

**UNOLS**  
**Fleet Improvement Committee**  
**January 28-29, 2003**



National Science Foundation  
Arlington, VA

# **HASC Authorization Report**

## **FY03 107-436.doc**

### **Congressional Report language:**

**"The committee believes that scientific knowledge of the oceans and ocean environments makes a critical contribution to U.S. national security and commercial vitality. The committee notes, that in large part, U.S. scientific expertise in oceanography and ocean sciences is sustained by the Office of Naval Research and the National Science Foundation partnership that provides oversight of the University-National Oceanographic Laboratory System (UNOLS) fleet.**

# **HASC Authorization Report**

## **FY03 107-436.doc**

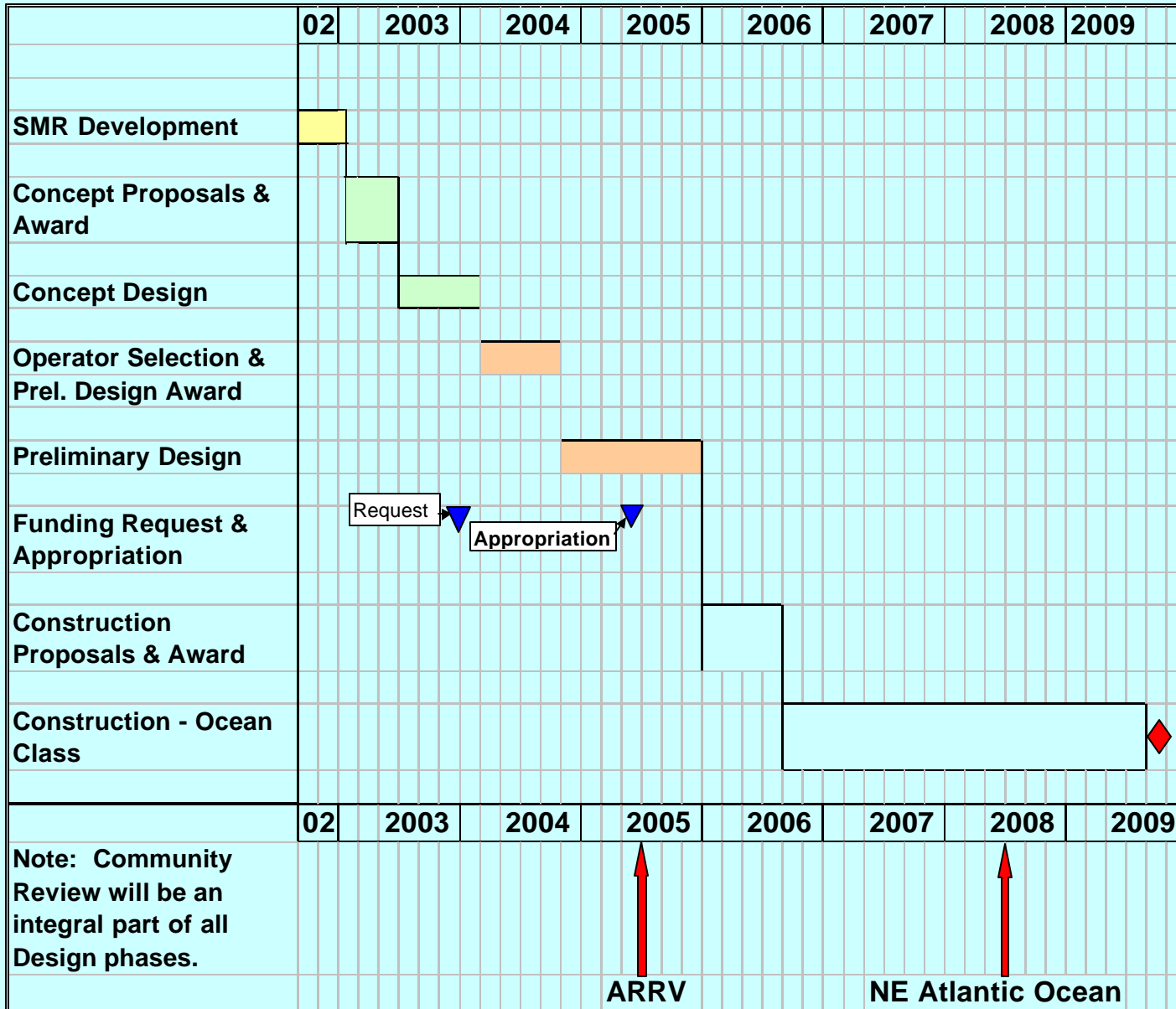
**The committee recognizes the age of the UNOLS fleet and the need for a rational plan for renewal of the fleet over the next ten years. Therefore, the committee directs the Secretary of the Navy to submit to the Senate Committee on Armed Services and House Committee on Armed Services no later than February 1, 2003, a report detailing specific requirements and outlining a specific plan for UNOLS fleet renewal. The report should include specific recommendations on the numbers of each class of ship to be maintained in the UNOLS fleet, their geographic distribution, the schedule for their replacement, and estimates of ship construction costs.”**

# Regional Class Overall Design Timeline

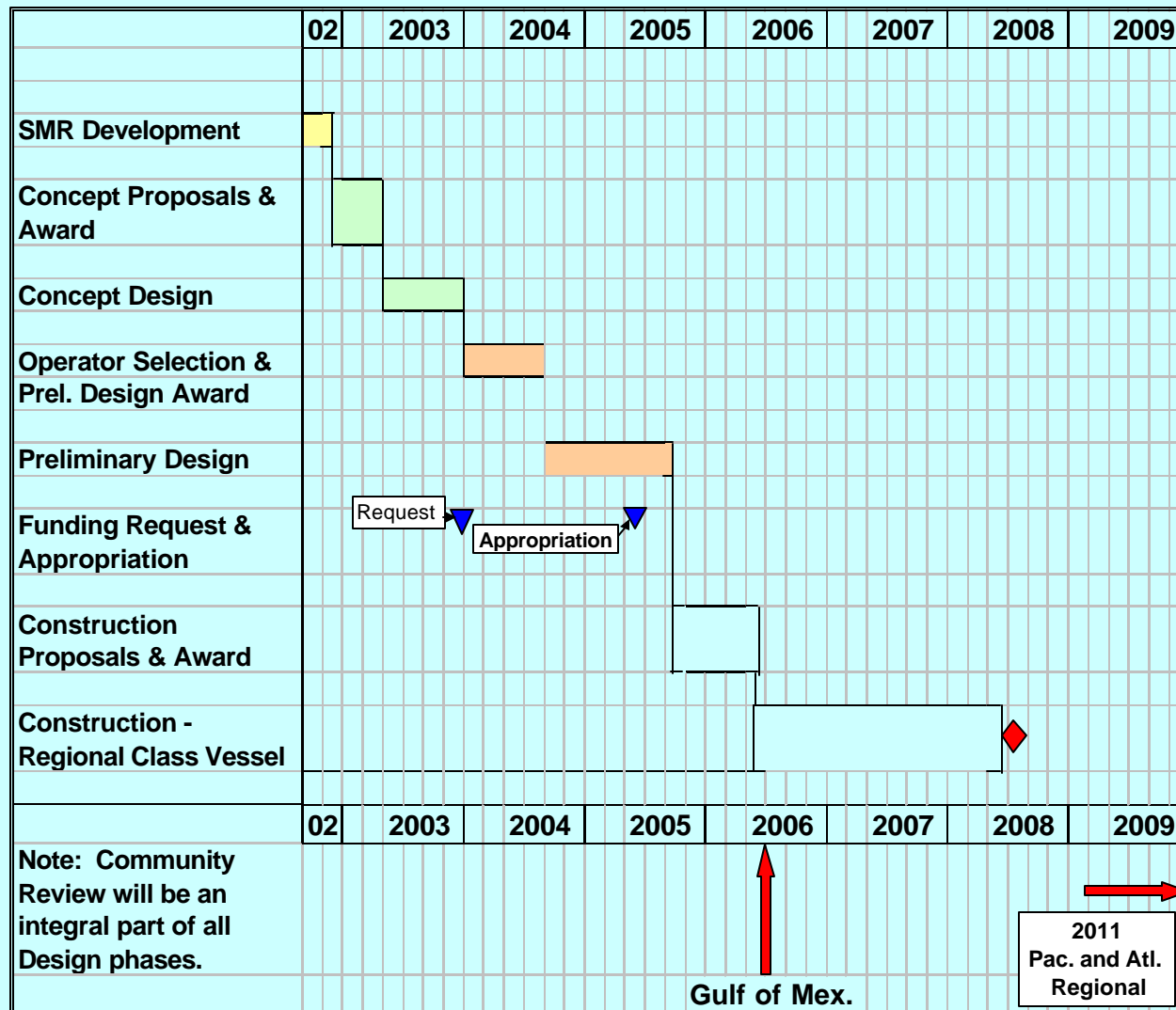
(Ready for Construction Award by October 1, 2005)

<b>Task</b>	<b>Duration</b>	<b>Completion</b>
SMR Development	Start 8/14/02 (~ 4 months)	12/1/02
Concept RFP and Award (multiple)	5 months	5/1/03
Concept Designs	8 months	1/1/04
Preliminary Design RFP, Award and Selection of Operator	8 months	9/1/04
Preliminary Design, preparation of Construction bid package	13 months	10/1/05
Construction RFP		10/1/05

# Design and Construction Timeline: Ocean Class



# Design and Construction Timeline: Regional Class



# UNOLS Working Group on Ocean Observatory Facility Needs

## Working Group Membership

- **Alan Chave** (WHOI), Chair –Hawaii-2 Observatory, seagoing oceanographer
- **Andy Bowen** (WHOI) – Deep Submergence Operations Group
- **Scott Glen** (Rutgers) – Coastal physical oceanographer involved with LEO-15
- **Wes Hill** (SIO) – Relief Captain for REVELLE
- **Mike Kosro** (OSU) – Seagoing coastal physical oceanographer
- **Gene Massion** (MBARI) – Mooring design and installation, observatory system mgr
- **Daniel Schwartz** (UWash) – Marine Sup. and former UNOLS ship captain
- **Ken Smith** (SIO) – Seagoing marine biologist, involved in H2O
- **Bill Wall** (International Telecom Group) – Cablesip and industry ROV experience
- **Beecher Wooding** (WHOI) – seagoing technical staff member, ~70 cruises
- **Peter Worcester** (SIO) – Mooring operations on and off UNOLS vessels
- TOGA/TAO Representative - TBD
- Mapping Representative – TBD

# Task Statement

1. Identify major observatory-related ship and submergence needs and describe the process that will be used to address these issues. Provide this as input to the NRC Observatory Committee prior to their final meeting on February 18, 2003.
2. Identify the requirements for facility support of ocean observatory systems. This should include requirements for both ships and submergence vehicles.
  - Pre-installation facility needs (i.e., mapping)
  - Installation:
  - Maintenance and servicing (includes observatory systems as well as ship and submergence vehicles in support of those systems)
  - Operation support
3. What requirements can be met with currently available academic assets (vessels and submergence vehicles), and what modifications or augmentation may be suggested including efficiencies that may be gained through contracts to industry?



# Task Statement (continued)

4. What are the anticipated changes in demand for facilities resulting from observatory initiatives?
5. Identify the specific observatory needs that cannot be met by currently available academic facilities.
6. For those observatory facility needs that cannot be met by currently available facilities, the working group should:
7. When are the facilities needed for installation, operation, and maintenance of the observatories? Establish a timeline.
8. Provide suggestions for the management, scheduling and operations of facilities related to observatory infrastructure. The ships will likely fall under the UNOLS system, but coordination of vehicles such as, AUVs and ROVs will need to be considered. It is assumed that the operation of the actual observing system will be managed by the organization that established the system.

# Working Group – Task Timeline

<b>1/24/03</b>	<b>Develop draft functional requirements for observatory facility needs.</b>
<b>Feb 03</b>	<b>Hold one working group meeting as needed.</b>
<b>2/13/03</b>	<b>Provide input to the NRC Observatory Committee – Identify major issues regarding observatory-related ship and submergence needs and provide a description of the process the UNOLS working group would use to address these issues.</b>
<b>2/28/03</b>	<b>Provide a status report to the UNOLS Council for their March 5-6 meeting.</b>
<b>4/14/03</b>	<b>Complete draft recommendations for community review and feedback. Broadly announce a call for feedback.</b>
<b>4/14 – 5/14/03</b>	<b>Community Input period</b>
<b>June 03</b>	<b>Working group meeting as needed to consider community input.</b>
<b>6/30/03</b>	<b>Finalize recommendations based on community feedback and complete final report on observatory facility needs.</b>

# Post Cruise Debrief Questions

The RV KILO MOANA is the first SWATH vessel in the UNOLS fleet. The unique characteristics of this vessel make at-sea operations different than normally done on a standard monohull vessel. As well, the design of a SWATH vessel puts constraints on the layout and operation of the vessel. This questionnaire is to evaluate the use of a SWATH vessel for oceanographic research and aid in any decision process of constructing future SWATH vessels and improvements to this platform.

# Post Cruise Debrief (continued)

There are numerous scientific operations conducted during a research cruise. For the operations listed below, please describe:

1. The sea-state in which the operation was conducted,
2. The method used,
3. Whether this method was done in a safer and more efficient way than would have been done on a monohull vessel,
4. Ways to improve the method used,
5. Whether the sea-keeping characteristics of the ship made it easier or more difficult to conduct the scientific operation,
6. Whether the layout of the deck and lab space made it easier or more difficult to conduct the scientific operation.

# Post Cruise Debrief (continued)

Please describe all of the different scientific operations conducted during the cruise. Examples are CTD casts, water sampling, coring (both piston and box), mooring deployment and recovery, towing of scientific packages (nets, CTD, ADCP, etc) and acoustic systems (ADCP, multibeam).

- A. What were the most positive aspects of your research cruise on the R/V KILO MOANA with a SWATH hull form compared to your previous experience on a monohull?
- B. What were the most negative aspects of your research cruise on the R/V KILO MOANA with a SWATH hull form compared to your previous experience on a monohull?
- C. Did you have difficulty loading/unloading the scientific gear from the ship?

# Post Cruise Debrief (continued)

- D. Were the labs adequate (location, size, accessibility) for you?
- E. Were the underway systems (thermosalograph, running seawater) working adequately?
- F. Were communications with the bridge, winch and crane operators easy to conduct?
- G. Were the accommodations adequate (e.g., size, location, accessibility)?
- H. Was the computer network system adequate?
  - Ease of hook-up?
  - Initial start-up?
  - Adequate access points across various labs, meeting rooms, staterooms and other areas

# Post Cruise Debrief (continued)

- I. What is the habitability of the lounge, staterooms, mess deck, and fitness room?
- J. Are there any noise and vibration feedback concerns?
- K. Were there ship vibrations or other motions that made it difficult to work and live on the ship?
- L. At any time, did you feel the ship was not sea-worthy at certain sea states? Were there times when you felt that you rather be on a monohull ship? A SWATH ship?
- M. Were deck crane and winch operations safe and efficient? Did it take more personnel to perform the operation that you expected?
- N. Were there any weight distributions problems with heavy science payload such as vans?

# Post Cruise Debrief (continued)

- O. Was dynamic positioning used? And was it useful?
- P. Were the multibeam or acoustic Doppler systems working properly under all conditions?
- Q. Were any heavy gear deployments undertaken such as moorings or sediment sampling?
- R. Were there any pre-cruise planning measures and shore facility communications that were necessary and unique to the SWATH operations?
- S. What advice would you give a colleague that was going to sail on a SWATH vessel such as the R/V KILO MOANA?
- T. Any additional comments?



# KILO MOANA – 2003 Schedule

<u>Dates - Debrief by</u>	<u>Area</u>	<u>Type of work</u>	<u>PI</u>
26 - 31 Mar - Measures	NP12/Hawaiian Is.	HOT Series	Karl, D./UHI
1 - 3 Apr - Slowey	NP12/Hawaiian Is.	Bottom Mapping	Kelley,C./UHI
17 Apr-22 May - Whitledge	NP6/North Pacific	FOCE	Stabeno/PMEL
23 May-17 Jun - Hebert	NP6/North Pacific	Recovery	Eble, M/PMEL
18 Jun - 5 Aug - Measures	NP6/N.Pacific	Carbon Isotopic	Popp, B./UHI
6 Aug - 8 Sep - Reimers	NP6/Bering Sea	Trace Metal	Bruland/UCSC
9 – 29 Sep - Whitledge	NP6/North Pacific	FOCI	Stabeno/NOAA
11 – 19 Oct - Measures	NP11/Hawaiian Is.	Student Cruise	Raleigh/UHI
22 – 28 Oct - Measures	NP11/Hawaiian Is.	HOT Series	Karl,D./UHI
30 Oct–19 Nov - Prince	NP12/North Pacific	MOBY	Clark/NOAA
21 – 26 Nov - Measures	NP11/Hawaiian Is.	HOT Series	Karl, D./UHI
28 Nov–4 Dec - Measures	NP11/Hawaii	Student Cruise	Raleigh/UHI
6 - 11 Dec - Slowey	NP11/Hawaiian Is.	Bottom Mapping	Kelley,C./UHI
13-17 Dec - Benner	NP11/Hawaiian Is.	Survey	Duennibier/UHI
18 - 23 Dec - Measures	NP11/Hawaiian Is.	HOT Series	Karl, D./UHI

# CAPE HATTERAS Mid-Life

- **Start Date: October 2002**
- **End Date: June 1, 2003**
- **Major Improvements:**
  - Renovation of main lab, wet lab, galley, mess, all cabins.
  - Relocation of deck crane from main deck to 01 deck
  - Creation of one 2-man stateroom
  - Replacement of HVAC, water piping
- **Total Budget: \$1,200,000**

# EWING Mid-Life Refit

- The proposal for *EWING's* midlife refit, submitted to NSF earlier this year, has been withdrawn. LDEO begins this process anew.
- We have received interim funding for some small 'deferred maintenance' upgrades to basic and safety related systems, but any science-related improvements will be decided upon following this ongoing process of review and discussion with the broader community.
- <http://www.ldeo.columbia.edu/Ewing/Home.html>  
“Technical Options Paper”

# EWING – Technical Options Paper

- Dynamic Positioning
- Multibeam/sidescan/acoustic capabilities FINAL
- Laboratories/ vans/ science berths/  
storage DRAFT 10/14/02
- Airgun array  
Improvements/replacement DRAFT
- Multiple streamers DRAFT
- New Design for 2-D System FINAL
- Computer infrastructure FINAL
- Deck layout/ winches/ cranes/ coring and over the  
side handling DRAFT 10/16/02

# FIC Membership Status

The UNOLS Charter requires that at least three FIC members be from UNOLS operator institutions, at least three members be from institutions or organizations other than operators, and two members be from any UNOLS institution.

**In 2003 there will be two vacancies on the FIC, both are for Non-operator Institution representatives. One of these vacancies is currently open. The other vacancy will open in the fall when Larry completes his term as Chair.**

# Current FIC membership

## UNOLS Operator Reps:

- **Dave Hebert, URI - Physical O. (9/99 – 9/05)**
- **Terry Whitley, U.Alaska – Arctic Research/Bio O. (7/00-9/04)**
- **Clare Reimers, OSU – Geochemistry (1/03-1/06)**

## Non-Operator Reps:

- **Larry Atkinson, ODU - Coastal/Physical O. (7/95-10/03)**
- **Ron Benner, (U. So. Carolina) – Microbiology (1/03-1/06)**

## Any UNOLS Inst:

- **Chris Measures, U. Hawaii - Chemical O. (9/98 – 9/04)**
- **Niall Slowey, TAMU – Geology (2/02 – 2/05)**

## Ex-Officio:

- **Joe Coburn, WHOI (Check to see if still willing to stay on FIC)**