

GLOBEC Northeast Pacific, Coastal Gulf of Alaska

Cruise Report, R/V *Alpha Helix* (HX 271)

24 April – 15 May 2003

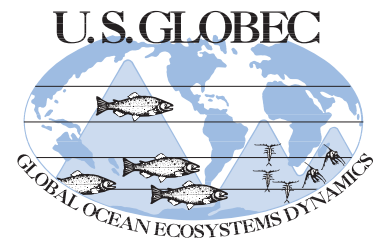


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Cruise Goals / Scientific Purpose

The GLOBEC Northeast Pacific program seeks to understand the relationship between climate variability and the success of marine fish, bird and mammal populations. In the coastal Gulf of Alaska, the program focuses on the mechanisms by which climate and weather can influence the physical - chemical structure of the coastal zone, how this in turn affects the coastal planktonic food web, and how food web variations influence distribution and recruitment success of pink salmon. Process cruises will be conducted twice in 2003. On each cruise, the aim is to visit four sites representing a diversity of physical - chemical conditions in the coastal Gulf of Alaska. At each of these core sites, rates of phytoplankton growth, zooplankton grazing and zooplankton egg production will be measured, as well as aspects of phytoplankton and zooplankton community structure. These measurements will be related to the physical - chemical environment by means of vertical profiling at the process stations themselves, and by coordinating with sampling done by R/V *Wecoma*. In addition to work at core sites, approximately one week will be spent investigating mesoscale physical features (e.g. eddies, east-west chlorophyll gradients). This work will be done in close conjunction with mesoscale survey sampling conducted by Musgrave et al. on the R/V *Wecoma* (Cruise W0305A). Comparison with data collected during 2001 process cruises (HX242, HX244, and HX247) will be important for testing hypotheses about planktonic processes, as well as understanding the effects of interannual variability.

The first 2003 process cruise focused on fully developed spring phytoplankton bloom conditions, the responses of the micro- and macrozooplankton community to the spring bloom, and the conditions leading to mesoscale variability in planktonic distribution and biological rates.

Cruise Objectives

1. Determine phytoplankton growth rates and rates of microzooplankton herbivory.
2. Determine rates of grazing on phyto- and microzooplankton by dominant copepod taxa including *Neocalanus* and *Calanus*. **(Live net collections are summarized in Table 2; Figure 1).**
3. Measure rates of egg production by copepods *Calanus*, *Pseudocalanus*, *Metridia* and others.
4. Assess vertical distribution of temperature, salinity, light, nutrients, chlorophyll and microzooplankton at core process stations **(and fine-scale grid stations (Table 3; Figure 2)).**
5. Conduct net tows (CalVET, MOCNESS) for distribution and abundance of zooplankton at core process stations. **(MOCNESS tows are summarized in Table 4; Figure 3. CalVET and CalVET53 net tows in Tables 5 and 6 and Figure 4).**
6. Coordinate and communicate with R/V *Wecoma* for study of mesoscale physical features and related chlorophyll/zooplankton gradients (using the measurements listed above).

Summaries of each of the GLOBEC projects may be found at the web site: <http://globec.coas.oregonstate.edu/groups/nep/projs.html>.

Table 1. GLOBEC Cruise Participants

Jeff Napp (Project co-PI)	Copepod grazing/egg prod., AFSC, Jeff.Napp@noaa.gov
Christine (Baier) Forcucci	Copepod grazing/egg prod., AFSC, Christine.Baier@noaa.gov
Colleen Harpold	Copepod grazing/egg prod., AFSC
Hongbin Liu	Neocalanus grazing, LUMCON, hliu@lumcon.edu
Greg Breed	Neocalanus grazing, LUMCON
Adriana Hashinaga	Neocalanus grazing, LUMCON
Erin Macrie	Microzooplankton grazing, WWU; macrie@cc.wvu.edu
Kerri Fredrickson	Microzooplankton grazing, WWU
Kelley Bright	Chlorophyll/nutrients, WWU
Franchesca Perez	Chlorophyll/nutrients, WWU

AFSC = Alaska Fisheries Science Center (NOAA); LUMCON = Louisiana Universities Marine Consortium; WWU = Western Washington University.

Summary of Cruise

See Appendix 1 (Event Log).

Daily Cruise Summary (Narrative)

24 April. Departed Seward at 1155 ADT. Steamed to shelfbreak station GAK10, conducting CTD casts, CalVET tows (samples for Hopcroft) and ring net tows (*Neocalanus* collection) at every other Seward Line station on the way out.

25 April. Arrived GAK10 at 0645 hrs and commenced 4-d cycle of process studies, conducting daytime and night-time sampling and experimental activities (dilution, grazing, and egg production) as described above. Blue water conditions prevailed, with abundant *Neocalanus* spp. copepods, low chlorophyll levels (<0.5 µg chl/liter) and abundant *Synechococcus* spp. Work at process station GAK10 was supplemented by transect work at GAK13 through GAK7 to characterize copepod and microplankton communities, nutrient and chlorophyll levels, and phytoplankton growth rates/nutrient limitation.

29 April. Just after midnight we headed back to Seward to seek medical attention for two people on board, arriving Seward Marine Center at 1205 29 April. We were also able to meet with members of the R/V *Wecoma* mesoscale science party at the dock. At 1630 we departed for Prince William Sound.

30 April. Early arrival at station PWS2 in the deep waters at the northern end of Knight Island Passage. Commenced another 4-d work cycle and successfully completed 4 sets of experiments, as well as water column and net sampling. Chlorophyll in PWS was largely subsurface in a well-defined maximum layer at 15-20 m; the microplankton assemblage was diverse and appeared to be aging, as indicated by high levels of detritus and phaeopigments. Pronounced diel vertical migration by several copepod taxa was observed, as well as intense bioluminescence especially to the south of our core study area.

4 May. Departed PWS2 just after midnight and conducted transect work on the way to the inner Seward Line. CTD casts at three to four stations each were conducted on the Hogan Bay line, the Montague Strait Line, the PWS W Line, the inner Cape Fairfield Line, and the inner Seward Line. A drifter was released just SW of the entrance to Montague Strait. The goal was to track the flow of water exiting PWS through Montague and joining the main flow of the ACC. Samples were taken at a core station on each of these short line sections for zooplankton abundance and composition (ring net, CalVET, MOCNESS) as well as for chlorophyll and nutrient levels. Water was also collected for phytoplankton growth rate/nutrient limitation assays. Once outside PWS, we established radio contact with the mesoscale survey group on R/V *Wecoma* and were able to download finescale survey sections of the inner ACC from the ftp site. Finescale survey data showed the ACC confined to stations shoreward of GAK2.

5 May. Accordingly, we began a 3.5-d work cycle at GAK1i, conducting experiments (grazing, dilution, egg production) and water column sampling as above. Each day a CTD transect with 2.5-nm spacing was conducted to ascertain the position of the ACC and its seaward frontal boundary. Transects showed core process station GAK1i to be within the region of maximum geostrophic transport in general during this work cycle. The ACC was characterized by a high biomass of phytoplankton mostly confined to the upper 10-20 m. There was a mixed assemblage of copepods, including *Neocalanus finmarchicus*, *Pseudocalanus* spp., and *Metridia pacifica*. A mixture of diatom species was observed; in particular, the presence of *Chaetoceros socialis*, the near-absence of *Thalassiosira* spp., and relatively high levels of detritus distinguished ACC waters from mid-shelf waters seaward of the salinity front (see below).

8 May. We conducted a CTD, net, and phytoplankton growth assay survey of the mid-shelf portion of the Seward Line (GAK6 to GAK2). Based on these data, we conducted one set of process experiments at GAK3, with the goal of contrasting these waters with those inshore of the ACC frontal boundary.

9 May. Weather dictated the end of sampling operations shortly after experiments were initiated at GAK3, and we spent approximately 24 hours in Three Hole Bay.

10 May. Re-emerging late, we began work to the west of the Seward Line at station PR1, historically and at present an area of extremely high spring chlorophyll concentrations as indicated by 7 and 8 May 2003 SeaWiFS imagery and broadscale survey data supplied by R/V *Wecoma*. Experiments (grazing, dilution, egg production) were set up at PR1; a drifter was then released at this location and we began transect work at intermediate PR line stations (zooplankton abundance and composition [ring net, CalVET], chlorophyll and nutrient levels, phytoplankton growth rate/nutrient limitation assays).

12 May. A second complete round of process experiments was initiated at PR6, the seaward end of the transect. A cross-trough CTD survey (5 nm spacing) of Amatouli Trough was conducted at night (stations XAT, see Chart 2) to look for bathymetric effects on hydrography, as well as to provide time series information for comparison with Amatouli transects conducted during the same general time period by R/V *Wecoma* (Musgrave) and R/V *Kilo Moana* (Kachel).

13 May. We relocated to the GAK6 area for a final 1-2 rounds of process experiments. GAK6 is the center of the mid-shelf finescale survey conducted by R/V *Wecoma*. Based on their findings and on SeaWiFS imagery we expected to find a boundary between high-chlorophyll water (inshore) and low chlorophyll water (offshore) in the vicinity of GAK7i. Just after midnight, we began a survey of the GAK6 to GAK8 portion of the Seward Line and found the green/blue boundary midway between GAK7 and GAK7i. Accordingly, we began process experiments at GAK7i during the morning of 13 May, only to find the boundary had shifted substantially seaward. Experiments (dilution, grazing, egg production) ultimately were set up with blue water rich in ciliates, *Synechococcus* spp., and cryptophytes from GAK8.

14 May. A final round of dilution and egg production experiments was set up with high chlorophyll water from GAK6. Three additional CTD transects (2.5 to 1.7 nm station spacing) conducted during the period 13 May to 14 May confirmed the dynamic nature of the green/blue water boundary position, perhaps related to high tides during this full moon period. At 0000 hrs 14 May, we commenced a diel study of the plankton community at GAK6, sampling the water column at 6-hr intervals (CTD with water collection for nutrients, HPLC pigment analysis, Flowcam; CalVET and MOCNESS tows) through 0000 hrs 15 May.

15 May. At 0700, we departed station GAK6 for Resurrection Bay, stopping at GAK5, 3 and 1 for net tows (*Neocalanus* collection) and associated CTD casts. Arrived Seward 1500 hrs.

Acknowledgements

We thank Captain Bill Rook and the crew of the R/V *Alpha Helix* for their hard work and helpful attitude during the cruise. Dave Aldrich contributed excellent marine technical support on board, while Steve Hartz assisted with shore-based data communications issues. We also thank Tom Smith and the staff at the Seward Marine Center for their help in cruise preparation and logistics.

Summary of Sampling Operations

Microplankton rate processes; water column sampling (Strom, Macri, Bright, Fredrickson, Perez)

A total of 17 dilution experiments was conducted on the cruise, all but one with water from the depth corresponding to 50% surface irradiance. Full dilution series (5 experiments) yielded phytoplankton growth and microzooplankton grazing estimates for three chlorophyll size fractions, as well as information concerning the grazing community functional response. Reduced dilution experiments (12 total) provided microzooplankton grazing and phytoplankton growth rate estimates, and allowed scope for addition of treatments to test for grazing inhibition by DMSP and growth enhancement by ammonium. All dilution experiments contained parallel nutrient-enriched (nitrate-N, phosphate-P) and unenriched treatments to test for nutrient limitation of phytoplankton growth rates, and to ensure that grazing estimates were not affected by dilution. Samples were taken from experiments for analysis of microplankton biomass and composition (inverted and epifluorescence microscopy), size-fractionated chlorophyll analysis, and algal pigment composition by HPLC. An additional 21 phytoplankton growth assays were conducted during transect work described above to gain insight into spatial patterns and environmental correlates of phytoplankton growth rates (3 chlorophyll size fractions) and degree of nutrient limitation. Five “trophic cascade” experiments (utilizing pre-incubation size fractionation to separate different microzooplankton grazer size classes from <10 µm phytoplankton cells) were conducted, each in parallel with a dilution experiment, to indicate multiple trophic level effects on nanophytoplankton and *Synechococcus* abundance. On-board FlowCAM analysis of the microplankton community (during transect and diel cycle work) and of several copepod grazing experiments was conducted. This group was also responsible for all CTD-based water column sampling (nutrients, size-fractionated chlorophyll, HPLC pigments, and preserved samples for micro- and nanoplankton analysis by inverted and epifluorescence microscopy, respectively).

Preliminary results:

1. High to very high chlorophyll levels characterized the inner and mid shelf during most of this cruise, with levels increasing dramatically and high chlorophyll spreading offshore during the last week of April. Microplankton community composition (as indicated by FlowCAM) across this high chlorophyll water was variable and appeared to be associated with water mass type.
2. Some degree of macronutrient limitation of phytoplankton growth rates, especially for the >20 µm diatom-dominated size fraction, was evident in Prince William Sound, as well as in waters just offshore of the ACC and near the seaward end of the PR transect. Growth rates of the different phytoplankton size fractions showed relationships with the water mass types as did community composition (above). The >20 µm chlorophyll size fraction generally exhibited higher nutrient-enriched intrinsic growth rates than did the smaller chlorophyll size fractions.
3. In keeping with findings from 2001, microzooplankton grazing rates were generally lowest on the large (>20 µm) phytoplankton. Substantial rates of grazing were often measured on intermediate (5 to 20 µm) and small (<5 µm) phytoplankton.

Copepod Egg Production/Diet Studies and Zooplankton Abundance (Napp, Harpold and Forcucci)

Two major activities were conducted: 1) shipboard incubation experiments for egg production, egg viability, and diet were conducted at selected stations in Prince William Sound, the Alaska Coastal Current, and the middle shelf, and 2) net sampling (MOCNESS and CalVET) for zooplankton abundance. For the shipboard incubation experiments, females of the target species (*Calanus* spp., *Pseudocalanus* spp. and *Metridia* spp.) were used when available. In addition to the plankton net tows taken at the central station within each shelf regime, CalVET samples were collected on three transects within and between regions: Prince William Sound to the Seward Line, GAK6 to GAK2, middle shelf around the perimeter of Amatouli Trough.

Activities/Preliminary Results:

- The ocean environment provided a unique opportunity to examine grazing in several very distinct natural assemblages of food particles. Prince William Sound had an “older” subsurface diatom bloom with high levels of chlorophyll degradation products. The Alaska Coastal Current had a “younger” surface diatom bloom comprised of a mixed assemblage of diatom species, and parts of the middle shelf had a very “young” diatom community that was dominated by a single species of *Thalassiosira*. Nine grazing experiments using females of the target species were conducted in these distinct environments in collaboration with Strom and co-workers. Samples for chlorophyll, microplankton community (Lugol’s and glutaraldehyde preserved), and HPLC were collected and will be analyzed to determine grazing rates and diet preferences. Particular effort was expended to conduct parallel grazing experiments for *Pseudocalanus* and *Metridia* females so that we could examine their grazing impact on the microplankton community. Community composition in Prince William Sound allowed us the opportunity to examine grazing by two *Metridia* species, *M. pacifica* and *M. okhotensis*.
- Females of all three genera were in sufficient abundance to allow egg production and viability experiments in three of the four major shelf regimes (PWS, ACC, middle shelf). Thirty egg production experiments were completed. Note that these three regions had very different food assemblages available to the females and should help us to determine the effect of food on egg production.
- All three genera produced eggs in the three regions. *Calanus marshallae* had the highest proportion of females producing eggs (virtually 100% in all regions). In Prince William Sound, a small proportion of the *M. pacifica* females produced eggs, while *M. okhotensis* females did not. Clutch size for *M. pacifica* was smaller in Prince William Sound and the ACC, than at station PR6 (middle shelf). *Pseudocalanus* spp. egg production experiments were preserved without inspection. All samples will be returned to Seattle to complete the analyses and compute the egg production rates.
- Eggs from all three genera hatched in the viability experiments (fourteen experiments in all). Viability rates will be calculated after the preserved samples are returned to our laboratory.
- Approximately 80 samples were collected to determine the carbon and nitrogen weights of the target species.
- Three to four nighttime zooplankton samples were collected at each core station using the NEP GOA GLOBEC protocol (MOCNESS 500 µm and Quad Net 150 µm mesh) to determine the concentration and depth distribution of GLOBEC target species. In addition, tows were taken on transects between regions to look at gradients and fronts (on a coarse scale) and samples were taken over an 18 hr. period on the middle shelf to look at diel migration patterns.
- Two satellite-tracked drogues (provided by P. Stabeno, NOAA/PMEL) were released to support Process Studies. The first was released just outside of Prince William Sound in the ACC to examine the path and rates of travel of water between PWS and the Seward Line. The second drifter was released at station PR1 to examine the flow around the head of Amatouli Trough.

Cruise report from Dagg’s group (Hongbin Liu, Greg Breed and Adriana Hashinaga)

During the first 2003 GLOBEC Process cruise (HX271; April 24 – May 15), we conducted 16 *Neocalanus* grazing experiments. *Neocalanus* was most abundant at the outer shelf station with all three species were observed. *Neocalanus* abundance was low at the inner-shelf station and in the Prince William Sound and at the most time only *N. flemingeri* was observed. We conducted grazing experiments mostly with *N. flemingeri* and *N. cristatus*, and only two experiments with *N. plumchrus*. In these grazing experiments, control and treatment bottles (with copepods added) were incubated for 24 hours and various samplings and measurements were conducted at the beginning and end of the incubation. Samplings and measurements include size fractionated chlorophyll *a* (< 5, 5 – 20 and > 20 µm), HPLC pigment analysis, flow cytometric analysis of picoplankton, Lugol’s preserved sea water for microzooplankton composition and abundance, and DAPI stained slides for nanoflagellate enumeration. Samples were also taken from a few (3) experiments for on-board FlowCam analysis (Courtesy Suzanne Strom). In addition, bulk mesozooplankton grazing rate was measured at 3 sites using an experimental approach similar to the *Neocalanus* grazing experiment.

Another main research activity of our group was to conduct cross-shelf sampling of *Neocalanus* for measuring their body length, body biomass and lipid content. We collected samples from 4 transects (twice along the Seward Line, one from PWS to ACC and other one on the Process Stations designed to track a high chlorophyll eddy in the west of the Seward Line). Samples were sorted and frozen, and will be brought back to our lab for further analysis. Water samples were also taken at stations along the Seward Line for flow cytometric analysis of picophytoplankton and bacterial abundance.

We also worked together with Jeff Napp's group in conducting CalVET and MOCNESS net tows regularly at each night and on some other occasions.

Summary of Gear Deployments

See Appendix I (Event Log).

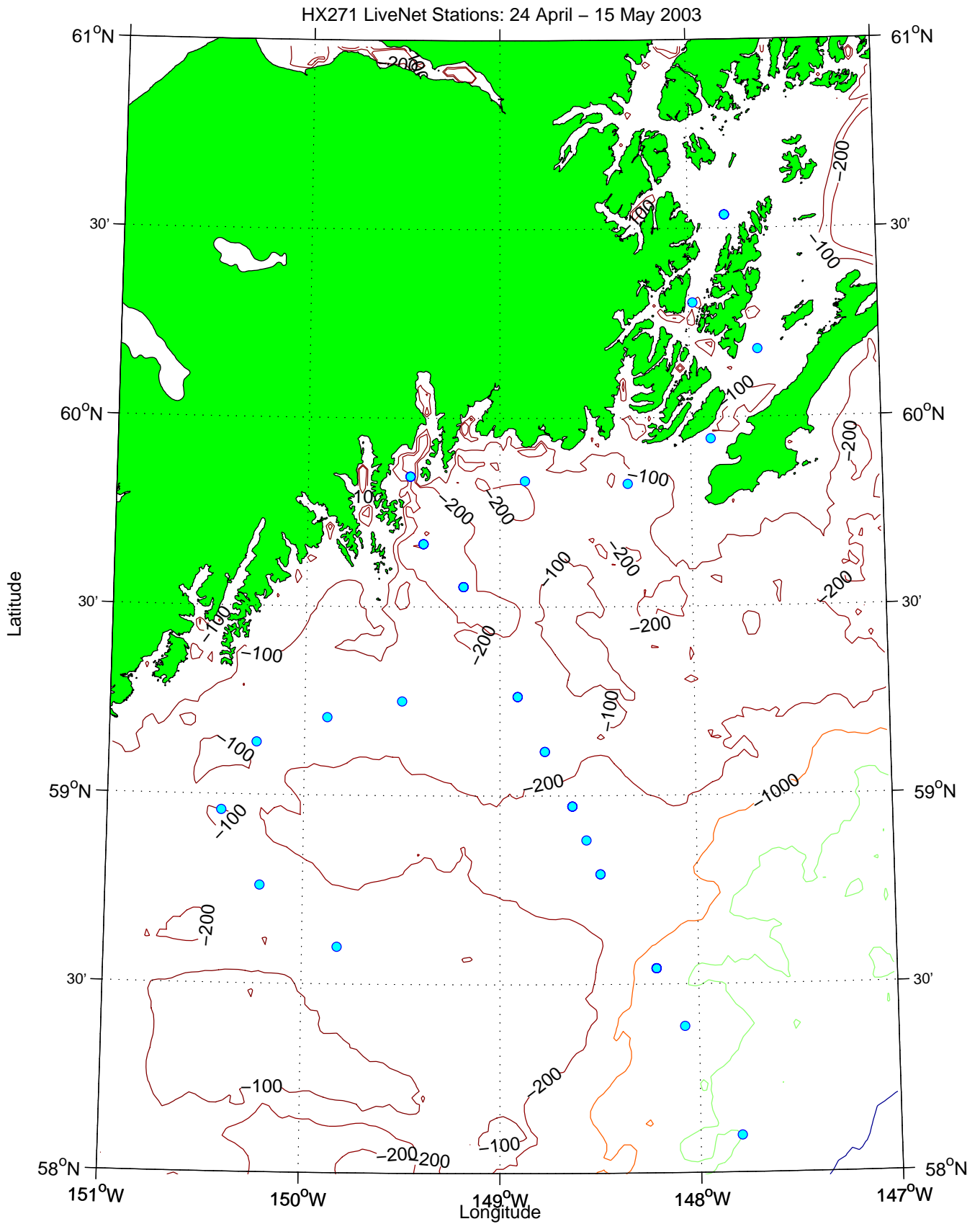


Figure 1. Locations of all stations on Alpha Helix Cruise HX271 at which LiveNet tows were done.

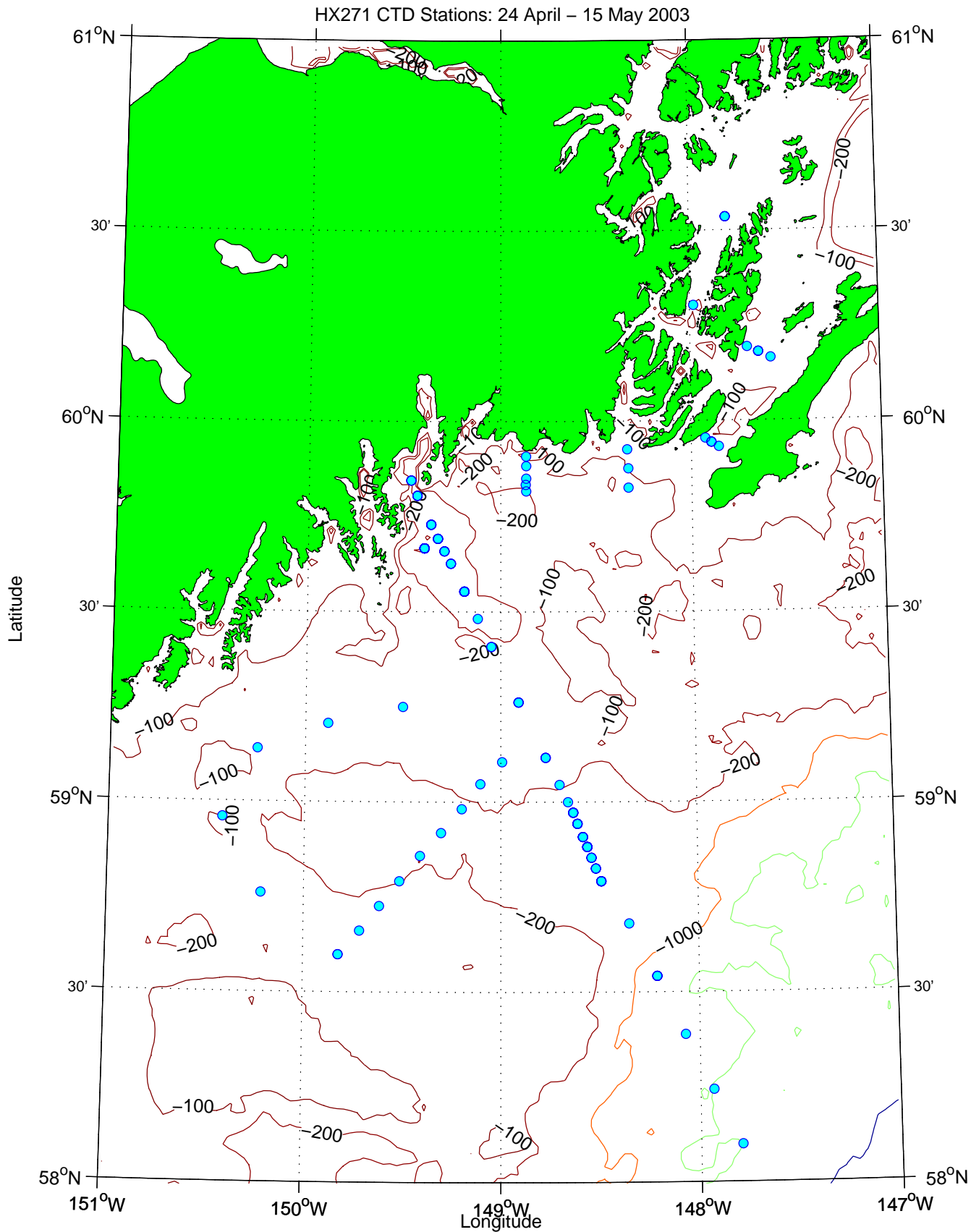


Figure 2. Locations of all stations on Alpha Helix Cruise HX271 at which CTD casts were done.

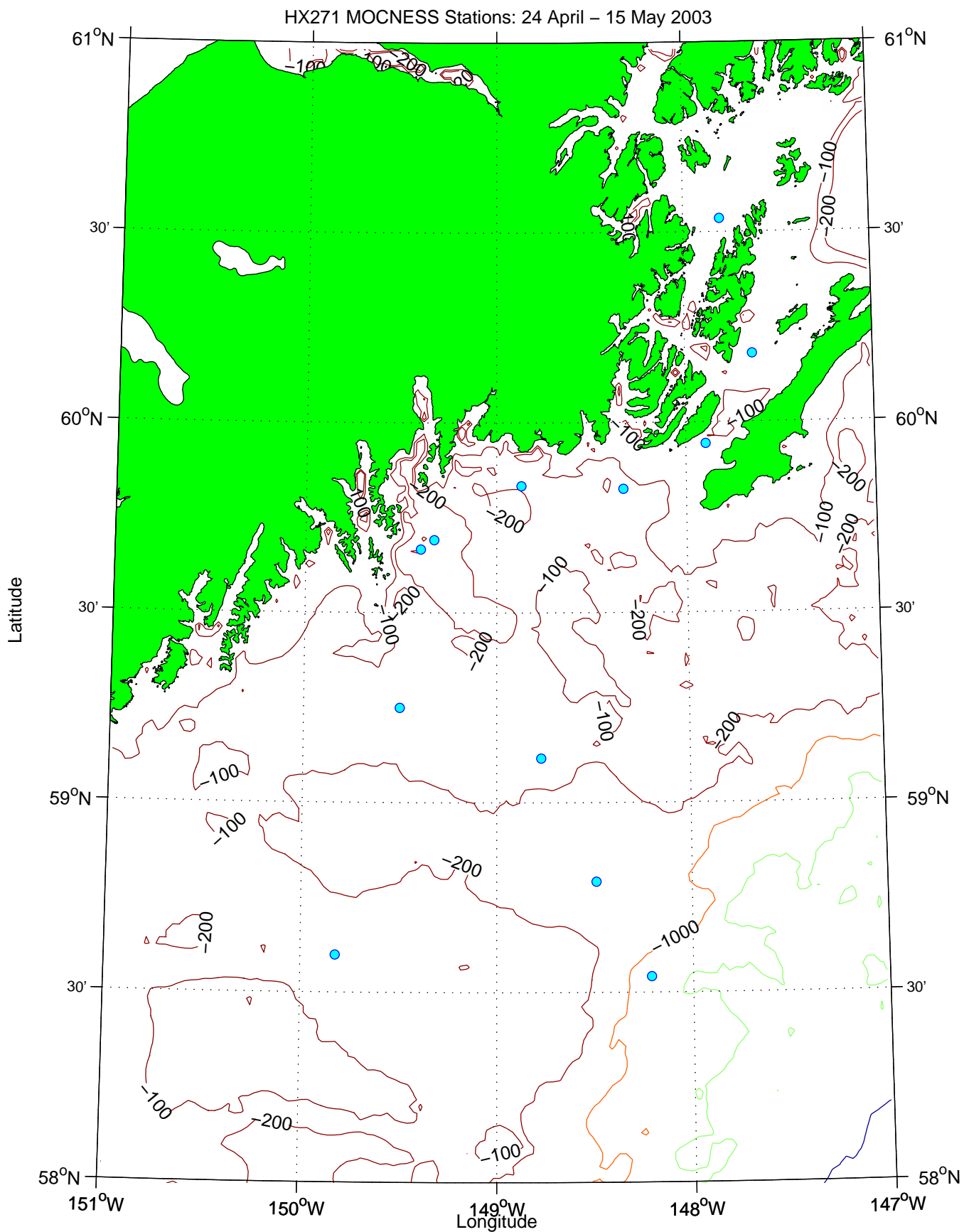


Figure 3. Locations of all stations on Alpha Helix Cruise HX271 at which MOCNESS sampling was done.

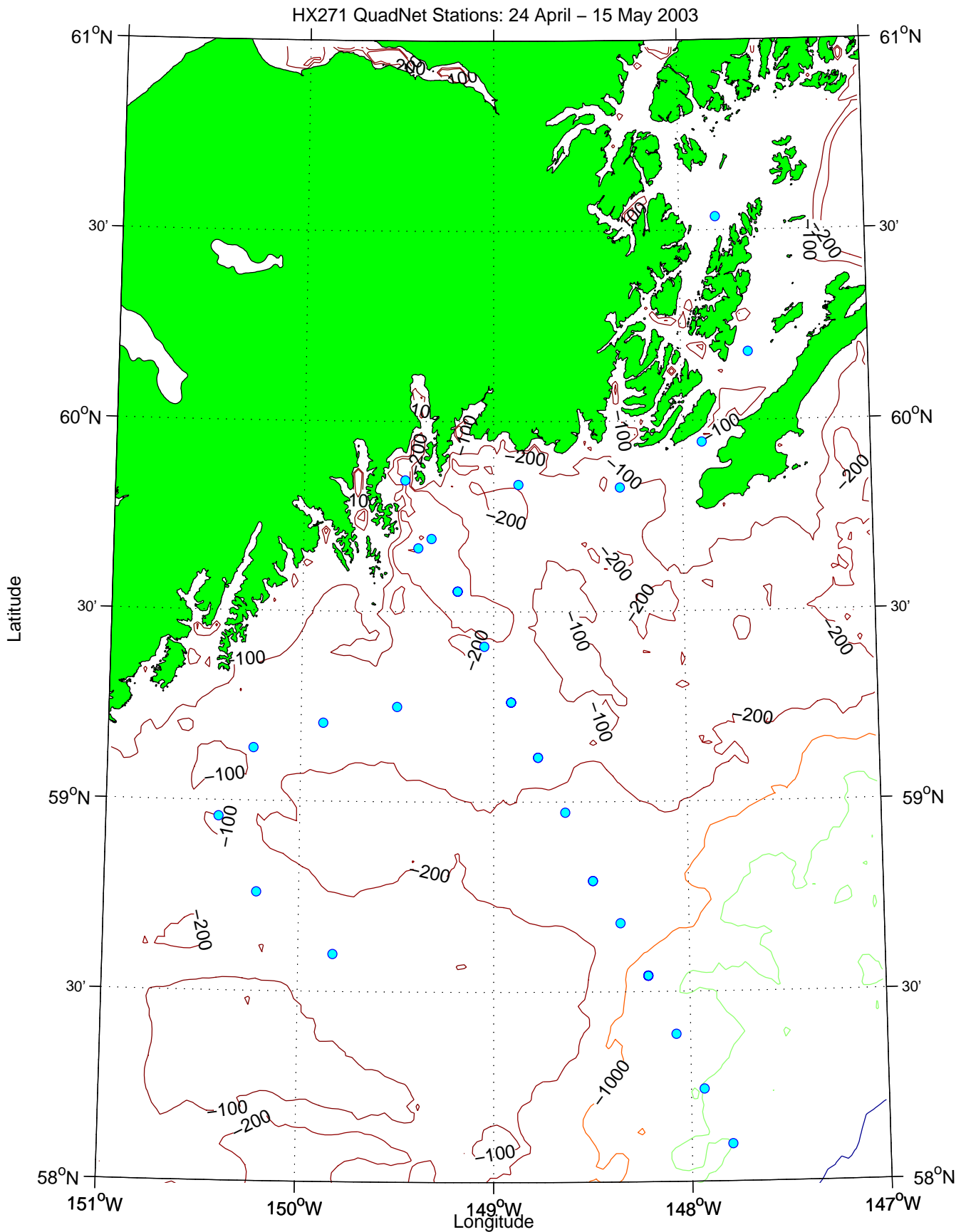


Figure 4. Locations of all stations on Alpha Helix Cruise HX271 at which CalVET net tows were done. Note that some tows had nets with both 0.053 mm and 0.150 mm mesh (early in cruise). Latter part of cruise had nets with only 0.150 mm mesh.

Table 2: Collection of Live Animals for Shipboard Experiments

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX11403.02	LiveNet	1	1		24	4	1410	59.8450	-149.4667	270	nd	IS	Ev#002; ring net.
HX11403.05	LiveNet	2	2		24	4	1646	59.5533	-149.1883	214	nd	IS	Ev#005; ring net.
HX11403.08	LiveNet	3	3		24	4	1923	59.2617	-148.9083	170	nd	MS	Ev#008; ring net.
HX11403.11	LiveNet	4	4		24	4	2200	58.9717	-148.6300	244	nd	MS	Ev#011; ring net.
HX11503.02	LiveNet	5	5		25	4	0700	58.5417	-148.2117	1465	nd	OS	Ev#014; large cod end.
HX11503.03	LiveNet	6	5		25	4	0711	58.5417	-148.2117	1465	nd	OS	Ev#015.
HX11503.04	LiveNet	7	5		25	4	0722	58.5417	-148.2117	1465	nd	OS	Ev#016.
HX11503.09	LiveNet	8	5		25	4	1241	58.5417	-148.2117	1465	50	OS	Ev#021; for lipids.
HX11503.11	LiveNet	9	6		25	4	1425	58.3883	-148.0717	1432	nd	OS	Ev#023.
HX11503.16	LiveNet	10	8		25	4	1815	58.0983	-147.7933	2089	50	OS	Ev#028; for lipids.
HX11503.18	LiveNet	11	9		25	4	2307	58.5417	-148.2117	1465	50	OS	Ev#030.
HX11503.19	LiveNet	12	9		25	4	2319	58.5417	-148.2117	1465	75	OS	Ev#031.
HX11603.03	LiveNet	13	9		26	4	0701	58.5417	-148.2117	1465	nd	OS	Ev#035; 2 net tows done.
HX11603.05	LiveNet	14	9		26	4	1230	58.5417	-148.2117	1465	nd	OS	Ev#037.
HX11603.06	LiveNet	15	9		26	4	1245	58.5417	-148.2117	1465	nd	OS	Ev#038.
HX11603.10	LiveNet	16	9		26	4	2305	58.5417	-148.2117	1465	nd	OS	Ev#042; 2 net tows done.
HX11703.03	LiveNet	17	9		27	4	0700	58.5417	-148.2117	1465	nd	OS	Ev#046.
HX11703.04	LiveNet	18	9		27	4	0733	58.5417	-148.2117	1465	nd	OS	Ev#047.
HX11703.05	LiveNet	19	9		27	4	0733	58.5417	-148.2117	1465	nd	OS	Ev#048.
HX11803.02	LiveNet	20	10		28	4	0630	58.9717	-148.6300	244	nd	MS	Ev#056.
HX11803.03	LiveNet	21	10		28	4	0631	58.9717	-148.6300	244	nd	MS	Ev#057; 2 net tows done.
HX11803.05	LiveNet	22	11		28	4	0839	58.7917	-148.4900	390	50	OS	Ev#059.
HX11803.11	LiveNet	23	13		28	4	1355	58.5417	-148.2117	1465	nd	OS	Ev#065.
HX11803.15	LiveNet	24	13		28	4	2300	58.5417	-148.2117	1465	100	OS	Ev#069; 2 net tows done.
HX12003.01	LiveNet	25	14		30	4	0700	60.5350	-147.8033	734	100	PWS	Ev#073; 2 net tows done.
HX12003.07	LiveNet	26	14		30	4	1430	60.5350	-147.8033	734	100	PWS	Ev#079; 2 net tows done.
HX12003.10	LiveNet	27	15		30	4	1845	60.3035	-147.9802	523	100	PWS	Ev#80.5b.
HX12103.02	LiveNet	28	16		1	5	0715	60.5350	-147.8033	734	nd	PWS	Ev#084; 2 net tows done.
HX12103.04	LiveNet	29	16		1	5	1321	60.5350	-147.8033	734	170	PWS	Ev#086.
HX12103.05	LiveNet	30	16		1	5	1330	60.5350	-147.8033	734	170	PWS	Ev#087; failed.
HX12103.06	LiveNet	31	16		1	5	1358	60.5350	-147.8033	734	100	PWS	Ev#088; exp6 fsw.
HX12103.07	LiveNet	32	16		1	5	1421	60.5350	-147.8033	734	3	PWS	Ev#089; exp6 wsw.
HX12203.02	LiveNet	33	16		2	5	0700	60.5350	-147.8033	734	100	PWS	Ev#095.
HX12203.03	LiveNet	34	16		2	5	0715	60.5350	-147.8033	734	100	PWS	Ev#096.
HX12203.04	LiveNet	35	16		2	5	0736	60.5350	-147.8033	734	100	PWS	Ev#097.
HX12203.05	LiveNet	36	16		2	5	0745	60.5350	-147.8033	734	100	PWS	Ev#098.
HX12203.09	LiveNet	37	16		2	5	1300	60.5350	-147.8033	734	nd	PWS	Ev#102.
HX12203.10	LiveNet	38	16		2	5	1320	60.5350	-147.8033	734	150	PWS	Ev#103.
HX12203.11	LiveNet	39	16		2	5	1350	60.5350	-147.8033	734	150	PWS	Ev#104.
HX12203.12	LiveNet	40	16		2	5	2325	60.5350	-147.8033	734	50	PWS	Ev#105.
HX12303.02	LiveNet	41	16		3	5	0715	60.5350	-147.8033	734	175	PWS	Ev#109; 2 net tows done.
HX12303.04	LiveNet	42	16		3	5	1300	60.5350	-147.8033	734	50	PWS	Ev#111.
HX12303.05	LiveNet	43	16		3	5	1315	60.5350	-147.8033	734	100	PWS	Ev#112.
HX12303.08	LiveNet	44	16		3	5	2000	60.5350	-147.8033	734	175	PWS	Ev#115; 2 net tows done.
HX12403.05	LiveNet	45	20		4	5	0612	60.1797	-147.6403	128	75	PWS	Ev#123.
HX12403.12	LiveNet	46	24		4	5	1045	59.9433	-147.8950	192	75	PWS	Ev#130.
HX12403.19	LiveNet	47	27		4	5	1550	59.8253	-148.3320	122	75	PWS	Ev#137.
HX12403.27	LiveNet	48	33		4	5	2047	59.8337	-148.8690	172	75	ACC	Ev#145.

Table 2: Collection of Live Animals for Shipboard Experiments (cont'd)

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX12503.05	LiveNet	49	36	GAKII	5	5	0205	59.6667	-149.3967	262	75	ACC	Ev#153.
HX12503.08	LiveNet	50	36	GAKII	5	5	1030	59.6667	-149.3967	262	175	ACC	Ev#156; 2 net tows done.
HX12503.10	LiveNet	51	36	GAKII	5	5	1310	59.6667	-149.3967	262	50	ACC	Ev#158; failed.
HX12503.11	LiveNet	52	36	GAKII	5	5	1320	59.6667	-149.3967	262	50	ACC	Ev#159.
HX12503.12	LiveNet	53	36	GAKII	5	5	1330	59.6667	-149.3967	262	100	ACC	Ev#160.
HX12603.02	LiveNet	54	43	GAKII	6	5	0715	59.6667	-149.3967	262	175	ACC	Ev#173.
HX12603.03	LiveNet	55	43	GAKII	6	5	0730	59.6667	-149.3967	262	175	ACC	Ev#174.
HX12603.04	LiveNet	56	43	GAKII	6	5	0800	59.6667	-149.3967	262	100	ACC	Ev#175.
HX12603.08	LiveNet	57	43	GAKII	6	5	1300	59.6667	-149.3967	262	nd	ACC	Ev#179; 100m.
HX12603.19	LiveNet	58	54	GAKII	6	5	2300	59.6667	-149.3967	262	100	ACC	Ev#190.
HX12703.02	LiveNet	59	54	GAKII	7	5	0715	59.6667	-149.3967	262	175	ACC	Ev#194.
HX12703.03	LiveNet	60	54	GAKII	7	5	0735	59.6667	-149.3967	262	175	ACC	Ev#195.
HX12703.05	LiveNet	61	54	GAKII	7	5	1230	59.6667	-149.3967	262	50	ACC	Ev#197.
HX12703.06	LiveNet	62	54	GAKII	7	5	1300	59.6667	-149.3967	262	175	ACC	Ev#198.
HX12703.07	LiveNet	63	54	GAKII	7	5	1330	59.6667	-149.3967	262	175	ACC	Ev#199.
HX12703.18	LiveNet	64	62	GAKI	7	5	2225	59.8450	-149.4667	270	100	ACC	Ev#210; Napp sample.
HX12803.01	LiveNet	65	63	GAKII	8	5	0700	59.6667	-149.3967	262	175	ACC	Ev#214.
HX12803.02	LiveNet	66	63	GAKII	8	5	0730	59.6667	-149.3967	262	175	ACC	Ev#215.
HX12803.03	LiveNet	67	63	GAKII	8	5	0750	59.6667	-149.3967	262	50	ACC	Ev#216.
HX12803.08	LiveNet	68	64	GAK6	8	5	1655	59.1167	-148.7700	160	nd	nd	Ev#221; GAK6-2 Midshelf survey.
HX12803.11	LiveNet	69	65	GAK5	8	5	1909	59.2617	-148.9083	170	50	MS	Ev#224; GAK6-2 Midshelf survey.
HX12803.16	LiveNet	70	67	GAK3	8	5	2245	59.5533	-149.1883	214	100	MS	Ev#229; GAK6-2 Midshelf survey.
HX12903.03	LiveNet	71	69	GAK3	9	5	0715	59.5533	-149.1883	214	175	MS	Ev#234.
HX12903.04	LiveNet	72	69	GAK3	9	5	0740	59.5533	-149.1883	214	50	MS	Ev#235.
HX12903.06	LiveNet	73	69	GAK3	9	5	1220	59.5533	-149.1883	214	75	MS	Ev#237.
HX13103.02	LiveNet	74	70	PR1	11	5	0715	59.2495	-149.5020	137	50	MS	Ev#243; grazing 14.
HX13103.03	LiveNet	75	70	PR1	11	5	0730	59.2495	-149.5020	137	nd	MS	Ev#244.
HX13103.05	LiveNet	76	70	PR1	11	5	0815	59.2495	-149.5020	137	130	MS	Ev#246; aborted.
HX13103.06	LiveNet	77	70	PR1	11	5	0832	59.2495	-149.5020	137	50	MS	Ev#247; aborted.
HX13103.07	LiveNet	78	70	PR1	11	5	0845	59.2495	-149.5020	137	nd	MS	Ev#248; recast.
HX13103.10	LiveNet	79	70	PR1	11	5	1312	59.2495	-149.5020	137	130	MS	Ev#251; Pr survey.
HX13103.13	LiveNet	80	71	PR2	11	5	1500	59.2057	-149.8850	160	50	MS	Ev#254; Pr survey.
HX13103.16	LiveNet	81	72	PR3	11	5	1659	59.1388	-150.2450	165	nd	MS	Ev#257; Pr survey.
HX13103.19	LiveNet	82	73	PR4	11	5	1850	58.9580	-150.4190	116	nd	MS	Ev#260; Pr survey.
HX13103.22	LiveNet	83	74	PR5	11	5	2050	58.7600	-150.2180	159	50	MS	Ev#263; Pr survey.
HX13203.09	LiveNet	84	84	PR6	12	5	1110	58.5983	-149.8230	135	130	MS	Ev#276.
HX13203.11	LiveNet	85	84	PR6	12	5	1300	58.5983	-149.8230	135	100	MS	Ev#278.
HX13203.12	LiveNet	86	84	PR6	12	5	1320	58.5983	-149.8230	135	125	MS	Ev#279.
HX13203.15	LiveNet	87	84	PR6	12	5	1825	58.5983	-149.8230	135	130	MS	Ev#282.
HX13303.06	LiveNet	88	90	GAK7I	13	5	0710	58.8817	-148.5600	300	170	OS	Ev#286.
HX13303.07	LiveNet	89	90	GAK7I	13	5	0725	58.8817	-148.5600	300	50	OS	Ev#287.
HX13303.10	LiveNet	90	91	GAK8	13	5	0915	58.7917	-148.4900	390	175	OS	Ev#290.
HX13303.20	LiveNet	91	97	GAK7	13	5	1645	58.9717	-148.6300	244	50	OS	Ev#300.
HX13403.13	LiveNet	92	109	GAK6	14	5	0835	59.1167	-148.7700	160	nd	MS	Ev#321.
HX13403.17	LiveNet	93	109	GAK6	14	5	1500	59.1167	-148.7700	160	75	MS	Ev#325.
HX13503.04	LiveNet	94	109	GAK6	14	5	0800	59.1167	-148.7700	160	50	MS	Ev#332.
HX13503.06	LiveNet	95	111	GAK3	15	5	1030	59.5533	-149.1883	214	50	IS	Ev#334.
HX13503.08	LiveNet	96	112	GAK1	15	5	1300	59.8450	-149.4667	270	50	ACC	Ev#336.

Table 3: CTD Casts

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX11403.01	CTD	1	1	GAK1	24	4	1340	59.8450	-149.4667	270	nd	IS	Ev#001.
HX11403.04	CTD	2	2	GAK3	24	4	1621	59.5533	-149.1883	214	nd	IS	Ev#004.
HX11403.07	CTD	3	3	GAK5	24	4	1900	59.2617	-148.9083	170	nd	MS	Ev#007.
HX11403.10	CTD	4	4	GAK7	24	4	2135	58.9717	-148.6300	244	nd	MS	Ev#010.
HX11503.01	CTD	5	5	GAK10	25	4	0645	58.5417	-148.2117	1465	250	OS	Ev#013.
HX11503.05	CTD	6	5	GAK10	25	4	0803	58.5417	-148.2117	1465	25	OS	Ev#017; 13m water for fsw.
HX11503.06	CTD	7	5	GAK10	25	4	0901	58.5417	-148.2117	1465	25	OS	Ev#018; 13m water for expl.
HX11503.07	CTD	8	5	GAK10	25	4	1156	58.5417	-148.2117	1465	200	OS	Ev#019; noon profile.
HX11503.10	CTD	9	6	GAK11	25	4	1347	58.3883	-148.0717	1432	nd	OS	Ev#022.
HX11503.13	CTD	10	7	GAK12	25	4	1540	58.2433	-147.9333	2160	nd	OS	Ev#025.
HX11503.15	CTD	11	8	GAK13	25	4	1740	58.0983	-147.7933	2089	nd	OS	Ev#027.
HX11503.20	CTD	12	9	GAK10	25	4	2330	58.5417	-148.2117	1465	500	OS	Ev#032.
HX11603.04	CTD	13	9	GAK10	26	4	1200	58.5417	-148.2117	1465	nd	OS	Ev#036.
HX11603.07	CTD	14	9	GAK10	26	4	1400	58.5417	-148.2117	1465	50	OS	Ev#039; 9m water for DE2 fsw.
HX11603.08	CTD	15	9	GAK10	26	4	1455	58.5417	-148.2117	1465	nd	OS	Ev#040; for Dagg grazing.
HX11603.09	CTD	16	9	GAK10	26	4	1541	58.5417	-148.2117	1465	nd	OS	Ev#041; for DE2 wsw.
HX11603.11	CTD	17	9	GAK10	26	4	2330	58.5417	-148.2117	1465	nd	OS	Ev#043.
HX11703.06	CTD	18	9	GAK10	27	4	0800	58.5417	-148.2117	1465	100	OS	Ev#049; 10m water for DE3.
HX11703.07	CTD	19	9	GAK10	27	4	0900	58.5417	-148.2117	1465	100	OS	Ev#050; 10m water for grazing 3.
HX11703.08	CTD	20	9	GAK10	27	4	1203	58.5417	-148.2117	1465	nd	OS	Ev#051.
HX11703.10	CTD	21	9	GAK10	27	4	2300	58.5417	-148.2117	1465	nd	OS	Ev#053.
HX11803.04	CTD	22	10	GAK7	28	4	0659	58.9717	-148.6300	244	nd	MS	Ev#058.
HX11803.07	CTD	23	11	GAK8	28	4	0915	58.7917	-148.4900	390	nd	OS	Ev#061.
HX11803.09	CTD	24	12	GAK9	28	4	1050	58.6800	-148.3500	279	nd	OS	Ev#063.
HX11803.10	CTD	25	13	GAK10	28	4	1230	58.5417	-148.2117	1465	1443	OS	Ev#064.
HX11803.12	CTD	26	13	GAK10	28	4	1440	58.5417	-148.2117	1465	nd	OS	Ev#066; 9 m water for fsw.
HX11803.13	CTD	27	13	GAK10	28	4	1554	58.5417	-148.2117	1465	nd	OS	Ev#067; 10L bottles failed.
HX11803.14	CTD	28	13	GAK10	28	4	1630	58.5417	-148.2117	1465	nd	OS	Ev#068; 9m water for grazing 4.
HX11803.16	CTD	28	nd	GAK10	28	4	2320	58.5417	-148.2117	1465	nd	OS	Ev#070; aborted short circuit.
HX12003.02	CTD	29	14	PWS2	30	4	0800	60.5350	-147.8033	734	100	PWS	Ev#074.
HX12003.03	CTD	30	14	PWS2	30	4	0900	60.5350	-147.8033	734	nd	PWS	Ev#075; fluor on CTD set to 3x.
HX12003.04	CTD	31	14	PWS2	30	4	1000	60.5350	-147.8033	734	50	PWS	Ev#076.
HX12003.05	CTD	32	14	PWS2	30	4	1205	60.5350	-147.8033	734	nd	PWS	Ev#077; aborted.
HX12003.06	CTD	33	14	PWS2	30	4	1323	60.5350	-147.8033	734	nd	PWS	Ev#078; aborted.
HX12003.08	CTD	34	14	PWS2	30	4	1500	60.5350	-147.8033	734	nd	PWS	Ev#080; noon cast, samples labeled CTD33.
HX12003.09	CTD	35	15	BIOLUM1	30	4	1830	60.3035	-147.9802	523	nd	PWS	Ev#80.5a.
HX12003.11	CTD	36	16	PWS2	30	4	2330	60.5350	-147.8033	734	100	PWS	Ev#081.
HX12103.03	CTD	37	16	PWS2	1	5	1200	60.5350	-147.8033	734	50	PWS	Ev#085.
HX12103.08	CTD	38	16	PWS2	1	5	1439	60.5350	-147.8033	734	3	PWS	Ev#090.
HX12103.09	CTD	39	16	PWS2	1	5	1537	60.5350	-147.8033	734	nd	PWS	Ev#091.
HX12103.10	CTD	40	16	PWS2	1	5	2330	60.5350	-147.8033	734	100	PWS	Ev#092.
HX12203.06	CTD	41	16	PWS2	2	5	0800	60.5350	-147.8033	734	nd	PWS	Ev#099.
HX12203.07	CTD	42	16	PWS2	2	5	0900	60.5350	-147.8033	734	nd	PWS	Ev#100.
HX12203.08	CTD	43	16	PWS2	2	5	1200	60.5350	-147.8033	734	250	PWS	Ev#101.
HX12203.13	CTD	44	16	PWS2	2	5	2334	60.5350	-147.8033	734	100	PWS	Ev#106.
HX12303.03	CTD	45	16	PWS2	3	5	1200	60.5350	-147.8033	734	nd	PWS	Ev#110.
HX12303.06	CTD	46	16	PWS2	3	5	1400	60.5350	-147.8033	734	nd	PWS	Ev#113; fsw.
HX12303.07	CTD	47	16	PWS2	3	5	1458	60.5350	-147.8033	734	nd	PWS	Ev#114; exp8.

Table 3: CTD Casts (cont'd)

Event#	Instr	Cast	Sta	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX12303.09	CTD	48	16	3	5	2300	60.5350	-147.8033	734	100	PWS	Ev#116.
HX12403.01	CTD	49	17	4	5	0357	60.1928	-147.6987	250	245	PWS	Ev#119.
HX12403.02	CTD	50	18	4	5	0408	60.1797	-147.6403	128	169	PWS	Ev#120.
HX12403.03	CTD	51	19	4	5	0434	60.1643	-147.5751	88	87	PWS	Ev#121.
HX12403.04	CTD	52	20	4	5	0520	60.1797	-147.6403	128	75	PWS	Ev#122; GA7.
HX12403.08	CTD	53	21	4	5	0918	59.9543	-147.9267	164	160	PWS	Ev#126.
HX12403.09	CTD	54	22	4	5	0940	59.9433	-147.8950	192	nd	PWS	Ev#127.
HX12403.10	CTD	55	23	4	5	1006	59.9317	-147.8567	161	157	PWS	Ev#128.
HX12403.11	CTD	56	24	4	5	1031	59.9433	-147.8950	192	75	PWS	Ev#129.
HX12403.16	CTD	57	25	4	5	1426	59.9259	-148.3370	121	145	PWS	Ev#134.
HX12403.17	CTD	58	26	4	5	1500	59.8757	-148.3320	71	66	PWS	Ev#135.
HX12403.18	CTD	59	27	4	5	1530	59.8253	-148.3320	122	118	PWS	Ev#136.
HX12403.22	CTD	60	28	4	5	1840	59.9083	-148.8667	40	78	ACC	Ev#140.
HX12403.23	CTD	61	29	4	5	1900	59.8833	-148.8667	114	112	ACC	Ev#141.
HX12403.24	CTD	62	30	4	5	1924	59.8500	-148.8667	161	157	ACC	Ev#142.
HX12403.25	CTD	63	31	4	5	1953	59.8167	-148.8667	182	173	ACC	Ev#143.
HX12403.26	CTD	64	32	4	5	2021	59.8337	-148.8690	172	nd	ACC	Ev#144.
HX12503.01	CTD	65	34	5	5	0040	59.6667	-149.3967	262	257	ACC	Ev#149.
HX12503.02	CTD	66	35	5	5	0120	59.7290	-149.3620	242	240	ACC	Ev#150.
HX12503.03	CTD	67	36	5	5	0152	59.6667	-149.3967	262	76	ACC	Ev#151.
HX12503.04	CTD	nd	36	5	5	nd	59.6667	-149.3967	262	nd	ACC	Ev#152; CTD cancelled/aborted.
HX12503.09	CTD	68	36	5	5	1200	59.6667	-149.3967	262	nd	ACC	Ev#157.
HX12503.13	CTD	69	36	5	5	1407	59.6667	-149.3967	262	105	ACC	Ev#161; fsw.
HX12503.14	CTD	70	36	5	5	1501	59.6667	-149.3967	262	51	ACC	Ev#162; exp9.
HX12503.15	CTD	71	36	5	5	1545	59.6667	-149.3967	262	269	ACC	Ev#163; 1st inner SL survey.
HX12503.16	CTD	72	37	5	5	1625	59.8047	-149.4350	280	276	ACC	Ev#164; 1st inner SL survey.
HX12503.17	CTD	73	38	5	5	1701	59.6667	-149.3967	262	261	ACC	Ev#165; 1st inner SL survey.
HX12503.18	CTD	74	39	5	5	1736	59.7290	-149.3620	242	240	ACC	Ev#166; 1st inner SL survey.
HX12503.19	CTD	75	40	5	5	1805	59.6917	-149.3267	230	228	ACC	Ev#167; 1st inner SL survey.
HX12503.20	CTD	76	41	5	5	1835	59.6590	-149.2927	218	214	ACC	Ev#168; 1st inner SL survey.
HX12503.21	CTD	77	42	5	5	1900	59.6267	-149.2583	213	211	ACC	Ev#169; 1st inner SL survey.
HX12503.22	CTD	78	43	5	5	2330	59.6667	-149.3967	262	101	ACC	Ev#170.
HX12603.05	CTD	79	43	6	5	0820	59.6667	-149.3967	262	75	ACC	Ev#176; 3m water for fsw.
HX12603.06	CTD	80	43	6	5	0905	59.6667	-149.3967	262	50	ACC	Ev#177; 3m water for exp10.
HX12603.07	CTD	81	43	6	5	1200	59.6667	-149.3967	262	nd	ACC	Ev#178.
HX12603.09	CTD	82	44	6	5	1545	59.4083	-149.0483	200	196	ACC	Ev#180; 2nd inner SL survey.
HX12603.10	CTD	83	45	6	5	1630	59.4817	-149.1183	205	204	ACC	Ev#181; 2nd inner SL survey.
HX12603.11	CTD	84	46	6	5	1715	59.5533	-149.1883	214	209	ACC	Ev#182; 2nd inner SL survey.
HX12603.12	CTD	85	47	6	5	1808	59.6267	-149.2583	213	211	ACC	Ev#183; 2nd inner SL survey.
HX12603.13	CTD	86	48	6	5	1820	59.6590	-149.2927	218	215	ACC	Ev#184; 2nd inner SL survey.
HX12603.14	CTD	87	49	6	5	1913	59.6917	-149.3267	230	224	ACC	Ev#185; 2nd inner SL survey.
HX12603.15	CTD	88	50	6	5	1947	59.7290	-149.3620	242	240	ACC	Ev#186; 2nd inner SL survey.
HX12603.16	CTD	89	51	6	5	2024	59.6667	-149.3967	262	258	ACC	Ev#187; 2nd inner SL survey.
HX12603.17	CTD	90	52	6	5	2100	59.8047	-149.4350	280	277	ACC	Ev#188; 2nd inner SL survey.
HX12603.18	CTD	91	53	6	5	2130	59.8450	-149.4667	270	268	ACC	Ev#189.
HX12603.20	CTD	92	54	6	5	2340	59.6667	-149.3967	262	100	ACC	Ev#191.
HX12703.04	CTD	93	54	7	5	1200	59.6667	-149.3967	262	255	ACC	Ev#196.
HX12703.08	CTD	94	54	7	5	1400	59.6667	-149.3967	262	100	ACC	Ev#200; fsw for exp11.

Table 3: CTD Casts (cont'd)

Event#	Instr	Cast Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX12703.09	CTD	95	54	7	5	1500	59.6667	-149.3967	262	50	ACC	Ev#201; for exp11.
HX12703.10	CTD	96	54	7	5	1650	59.6667	-149.3967	262	206	ACC	Ev#202; 3rd inner SL survey.
HX12703.11	CTD	97	55	7	5	1754	59.5533	-149.1883	214	210	ACC	Ev#203; 3rd inner SL survey.
HX12703.12	CTD	98	56	7	5	1828	59.6667	-149.3967	262	218	ACC	Ev#204; 3rd inner SL survey.
HX12703.13	CTD	99	57	7	5	1855	59.6590	-149.2927	218	221	ACC	Ev#205; 3rd inner SL survey.
HX12703.14	CTD	100	58	7	5	1928	59.6917	-149.3267	230	235	ACC	Ev#206; 3rd inner SL survey.
HX12703.15	CTD	101	59	7	5	2004	59.7290	-149.3620	242	255	ACC	Ev#207; 3rd inner SL survey.
HX12703.16	CTD	102	60	7	5	2040	59.6667	-149.3967	262	269	ACC	Ev#208; 3rd inner SL survey.
HX12703.17	CTD	103	61	7	5	2112	59.8047	-149.4350	280	269	ACC	Ev#209; 3rd inner SL survey.
HX12703.19	CTD	104	63	7	5	2320	59.6667	-149.3967	262	105	ACC	Ev#211; profile only.
HX12803.04	CTD	105	63	8	5	0800	59.6667	-149.3967	262	75	ACC	Ev#217; for fsw exp 12.
HX12803.05	CTD	106	63	8	5	0900	59.6667	-149.3967	262	75	ACC	Ev#218; 3m water for exp 12.
HX12803.06	CTD	107	63	8	5	1200	59.6667	-149.3967	262	250	ACC	Ev#219.
HX12803.07	CTD	108	64	8	5	1645	59.1167	-148.7700	160	nd	GAK inner	Ev#220; GAK6-2 Midshelf survey.
HX12803.10	CTD	109	65	8	5	1850	59.2617	-148.9083	170	165	GAK mid	Ev#223; GAK6-2 Midshelf survey.
HX12803.13	CTD	110	66	8	5	2045	59.4083	-149.0483	200	196	MS	Ev#226; GAK6-2 Midshelf survey.
HX12803.15	CTD	111	67	8	5	2215	59.5533	-149.1883	214	205	MS	Ev#228; GAK6-2 Midshelf survey.
HX12803.18	CTD	112	68	8	5	2355	59.6917	-149.3267	230	221	MS	Ev#231; End GAK6-2 Midshelf survey.
HX12903.05	CTD	113	69	9	5	1205	59.5533	-149.1883	214	200	MS	Ev#236; noon cast.
HX12903.07	CTD	114	69	9	5	1335	59.5533	-149.1883	214	50	MS	Ev#238; Grazing 13 fsw and Dagg lab.
HX12903.08	CTD	115	69	9	5	1420	59.5533	-149.1883	214	50	MS	Ev#239; Grazing 13 Strom and Napp.
HX13003.01	CTD	116	70	10	5	2335	59.2495	-149.5020	137	132	MS	Ev#240.
HX13103.04	CTD	117	70	11	5	0805	59.2495	-149.5020	137	50	MS	Ev#245; fr exp 14 fsw 2.5m
HX13103.08	CTD	118	70	11	5	0950	59.2495	-149.5020	137	50	MS	Ev#249; 10L for exp water.
HX13103.09	CTD	119	70	11	5	1205	59.2495	-149.5020	137	135	MS	Ev#250.
HX13103.12	CTD	120	71	11	5	1445	59.2057	-149.8850	160	155	MS	Ev#253; Pr survey.
HX13103.15	CTD	121	72	11	5	1645	59.1388	-150.2450	165	160	MS	Ev#256; Pr survey.
HX13103.18	CTD	122	73	11	5	1835	58.9580	-150.4190	116	115	MS	Ev#259; Pr survey.
HX13103.21	CTD	123	74	11	5	2030	58.7600	-150.2180	159	155	MS	Ev#262; Pr survey.
HX13103.24	CTD	124	75	11	5	2250	58.5983	-149.8230	135	130	MS	Ev#265; Pr survey.
HX13203.01	CTD	125	76	12	5	0130	58.6608	-149.7160	146	140	MS	Ev#268; XAT transect.
HX13203.02	CTD	126	77	12	5	0210	58.7260	-149.6170	183	1800	MS	Ev#269; XAT transect.
HX13203.03	CTD	127	78	12	5	0258	58.7912	-149.5150	204	200	MS	Ev#270; XAT transect.
HX13203.04	CTD	128	79	12	5	0345	58.8580	-149.4100	220	218	MS	Ev#271; XAT transect.
HX13203.05	CTD	129	80	12	5	0440	58.9188	-149.3040	237	233	MS	Ev#272; XAT transect.
HX13203.06	CTD	130	81	12	5	0520	58.9817	-149.1990	220	218	MS	Ev#273; XAT transect.
HX13203.07	CTD	131	82	12	5	0605	59.0472	-149.1040	160	156	MS	Ev#274; XAT transect.
HX13203.08	CTD	132	83	12	5	0645	59.1055	-148.9930	150	nd	MS	Ev#275; End XAT transect.
HX13203.10	CTD	133	84	12	5	1205	58.5983	-149.8230	135	130	MS	Ev#277.
HX13203.13	CTD	134	84	12	5	1400	58.5983	-149.8230	135	130	MS	Ev#280.
HX13203.14	CTD	135	84	12	5	1515	58.5983	-149.8230	135	50	MS	Ev#281.
HX13303.01	CTD	136	85	13	5	0005	59.1167	-148.7700	160	155	MS	Ev#283*; GAK survey (GAK6-GAK9).
HX13303.02	CTD	137	86	13	5	0055	59.0450	-148.7000	192	185	MS	Ev#283*; GAK survey (GAK6-GAK9).
HX13303.03	CTD	138	87	13	5	0140	58.9717	-148.6300	244	240	MS	Ev#283*; GAK survey (GAK6-GAK9).
HX13303.04	CTD	139	88	13	5	0230	58.8817	-148.5600	300	298	OS	Ev#284; GAK survey (GAK6-GAK9).
HX13303.05	CTD	140	89	13	5	0325	58.7917	-148.4900	390	nd	OS	Ev#285; End GAK survey (GAK6-GAK9).
HX13303.08	CTD	141	90	13	5	0800	58.8817	-148.5600	300	100	OS	Ev#288.
HX13303.09	CTD	142	91	13	5	0854	58.7917	-148.4900	390	80	OS	Ev#289.

Table 3: CTD Casts (cont'd)

Event#	Instr	Cast	Sta	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX13303.11	CTD	143	91	13	5	1005	58.7917	-148.4900	390	50	OS	Ev#291; water for exps 16.
HX13303.12	CTD	144	91	13	5	1209	58.7917	-148.4900	390	290	OS	Ev#292; Survey OS2/noon profile.
HX13303.13	CTD	145	91	13	5	1220	58.7917	-148.4900	390	290	OS	Ev#293; recast of noon profile (forgot to trigger bottle).
HX13303.14	CTD	146	92	13	5	1340	58.8253	-148.5170	296	290	OS	Ev#294; Survey OS2.
HX13303.15	CTD	147	93	13	5	1410	58.8532	-148.5390	296	nd	OS	Ev#295; Survey OS2.
HX13303.16	CTD	148	94	13	5	1450	58.8817	-148.5600	300	295	OS	Ev#296; Survey OS2.
HX13303.17	CTD	149	95	13	5	1530	58.9083	-148.5820	260	249	OS	Ev#297; Survey OS2.
HX13303.18	CTD	150	96	13	5	1605	58.9430	-148.6090	253	252	OS	Ev#298; Survey OS2.
HX13303.19	CTD	151	97	13	5	1634	58.9717	-148.6300	244	240	OS	Ev#299; Survey OS2.
HX13303.21	CTD	152	97	13	5	1704	58.9717	-148.6300	244	nd	OS	Ev#301; start 30 min time series.
HX13303.22	CTD	153	97	13	5	1734	58.9717	-148.6300	244	237	OS	Ev#302; end time series.
HX13303.23	CTD	154	97	13	5	1800	58.9717	-148.6300	244	100	OS	Ev#303; Survey OS3.
HX13303.24	CTD	155	98	13	5	1830	58.9430	-148.6090	253	100	OS	Ev#304; Survey OS3.
HX13303.25	CTD	156	99	13	5	1855	58.9083	-148.5820	260	125	OS	Ev#305.
HX13303.26	CTD	157	100	13	5	1918	58.8817	-148.5600	300	120	OS	Ev#306.
HX13303.27	CTD	158	101	13	5	2330	58.7917	-148.4900	390	288	OS	Ev#307.
HX13403.02	CTD	159	102	14	5	0100	58.8253	-148.5170	296	100	OS	Ev#310; OS4 survey.
HX13403.03	CTD	160	103	14	5	0122	58.8532	-148.5390	296	100	OS	Ev#311; OS4 survey.
HX13403.04	CTD	161	104	14	5	0115	58.8817	-148.5600	300	100	OS	Ev#312; OS4 survey.
HX13403.05	CTD	162	105	14	5	0210	58.9083	-148.5820	260	100	OS	Ev#313; OS4 survey.
HX13403.06	CTD	163	106	14	5	0235	58.9430	-148.6090	253	100	OS	Ev#314; OS4 survey.
HX13403.07	CTD	164	107	14	5	0258	58.9717	-148.6300	244	100	OS	Ev#315; OS4 survey.
HX13403.08	CTD	165	108	14	5	0320	58.9995	-148.6570	240	100	OS	Ev#316; end OS4 survey.
HX13403.09	CTD	166	109	14	5	0605	59.1167	-148.7700	160	144	MS	Ev#317; fsw for exp 17.
HX13403.12	CTD	167	109	14	5	0800	59.1167	-148.7700	160	145	MS	Ev#320; exp 17 water 2.5m.
HX13403.14	CTD	168	109	14	5	1205	59.1167	-148.7700	160	nd	MS	Ev#322.
HX13403.18	CTD	169	109	14	5	1800	59.1167	-148.7700	160	146	MS	Ev#326.
HX13503.01	CTD	170	109	15	5	0000	59.1167	-148.7700	160	147	MS	Ev#329.
HX13503.05	CTD	171	110	15	5	0820	59.2617	-148.9083	170	nd	MS	Ev#333.
HX13503.07	CTD	172	111	15	5	1040	59.5533	-149.1883	214	210	IS	Ev#335.
HX13503.09	CTD	173	112	15	5	1315	59.8450	-149.4667	270	269	ACC	Ev#337.

Table 4: MOCNESS Sampling

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX11603.02	MOC	1	9	GAK10	26	4	0026	58.5417	-148.2117	1465	100	OS	Ev#034.
HX11703.02	MOC	2	9	GAK10	27	4	0020	58.5417	-148.2117	1465	nd	OS	Ev#045.
HX11803.01	MOC	3	9	GAK10	28	4	0000	58.5417	-148.2117	1465	100	OS	Ev#055.
HX11903.01	MOC	4	13	GAK10	29	4	0010	58.5417	-148.2117	1465	100	OS	Ev#072.
HX12103.01	MOC	5	16	PWS2	1	5	0002	60.5350	-147.8033	734	nd	PWS	Ev#083.
HX12203.01	MOC	6	16	PWS2	2	5	0015	60.5350	-147.8033	734	100	PWS	Ev#094.
HX12303.01	MOC	7	16	PWS2	3	5	1218	60.5350	-147.8033	734	100	PWS	Ev#108.
HX12303.11	MOC	8	16	PWS2	3	5	2345	60.5350	-147.8033	734	100	PWS	Ev#118.
HX12403.07	MOC	9	20	HB2	4	5	0826	60.1797	-147.6403	128	166	PWS	Ev#125.
HX12403.14	MOC	10	24	MS2	4	5	1122	59.9433	-147.8950	192	nd	PWS	Ev#132.
HX12403.21	MOC	11	27	PWSW3	4	5	1630	59.8253	-148.3320	122	114	PWS	Ev#139.
HX12403.29	MOC	12	33	CF3I	4	5	2120	59.8337	-148.8690	172	166	ACC	Ev#147.
HX12403.30	MOC	13	33	CF3I	4	5	2230	59.8337	-148.8690	172	10	ACC	Ev#148; surface recast.
HX12503.07	MOC	14	36	GAK1I	5	5	0235	59.6667	-149.3967	262	200	ACC	Ev#155.
HX12603.01	MOC	15	43	GAK1I	6	5	0001	59.6667	-149.3967	262	105	ACC	Ev#172.
HX12703.01	MOC	16	54	GAK1I	7	5	0008	59.6667	-149.3967	262	100	ACC	Ev#193.
HX12703.21	MOC	17	63	GAK1I	7	5	2355	59.6667	-149.3967	262	100	ACC	Ev#213.
HX12903.02	MOC	18	68	GAK2	9	5	0032	59.6917	-149.3267	230	100	MS	Ev#233.
HX13103.01	MOC	19	70	PR1	11	5	0008	59.2495	-149.5020	137	100	MS	Ev#242.
HX13103.26	MOC	20	75	PR6	11	5	2359	58.5983	-149.8230	135	100	MS	Ev#267.
HX13403.01	MOC	21	101	GAK8	14	5	0011	58.7917	-148.4900	390	100	OS	Ev#309.
HX13403.11	MOC	22	109	GAK6	14	5	0700	59.1167	-148.7700	160	140	MS	Ev#319.
HX13403.16	MOC	23	109	GAK6	14	5	1252	59.1167	-148.7700	160	142	MS	Ev#324.
HX13403.20	MOC	24	109	GAK6	14	5	1850	59.1167	-148.7700	160	140	MS	Ev#328.
HX13503.03	MOC	25	109	GAK6	15	5	0045	59.1167	-148.7700	160	150	MS	Ev#331.

Table 5: Quad053_150 Net Collections (2 nets of 0.053mm & 2 nets of 0.150 mm mesh)

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX11403.03	Quad053_150	1	1	GAK1	24	4	1424	59.8450	-149.4667	270	nd	IS	Ev#003; CalVET.
HX11403.06	Quad053_150	2	2	GAK3	24	4	1655	59.5533	-149.1883	214	nd	IS	Ev#006.
HX11403.09	Quad053_150	3	3	GAK5	24	4	1930	59.2617	-148.9083	170	nd	MS	Ev#009; CalVET.
HX11403.12	Quad053_150	4	4	GAK7	24	4	2210	58.9717	-148.6300	244	nd	MS	Ev#012; CalVET.
HX11503.08	Quad053_150	5	5	GAK10	25	4	1230	58.5417	-148.2117	1465	nd	OS	Ev#020.
HX11503.12	Quad053_150	6	6	GAK11	25	4	1430	58.3883	-148.0717	1432	nd	OS	Ev#024.
HX11503.14	Quad053_150	7	7	GAK12	25	4	1635	58.2433	-147.9333	2160	nd	OS	Ev#026; did a recast.
HX11503.17	Quad053_150	8	8	GAK13	25	4	1824	58.0983	-147.7933	2089	nd	OS	Ev#029.
HX11603.01	Quad053_150	9	9	GAK10	26	4	0004	58.5417	-148.2117	1465	100	OS	Ev#033.
HX11703.01	Quad053_150	10	9	GAK10	27	4	0004	58.5417	-148.2117	1465	nd	OS	Ev#044.
HX11703.11	Quad053_150	11	9	GAK10	27	4	2340	58.5417	-148.2117	1465	100	OS	Ev#054.
HX11803.06	Quad053_150	12	11	GAK8	28	4	0856	58.7917	-148.4900	390	nd	OS	Ev#060.
HX11803.08	Quad053_150	13	12	GAK9	28	4	1040	58.6800	-148.3500	279	nd	OS	Ev#062.
HX11803.17	Quad053_150	14	13	GAK10	28	4	2340	58.5417	-148.2117	1465	100	OS	Ev#071; 0.053 mesh nets torn; later deploy as Quad150.

Table 6: Quad 150 Net Collections (0.150 mm nets only)

Event#	Instr	Cast	Sta	Sta	Sta	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
				sid										
HX12003.12	Quad150	15	16	PWS2	30	4		2345	60.5350	-147.8033	734	100	PWS	Ev#082; prev. deploy as Quad053_150.
HX12103.11	Quad150	16	16	PWS2	1	5		2340	60.5350	-147.8033	734	100	PWS	Ev#093.
HX12203.14	Quad150	17	16	PWS2	2	5		2344	60.5350	-147.8033	734	nd	PWS	Ev#107.
HX12303.10	Quad150	18	16	PWS2	3	5		2325	60.5350	-147.8033	734	100	PWS	Ev#117.
HX12403.06	Quad150	19	20	HB2	4	5		0627	60.1797	-147.6403	128	169	PWS	Ev#124.
HX12403.13	Quad150	20	24	MS2	4	5		1100	59.9433	-147.8950	192	175	PWS	Ev#131.
HX12403.20	Quad150	21	27	PWSW3	4	5		1610	59.8253	-148.3320	122	100	PWS	Ev#138.
HX12403.28	Quad150	22	33	CF31	4	5		2100	59.8337	-148.8690	172	165?	ACC	Ev#146.
HX12503.06	Quad150	23	36	GAK11	5	5		0215	59.6667	-149.3967	262	175	ACC	Ev#154.
HX12503.23	Quad150	24	43	GAK11	5	5		2345	59.6667	-149.3967	262	100	ACC	Ev#171.
HX12603.21	Quad150	25	54	GAK11	6	5		2350	59.6667	-149.3967	262	100	ACC	Ev#192.
HX12703.20	Quad150	26	63	GAK11	7	5		2342	59.6667	-149.3967	262	100	ACC	Ev#212.
HX12803.09	Quad150	27	64	GAK6	8	5		1710	59.1167	-148.7700	160	nd	nd	Ev#222; GAK6-2 Midshelf survey.
HX12803.12	Quad150	28	65	GAK5	8	5		1915	59.2617	-148.9083	170	100	MS	Ev#225; GAK6-2 Midshelf survey.
HX12803.14	Quad150	29	66	GAK4	8	5		2100	59.4083	-149.0483	200	100	MS	Ev#227; GAK6-2 Midshelf survey.
HX12803.17	Quad150	30	67	GAK3	8	5		2250	59.5533	-149.1883	214	100	MS	Ev#230; GAK6-2 Midshelf survey.
HX12903.01	Quad150	31	68	GAK2	9	5		0015	59.6917	-149.3267	230	100	MS	Ev#232.
HX13003.02	Quad150	32	70	PR1	10	5		2350	59.2495	-149.5020	137	100	MS	Ev#241.
HX13103.14	Quad150	33	71	PR2	11	5		1507	59.2057	-149.8850	160	158	MS	Ev#255; Pr survey; 2 casts?
HX13103.17	Quad150	34	72	PR3	11	5		1715	59.1388	-150.2450	165	nd	MS	Ev#258; Pr survey.
HX13103.20	Quad150	35	73	PR4	11	5		1700	58.9580	-150.4190	116	117	MS	Ev#261; Pr survey.
HX13103.23	Quad150	36	74	PR5	11	5		2105	58.7600	-150.2180	159	155	MS	Ev#264; Pr survey.
HX13103.25	Quad150	37	75	PR6	11	5		2335	58.5983	-149.8230	135	100	MS	Ev#266.
HX13303.28	Quad150	38	101	GAK8	13	5		2350	58.7917	-148.4900	390	100	OS	Ev#308.
HX13403.10	Quad150	39	109	GAK6	14	5		0631	59.1167	-148.7700	160	145	MS	Ev#318.
HX13403.15	Quad150	40	109	GAK6	14	5		1225	59.1167	-148.7700	160	147	MS	Ev#323.
HX13403.19	Quad150	41	109	GAK6	14	5		1815	59.1167	-148.7700	160	145	MS	Ev#327.
HX13503.02	Quad150	42	109	GAK6	15	5		0016	59.1167	-148.7700	160	145	MS	Ev#330.

APPENDIX I

HX271 EVENT LOG

EVENT LOG CONTENTS

Column Label

Event#
Instrument (Instr)

Cast
Station (Sta)
Station Standard (Sta std)
Day
Month (Mos)
Time
Latitude (Lat)
Longitude (Long)
Water Depth
Cast Depth
Comments

Description

Unique identifier for each line of event log
CTD: Conductivity Temperature Depth profile collected with Seabird SBE with 5 liter rosette, fluorescence;
MOC: 1m² MOCNESS with 0.505 mm mesh;
LiveNet: 0.75 m diameter ring net with 0.200 mm mesh for collecting animals for experiments;
CalVET: quantitative zooplankton sampling with 25 cm diameter CalVET net, equipped with 0.150 mm mesh; towed vertically;
CalVET53: zooplankton sampling with a 25 cm diameter; Sequence # for a particular instrument

Local time basis
Local time basis
Local time
Decimal degrees; north is positive
Decimal degrees; east is positive
Depth of bottom
Maximum depth of deployment
Ev#xxx identifies the sequential event number during the cruise

Appendix I: Event Log

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX11403.01	CTD	1	1	GAK1	24	4	1340	59.8450	-149.4667	270	nd	IS	Ev#001.
HX11403.02	LiveNet	1	1	GAK1	24	4	1410	59.8450	-149.4667	270	nd	IS	Ev#002; ring net.
HX11403.03	Quad053_150	1	1	GAK1	24	4	1424	59.8450	-149.4667	270	nd	IS	Ev#003; CalVET.
HX11403.04	CTD	2	2	GAK3	24	4	1621	59.5533	-149.1883	214	nd	IS	Ev#004.
HX11403.05	LiveNet	2	2	GAK3	24	4	1646	59.5533	-149.1883	214	nd	IS	Ev#005; ring net.
HX11403.06	Quad053_150	2	2	GAK3	24	4	1655	59.5533	-149.1883	214	nd	IS	Ev#006.
HX11403.07	CTD	3	3	GAK5	24	4	1900	59.2617	-148.9083	170	nd	MS	Ev#007.
HX11403.08	LiveNet	3	3	GAK5	24	4	1923	59.2617	-148.9083	170	nd	MS	Ev#008; ring net.
HX11403.09	Quad053_150	3	3	GAK5	24	4	1930	59.2617	-148.9083	170	nd	MS	Ev#009; CalVET.
HX11403.10	CTD	4	4	GAK7	24	4	2135	58.9717	-148.6300	244	nd	MS	Ev#010.
HX11403.11	LiveNet	4	4	GAK7	24	4	2200	58.9717	-148.6300	244	nd	MS	Ev#011; ring net.
HX11403.12	Quad053_150	4	4	GAK7	24	4	2210	58.9717	-148.6300	244	nd	MS	Ev#012; CalVET.
HX11503.01	CTD	5	5	GAK10	25	4	0645	58.5417	-148.2117	1465	250	OS	Ev#013.
HX11503.02	LiveNet	5	5	GAK10	25	4	0700	58.5417	-148.2117	1465	nd	OS	Ev#014; large cod end.
HX11503.03	LiveNet	6	5	GAK10	25	4	0711	58.5417	-148.2117	1465	nd	OS	Ev#015.
HX11503.04	LiveNet	7	5	GAK10	25	4	0722	58.5417	-148.2117	1465	nd	OS	Ev#016.
HX11503.05	CTD	6	5	GAK10	25	4	0803	58.5417	-148.2117	1465	25	OS	Ev#017; 13m water for fsw.
HX11503.06	CTD	7	5	GAK10	25	4	0901	58.5417	-148.2117	1465	25	OS	Ev#018; 13m water for expl.
HX11503.07	CTD	8	5	GAK10	25	4	1156	58.5417	-148.2117	1465	200	OS	Ev#019; noon profile.
HX11503.08	Quad053_150	5	5	GAK10	25	4	1230	58.5417	-148.2117	1465	nd	OS	Ev#020.
HX11503.09	LiveNet	8	5	GAK10	25	4	1241	58.5417	-148.2117	1465	50	OS	Ev#021; for lipids.
HX11503.10	CTD	9	6	GAK11	25	4	1347	58.3883	-148.0717	1432	nd	OS	Ev#022.
HX11503.11	LiveNet	9	6	GAK11	25	4	1425	58.3883	-148.0717	1432	nd	OS	Ev#023.
HX11503.12	Quad053_150	6	6	GAK11	25	4	1430	58.3883	-148.0717	1432	nd	OS	Ev#024.
HX11503.13	CTD	10	7	GAK12	25	4	1540	58.2433	-147.9333	2160	nd	OS	Ev#025.
HX11503.14	Quad053_150	7	7	GAK12	25	4	1635	58.2433	-147.9333	2160	nd	OS	Ev#026; did a recast.
HX11503.15	CTD	11	8	GAK13	25	4	1740	58.0983	-147.7933	2089	nd	OS	Ev#027.
HX11503.16	LiveNet	10	8	GAK13	25	4	1815	58.0983	-147.7933	2089	50	OS	Ev#028; for lipids.
HX11503.17	Quad053_150	8	8	GAK13	25	4	1824	58.0983	-147.7933	2089	nd	OS	Ev#029.
HX11503.18	LiveNet	11	9	GAK10	25	4	2307	58.5417	-148.2117	1465	50	OS	Ev#030.
HX11503.19	LiveNet	12	9	GAK10	25	4	2319	58.5417	-148.2117	1465	75	OS	Ev#031.
HX11503.20	CTD	12	9	GAK10	25	4	2330	58.5417	-148.2117	1465	500	OS	Ev#032.
HX11603.01	Quad053_150	9	9	GAK10	26	4	0004	58.5417	-148.2117	1465	100	OS	Ev#033.
HX11603.02	MOC	1	9	GAK10	26	4	0026	58.5417	-148.2117	1465	100	OS	Ev#034.
HX11603.03	LiveNet	13	9	GAK10	26	4	0701	58.5417	-148.2117	1465	nd	OS	Ev#035; 2 net tows done.
HX11603.04	CTD	13	9	GAK10	26	4	1200	58.5417	-148.2117	1465	nd	OS	Ev#036.
HX11603.05	LiveNet	14	9	GAK10	26	4	1230	58.5417	-148.2117	1465	nd	OS	Ev#037.
HX11603.06	LiveNet	15	9	GAK10	26	4	1245	58.5417	-148.2117	1465	nd	OS	Ev#038.
HX11603.07	CTD	14	9	GAK10	26	4	1400	58.5417	-148.2117	1465	50	OS	Ev#039; 9m water for DE2 fsw.
HX11603.08	CTD	15	9	GAK10	26	4	1455	58.5417	-148.2117	1465	nd	OS	Ev#040; for Dagg grazing.
HX11603.09	CTD	16	9	GAK10	26	4	1541	58.5417	-148.2117	1465	nd	OS	Ev#041; for DE2 wsw.
HX11603.10	LiveNet	16	9	GAK10	26	4	2305	58.5417	-148.2117	1465	nd	OS	Ev#042; 2 net tows done.
HX11603.11	CTD	17	9	GAK10	26	4	2330	58.5417	-148.2117	1465	nd	OS	Ev#043.
HX11703.01	Quad053_150	10	9	GAK10	27	4	0004	58.5417	-148.2117	1465	nd	OS	Ev#044.
HX11703.02	MOC	2	9	GAK10	27	4	0020	58.5417	-148.2117	1465	nd	OS	Ev#045.
HX11703.03	LiveNet	17	9	GAK10	27	4	0700	58.5417	-148.2117	1465	nd	OS	Ev#046.
HX11703.04	LiveNet	18	9	GAK10	27	4	0717	58.5417	-148.2117	1465	nd	OS	Ev#047.
HX11703.05	LiveNet	19	9	GAK10	27	4	0733	58.5417	-148.2117	1465	nd	OS	Ev#048.

Appendix I: Event Log (Cont'd)

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX11703.06	CTD	18	9	GAK10	27	4	0800	58.5417	-148.2117	1465	100	OS	Ev#049; 10m water for DE3.
HX11703.07	CTD	19	9	GAK10	27	4	0900	58.5417	-148.2117	1465	100	OS	Ev#050; 10m water for grazing 3.
HX11703.08	CTD	20	9	GAK10	27	4	1203	58.5417	-148.2117	1465	nd	OS	Ev#051.
HX11703.09	Egg Transfe	nd	9	GAK10	27	4	1740	58.5417	-148.2117	1465	nd	OS	Ev#052.
HX11703.10	CTD	21	9	GAK10	27	4	2300	58.5417	-148.2117	1465	nd	OS	Ev#053.
HX11703.11	Quad053_150	11	9	GAK10	27	4	2340	58.5417	-148.2117	1465	100	OS	Ev#054.
HX11803.01	MOC	3	9	GAK10	28	4	0000	58.5417	-148.2117	1465	100	OS	Ev#055.
HX11803.02	LiveNet	20	10	GAK7	28	4	0630	58.9717	-148.6300	244	nd	MS	Ev#056.
HX11803.03	LiveNet	21	10	GAK7	28	4	0631	58.9717	-148.6300	244	nd	MS	Ev#057; 2 net tows done.
HX11803.04	CTD	22	10	GAK7	28	4	0659	58.9717	-148.6300	244	nd	MS	Ev#058.
HX11803.05	LiveNet	22	11	GAK8	28	4	0839	58.7917	-148.4900	390	50	OS	Ev#059.
HX11803.06	Quad053_150	12	11	GAK8	28	4	0856	58.7917	-148.4900	390	nd	OS	Ev#060.
HX11803.07	CTD	23	11	GAK8	28	4	0915	58.7917	-148.4900	390	nd	OS	Ev#061.
HX11803.08	Quad053_150	13	12	GAK9	28	4	1040	58.6800	-148.3500	279	nd	OS	Ev#062.
HX11803.09	CTD	24	12	GAK9	28	4	1050	58.6800	-148.3500	279	nd	OS	Ev#063.
HX11803.10	CTD	25	13	GAK10	28	4	1230	58.5417	-148.2117	1465	1443	OS	Ev#064.
HX11803.11	LiveNet	23	13	GAK10	28	4	1355	58.5417	-148.2117	1465	nd	OS	Ev#065.
HX11803.12	CTD	26	13	GAK10	28	4	1440	58.5417	-148.2117	1465	nd	OS	Ev#066; 9 m water for fsw.
HX11803.13	CTD	27	13	GAK10	28	4	1554	58.5417	-148.2117	1465	nd	OS	Ev#067; 10L bottles failed.
HX11803.14	CTD	28	13	GAK10	28	4	1630	58.5417	-148.2117	1465	nd	OS	Ev#068; 9m water for grazing 4.
HX11803.15	LiveNet	24	13	GAK10	28	4	2300	58.5417	-148.2117	1465	100	OS	Ev#069; 2 net tows done.
HX11803.16	CTD	nd	13	GAK10	28	4	2320	58.5417	-148.2117	1465	nd	OS	Ev#070; aborted short circuit.
HX11803.17	Quad053_150	14	13	GAK10	28	4	2340	58.5417	-148.2117	1465	100	OS	Ev#071; 0.053 mesh nets torn; later deploy as Quad150.
HX11903.01	MOC	4	13	GAK10	29	4	0010	58.5417	-148.2117	1465	100	OS	Ev#072.
HX12003.01	LiveNet	25	14	PWS2	30	4	0700	60.5350	-147.8033	734	100	PWS	Ev#073; 2 net tows done.
HX12003.02	CTD	29	14	PWS2	30	4	0800	60.5350	-147.8033	734	100	PWS	Ev#074.
HX12003.03	CTD	30	14	PWS2	30	4	0900	60.5350	-147.8033	734	nd	PWS	Ev#075; fluor on CTD set to 3x.
HX12003.04	CTD	31	14	PWS2	30	4	1000	60.5350	-147.8033	734	50	PWS	Ev#076.
HX12003.05	CTD	32	14	PWS2	30	4	1205	60.5350	-147.8033	734	nd	PWS	Ev#077; aborted.
HX12003.06	CTD	33	14	PWS2	30	4	1323	60.5350	-147.8033	734	nd	PWS	Ev#078; aborted.
HX12003.07	LiveNet	26	14	PWS2	30	4	1430	60.5350	-147.8033	734	100	PWS	Ev#079; 2 net tows done.
HX12003.08	CTD	34	14	PWS2	30	4	1500	60.5350	-147.8033	734	nd	PWS	Ev#080; noon cast, samples labelled CTD33.
HX12003.09	CTD	35	15	BIOLUM1	30	4	1830	60.3035	-147.9802	523	nd	PWS	Ev#80.5a.
HX12003.10	LiveNet	27	15	BIOLUM1	30	4	1845	60.3035	-147.9802	523	100	PWS	Ev#80.5b.
HX12003.11	CTD	36	16	PWS2	30	4	2330	60.5350	-147.8033	734	100	PWS	Ev#081.
HX12003.12	Quad150	15	16	PWS2	30	4	2345	60.5350	-147.8033	734	100	PWS	Ev#082; prev. deploy as Quad053_150.
HX12103.01	MOC	5	16	PWS2	1	5	0002	60.5350	-147.8033	734	nd	PWS	Ev#083.
HX12103.02	LiveNet	28	16	PWS2	1	5	0715	60.5350	-147.8033	734	nd	PWS	Ev#084; 2 net tows done.
HX12103.03	CTD	37	16	PWS2	1	5	1200	60.5350	-147.8033	734	50	PWS	Ev#085.
HX12103.04	LiveNet	29	16	PWS2	1	5	1321	60.5350	-147.8033	734	170	PWS	Ev#086.
HX12103.05	LiveNet	30	16	PWS2	1	5	1330	60.5350	-147.8033	734	170	PWS	Ev#087; failed.
HX12103.06	LiveNet	31	16	PWS2	1	5	1358	60.5350	-147.8033	734	100	PWS	Ev#088; exp6 fsw.
HX12103.07	LiveNet	32	16	PWS2	1	5	1421	60.5350	-147.8033	734	3	PWS	Ev#089; exp6 wsw.
HX12103.08	CTD	38	16	PWS2	1	5	1439	60.5350	-147.8033	734	3	PWS	Ev#090.
HX12103.09	CTD	39	16	PWS2	1	5	1537	60.5350	-147.8033	734	nd	PWS	Ev#091.
HX12103.10	CTD	40	16	PWS2	1	5	2330	60.5350	-147.8033	734	100	PWS	Ev#092.

Appendix I: Event Log (Cont'd)

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX12103.11	Quad150	16	16	PWS2	1	5	2340	60.5350	-147.8033	734	100	PWS	Ev#093.
HX12203.01	MOC	6	16	PWS2	2	5	0015	60.5350	-147.8033	734	100	PWS	Ev#094.
HX12203.02	LiveNet	33	16	PWS2	2	5	0700	60.5350	-147.8033	734	100	PWS	Ev#095.
HX12203.03	LiveNet	34	16	PWS2	2	5	0715	60.5350	-147.8033	734	100	PWS	Ev#096.
HX12203.04	LiveNet	35	16	PWS2	2	5	0736	60.5350	-147.8033	734	100	PWS	Ev#097.
HX12203.05	LiveNet	36	16	PWS2	2	5	0745	60.5350	-147.8033	734	100	PWS	Ev#098.
HX12203.06	CTD	41	16	PWS2	2	5	0800	60.5350	-147.8033	734	nd	PWS	Ev#099.
HX12203.07	CTD	42	16	PWS2	2	5	0900	60.5350	-147.8033	734	nd	PWS	Ev#100.
HX12203.08	CTD	43	16	PWS2	2	5	1200	60.5350	-147.8033	734	250	PWS	Ev#101.
HX12203.09	LiveNet	37	16	PWS2	2	5	1300	60.5350	-147.8033	734	nd	PWS	Ev#102.
HX12203.10	LiveNet	38	16	PWS2	2	5	1320	60.5350	-147.8033	734	150	PWS	Ev#103.
HX12203.11	LiveNet	39	16	PWS2	2	5	1350	60.5350	-147.8033	734	150	PWS	Ev#104.
HX12203.12	LiveNet	40	16	PWS2	2	5	2325	60.5350	-147.8033	734	50	PWS	Ev#105.
HX12203.13	CTD	44	16	PWS2	2	5	2334	60.5350	-147.8033	734	100	PWS	Ev#106.
HX12203.14	Quad150	17	16	PWS2	2	5	2344	60.5350	-147.8033	734	nd	PWS	Ev#107.
HX12303.01	MOC	7	16	PWS2	3	5	1218	60.5350	-147.8033	734	100	PWS	Ev#108.
HX12303.02	LiveNet	41	16	PWS2	3	5	0715	60.5350	-147.8033	734	175	PWS	Ev#109; 2 net tows done.
HX12303.03	CTD	45	16	PWS2	3	5	1200	60.5350	-147.8033	734	nd	PWS	Ev#110.
HX12303.04	LiveNet	42	16	PWS2	3	5	1300	60.5350	-147.8033	734	50	PWS	Ev#111.
HX12303.05	LiveNet	43	16	PWS2	3	5	1400	60.5350	-147.8033	734	100	PWS	Ev#112.
HX12303.06	CTD	46	16	PWS2	3	5	1400	60.5350	-147.8033	734	nd	PWS	Ev#113; fsw.
HX12303.07	CTD	47	16	PWS2	3	5	1458	60.5350	-147.8033	734	nd	PWS	Ev#114; exp8.
HX12303.08	LiveNet	44	16	PWS2	3	5	2000	60.5350	-147.8033	734	175	PWS	Ev#115; 2 net tows done.
HX12303.09	CTD	48	16	PWS2	3	5	2300	60.5350	-147.8033	734	100	PWS	Ev#116.
HX12303.10	Quad150	18	16	PWS2	3	5	2325	60.5350	-147.8033	734	100	PWS	Ev#117.
HX12303.11	MOC	8	16	PWS2	3	5	2345	60.5350	-147.8033	734	100	PWS	Ev#118.
HX12403.01	CTD	49	17	HB1	4	5	0357	60.1928	-147.6987	250	245	PWS	Ev#119.
HX12403.02	CTD	50	18	HB2	4	5	0408	60.1797	-147.6403	128	169	PWS	Ev#120.
HX12403.03	CTD	51	19	HB3	4	5	0434	60.1643	-147.5751	88	87	PWS	Ev#121.
HX12403.04	CTD	52	20	HB2	4	5	0520	60.1797	-147.6403	128	75	PWS	Ev#122; GA7.
HX12403.05	LiveNet	45	20	HB2	4	5	0612	60.1797	-147.6403	128	75	PWS	Ev#123.
HX12403.06	Quad150	19	20	HB2	4	5	0627	60.1797	-147.6403	128	169	PWS	Ev#124.
HX12403.07	MOC	9	20	HB2	4	5	0826	60.1797	-147.6403	128	166	PWS	Ev#125.
HX12403.08	CTD	53	21	MS1	4	5	0918	59.9543	-147.9267	164	160	PWS	Ev#126.
HX12403.09	CTD	54	22	MS2	4	5	0940	59.9433	-147.8950	192	nd	PWS	Ev#127.
HX12403.10	CTD	55	23	MS3	4	5	1006	59.9317	-147.8567	161	157	PWS	Ev#128.
HX12403.11	CTD	56	24	MS2	4	5	1031	59.9433	-147.8950	192	75	PWS	Ev#129.
HX12403.12	LiveNet	46	24	MS2	4	5	1045	59.9433	-147.8950	192	75	PWS	Ev#130.
HX12403.13	Quad150	20	24	MS2	4	5	1100	59.9433	-147.8950	192	175	PWS	Ev#131.
HX12403.14	MOC	10	24	MS2	4	5	1122	59.9433	-147.8950	192	nd	PWS	Ev#132.
HX12403.15	SatBuoy	1	24	MS2	4	5	1325	59.9433	-147.8950	192	40	PWS	Ev#133.
HX12403.16	CTD	57	25	PWSW1	4	5	1426	59.9259	-148.3370	121	145	PWS	Ev#134.
HX12403.17	CTD	58	26	PWSW2	4	5	1500	59.8757	-148.3320	71	66	PWS	Ev#135.
HX12403.18	CTD	59	27	PWSW3	4	5	1530	59.8253	-148.3320	122	118	PWS	Ev#136.
HX12403.19	LiveNet	47	27	PWSW3	4	5	1550	59.8253	-148.3320	122	75	PWS	Ev#137.
HX12403.20	Quad150	21	27	PWSW3	4	5	1610	59.8253	-148.3320	122	100	PWS	Ev#138.
HX12403.21	MOC	11	27	PWSW3	4	5	1630	59.8253	-148.3320	122	114	PWS	Ev#139.
HX12403.22	CTD	60	28	CF1	4	5	1840	59.9083	-148.8667	40	78	ACC	Ev#140.

Appendix I: Event Log (Cont'd)

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX12403.23	CTD	61	29	CF2	4	5	1900	59.8833	-148.8667	114	112	ACC	Ev#141.
HX12403.24	CTD	62	30	CF3	4	5	1924	59.8500	-148.8667	161	157	ACC	Ev#142.
HX12403.25	CTD	63	31	CF4	4	5	1953	59.8167	-148.8667	182	173	ACC	Ev#143.
HX12403.26	CTD	64	32	CF3.5	4	5	2021	59.8337	-148.8690	172	nd	ACC	Ev#144.
HX12403.27	LiveNet	48	33	CF31	4	5	2047	59.8337	-148.8690	172	75	ACC	Ev#145.
HX12403.28	Quad150	22	33	CF31	4	5	2100	59.8337	-148.8690	172	165?	ACC	Ev#146.
HX12403.29	MOC	12	33	CF31	4	5	2120	59.8337	-148.8690	172	166	ACC	Ev#147.
HX12403.30	MOC	13	33	CF31	4	5	2230	59.8337	-148.8690	172	10	ACC	Ev#148; surface recast.
HX12503.01	CTD	65	34	GAK11	5	5	0040	59.6667	-149.3967	262	257	ACC	Ev#149.
HX12503.02	CTD	66	35	ACC1	5	5	0120	59.7290	-149.3620	242	240	ACC	Ev#150.
HX12503.03	CTD	67	36	GAK11	5	5	0152	59.6667	-149.3967	262	76	ACC	Ev#151.
HX12503.04	CTD	nd	36	GAK11	5	5	nd	59.6667	-149.3967	262	nd	ACC	Ev#152; CTD cancelled/aborted.
HX12503.05	LiveNet	49	36	GAK11	5	5	0205	59.6667	-149.3967	262	75	ACC	Ev#153.
HX12503.06	Quad150	23	36	GAK11	5	5	0215	59.6667	-149.3967	262	175	ACC	Ev#154.
HX12503.07	MOC	14	36	GAK11	5	5	0235	59.6667	-149.3967	262	200	ACC	Ev#155.
HX12503.08	LiveNet	50	36	GAK11	5	5	1030	59.6667	-149.3967	262	175	ACC	Ev#156; 2 net tows done.
HX12503.09	CTD	68	36	GAK11	5	5	1200	59.6667	-149.3967	262	nd	ACC	Ev#157.
HX12503.10	LiveNet	51	36	GAK11	5	5	1310	59.6667	-149.3967	262	50	ACC	Ev#158; failed.
HX12503.11	LiveNet	52	36	GAK11	5	5	1320	59.6667	-149.3967	262	50	ACC	Ev#159.
HX12503.12	LiveNet	53	36	GAK11	5	5	1330	59.6667	-149.3967	262	100	ACC	Ev#160.
HX12503.13	CTD	69	36	GAK11	5	5	1407	59.6667	-149.3967	262	105	ACC	Ev#161; fsw.
HX12503.14	CTD	70	36	GAK11	5	5	1501	59.6667	-149.3967	262	51	ACC	Ev#162; exp9.
HX12503.15	CTD	71	36	GAK11	5	5	1545	59.6667	-149.3967	262	269	ACC	Ev#163; 1st inner SL survey.
HX12503.16	CTD	72	37	ACC0	5	5	1625	59.8047	-149.4350	280	276	ACC	Ev#164; 1st inner SL survey.
HX12503.17	CTD	73	38	GAK11	5	5	1701	59.6667	-149.3967	262	261	ACC	Ev#165; 1st inner SL survey.
HX12503.18	CTD	74	39	ACC1	5	5	1736	59.7290	-149.3620	242	240	ACC	Ev#166; 1st inner SL survey.
HX12503.19	CTD	75	40	GAK2	5	5	1805	59.6917	-149.3267	230	228	ACC	Ev#167; 1st inner SL survey.
HX12503.20	CTD	76	41	ACC2	5	5	1835	59.6590	-149.2927	218	214	ACC	Ev#168; 1st inner SL survey.
HX12503.21	CTD	77	42	GAK2i	5	5	1900	59.6267	-149.2583	213	211	ACC	Ev#169; 1st inner SL survey.
HX12503.22	CTD	78	43	GAK11	5	5	2330	59.6667	-149.3967	262	101	ACC	Ev#170.
HX12503.23	Quad150	24	43	GAK11	5	5	2345	59.6667	-149.3967	262	100	ACC	Ev#171.
HX12603.01	MOC	15	43	GAK11	6	5	0001	59.6667	-149.3967	262	105	ACC	Ev#172.
HX12603.02	LiveNet	54	43	GAK11	6	5	0715	59.6667	-149.3967	262	175	ACC	Ev#173.
HX12603.03	LiveNet	55	43	GAK11	6	5	0730	59.6667	-149.3967	262	175	ACC	Ev#174.
HX12603.04	LiveNet	56	43	GAK11	6	5	0800	59.6667	-149.3967	262	100	ACC	Ev#175.
HX12603.05	CTD	79	43	GAK11	6	5	0820	59.6667	-149.3967	262	75	ACC	Ev#176; 3m water for fsw.
HX12603.06	CTD	80	43	GAK11	6	5	0905	59.6667	-149.3967	262	50	ACC	Ev#177; 3m water for exp10.
HX12603.07	CTD	81	43	GAK11	6	5	1200	59.6667	-149.3967	262	nd	ACC	Ev#178.
HX12603.08	LiveNet	57	43	GAK11	6	5	1300	59.6667	-149.3967	262	nd	ACC	Ev#179; 100m.
HX12603.09	CTD	82	44	GAK4	6	5	1545	59.4083	-149.0483	200	196	ACC	Ev#180; 2nd inner SL survey.
HX12603.10	CTD	83	45	GAK3i	6	5	1630	59.4817	-149.1183	205	204	ACC	Ev#181; 2nd inner SL survey.
HX12603.11	CTD	84	46	GAK3	6	5	1715	59.5533	-149.1883	214	209	ACC	Ev#182; 2nd inner SL survey.
HX12603.12	CTD	85	47	GAK2i	6	5	1808	59.6267	-149.2583	213	211	ACC	Ev#183; 2nd inner SL survey.
HX12603.13	CTD	86	48	ACC2	6	5	1820	59.6590	-149.2927	218	215	ACC	Ev#184; 2nd inner SL survey.
HX12603.14	CTD	87	49	GAK2	6	5	1913	59.6917	-149.3267	230	224	ACC	Ev#185; 2nd inner SL survey.
HX12603.15	CTD	88	50	ACC1	6	5	1947	59.7290	-149.3620	242	240	ACC	Ev#186; 2nd inner SL survey.
HX12603.16	CTD	89	51	GAK11	6	5	2024	59.6667	-149.3967	262	258	ACC	Ev#187; 2nd inner SL survey.
HX12603.17	CTD	90	52	ACC0	6	5	2100	59.8047	-149.4350	280	277	ACC	Ev#188; 2nd inner SL survey.

Appendix I: Event Log (Cont'd)

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX12603.18	CTD	91	53	GAK1	6	5	2130	59.8450	-149.4667	270	268	ACC	Ev#189.
HX12603.19	LiveNet	58	54	GAK11	6	5	2300	59.6667	-149.3967	262	100	ACC	Ev#190.
HX12603.20	CTD	92	54	GAK11	6	5	2340	59.6667	-149.3967	262	100	ACC	Ev#191.
HX12603.21	Quad150	25	54	GAK11	6	5	2350	59.6667	-149.3967	262	100	ACC	Ev#192.
HX12703.01	MOC	16	54	GAK11	7	5	0008	59.6667	-149.3967	262	100	ACC	Ev#193.
HX12703.02	LiveNet	59	54	GAK11	7	5	0715	59.6667	-149.3967	262	175	ACC	Ev#194.
HX12703.03	LiveNet	60	54	GAK11	7	5	0735	59.6667	-149.3967	262	175	ACC	Ev#195.
HX12703.04	CTD	93	54	GAK11	7	5	1200	59.6667	-149.3967	262	255	ACC	Ev#196.
HX12703.05	LiveNet	61	54	GAK11	7	5	1230	59.6667	-149.3967	262	50	ACC	Ev#197.
HX12703.06	LiveNet	62	54	GAK11	7	5	1300	59.6667	-149.3967	262	175	ACC	Ev#198.
HX12703.07	LiveNet	63	54	GAK11	7	5	1330	59.6667	-149.3967	262	175	ACC	Ev#199.
HX12703.08	CTD	94	54	GAK11	7	5	1400	59.6667	-149.3967	262	100	ACC	Ev#200; fsw for exp11.
HX12703.09	CTD	95	54	GAK11	7	5	1500	59.6667	-149.3967	262	50	ACC	Ev#201; for exp11.
HX12703.10	CTD	96	54	GAK11	7	5	1650	59.6667	-149.3967	262	206	ACC	Ev#202; 3rd inner SL survey.
HX12703.11	CTD	97	55	GAK3	7	5	1754	59.5533	-149.1883	214	210	ACC	Ev#203; 3rd inner SL survey.
HX12703.12	CTD	98	56	GAK11	7	5	1828	59.6667	-149.3967	262	218	ACC	Ev#204; 3rd inner SL survey.
HX12703.13	CTD	99	57	ACC2	7	5	1855	59.6590	-149.2927	218	221	ACC	Ev#205; 3rd inner SL survey.
HX12703.14	CTD	100	58	GAK2	7	5	1928	59.6917	-149.3267	230	235	ACC	Ev#206; 3rd inner SL survey.
HX12703.15	CTD	101	59	ACC1	7	5	2004	59.7290	-149.3620	242	255	ACC	Ev#207; 3rd inner SL survey.
HX12703.16	CTD	102	60	GAK11	7	5	2112	59.8047	-149.3967	262	269	ACC	Ev#208; 3rd inner SL survey.
HX12703.17	CTD	103	61	ACC0	7	5	2225	59.8450	-149.4667	270	100	ACC	Ev#209; 3rd inner SL survey.
HX12703.18	LiveNet	64	62	GAK1	7	5	2320	59.6667	-149.3967	262	105	ACC	Ev#210; Napp sample.
HX12703.19	CTD	104	63	GAK11	7	5	2342	59.6667	-149.3967	262	100	ACC	Ev#211; profile only.
HX12703.20	Quad150	26	63	GAK11	7	5	2355	59.6667	-149.3967	262	100	ACC	Ev#212.
HX12703.21	MOC	17	63	GAK11	7	5	0700	59.6667	-149.3967	262	100	ACC	Ev#213.
HX12803.01	LiveNet	65	63	GAK11	8	5	0730	59.6667	-149.3967	262	175	ACC	Ev#214.
HX12803.02	LiveNet	66	63	GAK11	8	5	0730	59.6667	-149.3967	262	175	ACC	Ev#215.
HX12803.03	LiveNet	67	63	GAK11	8	5	0750	59.6667	-149.3967	262	50	ACC	Ev#216.
HX12803.04	CTD	105	63	GAK11	8	5	0800	59.6667	-149.3967	262	75	ACC	Ev#217; for fsw exp 12.
HX12803.05	CTD	106	63	GAK11	8	5	0900	59.6667	-149.3967	262	75	ACC	Ev#218; 3m water for exp 12.
HX12803.06	CTD	107	63	GAK11	8	5	1200	59.6667	-149.3967	262	250	ACC	Ev#219.
HX12803.07	CTD	108	64	GAK6	8	5	1645	59.1167	-148.7700	160	nd	GAK inner	Ev#220; GAK6-2 Midshelf survey.
HX12803.08	LiveNet	68	64	GAK6	8	5	1655	59.1167	-148.7700	160	nd	nd	Ev#221; GAK6-2 Midshelf survey.
HX12803.09	Quad150	27	64	GAK6	8	5	1710	59.1167	-148.7700	160	nd	nd	Ev#222; GAK6-2 Midshelf survey.
HX12803.10	CTD	109	65	GAK5	8	5	1850	59.2617	-148.9083	170	165	GAK mid	Ev#223; GAK6-2 Midshelf survey.
HX12803.11	LiveNet	69	65	GAK5	8	5	1909	59.2617	-148.9083	170	50	MS	Ev#224; GAK6-2 Midshelf survey.
HX12803.12	Quad150	28	65	GAK5	8	5	1915	59.2617	-148.9083	170	100	MS	Ev#225; GAK6-2 Midshelf survey.
HX12803.13	CTD	110	66	GAK4	8	5	2045	59.4083	-149.0483	200	196	MS	Ev#226; GAK6-2 Midshelf survey.
HX12803.14	Quad150	29	66	GAK4	8	5	2100	59.4083	-149.0483	200	100	MS	Ev#227; GAK6-2 Midshelf survey.
HX12803.15	CTD	111	67	GAK3	8	5	2215	59.5533	-149.1883	214	205	MS	Ev#228; GAK6-2 Midshelf survey.
HX12803.16	LiveNet	70	67	GAK3	8	5	2245	59.5533	-149.1883	214	100	MS	Ev#229; GAK6-2 Midshelf survey.
HX12803.17	Quad150	30	67	GAK3	8	5	2250	59.5533	-149.1883	214	100	MS	Ev#230; GAK6-2 Midshelf survey.
HX12803.18	CTD	112	68	GAK2	8	5	2355	59.6917	-149.3267	230	221	MS	Ev#231; End GAK6-2 Midshelf survey.
HX12903.01	Quad150	31	68	GAK2	9	5	0015	59.6917	-149.3267	230	100	MS	Ev#232.
HX12903.02	MOC	18	68	GAK2	9	5	0032	59.6917	-149.3267	230	100	MS	Ev#233.
HX12903.03	LiveNet	71	69	GAK3	9	5	0715	59.5533	-149.1883	214	175	MS	Ev#234.
HX12903.04	LiveNet	72	69	GAK3	9	5	0740	59.5533	-149.1883	214	50	MS	Ev#235.
HX12903.05	CTD	113	69	GAK3	9	5	1205	59.5533	-149.1883	214	200	MS	Ev#236; noon cast

Appendix I: Event Log (Cont'd)

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX12903.06	LiveNet	73	69	GAK3	9	5	1220	59.5533	-149.1883	214	75	MS	Ev#237.
HX12903.07	CTD	114	69	GAK3	9	5	1335	59.5533	-149.1883	214	50	MS	Ev#238; Grazing 13 fsw and Dagg lab.
HX12903.08	CTD	115	69	GAK3	9	5	1420	59.5533	-149.1883	214	50	MS	Ev#239; Grazing 13 Strom and Napp.
HX13003.01	CTD	116	70	PR1	10	5	2335	59.2495	-149.5020	137	132	MS	Ev#240.
HX13003.02	Quad150	32	70	PR1	10	5	2350	59.2495	-149.5020	137	100	MS	Ev#241.
HX13103.01	MOC	19	70	PR1	11	5	0008	59.2495	-149.5020	137	100	MS	Ev#242.
HX13103.02	LiveNet	74	70	PR1	11	5	0715	59.2495	-149.5020	137	50	MS	Ev#243; grazing 14.
HX13103.03	LiveNet	75	70	PR1	11	5	0730	59.2495	-149.5020	137	nd	MS	Ev#244.
HX13103.04	CTD	117	70	PR1	11	5	0805	59.2495	-149.5020	137	50	MS	Ev#245; for exp 14 fsw 2.5m.
HX13103.05	LiveNet	76	70	PR1	11	5	0815	59.2495	-149.5020	137	130	MS	Ev#246; aborted.
HX13103.06	LiveNet	77	70	PR1	11	5	0832	59.2495	-149.5020	137	50	MS	Ev#247; aborted.
HX13103.07	LiveNet	78	70	PR1	11	5	0845	59.2495	-149.5020	137	nd	MS	Ev#248; recast.
HX13103.08	CTD	118	70	PR1	11	5	0950	59.2495	-149.5020	137	50	MS	Ev#249; 10L for exp water.
HX13103.09	CTD	119	70	PR1	11	5	1205	59.2495	-149.5020	137	135	MS	Ev#250.
HX13103.10	LiveNet	79	70	PR1	11	5	1312	59.2495	-149.5020	137	130	MS	Ev#251; Pr survey.
HX13103.11	SatBuoy	2	70	PR1	11	5	1326	59.2495	-149.5020	137	40	MS	Ev#252; Pr survey.
HX13103.12	CTD	120	71	PR2	11	5	1445	59.2057	-149.8850	160	155	MS	Ev#253; Pr survey.
HX13103.13	LiveNet	80	71	PR2	11	5	1500	59.2057	-149.8850	160	50	MS	Ev#254; Pr survey.
HX13103.14	Quad150	33	71	PR2	11	5	1507	59.2057	-149.8850	160	158	MS	Ev#255; Pr survey; 2 casts?
HX13103.15	CTD	121	72	PR3	11	5	1645	59.1388	-150.2450	165	160	MS	Ev#256; Pr survey.
HX13103.16	LiveNet	81	72	PR3	11	5	1659	59.1388	-150.2450	165	nd	MS	Ev#257; Pr survey.
HX13103.17	Quad150	34	72	PR3	11	5	1715	59.1388	-150.2450	165	nd	MS	Ev#258; Pr survey.
HX13103.18	CTD	122	73	PR4	11	5	1835	58.9580	-150.4190	116	115	MS	Ev#259; Pr survey.
HX13103.19	LiveNet	82	73	PR4	11	5	1850	58.9580	-150.4190	116	nd	MS	Ev#260; Pr survey.
HX13103.20	Quad150	35	73	PR4	11	5	1700	58.9580	-150.4190	116	117	MS	Ev#261; Pr survey.
HX13103.21	CTD	123	74	PR5	11	5	2030	58.7600	-150.2180	159	155	MS	Ev#262; Pr survey.
HX13103.22	LiveNet	83	74	PR5	11	5	2050	58.7600	-150.2180	159	50	MS	Ev#263; Pr survey.
HX13103.23	Quad150	36	74	PR5	11	5	2105	58.7600	-150.2180	159	155	MS	Ev#264; Pr survey.
HX13103.24	CTD	124	75	PR6	11	5	2250	58.5983	-149.8230	135	130	MS	Ev#265; Pr survey.
HX13103.25	Quad150	37	75	PR6	11	5	2335	58.5983	-149.8230	135	100	MS	Ev#266.
HX13103.26	MOC	20	75	PR6	11	5	2359	58.5983	-149.8230	135	100	MS	Ev#267.
HX13203.01	CTD	125	76	XAT1	12	5	0130	58.6608	-149.7160	146	140	MS	Ev#268; XAT transect.
HX13203.02	CTD	126	77	XAT2	12	5	0210	58.7260	-149.6170	183	1800	MS	Ev#269; XAT transect.
HX13203.03	CTD	127	78	XAT3	12	5	0258	58.7912	-149.5150	204	200	MS	Ev#270; XAT transect.
HX13203.04	CTD	128	79	XAT4	12	5	0345	58.8580	-149.4100	220	218	MS	Ev#271; XAT transect.
HX13203.05	CTD	129	80	XAT5	12	5	0440	58.9188	-149.3040	237	233	MS	Ev#272; XAT transect.
HX13203.06	CTD	130	81	XAT6	12	5	0520	58.9817	-149.1990	220	218	MS	Ev#273; XAT transect.
HX13203.07	CTD	131	82	XAT7	12	5	0605	59.0472	-149.1040	160	156	MS	Ev#274; XAT transect.
HX13203.08	CTD	132	83	XAT8	12	5	0645	59.1055	-148.9930	150	nd	MS	Ev#275; End XAT transect.
HX13203.09	LiveNet	84	84	PR6	12	5	1110	58.5983	-149.8230	135	130	MS	Ev#276.
HX13203.10	CTD	133	84	PR6	12	5	1205	58.5983	-149.8230	135	130	MS	Ev#277.
HX13203.11	LiveNet	85	84	PR6	12	5	1300	58.5983	-149.8230	135	100	MS	Ev#278.
HX13203.12	LiveNet	86	84	PR6	12	5	1320	58.5983	-149.8230	135	125	MS	Ev#279.
HX13203.13	CTD	134	84	PR6	12	5	1400	58.5983	-149.8230	135	130	MS	Ev#280.
HX13203.14	CTD	135	84	PR6	12	5	1515	58.5983	-149.8230	135	50	MS	Ev#281.
HX13203.15	LiveNet	87	84	PR6	12	5	1825	58.5983	-149.8230	135	130	MS	Ev#282.
HX13303.01	CTD	136	85	GAK6	13	5	0005	59.1167	-148.7700	160	155	MS	Ev#283*; GAK survey (GAK6-GAK9).

Appendix I: Event Log (Cont'd)

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX13303.02	CTD	137	86	GAK6I	13	5	0055	59.0450	-148.7000	192	185	MS	Ev#283*; GAK survey (GAK6-GAK9).
HX13303.03	CTD	138	87	GAK7	13	5	0140	58.9717	-148.6300	244	240	MS	Ev#283*; GAK survey (GAK6-GAK9).
HX13303.04	CTD	139	88	GAK7I	13	5	0230	58.8817	-148.5600	300	298	OS	Ev#284; GAK survey (GAK6-GAK9).
HX13303.05	CTD	140	89	GAK8	13	5	0325	58.7917	-148.4900	390	nd	OS	Ev#285; End GAK survey (GAK6-GAK9).
HX13303.06	LiveNet	88	90	GAK7I	13	5	0710	58.8817	-148.5600	300	170	OS	Ev#286.
HX13303.07	LiveNet	89	90	GAK7I	13	5	0725	58.8817	-148.5600	300	50	OS	Ev#287.
HX13303.08	CTD	141	90	GAK7I	13	5	0800	58.8817	-148.5600	300	100	OS	Ev#288.
HX13303.09	CTD	142	91	GAK8	13	5	0854	58.7917	-148.4900	390	80	OS	Ev#289.
HX13303.10	LiveNet	90	91	GAK8	13	5	0915	58.7917	-148.4900	390	175	OS	Ev#290.
HX13303.11	CTD	143	91	GAK8	13	5	1005	58.7917	-148.4900	390	50	OS	Ev#291; water for exps 16.
HX13303.12	CTD	144	91	GAK8	13	5	1209	58.7917	-148.4900	390	290	OS	Ev#292; Survey OS2/noon profile.
HX13303.13	CTD	145	91	GAK8	13	5	1220	58.7917	-148.4900	390	290	OS	Ev#293; recast of noon profile (forgot to trigger bottle).
HX13303.14	CTD	146	92	GAK8N	13	5	1340	58.8253	-148.5170	296	290	OS	Ev#294; Survey OS2.
HX13303.15	CTD	147	93	GAK7IS	13	5	1410	58.8532	-148.5390	296	nd	OS	Ev#295; Survey OS2.
HX13303.16	CTD	148	94	GAK7I	13	5	1450	58.8817	-148.5600	300	295	OS	Ev#296; Survey OS2.
HX13303.17	CTD	149	95	GAK7IN	13	5	1530	58.9083	-148.5820	260	249	OS	Ev#297; Survey OS2.
HX13303.18	CTD	150	96	GAK7S	13	5	1605	58.9430	-148.6090	253	252	OS	Ev#298; Survey OS2.
HX13303.19	CTD	151	97	GAK7	13	5	1634	58.9717	-148.6300	244	240	OS	Ev#299; Survey OS2.
HX13303.20	LiveNet	91	97	GAK7	13	5	1645	58.9717	-148.6300	244	50	OS	Ev#300.
HX13303.21	CTD	152	97	GAK7	13	5	1704	58.9717	-148.6300	244	nd	OS	Ev#301; start 30 min time series.
HX13303.22	CTD	153	97	GAK7	13	5	1734	58.9717	-148.6300	244	237	OS	Ev#302; end time series.
HX13303.23	CTD	154	97	GAK7	13	5	1800	58.9717	-148.6300	244	100	OS	Ev#303; Survey OS3.
HX13303.24	CTD	155	98	GAK7S	13	5	1830	58.9430	-148.6090	253	100	OS	Ev#304; Survey OS3.
HX13303.25	CTD	156	99	GAK7IN	13	5	1855	58.9083	-148.5820	260	125	OS	Ev#305.
HX13303.26	CTD	157	100	GAK7I	13	5	1918	58.8817	-148.5600	300	120	OS	Ev#306.
HX13303.27	CTD	158	101	GAK8	13	5	2330	58.7917	-148.4900	390	288	OS	Ev#307.
HX13303.28	Quad150	38	101	GAK8	13	5	2350	58.7917	-148.4900	390	100	OS	Ev#308.
HX13303.01	MOC	21	101	GAK8	14	5	0011	58.7917	-148.4900	390	100	OS	Ev#309.
HX13303.02	CTD	159	102	GAK8N	14	5	0100	58.8253	-148.5170	296	100	OS	Ev#310; OS4 survey.
HX13303.03	CTD	160	103	GAK7IS	14	5	0122	58.8532	-148.5390	296	100	OS	Ev#311; OS4 survey.
HX13303.04	CTD	161	104	GAK7I	14	5	0115	58.8817	-148.5600	300	100	OS	Ev#312; OS4 survey.
HX13303.05	CTD	162	105	GAK7IN	14	5	0210	58.9083	-148.5820	260	100	OS	Ev#313; OS4 survey.
HX13303.06	CTD	163	106	GAK7S	14	5	0235	58.9430	-148.6090	253	100	OS	Ev#314; OS4 survey.
HX13303.07	CTD	164	107	GAK7	14	5	0258	58.9717	-148.6300	244	100	OS	Ev#315; OS4 survey.
HX13303.08	CTD	165	108	GAK7N	14	5	0320	58.9995	-148.6570	240	100	OS	Ev#316; end OS4 survey.
HX13303.09	CTD	166	109	GAK6	14	5	0605	59.1167	-148.7700	160	144	MS	Ev#317; fsw for exp 17.
HX13303.10	Quad150	39	109	GAK6	14	5	0631	59.1167	-148.7700	160	145	MS	Ev#318.
HX13303.11	MOC	22	109	GAK6	14	5	0700	59.1167	-148.7700	160	140	MS	Ev#319.
HX13303.12	CTD	167	109	GAK6	14	5	0800	59.1167	-148.7700	160	145	MS	Ev#320; exp 17 water 2.5m.
HX13303.13	LiveNet	92	109	GAK6	14	5	0835	59.1167	-148.7700	160	nd	MS	Ev#321.
HX13303.14	CTD	168	109	GAK6	14	5	1205	59.1167	-148.7700	160	nd	MS	Ev#322.
HX13303.15	Quad150	40	109	GAK6	14	5	1225	59.1167	-148.7700	160	147	MS	Ev#323.
HX13303.16	MOC	23	109	GAK6	14	5	1252	59.1167	-148.7700	160	142	MS	Ev#324.
HX13303.17	LiveNet	93	109	GAK6	14	5	1500	59.1167	-148.7700	160	75	MS	Ev#325.
HX13303.18	CTD	169	109	GAK6	14	5	1800	59.1167	-148.7700	160	146	MS	Ev#326.
HX13303.19	Quad150	41	109	GAK6	14	5	1815	59.1167	-148.7700	160	145	MS	Ev#327.

Appendix I: Event Log (Cont'd)

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	Lat	Long	Water Depth	Cast Depth	Region	Comments
HX13403.20	MOC	24	109	GAK6	14	5	1850	59.1167	-148.7700	160	140	MS	Ev#328.
HX13503.01	CTD	170	109	GAK6	15	5	0000	59.1167	-148.7700	160	147	MS	Ev#329.
HX13503.02	Quad150	42	109	GAK6	15	5	0016	59.1167	-148.7700	160	145	MS	Ev#330.
HX13503.03	MOC	25	109	GAK6	15	5	0045	59.1167	-148.7700	160	150	MS	Ev#331.
HX13503.04	LiveNet	94	109	GAK6	15	5	0800	59.1167	-148.7700	160	50	MS	Ev#332.
HX13503.05	CTD	171	110	GAK5	15	5	0820	59.2617	-148.9083	170	nd	MS	Ev#333.
HX13503.06	LiveNet	95	111	GAK3	15	5	1030	59.5533	-149.1883	214	50	IS	Ev#334.
HX13503.07	CTD	172	111	GAK3	15	5	1040	59.5533	-149.1883	214	210	IS	Ev#335.
HX13503.08	LiveNet	96	112	GAK1	15	5	1300	59.8450	-149.4667	270	50	ACC	Ev#336.
HX13503.09	CTD	173	112	GAK1	15	5	1315	59.8450	-149.4667	270	269	ACC	Ev#337.