

A photograph of a sunset over the ocean. The sun is low on the horizon, creating a bright orange and yellow glow that reflects on the water. The sky is filled with dark, dramatic clouds, some of which are illuminated from below by the setting sun. The overall mood is serene and majestic.

# Deep Submergence Science Committee Activities 2002

Report for  
UNOLS Annual Meeting

# Biology Outreach Efforts

- **ASLO/AGU Special Sessions, Honolulu  
February 2002**
- **DESSC members to be ambassadors at  
biology meetings**

# **Spring DESSC Meeting WHOI May 2-3**

- **Report of Shallow-water Submergence Science Committee (ad hoc UNOLS)**
- **Other facilities and funding agency reports**
- **NDSF Chief Scientist replacement**

# **NDSF Operator report**

- **WHOI Internal Review Committee**
- **Operations 2001/2002**
- **Upgrades to Jason 2 and DSL-120**
  - Field tests completed**
  - 1st science program successful**

# **NDSF Operator report (cont.)**

- **NDSF Draft proposal for upgrades to sensors and tools (DESSC will seek input from community)**
- **Scheduling issues**
- **Replacement for Alvin**
  - General design goals**
  - Relative merits of HOV/ROV**
  - Depth capability of New Alvin**



# **General Capabilities of Replacement for Alvin**

- **Greater speed**
- **Improved science sensors and tools**
- **Improved maneuverability**
- **Increased power for propulsion and payload**
- **Greater endurance and improved ergonomics (longer dive time, especially when being used to maximum depth capability)**
- **Better visibility and lighting**
- **Improved navigation**
- **Improved safety systems**

# **General Capabilities (cont.)**

- Improved manipulation ability**
- Greater external sample storage and increased science payload**
- Better communications**
- Improved data collection, logging and interface capability to science instruments**
- Comprehensive engineering, operational, and science-utilization documentation**
- Depth capability to 6000-7000m (depending on technical feasibility and cost-benefit analysis)**

# HOV vs ROV

- Engagement of the operator
- Visibility in 3-D
- Maneuverability/reliability
- Unobtrusiveness
- Capacity for outreach education and recruitment



# HOV vs ROV



# Depth Capability of New Submersible

- “Full” ocean depth (11,000 m) vs ~6500 m
- DESSC recommendations:
  - Concerns regarding effective use of resources
  - Current effort is outgrowth of community-wide discussions and workshops regarding US science community needs.
  - Maintain the deployment capability from the existing support ship (no major modifications to the ship design, or submersible launch-recovery system)
  - Meet the stated needs of scientific community

# Link Symposium

- **NOAA/NASA Joint support**
- **Summary article in MTS Journal**
- **Outcomes:**
  - web-based inventory**
  - recommendations for new technologies**
  - funding efforts**

## **Priority actions suggested:**

- **Investigate potential new energy sources (including *in situ* energy sources)**
- **Work toward miniaturization of sensors and tools (to reduce energy requirement)**
- **Develop means to determine orientation of samples**

# Samplers to develop

- Larva samplers
- Sterile sampling capability
- Unobtrusive sampling devices (for capture, tagging, tracking)
- Ability to collect volumes of sediment for assessing microorganism populations

# Samplers to develop

- Samplers that maintain *in situ* conditions
- Measure absolute seafloor pressure (to eliminate the problem of instrument “drift”).
- Rock corers with the ability to take oriented samples
- Manipulators with force sensitive feedback mechanism for delicate samples

# **DESSC Outreach to other disciplines and the public**

- **Nontraditional fields ( marine archeology educational efforts)**
- **Lectureship program in association with RIDGE2000**
- **IMAX movie and outreach activities**
- **Discovery Channel series**



# DESSC Plans for Fall 2002

- **Replacements on DESSC**

**Marv Lilley and Joris Gieskes leaving**

**Recommended replacements:**

**Debbie Kelley**

**Heddy Edmonds**

- **Winter meeting San Francisco Dec. 5**