UNOLS FLEET IMPROVEMENT COMMITTEE MEETING
The National Science Foundation
Wednesday PM, October 14, 2009 (following the Annual Meeting) – Stafford II - Room 555
Thursday 8:30 am, October 15, 2009 – NSF Stafford I - Room 920
Arlington, VA 22230

Meeting Minutes

Executive Summary:

The UNOLS Fleet Improvement Committee (FIC) met on Wednesday and Thursday, October 14-15, 2009 at the National Science Foundation (NSF) in Arlington, VA. Vessel design, acquisition efforts, and science mission requirements were discussed. Updates on new systems were provided including the load handling system for *Kilo Moana* and WHOI's Long-Coring System. User debriefs and a plan to evaluate R/V *Hugh R. Sharp's* new technologies were discussed. Susan Banahan provided an update on the Ocean Observatories Initiative (OOI) facility projections including their timeline and implementation plans. Al Hine reported on University of South Florida's vessel, *Weatherbird II*. The Committee discussed implementing the Fleet Improvement Plan (FIP) recommendations and plans for the future.

FIC Action Items (New and Continuing):

Ocean Observatory Initiative - Stay in contact with OOI Office. The FIC Chair will continue to contact the OOI Office the latest facility update.

FIC Membership and Nominations – Announce a call for nominations to fill two non-operator positions that are open on FIC. Representation from Physical Oceanography and Ocean Acoustics is desired. Work to have positions filled by the year end.

Keep abreast of new technologies entering the UNOLS fleet:
RV *Hugh Sharp Debriefs* -

- Mike Prince drafted a set of user debrief questions that will evaluate the new technologies of the ship http://www.unols.org/meetings/2009/200910fic/200910ficap11.pdf
- Review the set of questions to determine if any revisions are needed (Clare)
- Review the *Sharp* schedule for candidate cruises and make FIC assignments – Office and Clare

RV *Kilo Moana* Load handling system – FIC Chair will contact U.H. (Sandy Shor) for periodic updates on the status of the system. Once the system is operational, obtain feedback on its performance and capabilities.
WHOI Long-Coring System - There are 5 cruises scheduled in 2010. Clare will contact the PIs for feedback.

Design and Construction Efforts - Stay engaged in ongoing design and construction efforts (Regional Class, ARRV, Ocean Class, etc.):

Ocean Class Research Vessel (OCRV):

- Form an Ocean Class Advisory Committee (OCAC).
- Chris MacDonald will provide guidance on any constraints.
- Composition of the committee will be similar to that of the Regional Class Advisory Committee except that they would not meet in person, but instead will interact with Mike Prince.
- Members will be selected after the two Operators are chosen.
- The OCAC will provide advice regarding Science Sea Trial plans
- Office and Clare will stay in contact with ONR/NAVSEA

Regional Class Research Vessel (RCRV) – Obtain the final Statement of Requirements (SOR) document from NSF. Annette will contact Matt Hawkins after the panel report is complete.

Science Mission Requirements (SMRs) Update:

- The original project tasking is available at <http://www.unols.org/committees/fic/smr/update08/index.html>
- Update the OCSMR document to be consistent with the table values.
- General specifications and principles that apply to all SMR documents should be contained in a separate document.
- Jon Alberts volunteered to update the OCSMRs.

Global Class Planning:

- Develop SMRs for Global Ships. A new approach for obtaining community input is needed.
- Draft a white paper on the importance of Global Class Renewal.
  - Compelling justification is needed.
  - Reference the recent OSB Study and Fleet Improvement Plan.
  - Consider the capabilities needed for future Global vessels
  - Refer to Carl Wunsch ppt.
  - Compelling research needs (ex. Global Climate Change)
- Annette will work on this with help from Clare.

Greening the Fleet: Construction, life cycle, and recycling:

- Invite MBARI rep to a future FIC meeting for update on Western Flyer replacement. (Annette)
- Investigate NOAA initiatives.
- Stay abreast of greening initiatives world-wide.

UNOLS Outreach/Mentoring Initiatives:

- Create a UNOLS mentoring program that will introduce junior scientists to cruise planning and participation.
  - Prepare a proposal for a mentoring program. (Office/FIC/Council)

- Cruise opportunity page and volunteers - Cruise opportunities are needed. There are many volunteers http://www.unols.org/info/cruise_opportunities.html#volunteer_list . The office will be more proactive in finding matches for volunteers.

Fleet Improvement Plan (FIP) and FIC Roadmap: Implementation and Follow-up activities

- Add an Appendix on Ocean Acoustics.
- Work to implement the ten FIP recommendations.
- The recommendations should be addressed jointly with the Council.
- FIC Chair should review the recommendations at future Council meetings to provide updates on their status and identify areas where additional assistance or resources are required.
- Work to publicize the FIP recommendations: Present Paper at Ocean Sciences Meeting – Clare, Annette, Dave, FIC

Appendices

Meeting Summary Report:

Day 1: Wednesday, October 14, 2009 – Stafford II - Room 555

Call the Meeting: The UNOLS Fleet Improvement Committee (FIC) met on October 14 and 15, 2009 at the National Science Foundation (NSF) in Arlington, VA. Dave Hebert, FIC Chair, called the meeting to order at 1330 and provided an opportunity for introductions. The meeting agenda was followed in the order recorded in these minutes. The meeting agenda is included as ***Appendix I*** and the meeting participant list is ***Appendix II***.

Review FIC Action/Task List from the March Meeting - Dave Hebert reviewed the action items from the March FIC meeting and their status. The action items and status are listed in ***Appendix III*.**

Opportunity for Agency Comments – No comments.

Fleet Acquisition Efforts:

Regional Class Research Vessels (RCRV) – Matt Hawkins reported on the status of the Regional Class Phase I design effort. His slides are included as ***Appendix IV***.

NAVSEA has provided NSF with the final design packages from the two RCRV design teams. The Memorandum of Understanding (MOU) between NSF and NAVSEA has ended. NSF convened a "Panel of Experts" on 7-8 October, 2009 to review the two final designs. A single design was successfully chosen and the Panel report is pending. NSF actions will be developed based on the Panel recommendations.

Matt reviewed the proposed RCRV Schedule. There will be four phases:

- Phase I - Project Refresh
- Phase II - Shipyard Selection
- Phase III - Construction
- Phase IV - Transition to Operations

If construction funds are identified, in late 2010 NSF could release a solicitation for "Construction and Operation of the RCRV." Shipyard selection could take place in 2012 and construction could follow in 2013. Science operations would begin in 2016.

Discussion:

- Annette – During the design review, could the Panel pick and choose from the two designs? Matt – The panel was instructed that the designs had to be intact. They could not select elements from one design and add it to the other design.
- Annette – During the design refresh, would NSF be required to use the original designer? Matt – This is to be determined. NSF owns the designs and is not constrained by a builder.
- Bob Houtman– NSF wants to make sure that the community will use these ships. Currently, there are two NSF owned Regional ships that are in very good condition. Once it is absolutely clear that new ships are needed, there will be an independent cost estimate prepared for the new ship design. Feedback from the community on what is needed for a Regional Class ship is essential. Ship construction costs have stabilized, but they have not come down. In looking at Fleet utilization charts, the fleet has excess capability and there are ships that can last another ten years.
- Rob Pinkel – There is need for small ships with Dynamic Positioning Systems (DPS).
- Jim Cochran – The FIC established SMRs based on community input. Is additional input needed?
- Matt – The SMRs resulted in a ship that was 180-ft in length. When the designs are refreshed, there will be constraints. Regional ships are needed, not Intermediate ships.
- Dave Hebert – FIC developed SMRs, then re-scoped them, the Regional Class Statement of Requirements (SORs) were modified based on the re-scope effort. Can FIC have a copy of the revised SORs? Matt – Once the panel report comes out, they might be able to release the SOR.

Alaska Region Research Vessel (ARRV) – Marc Willis provided an update on the ARRV and a comparison of the Ocean Class specification with the UNOLS Ocean Class SMRs. His slides are included as ***Appendix IV.***

University of Alaska Fairbank's (UAF) Request for Construction Proposals (RCP) closes on October 28, 2009. The ship specifications call for a vessel that is 242 ft in length with a 12 ft option for an anti-roll tank. A shipyard contract award is expected in early January 2010. The long lead-time Z-drive propulsion system contract is in place.

Marc reviewed the areas where the OCSMR deviates from the ARRV. These include the following:

• Non-crew Berthing:	OCRV 22	ARRV 26
• Single science SR:	OCRV 4	ARRV 0
• Single crew SR:		ARRV 14 single + 2 double
• Vans:	OCRV 2+2 non-std	ARRV 2 +1 std +1 non-std forward
• Storage:	OCRV 4000-5000 ft^3	ARRV 7000 ft^3
• Holding Capacity:	OCRV 36 hrs	ARRV 24 hrs
• Variable Science Load:	OCRV 150T	ARRV 100T

Discussion :

- Marc - It is useful to prioritize the SMRs. Clare – The UNOLS SMRs were crafted for general purpose vessels. Is it a challenge to design vessels to meeting this broad spectrum of requirements? Marc – Designers and builders need to pay attention to the most important elements. These elements must be identified.
- Al Hine – How has the noise specification for the ARRV been defined? Marc – The noise curve was specified it in great detail.
- Dave Checkley – Mission requirements for ICES fisheries vessels are different than what is required for UNOLS vessels. We need to look at the tradeoffs in what is required to comply with the ICES specs. It is the task of UNOLS to define what is really required. Chris MacDonald – He agrees; designers really need to know what is acceptable. Matt reported that in terms of noise, the more quiet the ship is, the more expensive it is. An affordable/achievable noise curve is needed.
- Marcia McNutt – The community will use AUVs more frequently in the future. AUVs can be independent from the ships. A quiet ship that can communicate with the AUVs is needed. These discussions are important. The ship becomes the center hull.
- Terry Whitledge – The ARRV noise specifications went through many cycles in an attempt to improve the noise environment of the ship. There is concern about any impact on marine mammals.
- Al Suchy –UAF has closely interfaced with the ship designer throughout the project. This wasn't the process with some of our other efforts. It makes a tremendous difference. Marc – The design has been a real collaborative effort.
- Rob Pinkel – What is the expected operating cost for the ship? Marc – They are not ready to comment on that.
- Annette – Given the history of the z-drives on the AGORs, is AUF concerned about their reliability? Marc – This is of great concern. UAF has collaborated with the operators of the ships have z-drives. There will be an in-depth review of the entire z-drive system.

Ocean Class – Mike Prince and Chris MacDonald provided a comparison of the Ocean Class AGOR specifications with the UNOLS Ocean Class SMRs (OCSMRs). Using the OCSMR table of values and priorities, a column was added to show the ARRV specifications. Two additional columns were added to show the Ocean Class AGOR specifications and the section of the OC AGOR Performance Specification document that it refers to. The OCSMR comparison table is included as ***Appendix VI***.

- The Navy's Ocean Class AGOR specifications call for 20 science berths, which includes the technician berths. There are 10 non-crew double-staterooms. *Kilo Moana* has 28 science berths and the ARRV has 26 science berths.
- Terry Whitledge – What will happen when there are more scientists then berths. Mike – Sleeping vans could be considered. Chris MacDonald – There are other implications when the berthing capacity is increased; such as, holding tanks, lab space, storage, etc.
- Mike – The OC AGOR has a requirement for one ADA stateroom. Chris – The galley/mess, main labs, and ADA stateroom are on the main deck. The lounge might not fit on the main deck and there are no plans for a lift.
- The OC AGOR specs meet the minimum endurance called out in the OCSMR, 40 days. *Kilo Moana*'s endurance is 50 days
- The OC AGOR incubator is 2-degrees instead of 1-degree.
- Maureen – What is specified for the OC AGOR pipe material for uncontaminated seawater? This is important. Mike – The OC AGOR specs call for poly-propylene. Maureen – This is not good. FIC should poll the community and let the Navy know what pipe material should be used. FIC will take this as an action item.
- Question – Will transducers wells require divers for changing transducers? Mike – They will need to look into this. Marc – On the ARRV, divers will be required for changing transducers.

Mike continued to review all of the OCSMR values with the OC AGORs. The details are contained in Appendix VI.

Break

Kilo Moana Update – Sandy Shor reported on the status of the new Load Handling System for *Kilo Moana*. Images of the system are included in ***Appendix VII***. Sandy provided the following report:

CTD Handling System being readied for delivery to University of Hawaii for R/V *Kilo Moana*
UNOLS Fleet Improvement Committee Report
10/14/09
Alexander Shor
Based on information provided by Tim McGovern

- Factory Acceptance Tests completed in Scotland beginning of October, 2009.
- Delivery to shipyard anticipated early December 2009, for installation December-January and sea trials in February 2010.

Positives

- Integrated winch/crane controls reduces the number of operators required from 2 to 1
- Stabilized docking head should relieve the need for taggers.
- Overall should be able reduce number of personnel to launch/recover CTDs from 5 to 2
- Winch and crane functions very responsive to the user.
- Motion compensation functions tested in the factory and appear to be effective. Will need to test under heavy load (closer to weight of wire and CTD package).

- Electric winch and crane are significantly quieter than our existing Dynacon/Appleton system, which will make the starboard side berthing more habitable.

Negatives

- Overweight issue needs to be addressed by UH and yard to determine best method for overcoming this problem.
- Contractual issues continue to be a sticking point with Caley (wire terminations, installation support, and responsibility for overweight issues).
- We have serious concerns about maintenance and support, to be addressed with training and thorough evaluation of the system on delivery.
  - will be carefully evaluated.
  - may not be water proof
- We will be happy to discuss specific issues related to our procurement, including the lengthy delays, and overall our experience working with this company.

Sandy anticipates that the system will be used in February 2010 for a HOTs cruise.

Ocean Observatory Projections –Sue Banahan (OOI Office) provided a status report on OOI implementation plans. Her slides are included as ***Appendix VIII***.

In November 2008, OOI successfully completed their Final Design Review. In March 2009, a design modification review was conducted and in May 2009 the National Science Board approval was received. NSF signed the Cooperative Agreement to begin OOI construction in September 2009. The project is supported for five years of construction and two years of initial operations. In order to use American Recovery and Reinvestment Act (ARRA) funds on the project, the timeline had to be accelerated and the project schedule was advanced 10 months.

NSF required the OOI project to be more climate change oriented. This has influenced the scope and direction of the project. The design elements of the project now include:

- 4 Global Scale Nodes
- 3 Regional Scale Nodes in the NE Pacific
- Coastal Scale Nodes: Mid-Atlantic Pioneer Array, PNW Endurance Array
- Mobile assets
- Cyberinfrastructure
- Interfaces for education users

Descriptions, images, and locations of the Global, Regional, and Coastal Scale Nodes are detailed in Appendix VIII.

Sue reviewed the OOI Project Team:

- Project Management: Consortium for Ocean Leadership
- Cyberinfrastructure: University of California - San Diego
- Coastal and Global-Scale:
  - Woods Hole Oceanographic Institution
  - Oregon State University
  - Scripps Institution of Oceanography
- Regional-Scale: University of Washington

- Education and Public Engagement: TBD

The OOI estimated ship days required for system installation and operations are included in Sue's slides. Once OOI is installed, the estimated sip and ROV are:

- Global ship = 106 days
- Global with ROV = 45 days
- Intermediate ship = 40 day

OOI community science workshops are planned on November 11-12 in Baltimore, MD and in the spring 2010. Town Hall Meetings are planned at the Fall AGU (Dec 2009) and the 2010 Ocean Sciences meeting (Feb 2010).

Discussion:

- Clare – Are Global ships needed for OOI, would a smaller vessel be sufficient? Sue – The ships must be able to carry a lot of equipment to the OOI sites. OOI is talking to foreign scientists to determine if vessel sharing arrangements can be made.
- Station Papa will use a NOAA buoy and a NOAA ship could possibly provide support.
- Intermediate ships could possibly support the Regional sites.
- Mary Jane Perry – Do the Global ship day estimates include transit days? Sue – The estimates are based on ship availability from the closest port.
- Tim Schnoor – Is the weight of the buoys known? Sue – Yes, but their volume is the concern, in terms of ship support. The buoys are very large.
- Sandy Shor – Are the 2010 ship days scheduled? Sue – With the exception of test days, the other OOI days have been requested.

Science Sea Trials – Dave Hebert opened a discussion on plans for science sea trials for the new vessels (ARRV and Ocean Class). He asked if there would be an opportunity for FIC/community involvement.

Discussion

- UNOLS through the AICC assisted the USCG with the science sea trials for the *Healy* and it was very useful.
- Chris MacDonald – This is a relatively new idea to the Navy. The Navy has an arrangement with NAVO to test the acoustic sensors of the Ocean Class ship. They don't have a budget for science sea trials and the NAVO help is free.
- Dave Hebert – The Ocean Class ship operators probably won't have all of the expertise to cover all elements of the sea trials. FIC is offering to assist.
- Marc – For the ARRV, there would need to be a distinction between contractual tests and the trials that test the science capabilities. There will be a series of tests and acceptance tests for the ARRV. The ARRV oversight committee is taking the lead.
- *Kilo Moana* conducted their science trials on the transit cruise from the shipyard to Hawaii.
- Al Hine – Who pays if something doesn't work? Mike – You need to identify those things that are under warranty. Tim – There is a long period to identify any warranty issues.
- Marc- During the science trials you will find things that can't be fixed. You will get to know the capabilities of the vessel.
- Clare – What will NAVSEA want from UNOLS/FIC in terms of science sea trial support? Chris – In principle it sounds good to explore UNOLS involvement in science sea trials. It is still early.

- Dave – The ARRV oversight committee is already starting to think about the sea trials for the ARRV.
- Terry – The oversight committee will be restructured once the ship is under construction.
- Mike – The Ocean Class Advisory Committee (OCAC) can also assist in plans for the science sea trials.
- Clare – What is the ARRV oversight committee? Marc – The ARRV oversight committee was formed by NSF to provide advice to NSF and UAF throughout the design process.
- Chris – He would hold off on plans for the science sea trials until after the ship operators are selected. Once the ship operators are selected, the OCAC can be formed. Chris would also like to coordinate with the ARRV team so that he can better understand the science testing requirements.

There is a continuing action item to form an Ocean Class Advisory Committee (OCAC). Chris MacDonald will provide guidance on any constraints for the committee. The composition of the committee will be similar to that of the Regional Class Advisory Committee except that instead of meeting in person; they would interact with Mike Prince. Members will be selected after the two Operators are chosen. The UNOLS Office and Clare will stay in contact with ONR/NAVSEA.

Adjourn – FIC Meeting Day 1 FIC: 5:00 pm

Day 2: Thursday, October 15, 2009 – NSF Stafford I - Room 920

Call Day-2 of the FIC Meeting to Order: Dave Hebert, FIC Chair, called Day 2 of the FIC meeting to order.

Acquisition Status of Handling System for the ARRV - Marc Willis reported that the shipyard is responsible for acquiring the handling system for the ARRV. It will be an integrated system.

WHOI Long-Coring System - Dave Hebert reported that he tried to reach the PI for the last Long Core cruise, but was unsuccessful. He heard second hand that the cruise was successful.

There are five cruises scheduled in 2010. Clare will follow up with these PIs.

FIC asked who is responsible for archiving the cores. FIC felt that the cores should be maintained in an archive. This topic was tabled until later in the meeting when Jim Holik was present.

FIC Membership Changes and Nominations – Dave Hebert reviewed the status of the FIC membership and the terms that are expiring. See ***Appendix IX***. Jim Bauer and Toby Garfield are both rotating off the committee. The UNOLS Office will announce a call for nominations. Candidates must be from non-op institutions. We will try to recruit a nomination for a candidate with Ocean Acoustic expertise. The goal will be to fill the positions by the start of 2010.

Other business:

Weatherbird II Status – Al Hine reported on the *Weatherbird II*. His slides are included as ***Appendix X***. University of South Florida (USF) was looking for a new vessel to replace the *Sun*

Coaster which was 45years old. A new vessel would have cost $25M. The *Weatherbird II* became available and USF acquired the ship. *Weatherbird II* is operated by the Florida Institute of Oceanography representing 11 state universities, the Univ. of Miami, the Mote Marine Lab, and state labs. The ship was built in 1982 and is 115 ft LOA. Additional details are contained in the slides. The ship will sail with a crew of seven including a marine technician.

The ship underwent a shipyard period and many equipment upgrades were implemented. These included:

- Appleton FB 30 Crane - 46 ft. reach.
- Dynacon Cantilever Drum Winch. Will have ~4000 meters 3/8" cable
- SBE 21 Thermosalinograph with wet labs fluorometer, seawater-- intake at bow.
- ADCPs 300 and 1200 kHz ADCP.
- Fume hood installed and Millipore water filtration system.
- SBE 25 CTD and SBE 32 12 position carousel system with fluorometer, D.O., pH, PAR, and surface PAR sensors.
- Universal transducer mount
- Hydrographic winch on board with ~2000 meters of ¼" wire
- Twin Vaisala WXT 520 Weather Stations
- New 20 liter Niskin bottles.
- CTD winch currently with ~1200 meters of 0.322 EM cable.

R/V Weatherbird II's first cruise as an USF vessel was on March 20, 2009 and over the next seven months, the ship had 81 days at sea. They plan on about 180 operating days each year. Potential funding sources include state funding, SRI, NOAA, etc.

Al showed images of the ship, its labs, and spaces (see the slides).

Clare Reimers asked if FSU will request UNOLS vessel designation. Al Hine – This has been discussed with UNOLS. There are pros and cons with becoming a UNOLS vessel. There is growing need for access to coastal waters; however, if the ship is a UNOLS vessel it must be included in the UNOLS scheduling process, Florida scientists would lose their flexibility in scheduling the ship.

Core Archiving - Jim Holik returned to meeting and was asked about the status of the long core archiving. Jim offered to find out and report back to the FIC. He understands the importance of this.

Discussion:

- Al Suchy said that there are some important lessons learned for big projects into the future. In developing the long core system, they paid a lot of attention in integrating the system with the support platform, but core archiving was overlooked. The life cycle support plan was overlooked. It is a critical part of the plan and should be considered in the future.
- Jim Holik – *Knorr* won't be here forever. Currently no other ships in the Fleet can support the long core. Originally the plan was to have two ships supported.
- Dave – The new OC AGORs will not be able to support the long core system.
- Bob Houtman – This is something that needs to be addressed sooner than later.
- Clare – Is there exciting data from the first cruises? Dave Hebert – Yes. He will send Clare the cruise summary report from Steve D'Hondt's cruise.

Jim Holik left the meeting to gather additional information about Long Core archives. When he returned, he reported that during a Long-Core cruise aboard the *Knorr*, the cores are cut (not split). Once the cores are on-shore, they are split, refrigerated, and stored at WHOI.

Engaging New Ship Users - Dave Hebert reported that the topic of engaging new scientists as ship users was brought up at the Annual Meeting. In Physical Oceanography there has been a program established for mentoring female graduate students, Mentoring Physical Oceanography Women to Increase Retention (MPOWIR). MPOWIR provides mentoring to physical oceanographers from late graduate school through their early careers <**http://www.mpowir.org**>. Dave attended one of their workshops and suggested that it might be a good model for young scientists. The workshop could address the ship time request process, introducing program managers, cruise preparation, at-sea expectations, etc. Mentors could be identified to assist in the program.

Discussion:

- Linda suggested the Dissertations in Chemical Oceanography Symposium (DISCO) **http://www.discosymposium.org** program that was held in Hawaii as a possible forum for a workshop. This symposium provides recent graduates, PhD-level chemical oceanographers with an opportunity to present their dissertation research in front of their peers. They are always looking for novel ideas. Contact Lisa Rom (NSF). Sometimes these sorts of things can be jointly funded with NSF's education program and the science programs. Linda said that she would love to populate the transit cruises and adding an education element could accomplish this.
- It was suggested that NSF's Early-concept Grants for Exploratory Research (EAGER) proposals be explored. Their limit is $200K.
- Jim Cochran – At LDEO they lose a lot of people to terrestrial jobs.
- Al Hine – What about telepresence? He heard that it is expensive. Could it be used to entrain new users? Al Suchy – The investment for Fleet Broadband installation is about $14-$15K. The key is to bundle transmissions to reduce usage costs. Hardware costs have come down significantly.
- Dave – On his teacher cruise, the ship had KuBand and it was feasible to use Skype.
- Dave Checkley – It would be good for UNOLS to be more pro-active in attracting new ship users. The current community of sea-going scientists is aging.
- Annette – The UNOLS web site includes a "Ship opportunity" page that has a lot of volunteers willing to participate in cruises. However, science opportunities are needed. The UNOLS Office can help identify transit cruises that might serve as mentoring opportunities. It would be helpful to have a scientist assist with a UNOLS proposal to establish a mentoring program.
- Linda – Ship utilization and requests are low. It is appropriate for this committee and the Council to think about ways to engage the community and increase use.
- Maureen Conte – The Mentoring Program cruise opportunity could be advertised in EOS.
- Al Hine – IODP does this sort of activity and they offer a class "school of rocks."
- Maureen Conte – Young scientists could write mini scientists to participate in cruises.
- Stewart Lamerdin – Links to the education websites can be added to the UNOLS website.
- Marc Willis – Many scientists are under the impression that proposals with ship time have low chances for funding and they are discouraged from submitting proposals. We need to change this and encourage ship-time proposal demand.

- Dave Checkley – There is a mixed message. On one side there is an underutilization of the current fleet and we are advocating for new users. On the other side, we are advocating for new ships.
- Mike Prince – With fewer ships in the future, we will eventually run out of capacity.
- Annette – The real issue is ship demand. While the FIP was being drafted, demand was always high, this year that has changed. It might be because the community is discouraged by low proposal award rates. It might be because of an aging community. We need to re-engage the science community.
- Al Suchy – There needs to be trust that projects will get funded and stay on the ships.

***Hugh R. Sharp* User Debriefs -** Dave Hebert gave some background information about this topic. FIC member, Jim Bauer, during a previous meeting had expressed concern about excessive lubrication from the *Sharp*'s new load handling system and its potential sample contamination. FIC decided that it would be worthwhile to conduct debriefs of the *Sharp* users to evaluate the new features of the ship (handling system, retractable centerboard, etc).

Mike Prince drafted a set of debrief questions that focused on the novel features of the ship. The draft debrief questions are included as ***Appendix XI***.

Matt – There have been efforts to use non-petroleum based lubricants on *Sharp*'s handling system, but they are unsure if the ChemO community would approve of it either.

The FIC decided to review the draft debrief questions and revise them further. The UNOLS Office will compile the 2010 *Sharp* cruise schedule and Clare will make committee debrief assignments. The debriefs will be one-on-one between the PI and the FIC member.

SMR Update and Input to Ocean Class Research Vessel RFP Development - Dave Hebert reported on the status of the SMR Update project and input to the Ocean Class R/V RFP development. The SMR Update project tasking is available at <http://www.unols.org/committees/fic/smr/update08/index.html>. The status of the project can be found in Dave's slides in ***Appendix XII***.

Dave reported that the UNOLS Office and FIC created an Ocean Class SMR Table of Values and Priorities. The revised SMR table was posted on UNOLS web site for community comment. More than 150 people representing more than 30 institutions responded. FIC incorporated the community comments. The table was then provided to PEO-Ships and ONR, and posted to the UNOLS web site <http://www.unols.org/committees/fic/smr/ocean/OCSMR_revision_093009.pdf>.

As a next step, FIC needs to update the Ocean Class SMR document by incorporating the Table of values. FIC must decide how the text of the SMR document should be reorganized to increase the utility of the SMRs. Once the Ocean Class document is revised and accepted, the Regional and Global Class SMRs can be addressed. We also need to determine how to include Lessons Learned into the SMR documents.

Dave asked the FIC their opinion on whether or not generic SMR items should be pulled out of the SMR documents and included into one document that is common to all SMRs. Or, should we keep the organization as is?

Mike Prince – There are a lot of things that are in the SMR text, but not in the table. (RVSS, green tech, etc). These things apply to all vessels.

Marc Willis – General specifications should be either a separate chapter, or separate document. We could establish general principles that apply to all ship classes.

There appeared to be a consensus that the SMR specs that are common to all SMRS should be contained in a separate document.

Jon offered to update the Ocean Class SMR document with the table of values and priorities.

Fleet Improvement Plan (FIP) - Dave Hebert gave background information on the FIP project and document, http://www.unols.org/committees/fic/FIP05/Fleet_Improvement_Plan_2009_Final.pdf. His slides are included as ***Appendix XIII***. As a follow-on activity, an appendix on Ocean Acoustics will be added in the future.

FIC Roadmap for the Future – Dave Hebert opened a discussion on what future activities should FIC take on? Dave's slides are included as ***Appendix XIV***. This was a brainstorming session. Some topics that were discussed were as follows:

Topic: The projected service life end dates for the ships - *Are new projections needed?*

- Clare – Once the operator selections are made for the OCRV, the decisions on which ships will be retired will be made. FIC can revisit the projected service life end dates at that time.
- Matt – NSF is assessing the condition of their ships and will begin to track the conditions. The hulls are in good shape. NSF will inform FIC of their findings as they conduct ship inpsections.

Topic: OOI facility projections (geographic regions, vessel classes, ship days)

- FIC continues to stay in contact with the OOI Office.
- After OOI's installation period, the ship support days would be funded from NSF's Ocean Sciences section.

Topic: The composition of the Fleet is changing – ships are being removed from service, new ships are planned.

- The *Seward Johnson* was just removed from UNOLS service.

Topic: Greening the Fleet

- Greening the Fleet includes life cycle and recycling
- MBARI has plans to replace Western Flyer with a green ship.

Topic: No new vessel acquisitions are planned during the period 2015-2020 – Who and how do we fund new Global Class vessels?

- If an MRE-FC, is needed we would have to plan it now.
- Tim – the OSB report makes a case for the Global Class.
- Global Ships – Who are the champions for the global ships? The users.
- Annette – there are large programs that rely on our vessels – Ridge 2000, OOI, Margins? There needs to be a partnership.
- Maureen – We should look at EarthScope.

- The FIC should consider a new tasking to develop SMRs for Global Ships. Annette pointed out that we tried this in the past and we couldn't get a response from the community. We need a new approach to get the community excited about Global ships.
- Dave Checkley cited a paper by Carl Weunch that makes a strong case for global ships.

The FIC agreed that there should be a task to:

- Draft a white paper on the importance of Global Class Renewal.
  - Compelling justification is needed.
  - Reference the recent OSB Study and Fleet Improvement Plan.
  - Consider the capabilities needed for future Global vessels
  - Refer to Carl Wunsch ppt.
  - Compelling research needs (ex. Global Climate Change)

Annette will work begin work on this.

Other Business:

Presentation to Dave Hebert – During the Annual Meeting a UNOLS plaque was presented to Dave in recognition of his service as FIC Chair. The FIC also expressed their appreciation for Dave's leadership and his contributions in completing the Fleet Improvement Plan.

FIC Poster at The Ocean Sciences Meeting – Annette, Clare, and Dave will submit an abstract for a poster that will highlight the Fleet Improvement Plan's Findings and Recommendations. The poster will be submitted on behalf of the FIC. The FIC agreed to this team approach.

A motion was made and passed to adjourn the FIC meeting. (Reimers/Conte)