

UNOLS FLEET IMPROVEMENT COMMITTEE MEETING

University of Southern Mississippi
Department of Marine Science Facility
[NASA's John C. Stennis Space Center](#)

Building 1022 - The George A. Knauer Building
March 29-30, 2010

Meeting Minutes

Executive Summary

The UNOLS Fleet Improvement Committee (FIC) met at the University of Mississippi's facilities at Stennis Space Center in Mississippi on March 29-30, 2010. The second day of the meeting included a joint session with the Council. Major topics of the meeting included fleet utilization and renewal efforts. Agency representatives reported on budget projections and facility acquisition efforts. NSF tasked the FIC to respond to thirteen areas of inquiry regarding the Regional Class Research Vessel design.

Presentations

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FIC Action Items:

Design and Construction Efforts:

1) Regional Class Research Vessel (RCRV) – FIC is tasked to provide NSF with recommendations on 13 areas of inquiry that were raised by the RCRV down-select process.

These recommendations will be incorporated where appropriate in the Phase I Project Refresh solicitation documents. NSF has requested FIC recommendations by 1 October 2010.

2) Ocean Class Research Vessel (OCRV):- Once the OCRV operator selection is known, FIC will identify members for an Ocean Class Advisory Committee (OCAC). - Chris MacDonald will provide guidance on any membership constraints.- The OCAC will work with the Navy to define the task and role of the OCAC which will include providing advice regarding Science Sea Trial plans.

Science Mission Requirements (SMRs) Update: - FIC is tasked to compare the Ocean Class SMRs to Phase I Industry Team RFP Performance Specs to see how designers and spec writers have interpreted the SMR. Will use this to add more specific information to OC-SMRs, paving the way for Global Class SMRs- The original SMR project tasking is available at <<http://www.unols.org/committees/fic/smr/update08/index.html>>- Status – the Ocean Class SMR (OCSMR) table of values and priorities has been completed.- The OCSMR document requires an update to be consistent with the table values.- FIC agreed that general specifications and principles that apply to all SMR documents should be contained in a separate document.

Fleet Planning:

1) Projected Service Life End Dates - FIC will review all projected end of service life dates for the existing fleet and work with NSF to make recommendations on new end dates, investments, and upgrades through to 2030.

2) Matching science demands to Fleet capabilities - FIC will continue to prioritize community needs within the context of a changing fleet including:- Science drivers- A more versatile and fully outfitted R/V Marcus Langseth- R/V Sikuliaq with 24 science berths - Final size and capabilities of two OCRV- RCRVs

3) R/V Barnes Replacement – UW has requested feedback from FIC regarding replacement options for the R/V Barnes.

FIC Membership and Nominations:- One operator position will open on FIC- A call for nominations with a deadline of 30 September will be distributed and posted- FIC will review the nominations at their fall meeting.

UNOLS Outreach/Mentoring Initiatives:

1) Create a UNOLS mentoring program that will introduce junior scientists to cruise planning and participation. Utilization of the fleet is low; we need to increase the user base. Consider transit cruises as possible mentoring opportunities. Prepare a proposal for a mentoring program. (Office/FIC/Council)

2) 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 contact PIs who have scheduled ship time.

Fleet Improvement Plan (FIP):

- 1) Appendix on Ocean Acoustics – David Bradley has volunteered to draft the Appendix.
- 2) FIP Recommendations - Follow-up and work to implement the 10 FIP recommendations. The 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.

Keep abreast of new technologies entering the UNOLS fleet:

- 1) RV Hugh Sharp Debriefs - - Review the Sharp schedule for any changes and assignment revisions - Clare- FIC will continue R/V Hugh Sharp debriefs- Debrief summaries should be sent to Clare and Annette
- 2) RV Kilo Moana Load handling system – FIC will obtain feedback on the system performance and capabilities.
- 3) WHOI Long-Coring System – - Clare will contact the PIs for user feedback.- A White Paper prepared by Al Suchy, Jay Edgar and Bill Curry on WHOI Long-Coring System provides an assessment on possible platforms after Knorr’s reaches its end of service. No FIC action at this time.

Ocean Observatory Initiative - Stay in contact with OOI Office. The FIC Chair contacts the OOI Office prior to each FIC meeting for the latest facility update.

Greening the Fleet: Construction, life cycle, and recycling: - Stay abreast of greening initiatives and the activities of the Council.

Meeting Report:

Day 1: Monday, March 29, 2010

Call the Meeting: Annette DeSilva reported that Clare Reimers, FIC Chair, would not be able to attend the meeting in person, but she joined by phone from Oregon. Al Hine has agreed to fill in and Chair the meeting.

Vernon Asper, UNOLS Chair, provided opening remarks. He welcomed the group to the University of Southern Mississippi.

Meeting participants introduced themselves. The meeting agenda is contained as *Appendix I* and the attendance list is *Appendix II*.

Accept Meeting Minutes from the October 2009 Meeting <[200910ficmi.pdf](#)> - A motion was made and passed to accept the October 2009 FIC meeting minutes with the correction of the institution “USF.”

FIC Membership – Jim Cochran’s term will end in 2010. The current FIC membership list is included as *Appendix III*.

Reports on Research Vessel Design and Construction Efforts:

Regional Class Research Vessel (RCRV) - Matt Hawkins (NSF) provided the report. His slides are included as *Appendix IV*. An RCRV Down-select Panel provided their final report to NSF in October 2009. The Glosten Associates design was recommended to move forward into the “Project Refresh” phase. The Panel identified issues with both designs and provided a list of “Future areas of inquiry.”

NSF would like community input on the “Future Areas of Inquiry” and has tasked FIC to investigate and provide a formal recommendation regarding the areas of inquiry. The FIC response is requested by October 1, 2010.

If construction funds are identified, NF will release a solicitation for “Construction and Operation of the RCRV” in early 2011. Shipyard selection would be in 2012 with construction to start in 2013. The first ship would be ready to begin science operations in 2016.

Discussion:

- Peter Wiebe – What does the transition look like? We have ships now that are quite old. Bob Houtman – The NSF inspections are revealing that the ships are very capable.
- Matt Hawkins – The inspection program is taking a very active role in determining the condition of the ships.
- Al Hine – Is anything saved by constructing multiple ships? Matt Hawkins – Maybe not. NSF will follow the ARRV model for construction of the RCRVs.
- Al Hine – Will getting a second RCRV take a shorter amount of time? Bob Houtman – There will be an option for a second ship, so construction could move forward more quickly.
- Peter Wiebe – Would the institution that was awarded the first ship also build the second ship? Houtman – Yes.
- Annette – Would this be an MRE project? Bob Houtman – The MRE is currently not the plan, but NSF will need to fund the acquisition over multiple years.

The discussion next focused on the FIC tasking to investigate the Future Areas of Inquiry:

- Bob Houtman – NSF does not want the RCRVs to be too large. They would become too similar to the OCRVs.
- Matt Hawkins – The RCRV will be under 300GT.
- Matt – NSF would like the FIC to consider the areas of inquiry from the panel and make recommendations. They want these ships to be able to serve the community.
- Matt presented the URN chart for the ARRV and the Ocean Class AGORs in comparison to the ICES curve.
- Chris MacDonald – Some ships initially meet ICES, but over the years they degrade. It is a very stringent curve.

- Annette – If might be necessary for the FIC to seek outside expertise to investigate some of the Areas of Inquiry. Matt – He realizes this and will work with FIC in addressing these needs.
- Matt – Some of the questions require yes and no answers. NSF is not asking for trade-off suggestions or costs; these things can be re-evaluated during refresh.

Ocean Class Research Vessel (OCRV) - Chris MacDonald (NAVSEA PEO-Ships and Mike Prince (ONR) provided the status of the OCRV project. The slides are included as *Appendix V*.

Chris reviewed the status of the source selection. The Phase I awardees were Marinette Marine Corporation and Dakota Creek Industries, Inc and the contract awards were on 27 Jan 2010. The First design review meeting will take place in late April (MMC) and mid-May (DCI). The Phase II: Detail Design and Construction Contract award is expected in quarter 3 of FY 2011 and the ship deliveries would be in FY 2014.

The community has had periodic opportunities to provide input to the OCRV project (see slides).

Discussion:

- Jon Alberts – Will FIC have additional opportunities to provide input over the next 9 months? Chris – At this time input will be from the contracting office to the teams. The teams are competing and there is a formal process that has to be followed.
- The Science Oversight Committee (SOC) won't be in place for the first design review. Al Suchy – this will be unfortunate. Chris – they were worried about the conflicts of interest with operating teams. Now, there is concern of the amount of time that each member has to spend reviewing documents.
- Annette – Who forms the oversight committee? Tim Schnoor – ONR with the ship operators will provide input on the OCAC.
- Mike Prince – When FIC forms the Ocean Class Advisory Committee (OCOC) they should consider disciplinary balances.
- Al Hine – What are the Green Issues for the OCRV? Mike Prince –California rules that will comply.

Mike Prince provided information about Marinette Marine Corporation (MMC) and Dakota Creek Industries (DCI) Company.

ONR has appointed Mike Prince as their Research Facilities Assistant for the OCRV project. He reports to Tim Schnoor at ONR and works with Chris MacDonald at PEO Ships. Mike will represent the interests of ONR and the broader UNOLS community during the Ocean Class AGOR design and construction process. Mike will coordinate with Operator representatives during the design reviews and construction. Responsibilities are listed in the slides.

PEO Ships requested Phase I/II UNOLS Operator Ocean Class AGOR Representatives in Oct 2008. Responsibilities of the representatives are listed in the slides. The Operator Selection Board has been reviewing the proposals that were submitted by institutions interested in operating the vessels. The selection will probably be done by the end of April 2010.

OCR/V Uncontaminated Seawater Systems – Mike Prince and Maureen Conte presented information on the community poll and the plans for the system. Slides are included as *Appendix VI*.

Maureen explained that the community was polled in late 2009. The systems that were suggested are very varied. A definition of what is considered clean is included in the slides. In addition to pipe specifications, maintenance is very important when it comes to “clean”. All components must be cleaned.

UW System components include pipe and fittings, pump, and the intake system. The science requirement is that system components do not introduce contaminant metals or organic compounds.

The slides include a materials comparison. There is a nice chart of materials and their properties. There is also a price comparison. Inappropriate pipe joining methods introduce contamination. Maintenance requirements are very important. Systems must be designed to be cleanable. There must be routine maintenance and cleaning to remove biofouling. There must also be periodic aggressive cleaning/disassembly to leach any contaminants.

Recommendations and lessons learned include:

- PP, PVDF and Teflon (less so) nonporous and most resistant to biofouling
- Isolate system in polluted or near-shore areas
- No elbows- sponge scrubber system can be
- Threaded parts where required for disassembly
- Ability to rinse/isolate system or leach with deionized water (or weak acid, cleaning solutions (e.g. ball-valves))

Safety and compliance issues are included in the slides.

Discussion:

- Annette – How often is the maintenance done? Maureen – It is all over the board. Users need to communicate better with the operators.
- Robin – in the late 1970s he was on the Alpha Helix and the plastic pipe broke.
- Marc – USCG won’t let ships use PVC – toxic, flammable, etc.
- Mike Prince – Lined pipe is called out in the SMRs and is acceptable to USCG. Mike there is a cleaning agent.
- Mike – He will go back to Maureen’s slides to see what can be implemented on the OCRVs.
- Marc Willis – *Sikuliaq* will go with Stainless. They had budgeting for PVC. Users have an option of bringing their own systems aboard and running it through the centerboard. On the ARR/V they had a concern with ice ruining the pipe lining.
- Mike Prince – Is the user community saying that the ships that use stainless are no good. Maureen – Some people feel that way.

Break

R/V *Sikuliaq* - Alaska Region Research Vessel (ARRV) - Marc Willis provided the status of the *Sikuliaq* construction. His slides are included as *Appendix VII*.

The contract start on January 7, 2010 and all options were exercised in the contract. This included a 12ft extension for an anti-roll tank. The LOA is now 254 feet. There will be a 0.5 x 1 deg Multibeam system plus all sonar upgrades. The total construction contract award is for \$123M.

The ship is being constructed at Marinette Marine in Wisconsin. The full-time staff is on site and the shipyard office is up and running. The staff is listed in Marc's slides. Dan Oliver (UAF) is the Project Manager and is located in Seward, Alaska.

Marc reviewed the current activities (see slides). Purchase Technical Specifications are being issued and vendors are being selected. The Z-drive design is coming along and they will be Owner-Furnished. ABS has approved the propeller design and they are waiting ABS approval of the "ice-pod" design. Propeller cavitation tank tests are planned for July 2010.

Mockup construction of various *Sikuliaq* ship spaces will soon be underway. These will include the bridge, labs, science control room ("aft con"), and accessible stateroom. The mock-up will be a tool for detail design development.

The project Annual Review (NSF) is scheduled for May 19-20, 2010.

Next Marc provided a comparison of SIKULIAQ with Ocean Class SMR. The comparison is organized by SMR section and element. This is not a comparison with the Ocean Class AGOR Spec. The following areas are detailed in Marc's slides:

- Accommodations
- Habitability - HVAC
- Habitability - Noise
- Habitability - Vibration
- Habitability - Lighting
- Habitability – ADA Features
- Operational Characteristics
- Over-the-Side Handling Gear
- Science Working Spaces - Labs
- Science Working Spaces - Decks
- Science Working Spaces – Holds
- Science Working Outfit – Boats
- Science Working Spaces – Masts
- Science Working Areas
- Multibeams, Sonars and ADCP
- Noise
- Seakeeping

Marc discussed the SMRs in General. The SMRs need more definition and precision

Critical elements need critical consideration. There are inevitable tradeoffs between competing priorities. Prepare for tradeoffs in advance by identifying them, and providing guidance. Define “Critical” requirements in more detail than “Important” ones. If there is something that is needed in the design, request it and be specific. The earlier in the process, the better.

Fleet Utilization in 2010, OOI ship time projections – Annette DeSilva provided a summary of operations that are planned on UNOLS vessels in 2010. The slides include utilization statistics as well as science highlights. The cruise tracks were displayed. OOI ship projections were provided. Annette’s slides are included as *Appendix VIII*.

Issues before RV operators and technical support groups:

RVOC - Al Suchy provided a report on the Research Vessel Operators’ Committee activities. His slides are included as *Appendix IX*. Efforts are focusing on the RV Safety Standards Appendix A (UNOLS Rope/Cable Safe Working Load Standards) and RVSS Appendix B (UNOLS Load Handling System Design Standards). The upcoming annual RVOC meeting will be held in Narragansett, Rhode Island.

RVTEC – Marc Willis provided the RVTEC update. UNOLS Technical Support groups are working with the Rolling Deck to Repository (R2R) team to assist with sending underway data to shore. RVTEC members are interested in learning more about Technician Recruiting and Retention Pilot Program that will be lead by Alice Doyle.

Projected Service Life End Dates - The projected service life end dates for ships with end dates of 2015 or earlier are included in *Appendix X*. Bob Houtman requested that the FIC work with NSF to re-examine at all end of service life dates and consider the ship inspections as part of the evaluation.

Aging Vessels – Is there a need for a pool of long-lead time spare-parts pool? – Annette DeSilva reported that with the increasing age of some of the vessel, system/equipment failures seem to be on the rise. These can result in lengthy operational downtimes. There has been a request that a spare-parts pool be established for those items with procurement long-lead times. Al Suchy commented that with the AGOR fleet, they have been trying to stay ahead of the spares, but it has been a real challenge. It has been very frustrating. They are trying to rebuild the spare supply. Lead-times are often long and costs are high. The agencies have been very supportive.

Bob Houtman added that the last two failures were with props and couplings. These never occurred before, so it is difficult to know which spares to keep in stock.

Shipboard Noise in labs and accommodation spaces – Annette DeSilva reported that an email was received from a ship user regarding ship noise. The email message is included as *Appendix XI* and comments that the current fleet is very noisy.

UNOLS Council and Committee Activities of Interest to FIC:

Arctic Icebreaker Coordinating Committee (AICC) - Robin Muench, AICC Chair, provided a report. The USCG will have the *Polar Star* back in operation in two years. There are considerations for a new ship. There will be greater demand in the Arctic waters for search and rescue with the ice melt.

Council and Committees – Annette DeSilva continued with a summary of UNOLS activities. Her slides are included as **Appendix XII**. The topics covered in the slides include:

- UNOLS publications
- UNOLS Goals and Priorities (including Greening the Fleet)
- Rolling Deck to Repository (R2R) Initiative
- Proposed New UNOLS Standing Committee - Ocean Observatories Science Committee
- DEep Submergence Science Committee (DESSC) Activities
- Marcus Langseth Science Oversight Committee (MLSOC)
- SCOAR Activities.

Lunch Break

Reports on the Existing Fleet and Fleet Utilization (Continued)

WHOI Long-Coring System – Bill Curry (WHOI) provided the report and his slides are included as Appendix XIII. Bil reviewed the core statistics. He also commented on some of the failures that have occurred. Images of the damaged equipment are included in the slides. They now have two system spares in stock.

Discussion:

- Clare – Users have been very enthusiastic.
- Dave Checkley – Previous to the WHOI long-core system, what did people do? Bill – Scientists used the French ship or the drill ship.
- Al Hine – It would be interesting to compare the cores with drill ship cores. Bill – During the test cruise, they went to the site that drill ship and French ship went to. The comparison was very good.

Evaluation of possible platforms to support NSF's Long Core System - Currently *Knorr* is the only ship in the UNOLS fleet configured to deploy the long core system and *Knorr* is slated for its end of service life in 2015 as per the Fleet Status Report. A study is underway to determine the feasibility of other UNOLS vessels supporting the Long Core System. Jay Edgar (Glosten) presented information from the study. His slides are included as **Appendix XIV**. The topics that are detailed in the slides included:

- Long Core System Overview
- Long Core Components
- Long Core Interface Requirements
- Vessel Comparison
- Summary of Findings

A vessel comparison matrix is provided that compares *Knorr*, *Thompson/Revelle*, *Atlantis*, *Langseth*, *Sikuliaq*, OCRV, RCRV, and *Kilo Moana*.

The summary of the study provided the following findings:

- R/V *Knorr* – Long Core Integration Design and Capability Baseline
- R/V *Thompson* and *Revelle* - Direct Integration - 40m core with modification (Stanchions)
- R/V *Langseth* - Direct Integration complex; review Long Core system revisions
- R/V *Sikuliaq* - Direct Integration - 34m core with major modification (Baltic Room)
- OCRV -Direct Integration if OCRV Requirements changed for One-off Vessel
- RCRV and R/V *Kilo Moana* - Not Viable Candidates for Long Core support
- *Atlantis* would require that the A-Frame be removed.

RV *Hugh Sharp*'s debriefs – Clare Reimers reported on the *Sharp* debriefs. Her slides are included as **Appendix XV**. In light of the RCRV Phase I- Project Refresh, *R/V Hugh R. Sharp* debrief process has high importance. Clare's reviewed the debrief responses from one of the recent vessel users (see slides).

The FIC agreed to continue the debrief interviews. Clare asked the committee to send debrief summaries to Clare and Annette.

RV *Kilo Moana* Load handling system – Sandy Shor (U. Hawaii) provided a set of slides on the status of the installation of the new Load Handling System. Clare Reimers summarized the slides (**Appendix XVI**).

The Caley CTD handling system was installed on R/V *Kilo Moana* in January 2010 and tested successful in February. It will be used for science in March. "Overall the entire system works very well. Launching and recovering utilizing the docking head reduces the number of personnel required from five to two (technician to run the crane & winch during deployment/recovery, one AB to take up tension on the cable while preparing to launch or after recovery, and to run the winch during long casts). The docking head stabilization feature reduces the wild pitching packages experienced previously, making operations safer for equipment and personnel." Tim McGovern

The slides provide the acceleration data.

Tim Schnoor (ONR) reported that he just learned the motor burned out with 900 meters of wire payed out. The system is inoperative and he doesn't know the cost implications.

Break

Global Class Planning – The Fleet Improvement Plan recommends that the process for acquiring a new Global Class vessel begin now. Annette presented slides that highlight the continued need for Global Class ships (**Appendix XVII**). The Global ship use over the past three years has been worldwide. Utilization statistics for the Global ships were provided.

Discussion:

- Rob Pinkel – Suppose funds became available, would the Navy be interested in purchasing two new ships? Tim Schnoor – The Navy will only own six UNOLS ships.

- Mike Prince – An increased the funding base would be needed to support additional ships.
- Bob Houtman – The FIC needs to look at the entire fleet. The Ocean Class will replace the Global ships. They are very expensive. There has to be a good thought process on how many Global ships are needed and can be afforded. The Ocean Class will be world ranging. NSF is examining the *Langseth* to determine if it can be more attractive for general-purpose work.
- Dave Checkley – Can *Langseth* do OOI work? Matt Hawkins – NSF funded LDEO to conduct a study on what would be needed to allow *Langseth* to conduct general ocean science. They want the information so that they can submit a proposal for the 2011 SSSE deadline (Dec 2010).
- Clare asked to Al Suchy comment on the OOI ship support needs. Al has been looking into load carrying requirements for OOI. John Kemp has assembled the list of requirements for the OOI Global Scale Nodes. The payload capability on the current Global ships should be sufficient. In terms of the deck layout, they think that they could come up with a plan that would accommodate the size of the OOI facilities. Clare – This seems to make the case for additional Global class ships.
- Al Suchy –The demand for the Global ships is great. The 2010 Global ship schedules were demanding and could be harmful to the current ships. It is something that we need to think about.
- Bob Houtman – The shape of the fleet will adjust to meet the demand. Science must be the driver.
- Matt Hawkins – *Sikuliaq* will come on line and it can support OOI.

UNOLS Outreach/Mentoring Initiatives: Annette DeSilva and Clare opened a discussion on possible strategies for outreach and mentoring. One suggestion was to develop a UNOLS mentoring program to introduce junior scientists to cruise planning and participation. Details of such a program are included in the slides, which are included as *Appendix XVIII*.

The FIC members and agency representatives responded positively to the suggestion. Clare was encouraged to approach NSF with a proposal to support the training cruise.

Annette also reviewed the UNOLS Cruise opportunity web page and the status on efforts to match volunteers to cruises. These slides are also included in Appendix XVIII.

Adjourn Day 1 FIC Meeting – Day one of the meeting was adjourned at 5:00 pm.

Tuesday, March 30th: Joint session of the FIC and Council

Call the Meeting: The Fleet Improvement Committee met with the UNOLS Council on the morning of March 30, 2010 in a joint session. The minutes of this session along with the presentations are available at:

<http://www.unols.org/meetings/2010/201003cnc/201003cncmi.html> .