

## Technical Services Information - R/V WECOMA - Oregon State University

### **I. Vessel Operator Organizational Structure & Points of Contact**

#### **A. Organization Description:**

Because the shore staff of WECOMA is relatively small, there is a lot of communication between Ship Operations, Marine Technicians and WECOMA crew. If you have a question and you aren't sure who to call, please contact Fred Jones or Marc Willis. They will be able to answer your question, can get the answer for you, or put you in contact with the appropriate person within Ship Operations, Marine Technician Group, or WECOMA crew.

#### **B. Facility Point(s) of Contact and Responsibilities:**

Ship Scheduling: Fred Jones, Marine Superintendent, 541-867-0224,  
jonesf@onid.oregonstate.edu

Ship Logistics: Fred Jones

Agents, Port Facilities: Fred Jones

Pre-cruise storage: Marine Technician assigned

Post-cruise storage: Marine Technician assigned

Shipboard communications: Marc Willis, Marine Technician assigned; post-cruise billings:  
Linda Oliver

Shipboard equipment and shared-use equipment: Marine Technician assigned;  
scheduling for equipment and use policies: Marc Willis

Shipboard networking and computing facilities: Marine Technician assigned;  
policies: Marc Willis

Laboratory layouts and loading plans: Marc Willis, Marine Technician assigned

Cruise Planning: Fred Jones, Marc Willis, Marine Technician assigned

Deck Operations and planning: Marc Willis, Marine Technician assigned

Radiation permitting and radioisotope usage: Rainier Farmer, OSU Radiation Safety Office,  
rainier.farmer@oregonstate.edu, 541-737-7080

General questions; Fred Jones, Marc Willis

Marine Technician Group: fax 541-737-2470

Marine Technician Superintendent: Marc Willis, 541-737-4622 (ofc), 541-760-2331  
(cell), willis@coas.oregonstate.edu

Marine Technical Support Assistant: Daryl Swensen, 541-737-8129 (ofc), 541-760-3608  
(cell), dswensen@coas.oregonstate.edu

Marine Instrumentation Engineer: Linda Fayler, 541-737-1504 (ofc),  
lfayler@coas.oregonstate.edu

Marine Data Systems Specialist: Toby Martin, 541-737-4447 (ofc), 541-619-0482 (cell),  
toby@coas.oregonstate.edu

Marine Technician At Sea: martech@pigeon.shipops.orst.edu

### **II. Vessel Characteristics – (link to UNOLS database when available)**

### **III. Research Equipment, Instrumentation, and Data Collection**

A. **Permanently installed science equipment and instrumentation** - (when available, this will be a link to the [UNOLS Database](#))

B. **Equipment available from the shared-use pool**- (when available, this will be a link to the [UNOLS Database](#))

C. **Procedures for requesting equipment**

**1. Filing a request:**

The starting point for equipment planning is the Ship Time Request. This will form the basis for planning equipment requirements for each cruise. At least 3 months prior to the cruise, the Chief Scientist or a designated representative should complete an OSU Shared Use Equipment Request detailing equipment requirements.

**2. Deadlines for requests:**

At least 3 months prior to sailing. Lead times are longer for long deployments and multi-leg, long-distance cruises.

**3. Timely feedback on availability for a particular cruise:**

As soon as details are known, the Marine Technician Superintendent or the Marine Technician Assigned will contact the Chief Scientist or designated representative regarding availability.

**4. How last-minute requests will be handled:**

To the extent possible, we will attempt to meet last-minute requests and changes to the equipment plan. No guarantees can be made.

D. **Computer information:**

Primary Point of Contact: Toby Martin, Data Systems Specialist

**1. Computing resources:** General-use computers are available for occasional use onboard for checking email, accessing ship databases and real-time displays. No analysis software, word processing software or other applications are provided. When in Newport, WECOMA is on the internet, behind a firewall.

**2. Networking resources:** WECOMA has high-speed networking installed to all lab and living spaces, and wireless access is available in labs and staterooms. The installed network can accommodate UNIX, Mac and Windows platforms, either by DHCP server, or hard IP address.

**3. Time Server:** A network time server (GPS-based) is available over the onboard network.

**4. Technical assistance:** A limited amount of technical assistance can be provided to users setting up computers for use on the shipboard network. Users are expected to be familiar enough with their own computers to set them up for use on the network. If you are unsure

of the setup details for your particular computer, you should consult your home institution's IT staff for instructions and training.

## **5. Procedures for use of shipboard computing resources**

- a. Interfacing requirements and required information:** All connections are CAT-5. Most computers already have this interface installed. If you anticipate having many machines on the network (more than 10), or if you have unusual requirements, please let us know as soon as possible.
- b. Computers on ship's network:** Computers brought to the ship should be virus-free, and have latest security patches applied.
- c. Instruments on ship's network:** Call Toby Martin or Marc Willis to discuss these requirements.

## **E. Data Collection:**

Primary points of contact: Linda Fayler (Marine Instrumentation Engineer), Toby Martin

- 1. Installed system(s):** WECOMA deploys an underway data collection system developed in-house. Routine parameters collected: Winds (true and relative), SST, SSS, GPS position (2 sources), Ship heading (GPS, 3DF, gyro), ship speed (speed log and GPS), solar radiation (longwave, shortwave, PAR), Air temperature, relative humidity, barometric pressure, surface fluorometry, water depth.
- 2. Instrument specific data files**
- 3. Real-time data availability and formats:** Underway data is available in near-real time via the ship's network. Data is available in flat ASCII files, either raw, or minimally processed as a comma-separated text file suitable for import to spreadsheet programs.
- 4. Special requirements**
- 5. Interfacing user-supplied sensors and subsystems:** The system has provisions for addition of 3 analog sensor channels. Contact Linda Fayler for details.
- 6. Procedures for determining needs**
- 7. Post-cruise data products:** All data files collected during the cruise (underway files and any other vessel-supplied data systems) are provided to the Chief Scientist at the end of the cruise. The deliverable is a set (one or more) of CD-ROMs (ISO9660). These are readable on most computer systems.
- 8. Policies and restrictions:** In normal circumstances, only TWO copies are provided to the Chief Scientist. OSU does NOT maintain a formal archive of old cruise data. Scientists

should ensure that they can read the data as soon as possible following the cruise, so that files can be recovered from the ship as necessary. It is incumbent on the Chief Scientist to maintain the data over the long term, and to control distribution of cruise data. OSU will not release data to others without permission of the Chief Scientist.

#### **IV. Pre-Cruise Planning and Services**

##### **A. Scientific Party Point(s) of Contact and Responsibility**

- 1. Pre-cruise:** To ensure that there is no confusion as to communications between Ship Operations Office, Marine Technician Group and scientific party, one person (preferably the Chief Scientist) should be designated as Primary Point of Contact for a particular cruise. Questions and communications between Ship Operations and Marine Technician Group and the scientific party should be routed through this contact.
- 2. Post-cruise:** Prior to leaving the ship, the Chief Scientist should designate a Post-cruise contact person. This person will be the point of contact for post-cruise information such as post-cruise calibration data, communications billings, agents' fees, etc.

##### **B. Schedule issues**

Contact Fred Jones, Marine Superintendent for scheduling issues

- 1. Current ship schedule**
- 2. Schedule definitions**
- 3. Departure and arrival decisions:**
- 4. Point of contact**

##### **C. Diplomatic clearances**

Contact Fred Jones, Marine Superintendent regarding diplomatic clearance issues

- 1. Required information**
- 2. Timing**
- 3. Foreign observers**
- 4. Post-cruise responsibilities**
- 5. Failure to comply**

##### **D. Shipping and Logistical Information**

###### **1. Facility Shipping Information**

Parcels and Truck Shipments:

<recipient on ship>  
WECOMA Cruise Wnnnnx  
OSU Ship Operations

2020 SE OSU Drive  
Newport, Oregon 97365

US Mail (NO PACKAGES OR BOXES):

<recipient, cruise ID>  
OSU Ship Operations  
PO Box 429  
South Beach, OR 97366-0429

## 2. Cruise Shipping Information

3. **Prior notification of incoming shipments:** In order to ensure that all expected shipments arrive, Ship Operations should be notified of any shipments to WECOMA for the scientific party, whether to Ship Operations in Newport, or to the ship in a port other than Newport. When the ship is away from Newport, be sure that you have contacted the Marine Technician assigned to your cruise, or Fred Jones to get the proper shipping address.
4. **Shipment marking requirements:** Each parcel shipped to WECOMA for a cruise must have clearly marked on the outside the following:

<shipping address>  
ATTN: <recipient on the ship>  
WECOMA Cruise Wnnnnx  
Number x of y

5. **Confirmation of arrival:** Whenever possible, we will provide confirmation of arrival of shipments for which we have received prior notification
6. **Hazardous Materials - UNDER CONSTRUCTION**
7. **Isotope regulations:** Contact Rainier Farmer, OSU Radiation Safety Officer
8. **Agents' Information**

- a. **Arrangements:** In order to protect both scientists and the ship, all dealings with ships' agents should be done through the Captain, or his/her designated representatives. Forms are provided for services requested, so that accurate post-cruise billings can be made for both ship needs and science requirements.
- b. **Costs:** Following the cruise, the agents invoice will be compared to known charges, and a bill will be sent to the Chief Scientist's home institution for costs incurred by the science party. Chief Scientists should provide a home institution account number, or open Purchase Order prior to sailing

**c. Other issues**

**9. Pre-cruise storage of scientists' equipment**

- a. Available storage area at the facility:** Storage at Newport is limited, and special arrangements will be required for large incoming shipments. Consult with the Marine Superintendent, Chief Marine Technician, or the technician assigned to your cruise for details
- b. Arrangements for storage in other ports:** In general, it will be the responsibility of the science party to make arrangements for pre-cruise storage of equipment in ports other than Newport, and to make arrangements for movement of equipment from storage to the ship.
- c. Procedure for determining storage needs - UNDER CONSTRUCTION**
- d. Costs - UNDER CONSTRUCTION**

**10. Deliveries to the vessel** - When notifying us of incoming shipments, please let us know when the equipment will be needed at the ship. Shipments made well in advance of the cruise may be stored off-site until needed.

**11. Other shore services available**

- a. Forklifts: One small (2 Ton capacity) and two large (5 ton capacity) forklifts are available at Ship Operations. Operators must be trained and certified by Ship Operations and OSU.
- b. Cranes: One 8-Ton capacity yard crane is available at Ship Operations.
- c. Trucks: One small pickup truck is available at Ship Operations. Drivers must be State of Oregon employees
- d. Other: Large shore and barge cranes can be hired locally. Crane costs for loading or moving scientific equipment will be charged to the science project.
- e. Costs?: Ship Operations forklifts and crane are made available at no charge.

**E. Marine Mammals and Acoustic Permitting:**

The vessel Marine Superintendent should be consulted regarding Seismic or other work requiring permits. UNOLS has compiled a list of web links that will hopefully aid PT's, schedulers and ship operators in determining what permits/permissions are needed and how to apply, <<http://www.unols.org/ssc/permits/permits.html>>

**V. Cruise Planning Details**

**A. Laboratory Spaces**

- 1. Location of utilities (power, water, air, etc.) - UNDER CONSTRUCTION**
- 2. Bench arrangements - UNDER CONSTRUCTION**
- 3. Equipment tiedowns - UNDER CONSTRUCTION**
- 4. Cold Storage (Refrigerators, Freezers)**

## **B. Deck Spaces**

- 1. Location of utilities**
- 2. Van/container locations**
- 3. Working areas (A-frames, cranes, winches)**
- 4. Tiedowns**

## **C. Determining Personnel Needs:**

1. Responsibilities and duties of the shipboard technician(s): The Marine Technician's overriding concern is for the safety of personnel, vessel and equipment. The Marine Technician assigned to your cruise is available to assist you to the extent of his/her abilities and skills. In general, the Marine Technician works a 12-hour day at sea, 0700-1900 with appropriate meal breaks. This schedule can be modified within reason to suit the particular operations. The Marine Technician will provide support and user training for equipment supplied from the shared-use equipment pool. The Marine Technician is not responsible for any user-supplied equipment. In the event of problems with user-supplied equipment, the Marine Technician onboard will help to the extent possible. The Marine Technician will assist with setup of lab spaces, and can provide a limited supply of hardware for tie down. It is not the responsibility of the Marine Technician to perform your research work for you.

2. Responsibilities and duties of the scientific party: It is expected that the Chief Scientist will bring a party large enough to perform the work intended, with assistance from the Marine Technician within the boundaries outlined in part (1) above. In the event that the scientific party is not suited to the work planned, scientific goals may have to be compromised in order to meet crew and technician needs for rest. As people become fatigued, safety is compromised.

3. Responsibilities and duties of the ship's crew: All winches, and the ship's main crane are operated by crew members. Crew members are available to assist with over-the-side operations as their other duties allow. A crew member is always available to operate the crane and winches. Ship's crew is NOT responsible for operation of user-supplied handling equipment, unless arrangements are made in advance. Where possible, ship's engineers may be able to assist with repair of user-supplied handling equipment.

4. Procedures for requesting additional assistance from crew or technicians: In the event that the Chief Scientist determines that the work planned and party envisioned do not match, the Chief Scientist may request additional technical assistance from the Marine Technician Group. Additional help may be provided under the following circumstances: 1) If needs are known far enough in advance, the Marine Technician Program may request supplemental funding for

additional technical assistance from the appropriate funding agency; 2) requests for additional assistance closer to the cruise date may be accommodated, but at a cost to the project; 3) After assessing the level of technical support required for a particular cruise, the Marine Technician Superintendent (Marc Willis) may decide to request additional technical support. If this judgement is made far enough in advance, support will be requested from the appropriate funding source. If this judgement cannot be made in advance, the scientific project may be asked to absorb these costs. If you anticipate the need for additional technical support, you should contact the Marine Technician Superintendent (Marc Willis) as soon as possible to discuss these needs.

**D. Berthing Spaces and Assignments:**

For most operations, a total of 16 berths are available for the scientific party on WECOMA. One of these bunks is assigned to the Marine Technician. Berthing assignments are made by the Chief Scientist or a designated representative. Forms are provided. Unusual circumstances requiring additional bunking should be discussed with the Marine Superintendent (Fred Jones)

**E. Ancillary Projects: Definition:**

A project accommodated by the Chief Scientist, but not central to the mission of the cruise. Ancillary or Piggyback projects are considered of lowest priority for support by the ship and Marine Technician(s). As such, requests for assistance or equipment will be accommodated after all other needs for the cruise have been met. Scientists participating in an ancillary or piggyback status should make all requests for assistance or equipment through the Chief Scientist or principal scientific point of contact. It is incumbent on the Chief Scientist to maintain control and responsibility for ancillary or piggyback projects.

**F. Access/use of small boats from ship**

**G. SCUBA diving from the ship**

**H. Access to transducer well, mast, etc.**

**VI. Cruise Loading and Setup**

**A. Vessel Availability:**

Depending on the schedule, the ship may be available for several days prior to a cruise, or only one day. Loading requirements should be discussed with the Marine Superintendent (Fred Jones) or Marine Technician Superintendent (Marc Willis) in advance so they can be accounted for in the scheduling process.

**B. Loading**

**1. Moving gear from storage to dock**

- a. **Responsibilities of shipboard techs, scientists, crew, facility personnel:** In general, the oncoming scientific party is responsible for moving gear from storage areas to the dock. Shore facility personnel and marine techs can assist with forklift operation and coordination. It is the responsibility of the science party to ensure that all their gear is transported to the dock for loading
- b. **Liaison with shore service providers (cranes, trucks, forklift):** Where shore services are required to move gear from storage areas to the dock, the equipment owner assumes responsibility for making these arrangements, or making sure that appropriate arrangements are made. Contact the Marine Superintendent (Fred Jones) for details.
- c. **Costs**

## 2. Moving gear from dock to deck

- a. **Responsibilities of shipboard techs, scientists, crew, facility personnel:** Most loading on WECOMA is done with the ship's main crane, operated by crew members only. Crew members and techs are available to assist with rigging and landing loads, but scientific personnel should be prepared to assist with this task, as special handling may be required. Loads placed on the dock for loading without instructions may not be loaded.
- b. **Liaison with shore service providers:** Where shore services are required to move gear from the dock to the ship, the equipment owner assumes responsibility for making these arrangements, or making sure that appropriate arrangements are made. Contact the Marine Superintendent (Fred Jones) for details
- c. **Costs**

## 3. Moving gear from deck to labs - responsibilities of shipboard techs, scientists, crew, facility personnel:

Ship's crew and techs will assist with ferrying loads from the deck to lab spaces. Scientists should be on hand to assist, and to direct placement of boxes in the labs.

## 4. Loading equipment availability and requirements for use

### C. Lab and Deck setup

1. **Laboratory configuration:** With sufficient notice, lab layouts can be reconfigured for varying needs. If you wish a particular lab layout, fax a copy of your desired layout to the Marine Technicians (541-737-2470) well in advance. Generally, minor reconfigurations can be accommodated on short notice. Major reconfiguration will require more notice (at least 4 weeks). On multi-leg deployments, some lab furniture may need to be stored onboard for later use.

2. **Location of utilities, wireways, stuffing tubes, etc.:** Maps of utility locations are available on the WECOMA website. Projects anticipating mounting a large number of antennas or external sensor packages should consult with the Marine Technician assigned well in advance to discuss placement, cable runs, power requirements, etc.
3. **Tiedown/securing supplies:** A small amount of tiedown supplies (screw eyes, unistrut nuts, eye bolts, line) is available onboard. It is always best to bring what you will need.
4. **Interfacing science-provided equipment:** If you will require some signals to be integrated into the underway data stream, consult with the Marine Technician in charge of underway data (Linda Fayler, 541-737-1504, lfayler@coas.oregonstate.edu).
5. **Operation of shared-use equipment:** In general, operation of onboard shared-use equipment is the responsibility of the scientific party. The Marine Technician assigned to the cruise will provide training for those involved in each operation, and is always available to assist with problems. The Marine Technician is available to stand a scientific watch, where complex operations require it, but is generally not available for routine scientific watchstanding. Chief Scientists should plan to bring enough people to perform the work intended.
6. **Vans and containers:** All portable vans must meet certain criteria to be acceptable for use aboard UNOLS vessels. The UNOLS checklist can be found at:  
[http://www.gso.uri.edu/unols/saf\\_stand/contents.htm](http://www.gso.uri.edu/unols/saf_stand/contents.htm) - [Toc38352677](#)  
Consult with the Marine Superintendent or ship cruise manual for weight limitations.
7. **Operation of underway data collection instruments:** Once started, underway data collection is mostly automatic. The Marine Technician is responsible for operation of the system, and makes periodic checks to ensure proper operation. User-supplied equipment interfaced to WECOMA underway data collection systems are the responsibility of the owner

#### **D. Lab/Deck Safety requirements - This section under construction**

1. **General requirements**
2. **Hazmat**
3. **Isotopes**

### **VII. Activities At Sea**

- A. **Chief Scientist - General Responsibilities** - Under Construction
- B. **Scientific Party - General Responsibilities** - Under Construction
- C. **Shipboard technician(s) - Hours, Duties and Responsibilities:**

Generally, the Marine Technician will work a 12-hour day, 0700-1900. The Marine Tech is on call at all times for problems. The Marine Technician should not be expected to stand a routine scientific watch. Problems encountered should be directed to the Marine Technician (if available), or to the Bridge watch officer.

**D. Ship's Crew Responsibilities - Under Construction**

**E. Ancillary Projects:** Ancillary or Piggyback projects are considered of lowest priority for support by the ship and Marine Technician(s). As such, requests for assistance or equipment will be accommodated after all other needs for the cruise have been met. Scientists participating in an ancillary or piggyback status should make all requests for assistance or equipment through the Chief Scientist or principal scientific point of contact. It is incumbent on the Chief Scientist to maintain control and responsibility for ancillary or piggyback projects.

**F. Science Operations - Under Construction**

- 1. Personnel responsibilities**
- 2. Procedure for requesting additional assistance from crew or technicians**

**G. Data Availability and Distribution - Under Construction**

**H. Communications - Under Construction**

- 1. Email information and costs**
- 2. File transfer information and costs**
- 3. Voice/fax information and costs**
- 4. Billing/payment procedures**

**I. Safety considerations**

**1. ISM regulations** - To Be Determined

**2. Responsibilities of techs, crew, scientists:**

All scientists are urged to read the UNOLS-RVOC safety manual

<[http://www.gso.uri.edu/unols/safe\\_man.html](http://www.gso.uri.edu/unols/safe_man.html)> provided onboard every UNOLS vessel.

Safety is our #1 priority, and takes precedence over scientific work. While we strive to maintain a safe environment, it is ultimately up to the individual to watch out for his/her own safety. Unsafe conditions should be brought to the attention of the Marine Tech or a crewmember immediately.

**3. Safety equipment (ship and user provided gear)**

**4. Science party training and drills:**

**All scientists are urged to read the UNOLS-RVOC safety manual provided onboard. Safety is our #1 priority, and takes precedence over scientific work. While we strive to maintain a safe environment, it is ultimately up to the individual**

**to watch out for his/her own safety. Unsafe conditions should be brought to the attention of the Marine Tech or a crew member immediately.**

In general, only one set of drills is conducted for the scientific party. Drills usually take place at the beginning of the cruise, at a time to be determined by the Captain and Chief Scientist. Drills consist of a fire drill, abandon ship drill, and a short safety orientation. Periodically during the cruise, the Captain, in consultation with the Chief Scientist, will schedule other types of drills as appropriate.

Prior to beginning any over-the-side operation, the Marine Technician or a crew member will conduct a safety briefing covering the particular operation, and provide training for operation of any deck gear required. In general, scientists are limited to operation of the stern A-frame and CTD hoist and boom.

**5. Over-the-side operations - Under Construction**

**a. Facility-provided equipment**

**b. User-provided equipment**

**6. Laboratory operations - Under Construction**

**7. Operations in lab/isotope vans - Under Construction**

**8. Safety, Hazmat and Radiation Safety briefings - Under Construction**

**J. Access/use of small boats from ship**

**K. SCUBA diving from the ship**

**VIII. Post-cruise activities – just as it relates to the technical groups**

**A. Data products and custody**

- 1. Deliverables:** At the end of the cruise, TWO copies of data CDs, including all data collected while underway, will be delivered to the Chief Scientist or designated representative.
- 2. Archives:** NO formal archive of cruise data is kept at OSU. Data file from a particular cruise may reside on the ship for up to 6 months following a cruise. It is the responsibility of the Chief Scientist to ensure that they have all the data needed, and that they are able to read the data once it has been delivered.

**B. Breakdown and offloading:** It is the responsibility of the Scientific Party to breakdown and pack all their own gear. The ship cannot be responsible for providing packing material, crates, etc.

1. **Ship Availability** - Generally, Scientific parties are expected to vacate the ship and offload all gear on the day of arrival. Exceptions should be taken up with the Marine Technician onboard, the Captain or Marine Superintendent.
  2. **Lab and Stateroom Cleanup** - The Scientific party is expected to leave the ship as clean or cleaner than when they arrived. This includes cleaning staterooms and heads, and cleaning out labs as much as possible. Guidance is posted onboard the ship.
- C. **Movement of equipment from deck to dock** - As with loading, offloading requires the assistance of scientists in rigging and landing loads moving off the ship.
- D. **Movement of equipment from dock to storage** - As with loading, only designated personnel may operate shore-side handling equipment. Scientists should be available to guide storage of gear.
- E. **Shipment of equipment** - It is expected the the scientific party will make arrangements for equipment shipping from the port of arrival to the home institution. OSU Shore facility personnel can assist in this task.
- F. **Storage of equipment or samples on board the vessel** - Storage onboard WECOMA is VERY limited. If you wish to leave samples or equipment onboard, you should contact Marc Willis as soon as your needs are known. Your storage needs will have to be coordinated with parties following yours on the ship schedule. Depending on the needs of follow-on parties, it may not be possible to store your gear or samples onboard. Do not assume that you will be allowed to store gear or samples onboard following your cruise.
- G. **Hazmat/radwaste procedures** - Under construction

H. **Post-cruise reporting**

If research operations were conducted in territorial waters, the Chief scientist is required to fulfill all post cruise obligations as required by the Department of State, Notice to Research Vessel Operators No. 66: <<http://www.state.gov/www/global/oes/oceans/ntrvo66.html>>.

The Chief Scientist is responsible for providing any research data to the National Oceanographic Data Center <http://www.nodc.noaa.gov/> is also the responsibility of the Chief Scientist.

The Chief scientist, shipmaster, and marine technician are each responsible for completing a post cruise assessment report (form located on the UNOLS website: <<http://www.gso.uri.edu/unols/pcarform.htm>>).

The Marine Superintendent is responsible for submitting a Ship Utilization Data Cruise Report [http://www.gso.uri.edu/unols/cruise\\_report/cruise\\_report.htm](http://www.gso.uri.edu/unols/cruise_report/cruise_report.htm) to the UNOLS Office.

