

# UNOLS

## Fleet Improvement Committee

### September 25, 2002



National Science Foundation  
Arlington, VA

# FIC Tasks

- Proceed with SMR's – Community Input
- Keep the Renewal Process Moving
- Revise *Kilo Moana* debriefing questions and initiate process
- Recommend NSF/ONR support proposals to evaluate ship motion on SWATH and mono-hull vessels.
- FIC review of RV Cape Henlopen
- Call for nominations for new members of FIC

# Meeting Agenda

- **Fleet Capitalization**
- **Science Mission Requirements**
  - **Ocean Class and Regional Class Workshops**
  - **SMR issues**
  - **Next Steps**
- **Fleet Renewal**
  - **FOFC Implementation Plan**
  - **FIC Renewal Plan**
  - **KILO MOANA, ARRV, CAPE HENLOPEN Replacement, EWING Midlife**
  - **Navy's Scalable, Common Hull Study**
- **Other FIC Issues – Observatories, Quality of Service, Safety, FIC Membership**

# **Current FIC Goals**

- **Continue to move forward with Fleet Renewal Implementation in concert with NSF and the Navy.**
- **Provide suitable material (SMRs, white papers) to NSF, Navy, NOPP, other agencies and the community.**
- **Continue to urge agencies to develop capitalization plans.**
- **Keep the community involved via letters to EOS etc.**

# The Current Status

- **SMR Workshops for the Ocean and Regional Class vessels have been held and draft SMRs are available.**
- **Navy Scalable, Common Hull Study in progress**
- **NSF developing capitalization plans**
- **Fleet Renewal Efforts in Progress**
  - **KILO MOANA**
  - **ARRV**
  - **CAPE HENLOPEN**
  - **EWING Midlife Refit Workshop**

# Fleet Capitalization

- **National Defense Authorization Act**
- **NSF Capitalization Plans – Regional Vessels**
- **ARRV Construction Status?**
- **FIC's Role**

# **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.”**



# FOFC Plan

Figure 17. Proposed schedule for new construction.



# Revised FOFC Ship Classification

<b>Ship Performance</b>	<b>Global Class</b>	<b>Ocean Class</b>	<b>Regional Class</b>	<b>Local Class</b>
Endurance .....	50 days .....	40 days .....	30 days .....	20 days
Range .....	25,000 km .....	20,000 km .....	15,000 km .....	10,000 km
Length .....	70-90 m .....	55-70 m .....	40-55 m .....	< 40 m
Science berths .....	30-35 .....	20-25 .....	15-20 .....	15 or less

# New Recommended Classes

- **Global Class:** high-endurance vessels, operating worldwide.
- **Ocean Class:** Replacement for the “Intermediate” ships with vessels of increased endurance, technological capability, and number of science berths. These will be ocean-going vessels, though not globally ranging.
- **Regional Class:** ships will work in and near the continental margins and coastal zone, but with improved technology and more science berths than in current, comparably sized vessels.
- **Local Class** ships will fulfill near-shore needs that do not require larger or higher-endurance ships.

# The Cost for Renewal

<b>Ship Class (Est. \$/ship)</b>	<b>FOFC # of Vessels</b>	<b>FOFC Cost Estimate</b>	<b>UNOLS # of Vessels</b>	<b>UNOLS Cost Estimate</b>
Global (\$70M)	1	\$70M	3	\$210M
Ocean (\$50M)	5 **	\$250M	5 **	\$250M
Regional (\$25M)	3	\$75M	4	\$100
<b>Total Over Next 20 Years</b>	<b>9</b>	<b>\$395M</b>	<b>12</b>	<b>\$560M</b>
** Total does not include KILO MOANA				

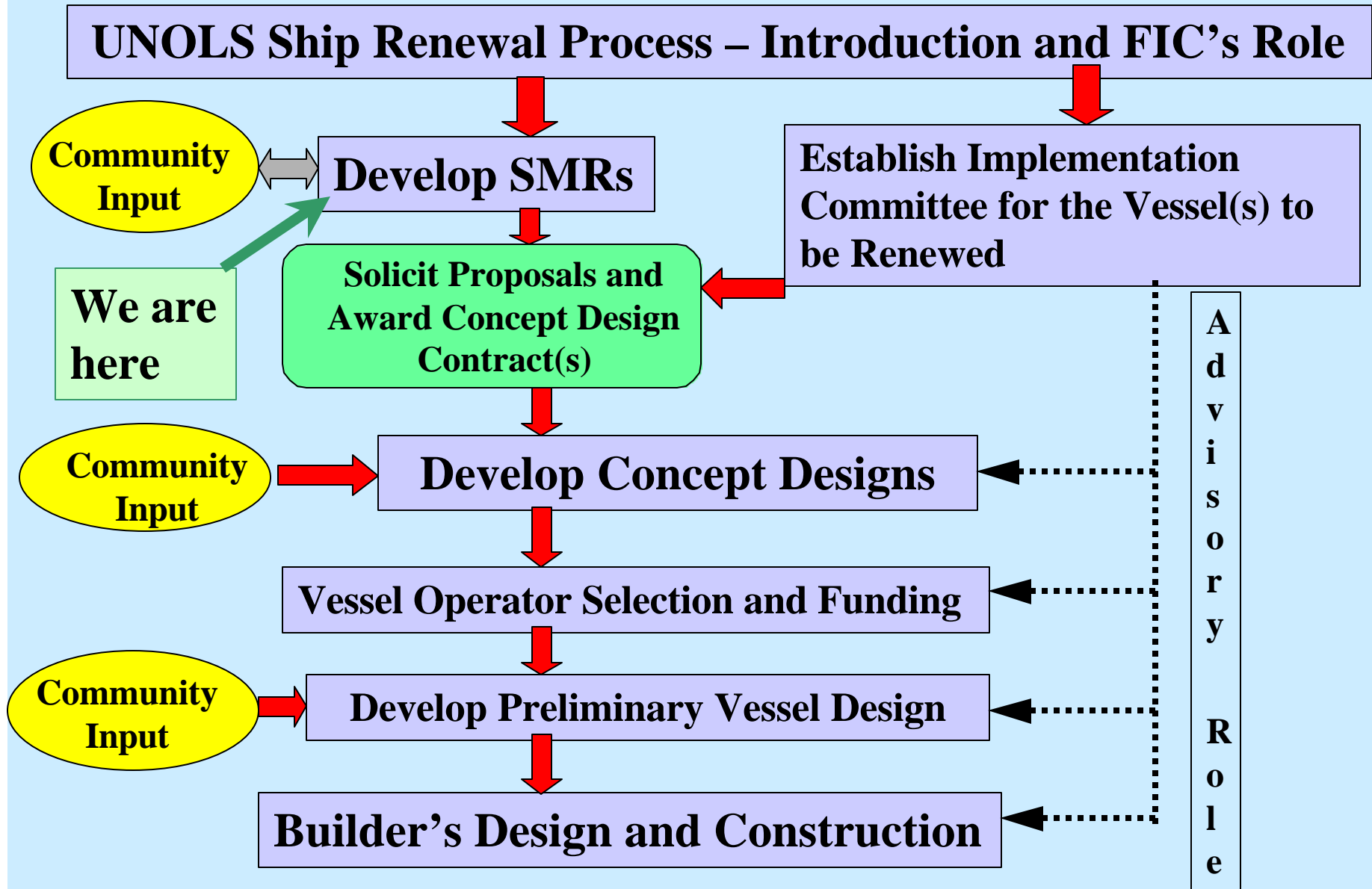
## Ocean Class Research Vessel PROGRAM COST DISTRIBUTION

	"Low Risk Model"	
Design, Incl. Model Tests & support during const	10%	\$ 5,000,000
Management: Program, contracting & on site	5%	\$ 2,500,000
Initial Outfit - ship's gear & spares	4%	\$ 2,000,000
Science outfit	5%	\$ 2,500,000
<b>Construction</b>	<b>63%</b>	<b>\$ 31,500,000</b>
Reserve, Change Orders, etc.	8%	\$ 4,000,000
Mission Trials 60 day operations with science	2%	\$ 1,000,000
Post Shakedown Availability	3%	\$ 1,500,000
<b>Total Program</b>	<b>100%</b>	<b>\$ 50,000,000</b>

## Regional Class Research Vessel PROGRAM COST DISTRIBUTION

	"Low Risk Model"	
Design, Incl. Model Tests & support during const	10%	\$ 2,500,000
Management: Program, contracting & on site	5%	\$ 1,250,000
Initial Outfit - ship's gear & spares	4%	\$ 1,000,000
Science outfit	5%	\$ 1,250,000
<b>Construction</b>	<b>63%</b>	<b>\$ 15,750,000</b>
Reserve, Change Orders, etc.	8%	\$ 2,000,000
Mission Trials 60 day operations with science	2%	\$ 500,000
Post Shakedown Availability	3%	\$ 750,000
<b>Total Program</b>	<b>100%</b>	<b>\$ 25,000,000</b>

# FIC Roadmap



# FIC Implementation Plan

- **Develop SMRs**

- **Assess current inventory of SMRs**
- **Develop SMR template of necessary elements**
- **Generate (or update) general SMR's by Vessel Class**
- **BROAD COMMUNITY INPUT**
- **Evolve to Specific SMR's by Region, Ocean or Special Purpose**
- **Review by Steering Committee, FIC, community and agencies.**
- **Finalize, publish, review and periodically update**

  
**We  
are  
here**



# Science Mission Requirements

## Status:

- Ocean and Regional Class Workshops have been held
- SMRs have been drafted
- Identify issues
- Prioritization needed
- **COMMUNITY INPUT** strategy needed

# Ocean Class Workshop

Dave Hebert to Report:

- Workshop Overview
- Summary of Ocean Class SMR Parameters
- Identify any areas requiring additional attention
- Is there currently a consensus?

# Agenda

## Ocean Class Research Vessel Science Mission Requirement Workshop

**23 July 2002**

**0730 Coffee/Juice/Pastries**

- Welcome
- Introduction/Opening Remarks
- Introductions around the room
- Discuss the Workshop purpose, scope and expected results of the meeting
- Purpose and Background information on Science Mission Requirements
  - Parameters of the Ocean Class from FOFC report
  - Review SMRs from KILO MOANA, ARRV, and draft FIC effort for Intermediate ships replacement
  - Review Community SMR Input
  - Presentation of sample ship requirements (required lab space, range, endurance, speed) for future Ocean Class cruises
  - FOFC Characteristics,
  - Fleet projections and FOFC renewal plan,
  - UNOLS Ship Specifications
  - Listing of SMR parameters

Break

- Continue review of existing SMRs (KILO MOANA , ARRV, Endeavor) and Draft OC SMRs, trends/projections and community input.

**1200**

**Lunch**

- Operational feasibility of desired features and Navy Scalable Common Hull Study (Naval Architectural Input) – (Dan Rolland)
- Commence developing SMRs for a new Ocean Class
- Using the Draft Ocean Class SMRs address each parameter separately. Review community comments.
  - Accommodations
  - Endurance/Range
  - Speed
  - Laboratory Space
  - Deck Work space
  - Deck loading and handling
  - Equipment needs
- Any other design/mission requirements not addressed

**1700**

**Adjourn for the day**

**24 July 2002**

**0730**      Coffee/Juice/Pastries  
Continue deve loping SMRs

**1000**      **Break**  
Prioritize each SMR

**1200**      **Lunch**

- Continue deve lopment of SMRs
- Arrive at a consensus fo r Ocean Class SMRs
- "What's Next?"
  - Reorganization of Steering Co mmittee
  - Next steps for Steering Co mmittee and co mmunity

**1530**      **Adjourn**

# Participants

Scientists	Operators	Agency/Other
Bill Cochlan (SFSU)	Thomas Althouse (SIO)	Emma Dieter (NSF)
James Cochran (LDEO)	John Bash (URI)	John Freitag (ONR)
Timothy Cowles (OSU)	Dale Chayes (LDEO)	Shellene Johnson (NAVSEA)
Charles Flagg (BNL)	Joe Coburn (WHOI)	Pete Kilroy (NAVSEA)
Daniel Fornari (WHOI)	Paul Ljunggren (LDEO)	James Mechan (NMFS)
Dennis Hansell (RSMAS)		Tim Pfeiffer (ONR)
David Hebert (URI)		Michael Reeve (NSF)
Robert Knox (UCSD)		Daniel Rolland (JIMA)
Craig Lee (UW)		
Stephen Miller (SIO)		Mike Prince (UNOLS)
Rob Pinkel (SIO)		

# Science Mission Requirements

## **Mission statement, size and general requirements**

### **Accommodations and habitability**

Accommodations – crew & non-crew;  
Habitability

### **Operational characteristics**

Endurance; Range; Speed; Sea keeping;  
Station keeping; Track line following;  
Ship control; Ice strengthening

### **Over-the-side and weight handling**

Over the side handling; Winches; Wires;  
Cranes; Towing

### **Science working spaces**

Working deck area  
Laboratories: Type & number; Layout &  
construction; Services  
Vans; Storage; Science load; Work boats;  
Masts; On deck incubations  
Marine mammal/bird observations

## **Science and shipboard systems**

Navigation; Data network and onboard  
computing; Real time data acquisition system;  
Communications - internal;  
Communications – external;  
U/W data collection & sampling;  
Acoustic systems; Visiting system installation  
and power; Discharges

## **Construction, operation & maintenance**

Maintainability; Operability; Life cycle costs;  
Regulatory issues

# Time Line

1. Mike create very rough draft of SMRs and workshop minutes. Workshop participants review and comment on rough draft. (By first week of August)
2. Research various questions raised during the workshop; determine how to specify certain SMR criteria such as noise, sea keeping, station keeping, etc. (Office with help by end of August)
3. Create mission scenarios for developing SMR parameters. (Workshop participants & selected others by mid August)
4. More background information on the relationships between speed, accommodations, range, endurance and their impact on size and cost. (Office with help by mid August)
5. Create second draft based on workshop participant input and ballot for rank ordering of SMR parameters. (Office by end of August)
6. Workshop Participants review and comment on second draft. Vote on rank ordering of SMR parameters. (by middle of Sept.)



## Time Line (continued)

7. Workshop Participants review and comment on second draft. Vote on rank ordering of SMR parameters. (by middle of Sept.)
8. Create final draft for community review. Office (early October)
9. Workshop Participants review and approve for community input. (by mid-October)
10. Receive community input by Mid November.
11. Incorporate community input in to revised draft (end of November)
12. Review and approve resulting changes
13. Present at AGU and in other venues such as EOS. (Dec/Jan)
14. FIC and Council approve (Jan 03)
15. Submit final report to community and funding agencies (Jan 03)

# Regional Class Workshop

Niall Slowey to Report:

- Workshop Overview
- Summary of Regional Class SMR Parameters
- Identify any areas requiring additional attention
- Identify areas where consensus could not be reached

# **Ocean Class and Regional Class SMRs**

## **~ Issues Requiring Additional Attention ~**

- Identify areas where consensus could not be reached
- Regulatory Concerns (<500 GT)
- The “Gap” - Should the Regional Class be a “class” of vessels that are identical or nearly identical?
- Geographic Differences
- Other Issues?

# SMR Areas lacking consensus

## Ocean Class

- How big?
  - Many pushing for Global class capabilities
  - Others want Intermediate style ops
- # of non-crew berths
  - A few want 30 or more
  - Some want fewer with better rooms
  - Most are happy with the 25
- Endurance & range
  - A few want more than 40 days and more than 20,000 n.miles
- Equipment handling
  - Do we need to handle ROPOS
  - Offload vans with ship's crane?
- Lab types and sizes
  - Multiple vs fewer large
- Storage & science load
  - Are values too big?

## Regional Class

- How big?
  - Middle of the range ~ 160 ft?
  - Stay under 500 GT? <140ft?
  - Need closer to 180 ft
- # of non-crew berths
  - A few want 24
  - Most are happy with the 16 - 20
- Endurance & range
  - Numbers are not a problem
  - Some want these vessels to operate beyond the shelf
- Berthing Vans
  - Vans offer surge capacity
  - Others hate vans, don't want them used
- Lab types and sizes
  - What type are needed, large or multiple
- Storage & science load
  - Are values too big? Do we need storage? combine with other purposes?

## SMR Areas that need closer attention to the details

- **Speed**
  - Ranges ok, speed control values realistic
- **Seakeeping**
  - May need better definitions of terms (RMS) and tied to existing vessel performance, check actual values, specify type of work and best heading for some criteria.
- **Station keeping**
  - Are limits realistic and required?
- **Trackline following**
  - Crab angle, speed, distance off track
- **Ice strengthening (Ocean Class only)**
  - specify classification?
- **Weight handling & Cranes**
  - Are values realistic and how do they compare to existing?
  - Define minimum (required) and desired (maximum) values
- **Towing**
  - Do values relate to actual experience?

## SMR Areas that need closer attention to the details

- Deck, labs & storage size (square or cubic footage)
  - Review to be sure sizes are realistic and how they compare to existing.
- Deck and bolt down strength
  - Is ABS criteria for deck strength adequate, higher point loads?
  - What is the required strength rating for 1” bolt down sockets?
- HVAC, noise and other environmental standards
  - Cite specific standards or references or at least refer to them as current examples.
- Electrical for labs, vans and decks
  - Verify required voltages, amps, etc. and specify quality (droop, freq)
- Acoustic systems
  - One degree resolution for multi-beam?
  - Are we be specific enough or too specific for all system?
- **Maintainability, operability, life cycle costs and regulatory issues**
  - Need operator review and input on these sections
- **Mission scenarios and regional/ocean differences**
  - Need more scenarios and better definition of regional differences

# Next Steps in SMR Process

- **Establish/review Timelines**
- **Prioritization of SMR Parameters**
- **Formalize Mechanism for Community Review of Draft SMRs**
- **Review Steering Committee Membership and future role**
- **Are additional SMRs Needed?**
  - **To address regional needs**
  - **In general**

# 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



# Regional Class SMR Timetable

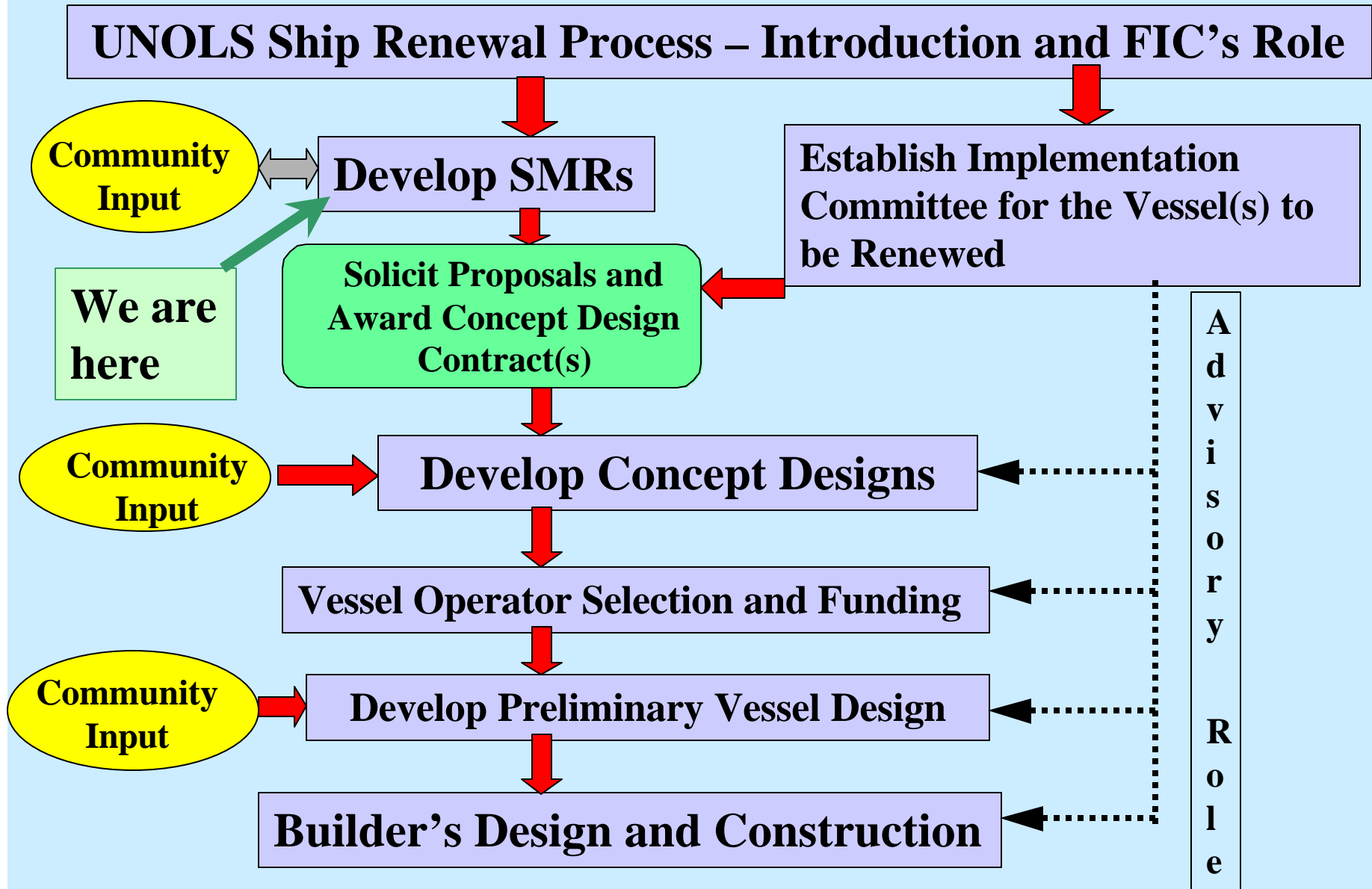
<b>Revise draft SMRs based on workshop input. Draft mission scenarios.</b>	<b>18 September 02</b>
<b>Prepare ballot for rank ordering of SMR parameters.</b>	<b>4 October 02</b>
<b>Workshop Participants review and comment on latest draft. Vote on rank ordering of SMR parameters.</b>	<b>11 October 02</b>
<b>Create final draft for community review.</b>	<b>18 October 02</b>
<b>Workshop Participants review and approve for community input.</b>	<b>22 October 02</b>
<b>Broadly distribute for community input.</b>	<b>15 November 02</b>
<b>Incorporate community input in to revised draft.</b>	<b>22 November 02</b>
<b>FIC and Council approve</b>	<b>29 November 02</b>
<b>Submit final report to community and funding agencies</b>	<b>1 December 02</b>

# Navy

## Scalable, Common Hull Study

**To reduce the Navy's acquisition cost for new oceanographic ships by investigating the feasibility of using a common hull platform for future T-AGS(X) and UNOLS Ocean Class ships.**

# FIC Roadmap - revisited



# Our proposed process

- ✓ • **FIC identification of Fleet renewal needs**
- ✓ • **Establish Implementation Committee (ICom) for each Vessel Class or Vessel to be constructed**
  - **Provide guidance and leadership for executing the design and construction of a vessel or class of vessels.**
- **Develop SMRs**
  - ✓ – **Assess current inventory of SMRs**
  - ✓ – **Develop SMR template of necessary elements**
  - ✓ – **Generate (or update) general SMR's by Vessel Class**
  - **BROAD COMMUNITY INPUT**
  - **Evolve to Specific SMR's by Region, Ocean or Special Purpose**
  - **Review by ICom, FIC, community and agencies.**
  - **Finalize, publish, review and periodically update**

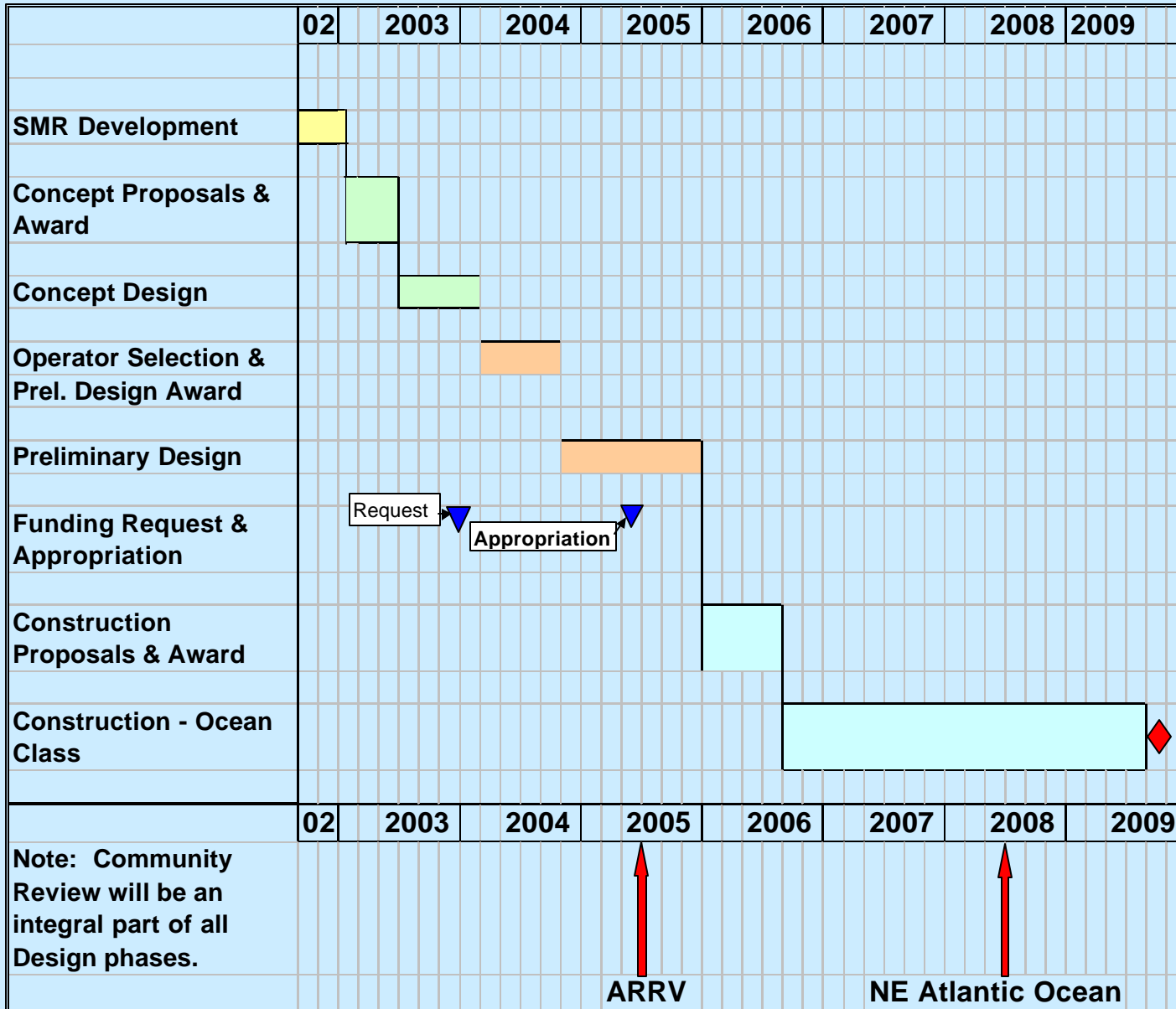
# Our proposed process (continued)

- D**  
**I**  
**S**  
**C**  
**U**  
**S**  
**S**
- **Develop Concept Designs**
    - Based on SMRs
    - Solicit proposals from institution/architect teams (award may be to one or more)
    - Formal mechanism for community review during development
    - Finalize and publish
    - Use as a basis for operator selection and appropriation
  - **Operator Selection and Funding**
  - **Develop Preliminary Designs**
  - **Builder's Design and Construction**

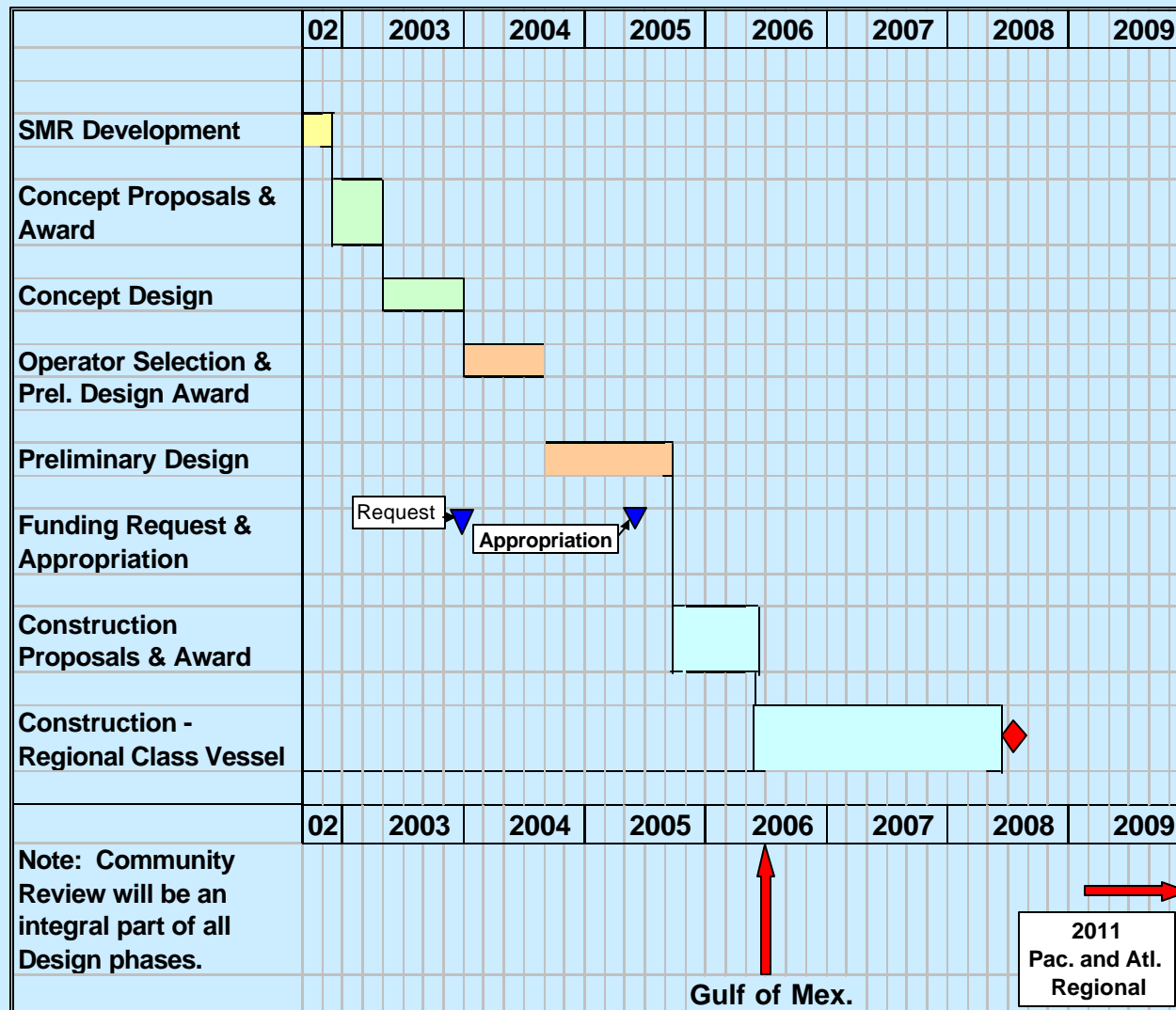
# FINISH SMR's! STAY FOCUSSED

- Get community input to SMR's
  - Prepare short summary and table of SMR's
  - Get article in EOS for both SMR's. Next slide
  - Regional Class
    - Add section upfront noting regional differences
    - Because of NSF deadlines we need process completed by 12/1/02. Approval by email by FIC
  - Ocean Class
    - Available at AGU/San Francisco
    - FIC approval at winter meeting.

# Design and Construction Timeline: Ocean Class



# Design and Construction Timeline: Regional Class





# Keep the Process Moving

## ~Conceptual Design~

- Encourage Agencies to proceed to Conceptual Design phase now
- Conceptual Design Development Strategy – various options:
  - Agencies fund various concept design efforts independently.
  - Agencies fund UNOLS Office to coordinate effort and award multiple concept design efforts
  - Agencies fund on institution to oversee effort and award multiple concept design projects
- Common Theme – Must establish formal mechanism for Community Input

# **Role of Ocean Science Community**

- Participate in the SMR process.  
Whether you are on committees or not you can have influence.
- Talk with your UNOLS representative occasionally.
- Stay informed.

# Other Renewal Activities

- R/V *Kilo Moana* – Construction Complete
- Alaska Region Research Vessel – Preliminary Design development
- *Cape Henlopen* Replacement
- *Ewing* Midlife Refit Plans
- Many smaller, capable coastal vessels.

# R/V FAY SLOVER - ODU Vessel

## 8,400 lbs over the stern



# R/V SLOVER – Dock and Sea Trials



# Kilo Moana Shakedown Planning

- Goal - assure adequate assessment by oceanographers for oceanographers
- Process
  - Post Cruise Debrief Interviews
  - Science Systems Testing
  - Hull Evaluation

# KILO MOANA 2002 Schedule

<b>Dates</b>	<b>PI</b>	<b>Area</b>	<b>Program</b>	<b>Days</b>
9/22-10/18	Michaels, A.	NP10, NP11, NP12	Oceanic N2 Fixation	26
10/21- 11/15	Moen, P.	N. Pac	NWHI Mapping	25
11/29-12/1	Taylor, B.	Hawaii	IMI	2
Many	Karl, D.	Hawaiian Is.	HOTS	Many



# KILO MOANA 2003 – Tentative Schedule

<b>Dates</b>	<b>PI</b>	<b>Area</b>	<b>Program</b>	<b>Days</b>
Many	Karl, D.	Hawaiian Is.	HOTS	Many
1-17 Mar	Stein, P.	Hawaiian Is.	Acoustic Comms	16
20-25 Mar	Prahl	Hawaiian Is.	Alkenone Prod.	5
4-14 Apr	Raleigh	Hawaiian Is.	Student Cruise	10
1-5 Dec				4
4 May – 8 Jun	Stabeno, P.	NP6 NPac	FOCI	36
9/26 – 16 Oct		(Alaska)		21
8 Jun- 3 Jul	Eble, M	NP6 NPac	Recovery	26
4 Jul – 21 Aug	Popp, B.	NP6 NPac	Carbon Isotop.	47
22Aug – 25 Sep	Bruland, K.	Bering Sea	Trace Metal	34
13-17 Dec	Duennibier, F.	Hawaiian Is.	Survey	5



# 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. Were there ship vibrations or other motions that made it difficult to work and live on the ship?
- I. 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?

# Post Cruise Debrief (continued)

- J. Were deck crane and winch operations safe and efficient?  
Did it take more personnel to perform the operation that you expected?
- K. Were there any weight distributions problems with heavy science payload such as vans?
- L. Was dynamic positioning used? And was it useful?
- M. Were the multibeam or acoustic Doppler systems working properly under all conditions?
- N. Were any heavy gear deployments undertaken such as moorings or sediment sampling?

# Post Cruise Debrief (continued)

- O. Were there any pre-cruise planning measures and shore facility communications that were necessary and unique to the SWATH operations?
- P. What advice would you give a colleague that was going to sail on a SWATH vessel such as the R/V KILO MOANA?
- Q. Any additional comments?

# FIC Membership

## **UNOLS Operator Reps:**

**Dave Hebert, URI - Physical O. (9/99 – 9/02)**

**->Bill Smethie, LDEO – Marine Geochemistry (10/96 – 10/02)**

**Terry Whitley, U.Alaska – Arctic Research/Bio O. (7/00-9/04)**

## **Non-Operator Reps:**

**Larry Atkinson, ODU - Coastal/Physical O. (7/95-10/03)**

**->Mark Brzezinski, UCSB - Biological O. (9/99-9/02)**

## **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**

# FIC Membership

**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. Terms for all members are three years, for no more than two consecutive terms.**

- The two vacancies on the FIC are both for Non-operator Institution representatives.**
- An individual with a biology background would be beneficial for one of the FIC positions.**
- An individual from the West Coast is also desired for one of the positions.**
- Individuals with an interest in Fleet Renewal issues (particularly the Ocean Class and Regional Class efforts) should be considered.**

**Note: Bill Smethie will complete 2<sup>nd</sup> term in October 02 – will need to fill Operator position: Discipline = geochemistry**



## **3. Plan for Future Facilities (New Opportunities and Facilities)**

### ***3.1 Fleet Renewal Process***

- **Assist in the implementation of the FOFC fleet renewal plan. Develop a recommended approach to design and construction of new vessels.**
- **Promote the budgeting of ship design and construction funds.**
- **Continue the development of SMRs for Ocean Class and Regional Class R/Vs and identify regional differences through workshops, community input and follow up by FIC and SMR steering committees.**
- **Promote concept design development for new vessels.**
- **Support efforts for community input by institutions and agencies currently involved in design and planning efforts such as Univ. of Delaware and the Univ. of Alaska**
- **Contribute to the Navy's Scalable Common Hull Study**

## ***3.2 Assess the need for and impact of new facilities for Ocean Sciences***

- **Monitor and stay engaged with the development of “Ocean Observatories”**
- **Examine the possibility of other new uses of research vessels related to observatories and other new observing and sampling instruments such as gliders, AUVs, drifters and other potentially important technologies, including but not limited to nanotechnology, fuel cells, improved batteries.**
- **Examine the long-term impacts that Ocean Observatories and other new systems will have on the scheduling process, consider a new scheduling paradigm.**