

# PMEL

## Pacific Marine Environmental Laboratory

### Final Project Instructions

**Date Submitted:** 4 January 2016  
**Platform:** NOAA Ship *Oscar Dyson*  
**Project Number:** DY-16-01  
**Project Title:** *CO2 Surface and FOCI Subsurface Mooring Recover/Deploy*  
**Project Dates:** 30 January - 6 February, 2016

Prepared by: Thomas Peltzer  
Thomas Peltzer  
NOAA-PMEL

Dated: 1/6/16

Approved by: Dr. Jeremy Mathis  
Dr. Jeremy Mathis  
Principal Investigator  
NOAA-CPO

Dated: 1/8/16

Approved by: Dr. Christopher L. Sabine  
Dr. Christopher L. Sabine  
Director  
NOAA-PMEL

Dated: 1/8/16

Approved by: \_\_\_\_\_  
Commander Brian Parker, NOAA  
Commanding Officer  
Marine Operations Center – Pacific

Dated: January 11, 2016

## I. Overview

A. NOAA Ship *Oscar Dyson* will participate in the recovery of two CO<sub>2</sub> surface buoy moorings and one FOCI subsurface mooring.

B. Days at Sea (DAS)  
Of the 8 DAS scheduled for this project, 6 DAS are funded by an OMAO allocation, 2 DAS are funded by a Line Office allocation, 0 DAS are Program Funded, and 0 DAS are Other Agency Funded. This project is estimated to exhibit a High Operational Tempo.

C. Operating Area (include optional map/figure showing op area)

Southeastern Gulf of Alaska (Chatham Strait near Port Conclusion) and Chiniak Bay near Kodiak.

D. Summary of Objectives:

Project Overview: PMEL will load equipment when *Dyson* is in Seattle between the dates of January 27-29. Two scientific staff members will embark the vessel in Seattle, WA, on January 30. The ship is scheduled to depart Seattle on January 30. As *Dyson* steams north they will stop at the Port Conclusion CO<sub>2</sub> surface mooring site for a buoy recovery. From the Port Conclusion site *Dyson* will steam to Kodiak and the Chiniak Bay CO<sub>2</sub> mooring. There will be a recovery of the CO<sub>2</sub> surface buoy and a recovery and deployment of the FOCI subsurface mooring. There will be CTD casts with water samples at all three mooring sites. We request the underway seawater sampling system, with measurements of temperature and salinity, be operational for the project. The moorings are approximately 2-3 miles from each other in Chiniak Bay. With the buoys aboard the ship will tie up in Kodiak.

In support of NOAA's Ocean Acidification Program, NOAA will recover two surface instrumentation buoys to:

- 1) Characterize ocean acidification (OA) conditions on the U. S. in S.E. Alaska and northern Gulf of Alaska.
- 2) Conduct inter-calibration measurements near the OA observing assets in the study area, allowing inter-calibration of these autonomous assets with high-quality, ship-based measurements;
- 3) Provide calibration data needed to develop predictive models for aragonite saturation state, pH, and other important OA indicators in the California

Current System, based on widely measured parameters such as salinity, temperature, and oxygen concentration;

- 4) Provide quantitative assessment of phytoplankton, zooplankton, and harmful algal bloom activity in conjunction with OA measurements; and
- 5) Provide scientific information on OA conditions and trends for resource management and decision support.

E. Participating Institutions:

- NOAA Pacific Marine Environmental Laboratory (PMEL)  
7600 Sand Point Way N.E., Seattle, Washington 98115-6439
- University of Alaska Fairbanks (UAF)
- NOAA Ocean Acidification Program
- NOAA National Ocean Data Center (NODC)

F. Personnel/Science Party:

<b>Name (Last, First)</b>	<b>Title</b>	<b>Date Aboard</b>	<b>Date Disembark</b>	<b>Gender</b>	<b>Affiliation</b>	<b>Nationality</b>
Naber, Daniel	Chief Scientist	30 Jan	6 Feb	male	UAF	USA
Lebon, Geoffrey	Scientist	30 Jan	6 Feb	male	JISAO/PMEL	USA

G. Administrative

1. Points of Contacts

Chief Scientists:  
 Dan Naber  
 Ocean Acidification Research Center  
 University of Alaska Fairbanks  
 Fairbanks, Alaska 99775  
 (907) 474-7747 (work)  
 (907) 699-6459 (cell)  
 ddnaber@alaska.edu

CDR Tom Peltzer  
 NOAA PMEL  
 Seattle, WA 98115  
 (206) 526-4485, pmel.dir.ops@noaa.gov

2. Diplomatic Clearances

None Required.

3. Licenses and Permits

None Required.

## II. Operations

The Chief Scientist is responsible for ensuring the scientific staff are trained in planned operations and are knowledgeable of project objectives and priorities. The Commanding Officer is responsible for ensuring all operations conform to the ship's accepted practices and procedures.

A. Project Itinerary:

27-29 Jan - Load recovery gear aboard vessel.

30 Jan - Embark 2 science party members in Seattle, WA.

30 Jan - 6 Feb - transit north stopping at the Port Conclusion mooring site for a CO2 buoy recovery. Proceed to Chiniak Bay location for a CO2 surface buoy recovery and subsurface mooring recovery and deployment. Transit to Kodiak to tie up.

B. Staging and De-staging

**Staging/De-staging:** NOAA Ship *Oscar Dyson* is scheduled to arrive in Seattle January 27 at the conclusion of gear trials and is scheduled to remain alongside until January 30. During this time one subsurface mooring will be loaded aboard the vessel. The anchor for the subsurface mooring is 1600lbs, chain box 150lbs, 2 metal floats 100lbs each, release 150lbs, and instruments 150lbs. There will be 3-4 standard size pallets of storage boxes, instruments, and miscellaneous gear. And there will be two aluminum cradles, 200lbs each, for the recovered buoys to sit in.

C. Operations to be Conducted:

After the scheduled departure from Seattle, WA on January 30, 2016, the ship will steam for the mooring site in Chatham Strait near Port Conclusion. The ship will recover the CO2 buoy. A CTD cast will be done before or after the buoy recovery. The ship will then transit to Kodiak. On the way to the pier, the ship will recover a CO2 buoy and recover/deploy a subsurface mooring in Chiniak Bay. A CTD cast will be done before or after the recovery of the surface buoy and near the location of the subsurface buoy.

### **III. Equipment**

#### **A. Equipment and Capabilities provided by the ship**

- Navigational systems including high-resolution GPS.
- Underway seawater sampling system for measurements of temperature and salinity.
- CTD with following sensors: dual conductivity and temperature, flurometer, and 10 functioning Niskin bottles volume 5 liters or greater.
- Freezer space (10 cubic feet) for seawater samples (no chemicals).
- Minimum of 2 computers with internet and e-mail access
- Ship's crane for loading and/or deploying

#### **B. Equipment and Capabilities provided by the scientists**

- Surface/subsurface moorings
- PAR and oxygen sensors for the CTD
- anchor for the subsurface mooring (1600lbs)
- chain box (150lbs)
- 2 metal floats (100lbs each)
- release (150lbs)
- instruments (150lbs)
- 3-4 standard size pallets of storage boxes, instruments, and miscellaneous gear
- two aluminum cradles, 200lbs each, for the recovered buoys
- two surface moorings (not loaded, but recovered during the transit) (2500lbs each)

### **IV. Hazardous Materials**

## A. Policy and Compliance

The Chief Scientist is responsible for complying with FEC 07 Hazardous Materials and Hazardous Waste Management Requirements for Visiting Scientific Parties (or the OMAO procedure that supersedes it). 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 quantity, MSDS, appropriate spill cleanup materials (neutralizing agents, buffers, or absorbents) in amounts adequate to address spills of a size equal to the amount of chemical brought aboard, and chemical safety and spill response procedures. Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center, upon request.

Per OMAO procedure, the scientific party will include with their project instructions and provide to the CO of the respective ship 30 days before departure:

- List of chemicals by name with anticipated quantity
- List of spill response materials, including neutralizing agents, buffers, and absorbents
- Chemical safety and spill response procedures, such as excerpts of the program's Chemical Hygiene Plan or SOPs relevant for shipboard laboratories
- For bulk quantities of chemicals in excess of 50 gallons total or in containers larger than 10 gallons each, notify ship's Operations Officer regarding quantity, packaging and chemical to verify safe stowage is available as soon as chemical quantities are known.

Upon embarkation and prior to loading hazardous materials aboard the vessel, the scientific party will provide to the CO or their designee:

- An inventory list showing actual amount of hazardous material brought aboard
- An MSDS for each material
- Confirmation that neutralizing agents and spill equipment were brought aboard sufficient to contain and cleanup all of the hazardous material brought aboard by the program
- Confirmation that chemical safety and spill response procedures were brought aboard

Upon departure from the ship, scientific parties will provide the CO or their designee an inventory showing that all chemicals were removed from the vessel. The CO's designee will maintain a log to track scientific party hazardous materials. MSDS will be made available to the ship's complement, in compliance with Hazard Communication Laws.

Scientific parties are expected to manage and respond to spills of scientific hazardous materials. Overboard discharge of hazardous materials is not permitted aboard NOAA ships.

## B. Inventory

<b>Common Name of Material</b>	<b>Qty</b>	<b>Notes</b>	<b>Trained Individual</b>	<b>Spill control</b>
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Common Name of Material	Qty	Notes	Trained Individual	Spill control
Compressed Air	2 tanks (roughly the size of dive tanks)	Calibration gas used in the CO2 system on the buoy	Dan Naber	N/A
Sodium Hydroxide	1L	Neutralize with available acid	Dan Naber	A
Mercuric Chloride	0.25L	See 'M' below	Dan Naber	M
Lithium D Cell Batteries	18	In seacat instrument packages on the moorings	Dan Naber	N/A

### SPILL CONTROL

#### A: Base

- Use proper PPE.
- Ventilate area.
- Neutralize with dilute acid such as HCl if possible.
- Absorb with cat litter or vermiculite.
- Vacuum or sweep up material and place into suitable disposal container.
- Do not breathe dust.
- Do not get water on spilled substances.

#### M: Mercury

- Spills: Pick up and place in a suitable container for reclamation or disposal in a method that does not generate dust. Sprinkle area with sulfur or calcium polysulfide to suppress mercury. Use Mercury Spill Kit if need be.

#### Inventory of Spill Kit supplies:

Product Name	Amount	Chemicals it is useful against	Amount it can clean up
Mercury eater	1.8kg	mercuric Chloride/Mercury	.5L
Goggles	1 pair	All	N/A
Plastic Bags	5	All – for used absorbents	Varies
Final Wipes	50	mercuric Chloride/Mercury	N/A
Kolorsafe Base	2.5 lbs	Bases	1L
Latex Gloves	2 pair	All	N/A
Broom	1 ea	All	N/A
Baking soda	2.5lbs	Acids	1L

#### C. Radioactive Materials

No radioactive isotopes are planned for this project.

## **V. Additional Projects**

### **A. Supplementary (“Piggyback”) Projects**

No supplementary projects are planned.

### **B. NOAA Fleet Ancillary Projects**

No NOAA fleet ancillary projects are planned.

## **VI. Disposition of Data and Reports**

### **A. Data Responsibilities**

At the end of the project, the Chief Survey Technician will provide the Chief Scientist with copies of data from the ship’s SCS system, barometer measurements, log sheets, TSG data, rain sensor data, wind speed and direction data, ship’s navigation log data, speed logs, winch system, ADCP, Fluorometer data, ADCP data, and any other logged scientific data. The number of copies of each data set will be worked out between the Chief Scientist and Chief Survey Technician.

## **VII. Meetings, Vessel Familiarization, and Project Evaluations**

A. Pre-Project Meeting: The Chief Scientist and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship’s crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel. The ship’s Operations Officer usually is delegated to assist the Chief Scientist in arranging this meeting.

B. Vessel Familiarization Meeting: The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project’s start and is normally presented by the ship’s Operations Officer.

C. Post-Project Meeting: The Commanding Officer is responsible for conducted a meeting no earlier than 24 hrs before or 7 days after the completion of a project to discuss the overall success and short comings of the project. Concerns regarding safety, efficiency, and suggestions for future improvements shall be discussed and mitigations for future projects will be documented for future use. This meeting shall be attended by the ship’s officers, applicable crew, the Chief Scientist, and



members of the scientific party and is normally arranged by the Operations Officer and Chief Scientist.

- D. Project Evaluation Report: Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the Chief Scientist. The form is available at <http://www.oma.noaa.gov/fleeteval.html> and provides a “Submit” button at the end.

The Customer Satisfaction Survey is one of the primary methods OMAO and Marine Operations (MO) utilize to improve ship customer service. Information submitted through the form is automatically input into a spreadsheet accessible to OMAO and MO management for use in preparing quarterly briefings. Marine Operations Centers (MOC) address concerns and praise with the applicable ship. Following the quarterly briefings the data are briefed to the Deputy Director of OMAO.

### **VIII. Miscellaneous**

#### **A. Meals and Berthing**

The ship will provide meals for the scientists listed above. Meals will be served three times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the project. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific participants will be made available to the ship’s command at least seven days prior to the project.

Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Chief Scientist. The Chief Scientist and Commanding Officer will work together on a detailed berthing plan to accommodate the gender mix of the scientific party taking into consideration the current make-up of the ship’s complement. The Chief Scientist is responsible for ensuring the scientific berthing spaces are left in the condition in which they were received; for stripping bedding and linen return; and for the return of any room keys that were issued. The Chief Scientist is also responsible for the cleanliness of the laboratory spaces and the storage areas utilized by the scientific party, both during the project and at its conclusion prior to departing the ship.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Chief Scientist will ensure that all non-NOAA or non-Federal scientists aboard also have proper orders. It is the responsibility of the Chief Scientist to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be

reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with OMAO's Drug and Alcohol Policy dated May 17, 2000, which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

#### B. Medical Forms and Emergency Contacts

The NOAA Health Services Questionnaire (NHSQ, NF 57-10-01 (3-14)) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Chief Scientist or the NOAA website

<http://www.corporateservices.noaa.gov/noaforms/eforms/nf57-10-01.pdf>.

All NHSQs submitted after March 1, 2014 must be accompanied by [NOAA Form \(NF\) 57-10-02](#) - Tuberculosis Screening Document in compliance with [OMAO Policy 1008](#) (Tuberculosis Protection Program). The completed forms should be sent to the Regional Director of Health Services at the applicable Marine Operations Center. The NHSQ and The NOAA Health Services Questionnaire (NHSQ, NF 57-10-01 (3-14)) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Chief Scientist or the NOAA website

<http://www.corporateservices.noaa.gov/noaforms/eforms/nf57-10-01.pdf>.

All NHSQs submitted after March 1, 2014 must be accompanied by [NOAA Form \(NF\) 57-10-02](#) - Tuberculosis Screening Document in compliance with [OMAO Policy 1008](#) (Tuberculosis Protection Program). The completed forms should be sent to the Regional Director of Health Services at the applicable Marine Operations Center. The NHSQ and Tuberculosis Screening Document should reach the Health Services Office no later than 4 weeks prior to the start of the project to allow time for the participant to obtain and submit additional information should health services require it, before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of either form. Ensure to fully complete each form and indicate the ship or ships the participant will be sailing on. The participant will receive an email notice when medically cleared to sail if a legible email address is provided on the NHSQ. The participant can mail, fax, or email the forms to the contact information below. Participants should take precautions to protect their Personally Identifiable Information (PII) and medical information and ensure all correspondence adheres to DOC guidance ([http://ocio.os.doc.gov/ITPolicyandPrograms/IT\\_Privacy/PROD01\\_008240](http://ocio.os.doc.gov/ITPolicyandPrograms/IT_Privacy/PROD01_008240)).

The only secure email process approved by NOAA is [Accellion Secure File Transfer](#) which requires the sender to setup an account. [Accellion's Web Users Guide](#) is a valuable aid in using this service, however to reduce cost the DOC contract doesn't provide for automatically issuing full functioning accounts. To receive access to a "Send

Tab”, after your Accellion account has been established send an email from the associated email account to [accellionAlerts@doc.gov](mailto:accellionAlerts@doc.gov) requesting access to the “Send Tab” function. They will notify you via email usually within 1 business day of your approval. The ‘Send Tab’ function will be accessible for 30 days.

Contact information: Include only the Pacific OR Atlantic Office as applicable.  
Regional Director of Health Services  
Marine Operations Center – Pacific  
2002 SE Marine Science Dr.  
Newport, OR 97365  
Telephone 541-867-8822  
Fax 541-867-8856  
Email [MOP.Health-Services@noaa.gov](mailto:MOP.Health-Services@noaa.gov)

Prior to departure, the Chief Scientist must provide an electronic listing of emergency contacts to the Executive Officer for all members of the scientific party, with the following information: contact name, address, relationship to member, and telephone number.

#### C. Shipboard Safety

Hard hats are required when working with suspended loads. Work vests are required when working near open railings and during small boat launch and recovery operations. Hard hats and work vests will be provided by the ship when required.

Wearing open-toed footwear or shoes that do not completely enclose the foot (such as sandals or clogs) outside of private berthing areas is not permitted. At the discretion of the ship CO, safety shoes (i.e. steel or composite toe protection) may be required to participate in any work dealing with suspended loads, including CTD deployment and recovery. The ship does not provide safety-toed shoes/boots. The ship’s Operations Officer should be consulted by the Chief Scientist to ensure members of the scientific party report aboard with the proper attire.

#### D. Communications

A progress report on operations prepared by the Chief Scientist may be relayed to the program office. Sometimes it is necessary for the Chief Scientist to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the Chief Scientist. Special radio voice communications requirements should be listed in the project instructions. The ship’s primary means of communication with the Marine Operations Center is via e-mail and the Very Small Aperture Terminal (VSAT) link. Standard VSAT bandwidth at 128kbs is shared by all vessels staff and the science team at no charge. Increased bandwidth in 30 day increments

is available on the VSAT systems at increased cost to the scientific party. If increased bandwidth is being considered, program accounting is required, and it must be arranged at least 30 days in advance.

#### E. IT Security

Any computer that will be hooked into the ship's network must comply with the *NMAO Fleet IT Security Policy* 1.1 (November 4, 2005) prior to establishing a direct connection to the NOAA WAN. Requirements include, but are not limited to:

- (1) Installation of the latest virus definition (.DAT) file on all systems and performance of a virus scan on each system.
- (2) Installation of the latest critical operating system security patches.
- (3) No external public Internet Service Provider (ISP) connections.

Completion of these requirements prior to boarding the ship is required.

Non-NOAA personnel using the ship's computers or connecting their own computers to the ship's network must complete NOAA's IT Security Awareness Course within three days of embarking.

#### F. Foreign National Guests Access to OMAO Facilities and Platforms

Foreign National access to the NOAA Ship or Federal Facilities is not required for this project.

### **VIII. Appendices**

#### **Appendix A:**

Port Conclusion Currently Deployed Mooring Site:

Approximate position is 56.2688 N 134.6585 W; approximate depth is 110 meters. This buoy can be found on NOAA Chart 17331 and is unlabeled with color "Y bl"

The Chiniak Bay Currently Deployed Surface Mooring Site:

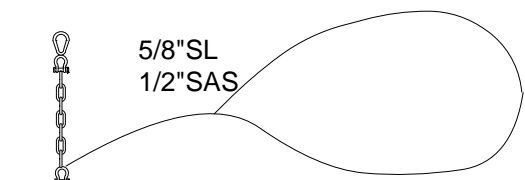
Approximate position is 57.6967N 152.3133W; approximate depth is 143 meters. This buoy can be found on NOAA Chart 16595 and is labeled "NOAA-UAF"

The Chiniak Bay Currently Deployed Subsurface Mooring Site:

Approximate position is 57.7223N 152.29395W; approximate depth is 199 meters. This buoy can be found on NOAA Chart 16595 and is labeled "Subm buoy".

7 METERS POLYOLIFIN LINE SPLICED INTO LOOP

0.5 METERS CHAIN



5/8" SL  
1/2" SAS

1/2" SAS  
30" FLOAT

5/8" SAS

1 METER CHAIN

1/2" SAS  
SIP  
1/2" SS SAS  
1/2" SS SAS

0.5 METERS STAINLESS STEEL CHAIN

1/2" SS SAS  
5/8" SS SP

183 METER

RCM-9/C  
5/8" SS SP  
1/2" SS SAS  
SIP  
1/2" SAS

3 METER CHAIN

5/8" SAS  
30" FLOAT

5/8" SAS  
1/2" SAS

188 METER

MICROCAT  
1/2" SAS

4 METER CHAIN

1/2" SAS  
3 TON SWIVEL  
1/2" SAS  
5/8" SAS

EG&G RELEASE

5/8" SAS

1.5 METER CHAIN

5/8" SAS

1600 POUND ANCHOR

INSTRUMENT	DEPTH	SN
RCM-9/C	183	
MICROCAT	188	
BOTTOM	195	



**NOAA-PMEL-FOCI**

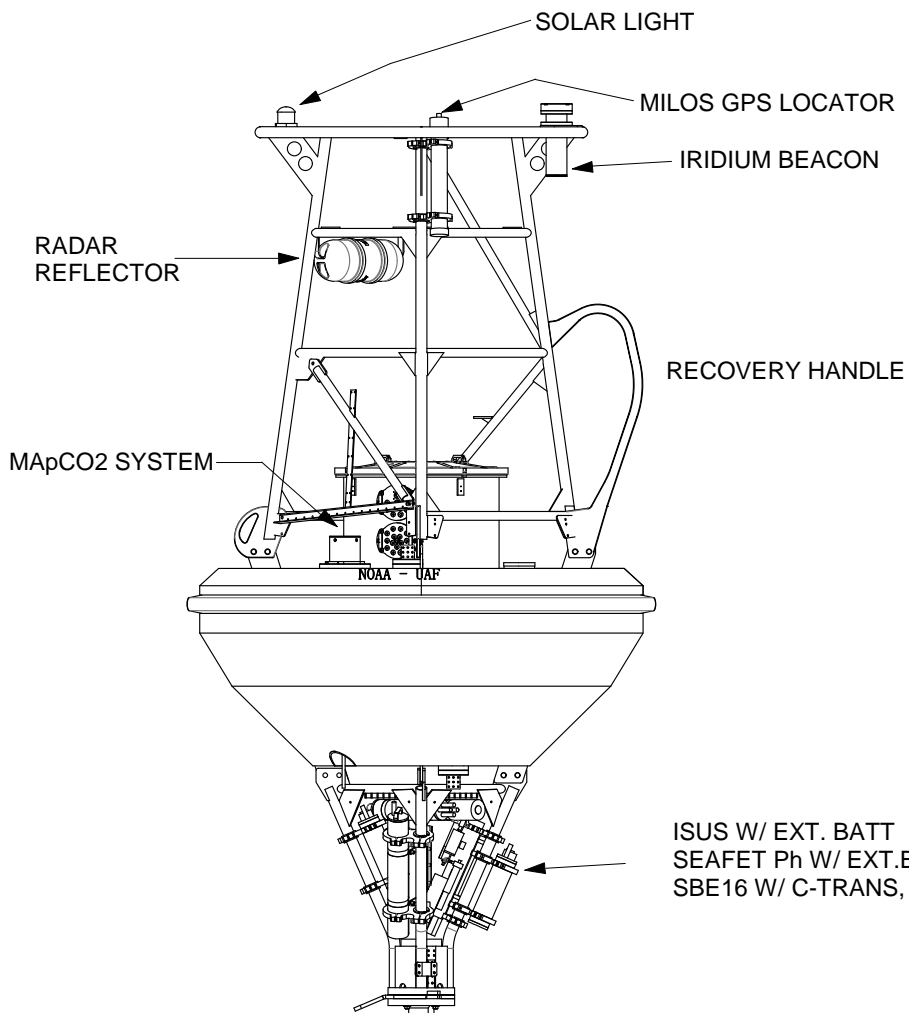
7600 Sandpoint Way NE  
Seattle, Wa. 98115  
(206) 526-6175

**MOORING:** 13CB-1B

**LOCATION:**

**DRAWN BY:** Rick Miller **DATE:** 6 SEPT. 2013

**APPROVED BY:** **DATE:**



<b>DEPTH ADJUSTMENT:</b>	
AS DRAWN	140-145 METERS
LESS 5 METERS	136-139 METERS
LESS 10 METERS	132-135 METERS
LESS 15 METERS	127-131 METERS
ADD 5 METERS	146-150 METERS
ADD 10 METERS	151-155 METERS
ADD 15 METERS	156-160 METERS

ISUS W/ EXT. BATT  
SEAFET Ph W/ EXT.BATT  
SBE16 W/ C-TRANS, ECHO-FLNTU, SBE63, 5p PUMP


- 1-1/8" SAS
- 1-1/8" SAS
- 3 METERS 1 1/2" NON-STUD CHAIN
- 1" SAS
- 3/4" SAS
- 5 TON MILLER SWIVEL
- 3/4" SAS
- 89 METERS 1/2" CHAIN
- 3/4" SAS
- 5 METERS 1/2" CHAIN
- 3/4" SAS
- 10 METERS 1/2" CHAIN

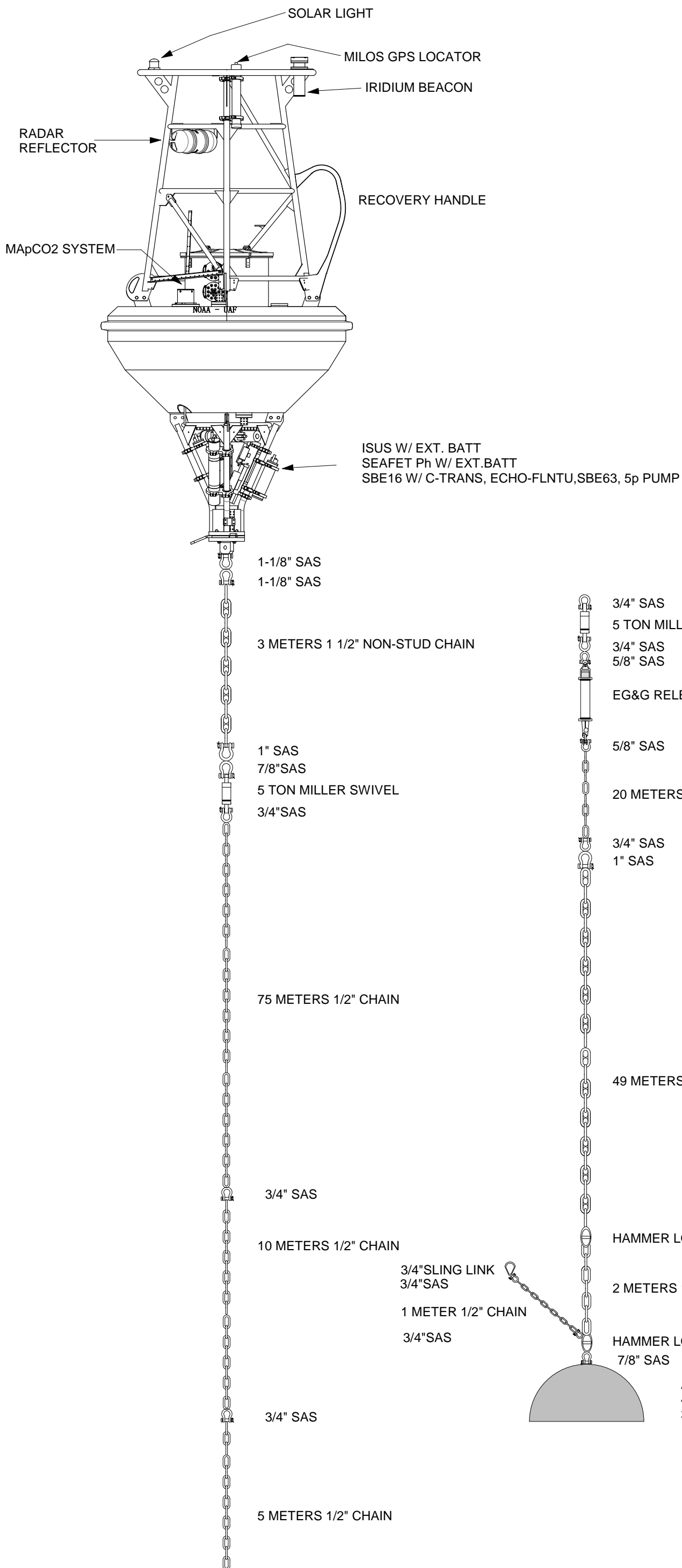
- 3/4" SAS
- 5 TON MILLER SWIVEL
- 3/4" SAS
- 5/8" SAS
- EG&G RELEASE
- 5/8" SAS
- 3 METERS 1/2" CHAIN
- 5/8" SAS
- 16 METERS 1/2" CHAIN
- HAMMER LOCK
- HAMMER LOCK
- 32 METERS 1-1/4" STUD CHAIN
- HAMMER LOCK
- HAMMER LOCK
- 25 METERS 1/2" CHAIN
- HAMMER LOCK
- HAMMER LOCK
- 2 METERS 1-1/4" NON-STUD CHAIN
- HAMMER LOCK
- 7/8" SAS

3/4" SLING LINK  
3/4" SAS  
1 METER 1/2" CHAIN  
3/4" SAS

ANCHOR  
5000# AIR  
3580# WATER

**143 METER BOTTOM**  
**SCOPE 1.3:1**


 <b>NOAA-PMEL</b> 7600 Sandpoint Way NE Seattle, Wa. 98115 (206) 526-6180			
		<b>MOORING:</b>	<b>CHINIAK CO2</b>
<b>LOCATION:</b>		<b>CHINIAK BAY</b>	
<b>DRAWN BY:</b>	<b>MIKE CRAIG</b>	<b>DATE:</b>	<b>19 JULY 2013</b>
<b>APPROVED BY:</b>		<b>DATE:</b>	



**DEPTH ADJUSTMENT:**

AS DRAWN	108-111 METERS DEPTH
LESS 5 METERS	104-107 METERS DEPTH
LESS 10 METERS	100-103 METERS DEPTH
LESS 15 METERS	96-99 METERS DEPTH
ADD 5 METERS	112-115 METERS DEPTH
ADD 10 METERS	116-120 METERS DEPTH
ADD 15 METERS	117-121 METERS DEPTH

110 METER BOTTOM  
SCOPE 1.5:1

 <b>NOAA-PMEL</b> 7600 Sandpoint Way NE Seattle, Wa. 98115 (206) 526-6180	
<b>LOCATION:</b> PORT CONCLUSION	<b>DATE:</b> 16 AUGUST 2013
<b>DRAWN BY:</b> MIKE CRAIG	<b>DATE:</b> 19 AUGUST 2013
<b>APPROVED BY:</b> HVM	<b>DATE:</b>