

FINAL CRUISE INSTRUCTIONS

ECO-FOCI

NOAA Ship *MILLER FREEMAN*, Cruise MF-06-07
May 21, 2006 – June 1, 2006
Chief Scientist – Annette B. Dougherty, NOAA/AFSC

1.0 DRAFT CRUISE INSTRUCTIONS

1.1 **Cruise Title** – Ecosystem and Fisheries-Oceanography Coordinated Investigations (Eco-FOCI).

1.2 **Cruise Numbers**

1.2.1 **Cruise Number** – MF-06-07

1.2.2 **Eco-FOCI Number** – 4MF06

1.3 **Cruise Dates**

1.3.1 **Departure** – Depart Sunday, May 21, 2006, at 1500 hours from Dutch Harbor, Alaska.

1.3.2 **Arrival** – Arrive Thursday, June 1, 2006, at 0800 hours in Kodiak, Alaska.

1.4 **Operating Area** – Unimak Pass to Shelikof Strait and northeast Kodiak Island – time permitting, ending at Kodiak Island, Alaska.

2.0 CRUISE OVERVIEW

2.1 **Cruise Objectives** – The objectives of this cruise are to conduct an ichthyoplankton survey and process oriented studies in the region between Unimak Pass, the Shumagin Islands, and through Shelikof Strait to Kodiak Island, Alaska, so that we may estimate the abundance, transport, and factors influencing the survival of young walleye pollock larvae. We will also occupy stations on Line 8 to continue our 21-year time series of environmental and biological conditions in Shelikof Strait.

2.2 **Applicability** – These instructions, with ***FOCI Standard Operating Instructions for NOAA Ship MILLER FREEMAN***, dated March 1, 2005, present complete information for this cruise.

2.3 Participating Organizations

NOAA – Pacific Marine Environmental Laboratory (PMEL)
7600 Sand Point Way N.E.
Seattle, Washington 98115-6439

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

2.4 Personnel

2.4.1 Chief Scientist

Name	Gender	Affiliation	E-mail Address
Annette Dougherty (206) 526-6523	Female	AFSC	Annette.Dougherty@noaa.gov

2.4.2 Participating Scientists

Name	Gender	Affiliation	E-mail Address
Annette Dougherty	Female	AFSC	Annette.Dougherty@noaa.gov
Matt Wilson	Male	AFSC	Matt.Wilson@noaa.gov
Steven Porter	Male	AFSC	Steve.Porter@noaa.gov
Ingrid Spies	Female	AFSC	Ingrid.Spies@noaa.gov

2.5 Administration

2.5.1 Ship Operations

Marine Operations Center, Pacific
1801 Fairview Avenue East
Seattle, Washington 98102-3767
Telephone: (206) 553-4548
Fax: (206) 553-1109

Commander Mark Pickett, NOAA
Chief, Operations Division, Pacific (MOP1)
Telephone: (206) 553-8705
Cellular: (206) 390-7527
E-mail: Mark.Ablondi@noaa.gov

Larry Mordock
Deputy Chief, Operations Division (MOP1x1)
Telephone – Work: (206) 553-4764
Home: (206) 365-3567
Cellular: (206) 465-9316
E-mail: Larry.Mordock@noaa.gov

2.5.2 Scientific Operations

Dr. Phyllis J. Stabeno, PMEL
Telephone: (206) 526-6453
E-mail: Phyllis.Stabeno@noaa.gov

Dr. Jeffrey M. Napp, AFSC
Telephone: (206) 526-4148
E-mail: Jeff.Napp@noaa.gov

3.0 OPERATIONS

3.1 Data To Be Collected

3.1.1 Scientific Computer System (SCS) – The ship's SCS shall operate throughout the cruise, acquiring and logging data from navigation, meteorological, oceanographic, and fisheries sensors. See ***FOCI Standard Operating Instructions for NOAA Ship MILLER FREEMAN*** (SOI 5.2) for specific requirements.

3.2 Staging Plan – NOAA Ship ***MILLER FREEMAN*** was loaded with FOCI gear January 26, 2006, while the ship was in port at Marine Operations Center, Pacific (MOP) in Seattle, Washington.

3.3 De-staging Plan – Plankton sample collected during the survey will be off-loaded in Kodiak, Alaska June 1, 2006. AFSC will off-load FOCI gear from NOAA Ship ***MILLER FREEMAN*** while the ship is alongside Marine Operations Center, Pacific (MOP) in October. The hold will need to be opened and the loading crane will be required to remove all FOCI gear from the vessel's hold. The scientific party off-loading the vessel will supply vehicles from AFSC for transportation of the gear from the vessel.

3.4 Cruise Plan – An ichthyoplankton survey will be conducted from Unimak Pass through the Shumagin Islands and Shelikof Strait, ending at Kodiak Island. The standard gear for this survey will be 60-cm bongos with 0.505-mm mesh netting. Tows will be to 100 meters or 10 meters off the bottom where water depth is shallower. See [Section 9.2 MF-06-07 Station Locations](#) and [Section 9.3 MF-06-07 Chartlet](#) for a complete listing of station locations and an overview of the cruise area of operations. Approximately 120 stations from the list will be chosen for occupation from the stations listed in [Section 9.2.1 MF-06-07 Potential Station Locations](#). Live tows may be conducted with the bongos to examine larval walleye pollock condition if larvae 8-mm or less are found. While we are working up the grid toward Kodiak Island, Alaska, we will occupy Line 8.

Line 8 sampling will include 20-cm and 60-cm bongos and conductivity, temperature, and depth (CTD) profiles with Niskin bottle samples taken for chlorophyll, microzooplankton, and nutrients. See [Section 9.2.2 Line 8 Station Locations and Activities](#) for further details. Net tows at Line 8 are to 10 meters off the bottom. The 60-cm bongo will be fitted with 0.505-mm and 0.333-mm mesh nets for Line 8 sampling while the 20-cm bongo mesh will be 0.153-mm. On completion of Line 8, the 60-cm bongo will be refitted with the 0.505-mm mesh netting and cod ends and sampling will resume as before.

3.5 Station Locations – See [Section 9.2 MF-06-07 Station Locations](#) and [Section 9.3 MF-06-07 Chartlet](#).

3.6 Station Operations – The following are operations to be conducted on this cruise. The procedures for these operations are listed in the ***FOCI Standard Operating Instructions for NOAA Ship MILLER FREEMAN*** (SOI). Operations not addressed in the SOI and changes to standard procedures are addressed below.

- CTD/Water Sample Operations (SOI 3.2.1),
- MARMAP Bongo Tows (SOI 3.2.2),
- Bongo Larval Condition Tows (SOI 3.2.3),
- Methot Trawls (SOI 3.2.7),
- Chlorophyll Sampling Operations (SOI 3.2.10), and
- SIMRAD EK 500 Scientific Echosounder Monitoring (SOI 3.2.12).

3.7 Underway Operations – The following are underway operations to be conducted on this cruise. The procedures for these operations are listed in the ***FOCI Standard Operating Instructions for NOAA Ship MILLER FREEMAN*** (SOI). Operations not addressed in the SOI and changes to standard procedures are addressed below.

- Radiometer Operations (SOI 3.2.14),
- Scientific Computer System (SCS) data acquisition (SOI 5.2),
- Fluorometer monitoring (SOI 5.3), and
- Thermosalinograph monitoring (SOI 5.3).

3.8 Applicable Restrictions – None.

3.9 Small Boat Operations – None.

4.0 FACILITIES

4.1 Equipment and Capabilities Provided by Ship

- Oceanographic winch with slip rings and 3-conductor cable terminated for CTD,
- Manual wire-angle indicator,
- Oceanographic winch with slip rings and 3-conductor cable terminated for the SBE SEACAT, for net tow operations,
- Sea-Bird Electronics' SBE 911*plus* CTD system with stand, each CTD system should include underwater CTD, weights, and pinger. There should be one deck unit and tape recorder for the two systems,
- 10-liter Niskin sampling bottles for use with rosette (10 plus 4 spares),

- Conductivity and temperature sensor package to provide dual sensors on the CTD (primary),
- AUTOSAL salinometer, for CTD field corrections,
- Sea-Bird Electronics' SBE-19 SEACAT system,
- Meter block for plankton tows,
- Wire speed indicators and readout for quarterdeck, Rowe, and Marco winches,
- For meteorological observations: 2 anemometers (one R. M. Young system interfaced to the SCS), calibrated air thermometer (wet-and dry-bulb) and a calibrated barometer and/or barograph,
- Freezer space for storage of biological and chemical samples (blast and storage freezers, indicate desired temperatures),
- SIMRAD EQ-50 echosounder,
- JRC JFV-200R color sounder recorder,
- RD Instruments' ADCP written to Iomega Zip drive,
- Scientific Computer System (SCS),
- Laboratory space with exhaust hood, sink, lab tables and storage space,
- Sea-water hoses and nozzles to wash nets (quarterdeck and aft deck),
- Adequate deck lighting for night-time operations,
- Navigational equipment including GPS and radar,
- Safety harnesses for working on quarterdeck and fantail, and
- Ship's crane(s) used for loading and/or deploying.

4.2 Equipment and Capabilities Provided by Scientists

- Sea-Bird Electronics' SBE 911*plus* CTD system,
- Sea-Bird Electronics' SBE-19 SEACAT system,
- PMEL PC with SEASOFT software for CTD data collection and processing,
- Fluorometer and light meter to be mounted on CTD,
- CTD stand modified for attachment of fluorometer,
- Conductivity and temperature sensor package to provide dual sensors on the CTD (backup),
- CTD rosette sampler,
- IAPSO standard water,
- 60-cm Bongo sampling arrays,
- 20-cm Bongo arrays,
- Spare wire angle indicator,
- Miscellaneous scientific sampling and processing equipment,
- Sorting tables and baskets for processing trawl catches,
- Scientific ultra-cold freezer, and
- Cruise Operations Database (COD).

5.0 DISPOSITION OF DATA AND REPORTS

5.1 The following data products will be included in the cruise data package:

- **NOAA Form 77-13d, Deck Log – Weather Observation Sheets,**
- Electronic Marine Operations Abstracts,
- SCS backup – recordable compact diskette (CD),
- Calibration Sheets for all ship's instruments used,
- PMEL CTD Weather Observation Logs,
- CTD Cast Information/Rosette Log,
- Autosalinometer Logs, and
- Ultra-cold Freezer Temperature Daily Log (SOI 5.4).

5.2 **Pre and Post-cruise Meetings** – Cruise meetings may be held in accordance with **FOCI Standard Operating Instructions for NOAA Ship MILLER FREEMAN** (SOI 5.5).

6.0 ADDITIONAL PROJECTS

6.1 **Definition** – Ancillary and piggyback projects are secondary to the objectives of the cruise and should be treated as additional investigations. The difference between the two types of secondary projects is that an ancillary project does not have representation aboard and is accomplished by the ship's force.

6.2 **Ancillary Projects** – Any ancillary work done during this project will be accomplished with the concurrence of the Chief Scientist and on a not-to-interfere basis with the programs described in these instructions and in accordance with the **NOAA Fleet Standing Ancillary Instructions**.

6.3 **Piggyback Projects** – None.

7.0 HAZARDOUS MATERIALS

7.1 **Responsibilities** – The Chief Scientist shall be responsible for complying with MOCDOC 15, Fleet Environmental Compliance #07, **Hazardous Material and Hazardous Waste Management Requirements for Visiting Scientists**, released July 2002. By Federal regulations and NOAA Marine and Aviation Operations policy, the ship may not sail without a complete inventory of all hazardous materials by name and the anticipated quantity brought aboard, MSDS and appropriate neutralizing agents, buffers, and/or absorbents in amounts adequate to address spills of a size equal to the amount of chemicals brought aboard and a chemical hygiene plan. The Chief Scientist shall account for the amount of hazardous material arriving and leaving the vessel.

7.2 **Inventory** – [See Section 9.4 MF-06-07 HAZMAT Inventory](#) for a complete listing of HAZMATs brought onboard the vessel. Spill kit contains materials for cleanup of formaldehyde, ethanol, and sodium borate. All scientific staff onboard are trained to handle spills.

- 7.3 Material Safety Data Sheet (MSDS)** – All MSDSs can be found on the **OERD HAZMAT Emergency Guidelines – MSDS** compact diskette dated January 25, 2005, supplied to the ship. A copy of all required MSDS will also be delivered with the chemicals when ship is loaded.

8.0 MISCELLANEOUS

- 8.1 Communications** – Specific information on how to contact the **NOAA Ship MILLER FREEMAN** and all other fleet vessels can be found at:

<http://www.moc.noaa.gov/phone.htm>

8.2 Important Telephone and Facsimile Numbers and E-mail Addresses

8.2.1 Pacific Marine Environmental Laboratory (PMEL)

FOCI – Ocean Environmental Research Division (OERD2):

- (206) 526-4700 (voice)
- (206) 526-6485 (fax)

Administration:

- (206) 526-6810 (voice)
- (206) 526-6815 (fax)

E-Mail: FirstName.LastName@noaa.gov

8.2.2 Alaska Fisheries Science Center (AFSC)

FOCI – Resource Assessment and Conservation Engineering (RACE):

- (206) 526-4171 (voice)
- (206) 526-6723 (fax)

E-Mail: FirstName.LastName@noaa.gov

- 8.2.3 NOAA Ship MILLER FREEMAN** – Telephone methods listed in order of increasing expense:

Homeport – Seattle, Washington:

- (206) 553-4589
- (206) 553-4581
- (206) 553-8344

United States Coast Guard – Kodiak, Alaska

- (907) 487-9752
- (907) 487-9753
- (907) 487-4397
- (907) 487-4398

Cellular:

- (206) 790-7594

Iridium:

- (808) 659-5684

INMARSAT Mini-M

- 011-872-761-267-346 (voice/PBX)
- 011-872-761-267-347 (voice)
- 011-872-761-267-348 (fax)

INMARSAT B

- 011-872-330-394-120 (voice)
- 011-872-330-394-121 (fax)

E-Mail: NOAA.Ship.Miller.Freeman@noaa.gov (mention the person's name in SUBJECT field)

8.2.4 Marine Operations Center, Pacific (MOP)

Operations Division (MOP1)

- (206) 553-4548 (voice)
- (206) 553-1109 (facsimile)

E-Mail: FirstName.LastName@noaa.gov

E-Mail to Radio Room: Radio.Room@noaa.gov

9.0 APPENDICES

9.1 MF-06-07 Equipment Inventory

Equipment	Qty	Dimension	Weight	Total Weight
Larval Supply Trunk	1	20"x22"x36"	80.0 lbs	80.0 lbs
Microzooplankton Supply Trunks	2	20"x22"x36"	90.0 lbs	180.0 lbs
Miscellaneous Gear Trunks	4	20"x22"x36"	80.0 lbs	320.0 lbs
60-cm Bongo Frame	1	8"x26"x60"		
20-cm Bongo Frame	1	8"x14"x16"		
Cases Glass Jars (32-oz)	20	8"x12"x15"	2.5 lbs	50.0 lbs
Cases Glass Jars (8-oz)	6	4"x6"x8"	1.3 lbs	7.8 lbs
20-L Container, Formaldehyde 37%	3		40.0 lbs	120.0 lbs
20-L Container, Ethanol 95%	1		40.0 lbs	40.0 lbs
20-L Container, Sodium Borate Solution, Saturated	1		40.0 lbs	40.0 lbs
500-g Container, Sodium Borate	2		1.0 lbs	2.0 lbs
1-L Zinc-Formalin, 10%, (Z-Fix)	1		0.5 lbs	0.5 lbs
Spill Kit	1	8"x12"x14"	1.5 lbs	1.5 lbs
TOTAL WEIGHT:				841.8 lbs

9.2 MF-06-07 Station Locations

9.2.1 MF-06-07 Station Locations

Station	XY Grid	Latitude	Longitude
1	u1	54° 29.0000'	N 165° 18.0000' W
2	u2	54° 24.0000'	N 165° 7.0000' W
3	gd103	54° 16.9032'	N 164° 42.6300' W
4	gd101	54° 9.6456'	N 164° 54.4080' W
5	gf101	54° 2.7588'	N 164° 39.6360' W
6	gf103	54° 10.0158'	N 164° 27.8880' W
7	gh103	54° 3.1290'	N 164° 13.1940' W
8	gj105	54° 3.4992'	N 163° 46.8360' W
9	gh105	54° 10.3866'	N 164° 1.4460' W
10	gf105	54° 17.2734'	N 164° 16.1040' W
11	gf107	54° 24.531'	N 164° 4.2900' W
12	gh107	54° 17.6436'	N 163° 49.6620' W
13	gj107	54° 10.7568'	N 163° 35.0880' W
14	gl107	54° 3.8700'	N 163° 20.5620' W
15	gl109	54° 11.1270'	N 163° 8.8080' W
16	gj109	54° 18.0144'	N 163° 23.3040' W
17	gh109	54° 24.9012'	N 163° 37.8420' W
18	gf109	54° 31.788'	N 163° 52.4400' W
19	gh111	54° 32.1588'	N 163° 25.9920' W
20	gj111	54° 25.2714'	N 163° 11.4840' W
21	gl111	54° 18.3846'	N 162° 57.0240' W
22	gn111	54° 11.4972'	N 162° 42.6120' W
23	gn117	54° 33.2694'	N 162° 7.1400' W

24	gn119	54°	40.5270'	N	161°	55.2480'	W
25	gp119	54°	33.6300'	N	161°	41.2520'	W
26	gr119	54°	26.7528'	N	161°	26.8380'	W
27	gt119	54°	19.8660'	N	161°	12.7020'	W
28	gv119	54°	12.9786'	N	160°	58.6140'	W
29	gv125	54°	34.7508'	N	160°	23.1240'	W
30	gv127	54°	42.0084'	N	160°	11.2200'	W
31	gt127	54°	48.8952'	N	160°	25.1760'	W
32	gt125	54°	41.6382'	N	160°	37.1100'	W
33	gr125	54°	48.5250'	N	160°	51.1440'	W
34	gr127	54°	55.7826'	N	160°	39.1740'	W
35	gp127	55°	2.6694'	N	160°	53.2200'	W
36	gp125	54°	55.4118'	N	161°	5.2260'	W
37	gp123	54°	48.1548'	N	161°	17.1900'	W
38	gn127	55°	9.5568'	N	161°	7.3140'	W
39	gl127	55°	16.4436'	N	161°	21.4560'	W
40	B4	55°	21.7800'	N	161°	38.3400'	W
41	B2	55°	20.6999'	N	161°	2.1600'	W
42	go133	55°	30.0000'	N	160°	20.0000'	W
43	gp135	55°	31.6992'	N	160°	4.8480'	W
44	gp137	55°	38.9562'	N	159°	52.6620'	W
45	gr135	55°	24.8118'	N	159°	50.9400'	W
46	gt135	55°	17.9250'	N	159°	37.0800'	W
47	gx135	55°	4.1508'	N	159°	9.4860'	W
48	gz135	54°	57.2640'	N	158°	55.7580'	W
49	hb135	54°	50.3766'	N	158°	42.0720'	W
50	gz139	55°	11.7786'	N	158°	31.6980'	W
51	gx139	55°	18.6654'	N	158°	45.3600'	W
52	gv139	55°	25.5528'	N	158°	59.0640'	W
53	gt139	55°	32.4396'	N	159°	12.8100'	W
54	gv143	55°	40.0674'	N	158°	34.7160'	W
55	gx143	55°	33.1806'	N	158°	21.0780'	W
56	gz143	55°	26.2932'	N	158°	7.4940'	W
57	hb143	55°	19.4064'	N	157°	53.9460'	W
58	hb141	55°	12.1488'	N	158°	6.0360'	W
59	hd143	55°	12.5190'	N	157°	40.4400'	W
60	hf147	55°	20.1468'	N	157°	2.8380'	W
61	hd147	55°	27.0342'	N	157°	16.2300'	W
62	hb147	55°	33.9210'	N	157°	29.6640'	W
63	gz147	55°	40.8078'	N	157°	43.1340'	W
64	gx147	55°	47.6952'	N	157°	56.6520'	W
65	gv147	55°	54.5820'	N	158°	10.2120'	W
66	gr151	56°	22.8708'	N	158°	12.6660'	W
67	gt151	56°	15.9840'	N	157°	59.0940'	W
68	gv151	56°	9.0972'	N	157°	45.5640'	W
69	gx151	56°	2.2098'	N	157°	32.0760'	W
70	gz151	55°	55.3230'	N	157°	18.6300'	W
71	hb151	55°	48.4356'	N	157°	5.2260'	W
72	hd151	55°	41.5488'	N	156°	51.8640'	W
73	hf151	55°	34.6614'	N	156°	38.5440'	W
74	hh151	55°	27.7746'	N	156°	25.2660'	W
75	hh153	55°	35.0322'	N	156°	13.0980'	W
76	hf153	55°	41.9190'	N	156°	26.3400'	W
77	hd153	55°	48.8058'	N	156°	39.6300'	W
78	hb153	55°	55.6932'	N	156°	52.9560'	W
79	gz153	56°	2.5800'	N	157°	6.3180'	W

80	gx153	56°	9.4674'	N	157°	19.7280'	W
81	gv153	56°	16.3542'	N	157°	33.1800'	W
82	gt153	56°	23.2416'	N	157°	46.6740'	W
83	gt155	56°	30.4986'	N	157°	34.2120'	W
84	gv155	56°	23.6118'	N	157°	20.7540'	W
85	gx155	56°	16.7244'	N	157°	7.3440'	W
86	gz155	56°	9.8376'	N	156°	53.9700'	W
87	hd155	55°	56.0634'	N	156°	27.3540'	W
88	hf155	55°	49.1766'	N	156°	14.1000'	W
89	hh155	55°	42.2892'	N	156°	0.8940'	W
90	hf157	55°	56.4336'	N	156°	1.8240'	W
91	hd157	56°	3.3210'	N	156°	15.0360'	W
92	hb157	56°	10.2078'	N	156°	28.2900'	W
93	gz157	56°	17.0952'	N	156°	41.5800'	W
94	gx157	56°	23.9820'	N	156°	54.9180'	W
95	gu158	56°	40.0000'	N	157°	13.0000'	W
96	gv159	56°	38.1264'	N	156°	55.7880'	W
97	gx159	56°	31.2396'	N	156°	42.4500'	W
98	gz159	56°	24.3522'	N	156°	29.1540'	W
99	hb159	56°	17.4654'	N	156°	15.9000'	W
100	hd159	56°	10.5780'	N	156°	2.6820'	W
101	hf159	56°	3.6912'	N	155°	49.5060'	W
102	hd161	56°	17.8356'	N	155°	50.2920'	W
103	hb161	56°	24.7224'	N	156°	3.4680'	W
104	gz161	56°	31.6098'	N	156°	16.6860'	W
105	gx161	56°	38.4966'	N	156°	29.9460'	W
106	gv161	56°	45.3840'	N	156°	43.2480'	W
107	gt163	56°	51.0000'	N	156°	45.0000'	W
108	gv163	56°	52.6410'	N	156°	30.6660'	W
109	gx163	56°	45.7542'	N	156°	17.4000'	W
110	gz163	56°	38.8674'	N	156°	4.1820'	W
111	hb163	56°	31.9800'	N	155°	51.0000'	W
112	hd163	56°	25.0932'	N	155°	37.8600'	W
113	hd165	56°	32.3502'	N	155°	25.3860'	W
114	hb165	56°	39.2376'	N	155°	38.4900'	W
115	gz165	56°	46.1244'	N	155°	51.6360'	W
116	gx165	56°	53.0118'	N	156°	4.8180'	W
117	gv165	56°	59.8986'	N	156°	18.0420'	W
118	gv167	57°	7.1562'	N	156°	5.3760'	W
119	gx167	57°	0.2688'	N	155°	52.1880'	W
120	gz167	56°	53.3820'	N	155°	39.0480'	W
121	hb167	56°	46.4946'	N	155°	25.9440'	W
122	hd167	56°	39.6078'	N	155°	12.8760'	W
123	hd169	56°	46.8654'	N	155°	0.3240'	W
124	hb169	56°	53.7522'	N	155°	13.3500'	W
125	gz169	57°	0.6390'	N	155°	26.4180'	W
126	gx169	57°	7.5264'	N	155°	39.5220'	W
127	gv169	57°	14.4132'	N	155°	52.6680'	W
128	gt169	57°	21.3000'	N	156°	5.0000'	W
129	gt171	57°	27.0000'	N	155°	46.0000'	W
130	gv171	57°	21.6708'	N	155°	39.9180'	W
131	gx171	57°	14.7840'	N	155°	26.8140'	W
132	gz171	57°	7.8966'	N	155°	13.7460'	W
133	hb171	57°	1.0098'	N	155°	0.7200'	W
134	hd171	56°	54.1224'	N	154°	47.7360'	W
135	hb173	57°	8.2668'	N	154°	48.0480'	W

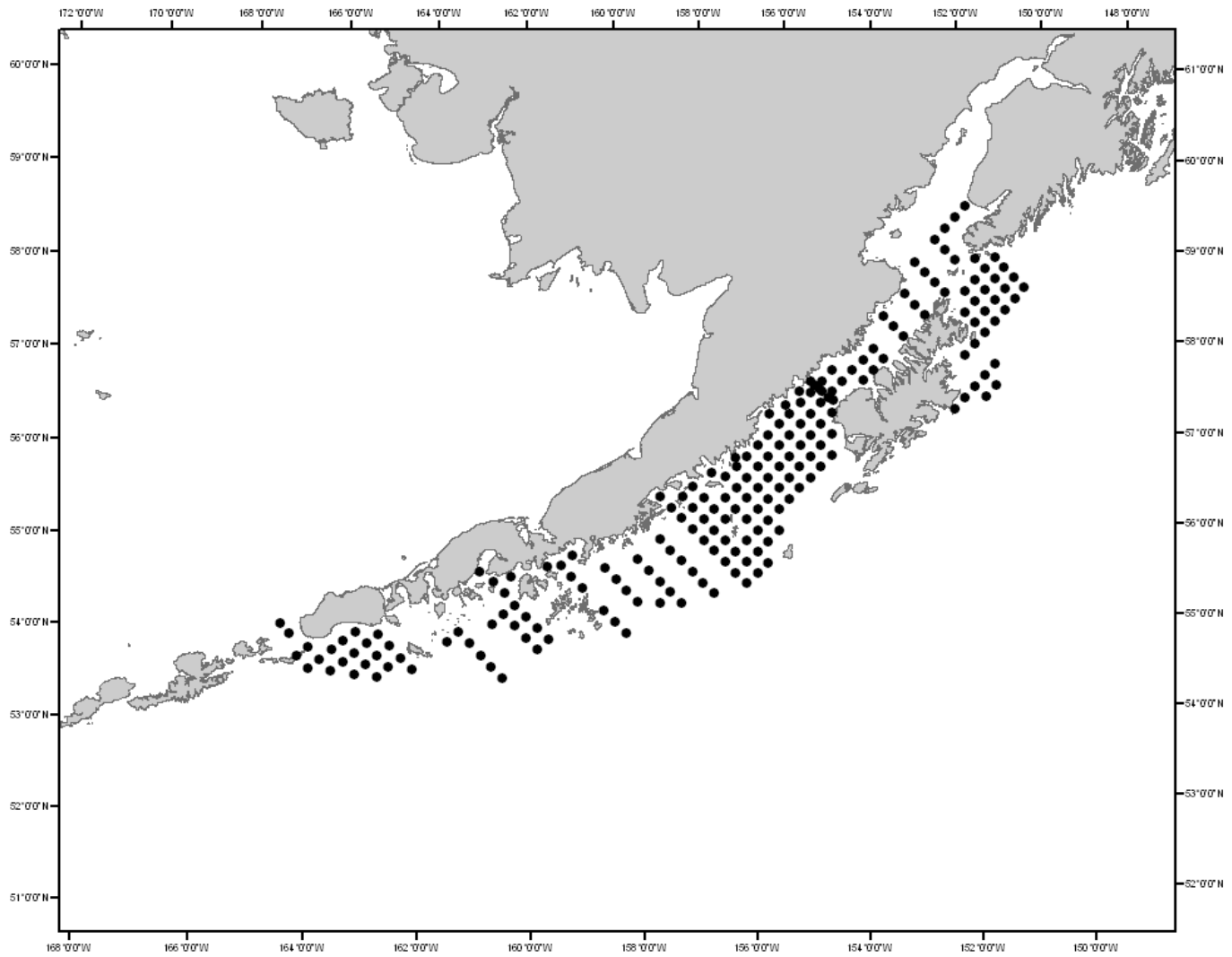
136	gz173	57°	15.1542'	N	155°	1.0380'	W
137	gx173	57°	22.0410'	N	155°	14.0640'	W
138	gv173	57°	28.9284'	N	155°	27.1260'	W
139	gt173	57°	37.0000'	N	155°	28.0000'	W
140	gv175	57°	36.1854'	N	155°	14.2980'	W
141	gx175	57°	29.2986'	N	155°	1.2720'	W
142	gz175	57°	22.4112'	N	154°	48.2820'	W
143	FOX56	57°	31.2000'	N	154°	46.8000'	W
144	FOX57	57°	33.0000'	N	154°	52.8000'	W
145	FOX58	57°	36.6000'	N	155°	0.6000'	W
146	FOX59	57°	38.4000'	N	155°	4.2000'	W
147	FOX60	57°	40.8000'	N	155°	10.2000'	W
148	FOX61	57°	43.2000'	N	155°	15.6000'	W
149	gx177	57°	36.5556'	N	154°	48.4380'	W
150	gv177	57°	43.4430'	N	155°	1.4220'	W
151	gv179	57°	50.7006'	N	154°	48.4980'	W
152	gx179	57°	43.8132'	N	154°	35.5620'	W
153	gx181	57°	51.0708'	N	154°	22.6380'	W
154	gz181	57°	44.1834'	N	154°	9.7740'	W
155	gz183	57°	51.4410'	N	153°	56.8500'	W
156	gx183	57°	58.3278'	N	154°	9.6720'	W
157	gx185	58°	5.5854'	N	153°	56.6640'	W
158	gz185	57°	58.6986'	N	153°	43.8840'	W
159	gz189	58°	13.2132'	N	153°	17.8200'	W
160	gx189	58°	20.1000'	N	153°	30.5160'	W
161	gv189	58°	26.9874'	N	153°	43.2480'	W
162	gv193	58°	41.5020'	N	153°	16.8300'	W
163	gx193	58°	34.6152'	N	153°	4.1820'	W
164	gz193	58°	27.7278'	N	152°	51.5760'	W
165	gz197	58°	42.2424'	N	152°	25.1460'	W
166	gx197	58°	49.1298'	N	152°	37.6740'	W
167	gv197	58°	56.0166'	N	152°	50.2320'	W
168	gt197	59°	2.9040'	N	153°	2.8260'	W
169	gt201	59°	17.4186'	N	152°	35.9520'	W
170	gt203	59°	24.6762'	N	152°	22.4400'	W
171	gt205	59°	31.9332'	N	152°	8.8800'	W
172	gt207	59°	39.1908'	N	151°	55.2720'	W
173	gv201	59°	10.5318'	N	152°	23.4480'	W
174	gx201	59°	3.6444'	N	152°	10.9740'	W
175	gz203	59°	4.0146'	N	151°	45.1620'	W
176	hb205	59°	4.3854'	N	151°	19.4280'	W
177	hd205	58°	57.498'	N	151°	7.1520'	W
178	hf205	58°	50.6112'	N	150°	54.9060'	W
179	hh205	58°	43.7238'	N	150°	42.6900'	W
180	hh203	58°	36.4668'	N	150°	55.9380'	W
181	hf203	58°	43.3536'	N	151°	8.1960'	W
182	hd203	58°	50.2410'	N	151°	20.4840'	W
183	hb203	58°	57.1278'	N	151°	32.8080'	W
184	hb201	58°	49.8702'	N	151°	46.1340'	W
185	hd201	58°	42.9834'	N	151°	33.7740'	W
186	hf201	58°	36.0960'	N	151°	21.4380'	W
187	hh201	58°	29.2092'	N	151°	9.1380'	W
188	hh199	58°	21.9516'	N	151°	22.2900'	W
189	hf199	58°	28.8390'	N	151°	34.6320'	W
190	hd199	58°	35.7258'	N	151°	47.0100'	W
191	hb199	58°	42.6132'	N	151°	59.4180'	W

192	hd197	58°	28.4688'	N	152°	0.2040'	W
193	hf197	58°	21.5814'	N	151°	47.7840'	W
194	hh197	58°	14.6946'	N	151°	35.4000'	W
195	hh195	58°	7.4370'	N	151°	48.4620'	W
196	hh193	58°	0.1794'	N	152°	1.4820'	W
197	hl195	57°	53.6628'	N	151°	23.7120'	W
198	hl193	57°	46.4058'	N	151°	36.6480'	W
199	hn193	57°	39.5184'	N	151°	24.2820'	W
200	hn191	57°	32.2614'	N	151°	37.1340'	W
201	hl191	57°	39.1482'	N	151°	49.5420'	W
202	hl189	57°	31.8906'	N	152°	2.3880'	W
203	hl187	57°	24.6336'	N	152°	15.1980'	W

9.2.2 MF-06-07 Line 8 Station Locations and Activities

Station	Latitude	Longitude	Lat (dd)	Lon (dd)	CTDB	Chlor	Nuts	MZ	20/60 Bongo
FOX61	57° 43.20' N	155° 15.60' W	57.72	-155.26	x	x	x	x	x
FOX60	57° 40.80' N	155° 10.20' W	57.68	-155.17	x	x	x	x	x
FOX59	57° 38.40' N	155° 04.20' W	57.64	-155.07	x	x	x	x	x
FOX58	57° 36.60' N	155° 00.60' W	57.61	-155.01	x	x	x	x	x
FOX57	57° 33.00' N	154° 52.80' W	57.55	-154.88	x	x	x	x	x
FOX56	57° 31.20' N	154° 46.80' W	57.52	-154.78	x	x	x	x	x
FOX55	57° 28.80' N	154° 42.00' W	57.48	-154.70	x	x	x	x	x

9.3 MF-06-07 Chartlet



9.4 MF-06-07 HAZMAT Inventory

Chemical	CAS Number	Respondee	Org	Qty	H	F	R	Storage Color Code	Hazard Class	Packing Group Number	UN	Reportable Quantity	Response Indices
Ethanol, 95%	64-17-5	Dougherty	AFSC	20-L	3	4	2	Flammable	3	II	1170	5,000 LBS	1
Formaldehyde, 37%	50-00-0	Dougherty	AFSC	60-L	3	2	2	Flammable	3 & 8	III	1198	100 LBS	1
Sodium Borate	1330-43-4	Dougherty	AFSC	1-kg	1	0	0	General	Not regulated				2
Sodium Borate Solution, Saturated	mix	Dougherty	AFSC	20-L	1	0	0	General	Not regulated				2
Zinc-Formalin, 10%, (Z-Fix)	mix	Dougherty	AFSC	1-L	2	1	0	General	9				3334
<p>Spill Response 1: Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, or earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. U.S. Regulations (CERCLA) requires reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the U.S. Coast Guard National Response Center is (800) 424-8802.</p>													
<p>Spill Response 2: Ventilate area of leak or spill. Wear appropriate personal protective equipment. Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.</p>													