

CRUISE REPORT

Cruise Number: MF-03-11

FOCI Number: 7MF03

Ship:

NOAA Ship Miller Freeman

Area of Operations:

Gulf of Alaska

Itinerary:

Date depart / port: September 7, 2003 / Kodiak, AK

Date arrive / port: September 21, 2003 / Kodiak, AK

Participating organizations:

NOAA - Alaska Fisheries Science Center (AFSC)

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Cruise Objectives:

The late-summer FOCI cruise is designed to address biological and methodological questions regarding juvenile walleye pollock and other forage fishes in the western Gulf of Alaska. The primary cruise objective is to map the density of smelts and juvenile pollock over an area of high environmental heterogeneity, and to relate variations in fish density with environmental variability to provide some insight regarding habitat suitability. Preliminary findings indicate that at least young pollock are best sampled in the midwater at night. Therefore, to accomplish the primary objective, nighttime samples of these fishes, their prey, and water temperature and salinity will be collected at 43 grid stations between Shelikof Strait and the Shumagin Islands. These stations, many of which were sampled during September of 2000 and 2001, are situated along ten acoustic transects and form a grid from near shore to the outer shelf. Transits between stations will emphasize the collection of acoustic data along these transects; acoustic data will be collected continuously throughout the cruise.

Secondary cruise objectives include: 1) re-occupy night stations and acoustic transect segments during daylight for diel comparison, 2) extending coverage of the grid with additional daytime sampling and transecting, 2)

opportunistically sample patches of acoustic backscatter with nets to boost samples collected from locations of high fish density and to help decipher the acoustic data, 3) collect piscivorous fishes for preliminary indication of predation on smelts and juvenile pollock, and 4) fulfill an assortment of special study requests.

Summary of Operations:

Operation (successful or not)	Tows
Anchovy trawl (Ancho)	77
Seabird SeaCAT CTD (CAT)	82
CTD without bottle samples (CTD)	2
CTD with bottle samples (CTDB)	1
Shrimp Trawl (Shrimp)	6
1m ² Tucker trawl (Tuck1)	83

Samples Collected	Tows	Number
Age-1 pollock collected for diet study (A-Gut)	9	37
Age-1+ pollock length measurements (A-Length)	28	713
Samples for capelin genetic study (Cap-Gen)	6	115
Capelin collected for diet study (Cap-Gut)	47	1006
Capelin length measurements (Cap-Leng)	46	1691
SeaBird 19 SeaCat CTD (CAT)	82	
SeaBird 911+ CTD (CTD)	3	
EK500 data collected during transect (EK500)	199	
Eulachon collected for diet study (Eul-Gut)	36	1120
Eulachon length measurements (Eul-Leng)	36	1562
Eulachon sample for M. Busby (Eul-Mbus)	3	
Eulachon collected for shrinkage study (Eul-Shr)	11	132
Furuno attached to net (Furuno)	80	
Juvenile pollock collected for diet study (J-Gut)	59	2044
Age 0 pollock J. Duffy-Anderson for isotope study (J-Iso)	13	720
Juvenile pollock length measurements (J-Length)	58	4150
Juvenile pollock prey caloric density study (J-Prey)	16	
Sample for F. Morado parasite study (Morado)	8	375
Pollock larvae or egg predator collections (Pred)	14	457
Quantitative tow preserved in formalin (QTowF)	135	151
SeaBird 39 (SBE)	79	
Forage species A. Springer (Springer)	33	

Summary of Cruise:

Narrative:

NOAA ship *Miller Freeman* departed Kodiak on 7 September (15:00 ADT) and returned 21 September (08:00 ADT). The primary and secondary objectives were largely fulfilled by successful collection of plankton and fish samples, and physical and acoustic data at 37 of the 43 pre-determined locations and along the acoustic transects that define the sampling grid. Six pre-determined locations were not sampled due to bad weather and time constraints. Two locations were opportunistically sampled due to high acoustic backscatter. All of the collections are referenced by station and haul numbers. Station number is used to group all temporally consecutive operations that occurred within 0.5 nmi of a specific geographic point (grid or opportunistic location). Although most locations were sampled at day and night (night was ca. 21:45 - 07:00 ADT, day was ca. 0:800 – 21:00 ADT), these operations were rarely consecutive. Thus, two station numbers are usually associated with each specific geographic sampling location. Haul number indicates the chronological order of operations within each station number. All collections are listed chronologically in Table 1; a tally of all collections, successful or not, are tallied in the preceding Summary of Operations.

Occupation of the grid began in the afternoon on September 8 at the grid coordinate 1C. Enroute to this location, fish samples were collected at three stations (10D, 10E, and 9D) that were again occupied at the end of the cruise, these data will provide an indication of the increase in fish size during the cruise. Once at Transect 1, the sampling generally proceeded back and forth along each transect prior to moving northeastward to the next transect. Moving back and forth along each transect maximized the amount of along-transect acoustic data collected. Time constraints made it necessary to drop most Transect-2 and Transect-4 stations during this northeastward sweep to ensure successful sampling of the northeastern part of the grid. As it turned out, we were able to break our occupation of the northeastern transects to return and occupy most of the Transect-4 locations. From Transect 4, we occupied 9C and 10C at night before breaking off scientific operations on the morning of 20 September.

Overall, 164 successful operations were made at 45 different locations throughout the sampling grid, this does not include continuous underway collections made with the Simrad acoustic system (38, 120, and 200 kHz) and the thermo-salinigraph. The primary cruise objective was achieved by successfully completing 31 pairs of nighttime operations. Each pair consisted of a Tucker trawl tow (plankton collection) and an anchovy trawl haul (fish collection); thus, the 31 pairs represent 62 separate sampling operations. The Tucker trawl was equipped with a SBE CTD profiler (SeaCat 19) to provide concurrent temperature and salinity profiles. These operations will enable 31 of the 43 pre-determined locations to be included in the primary study. Incidentally, the SBE 911+ CTD was used at three locations to confirm adequate performance of the SeaCat. All remaining operations addressed secondary cruise objectives:

- 1) The highest priority secondary objective was to obtain material enabling diel comparison of plankton and fish catches, diel comparison of acoustic back scatter along transects, and to extend coverage of the grid. Thus, daytime was primarily used to re-occupy nighttime sampling and transect locations, and to extend coverage of the grid. Daytime sampling was conducted at every nighttime sampling location, and an additional six locations were sampled. As during night, each of these day sampling events consisted of a pair of operations involving the Tucker trawl and the anchovy trawl. Overall, sampling during the day for this purpose resulted in 77 successful operations.
- 2) Additional time was also used to opportunistically fish the anchovy trawl at each of four locations where the acoustic backscatter was relatively high; hence, four additional operations.
- 3) Other secondary operations included
 - a. One initial Tucker trawl as a shakedown tow,
 - b. Three anchovy trawl hauls to collect age-0 pollock from stations 10D, 10E, and 9D prior to occupying the grid to estimate fish size increase during the cruise,
 - c. Six shrimp trawl hauls to collect piscivorous fishes for preliminary indication of their impact on smelts and age-0 pollock, and
 - d. Eight Tucker trawl tows to obtain zooplankters for caloric density determination.

Days Lost to Weather:

0.3

Days Lost to Equipment Failure:

None

Recommendations:

None

Acknowledgments:

The scientific party would like to acknowledge the hard work and support of the officers and crew of NOAA ship *Miller Freeman*. All operations were completed with an admirable degree of efficiency and professionalism that is to be commended.

Attachments:

[Table 1: Cruise summary](#) statistics for MF03-11 (FOCI 7MF03).

[Figure 1: Sampling locations](#) occupied during the cruise MF03-11 (FOCI 7MF03). Station numbers along each transect are offset from their actual coordinates according to the diel period in which the station was occupied: station numbers of day operations are shifted slightly northeast of their true position, night stations are southwest, and twilight stations are not shifted.

[Figure 2: Eight acoustic transects occupied](#) during the cruise MF03-11 (FOCI 7MF03). The thin solid line indicates transect location, the thick offset lines indicate where acoustic data were collected during the day (dashed line) or at night (solid line). Alphanumeric symbols indicate grid station location.

Table 1. Cruise summary statistics for MF03-11 (FOCI 7MF03).

Cruise Summary for FOCI Cruise 7MF03 (MF-03-11)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
08-Sep-03	16:06	1	1	10D		194	56 51.94 N	156 11.25 W	CAT	CAT	Net 1 flow meter revs low.
08-Sep-03	16:06	1	1	10D		194	56 51.94 N	156 11.25 W	Tuck1	EK500, QTowF	Net 1 flow meter revs low.
08-Sep-03	16:59	1	2	10D		195	56 51.92 N	156 11.20 W	Ancho	A-Gut, A-Length, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE	
08-Sep-03	19:20	2	1	10E		199	57 00.16 N	156 23.38 W	Ancho	A-Gut, A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE, Springer	
08-Sep-03	21:52	3	1	9D		173	56 41.79 N	156 35.59 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE, Springer	
09-Sep-03	7:50	4	1	1C		199	55 11.17 N	158 43.47 W	CAT	CAT	
09-Sep-03	7:50	4	1	1C		199	55 11.17 N	158 43.47 W	Tuck1	EK500, QTowF	
09-Sep-03	8:51	4	2	1C		199	55 11.67 N	158 43.53 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE, ScanMar, Springer	
09-Sep-03	11:38	5	1	1B		181	54 54.21 N	158 21.06 W	CAT	CAT	
09-Sep-03	11:38	5	1	1B		181	54 54.21 N	158 21.06 W	Tuck1	EK500, QTowF	
09-Sep-03	12:34	5	2	1B		178	54 54.64 N	158 21.41 W	Ancho	A-Gut, A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, Springer	
09-Sep-03	15:35	6	1	1A	CTD001	561	54 40.85 N	158 03.05 W	CTD	CTD	Salinity bottle #9=203m: #125=3m. CTD filename=S006H0I
09-Sep-03	16:07	6	2	1A		418	54 41.33 N	158 03.01 W	CAT	CAT	
09-Sep-03	16:07	6	2	1A		418	54 41.33 N	158 03.01 W	Tuck1	EK500, QTowF	
09-Sep-03	16:51	6	3	1A		510	54 40.94 N	158 03.33 W	Ancho	EK500, Eul-Leng, Furuno, J-Gut, J-Length, Springer	
09-Sep-03	19:22	7	1	1B		174	54 54.63 N	158 20.55 W	CAT	CAT	
09-Sep-03	19:22	7	1	1B		174	54 54.63 N	158 20.55 W	Tuck1	EK500, QTowF	1 Jelly rinsed and removed
09-Sep-03	20:17	7	2	1B		178	54 54.42 N	158 21.22 W	Ancho	A-Length, EK500, Furuno, J-Gut, J-Length, SBE, Springer	
09-Sep-03	23:22	8	1	1C		199	55 11.29 N	158 43.53 W	CAT	CAT	
09-Sep-03	23:22	8	1	1C		199	55 11.29 N	158 43.53 W	Tuck1	EK500, QTowF	
10-Sep-03	0:20	8	2	1C		199	55 11.60 N	158 43.41 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE, Springer	
10-Sep-03	3:34	9	1	1D		143	55 27.98 N	159 07.16 W	CAT	CAT	
10-Sep-03	3:34	9	1	1D		143	55 27.98 N	159 07.16 W	Tuck1	EK500, QTowF	2 jellies rinsed and removed
10-Sep-03	3:34	9	1	1D		143	55 27.98 N	159 07.16 W	Tuck1	EK500, QTowF	8 jellies rinsed and removed
10-Sep-03	4:18	9	2	1D		140	55 28.22 N	159 07.43 W	Ancho	A-Length, Cap-Gen, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE	
10-Sep-03	5:46	9	3	1D		142	55 27.85 N	159 07.06 W	Shrimp	EK500, Furuno, Pred, SBE	
10-Sep-03	6:45	9	4	1D		143	55 27.91 N	159 07.34 W	CAT	CAT	

Table 1. continued

Cruise Summary for FOCI Cruise 7MF03 (MF-03-11)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternate Station	Depth (m)	Latitude	Longitude	Gear	SamplesCollected	HaulComments
10-Sep-03	6:45	9	4	1D		143	55 27.91 N	159 07.34 W	Tuck1	EK500, QTowF	
10-Sep-03	6:45	9	4	1D		143	55 27.91 N	159 07.34 W	Tuck1	EK500, QTowF	5 jellies removed
10-Sep-03	7:29	9	5	1D		141	55 28.22 N	159 08.01 W	Ancho	Cap-Gen, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, Pred, SBE, Springer	
10-Sep-03	9:39	10	1	1E		109	55 42.64 N	159 26.06 W	CAT	CAT	
10-Sep-03	9:39	10	1	1E		109	55 42.64 N	159 26.06 W	Tuck1	EK500, QTowF	
10-Sep-03	10:20	10	2	1E		109	55 43.07 N	159 25.97 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Iso, J-Length, SBE, Springer	
10-Sep-03	12:20	10	3	1E		109	55 43.06 N	159 25.94 W	Shrimp	EK500, Furuno, Pred	Collected predators for stomach content analysis.
10-Sep-03	14:36	10	4	1E		108	55 43.18 N	159 25.78 W	CAT	CAT	Juvenile pollock prey collection. Only net 2 used.
10-Sep-03	14:36	10	4	1E		108	55 43.18 N	159 25.78 W	Tuck1	EK500, J-Prey	Juvenile pollock prey collection. Only net 2 used.
10-Sep-03	16:27	10	5	1E		107	55 43.31 N	159 25.68 W	CAT	CAT	
10-Sep-03	16:27	10	5	1E		107	55 43.31 N	159 25.68 W	Tuck1	EK500, QTowF	
10-Sep-03	16:59	10	6	1E		107	55 42.84 N	159 26.10 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE	
10-Sep-03	21:08	11	1	3E		96	55 55.71 N	158 33.87 W	CAT	CAT	1 jelly removed
10-Sep-03	21:08	11	1	3E		96	55 55.71 N	158 33.87 W	Tuck1	EK500, QTowF	
10-Sep-03	21:08	11	1	3E		96	55 55.71 N	158 33.87 W	Tuck1	EK500, QTowF	1 jelly removed
10-Sep-03	21:48	11	2	3E		91	55 56.08 N	158 36.19 W	Ancho	EK500, Furuno, J-Gut, J-Length, SBE	
10-Sep-03	23:06	12	1	3D		108	55 49.23 N	158 26.69 W	CAT	CAT	
10-Sep-03	23:06	12	1	3D		108	55 49.23 N	158 26.69 W	Tuck1	EK500, QTowF	
10-Sep-03	23:52	12	2	3D		110	55 49.00 N	158 26.73 W	Ancho	EK500, Furuno, J-Prey, SBE	
11-Sep-03	2:21	13	1	3C		130	55 31.78 N	158 02.81 W	CAT	CAT	
11-Sep-03	2:21	13	1	3C		130	55 31.78 N	158 02.81 W	Tuck1	EK500, QTowF	
11-Sep-03	3:04	13	2	3C		129	55 31.75 N	158 02.32 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE, Springer	
11-Sep-03	6:23	14	1	3E		94	55 55.72 N	158 35.91 W	CAT	CAT	
11-Sep-03	6:23	14	1	3E		94	55 55.72 N	158 35.91 W	Tuck1	EK500, J-Prey	Messenger failed
11-Sep-03	7:03	14	2	3E		90	55 55.96 N	158 36.59 W	CAT	CAT	
11-Sep-03	7:03	14	2	3E		90	55 55.96 N	158 36.59 W	Tuck1	EK500, QTowF	Sample for net 1 only. Fished all 84m with net
11-Sep-03	7:34	14	3	3E		93	55 55.96 N	158 36.02 W	CAT	CAT	
11-Sep-03	7:34	14	3	3E		93	55 55.96 N	158 36.02 W	Tuck1	EK500, QTowF	
11-Sep-03	8:14	14	4	3E		91	55 56.10 N	158 36.21 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE	
11-Sep-03	9:34	15	1	3D		109	55 48.93 N	158 26.71 W	CAT	CAT	
11-Sep-03	9:34	15	1	3D		109	55 48.93 N	158 26.71 W	Tuck1	EK500, QTowF	

Table 1. continued

Cruise Summary for FOCI Cruise 7MF03 (MF-03-11)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
11-Sep-03	10:23	15	2	3D		109	55 48.88 N	158 26.63 W	Ancho	Cap-Gut, Cap-Leng, EK500, Furuno, J-Gut, J-Length, J-Prey, SBE	
11-Sep-03	13:01	16	1	3C		130	55 31.58 N	158 02.27 W	CAT	CAT	Collected juvenile pollock prey.
11-Sep-03	13:01	16	1	3C		130	55 31.58 N	158 02.27 W	Tuck1	EK500, J-Prey	Collected juvenile pollock prey.
11-Sep-03	13:34	16	2	3C		130	55 31.81 N	158 02.31 W	CAT	CAT	
11-Sep-03	13:34	16	2	3C		130	55 31.81 N	158 02.31 W	Tuck1	EK500, QTowF	
11-Sep-03	14:22	16	3	3C		129	55 31.56 N	158 02.57 W	Ancho	A-Length, Cap-Gen, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE, Springer	
11-Sep-03	16:29	17	1	2C		139	55 21.87 N	158 21.62 W	CAT	CAT	
11-Sep-03	16:29	17	1	2C		139	55 21.87 N	158 21.62 W	Tuck1	EK500, QTowF	
11-Sep-03	17:05	17	2	2C		139	55 21.86 N	158 22.04 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE	
11-Sep-03	18:14	17	3	2C		138	55 21.87 N	158 21.05 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Shr, Furuno, J-Gut, J-Length, J-Prey, Morado, SBE,	Targeted anchovy
11-Sep-03	20:17	18	1	3C		129	55 31.42 N	158 02.75 W	Shrimp	EK500, Pred, SBE	
11-Sep-03	23:00	19	1	3B		87	55 14.73 N	157 37.81 W	CAT	CAT	
11-Sep-03	23:00	19	1	3B		87	55 14.73 N	157 37.81 W	Tuck1	EK500, QTowF	10 jellies removed
11-Sep-03	23:00	19	1	3B		87	55 14.73 N	157 37.81 W	Tuck1	EK500, QTowF	5 jellies removed
11-Sep-03	23:41	19	2	3B		86	55 14.42 N	157 37.92 W	Ancho	Cap-Gut, Cap-Leng, EK500, J-Gut, J-Length, SBE	
12-Sep-03	2:04	20	1	3A		242	54 57.34 N	157 16.41 W	CAT	CAT	
12-Sep-03	2:04	20	1	3A		242	54 57.34 N	157 16.41 W	Tuck1	EK500, QTowF	
12-Sep-03	2:56	20	2	3A		247	54 57.80 N	157 15.66 W	Ancho	EK500, Furuno, SBE	
12-Sep-03	6:11	21	1	3B		85	55 14.56 N	157 37.52 W	CAT	CAT	
12-Sep-03	6:11	21	1	3B		85	55 14.56 N	157 37.52 W	Tuck1	EK500, QTowF	
12-Sep-03	6:11	21	1	3B		85	55 14.56 N	157 37.52 W	Tuck1	EK500, QTowF	7 jellies removed
12-Sep-03	6:42	21	2	3B		85	55 14.41 N	157 37.93 W	Ancho	EK500, Furuno, SBE	
12-Sep-03	9:38	22	1	5B		90	55 31.73 N	156 54.55 W	CAT	CAT	
12-Sep-03	9:38	22	1	5B		90	55 31.73 N	156 54.55 W	Tuck1	EK500, QTowF	
12-Sep-03	10:20	22	2	5B		91	55 31.76 N	156 54.13 W	Ancho	EK500, Furuno, SBE	All jellies in tow. No fish.
12-Sep-03	12:41	23	1	6B		235	55 41.36 N	156 31.17 W	CAT	CAT	
12-Sep-03	12:41	23	1	6B		235	55 41.36 N	156 31.17 W	Tuck1	EK500, QTowF	
12-Sep-03	13:30	23	2	6B		235	55 41.33 N	156 31.12 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Shr, Furuno, J-Gut, J-Length, SBE	
12-Sep-03	16:38	24	1	5A		257	55 12.79 N	156 29.95 W	CAT	CAT	
12-Sep-03	16:38	24	1	5A		257	55 12.79 N	156 29.95 W	Tuck1	EK500, QTowF	
12-Sep-03	17:22	24	2	5A		257	55 12.79 N	156 29.84 W	Ancho	Cap-Gut, Cap-Leng, EK500, Furuno, SBE	

Table 1. continued

Cruise Summary for FOCI Cruise 7MF03 (MF-03-11)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
12-Sep-03	20:42	25	1	5B		91	55 31.77 N	156 54.15 W	Ancho	EK500, Furuno, J-Gut, J-Length, SBE	
12-Sep-03	21:42	25	2	5B		91	55 31.94 N	156 54.28 W	Tuck1	EK500, QTowF, SBE	No SeaCat, depth of gear from SBE reading. 8 jellies removed. Net 2 not fished.
13-Sep-03	0:06	26	1	5C		96	55 52.52 N	157 20.36 W	CAT	CAT	
13-Sep-03	0:06	26	1	5C		96	55 52.52 N	157 20.36 W	Tuck1	EK500, QTowF	
13-Sep-03	1:10	26	2	5C		93	55 52.08 N	157 20.71 W	Ancho	EK500, Furuno, SBE	
13-Sep-03	3:07	27	1	4C		134	55 43.00 N	157 40.98 W	CAT	CAT	
13-Sep-03	3:07	27	1	4C		134	55 43.00 N	157 40.98 W	Tuck1	EK500, QTowF	
13-Sep-03	3:46	27	2	4C		133	55 42.98 N	157 39.75 W	Ancho	A-Length, EK500, Furuno, Pred, SBE	
13-Sep-03	4:53	27	3	4C		132	55 43.00 N	157 40.14 W	Ancho	A-Length, EK500, Furuno, SBE	Target Fish sign, 15 min. at depth.
13-Sep-03	6:46	28	1	5C		94	55 52.50 N	157 20.93 W	CAT	CAT	
13-Sep-03	6:46	28	1	5C		94	55 52.50 N	157 20.93 W	Tuck1	EK500, QTowF	
13-Sep-03	6:46	28	1	5C		94	55 52.50 N	157 20.93 W	Tuck1	EK500, QTowF	1 jelly removed
13-Sep-03	7:19	28	2	5C		91	55 52.59 N	157 20.68 W	Ancho	Cap-Gut, Cap-Leng, EK500, Furuno, J-Gut, J-Length, SBE	
13-Sep-03	9:55	29	1	5D		145	56 08.19 N	157 45.42 W	CAT	CAT	
13-Sep-03	9:55	29	1	5D		145	56 08.19 N	157 45.42 W	Tuck1	EK500, QTowF	
13-Sep-03	9:55	29	1	5D		145	56 08.19 N	157 45.42 W	Tuck1	EK500, QTowF	Mud in net 1, discard sample
13-Sep-03	10:55	29	2	5D		149	56 08.44 N	157 44.75 W	Ancho	Cap-Gut, Cap-Leng, EK500, Furuno, J-Gut, J-Iso, J-Length, Morado, SBE, Springer	
13-Sep-03	12:07	29	3	5D		135	56 08.62 N	157 45.43 W	CAT	CAT	
13-Sep-03	12:07	29	3	5D		135	56 08.62 N	157 45.43 W	Tuck1	EK500, QTowF	
13-Sep-03	14:28	30	1	5E		107	56 26.16 N	158 07.40 W	CAT	CAT	
13-Sep-03	14:28	30	1	5E		107	56 26.16 N	158 07.40 W	Tuck1	EK500, QTowF	
13-Sep-03	15:11	30	2	5E		107	56 25.95 N	158 07.53 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Shr, Furuno, J-Gut, J-Iso, J-Length, J-Prey, SBE, Springer	
13-Sep-03	16:45	30	3	5E		147	56 25.64 N	158 06.32 W	Shrimp	EK500, Furuno, Pred, SBE	
13-Sep-03	18:21	30	4	5E		95	56 26.12 N	158 08.11 W	CAT	CAT	
13-Sep-03	18:21	30	4	5E		95	56 26.12 N	158 08.11 W	Tuck1	EK500, QTowF	
13-Sep-03	19:01	30	5	5E		94	56 26.12 N	158 08.15 W	Ancho	EK500, Furuno, J-Gut, J-Iso, J-Length, Morado, SBE, Springer	
13-Sep-03	21:20	31	1			225	56 16.98 N	157 55.86 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Shr, Furuno, J-Gut, J-Length, Pred, SBE, Springer	Opportunistic trawl on fish sign
13-Sep-03	23:36	32	1	5D		140	56 08.65 N	157 45.48 W	CAT	CAT	
13-Sep-03	23:36	32	1	5D		140	56 08.65 N	157 45.48 W	Tuck1	EK500, QTowF	
13-Sep-03	23:36	32	1	5D		140	56 08.65 N	157 45.48 W	Tuck1	EK500, QTowF	3 Jellies removed
14-Sep-03	0:30	32	2	5D		135	56 08.72 N	157 45.16 W	Ancho	Cap-Gut, Cap-Leng, EK500, Furuno, J-Gut, J-Iso, J-Length, Morado, SBE, Springer	

Table 1. continued

Cruise Summary for FOCI Cruise 7MF03 (MF-03-11)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternate Station	Depth (m)	Latitude	Longitude	Gear	SamplesCollected	HaulComments
14-Sep-03	4:33	33	1	6E		34	56 35.65 N	157 47.53 W	CAT	CAT	
14-Sep-03	4:33	33	1	6E		34	56 35.65 N	157 47.53 W	Tuck1	EK500, QTowF	Net 1 fished only
14-Sep-03	5:08	33	2	6E		35	56 35.68 N	157 47.35 W	Ancho	EK500, Furuno, SBE	
14-Sep-03	5:56	33	3	6E		34	56 35.63 N	157 47.44 W	CAT	CAT	
14-Sep-03	5:56	33	3	6E		34	56 35.63 N	157 47.44 W	Tuck1	EK500, QTowF	Net 1 fished only. 1 jelly removed.
14-Sep-03	6:22	33	4	6E		34	56 35.82 N	157 47.49 W	Ancho	EK500, Furuno, J-Gut, J-Length, SBE, Springer	
14-Sep-03	8:26	34	1	6D		80	56 19.08 N	157 24.07 W	CAT	CAT	
14-Sep-03	8:26	34	1	6D		80	56 19.08 N	157 24.07 W	Tuck1	EK500, QTowF	
14-Sep-03	9:12	34	2	6D		101	56 19.26 N	157 24.21 W	Ancho	Cap-Gut, Cap-Leng, EK500, Furuno, J-Gut, J-Length, SBE	
14-Sep-03	11:45	35	1	6C		83	56 01.98 N	156 59.08 W	CAT	CAT	
14-Sep-03	11:45	35	1	6C		83	56 01.98 N	156 59.08 W	Tuck1	EK500, QTowF	
14-Sep-03	12:22	35	2	6C		85	56 01.91 N	156 58.94 W	Ancho	Cap-Gen, Cap-Gut, Cap-Leng, EK500, Furuno, J-Gut, J-Length, SBE, Springer	
14-Sep-03	14:55	36	1	6D		80	56 19.03 N	157 23.81 W	CAT	CAT	Prey collection.
14-Sep-03	14:55	36	1	6D		80	56 19.03 N	157 23.81 W	Tuck1	EK500, J-Prey	Prey collection.
14-Sep-03	16:11	36	2	6D		78	56 19.06 N	157 23.77 W	CAT	CAT	Net 2 did not open. Repeat haul.
14-Sep-03	16:11	36	2	6D		78	56 19.06 N	157 23.77 W	Tuck1	EK500	Net 2 did not open. Repeat haul.
14-Sep-03	16:32	36	3	6D		75	56 19.11 N	157 23.62 W	CAT	CAT	
14-Sep-03	16:32	36	3	6D		75	56 19.11 N	157 23.62 W	Tuck1	EK500, QTowF	
14-Sep-03	17:04	36	4	6D		88	56 19.15 N	157 23.99 W	Ancho	EK500, Furuno, J-Gut, J-Length, SBE	
14-Sep-03	19:29	37	1	6C		81	56 02.09 N	156 59.63 W	CAT	CAT	
14-Sep-03	19:29	37	1	6C		81	56 02.09 N	156 59.63 W	Tuck1	EK500, QTowF	
14-Sep-03	20:19	37	2	6C		80	56 01.98 N	156 59.62 W	Ancho	EK500, Furuno, J-Gut, J-Length, J-Prey, SBE	
14-Sep-03	23:48	38	1	6B		234	55 40.84 N	156 32.75 W	CAT	CAT	
14-Sep-03	23:48	38	1	6B		234	55 40.84 N	156 32.75 W	Tuck1	EK500, QTowF	
14-Sep-03	23:48	38	1	6B		234	55 40.84 N	156 32.75 W	Tuck1	EK500, QTowF	3 Jellies removed
15-Sep-03	0:52	38	2	6B		238	55 40.83 N	156 30.69 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE	
15-Sep-03	3:02	39	1	7B		239	55 47.88 N	156 16.63 W	CAT	CAT	
15-Sep-03	3:02	39	1	7B		239	55 47.88 N	156 16.63 W	Tuck1	EK500, QTowF	
15-Sep-03	3:49	39	2	7B		237	55 47.44 N	156 15.68 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, Pred, SBE	
15-Sep-03	7:43	40	1	8C		202	56 16.08 N	156 31.99 W	CAT	CAT	
15-Sep-03	7:43	40	1	8C		202	56 16.08 N	156 31.99 W	Tuck1	EK500, J-Prey, QTowF	

Table 1. continued

Cruise Summary for FOCI Cruise 7MF03 (MF-03-11)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
15-Sep-03	8:33	40	2	8C		198	56 16.12 N	156 32.30 W	Ancho	A-Gut, A-Length, Cap-Gen, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Shr, Furuno, J-Gut, J-Length, SBE, Springer	
15-Sep-03	12:12	41	1	8B		88	55 54.74 N	156 00.80 W	CAT	CAT	
15-Sep-03	12:12	41	1	8B		88	55 54.74 N	156 00.80 W	Tuck1	EK500, QTowF	
15-Sep-03	12:44	41	2	8B		92	55 54.60 N	156 01.23 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE	
15-Sep-03	14:26	42	1	7B		239	55 48.11 N	156 17.37 W	CAT	CAT	
15-Sep-03	14:26	42	1	7B		239	55 48.11 N	156 17.37 W	Tuck1	EK500, QTowF	
15-Sep-03	15:12	42	2	7B		240	55 47.85 N	156 17.55 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Furuno, J-Gut, J-Length, SBE, Springer	
15-Sep-03	17:31	43	1	8B		89	55 54.75 N	156 01.04 W	CAT	CAT	
15-Sep-03	17:31	43	1	8B		89	55 54.75 N	156 01.04 W	Tuck1	EK500, QTowF	
15-Sep-03	17:31	43	1	8B		89	55 54.75 N	156 01.04 W	Tuck1	EK500, QTowF	First Tuck1 failed and file over-written. J-Prey samples are really from first attempt and labelled 43-0.
15-Sep-03	18:02	43	2	8B		90	55 54.79 N	156 01.16 W	Ancho	EK500, Furuno, J-Gut, J-Length, SBE	
15-Sep-03	21:03	44	1	8C		202	56 16.26 N	156 32.03 W	CAT	CAT	
15-Sep-03	21:03	44	1	8C		202	56 16.26 N	156 32.03 W	Tuck1	EK500, QTowF	
15-Sep-03	21:03	44	1	8C		202	56 16.26 N	156 32.03 W	Tuck1	EK500, QTowF	1 Jelly removed
15-Sep-03	22:02	44	2	8C		198	56 16.24 N	156 32.26 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Mbus, Furuno, J-Gut, J-Iso, J-Length, Morado, Pred, SBE	
15-Sep-03	23:27	44	3	8C	CTD002	204	56 16.21 N	156 31.49 W	CTDB	CTD, EK500	Salinity bottle #38(T) at 194m. Salinity bottle #49(B) at 5 m. st# S044H03
16-Sep-03	1:18	45	1	8D		53	56 29.71 N	156 54.11 W	CAT	CAT	
16-Sep-03	1:18	45	1	8D		53	56 29.71 N	156 54.11 W	Tuck1	EK500, QTowF	Net #1 fished only.
16-Sep-03	1:49	45	2	8D		57	56 29.75 N	156 53.69 W	Ancho	EK500, Furuno, SBE	
16-Sep-03	3:50	46	1	8E		112	56 42.00 N	157 15.36 W	CAT	CAT	
16-Sep-03	3:50	46	1	8E		112	56 42.00 N	157 15.36 W	Tuck1	EK500, QTowF	
16-Sep-03	4:23	46	2	8E		118	56 42.00 N	157 15.77 W	Ancho	EK500, Furuno, J-Gut, J-Length, SBE, Springer	
16-Sep-03	5:44	47	1	8ED		200	56 36.89 N	157 04.78 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Iso, J-Length, Morado, Pred, SBE	Opportunistic oblique tow.
16-Sep-03	7:36	48	1	8E		110	56 42.00 N	157 15.57 W	CAT	CAT	
16-Sep-03	7:36	48	1	8E		110	56 42.00 N	157 15.57 W	Tuck1	EK500, QTowF	
16-Sep-03	8:15	48	2	8E		112	56 42.03 N	157 15.98 W	Ancho	EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE, Springer	
16-Sep-03	10:20	49	1	8D		52	56 29.98 N	156 53.88 W	CAT	CAT	Shallow bottom. Only net 1 used.
16-Sep-03	10:20	49	1	8D		52	56 29.98 N	156 53.88 W	Tuck1	EK500, QTowF	Shallow bottom. Only net 1 used.

Table 1. continued

Cruise Summary for FOCI Cruise 7MF03 (MF-03-11)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
16-Sep-03	10:50	49	2	8D		51	56 29.76 N	156 54.31 W	Ancho	EK500, Furuno, J-Gut, J-Length, SBE, Springer	
16-Sep-03	13:18	50	1	9E		159	56 51.60 N	156 51.44 W	CAT	CAT	
16-Sep-03	13:18	50	1	9E		159	56 51.60 N	156 51.44 W	Tuck1	EK500, QTowF	
16-Sep-03	14:00	50	2	9E		150	56 51.45 N	156 51.45 W	Ancho	A-Gut, A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Shr, Furuno, J-Gut, J-Iso, J-Length, SBE, Springer	
16-Sep-03	16:09	50	3	9E		145	56 51.25 N	156 51.80 W	CAT	CAT	
16-Sep-03	16:09	50	3	9E		145	56 51.25 N	156 51.80 W	Tuck1	EK500, QTowF	
16-Sep-03	16:56	50	4	9E		160	56 51.70 N	156 51.80 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Iso, J-Length, SBE, Springer	
16-Sep-03	19:04	51	1	9D		163	56 41.94 N	156 35.82 W	CAT	CAT	
16-Sep-03	19:04	51	1	9D		163	56 41.94 N	156 35.82 W	Tuck1	EK500, QTowF	
16-Sep-03	19:54	51	2	9D		177	56 42.11 N	156 34.94 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Iso, J-Length, Morado, SBE, Springer	
16-Sep-03	23:25	52	1	9C		268	56 25.48 N	156 11.74 W	CAT	CAT	
16-Sep-03	23:25	52	1	9C		268	56 25.48 N	156 11.74 W	Tuck1	EK500, J-Prey, QTowF	4 jellies removed.
16-Sep-03	23:25	52	1	9C		268	56 25.48 N	156 11.74 W	Tuck1	EK500, J-Prey, QTowF	Net 2 failed, used from J-Prey.
17-Sep-03	0:23	52	2	9C		270	56 25.38 N	156 12.56 W	Ancho	A-Length, EK500, Furuno, J-Gut, J-Length, SBE	
17-Sep-03	4:25	53	1	9B		53	56 03.74 N	155 38.72 W	CAT	CAT	
17-Sep-03	4:25	53	1	9B		53	56 03.74 N	155 38.72 W	Tuck1	EK500, QTowF	Net #1 fished only. 3 jellies removed.
17-Sep-03	4:50	53	2	9B		51	56 03.49 N	155 38.97 W	Ancho	EK500, Furuno, SBE	
17-Sep-03	6:04	53	3	9B		52	56 03.73 N	155 38.63 W	CAT	CAT	
17-Sep-03	6:04	53	3	9B		52	56 03.73 N	155 38.63 W	Tuck1	EK500, QTowF	Net #2 fished only.
17-Sep-03	6:32	53	4	9B		49	56 03.51 N	155 38.77 W	Ancho	Cap-Gut, Cap-Leng, EK500, Furuno, SBE	
17-Sep-03	19:02	54	1	10B		36	56 13.19 N	155 17.29 W	CAT	CAT	
17-Sep-03	19:02	54	1	10B		36	56 13.19 N	155 17.29 W	Tuck1	EK500, QTowF	Shallow station, only net 1 used.
17-Sep-03	19:24	54	2	10B		37	56 13.26 N	155 17.52 W	Ancho	EK500, Furuno, SBE	
17-Sep-03	22:45	55	1	10C		249	56 36.67 N	155 48.47 W	CAT	CAT	
17-Sep-03	22:45	55	1	10C		249	56 36.67 N	155 48.47 W	Tuck1	EK500, QTowF	
17-Sep-03	22:45	55	1	10C		249	56 36.67 N	155 48.47 W	Tuck1	EK500, QTowF	3 jellies removed.
17-Sep-03	23:34	55	2	10C		246	56 35.82 N	155 48.94 W	Ancho	A-Length, EK500, Furuno, Pred, SBE	
18-Sep-03	2:26	56	1	10D		198	56 51.96 N	156 11.54 W	CAT	CAT	
18-Sep-03	2:26	56	1	10D		198	56 51.96 N	156 11.54 W	Tuck1	EK500, QTowF	
18-Sep-03	3:17	56	2	10D		198	56 52.07 N	156 11.17 W	Ancho	A-Gut, Cap-Gut, EK500, Eul-Gut, Furuno, J-Gut, SBE	codend untied....no fish lengths measured or recorded...some fish saved for reference
18-Sep-03	5:27	57	1	10E		105	56 59.69 N	156 23.14 W	CAT	CAT	Net 2 fished for J-Prey at twilight.

Table 1. continued

Cruise Summary for FOCI Cruise 7MF03 (MF-03-11)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
18-Sep-03	5:27	57	1	10E		105	56 59.69 N	156 23.14 W	Tuck1	EK500, J-Prey	Net 2 fished for J-Prey at twilight.
18-Sep-03	5:51	57	2	10E		105	56 59.65 N	156 23.11 W	CAT	CAT	
18-Sep-03	5:51	57	2	10E		105	56 59.65 N	156 23.11 W	Tuck1	EK500, QTowF	
18-Sep-03	6:26	57	3	10E		105	57 59.68 N	156 23.09 W	Ancho	A-Gut, A-Length, Cap-Gut, Cap-Leng, EK500, Furuno, J-Gut, J-Iso, J-Length, Morado, SBE, Springer	
18-Sep-03	7:54	58	1	10D		195	56 51.76 N	156 11.27 W	CAT	CAT	
18-Sep-03	7:54	58	1	10D		195	56 51.76 N	156 11.27 W	Tuck1	EK500, QTowF	
18-Sep-03	8:49	58	2	10D		195	56 52.01 N	156 10.63 W	Ancho	A-Gut, A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Mbus, Eul-Shr, Furuno, J-Gut, J-Length, SBE, Springer	
18-Sep-03	11:10	59	1	9D		168	56 41.86 N	156 35.58 W	CAT	CAT	
18-Sep-03	11:10	59	1	9D		168	56 41.86 N	156 35.58 W	Tuck1	EK500, QTowF	
18-Sep-03	12:05	59	2	9D		176	56 42.16 N	156 36.11 W	Ancho	A-Gut, Cap-Gen, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Mbus, Furuno, J-Gut, J-Iso, J-Length, SBE, Springer	
18-Sep-03	15:08	60	1	10D		196	56 51.95 N	156 11.53 W	CAT	CAT	Juvenile pollock prey collection. Only net 2 used.
18-Sep-03	15:08	60	1	10D		196	56 51.95 N	156 11.53 W	Tuck1	EK500, J-Prey	Juvenile pollock prey collection. Only net 2 used.
18-Sep-03	16:11	60	2	10D		196	56 51.88 N	156 11.20 W	CAT	CAT	
18-Sep-03	16:11	60	2	10D		196	56 51.88 N	156 11.20 W	Tuck1	EK500, QTowF	
18-Sep-03	16:54	60	3	10D		197	56 51.85 N	156 11.58 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Shr, Furuno, J-Gut, J-Iso, J-Length, SBE	
18-Sep-03	18:40	61	1	10E		107	56 59.74 N	156 23.21 W	CAT	CAT	
18-Sep-03	18:40	61	1	10E		107	56 59.74 N	156 23.21 W	Tuck1	EK500, QTowF	
18-Sep-03	19:09	61	2	10E		102	56 59.71 N	156 23.07 W	Ancho	Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Furuno, J-Gut, J-Length, SBE	
19-Sep-03	3:57	62	1	4B		91	55 23.09 N	157 15.20 W	CAT	CAT	
19-Sep-03	3:57	62	1	4B		91	55 23.09 N	157 15.20 W	Tuck1	EK500, QTowF	
19-Sep-03	4:26	62	2	4B		91	55 23.07 N	157 15.51 W	Ancho	EK500, Furuno, SBE	
19-Sep-03	6:52	63	1	4C		134	55 43.01 N	157 40.95 W	CAT	CAT	6 jellies discarded from net 2 sample.
19-Sep-03	6:52	63	1	4C		134	55 43.01 N	157 40.95 W	Tuck1	EK500, QTowF	6 jellies discarded from net 2 sample.
19-Sep-03	7:27	63	2	4C		134	55 43.13 N	157 41.05 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Furuno, SBE	
19-Sep-03	9:42	64	1	4D		94	55 58.66 N	158 05.36 W	CAT	CAT	
19-Sep-03	9:42	64	1	4D		94	55 58.66 N	158 05.36 W	Tuck1	EK500, QTowF	
19-Sep-03	10:24	64	2	4D		91	55 58.80 N	158 05.70 W	Ancho	Cap-Gut, Cap-Leng, EK500, Furuno, J-Gut, J-Length, SBE, Springer	
19-Sep-03	11:45	65	1	4E		67	56 06.88 N	158 17.19 W	CAT	CAT	

Table 1. continued

Cruise Summary for FOCI Cruise 7MF03 (MF-03-11)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
19-Sep-03	11:45	65	1	4E		67	56 06.88 N	158 17.19 W	Tuck1	EK500, QTowF	
19-Sep-03	12:40	65	2	4E		69	56 06.80 N	158 16.91 W	Ancho	EK500, Furuno, SBE, Springer	
19-Sep-03	13:13	65	3	4E		63	56 06.98 N	158 17.38 W	CAT	CAT	
19-Sep-03	13:13	65	3	4E		63	56 06.98 N	158 17.38 W	Tuck1	EK500, J-Prey	
19-Sep-03	13:13	65	3	4E		63	56 06.98 N	158 17.38 W	Tuck1	EK500, J-Prey	Juvenile pollock prey collection. Only net 2 used.
19-Sep-03	16:23	65	4	4E		61	56 07.25 N	158 17.23 W	CAT	CAT	
19-Sep-03	16:23	65	4	4E		61	56 07.25 N	158 17.23 W	Tuck1	EK500, QTowF	
19-Sep-03	17:08	65	5	4E		65	56 07.04 N	158 17.29 W	Ancho	EK500, Furuno, J-Gut, J-Length, SBE	
19-Sep-03	18:24	66	1	4D		91	55 58.62 N	158 05.74 W	CAT	CAT	
19-Sep-03	18:24	66	1	4D		91	55 58.62 N	158 05.74 W	Tuck1	EK500, QTowF	
19-Sep-03	18:56	66	2	4D		88	55 58.75 N	158 06.02 W	Ancho	Cap-Gut, Cap-Leng, EK500, Furuno, J-Gut, J-Length, SBE	
19-Sep-03	21:18	67	1	4C		134	55 43.12 N	157 41.38 W	CAT	CAT	1 jelly removed from net #1. 4 jellies removed from net # 2
19-Sep-03	21:18	67	1	4C		134	55 43.12 N	157 41.38 W	Tuck1	EK500, QTowF	1 jelly removed from net #1. 4 jellies removed from net # 2
19-Sep-03	22:01	67	2	4C		134	55 42.89 N	157 41.02 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Shr, Furuno, Pred, SBE, Springer	
20-Sep-03	4:52	68	1	9C		269	56 25.40 N	156 11.20 W	Shrimp	EK500, Pred	
20-Sep-03	6:23	68	2	9C		270	56 25.35 N	156 11.49 W	CAT	CAT	Juvenile prey tow. Tuck net 2 fished only.
20-Sep-03	6:23	68	2	9C		270	56 25.35 N	156 11.49 W	Tuck1	EK500, J-Prey	Juvenile prey tow. Tuck net 2 fished only.
20-Sep-03	7:01	68	3	9C		270	56 25.60 N	156 11.65 W	CAT	CAT	
20-Sep-03	7:01	68	3	9C		270	56 25.60 N	156 11.65 W	Tuck1	EK500, QTowF	
20-Sep-03	7:51	68	4	9C		269	56 25.70 N	156 11.82 W	Ancho	A-Length, Cap-Gut, Cap-Leng, EK500, Eul-Gut, Eul-Leng, Eul-Shr, Furuno, J-Gut, J-Length, SBE	
20-Sep-03	10:36	69	1	10C		248	56 36.32 N	155 48.71 W	CAT	CAT	
20-Sep-03	10:36	69	1	10C		248	56 36.32 N	155 48.71 W	Tuck1	EK500, QTowF	
20-Sep-03	11:41	69	2	10C		247	56 36.56 N	155 48.41 W	Ancho	A-Length, EK500, Eul-Gut, Eul-Leng, Eul-Shr, Furuno, J-Gut, J-Length, SBE	
20-Sep-03	13:18	69	3	10C		248	56 36.57 N	155 48.28 W	CAT	CAT	Juvenile pollock prey collection. Net 1 not
20-Sep-03	13:18	69	3	10C		248	56 36.57 N	155 48.28 W	Tuck1	EK500, J-Prey	Juvenile pollock prey collection. Net 1 not
20-Sep-03	14:20	69	4	10C		248	56 36.37 N	155 48.10 W	Shrimp	EK500, Furuno, Pred	Adult fish collected for stomach scans.
20-Sep-03	15:23	69	5	10C	CTD003	201	56 36.49 N	155 48.18 W	CTD	CTD	Sample bottle 57 = 201m bottom depth. Sample bottle 51 = 3.7m top depth.

Figure 1. Sampling locations occupied during the cruise MF03-11 (FOCI 7MF03). Station numbers along each transect are offset from their actual coordinates according to the diel period in which the station was occupied: station numbers of day operations are shifted slightly northeast of their true position, night stations are southwest, and twilight stations are not shifted.

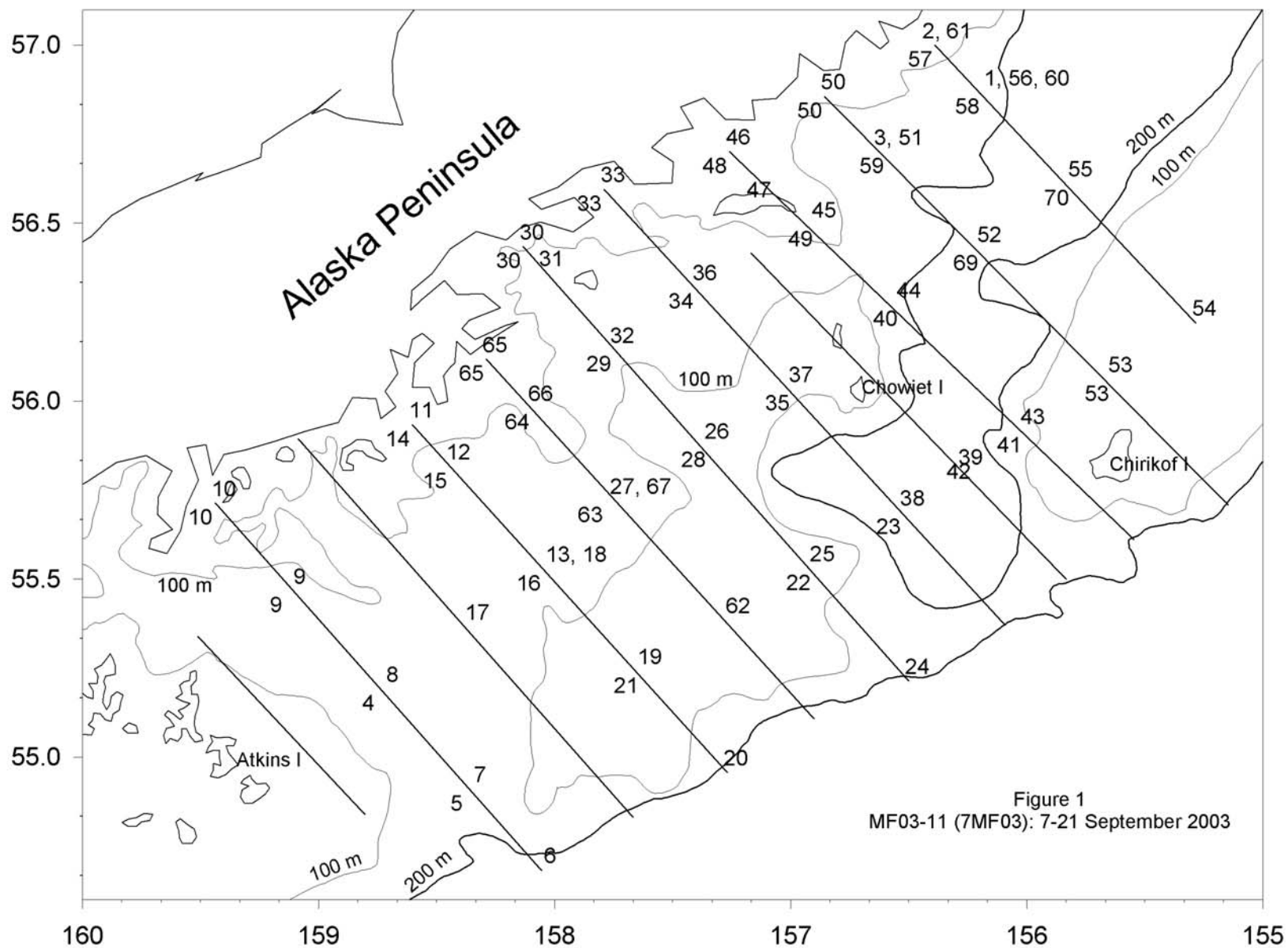


Figure 2. Eight acoustic transects occupied during the cruise MF03-11 (FOCI 7MF03). The thin solid line indicates transect location, the thick offset lines indicate where acoustic data were collected during the day (dashed line) or at night (solid line).

