

# FINAL CRUISE INSTRUCTIONS

## *ECO-FOCI*

NOAA Ship *MILLER FREEMAN*, Cruise MF-08-02  
February 28 – March 6, 2008  
Chief Scientist – Carol DeWitt, NOAA/PMEL

### 1.0 FINAL CRUISE INSTRUCTIONS

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

1.2 **Cruise Numbers:**

1.2.1 **Cruise Number** – MF-08-02

1.2.2 **Eco-FOCI Number** – 2MF08

1.3 **Cruise Dates:**

1.3.1 **Departure** - February 28, 2008, 1500, Dutch Harbor

1.3.2 **Arrival** – March 6, 2008, 0900, Kodiak

1.4 **Operating Area** – Amukta Pass, Pavlof Bay, Chiniak Bay

### 2.0 CRUISE OVERVIEW

2.1 **Cruise Objectives** - To recover and deploy surface and subsurface oceanographic instrumentation moorings. To complete Conductivity, Temperature, and Depth (CTD) profiler casts.

2.2 **Applicability** - These instructions, with ***FOCI Standard Operating Instructions for NOAA Ship MILLER FREEMAN***, dated March 1, 2007, 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	Nationality	Affiliation	E-mail Address
DeWitt, Carol	F	US	PMEL	<a href="mailto:Carol.dewitt@noaa.gov">Carol.dewitt@noaa.gov</a>

### 2.4.2 Other Participating Scientists

Name	Gender	Nationality	Affiliation	E-mail Address
Floering, William	M	US	PMEL	<a href="mailto:William.floering@noaa.gov">William.floering@noaa.gov</a>

## 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) 553-1857  
Cellular: (206) 390-7527  
E-mail: [Mark.Pickett@noaa.gov](mailto:Mark.Pickett@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](mailto:Larry.Mordock@noaa.gov)

### 2.5.2 Scientific Operations

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

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

## 3.0 OPERATIONS

3.1 **Data To Be Collected** - In addition to the standard suite of Scientific Computer System (SCS) integrated instruments, we will deploy the Sea-Bird SBE 911*plus* CTD profiler system.

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** - It is our intention to coordinate with the MILLER FREEMAN to load what we can on the ship in Seattle before it departs for Alaska. The equipment that can not be loaded in Seattle will be shipped in a container to Dutch Harbor prior to the cruise. The scientific party will be responsible for arranging vehicles for moving their equipment from the airport and/or docks.

**De-staging Plan** - The equipment will be off-loaded in Kodiak and barged to Seattle, WA. The scientific party will be responsible for arranging vehicles for moving their equipment from the docks.

**3.3 Cruise Plan** –

**3.3.1 Amukta Pass** - The ship will transit from Dutch Harbor to Amukta Pass. Mooring operations will consist of recovering four subsurface moorings and deploying four subsurface moorings. Either before or after the mooring operations – depending on daylight - a CTD will be completed at each site. A fifth CTD will be completed east of Amukta Pass mooring site 1.

**3.3.2 CTD “L”** – CTDs will be conducted at the stations along line the “L”.

**3.3.3 Pavlof Bay** - Mooring operations will consist of recovering and deploying one subsurface mooring. A CTD will be completed before the recovery and after the deployment of the mooring.

**3.3.4 Line 8 CTD operations** – CTDs will be conducted at the seven stations along line 8.

**3.3.5 Chiniak Bay** - The ship will transit from line 8 to Chiniak Bay. Mooring operations will consist of recovering and deploying one subsurface mooring. A CTD will be completed before the recovery or after the deployment of the mooring.

**3.4 Station Locations** - See Section 9.3 Cruise MF-08-02 Station Locations.

**3.5 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)
- Chlorophyll Sampling Operations (SOI 3.2.10)
- ARGOS Satellite Tracked Drifter Buoy Deployments (SOI 3.2.11)
- SIMRAD EK-60 and 12 Khz Simrad ES-60 Scientific Echosounder Monitoring (SOI 3.2.12)

**3.6 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.

- Acoustic Doppler Current Profiler (ADCP) Operations (SOI 3.2.13),
- Scientific Computer System (SCS) data acquisition (SOI 5.2),
- Fluorometer monitoring (SOI 5.3),
- Thermosalinograph monitoring (SOI 5.3).

**3.7 Applicable Restrictions** – n/a

**3.8 Small Boat Operations** – n/a

**4.0 FACILITIES**

**4.1 Equipment and Capabilities Provided by Ship**

- Oceanographic winch with slip rings and 3-conductor cable terminated for CTD,
- Aft Rowe oceanographic winch with 8 conductor slip rings and connections to DataPlot,
- 12 Khz hull mounted Edgetech Acoustic release transducer,
- Sea-Bird Electronics' SBE 911*plus* CTD system with stand, each CTD system should include underwater CTD, weights, and pinger. There should be a deck unit for the system,
- 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,
- 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 disk,
- Use of Pentium PC in DataPlot for data analysis,
- Scientific Computer System (SCS),
- Minimum of 2 computers with internet and e-mail access,
- Removable stern platform (in place),
- 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,
- 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,
- PMEL PC with SEASOFT software for CTD data collection and processing,
- Fluorometer, light meter and dual oxygen sensors to be mounted on CTD,
- CTD stand,
- Conductivity and temperature sensor package to provide dual sensors on the CTD (backup),
- CTD rosette sampler,
- IAPSO standard water,
- Subsurface moorings,
- Miscellaneous scientific sampling and processing equipment,
- Scientific ultra-cold freezer,
- 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,
- Calibration Sheets for all ship's instruments used,
- CTD Cast Information/Rosette Log,
- Autosalinometer Logs,
- ADCP Log Sheets,
- ADCP CD (CD-RW),
- 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** The field party chief shall be responsible for complying with MOCDOC 15, Fleet Environmental Compliance #07, Hazardous Material and Hazardous Waste Management Requirements of Visiting Scientists. July 2002

**7.1 Inventory**

**7.1.1 Hazmat Inventory, DeWitt:**

Chemical	CAS Number	Respondee	Org	Qty	H	F	R	Storage Color Code	Hazard Class	Packing Group Number	UN #	Response Indices
Battery, Lithium	mixture	DeWitt	PMEL	*	2	2	3	General	9	II	3090	
Tributyltin Oxide	56-35-9	DeWitt	PMEL	6 oz.	3	1	0	Poison	N. R.			1
<b>Spill Response 1:</b> Stop the leak, if possible. Ventilate the space involved. Absorb, sweep up, and place in container for disposal. Shut off or remove all ignition sources. Prevent waterway contamination. Construct a dike to prevent spreading. Collect run-off (water) and transfer to drums or tanks for later disposal.												

\* Lithium and Alkaline battery quantities as follows:

- 7 - Microcat (6 lithium battery sticks and anti-fouling on conductivity cells)
- 3 - MTR (1 9-V alkaline cell)

**7.2 Material Safety Data Sheet (MSDS)**

An electronic MSDS for each hazardous material will be brought aboard the ship.

**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)

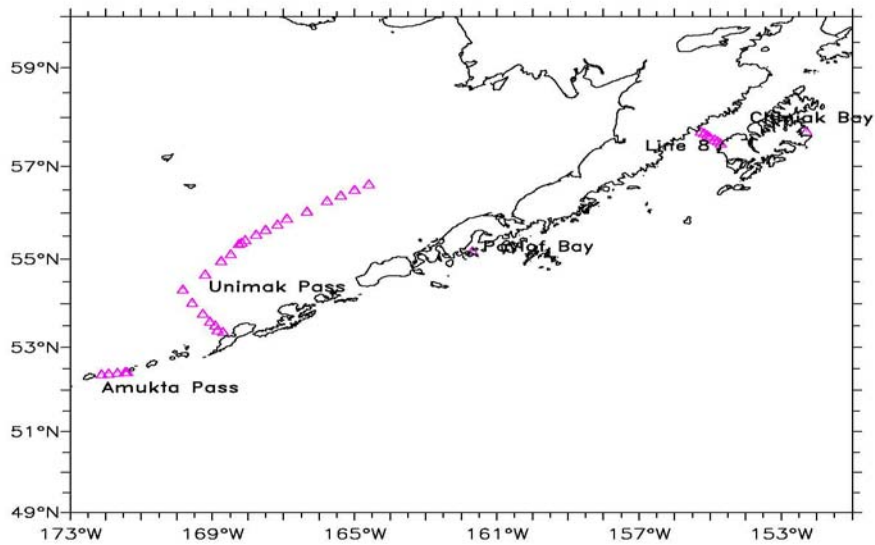
E-Mail: FirstName.LastName@noaa.gov

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

## 9.0 APPENDICES

9.1 Equipment Inventory - to be provided with final cruise instructions

9.2 Figures



MF08-02 box



**9.3 Tables**

Activity	Latitude		Longitude		Dist.	Spd	Tran s	Appr ox Bott Dept h (m)	On Sta	Arrive (Local)	Depart		
					(nm)	(kts)	(hrs)		(hrs)	Date / Time	Date / Time		
Arrive Dutch Harbor	53°	54.00	N	166°	31.20	W					28-Feb 15:00		
CTDs across Amukta Pass	52°	25.84	N	171°	23.66	W	196. 3	10	19.6	200	0.5	29-Feb 10:39	29-Feb 11:10
CTDs across Amukta Pass (AMP-1) <b>move .5 mile off!</b>	52°	25.98	N	171°	27.00	W	2.0	10	0.2	406	0.7	29-Feb 11:22	29-Feb 12:01
CTDs across Amukta Pass (AMP-2) <b>move .5 mile off!</b>	52°	24.98	N	171°	40.03	W	8.0	10	0.8	453	0.7	29-Feb 12:50	29-Feb 13:31
CTDs across Amukta Pass (AMP-3) <b>move .5 mile off!</b>	52°	24.00	N	171°	54.92	W	9.1	10	0.9	305	0.6	29-Feb 14:26	29-Feb 15:01
CTDs across Amukta Pass (AMP-4) <b>move .5 mile off!</b>	52°	22.91	N	172°	6.91	W	7.4	10	0.7	360	0.6	29-Feb 15:45	29-Feb 16:23
Recover 07AMP-4A	52°	22.91	N	172°	6.91	W	0.0	10	0.0	360	0.5	29-Feb 16:23	29-Feb 16:53
Deploy 08AMP-4A	52°	22.91	N	172°	6.91	W	0.0	10	0.0	360	1.0	29-Feb 16:53	29-Feb 17:53
Recover 07AMP-3A	52°	24.00	N	171°	54.92	W	7.4	10	0.7	305	0.5	29-Feb 18:37	29-Feb 19:07
Deploy 08AMP-3A	52°	24.00	N	171°	54.92	W	0.0	10	0.0	305	1.0	29-Feb 19:07	29-Feb 20:07
Recover 07AMP-2A	52°	24.98	N	171°	40.03	W	9.1	10	0.9	60	0.5	29-Feb 21:02	29-Feb 21:32
Deploy 08AMP-2A	52°	24.98	N	171°	40.03	W	0.0	10	0.0	453	1.0	29-Feb 21:32	29-Feb 22:32
Recover 07AMP-1A	52°	25.98	N	171°	27.00	W	8.0	10	0.8	453	0.5	29-Feb 23:20	29-Feb 23:50
Deploy 08AMP-1A	52°	25.98	N	171°	27.00	W	0.0	10	0.0	406	1.0	29-Feb 23:50	01-Mar 0:50
CTD	53°	22.00	N	168°	42.00	W	114. 2	10	11.4	700	0.9	01-Mar 12:15	01-Mar 13:07
CTD	53°	24.36	N	168°	51.23	W	6.0	10	0.6	102 0	1.1	01-Mar 13:43	01-Mar 14:48

Activity	Latitude		Longitude		Dist.	Spd	Tran s	Appr ox Bott Dept h (m)	On Sta	Arrive (Local)	Depart
					(nm)	(kts)	(hrs)		(hrs)	Date / Time	Date / Time
CTD	53°	31.00 N	168°	55.00 W	7.0	10	0.7	182 5	1.4	01-Mar 15:30	01-Mar 16:54
CTD	53°	36.00 N	169°	4.00 W	7.3	10	0.7	187 0	1.4	01-Mar 17:38	01-Mar 19:02
CTD	53°	47.00 N	169°	16.00 W	13.1	10	1.3	157 5	1.4	01-Mar 20:21	01-Mar 21:45
CTD	54°	2.00 N	169°	34.00 W	18.4	10	1.8	184 0	1.4	01-Mar 23:35	02-Mar 0:59
CTD	54°	20.00 N	169°	50.00 W	20.3	10	2.0	190 0	1.4	02-Mar 3:01	02-Mar 4:25
CTD	54°	40.00 N	169°	12.00 W	29.8	10	3.0	173 0	1.4	02-Mar 7:23	02-Mar 8:47
CTD	54°	58.00 N	168°	45.00 W	23.8	10	2.4	206 7	1.4	02-Mar 11:10	02-Mar 12:34
CTD	55°	7.00 N	168°	29.00 W	12.8	10	1.3	173 5	1.4	02-Mar 13:51	02-Mar 15:15
CTD - Shelf Break (1000m) DEPTH DEPENDENT	55°	20.50 N	168°	15.20 W	15.6	10	1.6	100 0	1.1	02-Mar 16:49	02-Mar 17:53
CTD - Shelf Break (500m) DEPTH DEPENDENT	55°	22.30 N	168°	10.50 W	3.2	10	0.3	500	0.7	02-Mar 18:13	02-Mar 18:56
CTD - Shelf Break (200m) DEPTH DEPENDENT	55°	25.70 N	168°	4.40 W	4.9	10	0.5	120	0.5	02-Mar 19:25	02-Mar 19:53
CTD - Outer Shelf Domain	55°	33.00 N	167°	46.00 W	12.7	10	1.3	120	0.5	02-Mar 21:09	02-Mar 21:37
CTD - Outer Shelf Domain	55°	39.00 N	167°	30.02 W	10.8	10	1.1	120	0.5	02-Mar 22:42	02-Mar 23:10
CTD - Outer Shelf Domain	55°	46.00 N	167°	10.00 W	13.3	10	1.3	120	0.5	03-Mar 0:30	03-Mar 0:58
CTD - Outer Shelf Domain	55°	54.00 N	166°	54.00 W	12.0	10	1.2	120	0.5	03-Mar 2:10	03-Mar 2:38
CTD - site 3	56°	2.94 N	166°	20.30 W	20.9	10	2.1	127	0.5	03-Mar 4:44	03-Mar 5:12
CTD - Cross-shelf	56°	16.48 N	165°	46.32 W	23.3	10	2.3	96	0.4	03-Mar 7:32	03-Mar 7:58
CTD - Cross-shelf	56°	23.54 N	165°	23.17 W	14.6	10	1.5	89	0.4	03-Mar 9:26	03-Mar 9:52

CTD - Cross-shelf	56° 30.63 N	165° 0.00 W	14.6	10	1.5	81	0.4	03-Mar 11:20	03-Mar 11:45		
Activity	Latitude		Longitude		Dist.	Spd	Tran s	Appr ox Bott Dept h (m)	On Sta	Arrive (Local) Date / Time	Depart Date / Time
CTD - Cross-shelf	56° 37.82 N	164° 36.00 W	15.1	11	1.4	82	0.4	03-Mar 13:07	03-Mar 13:33		
CTD at Pavlof Bay move .5 mi off	55° 10.87 N	161° 41.20 W	94.8	14	6.8	85	0.4	04-Mar 12:12	04-Mar 12:37		
Recover 07PA-1A	55° 10.87 N	161° 41.20 W	0.0	10	0.0	96	1.0	04-Mar 12:37	04-Mar 13:37		
Deploy 08PA-1A	55° 10.87 N	161° 41.20 W	0.0	10	0.0	96	0.5	04-Mar 13:37	04-Mar 14:07		
CTD at Pavlof Bay move .5 mi off	55° 10.87 N	161° 41.20 W	0.0	10	0.0	96	0.4	04-Mar 14:07	04-Mar 14:34		
CTD at Line 8, Station 61	57° 43.20 N	155° 15.60 W	261.8	10	26.2		0.5	05-Mar 16:44	05-Mar 17:14		
CTD at Line 8, Station 60	57° 41.00 N	155° 10.00 W	3.7	10	0.4		0.5	05-Mar 17:37	05-Mar 18:07		
CTD at Line 8, Station 59	57° 38.50 N	155° 4.20 W	4.0	10	0.4		0.5	05-Mar 18:31	05-Mar 19:01		
CTD at Line 8, Station 58	57° 36.30 N	155° 0.50 W	3.0	10	0.3		0.5	05-Mar 19:18	05-Mar 19:48		
CTD at Line 8, Station 57	57° 33.10 N	154° 52.50 W	5.4	10	0.5		0.5	05-Mar 20:20	05-Mar 20:50		
CTD at Line 8, Station 56	57° 30.90 N	154° 47.00 W	3.7	10	0.4		0.5	05-Mar 21:12	05-Mar 21:42		
CTD at Line 8, Station 55	57° 28.50 N	154° 42.00 W	3.6	10	0.4		0.5	05-Mar 22:04	05-Mar 22:34		
CTD at Chiniak Bay	57° 43.32 N	152° 17.63 W	78.8	10	7.9	193	0.5	06-Mar 6:27	06-Mar 6:57		
Recover 07CB-1A	57° 43.32 N	152° 17.63 W	0.0	10	0.0	193	1.0	06-Mar 6:57	06-Mar 7:57		
Deploy 08CB-1A	57° 43.32 N	152° 17.63 W	0.0	10	0.0	193	0.5	06-Mar 7:57	06-Mar 8:27		
Depart Kodiak	57° 45.00 N	152° 29.60 W	0.0	10	0.0	193	0.5	06-Mar 9:06	06-Mar 9:36		