

FINAL CRUISE INSTRUCTIONS

ECO-FOCI

NOAA Ship *OSCAR DYSON*, Cruise **DY-08-06**
May 1 – May 10, 2008
Chief Scientist – Wm. Floering, NOAA/PMEL/AFSC

1.0 FINAL CRUISE INSTRUCTIONS

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

1.2 **Cruise Numbers: DY-08-06**

1.2.1 **Cruise Number** - ?

1.2.2 **Eco-FOCI Number** – 2-DY-08

1.3 **Cruise Dates:** 1 May – 10 May, 2008

1.3.1 **Departure** – Dutch Harbor, AK./1 May/1400 hrs

1.3.2 **Arrival** – Dutch Harbor, AK./ 10 May/ 0900 hrs

1.4 **Operating Area** – Southern Bering Sea

2.0 CRUISE OVERVIEW

2.1 **Cruise Objectives** – To recover and deploy several surface and subsurface oceanographic instrumentation moorings at PMEL historical mooring sites BS-2 and BS-4. To complete CTD casts and bongo tows at specified Bering Sea locations.

2.2 **Applicability** - These instructions, with **FOCI Standard Operating Instructions for NOAA Ship Oscar Dyson**, 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

University of Alaska Fairbanks

P.O. Box 757220
Fairbanks, AK 99775

2.4 Personnel

2.4.1 Chief Scientist

Name	Gender	Nationality	Affiliation	E-mail Address
William Floering	M	USA	PMEL	William.floering@noaa.gov

2.4.2 Other Participating Scientists

Name	Gender	Nationality	Affiliation	E-mail Address
Dan Naber	M	USA	Univ. of AK	naber@ims.uaf.edu
Carol Dewitt	F	USA	PMEL	carol.dewitt@noaa.gov
Antonio Jenkins	M	USA	PMEL	Antonio.jenkins@noaa.gov
Stephen Smith	M	USA	PMEL	Stephen.a.smith@noaa.gov
Erin Bachynski	F	USA	U. Mich.	
Bern Megrey	M	USA	AFCS	

2.4.3 Foreign Nationals None

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

LCDR Doug Schleiger
Chief, Operations Division, Pacific (MOP1)
Telephone: (206) 553-8705
Cellular: (206) 390-7527
E-mail: chiefops.MOP@noaa.gov

2.5.2 Scientific Operations

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

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

3.0 OPERATIONS

3.1 Data To Be Collected – The recovered mooring instrument data will be downloaded. CTD data, water samples and bongo samples will be collected and/or preserved for further analysis. The standard suite of shipboard sensors will be recorded to the SCS computer as described in the FOCI SOIs. This includes but is not limited to, the TSG, wind and weather sensors, the

underway sampling station, GPS Position, Depth and PAR sensors. Copies of the ship's hourly underway weather log will be collected at the end of the cruise. Plankton samples from the Bongo tows will be collected and preserved for further study.

- 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 Oscar Dyson** (SOI 5.2) for specific requirements.
- 3.2 Staging Plan** – All mooring equipment and instrumentation will be shipped via Horizon lines to Dutch Harbor, AK. Factory Trawler Services (FTS) will unload the containers, transfer to a flatbed truck and transport the equipment to the vessel dockside. Equipment will be loaded aboard the ship using the on board crane. Loading would begin April 30.
- 3.3 De-staging Plan** – On 10 May FTS will meet the ship dockside with a flatbed truck. Equipment will be transferred from the ship the truck for loading on a Horizon lines container and shipment to Seattle.
- 3.4 Cruise Plan** – The primary objectives of the cruise are noted in this section. The final order of events will be determined by the weather and our overall rate of progress throughout the cruise. Stopping first at the south eastern location (slime bank) of the two CRAB shallow water moorings. These will be recovered and redeployed with a CTD cast taken prior to recovery and following deployment at each location. Steaming to Site BS-2 a CTD cast will be completed and the two subsurface moorings currently deployed at this station will be recovered. A surface mooring, a Tapps mooring and an ADCP mooring will be deployed at this station followed by a calibration CTD cast. A box of 4 sampling stations plus one near the center of the mooring will consist of a CTD, a bongo and 3 CalVet tows. On the transit from site BS-2 to BS-4 we will conduct CTD casts and bongo tows along the 70 meter isobath. At mooring site BS-4 we will complete a pre-recovery CTD cast and pick up the two subsurface moorings currently deployed at this station. A surface mooring and a subsurface ADCP mooring will be deployed at Site BS-4 followed by a post deployment calibration CTD. As before we will complete a CTD cast, a bongo and 3 CalVet tows at 4 corner stations around the mooring and one center station. The presence of ice may dictate that the surface mooring scheduled for BS-4 will be changed to a subsurface mooring. This will complete the mooring work for this cruise. The remainder of our available time will be occupied with CTD casts along a line south of site BS-2 and the CTDs labeled Unimak Pass Box. Satellite tracked drifter buoys may be deployed en-route. Chlorophyll and nutrient data will be collected from the CTD niskin bottles at most CTD location.
- 3.5 Station Locations** – See Table 1.
- 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 Oscar Dyson** (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)
Recovery and deployment of surface and subsurface instrumentation moorings.
Nutrient Sampling Operations
60/20 cm Bongo tows with seacat attached to conductive wire.
CalVet vertical tows on the bongo wire

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 Oscar Dyson**(SOI). Operations not addressed in the SOI and changes to standard procedures are addressed below.

- Scientific Computer System (SCS) data acquisition (SOI 5.2),
- Fluorometer monitoring (SOI 5.3),
- Thermosalinograph monitoring (SOI 5.3).
- The newly installed underway sampling station

3.8 Applicable Restrictions - None

3.9 Small Boat Operations – Some ships prefer to use small boats for mooring recoveries. We can discuss this option prior to the cruise.

4.0 FACILITIES

4.1 Equipment and Capabilities Provided by Ship

- Oceanographic winch with slip rings and 2-conductor cable terminated for CTD
- 12 Khz hull mounted Edgetech Acoustic release transducer,
- Manual wire-angle indicator,
- Oceanographic winch with slip rings and 2-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 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,
- Sea-Bird Electronics' SBE-19 SEACAT system for plankton tows,
- Meter block for plankton tows,
- Wire speed indicators and readout for oceo 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 EK-60 echosounder,
- JRC JFV-200R color sounder recorder,
- RD Instruments' ADCP written to CD,
- Use of PCs in laboratories 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,
- 3 grapple hooks and line to snag released moorings.
- 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

- Fluorometer, light meter and dual oxygen sensors 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),
- IAPSO standard water,
- Surface moorings (FOCI biophysical platforms),
- Subsurface moorings,
- ARGOS tracked drifter buoys
- Miscellaneous scientific sampling and processing equipment,
- Chlorophyll and nutrient sampling equipment
- Niskin bottles for the CTD rosette
- 60/20 cm bongo gear
- Manual wire angle meter for bongo tows
- CalVet frame and nets

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).
- COD forms for Bongo Tows

- 5.2 Pre- and Post-cruise Meetings** - Cruise meetings may be held in accordance with **FOCI Standard Operating Instructions for NOAA Ship Oscar Dyson** (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

Haz-mat inventory to be provided on next revision of draft instructions.

7.2 Material Safety Data Sheet (MSDS)

(Provide an electronic MSDS for each hazardous material that will be brought aboard the ship. These may be included as part of the Appendix of these instructions. If so, refer here to that section of the Appendix. Otherwise, state that MSDSs will be forwarded separately.)

8.0 MISCELLANEOUS

- 8.1 Communications** - Specific information on how to contact the **NOAA Ship OSCAR Dyson** 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 Oscar Dyson - Telephone methods listed in order of increasing expense:

United States Coast Guard - Kodiak, Alaska

- (907) 486-0553 USCG Operations

Cellular:

- CO 206-403-8433
- XO 206-295-0775
- OPS/OOD 206-295-0550

Iridium:

- 808-659-0050

INMARSAT B

- 011-872-336-995-921 (voice)
- 011-872-336-995-920 (voice)
-
- Dutch Harbor Cell CO 907-359-1801
- Dutch Harbor Cell XO 907-359-1802

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

8.3 Foreign National Access and Deemed Export Controls on NMAO Vessels
None

APPENDICES:

8.4 Equipment Inventory

Two surface mooring donuts, bridle and tower. 1500 lbs each 8ft wide 16 feet tall.
Two anchors for surface moorings 4ft X 3 feet 4500 lbs each.
Surface mooring chain 4500 lbs X 2
Subsurface mooring anchors (railroad wheels)
2 X 600 lbs
2 X 2100 lbs
2 X 1600 lbs
300 Khz ADCP in syn. Foam float 600 lbs X 2
Tapps instrument package in Syn foam float 1000 lbs X 2
Steel floats for subsurface moorings 1000 lbs
Acoustic releases 150 lbs X 7
Misc instruments and cages 1500 lbs
Equipment footlockers, shackles, chain...2X 200 lbs each
Mooring chain on spools 3 X 400 lbs each
Bongo frame, nets and weight 150 lbs

8.5 HAZMAT Inventory

8.1.1 Hazmat Inventory, DeWitt:

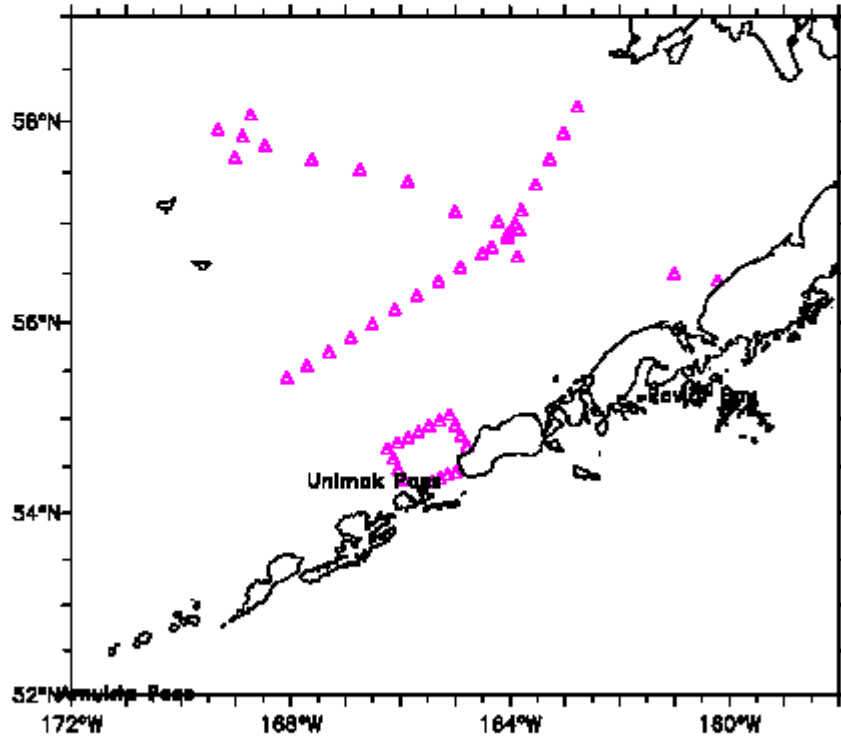
Chemical	CAS Number	Respondee	Org	Qty	H	F	R	Storage Color Code	Hazard Class	Packing Group Number	UN #	Response Indices
Battery, Lithium	mixture	DeWitt	PMEL	*	2	2	3	General	9	II	3090	
Tributyltin Oxide	56-35-9	DeWitt	PMEL	6 oz.	3	1	0	Poison	N. R.			1
Spill Response 1: Stop the leak, if possible. Ventilate 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:

- 31 - SBE-39 (9-V lithium battery)
- 9 - Microcat (6 lithium battery sticks and anti-fouling on conductivity cells)
- 7 - Seacat (3 DD lithium battery packs and antifouling cylinders on conductivity cells)
- 6 - ECO-fluorometer (6 9-V lithium batteries)
- 2 - Seacat (6 D alkaline cells and antifouling cylinders on conductivity cells)
- 3 - MTR (1 9-V alkaline cell)

- Spare batteries, in a hazmat can:
- 6 9-V lithium batteries
 - 12 9-V alkaline batteries
 - 12 lithium battery sticks
 - 2 packs of anti-fouling cylinders

8.6 Figures



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8.7 Tables

TABLE 1: Mooring Locations

07-BS-2C	56 51.989 N	164 03.002 W
07-BSP-2B	56 51.937 N	164 03.201 W
07-BS-4B	57 51.427 N	168 52.440 W
07-BSP-4B	57 51.660 N	168 52.598 W
07-KC-1A	56 25.608 N	160 13.124 W
07-KC-2A	56 29.924 N	161 00.071 W

TABLE 2: CTD Locations

CTD Station Locations not associated with mooring sites.

55.550 N	167.767 W
55.773 N	167.315 W
55.996 N	166.864 W
56.218 N	166.412 W
56.552 N	165.735 W
56.775 N	165.283 W
56.998 N	164.832 W
57.221 N	164.380 W
57.443 N	163.929 W
57.666 N	163.477 W
58.000 N	162.800 W

CTD Line Between BS-2 and BS-4

56 52.50 N	164 03.00 W
57 07.00 N	165 00.00 W
57 25.00 N	165 52.00 W
57 32.00 N	166 44.00 W
57 38.00 N	167 37.00 W
57 39.20 N	169 01.20 W

Unimak Box CTD Stations:

West	54 41.26 N	166 14.21 W
	54 34.95 N	166 07.76 W
	54 28.31 N	165 02.33 W
	54 21.48 N	165 55.75 W
North	54 45.07 N	166 03.05 W
	54 48.76 N	165 51.49 W
	54 52.10 N	165 40.27 W
	54 55.79 N	165 28.82 W
	54 59.19 N	165 17.19 W
	55 02.96 N	165 06.42 W
East	54 56.23 N	164 59.73 W
	54 49.64 N	164 53.62 W
	54 42.93 N	164 47.05 W
South	54 26.46 N	164 59.11 W
	54 25.16 N	165 08.43 W

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54 22.49 N 165 16.63 W
54 20.51 N 165 25.73 W