

## CRUISE REPORT

Cruise Number: MF-03-02  
FOCI Number: 1MF03  
Ship: *Miller Freeman*

**Area of Operations:** Gulf of Alaska, Kodiak Island vicinity

**Itinerary:** Departed Kodiak, AK, Thursday, February 13, 2003  
Arrived Kodiak, AK, Saturday, February 22, 2003

**Participating Organizations:** NOAA/Alaska Fisheries Science Center (AFSC)

### Chief Scientist:

Morgan S. Busby, Male, AFSC  
(206) 526-4113  
[Morgan.Busby@noaa.gov](mailto:Morgan.Busby@noaa.gov)

### Personnel:

Debbie Blood	Female	AFSC	<a href="mailto:Debbie.Blood@noaa.gov">Debbie.Blood@noaa.gov</a>
Christina Deliyianides	Female	AFSC	<a href="mailto:Christina.Deliyanides@noaa.gov">Christina.Deliyanides@noaa.gov</a>
William Floering	Male	PMEL	<a href="mailto:William.Floering@noaa.gov">William.Floering@noaa.gov</a>
Jennifer Lanksbury	Female	AFSC	<a href="mailto:Jennifer.Lanksbury@noaa.gov">Jennifer.Lanksbury@noaa.gov</a>
Erin MacDonald	Female	UW	<a href="mailto:Emac@u.washington.edu">Emac@u.washington.edu</a>
Ann Matarese	Female	AFSC	<a href="mailto:Ann.Matarese@noaa.gov">Ann.Matarese@noaa.gov</a>

### Objectives of Cruise:

We conducted an ichthyoplankton survey in the contiguous waters south and west of Kodiak Island, Alaska. This work was needed to describe larval fish assemblages on the shelf and slope in winter, and to study the transport and early life history of larval fishes. In addition, bottom trawls were conducted in several areas on the upper slope off Kodiak Island and near the Shumagin Islands to collect ripe adult arrowtooth flounder (*Atheresthes stomias*). We stripped eggs and milt from the adults, and then fertilized the eggs aboard ship for rearing in the laboratory. Data on physical characteristics of the water column were also collected.

### Summary of Operations:

<u>Operation</u>	<u>Tows</u>
60cm Bongo (standard MARMAP)	50
60cm Bongo (deep)	16
Seabird SeaCAT CTD	66
Sameoto neuston	26
CTD with bottle samples	2
Poly Nor'Eastern bottom trawl	21

## Samples Collected:

Quantitative tows preserved in formalin                    92  
Eggs stripped from female ATF and fertilized    6 (Individual females)

## Summary of Cruise:

**Grid Survey:** Departure from Kodiak, AK occurred at 1500 hrs on February 13, 2003. A standard MARMAP bongo tow was conducted at the first station (57° 39.32' N, 152° 22.70' W) in the vicinity of Chiniak Bay (Figure 1). At station 2, we began neuston sampling. Throughout the grid survey, neuston samples were collected at night at all stations occupied from ½ hour after sunset until ½ hour before sunrise. During the grid survey, deep bongo tows intended to collect eggs of arrowtooth flounder were conducted at several stations typically at depths of 200, 400, or 600 m (Figure 1). Sampling at grid stations concluded at approximately 10:45 AM on 17 February.

**Bottom trawl operations:** Poly Nor'eastern bottom trawl operations began at approximately 0500 hrs on 18 February on the upper continental slope approximately 70 kilometers southwest of the grid stations near Chirikof Island (55° 02.69' N, 157° 02.72' W). From the catch in the first tow (fished at 415 m depth), eggs from a 58 cm fork length (FL) female arrowtooth flounder were fertilized with milt extracted from 16 males 41-53 cm FL. From the catch in the 19<sup>th</sup> tow (56° 15.23' N, 153° 17.41' W), at approximately 1515 hrs on 21 February, eggs stripped from five female arrowtooth flounder 52-81 cm FL in immediate post-spawning condition were fertilized with milt from 20 males 43-57 cm FL. Overall, 21 bottom trawl deployments were conducted with 18 fishing successfully. Catch in nearly all tows was dominated by arrowtooth flounder. Other species frequently observed in catches included giant grenadier (*Albatrossia pectoralis*), walleye pollock (*Theragra chalcogramma*), sablefish (*Anoplopoma fimbria*), shortspine thornyhead (*Sebastolobus alascanus*), Pacific ocean perch (*Sebastes alutus*), shorttraker rockfish (*Sebastes borealis*), and Pacific halibut (*Hippoglossus stenolepis*). Two CTD casts with Niskin bottles were deployed to collect sea water at depth for arrowtooth flounder egg incubation. In addition to the bottom trawl and CTD operations, we conducted nine additional deep bongo tows at selected stations southwest of the grid (Figure 1).

Upon completion of all operations, we returned to Kodiak, AK on 22 February at 1000 hrs.

Days lost to equipment failure – 0.15 (aborted or unsuccessful bottom trawls due to FURUNO and SCANTROL starboard winch counter difficulties, CTD electrical problems).

Days lost due to weather – 0.0

**Specifics of operations:**

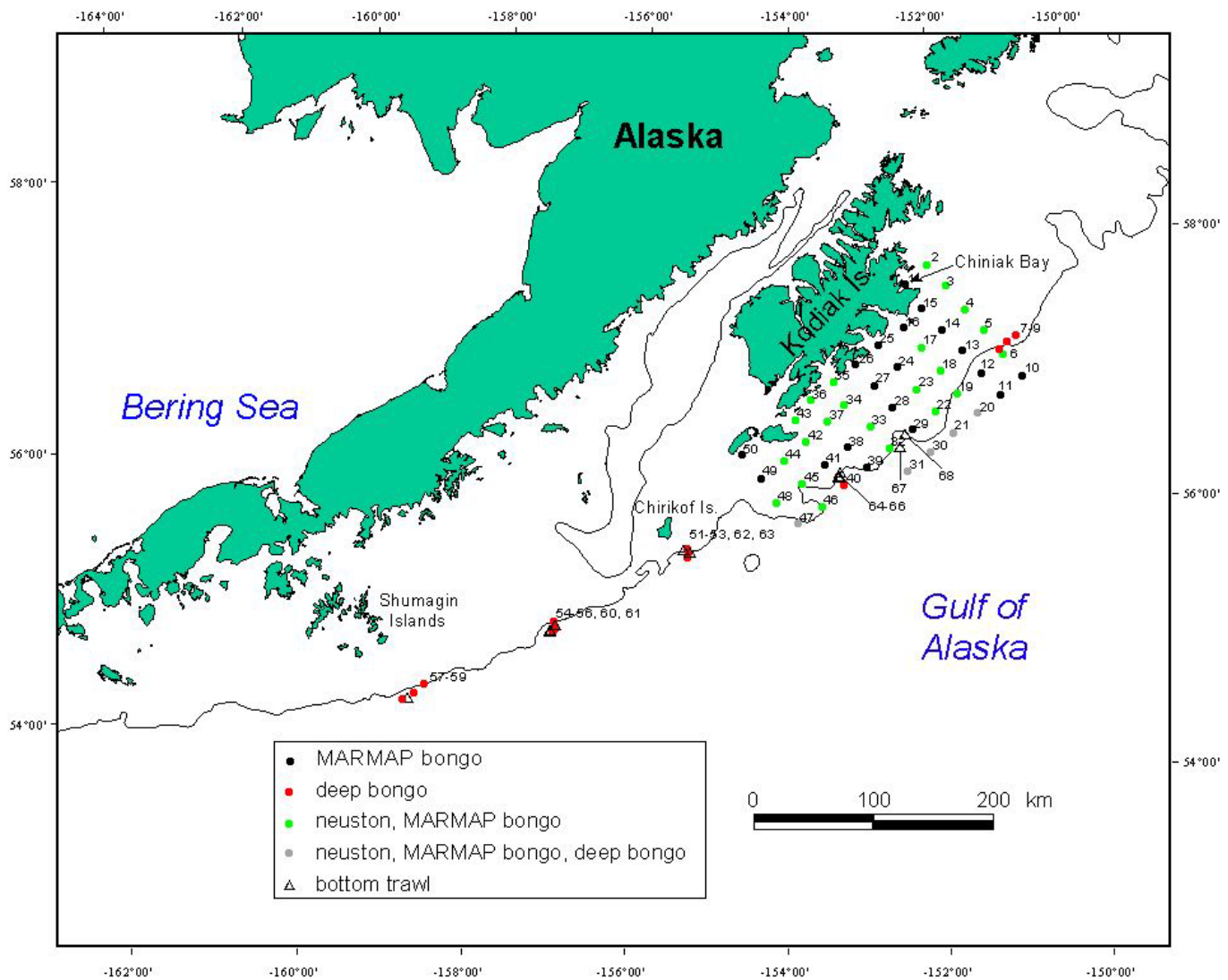
See Table 1.

**Acknowledgments:**

The scientific party would like to acknowledge the efforts and support of the officers and crew of the NOAA ship *Miller Freeman*. All personnel performed their duties professionally and the success of the cruise was dependent, in large part, on their hard work.

**Attachments:**

**Figure 1. Survey area.** Some bottom trawl localities represent multiple hauls.



**Table 1.**  
**Cruise Summary For FOCI Cruise 1MF03 (MF03-02)**

Date (GMT)	Time (GMT)	Station	Haul	Grid	FOCI Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
14-Feb-03	2:08	1	1		BON001	89	57 39.32 N	152 22.70 W	60Bon	QTowF	
14-Feb-03	2:08	1	1		BON001	89	57 39.32 N	152 22.70 W	CAT	CAT	
14-Feb-03	3:42	2	1			102	57 48.18 N	152 02.95 W	Neu	QTowF	
14-Feb-03	4:03	2	2		BON002	98	57 47.50 N	152 03.00 W	60Bon	QTowF	
14-Feb-03	4:03	2	2		BON002	98	57 47.50 N	152 03.00 W	CAT	CAT	
14-Feb-03	7:33	3	1			121	57 26.96 N	151 33.14 W	Neu	QTowF	
14-Feb-03	6:01	3	2		BON003	108	57 38.08 N	151 47.77 W	60Bon	QTowF	
14-Feb-03	6:01	3	2		BON003	108	57 38.08 N	151 47.77 W	CAT	CAT	
14-Feb-03	9:17	4	1			151	57 17.96 N	151 17.89 W	Neu	QTowF	
14-Feb-03	7:55	4	2		BON004	130	57 26.69 N	151 32.61 W	60Bon	QTowF	
14-Feb-03	7:55	4	2		BON004	130	57 26.69 N	151 32.61 W	CAT	CAT	
14-Feb-03	9:17	5	1			151	57 17.96 N	151 17.89 W	Neu	QTowF	
14-Feb-03	9:38	5	2		BON005	151	57 18.00 N	151 17.75 W	60Bon	QTowF	
14-Feb-03	9:38	5	2		BON005	151	57 18.00 N	151 17.75 W	CAT	CAT	
14-Feb-03	11:13	6	1			605	57 06.56 N	151 02.80 W	Neu	QTowF	
14-Feb-03	11:33	6	2		BON006	673	57 06.47 N	151 02.23 W	60Bon	QTowF	
14-Feb-03	11:33	6	2		BON006	673	57 06.47 N	151 02.23 W	CAT	CAT	
14-Feb-03	12:49	7	1		BOND01	186	57 14.47 N	150 50.82 W	60Bon	QTowF	ATF-1. DEEP BONGO STATION.
14-Feb-03	12:49	7	1		BOND01	186	57 14.47 N	150 50.82 W	CAT	CAT	ATF-1. DEEP BONGO STATION.
14-Feb-03	14:10	8	1		BOND02	400	57 08.29 N	151 05.38 W	60Bon	QTowF	ATF-2. DEEP BONGO STATION.
14-Feb-03	14:10	8	1		BOND02	400	57 08.29 N	151 05.38 W	CAT	CAT	ATF-2. DEEP BONGO STATION.
14-Feb-03	15:22	9	1		BOND03	574	57 11.36 N	150 58.33 W	60Bon	QTowF	ATF-3. DEEP BONGO STATION.
14-Feb-03	15:22	9	1		BOND03	574	57 11.36 N	150 58.33 W	CAT	CAT	ATF-3. DEEP BONGO STATION.
14-Feb-03	17:39	10	1		BON007	968	56 56.42 N	150 47.33 W	60Bon	QTowF	Depth estimated from nautical chart. Too deep for EK500.
14-Feb-03	17:39	10	1		BON007	968	56 56.42 N	150 47.33 W	CAT	CAT	
14-Feb-03	19:10	11	1		BON008	911	56 48.11 N	151 06.71 W	60Bon	QTowF	
14-Feb-03	19:10	11	1		BON008	911	56 48.11 N	151 06.71 W	CAT	CAT	
14-Feb-03	20:43	12	1		BON009	884	56 57.98 N	151 20.82 W	60Bon	QTowF	
14-Feb-03	20:43	12	1		BON009	884	56 57.98 N	151 20.82 W	CAT	CAT	
14-Feb-03	22:31	13	1		BON010	100	57 08.12 N	151 35.29 W	60Bon	QTowF	
14-Feb-03	22:31	13	1		BON010	100	57 08.12 N	151 35.29 W	CAT	CAT	
14-Feb-03	23:56	14	1		BON011	68	57 18.11 N	151 51.50 W	60Bon	QTowF	
14-Feb-03	23:56	14	1		BON011	68	57 18.11 N	151 51.50 W	CAT	CAT	
15-Feb-03	1:16	15	1		BON012	49	57 27.80 N	152 08.34 W	60Bon	QTowF	
15-Feb-03	1:16	15	1		BON012	49	57 27.80 N	152 08.34 W	CAT	CAT	
15-Feb-03	2:30	16	1		BON013	61	57 19.53 N	152 23.84 W	60Bon	QTowF	
15-Feb-03	2:30	16	1		BON013	61	57 19.53 N	152 23.84 W	CAT	CAT	

Tuesday, February 25, 2003

## Cruise Summary For FOCI Cruise 1MF03 (MF03-02)

Date (GMT)	Time (GMT)	Station	Haul	Grid	FOCI Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
15-Feb-03	3:44	17	1			83	57 11.13 N	152 09.93 W	Neu	QTowF	
15-Feb-03	4:07	17	2		BON014	82	57 10.79 N	152 09.67 W	60Bon	QTowF	
15-Feb-03	4:07	17	2		BON014	82	57 10.79 N	152 09.67 W	CAT	CAT	
15-Feb-03	5:31	18	1			83	57 00.01 N	151 53.85 W	Neu	QTowF	
15-Feb-03	5:56	18	2		BON015	84	57 00.21 N	151 54.08 W	60Bon	QTowF	
15-Feb-03	5:56	18	2		BON015	84	57 00.21 N	151 54.08 W	CAT	CAT	
15-Feb-03	7:14	19	1			278	56 49.60 N	151 40.83 W	Neu	QTowF	
15-Feb-03	7:44	19	2		BON016	298	56 49.58 N	151 40.79 W	60Bon	QTowF	
15-Feb-03	7:44	19	2		BON016	298	56 49.58 N	151 40.79 W	CAT	CAT	
15-Feb-03	9:08	20	1			991	56 44.32 N	151 31.61 W	Neu	QTowF	
15-Feb-03	9:34	20	2		BON017	1054	56 44.32 N	151 31.61 W	60Bon	QTowF	
15-Feb-03	9:34	20	2		BON017	1054	56 44.32 N	151 31.61 W	CAT	CAT	
15-Feb-03	10:11	20	3		BOND04	1046	56 44.32 N	151 31.61 W	60Bon	QTowF	ATF-4. Net 1 revs seem high.
15-Feb-03	10:11	20	3		BOND04	1046	56 44.32 N	151 31.61 W	CAT	CAT	ATF-4. Net 1 revs seem high.
15-Feb-03	12:15	21	1			1000	56 31.73 N	151 45.54 W	Neu	QTowF	Bottom depth off nautical chart. EK500 not reading depth.
15-Feb-03	12:31	21	2		BON018	1000	56 32.07 N	151 46.12 W	60Bon	QTowF	Bottom depth off nautical chart. EK500 not reading depth.
15-Feb-03	12:31	21	2		BON018	1000	56 32.07 N	151 46.12 W	CAT	CAT	Bottom depth off nautical chart. EK500 not reading depth.
15-Feb-03	12:58	21	3		BOND05	1000	56 32.33 N	151 46.05 W	60Bon	QTowF	ATF-5. Bottom depth off nautical chart. EK500 not reading depth.
15-Feb-03	12:58	21	3		BOND05	1000	56 32.33 N	151 46.05 W	CAT	CAT	ATF-5. Bottom depth off nautical chart. EK500 not reading depth.
15-Feb-03	15:09	22	1			52	56 41.82 N	151 58.72 W	Neu	QTowF	Over Albatross Bank.
15-Feb-03	15:31	22	2		BON019	54	56 41.67 N	151 58.81 W	60Bon	QTowF	Over Albatross Bank.
15-Feb-03	15:31	22	2		BON019	54	56 41.67 N	151 58.81 W	CAT	CAT	Over Albatross Bank.
15-Feb-03	16:53	23	1			90	56 52.09 N	152 14.77 W	Neu	QTowF	Near Albatross Bank. 30 min before dawn. Ship speed variable causing net to stay below surface for 2 min and then to skip on surface for most of rest of tow.
15-Feb-03	17:11	23	2		BON020	93	56 51.76 N	152 14.55 W	60Bon	QTowF	Near Albatross Bank.
15-Feb-03	17:11	23	2		BON020	93	56 51.76 N	152 14.55 W	CAT	CAT	Near Albatross Bank.
15-Feb-03	18:40	24	1		BON021	145	57 02.05 N	152 29.39 W	60Bon	QTowF	
15-Feb-03	18:40	24	1		BON021	145	57 02.05 N	152 29.39 W	CAT	CAT	
15-Feb-03	20:00	25	1		BON022	140	57 12.06 N	152 45.17 W	60Bon	QTowF	
15-Feb-03	20:00	25	1		BON022	140	57 12.06 N	152 45.17 W	CAT	CAT	
15-Feb-03	21:26	26	1		BON023	49	57 03.87 N	153 02.60 W	60Bon	QTowF	Bongo at depth not recorded on MOA. GMT Time is bongo in plus 1 minute and 5 seconds.

Tuesday, February 25, 2003

## Cruise Summary For FOCI Cruise 1MF03 (MF03-02)

Date (GMT)	Time (GMT)	Station	Haul	Grid	FOCI Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
15-Feb-03	21:26	26	1		BON023	49	57 03.87 N	153 02.60 W	CAT	CAT	Bongo at depth not recorded on MOA. GMT Time is bongo in plus 1 minute and 5 seconds.
15-Feb-03	22:41	27	1		BON024	110	56 54.39 N	152 48.09 W	60Bon	QTowF	
15-Feb-03	22:41	27	1		BON024	110	56 54.39 N	152 48.09 W	CAT	CAT	
16-Feb-03	0:05	28	1		BON025	135	56 44.49 N	152 34.35 W	60Bon	QTowF	
16-Feb-03	0:05	28	1		BON025	135	56 44.49 N	152 34.35 W	CAT	CAT	
16-Feb-03	1:29	29	1		BON026	93	56 34.09 N	152 18.94 W	60Bon	QTowF	
16-Feb-03	1:29	29	1		BON026	93	56 34.09 N	152 18.94 W	CAT	CAT	
16-Feb-03	3:03	30	1		BON027	1952	56 23.35 N	152 03.98 W	60Bon	QTowF	
16-Feb-03	3:03	30	1		BON027	1952	56 23.35 N	152 03.98 W	CAT	CAT	
16-Feb-03	3:55	30	2		BOND06	1952	56 23.52 N	152 04.20 W	60Bon	QTowF	ATF-6. Deep bongo.
16-Feb-03	3:55	30	2		BOND06	1952	56 23.52 N	152 04.20 W	CAT	CAT	ATF-6. Deep bongo.
16-Feb-03	5:36	31	1			949	56 15.35 N	152 22.81 W	Neu	QTowF	
16-Feb-03	6:01	31	2		BON028	949	56 15.69 N	152 23.18 W	60Bon	QTowF	
16-Feb-03	6:01	31	2		BON028	949	56 15.69 N	152 23.18 W	CAT	CAT	
16-Feb-03	6:47	31	3		BOND07	949	56 15.55 N	152 22.95 W	60Bon	QTowF	ATF-7. Deep bongo.
16-Feb-03	6:47	31	3		BOND07	949	56 15.55 N	152 22.95 W	CAT	CAT	ATF-7. Deep bongo.
16-Feb-03	8:34	32	1			141	56 25.73 N	152 37.22 W	Neu	QTowF	
16-Feb-03	8:51	32	2		BON029	132	56 25.80 N	152 38.07 W	60Bon	QTowF	
16-Feb-03	8:51	32	2		BON029	132	56 25.80 N	152 38.07 W	CAT	CAT	
16-Feb-03	10:13	33	1			85	56 35.16 N	152 52.21 W	Neu	QTowF	
16-Feb-03	10:32	33	2		BON030	86	56 34.99 N	152 52.74 W	60Bon	QTowF	
16-Feb-03	10:32	33	2		BON030	86	56 34.99 N	152 52.74 W	CAT	CAT	
16-Feb-03	12:00	34	1			133	56 45.39 N	153 12.95 W	Neu	QTowF	
16-Feb-03	12:14	34	2		BON031	133	56 45.51 N	153 13.59 W	60Bon	QTowF	
16-Feb-03	12:14	34	2		BON031	133	56 45.51 N	153 13.59 W	CAT	CAT	
16-Feb-03	13:30	35	1			57	56 55.62 N	153 21.92 W	Neu	QTowF	
16-Feb-03	13:43	35	2		BON032	59	56 55.91 N	153 22.58 W	60Bon	QTowF	
16-Feb-03	13:43	35	2		BON032	59	56 55.91 N	153 22.58 W	CAT	CAT	
16-Feb-03	15:01	36	1			82	56 47.49 N	153 40.82 W	Neu	QTowF	
16-Feb-03	15:16	36	2		BON033	81	56 47.71 N	153 41.17 W	60Bon	QTowF	
16-Feb-03	15:16	36	2		BON033	81	56 47.71 N	153 41.17 W	CAT	CAT	
16-Feb-03	16:35	37	1			103	56 37.85 N	153 26.95 W	Neu	QTowF	
16-Feb-03	16:53	37	2		BON034	106	56 37.80 N	153 27.90 W	60Bon	QTowF	
16-Feb-03	16:53	37	2		BON034	106	56 37.80 N	153 27.90 W	CAT	CAT	
16-Feb-03	18:24	38	1		BON035	29	56 26.56 N	153 11.60 W	60Bon	QTowF	Over Albatross Bank.
16-Feb-03	18:24	38	1		BON035	29	56 26.56 N	153 11.60 W	CAT	CAT	ATF-7. Deep bongo.
16-Feb-03	20:20	39	1		BON036	168	56 17.54 N	152 55.89 W	60Bon	QTowF	

Tuesday, February 25, 2003

## Cruise Summary For FOCI Cruise 1MF03 (MF03-02)

Date (GMT)	Time (GMT)	Station	Haul	Grid	FOCI Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
16-Feb-03	20:20	39	1		BON036	168	56 17.54 N	152 55.89 W	CAT	CAT	
16-Feb-03	21:58	40	1		BON037	1206	56 09.68 N	153 14.24 W	60Bon	QTowF	
16-Feb-03	21:58	40	1		BON037	1206	56 09.68 N	153 14.24 W	CAT	CAT	
16-Feb-03	22:51	40	2		BOND08	1134	56 09.43 N	153 14.76 W	60Bon	QTowF	ATF-8. Deep bongo.
16-Feb-03	22:51	40	2		BOND08	1134	56 09.43 N	153 14.76 W	CAT	CAT	ATF-8. Deep bongo.
17-Feb-03	0:37	40	3		BOND09	462	56 12.32 N	153 19.26 W	60Bon	QTowF	ATF-9. Deep bongo.
17-Feb-03	0:37	40	3		BOND09	462	56 12.32 N	153 19.26 W	CAT	CAT	ATF-9. Deep bongo.
17-Feb-03	2:38	41	1		BON38	69	56 18.66 N	153 29.44 W	60Bon	QTowF	
17-Feb-03	2:38	41	1		BON38	69	56 18.66 N	153 29.44 W	CAT	CAT	
17-Feb-03	4:02	42	1			90	56 28.62 N	153 45.40 W	Neu	QTowF	
17-Feb-03	4:24	42	2		BON039	88	56 28.49 N	153 45.99 W	60Bon	QTowF	
17-Feb-03	4:24	42	2		BON039	88	56 28.49 N	153 45.99 W	CAT	CAT	
17-Feb-03	5:37	43	1			69	56 38.45 N	153 53.58 W	Neu	QTowF	
17-Feb-03	6:03	43	2		BON040	68	56 38.41 N	153 53.54 W	60Bon	QTowF	
17-Feb-03	6:03	43	2		BON040	68	56 38.41 N	153 53.54 W	CAT	CAT	
17-Feb-03	8:11	44	1			88	56 20.57 N	154 03.15 W	Neu	QTowF	
17-Feb-03	8:30	44	2		BON041	88	56 20.68 N	154 03.59 W	60Bon	QTowF	
17-Feb-03	8:30	44	2		BON041	88	56 20.68 N	154 03.59 W	CAT	CAT	
17-Feb-03	10:13	45	1			236	56 10.21 N	153 48.70 W	Neu	QTowF	First tow failed due to slow ship speed.
17-Feb-03	10:28	45	2		BON042	244	56 10.01 N	153 48.91 W	60Bon	QTowF	
17-Feb-03	10:28	45	2		BON042	244	56 10.01 N	153 48.91 W	CAT	CAT	
17-Feb-03	11:59	46	1			90	56 00.35 N	153 33.36 W	Neu	QTowF	
17-Feb-03	12:14	46	2		BON043	91	56 00.32 N	153 33.16 W	60Bon	QTowF	
17-Feb-03	12:14	46	2		BON043	91	56 00.32 N	153 33.16 W	CAT	CAT	
17-Feb-03	13:37	47	1			718	55 52.81 N	153 51.43 W	Neu	QTowF	Stopwatch malfunctioned. Time estimated using MOA Neuston start time.
17-Feb-03	13:54	47	2		BON044	789	55 52.54 N	153 51.81 W	60Bon	QTowF	
17-Feb-03	13:54	47	2		BON044	789	55 52.54 N	153 51.81 W	CAT	CAT	
17-Feb-03	14:27	47	3		BOND10	767	55 52.44 N	153 51.91 W	60Bon	QTowF	ATF-10. Deep bongo.
17-Feb-03	14:27	47	3		BOND10	767	55 52.44 N	153 51.91 W	CAT	CAT	ATF-10. Deep bongo.
17-Feb-03	16:43	48	1			165	56 02.06 N	154 08.58 W	Neu	QTowF	
17-Feb-03	17:00	48	2		BON045	144	56 01.94 N	154 07.98 W	60Bon	QTowF	
17-Feb-03	17:00	48	2		BON045	144	56 01.94 N	154 07.98 W	CAT	CAT	
17-Feb-03	18:28	49	1		BON046	121	56 13.02 N	154 21.66 W	60Bon	QTowF	
17-Feb-03	18:28	49	1		BON046	121	56 13.02 N	154 21.66 W	CAT	CAT	
17-Feb-03	19:41	50	1		BON047	44	56 21.09 N	154 33.27 W	60Bon	QTowF	
17-Feb-03	19:41	50	1		BON047	44	56 21.09 N	154 33.27 W	CAT	CAT	
18-Feb-03	0:28	51	1		BOND11	203	55 41.07 N	155 19.78 W	60Bon	QTowF	ATF-11. Deep bongo.
18-Feb-03	0:28	51	1		BOND11	203	55 41.07 N	155 19.78 W	CAT	CAT	ATF-11. Deep bongo.

Tuesday, February 25, 2003

## Cruise Summary For FOCI Cruise 1MF03 (MF03-02)

Date	Time	Station	Haul	Grid	FOCI Alternate	Depth	Latitude	Longitude	Gear	Samples Collected	Haul Comments
(GMT)	(GMT)				Station	(m)					
18-Feb-03	1:17	52	1		BOND12	412	55 38.97 N	155 17.88 W	60Bon	QTowF	ATF-12. Deep bongo.
18-Feb-03	1:17	52	1		BOND12	412	55 38.97 N	155 17.88 W	CAT	CAT	ATF-12. Deep bongo.
18-Feb-03	2:59	53	1		BOND13	594	55 37.41 N	155 17.38 W	60Bon	QTowF	ATF-13. Deep bongo.
18-Feb-03	2:59	53	1		BOND13	594	55 37.41 N	155 17.38 W	CAT	CAT	ATF-13. Deep bongo.
18-Feb-03	10:42	54	1		BOND14	198	55 06.88 N	157 03.03 W	60Bon	QTowF	ATF-14. Deep bongo.
18-Feb-03	10:42	54	1		BOND14	198	55 06.88 N	157 03.03 W	CAT	CAT	ATF-14. Deep bongo.
18-Feb-03	11:19	55	1		BOND15	393	55 03.41 N	157 01.80 W	60Bon	QTowF	ATF-15. Deep bongo.
18-Feb-03	11:19	55	1		BOND15	393	55 03.41 N	157 01.80 W	CAT	CAT	ATF-15. Deep bongo.
18-Feb-03	14:22	55	2			415	55 02.69 N	157 02.72 W	Nor	photo, Strip	ATF-15. Wire out was 900 m. Tow time was 15:00.
18-Feb-03	18:53	55	3		CTD001	422	55 02.47 N	157 03.43 W	CTDB	CTD	CTD and water collection for ATF spawning.
18-Feb-03	20:35	55	4			415	55 01.88 N	157 05.56 W	Nor	Discard	ATF-15. Large tear in starboard wing of trawl. Furuno not working properly. Wire out was 1100. Tow time was 5:00.
18-Feb-03	12:31	56	1		BOND16	599	55 01.53 N	157 03.90 W	60Bon	QTowF	ATF-16. Deep bongo.
18-Feb-03	12:31	56	1		BOND16	599	55 01.53 N	157 03.90 W	CAT	CAT	ATF-16. Deep bongo.
19-Feb-03	5:53	57	1			518	54 28.67 N	158 52.44 W	Nor	Discard	ATF-17. Wire out was 1100 m. Tow time was 11:00.
19-Feb-03	20:44	57	2		BOND17	952	54 26.20 N	158 58.54 W	60Bon	QTowF	ATF-17. Deep bongo.
19-Feb-03	20:44	57	2		BOND17	952	54 26.20 N	158 58.54 W	CAT	CAT	ATF-17. Deep bongo.
19-Feb-03	8:17	58	1			404	54 30.46 N	158 49.28 W	Nor	Discard	ATF-18. Wire out was 900 m. Tow time was 15:00.
19-Feb-03	12:20	58	2			491	54 29.76 N	159 47.50 W	Nor	Discard	Near ATF-18. Wire out was 1080m. Tow was not good. Fished off bottom and caught only 4 ATF. Wind direction and speed not good for tow.
19-Feb-03	16:07	58	3			309	54 28.72 N	159 02.46 W	Nor	Discard	ATF18. 300m tow. Wire out was 695m. Tow was not good. Furuno not working and tow was not on bottom. No ATF.
19-Feb-03	18:21	58	4			505	54 27.94 N	158 58.40 W	Nor	Discard	ATF-18. Wire out was 1130m. 500 m tow retried since wind direction has shifted.
19-Feb-03	23:10	58	5		BOND18	395	54 30.62 N	158 49.11 W	60Bon	QTowF	ATF-18. Deep bongo.
19-Feb-03	23:10	58	5		BOND18	395	54 30.62 N	158 49.11 W	CAT	CAT	ATF-18. Deep bongo.
20-Feb-03	0:40	58	6			307	54 32.21 N	158 47.69 W	Nor	Discard	ATF-18. Wire out was 625m.
20-Feb-03	2:58	59	1		BOND19	250	54 34.10 N	158 42.85 W	60Bon	QTowF	ATF-19. Deep bongo.
20-Feb-03	2:58	59	1		BOND19	250	54 34.10 N	158 42.85 W	CAT	CAT	ATF-19. Deep bongo.
20-Feb-03	10:10	60	1			310	55 04.66 N	157 01.63 W	Nor	Strip	300 m tow near ATF-14. Wire out was 600m. Tow time was 10:00.
20-Feb-03	12:04	60	2			200	55 07.15 N	157 01.87 W	Nor		200 m tow near ATF-14. Wire out was 470m. Tow time was 16:00.
20-Feb-03	13:41	60	3			202	55 07.26 N	157 01.24 W	Nor		Another 200 m tow near ATF-14. Wire out was 440m. Tow time was 15:00.

Tuesday, February 25, 2003



## Cruise Summary For FOCI Cruise 1MF03 (MF03-02)

Date (GMT)	Time (GMT)	Station	Haul	Grid	FOCI Alternate Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	Haul Comments
20-Feb-03	15:48	61	1			418	55 02.18 N	157 04.75 W	Nor		400 m tow near ATF-15. Wire out was 905m. Tow time was 15:00.
20-Feb-03	17:53	61	2		CTD002	435	55 02.70 N	157 01.22 W	CTDB	CTD	Collected water for spawned eggs at 300 m trawl near ATF-12. Wire out was 200 m trawl near ATF-11. Wire out was Near ATF-9. 400 trawl. Caught basketful of ripe males and 3 ripe females but almost spent . Kept males for next haul at 300m.
21-Feb-03	1:54	62	1			303	55 39.40 N	155 16.86 W	Nor	Discard	
21-Feb-03	4:01	63	1			199	55 40.42 N	155 22.20 W	Nor	Discard	
21-Feb-03	12:15	64	1			409	56 13.32 N	153 18.01 W	Nor	Discard	
21-Feb-03	14:15	65	1			295	56 13.50 N	153 18.73 W	Nor		Near ATF 9. Started one batch of eggs.
21-Feb-03	17:01	65	2			202	56 13.68 N	153 19.88 W	Nor	Discard	200 trawl. Near AFT 9. Failed spawn not enough eggs.
21-Feb-03	18:41	65	3			295	56 13.61 N	153 18.59 W	Nor	Discard	Near ATF 9. Only a few good males and no females. Tried spawning females from previous tow but aborted the spawn.
21-Feb-03	21:55	66	1			292	56 15.23 N	153 17.41 W	Nor	Strip	300 m trawl near ATF-9 (St. 65 haul 4 in MOA). Fertilized eggs from 5 female ATF.
22-Feb-03	4:59	67	1			281	56 26.02 N	152 28.52 W	Nor	Discard	300 m trawl near ATF-7. Tow time was 300 m trawl near ATF-6. Scantrol winch control system failed. Trawl aborted. No chance for immediate repair.
22-Feb-03	7:11	68	1			302	56 31.88 N	152 24.64 W	Nor	Discard	

Tuesday, February 25, 2003