GLOBEC CRUISE REPORT
CRUISE HX252 9-18 October 2001

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.

The October 2001 cruise focused on the distribution of physical properties, nutrients, and chlorophyll, zooplankton, and seabird populations over the shelf along the Seward Line, the Cape Fairfield Line, within western Prince William Sound, and on the shelf south of Hinchinbrook Entrance. The purpose is to characterize the along shore variability in the physical and chemical properties and the biological components of the northern Gulf of Alaska shelf. October 2001 was the fifth consecutive year that we have sampled in the Gulf of Alaska for the NEP GLOBEC program.

Cruise Objectives

1. 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), and offshore PWS stations (Table 4). Other lines as time permits (Tables 5-12).
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. Determine microzooplankton and phytoplankton biomass and abundance.

SAMPLING

DAYTIME ACTIVITIES

1. Occupy 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**). (These can also be performed at night after zooplankton work is completed.)
2. Collect ADCP, sea surface salinity (SSS), temperature (SST) and fluorescence (SSF) using seachest sensors,
3. Collect discrete bottle samples at these stations for nutrients and chlorophyll pigments. Chlorophyll Size Fractionation will be done at the whole numbered Seward Line stations and at every other C. Fairfield Line station.
4. Measure Primary Productivity at Stations GAK 1, 4, 9, and 13. These are to begin as close to daylight as possible.
5. Observe and document marine mammal and seabird distributions from the bridge.
6. 1 CalVet Net cast will be done (CalVet cage now has 4 nets) after the CTD cast along the Seward Line, CCSE and at selected PWS stations. The two will be a large mesh net and the second will be with a fine mesh net. THERE WILL BE NO CALVET sampling at the “i” stations on the Seward Line.
7. At 2-4 Seward Line stations (GAK1, 4, 9, 13) and one PWS station Hopcroft will perform 4-7 casts with the 10-liter Niskins/Rosette to collect water (from 10-20m) for zooplankton incubations and two ring net tows over the upper 50m.
8. Time permitting, we will do one deep MOCNESS tow (to 600 m) near the end of the Seward Line and in PWS. This should be done in conjunction with Coyles MOCNESS/HTI work at that station.

NIGHTTIME ACTIVITIES

1. Hydroacoustic samples and MOCNESS discrete samples along the Seward Line, and at the PWS (Table 3) and Hinchinbrook Entrance Stations(Table 4) indicated.
2. Fine mesh nets will be swapped into the MOCNESS at intermittent stations for euphausiid collection.

CRUISE ACTIVITY SCHEDULE

10/8 Science party arrived at Seward and set up equipment.
10/9 08:00 Muster galley for pre-cruise meeting
09:00 Depart the dock, underway on cruise.
See Event Log for sampling details.
10/18 Return to Seward by 0900 on 10/18.

See the attached Event Log for sampling details.

CRUISE SUMMARY:

October 2001 proved to be a stormy time for oceanographic sampling: over the course of the nine-day cruise we were forced to terminate sampling on four different occasions due to inclement weather. This is underscored by the time it took to complete the sampling along the Seward Line, which typically takes about four days of sampling to finish; on HX252 it took us eight days to obtain all samples. We were unable to complete sampling on the Hinchinbrook Entrance Line as on the final day of the cruise winds forced us to terminate sampling efforts midway through the zooplankton MOCNESS sampling, even before the CTD section was begun. The Seward Line, Cape Fairfield Line and the Prince William Sound stations were all sampled successfully.

S. Danielson (Physics):

The stormy conditions of this cruise were evident in deep surface mixed layers, which extended to greater than 60 m depth at some stations, probably the deepest mixed layer that we have ever seen in October in the now five years of GLOBEC sampling of the Seward Line. Only at the nearshore stations did we see the more typical fall subsurface temperature maximum. At most stations there was a deep isothermal and isohaline mixed layer of 40-60 m depth. Between ~50 and 100 km from shore there appears to be an upward doming of isopleths (the “Seward Eddy”) with an apparently associated local fluorescence peak at station GAK4i. On the Cape Fairfield Line, higher fluorescence values appear to be linked to the offshore side of the freshwater “wedge” that drives the Alaska Coastal Current and the outer few stations, which probably impinge upon the assumed upwelling associated with the domed isopleths near GAK4. Over the course of the cruise, surface temperatures ranged between 8 and 11 ºC and surface salinities between about 20 (in Prince William Sound) and 32.5 PSU (offshore).

K. Coyle (Zooplankton distribution/abundance):

Large zooplankton were collected with our standard 1-m MOCNESS net system equipped with 500 ? m mesh nets. The MOCNESS was fished at night in the upper 100 m. Samples were taken in 20 m increments from 100 m to the surface. The small zooplankton were sampled with a 25 cm diameter CalVET system equipped with 150 ? m mesh nets towed vertically from 100 m to the surface. Copepod eggs and nauplii were sampled with a 25 cm diameter CalVET system equipped with 53 ? m mesh nets, also towed vertically from 100 m depth to the surface.

A MOCNESS tow was collected at each of the Seward Line stations, at five stations in Prince William Sound and at two stations in Hinchinbrook Entrance. CalVET net samples were collected at all stations on the Seward Line, at five stations in Prince William Sound, but we were unable to sample Hinchinbrook Entrance with CalVETs due to weather problems. Acoustic transects were run along the Seward. In addition, acoustic data were collected during each MOCNESS tow to aid in interpreting the acoustic results. Supplemental deep MOCNESS tows were collected at the outer end of the Seward Line and at the north end of Knight Island Passage in Prince William Sound.

A total of 154 zooplankton samples were collected. Reporting of the results will have to await laboratory processing of the zooplankton samples.

R. Hopcroft (Zooplankton growth):

Experiments for copepod somatic growth rates using the artificial cohort method were executed at Gak1, Gak4, Gak9, Gak13 and PWS2. Egg production for Pseudocalanus spp. were also conducted at all these stations. Egg production Metridia pacifica was executed at Gak13, and for Gaetanus intermedius and Metridia ohkotensis at PWS2. Euphausiid molting rates were determined for 3 stations along the Seward line and one Station in PWS employing ~60 animals per experiment. Several euphausiids produced eggs.

As observed on many cruises, there was a clear difference in the zooplankton community (and it's productivity) on the inner Stations from the outer stations. Gak9 and Gak13 had a decidedly oceanic character, while Gak1, Gak4 and PWS were more coastal

D. Stockwell (Nutrients/Chlorophyll):

During HX252 we conducted five productivity experiments at the following sites: GAK 1, GAK 4, GAK 9, GAK 13 AND KIP 2. These experiments were N-15 and C –13 studies for nitrogen uptake rates and primary productivity estimates. In addition, nutrient addition studies were also run in conjunction with the nitrogen uptake and primary production stations at all but GAK 13. Weather prevented additional amendment studies to be carried out at GAK 13. Chlorophyll and nutrient samples were collected at all stations along the Seward line and at alternate stations along the Cape Fairfield line. Within the sound, samples were collected at the Knight Island Passage, Montague Strait, and Hogan Bay lines. Nutrient samples were run on board and chlorophyll samples will be analyzed back in Fairbanks. Samples were not taken along the Cape Clear line or the

Hinchinbrook entrance lines due to poor weather conditions. No isotope filter samples were taken for B. Finney (UAF) during this cruise.

L. Sousa (Marine Mammals/seabirds):
Seabirds and marine mammals were surveyed on the Seward line, Hogan Bay, Knight Island Passage and Cape Fairfield Line. Species composition, location and activity were recorded for each sighting, on the 300m wide radius when ship speed was greater than 6 Knots. See figure below.

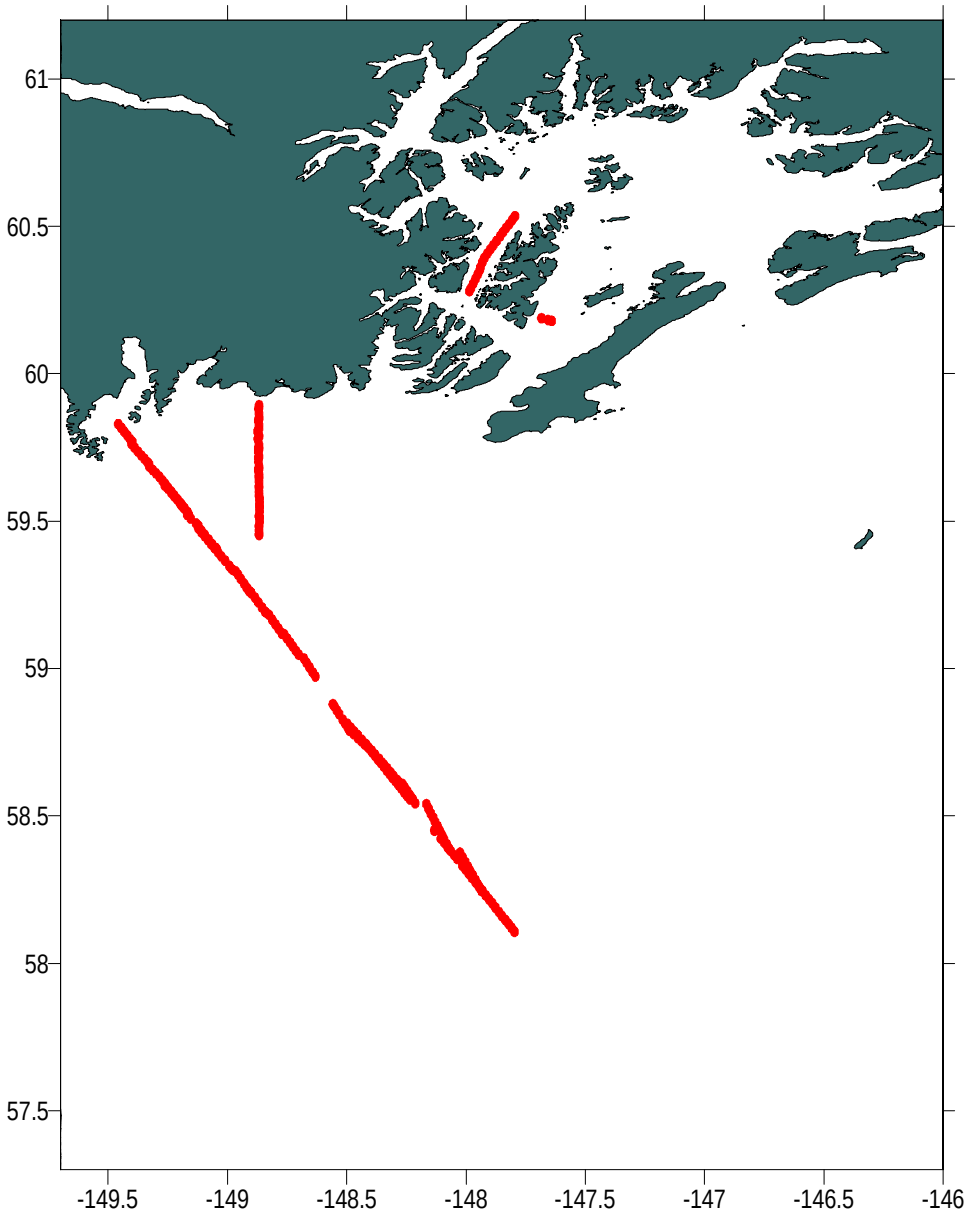


Fig 1: HX 252, transects surveyed for seabird and marine mammal counts.

Michael Foy (Microzooplankton):

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 2,4,6,8,10,13 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 taken at GAK 1,3,5,7,9,11,12, CF 3,9 & KIP 2. Above samples were filtered and prepared for epifluorescent microscopy as well as preserved in acid Lugols. In addition, samples were fixed for flow cytometry.

Fluorescence values in the upper mixed layer at stations along the Seward Line, Cape Fairfield Line. and at stations in PWS, were fairly uniform and low with values rarely exceeding 0.5V. The phytoplankton assemblage was composed primarily of cryptophytes and other small flagellates. Although diatoms were relatively rare, there appeared to be a slight increase in their abundance toward the end of the Seward line. Two species of the photosynthetic dinoflagellate *Ceratium* (*lineatum* & *tripos*) were present at all stations and increased in abundance at the offshore stations. Heterotrophic dinoflagellates and ciliate abundances were moderate. As has been observed during previous cruises, cyanobacteria numbers were high in the upper mixed layer at all stations and increased in abundance toward the end of the Seward line.

Table 1. CTD Station Locations along Seward Line.

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

Table 4. CTD Stations Bracketing Hinchinbrook Entrance.

Station Name	Latitude (° ' N)	Longitude (° ')	Approximate Bottom Depth (m)
HE 1	60 13.8	146 36.5	
HE 2	60 10.8	146 36.5	zooplankton
HE 3	60 7.8	146 36.5	
HE 4	60 4.8	146 36.5	
HE-5	60 1.8	146 36.5	zooplankton
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	zooplankton
HE-10	60 7.8	147 8.0	zooplankton
HE-11	60 8.6	147 11.5	

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

Station Name	Latitude (° ' N)	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 Station Locations Along Cape Cleare Line - Offshore Montague Island

Station Name	Latitude (° ' N)	Longitude (° ')	Approximate Bottom Depth (m)
***CC 1**	59 44.67	147 53.0	23
***CC 2**	59 42.6	147 53.0	68
***CC 3**	59 40.0	147 53.0	67
***CC 4**	59 36.0	147 53.0	114
***CC-5**	59 29.0	147 53.0	113
***CC-6**	59 22.0	147 53.0	177
CC-7	59 15.0	147 53.0	185
CC-8	59 7.75	147 53.0	201

*most important

Table 8. CTD Station Locations Along Cape Cleare SW Line - Offshore Montague Island

Station Name	Latitude (° ' N)	Longitude (° ')	Approximate Bottom Depth (m)
CCSW 1	59 42.9	148.00	23
CCSW 2	59 40.0	148 5.0	50
CCSW 3	59 37.5	148 10.2	158
CCSW 4	59 35.1	148 14.8	177
CCSW-5	59 32.6	148 20.0	189
CCSW-6	59 22.0	147 53.0	177
CCSW-7	59 15.0	147 53.0	185
CCSW-8	59 7.75	147 53.0	201

Table 9. CTD Station Locations Along Cape Suckling Line

Station Name	Latitude (° ' N)	Longitude (° ')	Approximate Bottom Depth (m)
CS-0	60 0.73	143 40.0	52
CS 1	59 57.0	143 40.0	219
CS 2	59 54.0	143 40.0	264
CS 3	59 51.0	143 40.0	274
CS 4	59 48.0	143 40.0	260
CS-5	59 44.0	143 40.0	171
CS-6	59 38.0	143 40.0	136
CS-7	59 32.0	143 40.0	540
CS-8	59 25.0	143 40.0	1818

Table 10. CTD Station Locations Across Middle of Hinchinbrook Canyon To Assess Deep Inflow into Prince William Sound.

Station Name	Latitude (° ' N)	Longitude (° ')	Approximate Bottom Depth (m)
XHCU 1	58 48.0	146 40.0	85
XHCU 2	59 48.0	146 47.0	85
XHCU 3	59 48.0	146 54.0	100
XHCU 4	59 48.0	146 57.5	150
XHCU-5	59 48.0	147 01.0	200
XHCU-6	59 48.0	147 4.5	220
XHCU-7	59 48.0	147 8.0	220
XHCU-8	59 48.0	147 11.5	200
XHCU-9	59 48.0	147 15.0	150
XHCU-10	59 48.0	147 20.0	80
XHCU-11	59 48.0	147 25.0	100

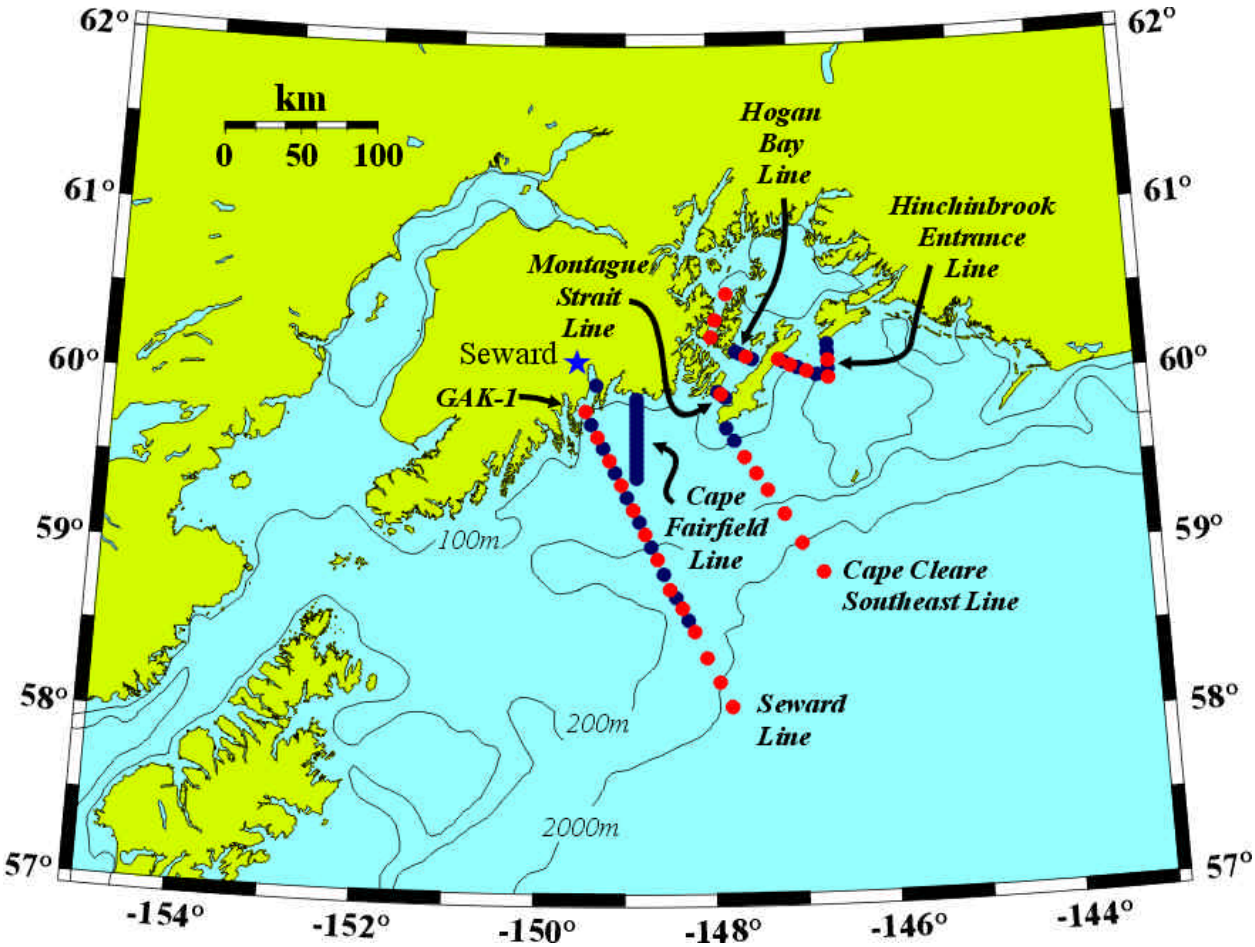
Table 11. CTD Station Locations Across Shelfbreak Entrance to Hinchinbrook Canyon To Assess Deep Inflow into Prince William Sound

Station Name	Latitude (° ' N)	Longitude (° ' W)	Approximate Bottom Depth (m)
XHCL 1	59 14.0	146 40.0	200-300
XHCL 2	59 14.0	146 47.0	200-300
XHCL 3	59 14.0	146 54.0	200-300
XHCL 4	59 14.0	146 57.5	200-300
XHCL-5	59 14.0	147 01.0	200-300
XHCL-6	59 14.0	147 4.5	200-300
XHCL-7	59 14.0	147 8.0	200-300
XHCL-8	59 14.0	147 11.5	200-300
XHCL-9	59 14.0	147 15.0	200-300
XHCL-10	59 14.0	147 20.0	200-300
XHCL-11	59 14.0	147 25.0	200-300

Table 12. CTD Station Along the CCSE Line to provide alongshore sampling complimentary to the Seward Line Stations.

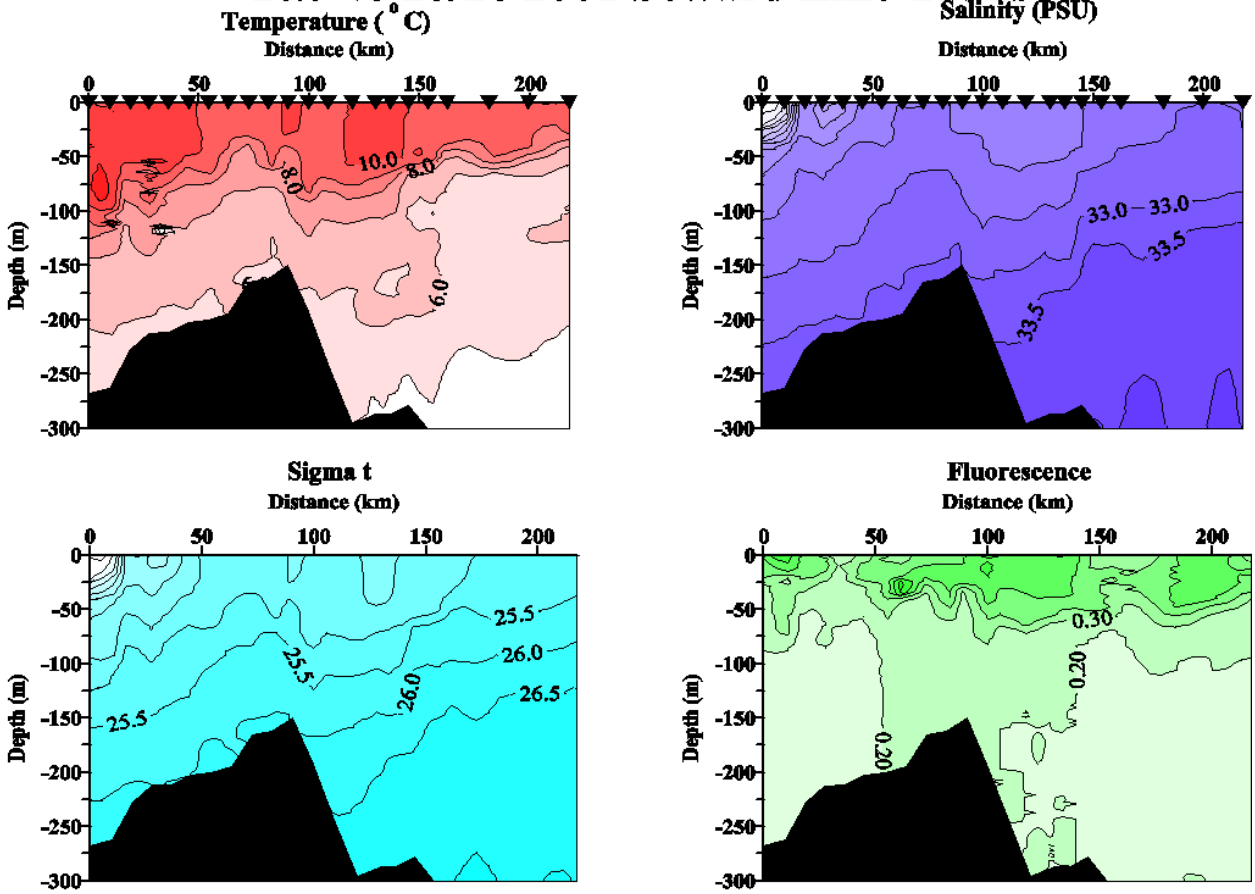
Station Name	Latitude (° ' N)	Longitude (° ' W)	Approximate Bottom Depth (m)
CCSE1	59.74167	-147.817	
CCSE2	59.66667	-147.727	
CCSE3	59.57083	-147.608	
CCSE4	59.475	-147.475	
CCSE5	59.375	-147.35	
CCSE6	59.23333	-147.158	
CCSE7	59.05833	-146.967	
CCSE8	58.88333	-146.733	

GLOBEC LTOP Standard Stations

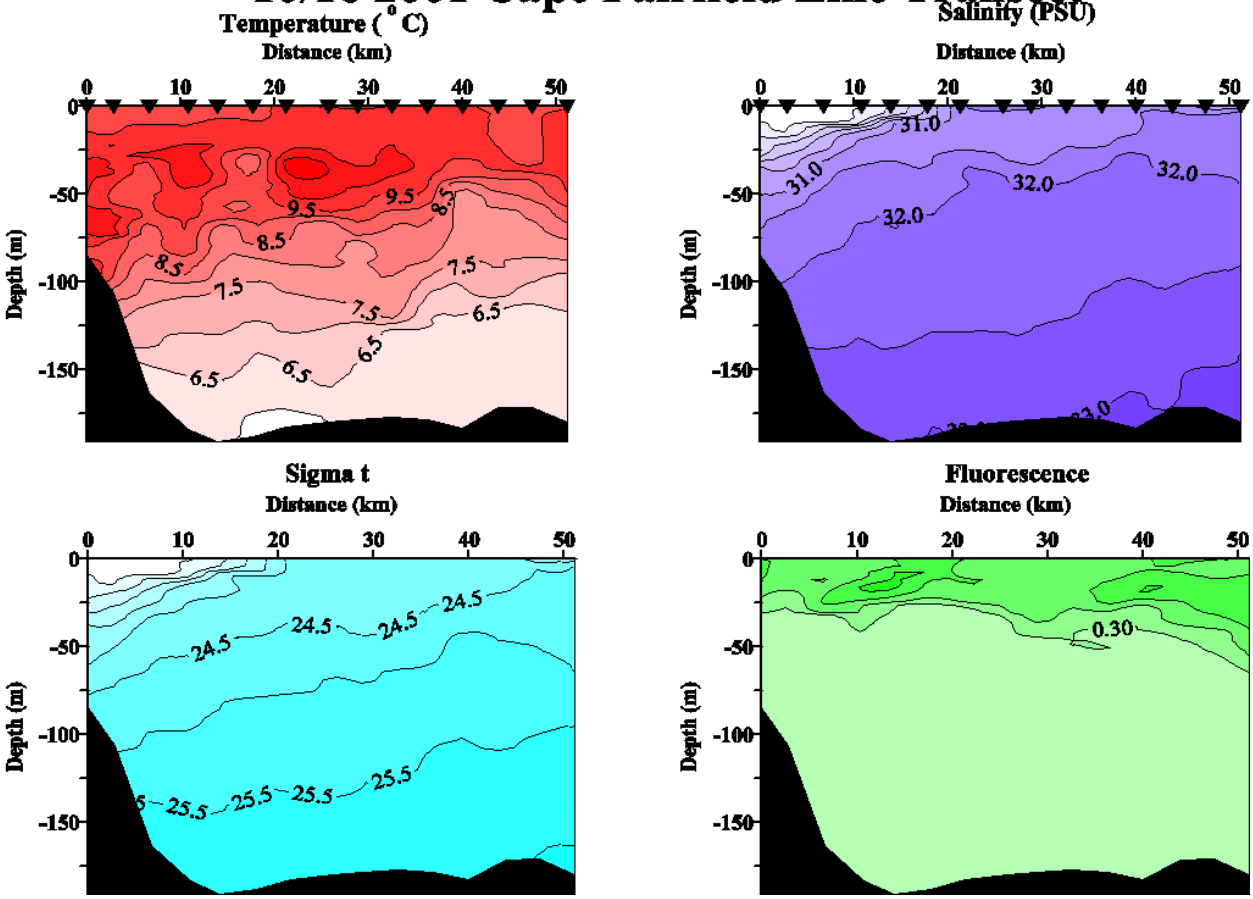


The *Cape Cleare Southeast Line* is included in the standard stations for the May, July, and August cruises during the 2001 and 2003 (Process Study) sampling years.

10/9 to 10/16 2001 Seward Line Transect



10/16 2001 Cape Fairfield Line Transect



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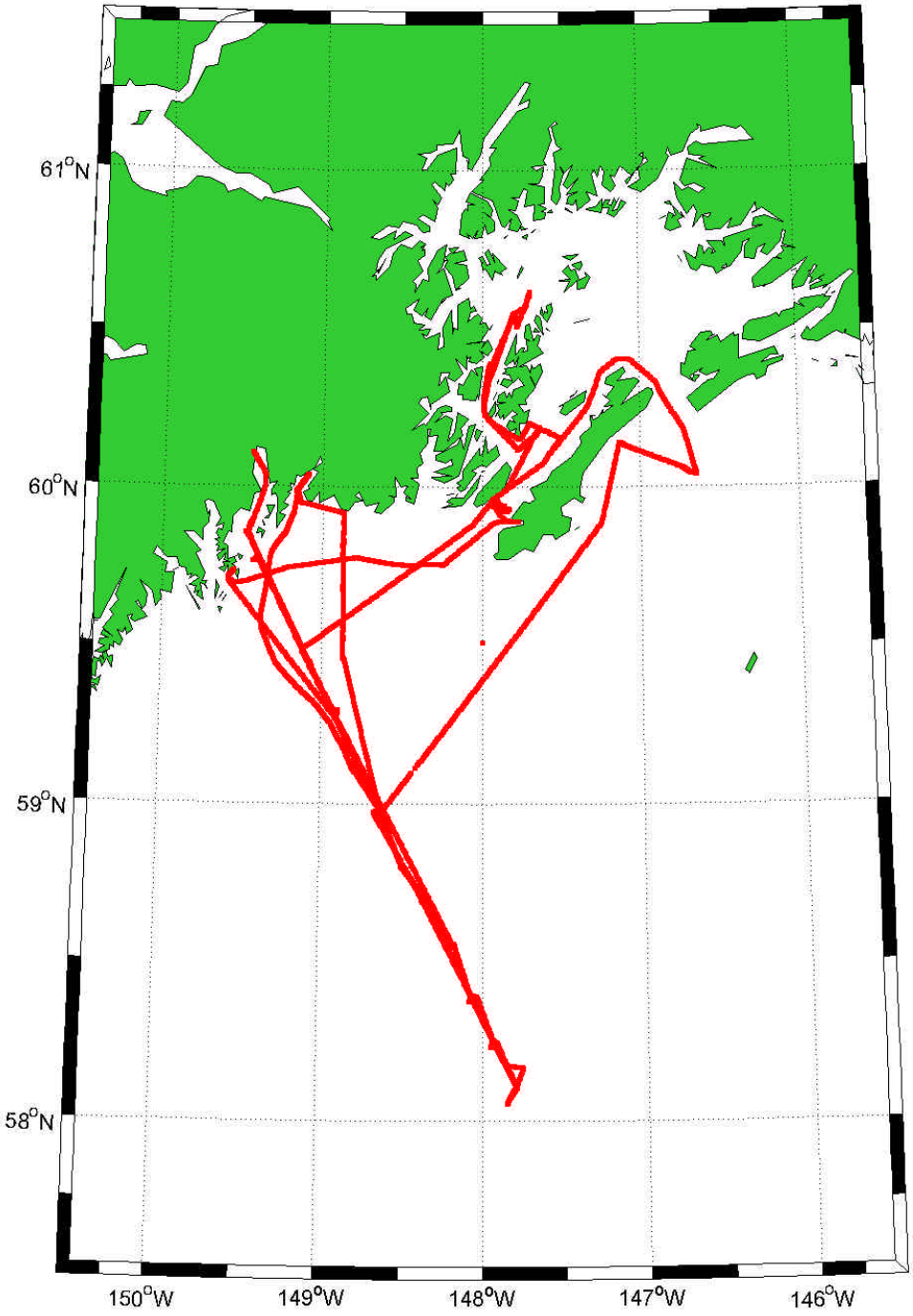
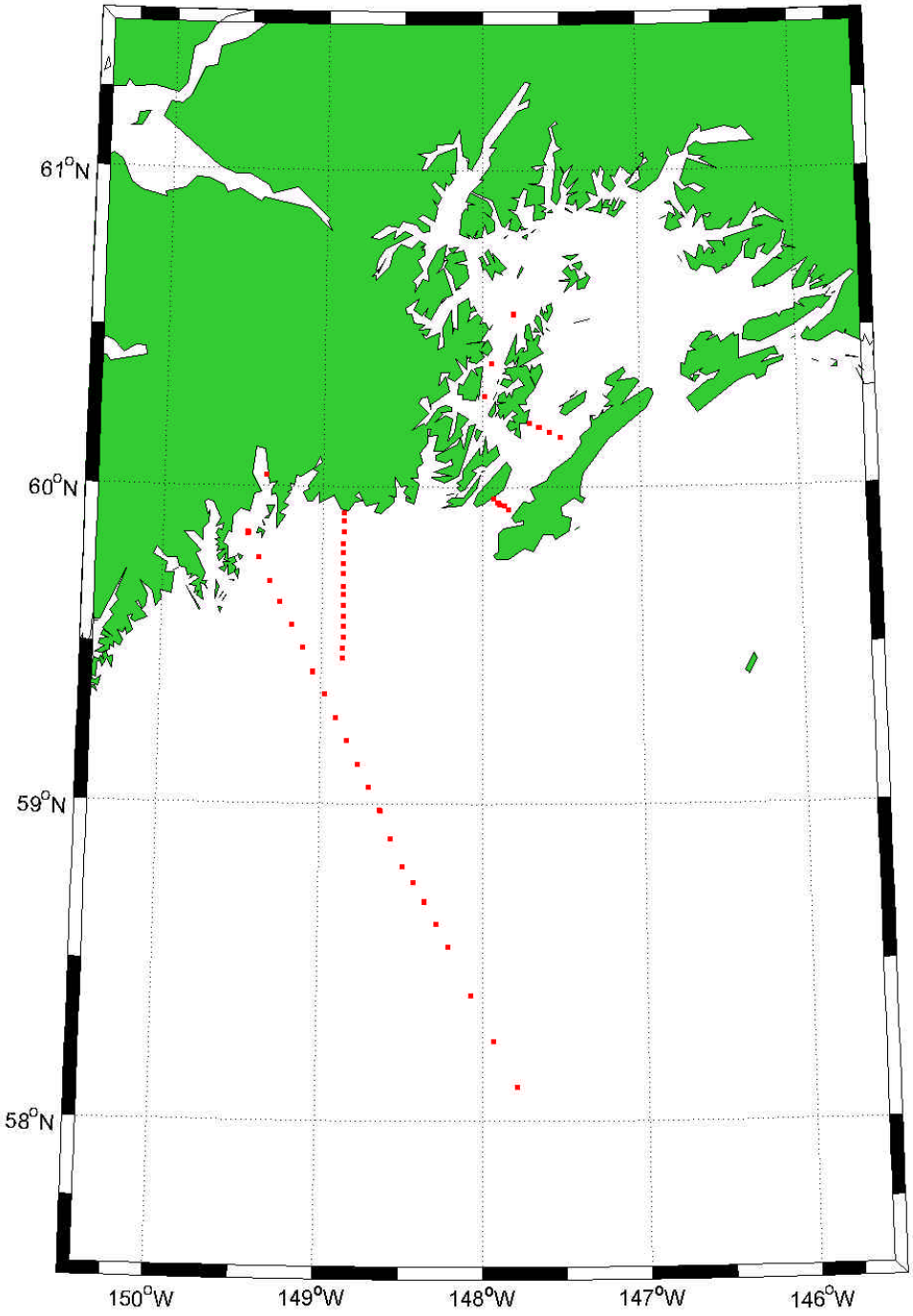
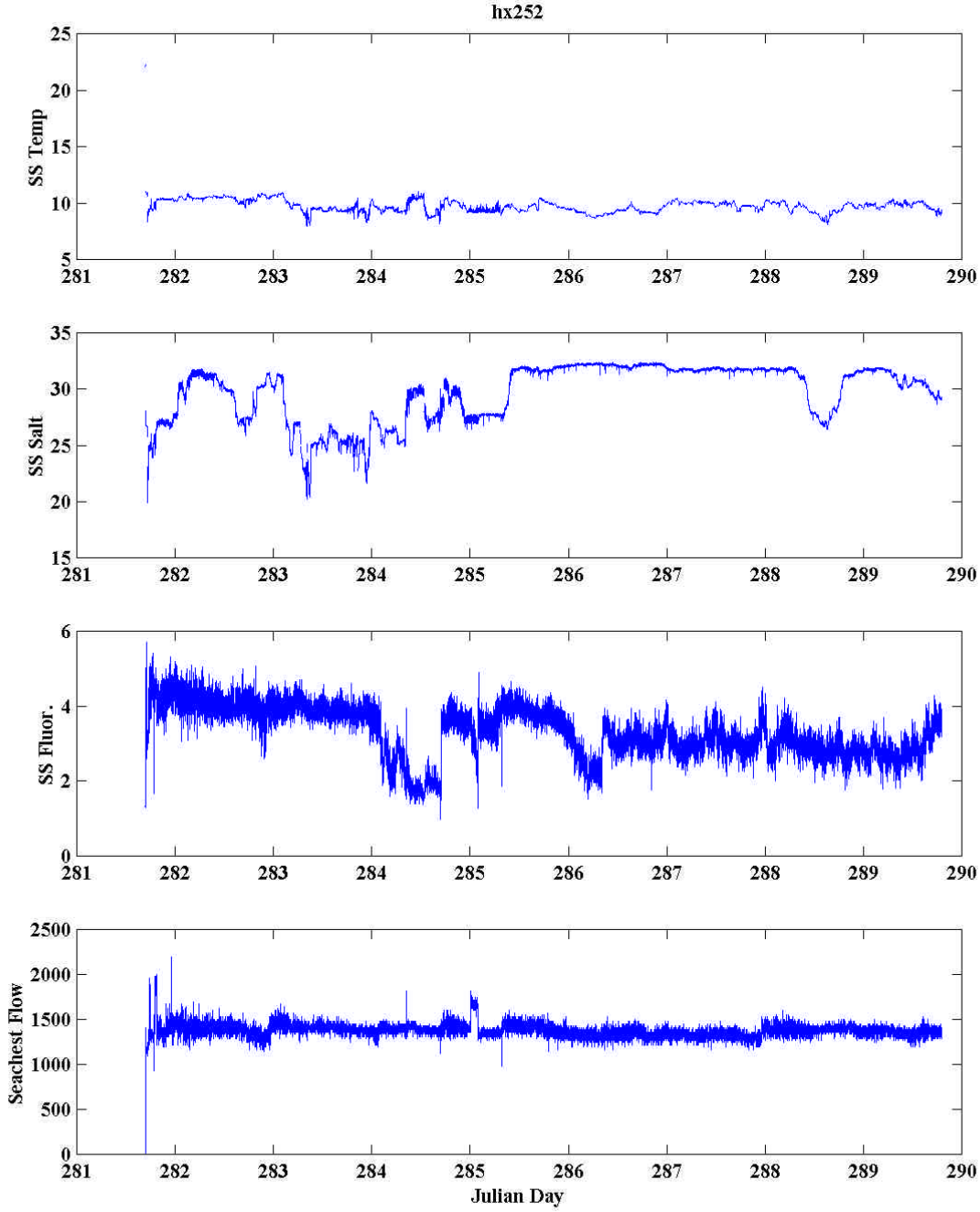


hx252 Station Locations

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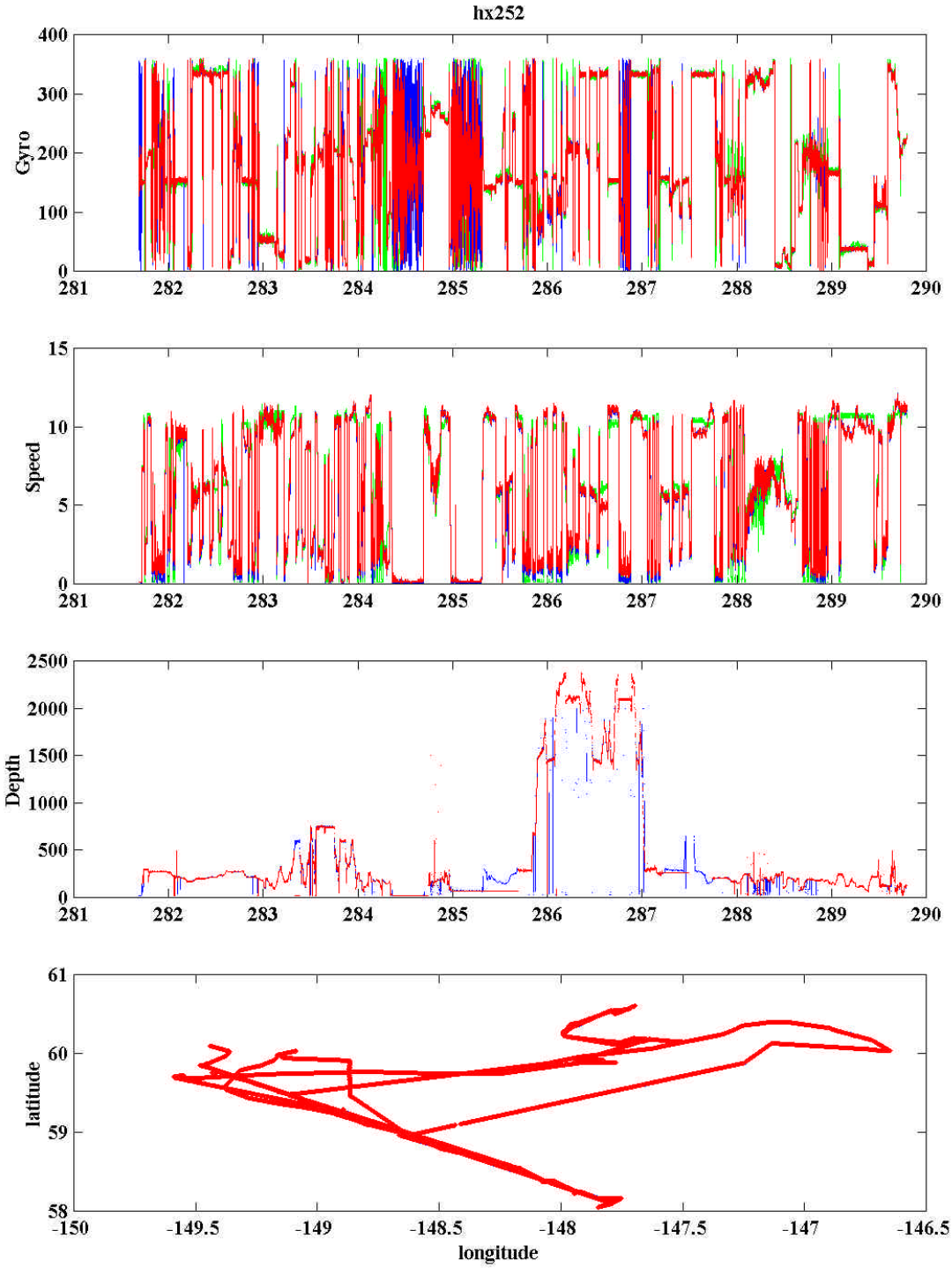
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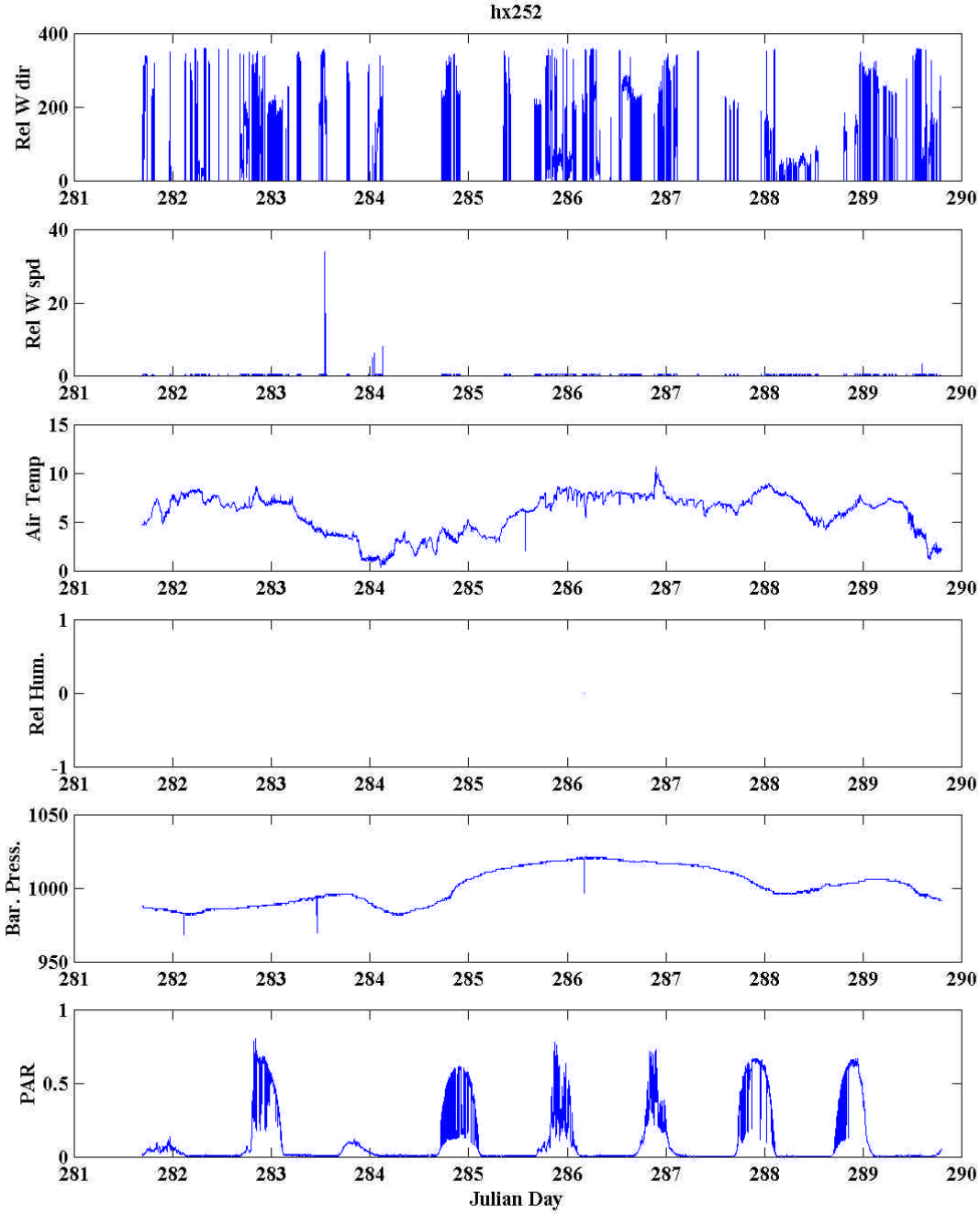
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Rel W dir
Rel W spd
Air Temp
Rel Hum.
Bar. Press.
PAR
Julian Day

EVENT LOG:

Event #	Description	Station	Date	GMT	Latitude	Longitude	Depth	Comments	Scientist
HX25228201.001	CTD1 Start	res2.5	10/9/01	18:14	60.02935	149.3649	295		Danielson
HX25228201.002	CTD1 End	res2.5	10/9/01	18:15	60.02915	149.3649	295		Danielson
HX25228201.003	CTD2 Start	GAK1	10/9/01	19:40	59.84563	149.4653	300		Danielson
HX25228201.004	CalVET Net Tow Start	GAK1	10/9/01	20:21	59.8461	149.4732	300		Hopcroft
HX25228201.005	CalVET Net Tow End	GAK1	10/9/01	20:23	59.84566	149.4725	300		Hopcroft
HX25228201.006	CTD3 Start	GAK1	10/9/01	23:00	59.84335	149.4708	300		Danielson
HX25228201.007	CTD3 End	GAK1	10/9/01	23:08	59.83873	149.4668	300		Danielson
HX25228201.008	CTD4 Start	GAK1i	10/9/01	0:12	59.7546	149.4328	300		Danielson
HX25228201.009	CTD4 End	GAK1i	10/9/01	0:12	59.7545	149.433	300		Danielson
HX25228201.010	CTD5 Start	GAK2	10/9/01	1:04	59.69162	149.3262	226		Danielson
HX25228201.011	CTD5 End	GAK2	10/9/01	1:24	59.68593	149.3386	226		Danielson
HX25228201.012	CalVET Net Tow Start	GAK2	10/9/01	1:30	59.69087	149.3258	226		Hopcroft
HX25228201.013	CalVET Net Tow End	GAK2	10/9/01	1:39	59.68903	149.3296	226		Hopcroft
HX25228201.014	MOCNESS Start	gak5	10/9/01	5:02	59.2707	148.9009	226		Coyle
HX25228201.015	MOCNESS End	gak5	10/9/01	5:34	59.28427	148.8943	226		Coyle
HX25228201.016	HTI Transect Start	gak5-4	10/9/01	5:58	59.26242	148.908	226		Coyle
HX25228201.017	HTI Transect End	gak4	10/9/01	7:49	59.41562	149.0545	199		Coyle
HX25228201.018	MOCNESS Start	gak4	10/9/01	7:53	59.41757	149.0561	199		Coyle
HX25228301.001	MOCNESS End	gak4	10/10/01	8:25	59.43476	149.0675	199		Coyle
HX25228301.002	HTI Transect Start	gak4-3	10/10/01	8:49	59.412	149.0533	199		Coyle
HX25228301.003	HTI Transect End	gak4-3	10/10/01	10:23	59.55327	149.1883	199		Coyle
HX25228301.004	MOCNESS Start	gak3	10/10/01	10:28	59.55668	149.1922	213		Coyle
HX25228301.005	MOCNESS End	gak3	10/10/01	10:56	59.56742	149.2057	213		Coyle

HX25228301.006	HTI Transect Start	gak3	10/10/01	11:16	59.55342	149.1885	213		Coyle
HX25228301.007	HTI Transect End	gak3-2	10/10/01	12:35	59.69255	149.3275	226		Coyle
HX25228301.008	MOCNESS Start	gak2	10/10/01	13:09	59.71926	149.3567	226		Coyle
HX25228301.009	MOCNESS End	gak2	10/10/01	13:34	59.6975	149.3384	226		Coyle
HX25228301.010	HTI Transect Start	gak2-1	10/10/01	13:42	59.69402	149.3295	226		Coyle
HX25228301.011	HTI Transect End	gak2-1	10/10/01	15:08	59.84452	149.4663	271		Coyle
HX25228301.012	MOCNESS Start	gak1	10/10/01	15:10	59.84513	149.4667	271		Coyle
HX25228301.013	MOCNESS End	gak1	10/10/01	15:45	59.86267	149.4606	271		Coyle
HX25228301.014	CTD6 Start	gak1	10/10/01	16:28	59.84305	149.4657	271		Danielson
HX25228301.015	CTD6 End	gak1	10/10/01	16:47	59.84085	149.4689	271		Danielson
HX25228301.016	CTD7 Start	gak1	10/10/01	17:14	59.84363	149.4687	271	cohorts #1	Hopcroft
HX25228301.017	CTD7 End	gak1	10/10/01	17:26	59.84208	149.469	271		Hopcroft
HX25228301.018	CTD8 Start	gak1	10/10/01	17:26	59.84205	149.469	271	cohorts #2	Hopcroft
HX25228301.019	CTD8 End	gak1	10/10/01	17:30	59.84175	149.4692	271		Hopcroft
HX25228301.020	CTD9 Start	gak1	10/10/01	17:37	59.84093	149.4696	271	cohorts #3	Hopcroft
HX25228301.021	CTD9 End	gak1	10/10/01	17:41	59.84057	149.4698	271		Hopcroft
HX25228301.022	CTD10 Start	gak1	10/10/01	17:49	59.8396	149.4703	271	cohorts #4	Hopcroft
HX25228301.023	CTD10 End	gak1	10/10/01	17:52	59.83918	149.4704	271		Hopcroft
HX25228301.024	CTD11 Start	gak1	10/10/01	18:02	59.84552	149.4679	271	cohorts #5	Hopcroft
HX25228301.025	CTD11 End	gak1	10/10/01	18:06	59.84518	149.468	271		Hopcroft
HX25228301.026	Ring Net Start	gak1	10/10/01	18:24	59.84328	149.4691	271		Pinchuk
HX25228301.027	Ring Net End	gak1	10/10/01	18:25	59.84324	149.4692	271		Pinchuk
HX25228301.028	Ring Net Start	gak1	10/10/01	18:25	59.8432	149.4692	271		Pinchuk
HX25228301.029	Ring Net End	gak1	10/10/01	18:29	59.84282	149.4694	271		Pinchuk

HX25228301.030	CTD12 Start	gak2i	10/10/01	20:08	59.62568	149.2598	214		Danielson
HX25228301.031	CTD12 End	gak2i	10/10/01	20:24	59.62563	149.267	214		Danielson
HX25228301.032	CTD13 Start	gak3	10/10/01	21:03	59.55383	149.1875	213		Danielson
HX25228301.033	CTD13 End	gak3	10/10/01	21:22	59.55728	149.1948	213		Danielson
HX25228301.034	CalVET Net Tow Start	gak3	10/10/01	21:47	59.55502	149.1932	213		Hopcroft
HX25228301.035	CalVET Net Tow End	gak3	10/10/01	21:48	59.55447	149.1927	213		Hopcroft
HX25228301.036	CTD14 Start	gak3i	10/10/01	22:27	59.48178	149.1147	202		Danielson
HX25228301.037	CTD14 End	gak3i	10/10/01	23:00	59.4835	149.1009	202		Danielson
HX25228301.038	CTD15 Start	hb2	10/10/01	5:15	60.18017	147.6379	170		Pinchuk
HX25228301.039	CTD15 End	hb2	10/10/01	5:22	60.18077	147.6361	170		Pinchuk
HX25228301.040	MOCNESS Start	hb2	10/10/01	5:37	60.1743	147.6412	170		Coyle
HX25228301.041	MOCNESS End	hb2	10/10/01	6:11	60.15707	147.655	170		Coyle
HX25228401.001	MOCNESS Start	kip2	10/11/01	8:20	60.27607	147.9906	589		Coyle
HX25228401.002	MOCNESS End	kip2	10/11/01	8:50	60.25229	147.988	589		Coyle
HX25228401.003	MOCNESS Start	pws1	10/11/01	9:48	60.37857	147.9379	352		Coyle
HX25228401.004	MOCNESS End	pws1	10/11/01	10:31	60.35032	147.9401	352		Coyle
HX25228401.005	MOCNESS Start	pws2	10/11/01	12:04	60.53411	147.7965	730		Coyle
HX25228401.006	MOCNESS End	pws2	10/11/01	12:39	60.51488	147.7814	730		Coyle
HX25228401.007	MOCNESS Start	pws2	10/11/01	13:50	60.60358	147.6959	730		Coyle
HX25228401.008	MOCNESS End	pws2	10/11/01	15:20	60.56005	147.7216	730		Coyle
HX25228401.009	CTD16 Start	pws2	10/11/01	15:49	60.5352	147.8008	747		Danielson
HX25228401.010	CTD16 End	pws2	10/11/01	16:27	60.54222	147.794	747		Danielson
HX25228401.011	CalVET Net Tow Start	pws2	10/11/01	17:58	60.52795	147.8002	735		Hopcroft
HX25228401.012	CalVET Net Tow End	pws2	10/11/01	17:59	60.5274	147.8007	735		Hopcroft

HX25228401.013	CTD17 Start	pws2	10/11/01	16:46	60.53578	147.8018	747	cohorts #1	Hopcroft
HX25228401.014	CTD17 End	pws2	10/11/01	16:49	60.53584	147.8011	747		Hopcroft
HX25228401.015	CTD18 Start	pws2	10/11/01	16:56	60.53662	147.7998	747	cohortsb #2	Hopcroft
HX25228401.016	CTD18 End	pws2	10/11/01	17:00	60.5369	147.7996	747		Hopcroft
HX25228401.017	CTD19 Start	pws2	10/11/01	17:07	60.53757	147.7989	747	cohorts #3	Hopcroft
HX25228401.018	CTD19 End	pws2	10/11/01	17:11	60.53773	147.7989	747		Hopcroft
HX25228401.019	Ring Net Start	pws2	10/11/01	17:21	60.53447	147.8032	735		Hopcroft
HX25228401.020	Ring Net End	pws2	10/11/01	17:21	60.53447	147.8031	735		Hopcroft
HX25228401.021	CTD20 Start	pws2	10/11/01	17:26	60.53488	147.8009	735	cohorts #4	Hopcroft
HX25228401.022	CTD20 End	pws2	10/11/01	17:30	60.53507	147.8006	735		Hopcroft
HX25228401.023	CTD21 Start	pws2	10/11/01	17:36	60.53557	147.7995	735	cohorts #5	Hopcroft
HX25228401.024	CTD21 End	pws2	10/11/01	17:39	60.53584	147.7987	735		Hopcroft
HX25228401.025	Ring Net Start	pws2	10/11/01	17:58	60.52913	147.7991	735		Hopcroft
HX25228401.026	Ring Net End	pws2	10/11/01	17:58	60.52853	147.7997	735		Hopcroft
HX25228401.027	CTD22 Start	kip2	10/11/01	19:40	60.27808	147.9863	585	prim prod cast	Danielson
HX25228401.028	CTD22 End	kip2	10/11/01	19:49	60.27812	147.9871	585		Danielson
HX25228401.029	CalVET Net Tow Start	kip2	10/11/01	19:52	60.27802	147.9871	585		Hopcroft
HX25228401.030	CalVET Net Tow End	kip2	10/11/01	20:02	60.27807	147.9866	585		Hopcroft
HX25228401.031	CTD23 Start	kip2	10/11/01	20:02	60.27808	147.9866	585		Danielson
HX25228401.032	CTD23 End	kip2	10/11/01	20:35	60.27768	147.9877	585		Danielson
HX25228401.033	CTD24 Start	pws1	10/11/01	21:16	60.38075	147.9366	356		Danielson
HX25228401.034	CTD24 End	pws1	10/11/01	21:37	60.38197	147.9413	356		Danielson
HX25228401.035	CalVET Net Tow Start	pws1	10/11/01	21:38	60.38197	147.9415	356		Hopcroft
HX25228401.036	CalVET Net Tow End	pws1	10/11/01	21:43	60.38228	147.9434	356		Hopcroft
HX25228401.037	CTD25 Start	hb1	10/11/01	23:52	60.19348	147.7007	245		Danielson
HX25228401.038	CTD25 End	hb1		0:08	60.1918	147.7027	245		Danielson

			10/11/01						
HX25228401.039	CTD26 Start	hb2	10/11/01	0:26	60.17983	147.6418	177		Danielson
HX25228401.040	CTD26 End	hb2	10/11/01	0:40	60.17658	147.6454	177		Danielson
HX25228401.041	CalVET Net Tow Start	hb2	10/11/01	0:47	60.17797	147.6423	177		Pinchuk
HX25228401.042	CalVET Net Tow End	hb2	10/11/01	1:06	60.16427	147.5779	177		Pinchuk
HX25228401.043	CTD27 Start	hb3	10/11/01	1:09	60.1644	147.5763	90		Danielson
HX25228401.044	CTD27 End	hb3	10/11/01	1:17	60.1618	147.5766	90		Danielson
HX25228401.045	CTD28 Start	hb4	10/11/01	1:37	60.14803	147.5043	106		Danielson
HX25228401.046	CTD28 End	hb4	10/11/01	1:46	60.14552	147.5025	106		Danielson
HX25228401.047	CTD30 Start	ms1	10/11/01	3:25	59.95362	147.9284	168		Danielson
HX25228401.048	CTD30 End	ms1	10/11/01	3:40	59.9466	147.9315	168		Danielson
HX25228401.049	CTD31 Start	ms2	10/11/01	3:54	59.944	147.9014	168		Danielson
HX25228401.050	CTD31 End	ms2	10/11/01	4:09	59.93885	147.9095	168		Danielson
HX25228401.051	CalVET Net Tow Start	ms2	10/11/01	4:15	59.93755	147.9149	168		Pinchuk
HX25228401.052	CalVET Net Tow End	ms2	10/11/01	4:19	59.936	147.9181	168		Pinchuk
HX25228401.053	CTD32 Start	ms2	10/11/01	4:40	59.94348	147.8961	195		Danielson
HX25228401.054	CTD32 End	ms2	10/11/01	4:55	59.93772	147.9071	195		Danielson
HX25228401.055	CTD33 Start	ms3	10/11/01	5:09	59.93223	147.8577	169		Danielson
HX25228401.056	CTD33 End	ms3	10/11/01	5:27	59.9229	147.8721	169		Danielson
HX25228401.057	CTD34 Start	ms4	10/11/01	5:42	59.92165	147.8334	122		Danielson
HX25228401.058	CTD34 End	ms4	10/11/01	5:55	59.91273	147.8438	122		Danielson
HX25228401.059	CTD35 Start	ms2	10/11/01	6:15	59.93423	147.8909	167		Pinchuk
HX25228401.060	CTD35 End	ms2	10/11/01	6:25	59.92833	147.9011	167		Pinchuk
HX25228401.061	MOCNESS Start	ms2	10/11/01	6:33	59.92875	147.9097	167		Coyle
HX25228401.062	MOCNESS End	ms2	10/11/01	7:18	59.93625	147.9504	167		Coyle

HX25228601.001	HTI Transect Start	GAK5-6	10/13/01	11:02	59.25882	148.904	164		Coyle
HX25228601.002	MOCNESS Start	GAK6	10/13/01	12:44	59.11372	148.7721	148		Coyle
HX25228601.003	MOCNESS End	GAK6	10/13/01	13:16	59.1105	148.7968	148		Coyle
HX25228601.004	HTI Transect Start	GAK6-7	10/13/01	13:33	59.1162	148.7667	148		Coyle
HX25228601.005	HTI Transect End	GAK6-7	10/13/01	15:03	58.9733	148.6319	240		Coyle
HX25228601.006	MOCNESS Start	GAK7	10/13/01	15:06	58.97149	148.6356	240		Coyle
HX25228601.007	MOCNESS End	GAK7	10/13/01	15:37	58.96537	148.6594	240		Coyle
HX25228601.008	CTD36 Start	GAK9	10/13/01	17:40	58.68085	148.3526	279	prim prod cast	Danielson
HX25228601.009	CTD36 End	GAK9	10/13/01	17:48	58.6819	148.3586	279		Danielson
HX25228601.010	CalVET Net Tow Start	gak9	10/13/01	17:55	58.68225	148.3619	279		Hopcroft
HX25228601.011	CalVET Net Tow End	gak9	10/13/01	18:00	58.68258	148.3646	279		Hopcroft
HX25228601.012	CTD37 Start	gak9	10/13/01	18:09	58.68025	148.3526	279		Danielson
HX25228601.013	CTD37 End	gak9	10/13/01	18:30	58.68287	148.3623	279		Danielson
HX25228601.014	Ring Net Start	gak9	10/13/01	18:36	58.6835	148.3633	279		Hopcroft
HX25228601.015	Ring Net End	gak9	10/13/01	18:51	58.68685	148.3676	279		Hopcroft
HX25228601.016	Ring Net Start	gak9	10/13/01	18:51	58.68688	148.3677	279		Hopcroft
HX25228601.017	Ring Net End	gak9	10/13/01	18:51	58.68693	148.3678	279		Hopcroft
HX25228601.018	CTD38 Start	gak9	10/13/01	19:05	58.68073	148.3506	279	cohorts #1	Hopcroft
HX25228601.019	CTD38 End	gak9	10/13/01	19:09	58.68192	148.3513	279		Hopcroft
HX25228601.020	CTD39 Start	gak9	10/13/01	19:15	58.68317	148.352	279	cohorts #2	Hopcroft
HX25228601.021	CTD39 End	gak9	10/13/01	19:19	58.68388	148.353	279		Hopcroft
HX25228601.022	CTD40 Start	gak9	10/13/01	19:27	58.68128	148.3521	279	cohorts #3	Hopcroft
HX25228601.023	CTD40 End	gak9	10/13/01	19:30	58.68185	148.353	279		Hopcroft
HX25228601.024	CTD41 Start	gak9	10/13/01	19:39	58.68355	148.3546	279	cohorts #2	Hopcroft

HX25228601.025	CTD41 End	gak9	10/13/01	19:42	58.68428	148.3553	279		Hopcroft
HX25228601.026	CTD42 Start	gak9i	10/13/01	20:20	58.6118	148.2775	675		Danielson
HX25228601.027	CTD42 End	gak9i	10/13/01	21:11	58.58737	148.2494	675		Danielson
HX25228601.028	CTD43 Start	gak10	10/13/01	21:31	58.54178	148.2104	1466		Danielson
HX25228601.029	CTD43 End	gak10	10/13/01	22:49	58.54895	148.1768	1466		Danielson
HX25228601.030	CalVET Net Tow Start	gak10	10/13/01	22:54	58.54897	148.1745	1466		Hopcroft
HX25228601.031	CalVET Net Tow End	gak10	10/13/01	22:55	58.54895	148.1743	1466		Hopcroft
HX25228601.032	CTD44 Start	gak11	10/13/01	0:00	58.38792	148.069	1436		Danielson
HX25228601.033	CTD44 End	gak11	10/13/01	1:14	58.38337	148.0367	1436		Danielson
HX25228601.034	CalVET Net Tow Start	gak11	10/13/01	1:16	58.38334	148.0366	1436		Hopcroft
HX25228601.035	CalVET Net Tow End	gak11	10/13/01	2:12	58.25138	147.9388	1436		Hopcroft
HX25228601.036	CTD45 Start	gak12	10/13/01	2:17	58.24372	147.9331	2160		Danielson
HX25228601.037	CTD45 End	gak12	10/13/01	3:29	58.23645	147.9079	2160		Danielson
HX25228601.038	CalVET Net Tow Start	gak12	10/13/01	3:35	58.23503	147.9072	2160		Hopcroft
HX25228601.039	CalVET Net Tow End	gak12	10/13/01	3:43	58.23285	147.9063	2160		Hopcroft
HX25228601.040	MOCNESS Start	gak13	10/13/01	5:03	58.09542	147.7989	2038		Coyle
HX25228601.041	MOCNESS End	gak13	10/13/01	6:20	58.0507	147.845	2038		Coyle
HX25228601.042	MOCNESS Start	gak13	10/13/01	7:01	58.09835	147.797	2038		Coyle
HX25228601.043	MOCNESS End	gak13	10/13/01	7:46	58.07218	147.822	2038		Coyle
HX25228701.001	HTI Transect Start	gak13-12	10/14/01	8:09	58.10018	147.7944	2038		Coyle
HX25228701.002	HTI Transect End	gak13-12	10/14/01	9:49	58.24387	147.9342	2138		Coyle
HX25228701.003	MOCNESS Start	gak12	10/14/01	9:51	58.24295	147.936	2138		Coyle
HX25228701.004	MOCNESS End	gak12	10/14/01	10:28	58.22542	147.947	2138		Coyle

HX25228701.005	HTI Transect Start	gak12-11	10/14/01	10:44	58.2451	147.9352	2138		Coyle
HX25228701.006	HTI Transect End	gak12-11	10/14/01	12:28	58.38818	148.0733	1436		Coyle
HX25228701.007	MOCNESS Start	gak11	10/14/01	12:30	58.38737	148.0737	1436		Coyle
HX25228701.008	MOCNESS End	gak11	10/14/01	12:57	58.37082	148.0767	1436		Coyle
HX25228701.009	HTI Transect Start	gak11-10	10/14/01	13:15	58.38985	148.072	1436		Coyle
HX25228701.010	HTI Transect End	gak10	10/14/01	15:22	58.53857	148.2128	1503		Coyle
HX25228701.011	CTD46 Start	gak13	10/14/01	18:07	58.09947	147.7921	2600	prim prod cast prim prod cast	Danielson
HX25228701.012	CTD46 End	gak13	10/14/01	18:16	58.09988	147.7905	2600		Danielson
HX25228701.013	CalVET Net Tow Start	gak13	10/14/01	18:16	58.09975	147.7901	2600		Hopcroft
HX25228701.014	CalVET Net Tow End	gak13	10/14/01	18:41	58.0975	147.791	2600		Hopcroft
HX25228701.015	CTD47 Start	gak13	10/14/01	18:41	58.09748	147.791	2089	cohorts #1	Hopcroft
HX25228701.016	CTD47 End	gak13	10/14/01	18:45	58.09748	147.7906	2089		Hopcroft
HX25228701.017	CTD48 Start	gak13	10/14/01	18:54	58.09763	147.7895	2089	cohorts #2	Hopcroft
HX25228701.018	CTD48 End	gak13	10/14/01	18:57	58.09772	147.789	2089		Hopcroft
HX25228701.019	CTD49 Start	gak13	10/14/01	19:04	58.09803	147.7881	2089	cohorts #3	Hopcroft
HX25228701.020	CTD49 End	gak13	10/14/01	19:07	58.09822	147.788	2089		Hopcroft
HX25228701.021	Ring Net Start	gak13	10/14/01	19:35	58.09815	147.7896	2089		Hopcroft
HX25228701.022	Ring Net End	gak13	10/14/01	19:35	58.09817	147.7896	2089		Hopcroft
HX25228701.023	Ring Net Start	gak13	10/14/01	19:35	58.09818	147.7897	2089		Hopcroft
HX25228701.024	Ring Net End	gak13	10/14/01	19:36	58.09818	147.7897	2089		Hopcroft
HX25228701.025	CTD50 Start	gak13	10/14/01	19:36	58.09818	147.7898	2089	cohorts #4	Hopcroft
HX25228701.026	CTD50 End	gak13	10/14/01	19:36	58.09818	147.7898	2089		Hopcroft
HX25228701.027	CTD51 Start	gak13		19:42	58.0974	147.7902	2089		Danielson

			10/14/01						
HX25228701.028	CTD51 End	gak13	10/14/01	20:58	58.10155	147.7909	2089		Danielson
HX25228701.029	Ring Net Start	gak13	10/14/01	21:05	58.10203	147.7914	2089		Stockwell
HX25228701.030	Ring Net End	gak13	10/14/01	21:09	58.10398	147.7936	2089		Stockwell
HX25228701.031	CTD52 Start	gak8i	10/14/01	1:22	58.7429	148.4209	287		Danielson
HX25228701.032	CTD52 End	gak8i	10/14/01	1:42	58.74098	148.4204	287		Danielson
HX25228701.033	CTD53 Start	gak8	10/14/01	2:09	58.79208	148.4881	290		Danielson
HX25228701.034	CTD53 End	gak8	10/14/01	2:28	58.79268	148.4868	290		Danielson
HX25228701.035	CalVET Net Tow Start	gak8	10/14/01	2:29	58.79313	148.4864	290		Hopcroft
HX25228701.036	CalVET Net Tow End	gak8	10/14/01	2:39	58.79598	148.4923	290		Hopcroft
HX25228701.037	CTD54 Start	gak7i	10/14/01	3:13	58.88145	148.5605	298		Danielson
HX25228701.038	CTD54 End	gak7i	10/14/01	3:35	58.88118	148.5644	298		Danielson
HX25228701.039	CTD55 Start	gak7	10/14/01	4:13	58.97198	148.628	241		Danielson
HX25228701.040	CTD55 End	gak7	10/14/01	4:30	58.972	148.6316	241		Danielson
HX25228701.041	HTI Transect Start	gak7	10/14/01	4:46	58.97158	148.6299	340		Coyle
HX25228701.042	HTI Transect End	gak8	10/14/01	6:52	58.79283	148.4911	291		Coyle
HX25228701.043	MOCNESS Start	gak8	10/14/01	6:53	58.79225	148.4908	291		Coyle
HX25228701.044	MOCNESS End	gak8	10/14/01	7:36	58.78425	148.4664	291		Coyle
HX25228701.045	HTI Transect Start	gak8	10/14/01	7:54	58.78992	148.489	291		Coyle
HX25228801.001	HTI Transect End	gak9	10/15/01	9:21	58.67963	148.3486	280		Coyle
HX25228801.002	MOCNESS Start	gak9	10/15/01	9:24	58.67932	148.3457	280		Coyle
HX25228801.003	MOCNESS End	gak9	10/15/01	9:58	58.67748	148.316	280		Coyle
HX25228801.004	HTI Transect Start	gak9-10	10/15/01	10:17	58.67843	148.349	280		Coyle

HX25228801.005	HTI Transect End	gak9-10	10/15/01	11:53	58.54107	148.2095	1500		Coyle
HX25228801.006	MOCNESS Start	gak10	10/15/01	11:54	58.54088	148.2077	1500		Coyle
HX25228801.007	MOCNESS End	gak10	10/15/01	12:25	58.53935	148.1779	1500		Coyle
HX25228801.008	CTD56 Start	gak4	10/15/01	18:25	59.40907	149.0501	200	prim prod cast	Danielson
HX25228801.009	CTD56 End	gak4	10/15/01	18:33	59.40825	149.0516	200		Danielson
HX25228801.010	CalVET Net Tow Start	gak4	10/15/01	18:38	59.40798	149.0541	200		Hopcroft
HX25228801.011	CalVET Net Tow End	gak4	10/15/01	18:51	59.4098	149.0479	200		Hopcroft
HX25228801.012	CTD57 Start	gak4	10/15/01	18:51	59.40978	149.0479	200	cohorts #1	Hopcroft
HX25228801.013	CTD57 End	gak4	10/15/01	18:55	59.40967	149.0483	200		Hopcroft
HX25228801.014	CTD58 Start	gak4	10/15/01	19:01	59.4092	149.0488	200		Hopcroft
HX25228801.015	CTD58 End	gak4	10/15/01	19:05	59.40878	149.0493	200		Hopcroft
HX25228801.016	CTD59 Start	gak4	10/15/01	19:13	59.40807	149.0501	200	cohorts #3	Hopcroft
HX25228801.017	CTD59 End	gak4	10/15/01	19:18	59.40753	149.0506	200		Hopcroft
HX25228801.018	CTD60 Start	gak4	10/15/01	19:25	59.40702	149.0506	200	cohorts #4	Hopcroft
HX25228801.019	CTD60 End	gak4	10/15/01	19:29	59.4067	149.0505	200		Hopcroft
HX25228801.020	CTD61 Start	gak4	10/15/01	19:36	59.4061	149.0505	200	cohorts #5	Hopcroft
HX25228801.021	CTD61 End	gak4	10/15/01	19:40	59.40577	149.0504	200		Hopcroft
HX25228801.022	CTD62 Start	gak4	10/15/01	20:04	59.4083	149.0506	200		Danielson
HX25228801.023	CTD62 End	gak4	10/15/01	20:19	59.40808	149.0488	200		Danielson
HX25228801.024	CTD63 Start	gak4i	10/15/01	21:46	59.33518	148.9792	200		Danielson
HX25228801.025	CTD63 End	gak4i	10/15/01	22:03	59.3337	148.969	200		Danielson
HX25228801.026	CTD64 Start	gak5	10/15/01	22:35	59.26112	148.9076	168		Danielson
HX25228801.027	CTD64 End	gak5	10/15/01	22:49	59.25673	148.8969	168		Danielson
HX25228801.028	CalVET Net Tow Start	gak5	10/15/01	22:59	59.26142	148.9067	168		Pinchuk
HX25228801.029	CalVET Net Tow End	gak5	10/15/01	23:02	59.26019	148.9043	168		Pinchuk

HX25228801.030	CTD65 Start	gak5i	10/15/01	23:30	59.1894	148.8379	165		Danielson
HX25228801.031	CTD65 End	gak5i	10/15/01	23:44	59.1858	148.8298	165		Danielson
HX25228801.032	CTD66 Start	gak6	10/15/01	0:14	59.11638	148.7692	151		Danielson
HX25228801.033	CTD66 End	gak6	10/15/01	0:25	59.11472	148.76	151		Danielson
HX25228801.034	CalVET Net Tow Start	gak6	10/15/01	0:35	59.11632	148.7658	151		Hopcroft
HX25228801.035	CalVET Net Tow End	gak6	10/15/01	0:35	59.11628	148.7657	151		Hopcroft
HX25228801.036	CTD67 Start	gak6i	10/15/01	1:07	59.04447	148.6983	185		Danielson
HX25228801.037	CTD67 Start	gak6i	10/15/01	1:45	58.98593	148.6411	185		Danielson
HX25228801.038	CTD68 Start	gak7	10/15/01	1:52	58.9709	148.6288	240		Danielson
HX25228801.039	CTD68 End	gak7	10/15/01	2:06	58.96892	148.6171	240		Danielson
HX25228901.001	CTD69 Start	cf1	10/16/01	16:31	59.9073	148.8684	84		Danielson
HX25228901.002	CTD69 End	cf1	10/16/01	17:00	59.88068	148.8677	85		Danielson
HX25228901.003	CTD70 Start	cf2	10/16/01	17:04	59.87472	148.8687	112		Danielson
HX25228901.004	CTD70 End	cf2	10/16/01	17:04	59.874	148.8687	112		Danielson
HX25228901.005	CTD71 Start	cf3	10/16/01	17:13	59.84877	148.8664	162		Danielson
HX25228901.006	CTD71 End	cf3	10/16/01	17:27	59.84372	148.869	162		Danielson
HX25228901.007	CTD72 Start	cf4	10/16/01	17:41	59.81137	148.8688	182		Danielson
HX25228901.008	CTD72 End	cf4	10/16/01	17:53	59.80723	148.8723	182		Danielson
HX25228901.009	CTD73 Start	cf5	10/16/01	18:05	59.78337	148.8685	191		Danielson
HX25228901.010	CTD73 End	cf5	10/16/01	18:20	59.77853	148.8723	191		Danielson
HX25228901.011	CTD74 Start	cf6	10/16/01	18:38	59.7489	148.8694	191		Danielson
HX25228901.012	CTD74 End	cf6	10/16/01	18:50	59.74635	148.8706	191		Danielson
HX25228901.013	CTD75 Start	cf7	10/16/01	19:04	59.71715	148.8685	189		Danielson
HX25228901.014	CTD75 End	cf7	10/16/01	19:19	59.71477	148.8697	189		Danielson
HX25228901.015	CTD76 Start	cf8	10/16/01	19:36	59.67672	148.8684	18		Danielson
HX25228901.016	CTD76 End	cf8	10/16/01	19:36	59.67672	148.8684	18		Danielson

HX25228901.017	CTD77 Start	cf9	10/16/01	20:01	59.6498	148.8672	180		Danielson
HX25228901.018	CTD77 End	cf9	10/16/01	20:14	59.64895	148.8672	180		Danielson
HX25228901.019	CTD78 Start	cf10	10/16/01	20:29	59.61635	148.8674	178		Danielson
HX25228901.020	CTD78 End	cf10	10/16/01	20:39	59.61622	148.867	178		Danielson
HX25228901.021	CTD79 Start	cf11	10/16/01	20:56	59.58285	148.8663	178		Danielson
HX25228901.022	CTD79 End	cf11	10/16/01	21:08	59.58249	148.8659	178		Danielson
HX25228901.023	CTD80 Start	cf12	10/16/01	21:25	59.5495	148.8664	185		Danielson
HX25228901.024	CTD80 End	cf12	10/16/01	21:35	59.5494	148.8656	185		Danielson
HX25228901.025	CTD81 Start	cf13	10/16/01	21:53	59.51527	148.8652	172		Danielson
HX25228901.026	CTD81 End	cf13	10/16/01	22:05	59.51498	148.8644	172		Danielson
HX25228901.027	CTD82 Start	cf14	10/16/01	22:20	59.48318	148.8671	172		Danielson
HX25228901.028	CTD82 End	cf14	10/16/01	22:29	59.48345	148.8665	172		Danielson
HX25228901.029	CTD83 Start	cf15	10/16/01	22:49	59.4497	148.8651	183		Danielson
HX25228901.030	CTD83 End	cf15	10/16/01	23:02	59.4506	148.8605	183		Danielson
HX25228901.031	CalVET Net Tow Start	gak7	10/16/01	1:54	58.97128	148.6306	242		Hopcroft
HX25228901.032	CalVET Net Tow End	gak7	10/16/01	1:59	58.97077	148.6278	242		Hopcroft
HX25228901.033	CTD84 Start	gak7	10/16/01	2:03	58.97028	148.6268	242		Hopcroft
HX25229001.001	MOCNESS Start	he11	10/17/01	10:54	60.13075	147.1269	217		Coyle
HX25229001.002	MOCNESS End	he11	10/17/01	11:23	60.12405	147.1052	217		Coyle
HX25229001.003	MOCNESS Start	he6.5	10/17/01	12:58	60.05172	146.7372	123		Coyle
HX25229001.004	MOCNESS End	he6.5	10/17/01	13:36	60.03845	146.6968	123		Coyle
HX25229001.005	CTD85 Start	Gak1	10/18/01	00:22	59.84466	149.4665	272		Danielson
HX25229001.006	CTD85 End	Gak1	10/18/01	00:35	59.85	146.4665	272		Danielson