

GLOBEC CRUISE REPORT
CRUISE HX263 13 – 22 August 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 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.

This August 2002 cruise followed just two weeks after the July cruise. This will give us a good opportunity to look at how the system is evolving at this time of year, when massive amounts of fresh water are starting to enter the coastal region. I have included in this report some remotely sensed images of sea surface temperature, sea surface elevation, and chlorophyll as derived from the SeaWifs satellite – these figures may help in the interpretation of our observations.

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: 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.

Cruise chronology:

We enjoyed excellent weather through this cruise, and were able to get all standard stations completed as well as some extra stations on the Along Hinchinbrook Canyon (AHC) and Hoof Point (HP) lines sampled before returning to Seward. The cruise started more soberly, with troubles in the engine room on the first day at station GAK1 – a leak in the auxiliary generator manifold threatened to derail this cruise, however the parts were available in Seward and we returned nearly to port by the time the R/V Little Dipper was able to ferry the needed parts out to us. Nonetheless, we were able to return to sampling after all repairs were made by the time it got dark that evening.

Sampling progressed smoothly after this, and though we only had enough darkness to accomplish three MOCNESS and four HTI samples in one night, we were able to finish the entire Seward Line and Cape Fairfield Lines by the morning of August 18th. Taking advantage of the continuing good weather, we headed for our other exposed stations and sampled on the Hinchinbrook Entrance Line the following day and night, occupied most of the stations on the AHC line, and then progressed to Prince William Sound, where we still had two nights worth of work to accomplish and two nights left of sampling available before we would need to return to Seward. We occupied all Prince William Sound stations in the following day and a half. A summer storm did blow up while we were in the sound but it did not effect our sampling there. It did make for an uncomfortable ride once we left the protected waters on our last day, however. We were able to sample on the HP line late on the day of the 21st, until we headed for GAK1 where we did one final MOCNESS tow for euphausiid collection before heading back to the dock. In comparison to the July cruise just two weeks previous, it is amazing how easily everything goes when the weather is good, in contrast to the working conditions when the weather is poor or marginal.

Table 1.

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

59	37	148	52	CF10
59	35	148	52	CF11
59	33	148	52	CF12
59	31	148	52	CF13
59	29	148	52	CF14
59	27	148	52	CF15

Prince William Sound Stations

60	22.78	147	56.17	PWS1
60	32.1	147	48.2	PWS2

Knight Island Passage Station

60	16.7	147	59.2	KIP2
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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

Table 2.

NEP GLOBEC LTOP OPPORTUNISTIC STATIONS				
Latitude N (degrees, minutes)		Longitude W (degrees, minutes)		Station Name
Along Hinchinbrook Canyon Line				
60	0	147	4.5	AHC2
59	54	147	4.5	AHC3
59	48	147	4.5	AHC4
59	42	147	4.5	AHC5
59	36	147	4.5	AHC6
59	30	147	4.5	AHC7
59	24	147	4.5	AHC8
59	18	147	4.5	AHC9
59	11	147	4.5	AHC10
59	4	147	4.5	AHC11
Cross Upper Hinchinbrook Canyon Line				
59	48	146	54	XHCU3
59	48	146	57.5	XHCU4
59	48	147	1	XHCU5
59	48	147	8	XHCU7
59	48	147	11.5	XHCU8
59	48	147	15	XHCU9
59	48	147	20	XHCU10
59	48	147	25	XHCU11
Cape Cleare Line				
59	44.67	147	53	CC1
59	42.6	147	53	CC2
59	40	147	53	CC3
59	36	147	53	CC4
59	29	147	53	CC5
59	22	147	53	CC6
59	15	147	53	CC7
59	7.75	147	53	CC8
Cape Cleare South-West Line				
59	42.9	148	0	CCSW1
59	40	148	5	CCSW2
59	37.5	148	10.2	CCSW3
59	35.1	148	14.8	CCSW4
59	32.6	148	20	CCSW5
Copper River Line				
60	6.2	144	35.2	CR1
60	1.2	144	42.6	CR2
59	56.2	144	49.2	CR3
59	51.2	144	55.9	CR4
59	46.2	145	2.3	CR5

59	41.2	145	8.3	CR6
59	35.2	145	8.3	CR7
59	29.2	145	8.3	CR8
59	23.8	145	8.3	CR9

Cape Suckling Line

59	57	143	40	CS1
59	54	143	40	CS2
59	51	143	40	CS3
59	48	143	40	CS4
59	44	143	40	CS5
59	38	143	40	CS6
59	32	143	40	CS7
59	25	143	40	CS8

Gore Point Line

59	10.3	150	56.1	GP1
59	6.2	150	51.6	GP2
59	2.1	150	47.1	GP3
58	58	150	43.6	GP4
58	53.9	150	39.1	GP5
58	47.8	150	33.3	GP6
58	41.6	150	26.6	GP7
58	35.5	150	20	GP8
58	29.3	150	13.4	GP9
58	23.1	150	6.8	GP10

Hoof Point Line

59	37.6	149	54.9	HP1
59	33.2	149	50.7	HP2
59	28.9	149	46.5	HP3
59	20.1	149	38.1	HP5
59	15.7	149	33.9	HP6
59	11.4	149	29.5	HP7
59	7	149	25.1	HP8
59	1.8	149	19.7	HP9
58	57.4	149	17.4	HP10
58	52.9	149	13.5	HP11
58	47.5	149	7.1	HP12
58	40.9	148	59.5	HP13

Pye Island Line

59	19.5	150	11.7	PI2
59	14.5	150	7.7	PI3
59	9.5	150	3.7	PI4
59	4.5	149	59.7	PI5
59	0.5	149	55.7	PI6

Ragged Island Line

59	24.5	150	15.5	RI1
59	24.5	150	11.85	RI2

59	24.5	150	2.018	RI3
59	24.5	149	52.15	RI4
59	24.5	149	42.3	RI5
59	24.5	149	32.45	RI6
59	24.5	149	22.6	RI7
59	24.5	149	12.75	RI8
59	24.5	148	52	RI10

Amatuli Trough Stations

59	12.6	150	12.82	TXC1
59	18.6	150	12.64	TXC2
59	5.6	150	13.7	XC1
59	3.9	150	2.4	XC2
59	2.9	149	55.92	XC2.5
59	2.2	149	51.1	XC3
59	0.5	149	40.4	XC4
58	58.5	149	28.7	XC5
58	55.1	149	5.3	XC6
58	53.4	148	53.9	XC7
58	51.7	148	42.5	XC8

Montague-Marmot Line

59	20.987	149	9.643	MM2
59	17.523	149	16.825	MM3
59	14.188	149	23.873	MM4
59	7.297	149	37.845	MM6
59	3.885	149	45.415	MM7
59	0.189	149	51.946	MM8

Chiswell Rocks Line

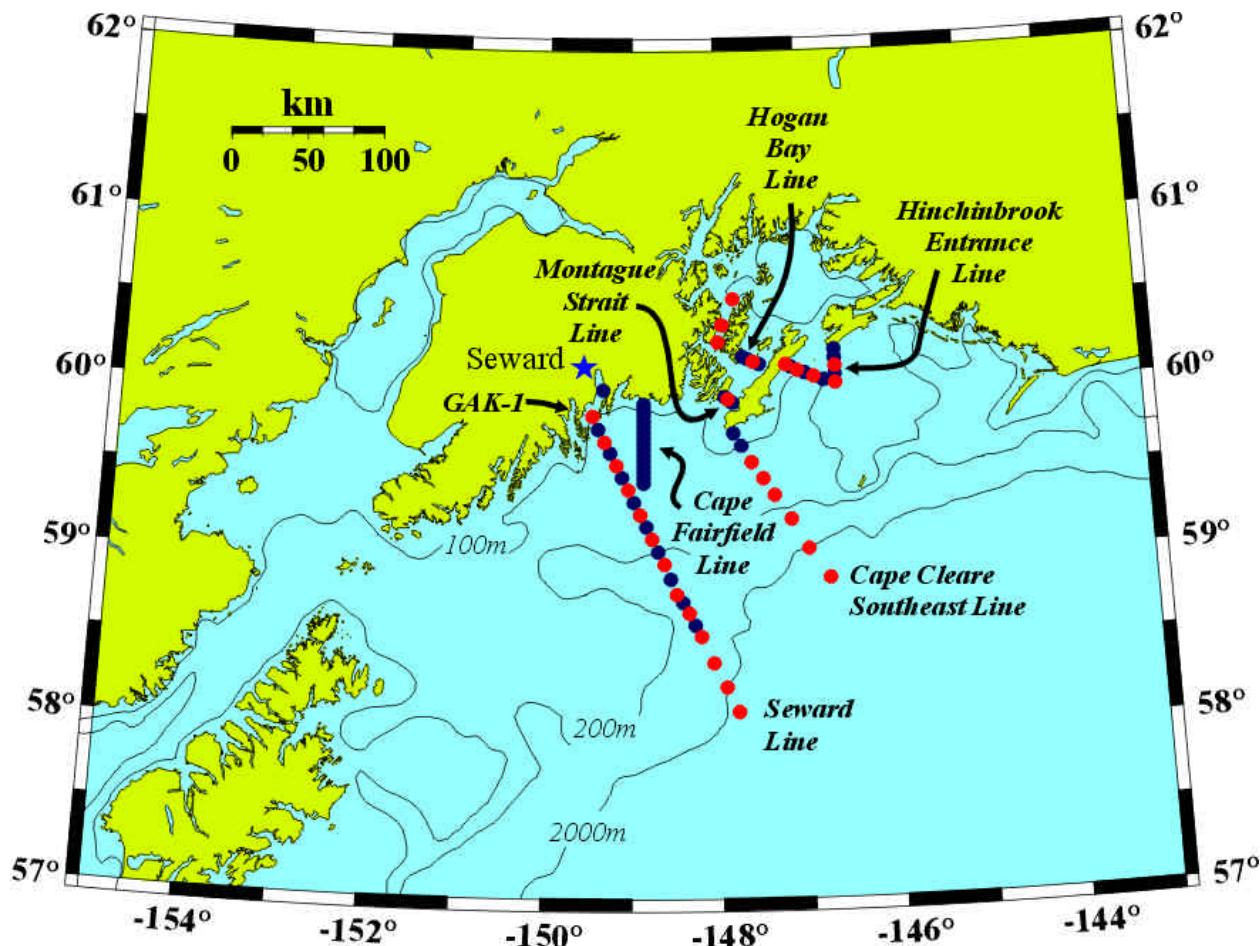
59	32.12	149	16	CRS1
59	31.12	149	20.3	CRS2
59	30.12	149	25	CRS3
59	29.12	149	29.3	CRS4
59	28.12	149	34	CRS5
59	27.12	149	38.3	CRS6
59	26.12	149	43	CRS7
59	25.12	149	47.3	CRS8
59	24.12	149	52	CRS9
59	23.12	149	56.3	CRS10

West of Prince William Sound Stations

59	55.5	148	20	PWSW1
59	52.5	148	20	PWSW2
59	49.5	148	20	PWSW3
59	46.5	148	20	PWSW4
59	42.5	148	20	PWSW5
59	40	148	20	PWSW5i
59	37.5	148	20	PWSW6

Prince William Sound Stations				
60	39.3	147	40.6	PWS3
60	44.2	147	39.4	PWS4
60	49.3	147	23.7	PWS5
60	43.174	147	8.368	PWS6
60	37.7	147	8.9	PWS7
60	33.4	147	7.6	PWS8
60	28.6	147	4.2	PWS9
60	17	146	48.4	PWS11
Naked Island Line				
60	50.452	147	35.722	NI1
60	48.534	147	33.886	NI2
60	46.413	147	31.674	NI3
60	44.436	147	29.762	NI4
Nellie Juan Station				
60	31.156	148	17.333	NJ1
Port Wells Station				
60	48.33	148	13.086	PW1
Knight Island Passage Station				
60	16.8	148	0.8	KIP1
Central Prince William Sound Stations				
60	36.36	146	51.15	KJ1
60	32.26	146	51.15	KJ2
60	29.55	146	40.45	KJ4
60	24.1	147	5.5	MH1
60	24.1	146	58.36	MH2
60	24.1	146	51.15	MH3
60	24.1	146	44.26	MH4
60	39.9	147	0	MK3
60	28.04	147	7.6	MN1
60	31.92	147	9.8	MN2
60	35.83	147	11.72	MN3
60	39.9	147	14.15	NK1
60	39.9	147	7.15	NK2
60	39.9	146	52.8	NK4
60	39.9	146	45.75	NK5

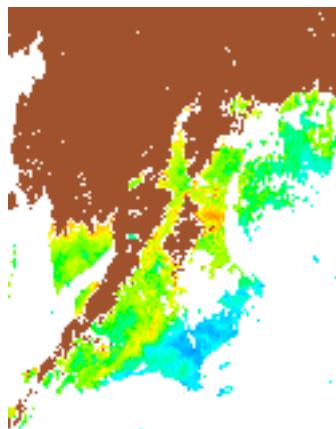
NEP GLOBEC Standard Station Map



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

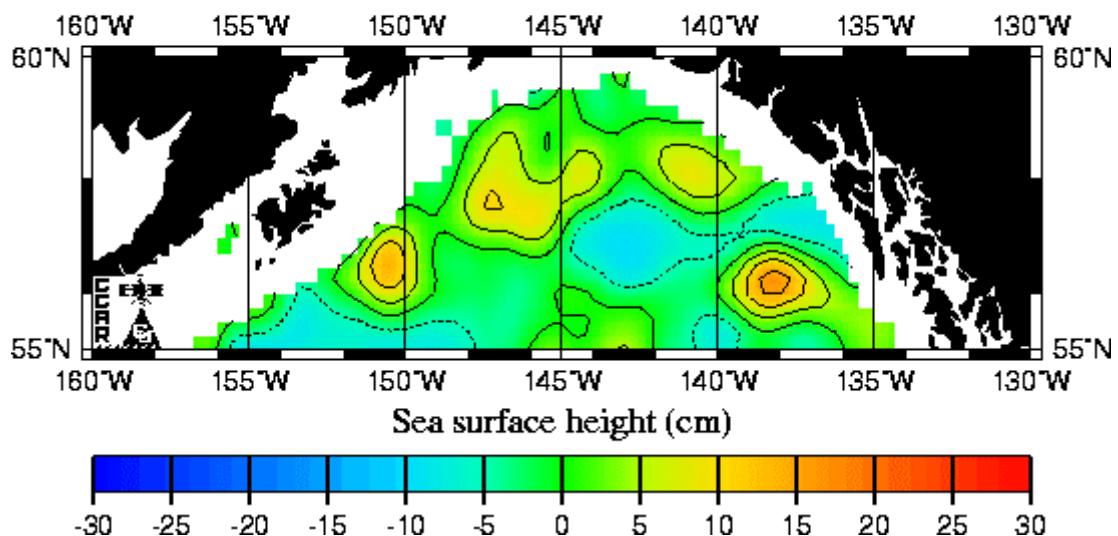
Here are some recent images of our region:

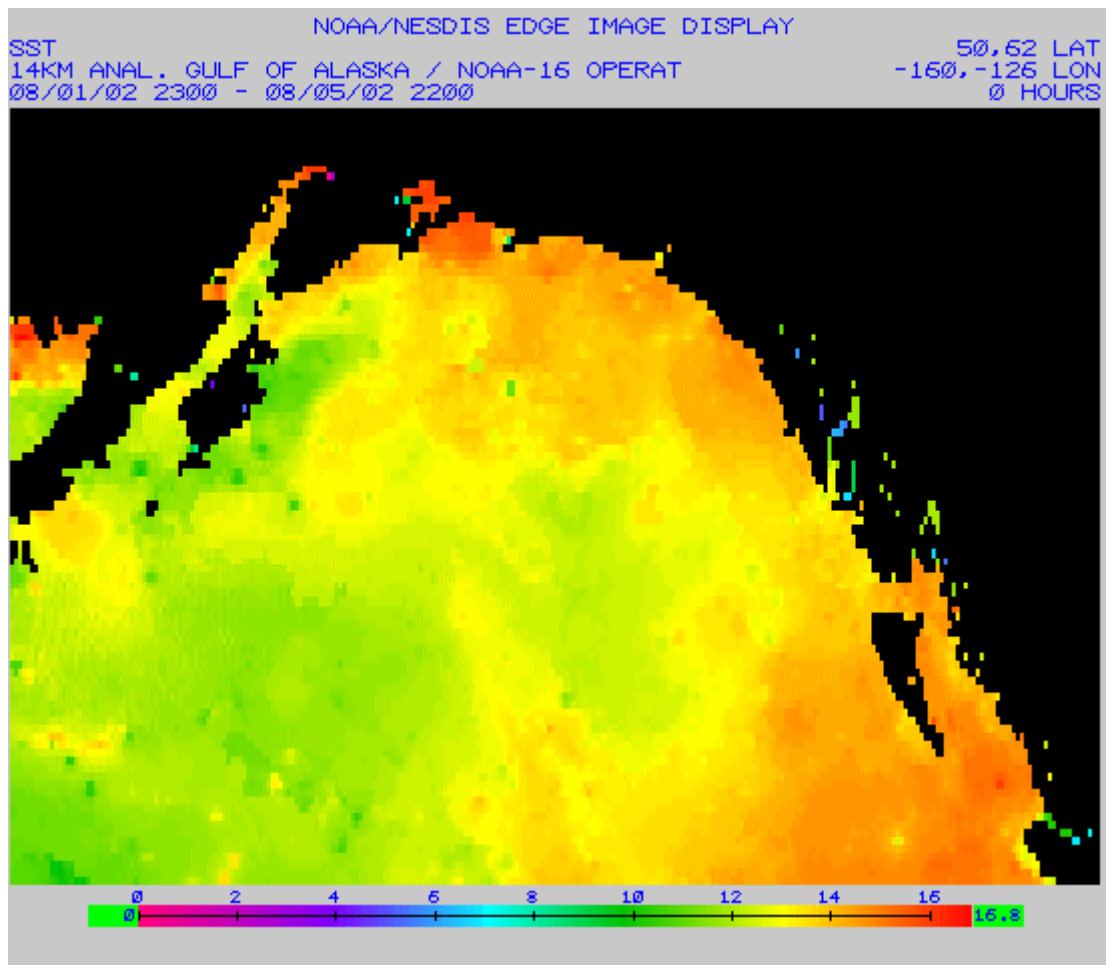
First is the most recent good 8-day composite (July28) of SeaWifs from the SeaWifs browse webpage. It has been pretty cloudy out there recently.



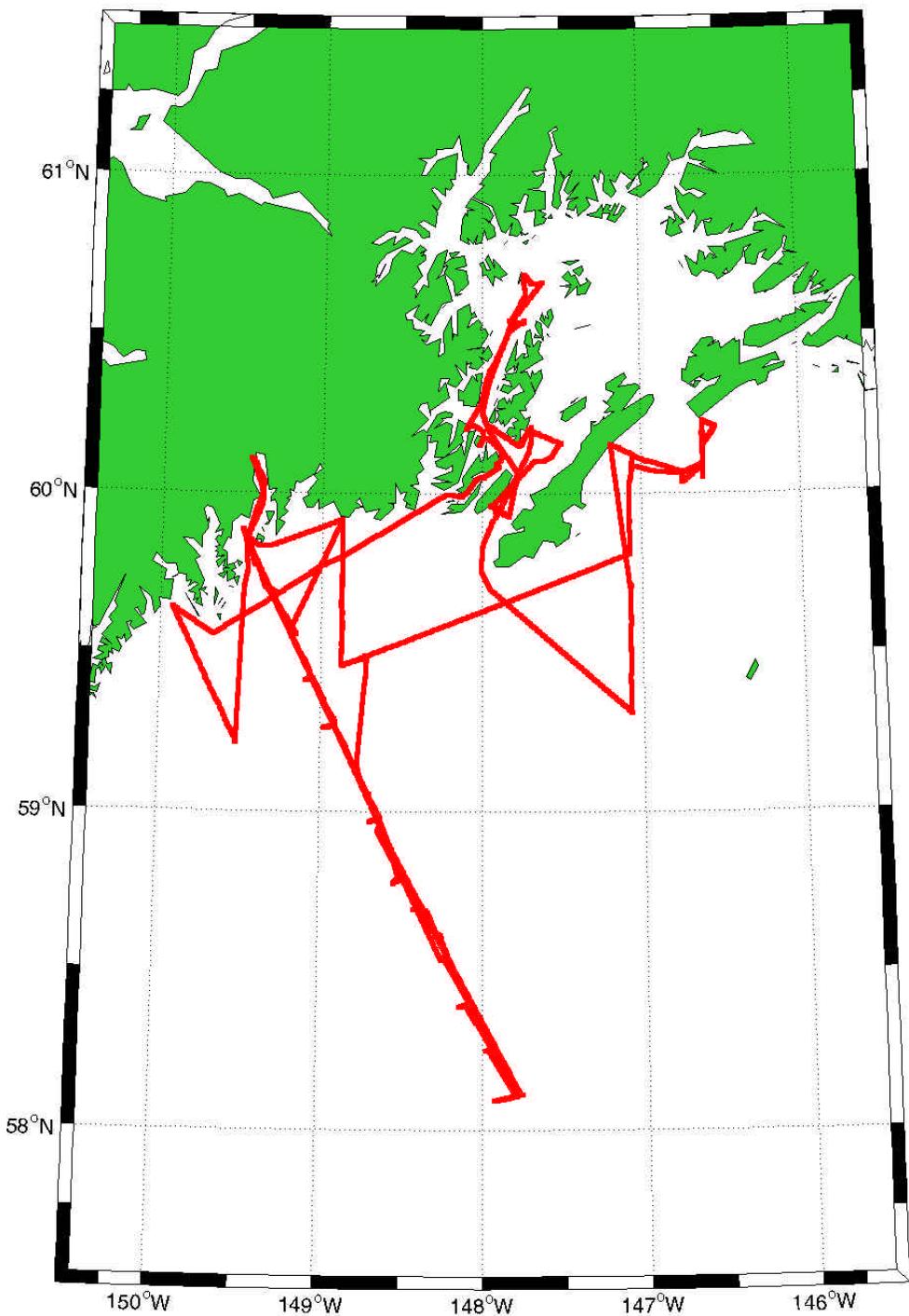
This year's big eddy is now south-east of Kodiak.

TOPEX/ERS-2 Analysis Aug 6 2002

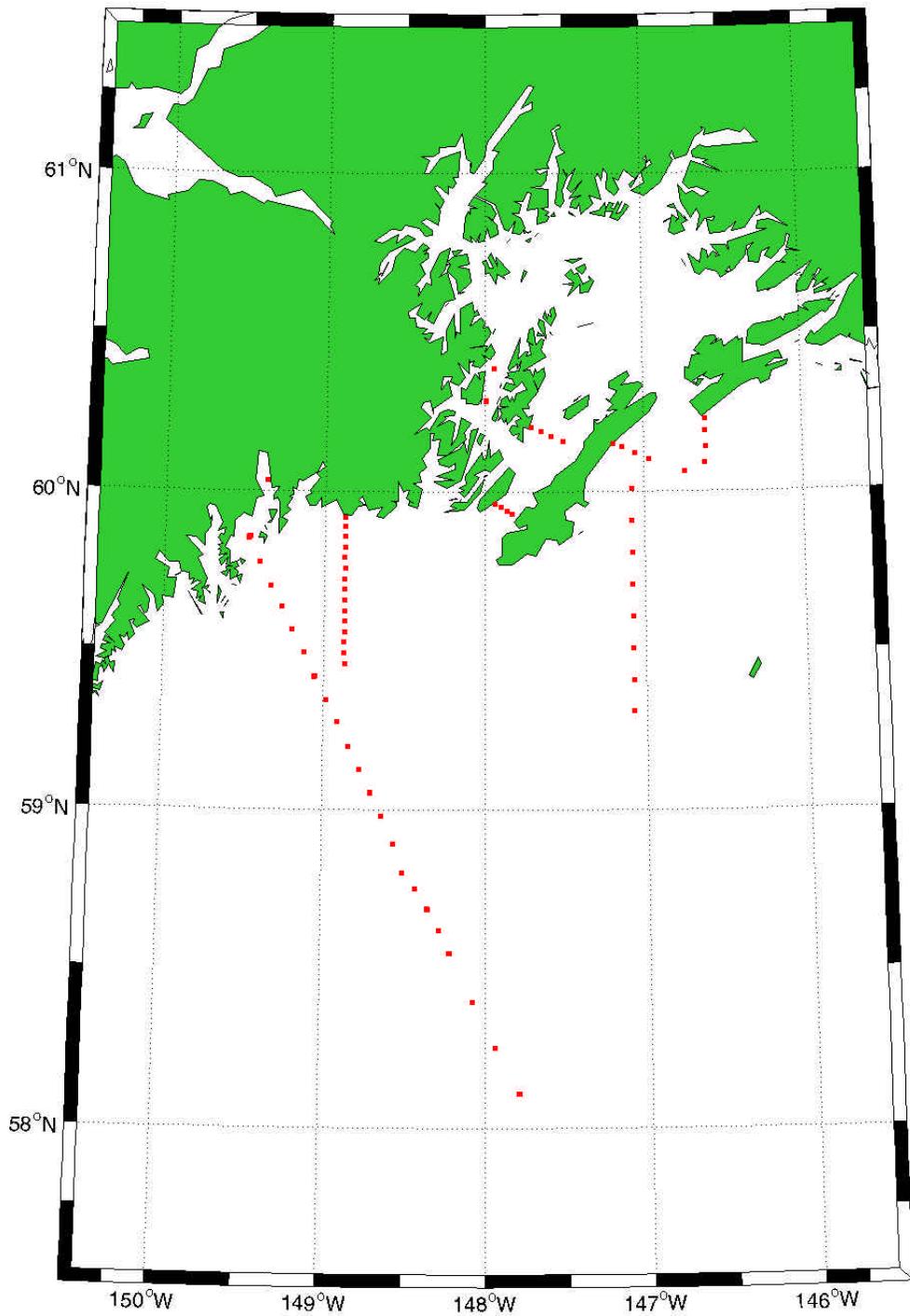


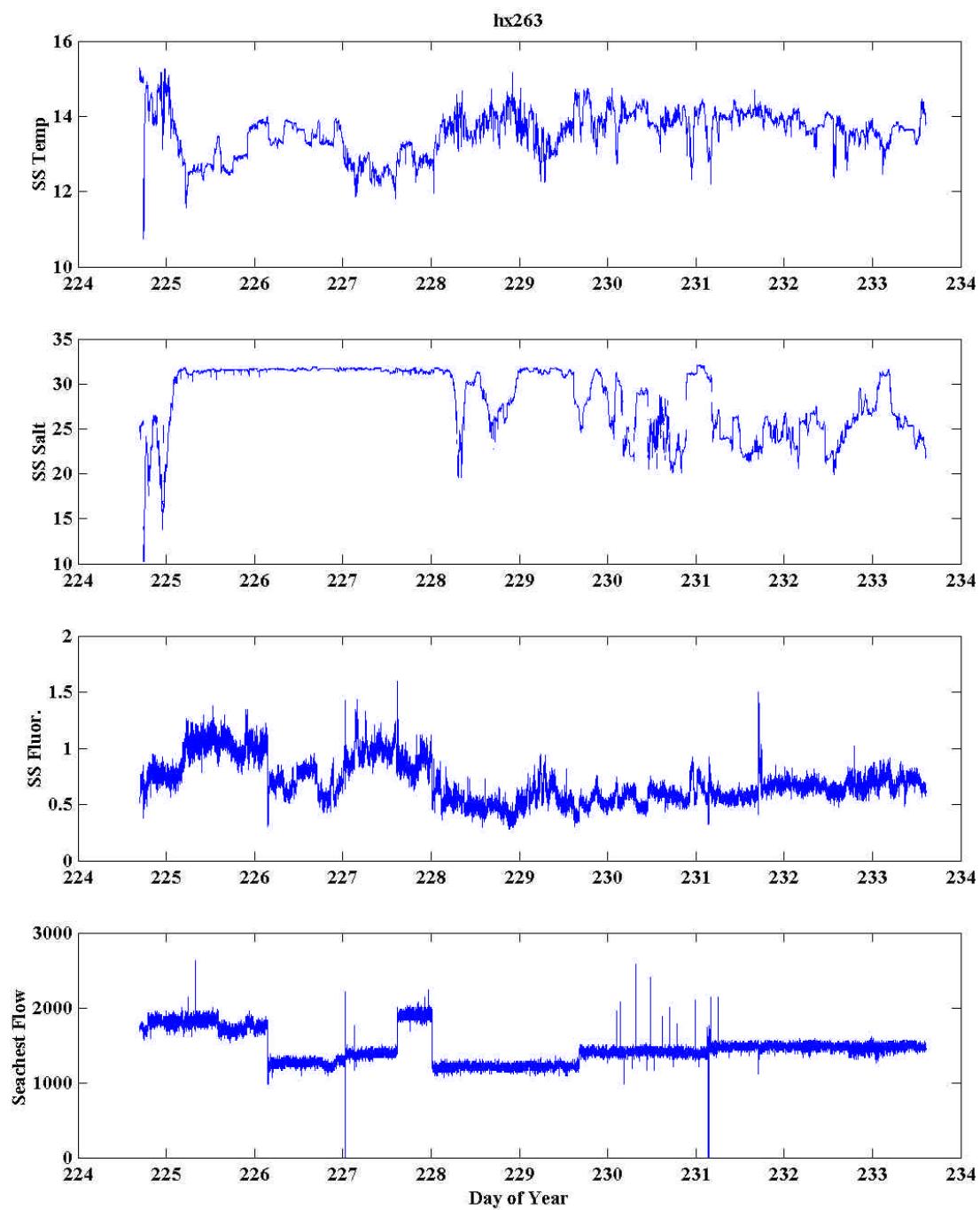


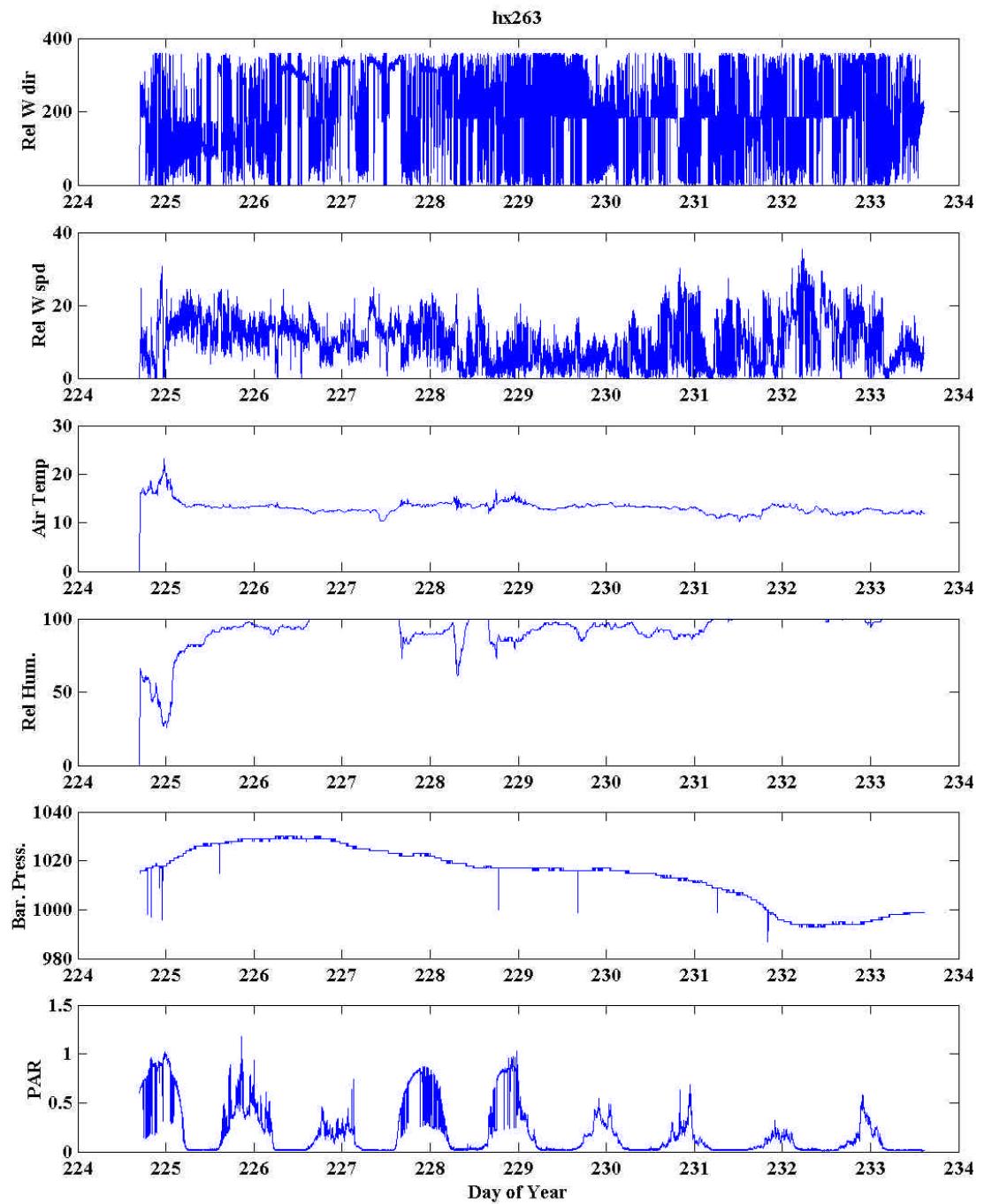
hx263 Cruise Track

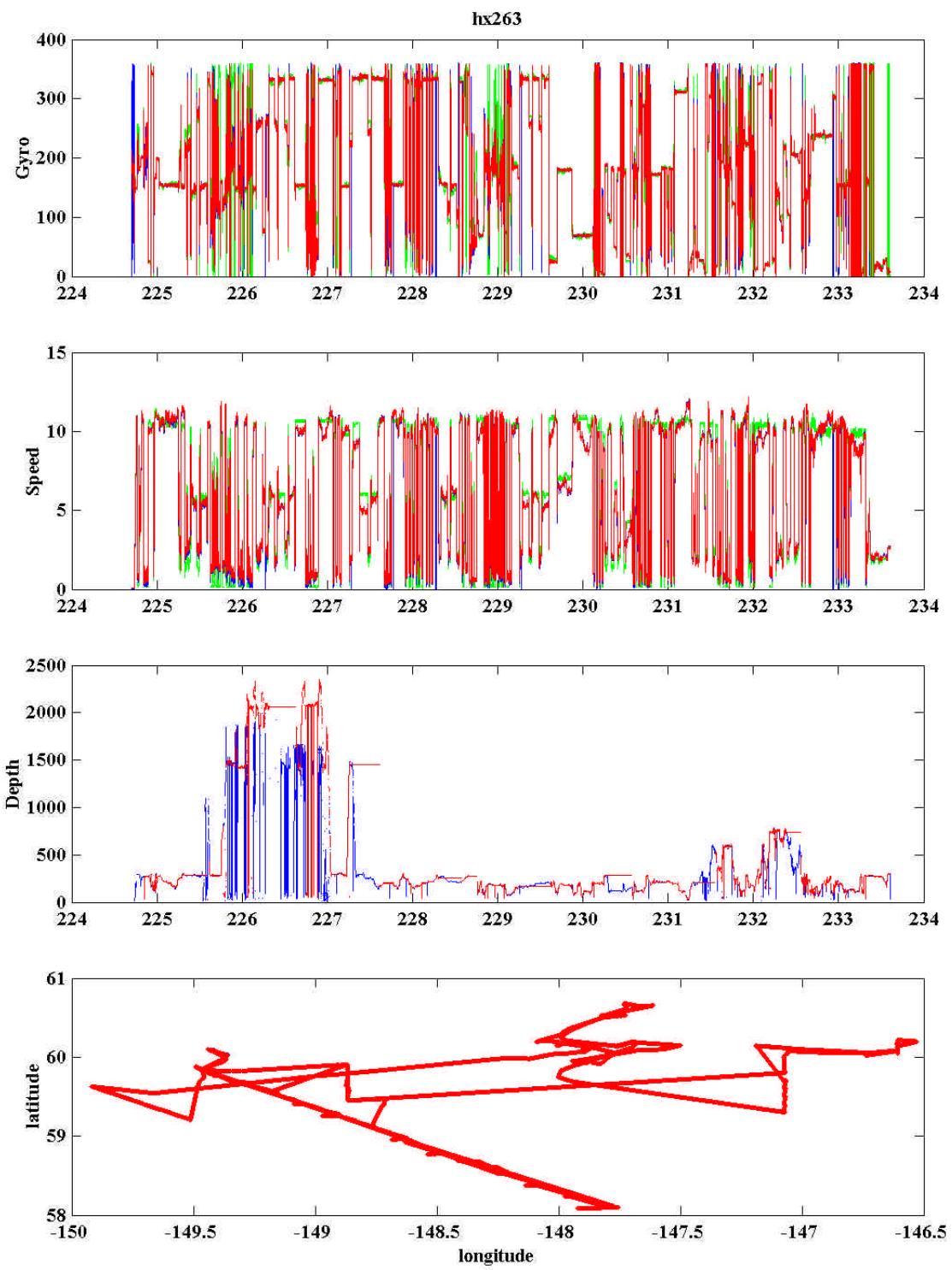


hx263 Station Locations

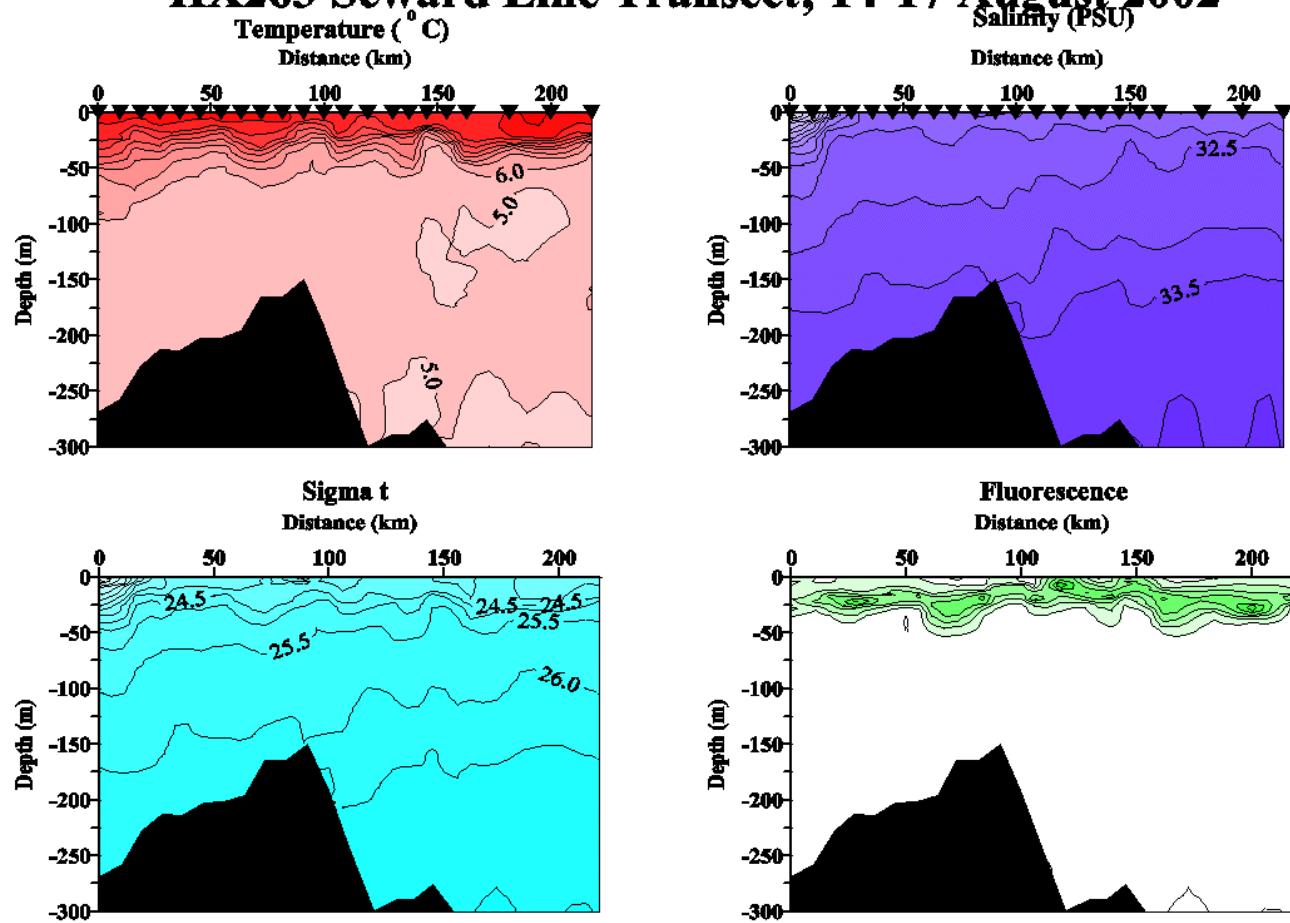




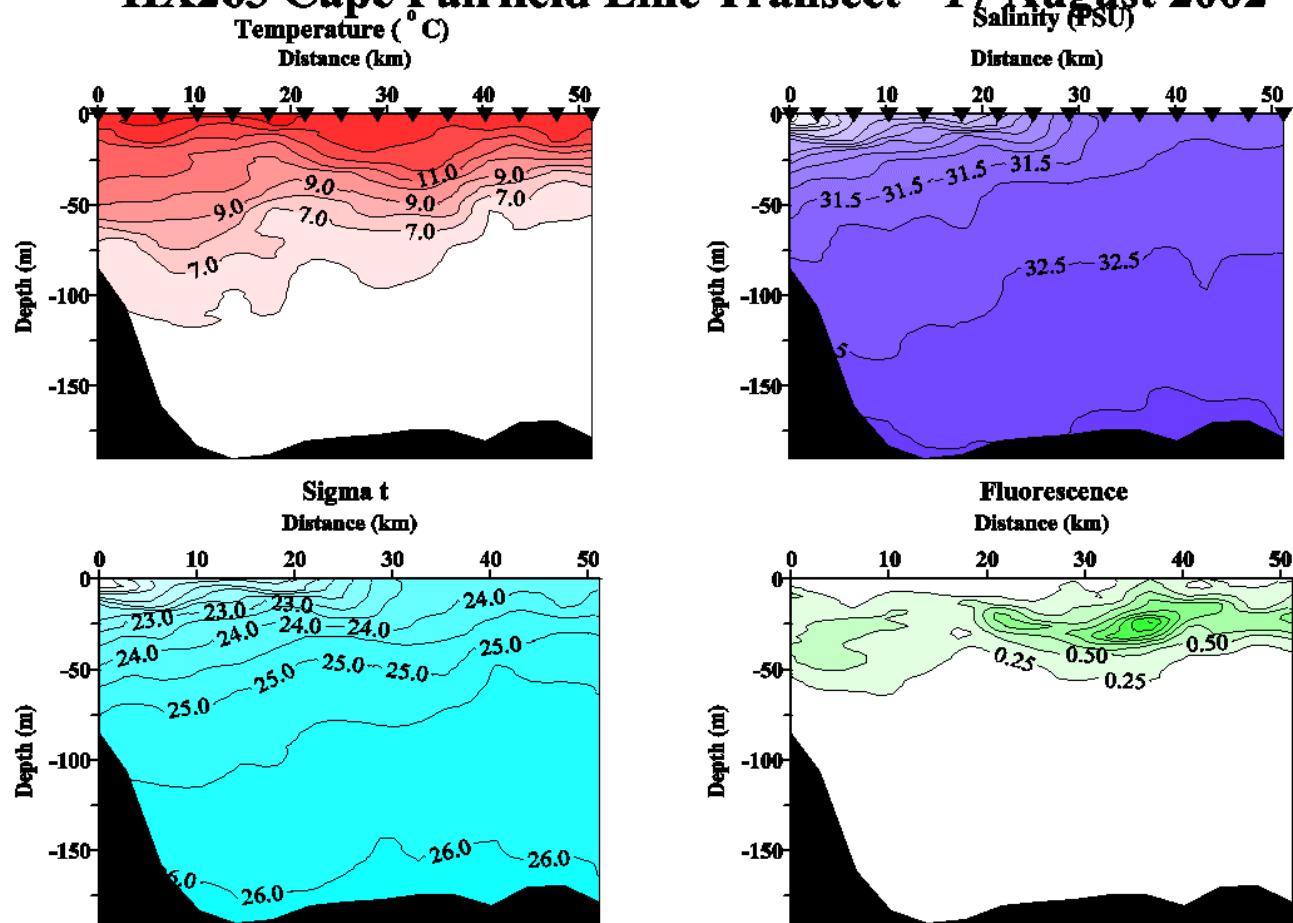




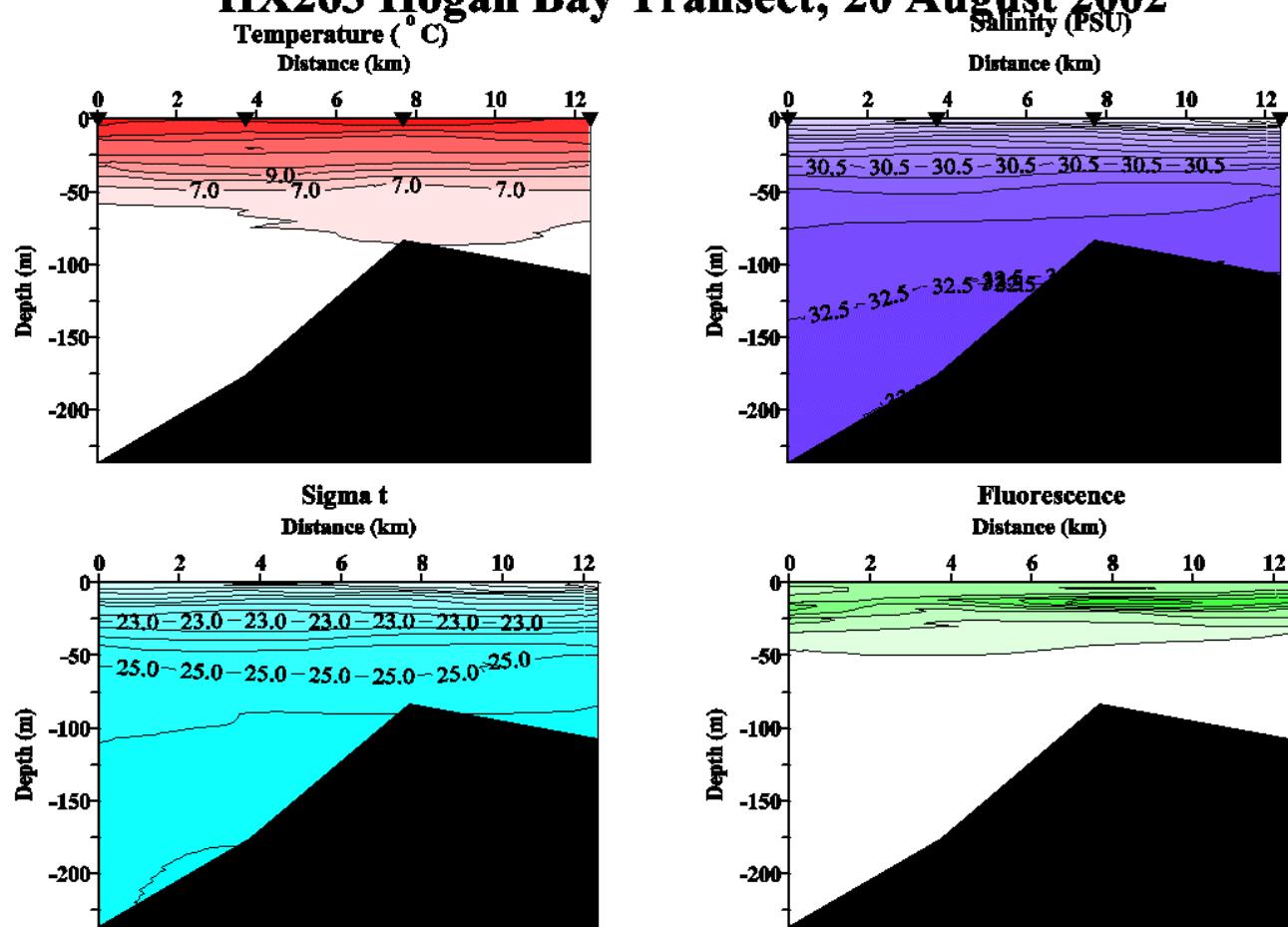
HX263 Seward Line Transect; 14-17 August 2002



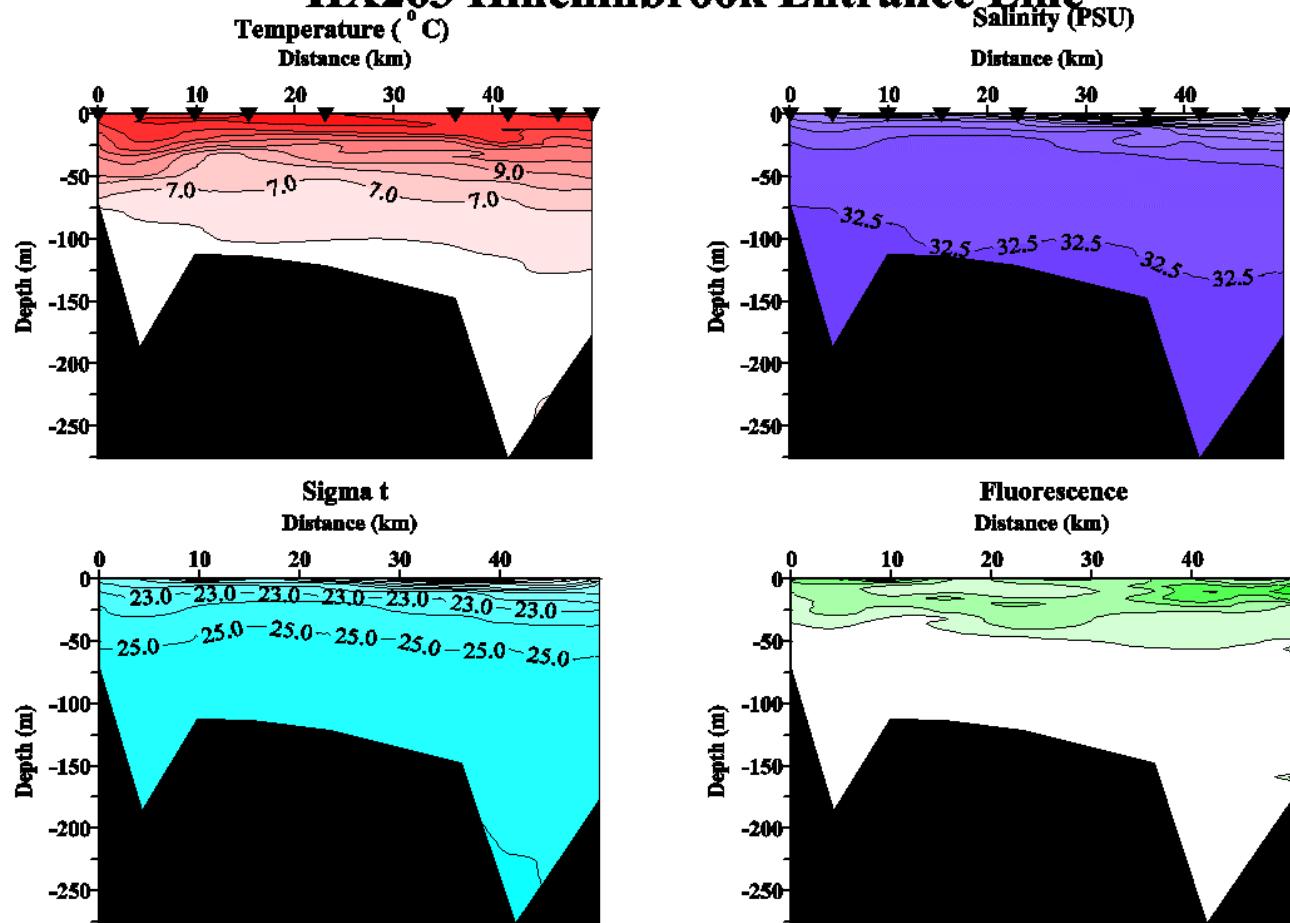
HX263 Cape Fairfield Line Transect - 17 August 2002



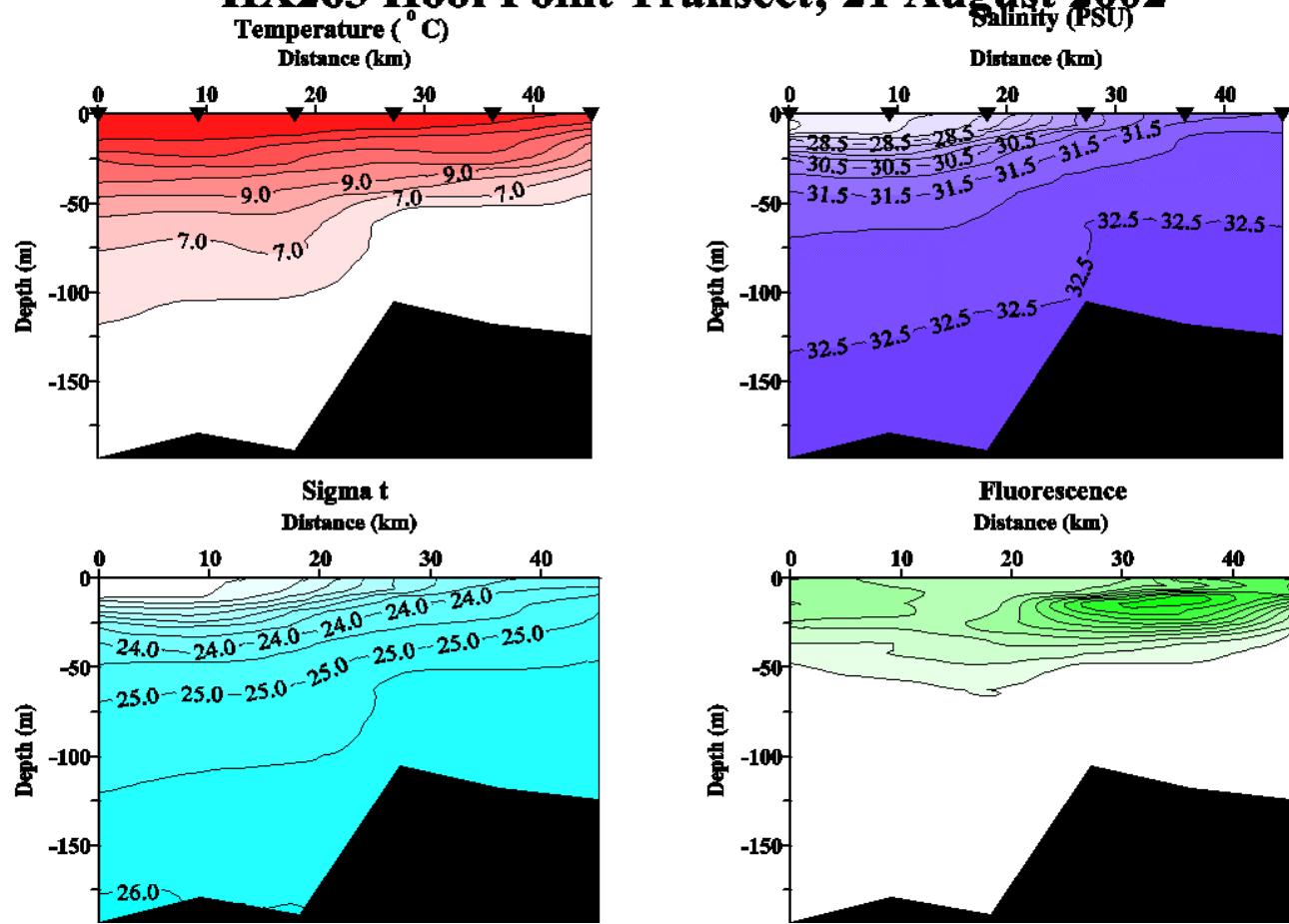
HX263 Hogan Bay Transect; 20 August 2002



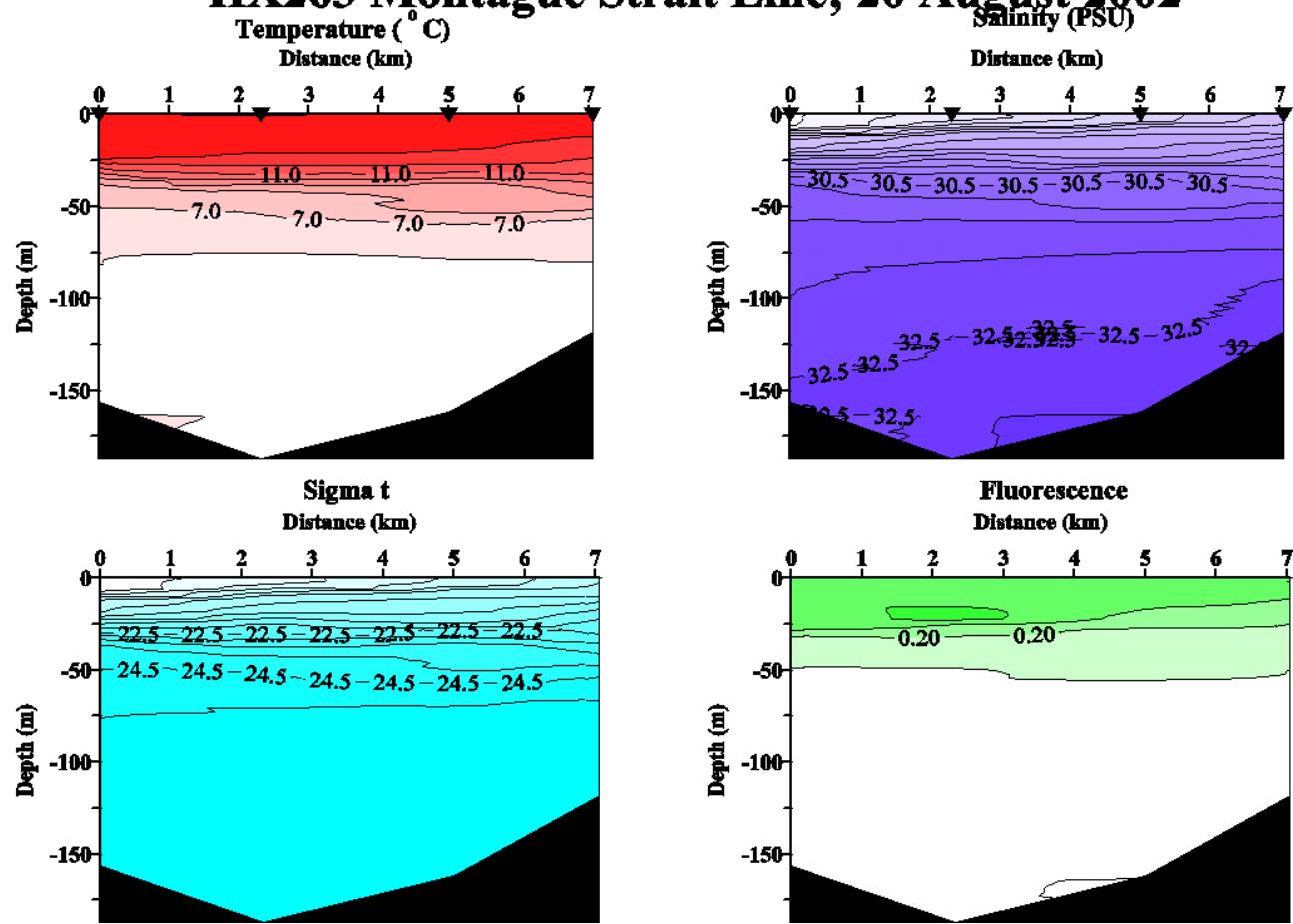
HX263 Hinchinbrook Entrance Line



HX263 Hoof Point Transect; 21 August 2002



HX263 Montague Strait Line; 20 August 2002



EVENT LOG:

Unless otherwise noted, CTDs were taken for T. Weingartner and T. Royer.

Water samples taken for T. Whittley 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			Longitude	Dept	Comments	Scientist
		n	Date	GMT	Latitude	e		
HX26322501.001	CTD1 Start	res2.5	8/13/02	18:28	59.98485	149.3671	294	Danielson
HX26322501.002	CTD1 End	res2.5	8/13/02	na	59.98438	149.3672	294	Danielson
HX26322501.003	CTD2 Start	gak1	8/13/02	20:16	59.84525	149.468	273	Danielson
HX26322501.004	CTD2 End	gak1	8/13/02	20:34	59.84342	149.4684	273	Danielson
HX26322501.005	CTD2 Start	gak1	8/13/02	20:44	59.84278	149.4687	269	Danielson
HX26322501.006	CTD2 End	gak1	8/13/02	21:00	59.84163	149.4689	269	Danielson
HX26322501.007	CTD4 Start	gak1	8/13/02	21:12	59.84077	149.4695	269	for replicates Childers
HX26322501.008	CTD4 End	gak1	8/13/02	21:23	59.84005	149.4704	269	
HX26322601.001	MOCNESS Start	gak8	8/14/02	8:38	58.78978	148.4957	287	Coyle
HX26322601.002	MOCNESS End	gak8	8/14/02	9:16	58.77007	148.5321	287	Coyle
HX26322601.003	HTI Transect Start	gak8	8/14/02	9:44	58.79035	148.4889	287	Coyle
HX26322601.004	HTI Transect End	gak9	8/14/02	11:11	58.67955	148.3489	279	Coyle
HX26322601.005	MOCNESS Start	gak9	8/14/02	11:14	58.68053	148.3531	279	Coyle
HX26322601.006	MOCNESS End	gak9	8/14/02	11:56	58.68372	148.4043	279	Coyle
HX26322601.007	HTI Transect Start	gak9	8/14/02	12:24	58.67575	148.3458	279	Coyle
HX26322601.008	HTI Transect End	gak10	8/14/02	14:09	58.54045	148.2077	264	Coyle
HX26322601.009	CTD5 Start	gak9	8/14/02	15:09	58.67992	148.3504	278	Danielson
HX26322601.010	CTD5 End	gak9	8/14/02	15:33	58.68075	148.3367	278	Danielson
CalVET Net Tow								
HX26322601.011	Start	gak9	8/14/02	15:42	58.68072	148.3485	278	Pinchuk
HX26322601.012	CalVET Net Tow End	gak9	8/14/02	15:48	58.681	148.3443	278	Pinchuk
HX26322601.013	CTD6 Start	gak9	8/14/02	15:53	58.67948	148.3487	278	prim prod cast Childers
HX26322601.014	CTD6 End	gak9	8/14/02	16:04	58.67913	148.3403	278	
HX26322601.015	Ring Net Tow Start	gak9	8/14/02	16:11	58.68092	148.3496	278	Pinchuk
HX26322601.016	Ring Net Tow End	gak9	8/14/02	16:17	58.6815	148.3455	278	Pinchuk
HX26322601.017	CTD7 Start	gak9	8/14/02	16:29	58.67808	148.344	278	cohorts #1 Pinchuk
HX26322601.018	CTD7 End	gak9	8/14/02	16:39	58.67708	148.3369	278	
HX26322601.019	CTD8 Start	gak9	8/14/02	16:49	58.67942	148.3511	278	cohorts #2 Pinchuk
HX26322601.020	CTD8 End	gak9	8/14/02	16:54	58.6786	148.3478	278	
HX26322601.021	CTD9 Start	gak9	8/14/02	17:00	58.67773	148.3434	278	cohorts #3 Pinchuk
HX26322601.022	CTD9 End	gak9	8/14/02	17:05	58.67722	148.3401	278	
HX26322601.023	CTD10 Start	gak9	8/14/02	17:13	58.67935	148.3508	278	cohorts #4 Pinchuk
HX26322601.024	CTD10 End	gak9	8/14/02	17:18	58.67842	148.3474	278	
HX26322601.025	Ring Net Start	gak9	8/14/02	17:22	58.67727	148.346	278	Pinchuk
HX26322601.026	Ring Net End	gak9	8/14/02	17:29	58.67642	148.3412	278	Pinchuk

HX26322601.027	Ring Net Start	gak9	8/14/02 17:33	58.67608	148.3387	278		Pinchuk
HX26322601.028	Ring Net End	gak9	8/14/02 17:41	58.67527	148.3339	278		Pinchuk
HX26322601.029	Ring Net Start	gak9	8/14/02 17:44	58.67498	148.3323	278		Pinchuk
HX26322601.030	Ring Net Start	gak9	8/14/02 17:48	58.6743	148.3291	278		Pinchuk
HX26322601.031	CTD11 Start	gak9i	8/14/02 18:18	58.611	148.2769	683		Danielson
HX26322601.032	CTD11 End	gak9i	8/14/02 19:04	58.60197	148.2494	683		Danielson
CalVET Net Tow								
HX26322601.033	Start	gak10	8/14/02 19:33	58.54035	148.2104	1445		Pinchuk
HX26322601.034	CalVET Net Tow End	gak10	8/14/02 19:38	58.53945	148.2088	1445		Pinchuk
HX26322601.035	CTD12 Start	gak10	8/14/02 19:43	58.54018	148.2119	1452		Danielson
HX26322601.036	CTD12 End	gak10	8/14/02	na	na	1452	lost ctd comms	Danielson
HX26322601.037	CTD013 Start	gak10	8/14/02 20:09	58.53973	148.2129	1452	recast for ctd012	Danielson
HX26322601.038	CTD013 End	gak10	8/14/02 20:40	58.54087	148.2137	1452		Danielson
HX26322601.039	CTD014 Start	gak10	8/14/02 20:44	58.5393	148.2135	1452		Danielson
HX26322601.040	CTD014 End	gak10	8/14/02 21:56	58.5294	148.2293	1452		Danielson
CalVET Net Tow								
HX26322601.041	Start	gak11	8/14/02 23:00	58.38673	148.073	1417		Pinchuk
HX26322601.042	CalVET Net Tow End	gak11	8/14/02 23:05	58.38625	148.0726	1417		Pinchuk
HX26322601.043	CTD015 Start	gak11	8/14/02 23:10	58.38733	148.0739	1417		Danielson
HX26322701.001	CTD015 End	gak11	8/15/02 0:23	58.3736	148.0842	1417		Danielson
CalVET Net Tow								
HX26322701.002	Start	gak12	8/15/02 1:27	58.24238	147.9359	2147		Coyle
HX26322701.003	CalVET Net Tow End	gak12	8/15/02 1:35	58.24118	147.9365	2147		Coyle
HX26322701.004	CTD16 Start	gak12	8/15/02 1:40	58.24295	147.9351	2147		Danielson
HX26322701.005	CTD16 End	gak12	8/15/02 2:53	58.23701	147.9503	2147		Danielson
HX26322701.006	MOCNESS Start	gak13	8/15/02 4:05	58.096	147.802	2065		Coyle
HX26322701.007	MOCNESS End	gak13	8/15/02 5:17	58.08628	147.8827	2065		Coyle
HX26322701.008	MOCNESS Start	gak13	8/15/02 6:40	58.10147	147.7581	2065		Coyle
HX26322701.009	MOCNESS End	gak13	8/15/02 7:20	58.1002	147.8045	2065		Coyle
HX26322701.010	HTI Transect Start	gak13	8/15/02 7:32	58.09929	147.7925	2065		Coyle
HX26322701.011	HTI Transect End	gak12	8/15/02 9:09	58.24362	147.9336	2147		Coyle
HX26322701.012	MOCNESS Start	gak12	8/15/02 9:12	58.24383	147.9377	2147		Coyle
HX26322701.013	MOCNESS End	gak12	8/15/02 9:51	58.23981	147.9712	2147		Coyle
HX26322701.014	HTI Transect Start	gak12	8/15/02 10:11	58.24657	147.9346	2147		Coyle
HX26322701.015	HTI Transect End	gak11	8/15/02 12:01	58.38875	148.0737	1417		Coyle
HX26322701.016	MOCNESS Start	gak11	8/15/02 12:03	58.38818	148.0776	1417		Coyle
HX26322701.017	MOCNESS End	gak11	8/15/02 13:09	58.38897	148.0732	1417		Coyle
HX26322701.018	HTI Transect Start	gak11	8/15/02 13:09	58.38928	148.0734	1417		Coyle
HX26322701.019	HTI Transect End	gak10	8/15/02 14:51	58.54251	148.2124	1452		Coyle
HX26322701.020	CTD17 Start	gak13	8/15/02 17:59	58.09797	147.7912	2070	prim prod cast	Childers
HX26322701.021	CTD17 End	gak13	8/15/02 18:12	58.09813	147.7898	2070		Childers
CalVET Net Tow								
HX26322701.022	Start	gak13	8/15/02 18:15	58.0977	147.7903	2070		Pinchuk
HX26322701.023	CalVET Net Tow End	gak13	8/15/02 18:21	na	na	na		Pinchuk
HX26322701.024	Ring Net Start	gak13	8/15/02 18:31	58.09828	147.7887	2070		Pinchuk
HX26322701.025	Ring Net End	gak13	8/15/02 18:40	58.09898	147.7883	2070		Pinchuk
HX26322701.026	CTD18 Start	gak13	8/15/02 18:45	58.09793	147.793	2070	cohorts #1	Pinchuk

HX26322701.027	CTD18 End	gak13	8/15/02 18:51	58.09877	147.7913	2070		Pinchuk
HX26322701.028	CTD19 Start	gak13	8/15/02 18:59	58.09937	147.7888	2070	cohorts #2	Pinchuk
HX26322701.029	CTD19 End	gak13	8/15/02 19:03	58.0997	147.788	2070		Pinchuk
HX26322701.030	CTD20 Start	gak13	8/15/02 19:13	58.09852	147.7925	2066		Pinchuk
HX26322701.031	CTD20 End	gak13	8/15/02 19:14	58.09873	147.7919	2066		Pinchuk
HX26322701.032	Ring Net Start	gak13	8/15/02 19:19	58.09853	147.7919	2066		Pinchuk
HX26322701.033	Ring Net End	gak13	8/15/02 19:29	58.09917	147.7917	2066		Pinchuk
HX26322701.034	Ring Net Start	gak13	8/15/02 19:31	58.09932	147.7916	2066		Pinchuk
HX26322701.035	Ring Net End	gak13	8/15/02 19:45	58.10258	147.7899	2066		Pinchuk
HX26322701.036	Ring Net Start	gak13	8/15/02 19:55	58.10463	147.7881	2066		Pinchuk
HX26322701.037	Ring Net End	gak13	8/15/02 20:06	58.09795	147.7932	2066		Pinchuk
HX26322701.038	CTD21 Start	gak13	8/15/02 20:06	58.098	147.793	2066		Danielson
HX26322701.039	CTD21 End	gak13	8/15/02 21:20	58.10952	147.7731	2066		Danielson
HX26322801.001	CTD22 Start	gak8i	8/16/02 1:36	58.7425	148.4225	292		Danielson
HX26322801.002	CTD22 End	gak8i	8/16/02 1:55	58.74397	148.4249	292		Danielson
CalVET Net Tow								
HX26322801.003	Start	gak8i	8/16/02 2:25	58.7921	148.4928	293		Pinchuk
HX26322801.004	CalVET Net Tow End	gak8i	8/16/02 2:34	58.79162	148.4986	293		Pinchuk
HX26322801.005	CTD23 Start	gak8	8/16/02 2:36	58.79183	148.4997	293		Danielson
HX26322801.006	CTD23 End	gak8	8/16/02 2:56	58.79065	148.5103	293		Danielson
HX26322801.007	CTD24 Start	gak7i	8/16/02 3:31	58.88285	148.5601	305		Danielson
HX26322801.008	CTD24 End	gak7i	8/16/02 3:50	58.8846	148.562	305		Danielson
HX26322801.009	MOCNESS Start	gak10	8/16/02 6:21	58.54023	148.2143	1449		Coyle
HX26322801.010	MOCNESS End	gak10	8/16/02 6:58	58.52642	148.2397	1449		Coyle
HX26322801.011	HTI Transect Start	gak8	8/16/02 9:07	58.79348	148.4916	282		Coyle
HX26322801.012	HTI Transect End	gak7	8/16/02 11:27	58.9723	148.6328	242		Coyle
HX26322801.013	MOCNESS Start	gak7	8/16/02 11:29	58.97161	148.6358	242		Coyle
HX26322801.014	MOCNESS End	gak7	8/16/02 12:07	58.9606	148.6795	242		Coyle
HX26322801.015	HTI Transect Start	gak7	8/16/02 12:31	58.97217	148.6306	242		Coyle
HX26322801.016	HTI Transect End	gak6	8/16/02 14:14	59.11815	148.7715	152		Coyle
HX26322801.017	CTD25 Start	gak4	8/16/02 16:09	59.40832	149.0504	202		Danielson
HX26322801.018	CTD25 End	gak4	8/16/02 16:24	59.40873	149.049	202		Danielson
CalVET Net Tow								
HX26322801.019	Start	gak4	8/16/02 16:28	59.40858	149.0497	202		Pinchuk
HX26322801.020	CalVET Net Tow End	gak4	8/16/02 16:33	59.40883	149.0496	202		Pinchuk
HX26322801.021	CTD26 Start	gak4	8/16/02 16:46	59.41039	149.0494	202	prim prod cast	Childers
HX26322801.022	CTD26 End	gak4	8/16/02 16:51	59.41048	149.0504	202		Childers
HX26322801.023	Ring Net Start	gak4	8/16/02 16:56	59.40807	149.0493	202		Pinchuk
HX26322801.024	Ring Net End	gak4	8/16/02 17:05	59.40888	149.0488	202		Pinchuk
HX26322801.025	CTD27 Start	gak4	8/16/02 17:10	59.40893	149.0488	202	cohorts #1	Pinchuk
HX26322801.026	CTD27 End	gak4	8/16/02 17:15	59.40947	149.0483	202		Pinchuk
HX26322801.027	CTD28 Start	gak4	8/16/02 17:22	59.4103	149.047	202	cohorts #2	Pinchuk
HX26322801.028	CTD28 End	gak4	8/16/02 17:25	59.4107	149.0459	202		Pinchuk
HX26322801.029	CTD29 Start	gak4	8/16/02 17:34	59.41125	149.0438	202	cohorts #3	Pinchuk
HX26322801.030	CTD29 End	gak4	8/16/02 17:38	59.41153	149.043	202		Pinchuk
HX26322801.031	Ring Net Start	gak4	8/16/02 17:44	59.40868	149.0505	202		Pinchuk
HX26322801.032	Ring Net End	gak4	8/16/02 17:50	59.40953	149.0489	202		Pinchuk

HX26322801.033	Ring Net Start	gak4	8/16/02 17:55	59.41023	149.0476	202		Pinchuk
HX26322801.034	Ring Net End	gak4	8/16/02	na	na	na	202	Pinchuk
	CalVET Net Tow							
HX26322801.035	Start	gak7	8/16/02 21:59	58.97158	148.6293	202		Pinchuk
HX26322801.036	CalVET Net Tow End	gak7	8/16/02 22:05	58.97052	148.6268	202		Pinchuk
HX26322801.037	CTD30 Start	gak7	8/16/02 22:09	58.97112	148.6291	242		Danielson
HX26322801.038	CTD30 End	gak7	8/16/02 22:27	58.97197	148.6214	242		Danielson
HX26322801.039	CTD31 Start	gak6i	8/16/02 23:02	59.04502	148.6911	190		Danielson
HX26322801.040	CTD31 End	gak6i	8/16/02 23:19	59.04488	148.6888	190		Danielson
HX26322801.041	CTD32 Start	gak6i	8/16/02 23:26	59.04517	148.6991	190	recast of ctd31 for 30m bottle	Danielson
HX26322801.042	CTD32 End	gak6i	8/16/02 23:28	59.04528	148.6976	190		Danielson
	CalVET Net Tow							
HX26322901.001	Start	gak6	8/17/02 0:02	59.1167	148.7694	153		Pinchuk
HX26322901.002	CalVET Net Tow End	gak6	8/17/02 0:07	59.11655	148.7655	153		Pinchuk
HX26322901.003	CTD33 Start	gak6	8/17/02 0:12	59.11645	148.768	153		Danielson
HX26322901.004	CTD33 End	gak6	8/17/02 0:25	59.11688	148.7609	153		Danielson
HX26322901.005	CTD34 Start	gak5i	8/17/02 0:58	59.18972	148.8391	167		Danielson
HX26322901.006	CTD34 End	gak5i	8/17/02 1:11	59.19248	148.8335	167		Danielson
	CalVET Net Tow							
HX26322901.007	Start	gak5	8/17/02 1:40	59.26268	148.9082	168		Pinchuk
HX26322901.008	CalVET Net Tow End	gak5	8/17/02 1:47	59.26528	148.9065	168		Pinchuk
HX26322901.009	CTD35 Start	gak5	8/17/02 1:49	59.26588	148.9063	168		Danielson
HX26322901.010	CTD35 End	gak5	8/17/02 2:07	59.27388	148.9017	168		Danielson
HX26322901.011	CTD36 Start	gak4i	8/17/02 2:36	59.33603	148.9768	197		Danielson
HX26322901.012	CTD36 End	gak4i	8/17/02 2:50	59.33815	148.9711	197		Danielson
HX26322901.013	CTD37 Start	gak3i	8/17/02 3:51	59.48305	149.1177	206		Danielson
HX26322901.014	CTD37 End	gak3i	8/17/02 4:05	59.4845	149.1181	206		Danielson
	CalVET Net Tow							
HX26322901.015	Start	gak3	8/17/02 4:35	59.55425	149.1889	215		Pinchuk
HX26322901.016	CalVET Net Tow End	gak3	8/17/02 4:41	59.55515	149.189	215		Pinchuk
HX26322901.017	CTD38 Start	gak3	8/17/02 4:44	59.55495	149.1894	215		Danielson
HX26322901.018	CTD38 End	gak3	8/17/02 4:59	59.55698	149.1895	215		Danielson
HX26322901.019	CTD39 Start	gak2i	8/17/02 5:29	59.62747	149.2574	215		Danielson
HX26322901.020	CTD39 End	gak2i	8/17/02 5:42	59.62888	149.2567	215		Danielson
HX26322901.021	MOCNESS Start	gak1	8/17/02 7:26	59.87322	149.4876	262		Coyle
HX26322901.022	MOCNESS End	gak1	8/17/02 8:04	59.85332	149.4729	262		Coyle
HX26322901.023	HTI Transect Start	gak1	8/17/02 8:11	59.84437	149.4661	262		Coyle
HX26322901.024	HTI Transect End	gak2	8/17/02 9:56	59.69078	149.3238	224		Coyle
HX26322901.025	MOCNESS Start	gak2	8/17/02 9:58	59.69015	149.3204	224		Coyle
HX26322901.026	MOCNESS End	gak2	8/17/02 10:33	59.67918	149.2861	224		Coyle
HX26322901.027	HTI Transect Start	gak2	8/17/02 10:54	59.68943	149.3272	224		Coyle
HX26322901.028	HTI Transect End	gak3	8/17/02 12:24	59.55255	149.1866	211		Coyle
HX26322901.029	MOCNESS Start	gak3	8/17/02 12:27	59.55223	149.1825	211		Coyle
HX26322901.030	MOCNESS End	gak3	8/17/02 12:54	59.54799	149.1575	211		Coyle
	CalVET Net Tow							
HX26322901.031	Start	gak2	8/17/02 14:04	59.69162	149.3254	225		Coyle
HX26322901.032	CalVET Net Tow End	gak2	8/17/02 14:11	59.69143	149.3293	225		Coyle

HX26322901.033	CTD40 Start	gak2	8/17/02 14:16	59.69232	149.3277	225	Danielson
HX26322901.034	CTD40 End	gak2	8/17/02 14:34	59.69173	149.342	225	Danielson
HX26322901.035	CTD41 Start	gak11	8/17/02 15:05	59.76643	149.3973	260	Danielson
HX26322901.036	CTD41 End	gak11	8/17/02 15:24	59.76368	149.4102	260	Danielson
HX26322901.037	CTD42 Start	gak1	8/17/02 15:57	59.84557	149.466	268	Danielson
HX26322901.038	CTD42 End	gak1	8/17/02 16:17	59.84843	149.463	268	Danielson
CalVET Net Tow							
HX26322901.039	Start	gak1	8/17/02 16:20	59.84892	149.4627	268	Pinchuk
HX26322901.040	CalVET Net Tow End	gak1	8/17/02 16:24	59.84935	149.4623	268	Pinchuk
HX26322901.041	CTD43 Start	gak1	8/17/02 16:29	59.84523	149.4668	268	Childers
HX26322901.042	CTD43 End	gak1	8/17/02 16:37	59.84585	149.4658	268	Childers
HX26322901.043	Ring Net Start	gak1	8/17/02 16:42	59.8465	149.4648	268	Pinchuk
HX26322901.044	Ring Net End	gak1	8/17/02 16:49	59.84735	149.4633	268	Pinchuk
							Recast of ctd43 for prim prod
HX26322901.045	CTD44 Start	gak1	8/17/02 16:55	59.84538	149.465	270	Childers
HX26322901.046	CTD44 End	gak1	8/17/02 17:02	59.84618	149.4633	270	Childers
HX26322901.047	CTD45 Start	gak1	8/17/02 17:12	59.84732	149.4613	270	cohort #1
HX26322901.048	CTD45 End	gak1	8/17/02 17:16	59.84772	149.4605	270	Pinchuk
HX26322901.049	CTD46 Start	gak1	8/17/02 17:24	59.84442	149.4676	270	cohort #2
HX26322901.050	CTD46 End	gak1	8/17/02 17:27	59.84453	149.4665	270	Pinchuk
HX26322901.051	CTD47 Start	gak1	8/17/02 17:32	59.84492	149.465	270	cohort #3
HX26322901.052	CTD47 End	gak1	8/17/02 17:36	59.8453	149.4641	270	Pinchuk
HX26322901.053	CTD48 Start	gak1	8/17/02 17:41	59.84585	149.4629	270	cohort #4
HX26322901.054	CTD48 End	gak1	8/17/02 17:45	59.84622	149.4619	270	Pinchuk
HX26322901.055	Ring Net Start	gak1	8/17/02 17:48	59.84649	149.461	270	Pinchuk
HX26322901.056	Ring Net End	gak1	8/17/02 17:53	59.84693	149.4596	270	Pinchuk
HX26322901.057	Ring Net Start	gak1	8/17/02 17:57	59.8472	149.4586	270	Pinchuk
HX26322901.058	Ring Net End	gak1	8/17/02 18:02	59.84755	149.4573	270	Pinchuk
HX26322901.059	CTD49 Start	cf1	8/17/02 20:01	59.90771	148.8671	86	Danielson
HX26322901.060	CTD49 End	cf1	8/17/02 20:10	59.90692	148.8697	86	Danielson
HX26322901.061	CTD50 Start	cf2	8/17/02 20:22	59.88223	148.8669	112	Danielson
HX26322901.062	CTD50 End	cf2	8/17/02 20:26	59.8813	148.8668	112	Danielson
HX26322901.063	CTD51 Start	cf3	8/17/02 20:42	59.84918	148.8679	160	Danielson
HX26322901.064	CTD51 End	cf3	8/17/02 20:54	59.84738	148.8683	160	Danielson
HX26322901.065	CTD52 Start	cf4	8/17/02 21:07	59.81613	148.8684	182	Danielson
HX26322901.066	CTD52 End	cf4	8/17/02 21:20	59.81585	148.8671	182	Danielson
HX26322901.067	CTD53 Start	cf5	8/17/02 21:34	59.78325	148.8683	192	Danielson
HX26322901.068	CTD53 End	cf5	8/17/02 21:47	59.7824	148.8686	192	Danielson
HX26322901.069	CTD54 Start	cf6	8/17/02 22:01	59.74949	148.8654	192	Danielson
HX26322901.070	CTD54 End	cf6	8/17/02 22:13	59.7463	148.8663	192	Danielson
HX26322901.071	CTD55 Start	cf7	8/17/02 22:25	59.7158	148.8661	192	Danielson
HX26322901.072	CTD55 End	cf7	8/17/02 22:39	59.71272	148.8703	192	Danielson
HX26322901.073	CTD56 Start	cf8	8/17/02 22:52	59.68283	148.8674	181	Danielson
HX26322901.074	CTD56 End	cf8	8/17/02 23:01	59.68092	148.8688	181	Danielson
HX26322901.075	CTD57 Start	cf9	8/17/02 23:17	59.64915	148.8674	177	Danielson
HX26322901.076	CTD57 End	cf9	8/17/02 23:30	59.64787	148.8711	177	Danielson
HX26322901.077	CTD58 Start	cf10	8/17/02 23:44	59.61612	148.8668	178	Danielson

HX26322901.078	CTD58 End	cf10	8/17/02 23:56	59.6133	148.8629	178	Danielson
HX26323001.001	CTD59 Start	cf11	8/18/02 0:10	59.58368	148.8635	177	Danielson
HX26323001.002	CTD59 End	cf11	8/18/02 0:23	59.58145	148.859	177	Danielson
HX26323001.003	CTD60 Start	cf12	8/18/02 0:36	59.54945	148.8668	185	Danielson
HX26323001.004	CTD60 End	cf12	8/18/02 0:46	59.54785	148.8634	185	Danielson
HX26323001.005	CTD61 Start	cf13	8/18/02 1:00	59.51422	148.864	172	Danielson
HX26323001.006	CTD61 End	cf13	8/18/02 1:15	59.51418	148.864	172	Danielson
HX26323001.007	CTD62 Start	cf14	8/18/02 1:28	59.48297	148.8674	172	Danielson
HX26323001.008	CTD62 End	cf14	8/18/02 1:38	59.4823	148.8661	172	Danielson
HX26323001.009	CTD63 Start	cf15	8/18/02 1:52	59.4503	148.8645	180	Danielson
HX26323001.010	CTD63 End	cf15	8/18/02 2:04	59.45173	148.8623	180	Danielson
HX26323001.011	MOCNESS Start	gak6	8/18/02 6:19	59.0887	148.7411	168	Coyle
HX26323001.012	MOCNESS End	gak6	8/18/02 6:49	59.10357	148.7566	168	Coyle
HX26323001.013	HTI Transect Start	gak6	8/18/02 7:01	59.1185	148.7716	168	Coyle
HX26323001.014	HTI Transect End	gak5	8/18/02 8:48	59.26223	148.9106	166	Coyle
HX26323001.015	MOCNESS Start	gak5	8/18/02 8:51	59.2618	148.9152	166	Coyle
HX26323001.016	MOCNESS End	gak5	8/18/02 9:31	59.25648	148.9631	166	Coyle
HX26323001.017	HTI Transect Start	gak5	8/18/02 9:56	59.26307	148.9098	166	Coyle
HX26323001.018	HTI Transect End	gak4	8/18/02 11:36	59.40899	149.0506	198	Coyle
HX26323001.019	MOCNESS Start	gak4	8/18/02 11:39	59.40863	149.0543	198	Coyle
HX26323001.020	MOCNESS End	gak4	8/18/02 12:12	59.40422	149.0833	198	Coyle
HX26323001.021	HTI Transect Start	gak4	8/18/02 12:31	59.4103	149.0484	198	Coyle
HX26323001.022	HTI Transect End	gak3	8/18/02 14:22	59.55478	149.189	211	Coyle
HX26323101.001	CTD64 Start	ahc4	8/19/02 2:57	59.79996	147.0732	204	Danielson
HX26323101.002	CTD64 End	ahc4	8/19/02 3:12	59.80182	147.0717	204	Danielson
HX26323101.003	CTD65 Start	ahc3	8/19/02 3:49	59.9001	147.0739	201	Danielson
HX26323101.004	CTD65 End	ahc3	8/19/02 4:03	59.8994	147.0734	201	Danielson
HX26323101.005	CTD66 Start	ahc2	8/19/02 4:44	60.00013	147.0755	184	Danielson
HX26323101.006	CTD66 End	ahc2	8/19/02 4:57	59.99887	147.0754	184	Danielson
HX26323101.007	MOCNESS Start	he9	8/19/02 6:17	60.1075	147.0488	277	Coyle
HX26323101.008	MOCNESS Start	he6.5	8/19/02 8:01	60.0483	146.7361	124	Coyle
HX26323101.009	MOCNESS End	he6.5	8/19/02 8:39	60.02725	146.7375	124	Coyle
HX26323101.010	MOCNESS Start	he4	8/19/02 9:42	60.07555	146.6069	114	Coyle
HX26323101.011	MOCNESS End	he4	8/19/02 10:26	60.04492	146.6082	114	Coyle
HX26323101.012	MOCNESS Start	he2	8/19/02 11:32	60.17299	146.6116	173	Coyle
HX26323101.013	MOCNESS End	he2	8/19/02 12:04	60.14718	146.6068	173	Coyle
HX26323101.014	CTD67 Start	he1	8/19/02 14:02	60.21729	146.6072	72	Danielson
HX26323101.015	CTD67 End	he1	8/19/02 14:10	60.2169	146.6047	72	Danielson
HX26323101.016	CTD68 Start	he2	8/19/02 14:26	60.17957	146.6066	190	Danielson
HX26323101.017	CTD68 End	he2	8/19/02 14:41	60.17737	146.6051	190	Danielson
CalVET Net Tow							
HX26323101.018	Start	he2	8/19/02 14:43	60.17702	146.6052	190	Pinchuk
HX26323101.019	CalVET Net Tow End	he2	8/19/02 14:46	60.1768	146.6051	190	Pinchuk
HX26323101.020	CTD69 Start	he3	8/19/02 15:05	60.12958	146.6067	112	Danielson
HX26323101.021	CTD69 End	he3	8/19/02 15:17	60.12678	146.6089	112	Danielson
HX26323101.022	CTD70 Start	he4	8/19/02 15:37	60.08037	146.611	114	Danielson

HX26323101.023	CTD70 End	he4	8/19/02 15:46	60.08137	146.6128	114	Danielson	
	CalVET Net Tow							
HX26323101.024	Start	he4	8/19/02 15:48	60.0815	146.6128	114	Pinchuk	
HX26323101.025	CalVET Net Tow End	he4	8/19/02 15:53	60.08178	146.6132	114	Pinchuk	
HX26323101.026	CTD71 Start	he6.5	8/19/02 16:20	60.0529	146.7386	114	Danielson	
HX26323101.027	CTD71 End	he6.5	8/19/02 16:32	60.05583	146.7413	114	Danielson	
	CalVET Net Tow							
HX26323101.028	Start	he6.5	8/19/02 16:33	60.05613	146.7414	114	Pinchuk	
HX26323101.029	CalVET Net Tow End	he6.5	8/19/02 16:38	60.05673	146.7418	114	Pinchuk	
HX26323101.030	CTD72 Start	he8	8/19/02 17:20	60.09223	146.9626	146	Danielson	
HX26323101.031	CTD72 End	he8	8/19/02 17:35	60.09103	146.9667	146	Danielson	
HX26323101.032	CTD73 Start	he9	8/19/02 17:55	60.11118	147.0502	276	Danielson	
HX26323101.033	CTD73 End	he9	8/19/02 18:12	60.11253	147.0506	276	Danielson	
	CalVET Net Tow							
HX26323101.034	Start	he9	8/19/02 18:13	60.11257	147.0506	276	Pinchuk	
HX26323101.035	CalVET Net Tow End	he9	8/19/02 18:18	60.11282	147.0505	276	Pinchuk	
HX26323101.036	CTD74 Start	he10	8/19/02 18:36	60.13012	147.1337	217	Danielson	
HX26323101.037	CTD74 End	he10	8/19/02 18:54	60.13206	147.1306	217	Danielson	
HX26323101.038	CTD75 Start	he11	8/19/02 19:08	60.14188	147.1895	177	Danielson	
HX26323101.039	CTD75 End	he11	8/19/02 19:21	60.14323	147.1874	177	Danielson	
HX26323101.040	CTD76 Start	ahc5	8/19/02 21:55	59.70005	147.0728	212	Danielson	
HX26323101.041	CTD76 End	ahc5	8/19/02 22:11	59.70338	147.067	212	Danielson	
HX26323101.042	CTD77 Start	ahc6	8/19/02 22:52	59.59986	147.073	207	Danielson	
HX26323101.043	CTD77 End	ahc6	8/19/02 23:08	59.60368	147.0686	207	Danielson	
HX26323101.044	CTD78 Start	ahc7	8/19/02 23:50	59.4995	147.073	225	Danielson	
HX26323201.001	CTD78 End	ahc7	8/20/02 0:06	59.50218	147.068	225	Danielson	
HX26323201.002	CTD79 Start	ahc8	8/20/02 0:45	59.39895	147.0736	205	Danielson	
HX26323201.003	CTD79 End	ahc8	8/20/02 0:59	59.39952	147.0709	205	Danielson	
HX26323201.004	CTD80 Start	ahc9	8/20/02 1:36	59.30023	147.0744	195	Danielson	
HX26323201.005	CTD80 End	ahc9	8/20/02 1:50	59.30124	147.0702	195	Danielson	
HX26323201.006	MOCNESS Start	ms2	8/20/02 6:48	59.94385	147.8813	199	aborted	Coyle
HX26323201.007	MOCNESS Start	ms2	8/20/02 7:51	59.94212	147.8809	199	aborted	Coyle
HX26323201.008	MOCNESS Start	ms2	8/20/02 8:17	59.93792	147.89	199		Coyle
HX26323201.009	MOCNESS End	ms2	8/20/02 8:44	59.94832	147.875	199		Coyle
HX26323201.010	MOCNESS Start	hb2	8/20/02 10:27	60.18227	147.6808	253		Coyle
HX26323201.011	MOCNESS End	hb2	8/20/02 10:56	60.19638	147.6828	253		Coyle
HX26323201.012	MOCNESS Start	kip2	8/20/02 12:41	60.27883	147.9868	587		Coyle
HX26323201.013	MOCNESS End	kip2	8/20/02 13:12	60.29251	147.9874	587		Coyle
							ctd comms failed: due to latent mocness	
HX26323201.014	CTD81 Start	pws1	8/20/02 13:56	60.37908	147.9387	351	program	Danielson
HX26323201.015	CTD81 End	pws1	8/20/02 14:16	60.37538	147.9463	351		Danielson
HX26323201.016	CTD82 Start	pws1	8/20/02 14:21	60.38013	147.9351	351	recast of ctd81	Danielson
HX26323201.017	CTD82 End	pws1	8/20/02 14:44	60.37557	147.9397	351		Danielson
	CalVET Net Tow							
HX26323201.018	Start	pws1	8/20/02 14:49	60.37957	147.9353	351		Coyle
HX26323201.019	CalVET Net Tow End	pws1	8/20/02 14:56	60.37745	147.9388	351		Coyle

HX26323201.020	CTD83 Start	kip2	8/20/02 15:33	60.27832	147.9891	585	Danielson	
HX26323201.021	CTD83 End	kip2	8/20/02 16:06	60.27128	147.9902	585	Danielson	
HX26323201.022	CalVET Net Tow Start	kip2	8/20/02 16:13	60.2801	147.9843	585	Coyle	
HX26323201.023	CalVET Net Tow End	kip2	8/20/02 16:19	60.279	147.9848	585	Coyle	
HX26323201.024	CTD84 Start	kip2	8/20/02 16:20	60.27865	147.985	585	prim prod cast	Danielson
HX26323201.025	CTD84 End	kip2	8/20/02 16:30	60.27638	147.9867	585		Danielson
HX26323201.026	Ring Net Start	kip2	8/20/02 16:35	60.27618	147.9875	585	Hopcroft	
HX26323201.027	Ring Net End	kip2	8/20/02 16:40	60.27557	147.9883	585	Hopcroft	
HX26323201.028	CTD85 Start	kip2	8/20/02 16:45	60.27896	147.9885	585	cohorts #1	Hopcroft
HX26323201.029	CTD85 End	kip2	8/20/02 16:49	60.27788	147.9893	585		Hopcroft
HX26323201.030	CTD86 Start	kip2	8/20/02 16:54	60.27713	147.9895	585	cohorts #2	Hopcroft
HX26323201.031	CTD86 End	kip2	8/20/02 17:00	60.27617	147.989	585		Hopcroft
HX26323201.032	CTD87 Start	kip2	8/20/02 17:05	60.27562	147.9885	585	cohorts #3	Hopcroft
HX26323201.033	CTD87 End	kip2	8/20/02 17:10	60.2749	147.9881	585		Hopcroft
HX26323201.034	CTD88 Start	kip2	8/20/02 17:17	60.27812	147.9866	585	cohorts #4	Hopcroft
HX26323201.035	CTD88 End	kip2	8/20/02 17:22	60.27785	147.9868	585		Hopcroft
HX26323201.036	Ring Net Start	kip2	8/20/02 17:24	60.27757	147.9868	585	Hopcroft	
HX26323201.037	Ring Net End	kip2	8/20/02 17:29	60.27708	147.987	585	Hopcroft	
HX26323201.038	Ring Net Start	kip2	8/20/02 17:31	60.27668	147.9871	585	Hopcroft	
HX26323201.039	Ring Net End	kip2	8/20/02 17:37	60.27597	147.9875	585	Hopcroft	
HX26323201.040	CTD89 Start	hb1	8/20/02 19:12	60.192	147.7042	245	Danielson	
HX26323201.041	CTD89 End	hb1	8/20/02 19:26	60.18952	147.7058	245	Danielson	
HX26323201.042	CTD90 Start	hb2	8/20/02 19:43	60.17997	147.6411	174	Danielson	
HX26323201.043	CTD90 End	hb2	8/20/02 19:56	60.17887	147.6454	175	Danielson	
HX26323201.044	CalVET Net Tow Start	hb2	8/20/02 19:59	60.17932	147.6455	175	Coyle	
HX26323201.045	CalVET Net Tow End	hb2	8/20/02 20:03	60.17908	147.6466	175	Coyle	
HX26323201.046	CTD91 Start	hb3	8/20/02 20:23	60.1655	147.5766	86	Danielson	
HX26323201.047	CTD91 End	hb3	8/20/02 20:32	60.16585	147.5788	86	Danielson	
HX26323201.048	CTD92 Start	hb4	8/20/02 20:49	60.1473	147.4999	109	Danielson	
HX26323201.049	CTD92 End	hb4	8/20/02 20:59	60.14779	147.5019	109	Danielson	
HX26323201.050	CTD93 Start	ms1	8/20/02 22:46	59.95397	147.9329	162	Danielson	
HX26323201.051	CTD93 End	ms1	8/20/02 22:58	59.95138	147.9442	162	Danielson	
HX26323201.052	CTD94 Start	ms2	8/20/02 23:12	59.94367	147.8961	192	Danielson	
HX26323201.053	CalVET Net Tow Start	ms2	8/20/02 23:27	59.93815	147.9054	192	Coyle	
HX26323201.054	CalVET Net Tow End	ms2	8/20/02 23:36	59.936	147.9124	192	Coyle	
HX26323201.055	CTD95 Start	ms3	8/20/02 23:50	59.93127	147.8557	165	Danielson	
HX26323301.001	CTD95 End	ms3	8/21/02 0:03	59.92775	147.8626	165	Danielson	
HX26323301.002	CTD96 Start	ms4	8/21/02 0:12	59.91987	147.8271	121	Danielson	
HX26323301.003	CTD96 End	ms4	8/21/02 0:22	59.91922	147.8282	121	Danielson	
HX26323301.004	CTD97 Start	pws2	8/21/02 4:37	60.53535	147.8062	742	Danielson	
HX26323301.005	CTD97 End	pws2	8/21/02 5:12	60.53585	147.8232	742	Danielson	
HX26323301.006	CalVET Net Tow Start	pws2	8/21/02 5:19	60.53465	147.8024	742	Coyle	
HX26323301.007	CalVET Net Tow End	pws2	8/21/02 5:25	60.53523	147.8049	742	Coyle	

HX26323301.008	MOCNESS Start	pws3	8/21/02 6:34	60.67512	147.7176	740	Coyle
HX26323301.009	MOCNESS End	pws3	8/21/02 7:43	60.64912	147.6546	645	Coyle
HX26323301.010	MOCNESS Start	pws2	8/21/02 9:22	60.53358	147.7985	733	Coyle
HX26323301.011	MOCNESS End	pws2	8/21/02 10:02	60.52563	147.7507	733	Coyle
HX26323301.012	MOCNESS Start	pws1	8/21/02 11:34	60.38403	147.9329	346	Coyle
HX26323301.013	MOCNESS End	pws1	8/21/02 12:18	60.35608	147.9581	346	Coyle
HX26323301.014	CTD98 Start	bp1	8/21/02 13:36	60.1972	148.0907	211	Danielson
HX26323301.015	CTD98 End	bp1	8/21/02 13:52	60.1938	148.0927	211	Danielson
HX26323301.016	CTD99 Start	fi1	8/21/02 14:31	60.14462	148.0066	234	Danielson
HX26323301.017	CTD99 End	fi1	8/21/02 14:39	60.14397	148.008	234	Danielson
HX26323301.018	CTD100 Start	ev1	8/21/02 15:35	60.08453	147.9044	226	Danielson
HX26323301.019	CTD100 End	ev1	8/21/02 15:43	60.08477	147.9025	226	Danielson
HX26323301.020	CTD101 Start	ev2	8/21/02 15:54	60.07507	147.8895	130	Danielson
HX26323301.021	CTD101 End	ev2	8/21/02 na	na	na	130	Danielson
HX26323301.022	CTD102 Start	hp1	8/21/02 23:19	59.62765	149.9148	200	Danielson
HX26323301.023	CTD102 End	hp1	8/21/02 23:25	59.62807	149.9164	200	Danielson
HX26323401.001	CTD103 Start	hp2	8/22/02 0:02	59.55327	149.8444	182	Danielson
HX26323401.002	CTD103 End	hp2	8/22/02 0:10	59.55397	149.8444	182	Danielson
HX26323401.003	CTD104 Start	hp3	8/22/02 0:43	59.48147	149.7746	201	Danielson
HX26323401.004	CTD104 End	hp3	8/22/02 0:52	59.47989	149.7736	201	Danielson
HX26323401.005	CTD105 Start	hp4	8/22/02 1:24	59.40795	149.7058	105	Danielson
HX26323401.006	CTD105 End	hp4	8/22/02 1:30	59.40777	149.7081	105	Danielson
HX26323401.007	CTD106 Start	hp5	8/22/02 2:05	59.33517	149.6346	119	Danielson
HX26323401.008	CTD106 End	hp5	8/22/02 2:12	59.33545	149.6324	119	Danielson
HX26323401.009	CTD107 Start	hp6	8/22/02 2:47	59.26205	149.5655	133	Danielson
HX26323401.010	CTD107 End	hp6	8/22/02 2:54	59.26208	149.5657	133	Danielson
HX26323401.011	CTD108 Start	gak1	8/22/02 7:53	59.84683	149.4702	272	Danielson
HX26323401.012	CTD108 End	gak1	8/22/02 7:58	59.84733	149.4711	272	Danielson
HX26323401.013	MOCNESS Start	gak1	8/22/02 8:03	59.84415	149.4676	272	Pinchuk
HX26323401.014	MOCNESS End	gak1	8/22/02 8:24	59.83237	149.46	272	Pinchuk
HX26323401.015	CTD109 Start	res2.5	8/22/02 14:56	60.02575	149.3582	292	Danielson
HX26323401.016	CTD109 End	res2.5	8/22/02 15:07	60.0262	149.3594	292	Danielson

