

30 April 1997

DRAFT CRUISE REPORT

Cruise Number: MF95-07, Leg I
FOCI Number: FOCI - 5MF97
Ship: R/V Miller Freeman

Area of Operations: Eastern Bering Sea

Itinerary: Depart April 15 -- Dutch Harbor
Return May 1 -- Dutch Harbor

Participating Organizations:

NOAA - Alaska Fisheries Science Center (AFSC)
NOAA - Pacific Marine Environmental Laboratory (PMEL)
UAF - University of Alaska, Fairbanks

Chief Scientist:

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Personnel:

Morgan Busby	M/USA	AFSC
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William Rugen, III	M/USA	AFSC
Carol DeWitt	F/USA	PMEL
William Parker	M/USA	PMEL
Steven Smith	M/USA	PMEL
Elaina Jorgensen	F/USA	UW/JISAO
Stacey Smith	F/USA	UAF

Objectives of Cruise:

1. Recover and deploy moorings (including UAF sediment traps),
2. Recover lost instruments (TRAPS; Trawl Resistant ADCP PlatformS),
3. Occupy Southeast Bering Sea Carrying Capacity (SEBSCC) ecosystem monitoring stations,
4. Continue sampling shipboard time series of larval pollock development as a function of temperature,
5. Obtain ChIAM and fluorometer ground truth samples at moorings,
6. Determine if euphausiid net avoidance is affected by a lighted sampler,
7. Estimate copepod fecundity.

Summary of Operations:

Instrument/Gear

ADCP Lines	0
ADCP backtrack "L"	0
CTD casts	70
Bongos, 60 cm	35
Bongos, 20 cm	34
Fishing trawls	0
Tucker trawls	0
MOCNESS tows	18
Live tows	0
Methot trawls	10
Mooring deployment	5
Mooring recoveries	6
Satellite tracked buoy deployment	0
Loran-C drifters deployed	0
Loran-C drifters recovered	0

Samples Collected

Chlorophyll samples	232
Nutrient samples	272
Microzooplankton samples	0
Plankton samples	102
Predator samples	0
Stomach samples	0
Pollock egg samples	0
Pollock larval samples	0
Pollock juvenile samples	0

Summary of Cruise:

1. North Aleutian Slope Flow Transect -- We occupied 7 CTD stations along this transect. The second through fourth stations were occupied twice to accomplish both deep and shallow CTD casts (Fig. 1). Shallow casts included continuous measurements from a chlorophyll absorbance meter (ChIAM) and a fluorometer. Bongo tows for plankton (20 cm, 150 micron and 60 cm, 333 micron mesh nets) were taken at the first four stations (Fig. 2). Along this transect subsurface moorings 6 and 7 were successfully recovered (Fig. 3). We attempted to redeploy Mooring 6, but the mooring line broke during deployment. An acoustic release, current meter and two small glass floats were lost; the rest of the mooring instruments floated to the surface and were recovered.

2. Basin/Shelf Break Transect -- We occupied 6 CTD stations along this transect (Fig. 1). Bongo samples were taken at the three shelf break stations (Fig. 2).
3. Cross-Shelf Transect -- We occupied 18 CTD stations along this transect (Fig. 1). Bongo tows were taken at selected stations (Fig. 2). Multiple CTD casts were necessary at Moorings 2 & 3 to obtain ground truth chlorophyll samples for the ChlAM and fluorometers on the moorings. At Mooring 3, two subsurface moorings deployed in February were successfully recovered and replaced by a surface mooring with meteorological tower (Peggy). A sediment trap from UAF was successfully deployed next to the primary surface mooring. At Mooring 2 one of two subsurface moorings were recovered. The second was captured by a fisherman several weeks earlier and the equipment returned to NOAA. A surface mooring and sediment trap were also deployed at this site. Ground truth samples for plankton isotope and lipid content were collected for UAF (Dr. S. Henrich) at both sites. Ring net tows to collect live plankton for copepod egg production estimation were taken around Mooring 2.
4. Seventy Meter Isobath Transect -- We occupied 7 CTD stations along this transect (Fig. 1). Replicate bongo tows and CTD casts were taken at Mooring 4 (Fig. 2).
5. Pribilof Canyon Transport Stations -- We occupied 7 CTD and bongo stations (Figs. 1 & 2) attempting to trace the oceanic water found between the Pribilof Islands back to its source. Plankton samples from between the islands contained oceanic plankton and walleye pollock eggs and larvae.
6. We steamed back to Mooring 3 to conduct gear comparison tests (euphausiid sampler avoidance; MOCNESS with and without video light compared to a Methot net). Rough weather made working on the back deck difficult so after one series of tows we switched to the next operation which used instruments deployed from the quarterdeck.
7. Unimak Pass Box. A "box" transect of 17 CTD stations was attempted (Figs. 1). Twelve of seventeen stations were completed when we broke off operations to return to Dutch Harbor. Nutrient and chlorophyll samples and (20/60 cm) bongo tows (Fig. 2) were taken at selected stations.
8. Gear comparison tests were completed at Mooring 3.
9. Gear comparison, copepod egg production, and TRAP recovery were accomplished at Mooring 2. The R/V Miller Freeman arrived first and set marker buoys for a marine salvage/diving company to mark the locations of the two TRAPS whose release floats/mechanisms had earlier failed. The M/V Redeemer arrived a day later. It took commercial divers three dives over two days to locate and successfully recover the two TRAPS.

10. We successfully deployed Mooring 6 using an acoustic release recovered from one of the two subsurface shelf moorings and anchor chain from the ship that was added to a surplus mooring anchor on board. A current meter from one of the subsurface shelf moorings was used to replace the instrument lost during the first deployment.

Attachments:

Table 1. Station/Sample Table from the FOCI Discrete Sample Database

Figure 1. CTD Stations

Figure 2. Bongo Stations

Figure 3. Miscellaneous Operations Stations

Table 1 mf97-06 CRUISE SUMMARY
FOCI CRUISE 5m97 15 April-1 May 1997

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid No.	Alternate Station No.	Depth (m)	Latitude N	Longitude W	Gear	Samples Collected	Haul Comments
16-Apr	10:54	1	1		CTD001	1787	53° 36.02'	169° 03.56'	CTDB	CHLAM,Chlor,CTD,Fluor	
16-Apr	12:12	1	2			1850	53° 36.07'	169° 03.95'	20Bon	QTowF	
16-Apr	12:12	1	2			1850	53° 36.07'	169° 03.95'	60Bon	QTowF	
16-Apr	12:12	1	2			1850	53° 36.07'	169° 03.95'	CAT	CAT	
16-Apr	13:30	2	1		CTD002	1837	53° 31.06'	168° 54.54'	CTDB	CHLAM,Chlor,CTD,Fluor,PAR	
16-Apr	14:33	2	2			1833	53° 30.81'	168° 54.35'	20Bon	QTowF	
16-Apr	14:33	2	2			1833	53° 30.81'	168° 54.35'	60Bon	QTowF	
16-Apr	14:33	2	2			1833	53° 30.81'	168° 54.35'	CAT	CAT	
16-Apr	16:00	3	1		CTD003	787	53° 26.01'	168° 45.54'	CTDB	CHLAM,Chlor,CTD,Fluor,PAR	
16-Apr	16:54	3	2			900	53° 26.42'	168° 45.36'	20Bon	QTowF	
16-Apr	16:54	3	2			900	53° 26.42'	168° 45.36'	60Bon	QTowF	
16-Apr	16:54	3	2			900	53° 26.42'	168° 45.36'	CAT	CAT	
16-Apr	18:16	4	1		CTD004	652	53° 21.52'	168° 42.15'	CTDB	Chlor,Fluor,Nut,PAR	
16-Apr	19:00	4	2			637	53° 21.64'	168° 41.90'	20Bon	QTowF	
16-Apr	19:00	4	2			637	53° 21.64'	168° 41.90'	60Bon	QTowF	
16-Apr	19:00	4	2			637	53° 21.64'	168° 41.90'	CAT	CAT	
16-Apr	20:35	5	1		CTD005	952	53° 26.26'	168° 45.97'	CTDB	CTD,Nut	At BSM#6.
16-Apr	21:33	6	1			987	53° 24.10'	168° 50.63'	Moor	Recovery	BSM#6.
17-Apr	5:30	6	2			1133	53° 24.60'	168° 50.17'	Moor	Deploy	Kevlar line broke during deployment of mooring 6 lost current meter and release. All other instruments recovered.
17-Apr	8:41	7	1		CTD006	1800	53° 30.82'	168° 55.37'	CTDB	CTD,Nut	Wrong bottom depth recorded by bridge used approximation. Seasoft uptake rate too slow.
17-Apr	12:28	8	1		CTD007	1555	53° 46.81'	169° 15.94'	CTDB	CTD,Nut	Seasoft uptake rate too slow for CTD.
17-Apr	16:11	9	1		CTD008	2000	53° 36.01'	169° 04.25'	CTDB	CTD,Nut	BSM#7.
17-Apr	17:24	9	2			2005	53° 36.07'	169° 05.73'	Moor	Recovery	
17-Apr	23:17	10	1		CTD009	1827	54° 02.02'	169° 33.50'	CTD	CTD	
18-Apr	2:48	11	1		CTD010	1790	54° 18.81'	169° 49.32'	CTDB	CTD,Nut,Nuts,TW	
18-Apr	7:42	12	1		CTD011	1750	54° 40.11'	169° 12.55'	CTD	CTD	
18-Apr	12:07	13	1		CTD012	2106	54° 57.33'	168° 45.09'	CTD	CTD	
18-Apr	15:06	14	1		CTD013	1732	55° 06.43'	168° 28.69'	CTD	CTD	
18-Apr	17:55	15	1		CTD014	1375	55° 20.41'	168° 15.28'	CTDB	Chlor,CTD,Nut	Net towed for some time on surface during recovery as ship positioned.
18-Apr	18:56	15	2			1375	55° 20.66'	168° 15.13'	20Bon	QTowF	20cm bongo net 2 flowmeter suspension broke.

Table 1 mf97-05 CRUISE SUMMARY
FOCI CRUISE 5mf97

Date (GMT)	Time (GMT)	Station	Haul	Grid No.	FOCI	Alternate Station No.	Depth (m)	Latitude N	Longitude W	Gear	Samples Collected	Haul Comments
15-Apr	18:56	15	2			1375	55° 20.66'	168° 15.13'	60Bon	Q TowF		Net towed for some time on surface during recovery as ship positioned. 20cm bongo net 2 flowmeter suspension broke.
18-Apr	18:56	15	2			1375	55° 20.66'	168° 15.13'	CAT	CAT		Net towed for some time on surface during recovery as ship positioned. 20cm bongo net 2 flowmeter suspension broke.
18-Apr	20:19	16	1			510	55° 22.31'	168° 10.36'	CTDB	Chlor, CTD, Fluor, Nut, PAR		
18-Apr	20:20	16	2			509	55° 22.39'	168° 10.71'	20Bon	Q TowF		
18-Apr	20:20	16	2			509	55° 22.39'	168° 10.71'	60Bon	Q TowF		
18-Apr	20:20	16	2			509	55° 22.39'	168° 10.71'	CAT	CAT		
18-Apr	22:37	17	1			215	55° 25.74'	168° 04.25'	CTDB	CHLAM, Chlor, CTD, Fluor, Nut, PAR		
18-Apr	23:07	17	2			216	55° 25.91'	168° 04.33'	20Bon	Q TowF		
18-Apr	23:07	17	2			216	55° 25.91'	168° 04.33'	60Bon	Q TowF		
18-Apr	23:07	17	2			216	55° 25.91'	168° 04.33'	CAT	CAT		
19-Apr	0:57	18	1		CTD017	137	55° 33.21'	167° 45.89'	CTD	CHLAM, CTD, Fluor, PAR		
19-Apr	2:19	19	1		CTD018	138	55° 39.09'	167° 29.53'	CTD	CHLAM, CTD, Fluor, PAR		
19-Apr	3:50	20	1		CTD019	136	55° 45.98'	167° 09.84'	CTD	CHLAM, CTD, Fluor, PAR		
19-Apr	5:18	21	1		CTD020	135	55° 56.93'	166° 53.89'	CTD	CHLAM, CTD, Fluor, PAR		
19-Apr	7:56	22	1		CTD021	123	55° 54.83'	166° 09.77'	CTDB	CHLAM, Chlor, CTD, Fluor, Nut, PAR		
19-Apr	9:37	23	1		CTD022	131	55° 59.03'	166° 35.06'	CTDB	CHLAM, Chlor, CTD, Fluor, Nut, PAR		
19-Apr	11:43	24	1		CTD023	107	56° 10.08'	166° 05.63'	CTDB	CHLAM, Chlor, CTD, Fluor, Nut, PAR		
19-Apr	13:24	25	1		CTD024	113	56° 12.61'	166° 29.58'	CTDB	CHLAM, Chlor, CTD, Fluor, Nut, PAR		
19-Apr	14:44	26	1		CTD025	121	56° 03.44'	166° 19.29'	CTDB	CHLAM, Chlor, CTD, Fluor, Nut, PAR		
19-Apr	15:23	26	2		CTD026	121	56° 03.10'	166° 19.09'	CTDB	CHLAM, Chlor, CTD, Fluor, PAR		
19-Apr	16:14	26	3			121	56° 03.63'	166° 20.14'	Moor	Recovery		
19-Apr	18:32	26	4			121	56° 03.66'	166° 20.15'	Ring1	Live		
19-Apr	19:05	26	5			121	56° 03.64'	166° 20.26'	20Bon	Q TowF		
19-Apr	19:05	26	5			121	56° 03.64'	166° 20.26'	60Bon	Q TowF		
19-Apr	19:05	26	5			121	56° 03.64'	166° 20.26'	CAT	CAT		
19-Apr	20:25	27	1			123	56° 55.05'	166° 10.30'	20Bon	Q TowF		
19-Apr	20:25	27	1			123	56° 55.05'	166° 10.30'	60Bon	Q TowF		
19-Apr	20:25	27	1			123	56° 55.05'	166° 10.30'	CAT	CAT		
19-Apr	21:57	28	1			130	56° 58.93'	166° 35.18'	20Bon	Q TowF		
19-Apr	21:57	28	1			130	56° 58.93'	166° 35.18'	60Bon	Q TowF		
19-Apr	21:57	28	1			130	56° 58.93'	166° 35.18'	CAT	CAT		
19-Apr	23:59	29	1			107	56° 10.10'	166° 06.13'	20Bon	Q TowF		
19-Apr	23:59	29	1			107	56° 10.10'	166° 06.13'	60Bon	Q TowF		
19-Apr	23:59	29	1			107	56° 10.10'	166° 06.13'	CAT	CAT		
20-Apr	1:26	30	1			113	56° 12.61'	166° 30.12'	20Bon	Q TowF		

At BSM#3.
For J. Napp egg production experiment.

X around M3.
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Table 1
mi97-05 CRUISE SUMMARY
FOCI CRUISE 5mi97

15 April-1 May 1997

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid No.	Alternate Station No.	Depth (m)	Latitude N	Longitude W	Gear	Samples Collected	Haul Comments
20-Apr	1:26	30	1			113	56° 12.61'	166° 30.12'	60Bon	QTowF	X around M3.
20-Apr	1:26	30	1			113	56° 12.61'	166° 30.12'	CAT	CAT	X around M3.
20-Apr	5:18	31	1			121	56° 03.58'	166° 19.94'	Moor	Deploy	BSM#3.
20-Apr	6:31	31	2			121	56° 03.39'	166° 19.94'	SedTrap	Deploy	Sediment trap for Stacy Smith UAF.
20-Apr	6:45	31	3	CTD027		121	56° 03.40'	166° 19.74'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,Nuts,TW,PAR	Ground truth CTD for BSM3.
20-Apr	9:26	32	1	CTD028		94	56° 16.27'	165° 46.26'	CTD	CHLAM,CTD,Fluor,PAR	
20-Apr	11:04	33	1	CTD029		88	56° 23.33'	165° 23.36'	CTD	CHLAM,CTD,Fluor,PAR	
20-Apr	12:45	34	1	CTD030		81	56° 30.61'	164° 59.61'	CTD	CHLAM,CTD,Fluor,PAR	
20-Apr	13:02	34	2			80	56° 30.31'	164° 59.77'	Ring1	Live	For J. Napp egg production experiment.
20-Apr	14:57	35	1	CTD031		77	56° 37.68'	164° 36.06'	CTD	CHLAM,CTD,Fluor,PAR	
20-Apr	17:49	36	1	CTD032		72	56° 52.43'	164° 02.26'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	Ground truth for M2.
20-Apr	18:16	36	2	CTD033		72	56° 52.61'	164° 01.92'	CTDB	CHLAM,Chlor,CTD,Fluor,PAR	At BSM#2. Low flow counts of 60bon net 1 used net 2 instead.
20-Apr	18:36	36	3			73	56° 52.78'	164° 02.11'	20Bon	QTowF	At BSM#2. Low flow counts of 60bon net 1 used net 2 instead.
20-Apr	18:36	36	3			73	56° 52.78'	164° 02.11'	60Bon	QTowF	At BSM#2. Low flow counts of 60bon net 1 used net 2 instead.
20-Apr	18:36	36	3			73	56° 52.78'	164° 02.11'	CAT	CAT	At BSM#2. Low flow counts of 60bon net 1 used net 2 instead.
20-Apr	20:26	36	4			72	56° 52.32'	164° 02.77'	Moor	Recovery	X around M2.
20-Apr	22:59	37	1	CTD034		74	56° 45.99'	164° 20.16'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	X around M2.
20-Apr	23:23	37	2			74	56° 45.97'	164° 20.13'	20Bon	QTowF	X around M2.
20-Apr	23:23	37	2			74	56° 45.97'	164° 20.13'	60Bon	QTowF	X around M2.
20-Apr	23:23	37	2			75	56° 45.97'	164° 20.13'	CAT	CAT	X around M2.
21-Apr	1:17	38	1	CTD035		75	56° 43.96'	163° 52.47'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	X around M2.
21-Apr	1:42	38	2			77	56° 44.10'	163° 52.61'	20Bon	QTowF	X around M2.
21-Apr	1:42	38	2			77	56° 44.10'	163° 52.61'	60Bon	QTowF	X around M2.
21-Apr	1:42	38	2			77	56° 44.10'	163° 52.61'	CAT	CAT	X around M2.
21-Apr	3:29	39	1	CTD036		71	56° 56.52'	163° 49.50'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	X around M2.
21-Apr	3:49	39	2			71	56° 56.76'	163° 49.48'	20Bon	QTowF	X around M2.
21-Apr	3:49	39	2			71	56° 56.76'	163° 49.48'	60Bon	QTowF	X around M2.
21-Apr	3:49	39	2			71	56° 56.76'	163° 49.48'	CAT	CAT	X around M2.
21-Apr	5:41	40	1	CTD037		71	57° 01.09'	164° 12.70'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	X around M2.
21-Apr	6:30	40	2			71	57° 01.27'	164° 12.87'	20Bon	QTowF	X around M2.
21-Apr	6:30	40	2			71	57° 01.27'	164° 12.87'	60Bon	QTowF	X around M2.
21-Apr	6:30	40	2			71	57° 01.27'	164° 12.87'	CAT	CAT	X around M2.
21-Apr	8:02	41	1			73	56° 52.80'	164° 01.96'	Live	BioOther	Tow for zooplankton for Stacy Smith UAF.
21-Apr	12:38	41	2			71	56° 52.91'	164° 02.12'	Ring1	Live	For J. Napp egg production experiment.
22-Apr	3:57	41	3			72	56° 52.74'	164° 02.02'	Moor	Deploy	BSM#2.

Table 1 m197-05 CRUISE SUMMARY

Date (GMT)	Time (GMT)	Station	Haul	Grid No.	FOCI	Alternate Station No.	Depth (m)	Latitude N	Longitude W	Gear	Samples Collected	Haul Comments
22-Apr	4:53	41	4				73	56° 52.54'	164° 01.92'	SedTrap	Deploy	Sediment trap at BSM#2 site for UAF.
22-Apr	5:08	41	5		CTD038		74	56° 52.56'	164° 01.48'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	Ground truth at BSM#2.
22-Apr	5:46	41	6		CTD039		73	56° 52.67'	164° 01.12'	CTDB	CHLAM,Chlor,CTD,Fluor,PAR	Ground truth at BSM#2.
22-Apr	9:48	42	1		CTD040		71	57° 07.16'	164° 59.99'	CTD	CHLAM,CTD,Fluor,PAR	
22-Apr	13:06	43	1		CTD041		71	57° 25.12'	165° 51.96'	CTD	CHLAM,CTD,Fluor,PAR	
22-Apr	13:19	43	2				69	57° 25.24'	165° 51.78'	Ring1	Live	For J. Napp egg production experiment.
22-Apr	13:25	43	3				69	57° 25.42'	165° 51.79'	Ring1	Live	For J. Napp egg production experiment.
22-Apr	16:28	44	1		CTD042		70	57° 32.02'	166° 43.82'	CTD	CHLAM,CTD,Fluor,PAR	
22-Apr	19:30	45	1		CTD043		70	57° 37.93'	167° 36.73'	CTD	CHLAM,CTD,Fluor,PAR	
22-Apr	22:20	46	1		CTD044		72	57° 46.11'	168° 28.05'	CTD	CHLAM,CTD,Fluor,PAR	
22-Apr	23:54	47	1		CTD045		72	57° 51.17'	168° 52.51'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	Ground truth at M4.
23-Apr	0:15	47	2				73	57° 51.37'	168° 52.67'	20Bon	QTowF	First of three replicates. Seacat log BONGO47.hex
23-Apr	0:15	47	2				73	57° 51.37'	168° 52.67'	60Bon	QTowF	First of three replicates. Seacat log BONGO47.hex
23-Apr	0:15	47	2				73	57° 51.37'	168° 52.67'	CAT	CAT	Second of third replicate. Seacat log BONGO47B.HEX
23-Apr	0:35	47	3				73	57° 51.05'	168° 51.69'	20Bon	QTowF	Second of third replicate. Seacat log BONGO47B.HEX
23-Apr	0:35	47	3				73	57° 51.05'	168° 51.69'	60Bon	QTowF	Third of three replicates. Seacat log BONGO47C.HEX
23-Apr	0:35	47	3				73	57° 51.05'	168° 51.69'	CAT	CAT	Third of three replicates. Seacat log BONGO47C.HEX
23-Apr	0:57	47	4				72	57° 51.06'	168° 52.33'	20Bon	QTowF	Third of three replicates. Seacat log BONGO47C.HEX
23-Apr	0:57	47	4				72	57° 51.06'	168° 52.33'	60Bon	QTowF	Third of three replicates. Seacat log BONGO47C.HEX
23-Apr	0:57	47	4				72	57° 51.06'	168° 52.33'	CAT	CAT	Third of three replicates. Seacat log BONGO47C.HEX
23-Apr	2:25	48	1		CTD046		68	57° 52.22'	169° 17.96'	CTD	CHLAM,CTD,Fluor,PAR	
23-Apr	6:39	49	1		CTD047		74	57° 06.11'	169° 18.96'	CTDB	CHLAM,CTD,Fluor,Nut,PAR	
23-Apr	6:57	49	2				74	57° 06.36'	169° 18.69'	20Bon	QTowF	
23-Apr	6:57	49	2				74	57° 06.36'	169° 18.69'	60Bon	QTowF	
23-Apr	6:57	49	2				74	57° 06.36'	169° 18.69'	CAT	CAT	
23-Apr	9:40	50	1		CTD048		63	57° 02.94'	170° 08.97'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	
23-Apr	10:14	50	2				64	57° 02.82'	170° 08.61'	20Bon	QTowF	
23-Apr	10:14	50	2				64	57° 02.82'	170° 08.61'	60Bon	QTowF	
23-Apr	10:14	50	2				64	57° 02.82'	170° 08.61'	CAT	CAT	
23-Apr	11:34	51	1		CTD049		73	56° 51.99'	169° 58.09'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	

Table 1 m197-05 CRUISE SUMMARY
FOCI CRUISE 5m197

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid No.	Alternate Station No.	Depth (m)	Latitude N	Longitude W	Gear	Samples Collected	Haul Comments
23-Apr	12:08	51	2			72	56° 52.09'	169° 58.16'	20Bon	QTowF	
23-Apr	12:08	51	2			72	56° 52.09'	169° 58.16'	60Bon	QTowF	
23-Apr	12:08	51	2			72	56° 52.09'	169° 58.16'	CAT		
23-Apr	12:20	51	3			73	56° 52.54'	169° 58.54'	Ring1	Live	For J. Nepp egg production experiment.
23-Apr	12:31	51	4			73	56° 52.63'	169° 58.83'	Ring1	Live	
23-Apr	14:02	52	1	CTD060		80	56° 41.34'	169° 47.75'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	Stopwatch not started on time low time calculated from wire out.
23-Apr	14:24	52	2			80	56° 41.65'	169° 47.55'	20Bon	QTowF	Stopwatch not started on time low time calculated from wire out.
23-Apr	14:24	52	2			80	56° 41.65'	169° 47.55'	60Bon	QTowF	Stopwatch not started on time low time calculated from wire out.
23-Apr	14:24	52	2			80	56° 41.65'	169° 47.55'	CAT		Stopwatch not started on time low time calculated from wire out.
23-Apr	15:58	53	1	CTD051		102	56° 40.84'	170° 12.06'	CTDB	CHLAM,CTD,Fluor,Nut,PAR	
23-Apr	16:17	53	2			102	56° 41.05'	170° 12.57'	20Bon	QTowF	Some sample lost from net 1 during rinse down. Time calculated from wire out because stopwatch was not turned off.
23-Apr	16:17	53	2			102	56° 41.05'	170° 12.57'	CAT		Some sample lost from net 1 during rinse down. Time calculated from wire out because stopwatch was not turned off.
23-Apr	17:58	54	1	CTD052		112	56° 25.98'	170° 13.05'	CTDB	CHLAM,CTD,Fluor,Nut,PAR	
23-Apr	18:16	54	2			112	56° 26.02'	170° 13.05'	20Bon	QTowF	
23-Apr	18:16	54	2			112	56° 26.02'	170° 13.05'	60Bon	QTowF	
23-Apr	18:16	54	2			112	56° 26.02'	170° 13.05'	CAT		
23-Apr	20:29	55	1	CTD053		238	56° 15.73'	169° 41.94'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	
23-Apr	21:00	55	2			233	56° 15.68'	169° 41.77'	20Bon	QTowF	
23-Apr	21:00	55	2			233	56° 15.68'	169° 41.77'	60Bon	QTowF	
23-Apr	21:00	55	2			233	56° 15.68'	169° 41.77'	CAT		
24-Apr	7:58	56	1			118	56° 05.71'	166° 17.45'	ShipBuoy	Deploy	Deploy drift buoy
24-Apr	9:03	56	2	MOC001		119	56° 05.03'	166° 17.45'	MOC1	QTowF	Following drifter buoy. Without light.
24-Apr	11:14	56	3	MOC002		120	56° 04.17'	166° 17.84'	MOC1	QTowF	Following drifter buoy. With light
24-Apr	12:25	56	4			120	56° 03.69'	166° 18.62'	Meth	QTowF	
24-Apr	13:48	56	5	CTD054		120	56° 03.75'	166° 17.52'	CTD	CHLAM,CTD,Fluor,PAR	
24-Apr	17:16	57	1			122	56° 03.26'	166° 19.94'	60Bon	BioOther	
24-Apr	17:48	57	2			122	56° 03.32'	166° 19.94'	Live	BioOther	For Stacy Smith UAF.
25-Apr	2:04	58	1	CTD055		113	55° 03.21'	165° 05.76'	CTDB	CHLAM,Chlor,CTD,Fluor,PAR	Unlmark box.

Table 1 mi97-05 CRUISE SUMMARY
FOCI CRUISE 5mi97

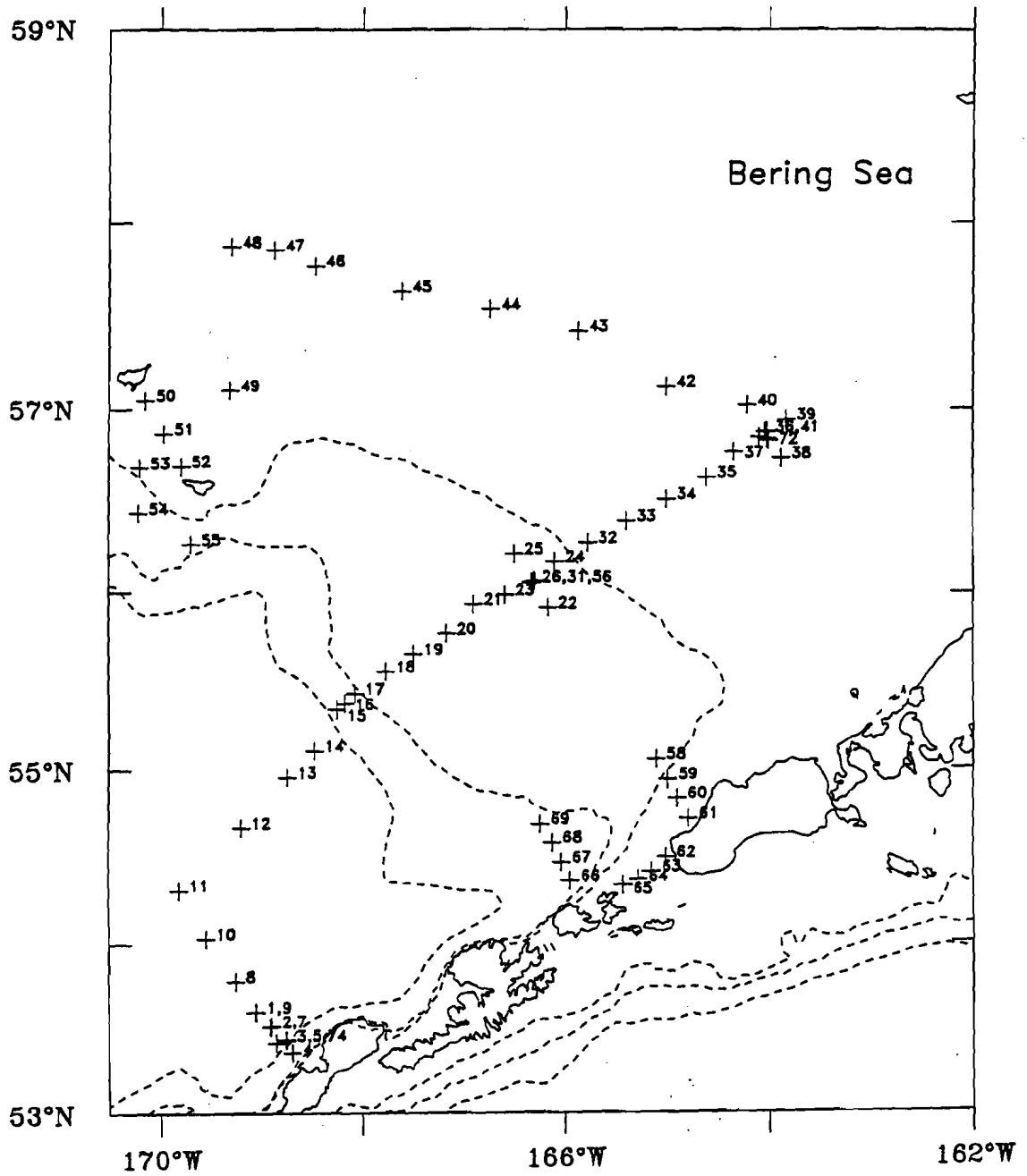
Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid No.	Alternate Station No.	Depth (m)	Latitude N	Longitude W	Gear	Samples Collected	Haul Comments
25-Apr	3:11	59	1		CTD056	91	56.41°	164°	58.88' CTD	CHLAM,CTD,Fluor,PAR	Unimak box.
25-Apr	4:09	60	1		CTD057	76	54°	164°	53.43' CTDB	CHLAM,Chlor,CTD,Fluor,PAR	Unimak box.
25-Apr	5:14	61	1		CTD058	48	54°	164°	46.89' CTD	CHLAM,CTD,Fluor,PAR	Unimak box.
25-Apr	7:41	62	1		CTD059	57	54°	164°	59.85' CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	Unimak box.
25-Apr	8:43	63	1		CTD060	147	54°	165°	08.61' CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	Unimak box.
25-Apr	9:12	63	2			152	54°	165°	09.01' 20Bon	QTowF	Unimak box.
25-Apr	9:12	63	2			152	54°	165°	09.01' 60Bon	QTowF	Unimak box.
25-Apr	9:12	63	2			152	54°	165°	09.01' CAT	CAT	Unimak box.
25-Apr	10:14	64	1		CTD061	167	54°	165°	16.50' CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	Unimak box.
25-Apr	10:40	64	2			178	54°	165°	17.06' 20Bon	QTowF	Unimak box.
25-Apr	10:40	64	2			178	54°	165°	17.06' 60Bon	QTowF	Unimak box.
25-Apr	10:40	64	2			178	54°	165°	17.06' CAT	CAT	Unimak box.
25-Apr	10:40	65	1		CTD062	159	54°	165°	25.66' CTDB	CHLAM,Chlor,CTD,Fluor,Nut,PAR	Unimak box.
25-Apr	12:04	65	2			158	54°	165°	25.57' 20Bon	QTowF	Unimak box.
25-Apr	12:04	65	2			158	54°	165°	25.57' 60Bon	QTowF	Unimak box.
25-Apr	12:04	65	2			158	54°	165°	25.57' CAT	CAT	Unimak box.
25-Apr	14:26	66	1		CTD063	488	54°	165°	56.67' CTDB	Chlor,CTD,Fluor,Nut,PAR	Unimak box.
25-Apr	15:38	66	2			501	54°	165°	57.99' 20Bon	QTowF	Unimak box. Sinking time of total tow time estimated from wire out retrieval timed.
25-Apr	15:38	66	2			501	54°	165°	57.99' 60Bon	QTowF	Unimak box. Sinking time of total tow time estimated from wire out retrieval timed.
25-Apr	15:38	66	2			501	54°	165°	57.99' CAT	Discard	Unimak box. Sinking time of total tow time estimated from wire out retrieval timed.
25-Apr	16:45	67	1		CTD064	545	54°	166°	01.91' CTDB	Chlor,CTD,Fluor,Nut,PAR	Unimak box.
25-Apr	17:56	67	2			545	54°	166°	02.66' 20Bon	QTowF	Unimak box.
25-Apr	17:56	67	2			545	54°	166°	02.66' 60Bon	QTowF	Unimak box.
25-Apr	17:56	67	2			545	54°	166°	02.66' CAT	CAT	Unimak box.
25-Apr	19:23	68	1		CTD065	418	54°	166°	07.34' CTDB	Discard	Unimak box. Not all bottles tripped cast redone.
25-Apr	20:01	68	2		CTD066	416	54°	166°	07.16' CTDB	Chlor,CTD,Fluor,Nut,PAR	Unimak box.
25-Apr	20:39	68	3			414	54°	166°	08.00' 20Bon	QTowF	Unimak box.
25-Apr	20:39	68	3			414	54°	166°	08.00' 60Bon	QTowF	Unimak box.
25-Apr	20:39	68	3			414	54°	166°	08.00' CAT	CAT	Unimak box.
25-Apr	21:53	69	1		CTD067	291	54°	166°	14.33' CTDB	Chlor,CTD,Fluor,Nut,PAR	Unimak box.
25-Apr	22:25	69	2			287	54°	166°	14.35' 20Bon	QTowF	Unimak box.
25-Apr	22:25	69	2			287	54°	166°	14.35' 60Bon	QTowF	Unimak box.
25-Apr	22:25	69	2			287	54°	166°	14.35' CAT	CAT	Unimak box.
26-Apr	17:12	70	1			130	55°	166°	34.91' ShipBuoy	Deploy	Unimak box.
26-Apr	18:35	70	2			130	55°	166°	35.47' Meth	QTowF	Unimak box.

Table 1 m197-05 CRUISE SUMMARY
FOCI CRUISE 5m197

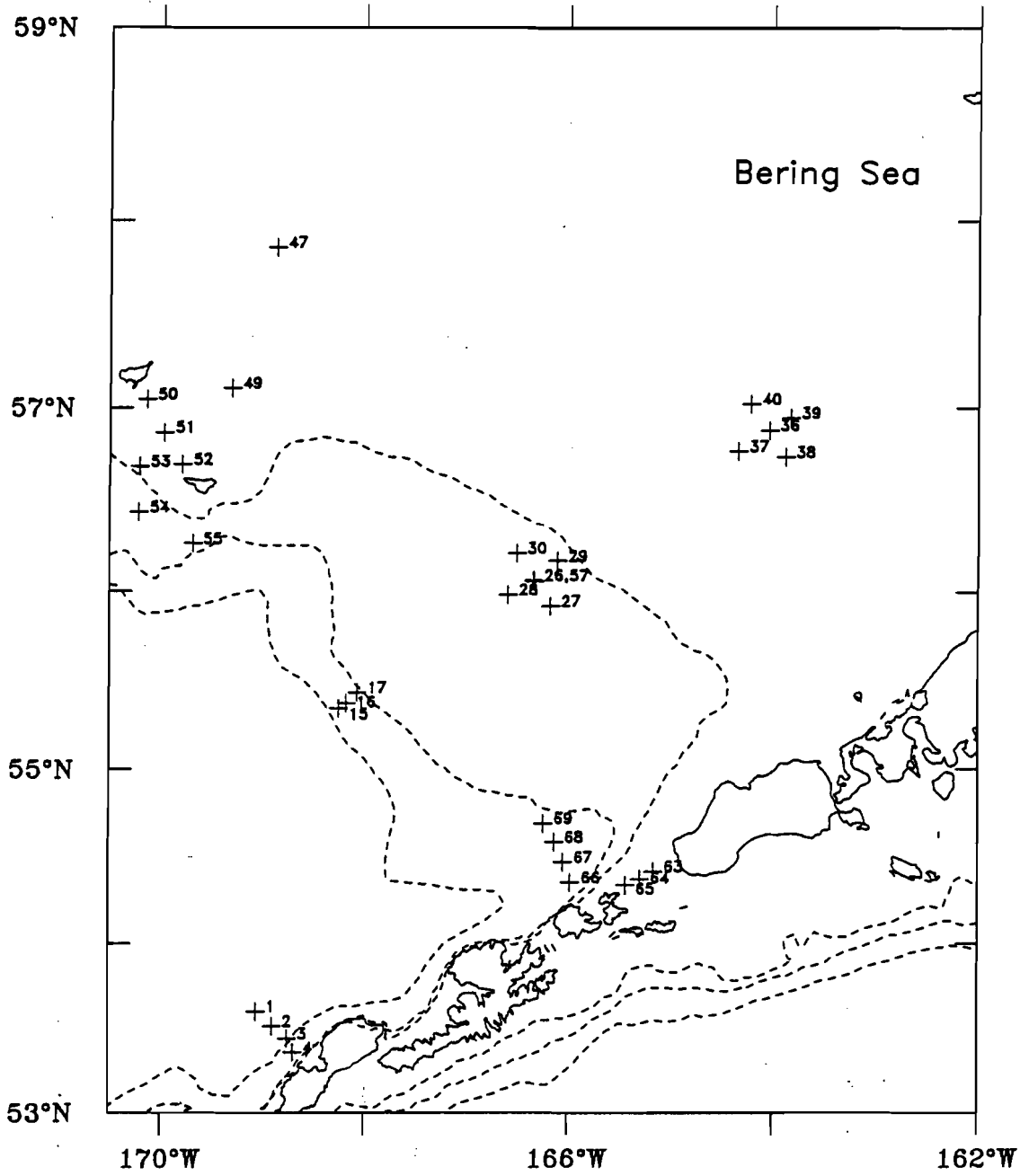
Date (GMT)	Time (GMT)	Station	Haul	Grid No.	FOCI	Alternate Station No.	Depth (m)	Latitude N	Longitude W	Gear	Samples Collected	Haul Comments
26-Apr	20:58	70	3		MOC003		130	55° 59.28'	166° 34.67'	MOC1	BioOther, Q TowF	15 April-1 may 1997 Following drifter buoy near M3. Light on for deployment, off when came back. Following drifter buoy near M2. Light on.
26-Apr	22:06	70	4		MOC004		130	55° 59.17'	166° 36.58'	MOC1	BioOther, Q TowF	Following drifter buoy near M3.
26-Apr	23:12	70	5				130	55° 58.81'	166° 35.75'	Meth	Q TowF	Following drifter buoy near M3.
27-Apr	0:13	70	6		MOC005		130	55° 58.80'	166° 37.68'	MOC1	Q TowF	Without light.
27-Apr	1:08	70	7		MOC006		130	55° 58.67'	166° 37.42'	MOC1	Q TowF	Following drifter buoy near M3. With light.
27-Apr	2:09	70	8				130	55° 58.43'	166° 36.32'	Meth	Q TowF	Following drifter buoy near M3.
27-Apr	8:14	70	9				131	56° 00.09'	166° 36.29'	Meth	Q TowF	Following drifter buoy near M3. 3 jellies removed: 6" and 2.5" and 2" diameters
27-Apr	9:13	70	10		MOC007		131	56° 00.09'	166° 36.53'	MOC1	Q TowF	Following drifter buoy near M3. Light off. Wire rate 20 m/min bottom to 60m. 15 m/min to surface
27-Apr	10:06	70	11		MOC008		131	55° 59.91'	166° 35.45'	MOC1	Q TowF	Following drifter buoy near M3. Light on. no lat/long reading. winch rate 20 m/min the whole way.
27-Apr	11:24	70	12		MOC009		130	55° 59.41'	166° 35.94'	MOC1	Q TowF	Following drifter buoy near M3. No light. winch rate 20 m/min from bottom to 60m. 10 m/min to surface.
27-Apr	12:20	70	13		MOC010		130	55° 58.68'	166° 35.51'	MOC1	Q TowF	Following drifter buoy near M3. Light on. winch rate 20 m/min bottom to 60 m. 60m to surface 10 m/min.
27-Apr	13:27	70	14				130	55° 58.57'	166° 35.57'	Meth	Q TowF	Marker buoy #1 for TRAP recovery.
27-Apr	14:37	70	15				130	55° 58.62'	166° 35.76'	ShipBuoy	Recovery	Marker buoy #2 for TRAP recovery.
28-Apr	0:15	71	1				73	56° 52.25'	164° 02.97'	Moor	Deploy	
28-Apr	2:52	71	2				73	56° 52.25'	164° 03.42'	Moor	Deploy	
28-Apr	5:50	72	1				74	56° 50.67'	164° 05.85'	ShipBuoy	Deploy	
28-Apr	6:03	72	2			CTD068	74	56° 50.86'	164° 05.49'	CTD8	CHLAM, Chlor, CTD, Fluor, Nut, PAR	
28-Apr	8:41	72	3		MOC011		74	56° 51.28'	164° 05.06'	MOC1	BioOther, Q TowF	Following drifter near M2. Without light
28-Apr	9:26	72	4		MOC012		74	56° 51.05'	164° 03.75'	MOC1	Q TowF	Following drifter buoy near M2. With light
28-Apr	10:10	72	5				74	56° 51.23'	164° 02.73'	Meth	Q TowF	Following Drifter buoy near M2. 4 2" diameter jellies removed.

Table 1 m197-05 CRUISE SUMMARY
FOCI CRUISE Smt197

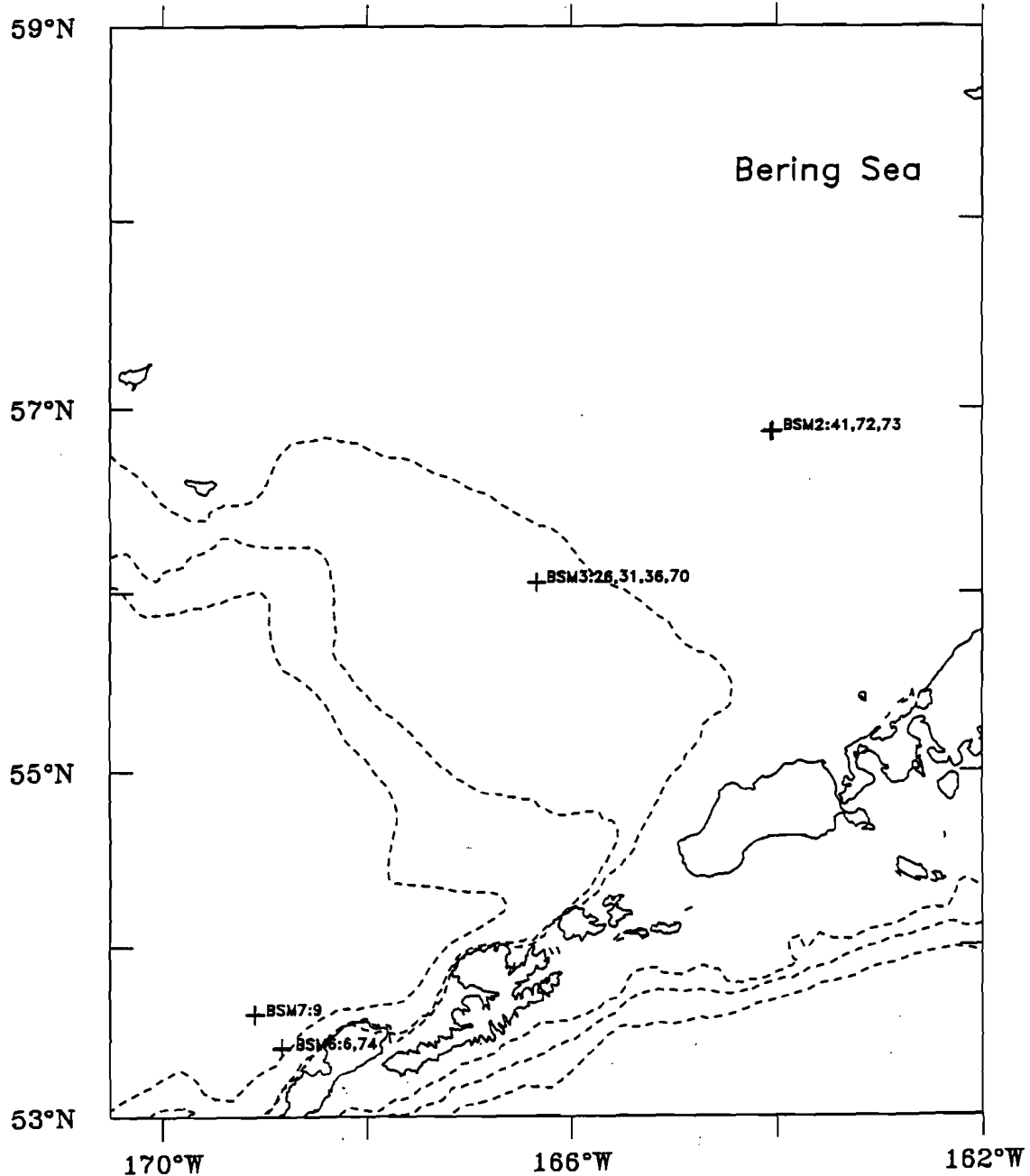
Date (GMT)	Time (GMT)	Station	Haul	Grid No.	FOCI	Alternate Station No.	Depth (m)	Latitude N	Longitude W	Gear	Samples Collected	Haul Comments
28-Apr	10:36	72	6				74	56° 51.30'	164° 02.18'	Meth	QTowF	Following drifter buoy near M2. 4 - 2" and 4" and 5" and 9" diameter jellies removed.
28-Apr	11:36	72	7		MOC013		74	56° 51.07'	164° 01.18'	MOC1	QTowF	Following drifter buoy near M2. With light
28-Apr	12:15	72	8		MOC014		74	56° 51.04'	164° 00.70'	MOC1	QTowF	Following drifter buoy near M2.
28-Apr	14:40	72	9				74	56° 50.36'	164° 00.83'	Ring1	Live	Without light
28-Apr	14:52	72	10				74	56° 50.21'	164° 01.02'	Ring1	Live	For J. Napp egg production experiment.
28-Apr	16:04	72	11		CTD069		74	56° 50.30'	164° 00.99'	CTDB	CHLAM,CTD,Fluor,PAR	Following drifter buoy near M2.
29-Apr	8:49	72	12				75	56° 49.96'	164° 04.92'	Meth	QTowF	Without light.
29-Apr	9:35	72	13		MOC015		74	56° 50.65'	164° 04.22'	MOC1	BioOther,QTowF	Following drifter buoy near M2. With light.
29-Apr	10:13	72	14		MOC016		74	56° 50.61'	164° 03.25'	MOC1	QTowF	Following drifter buoy near M2. With light.
29-Apr	10:59	72	15				74	56° 50.82'	164° 02.39'	Meth	QTowF	Following drifter buoy near M2.
29-Apr	11:52	72	16		MOC017		74	56° 50.80'	164° 01.23'	MOC1	QTowF	Without light.
29-Apr	12:46	72	17		MOC018		74	56° 50.33'	164° 00.99'	MOC1	QTowF	Following drifter buoy near M2. With light.
29-Apr	14:42	72	18				74	56° 49.82'	164° 00.36'	Ring1	Live	For J. Napp egg production experiment.
29-Apr	14:58	72	19				74	56° 49.72'	164° 00.26'	Ring1	Live	For J. Napp egg production experiment.
29-Apr	15:58	72	20		CTD070		74	56° 49.77'	164° 00.13'	CTDB	CHLAM,Chlor,CTD,Fluor,Nut,Nuts TW,PAR	Recovery of TRAPS moorings that did not release on an earlier cruise.
29-Apr	16:15	72	21				74	56° 49.70'	164° 00.37'	ShipBuoy	Recovery	Personnel sailing on Miller Freeman (Bill Parker PMEL) transferred to MV Redeemer to supervise work and then transferred back to Freeman.
29-Apr	16:30	73	1				74	56° 52.25'	164° 02.97'	Moor	Recovery	
30-Apr	23:12	74	1				1016	53° 24.31'	168° 50.63'	Moor	Deploy	BSM#6.
1-May	0:00	74	2		CTD071		1260	53° 25.07'	168° 51.56'	CTD	CTD	Ground truth at BSM#6.



5MF97 CTD Stations



5MF97 Bongo Stations



5MF97 Misc. Operations