996	200		Coyle
HX26727802.027	CTD48 Start	GAK3	10/5/2002	13:46	59.553	149.191	212		Weingartner
HX26727802.028	CTD48 End	GAK3	10/5/2002	13:59	59.549	149.197	212		Weingartner
HX26727802.029	CTD49 Start	MS1	10/5/2002	22:04	59.9537	147.931	166		Weingartner
HX26727802.030	CTD49 End	MS1	10/5/2002	22:18	59.9474	147.943	155	161 db 3 knots current	Weingartner
HX26727802.031	CTD50 Start	MS2	10/5/2002	22:33	59.9429	147.897	196		Weingartner
HX26727802.032	CTD50 End	MS2	10/5/2002	22:49	59.9328	147.909	181	187 db	Weingartner
HX26727802.033	CalVET Net Tow Start	MS2	10/5/2002	22:50	59.9326	147.909	181	100 m	Hopcroft
HX26727802.034	CalVET Net Tow End	MS2	10/5/2002	22:56	59.9305	147.916	175		Hopcroft
HX26727802.035	CTD51 Start	MS3	10/5/2002	23:17	59.9312	147.857	166		Weingartner
HX26727802.036	CTD51 End	MS3	10/5/2002	23:34	59.9224	147.869	160	168 db	Weingartner
HX26727802.037	CTD52 Start	MS4	10/5/2002	23:47	59.9197	147.829	111		Weingartner
HX26727802.038	CTD52 End	MS4	10/5/2002	23:57	59.9125	147.835	106	115 db	Weingartner
HX26727902.001	CTD53 Start	HB4	10/6/2002	2:00	60.1466	147.504	106		Weingartner
HX26727902.002	CTD53 End	HB4	10/6/2002	2:09	60.1443	147.507	106		Weingartner
HX26727902.003	CTD54 Start	HB3	10/6/2002	2:29	60.1642	147.576	87		Weingartner
HX26727902.004	CTD54 End	HB3	10/6/2002	2:40	60.161	147.578	87		Weingartner
HX26727902.005	CalVET Net Tow Start	HB2	10/6/2002	2:59	60.1795	147.642	174		Hopcroft
HX26727902.006	CalVET Net Tow End	HB2	10/6/2002	3:05	60.1771	147.645	174		Hopcroft
HX26727902.007	CTD55 Start	HB2	10/6/2002	3:08	60.1761	147.645	174		Weingartner
HX26727902.008	CTD55 End	HB2	10/6/2002	3:23	60.169	147.648	174	176 db	Weingartner
HX26727902.009	CTD56 Start	HB1	10/6/2002	3:44	60.1919	147.702	241		Weingartner
HX26727902.010	CTD56 End	HB1	10/6/2002	4:01	60.1851	147.703	243	238 db	Weingartner
HX26727902.011	MOCNESS Start	HB2	10/6/2002	4:25	60.1722	147.68	258		Coyle
HX26727902.012	MOCNESS End	HB2	10/6/2002	na	na	na	Na		Coyle
HX26727902.013	MOCNESS Start	MS2	10/6/2002	7:13	59.9403	147.882	190		Coyle
HX26727902.014	MOCNESS End	MS2	10/6/2002	7:45	59.9563	147.886	190		Coyle
HX26727902.015	MOCNESS Start	KIP2	10/6/2002	10:18	60.2804	147.987	562		Coyle
HX26727902.016	MOCNESS End	KIP2	10/6/2002	10:54	60.3005	147.993	562		Coyle
HX26727902.017	MOCNESS Start	PWS1	10/6/2002	11:34	60.379	147.935	335		Coyle
HX26727902.018	MOCNESS	PWS1	10/6/2002	12:09	60.394	147.917	335		Coyle

	End								
HX26727902.019	MOCNESS Start	PWS2	10/6/2002	13:20	60.5365	147.807	733		Coyle
HX26727902.020	MOCNESS End	PWS2	10/6/2002	13:57	60.5517	147.834	385		Coyle
HX26727902.021	MOCNESS Start	PWS2	10/6/2002	14:44	60.5395	147.797	733		Coyle
HX26727902.022	MOCNESS end	PWS2	10/6/2002	15:58	60.5651	147.726	730		Coyle
HX26727902.023	CTD57 Start	HE1	10/6/2002	20:43	60.2167	146.61	80		Weingartner
HX26727902.024	CTD57 End	HE1	10/6/2002	20:58	60.1797	146.608	85		Weingartner
HX26727902.025	CTD58 Start	HE2	10/6/2002	21:11	60.1789	146.611	192		Weingartner
HX26727902.026	CTD58 End	HE2	10/6/2002	21:24	60.1758	146.621	185	191 db	Weingartner
HX26727902.027	CalVET Net Tow Start	HE2	10/6/2002	21:30	60.1738	146.63	185	100m	Hopcroft
HX26727902.028	CalVET Net Tow End	HE2	10/6/2002	21:34	60.1734	146.633	185		Hopcroft
HX26727902.029	CTD59 Start	HE3	10/6/2002	21:54	60.1298	146.61	116	114 db	Weingartner
HX26727902.030	CTD59 End	HE3	10/6/2002	22:04	60.1303	146.608	116		Weingartner
HX26727902.031	CTD60 Start	HE4	10/6/2002	22:27	60.0799	146.607	117		Weingartner
HX26727902.032	CTD60 End	HE4	10/6/2002	22:36	60.0792	146.604	118	117	Weingartner
HX26727902.033	CalVET Net Tow Start	HE4	10/6/2002	22:39	60.0783	146.603	118		Hopcroft
HX26727902.034	CTD61 Start	HE6.5	10/6/2002	23:15	60.0505	146.737	126		Weingartner
HX26727902.035	CTD61 End	HE6.5	10/6/2002	23:24	60.0478	146.734	126		Weingartner
HX26727902.036	CalVET Net Tow Start	HE6.5	10/6/2002	23:27	60.0468	146.733	126	100m	Hopcroft
HX26727902.037	CalVET Net Tow End	HE6.5	10/6/2002	23:33	60.045	146.733	126		Hopcroft
HX26728002.001	CTD62 Start	HE8	10/7/2002	0:24	60.0922	146.963	148		Weingartner
HX26728002.002	CTD62 End	HE8	10/7/2002	0:36	60.0887	146.966	147	145 db	Weingartner
HX26728002.003	CTD63 Start	HE9	10/7/2002	0:57	60.1073	147.051	275		Weingartner
HX26728002.004	CTD63 End	HE9	10/7/2002	1:17	60.1004	147.061	275	272 db	Weingartner
HX26728002.005	CTD64 Start	HE10	10/7/2002	1:38	60.1286	147.136	215		Weingartner
HX26728002.006	CTD64 End	HE10	10/7/2002	1:53	60.1265	147.143	215	214 db	Weingartner
HX26728002.007	CalVET Net Tow Start	HE10	10/7/2002	1:56	60.1264	147.144	215		Hopcroft
HX26728002.008	CalVET Net Tow End	HE10	10/7/2002	2:03	60.1258	147.146	215	100 m	Hopcroft
HX26728002.009	CTD65 Start	HE11	10/7/2002	2:16	60.1426	147.19	175		Weingartner
HX26728002.010	CTD65 End	HE11	10/7/2002	2:27	60.1424	147.193	175	173 db	Weingartner
HX26728002.011	MOCNESS Start	HE10	10/7/2002	3:47	60.1261	147.144	214		Coyle
HX26728002.012	MOCNESS End	HE10	10/7/2002	4:20	60.1082	147.16	214		Coyle
HX26728002.013	MOCNESS Start	HE6.5	10/7/2002	5:54	60.0507	146.739	122		Coyle
HX26728002.014	MOCNESS End	HE4	10/7/2002	7:31	60.0768	146.611	115		Coyle
HX26728002.015	MOCNESS Start	HE4	10/7/2002	8:04	60.0638	146.627	115		Coyle
HX26728002.016	MOCNESS End	HE2	10/7/2002	9:51	60.1586	146.645	185		Coyle
HX26728002.017	CTD66 Start	KIP2	10/7/2002	18:55	60.2791	147.983	590	Prim Prod cast	Weingartner
HX26728002.018	CTD66 End	KIP2	10/7/2002	19:04	60.2805	147.98	590	16 m	Weingartner

HX26728002.019	CalVET Net Tow Start	KIP2	10/7/2002	19:08	60.2787	147.988	590	100 m	Hopcroft
HX26728002.020	CalVET Net Tow End	KIP2	10/7/2002	19:14	60.278	147.985	590		Hopcroft
HX26728002.021	CTD67 Start	KIP2	10/7/2002	19:28	60.2782	147.985	590		Weingartner
HX26728002.022	CTD67 End	KIP2	10/7/2002	19:50	60.2834	147.976	590	403 db	Weingartner
HX26728002.023	Ring Net Start	KIP2	10/7/2002	19:58	60.2786	147.989	590	50m	Hopcroft
HX26728002.024	Ring Net End	KIP2	10/7/2002	20:01	60.2793	147.988	590		Hopcroft
HX26728002.025	CTD68 Start	KIP2	10/7/2002	20:25	60.2783	147.985	608	zoop cast 1 16 m	Hopcroft
HX26728002.026	CTD68 End	KIP2	10/7/2002	20:29	60.2791	147.984	608		Hopcroft
HX26728002.027	CTD69 Start	KIP2	10/7/2002	20:34	60.2804	147.982	612	zoop cast 2	Hopcroft
HX26728002.028	CTD69 End	KIP2	10/7/2002	20:37	60.2812	147.981	612		Hopcroft
HX26728002.029	CTD70 Start	KIP2	10/7/2002	20:42	60.2823	147.979	612	zoop cast 3	Hopcroft
HX26728002.030	CTD70 End	KIP2	10/7/2002	20:44	60.283	147.978	592		Hopcroft
HX26728002.031	CTD71 Start	KIP2	10/7/2002	20:53	60.2782	147.985	592	zoop cast 4	Hopcroft
HX26728002.032	CTD71 End	KIP2	10/7/2002	20:55	60.2789	147.983	592		Hopcroft
HX26728002.033	CTD72 Start	KIP2	10/7/2002	21:00	60.2799	147.981	592	zoop cast 5	Hopcroft
HX26728002.034	CTD72 End	KIP2	10/7/2002	21:03	60.2806	147.979	592		Hopcroft
HX26728002.035	Ring Net Start	KIP2	10/7/2002	21:12	60.2794	147.988	592	50m	Hopcroft
HX26728002.036	Ring Net End	KIP2	10/7/2002	21:16	60.281	147.986	592		Hopcroft
HX26728002.037	Ring Net Start	KIP2	10/7/2002	21:23	60.2828	147.984	592	50m	Hopcroft
HX26728002.038	Ring Net End	KIP2	10/7/2002	21:27	60.2835	147.984	592		Hopcroft
HX26728002.039	CTD73 Start	PWS1	10/7/2002	22:08	60.38	147.934	335		Weingartner
HX26728002.040	CTD73 End	PWS1	10/7/2002	22:26	60.3823	147.931	335	334 db	Weingartner
HX26728002.041	CalVET Net Tow Start	PWS1	10/7/2002	22:40	60.379	147.937	335	100m	Hopcroft
HX26728002.042	CalVET Net Tow End	PWS1	10/7/2002	22:45	60.38	147.936	335		Hopcroft
HX26728002.043	CTD74 Start	PWS2	10/7/2002	23:48	60.5342	147.801	735		Weingartner
HX26728102.001	CTD74 End	PWS2	10/8/2002	0:24	60.532	147.801	735	730 db	Weingartner
HX26728102.002	CalVET Net Tow Start	PWS2	10/8/2002	0:28	60.5327	147.802	735	100m	Hopcroft
HX26728102.003	CalVET Net Tow End	PWS2	10/8/2002	0:33	60.5326	147.801	735		Hopcroft
HX26728102.004	CTD75 Start	NI4	10/8/2002	2:17	60.7409	147.496	168		Weingartner
HX26728102.005	CTD75 End	NI4	10/8/2002	2:41	60.7746	147.528	168	151 db	Weingartner
HX26728102.006	CTD76 Start	NI3	10/8/2002	2:41	60.7747	147.529	515		Weingartner
HX26728102.007	CTD76 End	NI3	10/8/2002	3:07	60.7733	147.538	522	515 db	Weingartner
HX26728102.008	CTD77 Start	NI2	10/8/2002	3:24	60.8097	147.567	501		Weingartner
HX26728102.009	CTD77 End	NI2	10/8/2002	3:46	60.81	147.565	501	496 db	Weingartner
HX26728102.010	CTD78 Start	NI1	10/8/2002	4:03	60.8414	147.596	220		Weingartner
HX26728102.011	CTD78 End	NI1	10/8/2002	4:14	60.8402	147.594	220	217 db	Weingartner
HX26728102.012	CTD79 Start	EV2	10/8/2002	9:22	60.0753	147.887	133		Weingartner
HX26728102.013	CTD79 End	EV2	10/8/2002	9:32	60.0769	147.882	133		Weingartner
HX26728102.014	CTD80 Start	EV1	10/8/2002	9:42	60.0841	147.903	236		Weingartner
HX26728102.015	CTD80 End	EV1	10/8/2002	9:57	60.0875	147.902	236		Weingartner
HX26728102.016	CTD81 Start	FL1	10/8/2002	10:52	60.1457	148.003	278		Weingartner
HX26728102.017	CTD81 End	FL1	10/8/2002	11:09	60.147	148.004	278		Weingartner

HX26728102.018	CTD82 Start	BP1	10/8/2002	12:17	60.1963	148.091	234		Weingartner
HX26728102.019	CTD82 End	BP1	10/8/2002	12:32	60.1948	148.092	234		Weingartner
HX26728202.001	CTD83 Start	GAK1	10/9/2002	4:00	59.8411	149.466	269	zoop cast 1 30m	Weingartner
HX26728202.002	CTD83 End	GAK1	10/9/2002	4:00	59.841	149.466	269		Weingartner
HX26728202.003	CTD84 Start	GAK1	10/9/2002	4:20	59.8452	149.468	269	zoop cast 2	Weingartner
HX26728202.004	CTD84 End	GAK1	10/9/2002	4:25	59.8426	149.466	269		Weingartner
HX26728202.005	CTD85 Start	GAK1	10/9/2002	4:41	59.8449	149.47	269	zoop cast 3	Weingartner
HX26728202.006	CTD85 End	GAK1	10/9/2002	4:46	59.8449	149.47	269		Weingartner
HX26728202.007	CTD86 Start	CF1	10/9/2002	17:57	59.9093	148.871	81		Weingartner
HX26728202.008	CTD86 end	CF1	10/9/2002	18:36	59.9092	148.871	81		Weingartner
HX26728202.009	CTD87 Start	CF1	10/9/2002	18:47	59.9093	148.871	82		Weingartner
HX26728202.010	CTD87 End	CF1	10/9/2002	19:00	59.8844	148.875	82		Weingartner
HX26728202.011	CTD88 Start	CF2	10/9/2002	19:13	59.8849	148.871	110		Weingartner
HX26728202.012	CTD88 End	CF2	10/9/2002	19:20	59.8854	148.876	110	109	Weingartner
HX26728202.013	CTD89 Start	CF3	10/9/2002	19:37	59.8503	148.87	157		Weingartner
HX26728202.014	CTD89 End	CF3	10/9/2002	19:51	59.853	148.879	159	152db	Weingartner
HX26728202.015	CTD90 Start	CF4	10/9/2002	20:08	59.8176	148.866	182		Weingartner
HX26728202.016	CTD90 End	CF4	10/9/2002	20:20	59.8188	148.871	182	181db	Weingartner
HX26728202.017	CTD91 Start	CF5	10/9/2002	20:36	59.7843	148.866	193		Weingartner
HX26728202.018	CTD91 End	CF5	10/9/2002	20:51	59.7868	148.874	193	191db	Weingartner
HX26728202.019	CTD92 Start	CF6	10/9/2002	21:12	59.7531	148.867	191		Weingartner
HX26728202.020	CTD92 End	CF6	10/9/2002	21:20	59.7554	148.87	192	191 db	Weingartner
HX26728202.021	CTD93 Start	CF7	10/9/2002	21:39	59.7182	148.866	183		Weingartner
HX26728202.022	CTD93 End	CF7	10/9/2002	21:54	59.7219	148.872	184	184 db	Weingartner
HX26728202.023	CTD94 Start	CF8	10/9/2002	22:14	59.6834	148.868	180		Weingartner
HX26728202.024	CTD94 End	CF8	10/9/2002	22:24	59.6857	148.872	182	181db	Weingartner
HX26728202.025	CTD95 Start	CF9	10/9/2002	22:43	59.651	148.867	180		Weingartner
HX26728202.026	CTD95 End	CF9	10/9/2002	22:54	59.6536	148.869	182	181 db	Weingartner
HX26728202.027	CTD96 Start	CF10	10/9/2002	23:11	59.6183	148.871	178		Weingartner
HX26728202.028	CTD96 End	CF10	10/9/2002	23:21	59.6184	148.871	178	177 db	Weingartner
HX26728202.029	CTD97 Start	CF11	10/9/2002	23:38	59.5832	148.867	180		Weingartner
HX26728202.030	CTD97 End	CF11	10/9/2002	23:50	59.5846	148.868	180	179 db	Weingartner
HX26728302.001	CTD98 Start	CF12	10/10/2002	0:06	59.5496	148.867	185		Weingartner
HX26728302.002	CTD98 End	CF12	10/10/2002	0:16	59.5513	148.866	185	182 db	Weingartner
HX26728302.003	CTD99 Start	CF13	10/10/2002	0:31	59.5165	148.866	176		Weingartner
HX26728302.004	CTD99 End	CF13	10/10/2002	0:43	59.5177	148.863	173	171 db	Weingartner
HX26728302.005	CTD100 Start	CF14	10/10/2002	1:00	59.4835	148.866	171		Weingartner
HX26728302.006	CTD100 End	CF14	10/10/2002	1:08	59.4845	148.863	171	169 db	Weingartner
HX26728302.007	CTD101 Start	CF15	10/10/2002	1:25	59.45	148.867	184		Weingartner
HX26728302.008	CTD101 End	CF15	10/10/2002	1:37	59.4512	148.862	184	182 db	Weingartner
HX26728302.009	Ring Net Start	GAK4	10/10/2002	2:20	59.409	149.049	201		Hopcroft
HX26728302.010	Ring Net End	GAK4	10/10/2002	2:25	59.4091	149.047	201	50m	Hopcroft
HX26728302.011	CTD102 Start	GAK4	10/10/2002	2:28	59.4094	149.045	201		Weingartner
HX26728302.012	CTD102 End	GAK4	10/10/2002	2:39	59.41	149.04	201		Weingartner
HX26728302.013	CalVET Net Tow Start	GAK4	10/10/2002	2:46	59.4064	149.05	201		Hopcroft

HX26728302.014	CalVET Net Tow End	GAK4	10/10/2002	2:52	59.406	149.047	201	100m	Hopcroft
HX26728302.015	CTD103 Start	GAK4	10/10/2002	3:01	59.408	149.049	201	zoop cast 1 20m	Hopcroft
HX26728302.016	CTD103 End	GAK4	10/10/2002	3:10	59.4081	149.046	201		Hopcroft
HX26728302.017	CTD104 Start	GAK4	10/10/2002	3:15	59.4079	149.044	201	zoop cast 2	Hopcroft
HX26728302.018	CTD104 End	GAK4	10/10/2002	3:18	59.4079	149.043	201		Hopcroft
HX26728302.019	CTD105 Start	GAK4	10/10/2002	3:24	59.4076	149.044	201	zoop cast 3	Hopcroft
HX26728302.020	CTD105 end	GAK4	10/10/2002	3:26	59.4076	149.044	201		Hopcroft
HX26728302.021	CTD106 Start	GAK4	10/10/2002	3:33	59.4073	149.043	201	zoop cast 4	Hopcroft
HX26728302.022	CTD106 End	GAK4	10/10/2002	3:35	59.4074	149.042	201		Hopcroft
HX26728302.023	CTD107 Start	GAK4	10/10/2002	3:40	59.4075	149.041	201	zoop cast 5	Hopcroft
HX26728302.024	CTD107 End	GAK4	10/10/2002	3:43	59.4072	149.041	201		Hopcroft
HX26728302.025	Ring Net Start	GAK4	10/10/2002	3:49	59.4064	149.036	201	50 m	Hopcroft
HX26728302.026	Ring Net End	GAK4	10/10/2002	3:54	59.4063	149.036	201		Hopcroft
HX26728302.027	Ring Net Start	GAK4	10/10/2002	4:05	59.4055	149.03	199		Hopcroft
HX26728302.028	Ring Net End	GAK4	10/10/2002	4:07	59.4055	149.03	199	50m	Hopcroft
HX26728302.029	Ring Net Start	GAK4	10/10/2002	4:10	59.4054	149.029	199		Hopcroft
HX26728302.030	Ring Net End	GAK4	10/10/2002	4:16	59.4051	149.026	199		Hopcroft
HX26728302.031	Start ADCP survey	CF15	10/10/2002	4:40	59.4051	149.026	Na		Weingartner
HX26728302.032	End ADCP survey	CF1	10/10/2002	na	na	na	Na		Weingartner
HX26728302.033	CTD108 Start	GAK1	10/10/2002	12:13	59.8454	149.473	272		Weingartner
HX26728302.034	CTD108 End	GAK1	10/10/2002	na	na	na	Na		Weingartner
HX26728302.035	CTD109 Start	RES2.5	10/10/2002	15:15	60.025	149.36	296		Weingartner
HX26728302.036	CTD109 End	RES2.5	10/10/2002	15:32	60.0265	149.36	296		Weingartner