

**UNOLS COUNCIL MEETING**  
**Wed. Feb. 27 & Thurs. Feb. 28, 2002**  
**Jacksonville University**  
**Reid Medical Science Center**  
**Room 210**  
**2800 University Blvd. North**  
**Jacksonville, FL**

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**Wednesday February 27, 2002**

**Call the Meeting** - Bob Knox, Chair of UNOLS, called the meeting of the UNOLS Council to order at 0830. The meeting followed the Agenda attached as [Appendix I](#). Introductions were made around the room, and a list of attendees is included as [Appendix II](#). The meeting host, Dr. A. Quinton White, Dean of the College of Arts and Sciences at Jacksonville University made a few welcoming remarks.

**UNOLS Issues and Discussion Items:**

**Fleet Renewal Plan Implementation – Robert A. Knox, UNOLS Chair**

Bob provided the introduction and displayed the FOFC Plan that was published in December 2001. Discussion centered on implementation and how this should be accomplished now. Bob stated that the Navy has expressed interest in building ships and are exploring whether the Ocean Class ships can be coupled with the designs of the Navy Survey ships. Bob highlighted Figure 17 from the FOFC brochure that shows the proposed schedule for new ship construction 2000-2020. He indicated that with the exception of KILO MOANA (AGOR 26), no construction money has been identified.

**Implementation of the FOFC Fleet Renewal Plan: Agency activities and intentions –**

**Office of Naval Research (ONR - Dr. Frank Herr)**

Dr. Herr provided a statement about the ONR/Navy view of the importance of Fleet Renewal. The process of ship renewal is at the very beginning and at this point in time, it is unknown exactly how it will end. RADM Jay Cohen, Chief of the Office of Naval Research (ONR) supports this process and is a strong proponent for renewing the fleet. The challenge is finding large financial support needed to rebuild the ships. He also discussed the ideal scenario where the Federal Agencies agree that ships will be built according to the FOFC plan and agree as to which agency will build them versus the less than ideal world in which

individual institutions protect their own interests and pursue funds through earmarking. Dr. Herr believes that the Fleet Renewal Plan is the road map that should lead the Federal Agencies, institutions and Congress as close to the ideal scenario as possible.

It was noted that RADM Cohen and Dr. Rita Colwell, Director of the National Science Foundation (NSF) plan to speak before the CORE Board of Governors regarding fleet renewal on April 10, 2002.

Dr. Herr states that it was uncertain before this point as to whether ONR would be involved, but now RADM Cohen has decided that ONR should be involved in the Fleet Renewal process. Having made the decision that the Navy should take a strong role, ONR is looking at opportunities for buying lower cost assets that will both meet Navy research needs as well as the Ocean Class requirements. ONR sees the need to get this part of the Fleet Renewal process going now. We need to get the Ocean Class vessels built in the next decade. If ONR does not get something into the Navy's budget request this spring for the FY 2004 budget, then the next opportunity would be for the FY 2006 budget because of the two-year cycle of the Navy's budgeting process. It may still be difficult, but ONR is going to do everything they can to get this in the budget. If all goes well, funds could be available in 2004-2005. The reality is that it is going to be difficult to get this through the Navy process due to competing demands. Ship construction money could be placed through one of two options: 1) Use the regular Navy Ship Construction Cost (SCN) accounts or 2) Use the Navy's RTDE accounts which would be similar to the KILO MOANA (AGOR 26) process. Dr. Herr plans to go forward with the formal Navy budget formulation process and then it will become a competitive process within the Navy.

ONR also wants to make certain that ships or classes of ships that the Navy builds are representative of what the community will be comfortable with operating and that fit with the FOFC plan. So, community involvement is needed. ONR proposes there be a working group for a four to six month study, that would include ONR, NSF, A UNOLS/FIC member, NOAA, USCG and others, to look at the feasibility of developing an Ocean Class vessel that might be scalable to a larger Navy Multi-Mission Survey Vessel. They presented the proposal for what they are calling an "Oceanographic Ship Common Scalable Hull Study." This proposal is posted at: <<http://www.unols.org/fic/ficmt202/append4.pdf>>. All parties must work together to develop Science Mission Requirements (SMR). The Science Mission Requirements would predicate the design features of the ship. ONR would also consider looking at the feasibility of a Regional Class of vessels that might meet their needs as well. There are no preconceived notions about what sort of hull form would be used and ONR wants all forms considered in order to get a Rough Order of Magnitude (ROM) of costs for these different hull forms. ONR is depending on UNOLS to help define the mission requirements for these vessels. Discussion then centered on the process that was used for KILO MOANA, and how that was a productive way to proceed.

Within the Navy, the Oceanographer would like to build new, larger multi-mission survey vessels (TAGS-X). They have an SCN line item for these vessels, but they know it would be more expensive to go this route than the RTDE process. The Navy multi-mission vessels will be much larger than their current survey ships. The CNR and the Oceanographer would use this Common Hull feasibility study to determine if the requirements for the two classes of ships were similar enough to warrant funding them under the same program.

ONR has also been looking at various new technologies for some time and they would like to explore the idea of using new ships at the beginning of their lives as demonstration projects for new technologies. If the new technology was not compatible with the normal operation of the vessel as a research vessel, it would be removed and the ship would then be delivered to the operator. However, most of the technologies they are thinking about would probably be of interest to the operators if they were successful since many of them are oriented towards increasing service life and maintainability. The types of things being considered include fuel cells, new hull coatings, and ship operating methods that would reduce manning requirements. Not all technologies are invasive. The drawback to this type of program is that it would delay delivery time of the vessel to operators for science. The time period would have to be built into the process and the budget.

Dr. Herr reiterated that the fleet renewal process is in the earliest stages, but that ONR's philosophy is that there is a big financial benefit to operating and building vessels as a class of four or more ships.

### **National Science Foundation (NSF) – Dr. James A. Yoder and Dr. Michael R. Reeve**

Dr. Yoder spoke about the good relationship that has developed between NSF and ONR with respect to fleet renewal and said that this goes to the very top with RADM Cohen and Dr. Rita Colwell meeting on a regular basis, most recently this past Friday. Routine talk has begun to center around implementing the FOFC plan at all levels. The proposed feasibility study on scalable designs is something that NSF thinks is important and they are pleased that the Navy is taking the lead. NSF intends to be supportive of the effort.

Dr. Yoder continued by explaining that NSF's process for funding major pieces of equipment is the Major Research Equipment (MRE) account process. Currently, there are a number of large facilities requesting MRE account funds such as Earth Scope, aircraft for NCAR, Ocean Observatories, and the Ocean Drilling Program. Earth Scope is in the President's budget for 2003 and they hope that Ocean Observatories will be in the budget for 2004. All of these are major initiatives that are very expensive. NSF Ocean Sciences is not in a good position to add new large facilities to the MRE budget account. They must first get the current items out of the queue before they can put ships into the MRE budget. This is the major constraint. Rita Colwell has had meetings with Alaska representatives and has indicated that she intends to try and put Alaska Region Research Vessel (ARRV) funding in the budget in the near future as soon as they see the opening. She has indicated that she would like to see that NSF builds this ship. Still, this must be treated as an MRE and they cannot, at this point say which year it could enter into the budget. The unique features of this ship and its intended operating area have excluded it from being considered in the Navy's common hull study at this time.

Another vessel that NSF would consider future funding for is the Seismic vessel since it is somewhat specialized and would not necessarily fit in a "class" design.

The other area that NSF is thinking about being more actively involved is with the design and construction of the Regional Class vessels, especially if they can be built for less than 25 million. There is a possibility this could be done without going through the MRE process, perhaps as a two-year funding or in partnership with the Navy. It is possible that these would be designed and built individually or as a class. Jim made the point that the FOFC plan is really only a couple of months old and they feel a lot of progress has already been made. It

may be a couple of years before they can figure out to what extent they will be able to pursue this effort.

## **DISCUSSION:**

Bob Knox - Since we are now aware of the \$25M cap on the Regional Class vessel – FIC needs to keep this in this mind when developing SMRs.

Frank Herr - The Ocean Class vessel might someday be a capable replacement for many of the Global ships.

Wilf Gardner to Frank Herr - You indicated that they would try to get this into the 2004 budget. Would the four Regional vessels be included? Dr. Herr responded that his approach would be to get authorization for the renewal plan and money for one or two ships. The contracts would then be set up for one or two ships with options for more. The 2004 budget would likely be for construction of one ship. Dr. Herr also stated that they would be obligated to set up a competitive process for this operation. Turning in one ship would likely be required.

Dennis Hansell – There are institutions that do not operate Intermediate ships – how do they compete? Dr. Herr responded that the Agencies do not want the fleet to grow in size. (Dennis emphasized that the competition needs to be open). (Response) Frank Herr: They have been considering this. Their goal is to keep the fleet capable, but not overly capable. The Navy would have to set the parameters for selection.

Mike Prince to Jim Yoder -What about the possibility of dividing the costs of Regional ship construction into pieces to stay within the \$25M cap? Jim replied that this could be explored along with other possibilities such as partnering with the Navy. Keeping the cost down would also work towards limiting operating costs. The possibility of using cost sharing would also benefit keeping the budget under \$25 million to the Federal Government.

## **At this point RADM Jay M. Cohen, Chief-ONR joined the meeting via telephone conference call:**

RADM Cohen introduced himself and discussed his background.

He mentioned a cost of \$60 million for Ocean Class vessels and \$35 million for Regional vessels. He said that he has shared his proposals with Rita Colwell. Today he met with RADM West. RADM Cohen states that we must have a viable UNOLS fleet and that we be united in this effort. He says that there are affordability issues that come to mind. What is a reasonable approach? He mentions that he is a SWATH fan, but says that one size doesn't fit all. He thought it was important to establish a baseline design for the Ocean Class. Then use the same approach for Regional ships. Then we would have available the material needed to proceed with a contract. How would the community decide who operates the ships. What should be the color of money – RD&T or SCN?

He stated that in talking with Rita Colwell, it became clear that NSF spends \$50M for ship operations and ONR spends \$10M. He says that that Navy should build these ships and he would like to proceed with development: Get the Plan written into an authorization bill in

2003 and put in a POM for 2004 for ship construction money. They would alternate requests between Regional and Ocean Class. The Regional ships would be in the \$30-\$40M range. The Ocean Class would be in the \$50M+. Whatever design we come up with he hopes that the design will allow roll-on/roll-off. He also said that the open-architecture design would lower the construction cost. He discussed the air sea interface needs and that new ocean ships with the open architecture design can address these needs. It may be possible that the Navy might be interested in acquiring both Regional and Ocean Class vessels.

Regarding the Alaska Region Research Vessel – The sense is that there may be a push on the Hill to put this in the 2003 budget.

NSF and ONR are working together. It is essential that we all work together on this important project. Bob Knox then reminded everyone that this is why we are all here.

RADM Cohen – In talks with RADM West, since September 11, 2001, the Survey ships have had security challenges to face. The Oceanographer is concerned about their TAGS operating in foreign waters. He is looking at Multi-Mission ships (MMS). The MMS would be large and could have a defense element. The Ocean Class could be a vessel (monohull) that would be half the size of the MMS. CNR is interested in the possibility of scalable designs for the Regional Class vessels, perhaps scalable to the Ocean Class vessels. Also, in the development of the Regional Class vessels, there may well be a partnership between institution/state and federal government including Navy and NSF involvement.

Wilf Gardner - (point of clarification) Local ships have been built with state support. Regional vessels on the other hand have received Federal support for construction. RADM Cohen – we need to decide what Regional means. It seems to make sense to have these built with Federal support.

Chris Measures (Speaking as a scientist and ship user) - How do you personally see the community getting into the design and construction process? RADM Cohen responded that the ships are working platforms for science and the design process will take that into account. RADM Cohen mentioned here that he is a proponent of the SWATH design and that would like everyone to take an objective look at the SWATH design.

Bob Knox – Yesterday we discussed ways to evaluate the SWATH performance to determine if it is an option for future vessels.

RADM Cohen – Rita Colwell indicated that the Navy operates at high risk in terms of technology. The UNOLS ships must perform science and cautioned the CNR in not making the UNOLS ships, “risk takers” for Navy initiatives.

RADM Cohen - Indicated that new technology could lower maintenance costs. This in turn would save operating costs for science. Total ownership costs would go down. Bob Knox agreed.

Dick Pittenger - He would endorse the plan. He stated that there is anxiety in the community about the age of the fleet and need for replacement before maintenance costs get out of hand. He recommended that CNR and Oceanographer do what they can to get at least one bold statement in the Ocean Commission Report endorsing the Fleet Renewal.

CNR made a very strong appeal for good public outreach to the schools of this country. We also need to make the link between Fleet Renewal and Ocean Science to Science and Technology.

CNR closed by saying that he wanted a close look at the KILO MOANA by the UNOLS community and if the University of Hawaii agrees that he is willing to provide a “small” amount of money to make changes that will make the hull form work for the science community.

#### **ARRV Design Committee – Terry Whitledge, University of Alaska**

The ARRV Science Mission Requirements (SMRs) have been completed and a contractor has been selected for the model testing within the Preliminary design phase. The vessel is multi-purpose, can work in seasonal ice, and has a fishing capability. They are trying to optimize the quiet ship approach. There are tradeoffs and the ship will probably not meet ICES standards because of the icebreaker requirements including propeller design. The size of the vessel is being driven primarily by the endurance requirements. They are seriously considering the requests of the community regarding seaworthiness and station keeping. Terry showed the poster created by The Glosten Associates and mentioned the FIC Website link to the concept design process. The poster is attached as [Appendix III](#).

Model testing will probably be completed by the end of May. A design review meeting is scheduled for June 13<sup>th</sup> in the Washington DC area to report on the model test results and the design process. They will want community and agency feedback on whether or not the current design meets everyone’s needs.

They are adhering to the SMRs and have found them quite useful. They have also been studying a number of vessel acoustics and multibeam systems, and are trying to identify the equipment needed for the fisheries capability.

The application of the ICES noise standard was further discussed. The vessel failed to meet the standard specifically because of the ice capability. They are trying to minimize noise generated from the propulsion systems. They might meet ICES specifications at lower speeds, but cannot meet it at 11 knots. They are looking to see how the inability to meet ICES will impact science. It was noted that The NOAA Fisheries vessels met ICES standards with single large propellers, but that this becomes a major driver in the overall design.

The model testing report will be out by the end of May 2002 and by the end of August 2002, the preliminary design phase should be complete.

Bob Knox – The community needs to look at the acoustic noise standards and decide what is needed and to consider the tradeoffs in design.

#### **Report by FIC on their meetings and plans –Larry Atkinson, ODU**

Larry reported on the FIC meeting that was held immediately prior to the Council Meeting (February 26<sup>th</sup>) and showed viewgraphs of fleet utilization statistics. He discussed the impact of vessel retirements on capacity. Larry’s viewgraphs are included as [Appendix IV](#). FIC has been looking at the trends to help project future ship use. They are also trying to identify

future drivers; such as, new technology, more buoys, gliders and observatories. Most think that the demand will increase as new phenomena are observed.

The utilization figures seem to indicate an excess capacity of one ship. However science cannot be responsively scheduled without the flexibility afforded by the apparent over-capacity. The FIC has provided a statement regarding excess capacity attached as [Appendix V](#). The FOFC plan seems to indicate a reduction in fleet size by one to four vessels, which if the demand remains flat will result in a fleet that could not be scheduled with the flexibility to meet the demands of science. Long-term history shows that the funding has been basically flat and that ship demand comes from funded science proposals. The best estimate is that science funding and consequently ship demand will continue to remain flat.

Utilization is a balance between numerical efficiency and scientific flexibility. Obtaining 100% fleet use efficiency can only come by sacrificing flexibility needed to meet scientific goals, the purpose of the oceanographic fleet. In addition, the current excess capacity would disappear rapidly were there to be a 10 – 15% increase in sea-going science funding or a similar increase in demand for sea-going research. Along this line, we need to determine if there are demands for ships that will be generated by Ocean Observatories.

Larry went over the FOFC definitions, showed the timeline and then the roadmap for implementation. Mike Reeve stated that he felt that the existing ships should stay within the old nomenclature rather than trying to apply the new classifications.

Larry presented the Ocean Class Vessel Steering Committee charge and make-up. Viewgraphs are included in Appendix V. The steering committee includes Dave Hebert (URI), Tim Cowles (OSU), Bob Knox (SIO), Joe Coburn (WHOI), a SE Atlantic representative and perhaps one other from a non-operating institution. Dennis Hansell (RSMAS) and Charles Flagg (BNL) eventually agreed to fill the last two positions. Dennis would also serve as liaison between this steering committee and one for the Regional Class vessels.

The statement of purpose and scope of work for this steering committee is as follows:

- To develop a process for SMR development and define methods for getting broad community input.
- Identify workshop/meeting needs and essential participants including Naval architect. Establish a project timeline.
- Prepare a proposal to support workshop/meetings and submit to the UNOLS Office. Upon award, proceed to workshop and SMR development.
- Work with the Navy in support of their “Oceanographic Ship Common Scalable Hull Study.”
- Provide Tim Pfeiffer with a Steering Committee POC.
- Provide a prioritized set of science requirements and desired capabilities. Wherever possible, requirements should be expressed in ranges rather than discrete values.
- Evaluate existing SMRs.
- Participate in study review meetings.
- Define steering committee’s role in implementation process (activities following SMR Development).

Larry stated that this was put together yesterday and it seems like a very important task that will need dedicated support.

Frank Herr pointed out that ONR is in need of a person for assisting Tim Pfeiffer. With Sujata Millick's departure they have gone down from two people to one and they need an IPA to fill in.

**KILO MOANA Testing** – Larry continued and reported on plans for KILO MOANA testing. The FIC discussed methods for testing the science capability of the SWATH. The following activities are planned:

- A proposal for ship performance testing has been submitted to ONR.
- Post cruise evaluations for the entire science party
- U. Hawaii is drafting a plan for science equipment/systems testing (pre-science ops)
- Post-cruise de-briefs by FIC - A form will be drafted to ask specific questions of the science party and crew regarding the science performance of the ship. Terry Whitledge and Dave Hebert will draft form.

Dick Pittenger gave an historical perspective about testing. He stated that on THOMPSON, there were many problems on the first cruises but these were worked out later. On KNORR after the refit there were also many problems that still existed into the first major cruise. Problems can be expected with construction projects. He emphasized the need to make constructive suggestions and also to point out the good and different, but not necessarily bad, aspects that exist.

Lisa Clough commented on the usefulness of the post cruise debrief comments obtained from the PI's on Coast Guard Icebreakers.

**Regional Class Vessels/Gulf of Mexico Vessel** – Next Larry discussed the renewal efforts for the Gulf of Mexico Vessel. A Steering Committee has been formed and includes: Wilf Gardner (Chair), Steve Rabalais, Tom Shipley, Denis Wiesenburg, Dennis Hansell, FIC member - Gulf of Mexico, and representatives from outside the Gulf of Mexico region.

Some of the questions that need to be addressed in regard to the Gulf of Mexico effort:

1. What are the future science plans of investigators working in the Gulf?
2. Given that the region loses an Ocean class vessel in 2006, what are the science mission requirements of a new vessel to accomplish the anticipated work in the Gulf?

A meeting is proposed to develop SMRs for the Gulf of Mexico and plans include the following:

- Houston, TX - April 22
- TAMU System - Institute of Biosciences & Technology (IBT) Building in Museum District - no cost
- National call for meeting participation - e-mail, web, EOS
- Anticipate ~25 people attending
- Send request for funding to Mike Prince, UNOLS Office
- Request statement of future use needs and SMRs in advance of meeting



- Annette DeSilva to provide history of ship use data and type of work.
- Update progress through UNOLS website
- Liaison with UNOLS/ONR Oceans Class committee

James Yoder commented that the committee might need to broaden its scope to include other Regional vessel operators, since we are now talking about a class of regional ships.

(Note: this effort was subsequently changed to be a Regional Class Vessel workshop with additional effort to describe regional differences for areas such as the Gulf of Mexico.)

Larry mentioned that they have asked for input from Matt Hawkins (U. Delaware), and The Glosten Associates regarding the SMR process. Based on their input, the SMR process might change a bit to include more input from Naval Architects.

Progress on the Regional and Ocean Class renewal efforts will be updated on the UNOLS Website.

**KILO MOANA Status report, Inspections and Science testing** - Robert Hinton (University of Hawaii) gave a brief report on the status of starting KILO MOANA sea trials. Several issues need to be resolved including Coast Guard approval of ACU. The trials planned for last weekend were postponed until next week. This was due to regulatory issues that have been resolved. At the end of March they hope to turn the ship over to the Univ. of Hawaii for outfitting. They hope to be able to depart for Hawaii by May. The ship will be moved to Mayport Naval Yard for outfitting in April.

There is 100 tons of science payload still available, but it will be necessary to carefully guard against losing this payload over time. The draft is deep and sailing is usually at approximately 23-feet using the variable ballast capabilities. Bob Knox stated that this draft constraint needs to be a consideration for shallow water operating regions in future ship designs. There are a number of cranes. The multibeam has not been tested yet, but the ship is expected to be very quiet.

There are a number of learning curve items associated with operating a large SWATH to confront. Because of the hull form they need to hold the ship nine feet off the pier when moored. The fendering arrangement will be challenging – especially when away from homeport. Lockheed Martin (LM) is trying to design a mobile system. Anchoring will also be a challenge. For the Panama Canal transit the ship is classified similar to a supertanker because of its wide beam and as a result Panama is requiring special chocks.

**CAPE HENLOPEN REPLACEMENT – University of Delaware** - Matt Hawkins provided the Fleet Improvement Committee with a brief status report on the University of Delaware’s progress in designing a replacement vessel for the R/V CAPE HENLOPEN.

*“As of this date, we are still on schedule in our design process as outlined in the timetable presented to FIC in November 1999.*

*The Concept Design was completed in October 2001, after which the University immediately proceeded to the Preliminary Design Phase. Bay Marine, Inc., was selected as the principle naval architecture firm, and Noise Control Engineering, Inc., as the primary acoustical*

*consultant. The goal of the Preliminary Design Phase is to have the bid package (including drawings, specifications, and contract) completed by February 2003 so that the shipyard can be selected. The chosen yard will be involved in developing the Final Design. Construction is still forecast to begin in mid-2004. The artist's rendition, 3-dimensional model, and the selection of primary subcontractors, are currently underway.*

*Because of the estimated completion dates on several key design items (mainly model testing), we anticipate that the next meeting of the Delaware Research Vessel Committee (DRVC) will be in the fall of this year (September). The DRVC will focus primarily on detailed review of the labs, working deck, and accommodations. Their recommendations will be incorporated into the design prior to FIC's review, which we intend to do in November."*

**Role of CORE and Oceans Commission in Fleet Renewal Process** – Bill Fornes reported that CORE would be ready to assist with moving the fleet renewal process forward. CORE Chair and Acting President, Carolyn Thoroughgood has already testified before the Ocean Commission emphasizing the need for fleet renewal. As noted earlier, Dr. Rita Colwell and RADM Cohen will speak to the CORE board of governors. CORE is supporting the work of the Ocean Commission. Bob Knox has been in touch with the Commission staff and will testify before them in March. Jim Yoder mentioned that in September Rita Colwell brought up the fleet renewal topic when meeting with the Commission. Wilf Gardner met with a working group of the Ocean Commission last week and spoke about the need for renewal.

## **Break for Lunch**

## **Federal Agency Reports**

**National Oceanic and Atmospheric Administrations (NOAA)** – Beth White emphasized that NOAA is interested in being a participant in the Fleet Renewal process. She showed a spreadsheet of utilization on the UNOLS fleet by NOAA charter and anticipated that this will continue with Ocean Exploration decisions having an impact on scheduling in the future. Her viewgraphs are included as [Appendix VI](#).

Tim Cowles asked about the suggestions of Sea Grant moving to NSF which is being addressed on the Hill. Beth did not have any information on this.

**NOAA Marine Fisheries Service** – James Meehan gave a report on the status of the Shipyard contract for the Fisheries Research Vessel (FRV). He stated that since the parent company for the Shipyard, Halter Marine, is undergoing Chapter 11 bankruptcy proceedings, this has slowed the process as everything must go through bankruptcy court. Congress gave NOAA 10% for a second ship in the 2003 budget. It is basically a placeholder. The contract may still be canceled.

**NSF Inspection Program** – Dolly Dieter (NSF) reported that the first few NSF ship inspections have been completed and they will be doing many more during the next few months. Dolly asked that anyone with strong feelings about what equipment should be on ships when they are inspected should send her that information. They will be looking to RVTEC for input on the basic package of equipment.

**Research Vessel Security** – Steve Rabalais (LUMCON) reported on the actions taken to date:

- RVOC Sub-Committee has been formed with Dan Schwartz as Chair.
- A UNOLS Security Web Page has been created.
- Security Information is being distributed by e-mail.
- A report to FOFC on actions take to date was made in December.
- Plans are being formulated for including security considerations in the scheduling process.

Mike displayed the security Web page, <http://www.unols.org/security/>.

Steve mentioned the useful information that is contained in the Worldwide Threat to Shipping e-mail report that is provided to the UNOLS office by Charles Dragonette from the Office of Naval Intelligence (ONI). In turn, the Office distributes this to all ship operators.

Mike commented that there are some potentially high-risk areas being proposed for research. Mike reviewed the map showing STRs that might be of concern. Dolly commented that she has heard from some scientists that would like to work in high-risk areas. She said she directs them to the UNOLS Website. Many have decided to find other geographic areas for their research.

There are a couple of maritime meetings dealing with security of shipping coming up that some RVOC members may attend. Joe Coburn/WHOI and Paul Ljunggren/LDEO have had their security contractors draft security guides but they need some editing to be useful to the broader community. Dan Schwartz will attempt a rewrite of these documents.

Joe Coburn said that the insurance question should not be a driving issue for WHOI when it comes to science operations. Joe tells the insurance company where they are going and gets the appropriate coverage. So far WHOI does not have to pay extra for high-risk areas. LDEO will probably have to pay extra money for some of these areas.

Beth commented that she has spoken to Margaret Leinen, Chair of FOFC about the security issue. This is an important issue for FOFC and she will need to report to the NORLC about it. Mike has sent the UNOLS/RVOC report to Margaret.

Mike said that training is another issue. A recommendation has been made that the crew should be trained in security measures. This will be looked at and there will likely be security training in Ship Operation budgets this fall.

The subject of bearing arms was discussed. IMO might make a requirement that the ships be armed in the future. The Navy reported that in the UK they are already including a defense system on some of their ships. It was commented that the security consultants hired by WHOI were an effective security measure and that this course of action should be considered for future UNOLS operations in high-risk areas.

NSF has established guidelines for security and has included them in the NSF newsletter. It should be linked to the UNOLS Website. Mike commented that Jim Yoder and Margaret are opposed to carrying arms on research vessels.

Lisa Clough commented that all packages going on HEALY had to be searched. If this were to be done on all UNOLS ships, they would have to double the port times.

Dan Schwartz, chair of the RVOC security committee provided a written report, which is attached as [Appendix VII](#).

**Quality of Service, Post Cruise Assessments (PCAs)** –Mike Prince reported that since November, there have been some recent developments in the process to revise the PCA form. Mike and Laura are working on report cards. Laura is compiling them and they will be sent to the operators. They have been examining them to discern trends. There have been some incremental changes. An example is that a statement was included at the top of the form indicating that the form will be sent to the funding agencies. Right now there are two forms of PCAs, paper and online, and they are working on merging the two forms together.

Mike commented that the committee has not seen all of the latest changes. The new form will allow any member of the science party to complete the form. They have also increased the number of options available when answering a question. The form asks the writer for an objective analysis of the science party. The rankings parallel those used for science proposal review. Other areas that are covered include pre-cruise planning, operator supplied scientific equipment and technical services. The questions are arranged around different program management divisions. There is a question regarding how the scheduling process affected the cruise including what ship was initially requested.

The process will need to go back to the Committee, Marine Superintendents, and the Agency Representatives. Then it will need to be reviewed by the Council. Mike states that this is a layman's approach and at some point, we might want professional consulting. Or, we may just want to try this out.

### **Discussion:**

Question: Is this how far we are going to go in this project? Answer) It was in response to the Academic Fleet Review (AFR). This should give the operators and agencies more feedback. All of these will hopefully improve quality and become an integral part of a formal quality improvement program.

Chris Measures suggested that we go with a numerical scoring. We should record response rate and possibly make the form anonymous. Discussion followed and the pros and cons were noted. Wilf Gardner said that he thinks that they need to know who submitted the form so that they can be replied to.

Dolly indicated that the forms are optional, but they are requested for the ship reviews and that they are useful.

Mike stated that the Report Card would provide a summary of response rate, scores, and comments.

Beth White asked if there is ever any feedback provided back to the science party regarding their performance. Mike responded, not from the UNOLS office, but most likely from the Marine Superintendents if at all.

Question – Is it explained to those completing the form how the form will be used? Answer) Mike responded that the introduction covers this topic. Bob Knox indicated that there should

be a line added indicating that the captain, crew and technicians can use the form. Mike questioned if only one form was warranted for all? Also, the trouble with having just the Chief Scientists fill out the form is that they may not personally use all of the equipment that is being used during the cruise.

Tom Shipley stated that none of his comments are in the current version of the form. He stated that it is an improvement but that he worries about regarding these as a database of improvement information because the sample size is just too small. The most important component of the form is the written response. He said he does not see this as an adequate type of survey. That the focus should be on the text and not on the scoring. Tom said that he felt that the questions were leading. As an example, he said the word, “success” is subjective and should not be included in the questions. Tom said that he feels that we have to do something more to make this a better quantitative form and that it is not quite ready for prime time. However, he feels it is still an improvement and that we should move forward with making it ready.

Mike Reeve indicated that NSF feels that we must have this instituted in the near future for them to be able to comply with the recommendations of the AFR report.

## **BREAK**

After a short break, Bob Knox revisited the PCA form discussion: Charlie Flagg commented that he liked the idea of the form being anonymous, but still making it easy to track by cruise and role of the person reporting. He also prefers the wording Mike has used instead of a numerical system. Charlie also suggested that we put the words “the Agencies expect that you complete this form.” Tim Pfeiffer and Mike Reeve agreed to this sort of wording. Tim indicated that providing feedback to the people completing the form should be made. Tom Shipley reemphasized that this is a good start and that the effort should continue.

Mike stated that the person’s name could be optional but that the cruise dates are needed. In summary, Mike will clean up the form and repost for the subcommittee, marine superintendents, and agencies to review. After a few weeks for review it will then be sent to the Council for endorsement.

Bruce Corliss asked if there was any way to get feedback to the scientists? Bob Knox replied that there is no formal method at this time. There was some discussion on how to handle this. It would be a challenge since the feedback is not automatically linked to the chief scientists.

Dennis Hansell suggested that if this is to be used as a database, we should be cautious about changing the form too dramatically in the future and that we get it as close to the way we want it now.

## **NAVO funding for 2002 and Future Prospects – Bob Knox, Paul Taylor**

**Bob Knox** said that the level of NAVO funding has shrunk from \$7.5M down to \$1.5M. He asked if this is the beginning of the end? He said it looks as though the Navy will not put it into their budget. After the first year, the money was an add-on to the Navy budget. The Senate Appropriations Committee has traditionally added it. The members who supported it

are now off the Committee. The Navy would like to continue, but they are not going to fight the battle for additional funds.

From the fleet utilization perspective it looks like we have been able to fill in the ship schedules with new work this year. It was suggested that other areas of Navy may have work for UNOLS vessels and those should be explored. Also mentioned was that a couple of the NAVO ships have been brought back to the states for homeland defense.

Paul Taylor indicated that he and Gordon Wilkes put together a 2003 schedule, but they have not submitted actual requests since they don't know the status of their 2003 budget. A letter was submitted to CORE for this work last year. All of our CORE contacts have since left. We will still likely encourage CORE to express our desire for NAVO work. Mike said that he would send a note to the new legislative representative at CORE and draft a letter from Bob Knox to CORE.

Dick Pittenger added that he was there in the very beginning. The NAVO work was a good initiative. The work is still there, but the Navy has not programmed it into their budgets. Dick suggested that the NAVO work be included under the NOPP budget.

Paul announced that Gordon was diagnosed with having cancer and could not be here as he is undergoing chemotherapy treatment. Paul said that any notes of encouragement and support would be welcomed. The UNOLS office will send a card.

#### **UNOLS Wires and Cables – Mike Prince**

Mike Prince said that there are two areas that the group is working on for wires and cables. One is establishing Safe Working Loads (SWL). The reason that we are doing this is that the manufacturer-supplied SWL cannot be adhered to. By simply unwinding cable, you would exceed limits with the standard 5:1 or 4:1 ratios. We are looking at SWL so that there will be some sort of standard from ship to ship. They have looked at the model SWL established by NERC in the UK.

Mike said that he talked with Phil Gibson at Tension Member Technology about SWL and retirement criteria. Mike states that we would like to be able to make sensible decisions for using wire – paying-out, age, etc. There is still work to be done.

Tom Althouse and Mike are working on this task. They will try to put together an operation manual and will consult with The Glosten Associates and Phil Gibson about establishing standard SWL criteria.

The other wire related project is to establish the requirements for a new generation of standard UNOLS cables and wires. Two small meetings have been held, one in Seattle and one at WHOI. At University of Washington, Craig Lee will be buying a new fiber optic cable for use with their towed undulating profilers. There is an increased use of these profilers and this drives the need for a fiber optic cable that also is capable of fairly high power transmission. The high power demand and the shallow depth operation of most of these, require shorter lengths of cable so it will take some careful examination to determine if the standard wire can be used to meet the needs for profilers and other uses that need longer lengths of cable.

Mike said that one of the things that we decided to do at the WHOI meeting was to identify a cable as a replacement for .322 with a wider broadlength. There are people who would like fiber, and a cable in the .322 size range. The first cut is to look at existing winches in service (10 years or younger). Look at wires that are available off the shelf. Determine if this will meet future needs. Maybe hold mini meetings at institutions or send out letters. Community input will be needed. Mike has received input from Dolly emphasizing that she really needs input from the community. She has been seeing a number of requests for winches.

**Great Lakes Research Vessel meeting and status of LAURENTIAN** – Mike Prince reported that the University of Michigan will not be the operator for the R/V LAURENTIAN. NOAA will charter it. It is taking time to work out the arrangements with NOAA.

Mike reported that he met in Cleveland for the Great Lakes Science Vessel Coordination Workshop. Mike reported that they discussed the idea of having a coordinated scheduling system like UNOLS, but that they will likely not do this because they have their own individual institutional requirements. They still share operational information and equipment with one another and pool resources for training.

### **UNOLS Office Budget and Business**

The minutes from the November 15, 2001 Council meeting were accepted.

Mike Prince distributed the draft of the UNOLS Annual Report and said that it is intended to be a once a year effort. It will contain all meeting minutes for the past year on a single CD ROM.

On the subject of UNOLS Mission, Goals and Objectives, Mike said that there was nothing new to report at this time. They are posted on the web page, included in the annual report and are the basis for the UNOLS office proposal to the funding agencies. The goals and objectives for next year will be reviewed and formulated by the Council at the June meeting.

Mike is about to submit the proposal for year three of the UNOLS Office Budget and that a formal recommendation was required for the continuation of the UNOLS Office at MLML for the next three year period. A motion was made to have the Office considered for another three years at MLML with Annette DeSilva as a remote employee at URI-GSO. It was seconded and passed.

Mike indicated that last year's summer Council meeting gave us a chance to look over our goals and accomplishments. Tim Cowles thought it was a very useful and that it was an opportunity to look over broad issues.

### **Adjourn at 1600 for the tour of R/V KILO MOANA**

#### **Thursday, February 28, 2002**

Dick Pittenger returned to the subject of sea trials on R/V KILO MOANA and the importance of the test cruise. He sited past experience on R/V THOMPSON and R/V KNORR. He said that "crazy" things were experienced on R/V KNORR after its stretch. He said Fred Spiess had the first cruise and that he provided a good report and then sent a 4-page

to do list. Dick said he would like to encourage a statesmanship approach, like that followed by Fred. R/V KILO MOANA will be different in many ways from a conventional R/V and it will have its problems. Comments are needed, but they should be constructive and positive.

**Facilities beyond Ships and Submersibles** - ONR and the ONR supported Center for Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS) requested that UNOLS consider creating a committee for coordinating the activities of CIRPAS with oceanographic research activities and to provide guidance on oceanographic requirements. Curt Collins reported that a committee has been formed, of which he is the chair, to evaluate this concept. The committee will initially focus on the Naval Postgraduate School (NPS) CIRPAS facility and work together with its director, Bob Bluth to put together a formal proposal and recommendation to the UNOLS Council and membership. A draft CIRPAS proposal is attached as [Appendix VIII](#). They will also inform and invite other facility operators and Federal program managers.

#### **Discussion:**

Beth White said that Aircraft would be addressed by FOFC. She stated that it is obvious that they need to better educate the community on aircraft facilities. She went on to say that NASA, NOAA, NCAR, Coast Guard and others all have aircraft that can or do support oceanographic research projects. Beth said that she and Margaret would like to see a brochure of aircraft facilities. There exists a coordinating group of agency program managers called the Interagency Coordinating Committee for Airborne Geosciences Research and Applications (ICCAGRA), <<http://www.geo.nsf.gov/atm/ulafos/laof/charter.htm>>.

There was some discussion on funding of the Facility and what the definition of a National Facility is. One thought would be to utilize this UNOLS committee to help schedule and promote the facility. The aircraft can serve any geographic area and can support any federally funded research program. The establishment of CIRPAS as a National Facility would not imply block funding, but instead would be funded in a manner directly related to the projects that are supported. This is similar to the funding for UNOLS vessels.

There are several people who have expressed an interest in being involved in the process including Ken Melville, Steve Ramp, Carl Friehe and Charlie Flagg. A few more people will be needed from different regions and disciplines.

Some thought that the committee should have a name other than CIRPAS so that it would indicate the broader purpose. Since the plan is to start with CIRPAS as the first aircraft facility for this committee and be open to others joining the process later a more generalized aircraft committee name should be used.

Bob Knox asked if we should accept CIRPAS as a UNOLS facility, understanding that no funds come with it, and establish a committee with a different name? Dennis Hansell asked what the model would be? Mike Prince read portions of the UNOLS Charter, Annex II – “National Oceanographic Facilities” under which this committee would be formed and the facility designated. Tim Cowles suggested we do a little more research. The committee that Curt chairs will do this and will provide a proposal and recommendation to the UNOLS Council at the summer meeting. If accepted it would go on the ballot at the Annual meeting in September. Charles Flagg suggested that while we are developing this proposal that we should contact NASA, NOAA and NCAR for input and to inform them of our plans. It will go to vote in fall at the Annual Meeting.



**Observatory Steering Committee - Observatories as facilities, UNOLS role and recommendations** - Larry Atkinson reported that in March 2002 a NOPP Workshop will be held and out of this there will be recommendations regarding the U.S. requirements for observatories. Larry stated that we have a lot of new tools (CODAR, etc) and there are many new processes that can be observed with these tools. They will look to see if there are any new areas to be observed. Larry does not know how this will impact research activities but he does envision that it will increase the need for UNOLS ships.

Mike reminded everyone that John Delaney brought this subject up and that we need to know the ship requirements of observatories to make sure that we can support their needs with current and future research vessels. Larry said that John Orcutt and John Delaney are attempting to write a paper that provides a national observatory perspective.

Dick said that NOAA has drafted a very good procedure for observatories that outlined ship needs. The MRE process requires that they identify out year operating costs. He said that we need to make sure that the observatories include the operating and support costs in the MRE request. We don't want to have to support these facilities out of existing budgets. Whose budget this comes out of is an important aspect. We don't completely know the ship needs at this point. Larry indicated that he thinks that there is just the philosophy that the ship will come. Can UNOLS bring the ships to the program as needed? We have had challenges meeting the time series work in the past and observatory work may increase this challenge.

Mike said that what is missing is a forum for identifying the ship needs and that we need to keep after this. He asked if there are any other Forums? Ken Johnson chairs the Observatory Steering Committee (Mike will contact Ken). Mike Reeve will also contact Larry Clark. A suggestion was made to hold the summer Council meeting at NPS-CIRPAS and to ask Ken Johnson to talk to us about observatories.

Mike Reeve sees that this will be a large part of research facilities, twenty years down the road. It will affect research vessel use and these observatories will be facilities that may well need to be addressed by UNOLS.

### **UNOLS Annual Meeting Plans**

The September meetings will be held the fourth week of September. AICC will meet on 23 and 24 September (Monday and Tuesday), the Ship Scheduling Committee (SSC) and FIC on 25 September (Wednesday), Council on 26 September (Thursday) and the Annual Meeting will be on Friday, 27 September. The Agenda will focus on Fleet Renewal. We will also need to finalize the keynote speaker for the Annual Meeting. A suggestion was also made that phone calls be placed to UNOLS Representatives to increase participation at the meeting.

The terms of office for the following individuals are ending:

Bob Knox (Chair) - 10/94-10/02

Tim Cowles (V-Chair) - 9/98-9/02

Dennis Hansell (Operator) - 9/96-9/02

Denis Wiesenburg (At-Large) - 9/99-9/02 (Denis is eligible for a second term)

A slate of candidates will be prepared for distribution at least 30 days in advance of elections consisting of at least two candidates for each position being considered. This slate of candidates will be formed by a Nominating Committee, appointed and announced by the UNOLS Chair. The Nominating Committee members will consist of three members, one from a UNOLS operator institution, one from an institution other than an operator and one from any UNOLS institution. Last year's nominating committee included: Denis Wiesenburg (Chair), Dennis Hansell, and Curtis Collins.

The Nominating Committee will issue a call for nominations enumerating the positions to be filled and summarizing the qualifications required for each position. Nominations for the slate may be submitted by anyone affiliated with a UNOLS institution, in writing, to the UNOLS Office or the Nominating Committee. In forming the slate, the Nominating Committee shall give due consideration to the qualifications required for each position. Individuals should also be chosen to achieve a balance among scientific disciplines from among individuals who have experience in research at sea.

With the concurrence of the Council the following nominating committee was appointed: Curt Collins (Chair & non-operator), Bruce Corliss (Operator) and Charles Flagg (Any Institution).

#### **UNOLS Committee appointments and departing Committee members were announced:**

DESSC: Cindy Lee Van Dover has completed two terms and Tim Shank (WHOI) has been appointed.  
RVTEC: Steve Poulos became Vice Chair in October. Tony Amos completed his term as Vice Chair.  
FIC: Request made to appoint Niall Slowey of TAMU.  
AICC: Need replacement for Kelly Falkner. Hedy Edmonds has been suggested.  
SSC: No changes to report.  
RVOC: No changes to report.

#### **Other Issues (brief reports and discussion as needed)**

**Mike Prince reported on the retirement of R/V SEA DIVER as a UNOLS Vessel.**

**Ship Operations Cooperative Program - RVOC** – Steve Rabalais reported that RVOC voted to apply for full membership into SOCP which would cost \$5,000 per year. SOCP is a cooperative organization that deals with the issues of importance to ship operators. This program includes members from industry and government agencies and is supported by MARAD and the Coast Guard. Among the benefits of membership are reduced rates for all training tapes and attendance at their closed meetings where management issues are discussed. Steve Rabalais as chair of RVOC will be the default representative to SOCP. Mike has included the SOCP membership cost in his budget.

Beth White said that NOAA is a member and was sponsors of the last meeting held. Beth said that not all issues apply to NOAA, but that crew retention is one issue covered that is a major concern. SOCP is going to be critical in dealing with this. The USCG is an active participant within SOCP. Beth is working with the career paths and recruiting subcommittee. Beth said that salary surveys are very useful and she thinks the ones from UNOLS would be useful. They would like to compare shore pay with sea pay.

**Update of R/V Safety Standards (RVSS)** - Steve Rabalais reported that the effort to update the RVSS is being lead by Tom Althouse. Various sections of the manual are being looked at and there have been few changes so far. April 15, 2002 is the deadline for revisions. The draft should be ready by October 2002. Bob Knox noted that the Council could review the update and approve by e-mail.

Dolly said that the ship inspectors have asked if they could contribute make some suggestions to update the R/V Safety Standards.

**Standards for Basic Technical Services - RVTEC** – Annette DeSilva said that efforts are being made to draft equipment/instrumentation matrices by class of vessel. She said that she hopes that this will help to identify the equipment that is somewhat standard across the class. The matrix will also offer a quick guideline to the user on what to expect in terms for shipboard equipment. We hope that this will be a stepping-stone into developing basic definitions of technical and operational service levels. She said that this is not an easy issue to address and as a result progress has been slow. Over the next couple of months the goal will be to develop a template. It will require input from each of the individual marine tech groups.

**DESSC Meeting at Ocean Sciences, Special Session** – Annette DeSilva reported on the special session held at the AGU/ASLO Ocean Sciences meeting titled, “Recent Advances in Understanding Submarine Biosystems and the Future in Submergence Research”. The co-conveners included Patty Fryer, Shirley Pomponi, and Anna Louise Reysenbach . The purpose of this session was to reach out to the biologists who we normally do not reach at Fall AGU meeting in San Francisco. The session consisted of both posters and papers. There were ten posters: The National Deep Submergence Facility, Outreach: Dive and Discover, Submersible Techniques for Fisheries Research, Biological Studies, MIS Sub and NR-1, Commercial ROV, Sonar Data, and Ocean Exploration.

The paper sessions included presentations by: Dan Fornari (nested surveys), Joris Gieskes (water chemistry). Craig Smith (Whale falls), Anna Louise Reysenbach (Indian Ridge Vents/Hydro Vents), Bob Embley (ROV inspections, Shallow submergence research, and Johnson Sea Link). Dick Pittenger, Barry Walden and Andy Bowen (NDSF), Jon Alberts (Scheduling and Planning Process), Phil Taylor and Ray Highsmith (Deep Sea Biology Research). The session was very well attended, roughly 80 people, until the mid afternoon break. Then with the competition from the beautiful Hawaiian weather and free beer, we lost quite a few people.

**LINK Symposium, NASA/NOAA** - Annette DeSilva reported that last summer after the DESSC spring meeting, Barbara Moore (NURP) contacted Patty and suggested that DESSC participate in the NOAA/NASA Link symposium to address future technology needs. Patty contacted the coordinators to learn more about the program. At that time we were told that it was going to be a rather large, open symposium with high profile presenters. It will be held on May 20-22, 2002 at Kennedy Space Center, FL. The focus of the 2002 Link Symposium will be “Partnerships for Sea and Space Exploration”. Andy Shepard, Associate Director NURP/UNCW will be the technical session coordinator. He is very committed to providing adequate coverage of the technical issues that DESSC is interested in. Andy is also the NOAA contact for the program. The goal of the Symposium will be to facilitate exchange on

in situ technologies (submergence and in space), and ideas between the ocean and space science and engineering communities.

Objectives of the Symposium will be to define the state of art for submergence technologies, to identify technology gaps and needs, to suggest opportunities for ocean/space collaborations, and to propose mechanisms for fostering exchange of technologies and expertise. The symposium will have three thrust areas:

I. Sensors and tools:

- Optical, Vision (including hyperspectral)
- Acoustic
- Chemical, Biological, Geophysical
- Intervention
- Innovative delivery systems (e.g., smart rocks)

II. Human Exploration:

- Human Occupied Vehicles
- Habitats
- Life Support in Extreme Environments

III. Robotics:

- Tethered Vehicles
- Autonomous Vehicles
- Observatories and Networked Arrays

Potential Cross-cut Issues:

- Positioning
- Communications
- Power systems
- Navigation
- Outreach and Education

Participation for the symposium will be limited to 120 and will be by invitation.

Patty has requested that she, Dan Fornari and Jim Bellingham be included in the steering committee which also includes: Grant Gilmore, Michael Kelly, Gary Mineart, Andy Shepard, Andrea McCurdy, Barbara Moore, Sharon Walker, Mark Ward, and Eric Lindstrom.

NASA will be represented in all the breakout sessions. Their basic objective is to establish linkages between the ocean and NASA communities.

Several questions were directed to Annette:

Are NOAA and NASA providing the funding support for the meeting? Response: Yes

Will there be any NSF involvement? Response: Nothing formal that I am aware of.

**Shallow Submergence Science Committee (SSSC) (Ad-hoc)** - Annette DeSilva reported on the activities planned for the SSSC. The members of this committee include: Shirley

Pomponi-Chair, Craig Young, Chris Goldfinger, Marv Lilley, Mark Chaffey, and Patty Fryer from DESSC. Chuck Fisher, RIDGE Chair will participate when available.

Their first meeting if supported, is planned for May 1, 2002, the day before DESSC. An informal meeting was held at the Ocean Sciences Meeting for those committee members, operator representatives and agency representatives that were in Hawaii. They began the process of defining their tasking:

1. What are the compelling science issues in shallow water submergence research and why do they need the sub technology?
2. What is the current status of facilities and how do they access these facilities now?
3. What are the past utilization trends for existing shallow facilities?
4. Identify problems – much of this appears to be related to access and funding.
5. Recommend changes – new money will, like everything else, solve all problems, but what can be done within current funding levels. Are there changes that can be made to make it easier for scientists to gain access to facilities?
6. Identify new facilities and technologies that are needed.

**AICC report on HEALY first year operations and debriefs** - Bob Knox said that accomplishments of AICC have been an area of success. Lisa Clough presented a report contained in [Appendix X](#) and [Appendix XI](#). With the commencement of operations on the HEALY there is a new focus for AICC. They are now concerned with science support and infrastructure for Arctic research on all the Coast Guard Icebreakers including POLAR STAR and POLAR SEA. The POLAR Class Icebreakers have had many commitments in the Antarctica and this is impacting science operation plans for the Arctic. They are also getting old and have maintenance problems resulting from the hard work of breaking out McMurdo Station. This past year, both vessels were required to break the unusually thick ice cover.

The first HEALY cruises went very well. The AMORE Cruise was a huge success, including multi ship operations, swath mapping, rock dredging and a trip to the North Pole. The Second trip, ALTEX, during which AUV operations and ice mapping surveys were conducted included successes and some problems. Formal debriefs were held for both cruises.

In April, reports from all science testing cruises from the debriefs will be reviewed in order to create a consolidated work list.

Lisa reported on plans for HEALY upgrades. Approximately \$200K will be spent for a temporary fix to the Underway Seawater System to allow incubations and underway surface water measurements while in the ice. These science seawater systems draw water from a forward sea chest that clogs while breaking ice. A permanent fix cannot be made until the 2004 dry-dock period.

Lisa reviewed the anticipated HEALY schedule. See [Appendix X](#). For security purposes the HEALY schedules have been pulled off the Web. 2003 requests for HEALY include projects wanting to return to the Gakkel Ridge as well as to the Western Arctic. There is also a request to use ABE. Depending on what science is funded the HEALY will probably alternate between operations in the Eastern and Western Arctic.

Dolly asked if there were any requests for a Canadian vessel. It was thought that Kathy Crane had asked to use a Canadian Icebreaker for the Arctic Ocean Exploration Program this year because the Coast Guard Icebreakers were booked. It is also possible that if the Coast Guard has to continue sending both POLARs to Antarctica and that Icebreakers from other countries will be needed for Arctic work in addition to the HEALY.

Other items reported by Lisa include:

- The AICC plans to be engaged at the ARRIV meeting.
- From the Science Testing cruises a video on coring from HEALY was produced at OSU and another on mooring operations will be completed soon.
- AICC took questions used by ARVOC and adapted them for post cruise debriefs for HEALY. She will provide these to Chris Measures as a possible template for debriefs of KILO MOANA Chief Scientists. The formal debrief process is not too difficult with two or three cruises per year, but could become a problem with many cruises.

**Ship Scheduling Issues** - The following written report was provided by Joe Ustach, SSC Chair. Tim Cowles offered his praise for the professionalism of the SSC in coordinating the scheduling of GLOBEC Operations.

*“With shoehorns and concessions by scientists, most of the scheduling difficulties for 2002 have been eased. Not all of them to everyone’s satisfaction, especially in the case of the Northwest Pacific GLOBEC cruises, but at least the ships are sailing in acceptable to marginal time periods. Again the problem is scheduling multiple ships for a relatively small window and how changes in any of the affected vessels cause havoc throughout an even larger number of ships.*

*Nonetheless, 2002 overall has about 300 fewer days scheduled than did 2001, 5374 versus 5678. NSF has about 50 days more on schedules in 2002 than in 2001; the Navy has 367 fewer days scheduled in 2002 than 2001, the result of NAVO’s decreased funding; and the “other” category is holding steady, with about 25 more days on the schedule in 2002.*

*In terms of ship classes, the large, Class I/II ships average around 83% of a full operating year. This average should be tempered by the inclusion of KILO MOANA, BROWN, and HEALY schedules. KILO MOANA has a schedule based on starting operations on 1 July; the Coast Guard removed HEALY’s schedule and NOAA removed BROWN’S after the September attacks. The only Class I/II vessel with less than 65% of a FOY is SEWARD JOHNSON with a 187 day schedule (62.3%).*

*The Class III ships are roughly in the same range as 2002. They average just over 65% of a FOY, while in 2001 they averaged 69.8%. The only vessel in this class with less than a 66% FOY is GYRE, with 91 days scheduled, (33%). The Class IV vessels show a large drop in days scheduled in 2002, from 1533 days to 1158 days. Much of this drop is due to CAPE HATTERAS only operating for half a year and then going in for a mid-life refit and for SEA DIVER retiring. The only other vessel with less than a 70% FOY is LONGHORN with 91 days scheduled (50.6%). However, the smaller vessels usually pick up cruises throughout the year, so these numbers are not*

*fixed. In the Class V vessels, there are no weak schedules, all of the vessels are at or above 55%, with BLUE HERON having 57.3% of a FOY.*

*The outlook for 2003 is still hazy, since ship requests are still arriving into the scheduling system. As of Friday, Feb.22 Noon Eastern Time, I have received 920 ship requests from the UNOLS Office. There will be well over 1000 requests by the end of the month. February is the deadline for NSF ship time requests, but the Navy and other agencies have an even later deadline. A quick glance at the areas of operation shows that there is an interest in the Indian Ocean in 2003 and 2004 besides the usual Atlantic, Pacific, Arctic, Antarctic and Great Lakes regions.”*

**Specifications for Science Vans - New standards, Van Manual** - A written report was provided by Matt Hawkins and is included as [Appendix IX](#). Laura Dippold (UNOLS Office) and Matt are completing the final details of a research van manual on the UNOLS web site. This manual will have specifications and standards for different types of vans. Dolly says that NSF is going to stick these to these standards for any new science vans.

**UNOLS Committee Reports** – Written Committee reports provided prior to the meeting are included as [Appendix XI](#).

**CORE, JOI and UNOLS** - There was a brief discussion about maintaining an active and positive relationship between UNOLS and CORE, especially when it comes to working on issues of fleet renewal and facilities for the ocean sciences. There has been a lot of turnover in the staff at CORE and they will soon have a new president so we have to keep up to date with the new people. Tim Cowles also mentioned that individual institutions should stay in tune with the leadership at JOI and CORE to be sure that these organizations are properly representing the needs of ocean science research and education.

***The meeting was adjourned at 11:15 AM.***

**UNOLS COUNCIL MEETING**  
**Wed. Feb. 27 & Thurs. Feb. 28, 2002**  
**Jacksonville University**  
**Reid Medical Science Center**  
**Room 210**  
**2800 University Blvd. North**  
**Jacksonville, FL**

**0800: Coffee and Pastries**

**The purpose of the meeting is for open discussion on important issues facing UNOLS. Please feel free to contact the UNOLS Office with any additional items to be added to the agenda. The first morning will be a joint session with the UNOLS Fleet Improvement Committee which meets on Tuesday, Feb. 26 ([Agenda](#)) [Accept the minutes of November 2001 Council Meeting](#).**

**0830: Call the Meeting:** Bob Knox, UNOLS Chair, will call the meeting to order and provide an opportunity for introductions.

**0835: Welcome from Jacksonville University**

**UNOLS Issues and Discussion Items:**

**0840: Fleet Renewal Plan Implementation**

- Introduction – Bob Knox
- Report by FIC on their meetings and plans – Larry Atkinson
- Implementation Road Map (FIC Webpage) – Larry Atkinson
- Implementation of the FOFC Fleet Renewal Plan: Agency activities and intentions
  - ONR – Frank Herr
  - NSF – Jim Yoder, Mike Reeve
  - Other Agencies
- Developing community based SMR's and Concept Design's – Larry Atkinson
- Plans for Science Meeting(s) Gulf and other regions
- Status on ARRIV Preliminary Design, Model tests, community input, funding – Terry Whitledge
- KILO MOANA Status report, Inspections and Science testing (Tours, see below) – Chris Measures/Steve Poulos
- Status of CAPE HENLOPEN Replacement effort
- Role of CORE and Oceans Commission

**1200 LUNCH**

**1300 Federal Agency Reports**



Federal Agency and Core Representatives will have the opportunity to provide any information or raise any issues that they would like addressed by the Council or FIC (items not already addressed during the Fleet Renewal discussion).

### **1330 Research Vessel Security**

- Actions taken to date, RVOC Committee, Web Page, Security Information (Mike Prince, Steve Rabalais)
- Report to FOFC
- Council Actions and Recommendations to Operators and Agencies

### **1410 Break**

### **1425 Quality of Service, Post Cruise Assessments– Mike Prince**

- Draft of revised Post Cruise Assessment form
- Recommendations of subcommittee
- Agency requirements
- Role of PCA's in overall quality program
- Role for UNOLS Council, Office and Agencies in quality program

### **1510 NAVO funding for 2002 and Future Prospects – Bob Knox, Paul Taylor, Gordon Wilkes**

- NAVO funded at reduced (1.5 million) level for 2002
- Substantial impact on several schedules
- Is this the beginning of the end?
- Discuss benefits to NAVY, UNOLS and other agencies
- Strategy for promoting continuation of program in the future
- Setting this as a CORE priority, CORE efforts to obtain funding
- Navy's position on this program and its budget

### **1540 UNOLS Wires and Cables – Mike Prince**

- Community input on need for new wires and cables
- Meeting at WHOI
- Safe Working Loads
- Towed Undulating Profilers, small diameter Fiber-Optic cable

### **1600 Adjourn Day 1 Meeting – Depart for KILO MOANA Tour**

## **Thursday, February 28, 2002**

### **0830 Facilities beyond Ships and Submersibles – Curt Collins**

- Aircraft Facility Committee
- Proposal from ONR and Center for Interdisciplinary Remotely-Piloted
- Aircraft Studies (CIRPAS) at Naval Postgraduate School
- Scope and purpose of the committee

- Conditions for approval on trial basis
- FOFC plans for other facilities – Agency Reps
- Observatories as facilities, UNOLS role – recommendation from Observatory Steering Committee – Larry Atkinson

**0915 Great Lakes R/V meeting and status of LAURENTIAN – Mike Prince**

- Report by Mike Prince on Great Lakes meeting in Cleveland
- Status of LAURENTIAN as a UNOLS vessel

**0930 UNOLS Meeting Plans and UNOLS Office Budget**

- Approval of Minutes from last meeting – Bob Knox
- Annual Report – Mike Prince
- UNOLS Missions, Goals and Objectives – Mike Prince
- Proposal submitted for year three – Mike Prince
- Need recommendation this year for continuation of UNOLS office at MLML – Bob Knox/Mike Prince
- Need for and plans for Summer UNOLS Council Meeting
- Plans for September Meetings and Annual Meeting – Mike Prince
- Keynote Speaker and major agenda focus – Bob Knox
- Nominating Committee for Council, Chair and Vice Chair – Bob Knox
- Committee appointments and departing Committee members

**1015 Break**

**1030 Other Issues (brief reports and discussion as needed)**

- Retirement of SEA DIVER as UNOLS Vessel – Mike Prince
- Ship Operations Cooperative Program (RVOC – Steve Rabalais)
- Update of R/V Safety Standards (RVOC – Steve Rabalais)
- Standards for Basic Technical Services (RVTEC) – Annette DeSilva
- DESSC Meeting at Ocean Sciences, special session – Annette DeSilva
- LINK Symposium, NASA - NOAA - Annette DeSilva
- Shallow Submergence Science Committee (Ad-hoc) - Annette DeSilva
- AICC meeting reports, report on HEALY first year and debriefs - Lisa Clough
- 2002 Icebreaker plans and major issues (AICC – Lisa Clough)
- Scheduling Issues, weakness in some schedules, outlook for 2003 (Joe Ustach)
- Vans Specifications, Science Vans - new standards, Van Manual (Mike Prince/Steve Rabalais)
- State Department, Hiring new personnel, LOS status, Procedures

**1145 Opportunity for Additional Reports:**

- Agency Representatives
- UNOLS Committee Chairs (additions to written reports)
- CORE
- Council Members

**1200 – Adjourn**

**KILO MOANA Tours – Wednesday, early Evening – depart meeting at 1600.**

**UNOLS 101 seminar Tuesday, 2/26 at 1230 for Jacksonville University (Bob Knox)**

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## **LOGISTICS**

The location of the meeting will be:

Jacksonville University  
2800 University Boulevard  
Reid Medical Science Center  
Room 201  
Jacksonville, FL 32211

Click here to see a map, get directions, and take a virtual tour of the University: <http://www.ju.edu/directions/#map>

We are coordinating the meetings with Dr. A. Quinton White, Dean of the College of Arts and Sciences at Jacksonville University.

Please visit the Jacksonville University Dept. of Biology and Marine Sciences Web site at: <http://dept.ju.edu/marinesci/index.htm>

For your convenience, we have booked a block of rooms at the Ramanda Inn and Conference Center (904) 724-3410. Mention "UNOLS" to get the special rate of \$65.nite. Click here to see information and directions to this hotel:

[http://www.hotelfile.net/hotelinfo/Jacksonville/FL/United\\_States/26620/](http://www.hotelfile.net/hotelinfo/Jacksonville/FL/United_States/26620/)

If you need to make airline reservations you can call the San Jose State University contracted travel agent: Uchida Travel @ (408) 293-3399 or e-mail at [uchidatrvl@aol.com](mailto:uchidatrvl@aol.com). Please check out the UNOLS Web site at [www.unols.org](http://www.unols.org) <<http://www.unols.org>> and consult the travel guidelines and rules for UNOLS travelers at: [http://www.unols.org/travel/Travel\\_Guidelines.html](http://www.unols.org/travel/Travel_Guidelines.html)

**Please RSVP the UNOLS Office. We will also have parking information for you as soon as it becomes available.**

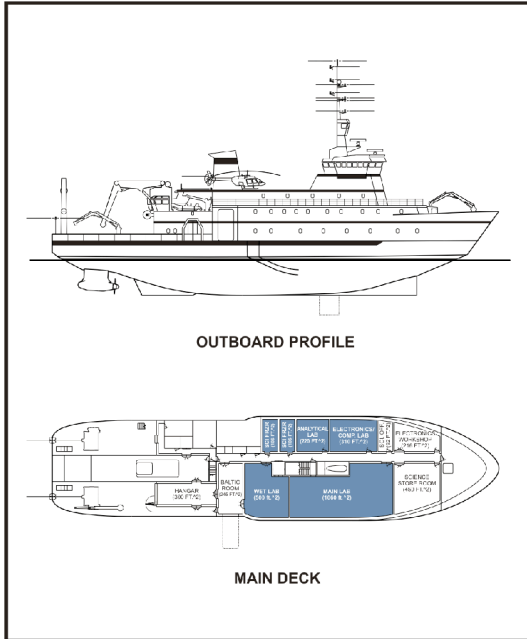
**UNOLS Council Meeting – Feb 27-28, 2002 – Jacksonville University, Jacksonville, FL**

<b>LAST</b>	<b>FIRST</b>	<b>UNIVERSITY</b>	<b>Phone</b>	<b>Fax</b>	<b>Email</b>
Atkinson	Larry	Old Dominion University	(757) 683-4926	(757) 683-5550	atkinson@ccpo.odu.edu
Clough	Lisa	East Carolina University	(252) 328-1834	(252) 328-4178	cloughl@mail.ecu.edu
Coburn	Joe	WHOI	(508) 289-2624	(508) 540-8675	jcoburn@whoi.edu
Collins	Curtis	NPS	(831) 656-3271	(831) 656-2712	collins@nps.navy.mil
Corliss	Bruce	DUKE/UNC Marine L	(919) 684-2951	(919) 684-5833	bruce.corliss@duke.edu
Cowles	Tim	OSU	541 737-3966	541 737-2064	tjc@coas.oregonstate.edu
DeSilva	Annette	UNOLS - URI	(401) 874-6827	(401) 874-6167	office@unols.org
Dieter	Dolly	NSF	(703) 292-8581	(703) 292-3090	edieter@nsf.gov
Flagg	Charles	BNL	(631) 344-3128	(631) 344-2060	flagg@bnl.gov
Fornes	Bill	CORE	(202) 332-0063 X220	(202) 332-8887	wfornes@COREocean.org
Gardner	Wilf	TAMU	(979) 845-7211	(979) 845-6331	wgardner@ocean.tamu.edu
Hansell	Dennis	U Miami	(305) 361-4078	(305) 361-4689	dhansell@rsmas.miami.edu
Hebert	David	URI	(401) 874-6610	(401) 874-6728	hebert@gso.uri.edu
Hinton	Robert	Atlantic Marine	(904)251-9952	904-829-3263	rmhinton@bellsouth.net
Knox	Bob.	UCSD-SIO	(858) 534-4729	(858) 822-5811	rknox@ucsd.edu
Measures	Chris	U Hawaii	(808) 956-5924	(808) 956-7112	chrism@soest.hawaii.edu
Meehan	James	NMFS	(301) 713-2363	(301) 713-1875	james.m.meehan@noaa.gov
Pfeiffer	Tim	ONR	(703) 696-6999	(703) 696-2710	pfeiff@onr.navy.mil
Pittenger	Dick	WHOI	(508) 289-2597	(508) 457-2185	rpittenger@whoi.edu
Poulos	Steve	U Hawaii	(808) 956-6650	(808) 956-9971	poulos@poha.soest.hawaii.edu
Prince	Mike	UNOLS - MLML	(831) 632-4410	(831) 632-4413	office@unols.org
Rabalais	Steve	LUMCON	(985) 851-2808	(985) 851- 2863	srabalais@lumcon.edu
Reeve	Mike	NSF	(703) 292-8581	(703) 292-9085	mreeve@nsf.gov
Shipley	Tom	U TX at Austin	(512) 471-0430	(512) 475-6338	tom@utig.ig.utexas.edu

Smethie	Bill	LDEO	(914) 365-8566	(845) 365-8176	bsmeth@ldeo.columbia.edu
Taylor	Paul	NAVOCEANO	(228) 688-5843	(228) 688-5602	taylorp@navo.navy.mil
Ustach	Joe	Duke/UNC Marine L	(252) 504-7579	(252) 504-7651	joeu@duke.edu
White	Beth	NOAA	(301) 713-3435 X135	(301) 713-1541	elizabeth.white@noaa.gov
Whitledge	Terry	U AK at Fairbanks	(907) 474-7229	(907) 474-7204	terry@ims.uaf.edu

# ALASKA REGION RESEARCH VESSEL

## CONCEPT DESIGN



### VESSEL CHARACTERISTICS

Length, Overall .....	226'-0"
Length, Design Waterline.....	200'-0"
Beam, Maximum .....	52'-0"
Beam, Amidships .....	48'-0"
Depth, Amidships .....	29'-0"
Draft, Design Waterline .....	18'-0"
Displacement .....	2,800 LTSW

Lab Area, Total .....	2,100 ft. <sup>2</sup>
Covered Working Deck .....	545 ft. <sup>2</sup>
Exterior Working Deck .....	3,500 ft. <sup>2</sup>

Propulsion Power .....	5,750 HP
Endurance .....	45 Days

### ICE TRANSITING CAPABILITY

Ice Type.....	Winter, First-Year Ice, 72.5 ksi
Level Ice Thickness .....	2.2 ft. - 2.5 ft.
Ridge Height/Depth.....	7 ft./20 ft.

### SCIENCE EQUIPMENT

CTD Winch	
Capacity .....	6,000 lbs.
Cable, 0.322 in. EM .....	33,000 ft.

Hydro Winch	
Capacity .....	6,000 lbs.
Cable, 3x19 hydrowire .....	33,000 ft.

Deep Water Traction Winch	
Capacity .....	10,000/25,000 lbs.
Cable, 0.680 in. coax .....	26,500 ft.
Cable, 9/16 in. towing .....	33,000 ft.

Over-side Handling Equipment	
Stern A-Frame .....	20,000 lbs.
Side A-Frame .....	12,000 lbs.
Baltic Room Extension Crane .....	12,000 lbs.
Knuckle boom crane.....	20,000 lbs.
Aft deck crane, small .....	2,000 lbs.
Fore-deck crane .....	2,000 lbs.

### FISHERIES EQUIPMENT

Suitable for catch weight to 25,000 lbs.  
Capable of towing to a depth of 3,300 ft.

Full Suite of Trawl Winches (Removable)	
Trawl Winches .....	2x13,000 ft. of 1.13 in. WR
Net Reel.....	350 ft. <sup>3</sup> Net Capacity
Gilson, Outhaul, Net Sonde Winches	

Aft Deck Arranged for Fisheries	
Stern Ramp .....	13 ft. wide, 37 degree slope
Trawlway .....	13 ft. wide, 47 ft. long

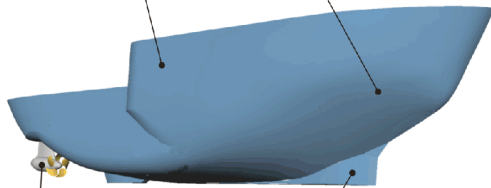
### HULL PERFORMANCE FEATURES

#### REAMERS

- Improve turning in ice
- Break wider channel
- Reduce midship friction
- Enable the use of vertical sides midship

#### BOW FORM

- Compromise between ice and open water performance
- Relatively shallow buttocks (slope)



#### AZIMUTHING PROPULSORS

- Superior maneuverability and control
- Extend operability in ice significantly
- Enable breaking/clearing with prop wash
- Enhances available thrust

#### ICE WEDGE

- Prevents beaching and loss of stability in ice
- Splits thick ice
- Guides ice away from vessel bottom and propulsors
- Provides location for bow

### DESIGN OVERSIGHT COMMITTEE

VERA ALEXANDER, UAF, CHAIR  
ROBERT ELSNER, UAF  
TERRY WHITLEGDE, UAF  
THOMAS WEINGARTNER, UAF  
TOM SMITH, UAF  
RICHARD PITTENGER, WHOI  
ROBERTSON DINSMORE, WHOI  
JOE COBURN, WHOI



### PROJECT TIMELINE

	2000	2001	2002	2003	2004	2005
CONCEPT DESIGN	█	█	█			
PRLIMINARY DESIGN			█	█		
MODEL TESTING				█		
CONTRACT DESIGN					█	█
CONSTRUCTION						█

# Renewal of the Academic Fleet



**UNOLS Fleet Improvement Committee Meeting**  
**Tuesday, February 26, 2002, 8:30 a.m.**  
**Jacksonville, Florida**

# Current Goals

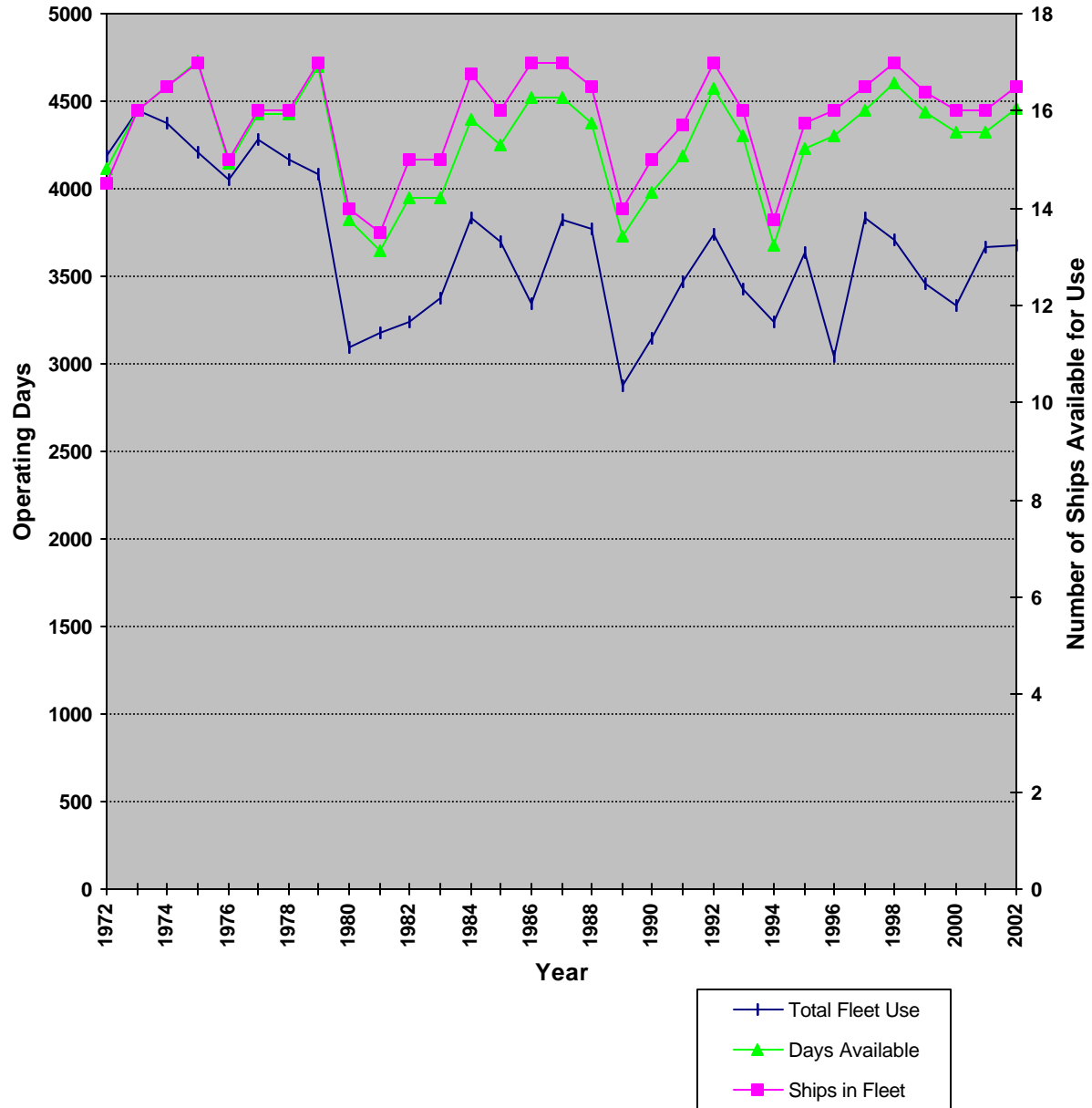
- Establish a Fleet Renewal Implementation plan in concert with Navy.
- Provide suitable material (SMRs, white papers) to NSF, Navy, NOPP, other agencies and the community
- Continue to urge agencies to develop capitalization plans.
- Keep the community involved via letters to EOS etc.



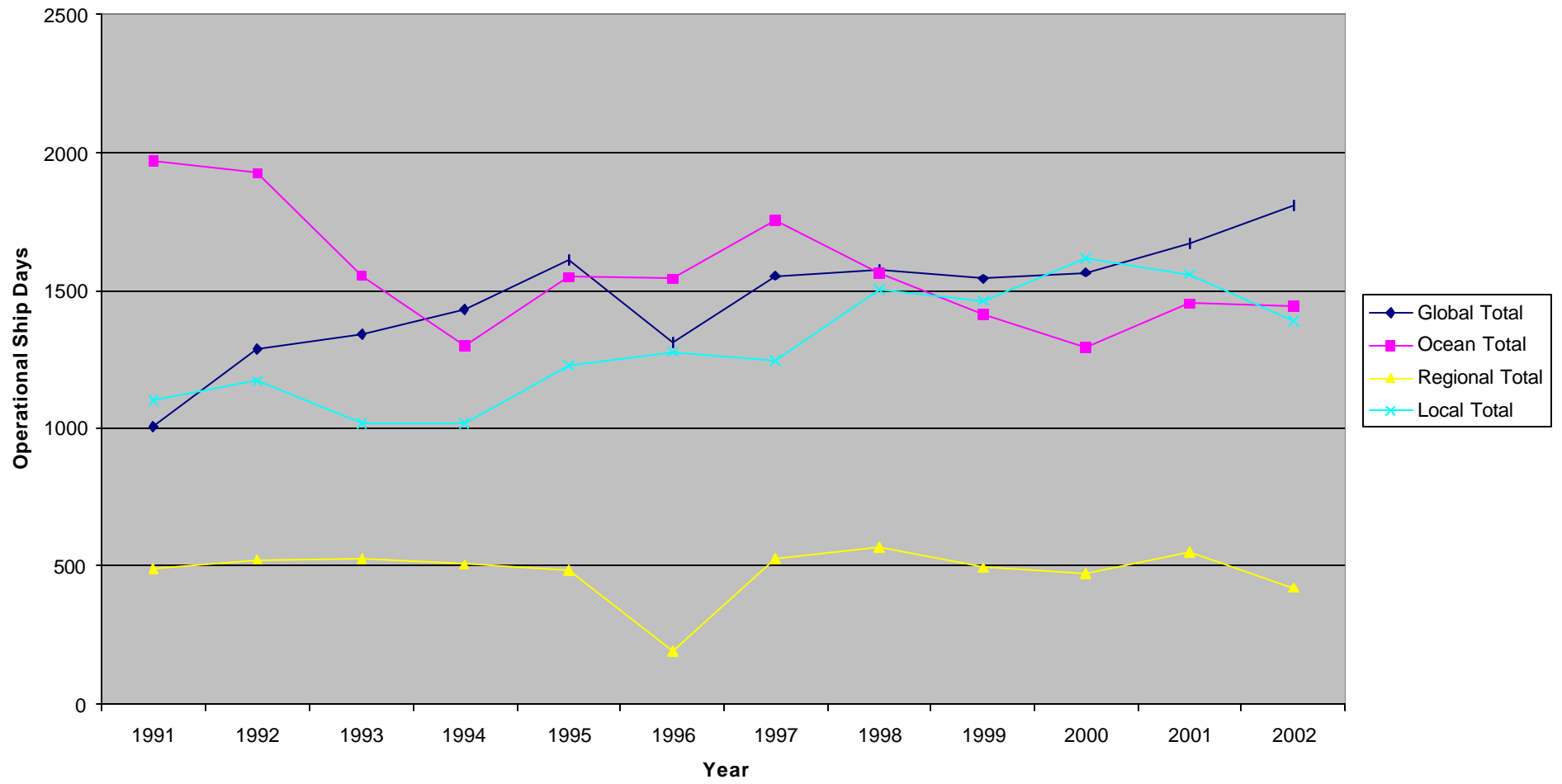
# The Current Situation

- **Long-Range Planning for the UNOLS Fleet. NORLC FOFC Report.**
- **Analysis of Utilization Trends**
- **Fleet Renewal Efforts in Progress**
  - **Kilo Moana - Our SWATH Test**
  - **ARRV**
  - **Cape Henlopen**
  - **Savannah**
  - **N. Atlantic and N. Pacific *Oceans* Class Vessels (OSU/URI effort)**

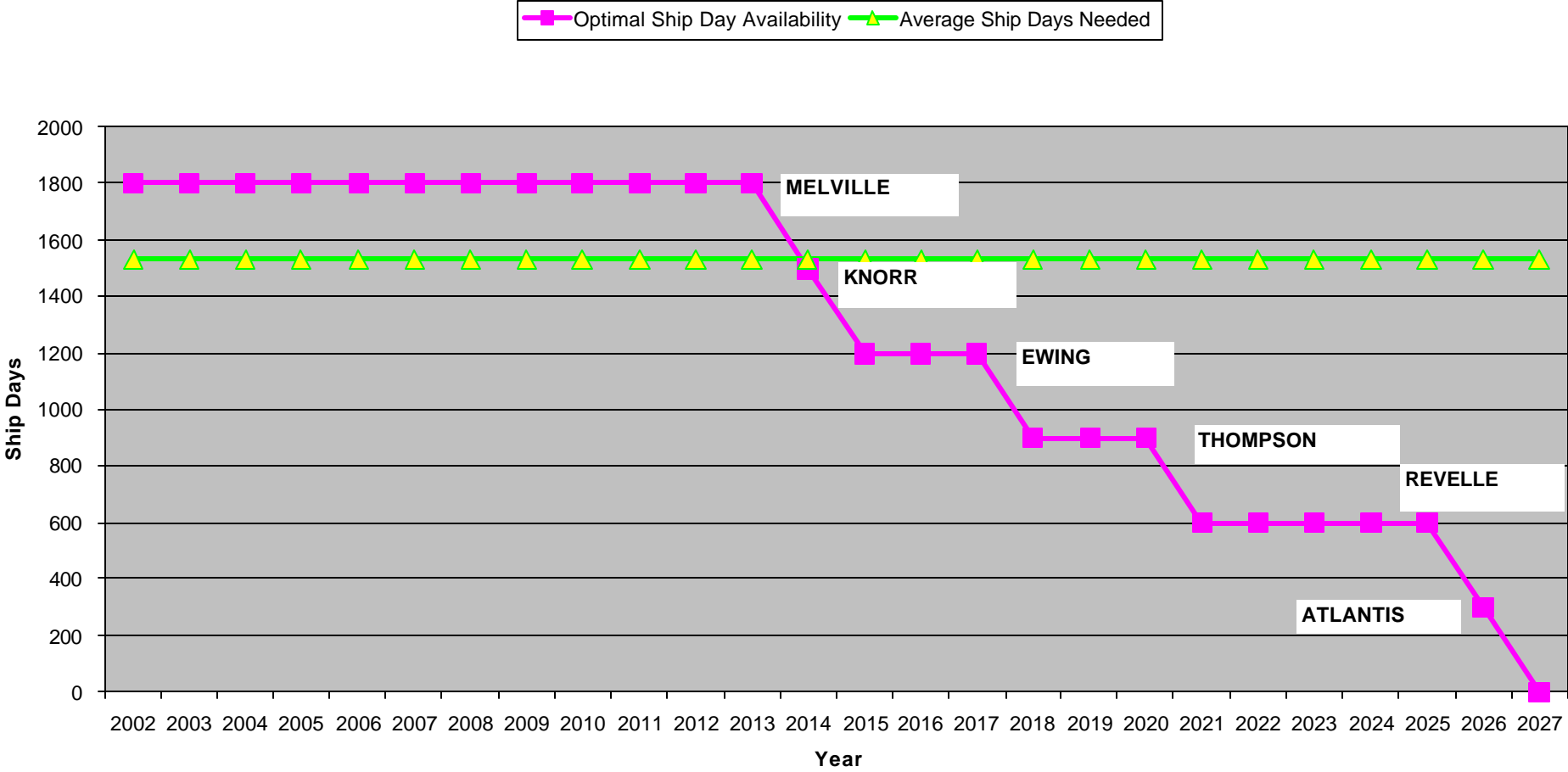
## UNOLS Vessels >150 ft: Days Available, Days Used, and Number of Ships



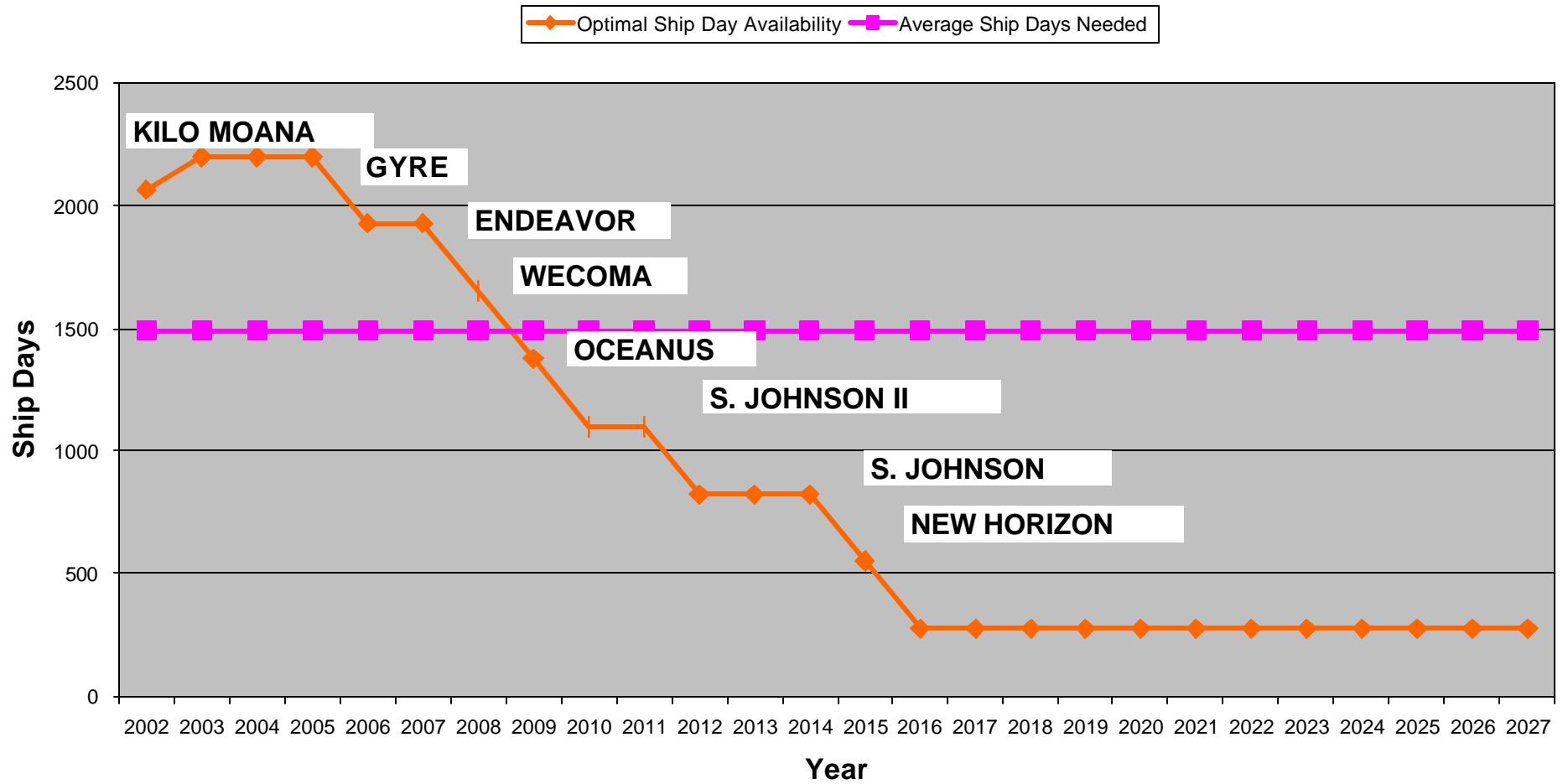
Utilization by Vessel Class: 1991-2002



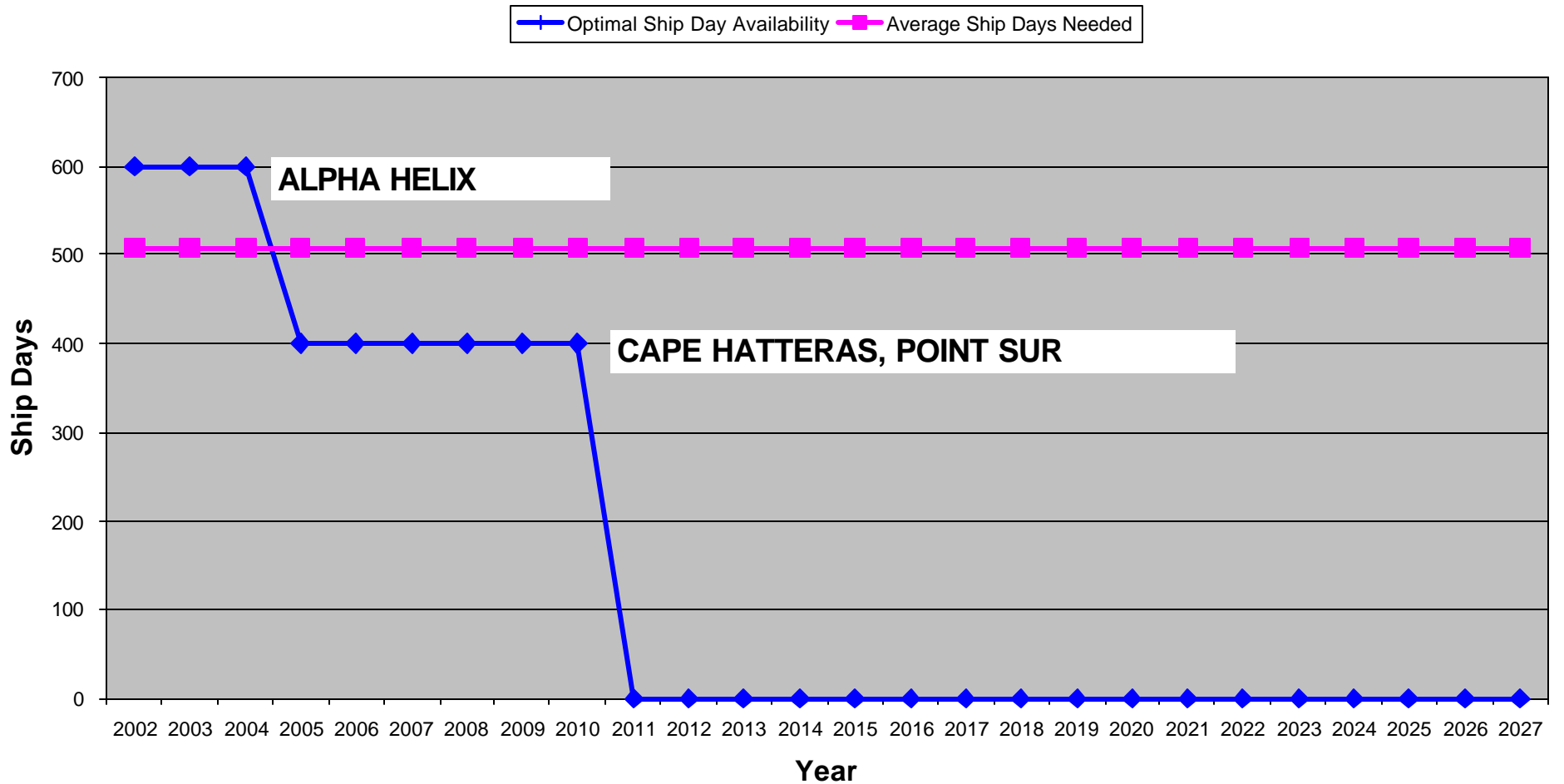
# Global - Optimal Ship Days vs Average Days Needed



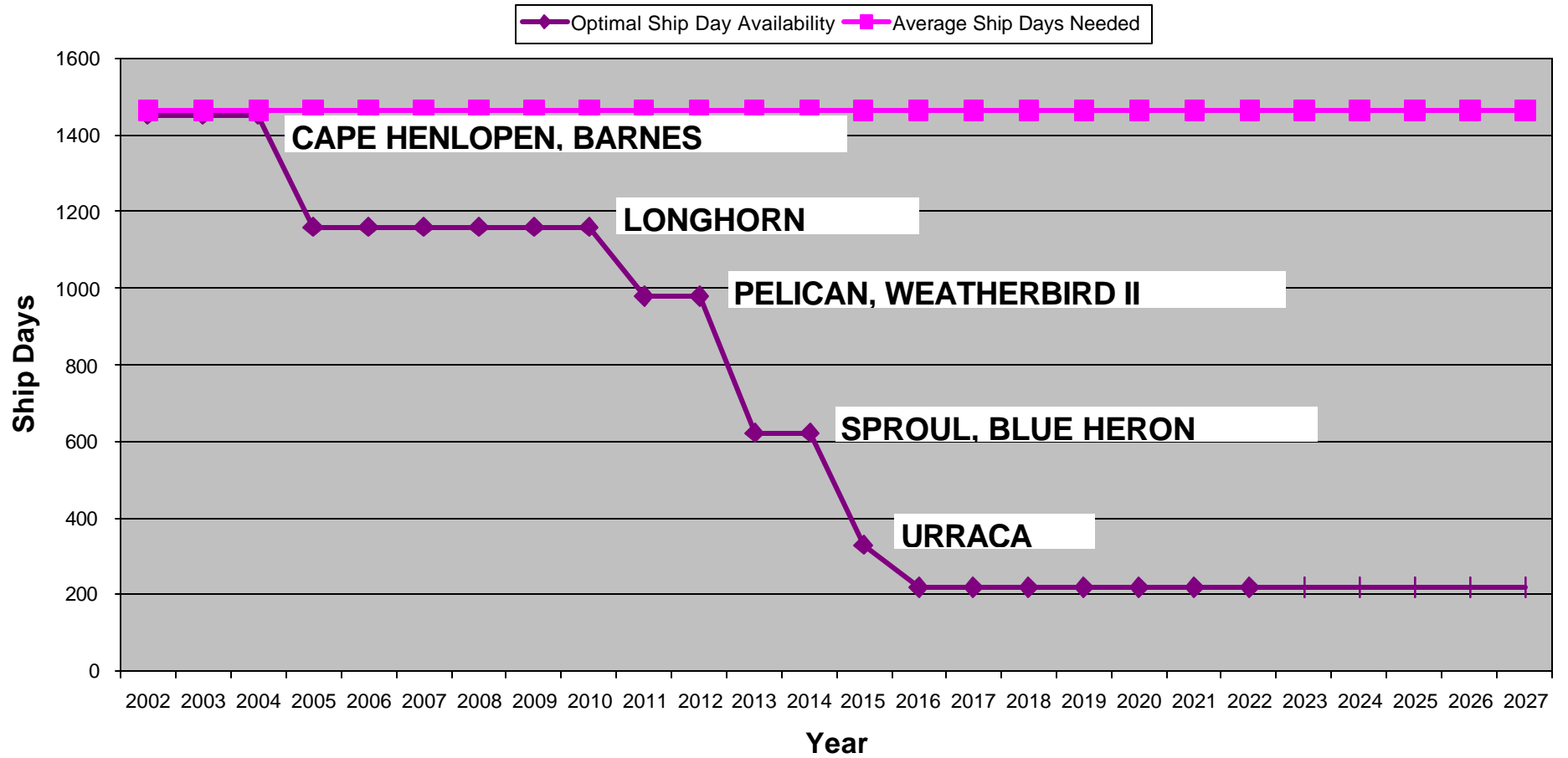
## Ocean Class - Optimal Ship Days vs Average Days Needed



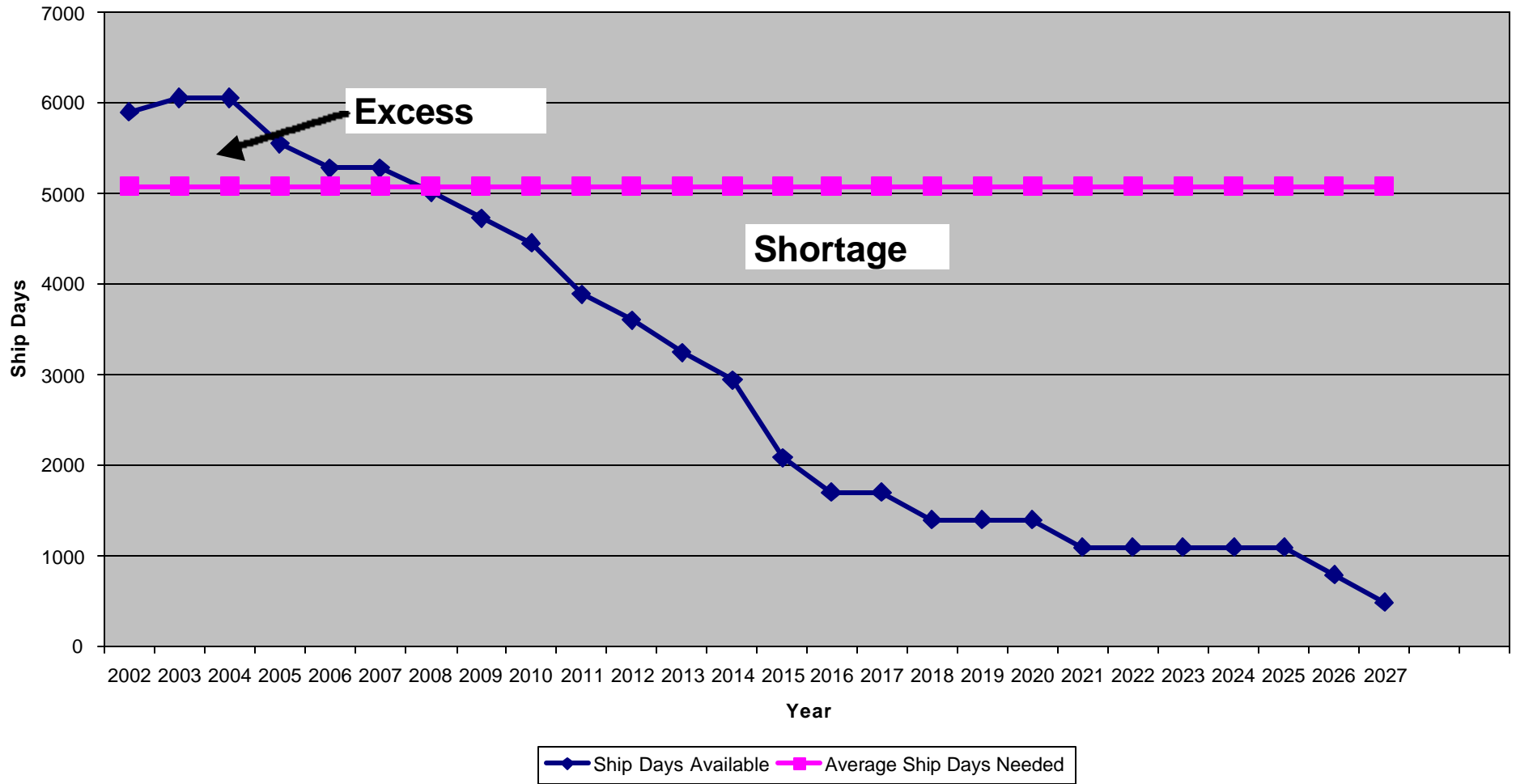
## Regional Class - Optimal Ship Days vs Average Days Needed



## Local Class - Optimal Ship Days vs Average Days Needed



Total Ship Days Available vs Average Ship Days Needed



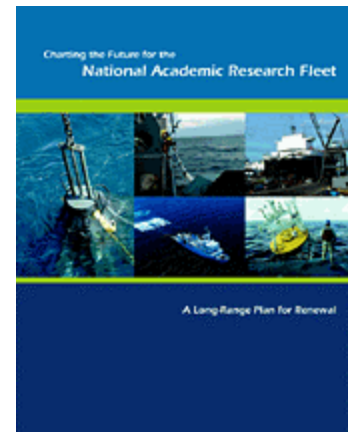


# **Fleet Renewal Implementation Plan**

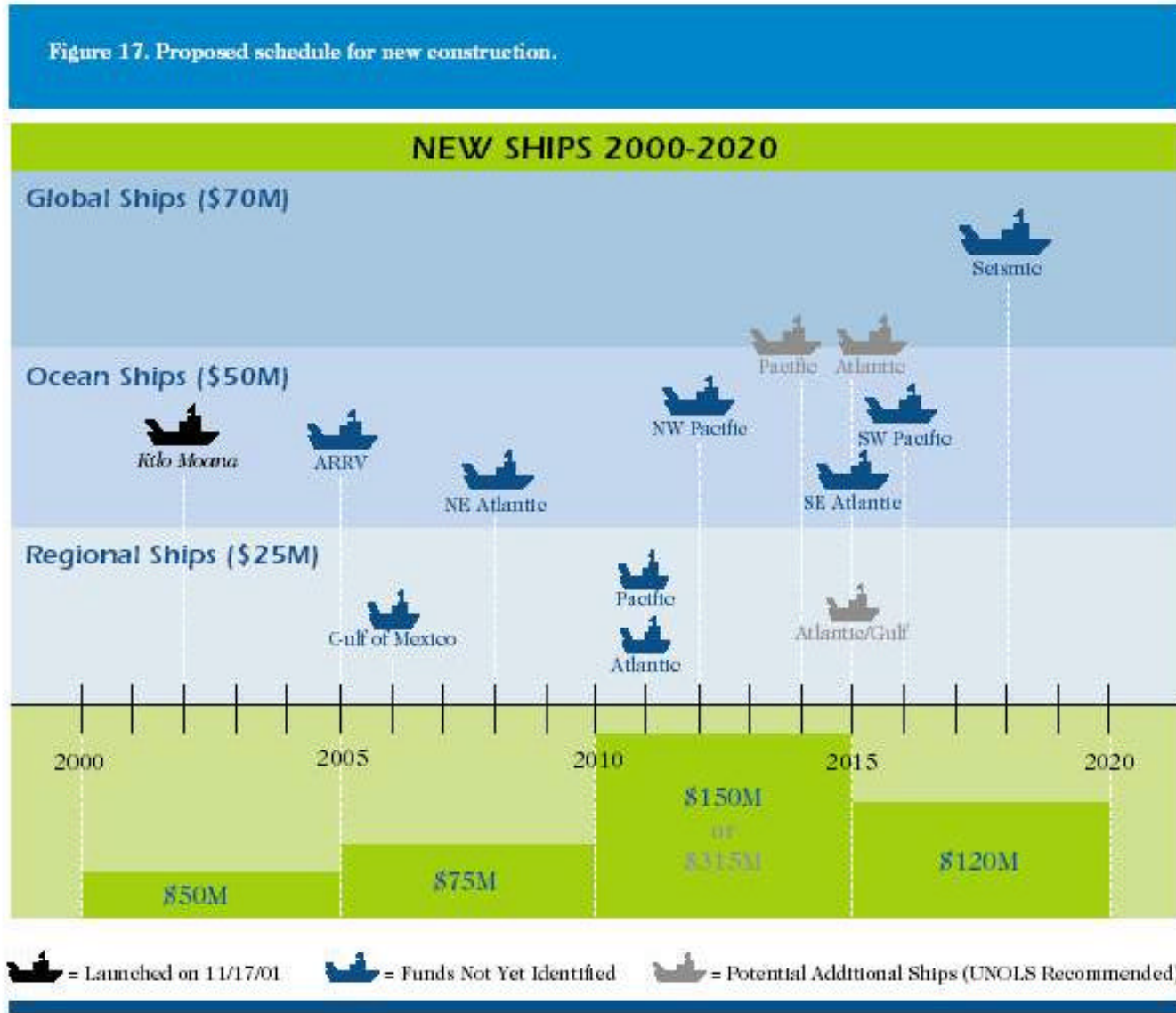
- **Renewal Implementation Plan Website**
- **FOFC Fleet Renewal Implementation Plan**
- **Navy suggested approach.**

# Charting the Future for the National Academic Research Fleet – A Long-Range Plan for Renewal

- *“Building a portfolio of ship-concept designs and identifying science mission requirements (SMRs) will also be important functions undertaken to maintain a modern, technologically viable fleet capable of supporting evolving science needs.”*



# FOFC Plan



# 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

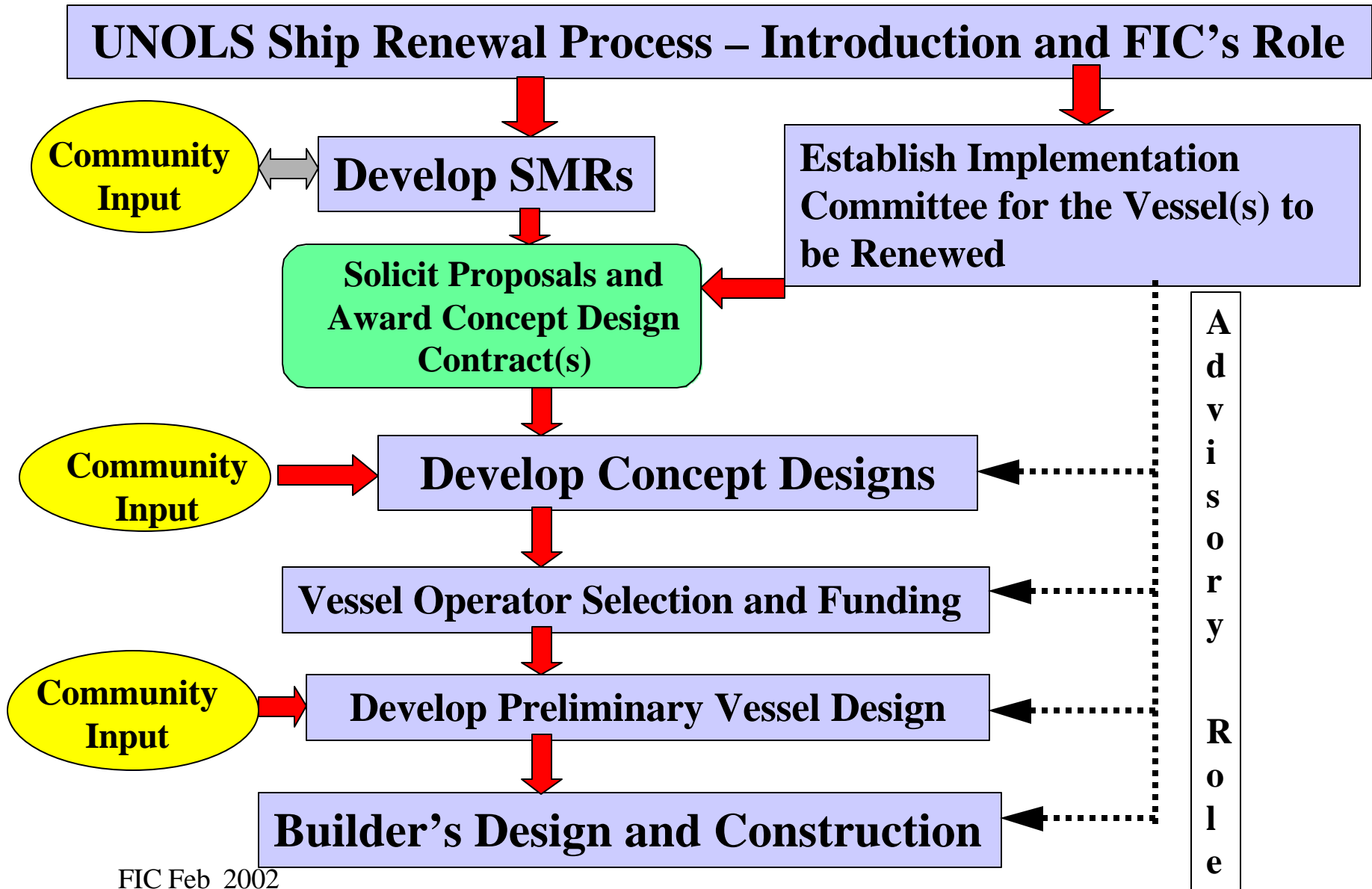
# Parallel Process Begins

- Federal Side
  - Funding scenarios (who pays?)
  - Sponsorship (who builds?)
  - Operation (something we can afford)
- Academic Side
  - Capabilities of ships.
  - Number of ships.
  - Geographic distribution
  - Keeping vitality of the distributed system intact
  - Science Mission Requirements (Where scientists shape the ship)

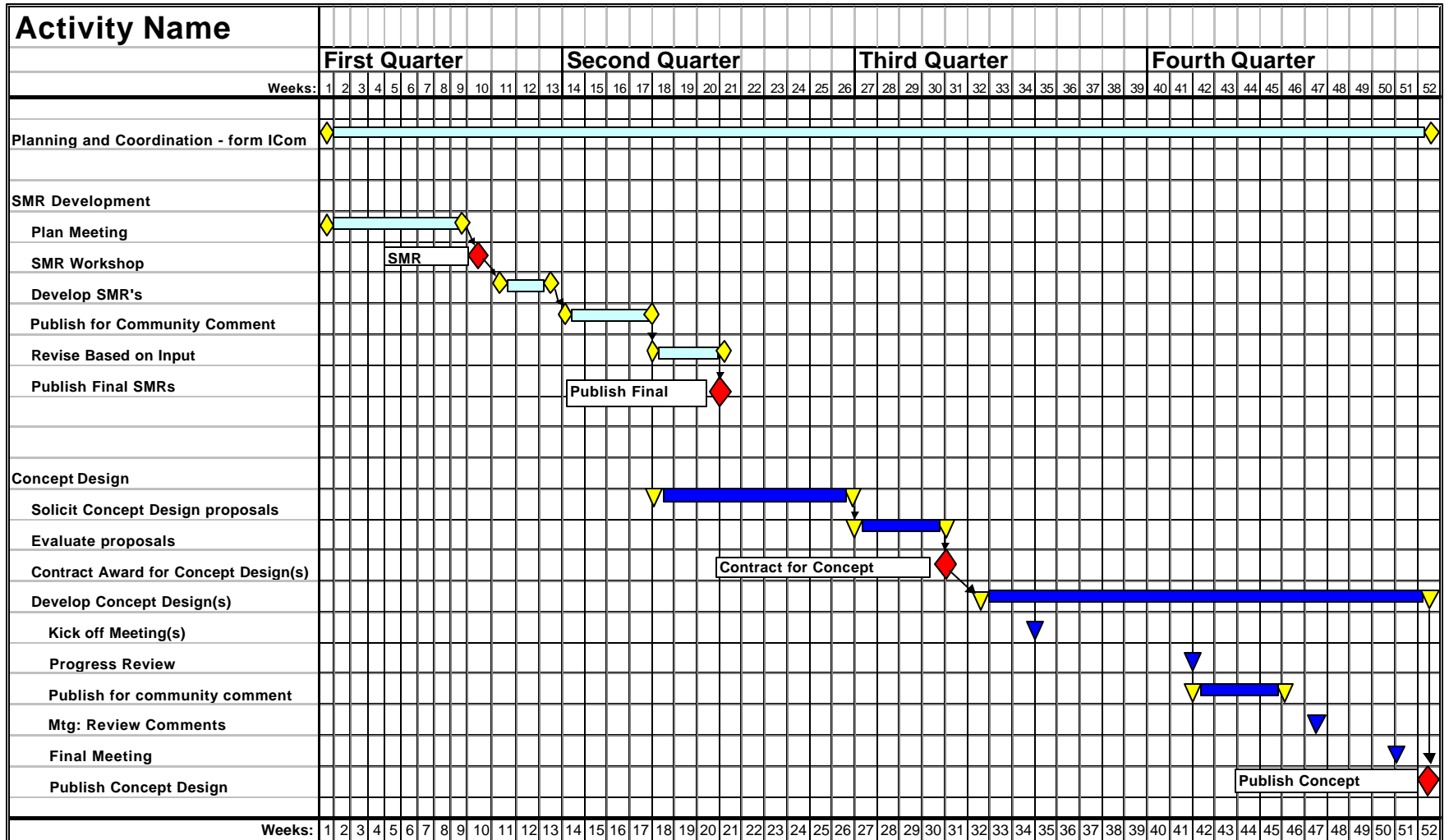
# Now the Navy Proposal

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.

# The SMR and Concept Design Process



# The SMR to Concept Design Process





# Design/Construction Funding Schedule

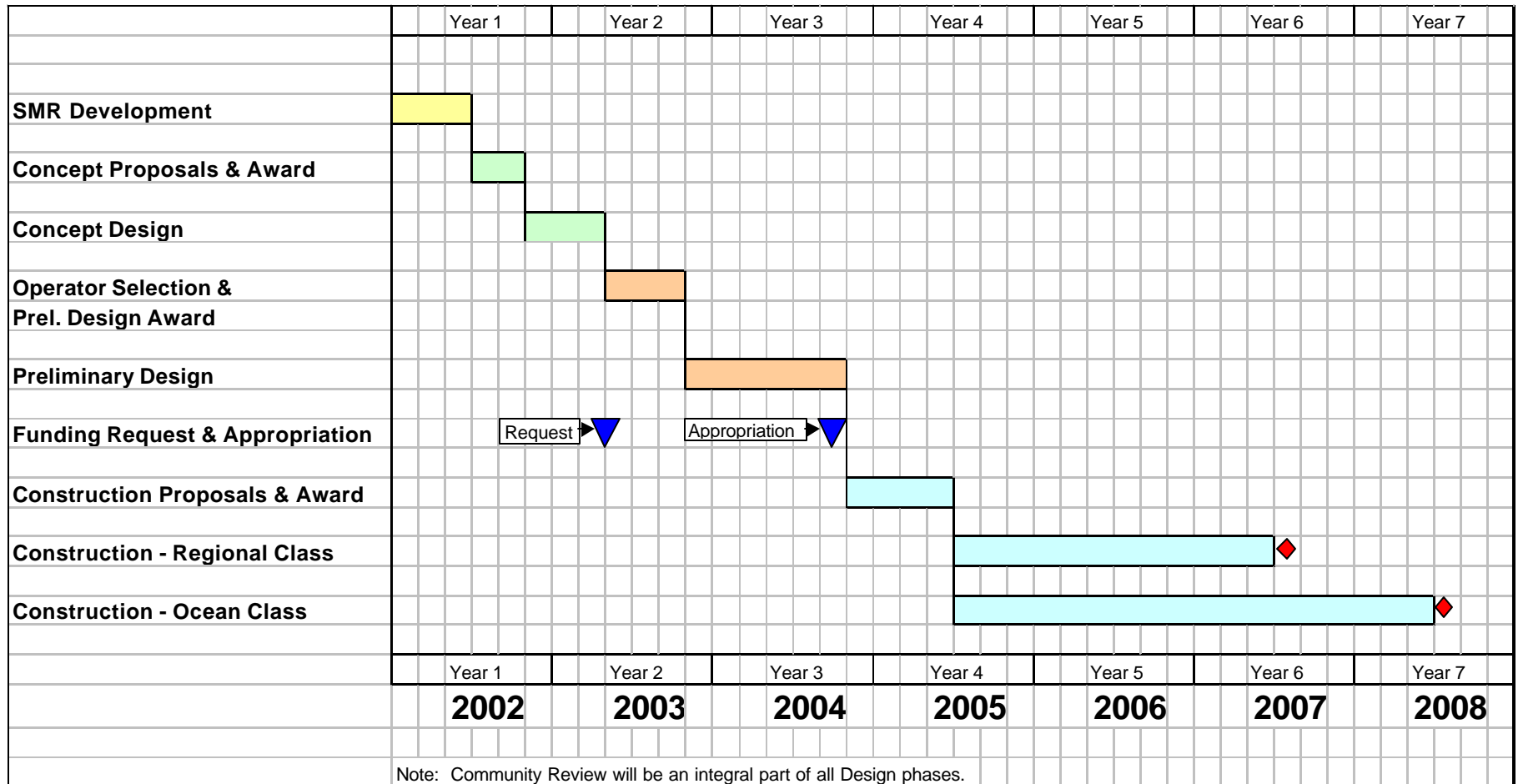
## **Gulf of Mexico Regional Vessel: Needed in 2006**

- **2002 (now) - Concept Funds(\$25K)**
- **Late 2003 - Preliminary Design Funding (\$500K)**
- **Early 2003 - Construction Funding Request (\$25M) –**
- **10/1/04 - Construction Appropriation**
- **2007 - Vessel in service**

## **NE Atlantic /NW Pacific Vessel: Needed in 2008**

- **2002 (now) - Concept Funds(\$25K)**
- **Late 2003 - Preliminary Design Funding (\$1M)**
- **Early 2003 - Construction Funding Request (\$50M)**
- **10/1/04 - Construction Appropriation**
- **2008 - Vessel in service**

# Design and Construction Timeline: Regional and Ocean Class



# Fleet Capitalization

- Appropriations and Funding for Fleet Renewal - Agencies
- FIC Role? What can we do?

# Community Outreach and Involvement

- Letters - EOS, etc.
- SMR Workshops.
- FIC Website.
- Ocean Sciences Town Hall.
- Recommendation
  - Regular (2/year in EOS and other society newsletters (ASLO, ?))
  - UNOLS Rep. Give specific instructions regarding contact.

# Kilo Moana Shakedown Planning

- Goal - assure adequate assessment by oceanographers for oceanographers
- Process - Test plan, test schedule, participation, end product.

# FIC Membership

- Two vacancies
  - Renewal of existing members
  - Nominations

# What will demand be?

- Effect of new technology. More buoys, gliders, and observatories and few ships?
- Most think demand will increase as new phenomena are observed.
- Funding priorities. Agencies can drive ship demand up or down. Reality is funding for field operations will stay essentially flat.

# Recent Developments

- Federal Review of Academic Fleet: UNOLS concept is OK. Asks for replacement plan.
- Federal Oceanographic Facilities Committee (FOFC) develops recommendations for fleet replacement.
- Community Review and Comment of Federal plans.
- Leads to ....FOFC Report



# 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.

# **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)**

- **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**

# Latest Activities

- Discussions are progressing between ONR, Oceanographer of the Navy, NavSea and NSF regarding ways to get renewal process started.
- It is a given that the academic community will be involved.
- UNOLS/FIC assessment of best procedure for SMR process. Input from concept design groups.

# Other Present Activities

- R/V *Kilo Moana* - Construction
- Alaska Region Research Vessel – Design development
- *Cape Henlopen* Replacement
- Activities to replace ‘Ocean Class’ such as *Wecoma* and *Endeavor*
- Gulf of Mexico – initiated
- Many smaller, capable coastal vessels.

# 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.

# Members of FIC

- Larry Atkinson, Chair (ODU)
- Mark Brzezinski (UCSB)
- David Hebert (URI)
- Chris Measures (U. Hawaii)
- Bill Smethie (LDEO)
- Terry Whitley (U. Alaska)
- Joe Coburn, ex-officio (WHOI)
- Web site <<http://www.unols.org/fic/>> for addresses and information

## **Apparent Over-Capacity**

The utilization figures seem to indicate an excess capacity of one ship. However science cannot be responsively scheduled without the flexibility afforded by the apparent over-capacity.

The long-term history is that the funding has been basically flat and ship demand comes from funded science proposals. The best estimate is that funding and ship demand will remain flat.

The FOFC plan seems to indicate a reduction in fleet size by one vessel, which if the demand remains flat will result in a fleet, which could not be scheduled to meet the demand of science.

Utilization is a balance between numerical efficiency and scientific flexibility. Obtaining 100% fleet use efficiency can only come by sacrificing flexibility needed to meet scientific goals – the point of the oceanographic fleet. In addition, the current excess capacity would disappear rapidly were there to be a 10 – 15% increase in sea-going funding or a similar increase in demand for sea-going research.



# Ocean Class Vessel

## Steering Committee:

**Dave Hebert (URI)**  
**Tim Cowles (OSU)**  
**Bob Knox (SIO)**  
**Joe Coburn (WHOI)**  
**SE Atlantic representative.**

## Tasking:

- **Develop a process for SMR development. - The process should define methods for getting broad community input. Identify workshop/meeting needs and essential participants including Naval architect. Establish a project timeline.**
- **Prepare a proposal to support workshop/meetings and submit to the UNOLS Office. Upon award, proceed to workshop and SMR development.**
- **Work with the Navy in support of their “Oceanographic Ship Common Scaleable Hull Study.”**
  - **Provide Tim Pfeiffer with a Steering Committee POC.**
  - **Provide a prioritized set of requirements and desired capabilities. Wherever possible, requirements should be expressed in ranges rather than discrete values. Evaluate existing SMRs.**
  - **Participate in study review meetings.**
- **Define steering committee’s role in implementation process (activities following SMR Development).**

# Gulf of Mexico Vessel

## **Steering Committee:**

Wilf Gardner, Chair

Steve Rabalais

Tom Shipley

Denis Wiesenburg

Dennis Hansell

Fic member - Gulf of Mexico

Rep. from outside Gulf

## **Tasks:**

1. What are the future science plans of investigators working in the Gulf?
2. Given that the region loses an Ocean class vessel in 2006, what are the science mission requirements of a new vessel to accomplish the anticipated work in the Gulf?

## **Proposed Meeting:**

- **Houston, TX - April 22**
  - **TAMU System - Institute of Biosciences & Technology (IBT) Building in Museum District - no cost**
  - **National call for meeting participation - e-mail, web, EOS**
  - **Anticipate ~25 people attending**
  - **Send request for funding to Mike Prince, UNOLS Office**
  - **Request statement of future use needs and SMR's in advance of meeting (from anyone)**
  - **Annette DeSilva to provide history of ship use data and type of work.**
- 
- **Update progress through UNOLS website**
  - **Liaison with UNOLS/ONR Oceans Class committee**

## **KILO MOANA Testing**

- Ship performance tests – proposal submitted to ONR
- Post cruise evaluations - entire science party
- Science equipment/systems testing (pre-science ops) – U.Hawaii is drafting plan
- Post-cruise de-briefs by FIC - Draft form to ask specific questions regarding the science performance of the ship. Obtain feedback from science party and crew. Terry Whitley and Dave Hebert will draft form.



# NOAA CHARTERING



## CHARTERING WITH UNOLS

FY 2002

Ship	DAS	Location	Project	Line Office	Cost (K)
PELICAN	20	Gulf Of Mexico	ECOHAB	NOS/COP	94
WECOMA	25	coastal Washington	ECOHAB	NOS/COP	340
SPROUL	26	southern California	ECOHAB	NOS/COP	195
WECOMA	36	Oregon coast	GLOBEC	NOS/COP	483
UNOLS class II-III	24	Oregon coast	GLOBEC	NOS/COP	288
ALPHA HELIX	31	Gulf of Alaska	GLOBEC	NOS/COP	378
PELICAN	24	Gulf of Mexico	N-GOMEX	NOS/COP	113
UNOLS class IV	12	Gulf of Mexico	N-GOMEX	NOS/COP	56
UNOLS class IV	45	Pacific Ocean	Coral Reef Regional Ecosystem Studies	NOS/COP	446
NEW HORIZON	10	Pacific Ocean	Calcod	NMFS/SWFSC	120
CAPE HENLOPEN	22	Delaware Estuary	Estuarine Research	OAR/SG	178
WEATHERBIRD	10	East Coast	Larval Lobster	OAR/SG	40
BLUE HERON	11	Lake Superior	Lake Superior Ecosystem	OAR/SG	49
LAURENTIAN	6	Lake Michigan	Trophic State of Lake Michigan	OAR/SG	3
BLUE HERON	6	Great Lakes	Round and Tubnose Gobies	OAR/SG	26
EWING	64	Northern Pacific	FOCI and Tsunami	OAR/PMEL	1337
WALTON SMITH	54	Atlantic Ocean	South Florida Ecosystem Restoration	OAR/AOML	474
PELICAN	26	Gulf of Mexico	Hypoxia Effort	OAR/AOML	74
UNOLS class V	12	Atlantic Ocean	Florida Current Transport Study	OAR/AOML	17
SEWARD JOHNSON	75	Atlantic Ocean	Ocean Exploration	OAR/OE	1300
ATLANTIS	46	Atlantic Ocean	Ocean Exploration	OAR/OE	1500
KILO MOANA	10	Pacific Ocean	Ocean Exploration	OAR/OE	200
	595				7711



# NOAA CHARTERING



## CHARTERING WITH UNOLS

FY 2001					
Ship	DAS	Location	Project	Line Office	Cost (K)
PELICAN	25	West Florida coast	ECOHAB	NOS/COP	116
CAPE HATTERAS	32	Gulf of Maine	ECOHAB	NOS/COP	342
OCEANUS	10	Gulf of Maine	ECOHAB	NOS/COP	99
ALPHA HELIX	128	Gulf of Alaska	GLOBEC	NOS/COP	1305
WECOMA	15	Oregon coast	GLOBEC	NOS/COP	216
NEW HORIZON	2	Oregon coast	GLOBEC	NOS/COP	26
PELICAN	19	Gulf of Mexico	N-GOMEX	NOS/COP	95
CLIFFORD BARNES	20	Pacific Ocean	Backfill fisheries charter	NMFS/SWFSC	40
BLUE HERON	10	Lake Superior	Lake Superior Ecosystem Studies	OAR/SG	34
BLUE FIN	16	East Coast	Estuarine Studies	OAR/SG	45
CAPE HENLOPEN	17	Delaware River	Oxygen Dynamics in Estuarine Waters	OAR/SG	114
WECOMA	17	Oregon Washington coast	VENTS	OAR/PMEL	221
YELLOW FIN	5	West Coast	EPA	OAR/PMEL	13
WALTON SMITH	62	SW Florida Shelf	South Florida Ecosystem Restoration	OAR/AOML	434
PELICAN	15	West Florida Shelf	Nutrient Dynamics	OAR/AOML	77
OCEANUS	57	Atlantic Ocean	Western Boundary Series/Moorings	OAR/AOML	680
SEWARD JOHNSON	6	Atlantic Ocean	Islands In The Stream	OAR/OE	90
ATLANTIS	30	Atlantic Ocean	Deep East	OAR/OE	930
NEW HORIZON	3	Pacific Ocean	Ocean Exploration	OAR/OE	41
SEWARD JOHNSON	4	Atlantic Ocean	Undersea Research	OAR/NURP	48
ATLANTIS	25	Atlantic Ocean	Undersea Research	OAR/NURP	458
	518				5424

## **RVOC Research Vessel Security Committee Update**

At the autumn, 2001 Research Vessel Operators' Committee meeting in Rhode Island, the assembled Marine Superintendents voted to form a 'Security Sub-Committee' which would serve as a point of contact and communications outlet regarding related issues as they face the Academic Research Vessel community. The attempted pirate attack on the R/V Ewing, followed by the terrorist attacks of September 11th, have focused our attention on the safety of our vessels as they conduct their missions around the globe.

Maritime security -- both for deployed ships and as an element of Homeland Defense -- has become a major national concern. New regulations or suggestions from a host of newly created instant "experts" promise to affect everything from "smart" mariners' identification cards to container screening to 96 hour notice requirements to/from U.S. ports to the addition of "Sea Marshals" on the bridge in certain waters. This is a dynamic time and the way in which ship operators conduct business is in a period of significant change.

Some of us have attended a number of forums around the country on this issue. So far (at least in the opinion of the sub-committee chairman), the presentations, such as those given at the last Council Meeting in November of 2001, have been unimpressive. The advice tendered by some agency spokespersons is quite often dated, narrow in focus and sounds like it came from a script written ten years before Sept. 11th. The presenters and spokespersons are not to blame: the new War on Terrorism has taken many of our leaders and citizens by surprise.

Websites on Maritime Security, piracy, threats to shipping, port security, war risk insurance, etc. continue to proliferate. A general over view of these sites is available at the UNOLS Security Maritime Security Site <http://www.unols.org/rvoc/security.html> . By far the most useful information available to mariners is the Office of Naval Intelligence weekly briefing prepared by Charles Dragonette [http://pollux.nss.nima.mil/onit/onit\\_j\\_main.html](http://pollux.nss.nima.mil/onit/onit_j_main.html). Beyond the information provided by the Office of Naval Intelligence, there is very little in the way of new information on this issue.

Every edition of every maritime magazine or journal, since September, has an article (or several) on Maritime Security. Most of these repeat what is already common knowledge rather than add useful information. The new links provided by the UNOLS website are a useful shortcut to some of these websites so that the information is accessible for everyone's use.

A major "U.S. Maritime Security Exhibition and Conference" is coming up this September in New York, the week before our UNOLS Meetings in Washington, DC. Some of us are planning on attending this Conference, and hopefully we'll have some useful--maybe more sophisticated--information to share afterward. MTS is including a 'Maritime Security & Technology' session at Oceans 2002 in Biloxi, MS, in late October.

Woods Hole and LAMONT now have "Security Guides" which were prepared by their security contractors. This information has some useful information for UNOLS operators and will be made available for general distribution to the fleet after revisions and editing.

Joe Coburn, WHOI, also reports that after an in-depth review with WHOI's insurer they have confirmed that their vessels are covered against terrorist action. As in the past they are required to inform their carriers of their ships schedules and keep them updated on any changes to the published schedules. Joe sees no reason for WHOI to forego a research objective on the basis of insurance.

The underwriter for LAMONT has provided them with a list of high risk areas which includes the Persian and Arabian Gulf and adjacent Gulf of Oman north of 24N. Operations in these regions are not precluded under their policy, however additional premiums will be assessed to vessels working in these areas.

The current batch of Ship Time Requests flooding into the UNOLS Office include at least one requesting a ship for work along the Somali coastline and there may be others indicating a desire to work near the Indonesian archipelago.



# CIRPAS Committee Proposal

## **1. Mission, goals and objectives of the Aircraft committee are:**

- To establish CIRPAS as a National Facility, with particular capabilities to support airborne research in the Ocean Sciences.
- To recruit people from the Ocean Science to mentor new instrument development projects.
- To facilitate the transition of new technology from the military to civil use and from our development programs to the market place.
- To coordinate the use of the CIRPAS Aircraft facility with Research Vessel Operations.
- To serve as a conduit for interaction between the atmospheric and oceanographic science communities.
- To seek collaboration with other agency supported oceanographic research operations.
- To facilitate scheduling of joint Research Vessel and Aircraft experiments
- To coordinate Flight Policies and Procedures
- To facilitate the requesting of services from CIRPAS

## **2. Description of the CIRPAS "National Facility:**

The Center for Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS) is a research center at the Naval Postgraduate School, Monterey, California. CIRPAS provides Remotely-Piloted Aircraft (RPA) as well as manned aircraft services to the science, research, test and evaluation communities at the lowest practical costs. CIRPAS also provides an array of meteorological, aerosol and cloud particle sensors, data acquisition systems, calibration and data reduction service. CIRPAS conducts payload integration, reviews flight safety and provides logistical planning and support to research and test projects. CIRPAS flight operations and the maintenance facility is located at Marina Municipal Airport, formerly Fort Ord's Fritchfield (Fig. 1).



Figure 1. CIRPAS' Twin Otter and Hangar at Marina Airport.

CIRPAS also has a UAV flight operations facility at McMillan Airport, Camp Roberts, California. The airfield is within the restricted airspace of Camp Roberts. Its runway is paved, and is 3,500 feet long. As NPS is not able to operate and maintain the CIRPAS aircraft, it relies on its prime contractor, the California Institute of Technology, for that service.

### ***The CIRPAS Aircraft***

#### **UV-18 Twin Otter**

This manned aircraft (Fig 2) will support the missions proposed here. It has around 1500 lbs payload capacity, and endures about 6 hours of flight. It cruises at 160 Kts, but it can loiter at speeds as low as 80 Kts, which makes it an exceptional platform for aerosol sampling work.



Figure 1. CIRPAS UV-18-6 Twin Otter) in flight.

### **Other Aircraft**

CIRPAS also has the Pelican, a manned single engine Cessna 337, the Pelican –II, an alternately manned-unmanned Cessna 337, remotely piloted Predators, and Altus.

### ***CIRPAS Instrumentation***

CIRPAS possesses a variety of scientific instruments and instrument suits. The basic meteorological and GPS suite consists of a Rosemount temperature probe, a Edgetech chilled mirror dew point sensor, a Rosemount flow angle probe with static ports, Vaisala temperature and dew point sensors, Eppley radiometers (total solar, partial solar, infrared, and UV), a Novatel GPS receiver with a ground survey station for differential correction, a TANS Vector GPS attitude system, a C-Midget-II INS-GPS system, an IRGA humidity and carbon-dioxide sensor, and an Aerodyne fast absolute humidity sensor. The CIRPAS aerosol instrumentation suite consists of a TSI 3-color nephelometer, a Radiance soot photometer, a TSI Ultrafine particle counter, and a TSI condensation nuclei counter. The CIRPAS cloud and particle instrumentation suite consists of an FSSP–100, a PCASP-100X, both with upgraded electronics, a CAPS scatter and occultation probes, and DMT 2D-P and 2D-PP probes, a TSI aerodynamic particle spectrometer, and a MOUDI Impactor. A new cloud radar, and a new wind lidar are near completion.

The CIRPAS mobile calibration laboratory is equipped with temperature, dew point, and pressure calibrators, DMA aerosol classifier systems for generation of particle size and concentration standards, integrating sphere for radiometer calibration, various tools and test equipment.

### **3. Draft Bylaws: How the committee will operate (ie. how often it would meet, where, how it makes its recommendations, etc.):**

- The CIRPAS committee will be established under Appendix II of the UNOLS charter concurrent with the establishment of CIRPAS as a National Facility
- This document will serve as the first draft of the <sup>3</sup>Bylaws<sup>2</sup> for this committee's operation. The committee will finalize the Bylaws and approve a final name for the committee.
- The committee will consist of two representatives of CIRPAS management and four members from the oceanographic or atmospheric science community. Every effort will be made to ensure a range of scientific disciplines and no more than one of the science members of the committee will be from the Naval Postgraduate School.
- Other representatives of the facility operator (CIRPAS, NPS and CALTECH) may attend meetings as non-voting representatives, not supported by the UNOLS budget.
- Committee members will serve for three year terms, renewable once for a total of six years. If the committee continues after its initial period of three years, the first members of the committee should stagger their second term from zero to two years in order ensure overlap and continuity in the committee.
- The committee will elect a chair and vice chair from any of the science community members. (alternatively we could say from all members)
- The committee can recommend and with the approval of the funding agencies expand the size of the committee and its scope in the future.
- Meetings will be held twice a year in Monterey or as part of other UNOLS functions as needed.
- Budget support for this committee will be through the UNOLS Office and will support travel costs for members and UNOLS office administrative and salary costs associated with supporting this committee. Federal agency support for this committee will be apportioned as directed by agreement of the agencies.
- Recommendations would be made to the operator and funding agencies through the UNOLS Council. The area of focus will be to ensure the best possible aircraft support for the oceanographic research community including, but not limited to, the goals expressed in section one of this document.

**UNOLS Van Status**  
**February 2002**  
**Matt Hawkins**

Four of the eight UNOLS scientific vans funded by the National Science Foundation have been delivered. They include aluminum isotope vans for Oregon State University (*Wecoma*) and the University of Texas (*Longhorn*), a chemical storage van for Woods Hole (*Atlantis*), and an electronics van for Scripps (*Sproul*). The remaining vans are currently under construction and include two steel isotope vans for the University of Washington (*Thompson*), an aluminum trace metal clean van for LUMCON (*Pelican*), and an aluminum isotope van for the University of Delaware (*Cape Henlopen*). All should be delivered by spring of this year.

The main goals of this standardization effort were to make vans more interchangeable among UNOLS ships, enable transport by common carrier, facilitate group purchase, and standardize certain design elements for the benefit of the scientific user. The most important result, however, was a clarification of the basic standards to which portable scientific vans should be built. The specifications and design details were sent to the US Coast Guard in Washington, DC for approval. The review letter that came back from the Coast Guard addressed most van types to some degree, but the response dealt mostly with requirements for inspected vans. Many of the requirements had long been determined at the discretion of the local Coast Guard Office of Marine Inspection in which the ship operated. The intent of the Coast Guard review was to get a single, centralized view of the basic standards to which vans should be built. The intent was not to rewrite the existing rules in 46 CFR, or create new rules, but rather to clarify the ones that already exist for sub-Chapter U vessels. Standards from other industries, other classes of vessels, and classification societies (ABS and DNV) were used for guidance. Many key elements needed to standardize design, namely side panel strength and structural fire protection, had been very difficult to ascertain before now.

The three primary decisions of the review were:

- An ABS side and aft deckhouse design pressure of 2.0 psi. for plate, and 1.5 psi. for stiffeners is suitable for accommodations vans in “sheltered locations”. A definition of “sheltered location” was negotiated, which is based on the premise that the loads experienced by the van will primarily be wind loads. A standard ISO container does NOT meet this requirement and requires additional stiffening.
- Portable vans on sub-Chapter U vessels are allowed to take into account the “van/ship system” when considering the overall fire rating of the “boundary”. This includes the van structure, adjoining ship’s structure, and the air space in between. The actual suitability of this “boundary” is subject to formal flame testing. This ruling allows most van types (including labs) to be built of aluminum, though some types will still be required to be built of steel.
- Accommodations vans must be built of “incombustible materials” all around. This means that either the wooden deck normally found in a standard ISO container must be replaced with a metal deck, or a metal “belly plate” must be added.

One additional benefit of the review process was to obtain a formal ruling that laboratory vans are not “accommodations”, and thus not required to be inspected. However, it was stated in the review letter that for lab vans the “...design and material selection must [consider] forces and environmental conditions to which the vans ...will be exposed.” Normally lab vans are placed in very similar locations to accommodations vans on UNOLS vessels, and thus there is very little difference in the conditions and forces experienced. Also, scientific personnel occupy the van while the ship is underway. Because of this fact, the members of the Research Vessel Operators Committee (RVOC) voted at the October meeting to accept the accommodations van standards as the minimum for all new vans which are occupied by personnel – including laboratory vans. Vans which currently meet the other basic safety requirements given in the new specifications and the CFR’s (egresses, electrical, etc.) may be “grandfathered” with regard to the structural requirements. However, all new vans, whether ship or science owned, should be built to these new standards.

Formal flame tests have been completed at a US Coast Guard approved testing facility. The standard steel panel design (stiffened 20-foot container) passed the “A-0” requirements. The aluminum van/ship system (bulkhead arrangement – worst case scenario) passed the “A-30” requirements. This means that a stiffened 20-foot container can be used for several van types, such as machinery and chemical storage vans. It also means that both the standardized steel and aluminum vans can be placed anywhere on board the vessel without regard to the type of space next to the van.

Portions of the UNOLS van design and standards are still being finalized. A consolidated, web-based *UNOLS Van Manual* is being developed with the help of the UNOLS office. It will organize all of the information developed in this process, as well as make it publicly available to all concerned parties, both ship operators and science. This manual could be used as both a resource during construction, and also when dealing with local Coast Guard inspectors to ensure the vans are built and used to standards. A link to the manual should be on the RVOC site in the near future. A hard copy manual will also be made available, and forwarded to US Coast Guard in Washington for reference.

Now that most of the regulatory issues have been resolved, the next phase in the UNOLS van project is to deal with the many logistical issues with portable vans. At the RVOC meeting, there was a recognized need for a subcommittee to start dealing with these issues. Matt Hawkins was nominated to be the chair of this group. The members will be composed of both ship operators and technicians. Technicians at many institutions deal with scientific vans, so their representation on the committee was deemed essential. The committee will deal primary with: 1) assessing the condition of existing vans and determining overall fleet need for the various van types, 2) developing a centralized web-based van inventory, 3) proposing a standardized van loan/rental agreement among operators and science.

## USCGC Icebreakers- 2001

### POLAR STAR

SLIPP 2001- success trip- (upgrade POLARS to HEALY capabilities?)

2002- Currently on Deep Freeze. Had some mechanical problems. May have some impact on summer schedules. Is currently scheduled for SBI moorings, and then being used to support the Chukchi Borderlands cruise. Ability to support science during summer 2002 potentially impacted by potential need for two icebreakers in the Antarctic during winter 2002/ 2003.

### POLAR SEA

2001- Completed a mooring turn-around in the Bering during summer 2001. Unable to complete scheduled SOO (science of opportunity) due to mechanical problems.

2002- Currently on Deep Freeze. Has some mechanical problems. Planned drydock on return from Antarctic. No Arctic science support in 2002. Planned Deep Freeze for 2002/2003

### HEALY

2001- Two successful cruises to the Eastern Arctic (AMORE and ALTEX). Implemented post-cruise debriefs.

Interim Science Details: Installation of 75 kHz phased-array ADCP; temporary fix to underway seawater system.

2002- Anticipated schedule in the western Arctic

April 27 depart Seattle

May 6 to Jun 15	SBI	Nome-Nome (40 days)
Jun 17 to Jul 7	Kegwin	Dutch-Dutch (19 days)
Jul 16 to Aug 25	SBI	Nome-Nome (40 days)
Aug 27 to Sep 17	Kegwin	Nome(?) - Barrow (21 days)

## Committee Reports for UNOLS Council Meeting – 2/02

### UNOLS Arctic Icebreaker Coordinating Committee

*By Lisa Clough, AICC Chair*

The AICC has had a busy fall and winter, including a meeting in Washington, D.C. in September, and a Town Hall Meeting at AGU in December. The committee continues to gather feedback from HEALY's recently completed science cruises, AMORE and ALTEX. In addition, we're working with the U.S. Coast Guard (USCG) and NSF to facilitate the upcoming 2002 Arctic science cruises on both HEALY and POLAR STAR.

As one component of gathering feedback from completed science cruises, we are using a debrief system. We have a set of approximately 20 topics that we cover:

*Pre-cruise communications; Permits/Clearances; Logistics/Cargo; Construction; Information Technology; Laboratory operations; Laboratory equipment; Diving support; Science technical services; Small boat ops; Helo ops; Food service; Housing/janitorial; Safety; Administrative services; Medical; Travel; Ship operators; Any other comments?; and Plans for the next trip if relevant.*

We invite representatives from the funding agency, Coast Guard Headquarters and Pacific Area, the ship, the chief scientist for the science party, and of course the AICC to participate in the debrief. So far, it has been a very worthwhile interchange of information that has resulted in several valuable suggestions for continued improvement of science operations on USCG icebreakers. Both the AMORE and ALTEX debriefs were discussed in detail at our AICC meeting on 24-25 January.

The December town hall meeting offered another venue to compile feedback from the just completed cruises, and to share "lessons learned" with potential future users of the USCG icebreakers. We had a turnout of approximately 30 people to hear from Peter Michael and Ned Cokelet (pretty good considering opposing town hall meetings were offering food and beverages).

Plans for cruises on board the USCG icebreakers in 2002 are in full swing. HEALY will be spending summer 2002 in the western Arctic Ocean. Two main science projects will be taking place in the Chukchi Sea area on HEALY: Shelf-Basin Interactions (SBI) a large interdisciplinary science project; and a geological investigation led by a group from Woods Hole Oceanographic Institution. POLAR STAR will also be used for a series of SBI cruises, and will support a physical oceanography cruise in the western Arctic.

Minutes from our September meeting are available on-line at: <http://www.unols.org/aicc/aicmt109/aicmi109.html>. Our most recent meeting was on January 24<sup>th</sup> and 25<sup>th</sup> in Seattle. The agenda for that meeting can be seen at: <http://www.unols.org/aicc/aicmt201/aicag201.html>. The AICC can be reached by writing to the Chair <CLOUGHL@MAIL.ECU.EDU> or to the UNOLS Office <office@unols.org>.



# DEep Submergence Science Committee

*By Patricia Fryer, DESSC Chair*

DESSC held its annual meeting on 9 December in San Francisco at the Marriott Hotel. Minutes of the meeting will be available on the DESSC page of the UNOLS Web site soon, <<http://www.unols.org/dessc/>>. Science reports by Principal Investigators for 2001 expeditions utilizing ALVIN, WHOI ROV/AUV vehicles, and several assets from other submergence facilities highlighted some of the major discoveries of the past year and reinforced the need to continue to foster support for the use of and access to submergence assets.

The National Deep Submergence Facility Operator's Report (WHOI), included an operations summary for the NDSF vehicle systems, and WHOI work plans for 2002-2003. Specifics of the work done on R/V ATLANTIS, a summary of work to be done, and a review of community input for improvements were discussed. The operator presented a report of the overhaul completed in 2001. A progress report on the ROV upgrades included timing for scheduling of field trials and scheduling of scientific expeditions for 2002/2003. The DSL-120A upgrades are complete and the first field programs using the new vehicle were in late 2001. Jason II will undergo dock tests in late May or early June, field trials will begin in July, and field programs are scheduled in August of 2002. Reports on the activities of other facilities were presented by S. Pomponi (HBOI), M. Chaffey (MBARI), and F. Spiess (MPL). HURL and ROPOS provided written reports that will be included in the minutes of the meeting.

WHOI announced that a New ALVIN Construction Advisory Committee (NACAC) will be set up to assist the NDSF with planning from a new 6+km capability occupied submersible. The committee will be established within the next few weeks and DESSC and the NDSF encourage members of the community to provide input. As the committee ramps up its activities you will be hearing more requests for input.

WHOI/NDSF Chief Scientist Dan Fornari will be stepping down from that position this year. There is a special article in this issue of the UNOLS News (page 16) as tribute to Dan's many contributions to submergence science in his capacity as Chief Scientist for the NDSF.

A brief report from UNOLS highlighted some of the recent difficulties encountered with security aboard research vessels in foreign waters and provided guidance for scientists contemplating work in regions where security is an issue (see article on page 4).

A report from the NOAA Ocean Exploration (OE) Initiative indicated that proposals for about 160 science projects were received for the November 1st deadline for NOAA funding. Reviews of these proposals are due at the end of January and the panel meeting for final deliberations regarding them is set for 5-6 March. Concerns regarding scheduling of the fieldwork on UNOLS ships were expressed, but the OE office is aware of the difficulties and is working with UNOLS to sort out facility scheduling.

In response to recommendations from the UNOLS DESCEND workshop and with endorsement from the UNOLS Council, DESSC plans to establish an ad hoc Shallow-water Submergence Science Committee (SSSC) with S. Pomponi (HBOI) as Chair. The membership of the committee, problems of support for the committee, and issues regarding its mandate (science goals, technology needs, access and funding issues) were discussed at a lunchtime meeting of the DESSC members. The eventual fate of the SSSC was also discussed. One possibility is that its mandate be folded into that of DESSC, thus broadening the scope of DESSC's responsibilities. Another possibility is that it be a stand-alone committee with liaison to DESSC.

As a follow-up to the UNOLS DESCEND workshop, DESSC has been working toward organizing a technology meeting. An upcoming meeting of technologists and scientists on 20-22 May 2002 will provide a venue for discussions of a future roadmap for technological developments in support of submergence science. Information about this meeting, NOAA/NASA Exploration 2002 - LINK Symposium, can be found on their website at <http://oceanexplorer.noaa.gov/projects/link02/link02.html>. The topics of

discussion will include future developments for occupied, remotely operated, and autonomous vehicles, navigation and power systems, imaging systems, sonar mapping systems, chemical & biological sensing, intervention capabilities data management, and communications.

The marine biological community has been making great strides recently in studies of biological systems in various submarine environments. At the 2002 AGU/ASLO Ocean Sciences meeting in February DESSC will host two special sessions on "Recent advances in understanding submarine biosystems: Submergence Research." The first will be a poster session (Wednesday morning, 13 February) highlighting the accomplishments of various submergence facility operations and innovative scientific discoveries made with these assets. The second session (Thursday afternoon, 14 February) will provide the attendees with a DESSC AGU style set of oral presentations beginning with summaries of recent research results using a variety of submergence assets. We will then hear a combined funding agency report from NSF and NOAA. The last talks will be operations reports from the NDSF. The last slot in the session is reserved for an interactive feedback forum for users and operators. This follows the general form of the DESSC public meetings that for years have been held immediately before the December AGU meeting in San Francisco. These special sessions were planned with the objective of providing the community of marine biologists with a higher level of interaction with the National Deep Submergence Facility, a level similar to that which the Marine Geology and Geophysics community has enjoyed through the regular public DESSC meetings in San Francisco. Other meetings targeting various disciplines are also coming up over the next months and DESSC plans to provide more information regarding the use of submergence assets at these. They include the Spring Benthic Ecology meeting in Florida and the MIT Archaeology meeting in April 2002.

DESSC encourages public outreach and education activities related to submergence research and representatives of several such activities highlighted the successes of recent efforts. The UNOLS Public Outreach and Education Links, <<http://www.unols.org/outreach.html>> has links to the following programs: Dive and Discover <<http://science.whoi.edu/DiveDiscover/>>, Extreme 2001 <<http://www.ocean.udel.edu/extreme2001/>>, NOAA Explorations: Deep East 2001 <<http://oceanexplorer.noaa.gov/explorations/deepeast01/deepeast01.html>>, Millennium Observatory (NeMO) <<http://www.pmel.noaa.gov/vents/nemo/index.html>>, and the MATE Internship Program <<http://www.marinetech.org/careers/internships.html>>. Additional outreach efforts are being proposed in collaboration with Ridge 2K to provide a number of Deep Submergence Lectureships highlighting the discoveries made recently with submergence assets.

The most visually spectacular activity presented in conjunction with the DESSC meeting was a 20-minute selection of some of the first extensively illuminated, super-high fidelity footage of the deep oceans. The movie was shown Monday morning (12/10) at the Sony IMAX Theater at Metreon. The footage included shots from hydrothermal vent sites in the Atlantic and Pacific (600m to 4000m) filmed from Alvin in the 15/70mm giant screen film format. The raw footage presented is part of a future release entitled "Voyage into the Abyss" (a working title). This IMAX movie is currently in production and scheduled for release September 2002.

The screening was a follow-up to the Principal Investigators reports at the DESSC meeting and included footage from the recent August Mid-Atlantic Ridge cruise. The presentation was also open to AGU attendees. The screening was so popular with the near capacity crowd that a second screening was offered on Thursday.

Voyage into the Abyss is a collaborative science education outreach effort produced by Volcanic Ocean Films Inc., an affiliate of The Stephen Low Company, together with Rutgers University. Major financial support for the project comes from the National Science Foundation. Project contributors include: the New England Aquarium (Boston), the Museum of Science and Technology (Syracuse) and the University of South Florida. Filming for the project was completed principally with the submersible

ALVIN and the deep submergence resources of Woods Hole Oceanographic Institution and brings together the latest advances in submarine imaging and lighting technology including a new lighting array configured especially for the submersible and the unique demands of this project.

The final film will be the culmination of over six years of development and the first concerted effort to light and capture a diversity of the ocean's extreme environments in a high-definition presentation. Via the giant screen, the Voyage into the Abyss project will give audiences around the world a 'being there' experience of dimensions of the planet that most have never truly seen before: including submarine volcanoes, hydrothermal vents and communities of deep-sea organisms.

The attendees at the DESSC meeting provided Mr. Steven Low with a variety of suggestions for scientific content material to augment the video images and with suggestions for mechanisms by which to integrate the release of the movie with outreach activities at marine science institutions/departments throughout the nation.

Gripping experiences such as this IMAX movie provide one of the most important ways in which we as members of the marine science community can call the general public's attention to our science. We complain that we must grapple with the frustrations of access problems, funding difficulties, scheduling challenges, and the continuing need for new technological developments within our research enterprise. We know that the solution is a higher level of funding, but we must recognize that it is our responsibility, not that of the funding agencies, to explain to our supporters, the public, why it is important to devote more funding to the marine sciences. DESSC congratulates those who have and urges all to continue to highlight the accomplishments of submergence research in public forums.

# The Fleet Improvement Committee Report

By Larry Atkinson, FIC Chair

The academic research fleet in the U.S. is now entering a new, exciting phase. The National Ocean Research Leadership Council has now approved the document, *Charting the Future for the National Academic Research Fleet: A Long Range Plan for Renewal*, developed by the Federal Oceanographic Facilities Committee (FOFC). The report can be viewed at [http://www.geo-prose.com/projects/projects\\_narf.html](http://www.geo-prose.com/projects/projects_narf.html). To put it directly the plan calls for replacement of the fleet. The plan provides a recommendation on the numbers and composition of vessels that are needed for replacement. The need for fleet renewal requires that Science Mission Requirements and Conceptual Designs be developed. There is an urgency to keep the renewal process rolling as it takes many years to fund and construct ships. This will be a focus of the Fleet Improvement Committee (FIC).

The most urgent need is to develop a process for implementing fleet renewal. A draft process is being developed and can be viewed on the UNOLS/FIC web site <http://www.unols.org/fic/renewal/roadmap.html>. It cannot be overemphasized that we will be seeking community input and participation in the process. The renewal will take twenty years.

The FOFC Plan defines four basic vessel classes for the current and future fleet: Global Class, Ocean Class, Regional Class and Local Class. FIC, UNOLS and various institutions are initiating or are currently involved in fleet renewal projects. These are briefly summarized below:

**Ocean Class:** The Ocean Class called for in the FOFC plan is a new class of larger, more capable intermediate vessels. As stated in the report, “Ocean Class ships will fulfill a critical need in fleet modernization by replacing the aging “Intermediate” ships with vessels of increased endurance, technological capability, and number of science berths. These will be ocean-going vessels, though not globally ranging.” The Ocean Class would have the following characteristics:

- Endurance - 40 days
- Range - 20,000 km
- Length - 55-70 m
- Science Berths - 20-25

In the coming months the process to create science mission requirements and concept designs for the Ocean Class will be developed. The process will attempt to include the broad user community through web comment areas and town hall meetings.

**Gulf Regional Vessel** - The need for a new research vessel in the Gulf of Mexico has been recognized for many years. This was noted in the FOFC report that also recommended that such a vessel be the first Regional vessel. The Regional Class ships are those that 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. FIC recently asked representatives from the Gulf of Mexico to form a representative group to discuss ship requirements in the Gulf. The purpose of this meeting is not to discuss or propose ship operators, but to start formulating Science Mission Requirements for the ship. Similar meetings will be needed for ships proposed in other areas. The Gulf group hopes to meet in late spring.

**Alaska Region Research Vessel (ARRV)** – Design development for a research vessel that will operate in the Alaska region is well underway. This vessel is being designed as an Ocean Class ship. The Concept design has been completed and progress towards a preliminary design of the ARRV continues with FIC

represented on the Design Steering Committee. At a recent meeting in Seattle, Washington, The Glosten Associates presented an updated design plan. Model testing results and the final preliminary design should be ready by this summer. A meeting to report on model test results and get community input on the preliminary design will be scheduled for sometime this spring in the Washington D.C. area. Information about the Science Mission Requirements and concept design plans can be found on the UNOLS website at <http://www.unols.org/fic/#arrv>.

**Science Testing of the AGOR 26** – Construction of the University of Hawaii’s vessel, KILO MOANA, is nearing completion. KILO MOANA will be the first large SWATH in the academic fleet. As such it is imperative that it be thoroughly tested so both the scientific community and the operator community are fully and fairly aware of its capabilities and limitations. UNOLS/FIC is working with the operator (U. Hawaii) to plan such testing. See <http://www.soest.hawaii.edu/agor26/> for more information on the KILO MOANA.

**FIC Web Site** - If you haven't visited the UNOLS/FIC website <[www.unols.org/fic](http://www.unols.org/fic)> we urge you to. There you can find information on the following:

- FOFC Draft Academic Fleet Renewal Plan - UNOLS Response
- Ship Construction Efforts:
  - Alaska Region R/V (ARRV)
  - KILO MOANA (AGOR 26)
- FIC Fleet Renewal Plans
- Past Trends and Future Projections for the Academic Research Fleet
- The UNOLS Biennial Review of Sea Going Oceanographic Facilities
- Fleet Improvement Committee Reports
- Science Mission Requirements

# Ship Scheduling Committee Report

*By Joe Ustach, SSSC Chair*

With shoehorns and concessions by scientists, most of the scheduling difficulties for 2002 have been eased. Not all of them to everyone's satisfaction, especially in the case of the Northwest Pacific GLOBEC cruises, but at least the ships are sailing in acceptable to marginal time periods. Again the problem is scheduling multiple ships for a relatively small window and how changes in any of the affected vessels cause havoc throughout an even larger number of ships.

Nonetheless, 2002 overall has about 300 fewer days scheduled than did 2001, 5374 vs 5678. NSF has about 50 days more on schedules in 2002 than in 2001; the Navy has 367 fewer days scheduled in 2002 vs 2001, the result of NAVO's decreased funding; and the other category is holding steady, with about 25 more days on the schedule in 2002. In terms of ship classes, the large, Class I/II ships average around 83% of a full operating year. This average should be tempered by the inclusion of KILO MOANA, BROWN, and HEALY schedules. KILO MOANA has a schedule based on starting operations on 1 July; the Coast Guard removed HEALY's schedule and NOAA removed BROWN'S after the September attacks. The only Class I/II vessel with less than 65% of a FOY is SEWARD JOHNSON with a 187 day schedule (62.3%).

The Class III ships are roughly in the same range as 2002. They average just over 65% of a FOY, while in 2001 they averaged 69.8%. The only vessel in this class with less than a 66% FOY is GYRE, with 91 days scheduled, (33%). The Class IV vessels show a large drop in days scheduled in 2002, from 1533 days to 1158 days. Much of this drop is due to CAPE HATTERAS only operating for half a year and then going in for a mid-life refit and for SEA DIVER retiring. The only other vessel with less than a 70% FOY is LONGHORN with 91 days scheduled (50.6%). However, the smaller vessels usually pick up cruises throughout the year, so these numbers are not fixed. In the Class V vessels, there are no weak schedules, all of the vessels are at or above 55%, with BLUE HERON having 57.3% of a FOY.

The outlook for 2003 is still hazy, since ship requests are still arriving into the scheduling system. AS of Friday, Feb.22 Noon Eastern Time, I have received 920 ship requests from the UNOLS Office. There will be well over 1000 requests by the end of the month. February is the deadline for NSF ship time requests, but the Navy and other agencies have an even later deadline. A quick glance at the areas of operation shows that there is an interest in the Indian Ocean in 2003 and 2004 besides the usual Atlantic and Pacific and Arctic and Antarctic and Great Lakes regions.