

UNOLS FLEET IMPROVEMENT COMMITTEE MEETING

October 4, 2006

National Science Foundation
4201 Wilson Boulevard, Room 1235
Arlington, VA 22230

Meeting Minutes

Executive Summary:

The UNOLS Fleet Improvement Committee (FIC) met on October 4, 2006 at the National Science Foundation (NSF) in Arlington, VA. The first part of the meeting was spent reviewing Fleet renewal activities. An update on the Regional Class acquisition status, operator selection, and timeline was provided, as well as, the status of the Alaska Region Research Vessel (ARRV). The Navy formed a Naval Research Advisory Committee (NRAC) to evaluate the Navy's future role in the acquisition of the Ocean Class vessel. The NRAC recommended that the Navy acquire two Ocean Class ships as opposed to the four ships that had been called out in the 2001 FOFC Fleet Plan.

The status of FOFC's Long-Range Fleet Renewal Plan was provided. The draft document was presented on 14 September to the Joint Subcommittee on Ocean Science and Technology (JSOST) and it is now in formal agency review. The Plan addresses all Federal Research and Survey vessels, not just the Academic Research Fleet. Based on agency projections, the overall fleet size will decrease by about 15 ships from 2005 to 2025.

A good part of the FIC meeting was devoted to review of the draft UNOLS Fleet Improvement Plan (FIP) update. The FIC endorsed a reclassification of UNOLS Ship Classes. Fleet utilization trends, projections, and vessel service life estimates were discussed. The FIC will continue work on the draft document by scheduling periodic phone conferences to review the draft.

Other meeting discussion items included a report by Kendra Daly of the ORION Office, Global Science Mission Requirements (SMR), ADA guidelines for research vessels, and the load handling systems for R/V *Sharp* and *Kilo Moana*.

Action Items:

Task Description	Action
Ocean Class Planning – Provide input when requested	FIC
Global Class: Update SMRs (ongoing)	Global Class SMR Committee
KILO MOANA Actions:	
<ul style="list-style-type: none">• Contact Brian Taylor to keep abreast of Handling System details.	Dave H.

<ul style="list-style-type: none"> Draft EOS or other appropriate article 	Dave and Brian Taylor
Design and Constructions Efforts - Stay engaged in ongoing design and construction efforts (Regional Class, ARRV, <i>Langseth</i> Conversion, etc.)	FIC
Fleet Improvement Plan Update: <ul style="list-style-type: none"> Complete all writing assignments and have next draft available for review prior to the next meeting. 	FIC
Ocean Observatories – Stay in contact with ORION Office.	Dave Hebert
ADA Guidelines: <ul style="list-style-type: none"> Provide draft UNOLS Fleet guidelines (structural and procedural) in Fall 2006 	ADA committee.

Appendices:

I	FIC Agenda
II	Meeting Participants
III	UNOLS Slides for FIC presentations
IV	FOFC -Long Range Fleet Planning
V	ORION Presentation
VI	IOOS Presentation
	Load Handling System Report
	Movies:
VII	- < Seas.mov > (35 Mb)
	- < Winches.mov > (202 Mb)
	- < Docking.mov > (76 Mb)
VIII	ADA Committee Report
	- ADA Recommended Improvements

Meeting Summary Report:

Call the Meeting: The UNOLS Fleet Improvement Committee (FIC) met on October 4, 2006 at the National Science Foundation (NSF) in Arlington, VA. Dave Hebert, FIC Chair, called the meeting to order at 0830 and provided an opportunity for introductions. The meeting agenda was followed in the order as recording in these minutes. The meeting agenda is included as *Appendix I* and the meeting participants are listed in *Appendix II*.

A motion was made to accept the minutes of the [March 2006 FIC Meeting](#). The motion passed.

Review FIC Action/Task List from March meeting – Dave Hebert reviewed the status of the Committee action items (*Appendix III*):

Tasks and Status:

- Regional Class - Stay informed (on-going)
- Ocean Class Planning –Peter Wiebe provided a presentation to the NRAC studying Navy’s future plans in Ocean Class acquisition.
- *Kilo Moana* Actions:
 - Dave contact Brian Taylor to keep abreast of Handling System details (the handling system has not been delivered yet)
 - Draft EOS or other appropriate article (after the handling system is installed)
- Design and Constructions Efforts - Stay engaged in ongoing design and construction efforts (ARRV, *Langseth*, etc.)
- Global Class: Update SMRs – Community on-line survey is in progress.
- Fleet Improvement Plan Update - Ongoing
- ADA Guidelines:
 - Provide preliminary recommendations to NSF for Regional Class Construction effort – complete.
 - Prepare draft UNOLS Fleet ADA Guidelines - ongoing
- Ocean Observatories – Continue to stay in contact with ORION Office.
- Definition of UNOLS Ship Classes – to be reviewed later in Meeting.

Fleet Renewal Activities:

Regional Class Acquisition Status – Mike Reeve (NSF) reported on the Regional Class status. The solicitation for design/build teams was announced in the end of 2005. About seven bids were received and two \$1M contracts were awarded in April 2006 to two competing design/shipyard teams. The group of UNOLS advisors will participate in three design review meetings for each team. Additionally, there will be three status reviews with just the agency and PEOShips representatives. They have had the first status review meetings and they feel that the teams are focusing a great deal of effort on achieving the science mission requirements. NSF would like the teams to focus a bit more on keeping the costs under control. When the designs are complete they will be submitted to NAVSEA with a firm fixed fee cost. The complete designs are expected in the summer 2007.

The solicitation for the Regional ship operator has been drafted and is now in the clearance process within NSF. It may be ready within a month.

Discussion:

- Q) Dan Schwartz asked if there was a requirement for the design not to exceed 300 Gross Registered Tonnage and be uninspected. Reply) Dave Barksdale replied no. The statement of requirements states that the ship will be inspected and must meet SOLAS. Dan explained that based on his experience with operating both inspected and uninspected ships, he feels strongly that these ships should not exceed 300 GT.

There are layers of regulatory bureaucracy required with an inspected ship. These requirements in turn drive up the operating costs for the vessel.

- Al Suchy reinforced this comment and added that although there is a desire for a robust science platform, the ships must be affordable to build and operate.
- Mike Reeve thought that the opportunity to provide this input to the design teams will be at the design review meeting. Looking at priorities on how to redesign for less cost should be done by the UNOLS advisors, NSF and PEO-Ships ahead of the design review meeting using the 2004 UNOLS SMR prioritization document. NSF has issued a change order to cap the cost of the construction. This is a major milestone.
- While there is good guidance to the teams on cost, there has not been sufficient guidance on the tradeoffs. The teams are not being given input on the tradeoff priorities. Now is the time to address lifecycle costs. The gross tonnage will have an impact on costs.
- Al Suchy suggested that now is the time to introduce the design teams to other important issues such as ADA, lifecycle costs, etc. Waiting could result in added costly change orders.
- Mike Reeve stated that Bob Herman (PEO-Ships) had announced during the ADA workshop that they do not intend to introduce the ADA requirements to the teams until after the design down-select. This is not the intention of NSF.
- Mike Prince commented that the tonnage issue was considered during the SMR development, but at that time Naval architects didn't think it was feasible to meet the SMRs and stay below 300 GT.
- Peter Wiebe inquired about the day rate cap that had been suggested for this Class some time back. It doesn't appear that the information had been provided to the design teams.

Alaska Region Research Vessel (ARRV) – (Mike Reeve) - Both House and Senate marks include the ARRV at the requested level of about \$92M and they expect the appropriation at some time. The solicitation to manage construction and operate the ship has passed through all levels of NSF review and should be ready for publication soon, perhaps by the middle of this month.

- Bob Detrick asked if the cost estimate would be adequate to build the ship.
 - Reply) Mike Reeve explained that they are currently working with a one-year estimate. The estimate was made at the end of December 2005 by an independent consultant with an attempt at projecting to 2007 and 2008 costs. In FY08, they will request year-2 funds and if necessary, they can request an increase in funds to meet construction. Alternatively, they can reduce the capabilities of the ship. The FY07 budget is \$56M.

Ocean Class Acquisition Process Status and Timeline (Bob Houtman) – In the spring 2006, the Chief of Naval Research and the Undersecretary of the Navy asked that a Naval Research Advisory Committee (NRAC) be formed to evaluate the Navy's investment in research vessels for the academic fleet and to make recommendations about the level of

support the Navy should provide for fleet renewal. The recommendations of the NRAC were made to the Secretary of the Navy who reported to Congress. The NRAC concluded that the association with UNOLS was in fact very beneficial to the Navy; however, the level of their utilization justified the construction of two new Ocean Class vessels instead of the previously planned four. Instead of using Ship Construction Navy (SCN) funds, which are stretched by the Navy's operational fleet requirements, they will propose alternate funding mechanisms for funding these vessels in the FY08 budget submission. A chart shows these ships entering service in 2014 and 2015 (provided funds are budgeted). It is probable that during FY07, ONR will work with PEO-Ships, the Oceanographer of the Navy, UNOLS, etc. to develop requirements and start the formal acquisition process.

- Rob Pinkel asked if the Navy has any plans to construct Global ships. Bob replied, "No."
- Peter Wiebe asked how the FOFC Fleet report would be impacted by this. Bob indicated that he would talk about this later in the meeting.
- Peter Wiebe asked if there had been any thought on the impact of this new Ocean Class construction timeline on the service life of the Intermediate ships. Reply) Bob stated that this is a topic of continuing interest. Bob said that ONR does not plan on any SLEPS but can't answer for NSF who owns the Intermediate ships. Also the actual projections should be refined to take into account new requirements from OOI, etc.
- Bob commented that the Navy made their decision based on their equity in the Fleet. Two ships was the right number for their investment.

FOFC Long-Range Fleet Renewal Plan Status and Recommendations - Bob Houtman reported on the status of the Federal Oceanographic Facilities Committee (FOFC) [soon to become the Interagency Working Group for Facilities (IWG-F)] Long-Range Fleet plan. The draft document was presented on 14 September to the Joint Subcommittee on Ocean Science and Technology (JSOST) and it is now in formal agency review. After agency review, the document will go to the Interagency Committee on Ocean Science and Resource Management Integration (ICOSRMI) for review.

Bob presented two figures from the draft document (*Appendix IV*). The first showed fleet projections for all Federal research and survey vessels and the other showed the planned renewal efforts. The first chart shows a decline of about 15 ships from 2005 to 2025. During this period there is an increase in Ocean Research and Ocean Fisheries Survey vessels, but there is a decrease in Intermediate Research and Regional Fisheries Survey vessels. The intermediate ships decline sharply.

The second slide shows the IWG-F renewal plans. OMB has indicated that the only vessels that can be included in the plan are those that have been formally requested in a budget or formally approved. The two Ocean Class ships have been included in the plan, but OMB might object. Bob Houtman stated that the Navy's support remains fairly

constant through 2025. When *Knorr* and *Melville* go off line, the new Ocean Class ships will begin operation.

Ocean Observatories – Kendra Daly (ORION Program Director) provided a status report on facility needs, timelines and implementation plans. Her slides are included as *Appendix V*. She reported that Bob Detrick had served as the ORION Observatory Steering Committee Chair, but has stepped down. Jim Yoder is the new Chair.

In April 2005 the ORION Office issued a Request for Assistance Proposals (RFA). The submission of about 48 full proposals, representing input from more than 550 investigators and direct participants was received. The observatory conceptual design was developed using the ideas submitted in the RFA Proposals and previous workshop reports. In March 2006, a design and implementation workshop was held in Salt Lake City, Utah to present to the community the conceptual design of the global, regional and coastal ocean research observatory network to be implemented under the ORION Program. Based on feedback and revised cost estimates the design was refined and then went through a design review meeting at MBARI in August. The MBARI meeting was an ocean observatory middleware (software for network infrastructure) workshop to discuss resource management, monitoring and operation, instrument and sensor configuration and data and metadata management.

Kendra showed the conceptual design outline. However, in the last six weeks they have received direction from NSF that they stay within a \$50M Operations and maintenance (O&M) cap. This will require some further reduction in the scope of the design.

A map of the Regional Cabled Observatory (RCO) was presented showing its six nodes (may be reduced), cables, and junctions. The observatory is on the Juan de Fuca Plate. Node 4 is located at Axial Volcano. RCO has the highest density of ODP holes in the Ocean basins. Another dimension of the RCO is moorings. There will also be a northern loop installed by Neptune Canada.

The RCO facility requirements were reviewed. It is estimated that 160 Global ship days would be needed per year for O&M. The operating window is May to October. The ships should be capable of supporting a working class ROV up to sea state 5. The ROV must be capable of laying cables up to 5-7 km, placing instruments in predetermined locations, and connecting ROV laid cables to instruments of extension cables to EOM cable moorings.

Kendra next discussed Coastal Observatories including the Endurance Coastal Array in the Pacific NW. They will need to look at initial costs versus maintenance cost for the array. Cabled observatories might be more expensive to install, but cheaper to operate. The Pioneer Coastal Array includes suites of gliders and profiling moorings. This could be moveable and recomputed every five years to find different locations. It is currently planned for the Mid-Atlantic Bight. The East Coast Endurance Coastal Array near Savannah would take advantage of towers installed by the Navy and would be a good infrastructure for air-sea interactions. It could be cabled with benthic nodes and profiling

moorings. The towers are scheduled to be decommissioned by the Navy in the next few years, but IOOS and the ACOE are interested in retaining these assets.

The Coastal Observatory facility requirements for O&M of the Endurance array per year are 24 small vessel days, 24 Regional ship days, and 20 days of a Regional ship with ROV. The facility needs for the Pioneer Array include 16 days for deployment, 14 days for O&M, plus 5 ship days with an ROV.

Kendra continued with discussion of the Global Buoy sites. Eleven sites had been planned, but they have de-scoped to 9 sites. This will be reassessed. There are several different types of buoys including the generic discus buoy with EOM cable, generic acoustically linked discus buoy, and the high latitude spar buoy. The facility requirements for 11 Global buoy sites were estimated at 164 Global ship days per year for O&M plus 5 days with an ROV and 44 Intermediate class ship days.

As part of OOI de-scoping effort, they will work to maintain the transformative nature of the initiative. For example, this might mean deploying the SPAR buoys in a location closer to the U.S. for proof of concept, then deploy in the Southern Ocean later.

The OOI project timeline was reviewed. There is \$13.5M in the 2007 MRE account, but the Presidents budget has not yet passed. There could be buoy deployments as early as 2009. Some initial infrastructure deployments would include these buoys, but it would not be until 2012 before the entire system is commissioned.

Discussion:

- What would the \$50M O&M budget cover? Kendra) The O&M budget would include buoy, cable, node and instrumentation maintenance as well as management, of the cyber infrastructure support, etc. It does not include the facility support for science operations
- Rob Pinkel – Where will the funds to support Ocean Observatory science operations come from? Is this new money, or would it come out of the science budget? Mike Reeve) Installation funds are supported by the MRE account. The MRE account cannot support O&M. Support for Ocean Observatory science will require additional funds.

Integrated Ocean Observing System (IOOS) - Stephen Piotrowicz, Deputy Director of Ocean.US, provided a report on IOOS. His slides are included as *Appendix VI*. The coastal components of the IOOS are in the stage of assessing what is actually out there. By next spring they should have that information and then they can make some assessments about the ship time requirements for maintaining this infrastructure.

The global component of the IOOS is fairly well defined and ship time requirements can be accounted for. The components include the TOGA/TAO array, CLIVAR, Reference Stations, etc. Steve presented a table showing NOAA's annual contribution of ship days at sea for FY07 to FY12. In FY07, NOAA ship day total is estimated at 556 days. The

support increases each year with a total of 912 ship days in FY12. The ship days support a variety of IOOS initiatives that are listed in the table. The table also indicates the International ship day goal for each of the initiatives. The International days total 1650 ship days.

Next Steve presented a map of profiles obtained in Jul 2006. Argo provided a global set of observations totaling 7628. When Argo is fully deployed, it will have over 8000 observations a month. He presented a map of the Argo Network as of January 2004 and the international partnerships. There were a total of 1043 floats, but few were located in the southern ocean. By August 2006, the number of Argo floats had increased to 2531. The addition of floats before 2006 has been mostly accomplished using ships of opportunity. To add sites, they have used designated charters and they have added days for more collection of data. There will be additional deployment opportunities using charter vessels. They plan to use small vessels to deploy floats in the more remote areas; an example is the NIWA from New Zealand (98ft) for \$4,800/day. They hope to have a full array of 3000 Argo floats by the end of 2007. However, no additional funds can be released.

Power is the limiting factor of the arrays and they have been working to redesign the arrays to increase the battery lifetime. Steve showed a chart with the Argo decay rates for the years 2001 through 2006. He noted that because of new regulations, they are not allowed to ship the floats with the batteries installed. Their goal is to get a 5-year lifetime out of the floats to reduce the cost.

Two types of floats were presented. These included the biogeochemical floats and the acoustically-tracked profiling floats that can operate under seasonal ice. There is always a desire to add sensors onto the floats. In addition to temperature, oxygen, wind, and currents; other sensors are being investigated.

Next Steve showed the conceptual plan for Deep-ocean Assessment and Reporting of Tsunamis (DART) buoy locations. A total network of 39 buoys is planned and 19 have been installed.

IOOS will try to move towards autonomous instruments, moorings (such as the DART arrays) and gliders. The gliders could be used for coverage at the edges of the Argo Array. Although they are slow moving, they can maintain arrays in boundary currents and other localized features.

Steve wrapped up by summarizing that they have been implement the Argo Array with vessels of opportunity (VOS), charters for remote coverage, and a small amount of dedicated ship time.

Discussion:

- Peter Wiebe commented that most of the Argo buoy capabilities focused on the physical parameters. Has there been any consideration of biological parameters?

- Steve P) This is true, they are studying how to address biological parameters. They are trying to determine how to collect biological data in a useful, timely manner. They do collect chemical data.
- Peter Wiebe commented that the IOOS development plan includes the statement that ship needs would be addressed with FOFC. Is FOFC aware of this and what is the status?
 - Steve P) FOFC has been made aware. The requirements are available to FOFC in terms of Global needs. The IOOS requirements are probably not going to be met by only the two NOAA ships. In the out years, IOOS plans to include in ship charter funds into their budget.
- Mike Prince) The charts show NOAA contributions. Have other agencies contributed?
 - Steve P) The NSF support is included and is anticipated to continue on a ten year cycle. This level of effort would be included in projections based on past utilization.
- Peter Wiebe) – How are the float calibrations maintained?
 - Steve P) They have been surprised about the stability of the floats. The floats must be calibrated, but it doesn't seem to be a serious an issue. They have seen very little drift, particularly in salinity.
- Clare Reimers) How much coordination is there between IOOS and ORION?
 - Reply) The Atlantic coastal component is well coordinated because of similar people being involved, but this is probably less so in the Pacific NW. Coordination is ongoing and will improve as time goes on. Kendra emphasized that because IOOS and ORION are both in the planning stages, a lot of the coordination is at the grass roots level as well as some formal interchange of information. She meets with Mary Altalo (Ocean.US Director) regularly and there is cross-fertilization between the two programs.
- Al Hine asked about sensor development. Will it be through solicitations?
 - The two mechanisms that have been used are the Navy or other agency SBIR process and through specific NOPP solicitations for interagency efforts. Technology developments are focusing on telecommunications and perhaps on some competition in CTD manufacturers.

1030 Break

Global Science Mission Requirements (SMRs) Update - Mike Prince reported that the on-line community Global SMR survey form is up and running. The survey can be accessed at <http://www.unols.org/committees/fic/global/GCSMR_Survey_Form.asp>.

Discussion followed on the Global Class Mid-Life Refit plans:

- The Navy plans to carry out incremental improvements to the Global ships instead of the traditional dedicated mid-life shipyard periods of the past. There will be funding for improvements as need through enhanced shipyard availabilities and instrumentation funding. Al Suchy commented that as long as the mission requirements for the ships are level, the incremental mid-life improvements would be

fine. Major improvements are not envisioned as part of the incremental mid-life refits.

- Mike Prince stated that the Global SMRs could be useful in planning for the Global mid-life improvements.
- Annette asked if the incremental improvements would impact the service life expectancy of the ships.
 - Al Suchy said that they probably would not, but it should be watched as the ships age.
- Peter Wiebe asked if incremental mid life improvements are the new way of the Navy?
 - Reply) Possibly, but it will depend on a number of factors. If there was a community developed requirement for major changes to the global ships, then a proposal could be developed to make these changes through a major refit. These decisions would be made on an individual ship basis.

Load Handling Systems – Matt Hawkins provided a status report on the Load Handling Systems for *Hugh R. Sharp* and *Kilo Moana*. His slides are included as **Appendix VII**. NSF and ONR funded the Load Handling System Symposium. The goal was to review existing technologies and systems to develop a set of standard Functional Requirements (specs) to show “Proof of Concept” for new capabilities. It was not to evaluate any particular vendor. The secondary goal was to dispel some common myths; such as, “You can’t put the docking head in the water! It won’t survive!” or “the winch will be huge if winch pay-in/pay-out used for mo-comp! Can’t handle accelerations! Won’t work!” or “You need to have a locking mechanism to capture the package! Anything else is unsafe!”

Two systems were produced by Caley Ocean Systems in accordance with the “Functional Requirements” developed during the study. The R/V *Sharp* was delivered in May and was funded by U. Delaware. The system for R/V *Kilo Moana* is still in development. Conceptually the systems for each ship are the same, but there is a different handling appliance and winch size. The Final Phase of the load handling study consists of field evaluations after installation. Evaluations are in progress on *Sharp*.

New capabilities of the handling system include:

- Motion Compensation by winch pay-in/pay-out – reduces heave of package in water column for better data resolution and lower cable strain.
- Docking Head with “Auto-Position” capability – no tag lines. The operator can set package on deck without assistance.
- “Tow Mode” (Auto Render) – used for towing and in dealing with wire SWL issues.

Matt showed three movie clips. The first clip was taken offshore Delaware and the seas were 6-8 feet. The second clip shows the docking head during a CTD deployment. U. Delaware fabricated the adapter plate and there is no reason why one couldn’t be made for other systems. The winch is doing all of the work. Nobody is on deck. The crew really likes it. The third movie clip shows the winch at the mid ship location where there

is less heave. As the crane lowers, you can see the winch compensating for the wave motion.

Next Matt showed the data. The first chart shows a bottle trip graph with no motion compensation. In the next chart, the motion compensation is on and there is less saw tooth pattern, but there is a slow creep-up when the motion compensation is on.

A picture of the control panel was presented. Only two controls are needed.

Some of the issues that still need to be evaluated include:

- Cost – was it worth it? (\$500 - \$750K)
- Complexity?
- Motion Compensation – does it work? Is it of benefit to BOTH vessel and science? Appears so – but it needs tests with greater depth and higher tensions.
- Docking Head – Does it work? Is it safer?
- “Tow Mode” (Auto Render) – Does it work? Is it safer? How do we test? Can it satisfy USCG and ABS? In Progress.
- ABS Standards – Comparison with same system under Sub-Chapter U. Weight savings? Greater Operational flexibility?

Matt discussed the safe working loads. The draft UNOLS Wire Safe Working Load (SWL) standards are currently under review by the RVOC Safety Committee. It will be presented and reviewed by RVTEC on October 16th. The plan is to eventually include it in the Research Vessel Safety Standards (RVSS).

Discussion:

- Clare asked if it is difficult to change packages. Matt Hawkins – Conceptually it should be able to run multiple packages. R/V *Sharp* has some deck space constraints. The *Kilo Moana* would be more flexible. A saddle would be needed to accommodate other packages. Also the wire must be compatible. Other heave comp winches can be used. Matt explained that drum changes can be done, but it is a logistical pain. It would be best to have more winches.
- Dave Hebert reported that U. Hawaii hopes to receive their system within the next six months. They would like to be able to try out the system while still in local waters.
- Dolly asked that we include the results of the evaluation on the posted symposium website.

Lunch Break

American’s with Disabilities Act (ADA) Guidelines – Terry Whitledge reviewed the ADA workshop recommendations and project status. His slides are included as ***Appendix VIII.***

Terry provided an overview of the ADA committee membership, tasking and the work accomplished to date and planned. The tasking for this came from NSF due to their need to ensure that new construction and conversion efforts address ADA requirements. Besides design elements, the committee will consider procedural guidelines for

shipboards operations when persons with disabilities are onboard. There were four main tasks, the first of which was to draft preliminary ADA design guidelines to be used in the Regional Class Acquisition effort. Using existing documentation these were completed and provided to NSF in early June 2006. The Committee hasn't received any feedback since submitting the Regional Class guidelines.

Next the committee started work on the general ADA guidelines for ship construction and conversion. The general ADA guidelines address:

- The various vessel classes and ship sizes
- The nature of the disability
- Levels of compliance

Terry completed a first draft in mid September. Shortly afterwards, the committee convened a Workshop at WHOI on September 18 & 19, 2006. This workshop included a tour of the *Knorr*. It is generally felt that hearing and sight disabilities can be dealt with both in existing vessels and new construction without too much expense. Mobility accommodations will be harder to deal with in existing vessels because it could involve dealing with passageway widths, room size and layout, and stairs that cannot be easily modified. It is better to deal with these issues in the initial design.

During the workshop, the tour of the *Knorr* was very instructive about the challenges for persons with disabilities. Some of the workshop science participants and one of the crewmembers are people with vision, hearing, and mobility disabilities and getting their perspective on getting around the ship and responding to various situations was extremely useful. Some of the suggested solutions would actually enhance safety for all people on board, such as improving markings and the visibility of hazards and the use of a buddy system for emergencies and dangerous situations.

Paul Beatty from the U.S. Access Board attended the workshop and he was very proactive and helpful in defining what is actually required by the law and what would be useful. The recommendations from the workshop will be incorporated in the next draft of the ADA guidelines.

The workshop participants recommended that ADA procedural issues be addressed in the Research Vessel Safety Standards (RVSS) and these topics will improve safety in general. Recommendations will be provided to the Safety Committee for inclusion in the RVSS. Also discussed at the workshop, was whether or not to include questions regarding disabilities on the Ship Time Request form (STR). The consensus was that this might be useful as new vessels that have ADA accommodations come on line. All agreed that ADA should be addressed in pre-cruise planning documents.

A revised draft of the ADA Guidelines will be shared with the UNOLS Council before being submitted to NSF and the community. The guidelines would be included as part of the Science Mission Requirements (SMR), which will start getting these accommodations into the fleet as a result of new designs and conversion efforts. The committee will

probably recommend a buddy system as a general safety procedure. This is already in place for all practical purposes in many cases.

Terry discussed some of the particular findings from the workshop tour of *Knorr*. A big challenge in accommodating mobility disabilities is with the gangway and access to the ship. WHOI constructed a special ramp to allow access onto the ship by wheelchair. It still presented a real challenge for the individual in a wheelchair. A ship traveling to ports other than its homeport will have to consider gangway issues.

R/V *Marcus Langseth* Update – Jim Cochran provided a brief update on the status of the *Langseth* conversion. Paul Ljunggren and Mike Purdy are at the shipyard in Nova Scotia disputing the contract and negotiating the work that is required in order to get the ship operational. No work is now getting done. The goal will be to prioritize the work that is required by the shipyard in order to get the ship out of the yard. The remaining work items would be addressed by LDEO once the ship is out of the yard. They will transit the ship to Galveston, TX where the science equipment is located. The schedule is delayed.

Fleet Improvement Plan (FIP) – The remainder of the meeting was devoted primarily to discussions on the Fleet Improvement Plan. Slides are included in **Appendix III**. Dave Hebert reviewed the FIP Table of Contents. Working in coordination with FOFC (Bob Houtman), Dave and Annette have reclassified the UNOLS ship classes. Both FOFC and UNOLS will refer to these classes in their documents. Dave reviewed the classification of the ships. There are now six ship classes. Associated with the reclassification of ships is the issue of Full Operating Year (FOY) definitions. UNOLS was concerned that including the older ships in projections using the FOFC FOY definitions for the new ship Classes would negatively impact full utilization numbers. FOFC has agreed with UNOLS to use the original FOY definitions for the Intermediate ships. However, the FOY definitions for *Point Sur* and *Cape Hatteras* will be according to the new Regional class definition. The reclassification and FOY definitions are as follows:

- Global = 300 days
- Ocean = 275 days
- Intermediate = 250 days
- Regional = 200 days
- Regional/Coastal = 180 days
- Local = 110 days

The ships that are included in each of the above classes are listed in **Appendix III**. The FIC endorsed the UNOLS ship re-classification.

The project website was reviewed and discussed:

- The physical oceanography section has been recently updated and is probably ready for a group review.
- The MG&G section will now be Jim Cochran's responsibility and he will update it with some changes he has in mind.

- The Chemical Oceanography section was recently updated and is probably ready for review. The Figure at the end of this section can be removed. A similar figure that was created during the March FIC meeting and applies to all disciplines and can be included in the introduction.
- The Education and Outreach section is pretty much done, but will need the reference to TEAA changed to TREK - see ARCUS website.
- The Ocean Observatory section can be updated from information on the ORION website in the conceptual design documents for each component.
- Biological Oceanography - Terry needs some help in addressing the issues of HAB and genome. It was suggested that he contact individuals at MBARI (Vriehook).
- Maureen Conte indicated that the document as a whole and in particular the biological section did not point out the need for new design features such as climate control for analytical equipment, acoustic capabilities to support AUV operations, etc. It was suggested that each section should be reviewed to determine what could be added to discuss these requirements for updated requirements.

Annette will post each section of the FIP as Word and PDF documents on the project website. FIC reviewers can send any changes or comments to the lead author for consideration. Annette will repost revisions as they are provided by the lead author.

The Committee decided to continue review of the FIP by a series of short phone conferences. Each phone conference would focus on a few sections of the document.

Next Annette reviewed a series of charts (Appendix III) that showed:

- Fleet Utilization trends (Fleet and by class)
- Ship time Demand
- Fleet Operating Cost trends
- Fleet utilization and costs by agency
- UNOLS Fleet projections that have been revised to include two Ocean Class ships instead of four.
- Comparison of the current UNOLS Fleet with the fleet of 2020.

There was discussion on the deferred days that were shown on the utilization charts. The days are deferred for a variety of reasons, not all are due to funding constraints or ship availability. Showing “deferred” days on the chart might lead to confusion.

The projections were discussed and it was decided to show the projections based on current utilization (2006) instead of an average of the past 5 years. Even at the current utilization level, by 2015 there would be no capacity for new science. There would be problems accommodating peak utilization periods (summer demand). The current planned fleet renewal would be inadequate to support traditional utilization or new initiatives.

There was discussion on the utilization. The term “under-utilization” should be avoided because there is a strong demand for ship time. Also, there is peak utilization during the spring summer and early fall when ships are nearly fully utilized. The problem is due to

funding constraints. There was a suggestion that instead of using the term under-utilization we say “unfunded capacity.”

Ship retirement dates and Service Life Extension Plans (SLEP) were discussed. The retirement dates for the Oceanus Class will need to be re-evaluated. The ship operators may need to be contacted for SLEP updates.

Other business:

- 2006/07 FIC membership changes - The first terms for Dave Hebert (as Chair), Toby Garfield, and Jim Bauer ended in September 2006. All agreed to serve a second term.
- Winter Meeting Dates – Locations of the winter meeting were considered. San Diego was suggested.

The meeting adjourned at 5:00 pm