Greening the Research Fleet
January 10-11, 2012
Nicholas School of the Environment

http://www.geology.19thcenturyscience.org/books/hmsc.jpg
UNOLS: Founded in 1971 with 33 ships operated by 17 laboratories

UNOLS today is an organization of 61 U.S. institutions with ocean science programs

- 16 of the UNOLS institutions are facility operators that include:
  - 20 Research vessels,
  - a National Deep Submergence Facility,
  - a National Oceanographic Aircraft Facility, and
  - a National Oceanographic Seismic Facility.

- Facilities are either owned by one of the Federal agencies or by individual institutions.
- Elected Council & 9 major committees (volunteers)
- UNOLS Office
UNOLS: Council, Committees, and Federal Sponsors

UNOLS Member Institutions
Oceanographic Community

UNOLS Office

UNOLS Council

- Ship Scheduling Committee (SSC)
- Research Vessel Operators’ Committee (RVOC)
- Research Vessel 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)
- Marcus Langseth Science Oversight Committee (MLSOC)

Supporting Federal Agencies
Navy (ONR), NSF, NOAA, USGS, MMS

UNOLS Ship and Facility Operators
Research Vessels, Aircraft, Submersibles

- U.S. Coast Guard (USCG) Polar Icebreakers (Healy, Polar Star, Polar Sea)
- Woods Hole Oceanographic Institution (WHOI)
  NDSF – Alvin, Jason, AUV
- Naval Postgraduate School (NPS)
  CIRPAS – Twin Otter and Pelican Aircraft
- Lamont-Doherty Earth Observatory (LDEO)
  R/V Marcus Langseth
UNOLS MEMBERSHIP

Operator Institution
Note: Symbol indicates home port location. Multiple ships may operate from a single location.
Non-Operator Institution
National Oceanographic Aircraft Facility Operator

University of Puerto Rico
Smithsonian Tropical Research Institute - Panama
UNOLS Goals

UNOLS is a coordinator or facilitator of community-wide efforts with these 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 IS NOT A FUNDING AGENCY**
The UNOLS Facilities of Today

* UNOLS is a large federal facility with $1 billion in facility assets.
The UNOLS Fleet - 2011

<table>
<thead>
<tr>
<th>SHIP/CLASS</th>
<th>BUILT</th>
<th>Conv/ Mid Life</th>
<th>Owner</th>
<th>LOA m (ft)</th>
<th>Science Berths</th>
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<td><strong>Global Class</strong></td>
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<tr>
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<td>1969</td>
<td>1991</td>
<td>NAVY</td>
<td>85 (279)</td>
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<td>NAVY</td>
<td>84 (274)</td>
<td>37</td>
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<td>NAVY</td>
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<td>1994</td>
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<tr>
<td>Endeavor</td>
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<td>1993</td>
<td>NSF</td>
<td>56 (184)</td>
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<td>2006</td>
<td>BIOS</td>
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<td>1996</td>
<td>SIO</td>
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<td>2004</td>
<td>NSF</td>
<td>41 (135)</td>
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<td>2005</td>
<td></td>
<td>UD</td>
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<td>Robert Gordon Sproul</td>
<td>1981</td>
<td>1985</td>
<td>SIO</td>
<td>38 (125)</td>
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<tr>
<td>Pelican</td>
<td>1985</td>
<td>2003</td>
<td>LUMCON</td>
<td>32 (105)</td>
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<tr>
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<td></td>
<td>Miami</td>
<td>30 (96)</td>
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<tr>
<td>Savannah</td>
<td>2001</td>
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<td>SKID/UG</td>
<td>28 (92)</td>
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<td>1985</td>
<td>1999</td>
<td>UMINN</td>
<td>26 (86)</td>
<td>6</td>
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<tr>
<td>Clifford Barnes</td>
<td>1966</td>
<td>1984</td>
<td>NSF</td>
<td>20 (66)</td>
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</tr>
</tbody>
</table>
Global Class

Marcus G. Langseth

Atlantis

Knorr

Roger Revelle

Melville

Thomas G. Thompson
Ocean/Intermediate Class

Wecoma

Atlantic Explorer

Kilo Moana

Endeavor

New Horizon
Regional Class

Hugh R. Sharp

Point Sur

Cape Hatteras
Coastal/Local Class

Pelican

Robert Gordon Sproul

F.G. Walton Smith

Clifford A. Barnes

Blue Heron

Savannah
National Deep Submergence Facility

AUV Sentry

DSRV Alvin (Photo credit: WHOI)

ROV Jason II (Photo credit: WHOI - http://www.divediscover.whoi.edu/tools/jason.html)
Center for Interdisciplinary Remotely-Piloted Aircraft Studies

Pelican OPV (Photo credit: http://cirpas.org/index.html)

UV-18a Twin Otter

www.cirpas.org
The starboard paravane about to enter the water. The paravanes permit the streamers and other towed equipment to be widely separated.

New Research Vessels

R/V *Sikulialq*: *Sikulialq* is an Inupiaq name meaning "young sea ice" or "young sea ice that is safe to walk on."

http://www.sfos.uaf.edu/arrv/about/

• The Navy has awarded contracts for the construction of two new Ocean Class ships.

• NSF continues plans for up to 3 new Regional Class ships
* UNOLS is a large federal facility with $\sim >$ $1$ billion in research assets.

"Greening the Fleet – UNOLS should explore how to make the present and future fleet more environmentally sustainable. New and existing technologies and practices should be used in the construction, operation, and recycling of research vessels and UNOLS should take a leadership role in promoting a green U.S. research fleet, as we move forward in developing the academic fleet."
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MOTIVATION

1. Environmental stewardship
2. Educational outreach
3. Finances
4. Fleet renewal