

GLOBEC CRUISE REPORT
CRUISE HX241 – April 3-14 2001

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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 this end the GLOBEC cruises on the Gulf of Alaska shelf will determine the physical-chemical structure, primary production and the distribution and abundance of zooplankton, yoy salmon and other planktivorous fish. These interdisciplinary cruises will occur over a seven-year period and throughout the year so that seasonal and interannual depictions of the oceanography of this shelf will be available. 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 April 2001 cruise focused on the distribution of physical properties, nutrients, and chlorophyll, zooplankton, and seabird populations over the shelf along the Seward Line, within western Prince William Sound, and on the shelf south of Hinchinbrook Entrance. The purpose was to characterize the along

shore variability in the physical and chemical properties and the biological components of the northern Gulf of Alaska shelf.

Cruise Objectives

Determine thermohaline, velocity, and nutrient structure of the Gulf of Alaska shelf, emphasizing Seward Line (Table 1), C. Fairfield Line (Table 2), Prince William Sound stations (Table 3), offshore PWS stations (Table 4) and the Cape Cleare Southeast Line. Other lines as time permits

Determine primary production and phytoplankton biomass distribution.

Determine the distribution and abundance of zooplankton.

Determine the distribution and abundance of seabirds and marine mammals.

Determine copepod and euphausiid rates of growth and egg production.

SAMPLING

DAYTIME ACTIVITIES

Occupied the various hydrographic transects and collect vertical CTD-chlorophyll-PAR profiles. Station Transect priorities are (in order): Seward (Table 1), C. Fairfield (Table 2), W. PWS (Table 3), Hinchinbrook Entrance (Table 4). AHC Line (Table 6); PWSSW Line, and Cape Cleare Line (Table 7).

Collected ADCP, sea surface salinity (SSS), temperature (SST) and fluorescence (SSF) using seacrest sensors, 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.

Measured Primary Productivity at Stations GAK 1, 4, 9, and 13, within Prince William Sound and on the Cape Cleare Line.

Observed and documented marine mammal and seabird distributions from the bridge.

2 CalVet Net casts were done (1 before and 1 after the CTD cast) along the Seward Line, at selected PWS stations and along the Cape Cleare Line. The first was a large mesh net and the second was with a fine mesh net.

At 2 Seward Line stations and one PWS station Hopcroft performed 7 casts with the 10-liter Niskins/Rosette to collect water (from ~ 20m) for zooplankton incubations.

One deep MOCNESS tow (to 350 or 500 m) was done near the end of the Seward Line and in PWS.

NIGHTTIME ACTIVITIES

Hydroacoustic samples and MOCNESS discrete samples were done along the Seward Line, in PWS (Table 3), at Hinchinbrook Entrance (Table 4) and Cape Cleare stations.

Chronology

The cruise departed Seward, Alaska at 1800 (1000 ADT) 3 April 2001 and proceeded to test gear within Resurrection Bay before beginning sampling at GAK 1. Work out the Seward line followed with CTD sampling, CALVET net tows and HTI and MOCNESS deployments on the inner Seward line. On 4 April we returned to Seward briefly for MOCNESS repairs and then returned to working the inner and middle segments of the Seward line. Casts for primary production measurements were taken at GAK 1, 4, 9 and 13. While waiting for deployment of the HTI and MOCNESS gear, hourly repeat CTD casts were taken at GAK 6 for 6 hours to assess temporal variability of the hydrography at that location for use by the GLOBEC process studies beginning 17 April. The Seward line work was completed on 8 April. The CTD and ADCP transect of the Cape Fairfield line was done on 8 April. The sampling at Hinchinbrook Entrance (CTD, HTI, MOCNESS and CALVET) was carried out on 9 April and the Along Hinchinbrook Entrance line, out to AHC 9 was done while in transit to the Cape Cleare Southeast line. The HTI and MOCNESS work on the CCSE line began in the middle of that line and the CTD sampling and CALVET work worked the inner (CCSE1-4) section before the line was abandoned due to high seas and winds and weather forecasts calling for storms and hurricane force winds. We retired to Prince William Sound on 10 April where the sampling continued on those stations within the sound. That sampling was completed on 12 April and we returned to our work on CCSE beginning at CCSE 7 and the HTI and MOCNESS work on the outer portion of the line before we completed the CTD sampling plus the HTI and MOCNESS work on the inner part of the line on 14 April. With the exception of one MOCNESS tow on the CCSE line, all stations were occupied at least once prior to our return to Seward on 14 April at 1700 (0900ADT).

Results

Hydrography (Royer)

The sampling at GAK 1 revealed that while the water temperature was slightly (but not significantly) above normal, the salinity was more than two standard deviations below normal in the layer from 20 to 150 m and 2 standard deviations above normal at 200 and 250 m. The temperature was more than one s.d. above normal at the 200 and 250 m depths. In general, there appeared to be an intrusion of relatively high salinity water along the bottom from offshore as indicated both by the high salinity and the ADCP measurements. Generally, the surface layer velocities were offshore. This pattern was evident in the vicinity of Hinchinbrook Entrance and Canyon, too. The CCSE line flow was confused with considerable eastward flow seen in the ADCP. Mixed layer depths varied from 20 to more than 100 m. The Seward Line had evidence of a flow reversal or eddy at about GAK 4. Fluorescence was highest at the nearshore Cape Fairfield stations and along the Montague Strait and Knight Island Passage lines, that is, Prince William Sound seems to be a strong source

of phytoplankton. The salinity inversion observed in the water column on the Seward Line was believed to be the first ever observed in this region.

Stable isotope samples (Kline)

Zooplankton samples were taken for stable carbon and nitrogen isotope analysis from the contents of net #1 of each MOCNESS tow made during HX241. Because net #1 failed to collect any zooplankton at station GAK10, no stable isotope samples were collected there. Sampling for stable isotope analysis consisted of sorting zooplankton to species and freezing them in vials.

Microzooplankton (Foy)

Samples were taken to determine microzooplankton abundance and biomass, either as discrete vertical samples or as integrated samples. Vertical samples consisted of sampling from depths 0m, 10 or 20m, 30m, 50m, & 100m and were taken at GAK 2,4,6,8,10,11,13 and PWS2. Integrated samples were taken by combining water for an upper layer sample (0m, 10m, 20m, 30m, 40m & 50m) and a lower layer sample (75m & 100m) and were taken at GAK 1,3,5,7,9,12, CF 3,9, HE 2,7,10, CCSE 2,5,8 and KIP 2. Above samples were filtered and prepared for epifluorescent microscopy as well as preserved in acid Lugols.

Distribution of zooplankton and micronekton (Coyle)

MOCNESS and CalVet samples were taken at the thirteen primary stations along the Seward Line, at five stations in Prince William Sound, at four stations in Hinchinbrook Entrance and at five stations along the Cape Clear Southeast Line. Acoustic data were collected during each MOCNESS tow and between stations along the Seward Line and the Cape Clear Line. Supplemental deep MOCNESS tows were taken to 500-600 m at the outer end of the Seward Line and in Prince William Sound.

A distinct scattering layer at 70 to 20 m depths was observed along the Seward and Cape Clear Lines for most of their length. Occasionally two layers were observed. Samples from the deeper layer (60-40 m) contained pandalid shrimp. Samples from the shallow layer contained euphausiids. Scattering at 43 kHz, indicative of fish, was elevated near the shelf break along both lines, but was particularly intense on the Cape Clear Line. *Neocalanus cristatus* was common in most of the tow.

Zooplankton Growth (Hopcroft)

Full community artificial cohorts were set at Gak1, Gak13 and PWS2 to estimate copepod growth rates. Specific stages of *Neocalanus* were picked and incubated at Gak1, Gak4, Gak9 and Gak13 to determine molt rates. Egg production experiments were set for *Pseudocalanus* at Gak1, Gak4 and PWS2,

for *Gaetanus* at PWS2, and for both *Metridia* species at MS2. Molt rate experiments were set for euphausiids at Gak13, CCSE6, and PWS1. Overall a successful cruise.

Bird Sampling:

Seabird identification and abundance were recorded on the Seward, Cape Fairfield, Hinchinbrook Entrance, Hinchinbrook Canyon and Cape Clear Lines, and in Knight Island Passage. Seabirds were identified to species and age when possible, and flock occurrences were recorded as single or multiple species flock. Counts were recorded in 5 min. bins and the locations and time was recorded for each sighting. Sections of the Seward and Cape Clear lines were surveyed twice in order to obtain better abundance estimates (Fig. 1).

Station Locations:

Table 1. CTD Station Locations along Seward Line.

Station Name	Latitude	Longitude	Approximate Bottom Depth (m)
RES 2.5	60 0.0	149 20.3	290
GAK 1	59 50.7	149 28.0	265
GAK 1i*	59 46.0	149 23.8	250
GAK 2	59 41.5	149 19.6	220
GAK 2i*	59 37.6	149 15.5	220
GAK 3	59 33.2	149 11.3	220
GAK3i*	59 28.9	149 7.1	210
GAK 4	59 24.5	149 2.9	200
GAK 4i*	59 20.1	148 58.7	200
GAK 5	59 15.7	148 54.5	175
GAK 5i*	59 11.4	148 50.3	150
GAK 6	59 7.0	148 46.2	145
GAK 6i**	59 2.7	148 42.0	190
GAK 7**	58 58.3	148 37.8	230
GAK 7i**	58 52.9	148 33.6	260
GAK 8**	58 47.5	148 29.4	290
Gak 8i**	58 44.6	148 25.2	280
GAK 9	58 40.8	148 21.0	275
GAK9i**	58 36.7	148 16.7	~700
GAK 10	58 32.5	148 12.7	1300
GAK 11	58 23.3	148 4.3	1400
GAK 12	58 14.6	147 56.0	1500
GAK 13	58 5.9	147 47.6	1525

*useful in defining Alaska Coastal Current front

**useful in defining the shelfbreak front

Table 2. CTD Station Locations Along Cape Fairfield Line

Station Name	Latitude	Longitude	Approximate Bottom Depth (m)
CF 1	59 55.0	148 52.0	50
CF 2	59 53.0	148 52.0	120
CF 3	59 51.0	148 52.0	170
CF 4	59 49.0	148 52.0	180
CF-5	59 47.0	148 52.0	180
CF-6	59 45.0	148 52.0	185
CF-7	59 43.0	148 52.0	180
CF-8	59 41.0	148 52.0	180
CF-9	59 39.0	148 52.0	175
CF-9	59 39.0	148 52.0	175
CF-10	59 37.0	148 52.0	175
CF 11	59 35.0	148 52.0	160
CF-12	59 33.0	148 52.0	145
CF-13	59 31.0	148 52.0	145
CF-14	59 29.0	148 52.0	145
CF-15	59 27.0	148 52.0	145

Table 3. CTD Station Locations In Western PWS (Northern PWS; Knight Island Passage; KIP; Hogan Bay; HB; and Montague Strait; MS). [ANC = weather station)

Station Name	Latitude	Longitude	Approx. Bottom Depth (m)
HB1	60.1929	147.7001	246
HB2	60.1792	147.6410	173
HB3	60.1634	147.5756	84
HB4	60.1482	147.5024	95
MS1	59.9587	147.9138	179
MS2	59.9442	147.8783	201
MS3	59.9332	147.8550	168
MS4	59.9219	147.8268	118
KIP2	60.2783	147.9866	588
KIP1	60.2811	148.0132	540
PWS 10	60.385	146.925	293
PWS 9	60.477	147.070	222
PWS 8	60.557	147.126	228
PWS 7	60.629	147.149	292
PWS 6	60.722	147.145	390
PWS 5	60.822	147.398	476
PWS 4	60.737	147.658	657
PWS 3	60.655	147.809	753
PWS 2	60.534	147.802	742
PWS 1	60.379	147.936	333

Table 4. CTD Stations Bracketing Hinchinbrook Entrance.

Station Name	Latitude	Longitude	Approximate Bottom Depth (m)
HE 1	60 13.8	146 36.5	
HE 2	60 10.8	146 36.5	
HE 3	60 7.8	146 36.5	
HE 4	60 4.8	146 36.5	
HE-5	60 1.8	146 36.5	
HE-6	60 3.0	146 44.8	
HE-7	60 4.3	146 51.3	
HE-8	60 5.6	146 57.7	
HE-9	60 6.6	147 3.0	
HE-10	60 7.8	147 8.0	
HE-11	60 8.6	147 11.5	

Table 5. CTD Station Locations Along Ragged Island and Pye Island Lines

Station Name	Latitude	Longitude	Approximate Bottom Depth (m)
RI10	59.4091	148.8670	165
RI8	59.4081	149.2115	188
RI7	59.4076	149.3767	142
RI6	59.4077	149.5417	98
RI5	59.4093	149.7095	112
RI4	59.4077	149.8711	164
RI3	59.4091	150.0361	172
RI2	59.4093	150.1996	124
RI1	59.4063	150.2638	100
PI2	59.3262	150.1958	152
PI3	59.2429	150.1279	154

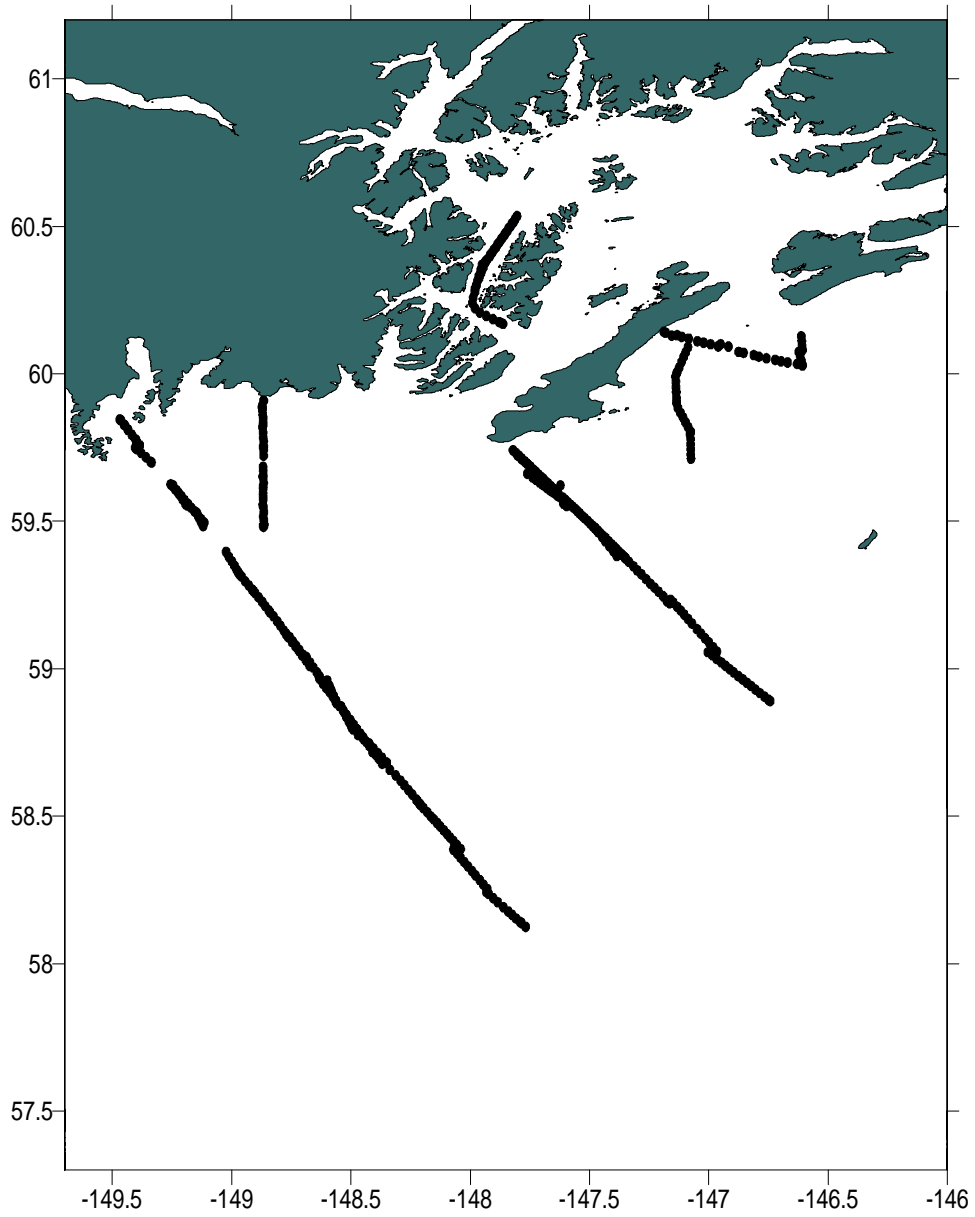
Table 6. CTD Station Locations Along Hinchinbrook Canyon: Deep Inflow into PWS

Station Name	Latitude (° N)	Longitude (°)	Approximate Bottom Depth (m)
AHC 1	59 18.0	147 4.5	200
AHC 2	59 24.0	147 4.5	200
AHC 3	59 30.0	147 4.5	200
AHC 4	59 36.0	147 4.5	200
AHC-5	59 42.0	147 4.5	200
AHC-6	59 48.0	147 4.5	200
AHC-7	59 54.0	147 4.5	200
AHC-8	60 00.0	147 4.5	200
AHC-9	60 06.0	147 4.5	200

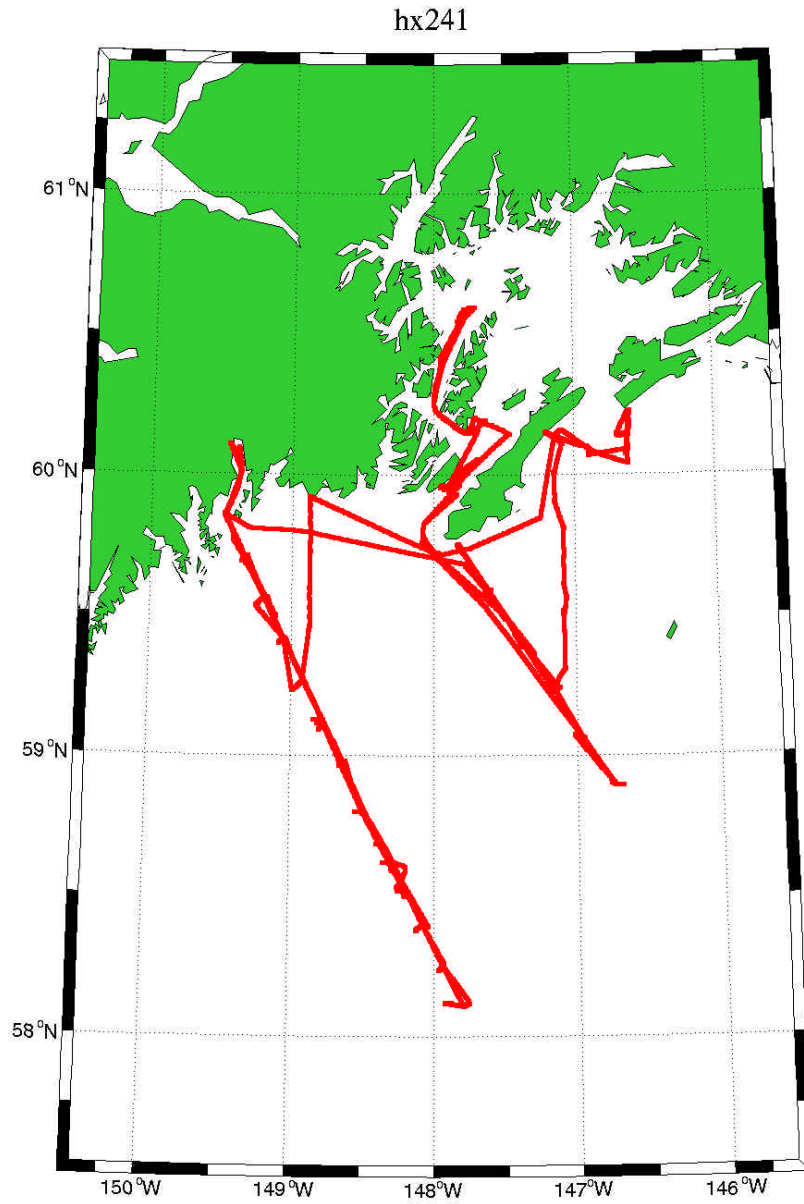
Table 7. CTD Stations Along the Cape Cleare SouthEast Line: Alongshore Coverage for comparison to the Seward Line.

Station Name	Latitude	Longitude	Approximate Bottom Depth (m)
CCSE1	59.74167	-147.817	
CCSE2	59.66667	-147.727	
CCSE3	59.57083	-147.608	
CCSE4	59.475	-147.475	
CCSE5	59.375	-147.35	
CCSE6	59.23333	-147.158	
CCSE7	59.05833	-146.967	
CCSE8	58.88333	-146.733	

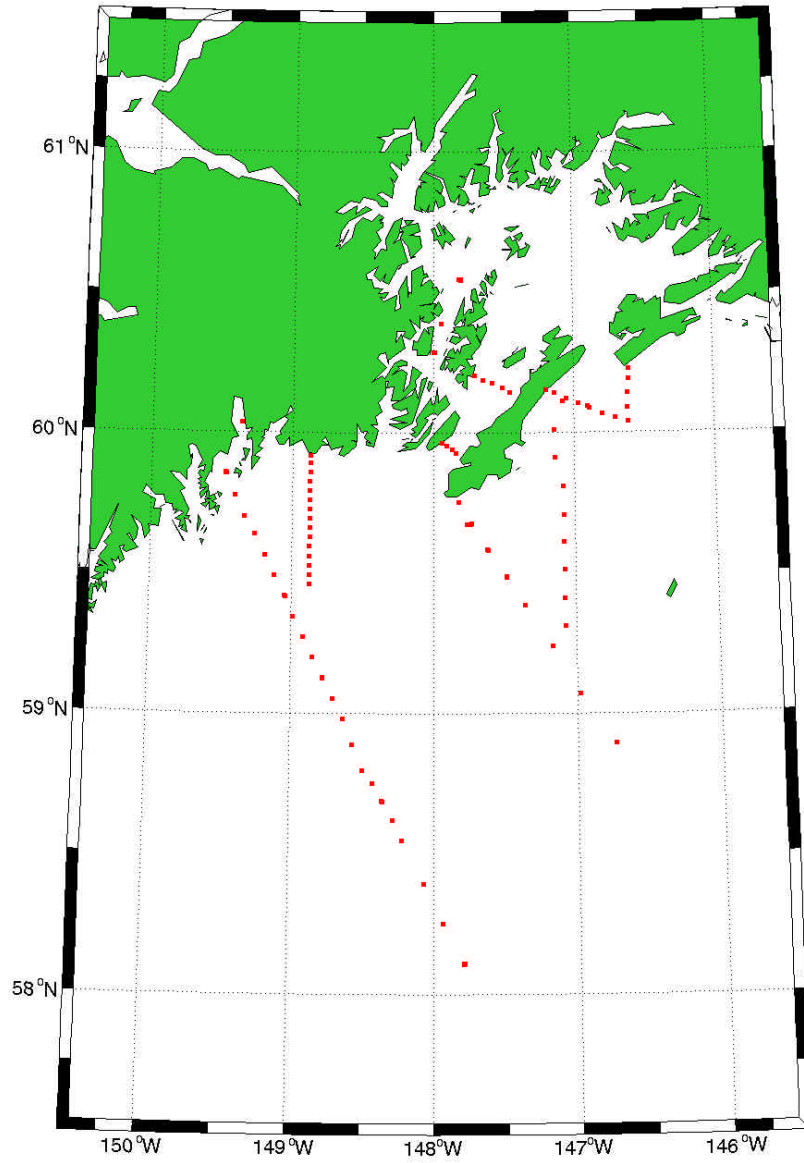
Figure 1: Transects surveyed to estimate seabird abundances



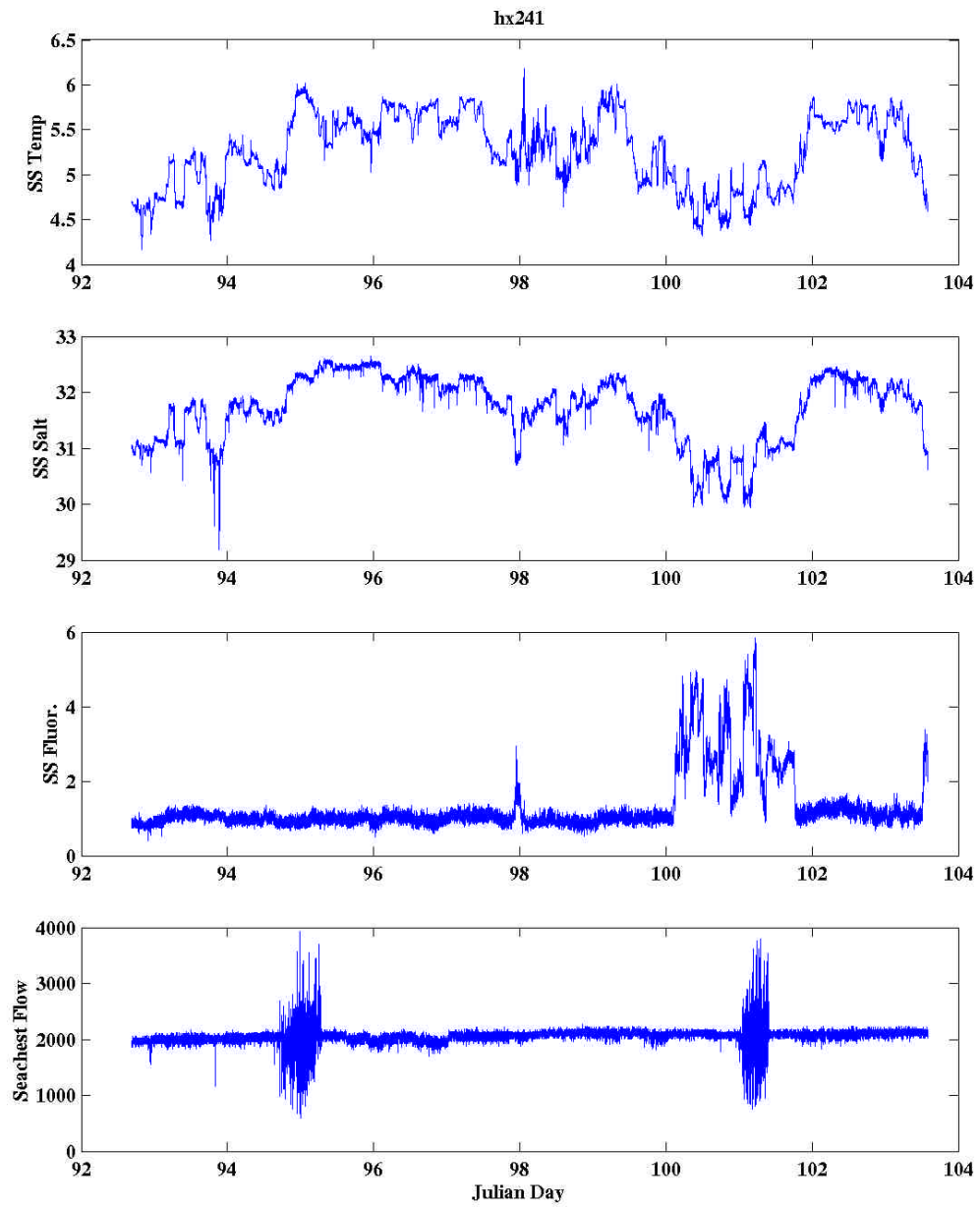
HX241 total cruise track.



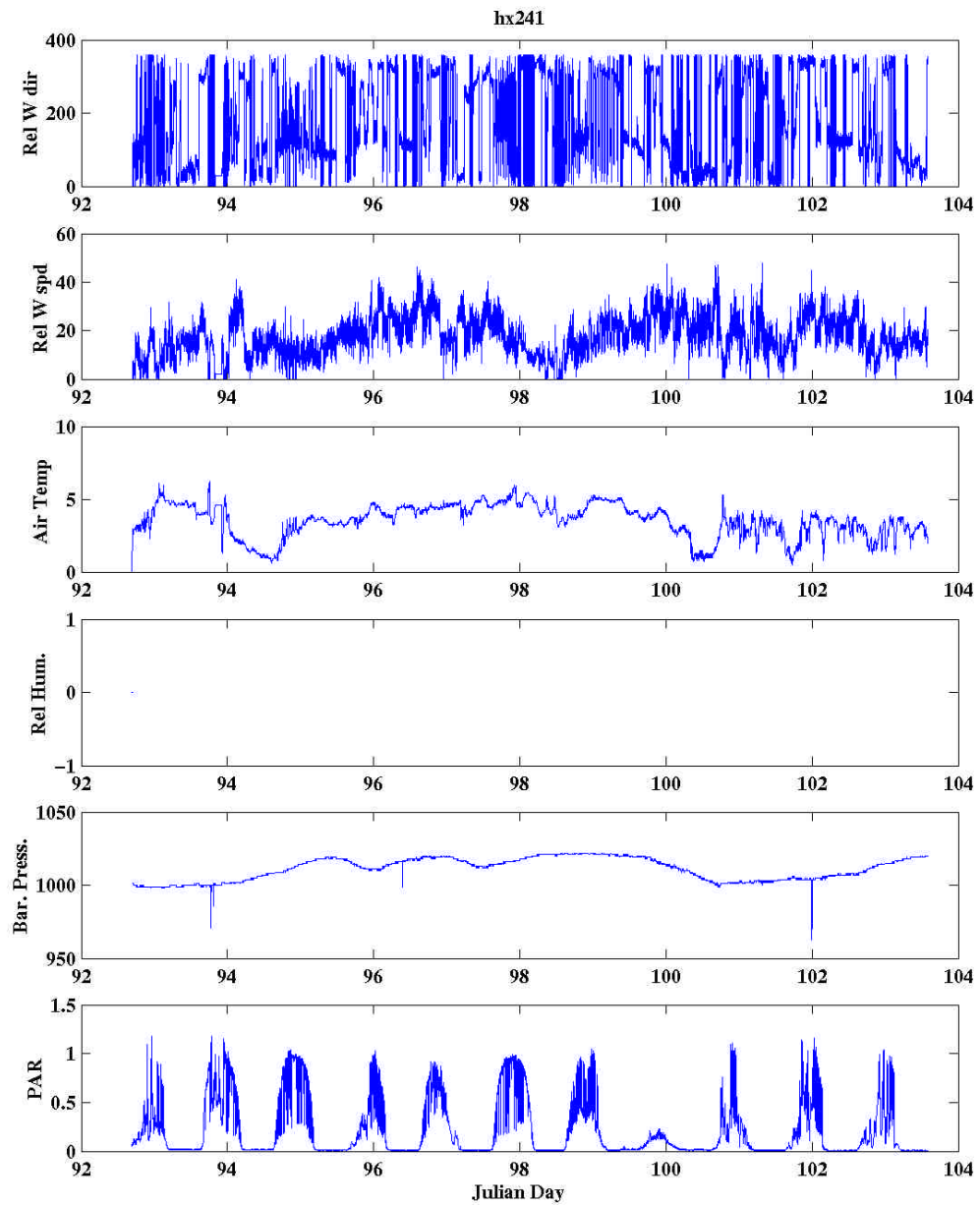
hx241Station Locations



HX241 Sea Surface data collected underway (raw).



HX241 Sea Surface weather data collected underway
(raw).

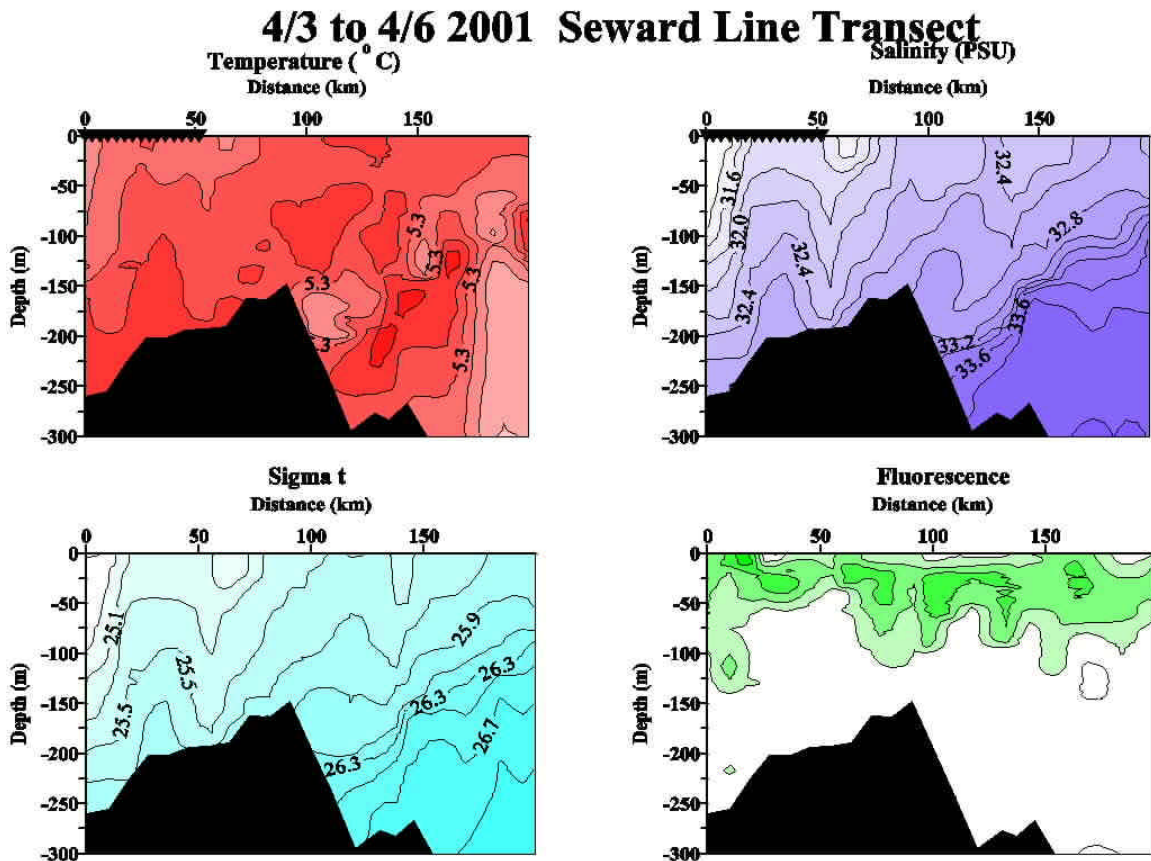


Event Log

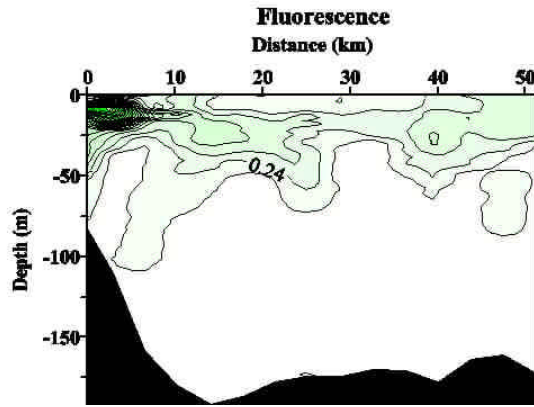
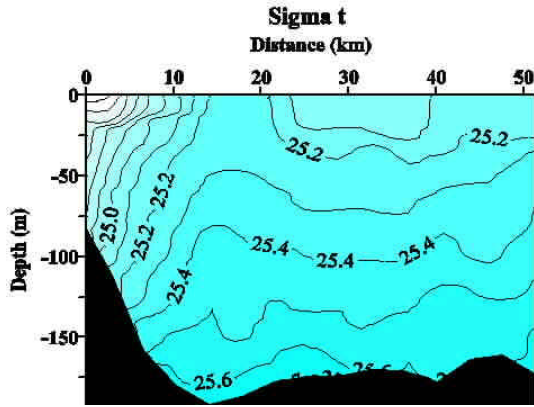
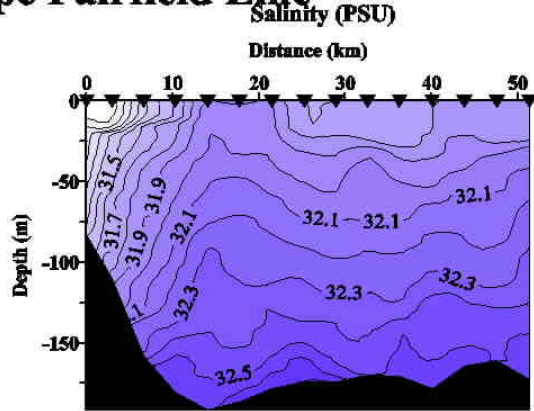
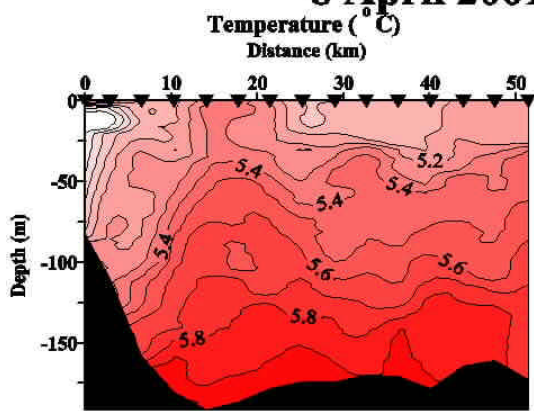
The attached event log records the times of deployments of instruments. For operations that involve towing, the recovery times and positions are recorded. Separate entries and event numbers are used for these operations. For CTD operations, the consecutive CTD cast number is given along with the start time and position (automatically from GPS). As the same event, the time and position of the stopping of the CTD at the bottom of the cast is given. Also, the first depth given is the estimated bottom depth in meters from the PDR while the second depth is the maximum water depth sampled on the cast.

Section Plots

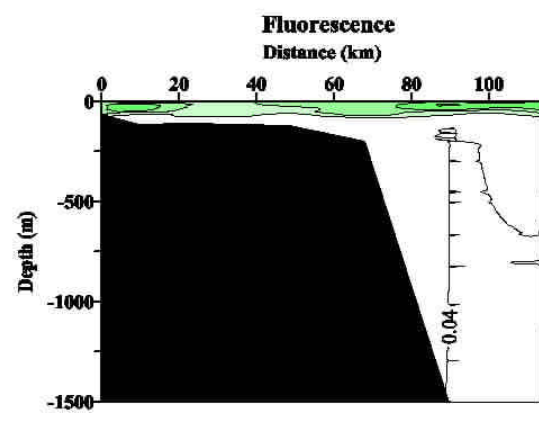
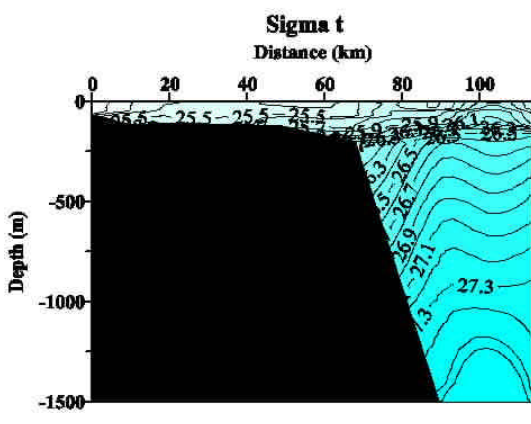
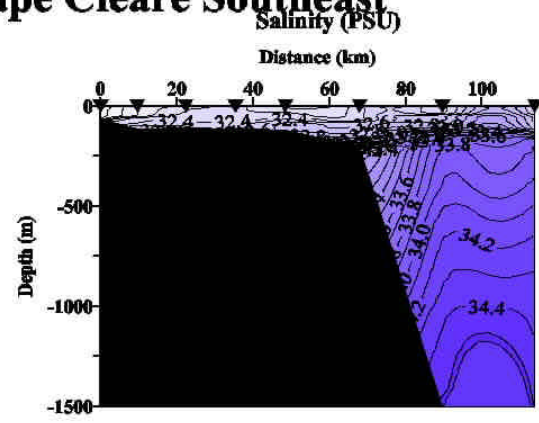
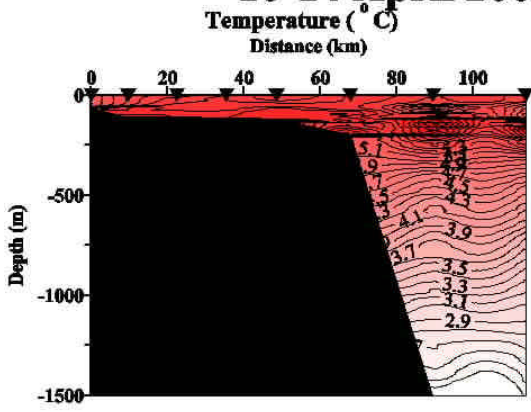
Cross sections of the hydrographic parameters and fluorescence are attached. In addition a time series of hydrography at GAK 6 is displayed.



8 April 2001 Cape Fairfield Line

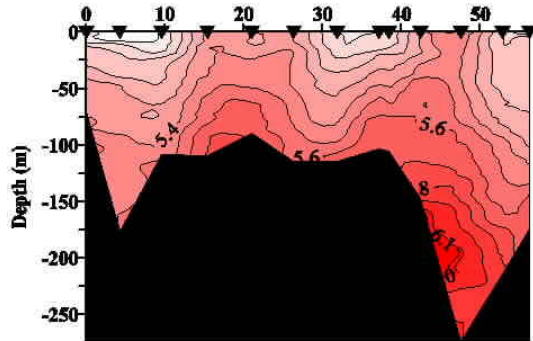


10-14 April 2001 Cape Cleare Southeast



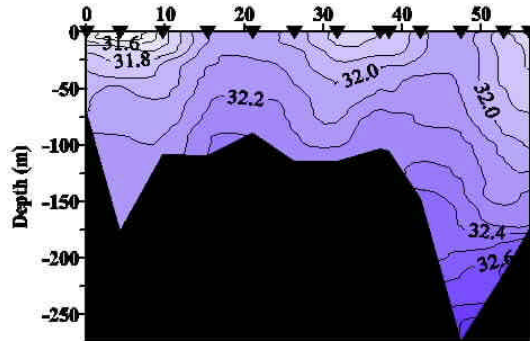
8-9 April 2001 Hinchinbrook Entrance

Temperature (°C)
Distance (km)



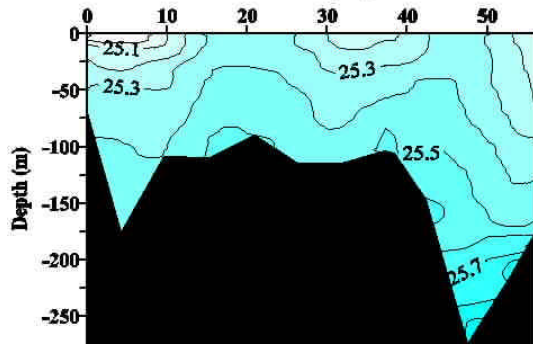
Salinity (PSU)

Distance (km)



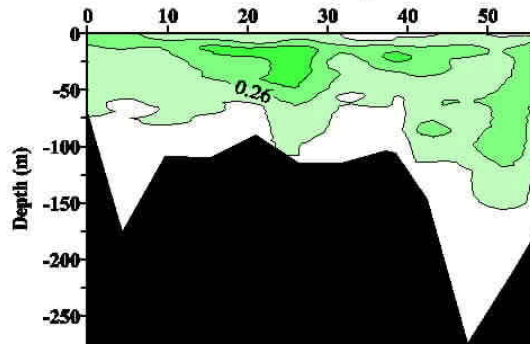
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Distance (km)

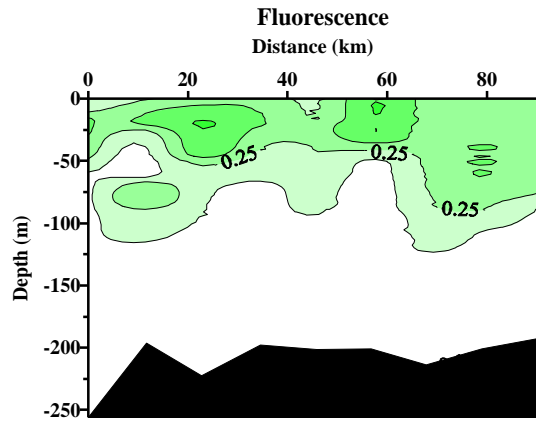
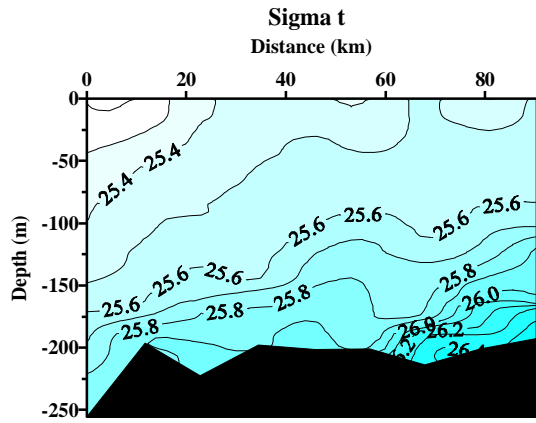
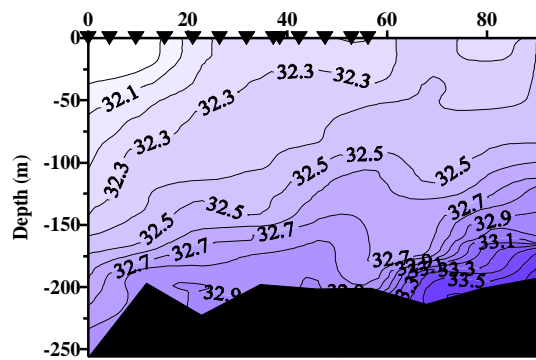
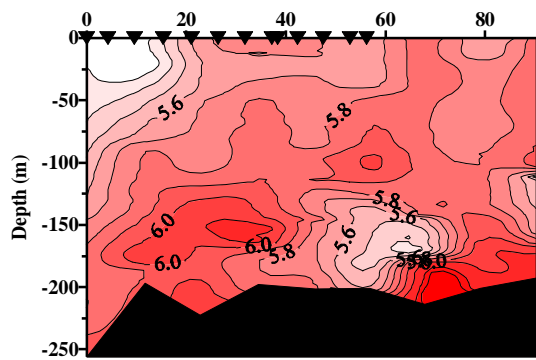


Fluorescence

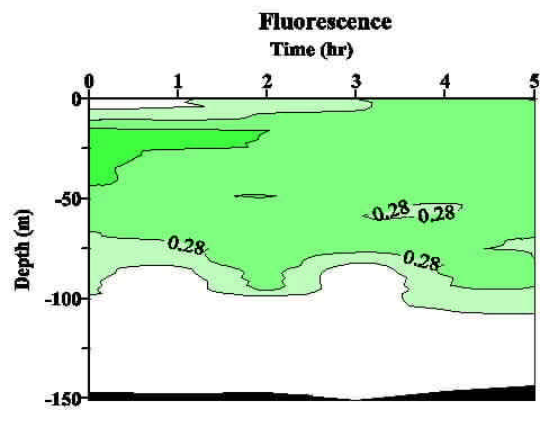
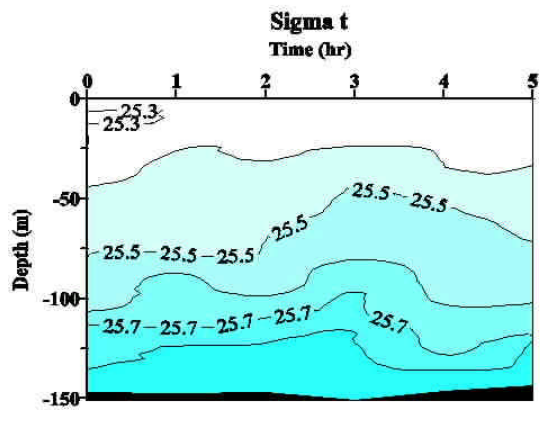
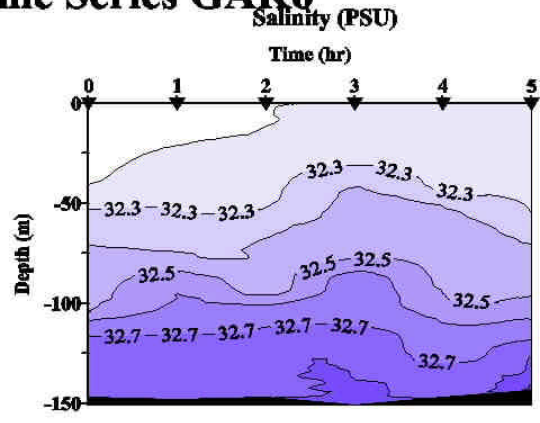
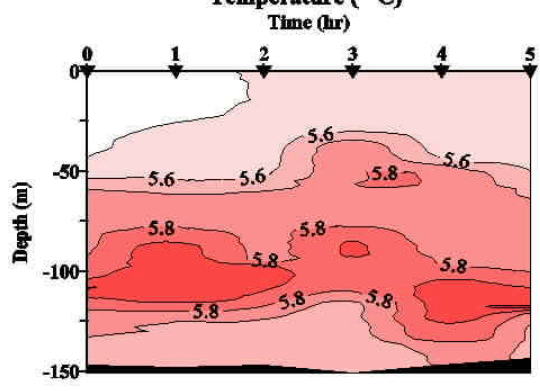
Distance (km)



9-10 April 2001 Hinchinbrook Canyon



7-8 April 2001 Time Series GAK6



EVENT LOG:

Unless otherwise noted, CTDs were taken for T. Weingartner and T. Royer.								
Water samples taken for T. Whitley 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, R. Hopcroft and T. Kline.								
Ring Net samples were taken for R. Hopcroft, K. Coyle and T. Kline.								
EVENT Number	Description	Station	Date (GMT)	latitude	longitude	Bottom depth	Comments/ Investigator	
HX24109301.001	CTD #1	RES2.5	4/3/01 18:51	60.026	-149.358	300		
HX24109301.002	End CTD	RES2.5	4/3/01 19:02	60.0276	-149.357	300		
HX24109301.003	Deploy HTI	RES2.5	4/3/01 19:21	60.029	-149.359	292		
HX24109301.004	recover the HTI	RES2.5	4/3/01 19:40	60.0035	-149.316	292		
HX24109301.005	Deploy MOCNESS		4/3/01 19:56	60.0023	-149.36	297		
HX24109301.006	recover MOCNESS		4/3/01 20:00	60.0042	-149.36	297		
HX24109301.007	Deploy MOCNESS		4/3/01 20:03	60.0073	-149.36			
HX24109301.008	recover MOCNESS		4/3/01 20:04	60.01	-149.36			
HX24109301.009	Deploy MOCNESS		4/3/01 20:06	60.0108	-149.361			
HX24109301.010	recover MOCNESS		4/3/01 20:21	60.0182	-149.363			
HX24109301.011	Deploy MOCNESS		4/3/01 22:10	60.079	-149.379	174	Test	
HX24109301.012	recover MOCNESS		4/3/01 22:24	60.0708	-149.376	174		
HX24109401.001	CALVET Net	GAK1	4/4/01 0:03	59.8447	-149.468	270		
HX24109401.002	CTD #2	GAK1	4/4/01 0:24	59.8469	-149.47	270		
HX24109401.003	End CTD	GAK1	4/4/01 0:33	59.8474	-149.471	270		
HX24109401.004	CTD#3	GAK1	4/4/01 1:09	59.845	-149.465	270	Hopcroft #1	
HX24109401.005	End CTD	GAK1	4/4/01 1:11	59.8447	-149.465	270		
HX24109401.006	CTD#4	GAK1	4/4/01 1:23	59.8446	-149.466	270	Hopcroft #2	
HX24109401.007	End CTD	GAK1	4/4/01 1:24	59.8447	-149.466	270		
HX24109401.008	CTD#5	GAK1	4/4/01 1:36	59.8456	-149.468	270	Hopcroft #3	
HX24109401.009	End CTD	GAK1	4/4/01 1:37	59.8457	-149.468	270		
HX24109401.010	CTD#6	GAK1	4/4/01 1:49	59.8463	-149.468	270	Hopcroft #4	
HX24109401.011	End CTD	GAK1	4/4/01 1:50	59.8465	-149.469	270		
HX24109401.012	CTD#7	GAK1	4/4/01 2:03	59.8458	-149.467	270	Hopcroft #5	
HX24109401.013	End CTD	GAK1	4/4/01 2:04	59.846	-149.468	270		
HX24109401.014	CTD#8	GAK1	4/4/01 2:15	59.8454	-149.466	270	Hopcroft #6	
HX24109401.015	End CTD	GAK1	4/4/01 2:16	59.8456	-149.466	270		
HX24109401.016	CTD#9	GAK1	4/4/01 2:28	59.845	-149.468	270	Hopcroft #7	
HX24109401.017	End CTD	GAK1	4/4/01 2:29	59.8452	-149.468	270		
HX24109401.018	Ring Net	GAK1	4/4/01 2:50	59.845	-149.466			

HX24109401.019	Ring Net	GAK1	4/4/01 3:08	59.847	-149.468		
HX24109401.020	CTD #10	GAK1i	4/4/01 3:57	59.766	-149.398	270	
HX24109401.021	End CTD	GAK1i	4/4/01 4:07	59.7656	-149.403	270	
HX24109401.022	CALVET Net	GAK2	4/4/01 5:11	59.6905	-149.329	229	
HX24109401.023	CALVET Net	GAK2	4/4/01 5:29	59.6913	-149.33	230	
HX24109401.024	CTD#11	GAK2	4/4/01 5:50	59.6921	-149.331	231	
HX24109401.025	End CTD	GAK2	4/4/01 5:57	59.6921	-149.332	231	
HX24109401.026	Deploy HTI		4/4/01 7:19	59.844	-149.468	273	
HX24109401.027	Deploy MOCNESS		4/4/01 7:24	59.8407	-149.466	272	
HX24109401.028	Recover MOCNESS		4/4/01 8:06	59.822	-149.454	279	
HX24109401.029	Towed HTI from GAK1-2		4/4/01 8:36	59.8447	149.4675	279	
HX24109401.030	Deployed MOCNESS	GAK2	4/4/01 10:29	59.6888	-149.327	227	
HX24109401.031	Recover MOCNESS	GAK2	4/4/01 10:50	59.677	-149.325	226	Flow meter lost
HX24109401.032	Towed HTI GAK2-3-4		4/4/01 11:11	59.6897	-149.324		
HX24109401.033	Recover HTI	GAK4	4/4/01 14:30	59.406	-149.407	202	
HX24109401.034	Ring Net	GAK1	4/4/01 17:38	59.8453	-149.334	272	
HX24109401.035	CTD #12	GAK1	4/4/01 17:52	59.8459	-149.468	270	Primary Production ...Rt Seward for repairs to MOCNESS
HX24109401.036	End CTD	GAK1	4/4/01 17:54	59.8459	-149.469	270	
HX24109401.037	Bird Obs. From GAK1-2i		4/4/01 22:44	59.8422	-149.465		
HX24109401.038	CALVET Net	GAK2	4/4/01 23:43	59.6912	-149.33	227	
HX24109501.001	CTD # 13	GAK2	4/5/01 0:00	59.6893	-149.329	226	CTD Profile # 13 for CALVET
HX24109501.002	End CTD	GAK2	4/5/01 0:08	59.6869	-149.329	226	
HX24109501.003	CALVET Net	GAK2	4/5/01 0:16	59.68.52	-149.331	227	
HX24109501.004	CTD #14	GAK2I	4/5/01 0:54	59.6271	-149.255	212	
HX24109501.005	End CTD	GAK2I	4/5/01 1:02	59.6275	-149.255	212	
HX24109501.006	CALVET Net	GAK3	4/5/01 1:58	59.5528	-149.185	212	
HX24109501.007	CTD #15	GAK3	4/5/01 2:11	59.5526	-149.182	211	
HX24109501.008	End CTD	GAK3	4/5/01 2:19	59.5536	-149.179	211	
HX24109501.009	CALVET Net	GAK3	4/5/01 2:34	59.5553	-149.171	212	
HX24109501.010	CTD # 16	GAK3I	4/5/01 3:20	59.4819	-149.116	203	
HX24109501.011	End CTD	GAK3I	4/5/01 3:28	59.4833	-149.111	203	
HX24109501.012	Deploy HTI	GAK2	4/5/01 5:38	59.6928	-149.319	227	
HX24109501.013	Deploy MOCNESS	GAK2	4/5/01 5:48	59.6885	-149.332	230	

HX24109501.014	Recover MOCNESS		4/5/01 6:00	59.6828	-149.345	233	Net malfunction
HX24109501.015	Deploy MOCNESS	GAK2	4/5/01 6:10	59.6915	-149.323	227	
HX24109501.016	Recover MOCNESS	GAK2	4/5/01 6:50	59.6915	-149.323	227	
HX24109501.017	Recover HTI	GAK2	4/5/01 7:11	59.6985	-149.31	221	
HX24109501.018	Deploy HTI	GAK3	4/5/01 8:15	59.551	-149.193	219	
HX24109501.019	Deploy MOCNESS	GAK3	4/5/01 8:21	59.549	-149.197	219	
HX24109501.020	Recover MOCNESS	GAK3	4/5/01 8:59	59.5352	-149.223	232	
HX24109501.021	Recover HTI	GAK3	4/5/01 9:21	59.5257	-149.243	213	
HX24109501.022	Deploy HTI	GAK4	4/5/01 10:25	59.406	-149.053	202	
HX24109501.023	Deploy MOCNESS	GAK4	4/5/01 10:31	59.4038	-149.057	202	
HX24109501.024	Recover MOCNESS	GAK4	4/5/01 11:07	59.3923	-149.08	206	
HX24109501.025	Towed HTI GAK4-5		4/5/01 11:31	59.4083	-149.046	202	
HX24109501.026	Deploy MOCNESS	GAK5	4/5/01 13:08	59.2587	-148.91	167	
HX24109501.027	Recover MOCNESS	GAK5	4/5/01 14:01	59.2335	-148.956	165	
HX24109501.028	CALVET Net	GAK4	4/5/01 15:39	59.4088	-149.047	201	
HX24109501.029	CTD #17	GAK4	4/5/01 15:51	59.4092	-149.044	200	
HX24109501.030	End CTD	GAK4	4/5/01 15:58	59.4086	-149.043	200	
HX24109501.031	CALVET Net	GAK4	4/5/01 16:12	59.4082	-149.041	200	
HX24109501.032	CTD #18	GAK4	4/5/01 16:29	59.4083	-149.038	199	Primary Production CTD cast
HX24109501.033	End CTD	GAK4	4/5/01 16:32	59.4081	-149.037	199	
HX24109501.034	Ring Net	GAK4	4/5/01 16:41	59.4078	-149.035	200	
HX24109501.035	CTD #19	GAK4I	4/5/01 17:21	59.3333	-148.979	197	
HX24109501.036	End CTD	GAK4I	4/5/01 17:28	59.3324	-148.978	197	
HX24109501.037	CALVET Net	GAK5	4/5/01 18:12	59.2627	-148.907	169	
HX24109501.038	CTD #20	GAK5	4/5/01 18:24	59.2622	-148.907	170	
HX24109501.039	End CTD	GAK5	4/5/01 18:30	59.2618	-148.906	170	
HX24109501.040	CALVET Net	GAK5	4/5/01 19:06	59.2618	-148.907	169	
HX24109501.041	CTD #21	GAK5I	4/5/01 19:46	59.1896	-148.839	170	
HX24109501.042	End CTD	GAK5I	4/5/01 19:52	59.1897	-148.838	170	
HX24109501.043	CALVET Net	GAK6	4/5/01 20:38	59.1168	-148.768	158	
HX24109501.044	CTD #22	GAK6	4/5/01 20:50	59.1159	-148.768	153	
HX24109501.045	End CTD	GAK6	4/5/01 20:56	59.1159	-148.766	153	
HX24109501.046	CALVET Net	GAK6	4/5/01 21:06	59.1155	-148.765	158	
HX24109501.047	CTD #23	GAK6I	4/5/01 21:46	59.0444	-148.698	192	
HX24109501.048	End CTD	GAK6I	4/5/01 21:53	59.0444	-148.696	192	
HX24109501.049	CTD #24	GAK7	4/5/01 22:52	58.9708	-148.624	242	
HX24109501.050	End CTD	GAK7	4/5/01 23:00	58.9703	-148.619	242	
HX24109501.051	CALVET Net	GAK7	4/5/01 23:14	58.9705	-148.612	244	
HX24109601.001	CTD #25	GAK7I	4/6/01 0:00	58.8803	-148.558	300	
HX24109601.002	End CTD	GAK7I	4/6/01 0:10	58.88	-148.553	300	

HX24109601.003	CALVET Net	GAK7i	4/6/01 1:10	58.7915	-148.488	287	
HX24109601.004	CTD #26	GAK8	4/6/01 1:11	58.7883	-148.488	290	
HX24109601.005	End CTD	GAK8	4/6/01 1:21	58.7866	-148.486	290	
HX24109601.006	CALVET Net	GAK8	4/6/01 1:34	58.7847	-148.485	287	
HX24109601.007	CTD #27	GAK8I	4/6/01 2:04	58.7411	-148.419	287	
HX24109601.008	End CTD	GAK8I	4/6/01 2:14	58.7392	-148.416	287	
HX24109601.009	CALVET Net	GAK9	4/6/01 2:54	58.6797	-148.347	275	
HX24109601.010	CTD #28	GAK9	4/6/01 3:16	58.677	-148.347	278	
HX24109601.011	End CTD	GAK9	4/6/01 3:25	58.6743	-148.346	278	
HX24109601.012	CALVET Net	GAK9	4/6/01 3:47	58.668	-148.348		
HX24109601.013	CTD #29	GAK10	4/6/01 4:50	58.5397	-148.212	570	Water for Pinchuk
HX24109601.014	End CTD	GAK10	4/6/01 4:52	58.5393	-148.212	570	
HX24109601.015	Deploy HTI	GAK10	4/6/01 5:07	58.5438	-148.217		towed from GAK10 to 11
HX24109601.016	Deploy MOCNESS	GAK11	4/6/01 6:42	58.387	-148.074		
HX24109601.017	Recover MOCNESS	GAK11	4/6/01 7:21	58.3698	-148.116		
HX24109601.018	Deploy MOCNESS	GAK12	4/6/01 9:20	58.2377	-147.938		
HX24109601.019	Recover MOCNESS	GAK12	4/6/01 9:51	58.2277	-147.956		
HX24109601.020	Deploy HTI		4/6/01 10:14	58.2433	-147.932		towed from GAK12 to 13
HX24109601.021	Deploy MOCNESS	GAK13	4/6/01 11:52	58.1002	-147.765		
HX24109601.022	Recover MOCNESS	GAK13	4/6/01 12:23	58.1012	-147.82		
HX24109601.023	Recover HTI	GAK13	4/6/01 12:44	58.1025	-147.839		
HX24109601.024	Deploy MOCNESS	GAK13	4/6/01 12:51	58.1028	-147.847		
HX24109601.025	Recover MOCNESS		4/6/01 14:09	58.1093	-147.898		
HX24109601.026	CTD #30	GAK13	4/6/01 15:14	58.0989	-147.79	2088	Water for Hopcroft #1
HX24109601.027	End CTD	GAK13	4/6/01 15:17	58.0997	-147.789	2088	
HX24109601.028	CTD #31	GAK13	4/6/01 15:32	58.0992	-147.791	2086	Water for Hopcroft #2
HX24109601.029	End CTD	GAK13	4/6/01 15:33	58.0995	-147.79	2086	
HX24109601.030	CTD #32	GAK13	4/6/01 15:46	58.1004	-147.784	2100	Water for Hopcroft #3
HX24109601.031	End CTD	GAK13	4/6/01 15:47	58.1006	-147.783	2100	
HX24109601.032	CTD#33	GAK13	4/6/01 15:59	58.0991	-147.788	2092	Water for Hopcroft #4
HX24109601.033	End CTD	GAK13	4/6/01 15:59	58.0993	-147.787	2092	
HX24109601.034	CTD #34	GAK13	4/6/01 16:11	58.0983	-147.791	2087	Water for Hopcroft #5
HX24109601.035	End CTD	GAK13	4/6/01 16:12	58.0986	-147.79	2087	
HX24109601.036	CTD #35	GAK13	4/6/01 16:24	58.0992	-147.791	2087	Water for Hopcroft #6
HX24109601.037	End CTD	GAK13	4/6/01 16:25	58.0993	-147.791	2087	

HX24109601.038	CTD #36	GAK13	4/6/01 16:37	58.0987	-147.789	2093	Water for Hopcroft #7
HX24109601.039	End CTD	GAK13	4/6/01 16:38	58.0989	-147.788	2093	
HX24109601.040	CTD #37	GAK13	4/6/01 16:39	58.0991	-147.787	2096	Water for Hopcroft #7 Second cast
HX24109601.041	End CTD	GAK13	4/6/01 16:39	58.0992	-147.787	2096	
HX24109601.042	CALVET Net	GAK13	4/6/01 16:45	58.101	-147.776		
HX24109601.043	Ring Net	GAK13	4/6/01 17:01	58.1048	-147.769		
HX24109601.044	CALVET Net	GAK13	4/6/01 17:19	58.0988	-147.792		
HX24109601.045	CTD #38	GAK13	4/6/01 17:30	58.0997	-147.789	2094	Primary Production cast
HX24109601.046	End CTD	GAK13	4/6/01 17:35	58.1005	-147.786	2094	
HX24109601.047	CTD #39	GAK13	4/6/01 18:05	58.099	-147.785	2095	Lost end point due to program malfunction
HX24109601.048	Ring Net	GAK13	4/6/01 19:30	58.1058	-147.755		
HX24109601.049	CALVET Net	GAK12	4/6/01 20:47	58.2438	-147.933		
HX24109601.050	CTD #40	GAK12	4/6/01 21:00	58.243	-147.929	2174	
HX24109601.051	End CTD	GAK12	4/6/01 21:33	58.2452	-147.927	2174	
HX24109601.052	CALVET Net	GAK12	4/6/01 22:20	58.247	-147.925		
HX24109601.053	CALVET Net	GAK11	4/6/01 23:49	58.388	-148.007	1435	
HX24109701.001	CTD #41	GAK11	4/7/01 0:01	58.3845	-148.06	2249	
HX24109701.002	End CTD	GAK11	4/7/01 0:37	58.3836	-148.052	2249	
HX24109701.003	CALVET Net	GAK11	4/7/01 1:18	58.3825	-148.038		
HX24109701.004	CALVET Net	GAK10	4/7/01 2:55	58.5387	-148.21		
HX24109701.005	CTD # 42	GAK10	4/7/01 3:13	58.5386	-148.212	1468	
HX24109701.006	End CTD	GAK10	4/7/01 3:47	58.5204	-148.202	1468	
HX24109701.007	CALVET Net	GAK10	4/7/01 4:36	58.4933	-148.198		
HX24109701.008	Deploy HTI	GAK8	4/7/01 7:04	58.7877	-148.456	285	
HX24109701.009	Deploy MOCNESS	GAK8	4/7/01 7:11	58.7892	-148.491	205	
HX24109701.010	Recover MOCNESS	GAK8	4/7/01 7:42	58.79	-148.53	280	
HX24109701.011	Towed HTI from GAK8-9		4/7/01 8:11	58.7885	-148.485	287	
HX24109701.012	Deploy MOCNESS	GAK9	4/7/01 9:47	58.6805	-148.351	278	
HX24109701.013	Recover MOCNESS	GAK9	4/7/01 10:21	58.676	-148.387	271	
HX24109701.014	Deploy MOCNESS	GAK10	4/7/01 12:50	58.5407	-148.211		
HX24109701.015	Recover MOCNESS	GAK10	4/7/01 13:32	58.5243	-148.225		
HX24109701.016	CTD #43	GAK9I	4/7/01 16:24	58.6089	-148.279	681	
HX24109701.017	End CTD	GAK9I	4/7/01 16:56	58.5959	-148.274	681	
HX24109701.018	CTD #44	GAK9	4/7/01 18:19	58.6781	-148.352	560	Primary Production plus repeat of GAK9

HX24109701.019	End CTD	GAK9	4/7/01 18:30	58.676	-148.352	560	
HX24109701.020	Ring Net	GAK9	4/7/01 18:45	58.6732	-148.353	282	
HX24109701.021	CTD #45	GAK6	4/7/01 22:00	59.1171	-148.77	153	#1 of repeats
HX24109701.022	End CTD	GAK6	4/7/01 22:06	59.1183	-148.77	153	
HX24109701.023	CTD #46	GAK6	4/7/01 23:06	59.1174	-148.769	153	#2 of repeats
HX24109701.024	End CTD	GAK6	4/7/01 23:12	59.1182	-148.767	153	
HX24109801.001	CTD #47	GAK6	4/8/01 0:02	59.117	-148.769	153	#3 of repeats
HX24109801.002	End CTD	GAK6	4/8/01 0:07	59.1176	-148.768	153	
HX24109801.003	CTD #48	GAK6	4/8/01 1:02	59.1163	-148.768	153	#4 of repeats
HX24109801.004	End CTD	GAK6	4/8/01 1:07	59.1161	-148.766	153	
HX24109801.005	CTD# 49	GAK6	4/8/01 2:04	59.1158	-148.768	150	# 5 of repeats
HX24109801.006	End CTD	GAK6	4/8/01 2:09	59.1154	-148.765	150	
HX24109801.007	CTD #50	GAK6	4/8/01 3:11	59.1161	-148.768	148	# 6 of repeats
HX24109801.008	End CTD	GAK6	4/8/01 3:15	59.1165	-148.768	148	
HX24109801.009	Deploy HTI	GAK8	4/8/01 5:42	58.786	-148.489	282	tow HTI GAK8-7
HX24109801.010	Deploy MOCNESS	GAK7	4/8/01 7:44	58.9707	148.6337	242	
HX24109801.011	Recover MOCNESS	GAK7	4/8/01 8:20	58.9562	-148.65	264	
HX24109801.012	Towed HTI GAK7-6		4/8/01 8:40	58.9723	-148.631	243	
HX24109801.013	Deploy MOCNESS	GAK6	4/8/01 10:44	59.1152	-148.772	159	
HX24109801.014	Recover MOCNESS	GAK6	4/8/01 11:19	59.1005	-148.779	159	
HX24109801.015	Towed HTI GAK6-5		4/8/01 11:50	59.1267	-148.779	159	
HX24109801.016	Recovered HTI	GAK5	4/8/01 14:10	59.2613	-148.911	167	
HX24109801.017	CTD #51	CF15	4/8/01 15:35	59.4499	-148.866	181	
HX24109801.018	End CTD	CF15	4/8/01 15:42	59.4499	-148.863	181	
HX24109801.019	CTD #52	CF14	4/8/01 16:13	59.4841	-148.867	169	
HX24109801.020	End CTD	CF14	4/8/01 16:20	59.4846	-148.864	169	
HX24109801.021	CTD #53	CF13	4/8/01 16:42	59.5174	-148.868	172	
HX24109801.022	End CTD	CF13	4/8/01 16:48	59.5179	-148.866	172	
HX24109801.023	CALVET Net	HE4	4/8/01 16:49	60.0798	-146.608	112	
HX24109801.024	CTD #54	CF12	4/8/01 17:17	59.5508	-148.869	183	
HX24109801.025	End CTD	CF12	4/8/01 17:23	59.5517	-148.87	183	
HX24109801.026	CTD #55	CF11	4/8/01 17:44	59.5848	-148.869	175	
HX24109801.027	End CTD	CF11	4/8/01 17:50	59.586	-148.869	175	
HX24109801.028	CTD #56	CF10	4/8/01 18:18	59.6178	-148.867	176	
HX24109801.029	End CTD	CF10	4/8/01 18:24	59.6185	-148.867	176	
HX24109801.030	CTD #57	CF9	4/8/01 18:46	59.6503	-148.868	179	
HX24109801.031	End CTD	CF9	4/8/01 18:51	59.6509	-148.868	179	
HX24109801.032	CTD #58	CF8	4/8/01 19:22	59.6836	-148.868	179	
HX24109801.033	End CTD	CF8	4/8/01 19:29	59.6839	-148.868	179	
HX24109801.034	CTD #59	CF7	4/8/01 19:53	59.7173	-148.868	183	
HX24109801.035	End CTD	CF7	4/8/01 19:59	59.7174	-148.867	183	
HX24109801.036	CTD #60	CF6	4/8/01 20:29	59.7505	-148.868	192	

HX24109801.037	End CTD	CF6	4/8/01 20:37	59.7497	-148.866	192
HX24109801.038	CTD #61	CF5	4/8/01 20:59	59.7833	-148.868	194
HX24109801.039	End CTD	CF5	4/8/01 21:06	59.7829	-148.866	194
HX24109801.040	CTD #62	CF4	4/8/01 21:36	59.8172	-148.869	185
HX24109801.041	End CTD	CF4	4/8/01 21:43	59.8171	-148.869	185
HX24109801.042	CTD #63	CF3	4/8/01 22:05	59.8503	-148.868	162
HX24109801.043	End CTD	CF3	4/8/01 22:11	59.8502	-148.868	162
HX24109801.044	CALVET Net	GAK7	4/8/01 22:38	59.9717	-148.628	244
HX24109801.045	CTD #64	CF2	4/8/01 22:42	59.883	-148.869	114
HX24109801.046	End CTD	CF2	4/8/01 22:48	59.8832	-148.872	114
HX24109801.047	CTD #65	CF1	4/8/01 23:06	59.9089	-148.867	86
HX24109801.048	End CTD	CF1	4/8/01 23:10	59.9095	-148.868	86
HX24109901.001	Deploy HTI	HE11	4/9/01 6:24	60.128	-147.133	216
HX24109901.002	Deploy MOCNESS	HE11	4/9/01 6:28	60.1297	-147.09	216
HX24109901.003	Recover MOCNESS		4/9/01 7:07	60.148	-147.09	
HX24109901.004	Deploy MOCNESS	HE8	4/9/01 8:28	60.073	-146.875	107
HX24109901.005	Recover MOCNESS	HE8	4/9/01 9:01	60.065	-146.888	108
HX24109901.006	Deploy MOCNESS	HE4	4/9/01 10:49	60.0805	-146.609	118
HX24109901.007	Recover MOCNESS	HE4	4/9/01 11:21	60.0678	-146.622	117
HX24109901.008	Recover HTI	HE4	4/9/01 11:27	60.0645	-146.625	117
HX24109901.009	Deploy HTI	HE2	4/9/01 12:15	60.1788	-146.609	192
HX24109901.010	Deploy MOCNESS	HE2	4/9/01 12:53	60.1768	-146.609	192
HX24109901.011	Recover MOCNESS	HE2	4/9/01 12:53	60.1612	-146.603	137
HX24109901.012	Recover HTI	HE2	4/9/01 13:11	60.1363	-146.618	137
HX24109901.013	CTD #66	HE1	4/9/01 14:43	60.217	-146.604	73
HX24109901.014	End CTD	HE1	4/9/01 14:46	60.2171	-146.603	73
HX24109901.015	CALVET Net	HE2	4/9/01 15:11	60.1787	-146.606	192
HX24109901.016	CTD #67	HE2	4/9/01 15:22	60.1791	-146.603	186
HX24109901.017	End CTD	HE2	4/9/01 15:29	60.1786	-146.601	186
HX24109901.018	CALVET Net	HE2	4/9/01 15:41	60.1783	-146.595	175
HX24109901.019	CTD #68	HE3	4/9/01 16:17	60.1313	-146.61	112
HX24109901.020	End CTD	HE3	4/9/01 16:21	60.1314	-146.612	112
HX24109901.021	CTD #69	HE4	4/9/01 17:00	60.0796	-146.613	113
HX24109901.022	End CTD	HE4	4/9/01 17:05	60.0795	-146.616	113
HX24109901.023	CALVET Net	HE4	4/9/01 17:11	60.0793	-146.62	113
HX24109901.024	CTD #70	HE5	4/9/01 17:42	60.029	-146.609	88
HX24109901.025	End CTD	HE5	4/9/01 17:46	60.0295	-146.611	88
HX24109901.026	CTD #71	HE6	4/9/01 18:11	60.0432	-146.7	117
HX24109901.027	End CTD	HE6	4/9/01 18:16	60.0438	-146.703	117
HX24109901.028	CTD #72	HE7	4/9/01 18:45	60.0584	-146.793	117
HX24109901.029	End CTD	HE7	4/9/01 18:49	60.0592	-146.795	117
HX24109901.030	CALVET Net	HE8	4/9/01 19:11	60.0742	-146.876	105
HX24109901.031	CTD #73	HE8	4/9/01 19:22	60.0775	-146.882	105

HX24109901.032	End CTD	HE8	4/9/01 19:27	60.0793	-146.885	105	
HX24109901.033	CALVET Net	HE8	4/9/01 19:35	60.0827	-146.889	105	
HX24109901.034	CTD #74	HE8	4/9/01 19:45	60.0859	-146.895	108	Recast since #7 bottle did not trip
HX24109901.035	End CTD	HE8	4/9/01 19:49	60.0872	-146.898	108	
HX24109901.036	CTD #75	HE9	4/9/01 20:13	60.0941	-146.964	149	
HX24109901.037	End CTD	HE9	4/9/01 20:18	60.0952	-146.966	149	
HX24109901.038	CTD #76	HE10	4/9/01 20:50	60.1109	-147.05	279	
HX24109901.039	End CTD	HE10	4/9/01 20:59	60.1114	-147.052	279	
HX24109901.040	CALVET Net	HE11	4/9/01 21:35	60.1305	-147.136	217	
HX24109901.041	CTD #77	HE11	4/9/01 21:44	60.131	-147.137	217	
HX24109901.042	End CTD	HE11	4/9/01 21:52	60.1299	-147.14	217	
HX24109901.043	CALVET Net	HE11	4/9/01 22:03	60.128	-147.143	217	
HX24109901.044	CTD #78	HE12	4/9/01 22:26	60.143	-147.192	178	
HX24109901.045	End CTD	HE12	4/9/01 22:31	60.1417	-147.194	178	
HX24109901.046	CTD #79	AHC1	4/9/01 23:15	60.1007	-147.075	265	
HX24109901.047	End CTD	AHC1	4/9/01 23:25	60.0998	-147.078	265	
HX24109901.048	CTD #80	AHC1	4/9/01 23:47	60.1007	-147.076	262	Recast
HX24109901.049	End CTD	AHC1	4/9/01 23:56	60.1005	-147.079	262	
HX24110001.001	CTD #81	AHC2	4/10/01 0:51	60.0004	-147.136	205	
HX24110001.002	End CTD	AHC2	4/10/01 0:59	59.9991	-147.138	205	
HX24110001.003	CTD #82	AHC3	4/10/01 1:48	59.9009	-147.134	227	
HX24110001.004	End CTD	AHC3	4/10/01 1:55	59.8997	-147.137	227	
HX24110001.005	CTD #83	AHC4	4/10/01 2:47	59.8004	-147.074	202	
HX24110001.006	End CTD	AHC4	4/10/01 2:53	59.8005	-147.076	202	
HX24110001.007	CTD #84	ANC5	4/10/01 3:44	59.6988	-147.074	206	
HX24110001.008	End CTD	ANC5	4/10/01 3:49	59.6985	-147.076	206	
HX24110001.009	CTD #85	AHC6	4/10/01 4:40	59.6005	-147.075	205	
HX24110001.010	End CTD	AHC6	4/10/01 4:45	59.6013	-147.077	205	
HX24110001.011	CTD #86	AHC7	4/10/01 5:43	59.5015	-147.075	219	
HX24110001.012	End CTD	AHC7	4/10/01 5:49	59.5023	-147.078	219	
HX24110001.013	CTD #87	AHC8	4/10/01 6:49	59.4008	-147.073	203	
HX24110001.014	End CTD	AHC8	4/10/01 6:55	59.4024	-147.074	203	
HX24110001.015	CTD #88	AHC9	4/10/01 7:52	59.3007	-147.074	195	
HX24110001.016	End CTD	AHC9	4/10/01 7:58	59.3017	-147.075	195	
HX24110001.017	Deploy HTI	CCSE6	4/10/01 8:49	59.2325	-147.152	202	
HX24110001.018	Deploy MOCNESS	CCSE6	4/10/01 9:00	59.2318	-147.15	202	
HX24110001.019	Recover MOCNESS	CCSE6	4/10/01 9:35	59.2308	-147.119	213	
HX24110001.020	Tow HTI CCSE6-5		4/10/01 9:57	59.2317	-147.122	210	
HX24110001.021	Deploy MOCNESS	CCSE5	4/10/01 11:56	59.373	-147.348	134	
HX24110001.022	Recover MOCNESS	CCSE5	4/10/01 12:30	59.3622	-147.314	183	

HX24110001.023	Tow HTI CCSE5-4		4/10/01 12:50	59.355	-147.293	184	
HX24110001.024	Recover HTI	CCSE4	4/10/01 14:35	59.4755	-147.476	116	
HX24110001.025	CTD #89	CCSE1	4/10/01 16:37	59.7417	-147.82	61	Lost end point. See CTD #39.
HX24110001.026	CALVET Net	CCSE1	4/10/01 16:54	59.7408	-147.818	62	
HX24110001.027	CALVET Net	CCSE1	4/10/01 17:04	59.7403	-147.827	63	
HX24110001.028	CALVET Net	CCSE2	4/10/01 17:52	59.6663	-147.725	112	
HX24110001.029	CTD #90	CCSE2	4/10/01 18:03	59.6654	-147.733	109	Primary Production
HX24110001.030	End CTD	CCSE2	4/10/01 18:07	59.665	-147.737	109	
HX24110001.031	CTD #91	CCSE2	4/10/01 18:09	59.6648	-147.739	110	Primary Production second cast
HX24110001.032	End CTD	CCSE2	4/10/01 18:11	59.6646	-147.74	110	
HX24110001.033	CALVET Net	CCSE2	4/10/01 18:20	59.6637	-147.747	111	
HX24110001.034	CTD #92	CCSE2	4/10/01 18:35	59.665	-147.758	112	
HX24110001.035	End CTD	CCSE2	4/10/01 18:40	59.6652	-147.762	112	
HX24110001.036	CALVET Net	CCSE3	4/10/01 20:02	59.5703	-147.61	110	
HX24110001.037	CTD #93	CCSE3	4/10/01 20:14	59.5736	-147.618	112	
HX24110001.038	End CTD	CCSE3	4/10/01 20:18	59.5737	-147.621	112	
HX24110001.039	CALVET Net	CCSE3	4/10/01 20:27	59.5732	-147.628	110	
HX24110001.040	CALVET Net	CCSE4	4/10/01 22:05	59.4742	-147.475	117	
HX24110001.041	CTD #94	CCSE4	4/10/01 22:16	59.4778	-147.482	119	Last one in this line for today!!!
HX24110001.042	End CTD	CCSE4	4/10/01 22:22	59.4781	-147.485	119	
HX24110001.043	CALVET Net	CCSE4	4/10/01 22:32	59.4795	-147.489	117	
HX24110101.001	CTD #95	MS 4	4/11/01 2:45	59.9183	-147.835	92	
HX24110101.002	End CTD	MS 4	4/11/01 2:47	59.9175	-147.837	92	
HX24110101.003	CTD #96	MS 3	4/11/01 3:07	59.9306	-147.86	169	
HX24110101.004	End CTD	MS 3	4/11/01 3:12	59.9288	-147.866	169	
HX24110101.005	CALVET Net	MS 2	4/11/01 3:36	59.9427	-147.895	195	

HX24110101.006	CTD #97	MS 2	4/11/01 3:53	59.9433	-147.898	192
HX24110101.007	End CTD	MS 2	4/11/01 3:59	59.9412	-147.905	192
HX24110101.008	CALVET Net	MS 2	4/11/01 4:20	59.9425	-147.895	194
HX24110101.009	CTD #98	MS 1	4/11/01 4:38	59.9534	-147.931	165
HX24110101.010	End CTD	MS 1	4/11/01 4:44	59.9506	-147.938	165
HX24110101.011	Deploy HTI	HB 2	4/11/01 6:52	60.1757	-147.648	148
HX24110101.012	Deploy MOCNESS	HB 2	4/11/01 6:54	60.1755	-147.645	137
HX24110101.013	Recover MOCNESS	HB 2	4/11/01 7:22	60.1822	-147.628	138
HX24110101.014	Recover HTI	HB 2	4/11/01 7:27	60.1837	-147.625	133
HX24110101.015	Deploy HTI	KIP 2	4/11/01 9:09	60.2815	-147.987	557
HX24110101.016	Deploy MOCNESS	KIP 2	4/11/01 9:11	60.2823	-147.987	557
HX24110101.017	Recover MOCNESS	KIP 2	4/11/01 9:42	60.296	-147.985	525
HX24110101.018	Recover HTI	KIP 2	4/11/01 9:59	60.3055	-147.982	531
HX24110101.019	Deploy HTI	PWS 1	4/11/01 10:35	60.3808	-147.937	343
HX24110101.020	Deploy MOCNESS	PWS 1	4/11/01 10:38	60.3817	-147.938	343
HX24110101.021	Recover MOCNESS	PWS 1	4/11/01 11:18	60.3955	-147.946	383
HX24110101.022	Recover HTI	PWS 1	4/11/01 11:40	60.4042	-147.946	244
HX24110101.023	Deploy HTI	PWS 2	4/11/01 12:41	60.5358	-147.801	737
HX24110101.024	Deploy MOCNESS	PWS 2	4/11/01 12:45	60.5375	-147.8	737
HX24110101.025	Recover MOCNESS	PWS 2	4/11/01 13:16	60.5522	-147.791	750
HX24110101.026	Recover HTI	PWS 2	4/11/01 13:35	60.5635	-147.78	760
HX24110101.027	Deploy MOCNESS	PWS 2	4/11/01 14:31	60.551	-147.8	685
HX24110101.028	Recover MOCNESS	PWS 2	4/11/01 16:05	60.5847	-147.738	757
HX24110101.029	CTD #99	KIP2	4/11/01 18:40	60.2769	-147.987	586
HX24110101.030	End CTD	KIP2	4/11/01 18:43	60.2766	-147.987	586
HX24110101.031	CALVET Net	KIP2	4/11/01 18:50	60.2757	-147.989	584
HX24110101.032	CTD #100	KIP2	4/11/01 19:04	60.2752	-147.991	575
HX24110101.033	End CTD	KIP2	4/11/01 19:22	60.2711	-147.99	575
HX24110101.034	CALVET Net	KIP2	4/11/01 19:47	60.2788	-147.984	588
HX24110101.035	CALVET Net	PWS2	4/11/01 21:37	60.5353	-147.801	744
HX24110101.036	CTD #101	PWS2	4/11/01 21:47	60.5367	-147.805	748

HX24110101.037	End CTD	PWS2	4/11/01 22:09	60.5367	-147.814	748	
HX24110101.038	CALVET Net	PWS2	4/11/01 22:39	60.534	-147.802	745	
HX24110101.039	CTD #102	PWS2	4/11/01 22:56	60.535	-147.808	747	Water for Hopcroft #1
HX24110101.040	End CTD	PWS2	4/11/01 22:57	60.535	-147.808	747	
HX24110101.041	CTD #103	PWS2	4/11/01 23:18	60.535	-147.801	747	Water for Hopcroft #2
HX24110101.042	End CTD	PWS2	4/11/01 23:19	60.535	-147.801	747	
HX24110101.043	CTD #104	PWS2	4/11/01 23:38	60.5374	-147.813	747	Water for Hopcroft #3
HX24110101.044	End CTD	PWS2	4/11/01 23:39	60.5375	-147.813	747	
HX24110101.045	CTD #105	PWS2	4/11/01 23:54	60.5351	-147.806	747	Water for Hopcroft #4
HX24110101.046	End CTD	PWS2	4/11/01 23:55	60.5351	-147.806	747	
HX24110201.001	CTD #106	PWS2	4/12/01 0:09	60.5343	-147.801	747	Water for Hopcroft #5
HX24110201.002	End CTD	PWS2	4/12/01 0:10	60.5344	-147.801	747	
HX24110201.003	CTD #107	PWS2	4/12/01 0:27	60.5371	-147.811	747	Water for Hopcroft #6
HX24110201.004	End CTD	PWS2	4/12/01 0:29	60.537	-147.812	747	
HX24110201.005	CTD #108	PWS2	4/12/01 0:43	60.5344	-147.801	747	Water for Hopcroft #7
HX24110201.006	End CTD	PWS2	4/12/01 0:45	60.5343	-147.801	747	
HX24110201.007	Ring Net	PWS2	4/12/01 0:52	60.5347	-147.803	747	
HX24110201.008	Ring Net	PWS2	4/12/01 0:59	60.5352	-147.806	747	
HX24110201.009	CALVET Net	PWS1	4/12/01 2:12	60.3788	-147.938	352	
HX24110201.010	CTD #109	PWS1	4/12/01 2:25	60.3787	-147.941	352	
HX24110201.011	End CTD	PWS1	4/12/01 2:33	60.3783	-147.943	352	
HX24110201.012	CALVET Net	PWS1	4/12/01 2:50	60.377	-147.946		
HX24110201.013	CTD #110	HB 1	4/12/01 5:06	60.1926	-147.702	244	
HX24110201.014	End CTD	HB 1	4/12/01 5:12	60.1918	-147.705	244	
HX24110201.015	CALVET Net	HB 2	4/12/01 5:48	60.1787	-147.64	171	
HX24110201.016	CTD #111	HB 2	4/12/01 6:01	60.1778	-147.643	174	
HX24110201.017	End CTD	HB 2	4/12/01 6:08	60.1772	-147.645	174	
HX24110201.018	CALVET Net	HB 2	4/12/01 6:20	60.17.62	-147.647	204	
HX24110201.019	CTD #112	HB 3	4/12/01 6:46	60.1658	-147.576	86	
HX24110201.020	End CTD	HB 3	4/12/01 6:50	60.166	-147.577	86	
HX24110201.021	CTD #113	HB 4	4/12/01 7:15	60.1492	-147.504	103	Did not write file at END.

HX24110201.022	CTD #114/CTD #115	HB 5	4/12/01 7:51	60.1349	-147.453	35	Only 115 is valid.
HX24110201.023	End CTD	HB 5	4/12/01 7:53	60.135	-147.454	35	
HX24110201.024	Deploy HTI	MS2i	4/12/01 9:46	59.937	-147.884	190	
HX24110201.025	Deploy MOCNESS	MS2i	4/12/01 9:51	59.9397	-147.883	190	
HX24110201.026	Recover MOCNESS	MS2i	4/12/01 10:18	59.9498	-147.875	210	
HX24110201.027	Recover HTI	MS2i	4/12/01 10:40	59.9577	-147.866	222	
HX24110301.001	CALVET Net	CCSE7	4/13/01 1:08	59.058	-146.968		
HX24110301.002	CALVET Net	CCSE7	4/13/01 1:25	59.0603	-146.974		
HX24110301.003	CTD #116	CCSE7	4/13/01 1:37	59.0617	-146.978	1874	
HX24110301.004	End CTD	CCSE7	4/13/01 2:14	59.0622	-146.994	1874	
HX24110301.005	CALVET Net	CCSE8	4/13/01 4:25	58.8833	-146.735		
HX24110301.006	CTD #117	CCSE8	4/13/01 4:50	58.8841	-146.733	2771	
HX24110301.007	End CTD	CCSE8	4/13/01 5:30	58.8894	-146.749	2771	
HX24110301.008	Deploy HTI	CCSE8	4/13/01 6:32	58.8852	-146.739		
HX24110301.009	Deploy MOCNESS		4/13/01 6:37	58.8843	-146.734		
HX24110301.010	Recover MOCNESS	CCSE8	4/13/01 7:07	58.5517	-146.71		
HX24110301.011	Tow HTI CCSE7-8		4/13/01 7:50	58.886	146.7385		
HX24110301.012	CALVET Net	CCSE8	4/13/01 8:37	58.887	-146.74		
HX24110301.013	Deploy MOCNESS	CCSE7	4/13/01 10:17	59.0573	-146.968		
HX24110301.014	Recover MOCNESS	CCSE7	4/13/01 10:50	59.515	-146.948		
HX24110301.015	Recover HTI	CCSE6	4/13/01 13:20	59.233	-147.16		
HX24110301.016	CALVET Net	CCSE6	4/13/01 16:30	59.2328	-1471608	200	
HX24110301.017	CALVET Net	CCSE6	4/13/01 16:47	59.2317	-147.159	200	
HX24110301.018	CTD #118	CCSE6	4/13/01 17:06	59.2312	-147.166	200	
HX24110301.019	End CTD	CCSE6	4/13/01 17:14	59.23	-147.169	200	
HX24110301.020	CALVET Net	CCSE5	4/13/01 18:40	59.3755	-147.349	131	
HX24110301.021	CTD #119	CCSE5	4/13/01 18:51	59.3758	-147.356	124	
HX24110301.022	End CTD	CCSE5	4/13/01 18:56	59.3755	-147.359	124	
HX24110301.023	CALVET Net	CCSE5	4/13/01 19:04	59.3752	-147.366	131	
HX24110301.024	Ring Net	CCSE5	4/13/01 19:16	59.3758	-1473723	131	
HX24110301.025	CTD #120	CCSE4	4/13/01 20:08	59.4754	-147.48	116	
HX24110301.026	End CTD	CCSE4	4/13/01 20:13	59.4755	-147.483	116	

HX24110301.027	Ring Net	CCSE4	4/13/01 20:19	59.4758	-147.487	116	
HX24110301.028	CTD #121	CCSE3	4/13/01 21:07	59.5714	-147.61	110	
HX24110301.029	End CTD	CCSE3	4/13/01 21:12	59.5715	-147.613	110	
HX24110301.030	CTD #122	CCSE2	4/13/01 21:59	59.6685	-147.729	114	
HX24110301.031	End CTD	CCSE2	4/13/01 22:04	59.6692	-147.73	114	
HX24110301.032	CTD #123	CCSE1	4/13/01 22:49	59.742	-147.819	63	
HX24110301.033	End CTD	CCSE1	4/13/01 22:51	59.7422	-147.821	63	
HX24110401.001	Deploy HTI	CCSE4	4/14/01 5:10	59.4592	-147.455	115	
HX24110401.002	Tow HTI CCSE4-3	CCSE4	4/14/01 5:26	59.4748	-147.475	115	
HX24110401.003	Deploy MOCNESS	CCSE3	4/14/01 6:37	59.5703	-147.607	110	
HX24110401.004	Recover MOCNESS	CCSE3	4/14/01 7:07	59.58	-147.593	111	
HX24110401.005	Tow HTI CCSE3-2	CCSE3	4/14/01 7:18	59.57	-147.611	110	
HX24110401.006	Recover HTI	CCSE3	4/14/01 8:25	59.6675	-147.729	113	
HX24110401.007	CTD #124	GAK1	4/14/01 13:33	59.8445	-149.469	272	THE END....for it is GAK1
HX24110401.008	End CTD	GAK1	4/14/01 13:39	59.8435	-149.471	272	
HX24110401.009	CTD #125	RES2.5	4/14/01 15:02	60.0247	-149.36	301	THE END II.. the end is back, this time for real
HX24110401.010	End CTD	RES2.5	4/14/01 15:09	60.0232	-149.359	301	
HX24110401.011			4/14/01 16:00				Seward Dock, Cruise terminated!