UNOLS, Cruise Planning, Requesting Ship Time and Other Resources

Chief Scientist Training

R/V Kilo Moana

June 13, 2019

Alice Doyle/UNOLS office

What is UNOLS?

University-National Oceanographic Laboratory System (UNOLS)

An organization of academic institutions (universities, National Labs, etc.) involved in oceanographic research joined for the purpose of coordinating oceanographic ships' schedules and research facilities.

Why was UNOLS created?

- Investigators from non-operating institutions were struggling to get access to ship time.
- Federal Agencies were concerned over lack of coordination, increasing costs, differing modes of operations, lack of consistency within the vessels receiving funding from the federal institutions.
- Operators were concerned over higher ship costs and increasing ship numbers
- No centralized ship scheduling or coordination

How was UNOLS formed?

- Stratton Commission Report (1969) recommended forming the National Oceanographic Laboratories (NOLS) to run the Academic Research Fleet.
- Operating Institutions agreed with goals, but opposed excessive federal control
- Worked out another approach with UNOLS
  - University control on community wide ship access
  - Cooperative ship scheduling
  - Standardized ship operations
  - Uniform funding arrangements

How was UNOLS formed (cont.)

- UNOLS Charter officially adopted 1971
- Started with 17 Operating Institutions, 33 Ships with focus on
  - Ship Scheduling & Investigator Placement Procedures
  - Uniform cost accounting, cruise reporting, ship operations, data, safety
- Soon – non-operating institutions were brought in as members
- Responsibilities increased and UNOLS became engaged in
  - Fleet replacement
  - Developing science mission requirements and concept designs for new ships

UNOLS Goals

- Promote broad, coordinated access to oceanographic research facilities
- Support continuous improvement of existing facilities
- Plan for and foster support for the oceanographic facilities of the future

UNOLS Vision Statement

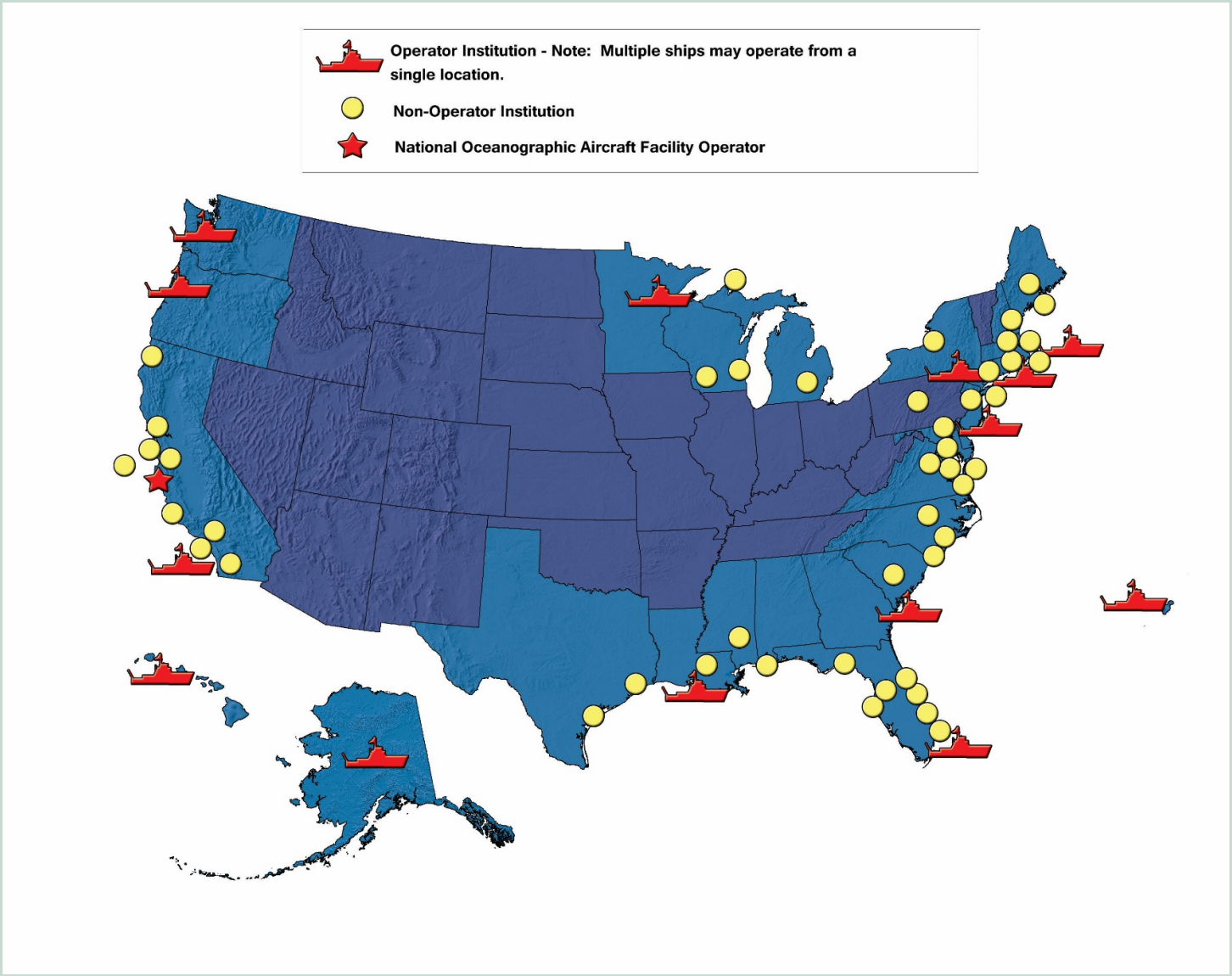
A **healthy and vigorous** United States **research and education program** in the ocean sciences with **broad access** to the best possible mix of **modern, capable and well operated** research vessels, aircraft, submersibles and other major shared-use facilities.

UNOLS Today

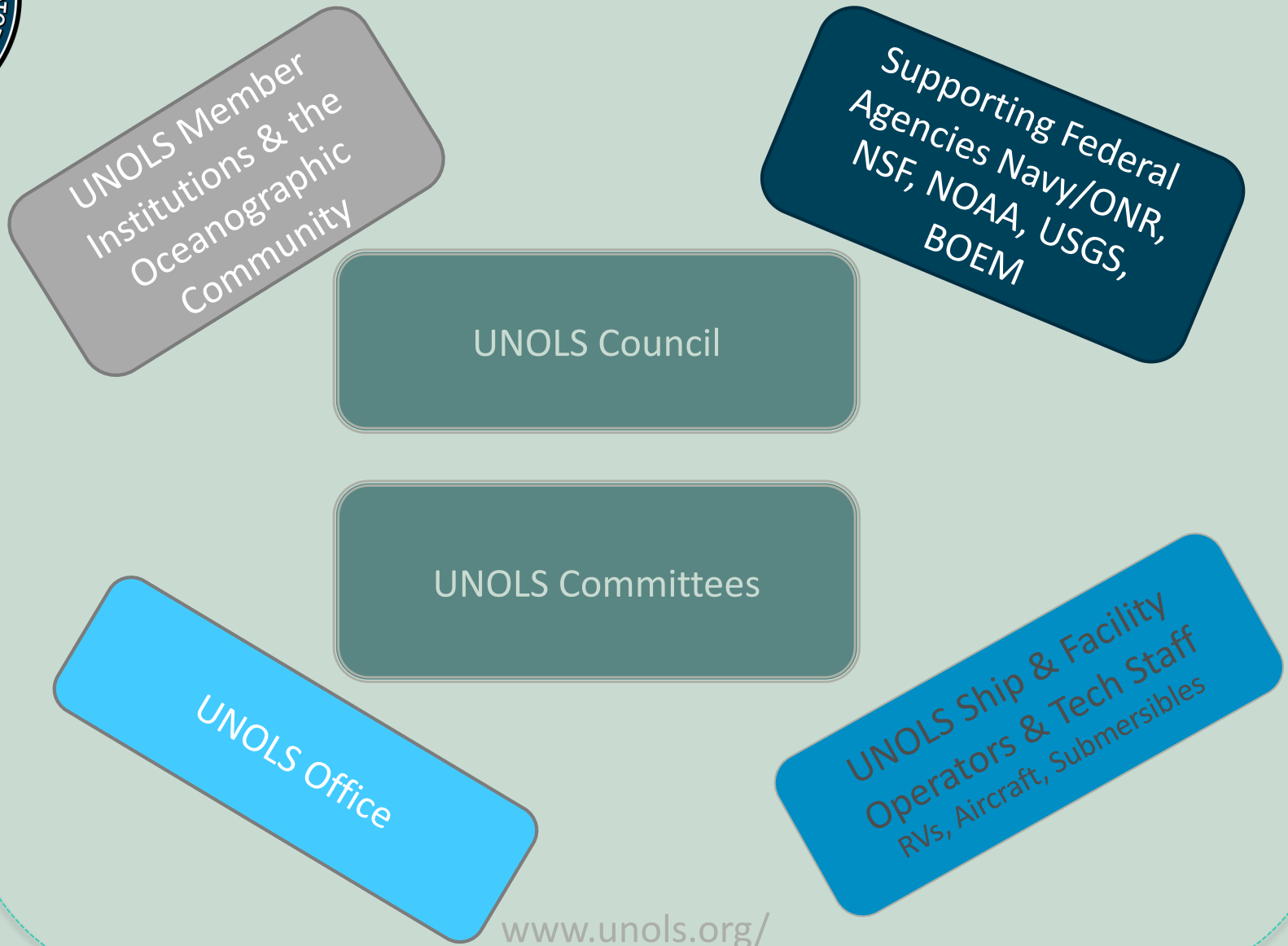
UNOLS today is an consortium of 62 U.S. institutions

- 14 operating institutions that operate:
  - 18 Research vessels
  - National Deep Submergence Facility
  - National Oceanographic Aircraft Facility
  - National Oceanographic Seismic Facility
- Facilities are either owned by one of the Federal agencies or by individual institutions.
- Elected Council & 8 major committees
- UNOLS Office

UNOLS Members



UNOLS Community



www.unols.org/

UNOLS Committees

- Ship Scheduling Committee **(SSC)**
- RV Operators' Committee **(RVOC)**
- RV Technical Enhancement Committee **(RVTEC)**
- Fleet Improvement Committee **(FIC)**
- Arctic Icebreaker Coordinating Committee **(AICC)**
- Deep Submergence Science Committee **(DESSC)**
- Scientific Committee for Oceanographic Aircraft Research **(SCOAR)**
- Marine Seismic Research Oversight Committee **(MSROC)**

U.S. Coast Guard Polar Icebreakers (Healy, Polar Star)

Woods Hole Oceanographic Institution (WHOI) NDSF – Alvin, Jason, AUV

Naval Postgraduate School (NPS) Twin Otter and Pelican Aircraft

Global Class

R/V Marcus G. Langseth / LDEO

R/V Atlantis / WHOI

RV Sikuliaq / UAF

R/V Roger Revelle / SIO

R/V Thomas G. Thompson / UW

Ocean/Intermediate Class

R/V Oceanus / OSU

R/V Atlantic Explorer / BIOS

R/V Endeavor / URI

R/V Kilo Moana / UH

R/V Neil Armstrong / WHOI

R/V Sally Ride/ SIO

Regional Class

R/V Hugh R. Sharp / University of Delaware

The RCRVs:

R/V Taani/ Oregon State University

RV Resolution/ East Coast Oceanographic Consortium

RCRV#3 / ??

Coastal/Local Class

R/V Pelican / LUMCON

R/V R.G Sproul / SIO

R/V Savannah /
Skidaway Institute of Oceanography

R/V F.G. Walton Smith /
University of Miami

R/V Blue Heron /
University of MN, Duluth

R/V Rachel Carson / UW

Ice Capable Vessels

Not officially part of the US Academic Research fleet but utilized by NSF OCE and other federal funding agencies in certain occasions.

USCG Icebreaker *Healy*

RVIB *Nathaniel B. Palmer*

National Oceanographic Facilities

UNOLS National Oceanographic Aircraft Facility

Pelican OPV

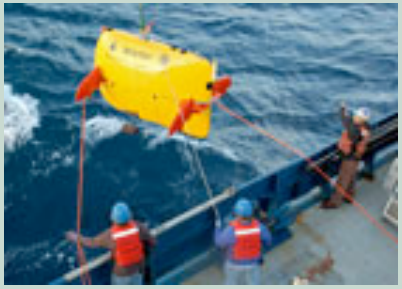
Altus ST UAV

UV-18a 'Twin Otter'

National Deep Submergence Facility

HOV Alvin

ROV Jason



AUV Sentry

National Oceanographic Seismic Facility

RV *Marcus G. Langseth*

UNOLS FAQs

- Does UNOLS fund science?
- Do I need to add the cost of my ship time and other resources to my science grant?
- Can I join one of the UNOLS Committees?
- What if I can’t remember all of this information?

Any questions?

Part II:
Access to the Sea: A Roadmap

The Roadmap

Pre-Award

- Proposal Planning
- Submit Proposal & Ship Time Request

Post-Award

- UNOLS Scheduling Process
- Long Lead-time items (EEZ & envi.permits)
- Cruise Planning

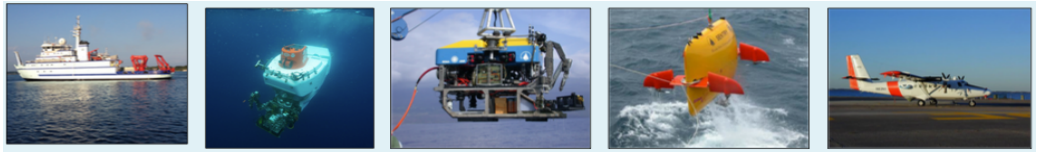
Expedition

- Carry-out cruise plan (or something like it!)

Post-Expedition

- Post-Cruise Assessment Report (PCAR)
- Other User De-brief (if applicable)
- Final Cruise Report & Data Compliance

Identify essential Equipment and Facilities



Proposal Planning

SUBMIT PROPOSAL And Ship time Request Form

Pre-Award

-4mths prior to proposal submission

-12-24 mths prior to first proposed cruise

University-National Oceanographic Laboratory System

ADMIN | SEARCH PUBLIC RECORDS | USER HOME | FORMS | PROJECT MANAGEMENT | LOG OUT

View Suggestions | View Errors | Suggestions/Request Help | Frequently Asked Questions | < Back

Welcome to the UNOLS Ship Time Request & Scheduling System

Log In for Member Activities

User Name:

Password:

Store my credentials so I don't have to login next time (unless I logout)

Log In

Forgot Your User Name Or Password?

New Member?

Create New Member Account

Login or create account for these activities

- *Facility Requests (ship time requests)*
- *Research Vessel & Facility Scheduling*
- *Technical Service Definitions*
- *Facility Specifications*
- *Reports*
- *System Administration*

Public Information

Login not required for these activities

- *Research Vessel & Facility Schedules*
- *Research Vessel & Facility Specifications*
- *UNOLS Equipment Inventory Search*
- *Funded Projects*
- *Cruise Personnel Manifest Form (Excel file that will download)*
- *Post Cruise Assessment Form*
- *UNOLS Web Site Home Page*

The Ship Time Request System (STRS)

strs.unols.org

- Create an Account
- Create a Project
- Create a Ship Time Request (STR) associated with the Project
  - Multiple ship time requests can be associated with 1 project
- EVERY FIELD in the STR must be completed!

Duplicate Request | Schedule Request

Oxyhydrocarbons - 2014 - Atlantis

Edit Request Details | Manage/Edit STR

Project Information

View STR

Project Title: Collaborative Research: Oxygenation of hydrocarbons in the ocean

Project Status: Submitted

Principal Investigator: Christopher Reddy, WHOI

Project Institution: WHOI

Project ID: 103767

Version #: 1

Date Submitted: 2/9/2013 2:57:00 PM

Created By: David L. Valentine

Date Last Modified: 7/15/2013 5:03:00 PM

URI Serial #: None

Funding Agencies: NSF/OCE/CO - 1333148 - Funded

Summary of Field Work:
1) Sampling of hydrocarbon seeps in the Gulf of Mexico using ROV or manned submersible.
2) Seep characterization by AUV to guide sampling operations.
3) Sampling of surface oil slicks overlying the studied seeps.
4) CTD sampling of waters in and around seeps.
5) Coring operations (gravity or box) in and around seeps.

Summary of Facility Requirements:
1) Oceanographic research vessel capable of hosting AUV/ROV/Submarine.
2) AUV (Sentry or Equivalent) capable of high resolution multibeam mapping, 3-dimensional photomosaics, water column chemical mapping.
3) ROV or Submarine capable of collecting sediment and oil samples from hydrocarbon seeps.
4) Coring apparatus such as box core or gravity core.
5) CTD Rosette.
6) Shipboard multibeam capable of capturing water column returns (to identify gas bubbles from hydrocarbon seeps).

Summary of other requirements and comments:

Requested Ship, Operating Days and Dates

YEAR: 2014

SHIP/FACILITY: Atlantis

OPTIMUM START DATE: 9/15/2014

Dates to Avoid: The slick sampling requires calm surface conditions (typical for summer and early fall). Undergraduate participation (one of our broader impacts) will greatly benefit from having the cruise scheduled outside of the regular course term. 2015 could also work, but is a bit late for the course of the project.

Earliest Start Date: 9/1/2014

Latest Start Date: 10/15/2014

Multi-Ship Op: No

Other Ship(s):

Operating Days Needed:	Science Days	Mob Days	De-Mob Days	Estimated Transit Days	Total Days
	8	2	2	4	16

Repeating Cruise? (within same year) No

Interval:

# of Cruises:

Description of Repeating cruise requirements:

Justification/Explanation for ship choice, dates, conflicts, number of days & multi-ship operations: The Atlantis would be the ideal vessel for these operations, with either HOV Alvin or ROV Jason. If we use Jason, then another vessel capable of hosting Jason and Sentry (sufficient size with Dynamic Positioning) is acceptable.

There is some flexibility in the requested dates. Collecting surface slicks is an important complement to our deep ocean efforts, and requires calm conditions to find and sample the slicks (performed by RHIB using the coast guard method).

Work Area for Cruise

Short Description of Op Area for use in schedules: Gulf of Mexico

Description of Op Area: Operations will take place in the Gulf of Mexico, at a number of hydrocarbon seeps located at water depths of 700 to 3500m. We have several targets identified, ranging from the Lousianna slope to the Texas slope, within 250 nm of 26N91W. The operations area will be refined during the scheduling process, depending on the port chosen.

Op Area Size/Dia.: 250

	Lat/Long	Marsden Grid	Navy Op Area
Beginning	26° N / 91° W map	82 map	NA09 map
Ending	26° N / 91° W map	82 map	NA09 map

Show Degrees Minutes

Foreign Clearance and Permitting Requirements

Foreign Clearance Required? No

Coastal States:

Important Info on Foreig

http://www.marineregions.org/eez.php

Are you or any member in your science party bringing in any science equipment items which are regulated for export by the International Traffic in Arms Regulations (ITAR) and/or the Export Administration Regulations (EAR)? No

If yes, have you a... through your exp...

Questions about ITAR/EAR regulations?

Comments about foreign clearance requirements or description of any other special permitting requirements (e.g., MMPA, ESA, IHA, Marine Sanctuaries, etc.)

!!If you click "No" for Foreign Clearance, you MUST choose either "US" or "None" for Coastal State.

Port Calls

Requested Start Port	Intermediate Port(s)	Requested End Port
Gulfport, MS, USA	None	Gulfport, MS, USA

Explanation/justification for requested ports and dates of intermediate stops or to list additional port stops

Important Info on Working in Foreign Ports

Science Party

Chief Scientist: Christopher Reddy, WHOI

# in Science Party	20	# of different science teams	3	# Marine Technicians to be provided by ship operator: (include in science party total)	2

Explanation of Science Party Requirements and Technician Requirements Teams from WHOI, UCSB and the College of William and Mary will participate, including a large number of undergraduate students. 24 hour operations are planned. Wet chemistry will be performed on sampled material. -80 degree C storage is needed.

Instrumentation Requirements That Impact Scheduling Decisions

☑ Dynamic Positioning	☐ ADCP	☑ Multibeam	☐ Seismic
☑ Dredging/Coring/Large Dia. Trawl Wire	☐ Fiber Optic (.681)	☐ 0.680 Coax Wire	☐ Diving
☑ Radioisotope use - briefly describe	☐ NO Radioisotope use/Natural level work	☐ Other Operator Provided Inst. - Describe	0 PI-Provided Vans - briefly describe
☐ MOCNESS			

Explain Instrumentation or Capability requirements that could affect choice of ship in scheduling.

Major Ancillary Facilities (that require coordination of schedules with ship schedule)

Aircraft

☐ Helicopter Ops (USCG)	☐ Twin Otter	☐ Unmanned Aerial Systems (UAS)	

Autonomous Underwater Vehicle (AUV)

☐ Other AUV	☑ Sentry		

Coring Facility

☐ Jumbo Piston Coring	☑ Large Gravity Core	☐ MC800 multicorer w/ MISO camera/telemetry	☐ OSU Coring Facility (MARSSAM)
☐ Other Large Coring Facility	☐ WHOI Long Core		

Human Occupied Vehicle (HOV)

☑ Alvin	☐ Clelia (HBOI)	☐ JSL I & II (HBOI)	☐ Other HOV

Other Facility

☐ MISO Facility - deep-sea imaging	☐ Other Facility	☐ Potential Fields Pool Equipment	

Remotely Operated Vehicle (ROV)

☐ Jason	☐ Other ROV		

Seismic Facility

☐ Ocean Bottom Seismograph Instrument Center (OBSIC)	☐ Ocean Bottom Seismograph Instrument Pool (OBSIP)	☐ Ocean-Bottom Seismometer Program (UTIG)	☐ Other Seismic/OBS Facility
☐ PASSCAL	☐ Portable MCS group	☐ Portable MCS/SCS group	☐ U.S. Geological Survey Ocean Bottom Seismometer Facility (USGS at WHOI)

Towed Underwater Vehicle

☐ ARGO II	☐ Hawaii MR1 (HMRG)	☐ IMI12 (HMRG)	☐ IMI120 (HMRG - formerly DSL 120A)
☐ IMI30 (HMRG)	☐ Other Towed Underwater Vehicle	☐ Towfish	

UNOLS Van Pool

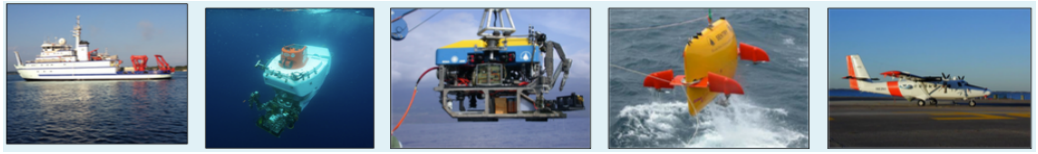
☐ AUV Lab Van #1	☐ Clean Lab Van	☑ Cold Lab Van	☐ General Purpose Lab Van
☑ Radioisotope Lab Van	☐ Wet Lab Van		

UNOLS Winch Pool

☐ Mooring Spooler	☐ Portable Winch	☐ Turn Table

Explain Major Ancillary Facilities Requirements and list description and provider for "other" systems. Either ROV Jason or HOV Alvin are needed for guided sampling within hydrocarbon seep environments. AUV Sentry will be used for mapping and imaging dive targets and for dive planning. Multibeam will be used to image study areas and to identify gas plumes in the water column. Sediment will be collected by gravity coring (or equivalent). We expect to have collaborators using radioisotopes, and include the van request

Identify essential Equipment and Facilities



Proposal Planning

SUBMIT PROPOSAL And Ship time Request Form

Peer & Program Review
NSF
Navy (ONR)
USGS
NOAA
Other

Award Notification

Pre-Award

-4mths prior to proposal submission

-12-24 mths prior to first proposed cruise

-5-6mths after proposal submission

UNOLS Scheduling Process

Post-Award

8-12mths prior to cruise calendar year

Ship Scheduling

Ship maintenance

Multi-ship requirements

OBS Schedules

Port concerns

Environmental Permits

Ship Capabilities

Funding decisions

Personnel schedules

Foreign Clearances

RAPID Response to global events

USCG Restricted regions

Facility Availability

Weather considerations

Ship breakdowns

Export control laws (ITAR, EAR, OFAC)

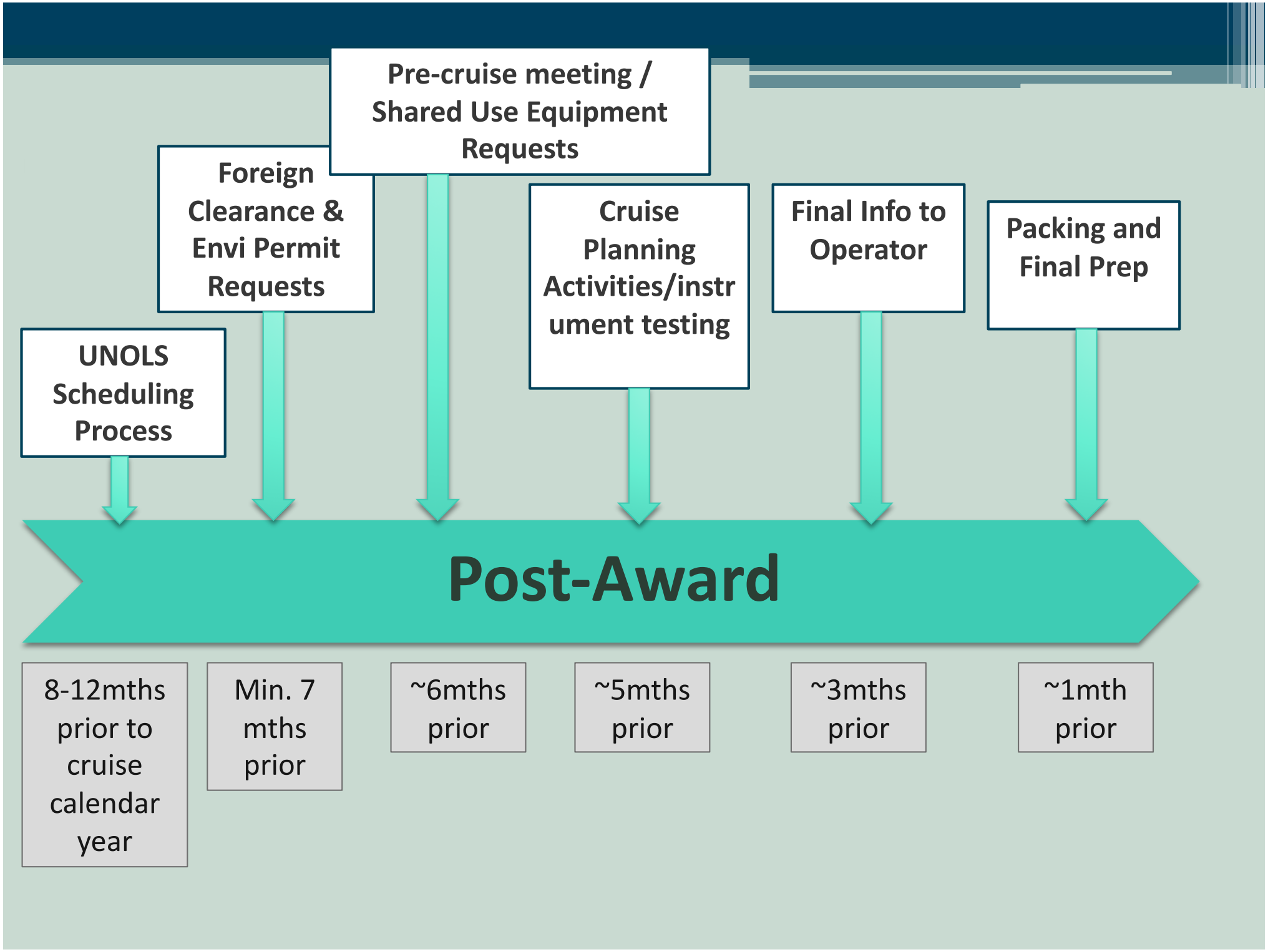
Date Restrictions

Congestion Concerns

Clean vessel

Ship Capabilities

Political unrest


Pre-cruise meeting / Shared Use Equipment Requests
Foreign Clearance & Envi Permit Requests
UNOLS Scheduling Process
Cruise Planning Activities/instrument testing
Final Info to Operator
Packing and Final Prep
Post-Award
8-12mths prior to cruise calendar year
Min. 7 mths prior
~6mths prior
~5mths prior
~3mths prior
~1mth prior

NDSF user debrief or AICC debrief (where applicable)

Final Cruise Report Due & Data Management Compliance

Post-Cruise Assessment Report

Expedition

Post-Expedition

1mth after cruise

~2mths after cruise

~2 yrs after cruise Data due per agency guidelines

Any questions?

Part III:
Available Resources

The UNOLS website

www.unols.org

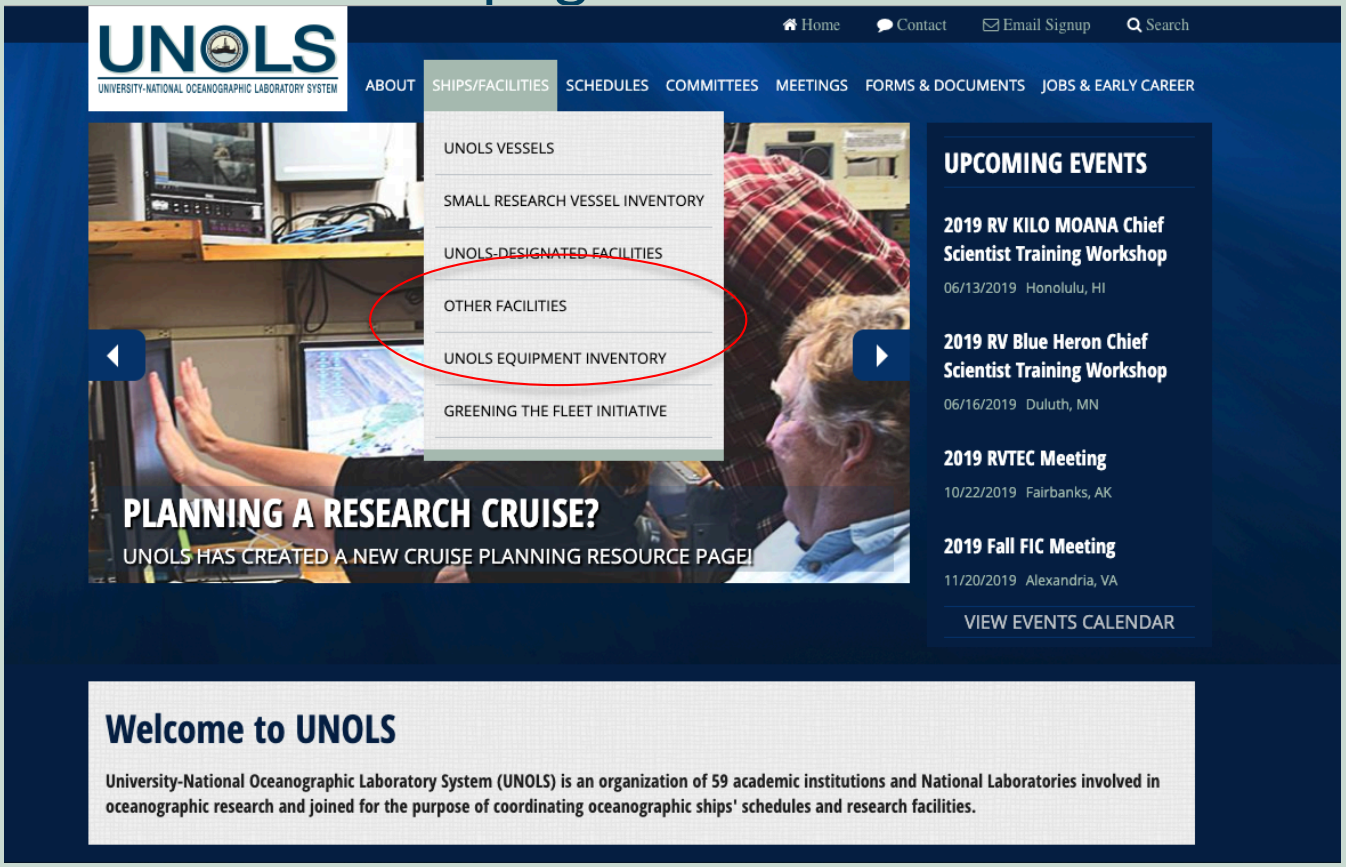
Not so easy to find items:

- **Cruise Planning info and resources**
  - Schedules/Cruise Planning Information
    - Timelines, contacts, information
    - Information about working in Foreign Waters and Ports, facilities, etc.
- **Civility at Sea information**
  - About/MERAS
- **Post-Cruise Assessment Form**
  - Forms & Documents / Post Cruise Assessment
- **Document Search**
  - RVSS, White Papers,

When all else fails, use the **SEARCH feature**.

UNOLS
Online Equipment Inventory and Facilities

Links to the Online Equipment Inventory as well as all of the the Pooled Equipment Facilities are available from the UNOLS homepage:



UNOLS
Online Equipment Inventory

- Lists equipment available on the UNOLS vessels as well as pooled equipment.
- Depending on schedule, portable equipment may be able to be moved to another vessel.
- Requests can be made to the institution who oversees the equipment either through the PI or the operating institution.

UNOLS
Online Equipment Inventory

http://strs.unols.org/Public/Search/diu_equipment.aspx

UNOLS Equipment Inventory Search

Institution: Choose Institution

Vessel/Facility: Choose Vessel/Facility

Group: Choose Group

Device Type: mocness

Manufacturer:

Filter Clear Filter

Export Current Page | Export All | Page Size: 20

	Institution	Vessel/Facility	Group	Device type	Manufacturer	Model	Description	Number	Component of
View/Edit	URI_GSO	Portable	nets & trawls	mocness	BESS	MOC-1		1	
View/Edit	RSMAS	Portable	nets & trawls	mocness	BESS	MOC-1		1	
View/Edit	RSMAS	Portable	nets & trawls	mocness	BESS	MOC-1 double		1	
View/Edit	RSMAS	Portable	nets & trawls	mocness	BESS	MOC-10		1	
View/Edit	OSU_COAS	Portable	nets & trawls	mocness	BESS	MOC-1	1m2	1	
View/Edit	OSU_COAS	Portable	nets & trawls	mocness	BESS	MOC-0.25	0.25m2	1	
View/Edit	SIO	Portable	nets & trawls	mocness	BESS	MOC-1		1	
View/Edit	SIO	Portable	nets & trawls	mocness	BESS	MOC-1 double		1	
View/Edit	SIO	Portable	nets & trawls	mocness	BESS	MOC-10		1	
View/Edit	UH_SOEST	Kilo Moana	nets & trawls	MOCNESS	BESS	MOC-1		1	
View/Edit	UAF	SIKULIAQ	nets & trawls	mocness	BESS	MOC-1			mocness

UNOLS
Pooled Equipment/Services

unols.org/Ships/Facilities / Other Facilities

Portable Lab (Van) Pools

- Operated by: UDelaware (East Coast) and OSU (West Coast)
- Portable labs including dry lab, isotope lab, cold lab, clean labs, AUV van
- Requested early in the planning phase
- NOTE: Some institutions have their own lab vans so consult with the host institution prior to requesting a van

Winch Pool

- East Coast – WHOI
- West Coast - SIO
- Heavy, Medium, Light and Ultra-light duty, mooring winches available
- Requested early in the planning phase
- NOTE: Institutions have their own installed and portable winches so consult with the host institution prior to requesting a winch

MarSSAM

- Operated by: OSU
- Jumbo Piston Core (JPC), Multi core, box core, gravity core, Kasten core
- Also supply the technical support and supplies for these operations.

MISO & PFPE

- Operated by: WHOI
- PFPE: Magnetometers and gravimeters
- MISO: Towcam, MC-800 w/ RT HD camera, Deep-Sea cameras, strobes, High-Temperature Loggers, Acoustic Transponders and more!

Operation SWAB

- 3rd party testing for low levels of ^{3}H and ^{14}C contamination of ships and associated laboratory vans
- Operated by the UMiami Tritium Lab (UMTL)
- Visit ships at least 1x per year, sometimes more often
- Can be requested (through the ship operator) prior to natural abundance cruises
- SWAB results are posted online through UNOLS website's Document Search.

Ship/Shore Communications

- Generally 2 systems available, HiSeasNet & FBB
- HiSeasNet
  - Primary System.
  - Always on.
  - Fixed rate paid through day-rate ($300/$400).
- FBB/Fleet Express
  - Back-up to HiSeasNet
  - Pay as you go system
- Anything beyond basic communications (e.g. video outreach) must be discussed approved by the funding agencies. Discuss with the host institution EARLY.
- If you are not sure whether your needs are “normal”, ask.

Multibeam Advisory Committee

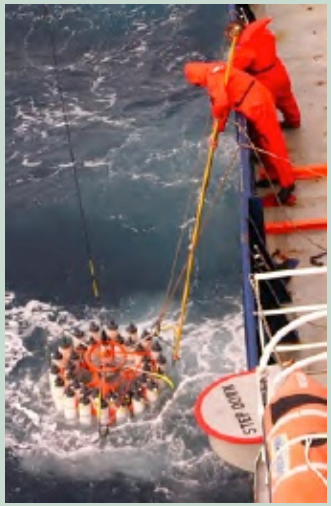
- Operated by L-DEO and UNH
- Support for the multibeam systems to help ensure consistent high-quality multibeam data
- More Info: http://mac.unols.org/

- Operated by UH/Eric Firing & Julia Hummons
- Developed a suite of collection & processing software for ADCP data
- Provides near real-time data monitoring to participating institution

Chemistry Services

ODF

- Operated by SIO
- Reference Quality Hydrographic Support
- CTD data acquisition and processing to WOCE standards
- More Info: http://odf.ucsd.edu/



Other

- Data Collection and/or sample analysis services may be available from a lab at the host institution
- Ask your cruise Technical Support POC to find out what might be available
- If the host institution cannot help, ask around for other possibilities

Tech Pool and Tech Sharing

- Each ship supplies a baseline level of technical support
- Baseline level of support varies a bit from ship to ship so be sure to discuss your tech support needs early
- If necessary, additional tech support may be available through the Tech Pool or through Tech Exchanges -

Planning for use

- Equipment/Services should be requested EARLY in the planning process. Discuss with the cruise Technical POC.
- Do your research and understand what equipment you need. Don’t be afraid to ask questions.
- Last minute requests can be frustrating for all parties. Sometimes they are unavoidable but try to make them the exception and not the norm

Use

- Pooled Resources are for the *entire* community
- They should be treated as if it is your own so they will be available for others in the future:
  - Understand the equipment and its limitations prior to the cruise. Ask questions.
  - Read any literature that arrives with the pooled equipment. It is there for a reason!
  - Return it in as good or better shape than when it arrived.
  - Don’t abuse it!

UNOLS
Rad Awareness Program

http://www.unols.org//unols-radioisotope-awareness-program

Outlines the problem and provides tools (bottom of page) that include:

- Presentations to make folks aware of the issues and how to avoid them.
- Links to Radioisotope Use Logs for each ship.
  - Who has used radioisotopes.
  - SWAB test results.
- Checklists to help everyone understand the roles and responsibilities onboard.

This is a great way to help new users understand rad use on ships in general and especially on multi-purpose ships.

Working in Foreign Waters & Ports

- White Paper & Appendix
  - UNOLS Document Search / Foreign Waters
- Roles & Resposibilities
- Timelines
- Key aspects of working in foreign ports and waters

UNOLS Office & Social Media

@UNOLS

@UNOLS

@UNOLS_org

Contact **media@unols.org** for comments & questions or to share your news stories, accounts, pictures and hashtags.

We want to hear what's new with you!

Any questions?