

## CRUISE REPORT

Cruise Number: MF-03-07  
FOCI Number: FOCI 4MF03  
Ship: Miller Freeman

**Area of Operations:** Southeastern Bering Sea, Unimak Pass and vicinity

### Itinerary:

Departed Dutch Harbor, Alaska, at 1500 hrs. on Saturday, May 17, 2003.  
Arrived Dutch Harbor, Alaska, at 0900 hrs. on Saturday, May 24, 2003

### Participating Organizations:

NOAA – Alaska Fisheries Science Center (AFSC)  
7600 Sand Point Way N.E.  
Seattle, Washington 98115-0070

### Chief Scientist:

Name	Gender	Affiliation	E-mail Address
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### Personnel:

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### Objectives of Cruise:

We conducted an ichthyoplankton survey in the Bering Sea in the vicinity of Unimak Island, Alaska. This work was needed to describe larval fish assemblages in the Bering Sea (slope, outer shelf, and middle shelf) in spring. In particular, this area is a known spawning ground for

walleye pollock. Zooplankton data and data on physical characteristics of the water column were also collected. In addition, we performed MOCNESS sampling over a 24-hr period, and we released two satellite tracked drifters to track vertical and horizontal movements of larval Alaska plaice.

**Summary of Operations:**

<u>Operation</u>	<u>Tows</u>
20cm Bongo	62
60cm Bongo	62
Seabird SeaCAT CTD	62
CTD without bottle samples	4
CTD with bottle samples	11
1 m <sup>2</sup> MOCNESS	10
Neuston	59
Rough count (Alaska plaice)	41
Drifters	2

**Samples Collected:**

Microzooplankton samples	54
Number of quantitative samples preserved in formalin	322

**Summary of Cruise:**

Grid survey:

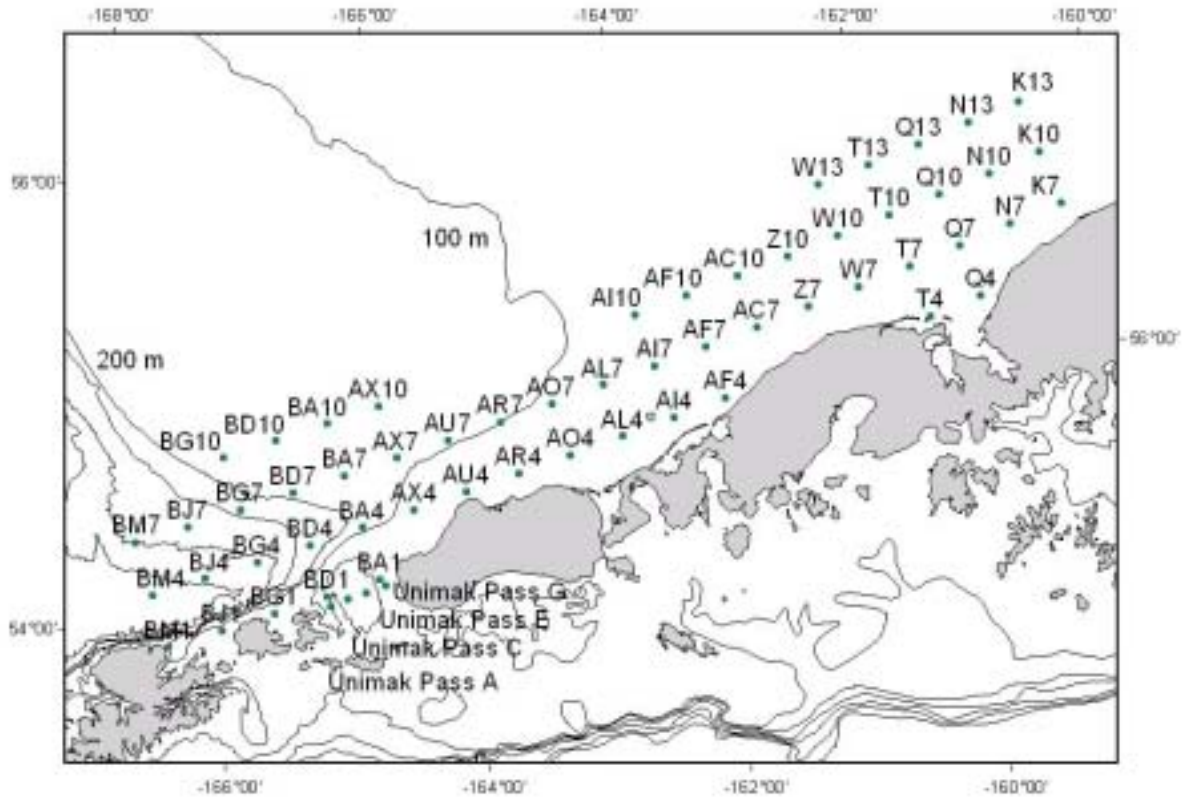
Departure from Dutch Harbor, AK occurred at 1500 hrs on May 17, 2003. At each station, a neuston tow (505µm mesh) was conducted first, followed by a bongo tow. For the bongo tow, the 60BON was fitted with 505µm mesh on Net #1 and 333 µm mesh on Net #2. The 20BON array was fitted with 153µm mesh on both sides. A problem was noted with the winch rigging and operations were halted for approximately 30 minutes while the rigging was corrected. In Unimak Pass, a CTD cast was conducted prior to the neuston and bongo tows. It should be noted that the FOCI grid identification number on the last station is incorrect on the MOA. It should read BM7 (lat: 54.451N, -166.999W).

Alaska plaice distribution study:

Rough counts for larval Alaska plaice (*Pleuronectes quadrituberculatus*) were taken from 60BON Net #2 (Stations BM1-K13) and larvae were returned to each sample for preservation. Based on rough count information, two satellite tracked drifters (drouged at 20m) were released. Drifter # 37520 was released at Station K13, and Drifter # 37489 was released at Station K7 to track water movement along the Alaska Peninsula. MOCNESS tows were conducted at Station K10 alternately at 3-hr intervals for 24 hrs. Prior to each MOCNESS tow, CTD casts with Niskin bottles were conducted to collect microzooplankton samples.

**Attachments:**

Figure 1- Station Locations



## Cruise Summary for FOCI Cruise 4MF03 (MF0307)

### Specifics of Operations:

Table 1-

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternat Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	HaulComments
18-May-03	0:53	1	1	BM1		108	54 00.99 N	166 35.01 W	Neu	QTowF	no wire out
18-May-03	1:34	1	2	BM1	BON001	119	54 00.58 N	166 35.30 W	20Bon	Discard	20BON NETS WRAPPED AROUND FRAME. No wire out
18-May-03	1:34	1	2	BM1	BON001	119	54 00.58 N	166 35.30 W	60Bon	Discard	20BON NETS WRAPPED AROUND FRAME. No wire out
18-May-03	1:34	1	2	BM1	BON001	119	54 00.58 N	166 35.30 W	60Bon	Discard	20BON nets wrapped around frane. No wire
18-May-03	1:34	1	2	BM1	BON001	119	54 00.58 N	166 35.30 W	CAT	CAT	20BON NETS WRAPPED AROUND FRAME. No wire out
18-May-03	2:00	1	3	BM1	BON002	119	54 00.56 N	166 35.30 W	20Bon	QTowF	Wire out no reading. Wire spped on payout unknown.
18-May-03	2:00	1	3	BM1	BON002	119	54 00.56 N	166 35.30 W	60Bon	QTowF, RCountL	Wire out no reading. Wire speed on payout unknown.
18-May-03	2:00	1	3	BM1	BON002	119	54 00.56 N	166 35.30 W	60Bon	QTowF, RCountL	Wire out no reading. Wire spped on payout unknown.
18-May-03	2:00	1	3	BM1	BON002	119	54 00.56 N	166 35.30 W	CAT	CAT	Wire out no reading. Wire spped on payout unknown.
18-May-03	3:59	2	1	BM4		1287	54 13.79 N	166 47.74 W	Neu	QTowF	
18-May-03	4:32	2	2	BM4	BON003	1252	54 14.00 N	166 47.41 W	20Bon	QTowF	no reading for wire out. Rough count AK
18-May-03	4:32	2	2	BM4	BON003	1252	54 14.00 N	166 47.41 W	60Bon	QTowF, RCountL	no reading for wire out. rough count AK
18-May-03	4:32	2	2	BM4	BON003	1252	54 14.00 N	166 47.41 W	CAT	CAT	no reading for wire out. rough count for AK plaice
18-May-03	6:25	3	1	BJ4		681	54 20.89 N	166 25.47 W	Neu	QTowF	
18-May-03	6:51	3	2	BJ4	BON004	680	54 20.94 N	166 25.14 W	20Bon	QTowF	no wire out. Rough count AK plaice
18-May-03	6:51	3	2	BJ4	BON004	680	54 20.94 N	166 25.14 W	60Bon	QTowF, RCountL	no wire out. Rough count AK plaice
18-May-03	6:51	3	2	BJ4	BON004	680	54 20.94 N	166 25.14 W	CAT	CAT	no wire out. Rough count AK plaice
18-May-03	8:45	4	1	BJ1		89	54 07.88 N	166 12.16 W	Neu	QTowF	
18-May-03	9:10	4	2	BJ1	BON005	86	54 07.30 N	166 12.09 W	20Bon	QTowF	no wire out. Rough count AK plaice
18-May-03	9:10	4	2	BJ1	BON005	86	54 07.30 N	166 12.09 W	60Bon	QTowF, RCountL	no wire out. Rough count AK plaice
18-May-03	9:10	4	2	BJ1	BON005	86	54 07.30 N	166 12.09 W	60Bon	QTowF, RCountL	no wire out. Rough counts for AK plaice
18-May-03	9:10	4	2	BJ1	BON005	86	54 07.30 N	166 12.09 W	CAT	CAT	no wire out. Rough count AK plaice
18-May-03	11:02	5	1	BG1		79	54 14.99 N	165 50.24 W	Neu	QTowF	
18-May-03	11:21	5	2	BG1	BON006	79	54 14.63 N	165 49.58 W	20Bon	QTowF	no wire out Rough count AK plaice
18-May-03	11:21	5	2	BG1	BON006	79	54 14.63 N	165 49.58 W	60Bon	QTowF, RCountL	no wire out. Rough count AK plaice
18-May-03	11:21	5	2	BG1	BON006	79	54 14.63 N	165 49.58 W	CAT	CAT	no wire out. Rough count AK plaice
18-May-03	13:03	6	1	BG4		540	54 28.24 N	166 02.28 W	Neu	QTowF	
18-May-03	13:22	6	2	BG4	BON007	545	54 27.98 N	166 01.65 W	20Bon	QTowF	no wire out. Rough count AK plaice
18-May-03	13:22	6	2	BG4	BON007	545	54 27.98 N	166 01.65 W	60Bon	QTowF, RCountL	no wire out. Rough count Ak plaice
18-May-03	13:22	6	2	BG4	BON007	545	54 27.98 N	166 01.65 W	CAT	CAT	no wire out. Rough count AK plaice
18-May-03	15:28	7	1	BD4		344	54 35.27 N	165 39.34 W	Neu	QTowF	no wire out. Flowmeter reading too low
18-May-03	15:55	7	2	BD4	BON008	340	54 35.26 N	165 39.06 W	20Bon	QTowF	no wire out. Rough count AK plaice
18-May-03	15:55	7	2	BD4	BON008	340	54 35.26 N	165 39.06 W	60Bon	QTowF, RCountL	no wire out. Rough count AK plaice

## Cruise Summary for FOCI Cruise 4MF03 (MF0307)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternat Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	HaulComments
18-May-03	15:55	7	2	BD4	BON008	340	54 35.26 N	165 39.06 W	CAT	CAT	no wire out. Rough count AK plaice
18-May-03	17:58	8	1	BD1		93	54 22.35 N	165 26.93 W	Neu	QTowF	flowmeter revs too low. No wire out
18-May-03	18:46	8	2	BD1	BON009	97	54 22.25 N	165 26.83 W	20Bon	QTowF	no wire out. 20 bon flowmeters blowing in wind. Rough count Ak plaice
18-May-03	18:46	8	2	BD1	BON009	97	54 22.25 N	165 26.83 W	60Bon	QTowF, RCountL	no wire out. 20 bon flowmeters blowing in wind. Rough count AK plaice
18-May-03	18:46	8	2	BD1	BON009	97	54 22.25 N	165 26.83 W	CAT	CAT	no wire out. 20 bon flowmeters blowing in wind. Rough count Ak plaice
18-May-03	19:44	9	1	UNIMAKA	CTD001	151	54 19.79 N	165 24.79 W	CTD	CTD	data recorded only on downcast
18-May-03	20:38	9	2	UNIMAKA	BON010	143	54 19.73 N	165 24.37 W	20Bon	QTowF	no wire out. Rough count Ak plaice
18-May-03	20:38	9	2	UNIMAKA	BON010	143	54 19.73 N	165 24.37 W	60Bon	QTowF, RCountL	No wire out. Rough count AK plaice
18-May-03	20:38	9	2	UNIMAKA	BON010	143	54 19.73 N	165 24.37 W	CAT	CAT	no wire out. Rough count Ak plaice
18-May-03	21:25	10	1	UNIMAK	CTD002	185	54 22.33 N	165 17.34 W	CTD	CTD	no wire out
18-May-03	22:00	10	2	UNIMAK		175	54 21.68 N	165 16.25 W	Neu	QTowF	
18-May-03	22:10	10	3	UNIMAK	BON011	169	54 22.51 N	165 16.96 W	20Bon	QTowF	no wire out. Rough count AK plaice
18-May-03	22:10	10	3	UNIMAK	BON011	169	54 22.51 N	165 16.96 W	60Bon	QTowF, RCountL	no wire out. Rough count AK plaice
18-May-03	22:10	10	3	UNIMAK	BON011	169	54 22.51 N	165 16.96 W	60Bon	QTowF, RCountL	No wire out. Rough count Alaska plaice
18-May-03	22:10	10	3	UNIMAK	BON011	169	54 22.51 N	165 16.96 W	CAT	CAT	no wire out. Rough count AK plaice
18-May-03	23:01	11	1	UNIMAKE	CTD003	160	54 24.90 N	165 09.34 W	CTD	CTD	no wire out
18-May-03	23:21	11	2	UNIMAKE		155	54 24.87 N	165 09.05 W	Neu	QTowF	
18-May-03	23:37	11	3	UNIMAKE	BON012	148	54 24.84 N	165 08.85 W	20Bon	QTowF	no wire out. Rough count AK plaice
18-May-03	23:37	11	3	UNIMAKE	BON012	148	54 24.84 N	165 08.85 W	60Bon	QTowF, RCountL	no wire out. Rough count AK plaice
18-May-03	23:37	11	3	UNIMAKE	BON012	148	54 24.84 N	165 08.85 W	CAT	CAT	no wire out. Rough count AK plaice
19-May-03	0:42	12	1	UNIMAK	CTD004	54	54 27.50 N	165 00.96 W	CTD	CTD	no wire out
19-May-03	0:56	12	2	UNIMAK		54	54 27.48 N	165 00.86 W	Neu	QTowF	
19-May-03	1:23	12	3	UNIMAK	BON013	77	54 27.77 N	165 00.31 W	20Bon	QTowF	no wire out. Rough count AK plaice
19-May-03	1:23	12	3	UNIMAK	BON013	77	54 27.77 N	165 00.31 W	60Bon	QTowF, RCountL	no wire out. Rough count AK plaice
19-May-03	1:23	12	3	UNIMAK	BON013	77	54 27.77 N	165 00.31 W	CAT	CAT	no wire out. Rough count AK plaice
19-May-03	2:00	13	1	BA1		57	54 29.48 N	165 03.83 W	Neu	QTowF	
19-May-03	2:23	13	2	BA1	BON014	65	54 29.35 N	165 04.06 W	20Bon	QTowF	no wire out. Rough count AK plaice
19-May-03	2:23	13	2	BA1	BON014	65	54 29.35 N	165 04.06 W	60Bon	QTowF, RCountL	no wire out. Rough count AK plaice
19-May-03	2:23	13	2	BA1	BON014	65	54 29.35 N	165 04.06 W	CAT	CAT	no wire out. Rough count AK plaice
19-May-03	4:00	14	1	BA4		140	54 42.62 N	165 16.43 W	Neu	QTowF	
19-May-03	4:21	14	2	BA4	BON015	136	54 42.79 N	165 15.84 W	20Bon	Discard	tow aborted.
19-May-03	4:21	14	2	BA4	BON015	136	54 42.79 N	165 15.84 W	60Bon	Discard	Tow aborted.
19-May-03	4:21	14	2	BA4	BON015	136	54 42.79 N	165 15.84 W	CAT	CAT	tow aborted.
19-May-03	4:48	14	3	BA4	BON016	139	54 42.70 N	165 16.23 W	20Bon	QTowF	no wire out. Rough count Ak plaice
19-May-03	4:48	14	3	BA4	BON016	139	54 42.70 N	165 16.23 W	60Bon	QTowF, RCountL	no wire out. Rough count Ak plaice
19-May-03	4:48	14	3	BA4	BON016	139	54 42.70 N	165 16.23 W	CAT	CAT	no wire out. Rough count Ak plaice
19-May-03	6:42	15	1	AX4		75	54 49.61 N	164 53.12 W	Neu	QTowF	
19-May-03	7:06	15	2	AX4	BON017	75	54 49.46 N	164 52.74 W	20Bon	QTowF	no wire out. Rough count Ak plaice
19-May-03	7:06	15	2	AX4	BON017	75	54 49.46 N	164 52.74 W	60Bon	QTowF, RCountL	no wire out. Rough count Ak plaice
19-May-03	7:06	15	2	AX4	BON017	75	54 49.46 N	164 52.74 W	CAT	CAT	no wire out. Rough count Ak plaice
19-May-03	8:49	16	1	AU4		48	54 56.73 N	164 31.21 W	Neu	QTowF	
19-May-03	9:09	16	2	AU4	BON018	46	54 56.63 N	164 30.62 W	20Bon	QTowF	no wire out, rough count ak plaice, 4 jellyfish =4.3kg
19-May-03	9:09	16	2	AU4	BON018	46	54 56.63 N	164 30.62 W	60Bon	QTowF, RCountL	no wire out, rough count ak plaice, 4 jellyfish =4.3kg
19-May-03	9:09	16	2	AU4	BON018	46	54 56.63 N	164 30.62 W	CAT	CAT	no wire out, rough count ak plaice, 4 jellyfish =4.3kg

## Cruise Summary for FOCI Cruise 4MF03 (MF0307)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternat Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	HaulComments
19-May-03	10:56	17	1	AR4		36	55 03.95 N	164 07.88 W	Neu	QTowF	
19-May-03	11:16	17	2	AR4	BON019	36	55 03.89 N	164 07.51 W	20Bon	QTowF	no wire out, rough count ak plaice
19-May-03	11:16	17	2	AR4	BON019	36	55 03.89 N	164 07.51 W	60Bon	QTowF, RCountL	no wire out, rough count ak plaice
19-May-03	11:16	17	2	AR4	BON019	36	55 03.89 N	164 07.51 W	CAT	CAT	no wire out, rough count ak plaice
19-May-03	13:07	18	1	AO4		46	55 11.15 N	163 43.99 W	Neu	QTowF	
19-May-03	13:26	18	2	AO4	BON020	46	55 11.23 N	163 43.63 W	20Bon	QTowF	no wire out. Rough count Ak plaice
19-May-03	13:26	18	2	AO4	BON020	46	55 11.23 N	163 43.63 W	60Bon	QTowF, RCountL	no wire out. Rough count Ak plaice
19-May-03	13:26	18	2	AO4	BON020	46	55 11.23 N	163 43.63 W	CAT	CAT	no wire out. Rough count Ak plaice
19-May-03	15:00	19	1	AL4		49	55 18.15 N	163 20.89 W	Neu	QTowF	
19-May-03	15:20	19	2	AL4	BON021	49	55 18.34 N	163 20.22 W	20Bon	QTowF	no wire out. Rough count AK plaice
19-May-03	15:20	19	2	AL4	BON021	49	55 18.34 N	163 20.22 W	60Bon	QTowF, RCountL	no wire out. Rough count AK plaice
19-May-03	15:20	19	2	AL4	BON021	49	55 18.34 N	163 20.22 W	CAT	CAT	no wire out. Rough count AK plaice
19-May-03	17:01	20	1	AI4		32	55 25.26 N	162 57.39 W	Neu	QTowF	
19-May-03	17:21	20	2	AI4	BON022	88	55 25.42 N	162 56.99 W	20Bon	QTowF	rough count for AK plaice
19-May-03	17:21	20	2	AI4	BON022	88	55 25.42 N	162 56.99 W	60Bon	QTowF, RCountL	rough count for AK plaice
19-May-03	17:21	20	2	AI4	BON022	88	55 25.42 N	162 56.99 W	CAT	CAT	rough count for AK plaice
19-May-03	19:27	21	1	AF4		27	55 32.54 N	162 33.94 W	Neu	QTowF	
19-May-03	18:48	21	2	AF4	BON023	29	55 32.56 N	162 34.26 W	20Bon	QTowF	Net 1 60 BON flowmeter blowing in wind. Rough count AK plaice
19-May-03	18:48	21	2	AF4	BON023	29	55 32.56 N	162 34.26 W	60Bon	QTowF, RCountL	Net 1 60 BON flowmeter blowing in wind. Rough count AK plaice
19-May-03	18:48	21	2	AF4	BON023	29	55 32.56 N	162 34.26 W	CAT	CAT	Net 1 60 BON flowmeter blowing in wind. Rough count AK plaice
19-May-03	20:56	22	1	AF7		61	55 45.87 N	162 46.30 W	Neu	QTowF	
19-May-03	21:14	22	2	AF7	BON024	59	55 45.83 N	162 45.52 W	20Bon	QTowF	jelly in 60 bon net 2
19-May-03	21:14	22	2	AF7	BON024	59	55 45.83 N	162 45.52 W	60Bon	QTowF, RCountL	jelly in 60 bon net 2
19-May-03	21:14	22	2	AF7	BON024	59	55 45.83 N	162 45.52 W	60Bon	QTowF, RCountL	jelly in BON Net2
19-May-03	21:14	22	2	AF7	BON024	59	55 45.83 N	162 45.52 W	CAT	CAT	jelly in 60 bon net 2
19-May-03	22:51	23	1	AC7		63	55 52.87 N	162 23.69 W	Neu	QTowF	
19-May-03	23:09	23	3	AC7	BON025	64	55 53.21 N	162 23.09 W	20Bon	QTowF	rough count for AK plaice, 60 Bon Net 1 had 1 jelly at 1.5 kg
19-May-03	23:09	23	3	AC7	BON025	64	55 53.21 N	162 23.09 W	60Bon	QTowF, RCountL	rough count for AK plaice, 60 Bon Net 1 had 1 jelly at 1.5 kg
19-May-03	23:09	23	3	AC7	BON025	64	55 53.21 N	162 23.09 W	CAT	CAT	rough count for AK plaice, 60 Bon Net 1 had 1 jelly at 1.5 kg
20-May-03	0:53	24	1	Z7		53	55 59.89 N	161 59.91 W	Neu	QTowF	
20-May-03	1:11	24	2	Z7	BON026	51	56 00.07 N	161 59.53 W	20Bon	QTowF	rough count AK plaice
20-May-03	1:11	24	2	Z7	BON026	51	56 00.07 N	161 59.53 W	60Bon	QTowF, RCountL	rough count AK plaice
20-May-03	1:11	24	2	Z7	BON026	51	56 00.07 N	161 59.53 W	CAT	CAT	rough count AK plaice
20-May-03	3:06	25	1	W7		49	56 07.10 N	161 36.15 W	Neu	QTowF	
20-May-03	3:23	25	2	W7	BON027	49	56 07.12 N	161 35.96 W	20Bon	QTowF	rough count AK plaice
20-May-03	3:23	25	2	W7	BON027	49	56 07.12 N	161 35.96 W	60Bon	QTowF, RCountL	rough count AK plaice
20-May-03	3:23	25	2	W7	BON027	49	56 07.12 N	161 35.96 W	CAT	CAT	rough count AK plaice
20-May-03	5:12	26	1	T7		47	56 14.49 N	161 12.35 W	Neu	QTowF	
20-May-03	5:29	26	2	T7	BON028	47	56 14.46 N	161 11.37 W	20Bon	QTowF	rough count AK plaice
20-May-03	5:29	26	2	T7	BON028	47	56 14.46 N	161 11.37 W	60Bon	QTowF, RCountL	rough count AK plaice
20-May-03	5:29	26	2	T7	BON028	47	56 14.46 N	161 11.37 W	CAT	CAT	rough count AK plaice

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Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternat Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	HaulComments
20-May-03	6:42	27	1	T4		25	56 05.16 N	160 59.33 W	Neu	QTowF	
20-May-03	7:01	27	2	T4	BON029	25	56 05.09 N	160 57.69 W	20Bon	QTowF	rough count Ak plaice
20-May-03	7:01	27	2	T4	BON029	25	56 05.09 N	160 57.69 W	60Bon	QTowF, RCountL	rough count Ak plaice
20-May-03	7:01	27	2	T4	BON029	25	56 05.09 N	160 57.69 W	CAT	CAT	rough count Ak plaice
20-May-03	8:12	28	1	Q4		24	56 08.27 N	160 36.16 W	Neu	QTowF	
20-May-03	8:30	28	2	Q4	BON030	24	56 08.35 N	160 34.94 W	20Bon	QTowF	rough count Ak plaice
20-May-03	8:30	28	2	Q4	BON030	24	56 08.35 N	160 34.94 W	60Bon	QTowF, RCountL	rough count Ak plaice
20-May-03	8:30	28	2	Q4	BON030	24	56 08.35 N	160 34.94 W	CAT	CAT	rough count Ak plaice
20-May-03	10:02	29	1	Q7		48	56 21.14 N	160 47.72 W	Neu	QTowF	gear bounced in the wind, diving in and out of the water. Flew ok after 2 minutes.
20-May-03	10:19	29	2	Q7	BON031	47	56 21.38 N	160 46.52 W	20Bon	QTowF	rough count Ak plaice
20-May-03	10:19	29	2	Q7	BON031	47	56 21.38 N	160 46.52 W	60Bon	QTowF, RCountL	rough count Ak plaice
20-May-03	10:19	29	2	Q7	BON031	47	56 21.38 N	160 46.52 W	60Bon	QTowF, RCountL	Rough count AK plaice.
20-May-03	10:19	29	2	Q7	BON031	47	56 21.38 N	160 46.52 W	CAT	CAT	rough count Ak plaice
20-May-03	11:47	30	1	N7		40	56 28.75 N	160 24.54 W	Neu	QTowF	
20-May-03	12:08	30	2	N7	BON032	39	56 28.88 N	160 24.51 W	20Bon	QTowF	rount count Ak plaice
20-May-03	12:08	30	2	N7	BON032	39	56 28.88 N	160 24.51 W	60Bon	QTowF, RCountL	rount count Ak plaice
20-May-03	12:08	30	2	N7	BON032	39	56 28.88 N	160 24.51 W	CAT	CAT	rount count Ak plaice
20-May-03	13:37	31	1	K7		40	56 35.82 N	160 00.70 W	Neu	QTowF	
20-May-03	13:57	31	2	K7	BON033	41	56 35.91 N	160 00.64 W	20Bon	QTowF	rough count AK plaice
20-May-03	13:57	31	2	K7	BON033	41	56 35.91 N	160 00.64 W	60Bon	QTowF, RCountL	rough count AK plaice
20-May-03	13:57	31	2	K7	BON033	41	56 35.91 N	160 00.64 W	60Bon	QTowF, RCountL	Rough count AK plaice. Removed 2 larvae in subsample. Total larvae = 36.
20-May-03	13:57	31	2	K7	BON033	41	56 35.91 N	160 00.64 W	CAT	CAT	rough count AK plaice
20-May-03	15:30	32	1	K10		60	56 49.06 N	160 30.64 W	Neu	QTowF	
20-May-03	15:49	32	2	K10	BON034	60	56 49.24 N	160 13.16 W	20Bon	QTowF	lost cod end of 20 BON Net1. Rough count Ak plaice
20-May-03	15:49	32	2	K10	BON034	60	56 49.24 N	160 13.16 W	60Bon	QTowF, RCountL	lost cod end of 20 BON Net1. Rough count AK plaice
20-May-03	15:49	32	2	K10	BON034	60	56 49.24 N	160 13.16 W	CAT	CAT	lost cod end of 20 BON Net1
20-May-03	17:17	33	1	N10		68	56 41.95 N	160 37.67 W	Neu	QTowF	
20-May-03	17:35	33	2	N10	BON035	68	56 41.93 N	160 37.12 W	20Bon	QTowF	rough count AK plaice
20-May-03	17:35	33	2	N10	BON035	68	56 41.93 N	160 37.12 W	60Bon	QTowF, RCountL	rough count ak plaice
20-May-03	17:35	33	2	N10	BON035	68	56 41.93 N	160 37.12 W	CAT	CAT	rough count AK plaice
20-May-03	19:04	34	1	Q10		72	56 34.76 N	161 01.30 W	Neu	QTowF	
20-May-03	19:25	34	2	Q10	BON036	71	56 34.79 N	161 00.61 W	20Bon	QTowF	rough count AK plaice
20-May-03	19:25	34	2	Q10	BON036	71	56 34.79 N	161 00.61 W	60Bon	QTowF, RCountL	rough count AK plaice
20-May-03	19:25	34	2	Q10	BON036	71	56 34.79 N	161 00.61 W	CAT	CAT	rough count AK plaice
20-May-03	22:11	35	1	T10		70	56 27.60 N	161 25.24 W	Neu	QTowF	
20-May-03	22:29	35	2	T10	BON037	69	56 27.84 N	161 24.48 W	20Bon	QTowF	rough count Ak plaice
20-May-03	22:29	35	2	T10	BON037	69	56 27.84 N	161 24.48 W	60Bon	QTowF, RCountL	rough count AK plaice
20-May-03	22:29	35	2	T10	BON037	69	56 27.84 N	161 24.48 W	CAT	CAT	rough count Ak plaice
21-May-03	0:04	36	1	W10		83	56 20.55 N	161 49.01 W	Neu	QTowF	
21-May-03	0:23	36	2	W10	BON038	82	56 20.46 N	161 48.88 W	20Bon	QTowF	232 g Chrysaora jelly removed from 60BON net 1. Rough count AK plaice.
21-May-03	0:23	36	2	W10	BON038	82	56 20.46 N	161 48.88 W	60Bon	QTowF, RCountL	232 g Chrysaora jelly removed from 60BON net 1. Rough count AK plaice.

## Cruise Summary for FOCI Cruise 4MF03 (MF0307)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternat Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	HaulComments
21-May-03	0:23	36	2	W10	BON038	82	56 20.46 N	161 48.88 W	CAT	CAT	232 g Chrysaora jelly removed from 60BON net 1. Rough count AK plaice.
21-May-03	1:58	37	1	W13		70	56 33.57 N	162 01.76 W	Neu	QTowF	
21-May-03	2:19	37	2	W13	BON039	70	56 34.47 N	162 01.79 W	20Bon	QTowF	rough count AK plaice
21-May-03	2:19	37	2	W13	BON039	70	56 34.47 N	162 01.79 W	60Bon	QTowF, RCountL	rough count AK plaice
21-May-03	2:19	37	2	W13	BON039	70	56 34.47 N	162 01.79 W	CAT	CAT	rough count AK plaice
21-May-03	4:06	38	1	T13		82	56 40.71 N	161 38.18 W	Neu	QTowF	
21-May-03	4:24	38	2	T13	BON040	82	56 41.00 N	161 37.60 W	20Bon	QTowF	rough count AK plaice
21-May-03	4:24	38	2	T13	BON040	82	56 41.00 N	161 37.60 W	60Bon	QTowF, RCountL	rough count AK plaice
21-May-03	4:24	38	2	T13	BON040	82	56 41.00 N	161 37.60 W	CAT	CAT	rough count AK plaice
21-May-03	6:07	39	1	Q13		62	56 47.88 N	161 14.56 W	Neu	QTowF	
21-May-03	6:23	39	2	Q13	BON041	62	56 48.18 N	161 13.98 W	20Bon	QTowF	rough count AK plaice
21-May-03	6:23	39	2	Q13	BON041	62	56 48.18 N	161 13.98 W	60Bon	QTowF, RCountL	rough count AK plaice
21-May-03	6:23	39	2	Q13	BON041	62	56 48.18 N	161 13.98 W	CAT	CAT	rough count AK plaice
21-May-03	7:52	40	1	N13		72	56 54.96 N	160 51.07 W	Neu	QTowF	
21-May-03	8:11	40	2	N13	BON042	70	56 58.31 N	160 50.04 W	20Bon	QTowF	rough count AK plaice
21-May-03	8:11	40	2	N13	BON042	70	56 58.31 N	160 50.04 W	60Bon	QTowF, RCountL	rough count AK plaice
21-May-03	8:11	40	2	N13	BON042	70	56 58.31 N	160 50.04 W	CAT	CAT	rough count AK plaice
21-May-03	9:36	41	1	K13		66	57 02.28 N	160 26.68 W	Neu	QTowF	
21-May-03	9:53	41	2	K13	BON043	66	57 02.49 N	160 25.47 W	20Bon	QTowF	
21-May-03	9:53	41	2	K13	BON043	66	57 02.49 N	160 25.47 W	60Bon	QTowF, RCountL	
21-May-03	9:53	41	2	K13	BON043	66	57 02.49 N	160 25.47 W	60Bon	QTowF, RCountL	rough count AK plaice
21-May-03	9:53	41	2	K13	BON043	66	57 02.49 N	160 25.47 W	CAT	CAT	
21-May-03	10:15	41	3	K13		66	57 02.83 N	160 26.23 W	drifter	Deploy	deploy drifter #37520. Drouged at 20m
21-May-03	12:59	42	1	K7		43	56 36.14 N	160 00.29 W	drifter	Deploy	deploy drifter # 37489. Drouged at 20m
21-May-03	14:29	43	1	K10	CTD005	61	56 48.97 N	160 13.74 W	CTDB	MZ	10 L bottles
21-May-03	15:22	43	2	K10	MOC001	60	56 48.82 N	160 14.20 W	MOC1	QTowF	net 2 may have hit bottom
21-May-03	17:39	43	3	K10	CTD006	59	56 48.64 N	160 14.22 W	CTDB	MZ	50 m bottle didn't open, re-did 50 m bottle in haul 5
21-May-03	18:19	43	4	K10	MOC002	59	56 49.57 N	160 13.69 W	MOC1	Discard	nets didn't open completely. Failed tow
21-May-03	18:42	43	5	K10	CTD007	59	56 49.68 N	160 13.05 W	CTDB	MZ	re-do of 50m bottle from haul 3. Note: MOA marked as CTD 006A
21-May-03	19:27	43	6	K10	MOC003	60	56 49.77 N	160 13.70 W	MOC1	QTowF	
21-May-03	20:42	43	7	K10	CTD008	59	56 49.20 N	160 13.50 W	CTDB	MZ	10 L bottles
21-May-03	21:15	43	8	K10	MOC004	59	56 49.06 N	160 13.93 W	MOC1	QTowF	net 2 lagged at bottom for a long time. Over-sampled max depth
21-May-03	23:36	43	9	K10	CTD009	60	56 49.18 N	160 13.24 W	CTDB	MZ	10 L bottles
22-May-03	0:16	43	10	K10	MOC005	60	56 49.08 N	160 13.50 W	MOC1	QTowF	Net 6 had 1 Chrysaora jellyfish at 1.3 kg
22-May-03	2:38	43	11	K10	CTD010	59	56 49.15 N	160 13.30 W	CTDB	MZ	10 L bottles
22-May-03	3:12	43	12	K10	MOC006	58	56 49.34 N	160 13.52 W	MOC1	QTowF	
22-May-03	5:36	43	13	K10	CTD011	57	56 48.85 N	160 13.96 W	CTDB	MZ	10L bottles
22-May-03	6:05	43	14	K10	MOC007	57	56 49.06 N	160 14.42 W	MOC1	QTowF	Net 6 vol filtered not recorded. Took average of all net sixes for MOC on this cruise and used that for vol filtered
22-May-03	8:35	43	15	K10	CTD012	58	56 49.12 N	160 13.49 W	CTDB	MZ	10 L bottles
22-May-03	9:13	43	16	K10	MOC008	59	56 49.40 N	160 12.80 W	MOC1	QTowF	
22-May-03	11:36	43	17	K10	CTD013	60	56 49.55 N	160 12.93 W	CTDB	MZ	10 L bottles



## Cruise Summary for FOCI Cruise 4MF03 (MF0307)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternat Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	HaulComments
22-May-03	12:09	43	18	K10	MOC009	61	56 49.20 N	160 13.20 W	MOC1	QTowF	
22-May-03	12:09	43	18	K10	MOC009	61	56 49.20 N	160 13.20 W	MOC1	QTowF	Volume filtered on net 5 seems high.
22-May-03	14:41	43	19	K10	CTD014	61	56 49.17 N	160 13.32 W	CTDB	Discard	bottles not popped. FAIL
22-May-03	14:53	43	20	K10	CTD015	61	56 49.32 N	160 13.08 W	CTDB	MZ	10 L bottles. 10m bottle lost about 200 mls
22-May-03	15:31	43	21	K10	MOC010	60	56 49.10 N	160 13.40 W	MOC1	QTowF	
22-May-03	20:52	44	1	Z10		77	56 13.50 N	162 12.00 W	Neu	QTowF	
22-May-03	22:18	44	2	Z10	BON044	78	56 13.50 N	162 12.20 W	20Bon	QTowF	
22-May-03	22:18	44	2	Z10	BON044	78	56 13.50 N	162 12.20 W	60Bon	QTowF	
22-May-03	22:18	44	2	Z10	BON044	78	56 13.50 N	162 12.20 W	CAT	CAT	
22-May-03	23:49	45	1	AC10		79	56 06.00 N	162 35.50 W	Neu	QTowF	
23-May-03	0:14	45	2	AC10	BON045	80	56 06.00 N	162 36.10 W	20Bon	QTowF	
23-May-03	0:14	45	2	AC10	BON045	80	56 06.00 N	162 36.10 W	60Bon	QTowF	
23-May-03	0:14	45	2	AC10	BON045	80	56 06.00 N	162 36.10 W	CAT	CAT	
23-May-03	1:48	46	1	AF10		85	55 58.90 N	162 58.90 W	Neu	QTowF	
23-May-03	2:12	46	2	AF10	BON046	85	55 58.80 N	162 59.20 W	20Bon	QTowF	Flowmeters spinning in wind. Removed 1 jellyfish @ 170 g from net 1 60Bon.
23-May-03	2:12	46	2	AF10	BON046	85	55 58.80 N	162 59.20 W	60Bon	QTowF	Flowmeters spinning in wind. Removed 1 jellyfish @ 170 g from net 1 60Bon.
23-May-03	2:12	46	2	AF10	BON046	85	55 58.80 N	162 59.20 W	CAT	CAT	Flowmeters spinning in wind. Removed 1 jellyfish @ 170 g from net 1 60Bon.
23-May-03	4:01	47	1	AI10	BON047	88	55 52.00 N	163 22.30 W	20Bon	QTowF	
23-May-03	4:01	47	1	AI10	BON047	88	55 52.00 N	163 22.30 W	60Bon	QTowF	
23-May-03	4:01	47	1	AI10	BON047	88	55 52.00 N	163 22.30 W	CAT	CAT	
23-May-03	5:43	48	1	AI7		66	55 38.60 N	163 09.90 W	Neu	QTowF	
23-May-03	6:07	48	2	AI7	BON048	66	55 38.80 N	163 09.90 W	20Bon	QTowF	
23-May-03	6:07	48	2	AI7	BON048	66	55 38.80 N	163 09.90 W	60Bon	QTowF	
23-May-03	6:07	48	2	AI7	BON048	66	55 38.80 N	163 09.90 W	CAT	CAT	
23-May-03	7:38	49	1	AL7		74	55 31.70 N	163 32.80 W	Neu	QTowF	
23-May-03	8:01	49	2	AL7	BON049	75	55 31.70 N	163 33.20 W	20Bon	QTowF	
23-May-03	8:01	49	2	AL7	BON049	75	55 31.70 N	163 33.20 W	60Bon	QTowF	
23-May-03	8:01	49	2	AL7	BON049	75	55 31.70 N	163 33.20 W	CAT	CAT	
23-May-03	9:07	50	1	AO7		90	55 24.60 N	163 55.80 W	Neu	QTowF	
23-May-03	10:02	50	2	AO7	BON050	90	55 24.50 N	163 56.50 W	20Bon	QTowF	1.1 kg jellyfish removed but net number not indicated so put 60Bon nets 1 and 2 as questionable.
23-May-03	10:02	50	2	AO7	BON050	90	55 24.50 N	163 56.50 W	60Bon	QTowF	1.1 kg jellyfish removed but net number not indicated so put 60Bon nets 1 and 2 as questionable.
23-May-03	10:02	50	2	AO7	BON050	90	55 24.50 N	163 56.50 W	CAT	CAT	1.1 kg jellyfish removed but net number not indicated so put 60Bon nets 1 and 2 as questionable.
23-May-03	11:39	51	1	AR7		98	55 17.20 N	164 19.40 W	Neu	QTowF	
23-May-03	12:05	51	2	AR7	BON051	98	55 17.30 N	164 19.50 W	20Bon	QTowF	
23-May-03	12:05	51	2	AR7	BON051	98	55 17.30 N	164 19.50 W	60Bon	QTowF	
23-May-03	12:05	51	2	AR7	BON051	98	55 17.30 N	164 19.50 W	CAT	CAT	
23-May-03	13:40	52	1	AU7		101	55 09.90 N	164 42.40 W	Neu	QTowF	
23-May-03	14:03	52	2	AU7	BON052	102	55 10.00 N	164 42.60 W	20Bon	QTowF	

### Cruise Summary for FOCI Cruise 4MF03 (MF0307)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternat Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	HaulComments
23-May-03	14:03	52	2	AU7	BON052	102	55 10.00 N	164 42.60 W	60Bon	QTowF	
23-May-03	14:03	52	2	AU7	BON052	102	55 10.00 N	164 42.60 W	CAT	CAT	
23-May-03	15:33	53	1	AX7		111	55 02.80 N	165 05.60 W	Neu	QTowF	
23-May-03	15:56	53	2	AX7	BON053	112	55 02.90 N	165 06.10 W	20Bon	QTowF	
23-May-03	15:56	53	2	AX7	BON053	112	55 02.90 N	165 06.10 W	60Bon	QTowF	
23-May-03	15:56	53	2	AX7	BON053	112	55 02.90 N	165 06.10 W	CAT	CAT	
23-May-03	17:40	54	1	AX10		114	55 15.90 N	165 18.20 W	Neu	QTowF	
23-May-03	18:00	54	2	AX10	BON054	114	55 16.40 N	165 17.90 W	20Bon	QTowF	
23-May-03	18:00	54	2	AX10	BON054	114	55 16.40 N	165 17.90 W	60Bon	QTowF	
23-May-03	18:00	54	2	AX10	BON054	114	55 16.40 N	165 17.90 W	CAT	CAT	
23-May-03	19:38	55	1	BA10		123	55 09.00 N	165 41.30 W	Neu	Discard	Ship going too slow and gear sank like a lead weight. Pulled up and started Neuston over as haul 2.
23-May-03	19:49	55	2	BA10		123	55 09.00 N	165 41.30 W	Neu	QTowF	MOA does not show deployment time. GMT time estimated but close.
23-May-03	20:27	55	3	BA10	BON055	123	55 09.20 N	165 41.70 W	20Bon	QTowF	
23-May-03	20:27	55	3	BA10	BON055	123	55 09.20 N	165 41.70 W	60Bon	QTowF	
23-May-03	20:27	55	3	BA10	BON055	123	55 09.20 N	165 41.70 W	CAT	CAT	
23-May-03	22:05	56	1	BA7		127	54 55.49 N	165 28.62 W	Neu	QTowF	Removed kelp from sample.
23-May-03	22:30	56	2	BA7	BON056	126	54 55.53 N	165 29.13 W	20Bon	QTowF	Wire out estimated but close.
23-May-03	22:30	56	2	BA7	BON056	126	54 55.53 N	165 29.13 W	60Bon	QTowF	Wire out estimated but close.
23-May-03	22:30	56	2	BA7	BON056	126	54 55.53 N	165 29.13 W	CAT	CAT	Wire out estimated but close.
24-May-03	0:05	57	1	BD7		168	54 48.39 N	165 51.47 W	Neu	QTowF	
24-May-03	0:32	57	2	BD7	BON057	166	54 48.61 N	165 51.94 W	20Bon	QTowF	
24-May-03	0:32	57	2	BD7	BON057	166	54 48.61 N	165 51.94 W	60Bon	QTowF	
24-May-03	0:32	57	2	BD7	BON057	166	54 48.61 N	165 51.94 W	CAT	CAT	
24-May-03	2:26	58	1	BD10		137	55 01.43 N	166 03.92 W	Neu	QTowF	
24-May-03	2:50	58	2	BD10	BON058	137	55 01.83 N	166 04.12 W	20Bon	QTowF	
24-May-03	2:50	58	2	BD10	BON058	137	55 01.83 N	166 04.12 W	60Bon	QTowF	
24-May-03	2:50	58	2	BD10	BON058	137	55 01.83 N	166 04.12 W	CAT	CAT	
24-May-03	4:24	59	1	BG10		153	54 54.52 N	166 26.74 W	Neu	QTowF	
24-May-03	4:44	59	2	BG10	BON059	152	54 54.87 N	166 27.17 W	20Bon	QTowF	
24-May-03	4:44	59	2	BG10	BON059	152	54 54.87 N	166 27.17 W	60Bon	QTowF	
24-May-03	4:44	59	2	BG10	BON059	152	54 54.87 N	166 27.17 W	CAT	CAT	
24-May-03	6:26	60	1	BG7		291	54 41.32 N	166 14.41 W	Neu	QTowF	
24-May-03	6:53	60	2	BG7	BON060	279	54 41.85 N	166 15.72 W	20Bon	QTowF	Bongo at depth not recorded in MOA. Lat and Long from Bongo In on MOA. Time approximated from wire out using 20 m per min haul back.
24-May-03	6:53	60	2	BG7	BON060	279	54 41.85 N	166 15.72 W	60Bon	QTowF	Bongo at depth not recorded in MOA. Lat and Long from Bongo In on MOA. Time approximated from wire out using 20 m per min haul back.
24-May-03	6:53	60	2	BG7	BON060	279	54 41.85 N	166 15.72 W	CAT	CAT	Bongo at depth not recorded in MOA. Lat and Long from Bongo In on MOA. Time approximated from wire out using 20 m per min haul back.

### Cruise Summary for FOCI Cruise 4MF03 (MF0307)

Date (GMT)	Time (GMT)	Station	Haul	FOCI Grid	Alternat Station	Depth (m)	Latitude	Longitude	Gear	Samples Collected	HaulComments
24-May-03	8:35	61	1	BJ7		421	54 34.12 N	166 36.82 W	Neu	QTowF	
24-May-03	8:58	61	2	BJ7	BON061	423	54 33.97 N	166 36.87 W	20Bon	QTowF	
24-May-03	8:58	61	2	BJ7	BON061	423	54 33.97 N	166 36.87 W	60Bon	QTowF	
24-May-03	8:58	61	2	BJ7	BON061	423	54 33.97 N	166 36.87 W	CAT	CAT	
24-May-03	11:02	62	1	BM7		505	54 27.01 N	166 59.59 W	Neu	QTowF	
24-May-03	11:25	62	2	BM7	BON062	506	54 26.90 N	167 00.15 W	20Bon	QTowF	
24-May-03	11:25	62	2	BM7	BON062	506	54 26.90 N	167 00.15 W	60Bon	QTowF	
24-May-03	11:25	62	2	BM7	BON062	506	54 26.90 N	167 00.15 W	CAT	CAT	